H2O PARTNERS



2026

City of New Orleans

HAZARD MITIGATION PLAN UPDATE

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Section 1
Introduction

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Section 1: Introduction

Background

The City of New Orleans is located in southeast Louisiana approximately 80 miles southeast of Baton Rouge. The City of New Orleans and Orleans Parish share the same boundaries and are referenced interchangeably. Lake Pontchartrain borders the northern border of the parish, St. Bernard Parish lies to the southeast, Plaquemines Parish is to the south and Jefferson Parish is to the west.

Louisiana is prone to tropical cyclones and flooding, with 65 percent of its land area and 25 percent of the population and structures located in the special flood hazard area (SFHA).[1,2] While tropical cyclones are a well-known risk, the City of New Orleans is susceptible to a wide range of natural hazards, including but not limited to tornadoes, extreme heat, wildfire, and drought. These life-threatening hazards can destroy property, disrupt the economy, and lower the overall quality of life for individuals.

While it is impossible to prevent an event from occurring, the impacts to people and property can be minimized through effective mitigation. The Federal Emergency Management Agency (FEMA) defines mitigation as *sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects.*[3] Communities participate in hazard mitigation by developing hazard mitigation plans. The Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) is required to review the plan, and FEMA has the authority to review and approve hazard mitigation plans through the Disaster Mitigation Act of 2000.

The Disaster Mitigation Act requires that hazard mitigation plans be reviewed and revised every five years to maintain eligibility for Hazard Mitigation Assistance (HMA) grant funding. In 2020, the City of New Orleans updated their HMAP and expanded it in the form of a multi-jurisdictional plan, bringing their partner agencies into the planning process. In addition to the City of New Orleans, the 2020 update included participation from the Sewerage and Water Board of New Orleans (SWBNO), Housing Authority of New Orleans (HANO), New Orleans Redevelopment Authority (NORA), and Tulane University.

FEMA approved the previous Orleans Parish (CNO) Multi-Jurisdictional HMAP Update in 2021, which then was set to expire in 2026. Therefore, the City began the process of

[1] Source: https://gohsep.la.gov/media/y4dmobyp/state-of-louisiana-2024-hm-plan_final-sec2.pdf
[2] Source: https://gohsep.la.gov/about/louisiana-hazards-plus-threats/natural-hazards/
[3] Source: http://www.fema.gov/hazard-mitigation-planning-resources

developing the Hazard Mitigation Plan Update in order to maintain eligibility for grant funding. The HMAP Update planning process provided an opportunity for the City of New Orleans to evaluate successful mitigation actions and explore opportunities to avoid future disaster loss.

The City of New Orleans selected H2O Partners, Inc. to write and develop the 2026 HMAP Update (Plan or Plan Update). This is a multi-jurisdictional plan; the participating jurisdictions include:

- City of New Orleans
- Loyola University[4]
- Tulane University
- Housing Authority of New Orleans (HANO)
- New Orleans Redevelopment Housing Authority (NORA)
- Sewerage and Water Board of New Orleans (SWBNO)

Hazard mitigation activities are an investment in a community's safety and sustainability. It is widely accepted that the most effective hazard mitigation measures are implemented at the local government level, where decisions on the regulation and control of development are ultimately made.

The City of New Orleans understands the importance of building resiliency throughout the community and recognizes the cost savings realized from the successful implementation of sound mitigation projects. The City has been successfully implementing mitigation projects for decades. Several of the projects incorporate green infrastructure resilience techniques, such as the Hagan-Lafitte Drainage Upgrades & Green Infrastructure project. This initiative, aimed to increase the metropolitan area's resiliency, spans 23 city blocks and increases stormwater conveyance through a system of raingardens and improved drainage infrastructure.[5] The Sewerage and Water Board of New Orleans (SWBNO) also implemented the Bayou St. John Green Infrastructure Project to expand drainage capacity. The project incorporates green infrastructure features such as a bio-retention cell, native trees planted in fiber soils, flexible porous pavement, and permeable pavers.[6] A few additional examples of recent mitigation projects are detailed in Table 1-1 below.

[4] Loyola University is a new plan participant.
[5] Source: https://nola.gov/next/stormwater-green-infrastructure/topics/projects/hagan-lafitte/
[6] Source: https://www2.swbno.org/documents/press%20releases/bayoustjohngisiteonepager.pdf

Table 1-1. Completed Activities Within Planning Area

Jurisdiction (Responsible Entity)	Project Title	Cost	Status
City of New Orleans	Drainage Pump Station (DPS) 01 Watershed	$39,600,000	Underway
City of New Orleans	2019 Flood Mitigation Assistance Home Elevation Project	$12,500,000	Underway
City of New Orleans	Gentilly Resilience District Projects: • Mirabeau Water Garden Project • Pontilly Neighborhood Stormwater Network • Wildair Pilot Rains Garden	$141,200,000	• Underway • Completed • Completed
City of New Orleans	Zulu Elevation Project	$337,150	Completed

The City of New Orleans is an active participant in the Community Rating System (CRS). CRS is a voluntary incentive program that recognizes and encourages community floodplain management practices that exceed the minimum requirements of the National Flood Insurance Program (NFIP). The City currently holds a Class 7 rating which results in a 15 percent reduction on NFIP flood insurance premiums for residents. Appendix C provides additional CRS requirements that the City has met to exceed minimum national standards to increase the community's flood resiliency.

Scope

A comprehensive review of a hazard mitigation plan addresses vulnerabilities to hazards that exist today and in the foreseeable future. The scope of the Plan Update is to conduct a risk assessment of hazards and their likely impacts, identify mitigation actions to reduce risk and vulnerabilities, and prioritize those actions based on feasibility and projected impact.

Purpose

The Plan Update was prepared by the City of New Orleans, participating educational institutions and special districts, and H2O Partners, Inc. The Plan Update seeks to minimize or eliminate long-term risks to life, property, operations, and the environment by identifying hazards, implementing cost-effective mitigation strategies, updating the risk assessment to reflect recent events, best-available science and changing conditions, tracking progress towards prior actions and goals, and developing a new set of prioritized

actions. The planning process promotes coordination and open communication among City agencies, stakeholders, and the public, fostering a collaborative approach to assessing risks, establishing priorities, and developing actionable measures to reduce the impacts of future disasters.

The City of New Orleans Planning Team identified 14 natural hazards to be addressed by the Plan Update. The specific goals of the Plan Update are to:

- Provide a comprehensive update to the 2021 HMAP;
- Minimize disruption to the City of New Orleans and participating educational institutions and special districts following a disaster;
- Streamline disaster recovery by articulating actions to be taken before a disaster strikes to reduce or eliminate future damage;
- Demonstrate a firm local commitment to hazard mitigation principles;
- Serve as a basis for future funding that may become available through grants and technical assistance programs offered by the State or Federal government. The Plan will enable the City of New Orleans and participating educational institutions and special districts to take advantage of rapidly developing mitigation grant opportunities as they arise; and
- Ensure that the City of New Orleans and participating educational institutions and special districts maintain eligibility for the full range of future Federal disaster relief.

Authority



The Plan is tailored specifically for the City of New Orleans, participating educational institutions and special districts, and plan participants, including Planning Team members, stakeholders, and the general public who participated in the Plan Update development process. The Plan complies with all requirements promulgated by the Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) and all applicable provisions of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Section 104 of the Disaster Mitigation Act of 2000 (DMA 2000) (P.L. 106-390), and the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108–264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al). The Plan also complies with the Interim Final Rules for the Hazard Mitigation Planning and Hazard Mitigation Grant Program (44 CFR, Part 201), which specify the criteria for approval of mitigation plans required in Section 322 of the DMA 2000 and standards found in FEMA's "Local Mitigation Planning Policy Guide" (April 2025), and the "Local Mitigation Planning Handbook" (June 2025). Additionally, the Plan was developed

in accordance with FEMA's Community Rating System (CRS) Floodplain Management Plan standards and policies, including meeting the specific requirements of Activity 510.

Summary of Sections

Sections 1 and 2 of the Plan Update outline the Plan's purpose and development, including how Planning Team members, stakeholders, and members of the general public were involved in the planning process. Section 3 profiles the City of New Orleans' population and economy.

Sections 4 through 18 present a hazard overview and information on individual natural hazards in the planning area. For each hazard, the Plan Update presents a description of the hazard, a list of historical hazard events, and the results of the vulnerability and risk assessment process. Sections 19–22 outline the City's hazard mitigation actions framework, including goals and objectives, analysis of previous actions, new mitigation actions for the City and participating entities, and plan maintenance mechanisms.

While not required by any regulation, the City chooses to include several human-caused hazards in their HMAP, consistent with the City's all-hazards approach to preparedness. Human-caused hazards are included in Appendix A. A consequence analysis for each of the profiled hazards can be found in Appendix B. Community Rating System (CRS) requirements are located within Appendix C. The list of Planning Team members and stakeholders is located in Appendix D. Public survey results are presented in Appendix E. Appendix F contains a detailed list of critical facilities for the area. Appendix G contains information regarding workshops and meeting documentation. The Capability Assessment results for the Plan participants are in Appendix H. Appendix I includes additional Hazus summary data. Appendix J contains the Public Engagement Plan. Appendix K includes State and Federal Assistance Programs. Resolutions denoting adoption of the Plan are located at the end of this document.[7]

[7] Note: Information contained in some of these appendices is exempt from public release under the Freedom of Information Act (FOIA).



Section 2

Planning Process

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Section 2: Planning Process

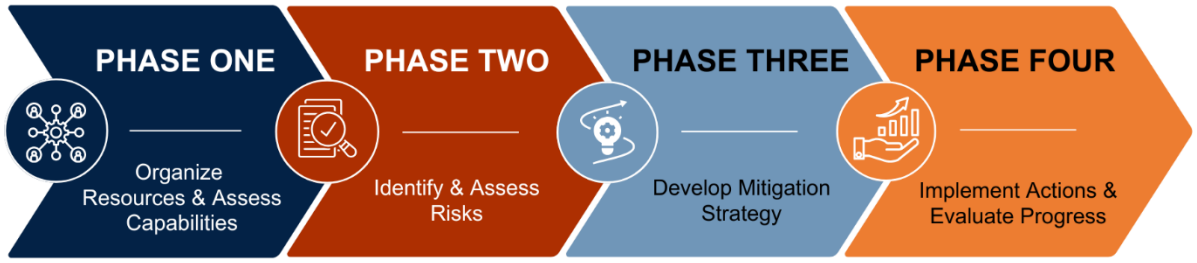
Plan Preparation and Development

Hazard mitigation planning involves coordination with various constituents and stakeholders to develop a more disaster-resistant community. Section 2 provides a description of the key steps in the planning process and how stakeholders and the public were involved.

Overview of the Plan

The City of New Orleans hired H2O Partners, Inc. (Consultant Team), to provide technical support and oversee the development of the City of New Orleans Hazard Mitigation Action Plan Update 2026. The Consultant Team used the FEMA "Local Mitigation Planning Policy Guide" (April 2025) and the "Local Mitigation Planning Handbook" (June 2025) to develop the Plan Update. The overall planning process is shown in Figure 2-1 below.

Figure 2-1. Mitigation Planning Process



Planning Team

Key members of H2O Partners, Inc. developed the Plan Update in conjunction with the Planning Team. The Planning Team was established using a direct representation model. Some of the responsibilities of the Planning Team included completing Capability Assessment surveys, providing input regarding the identification of hazards, identifying mitigation goals, and developing mitigation strategies. The Planning Team, consisting of key personnel involved in hazard mitigation activities from the City of New Orleans and participating educational institutions and special districts, participated throughout the planning process can be viewed in Appendix D, along with those who have the authority to regulate development.

The City of New Orleans Stakeholder Advisory Committee, consisting of various City and community representatives, were given an opportunity to participate in the Plan Update. Since the previous planning cycle, the committee has continued to meet on a quarterly basis. Due to the importance of these agencies and their focus on enhancing community resiliency, the committee was integrated into the planning process. The Stakeholder Advisory Committee held a meeting on July 1, 2025, to share valuable input and expertise on potential risks and impacts to the planning area and identify mitigation strategies.

Stakeholder and Public Involvement

An important component of hazard mitigation planning is public participation and stakeholder involvement. Input from individual citizens and the community as a whole provides the Planning Team with a greater understanding of local concerns and increases the likelihood of successfully implementing hazard mitigation actions. When citizens and stakeholders, such as local businesses, nonprofits, hospitals, and schools are involved, they are more likely to gain a greater appreciation of the risks that hazards may present in their community and take steps to reduce or mitigate their impact.

Stakeholder involvement is essential because a diverse group of participants can provide insight from a wide range of perspectives and expertise. Throughout the planning process, members of community organizations, local businesses, schools, hospitals, and neighboring jurisdictions were invited to participate in the development of the Plan Update. The Stakeholder Group included representatives from both the public and private sectors and served as a key component of the City's outreach efforts. Their input directly influenced the Plan Update; for example, concerns expressed at public meetings regarding potential flood incidents led the City to include a mitigation action focused on identifying and acquiring open spaces adjacent to floodplain areas for green space flood reduction projects.

A key goal of the Planning Team was to build equity into the planning process. Organizations that support underserved communities and socially vulnerable populations were intentionally invited to participate to ensure equitable access to the planning process and meaningful participation by all residents. These organizations also helped ensure that the interests of vulnerable populations were accurately represented and served as valuable resources for sharing information with those communities. The Planning Team drew on longstanding partnerships and coordinated with new local agencies, organizations, and community leaders to support engagement efforts. These organizations were included in the planning process as stakeholders and were invited to participate in the planning process via email. These agencies were also encouraged to publicize and attend public meetings and solicit feedback through the public survey.

Overall, the public and stakeholders were involved in the development of the City of New Orleans Hazard Mitigation Action Plan Update 2026 at different stages prior to official Plan approval and adoption. Public input was gathered through three methods: (1) open public meetings; (2) survey instruments; and (3) making the draft Plan Update available for public review on the City of New Orleans', participating educational institutions', and special districts' websites.

The public and stakeholders were notified at the public meetings that the draft Plan Update would be available for review. The draft Plan Update was made available to the general public for review and comment on the City of New Orleans' and participants' websites. While no feedback was received on the draft Plan Update itself, feedback provided through the public survey was incorporated into the Plan Update. Public input was used to identify hazards of greatest concern to residents and to help determine and prioritize mitigation actions.

Documentation of stakeholder meetings is included in Appendix G. A list of organizations invited to participate and those that engaged in the planning process is provided in Appendix D (Table D-3). Upon approval by FEMA, the final Plan Update will be posted on the City of New Orleans' and participating educational institutions' and special districts' websites, and a copy will be maintained at the New Orleans Office of Homeland Security and Emergency Preparedness (NOHSEP) Hazard Mitigation Office.

Public Meetings

Public meeting notices were published in English, Spanish, and Vietnamese via City press release, postings on public bulletin boards at municipal buildings, as well as on the websites and social media platforms of the City of New Orleans and participating educational institutions and special districts to increase public participation in the Plan Update development process. A series of public meetings were held throughout the planning area to collect public and stakeholder input. Topics of discussion included the purpose of hazard mitigation, discussion of the planning process, and types of natural hazards. A sampling of these notices can be found in Appendix G, along with the documentation on the public meetings.

Public meetings were held on the following dates:

- April 23, 2025, at the Nora Navra Library
- June 25, 2025, at the Norman Mayer Library
- July 23, 2025, at the Algiers Regional Library
- July 24, 2025, at the East New Orleans Regional Library

Public Participation Survey

In addition to public meetings, the Planning and Consultant Teams developed a public survey designed to solicit public input during the planning process from citizens and stakeholders to obtain data regarding the identification of any potential hazard mitigation actions or problem areas. The surveys were developed in multiple languages in order to reach the City of New Orleans' underserved communities and vulnerable populations and distributed at public buildings and meetings. In addition, the survey was promoted by local officials, emailed to stakeholders, and a link to the survey was posted on the City of New Orleans' website and social media platforms. A total of 181 surveys were completed online. The survey results are presented in Appendix E. The Planning Team reviewed the input from the surveys and decided which information to incorporate into the Plan as hazard mitigation actions. For example, results indicate that tropical cyclones and floods are the hazards of highest concern for the public. Constructing, maintaining, and protecting infrastructure as well as assisting vulnerable property owners with resources to protect their properties were the two main actions identified in survey responses that the local government should take to mitigate risk to these hazards. As a result, the Planning Team considered this feedback in confirming priority hazard areas and ensuring alignment between identified mitigation actions and expressed public concern.

Planning Process

The process used to prepare the Plan Update followed the four major steps included in Figure 2-1. After the Planning Team was organized, a capability assessment was developed and distributed at the Kickoff Workshop. A capability assessment is used to summarize and determine the extent of each participant's planning, regulatory, administrative, technical, fiscal, and political capacity.

Hazards identified by the Planning Team were assessed on the basis of historical occurrences and corresponding injuries, fatalities, and monetary damages. Results associated with each of the hazards were provided at the Risk Assessment Workshop. Based on the City of New Orleans' identified social and structural vulnerabilities, specific mitigation strategies were discussed and developed at the Mitigation Strategy Workshop.

During the Plan development process described herein, the following factors were taken into consideration:

- The nature and magnitude of risks currently affecting the community;
- Current and anticipated conditions and financial resources;
- Feasibility issues that could affect implementation of the Plan;
- Anticipated outcomes; and

- How the City of New Orleans and participating educational institutions and special districts, agencies, and partners will participate in implementing the Plan Update.

Finally, Plan maintenance and implementation procedures are included in Section 22. Participation of Planning Team members, stakeholders, and the public at each of the workshops is documented in Appendix G.

Kickoff Workshop

The Kickoff Workshop was held on February 12, 2025, at the New Orleans Office of Homeland Security and Emergency Preparedness (NOHSEP), with the option to attend virtually via Zoom. This workshop informed participating officials and key department personnel about how the planning process pertained to their distinct roles and responsibilities and engaged stakeholder groups that focus on vulnerable populations and underserved communities including, but not limited to, public libraries, economic development agencies, neighborhood associations, and surrounding communities. In addition to the kickoff presentation, participants received the following:

- Project overview regarding the planning process;
- Public survey access information;
- Hazard Ranking form; and
- Capability Assessment survey for completion.

At the Kickoff Workshop and through email and phone correspondence, the Planning Team identified and considered a range of natural hazards that affect the community.

Each participant ranked hazards in terms of the frequency of occurrence and impact. The results of the ranking sheets reflect differing perceptions of risk across the planning area, based on individual experience, professional roles, and familiarity with local conditions. The assessments were also used to set priorities for hazard mitigation actions based on potential loss of lives and dollar losses.

Hazard Identification

At the Kickoff Workshop, and through email and phone correspondence, the Planning Team conducted preliminary hazard identification. The Planning Team, in coordination with the Consultant Team, reviewed and considered a full range of natural hazards. Once identified, the teams narrowed the list to significant hazards by reviewing hazards affecting the area, the 2024 State of Louisiana Hazard Mitigation Plan Update, and initial study results from reputable sources such as federal and state agencies. Based on this

initial analysis, the teams identified a total of 14 natural hazards which pose a significant threat to the planning area.

Risk Assessment

An initial risk assessment for the City of New Orleans, including participating educational institutions and special districts, was completed in April 2025 and results were presented to Planning Team members at the Risk Assessment Workshop held on April 23, 2025, at the NOHSEP office, with the option to attend virtually via Zoom. At the workshop, the characteristics and consequences of each hazard were evaluated to determine the extent to which the planning area would be affected in terms of potential danger to property and citizens.

Property and crop damages were estimated by gathering data from the National Centers for Environmental Information (NCEI) and the National Oceanic and Atmospheric Administration (NOAA). The assessment also examined the impact of various hazards on the built environment, including general building stock, critical facilities, lifelines, and infrastructure. The resulting risk assessment profiled hazard events, provided information on previous occurrences, estimated probability of future events, and detailed the spatial extent and magnitude of impacts on people and property. Following the risk assessment workshop, historical event data from the NCEI was provided to the Planning Team for their review and assistance in identifying significant events. A hazard profile and vulnerability analysis for each of the hazards can be found in Sections 4 through 18.

Mitigation Strategy Development

Developing the mitigation strategy for the Plan involved identifying mitigation goals and new mitigation actions. A Mitigation Strategy Workshop was held on June 25, 2025, at the NOHSEP office, with the option to attend virtually via Zoom. During the workshop, participants emphasized a strong interest in flood-related mitigation. The Planning Team was proactive in identifying mitigation actions to lessen the risk of all the identified hazards included in the Plan Update.

The Consultant Team provided example hazard mitigation actions for profiled hazards to generate ideas about actions relevant to the Plan Update. Planning Team members then developed action plans identifying proposed actions, costs and benefits, the responsible organization(s), effects on new and existing buildings, implementation schedules, priorities, and potential funding sources. Each mitigation action in Section 21 identifies a lead agency, funding source, and implementation timeframe to ensure accountability and timely progress.

Specifically, the process involved:

- Listing optional hazard mitigation actions based on information collected from previous plan reviews, studies, and interviews with federal, state, and local officials. Workshop participants reviewed the optional mitigation actions and selected actions that were most applicable to their area of responsibility, cost-effective in reducing risk, easily implemented, and likely to receive institutional and community support.
- Federal and state funding sources that could assist in implementing the proposed hazard mitigation actions were identified and discussed as potential resources.
- Planning Team members considered the benefits that would result from implementing the hazard mitigation actions compared to the cost of those projects. Although detailed cost-benefit analyses were beyond the scope of the Plan Update, Planning Team members utilized economic evaluation as a determining factor between hazard mitigation actions.
- Planning Team members then selected and prioritized mitigation actions based on environmental and financial considerations, feasibility of implementation and long-term maintenance, and the anticipated effectiveness of each action in reducing risk to life and property, prioritizing those expected to yield the greatest overall benefits in risk reduction relative to other alternatives. The overall priority of each action is reflected in the hazard mitigation actions identified in Section 21.

Hazard mitigation actions identified in the process were made available to the Planning Team for review. The draft Plan Update was maintained on file by the City of New Orleans, participating educational institutions, and participating special districts and was made available to the general public for review.

Review and Incorporation of Existing Plans

Review

Background information utilized during the planning process included various studies, plans, reports, and technical information from sources such as FEMA, the United States Army Corps of Engineers (USACE), the U.S. Fire Administration, the National Oceanic and Atmospheric Administration (NOAA), the United States Geological Survey (USGS), the Louisiana Department of Conservation and Energy (DCE),[1] the Coastal Protection and Restoration Authority (CPRA), the Louisiana Department of Environmental Quality (LDEQ), the Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP), and local hazard assessments and plans. Section 4 and the hazard-specific sections of the Plan (Sections 5-18) summarize the relevant background information.

[1] Note: The *Louisiana Department of Energy and Natural Resources (LDENR)* was renamed the *Louisiana Department of Conservation and Energy (DCE)* under Senate Bill 244, effective October 1, 2025.

Specific background documents, including those from FEMA, provided information on hazard risk, hazard mitigation actions currently being implemented, and potential mitigation actions. Previous hazard events, occurrences, and descriptions were identified through NOAA's National Centers for Environmental Information (NCEI). Results of past hazard events were found by searching the NCEI Storm Event Database. The USACE studies were reviewed for their assessment of risk and potential projects in the region. Data from the Department of Agriculture and Forestry (LDAF) was used to appropriately rank the wildfire hazard and to help identify potential grant opportunities. Materials from FEMA and GOHSEP were reviewed for guidance on Plan Update development requirements.

Incorporation of Existing Plans into the HMAP Process

A Capability Assessment was completed by key departments from the City of New Orleans and participating educational institutions and special districts which provided information pertaining to existing plans, policies, ordinances, and regulations to be integrated into the goals and objectives of the Plan Update. The relevant information was included in a master Capability Assessment, Appendix H.

Existing projects and studies were utilized as a starting point for discussing hazard mitigation actions among Planning and Consultant Team members. For example, mitigation projects completed by the City of New Orleans include:

- Scoping potential drainage projects for inclusion in the Parks Master Plan for implementation.
- Creating a higher set of energy efficiency standards for building performance to reduce energy consumption and greenhouse gas emissions in new construction.
- Completing multiple recommended green infrastructure improvements along the North Claiborne corridor.
- Updating the Climate Action Plan and incorporating the relevant actions into the Plan Update.

For a comprehensive list of actions from the previous Orleans Parish (CNO) Multi-Jurisdictional HMAP, please refer to Section 20.

The current Flood Insurance Study (FIS), as well as the current effective Digital Flood Insurance Rate Maps (DFIRMs), were used in the flood hazard risk assessment (Section 8). The Orleans Parish DFIRM panels (map ID 22071C, panels 45-360, dated September 30, 2016), show the areas throughout the City of New Orleans at greater risk of flooding. The

FIS reports contain detailed flood elevation data in flood profiles and data tables and are utilized in determining extent.

Additionally, policies and ordinances were reviewed by the City of New Orleans and participating educational institutions and special districts. Other plans were reviewed, such as the Comprehensive Master Plan (2023), New Orleans Reforestation Plan (2022), Climate Action Plan (2022), and Extreme Temperature Relief Plan, to identify any additional mitigation actions.

Finally, the 2024 State of Louisiana Hazard Mitigation Plan Update, developed by GOHSEP, was discussed in the initial planning meeting in order to develop a specific group of hazards to address in the planning effort. The 2024 State Plan was also used as a guidance document, along with FEMA materials, in the development of the City of New Orleans Hazard Mitigation Action Plan Update 2026.

Incorporation of the HMAP into Other Planning Mechanisms

The City of New Orleans, along with participating educational institutions and special districts, will integrate this Plan Update into existing planning mechanisms such as the Comprehensive Plan, Comprehensive Emergency Operations Plan (CEOP), City-Assisted Evacuation Plan, ordinances, and related efforts. The capability assessment provides an overview of the Planning Team members' existing planning and regulatory capabilities. These existing capabilities provide the mechanisms to implement the City's mitigation strategy objectives. For example, the adoption of building codes and implementation of land use regulations have been demonstrated to help communities avoid losses from natural hazard events. Currently, the City of New Orleans and SWBNO have both building codes and land use regulations in place. Please refer to Appendix H for a complete inventory of the participating jurisdictions' capabilities.

Following adoption, the Planning Team will review and align local plans, programs, and building codes with mitigation goals, and conduct periodic evaluations to maintain consistency. Coordination with regional partners will support broader resilience initiatives, while public and stakeholder engagement will continue throughout implementation to promote collaboration and transparency.

In addition, the Hazard Mitigation Action Plan Update will be utilized to support eligibility and reporting for state-administered and federal programs, including Hazard Mitigation Assistance (HMGP and FMA) as well as preparedness grants such as the Homeland Security Grant Program. The Hazard Mitigation Action Plan Update will also be useful

when the City of New Orleans applies for reaccreditation through Emergency Management Accreditation Program (EMAP).

It should be noted that the Hazard Mitigation Action Plan Update has been used as a reference when reviewing and updating all plans and ordinances for the entire planning area, including all participating educational institutions and special districts. The Emergency Management Plans developed for the City of New Orleans, Tulane University, and SWBNO are updated every 5 years and incorporate goals, objectives, and actions identified in the Plan Update.

Opportunities for Expanding Existing Capabilities

Based on the results of the completed Capability Assessments, the City of New Orleans and participating educational institutions and special districts described methods for achieving future hazard mitigation measures by expanding existing capabilities. Participating educational institutions and special districts within the City of New Orleans also had the opportunity to identify opportunities for cross-training or increasing the technical expertise of staff by attending free training available through FEMA and GOHSEP by monitoring classes and availability through the GOHSEP State Training and Exercise Management System (STEMS).[2] In addition, the City of New Orleans, as well as participating educational institutions and special districts, can identify Planning Team members with the authority to monitor the Plan and identify grant funding opportunities for expanding staff. Other options for improving capabilities are included in Table 2-3.

Table 2-3. Opportunities for Improving and Expanding Existing Capabilities

Jurisdiction	Opportunities
City of New Orleans	• Integrate risk information from HMAP into future updates to **Capital Improvement Plan**. • Integrate risk information from HMAP into future updates to **Comprehensive Plan**. • Develop a **Community Wildfire Protection Plan** based on information in the risk assessment and identified mitigation projects within the HMAP. • Review current **floodplain ordinances** for opportunities to increase resiliency such as modifying permitting or building codes.

[2] Source: https://gohsep.la.gov/divisions/emergency-management/training-plus-events-overview/training-plus-events-schedule/

Jurisdiction	Opportunities
	• Review current **building and land use ordinances** that will require all new developments to conform to the highest mitigation standards.
Loyola University	• Integrate risk information from HMAP into future updates to **Capital Improvement Plan**. • Integrate risk information from HMAP into future updates to **Comprehensive Plan**. • Develop an **all-hazards outreach program** in coordination with the City of New Orleans, Tulane University, and special districts.
Tulane University	• Integrate risk information from HMAP into future updates to **Capital Improvement Plan**. • Integrate risk information from HMAP into future updates to **Comprehensive Plan**. • Develop an **all-hazards outreach program** in coordination with the City of New Orleans, Loyola University, and special districts.
Housing Authority of New Orleans (HANO)	• Integrate risk information from HMAP into future updates to **Capital Improvement Plan**. • Integrate risk information from HMAP into future updates to **Comprehensive Plan**. • Develop an **all-hazards outreach program** in coordination with the City of New Orleans, educational institutions, and special districts.
New Orleans Redevelopment Authority (NORA)	• Develop a **Capital Improvement Plan** based on information in the risk assessment and identified mitigation projects in the HMAP. • Develop a **Comprehensive Plan** based on information in the risk assessment and identified projects within the HMAP. • Develop an **all-hazards outreach program** in coordination with the City of New Orleans, educational institutions, and special districts.
Sewerage and Water Board of New Orleans (SWBNO)	• Develop a **Capital Improvement Plan** based on information in the risk assessment and identified mitigation projects in the HMAP.

Jurisdiction	Opportunities
	• Integrate risk information from HMAP into future updates to **Comprehensive Plan**. • Develop an **all-hazards outreach program** in coordination with the City of New Orleans, educational institutions, and special districts.

Plan Review and Plan Update

The City of New Orleans, participating educational institutions and special districts will review and update this Plan as necessary, to ensure consistency with community goals and long-range planning efforts. The Hazard Mitigation Office will convene the Planning Team and Advisory Committee at least once a year, to report on progress and to re-evaluate the risk assessment and prioritization of the hazard mitigation actions. The Plan may be amended to include additional hazard mitigation actions as they are developed.

Initiation and Implementation Considerations for Mitigation Actions

The Planning Team (Table D-1, Appendix D) will engage in discussion regarding when mitigation actions should be initiated during the five-year planning cycle. The broader timeframe for advancing each action will vary and may be categorized as short-, medium- or long-term based on the prioritization of each action and the anticipated timeframe for completion, as identified in the individual hazard mitigation action tables included in the Plan Update. Additional considerations include how existing financial resources and planning mechanisms, such as grant application windows, budget cycles, or capital improvement programming, affect the timing of initiation to ensure mitigation actions are advanced in a manner that aligns with available resources and planning priorities.



Section 3
City Profile

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Section 3: Community Profile

Overview

Prior to the arrival of European settlers, the area around New Orleans was inhabited by Native American groups, including the Chitimacha, Tunica, Choctaw, Coushatta, and Houma peoples. The land along the Mississippi River was fertile, making it an ideal area for agriculture, and the river itself played a key role in transportation and trade. The area was called "*Bulbancha*" (or *land of many tongues*) by indigenous people, as it was a place for trading, hunting, and alliance formation.[1]

New Orleans was founded in 1718 by the French as a strategic port along the Mississippi River. It later came under Spanish rule, which shaped much of the city's architecture and infrastructure. In 1803, the United States acquired New Orleans through the Louisiana Purchase, and the city grew into a major trading hub. By the 19th century, it became known for its Creole culture, music, especially jazz, and early public transit systems. Despite challenges from the Civil War and Reconstruction, New Orleans retained its cultural richness and economic significance.

Figure 3-1 shows the general location of the City of New Orleans.

[1] Source: https://hnoc.org/publishing/first-draft/new-orleans-history-starter-pack-beginners-guide-understanding-crescent#:~:text=New%20Orleans%20was%20built%20on,Louisiana%20during%20the%20French%20period.

Figure 3-1. Location of the City of New Orleans

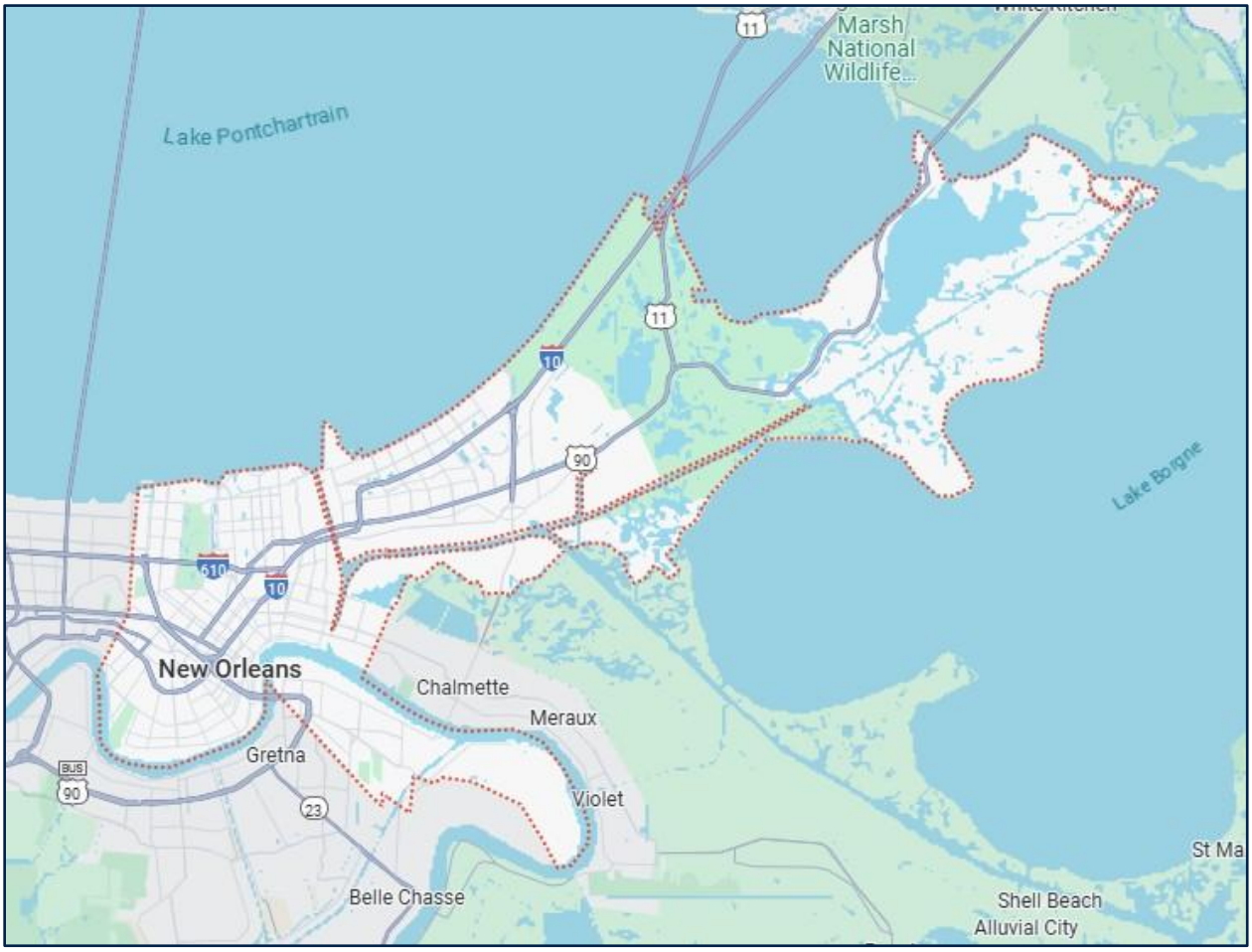


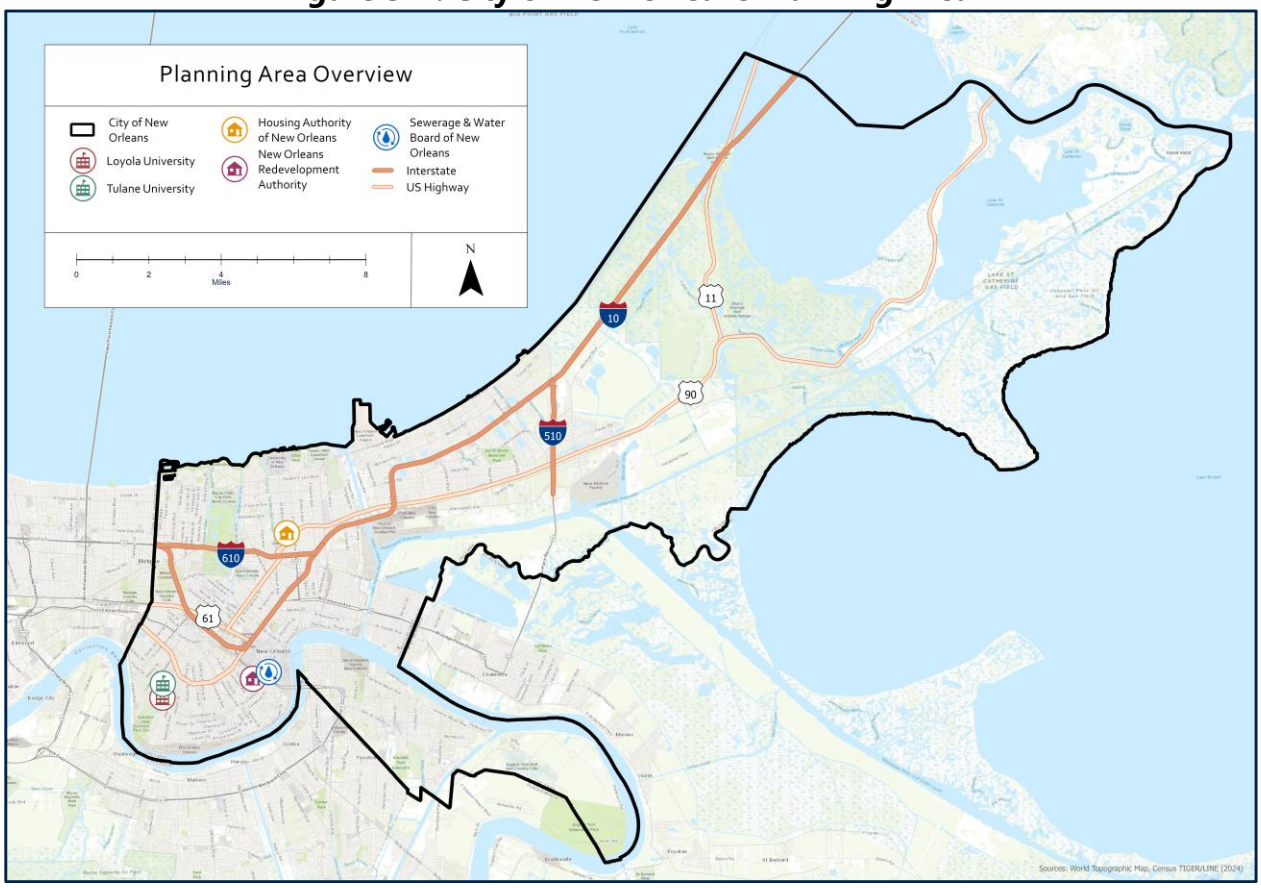
Table 3-1 below lists the educational institutions and special districts in the City of New Orleans that participated in the City of New Orleans Hazard Mitigation Action Plan Update 2026.

Table 3-1. Participating Jurisdictions

Participating Jurisdictions
City of New Orleans
Loyola University
Tulane University
Housing Authority of New Orleans (HANO)
New Orleans Redevelopment Authority (NORA)
Sewerage and Water Board of New Orleans (SWBNO)

Figure 3-2 shows the city limits of the City of New Orleans, which makes up the planning area. All areas of the City's corporate limits are covered in the risk assessment analysis of the Plan Update.

Figure 3-2. City of New Orleans Planning Area



Population and Demographics

Table 3-2 shows the population distribution in the City of New Orleans in 2010, 2020 (Census population count), and 2023 (2023 American Community Survey (ACS) five-year estimates[2]).[3] According to the 2020 Census, the City of New Orleans has an official population of 383,997 residents, a 12 percent increase since the 2010 census. Table 3-3 summarizes select characteristics of vulnerable or sensitive populations in the City of New Orleans using data from the U.S. Census Bureau 2023 ACS five-year estimates.

[2] ACS is simply an estimate, and many variables are involved in achieving an accurate estimation of the number of people living in a given area at a given time.

[3] Sources: https://demographics.lousiana.gov/Data/Decennial/2010/, https://www.census.gov/en.html and https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2023/

Table 3-2. Population Distribution

Jurisdictions	2010 (Census)	2020 (Census)	2023 (ACS Estimate)	Population Change (Percent)			
				2010-2020	PERCENT	2010-2023	PERCENT
City of New Orleans	343,829	383,997	376,035	40,168	12%	32,206	9%

Table 3-3. Populations at Greater Risk

Jurisdiction	Population				
	65 and Older	Under 5	With a Disability	Below Poverty Level	Limited English Speaking
City of New Orleans	61,879	20,845	52,249	84,984	11,359

University Population

Figure 3-2 above shows the participating universities within the City of New Orleans that are covered in the risk assessment analysis of the Plan Update.

Located in Uptown New Orleans, Loyola University New Orleans is a member of the Association of Jesuit Colleges and Universities. The institution was founded in 1904 as Loyola College, before changing its name to Loyola University soon after in 1912. The current name, Loyola University New Orleans, was adopted in 1996 to distinguish it from other universities with similar names. Loyola has a strong academic reputation, a commitment to social justice, and an emphasis on integrating faith with education. Loyola University New Orleans is open to students of all faiths.[4]

Tulane University, also in Uptown New Orleans, was originally founded as "The Medical College of Louisiana" in 1834. In 1847, the institution became known as the University of Louisiana. In 1884, after a donation by Paul Tulane, a New Orleans merchant and philanthropist, the institution became known as Tulane University. Repeated outbreaks in the city created an urgent need for trained physicians and medical research to study and combat disease. Although Tulane University was formally established later, its origins lie in early medical education efforts aimed at addressing public health crises such as yellow fever. From these beginnings as a medical school, Tulane gradually expanded into a comprehensive university, eventually developing into one of the nation's leading research institutions.[5]

[4] Source: https://www.loyno.edu/about/facts/history
[5] Source: https://tulane.edu/about/history-and-traditions

Table 3-4 provides the number of people employed, students enrolled, and vulnerable or sensitive populations for each participating university, as provided by the university.

Table 3-4. University Population

University	Employees	Students	Estimated Vulnerable or Sensitive Populations
			Staff Works Outdoors
Loyola University	1,200	4,322	73
Tulane University	10,111	14,300	152

Special District Population

Figure 3-2 above shows the participating special districts, the Housing Authority of New Orleans (HANO), the New Orleans Redevelopment Authority (NORA), and the Sewerage and Water Board of New Orleans (SWBNO), are covered in the risk assessment analysis of the Plan Update.

The Housing Authority of New Orleans (HANO) has the mission "to provide affordable housing opportunities for low-income residents of the City of New Orleans, while laying the foundation for economic sustainability." HANO is responsible for managing independent living facilities, 23,129 public housing units, 11 HANO communities throughout the city, and has served 268 families with its home ownership program.[6]

The New Orleans Redevelopment Authority (NORA) was created in 1968 to revitalize underinvested areas in the city. Their mission is to be "a catalyst for the revitalization of the city, partnering in affordable and equitable strategic developments that celebrate the city's neighborhoods and honor its traditions." The NORA/60 Strategic Plan outlines the priorities for the agency through 2028 and is available on the district's website.[7]

In 1899, the Sewerage and Water Board of New Orleans (SWBNO) was established to provide and manage the city's water, sewer, and drainage systems. It was established to address sanitation issues, flooding, and water quality, which were major concerns for New Orleans at the time. In 2025, the Department of Public Works transferred control of catch basins and small drainpipes to the Sewerage and Water Board unifying the City's drainage system and shifting responsibility of catch basin maintenance to SWBNO, who already maintained the larger drainpipes, canals, and pumping stations across New Orleans.

[6] Source: https://www.hano.org/
[7] Source: https://noraworks.org/about#mission

SWBNO is a public utility is operated under a board of directors and works in coordination with the City of New Orleans.

Table 3-5 provides the number of people employed and served by the special district, and vulnerable or sensitive populations, as provided by each special district.

Table 3-5. Special District Population

Special District	Employees	Population Served	Estimated Vulnerable or Sensitive Populations
			Staff Works Outdoors
Housing Authority of New Orleans (HANO)	194	383,997	0
New Orleans Redevelopment Authority (NORA)	30	383,997	0
Sewerage and Water Board of New Orleans (SWBNO)	1,260	383,997	700

Economic Impact

Hazard events have the potential to disrupt employment, reduce household income, and limit the ability of residents to recover from impacts. Households with lower incomes or limited financial resources may face greater challenges in preparing for, responding to, and recovering from hazard events. The community's economic character therefore provides important context for understanding the potential impacts and recovery capacity following hazard events.

Based on the American Community Survey 2023 estimates, 56 percent of the population 16 years and over (309,453) is employed in the labor force. The per capita income is $39,698 and the median household income parish-wide is $55,339. Families with incomes below the poverty level in 2023 made up 16 percent of all families. Of families that have children under 18 years old, 26 percent are below the poverty level.

Tables 3-6 and 3-7 show the various occupations and industries within the City of New Orleans, according to the U.S. Census Bureau 2023 ACS five-year estimates.

Table 3-6. Occupations of Employed Population in the City of New Orleans[8]

Occupation	Estimate	Percent
Civilian employed population 16 years and over	174,022	-----
Management, business, science, and arts occupations	85,748	49.3%
Service occupations	33,961	19.5%
Sales and office occupations	31,344	18.0%
Production, transportation, and material moving occupations	13,311	7.6%
Natural resources, construction, and maintenance occupations	9,658	5.5%

Table 3-7. Industries of Employed Population in the City of New Orleans[9]

Industry	Estimate	Percent
Civilian employed population 16 years and over	174,022	-----
Educational services, health care and social assistance	50,586	29.1%
Arts, entertainment, recreation, and accommodation and food services	24,597	14.1%
Professional, scientific, and management, and administrative and waste management services	24,015	13.8%
Retail trade	15,024	8.6%
Transportation and warehousing, and utilities	10,590	6.1%
Finance and insurance, and real estate and rental and leasing	9,126	5.2%
Construction	8,577	4.9%
Other services, except public administration	8,476	4.9%
Public administration	8,417	4.8%
Manufacturing	6,532	3.8%
Information	3,796	2.2%
Wholesale trade	3,003	1.7%

[8] U.S. Census Bureau: 2023 American Community Survey 5-Year Estimates Data Profiles.
[9] U.S. Census Bureau: 2023 American Community Survey 5-Year Estimates Data Profiles.

Industry	Estimate	Percent
Agriculture, forestry, fishing and hunting, and mining	1,283	0.7%

Natural, Cultural, and Historic Resources

New Orleans is home to numerous and expansive green spaces, including the Bayou Sauvage Urban National Wildfire Refuge – one of the last remaining marsh areas adjacent to Lakes Pontchartrain and Borgne. The refuge features a wide range of natural environments such as bottomland hardwood forests, freshwater and brackish marshes, lagoons, canals, and natural bayous. These habitats are a haven for wildlife and a popular recreation destination for fishing, hiking, birdwatching, and sightseeing.[10]

Alongside these natural habitats, New Orleans maintains parks and open spaces for public recreation, including City Park, one of the largest urban parks in the U.S. It features walking trails, picnic areas, gardens, and attractions like the New Orleans Museum of Art (NOMA) and the Besthoff Sculpture Garden. Audubon Park is another key recreational area, well suited for leisurely walks, jogging, or picnicking. The park has a lagoon, large oak trees, plenty of green space, and houses the Audubon Zoo and Aquarium, offering a variety of local and exotic species for visitors to enjoy. In addition, Woldenberg Riverfront Park offers views of the river for walking, biking, and jogging. At a larger scale, Joe W. Brown Park further provides extensive recreational amenities, including sports fields, walking paths, playgrounds, and facilities that support both organized athletics and casual community use.[11]

Beyond parks and recreational amenities, New Orleans also offers historic accessible transportation options. The New Orleans streetcar is one of the most iconic and distinctive modes of transportation in the City. There are four main streetcar routes that are operated by the New Orleans Regional Transit Authority (RTA). The St. Charles line is the oldest running line in the U.S., operating continuously since 1835.[12]

The Steamboat Natchez or other riverboats offer scenic cruises along the Mississippi River. Kayak and canoe rentals are available to explore the Bayou St. John, a historic waterway that runs through the heart of New Orleans. Lake Pontchartrain allows fishing from the shore, a pier, or boat charters for a day out on the water.

[10] U.S. Fish and Wildlife Service: https://www.fws.gov/refuge/bayou-sauvage-urban

[11] Source: https://nordc.org/parks/joe-w-brown-park/

[12] Source: https://www.neworleans.com/plan/itineraries/streetcar-itinerary/#stCharles

The City of New Orleans' many historic buildings and sites preserve its rich history. The City has 202 buildings, districts, and sites on the National Register of Historic Places. Historic buildings are vulnerable to natural hazards as their construction pre-dates modern building codes. There are also historic preservation considerations and requirements for historic structures when they are included in mitigation or recovery projects. The City has mitigated many historic buildings since 2005, such as the Zulu Lounge Renovation and Elevation project.

New Orleans' unique cultural character is especially evident in the heart of the city, the French Quarter, which is full of quirky shops, historic sites, and restaurants. Bourbon Street and Royal Street offer art galleries and boutique shopping. Jackson Square often has local street performances and music. The City hosts New Orleans Pelicans NBA games at the Smoothie King Center and New Orleans Saints NFL games at the Caesars Superdome, which also host events such as Monster Jam, festivals, and concerts throughout the year. In addition, the City is home to several notable and smaller theaters, such as the Civic, Saenger, Joy, Carver and Orpheum theaters that feature touring Broadway shows, music acts and other entertainment.

To further understand natural resources that may be vulnerable to a hazard event and those that need consideration when implementing mitigation activities, it is important to identify at-risk species (i.e., endangered species) in the planning area. According to the U.S. Fish and Wildlife Service, as of September 2025, there are seven federally endangered, threatened, or candidate species in Orleans Parish, listed in Table 3-8. The report contains species that are known to or are believed to occur in this parish, based on the species' current range, as defined by the USFWS. The definition of current range that the FWS uses is the general geographic area where we know or suspect that a species currently occurs.[13] Additionally, one species is listed as being resolved (Sprague's Pipit) and two species are listed as in recovery (Louisiana Black Bear and Brown Pelican).

Table 3-8. Endangered Species in Orleans Parish

Type of Species	Common Name	Scientific Name	Species Status
Fishes	Pallid Sturgeon	Scaphirhynchus albus	Endangered
Mammals	Tricolored Bat	Perimyotis subflavus	Proposed Endangered
Mammals	West Indian Manatee	Trichechus manatus	Threatened
Reptiles	Gopher Tortoise	Gopherus polyphemus	Threatened

[13] U.S. Fish and Wildlife Service: https://ecos.fws.gov/ecp/report/species-listings-by-current-range-county?fips=22071

Type of Species	Common Name	Scientific Name	Species Status
Fishes	Gulf Sturgeon	Acipenser oxyrinchus (=oxyrhynchus) desotoi	Threatened
Reptiles	Alligator Snapping Turtle	Macrochelys temminckii	Proposed Threatened
Insects	Monarch Butterfly	Danaus plexippus	Proposed Threatened

Changes in Vulnerability

Existing Land Use and Development Trends

The City of New Orleans' Comprehensive Plan and Comprehensive Zoning Ordinance sets forth regulations and standards related to the extent of land and structure uses that are allowed in certain areas. A zoning map shows the location of zoning districts and standards within a community, gives an overall picture of the types of developments, and is used as a tool to inform continued growth efforts and initiatives.

A review of housing can also give a picture of the built environment and the changes in vulnerability to various hazards in a jurisdiction. Table 3-9 lists the total housing units for the City of New Orleans, where data was available, between 2019 and 2023, utilizing 2020 Decennial Census data and U.S. Census Bureau 2023 ACS five-year estimates. Between official U.S. Census counts, the estimates use a formula based on the applicable decennial census housing units count, new residential construction, new mobile homes, and housing unit loss. The census data "residential construction" category calculates building permits issued utilizing permitted construction counts as well as permit completion rates. Estimates of decreasing housing units are computed by applying an annual loss rate to the housing stock. The rate is then added to an estimate of the number of units lost due to natural disasters. Housing loss rates are derived from prior American Housing Survey (AHS) at the regional level. A unit is counted as lost if a survey was completed in the AHS, but it was listed as a non-response (Type C, 30 - Demolished) in the subsequent survey, indicating a permanent loss to the housing stock.[14] It is simply an estimate, and many variables are involved in achieving an accurate estimation of the number of housing units in a given area at a given time.

[14] U.S. Census Bureau: https://www.census.gov/programs-surveys/popest/technical-documentation/methodology.html

Table 3-9. Total Housing Units, 2019-2023[15]

Jurisdiction	Total Housing Units					Change 2019-2023	Percent of Change
	2019	2020	2021	2022	2023		
City of New Orleans	191,808	193,840	193,376	193,999	194,758	2,950	2%

Certain types of housing within the City of New Orleans planning area are more vulnerable than typical site-built, newly constructed residential structures. This includes mobile or manufactured homes, of which there are 874 units (0.45 percent of the total housing stock) in the planning area. The City of New Orleans adopted its first floodplain management ordinance in the mid-1970s. Many single-family residences (SFRs) constructed prior to 1980 were built to less stringent standards and are considered "older housing stock" due to their higher vulnerability to hazards, particularly flooding. While some of these older structures may have been modified or improved over time, others may not have incorporated more recent design or mitigation standards and may therefore remain more susceptible to damage during hazard events. These pre-1980 homes comprise approximately 75 percent of the housing stock (146,793 structures) in the planning area. Table 3-10 summarizes housing inventory data for participating jurisdictions based on the 2023 American Community Survey five-year estimates.

Table 3-10. Housing Inventory and Vulnerable Structures by Jurisdiction[16]

Jurisdiction	Total Housing Units	SFR Built Prior to 1980	Manufactured Homes
City of New Orleans	194,758	146,793	874
Loyola University	-----	21	0
Tulane University	-----	144	15
Housing Authority of New Orleans (HANO)	-----	2	0
New Orleans Redevelopment Authority (NORA)	5	0	0
Sewerage and Water Board of New Orleans (SWBNO)	-----	0	3

[15] U.S. Census Bureau: https://www.census.gov

[16] Note: The Housing Inventory and Vulnerable Structures are based on the 2023 American Community Survey 5-Year Estimates Data Profiles. The participating educational institutions and special districts provided data, where available and applicable.

Summary of Vulnerability Trends

The City of New Orleans planning area experienced an overall population increase of 12 percent between 2010 and 2020. The American Community Survey estimates the 2023 total housing units for the planning area to be 194,758, or a 2 percent increase from 2019. The overall population increase, combined with the increase in housing units, indicates an increase in vulnerability to all hazards in terms of populations and the built environment (Table 3-11). Changes in vulnerability for participating educational institutions and special districts are considered to similarly align with the City of New Orleans unless specifically noted otherwise.

Table 3-11. Changes in Vulnerability

Jurisdiction	Population Trend	Housing Trend	Overall Vulnerability Changes
City of New Orleans	Increasing	Increasing	Increasing

Changes in vulnerability are applicable to all natural hazards except when discussing levee system failure, as vulnerability for this hazard is discussed in relation to changes in the estimated inundation areas for profiled dams and levees. For the six levees profiled in Section 6, there is an increase in vulnerability in the estimated inundation areas. While flood and wildfire hazards feature geographical boundaries, increases in population and building inventory can increase overall vulnerability for these hazards even when the trends occur outside of the known hazard boundary. Development decreases permeable surface areas and increases runoff, increasing flood risk.

Future Growth and Development

To better understand how future growth and development in the City of New Orleans might affect hazard vulnerability, it is useful to consider population growth, occupied and vacant land, the potential for future development in hazard areas, and current planning and growth management efforts.

Population projections from 2020 to 2060 are listed in Table 3-12, provided by Proximity One. These projections use an annual time series model that incorporates births, deaths, and both international and domestic migration. Estimates are based on historical census data and migration trends to forecast future population changes across the state and its parishes. The model assumes that migration patterns will follow trends observed from trends observed between 2010 and 2020, that overall birth rates will decline over time,

and that death rates will increase over time. Projections for Orleans Parish reflect an increase in population density, which indicates overall growth.

Table 3-12. City of New Orleans Population Projections[17]

Land Area (Sq Mi)	2020		2030		2040		2050		2060	
	Population									
	Total Number	Density	Total Number	Density	Total Number	Density	Total Number	Density	Total Number	Density
169.5	383,997	2,265.5	443,948	2,619.2	482,100	2,844.2	520,666	3,071.8	559,492	3,300.8

The City of New Orleans has a Comprehensive Plan in place that sets forth a vision, goals, policies, and guidelines to direct future physical, social, and economic development within the City. The plan is a part of a continuous process to provide a sustainable environment for citizens and consider the general desire of the community to conserve, preserve, and protect the natural environment. It presents a future vision for the planning area, outlining recommendations on growth, community character, infrastructure, land use, economic development, zoning, mobility, and public facilities, while guiding staff, decision-makers, and citizens to weigh choice with an eye toward the future. In addition, the City of New Orleans has adopted ordinances to guide future growth, including additional higher flood regulatory standards, a city stormwater management ordinance, and the latest International Building Code. Refer to the Capability Assessment in Appendix I for a complete list of the plans, ordinances, and other resources for all participating jurisdictions, educational institutions, and special districts.

[17] Source: https://proximityone.com/demographics2060.htm#table



Section 4

Risk Overview

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Section 4: Risk Overview

Hazard Description

Section 4 provides background information on the Risk Assessment, including the hazard identification process and summary descriptions of the hazards identified. The Risk Assessment continues with Sections 5 through 18 and Appendices A and B, which include detailed hazard descriptions, vulnerability assessments, and related analyses.

Upon a review of the full range of natural hazards suggested under FEMA planning guidance, the City of New Orleans identified 14 natural hazards that are addressed in the Hazard Mitigation Plan Update, as shown in Table 4-1. The hazards were identified through input from Planning Team members and a review of the current 2024 Louisiana State Hazard Mitigation Plan (State Plan). Readily available online information from reputable sources such as federal and state agencies was also evaluated and utilized to supplement information as needed.

Table 4-1. Hazard Descriptions

Hazard	Description
Coastal Erosion	The process by which local sea level rise, strong wave action, and coastal flooding wear down or carry away rocks, soils, and/or sands along the coast. All coastlines are affected by storms or other natural events that cause erosion.
Drought	A prolonged period of less than normal precipitation such that the lack of water causes a serious hydrologic imbalance. Common effects of drought include crop failure, water supply shortages, and fish and wildlife mortality.
Extreme Heat	Extreme heat is the condition whereby temperatures hover ten degrees or more above the average high temperature in a region for an extended period of time.
Flood	The accumulation of water within a body of water, which results in the overflow of excess water onto adjacent lands, usually floodplains. The floodplain is the land adjoining the channel of a river, stream, ocean, lake, or other watercourse or water body that is susceptible to flooding. Most floods fall into the following three categories: riverine flooding, coastal flooding, and shallow flooding.
Hail	Hailstorms are a potentially damaging outgrowth of severe thunderstorms. Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to the rapid rising of

Hazard	Description
	warm air into the upper atmosphere and subsequent cooling of the air mass.
High Wind	Wind is defined as the motion of air relative to the earth's surface, and the hazard of high wind is commonly associated with severe thunderstorm winds, tornadoes, hurricanes, and tropical storms. High winds can also occur in the absence of other definable hazard conditions, occurring in forms such as straight-line winds or microbursts.
Land Subsidence	Subsidence occurs when land sinks into underground voids. These voids may occur naturally or through human-driven or technologically exacerbated circumstances. When the void can no longer support the weight of the earth above it, it collapses, causing a sinkhole depression in the landscape.
Levee Failure	Dam/levee failure is the collapse, breach, or other failure of a dam or levee structure resulting in flooding of downstream or protected areas. In the event of a dam failure, the energy of the water stored behind even a small dam is capable of causing loss of life and severe property damage if development exists downstream of the dam. The consequences of a levee's failure or overtopping are often severe, and the resulting flood damage may surpass that of natural, unprotected conditions.
Lightning	Lightning is a sudden electrostatic discharge that occurs during an electrical storm. This discharge occurs between electrically charged regions of a cloud, between two clouds, or between a cloud and the ground.
Storm Surge/ Coastal Flood	A storm surge is an abnormal rise in seawater level during a storm, caused primarily by strong winds and low atmospheric pressure associated with hurricanes, typhoons, or other severe storms. This surge can lead to extreme coastal flooding, especially when combined with high tides, resulting in significant damage to infrastructure, erosion, and potential loss of life.
Tornado	A tornado is a violently rotating column of air that has contact with the ground and is often visible as a funnel cloud. Its vortex rotates cyclonically with wind speeds ranging from as low as 40 mph to as high as 300 mph. The destruction caused by tornadoes ranges from light to catastrophic, depending on the location, intensity, size, and duration of the storm.

Hazard	Description
Hurricane/ Tropical Cyclone	A tropical cyclone is a rapidly rotating storm system characterized by a low-pressure center, strong winds, and organized thunderstorms that produce heavy rain. It forms over warm ocean waters and is fueled by the heat and moisture from the sea. Depending on its intensity and location, a tropical cyclone may be called a hurricane (in the Atlantic and Northeast Pacific), a typhoon (in the Northwest Pacific), or simply a cyclone (in the South Pacific and Indian Ocean).
Wildfire	A wildfire is an uncontrolled fire burning in an area of vegetative fuels such as grasslands, brush, or woodlands. Heavier fuels with high continuity, steep slopes, high temperatures, low humidity, low rainfall, and high winds all work to increase the risk for people and property located within wildfire hazard areas or along the urban/wildland interface. Wildfires are part of the natural management of forest ecosystems, but most are caused by human factors.
Winter Weather	Severe winter weather may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Blizzards, the most dangerous of all winter storms, combine low temperatures, heavy snowfall, and winds of at least 35 mph, reducing visibility to only a few yards. Ice storms occur when moisture falls and freezes immediately upon impact on trees, power lines, communication towers, structures, roads, and other hard surfaces. Winter storms and ice storms can down trees, cause widespread power outages, damage property, and cause fatalities and injuries to human life.

Hazards that were not considered significant and were not included in the Plan Update are located in Table 4-2, along with the evaluation process used for determining the significance of each of these hazards. Hazards not identified for inclusion at this time may be addressed during future evaluations and updates.

Table 4-2. Other Hazards Deferred

Hazard Considered	Reason For Determination
Expansive Soils	Expansive soils are soils and soft rocks that tend to swell or shrink due to changes in moisture content. Changes in soil volume present a hazard primarily to structures built on top of expansive soils. Land subsidence and expansive soils arise from different mechanisms, however, both involve ground movement that affect structures and infrastructure. The broader impacts of

Hazard Considered	Reason For Determination
	ground movement are considered within the Land Subsidence risk assessment profile. Given the overlap in impacts and the absence of distinct, large-scale consequences beyond those already captured under Land Subsidence, expansive soils are not profiled as a separate primary hazard for the planning area at this time.

Disaster Declaration History

One method of understanding hazards that pose a risk to the City of New Orleans is to identify past hazard events that triggered federal or state disaster declarations. Federal and state declarations may be granted when the severity and magnitude of an event surpass the ability of the local government to respond and recover. Disaster assistance is supplemental and sequential. Table 4-3 lists state and federal disaster declarations received by Orleans Parish. Many of the disaster events were regional or statewide.

Between 1953 and September 2025, Orleans Parish received 38 federal disaster declarations. The largest share (26) was related to hurricanes, followed by declarations for coastal storms (4), biological (2), severe ice storms (2), other (2), severe storm (1), and tornado (1).

Table 4-3. Disaster Declaration History of Orleans Parish, 1953 – September 2025[1]

Year	Declaration Title	Hazard	Declaration Type	Disaster No.
1998	Tropical Storm Frances and Hurricane Georges	Hurricane	DR	DR-1246
2001	Tropical Storm Allison	Coastal Storm	DR	DR-1380
2002	Tropical Storm Isidore	Hurricane	DR	DR-1435
2002	Hurricane Lili	Hurricane	DR	DR-1437
2003	Loss of Space Shuttle Columbia	Other	EM	EM-3172
2004	Hurricane Ivan	Hurricane	DR	DR-1548
2005	Hurricane Katrina	Hurricane	EM	EM-3212
2005	Hurricane Katrina	Hurricane	DR	DR-1603

[1] FEMA: https://www.fema.gov/openfema-data-page/disaster-declarations-summaries-v2

Year	Declaration Title	Hazard	Declaration Type	Disaster No.
2005	Hurricane Rita	Hurricane	EM	EM-3260
2005	Hurricane Rita	Hurricane	DR	DR-1607
2007	Severe Storms and Tornadoes	Severe Storm	DR	DR-1685
2008	Hurricane Gustav	Hurricane	EM	EM-3289
2008	Hurricane Gustav	Hurricane	DR	DR-1786
2008	Hurricane Ike	Hurricane	DR	DR-1792
2012	Tropical Storm Isaac	Hurricane	EM	EM-3347
2012	Hurricane Isaac	Hurricane	DR	DR-4080
2017	Severe Storms, Tornadoes, and Straight-Line Winds	Tornado	DR	DR-4300
2017	Tropical Storm Nate	Hurricane	EM	EM-3392
2019	Tropical Storm Barry	Coastal Storm	EM	EM-3416
2019	Hurricane Barry	Hurricane	DR	DR-4458
2020	Covid-19	Biological	EM	EM-3459
2020	Covid-19 Pandemic	Biological	DR	DR-4484
2020	Tropical Storm Cristobal	Coastal Storm	EM	EM-3527
2020	Tropical Storms Laura and Marco	Hurricane	EM	EM-3538
2020	Hurricane Laura	Hurricane	DR	DR-4559
2020	Hurricane Sally	Hurricane	EM	EM-3543
2020	Hurricane Delta	Hurricane	EM	EM-3547
2020	Hurricane Delta	Hurricane	DR	DR-4570
2020	Tropical Storm Zeta	Hurricane	EM	EM-3549
2021	Hurricane Zeta	Hurricane	DR	DR-4577
2021	Severe Winter Storm	Severe Ice Storm	EM	EM-3556
2021	Severe Winter Storms	Severe Ice Storm	DR	DR-4590

Year	Declaration Title	Hazard	Declaration Type	Disaster No.
2021	Tropical Storm Ida	Hurricane	EM	EM-3568
2021	Hurricane Ida	Hurricane	DR	DR-4611
2021	Tropical Storm Nicholas	Coastal Storm	EM	EM-3574
2023	Seawater Intrusion	Other	EM	EM-3600
2024	Tropical Storm Francine	Hurricane	EM	EM-3614
2024	Hurricane Francine	Hurricane	DR	DR-4817

In addition to the 38 federally declared disasters, there have been eight U.S. Department of Agriculture (USDA) Secretarial disaster designations between 2012 and 2024. The Secretary of Agriculture is authorized to designate parishes as disaster areas to make emergency loans available to producers suffering losses in those parishes and in parishes that are contiguous to a designated parish.[2] Of the eight USDA designations for Orleans Parish, many listed multiple factors as having caused the disaster area designation. The leading cause was drought, which was included in seven designations. Other factors listed include wind (2), fire (1), excessive rain (1), hurricanes (1), high temperatures (1), and insects (1).

Natural Hazards and Climate Change

Climate change is defined as a long-term shift in temperature and weather patterns. Global climate change exacerbates natural hazard risk by impacting the frequency and intensity of severe weather events. Rising temperatures increase evaporation and atmospheric moisture, leading to heavier rainfall, stronger storms, and more intense hurricanes. Sea level rise amplifies storm surges and coastal flooding, while changes in precipitation patterns can worsen inland flooding and drought. By intensifying these hazards, climate change increases the potential for damage to life, property, infrastructure, and ecosystems, making communities more vulnerable and recovery more challenging. Louisiana is considered one of the more vulnerable states in the U.S. to both abrupt climate changes and the impact of gradual climate changes on the natural and built environments.

Climate change is expected to lead to an increase in average temperatures as well as an increase in the frequency, duration, and intensity of extreme heat events. With no

[2] United States Department of Agriculture: https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/FactSheets/emergency_disaster_designation_declaration_process-factsheet.pdf

reductions in emissions worldwide, the state of Louisiana is projected to experience an additional 20 to 40 extreme heat days per year (above 95°F) by 2050 than what is experienced now.[3]

The Woodwell Climate Research Center identifies ongoing and likely future trends through 2060 based on analysis of historic observations of temperatures, precipitation, and extreme weather. Table 4-4 highlights future trends in extreme weather from the report.

Table 4-4. Future Trends in Extreme Weather in Louisiana[4,5,6]

Hazards	Expected Trends
Extreme Temperatures	• Even under a low-emissions scenario, Louisiana's average temperatures are projected to increase by about 1.5°F by 2050. • Louisiana had about 35 dangerously hot days per year as of 2015. But by 2050, they are projected to average nearly 115 danger days a year.[7] • The number of heatwaves per year and number of days per year classified as heatwaves are expected to increase. • Fewer cold extremes and warmer minimum temperatures are projected, suggesting a continued decrease in freezing conditions, and frost days, as well as a warming trend for the coolest days of summer. • Data suggests a recent increase in both the severity and frequency of extreme heat, while extreme cold has decreased in both aspects.
Precipitation	• The annual probability of the historical 1-in-100-year rainfall event will roughly double throughout 2041–2060, and triple throughout 2071–2090. • Extreme precipitation is expected to increase in intensity on average statewide by 5-20 percent by 2050.

[3] Hoffman, J.S., S.G. McNulty, C. Brown, K.D. Dello, P.N. Knox, A. Lascurain, C. Mickalonis, G.T. Mitchum, L. Rivers III, M. Schaefer, G.P. Smith, J.S. Camp, and K.M. Wood, 2023: *Ch. 22. Southeast*. In: Fifth National Climate Assessment. Crimmins, A.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, B.C. Stewart, and T.K. Maycock, Eds. U.S. Global Change Research Program, Washington, DC, USA. https://nca5.climate.us/chapter/22.

[4] Source: https://www.woodwellclimate.org/climate-risk-assessment-new-orleans-louisiana/

[5] Source: https://www.climaterealityproject.org/blog/how-climate-crisis-affecting-louisiana#:~:text=Heat,projected%20increases%20in%20the%20nation.

[6] Source: https://climatecheck.com/louisiana

[7] Note: A heat danger day is defined by the National Weather Service as a day that has a heat index of 105 degrees Fahrenheit or higher.

Hazards	Expected Trends
	• New Orleans is expected to have an increase of 3.5 inches annually by 2050.
Drought	• Projected increases in temperature, rainfall variability, and other factors – such as improved plant water use efficiency – collectively indicate a decrease in water availability; however, the extent of this impact varies significantly across regions and applications. • Sector-based variance in impact trends is expected, with agricultural areas potentially experiencing less impact than surface water supply.
Flood	• Urban flooding is projected to increase due to both population growth and rising precipitation intensity, particularly in areas with fast-response drainage systems. • By 2050 it is anticipated that 2 percent of buildings in New Orleans are at risk of flooding due to storm surge, with possible flood depths reaching 9-11 feet. • By 2050, Louisiana is projected to see sea levels rise by over two feet, increasing coastal flooding risk and making coastal areas more vulnerable to storms and surges, while some inland areas may experience an increase in heavy rainfall events.
Winter Weather	• As the climate warms, the likelihood of winter weather decreases. • Extreme cold has become less frequent and less severe overall but is subject to more variation than other temperature extremes, thus extreme cold temperatures will continue to be possible. • Projected decrease in the intensity and frequency of cold extremes.
Thunderstorms (Wind, Hail, Lightning)	• The evolution of reporting methods and magnitude scales, along with inconsistencies in observation data, has resulted in the absence of reliable, comprehensive records – limiting the ability to project trends and necessitating the use of indirect indicators. • Climate models consistently project environmental changes that would support an increase in the frequency and intensity of severe thunderstorms that combine tornadoes, hail, and winds, but there is low confidence in the details of the projected increase.
Wildfire	• Weather and climate drivers of wildfire risk are projected to increase the severity, frequency and extent of wildfire.

Hazards	Expected Trends
	• Higher temperatures and drought are likely to increase the severity, frequency and extent of wildfires.

Overview of Hazard Analysis

The Risk Assessment utilized a historical analysis and a statistical approach to provide an estimate of potential impact by using a common, systematic framework for evaluation.

Records for the City of New Orleans were retrieved from the National Centers for Environmental Information (NCEI) and the National Oceanic and Atmospheric Administration (NOAA) databases. These records were analyzed to identify the occurrence of hazard events in the planning area and the maximum recorded magnitude of each event. Geographic information system (GIS) technology was also used to identify and assess risks and evaluate community assets and their spatial vulnerability to hazards.

The four general parameters that are described for each hazard in the Risk Assessment include frequency of return, approximate annualized losses, a description of general vulnerability, and a statement of the hazard's impact.

The frequency of return was calculated by dividing the number of events in the recorded time period for each hazard by the overall time period that the resource database was recording events. Frequency of return statements are defined in Table 4-5, and impact statements are defined in Table 4-6 below.

Table 4-5. Frequency of Return Statements

Probability	Description
Highly Likely	Event is probable in the next year.
Likely	Event is probable in the next three years.
Occasional	Event is probable in the next five years.
Unlikely	Event is probable in the next ten years.

Table 4-6. Impact Statements

Potential Severity	Description
Substantial	Multiple deaths. Complete shutdown of facilities for 30 days or more. More than 50 percent of property destroyed or with major damage.

Potential Severity	Description
Major	Injuries and illnesses resulting in permanent disability. Complete shutdown of critical facilities between one and four weeks. More than 25 percent of property destroyed or with major damage.
Minor	Injuries and illnesses do not result in permanent disability. Complete shutdown of critical facilities for up to one week. More than 10 percent of property destroyed or with major damage.
Limited	Injuries and illnesses are treatable with first aid. Shutdown of critical facilities and services for 24 hours or less. Less than 10 percent of property destroyed or with major damage.

Each of the hazard profiles includes a description of a general Vulnerability Assessment. Vulnerability refers to the total assets that are subject to damage from a hazard based on historic recorded damages. Assets in the region were inventoried and defined in hazard zones where appropriate. The total amount of damage, including property and crop damages, for each hazard is divided by the total number of assets (building value totals) in that community to determine the percentage of damage that each hazard can cause to the community. Risk and consequences will be addressed and covered within each hazard profile under the Vulnerability and Impact section.

To better understand how future growth and development in the City of New Orleans might affect hazard vulnerability, it is useful to consider population growth, occupied and vacant land, the potential for future development in hazard areas, and current planning and growth management efforts. Hazard vulnerability for the City of New Orleans was reviewed based on recent development changes that occurred throughout the planning area. The population of the City of New Orleans has grown by 12 percent between 2010 and 2020, according to the U.S. Census Bureau. Therefore, the vulnerability to the population, infrastructure, and buildings has increased for hazards that do not have a geographical boundary.

Once loss estimates and vulnerability were known, an impact statement was applied to relate the potential impact of the hazard on the assets within the area of impact.

Hazard Ranking

During the 2025 planning process, the Planning Team conducted a risk ranking exercise to get input from the Planning Team and stakeholders. Table 4-7 portrays the results of

the risk assessment analysis, including the frequency of occurrence, potential severity, and the Planning Team's self-assessment for hazard ranking based on local knowledge of past events and impacts for each identified hazard. The definitions for frequency of occurrence and potential severity can be found in Table 4-5 and Table 4-6.

Table 4-7. Hazard Risk Ranking

Hazard	Frequency of Occurring	Potential Severity[8]	Ranking
Natural Hazards			
Coastal Erosion	Highly Likely	Minor	**High**
Extreme Heat	Highly Likely	Substantial	**High**
Flood	Highly Likely	Substantial	**High**
High Wind	Highly Likely	Minor	**High**
Levee Failure	Unlikely	Substantial	**High**
Storm Surge / Coastal Flooding	Highly Likely	Substantial	**High**
Tropical Cyclone	Highly Likely	Substantial	**High**
Drought	Highly Likely	Substantial	**Moderate**
Land Subsidence	Unlikely	Limited	**Moderate**
Lightning	Highly Likely	Substantial	**Moderate**
Tornado	Likely	Substantial	**Moderate**
Hail	Highly Likely	Limited	**Low**
Wildfire	Highly Likely	Limited	**Low**
Winter Weather	Likely	Substantial	**Low**

Risk Assessment Resources and Data Limitations

The risk and vulnerability assessment relies heavily on the content of the National Oceanic and Atmospheric Administration (NOAA) National Center for Environmental Information (NCEI) Storm Events Database. This database covers weather-related hazards that affect the planning area, including winter weather (extreme cold and winter storm), drought, hail, lightning, flood, extreme heat, high wind, storm surge, and tornado. Other hazards were analyzed using databases containing more comprehensive historical data specific to

[8] Note: See Sections 5 through 18 for a more detailed discussion of the potential severity of impacts for each hazard.

Louisiana such as the Louisiana Department of Agriculture and Forestry (LDAF) for wildfires or the Louisiana Department of Conservation and Energy (DCE)[9] for the land subsidence hazard.

The NCEI Storm Events Database is a rich centralized repository of nationwide weather-related hazard events. The database contains recorded weather events of significance based on a range of potential criteria including intensity, duration, damages, injuries, or other noteworthy events. The history of data available in the NCEI database allows the study of impacts of individual hazards over an extended period of time. This data contributes to the framework for understanding relative risks over time.

While the NCEI is considered one of the most comprehensive national historical event databases, it is not without limitations. Records of historical occurrences in the state show significant variations in the number of events recorded from one parish to the next. Variations are more attributable to under-reporting of events than variations in weather occurrences. Only the events that have been reported in the database are factored into the risk assessment when no other reliable resources are available. It is accurate to assume that additional natural hazard occurrences have gone unreported or have been underreported. The risk assessment in this Plan is considered the baseline for estimating potential future losses and frequency of events, which are assumed to be the minimum the planning area can anticipate. Additionally, significant events may be reported by both the parish and local jurisdictions. This is due to reports from various locations impacted by a given event.

Finally, damages are not reported for the majority of events recorded in the NCEI, as property damage estimates are not always available. Natural hazard event damages are often covered by private insurance, and statistical insurance data is not readily available in the public domain. The National Weather Service (NWS) regional forecast coordinators utilize the resources available to them to describe damages or impacts of events. However, local input is key to assigning damages to historical events.

[9] Note: The *Louisiana Department of Energy and Natural Resources (LDENR)* was renamed the *Louisiana Department of Conservation and Energy (DCE)* under Senate Bill 244, effective October 1, 2025.



Section 5
Coastal Erosion

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Section 5: Coastal Erosion

Hazard Description



Louisiana National Guardsmen drops recycled Christmas trees into Bayou Sauvage National Wildlife Refuge in New Orleans East to help combat coastal erosion, March 14, 2018. Photo by: Sergeant Garrett Dipuma.

Coastal erosion is the deterioration of land and loss of beach, shoreline, or dune material because of natural coastal processes or manmade influences. Erosion occurs when storms, flooding, wave action, sea-level rise, and human activities wear away beaches and wetlands. All shorelines are affected by storms and other natural events that cause erosion; however, the extent and severity of the problem will vary in different parts of the country.

In Louisiana, erosion affects shorelines and coastal wetlands, often intensifying during storms due to high winds, heavy surf, and storm surge. Human activities, such as construction and development in coastal and riparian regions of the State, can also exacerbate erosion. Coastal erosion is also caused by the gradual loss of wetlands due to changing environmental conditions.

In southeastern Louisiana, both natural processes and human activities have driven the degradation of coastal ecosystems, creating conditions in which wetland vegetation either cannot survive or is removed entirely, ultimately leading to high rates of coastal erosion and the loss of wetlands. This includes oceanographic processes such as rising sea levels, constant wave erosion, and the intrusion of saltwater which gradually wears away the landscape. At the same time, geologic factors play a major role, with the ground slowly sinking due to sediment loading, compaction, faulting, and a diminished supply of new sediment. Biological pressures add to the problem, particularly the damage caused by nutria and muskrat feeding on marsh vegetation. The region is also highly vulnerable to catastrophic events like hurricanes, tropical storms, and even prolonged droughts which can rapidly accelerate wetland loss. In addition, the impacts of human activity, including the construction of levees and dams, dredging canals, agricultural impoundments, and the withdrawal of oil, gas, and groundwater have dramatically transformed Louisiana's coastal landscape.[1]

[1] Louisiana State University. Loss of Louisiana's Coastal Wetlands. https://www.lsu.edu/cce/mediacenter/news/2022/01/wetlands.php.

SECTION 5: COASTAL EROSION

According to the National Oceanic and Atmospheric Administration (NOAA), Louisiana loses 25 to 35 square miles of coastal land each year (an area larger than Manhattan) due to a combination of subsidence (soil settling) and rising sea levels. The state is in an active land loss crisis and has lost nearly 2,000 square miles of land since the 1930's. Barrier islands, marshes, and coastal wetlands serve as natural buffers, reducing the intensity of storm surge and flood impacts. The erosion of these critical areas will significantly increase the vulnerability of the City of New Orleans planning area and infrastructure to other hazards in the future.

Location

The City of New Orleans is surrounded by an extensive and ecologically significant wetland system. These wetlands serve as a natural buffer between open water bodies, such as Lake Pontchartrain and Lake Borgne, and developed inland areas. When wetlands are degraded, the city becomes significantly more vulnerable to erosion. Wetland types found in the New Orleans area include cypress-tupelo swamps, freshwater marshes, intermediate marshes, brackish marshes, and salt marshes, particularly in areas east of the city and towards the Mississippi River Delta. The area also nearby estuarine systems and coastal barrier islands.

The City of New Orleans planning area encompasses a diverse ecosystem with a mix of marsh types. Freshwater marshes are especially prevalent in the greater New Orleans area, most notably within the Bayou Sauvage Urban National Wildlife Refuge and portions of the metro region that are protected from direct tidal influence. Freshwater marshes are important to many wildlife populations and often serve as an important nursery for many marine species. Brackish marshes can also be found in the Bayou Sauvage Urban National Wildlife Refuge, New Orleans East, and other lower coastal areas. These areas are critical in preserving plant diversity and soil organic matter. Intermediate marsh areas can be found between freshwater and brackish marshes and are characterized by the presence of both freshwater and saltwater plants. Finally, salt marshes are found in the areas closest to the Gulf and have the lowest plant and animal diversity. Salt marshes are not as prevalent but can be found towards the Lake Borgne area.

The marshes in the City of New Orleans planning area provide recreation areas for people and habitat areas for wildlife. The marshes also help protect the city from the effects of coastal storms. As water moves inland from the Gulf, densely vegetated marshes act as a natural buffer, slowing storm surge and reducing wave energy before it reaches populated areas. This helps lower flood depths and decreases the force of incoming waves, giving protection to people, property, and critical infrastructure. Wetlands also support ecological health by capturing sediment and absorbing excess nutrients, but their most

direct benefit to New Orleans is their ability to mitigate the destructive effects of hurricanes and storm surge.

The City of New Orleans is vulnerable to coastal erosion primarily in wetland areas located outside the protective levee system, with the exception of the Bayou Sauvage National Wildlife Refuge and the Bayou Bienvenue Wetlands Complex. The most at-risk areas are concentrated in eastern New Orleans, particularly around the communities of Irish Bayou, Lake St. Catherine, and Venetian Isles. Coastal erosion in these wetlands threatens residential communities, key transportation corridors such as U.S. Highway 11 and U.S. Highway 90 (Chef Menteur Highway), and other critical infrastructure.

Extent

Louisiana's coastal wetland loss is greater than all other states in the contiguous United States combined, with 4,800 square kilometers of coastal wetlands lost over the last 80 years. This includes the City of New Orleans, which will be increasingly exposed to the escalating frequency and intensity of extreme weather events as land is lost.[2] Additionally, as discussed below, rates of coastal erosion are likely to increase in the future.

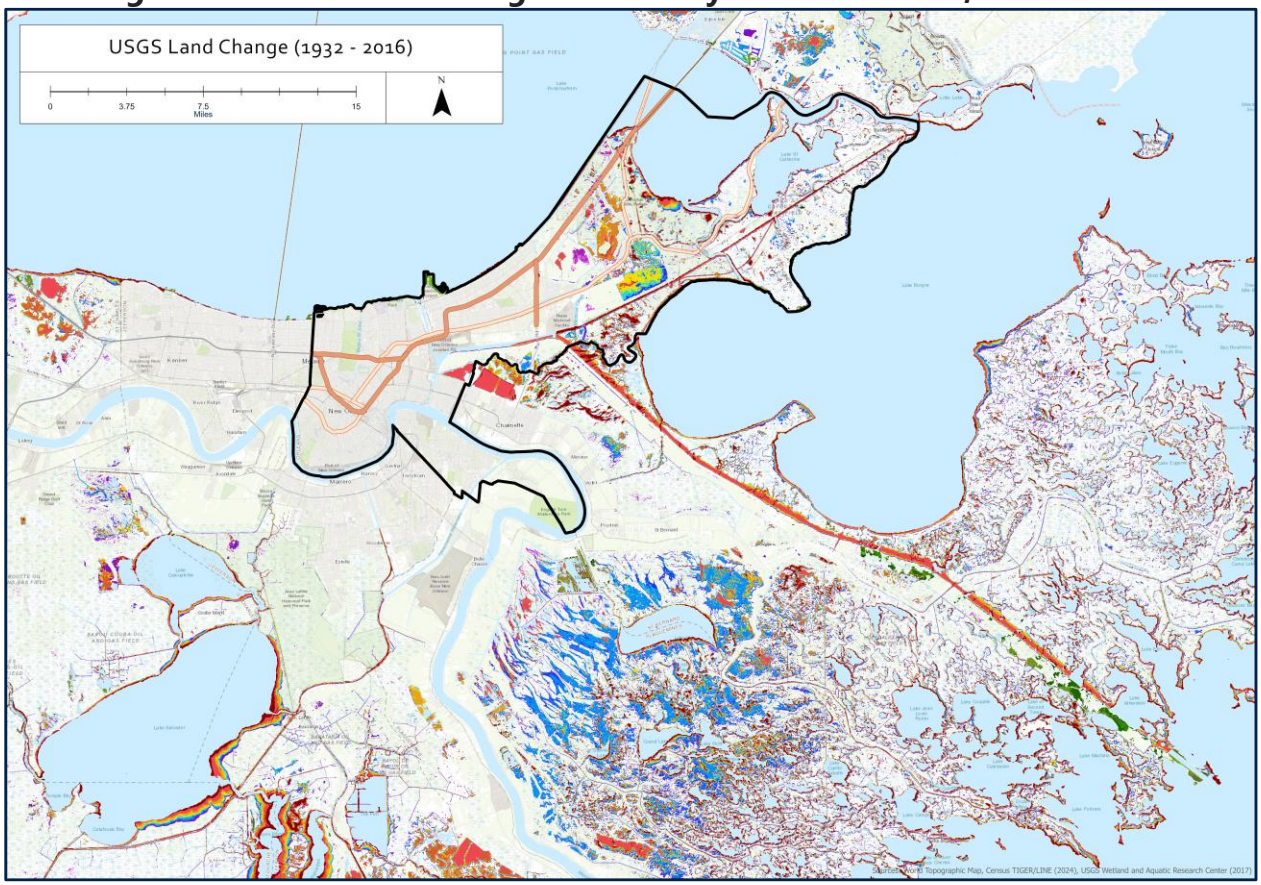
Extent of coastal erosion is typically measured by the rate of erosion and shoreline change. However, this rate varies by location as some areas are experiencing erosion while other areas are gaining land. The rate of land loss off the coast of Louisiana, including the City of New Orleans, is 25 to 35 square miles per year.[3]

Figures 5-1 and 5-2 present a map and legend from the U.S. Geological Survey (USGS) depicting landscape changes in coastal Louisiana from 1932 to 2016. The data provided by the USGS depicts persistent land loss for the City of New Orleans planning area over that period of time.

[2] I. Fazey, J.R.A. Butler, J. Kozak, J. Dubinin, C. Manning-Broome, D. Reed, G. Leicester, S.A. Burge, B. Searle. Three emergencies of climate change: The case of Louisiana's coast. Environmental Science & Policy. 2021. https://doi.org/10.1016/j.envsci.2021.05.014.

[3] NOAA. Underwater: Land loss in coastal Louisiana since 1932. https://www.climate.gov/news-features/featured-images/underwater-land-loss-coastal-louisiana-1932.

Figure 5-1. Land Area Change for the City of New Orleans, 1932-2016[4]



[4] USGS. Land area change in coastal Louisiana (1932 to 2016). 2017. https://www.usgs.gov/maps/land-area-change-coastal-louisiana-1932-2016.

Figure 5-2. Land Area Change Legend



Historical Occurrences

The National Centers for Environmental Information (NCEI) does not collect data on coastal erosion. Local governments typically lack the capabilities to monitor or report statistical data for coastal erosion, especially since it is an ongoing, slow-moving hazard.

According to the USGS, coastal Louisiana wetlands are one of the most critically threatened environments in the country. Studies show that coastal Louisiana has experienced a net change in land area of approximately 1,866 square miles (-4,833 square kilometers) from 1932 to 2016. This net change in land area amounts to a decrease of approximately 25 percent of the 1932 to 2016 land area.[5] This historical rate of change is presented in Figure 5-1.

The Louisiana Coastal Protection and Restoration Authority has published a 4th edition of Louisiana's Comprehensive Master Plan for a Sustainable Coast in 2023, which provides an updated estimate of more than 2,000 square miles (5,180 square kilometers) of Louisiana's coast lost, reflecting ongoing land loss in recent years.

Extreme storm events, such as tropical cyclones, can significantly accelerate coastal erosion by generating powerful storm surges, high winds, and heavy rainfall. These storms can rapidly remove sediment, damage wetlands, and reshape the coastline which intensifies land loss. Significant historical events, such as Hurricane Katrina and Hurricane Rita, are detailed below. Notably, in 2017, Louisiana Governor John Bel Edwards declared a state of emergency over the state's rapidly eroding coastline. The goal of this declaration was to accelerate coastal restoration and protection efforts.

Significant Events

August & September 2005 – Hurricane Katrina and Hurricane Rita

In 2005, back-to-back hurricanes caused significant damage in the region, including along the Louisiana coastline. Hurricane Katrina made landfall in Plaquemines Parish, Louisiana, as a Category 3 hurricane on August 29, followed by Hurricane Rita, which struck southwestern Louisiana on September 24 before moving across eastern Texas. Both storms were highly destructive, collectively damaging an estimated 217 square miles of Louisiana's already fragile marshes and wetlands. Additionally, Hurricane Katrina significantly damaged about one-half of the state's barrier islands along the Gulf of America, which act as physical buffers of waves and storm surge and reduce flooding further inland.

[5] USGS. Land area change in coastal Louisiana (1932 to 2016). 2017. https://www.usgs.gov/maps/land-area-change-coastal-louisiana-1932-2016.

August 2021 – Hurricane Ida

Hurricane Ida made landfall on August 29, 2021, near Port Fourchon, causing widespread damage to coastal communities in southern Louisiana. Satellite imagery comparing conditions before and after the storm indicates extensive wetland loss in the western Barataria Basin near Larose. These wetlands, primarily fresh to brackish marshes, were particularly vulnerable to wind, currents, and wave action due to their soil composition and structure, similar to marshes found within the New Orleans planning area. While the storm did not result in significant land loss within the planning area itself, it accelerated regional wetland loss, with an estimated 106 square miles of land affected across southern Louisiana.[6]

Climate Change Considerations

Climate change is expected to intensify coastal erosion. As global temperatures increase, thermal expansion of seawater contributes to sea level rise, allowing waves to extend further inland. The Louisiana Coastal Protection and Restoration Authority has published a 4th edition of Louisiana's Comprehensive Master Plan for a Sustainable Coast in 2023, which provides land loss projections under both a higher and lower environmental change scenario.

Under the lower environmental scenario of this master plan, an additional 1.6 feet sea level rise is expected over the next 50 years. Additionally, hurricanes are assumed to increase in intensity by 5 percent over the same period, exacerbating the risk posed by storm surge. With higher scenario projections, it is clear that more severe climate change impacts, such as sea level rise of up to 2.5 feet and increased hurricane intensity of up to 10 percent over the 50 year period, are possible.

Increasing storm intensity exacerbates coastal erosion. An increase in the frequency and intensity of major hurricanes and tropical storm events is likely, as presented in the master plan. Storm events, as seen with Hurricane Katria, Rita, and Ida, have demonstrated the capacity to significantly accelerate local instances of erosion and land loss. As these events intensify, the risk of erosion events increases.

According to the Louisiana Coastal Protection and Restoration Authority, under the lower scenario, Louisiana is projected to lose approximately 1,100 square miles of land in 50 years without intervention and the implementation of the 2023 Coastal Master Plan. However, this same amount of land loss is reached much sooner (in 34 years) under the

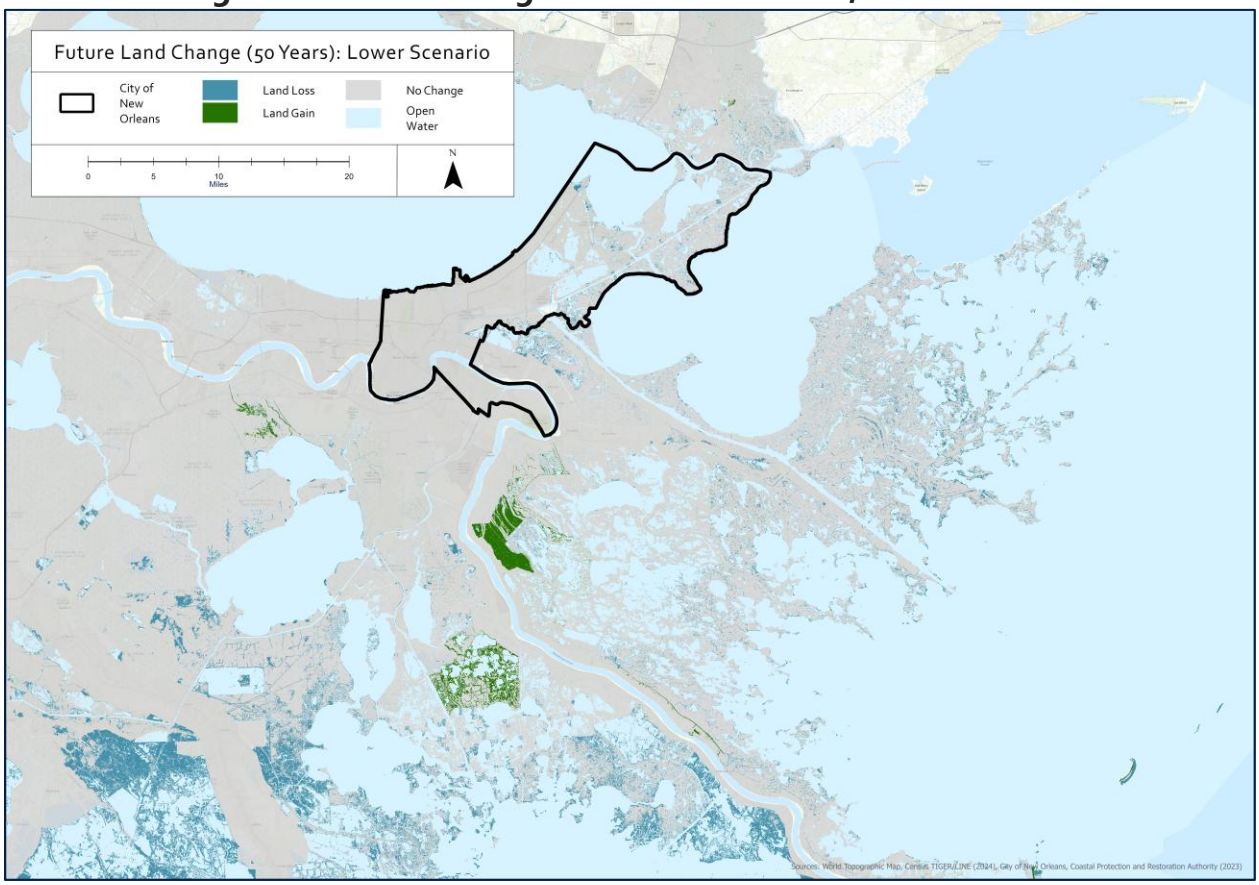
[6] National Wildlife Federation, Restore the Mississippi Delta. Hurricane Ida and Flotant Marsh: An Initial Look at the Storm's Impacts to Louisiana's Wetlands. https://mississippiriverdelta.org/hurricane-ida-and-flotant-marsh-an-initial-look-at-the-storms-impacts-to-louisianas-wetlands/

higher scenario, with total land loss potentially reaching 3,000 square miles in 50 years under the higher scenario.

Local flood protection systems will become more vulnerable as the land around them erodes. According to the master plan, the estimated damage from flooding will also increase across the state from an average of $15.2 billion annually up to an average of approximately $24.3 billion annually, based on the 50 year scenario without action and intervention.[7]

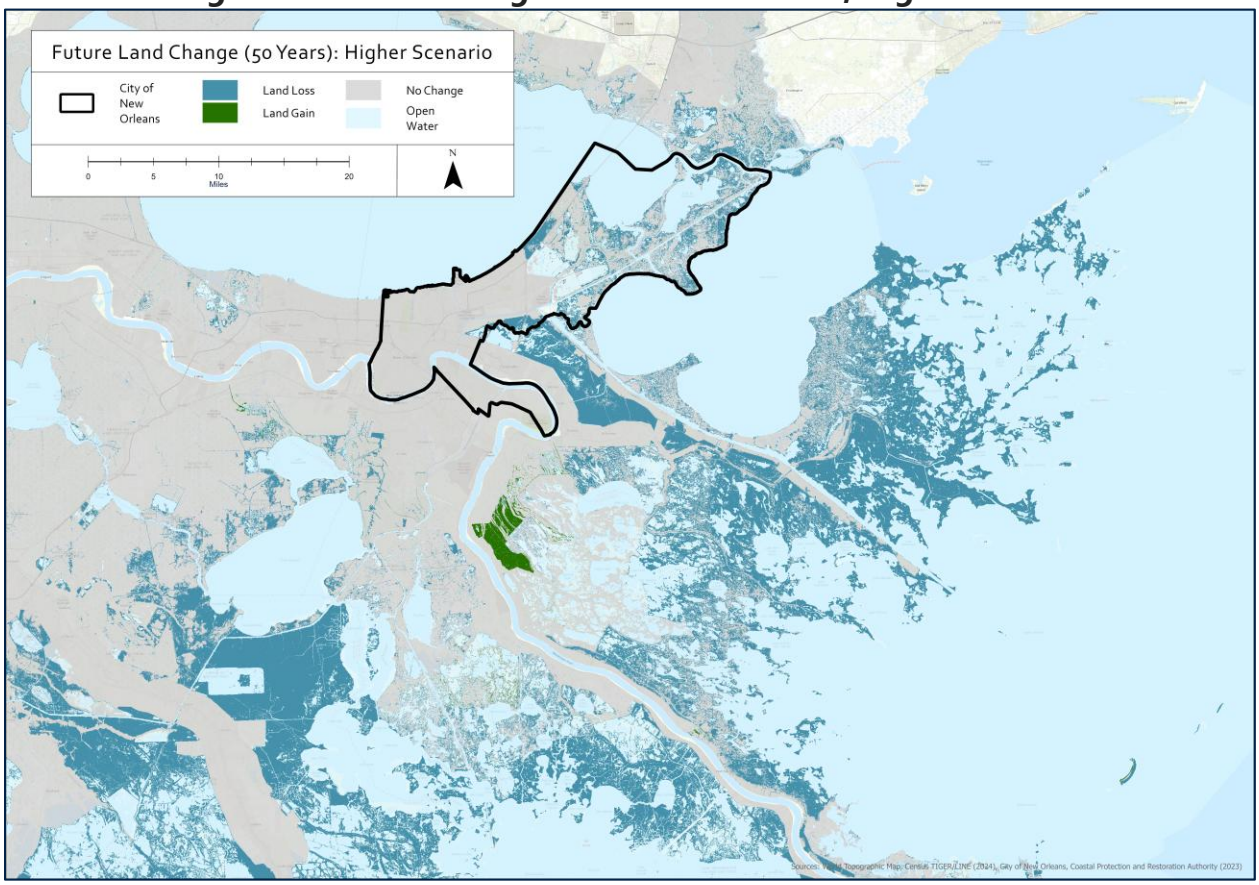
The Louisiana Coastal Protection and Restoration Authority created the Master Plan Data Viewer (MPDV) and is the source of the land change maps used to present future land loss and coastal erosion projections under both the low and high scenario (Figures 5-3 and 5-4).

Figure 5-3. Land Change Scenario at Year 50, Low Scenario



[7] Louisiana Coastal Protection and Restoration Authority. Louisiana's Comprehensive Master Plan for a Sustainable Coast. 2023. https://coastal.la.gov/wep-content/uploads/2023/06/230531_CPRA-MP_Final-for-web_spreads.pdf

Figure 5-4. Land Change Scenario at Year 50, High Scenario



Probability of Future Events

The current annual loss of land for the region, coupled with future loss projects supports a "Highly Likely" probability of future coastal erosion for the City of New Orleans planning area, including all educational institutions and special districts.

Vulnerability and Impact

The City of New Orleans is continuously subject to coastal erosion. While usually a slow-evolving hazard, coastal erosion presents a serious threat to the city. As a densely populated area, the City of New Orleans faces increased vulnerability to tropical cyclones, coastal storms, and above-average tidal events with any loss of land. The loss of marshland, which provides valuable protection from coastal storm events, results in greater vulnerability.

In Louisiana, the combined risks of land loss, storm surge, and tropical cyclones intersect with significant social and economic impacts. Offshore oil and gas operations have shifted to deeper waters and adopted increased automation, reducing employment

opportunities and related services in nearby communities. Louisiana's commercial fisheries have also faced challenges from changing fisheries habitats. Many residents with the financial means to do so have relocated to higher ground, while businesses such as banks and grocery stores have closed in high-risk areas. Similarly, local government services, including schools and libraries, are being rebuilt farther inland, away from the communities they originally served. These physical, economic, and demographic shifts are disrupting traditional ways of life and forcing state and local governments to reconsider how they operate within a rapidly changing set of conditions.[8]

Land loss has and will impact residential neighborhoods, roadways, and critical infrastructure. Wetland erosion increases the risk of flooding and storm surge, particularly for homes and businesses outside the levee protection system. As land is lost, property values in susceptible areas may decrease, leading to decreased tax revenue. New Orleans is home to one of the largest and busiest ports in the world, and the greater metropolitan area serves as a hub for maritime industry, oil refining, and petrochemical production. Coastal erosion can impact port terminals, shipping infrastructure, refineries, and petrochemical plants increasing the risk of operational disruptions, leading to significant economic losses for these critical industries. Marinas, fisheries, and tourism-related infrastructure also face heightened risks of flooding due to ongoing land loss.

Key transportation infrastructure, including U.S. Highways 11 and 90 and rail lines for Canadian Northern, Norfolk Southern, and CSX, are located outside the city's protective levee system in areas at risk of coastal erosion. Continued land loss could disrupt regional connectivity and impact the city's role in supporting the nation's energy supply and economic security.

Coastal erosion does not directly affect HANO, NORA, Tulane University, or Loyola University, as their assets and populations are fully located within the levee protection system designed to prevent erosion impacts. In contrast, the City of New Orleans and SWBNO maintain assets, such as roads, utility infrastructure, and public safety facilities, that may be vulnerable to coastal erosion.

Notably, coastal erosion can have significant environmental implications with cascading impacts. Critical habitats for migratory birds, animal species, and exotic flora and fauna may be disturbed overtime. As the shoreline retreats there is reduced habitat availability for local wildlife. Other environmental impacts include the loss of natural vegetation and barriers that protect against storm surge and flooding, as well as a diminished natural

[8] I. Fazey, J.R.A. Butler, J. Kozak, J. Dubinin, C. Manning-Broome, D. Reed, G. Leicester, S.A. Burge, B. Searle. Three emergencies of climate change: The case of Louisiana's coast. Environmental Science & Policy. 2021. https://doi.org/10.1016/j.envsci.2021.05.014.

flood absorption capacity. This increases flood risk, making storm surges and heavy rainfall events more destructive.

Table 5-1 includes the comprehensive critical facilities identified in Appendix F that were considered the most important to the planning area that are subject to a range of impacts due to coastal erosion. These structures were located in or near high risk areas identified in the CPRA 2023 Coastal Master Plan 50 year Future Without Action (FWOA) modeling scenario. For a comprehensive list of identified critical facilities for each participant, please see Appendix F.

Table 5-1. Critical Facilities for Coastal Erosion

Critical Facility Types	Critical Facilities at Risk	Potential Impacts
Emergency Response Departments (EOC, Fire, Police, EMS), Hospitals	City of New Orleans: 1 Fire Facility, 4 Health Service Facilities	• Facilities near waterways, levees, or on coastal edges may be damaged or destabilized. • Evacuations routes may be obstructed, eroded, or completely damaged, limiting access for emergency response vehicles. • Damaged roads and bridges can impede emergency response vehicle access to areas. • Key evacuation routes may become partially compromised or impassable. • Hospitals, medical facilities, and first responder assets located outside of protected levee areas face increased flood risk as natural buffers disappear. • Increased number of rescues needed as areas become more vulnerable to storm surges or high tides due to erosion.
Airport, Academic Institutions, Community Residential Facilities, Day Care Facilities, Evacuation Centers	No known facilities at risk	• Coastal erosion can undermine the foundation of buildings, causing damage or destruction to structures, especially in low lying areas adjacent to canals, level, or wetlands.

Critical Facility Types	Critical Facilities at Risk	Potential Impacts
& Shelters, Governmental Facilities		• Facilities and assets located outside of protected levee areas face increased flood risk as natural buffers disappear. • Backup power sources and utility equipment could be damaged by erosion or inundated by increasing flood waters, making them inoperable. • The erosion of nearby roads and bridges can delay access for staff, emergency responders, personnel, and evacuees. • Shelters and evacuation centers may experience increased flood risk due to reduced natural storm-surge attenuation. • Damaged or destroyed highway infrastructure may substantially increase the need for airport operations.
Commercial Suppliers (food, gas, etc.)	City of New Orleans: 2 Fuel Supply Facilities	• Erosion and land loss can damage or cut off access to warehouses, supply hubs, and distribution centers, particularly those near major canals, port facilities, and coastal corridors. Essential supplies like medicines, water, food, and equipment deliveries may be inaccessible or significantly delayed due to eroded or flooded transportation routes. • Long-term business interruptions may occur if repeated erosion or flooding makes facilities in low-lying areas inoperable.
Utility Services and Infrastructure (electric, water, wastewater, communications)	City of New Orleans: 1 Power Plant, Lake Pontchartrain Causeway	• Erosion may damage critical causeways, bridges, and other critical infrastructure. • Erosion threatens above and below-ground utility lines, pumping stations, substations, and communication

Critical Facility Types	Critical Facilities at Risk	Potential Impacts
	SWBNO: 1 Water Treatment Facility, 10 Pump Stations, 1 Water Storage Facility, 43 Floodgates	towers, especially those that are located in marsh-adjacent or canal-adjacent corridors. • Damage to water and wastewater systems can lead to contamination, boil-water advisories, and public health hazards. • Erosion can damage water treatment and sewage systems, leading to contamination and health hazards. • The loss of key infrastructure may make it difficult for utility vehicles to reach critical locations, delaying response times.

Currently, due to the long-term and slow moving nature of coastal erosion the potential severity of impact is considered “Minor”, meaning injuries and illnesses do not result in permanent disability, the complete shutdown of critical facilities for up to one week, and more than 10 percent of property destroyed or with major damage.



Section 6

Drought

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Section 6: Drought

Hazard Description

Drought is a period of time without substantial rainfall that persists from one year to the next. Drought is a normal part of virtually all climatic regions, including areas with high and low average rainfall. Drought is the result of prolonged reductions in natural precipitation, typically lasting a season or longer. Droughts can be classified as meteorological, hydrologic, agricultural, and socioeconomic. Table 6-1 presents definitions for these different types of droughts.

Drought is one of the most complex of all natural hazards because it is difficult to determine their precise beginning or end. In addition, droughts can increase the likelihood and severity of other hazards such as extreme heat and wildfires. Their impact on wildlife and area farming is enormous, often killing crops, grazing land, edible plants, and even in severe cases, trees. A secondary hazard to drought is wildfire because dying vegetation serves as a prime ignition source. Therefore, a heat wave combined with a drought is a very dangerous situation.

Table 6-1. Drought Classification Definitions[1]

Meteorological Drought	The degree of dryness or departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales.
Hydrologic Drought	The effects of precipitation shortfalls on stream flows and reservoir, lake, and groundwater levels.
Agricultural Drought	Soil moisture deficiencies relative to water demands of plant life, usually crops.
Socioeconomic Drought	The effect of demands for water exceeding the supply as a result of a weather-related supply shortfall.

Location

Droughts occur regularly throughout Louisiana and the City of New Orleans planning area and are considered a normal condition. Local drought conditions impacting the City of New Orleans and regional droughts across the broader Mississippi River Basin differ in their causes, scale and primary impacts. Local drought conditions are caused by a lack of precipitation and are frequently the result of a flash drought, or a drought characterized

[1] Source: Multi-Hazard Identification and Risk Assessment: A Cornerstone of the National Mitigation Strategy, FEMA

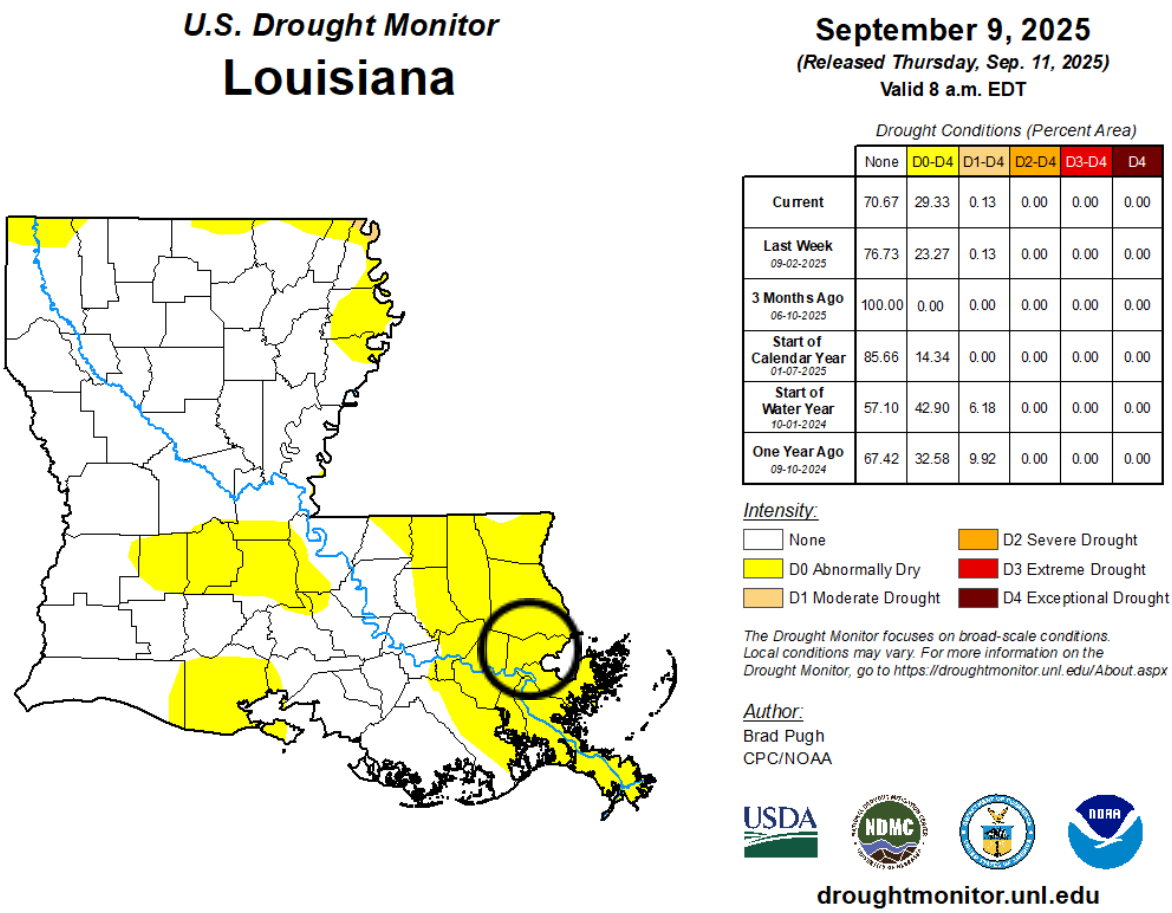
by high temperatures and exceptional evaporative demand, which rapidly depletes soil moisture. Drought conditions in the city lead to typical drought impacts including increased wildfire risk and agricultural losses.

Droughts impacting the Mississippi River Basin can occur across vast areas of the central U.S. Rain shortfalls and/or snowmelt across the Mississippi River Basin can significantly reduce the amount of runoff flowing into the main river channel far north of Louisiana. This reduced river flow allows denser saltwater from the Gulf to move upstream, threatening drinking water supplies in New Orleans. Low river flow also disrupts critical shipping by making the river too shallow for fully loaded barges. Significant historical droughts impacting the Mississippi River corridor are detailed in the National Oceanic and Atmospheric Administration's (NOAA) National Integrated Drought Information System (NIDIS). The current conditions provided by NIDIS indicate river flows in the Lower Mississippi Basin are within the normal range at the time of plan development. However, persistent drought in the Ohio River Basin and adjacent areas will likely lead to further declines in flow from the Ohio River, potentially causing low water issues on the Lower Mississippi River.[2]

The U.S. Drought Monitor, produced through a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, U.S. Department of Agriculture, and NOAA, is the most reliable resource for historical drought data at the parish and city levels. The Drought Monitor shows the planning area is currently experiencing abnormally dry conditions (Figure 6-1) but has experienced a range of conditions from normal (none) to exceptional drought conditions over the last decade (Figure 6-2). There is no distinct geographic boundary to drought; therefore, it can occur anywhere throughout the City of New Orleans planning area.

[2] Source: NOAA National Integrated Information System, https://www.drought.gov/drought-status-updates/drought-and-water-update-mississippi-river-basin-2025-09-18

Figure 6-1. U.S. Drought Monitor, September 2025



Extent

The Palmer Drought Index is used to measure the extent of drought by measuring the duration and intensity of long-term drought-inducing circulation patterns. Long-term drought is cumulative, with the intensity of drought during the current month dependent upon the current weather patterns plus the cumulative patterns of previous months. The hydrological impacts of drought (e.g., reservoir levels, groundwater levels, etc.) take longer to develop. Table 6-2 depicts magnitude of drought, while Table 6-3 describes the classification descriptions.

Table 6-2. Palmer Drought Index

Drought Index	Drought Condition Classifications						
	Extreme	Severe	Moderate	Normal	Moderately Moist	Very Moist	Extremely Moist
Z Index	-2.75 and below	-2.00 to -2.74	-1.25 to -1.99	-1.24 to +.99	+1.00 to +2.49	+2.50 to +3.49	n/a
Meteorological	-4.00 and below	-3.00 to -3.99	-2.00 to -2.99	-1.99 to +1.99	+2.00 to +2.99	+3.00 to +3.99	+4.00 and above
Hydrological	-4.00 and below	-3.00 to -3.99	-2.00 to -2.99	-1.99 to +1.99	+2.00 to +2.99	+3.00 to +3.99	+4.00 and above

Table 6-3. Palmer Drought Category Descriptions[3]

Category	Description	Possible Impacts	Palmer Drought Index
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered.	-1.0 to -1.9
D1	Moderate Drought	Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested.	-2.0 to -2.9
D2	Severe Drought	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed.	-3.0 to -3.9
D3	Extreme Drought	Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions.	-4.0 to -4.9
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies.	-5.0 or less

[3] Source: National Drought Mitigation Center

SECTION 6: DROUGHT

Drought is monitored nationwide by the National Drought Mitigation Center (NDMC). Indicators are used to describe broad-scale drought conditions across the U.S. and correspond to the intensity of drought.

Based on the historical occurrences of drought and the location of the City of New Orleans planning area, including all educational institutions and special districts, the area can anticipate the full range of drought from abnormally dry to exceptional drought, or D0 to D4, based on the Palmer Drought Category. The entire planning area has experienced exceptional drought conditions. This is the highest level of drought severity and the most extreme drought conditions the planning area can anticipate in the future.

Historical Occurrences

The Mississippi River corridor has experienced numerous drought events in the last 100 years, including droughts of the early 1930s, 1988, 2012, 2022, and 2023. Each of these events has led to disruptions in river commerce and to communities along the river. The 1930s "Dust Bowl" drought lasted the longest among the severe drought events in the Mississippi River corridor, enduring for almost 14 years. The 2012 Great Plains drought led to an estimated $42 billion (2025 dollars) in direct agricultural losses for the U.S. and was responsible for closing the Mississippi River at least three times.[4]

The most recent event started in June 2023, as rapid onset "flash" drought in the Ohio River Valley and Upper Mississippi River Valley caused river water levels to drop to levels not seen in more than a decade along key parts of the river. The river's flow rate dropped to about 150,000 cubic feet per second, only half the rate necessary to prevent saltwater intrusion from the Gulf. While the Mississippi River typically acts as a natural saltwater barrier, a combination of extreme heat, minimal rainfall, and exceptional drought conditions disrupted this balance, enabling the denser saltwater wedge to advance upstream.[5] This posed a substantial threat to New Orleans freshwater intake on the Mississippi River. The U.S. Army Corps of Engineers (USACE) implemented a range of protective measures to combat the saltwater intrusion threatening New Orleans and neighboring communities' freshwater supply, including the construction and successive raising of an underwater sill near Myrtle Grove. The sill is meant to slow the upstream movement of the saltwater wedge while allowing continued navigation along the river, serving as a temporary barrier to protect municipal water intakes.

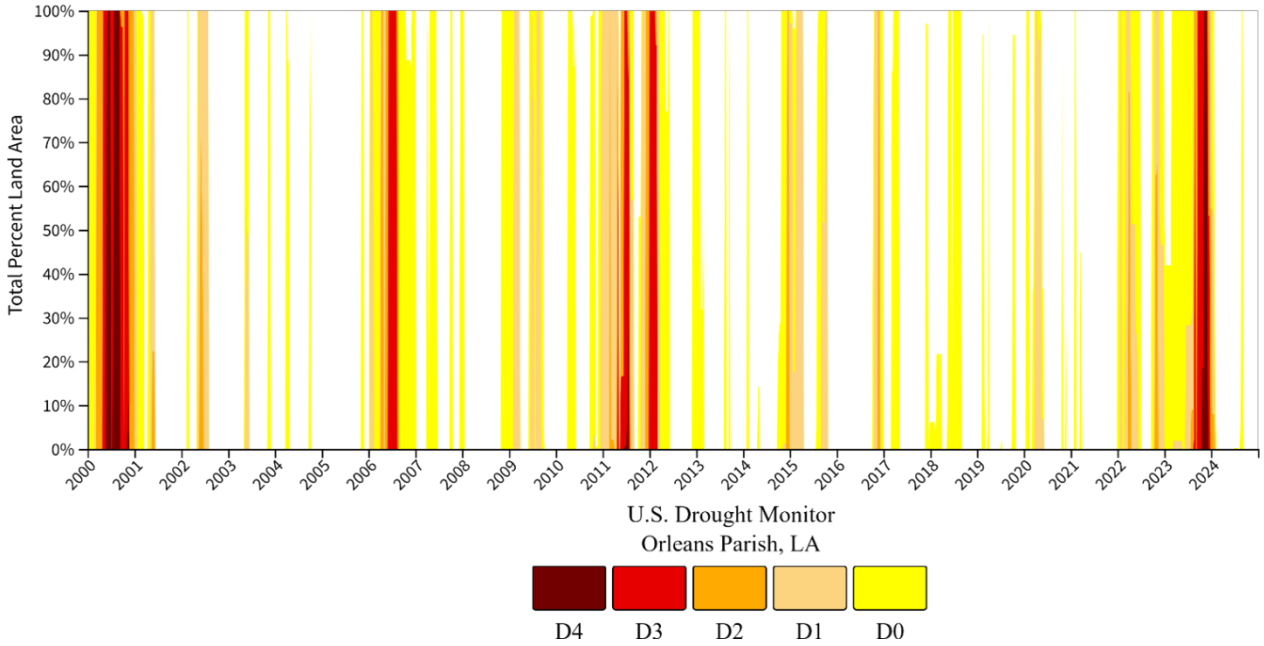
[4] Source: NOAA National Integrated Information System, https://www.drought.gov/watersheds/mississippi-river-dashboard/drought-lower-mississippi

[5] Source: The Water Collaborative; https://nolawater.org/resources-/2023-saltwater-intrusion-updates-water-news

The prolonged low flow conditions required river barges to reduce the weight of cargo they carried because the river was not deep enough for heavier loads. This increased costs to transport key agricultural commodities such as corn and soybeans. Several parishes in southern Louisiana issued drinking water advisories. The state's crawfish agriculture industry lost an estimated $139.8 million as water levels dropped so low that salt water began to travel up the river.

The City of New Orleans planning area may experience localized drought conditions in any given year. According to the U.S. Drought Monitor, between 2000 and 2024, the Orleans Parish, which includes the City of New Orleans planning area, spent 500 weeks (38%) in some level of drought as defined by Abnormally Dry (D0) or worse conditions. The longest drought during this period lasted 1 year and 4 months, starting in October 2022 and ending in February 2024. The Orleans Parish, including the City of New Orleans planning area, has received 7 USDA disaster designations for drought from 2012 through 2024.

Figure 6-2. City of New Orleans Drought Intensity, 2000-2024[6]



Historical drought conditions reported for the City of New Orleans planning area over the 25-year period have resulted in no reported property or crop damages. Costs associated with regional or river basin droughts that result in low water flows and saltwater intrusion are not readily available. The educational institutions and special districts have not

[6] U.S. Drought Monitor

reported any damages or additional events separately or apart from the parish-wide drought events. Two unique drought periods were reported for the planning area since the 2021 plan.

Significant Events

June – December of 2023

In 2023, the state of Louisiana experienced an unprecedented water crisis caused by severe drought and resulting saltwater intrusion in the Mississippi River. Researchers applied the Evaporative Demand Drought Index (EDDI) to analyze the event, finding that the drought emerged rapidly in late summer of 2023, resulting in a "flash drought." The flash drought caused critical, decade-low water levels in the Ohio and Upper Mississippi River systems. The river's flow rate dropped to approximately 150,000 cubic feet per second, roughly 50% of the threshold required to prevent saltwater intrusion from the Gulf. This reduction, compounded by exceptional heat and lack of rainfall, allowed a dense saltwater wedge to advance upstream, overriding the river's typical defensive function and threatening the water supply to New Orleans. The Mississippi River basin experienced high evaporation, worsening the water shortage.

During this same period much of the planning area was experiencing below-average rainfall. Although drought conditions had been present for several months, this marked the onset of a rapidly intensifying period of severe drought. By the last week of August, the planning area was experiencing extreme drought conditions (Stage D3). These extreme drought conditions persisted through September and October. In general, October is typically one of the drier months for the area and October 2023 was no exception. Although a few cold fronts passed through the planning area, they brought no measurable rainfall. By the end of October, the planning area was experiencing exceptional drought conditions (Stage D4). Drought conditions persisted through November. While regional rainfall can impact river flows in the short term, any localized rainfall would have provided only temporary relief in terms of the regional drought conditions across the Mississippi River Valley during the same period.

Water levels plummeted to historically low levels in the upper and middle Mississippi River Basin as the regional drought conditions continued into December. This allowed saltwater from the Gulf to creep upriver. The drought and resulting saltwater intrusion affected over 46,300 acres of crawfish farms across the state of Louisiana. As a result, a federal disaster declaration was issued (EM-3600-LA).

Local reporting indicated that the prolonged drought conditions impacted the City's reforestation program, killing 88 trees on South Claiborne Avenue, 10 trees on Jefferson

Avenue, and additional trees on Dwyer Road, Napoleon Avenue, Louisiana Avenue, and other locations. The 88 trees on South Claiborne Avenue and the 10 on Jefferson Avenue were subsequently replaced.

As saltwater advanced into the City of New Orleans planning area, it began to threaten critical systems, including the Sewerage and Water Board of New Orleans (SWBNO). The City's filtration systems are not able to filter out sodium from drinking water. Saltwater is significantly more corrosive than freshwater, threatening water treatment facilities and pipelines. It attacks copper and lead pipes and the soldered joints of other materials, endangering the potable water supply. The high salinity levels corrode aging lead and galvanized steel pipes, causing toxic metals to leach into drinking water. It is estimated that more than half of New Orleans residential properties are connected to city water by aged lead pipes. The city's aging infrastructure compounds the city's vulnerability to potential saltwater intrusion impacts. The Sewerage & Water Board is implementing a 10-year, federally funded plan to replace all identified lead service lines by 2037.

SWBNO conducted extensive and thorough planning, design, and communications regarding the possibility of experiencing elevated chlorine levels at the water intakes during this crisis. The plan was not required to be executed for the Westbank or Eastbank. Nevertheless, the saltwater intrusion, as a result of the drought, did pose a safety risk to the city's drinking water, as elevated salt concentrations can render it unsafe for consumption.

Climate Change Considerations

According to the Environmental Protection Agency (EPA), in the coming decades, Louisiana will become warmer, and droughts may become more severe. As the atmosphere warms, evaporation intensifies, leading to higher humidity, greater average rainfall, and more frequent heavy storms in some regions, while driving drought conditions in others. Increasingly severe droughts have the ability to impact the agricultural sector across the state, leading to more crop failures.[7]

It is projected that future changes to the City of New Orleans will include increased temperatures, which according to the U.S. Climate Explorer, the planning area may experience a 5°F increase in average extreme heat temperatures. Historically, extreme temperatures averaged 94°F in the city, but between 2035 and 2064 the average could be 99°F, increasing the severity and frequency of drought events. Some projections show an

[7] EPA. What Climate Change Means for Louisiana. August 2016.

even higher increase; however, the severity will be dependent on overall future emissions and is subject to change.

In addition to rising temperatures and more severe droughts, sea level rise and regional droughts are expected to increase the risk of saltwater intrusion. As sea levels rise, saltwater from the Gulf can move farther inland through coastal waterways and up the Mississippi River, particularly during periods of low river flow caused by drought. Reduced freshwater flow limits the river's ability to repel saltwater, allowing it to reach municipal water intake systems, groundwater aquifers, and nearby wetlands. Saltwater intrusion can threaten the drinking water supply in the City of New Orleans, increase water treatment costs, and disrupt commercial port operations. Elevated salinity levels can also damage freshwater vegetation, degrade wetlands, and alter aquatic ecosystems that support fisheries and wildlife.

Probability of Future Events

According to the U.S. Drought Monitor, 24 unique drought periods (ranging from one month to about 1 year and 4 months in duration) occurred over a 25-year reporting period, which provides a probability of approximately one event every year. This frequency supports a "Highly Likely" probability of future events for the City of New Orleans planning area, including all educational institutions and special districts.

Vulnerability and Impact

No loss estimates were available for the 25-year reporting period. A drought event frequency-impact was conducted to determine an impact profile on agriculture products and estimate potential losses due to drought in the area. All existing and future buildings, facilities, and populations are exposed to this hazard and could potentially be impacted. However, drought impacts are mostly experienced in water shortages or crop and livestock losses on agricultural lands and typically have minimal impact on buildings.

As droughts may occur more frequently and intensely in the future, the impacts may be similar to what was experienced in the 2023 drought across Louisiana. That summer, record-low Mississippi River levels allowed saltwater to advance upriver, jeopardizing the City of New Orleans water supply and prompting the U.S. Army Corps of Engineers to implement measures to prevent further intrusion.[8]

[8] NOAA. New Study Examines Louisiana's 2023 Water Crisis. https://www.drought.gov/news/new-study-examines-louisianas-2023-water-crisis-2024-06-08.

With the City of New Orleans located along the Gulf and bisected by the Mississippi River, it is particularly vulnerable to saltwater intrusion. During most months of the year, the Mississippi River has enough volume to prevent saltwater from the Gulf coming upstream. However, when the river falls below approximately 300,000 cubic feet per second, saltwater can move upstream. Since the bottom profile of the Mississippi River is deeper than the Gulf water surface level, and the saltwater from the Gulf is denser than the river, the saltwater moves upstream along the bottom of the river beneath the less dense freshwater. Because saltwater has a higher density, it forms a wedge as it moves upstream. This wedge can travel far into river systems, potentially impacting municipal drinking water and industrial water supplies. Elevated salt concentrations can make the water unsafe for consumption, disrupt industrial processes, and require additional treatment to ensure water quality for both residential and commercial use.

The City of New Orleans Planning Team identified the following critical facilities as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by drought events. For a comprehensive list of identified critical facilities for each participant, please see Appendix F.

Table 6-4. Critical Facilities Vulnerable to Drought Events

Critical Facilities	Potential Impacts
Emergency Response Services (EOC, Fire, Police, EMS, Hospitals)	• Drought can increase wildfire risk, potentially placing additional strain on local response services. • A secondary hazard associated with drought-driven low river flows is saltwater intrusion. Excess salinity can damage medical equipment used for cooling, sterilization, dialysis, and sanitation. Public health risks also increase as sodium levels rise, corrosion-related contaminants enter the water system, and potable water supplies are disrupted, a situation already experienced in parts of Plaquemines Parish.
Airport, Academic Institutions, Community Residential Facilities, Day Care Facilities, Evacuation Centers & Shelters, Governmental Facilities	• Strain on staff as drought may cause health problems related to low water flows and poor water quality. • Operations dependent on water supply may be adversely impacted.

Critical Facilities	Potential Impacts
Commercial Suppliers (food, gas, etc.)	• Operations dependent on water supply may be adversely impacted. • Potential supply chain disruptions due to impacts on food production, industrial operations, or other critical resources. • The Mississippi River is a major commercial artery, and drought conditions create sandbars, reduced river depth, and navigation delays, disrupting supply chains for grain, fuel, chemicals, and consumer goods • Water-dependent industries, including petrochemical and manufacturing plants, face operational challenges because they lack sufficient freshwater for processing and cooling, and they also experience equipment corrosion caused by increased salinity.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Increased operational costs to maintain water-dependent processes (e.g., cooling systems, sanitation). Power generation and industrial utilities rely on freshwater for cooling. Saltwater contamination due to drought can lead to cooling failures, reduced energy reliability, and accelerated equipment damage.

Vulnerable populations in New Orleans are disproportionately impacted by drought through a combination of increased food insecurity, compromised drinking water, higher utility costs, and heightened health risks. Low-income communities lack the resources to adapt to higher food costs associated with regional crop failures or low yields during drought periods. Excessive water leaks attributed to the city's aging infrastructure add additional strain to available potable water resources. Drought conditions often coincide with extreme heat, driving up cooling demand, placing increased strain on the regional energy grid, which can raise electricity costs and increase the risk of power disruptions. Excess sodium in drinking water can worsen chronic conditions like hypertension.

The population over 65 in the City of New Orleans planning area is estimated at 16 percent of the total population and children under the age of 5 are estimated at 6 percent. The population with a disability is estimated at 14 percent of the total population. An estimated 23 percent of the planning area population live below the poverty level and 3 percent of the population speak English "less than very well" (Table 6-5).

Table 6-5. Populations at Greater Risk

Jurisdiction	Population				
	65 and Older	Under 5	With a Disability	Below Poverty Level	Limited English Speaking
City of New Orleans	61,879	20,845	52,249	84,984	11,359

Potable water is used for drinking, sanitation, patient care, sterilization, equipment, heating and cooling systems, and many other essential functions in medical facilities. All residents in the City of New Orleans planning area could be adversely affected by drought conditions, which could limit water supplies and present health threats.

The City of New Orleans agricultural sector is comprised of 48 farms over 171 acres of land including vegetables, fruits, nursery crops, and poultry. The annual market value of agricultural products sold is $1,067,000. An estimated 5 percent of sales are from livestock and poultry products and an estimated 95 percent of sales are from crops. Most of the Parish's agriculture sales are vegetables, melons, potatoes, and sweet potatoes.[9] Prolonged drought periods could have significant impacts on the agricultural sector across the planning area.

Impacts of past localized droughts experienced in the City of New Orleans planning area have not resulted in injuries, fatalities, property, or known crop damages supporting a "Limited" severity of impact, meaning injuries and illnesses are treatable with first aid, the shutdown of critical facilities and services for 24 hours or less, and less than 10 percent of property destroyed or with major damage. However, regional or continental droughts could lead to major saltwater intrusion that would have catastrophic impacts on the planning area. Though rare, the severity of impact for a large-scale regional event (with saltwater intrusion as a contributing factor) would be considered substantial, with significant, widespread infrastructure damage to pipes and treatment facilities; sweeping economic impacts; ecosystem damage; wetland degradation; and elevated health risks associated with vulnerable populations access to safe drinking water.

Drought Impact Reporter

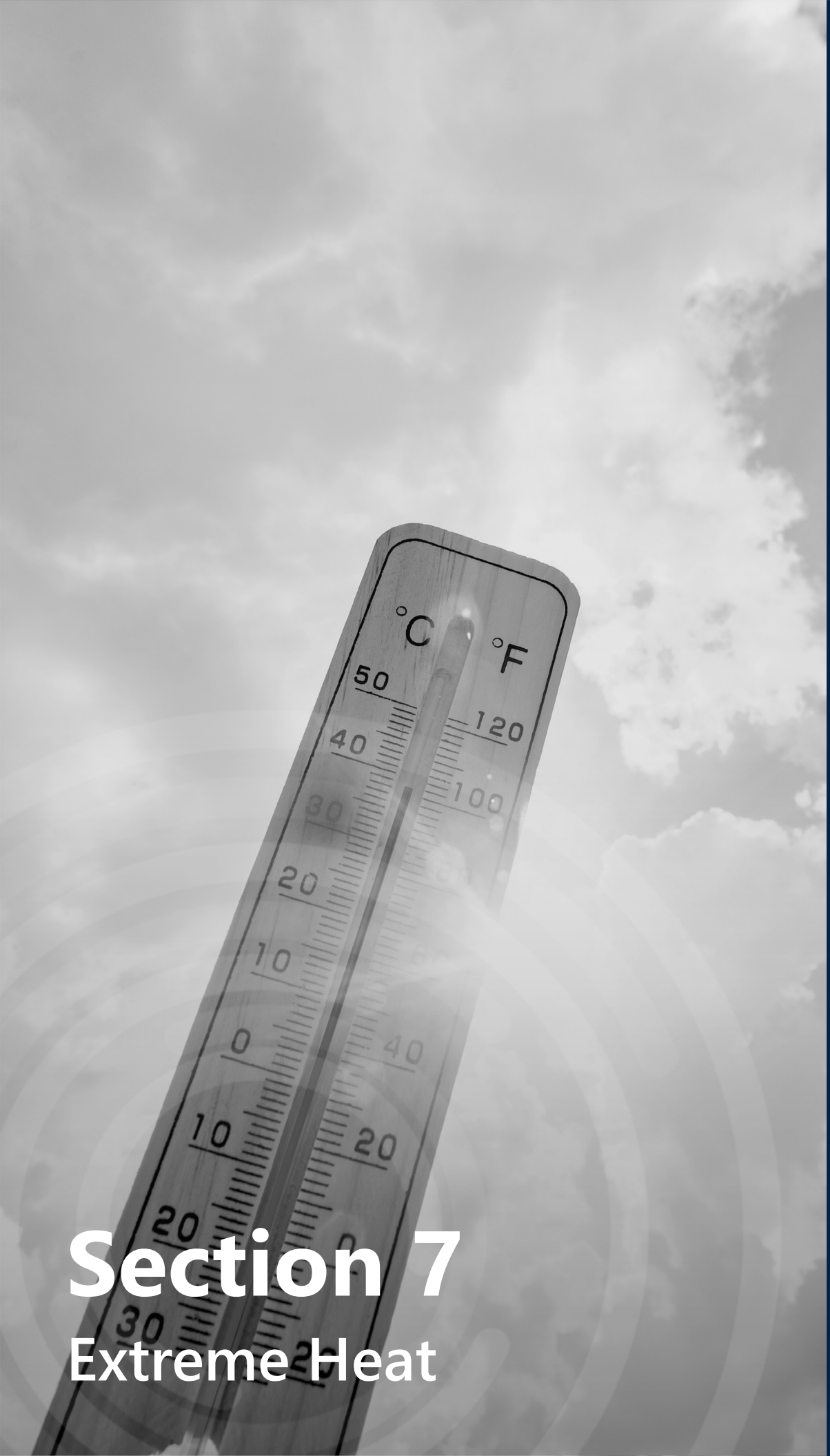
The Drought Impact Reporter was developed in 2005 by the University of Nebraska-Lincoln to provide a national database of drought impacts. Droughts can have an impact on agriculture, business, and industry; energy; fire; plants and wildlife; relief, response, and restrictions; society and public health; tourism and recreation; and water supply and quality. This database defines a drought impact as an observable loss or change that

[9] Census of Agriculture. Orleans Parish, Louisiana Parish Profile. 2022.

occurred at a specific place and time because of drought. Reports are submitted by individuals at Federal, State, and local agencies, as well as the general public. Table 6-6 lists drought impacts to the City of New Orleans from 2005 to 2024 based on reports received by the Drought Impact Reporter.

Table 6-6. Drought Impacts, 2005-2024

Drought Impacts	
Agriculture	11
Business & Industry	5
Energy	0
Fire	8
Plants & Wildlife	9
Relief, Response & Restrictions	14
Society & Public Health	13
Tourism & Recreation	1
Water Supply & Quality	12



Section 7

Extreme Heat

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Section 7: Extreme Heat

Hazard Description

Extreme heat is a period of excessively high temperatures and exceptionally humid conditions lasting at least two or three days. Extreme heat during the summer months is a common occurrence throughout the State of Louisiana, and the City of New Orleans is no exception. The city typically experiences extended periods of extreme heat, commonly known as heat waves, which are often accompanied by high humidity.



Signs mark a NOLA Ready cooling tent during 2023 heat wave. Photo by New Orleans Public Radio.

The most significant threat presented by extreme heat is the risk to the safety and welfare of people. The major risks associated with extreme heat include heat cramps, sunburn, dehydration, fatigue, heat exhaustion, and ultimately heat stroke. The most vulnerable population to heat-related illness are children, the elderly, the infirm, and people experiencing homelessness These populations are sometimes isolated, with no immediate family or friends to look out for their well-being and may be unable afford to run air-conditioning on a regular basis. Individuals experiencing homelessness face additional challenges, including prolonged outdoor exposure, limited access to shaded areas or cooling centers, and restricted access to proper hydration. Critical infrastructure can also be damaged or impacted by extreme heat. High temperatures may cause a rise in electricity consumption as homes, schools, and businesses try to regulate the temperature. This may lead to energy shortages and possible blackouts.

Persistent heat waves can weaken plant health, making them more susceptible to pests and invasive species. Urban gardens, trees, landscape vegetation, as well as foliage in densely vegetated or forested areas may become stressed. High temperatures increase evaporation rates, leading to dry soil and water stress. This, combined with high heat, can significantly increase marsh vegetation mortality, especially when combined with drought.

Urban settings are subject to the urban heat island effect, which causes developed areas to experience higher temperatures than nearby rural regions or even within different parts of a city. Built structures like roads, buildings, and other infrastructure tend to absorb and release more heat from the sun than natural areas such as forests or bodies of water. In urban settings, where these structures are densely concentrated and vegetation is sparse,

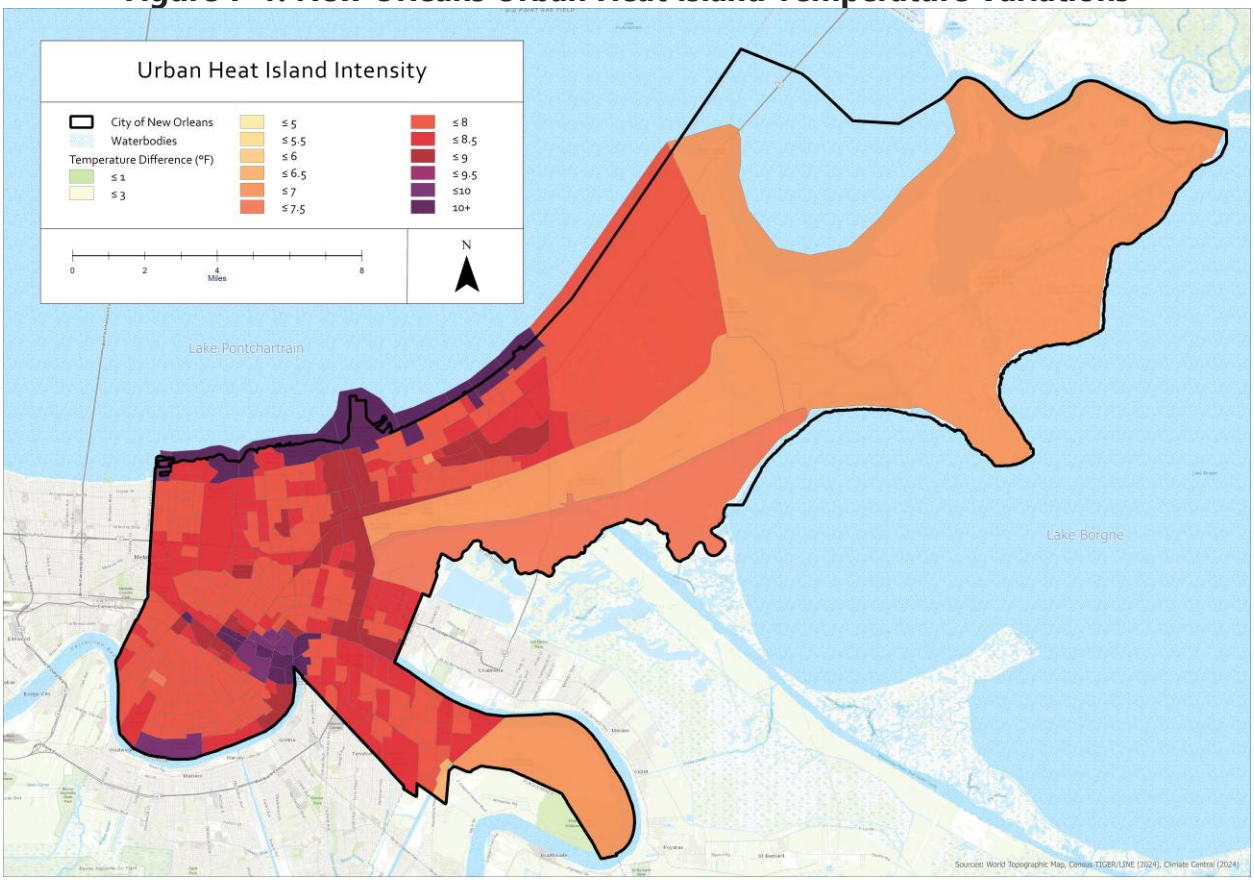
this creates localized zones of elevated temperatures compared to surrounding areas. According to The Big Green Easy, 74 percent of the New Orleans population lives in an urban heat island.

Location

Extreme heat events can occur anywhere throughout the City of New Orleans planning area, including participating educational institutions and special districts, as there is no specific geographic scope to the extreme heat hazard. However, due to the urban heat island effect, some areas tend to experience higher temperatures and more prolonged heat exposure than others.

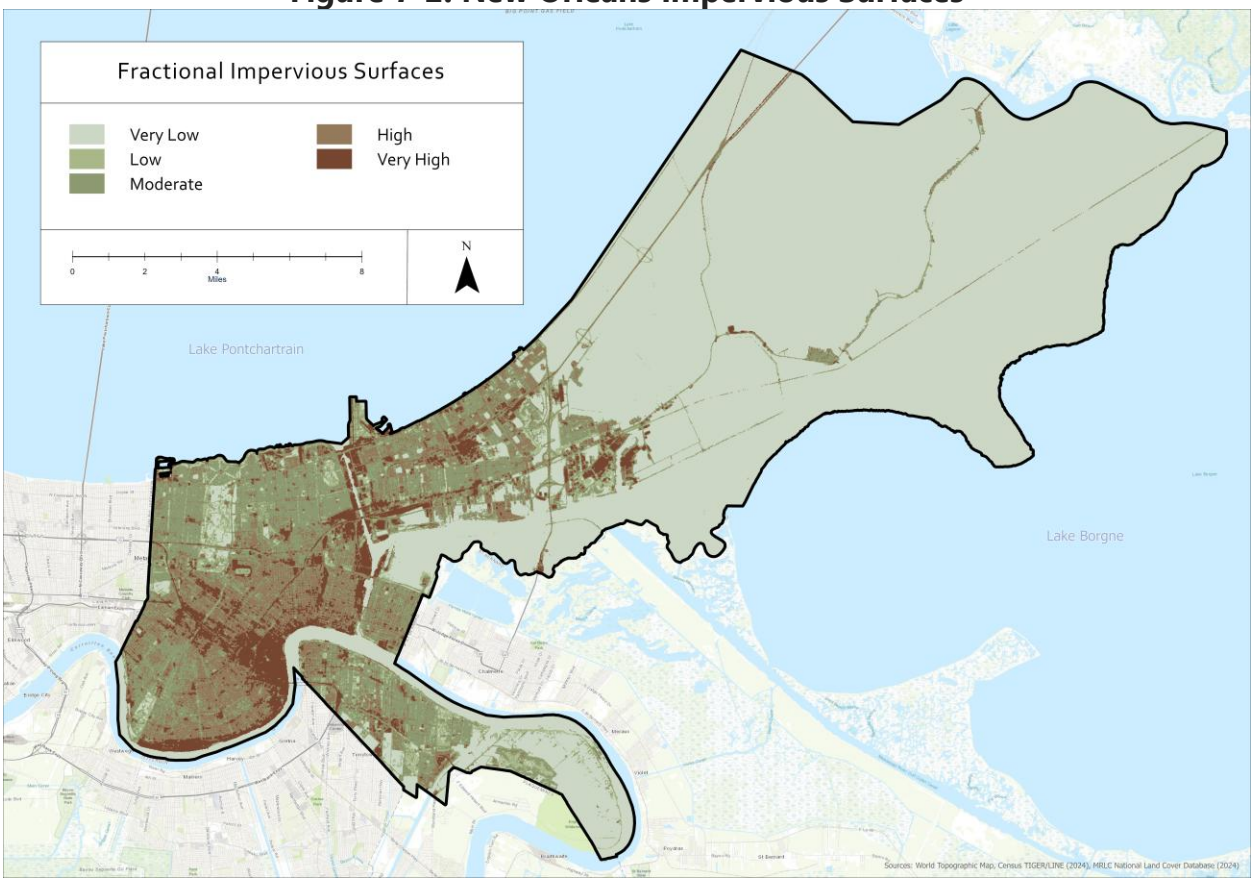
In New Orleans, the urban heat island effect is not evenly distributed. Figure 7-1 illustrates how much warmer developed areas are compared to surrounding rural land. Areas such as the Downtown/Central Business District, Central City, and parts of New Orleans East tend to experience higher temperatures than neighborhoods closer to major green spaces or water bodies, demonstrating the relationship between development intensity and heat exposure (Figure 7-2). These hotter areas are characterized by extensive impervious surfaces, lower tree canopy coverage, wider roadways, and higher building density, all of which contribute to increased heat absorption and reduced nighttime cooling.

Figure 7-1. New Orleans Urban Heat Island Temperature Variations



In contrast, neighborhoods in closer proximity to large parks such as Audubon Park and City Park, as well as areas nearer to Lake Pontchartrain, often experience slightly lower temperatures due to shading from tree canopy, evapotranspiration from vegetation, and the cooling influence of open water. The relationship between high development intensity and urban heat island temperature variations is illustrated between Figure 7-1 and 7-2. The New Orleans Central Business District shows the darkest purple on the urban heat island intensity map, and the darkest browns on the impervious surfaces map.

Figure 7-2. New Orleans Impervious Surfaces

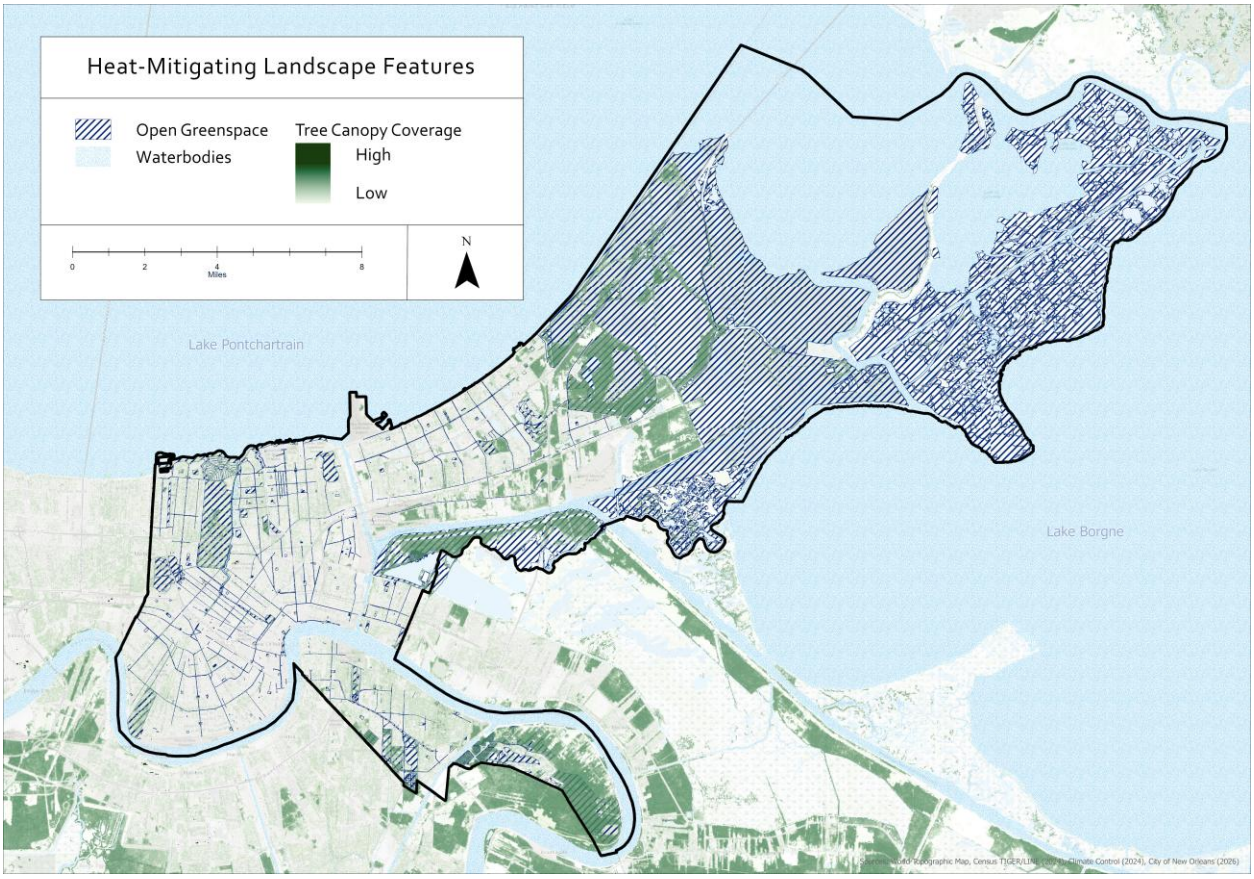


Trees and vegetation lower surface and air temperatures by providing shade and cooling through evapotranspiration. Essentially, evapotranspiration cools the air by using heat from the air to evaporate water. Strategically planted trees can lower air temperatures by up to 10°F, diminish surface temperatures by up to 25°F, and reduce air conditioning demand, significantly mitigating the intense heat produced by concrete and asphalt.

The New Orleans Reforestation Plan, adopted in December of 2022, outlines the City's challenges addressing extreme heat through reforestation and details the actions being taken to replace the tree canopies that were lost due to tropical cyclones and other natural events. The City lost 9.6 percent of their tree canopy coverage between 2005-2009 due to

hurricanes and other storms; as of the publication of the reforestation plan the City had 18.5 percent tree coverage citywide.[1] Restoring urban forests is critical, as many people live in urban heat hot spots, where temperatures can feel much higher than surrounding areas, exacerbating extreme heat impacts. Figure 7-3 illustrates the City's progress in reforestation, highlighting areas across the city where heat mitigating landscaping is most prevalent.

Figure 7-3. New Orleans Tree Canopy Coverage

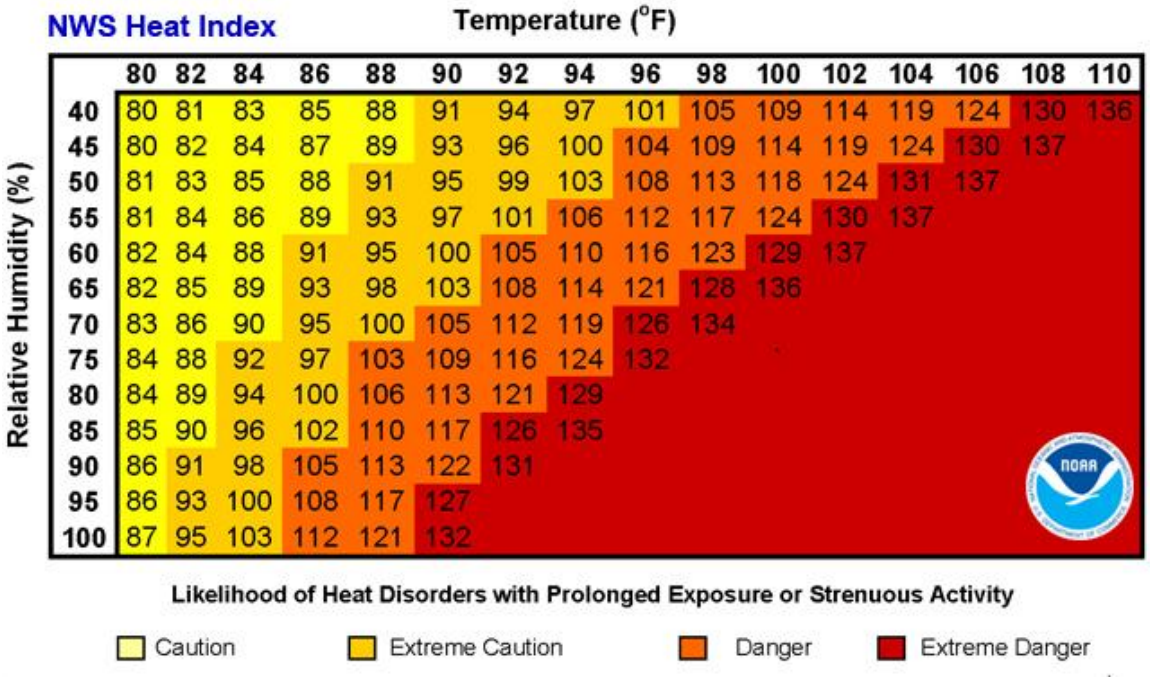


Extent

The magnitude or intensity of an extreme heat event is measured according to temperature in relation to the percentage of humidity. According to the National Oceanic Atmospheric Administration (NOAA), this relationship is referred to as the "Heat Index" and is depicted in Figure 7-4. This index measures how hot it feels outside when humidity is combined with high temperatures.

[1] Source: New Orleans Reforestation Plan, December 2022

Figure 7-4. Extent Scale for Extreme Heat[2]



The index in Figure 7-4 displays varying categories of caution depending on the relative humidity combined with the temperature. For example, when the temperature is at 90 degrees Fahrenheit (°F) or lower, caution should be exercised if the humidity level is at or above 40 percent.

The shaded zones on the Heat index (Figure 7-4) indicate varying symptoms or disorders that could occur depending on the magnitude or intensity of the event. "Caution" is the first category of intensity, and it indicates when fatigue due to heat exposure is possible. "Extreme Caution" indicates that sunstroke, muscle cramps, or heat exhaustion are possible, and a "Danger" level means that these symptoms are likely. "Extreme Danger" indicates that heat stroke is likely. The National Weather Service (NWS) initiates alerts based on the Heat Index as shown in Table 7-1.

[2] Source: NOAA

Table 7-1. Heat Index and Warnings

Category	Heat Index	Possible Heat Disorders	Warning Type
Extreme Danger	125°F and higher	Heat stroke or sun stroke likely.	An Excessive Heat Warning is issued if the Heat Index meets or rises above 113°F or that temperatures are greater than or equal to 105°F.
Danger	103 – 124°F	Sunstroke, muscle cramps, and/or heat exhaustion are likely. Heatstroke possible with prolonged exposure and/or physical activity.	A Heat Advisory will be issued to warn that the Heat Index may meet or exceed 108°F, or that temperatures are greater than or equal to 103°F. An Excessive Heat Warning is issued if the Heat Index meets or rises above 113°F or that temperatures are greater than or equal to 105°F.
Extreme Caution	90 – 103°F	Sunstroke, muscle cramps, and/or heat exhaustion possible with prolonged exposure and/or physical activity.	A Heat Advisory will be issued to warn that the Heat Index may meet or exceed 108°F, or that temperatures are greater than or equal to 103°F.
Caution	80 – 90°F	Fatigue is possible with prolonged exposure and/or physical activity.	No warning issued, but caution should be taken with prolonged exposure or physical activity.

A key assumption of extreme heat impacts defined by the Heat Index (Figure 7-4) is that people exposed to heat are in the shade. Another measurement of extreme heat, the Wet Bulb Globe Temperature (WBGT), can be used to better understand heat's impact on those in direct sunlight. WBGT is a calculation which considers temperature (in direct sunlight), relative humidity, wind speed, cloud cover, and sun angle. For groups with prolonged heat and sun exposure, such as outdoor workers, unhoused populations, or those engaged in high intensity exercise, WBGT may provide a more accurate measurement of risk (Figure 7-5).

Figure 7-5. Wet Bulb Globe Temperature Extents and Warnings[3]

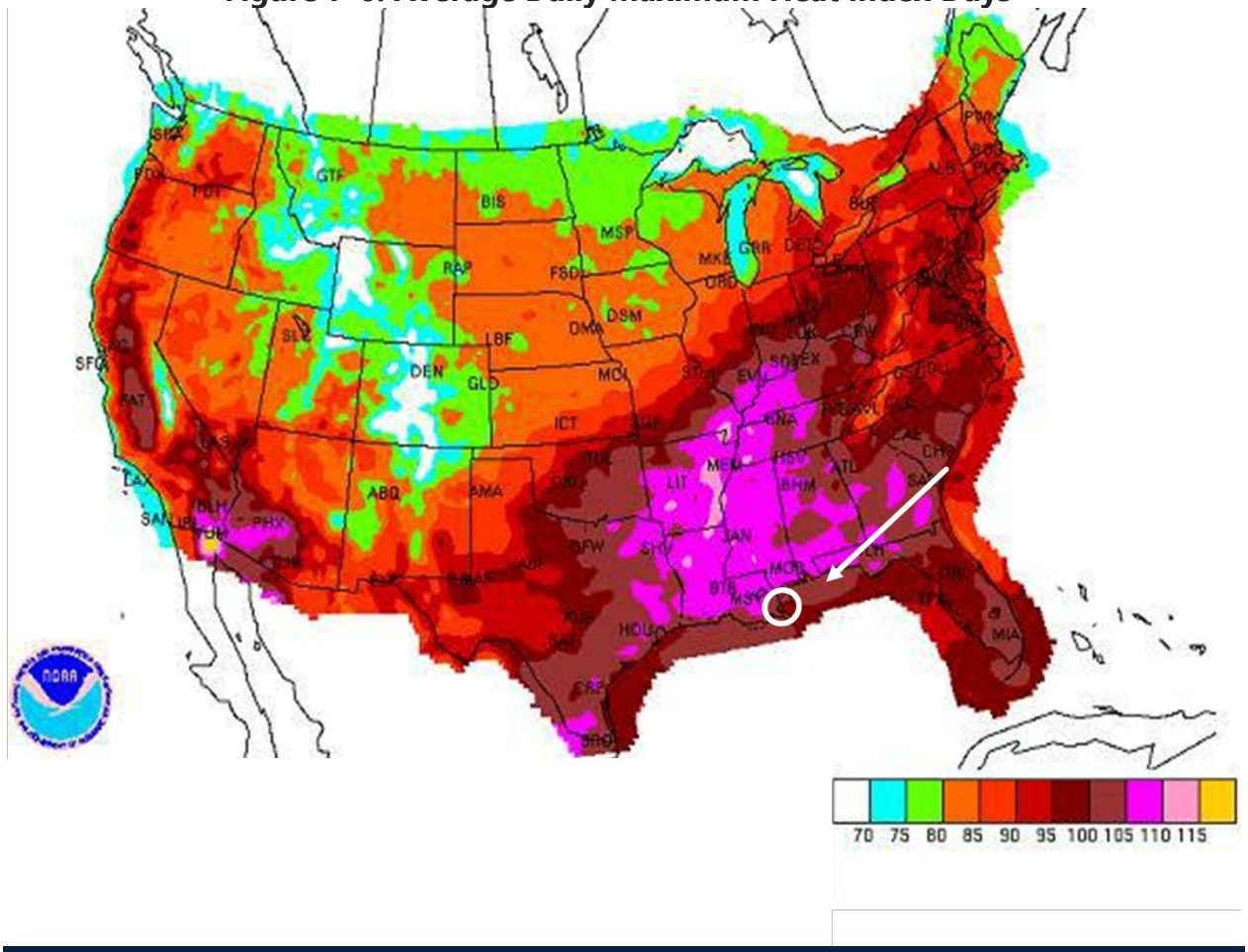
WGBT / RISK	IMPACTS	ACTIONS
80-85 F / Low	Body stressed after 45 minutes	Take at least 15 minutes of breaks each hour if working or exercising in direct sunlight; stay hydrated.
85-88 F / Moderate	Body stressed after 30 minutes. HEAT CRAMPS likely (painful contraction of muscles, weakness)	Take at least 30 minutes of breaks each hour if working or exercising in direct sunlight; drink ½ to 1 quart of water per hour.
88-90 F / High	Body stressed after 20 minutes. HEAT EXHAUSTION likely (dizziness, nausea, vomiting, headache, fainting, disorientation, weakness)	Take at least 40 minutes of breaks each hour if working or exercising in direct sunlight; reduce work, exercise intensity. Drink up to 1 quart of water per hour.
> 90 F / Extreme	Body stressed after 15 minutes. HEAT STROKE likely (extremely high body temp, confusion, convulsions, unconsciousness, death)	Take at least 45 minutes of breaks each hour if working or exercising in direct sunlight; suspend all strenuous outdoor activities. Drink at least 1 quart of water per hour.
Adapted from U.S. Army and OSHA guidelines and recommendations		

Due to its geography and its hot, humid, and subtropical climate, the City of New Orleans can expect at least one extreme heat event each summer. Residents and visitors should take precautions when heat advisories are issued. Children and the elderly are more vulnerable to heat impacts because they may depend on others to recognize heat stress risks and impacts and may be less able to take protective actions for themselves. Those working or remaining outdoors for extended periods of time are also at greater risk.

Figure 7-6 displays the daily maximum heat index as derived from NOAA based on data compiled from 1838 to 2015. The white circle shows the City of New Orleans. The planning area is represented in a brown color across the planning area, which indicates an average daily heat index of 100°F to 105°F. Based on historical events, City of New Orleans could experience dangerous heat from 100°F to 105°F indicating a maximum extent category of "Extreme Caution" and "Danger" which can include sunstroke, muscle cramps, heat exhaustion, and possibly heatstroke with prolonged physical activity. This is the average maximum temperature the planning area can anticipate based on historical events.

[3] Source: National Weather Service. https://www.weather.gov/arx/wbgt

Figure 7-6. Average Daily Maximum Heat Index Days[4]



Historical Occurrences

The National Centers for Environmental Information (NCEI) Storm Events database is a national data source organized under the National Oceanic and Atmospheric Administration (NOAA). The NCEI is the largest archive available for historic storm events data. Previous occurrences for extreme heat are derived from the NCEI database, which identifies extreme heat events at the parish level for each event. According to NCEI, there have been 175 extreme heat events on record for the City of New Orleans over a 29-year reporting period (Table 7-2). Historical extreme heat information, as provided by the NCEI and the Planning Team, shows extreme heat activity across the area for each event. The appropriate percentage of the total property and crop damage reported for the entire forecast area is allocated to each jurisdiction impacted by the event, when multiple jurisdictions are impacted simultaneously.

[4] Note: NRDC and the white circle indicates the City of New Orleans planning area.

In response to the record-breaking heat of 2023, the New Orleans Health Department expanded efforts to track heat-related injuries and fatalities. Table 7-3 presents a summary of reported heat-related health impacts in recent years. This risk assessment includes only reported extreme heat events. It is likely that additional events went unreported both prior to and during the reporting period. Due to the limited number of documented incidents, average high temperatures were analyzed to better estimate the probability of future extreme heat events.

Table 7-2. Historical Extreme Heat Events, 1996 – 2024[5]

Jurisdiction	Year	Incidents Reported	Deaths	Injuries	Property and Crop Damage
City of New Orleans	1999	1	0	2	$0
City of New Orleans	2000	2	2	0	$0
City of New Orleans	2023	144	28	367	$0
City of New Orleans	2024	28	21	229	$0

Table 7-3. Historical Extreme Heat Events Summary, 1996 – 2024

Jurisdiction	Number of Events	Deaths	Injuries	Property and Crop Damage
City of New Orleans	175	51	598	$0

A total of 172 events were reported since the 2021 Plan.

Significant Events

August 29 to September 5, 2021

Following the devastation of Hurricane Ida, downed electric wires, power poles, and transmission towers left more than a million people in southeast Louisiana without electricity for multiple days. In the City of New Orleans, many did not have their power restored until over a week after the hurricane. The City, which had already been experiencing extreme heat conditions prior to Hurricane Ida, saw heat indexes rise above 100 for several consecutive days following the storm while residents were trapped in their homes with no way to cool off. At least 10 deaths were tied to the extreme heat following

[5] Note: This table includes historical extreme heat events between 1996 and 2024 reported by the NCEI database and the New Orleans Health Department. No events were reported for many of the years in the reporting period. This could be an indication of milder temperatures but could also be attributed to deficiencies in reporting.

Hurricane Ida, all of which were people in their 60s and 70s. The last reported fatality occurred on September 5, a full week after the hurricane.[6]

July 16 to 31, 2023

In mid-July of 2023, a persistent ridge of high pressure developed over the southwestern United States, resulting in record-breaking extreme temperatures across much of the southern region, including southeast Louisiana and southern Mississippi. The extreme temperatures paired with high humidity values caused extreme and fatal conditions across southeast Louisiana and southern Mississippi. High temperatures were in the upper 90°F to 100°F with heat indices were in the 113°F to 118°F degree range for the City of New Orleans. During this time period, the New Orleans Health department reported 49 heat related injuries and three heat related fatalities.

August 1 to 31, 2023

An expansive ridge of high pressure settled over the southern United States, driving record-breaking temperatures across much of the region, including southeast Louisiana and southern Mississippi. When combined with elevated humidity levels, these conditions resulted in excessive and prolonged heat. Very hot and humid weather persisted throughout the month of August for all of southeast Louisiana. High temperatures were in the high 90°F to 100°F degree range with heat indices in the 113°F to 115°F degree range each afternoon. During this time period, the New Orleans Health department reported 152 heat related injuries and 16 heat related fatalities.

Due to the excessive heat events that continued throughout the summer of 2023, an emergency declaration was issued by the City of New Orleans, followed by a statewide declaration a few days later. The New Orleans Emergency Medical Services (NOEMS) reported that heat-related calls increased from 25 calls per month to 100 calls per month. Fires also increased, with 24 vegetation fires reported in 2023 compared to the previous average of 14 fires per year from 2019 to 2022.[7] In response to the summer's extreme heat, the City elevated response measures to mitigate extreme heat impacts, including expanding hours at climate-controlled public facilities, distributing bottled water at libraries, standing up unhoused outreach teams, and providing updates and guidance to the public through NOLA Ready.

[6] Source: Bogel-Burroughs, N., & Reckdahl, K. (2021, September 15). Residents of New Orleans told: Heat, not storm, was biggest killer after Ida. The New York Times. https://www.nytimes.com/2021/09/15/us/new-orleans-hurricane-ida-heat.html

[7] Source: https://ready.nola.gov/incident/summer-heat-2023/city-of-new-orleans-issues-emergency-declaration-f/

Climate Change Considerations

Climate change is expected to lead to an increase in average temperatures as well as an increase in frequency, duration, and intensity of extreme heat events. With no reductions in emissions worldwide, Louisiana is projected to experience an additional 20 to 40 extreme heat days per year (above 95°F) by 2050 than what is experienced now.[8]

Historically, the City of New Orleans has averaged approximately 66 days per year with maximum temperatures exceeding 90°F. Climate change models simulated by the Coupled Model Intercomparison Project Phase 5 (CMIP5) indicate this number of extreme heat days is likely to increase due to climate change. Based on CMIP5's projection of a higher emissions scenario, a scenario in which emissions continue to increase through 2100, the number of 90°F days per year could increase to 82 to 152 days by 2040. This indicates a significant increase in the potential frequency, severity, and duration of future extreme heat events in the City of New Orleans.[9]

Probability of Future Events

According to historical records, the City of New Orleans has experienced 175 events in a 29-year reporting period. Historical records, both those from the NCEI and those provided by the planning team, in combination with an analysis of maximum average temperatures, provide a probability of at least one event occurring every year. This frequency supports a "Highly Likely" probability of future events for the City of New Orleans planning area, including all educational institutions and special districts.

Vulnerability and Impact

While the entirety of the City of New Orleans is exposed to extreme temperatures, existing buildings, infrastructure, and critical facilities are not likely to sustain significant damage from extreme heat events. Any estimated property losses associated with the extreme heat hazard are anticipated to be minimal across the area. Extreme heat impact to buildings is intensified by the urban heat island effect, though impacts to cooling and energy demand are likely to be greater than impacts to structures themselves.

[8] Hoffman, J.S., S.G. McNulty, C. Brown, K.D. Dello, P.N. Knox, A. Lascurain, C. Mickalonis, G.T. Mitchum, L. Rivers III, M. Schaefer, G.P. Smith, J.S. Camp, and K.M. Wood, 2023: *Ch. 22. Southeast*. In: Fifth National Climate Assessment. Crimmins, A.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, B.C. Stewart, and T.K. Maycock, Eds. U.S. Global Change Research Program, Washington, DC, USA. https://nca5.climate.us/chapter/22.

[9] Source: U.S. Climate Explorer. https://crt-climate-explorer.nemac.org/

Every summer, mortality rates across the United States increase during heat waves, and excessive heat is an important contributing factor to deaths from other causes, particularly among the elderly. Extreme temperatures present a significant threat to life and safety for the population of the City as a whole. Heat casualties, for example, are typically caused by a lack of adequate air conditioning or heat exhaustion.

Vulnerable and underserved populations are disproportionately impacted by extreme heat events as they may be more susceptible to health risks. This includes the elderly or infirmed who may not be able to afford to run air conditioning regularly. Similarly, the population below the poverty level are less likely to be able to afford air conditioning during the hot summer months as well as less likely to have access to medical care. People who speak a language other than English may face increased vulnerability due to language barriers that limit their access to important information such as weather-related warnings and instructions regarding safety measures. Populations working outdoors are also susceptible to heat-related injuries, especially when working for prolonged periods of time (Table 7-5).

The population over 65 in the City of New Orleans planning area is estimated at 16 percent of the total population and children under the age of 5 are estimated at 6 percent. The population with a disability is estimated at 14 percent of the total population. An estimated 23 percent of the planning area population live below the poverty level and 3 percent of the population speak English "less than very well" (Table 7-4).

Table 7-4. Populations at Greater Risk

Jurisdiction	Population				
	65 and Older	Under 5	With a Disability	Below Poverty Level	Limited English Speaking
City of New Orleans	61,879	20,845	52,249	84,984	11,359

Table 7-5. Populations at Greater Risk for Special Districts

Jurisdiction	Population
	Works Outdoors
Loyola University	73
Tulane University	152
Housing Authority of New Orleans (HANO)	0
New Orleans Redevelopment Authority (NORA)	0

Jurisdiction	Population
	Works Outdoors
Sewerage and Water Board of New Orleans (SWBNO)	700

Additionally, people experiencing homelessness are especially vulnerable during extreme heat events, as they often lack access to safe, climate-controlled shelter. Prolonged exposure to high temperatures can lead to heat exhaustion, heat stroke, dehydration, and other serious health complications. According to the 2025 Point-in-Time Count, more than 1,400 people are experiencing homelessness in New Orleans. [10]

While ongoing socioeconomic challenges continue to push people into homelessness, Unity of Greater New Orleans reports that street homelessness is declining due to the Home for Good Initiative.[11] The goal of the initiative is to close homeless encampments and transition individuals into housing, focusing on moving residents from underpasses into shelters and, ultimately, permanent housing with wraparound services to reduce street homelessness. As of May 2025, the initiative housed over 1,000 people, closed eight encampments, and dramatically reduced emergency responses to street homelessness. The Home for Good Sustainability Plan, the guiding document for the initiative, includes an operational roadmap through 2034 for continued improvements in support and service delivery for unhoused people in New Orleans.

Extreme heat can have significant secondary impacts, leading to droughts, water shortages, increased fire danger, and increased demands for energy. Louisiana is the nation's fourth largest consumer of electricity.[12] With an economic base in services and tourism, the City of New Orleans uses a higher percentage of commercial energy than the national average.[13] This is due in part to the city's aging building stock. Buildings in New Orleans tend to be older and less energy-efficient compared to the national average, often having little insulation and requiring high air conditioning usage due to the hot, humid climate. The City of New Orleans works towards lessening impacts as well as reducing consumption and emissions through initiatives like energy benchmarking, building performance standards, and infrastructure improvements such as low-carbon transportation options like the city's bike share system.[14]

[10] UNITY of Greater New Orleans. 2025 Point in Time Count. https://unitygno.org/2025-point-in-time-count.
[11] UNITY of Greater New Orleans. 2025 Point in Time Count. https://unitygno.org/2025-point-in-time-count.
[12] Source: https://www.ebsco.com/research-starters/power-and-energy/louisianas-energy-consumption
[13] Source: https://www.aceee.org/research-report/e13a
[14] Source: https://nola.gov/next/resilience-sustainability/energy/energy-benchmarking-en/#:~:text=Energy%20and%20Cost%20Savings:%20According,use%20and%20emissions%20publicly%20accessible.

The possibility of rolling blackouts increases with unseasonably high temperatures. The City of New Orleans is a transmission island, meaning they import their electricity from elsewhere, which makes the City more vulnerable to external outages and strains on the grid.[15] Power outages are particularly dangerous during the summer hurricane season, leaving residents without access to cooling systems and heightening health risks.

In terms of vulnerability to structures, the impact from extreme heat is considered negligible. However, with 51 reported fatalities and 598 reported injuries over a 29 year reporting period, the potential impact of extreme heat is considered "Substantial," with multiple deaths and injuries possible depending on the extent and duration of the event.

The City of New Orleans Planning Team identified the following critical facilities as assets that are susceptible to a range of impacts caused by extreme heat events. For a comprehensive list of critical facilities for each participant, please see Appendix F.

Table 7-6. Critical Facilities Vulnerable to Extreme Heat Events

Critical Facilities	Potential Impacts
Emergency Response Services (EOC, Fire, Police, EMS, Hospitals)	• Emergency operations, services and response times may be significantly impacted due to power outages from increased electricity demand. • Exposure to heat can cause heat illnesses in first responders, especially for those in heavy equipment. • Hospitals face additional stress due to surges in heat-related illnesses such as heat exhaustion, heat stroke, respiratory distress, and cardiovascular complications.
Airport, Academic Institutions, Community Residential Facilities, Day Care Facilities, Evacuation Centers & Shelters, Governmental Facilities	• Power outages from increased electricity demand can disrupt critical care and essential services. • Cooling shelter capacity may be exceeded during extreme heat events, potentially leaving vulnerable populations without adequate relief.

[15] Source: https://www.wwno.org/coastal-desk/2025-07-14/as-hurricane-season-ramps-up-how-likely-is-it-that-the-power-will-go-out-in-new-orleans

Critical Facilities	Potential Impacts
Commercial Suppliers (food, gas, etc.)	• Heat waves can coincide with power disruptions that interfere with port operations and supply chains. • Outdoor industries such as construction, transportation, and port operations face reduced work hours and increased safety risks during extreme heat advisories. • Tourism may be negatively impacted during extreme heat events, reducing seasonal revenue.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Increased demand for electricity and cooling may push utilities to operate at or near capacity, heightening the risk of cascading outages.



Section 8

Flood

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Section 8: Flood

Hazard Description

Floods generally result from excessive precipitation. Flood events are influenced by several physical and environmental factors, including watershed topography and drainage characteristics; precipitation patterns; soil moisture conditions; and the amount of impervious surface and vegetative cover within the area.

The City of New Orleans is below sea level and relies on major levee systems for protection. The City's elevation presents unique and complex flood vulnerabilities including storm surges topping defenses, floodwalls failing, and intense rainfall overwhelming the city's pumps, trapping water in the low-lying basin. Floods can be long-term events that may last for several days, especially when associated with slow-moving tropical systems and prolonged rainfall. However, urban flooding is the most frequent type of flood for the planning area and is typically short in duration but high in impact due to intense rainfall overwhelming drainage systems.

Urban flooding occurs in city landscapes that cannot absorb rainfall due to impervious surfaces like buildings, roads, parking lots, and sidewalks. Unlike flooding associated with natural stream channels, urban flooding develops where no defined channel exists to concentrate and convey runoff, causing water to accumulate quickly in streets and low-lying areas. Urban flooding results when rainfall rates overwhelm the capacity of local drainage systems. In this analysis, urban and flash flooding are treated as the same hazard type, both referring to rapid-onset flooding from heavy rainfall in densely developed areas.

The drainage system in New Orleans is a massive, complex network that heavily relies on underground infrastructure to move water from streets to pumping stations. The vast majority of the "lateral" (neighborhood-level) system is subterranean, while major trunk lines are a mix of large open canals and covered subsurface canals. According to SWBNO, this network is comprised of approximately 90 miles of open canals and 90 miles of subsurface canals. Underground canals maximize urban space and prevent debris, while open canals offer higher capacity for major storm water. Both canal types are critical to the city's drainage.

The principal sources of flooding are rainfall ponding and hurricane or tropical storm surges. The planning area has always been vulnerable to flooding during any season of the year. In cooler months, the planning area is subject to heavy rainfall from frontal passages. In the summer months, heavy rainfall is the result of convective thunderstorms

and hurricanes accompanied by rainfall. Neighborhoods with the highest flood risk are often located in low-lying areas, particularly Lakeview, Gentilly, Broadmoor, Lower Ninth Ward and parts of New Orleans East, with nearly 100% of properties in some zones facing risk. These areas are often 5 to 12 feet below sea level, making them highly vulnerable to levee failures and, in the case of coastal zones, storm surges.

Riverine flooding, while historically a major threat, has been substantially mitigated for nearly a century through the U.S. Army Corps of Engineers' Mississippi River & Tributaries (MR&T) levee system. However, a residual risk remains, as demonstrated in 2019 when Hurricane Barry approached while the Mississippi River was near flood stage. The city is also susceptible to coastal flooding from storm surge during tropical events and high tides.

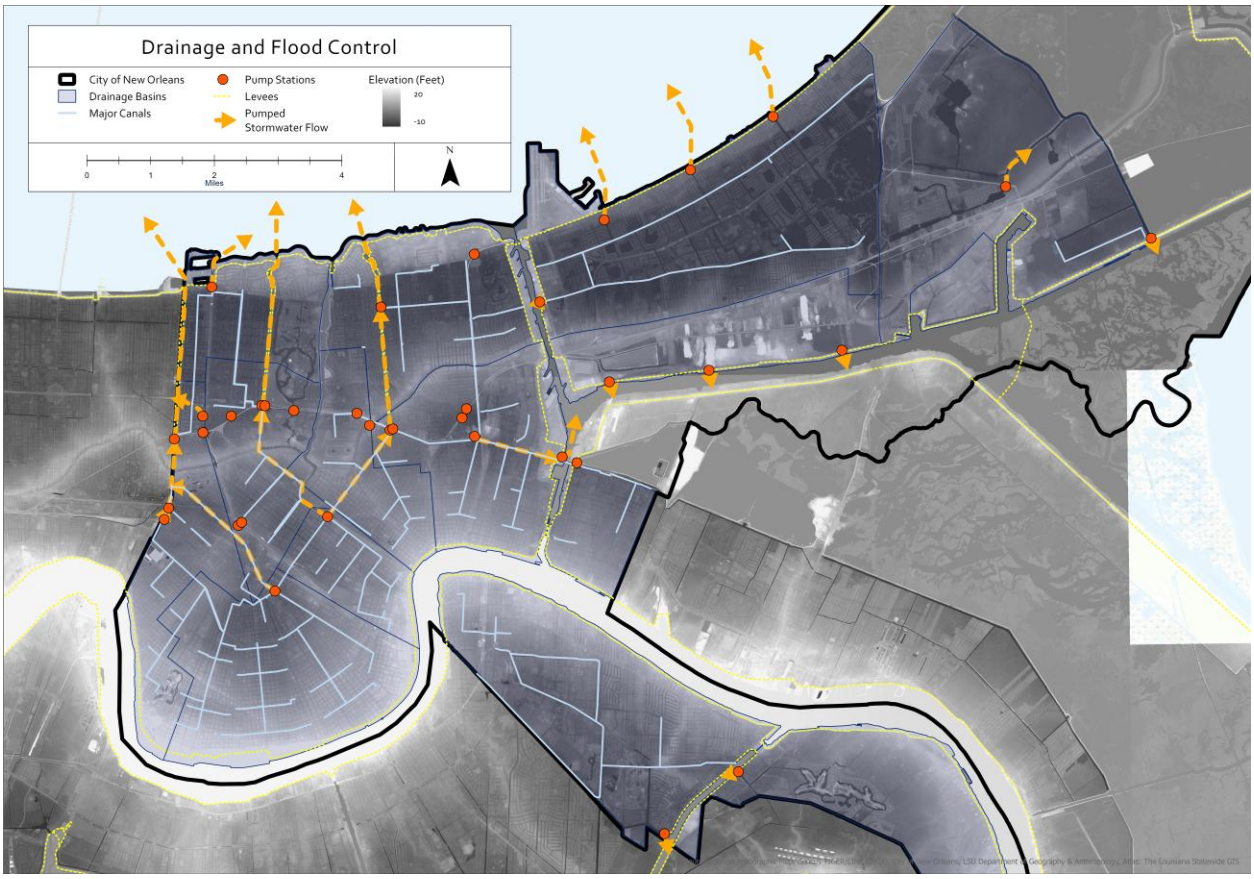
This section profiles non-coastal flooding, including urban and flash flooding within the City of New Orleans. Storm surge and coastal flooding are analyzed separately (Section 14). Flooding associated with levee overtopping or failure is also analyzed separately in this Plan (Section 12).

Location

The Flood Insurance Rate Maps (FIRMs) prepared by FEMA provide an overview of flood risk but can also be used to identify the areas of the City that are vulnerable to flooding. FIRMs are used to regulate new development and to control the substantial improvement and repair of substantially damaged buildings. Flood Insurance Studies (FIS) are often developed in conjunction with FIRMs. The FIS contains a narrative of the flood history of a community, compiles all previous flood information including data collected on numerous waterways, and discusses the engineering methods used to develop the FIRMs. The FIS also contains flood profiles for studying flooding sources and can be used to determine Base Flood Elevations (BFEs) for some areas.

The New Orleans' stormwater drainage system consists of a network of ditches, storm drains, pipes, and canals which outflow to pumping stations which are integrated into the Hurricane and Storm Damage Risk Reduction System (HSDRRS). The HSDRRS was authorized and funded by Congress after Hurricane Katrina and built by the U.S. Army Corps of Engineers as a comprehensive risk-reduction system designed to defend the area against storm surge and flooding. It includes hundreds of miles of improved levees and floodwalls, floodgates, surge barriers, and high-capacity pump stations. Figure 8-1 illustrates the city's flood and drainage control systems, including drainage basins, across the planning area.

Figure 8-1. Flood and Drainage Control Systems



The current effective Flood Insurance Rate Maps or FIRMs (map ID 22071C, panels 45-360, dated September 30, 2016) data provided by FEMA for City of New Orleans shows the following flood hazard areas:

- Zone A: Areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance requirements and floodplain management standards apply.
- Zone AE: Areas subject to inundation by 1-percent-annual-chance shallow flooding. It is the base floodplain where BFEs are provided. AE zones are now used on new format FIRMs instead of A1-30 zones. In coastal areas Zone AE may include waves with heights below three feet.
- Zone VE: Coastal areas with a 1-percent-annual-chance of flooding and an additional hazard associated with storm waves, with heights exceeding three feet.

These areas have a 26 percent chance of flooding over the life of a 30-year mortgage. BFEs are provided.

- Zone X: Moderate risk areas within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent-annual-chance flood by a levee. These areas would be subject to higher flood risk in the absence of levee protection. No BFEs or base flood depths are shown within these zones.

Locations of flood zones in the City of New Orleans based on the Flood Insurance Rate Map (FIRM) from FEMA are illustrated in Figures 8-2 through 8-7. Only critical facilities located within the floodplain boundaries are shown on the maps below.

Figure 8-2a. Regulatory Flood Zones in City of New Orleans

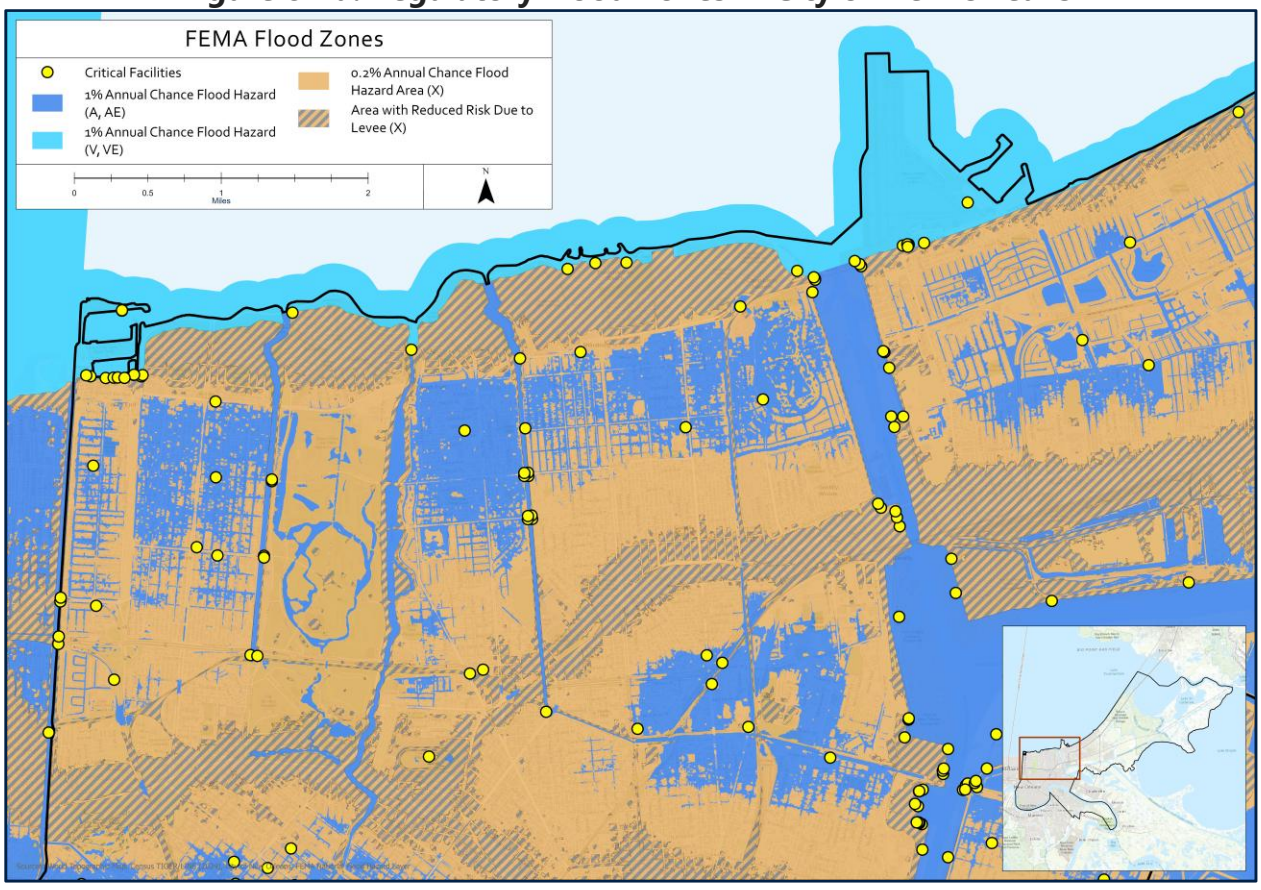


Figure 8-2b. Regulatory Flood Zones in City of New Orleans

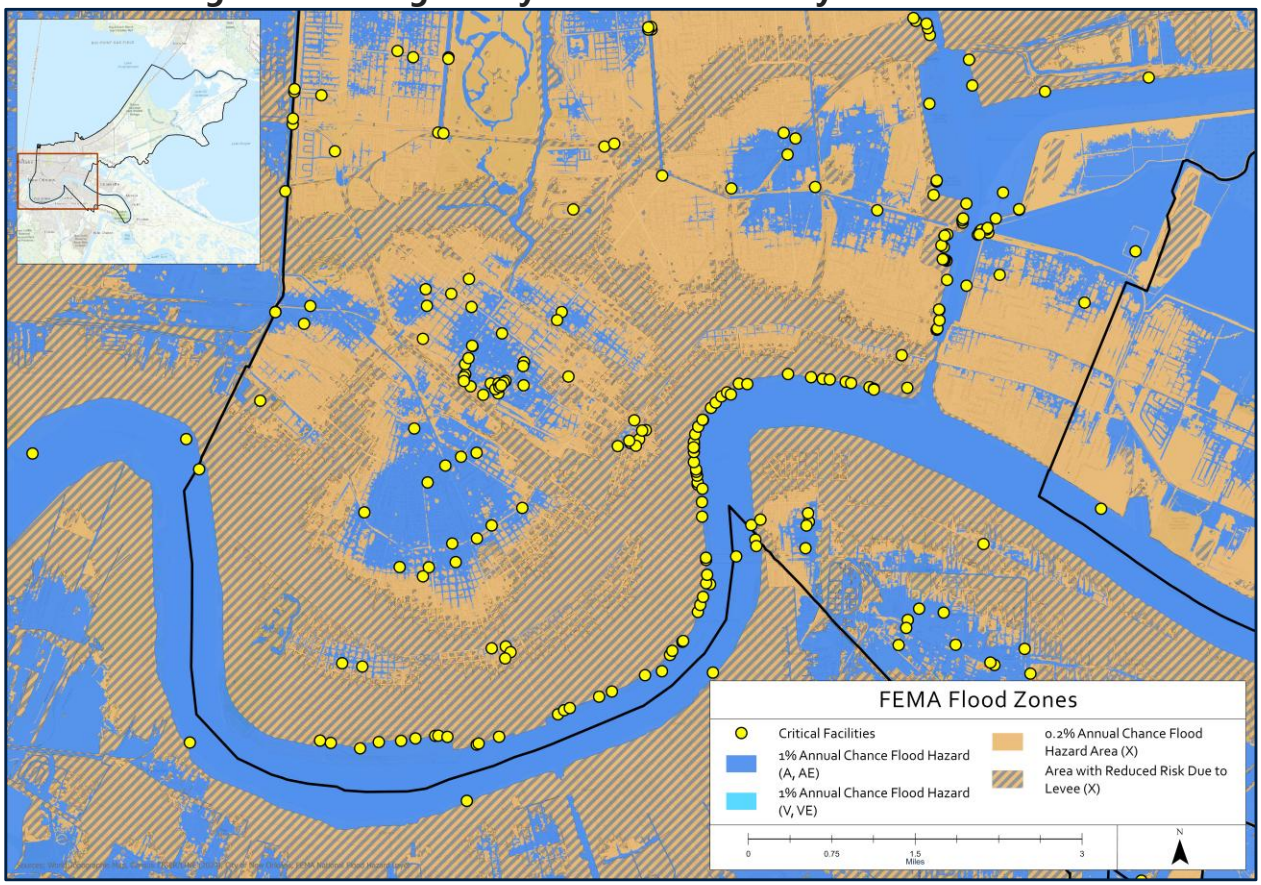


Figure 8-2c. Regulatory Flood Zones in City of New Orleans

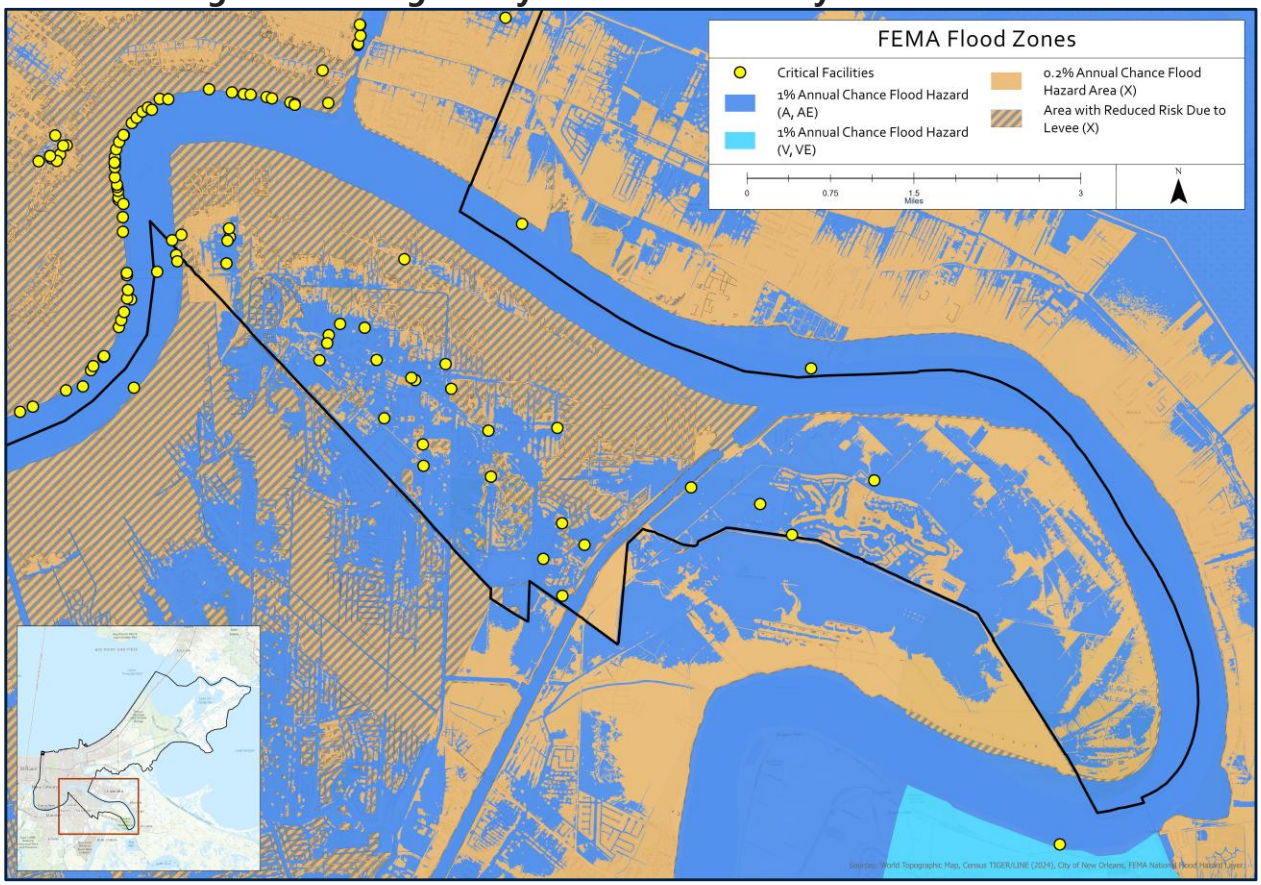


Figure 8-2d. Regulatory Flood Zones in City of New Orleans

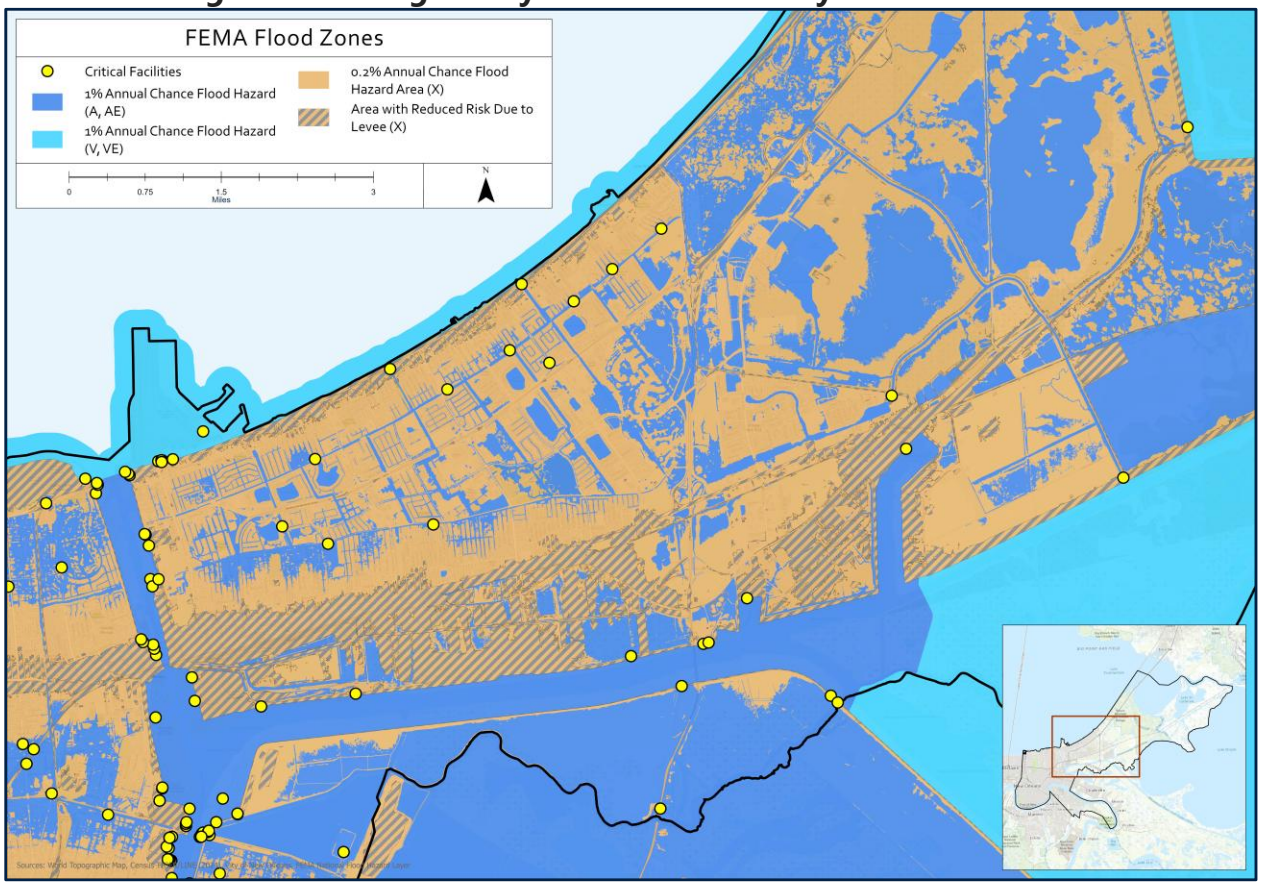


Figure 8-2e. Regulatory Flood Zones in City of New Orleans

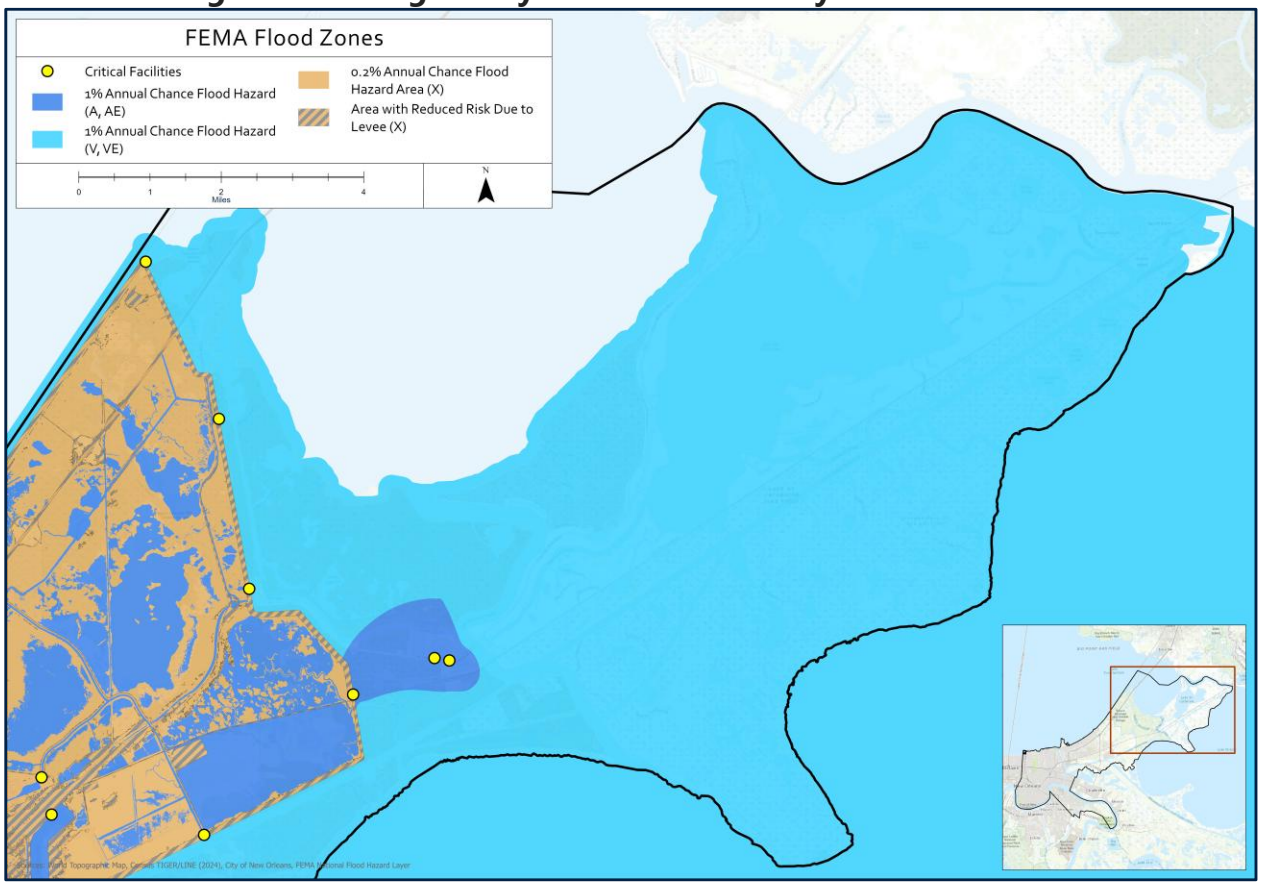


Figure 8-3. Regulatory Flood Zones for Loyola University

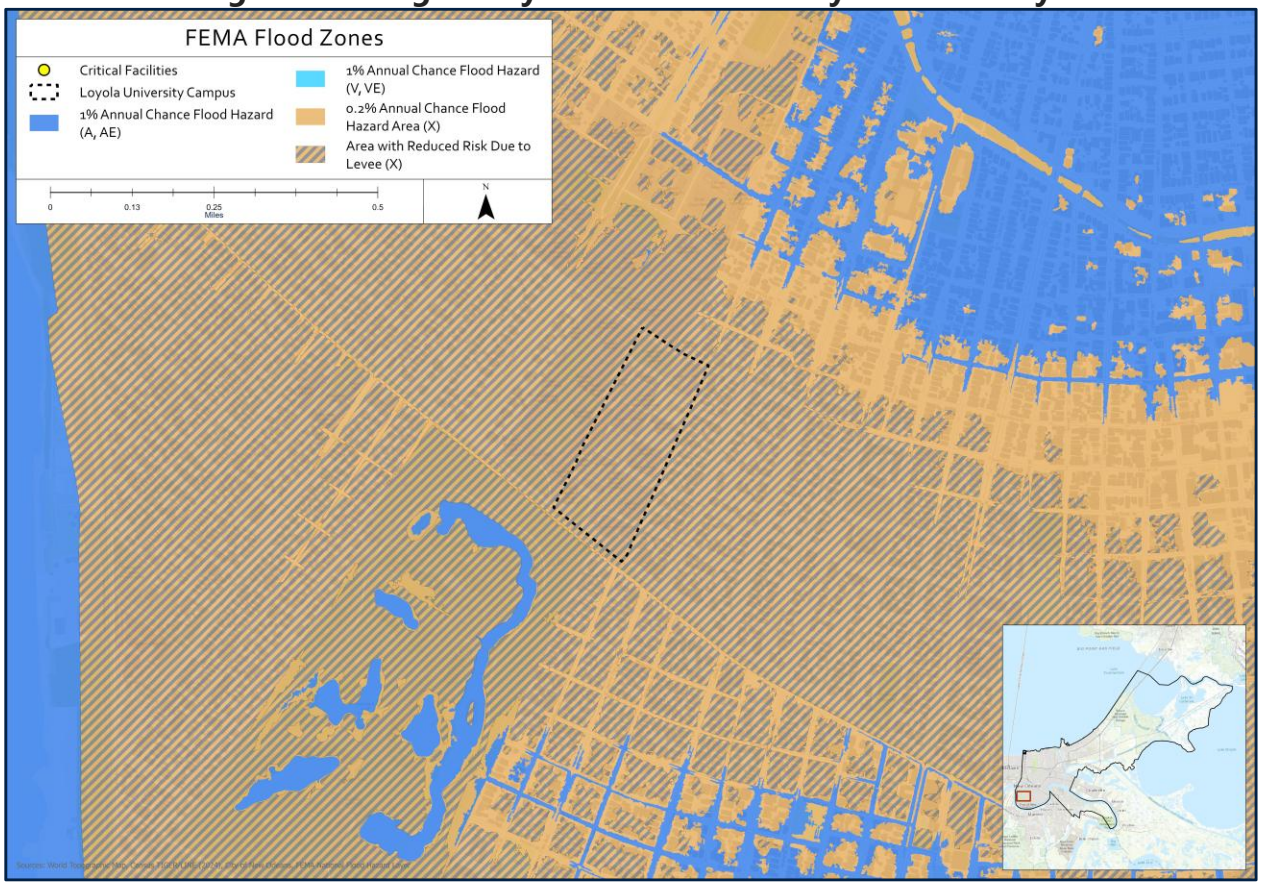


Figure 8-4. Regulatory Flood Zones for Tulane University

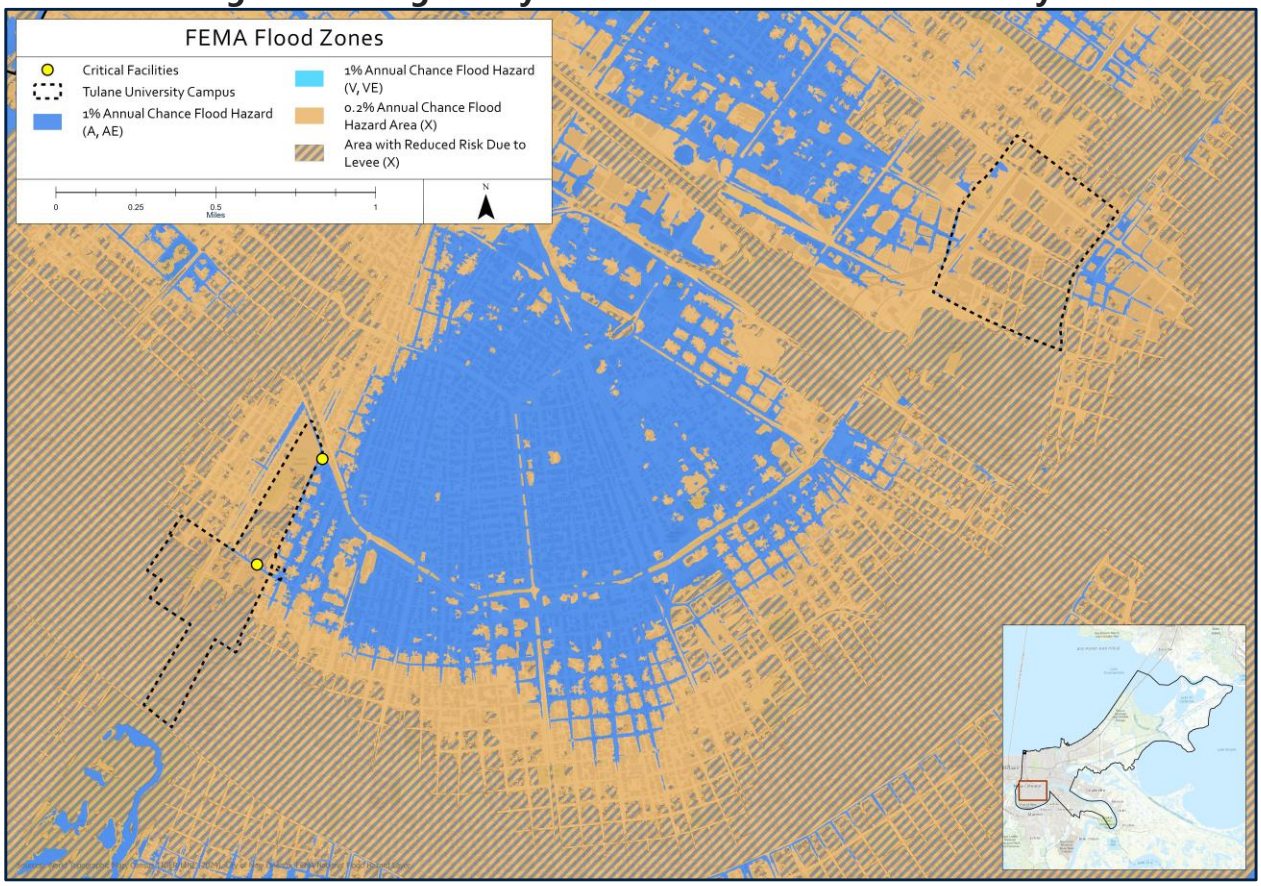
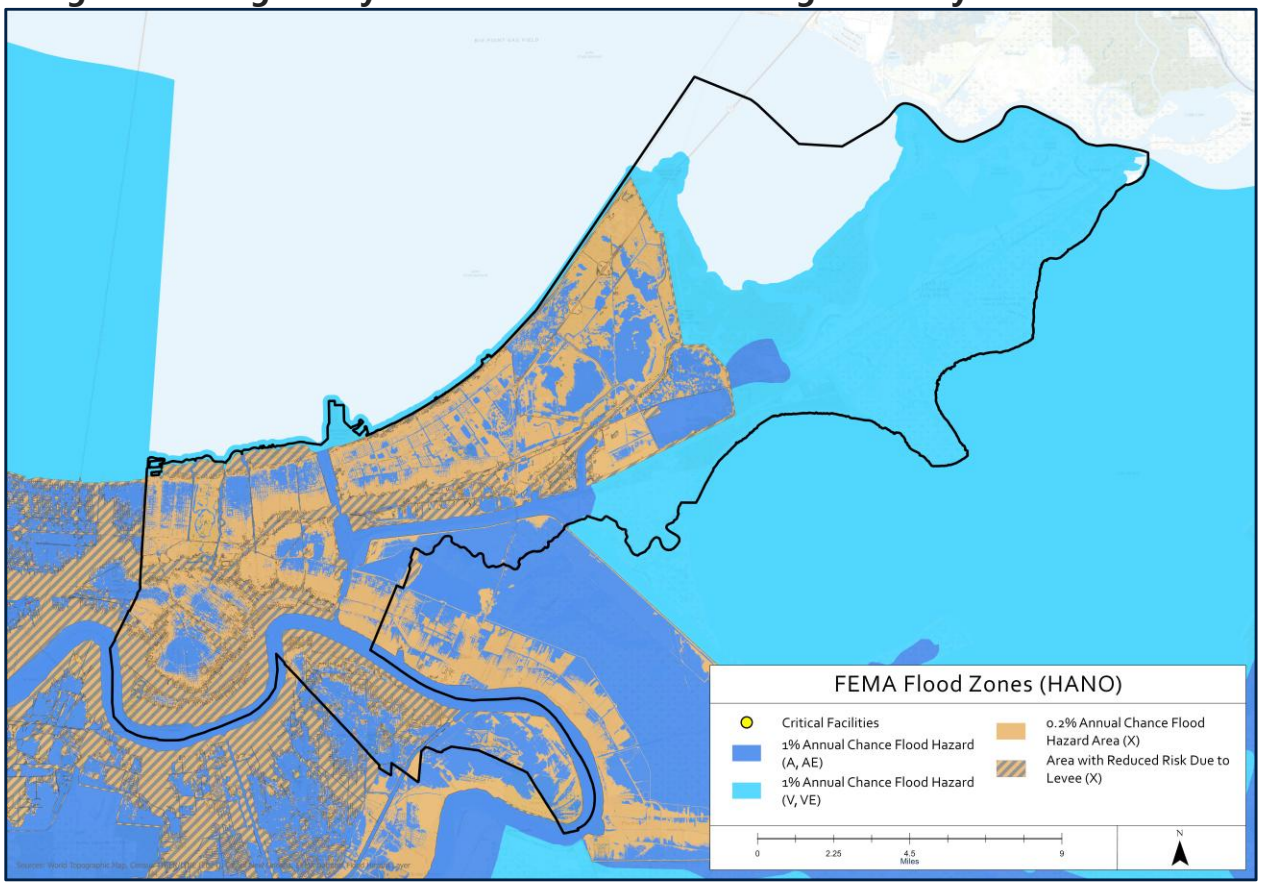
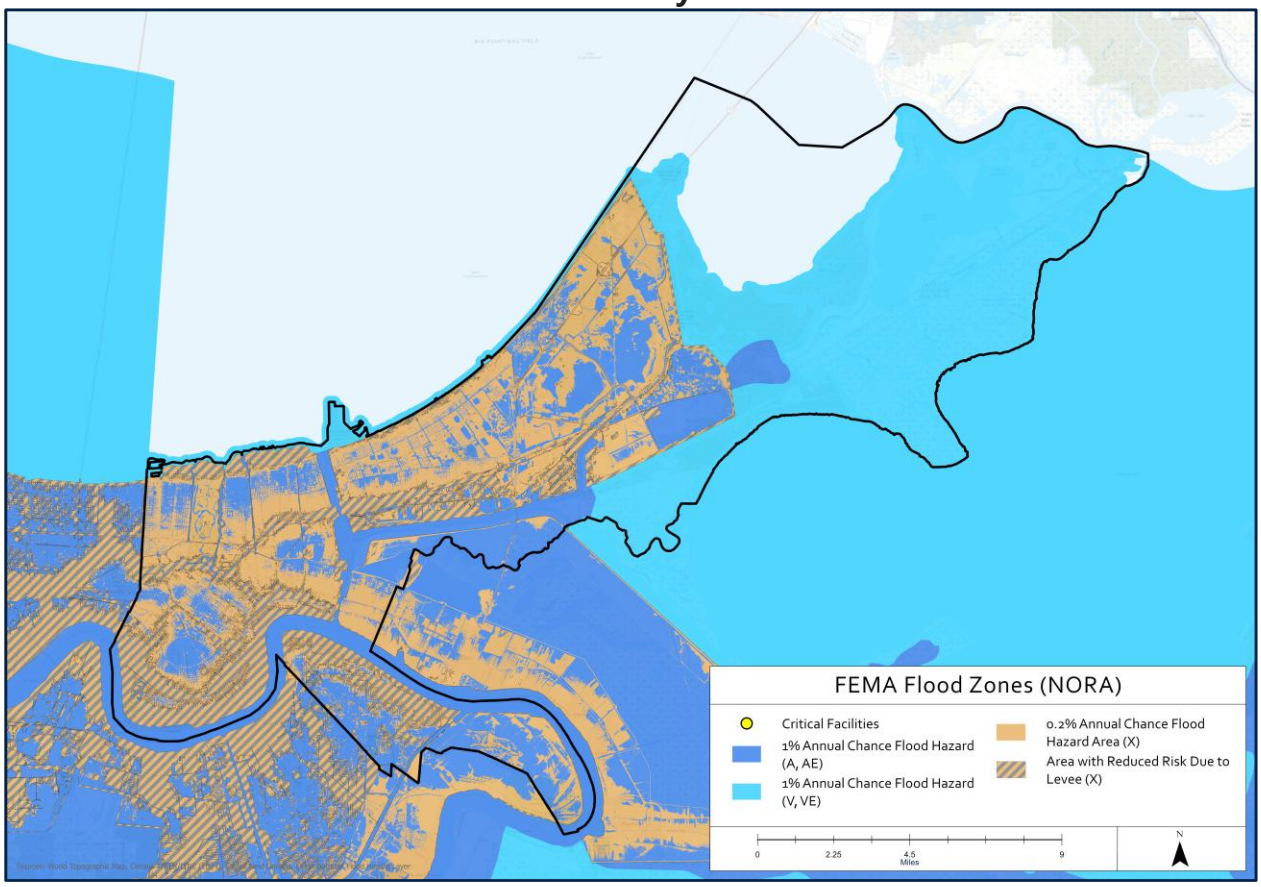


Figure 8-5. Regulatory Flood Zones for the Housing Authority of New Orleans[1]



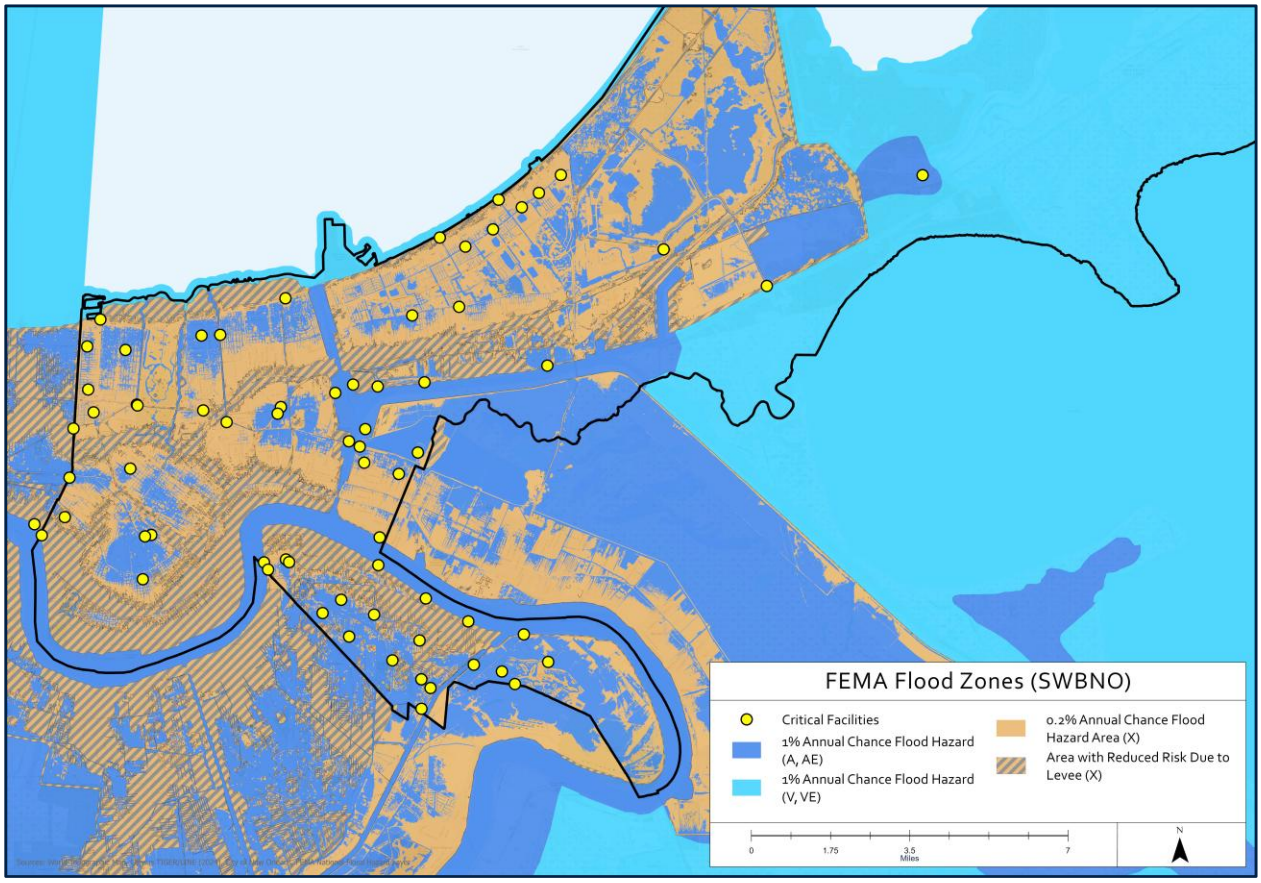
[1] Note: There are no critical facilities submitted by HANO which intersect with the Special Flood Hazard Area. HANO is a public entity established to service the City of New Orleans with no standalone jurisdictional boundary and is therefore depicted here as coterminous with the city boundary.

Figure 8-6. Regulatory Flood Zones for the New Orleans Redevelopment Authority[2]



[2] Note: There are no critical facilities submitted by NORA which intersect with the Special Flood Hazard Area. NORA is a public entity established to service the City of New Orleans with no standalone jurisdictional boundary and is therefore depicted here as coterminous with the city boundary.

Figure 8-7. Regulatory Flood Zones for the Sewerage and Water Board of New Orleans



During the planning process, participants identified specific vulnerabilities related to flooding. Loyola University states that flooding occurs in the Danna Center basement, which houses critical IT and electrical components that are critical to university services. Flooding also occurs in Monroe Hall basement and in the Marquette basement.

Tulane University campus buildings with basements are particularly prone to water intrusion during periods of heavy rainfall. Several streets within and surrounding the university are also prone to flooding during significant rainfall events, particularly when precipitation exceeds one inch per hour. Streets most affected include, but are not limited to, Freret, Willow, Broadway, Zimple, Audubon, Newcomb, and Plum. Flooding on these streets can create hazardous conditions, restricting access to facilities, disrupting transportation, and exacerbating water intrusion issues in adjacent buildings, especially those with basements.

The Sewerage and Water Board of New Orleans (SWBNO) states that all drainage infrastructure may be impacted during a flood event including pumping stations, drainage canals, electrical and backup power systems, potable water treatment and distribution

infrastructure, and wastewater collection and treatment facilities. During intense rainfall, the drainage and pumping system may become overwhelmed, while power systems can be strained or insufficient to meet operational demand, potentially reducing pumping efficiency and treatment capacity. The existing pumping system is designed to manage approximately one inch of rainfall during the first hour and one-half inch per hour thereafter, meaning rainfall in excess of this capacity can result in localized flooding and service disruptions.

Extent

The extent, also known as magnitude, of flooding refers to the size of a flood event and the area it inundates, often measured by flood depths, and identified by mapped floodplain boundaries on FEMA FIRMs. The extent of flood events are influenced by several physical and environmental factors, including watershed topography and drainage characteristics; precipitation patterns; soil moisture conditions; and the amount of impervious surface and vegetative cover within the area.

As defined above, extent is dependent on the flood zone, location of the flood hazard area, and the depths of floodwaters. The extent of inundation varies by FEMA flood zone designation, location within the mapped flood hazard area, and anticipated flood depths. Flood damages are expected to be greater within designated floodplain areas. Table 8-1 provides a description of FEMA flood zones and the flood impact. Figures 8-2 through 8-7 should be read in conjunction with Table 8-1 to understand the extent or magnitude of flooding at specific locations.

Table 8-1. Flood Zones

Intensity	Zone	Description
High	**Zone A**	Areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance requirements and floodplain management standards apply.
High	**Zone AE**	Areas with a 1-percent-annual-chance of flooding and a 26 percent chance of flooding over the life of a 30-year mortgage. The base floodplain where BFEs are provided. AE Zones are now used on the new format FIRMs instead of A1-A30 Zones.

Intensity	Zone	Description
	Zone VE	Coastal areas with a 1-percent-annual-chance of flooding and an additional hazard associated with storm waves, with heights exceeding three feet. These areas have a 26 percent chance of flooding over the life of a 30-year mortgage. BFEs are provided.
Moderate to Low	**Zone X 500**	An area inundated by 500-year flooding; an area inundated by 100-year flooding with average depths of less than 1 foot or with drainage areas less than 1 square mile; or an area protected by levees from 100-year flooding.

Zone A, also known as the 100-year floodplain, is used to determine mandatory flood insurance requirements. Based on 2016 FEMA map revisions, approximately 63% of the city's properties are located in Zone A and 37% are now located in moderate-to-low risk zones (Zone X), primarily due to improvements in the HSDRRS levee system.

Monthly rainfall totals frequently exceed 5 inches, with July averaging around 5.4 to 6.1 inches, and August historically being one of the wettest months with an average of 6.9 inches. Due to its elevation and relatively flat, low-lying terrain, the city is highly susceptible to localized urban flooding, even during minor rain events. Rainfall amounts greater than 1-2 inches an hour are known to cause flooding of 6-10 inches in some low-lying areas.[3] However, flooding up to 18 inches has also been observed during intense rainfall events.

The data described in Tables 8-1 together with Figures 8-2 through 8-7, and historical occurrences for the area, provide an estimate of the potential extent and magnitude of flooding for the City of New Orleans and all participants, including the educational institutions and special districts.

Historical Occurrences

New Orleans has a well-documented history of flooding as a result of heavy rainfall. Table 8-2 identifies historical flood events that resulted in damages, injuries, or fatalities within the City of New Orleans. Table 8-3 presents a summary of all reported flood events in the planning area. Historical data is provided by the Storm Prediction Center (NOAA), National

[3] Source: NOLA Ready. https://ready.nola.gov/hazard-mitigation/hazards/flooding/#:~:text=Rainfall%20amounts%20of%20greater%20than,elevation%20in%20the%20above%20map.

Centers for Environmental Information (NCEI) database for City of New Orleans. There have been 135 recorded flood events in City of New Orleans over a 29-year reporting period. It is important to note that only flood events that have been reported have been factored into this risk assessment, therefore it is likely that additional flood occurrences and damages have gone unreported.

Historical flood data events for all educational institutions and special districts are primarily provided in the NCEI database within the city where the participant is located. No additional events, injuries, fatalities, or monetary damages were reported separately or apart from the city reported flood events.

Table 8-2. Historical Flood Events, 1996 – 2024[4]

Jurisdiction	Date	Deaths	Injuries	Property & Crop Damage
City of New Orleans	6/7/2001	0	0	$44,700
City of New Orleans	6/11/2001	0	0	$89,300
City of New Orleans	6/19/2003	0	0	$259,400
City of New Orleans	6/30/2003	0	0	$224,900
City of New Orleans	12/12/2009	1	0	$0
City of New Orleans	5/16/2010	0	0	$14,600
City of New Orleans	4/3/2012	0	0	$7,000
City of New Orleans	4/4/2012	0	0	$13,900
City of New Orleans	7/20/2012	0	0	$27,800
City of New Orleans	8/29/2012	0	0	$69,000
City of New Orleans	5/2/2013	0	0	$68,200
City of New Orleans	8/5/2017	0	0	$10,769,400
City of New Orleans	6/21/2021	0	0	$17,600
City of New Orleans	8/29/2021	1	0	$0
City of New Orleans	6/10/2022	0	0	$53,700
City of New Orleans	6/10/2022	0	0	$32,200
City of New Orleans	6/10/2022	0	0	$10,800

[4] Note: Table only includes historical flood events that resulted in damages, injuries, or fatalities between 1996 and 2024 in the NCEI database. Values are in 2025 dollars.

Jurisdiction	Date	Deaths	Injuries	Property & Crop Damage
City of New Orleans	5/9/2023	0	0	$10,500
City of New Orleans	5/9/2023	0	0	$7,400
City of New Orleans	9/4/2023	0	0	$15,500
City of New Orleans	9/11/2024	0	6	$1,007,600
Totals		**2**	**6**	**$12,743,500**

Table 8-3. Summary of Historical Flood Events, 1996 – 2024[5]

Jurisdiction	Number Of Events	Deaths	Injuries	Property and Crop Damage
City of New Orleans	135	2	1	$12,743,500
Loyola University	0	-----	-----	-----
Tulane University	0	-----	------	-----
Housing Authority of New Orleans	0	-----	------	-----
New Orleans Redevelopment Authority	0	------	-----	-----
Sewerage and Water Board of New Orleans	0	-----	-----	-----
Totals	**135**	**2**	**1**	**$12,743,500**

A total of 102 events have occurred since the 2021 Plan.

Significant Events

Flash Flood on December 12, 2009

Moderate to heavy rainfall occurred across the City of New Orleans as an upper air disturbance acted on deep moisture in place over the Gulf Coast. The rain fell on nearly saturated ground resulting in flash flooding. This heavy rain produced widespread and significant street flooding and caused flooding of some homes in the Fountainbleau neighborhood. One person drowned in the Algiers area when they drove into a flooded

[5] Note: Participants with no reported damaging events show a "------" in table columns where damages, deaths or injuries would be otherwise reported.

canal. A passenger in the vehicle escaped injury but the driver was unable to exit. With one reported fatality, this event serves as an example of the impacts of heavy rainfall events on public safety in the planning area.

Flash Flood on August 4-5, 2017

A weakened frontal boundary along the Interstate 10 corridor in southeast Louisiana and south Mississippi along with local land-lake/sea-breeze interaction aided in the development of thunderstorms producing heavy rain along this corridor for three days. Reports of flash flooding were received from the City of New Orleans area on the 4th and 5th.

A series of slow-moving thunderstorms repeatedly developed over the same portions of New Orleans, producing 4 to 9 inches of rainfall within a 3-to-5-hour period. Rainfall rates quickly exceeded drainage system capacity, resulting in street flooding across Mid-City, the Central Business District, and areas north of the French Quarter, where roadways became impassable. Multiple highway underpasses also experienced complete inundation, and hundreds of vehicles sustained flood-related damage. Floodwaters entered several hundred residential structures and multiple commercial properties, causing structural, electrical, and contents damage. According to the National Centers for Environmental Information (NCEI), preliminary estimates indicate $6,469,400 (2025 dollars) in property damage within the City of New Orleans planning area.

Following the event, 685 flood insurance claims were filed under the National Flood Insurance Program (NFIP) and FEMA paid approximately $4.3 million in covered damages to policyholders. NFIP data represent only insured properties; therefore, actual damages are likely substantially higher due to the high cost of insurance coverage. Additional losses are not systematically tracked but are understood to be considerably higher than initial estimates.

Flash Flood on July 10, 2019

An upper trough, later associated with Hurricane Barry, interacted with a tropically moist airmass to produce slow-moving thunderstorms on July 9th and 10th. Within less than three hours, four to eight inches of rain fell across portions of the planning area during the morning commute time. A SWBNO rain gauge in Tremé measured almost 8.4 inches of rain, and a gauge in the Lower 9th Ward measured over 9 inches, most of which fell within about three hours. The heavy rainfall caused widespread street flooding throughout New Orleans, including the French Quarter, Central Business District, and Uptown neighborhoods. In the days that followed, nearly 850 flood insurance claims were filed, resulting in more than $35.5 million in damage payments. The flooding also led to

numerous road closures, significant damage to automobiles, and minor structural impacts.

Flash Flood on August 29, 2021

The ninth named storm, fourth hurricane, and second major hurricane of the 2021 Atlantic hurricane season, Ida originated from a tropical wave in the Caribbean Sea on August 23rd. It was just under 72 hours from tropical depression formation to Category 4 strength. Ida made landfall near Port Fourchon midday on August 29th. It didn't weaken to a tropical storm until it reached near the Louisiana/Mississippi border. This hurricane brought heavy rainfall to the City of New Orleans. Significant street flooding was reported across the parish and city. However, no homes were reported to be inundated by water. Unfortunately, one individual in the City of New Orleans drowned when driving into a flooded underpass on I-10.

Flash Flood on September 11, 2024

Hurricane Francine formed as a tropical storm in the Gulf of Mexico on September 9, 2024, and intensified into a Category 2 hurricane before making landfall near Houma, Louisiana, on the morning of September 11th. With sustained winds peaking at 105 mph, Hurricane Francine brought widespread damage to southeastern Louisiana and southern Mississippi. A storm surge of six to nine feet inundated low-lying coastal areas outside of the City of New Orleans, while torrential rainfall of 10 to 15 inches caused significant flash flooding within the City of New Orleans.

The greatest impact in the area was flooding caused by heavy rain. As the north and northeastern eyewall stretched into an east-west oriented band of heavy rainfall, training storms resulted in widespread rainfall totals of six to nine inches across Orleans parish with locally higher amounts. Most of the rain fell over the course of just a couple hours, overwhelming the city's drainage capacity and causing canals to overflow. Flood depths of up to two feet were recorded by the city, particularly near the intersection of West End Boulevard and Catina Street. Numerous roads were impassable, and some underpasses flooded with up to eight feet of water. One high water rescue was necessary when a man drove his vehicle around a barricade and into an underpass. He was transported to an area hospital following the rescue. There were a total of six direct injuries related to this flood event. As reported in the NCEI, this event caused an estimated $1,007,600 (2025 dollars) in property damages, however, other reports suggest that property damages from this event were likley higher.

Climate Change Considerations

Research indicates that extreme precipitation events are becoming more frequent and more intense nationwide, driven by fundamental changes in atmospheric processes. As temperatures rise, the atmosphere can hold greater amounts of water vapor, increasing the total moisture available for precipitation. This enhanced moisture supply fuels heavier downpours when storms develop.

In addition, climate change is expected to increase the frequency and intensity of large, organized thunderstorm systems, such as mesoscale convective complexes, which are highly efficient at producing prolonged and intense rainfall over broad areas. These storm systems can repeatedly move over the same locations or slow their forward motion, further amplifying rainfall totals.

The combination of increased atmospheric moisture, stronger storm dynamics, and slower-moving or more persistent storm systems substantially elevates the risk of flooding. Low lying urban areas, like the City of New Orleans, are particularly vulnerable due to impervious surfaces that limit infiltration. Areas with inadequate drainage are susceptible to rapid runoff and water accumulation during these high-intensity rainfall events. This includes increased future strain on special jurisdictions, such as the Sewerage and Water Board of New Orleans, as high-intensity rainfall events can overwhelm drainage canals and pumping facilities, increasing the risk of street flooding and localized infrastructure disruptions.

The annual precipitation for City of New Orleans is 68.85 inches and the current ClimRR climate change projections estimate the annual minimum precipitation at mid-century to be 70.64 inches, which represents a small increase from current averages. End of century projections are higher with a new annual minimum precipitation at 74.90 inches.

Research from the Southern Climate Impacts Planning Program (SCIPP) highlights a notable shift in precipitation patterns across the Southeast region of the United States. From 1960 to 2017, the number of hours it rained annually did not change for most locations, but overall hourly intensity increased at roughly half of the monitoring stations, and the average duration of precipitation events decreased at about 80% of stations. This indicates that rainfall is occurring in shorter, more intense bursts, which can exacerbate flooding risk, particularly in areas like New Orleans where drainage and pumping systems are designed to handle specific rainfall rates which are increasingly exceeded under current and future climate conditions.

Probability of Future Events

Based on 135 recorded historical occurrences within a 29-year reporting period within the City of New Orleans planning area, including all educational institutions and special districts, flooding is considered "Highly Likely," meaning an event is probable within the next year. Future projections indicate an ongoing and increasing risk of flooding due to increases in storm intensity and rainfall.

Vulnerability and Impact

A property's vulnerability to a flood depends on its location and proximity to the floodplain. Due to reported injuries fatalities, infrastructure damages, and service disruptions, the impact of flooding in City of New Orleans is considered "Substantial" meaning multiple deaths possible, the complete shutdown of facilities for 30 days or more, and more than 50 percent of property destroyed or with major damage.

Table 8-4 includes the critical facilities identified in Appendix F that are subject to a range of impacts due to flood and are located in the regulatory floodplain. For a comprehensive list of critical facilities for each participant, please see Appendix F.

Table 8-4. Critical Facilities in the Floodplain by Participant

Critical Facility Types	Critical Facilities at Risk	Potential Impacts
Emergency Response Departments (EOC, Fire, Police, EMS), Hospitals	City of New Orleans: 10 Fire Facilities, 12 Health Service Facilities, 5 Law Enforcement Facilities Tulane University: 1 EMS Facility	• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Emergency vehicles can be damaged by rising floodwaters. • Flood-related rescues may be necessary at low water crossings or in flooded neighborhoods where roads have become impassable, placing first responders in harm's way. • Evacuations may be required for entire neighborhoods because of rising floodwaters, further taxing limited response capabilities and increasing sheltering needs for displaced residents. • Power outages could disrupt communications, delaying emergency response times. • Critical staff may be impacted and unable to report for duty, limiting response capabilities.

Critical Facility Types	Critical Facilities at Risk	Potential Impacts
		• First responders are exposed to downed power lines, contaminated and unusual debris, hazardous materials, and generally unsafe conditions.
Airport, Academic Institutions, Community Residential Facilities, Day Care Facilities, Evacuation Centers & Shelters, Governmental Facilities	City of New Orleans: 13 Community Facilities, 10 Municipal Facilities, 2 Residential Facilities for Vulnerable Populations, 1 School Facility, 1 Federal Government Facility, 29 Transportation Facilities Tulane University: 1 University Facility	• Structures can be damaged by rising floodwaters. • Power outages could disrupt critical care. • Backup power sources could be damaged, inundated or otherwise inoperable. • Critical staff may be impacted and unable to report for duty, limiting response capabilities. • Evacuations may be necessary due to extended power outages, gas line ruptures, or inundation of facilities. • Shelters may be overwhelmed if residential areas are flooded.
Commercial Suppliers (food, gas, etc.)	City of New Orleans: 14 Commercial Facilities, 1 Maritime Infrastructure Facility	• Facilities or infrastructure may be damaged, destroyed or otherwise inaccessible. • Essential supplies like medicines, water, food, and equipment deliveries may be significantly delayed. • Floods may damage storage facilities, leading to the spoilage of perishable goods.
Utility Services and Infrastructure (electric, water,	City of New Orleans: 243 Sewage and Water Facilities	• Major floods can overwhelm or damage pump stations, hindering the ability to remove floodwater.

Critical Facility Types	Critical Facilities at Risk	Potential Impacts
wastewater, communications)	Sewerage and Water Board of New Orleans: 69 Sewage and Water Facilities	• Utility operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Utility service vehicles can be damaged by rising floodwaters. • Utility workers are exposed to downed power lines, contaminated and unusual debris, hazardous materials, and generally unsafe conditions.

Historic loss estimates including average annualized losses due to flood are summarized in Table 8-5 below. Considering 135 flood events over a 29-year period, frequency is approximately four to five events every year.

Table 8-5. Average Annualized Losses by Jurisdiction, 1996 – 2024[6]

Jurisdiction	Total Property and Crop Loss	Average Annual Loss Estimates
City of New Orleans	$8,443,500	$291,155
Loyola University	$0	------
Tulane University	$0	------
Housing Authority of New Orleans	$0	-----
New Orleans Redevelopment Authority	$0	-----
Sewerage and Water Board of New Orleans	$0	------
Totals	**$8,443,500**	**$291,155**

While all residents of New Orleans are exposed to flooding, certain populations face exacerbated risks. Historically, low-income and other underserved populations in New Orleans are disproportionately located in areas with the lowest elevation and aging infrastructure, placing them closer to levees and high-flood-risk zones. More affordable housing is typically older structures, more susceptible to structural damage and often built lower to the ground. Residents in these areas often lack adequate flood insurance,

[6] Losses for participants are often accounted for and included in the total damages reported within the city where the special district is located.

emergency savings, or private transportation to evacuate, increasing their reliance on public transit, which may not operate during disasters. Limited resources make it difficult if not impossible to temporarily relocate, secure alternative housing, or repair and rebuild homes following flood events.

Elderly residents, young children, and people with disabilities may be disproportionately affected by flooding because of mobility constraints, medical needs, reliance on support services, and difficulties accessing flood-impacted areas or emergency shelters. Residents who rely on public transportation or have limited personal mobility may face additional challenges evacuating quickly, and those with limited financial resources may struggle to recover from flood-related disruptions to work or daily life.

Although language barriers can sometimes limit access to critical information during emergencies, the City of New Orleans provides flood warnings and emergency communications in English, Spanish, and Vietnamese, which are the three most commonly spoken languages in the City. However, residents without consistent access to internet, smartphones, or local media may miss critical flood warnings and information, further increasing vulnerability.

The population over 65 in the City of New Orleans is estimated at 16 percent of the total population and children under the age of 5 are estimated at 6 percent. The population with a disability is estimated at 14 percent of the total population. An estimated 23 percent of the planning area population live below the poverty level and 3 percent of the population speaks English "less than very well."

Table 8-6. Populations at Greater Risk[7]

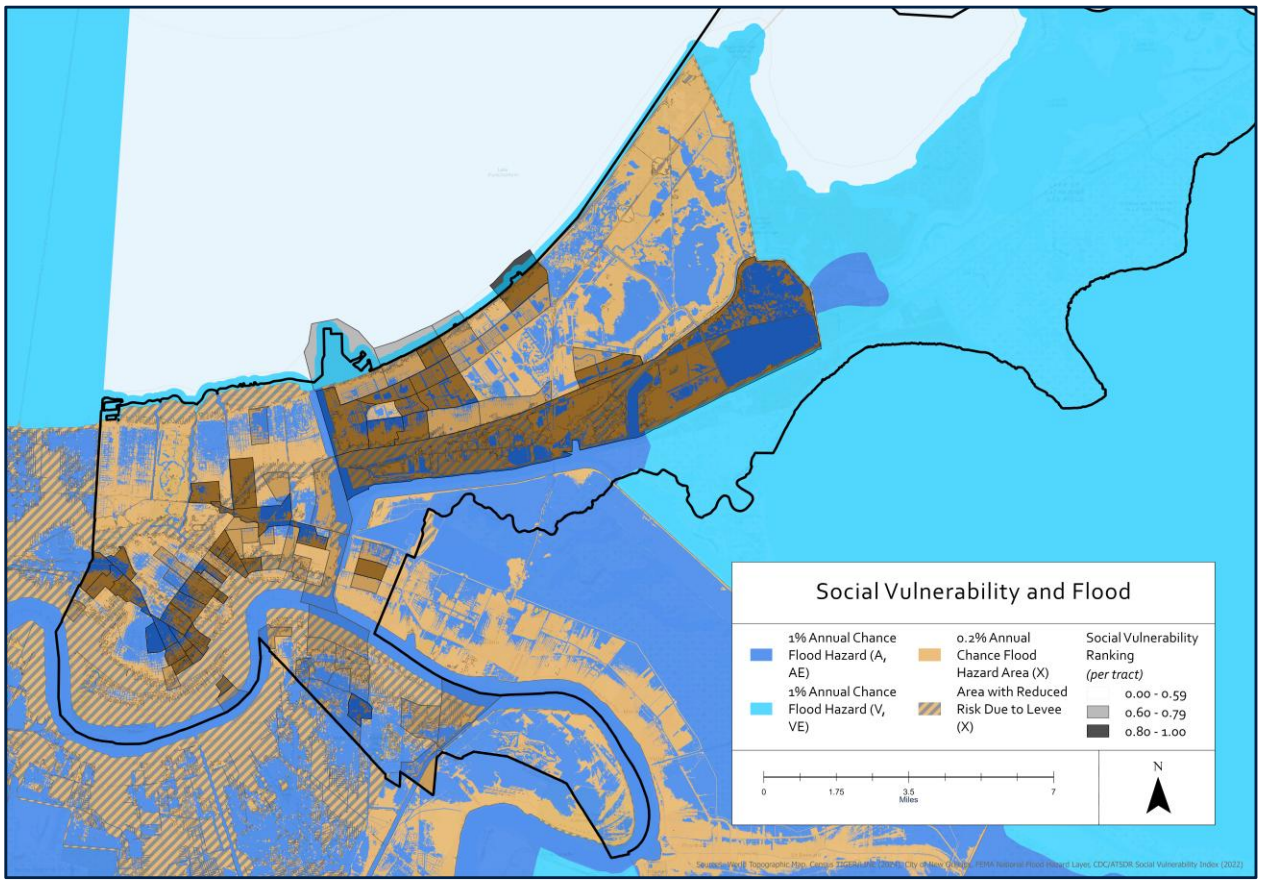
Jurisdiction	Population				
	65 and Older	Under 5	With a Disability	Below Poverty Level	Limited English Speaking
City of New Orleans	61,879	20,845	52,249	84,984	11,359

The Center for Disease Control (CDC) created a Social Vulnerability Index (SVI) which includes a database and mapping application that identifies and quantifies communities experiencing social vulnerability. The current CDC SVI uses 16 U.S. census variables from the 5-year American Community Survey (ACS) to identify communities that may need support before, during, or after disasters. All 16 variables fall under four broad categories including socioeconomic status (population in poverty, unemployment, etc.), household characteristics (age, disability status, etc.), racial and ethnic minority status, and housing type and transportation (mobile homes, no vehicles, etc.). Populations experiencing social

[7] U.S. Census Bureau Five-Year estimates.

vulnerability may be adversely impacted by natural hazards, disasters, and other community-level stressors. Figure 8-8 identifies areas of social vulnerability using the CDC's SVI and where these areas overlap with the City of New Orleans flood hazard areas.

Figure 8-8. City of New Orleans Social Vulnerability and Flood Hazard Areas



Hazus

Hazus is a nationally standardized risk modeling methodology that can be used to estimate potential damage, economic loss, and social impacts from earthquake, flood, tsunami and hurricane hazards. The flood model was utilized as an enhancement to the risk assessment for this hazard profile. This model generates flood (riverine and coastal) hazard data using nationwide hydrological datasets, estimating the expected levels of damage to infrastructure and buildings. The model assumes a 100-year combined riverine and coastal flood scenario. A summary of the results is included in Table 8-7. Estimated losses by sector are provided in Table 8-8. Additional summary data can be found in Appendix I.

Table 8-7. Hazus Estimated Losses, 100-year Flood Scenario

Jurisdiction	Displaced Population	Damaged Structures	Substantially Damaged Structures	Economic Losses
City of New Orleans	4,658	564	392	$881,933,000

Table 8-8. Hazus Estimated 100-Year Flood Losses by Sector

Jurisdiction	Total Property and Crop Loss
Agriculture	$2,652,000
Commercial	$284,486,000
Education	$29,557,000
Government	$57,354,000
Industrial	$24,210,000
Religion / Non-Profit	$22,891,000
Residential	$460,783,000
Totals	**$881,933,000**

National Flood Insurance Program (NFIP) Participation

Flood insurance offered through the National Flood Insurance Program (NFIP) is the best way for home and business owners to protect themselves financially against the flood hazard. The City of New Orleans participates in the NFIP and is in good standing. It is noted that entities, such as Loyola University, Tulane University, the Sewerage and Water Board of New Orleans, the Housing Authority of New Orleans (HANO), and New Orleans Redevelopment Authority (NORA) are not eligible participants in the NFIP.

As an additional indicator of floodplain management responsibility, communities may choose to participate in FEMA's Community Rating System (CRS). This is an incentive-based program that allows communities to undertake flood mitigation activities that go beyond NFIP requirements. Currently, the City of New Orleans participates in the CRS. The city currently holds a Class 7 rating which results in a 15 percent reduction on NFIP flood insurance premiums for residents.

The City of New Orleans has in place the required NFIP standards for new construction and substantial improvements of structures. The City of New Orleans has adopted

additional higher regulatory standards for further flood protection as part of its participation in the CRS and broader goal of promoting flood resilience. For example, new residential and non-residential construction must be elevated at least one foot above base flood elevation, or three feet above the highest adjacent curb (or, if no curb exists, three feet above the crown of the nearest roadway), whichever is higher.

Additionally, the City of New Orleans adopted a new unified Stormwater Code in 2018. The new code contains requirements to protect drainage systems during construction, as well as post-construction stormwater management requirements for some projects. This includes requirements for projects to retain, detain, and filter the first 1.25 inches of stormwater runoff from each rain event, while also limiting the post-development runoff rate. Finally, the City of New Orleans has demonstrated its enhanced commitment to flood resilient through other initiatives, such as the Urban Conservancy's Front Yard Initiative, which is an incentive program that reimburses eligible homeowners $2.50 per square foot of paving removed (up to 500 square feet- for a max of $1,250).

It is the purpose of the City of New Orleans to continue to promote public health, safety, and general welfare by minimizing public and private losses due to flood conditions in specific areas. The city is guided by their local Flood Damage Prevention Ordinance. The community will continue to comply with NFIP requirements through their local permitting, inspection, and record-keeping requirements for new and substantially developed construction. Further, the NFIP program promotes sound development in floodplain areas and includes provisions designed to:

- Protect human life and health;
- Minimize expenditure of public money for costly flood control projects;
- Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- Minimize prolonged business interruptions;
- Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in floodplains;
- Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas; and
- Ensure that potential buyers are notified that property is in a flood area.

In order to accomplish these tasks, the City of New Orleans seeks to observe the following guidelines in order to achieve flood mitigation:

- Restrict or prohibit uses that are dangerous to health, safety, or property in times of flood, such as filling or dumping, that may cause excessive increases in flood heights or velocities;
- Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction, as a method of reducing flood losses;
- Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of floodwaters;
- Control filling, grading, dredging, and other development, which may increase flood damage; and
- Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters, or which may increase flood hazards to other lands.

NFIP Compliance and Maintenance

The city has developed mitigation actions that relate to either NFIP maintenance or compliance. Compliance and maintenance actions can be found in Section 21.

Flooding was identified as a significant risk hazard during hazard ranking activities at the Risk Assessment Workshop by the majority of the planning team. As such, many of the mitigation actions were developed with flood mitigation in mind. A majority of these flood actions address compliance with the NFIP and implementing flood awareness programs. The city recognizes the need and is working towards adopting additional higher NFIP regulatory standards to further minimize flood risk in their community. In addition, the city focuses on public flood awareness activities. This includes promoting the availability of flood insurance by placing NFIP brochures and flyers in public libraries or public meeting places.

The city has a designated floodplain administrator. The floodplain administrator will continue to maintain compliance with the NFIP, including continued floodplain administration, zoning ordinances, and development regulation. The floodplain ordinance adopted by the city outlines the minimum requirements for development in Special Flood Hazard Areas.

The city has a permitting process in place, and the local floodplain administrator is responsible for coordinating inspections of damaged homes located in the floodplain. Following a flood event, local officials inspect damaged homes to make a substantial damage determination. Substantially damaged homes must be brought into compliance. Similarly, proposed improvements to homes located in the floodplain are reviewed by

local building officials to determine if a substantial improvement is proposed. The floodplain administrator oversees permitted repairs and improvements to ensure compliance during the rebuilding or improvement process.

Repetitive Loss

The Flood Mitigation Assistance (FMA) Grant Program under FEMA provides federal funding to assist states and communities in implementing mitigation measures to reduce or eliminate the long-term risk of flood damage to buildings that are insured under the National Flood Insurance Program. The Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) administers the FMA grant program for the State of Louisiana. One of the goals of the FMA program is to reduce the burden of repetitive loss and severe repetitive loss properties on the NFIP through mitigation activities that significantly reduce or eliminate the threat of future flood damages.

Repetitive Loss properties are defined as structures that are:

- Any insurable building for which 2 or more claims of more than $1,000 each, paid by the National Flood Insurance Program (NFIP) within any 8-year period, since 1978;
- May or may not be currently insured under the NFIP.

Severe Repetitive Loss properties are defined as structures that are:

- Covered under the NFIP and have at least 4 flood related damage claim payments (building and contents) over $5,000.00 each, and the cumulative amount of such claims payments exceed $20,000; or
- At least 2 separate claim payments (building payments only) have been made, with the cumulative amount of the building portion of such claims exceeding the market value of the building.

In either scenario, at least 2 of the referenced claims must have occurred within any 8-year period and must be greater than 10 days apart.[8] Table 8-9 shows repetitive loss and severe repetitive loss properties for City of New Orleans.

[8] Source: https://www.fema.gov/pdf/nfip/manual201205/content/20_srl.pdf.

Table 8-9. Repetitive Loss and Severe Repetitive Loss Properties

Jurisdiction	Number of Structures	Number of Losses	Structure Type
City of New Orleans	5,277	3,315	Single Family Residence
	1,379	1,250	2-4 Unit Residential Building
	132	157	Residential Building with More than 4 Units
	732	778	Non Residential Building
	90	134	Non Residential Business
	725	693	Single Family Residential Building
	186	218	Residential Non-condo Building
	35	45	Residential Non-condo Building with 5 or More Units
	3	5	Residential Condo Association
	1	1	Single Residential Unit in a Multi-Unit Building
	1	2	Non Residential Unit in a Multi-Unit Building



Section 9

Hail

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Section 9: Hail

Hazard Description



Hail measuring greater than two inches in New Orleans in February of 2017. Photo courtesy of WLKY Channel 32 news.

Hail is precipitation in the form of round masses and irregular lumps consisting of layers of ice and compact snow. Hail is formed inside of thunderstorm updrafts and can be particularly damaging to the built environment and infrastructure.

The size of hailstones is a direct result of the size and severity of the storm. Heating on the Earth's surface produces temperature gradients between the surface and the upper atmosphere, which generate high-velocity updraft winds that keep hail in suspension in thunderclouds. During the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to the rapid rising of warm air into the upper atmosphere, and the subsequent cooling of the air mass. Frozen droplets gradually accumulate into ice crystals until they fall as precipitation that is round or irregularly shaped masses of ice typically greater than 0.75 inches in diameter. Higher temperature gradients above Earth's surface result in increased suspension time and hailstone size.

Hail falls when it becomes heavy enough to overcome the strength of the thunderstorm updraft and is pulled toward the earth by gravity. Smaller hailstones can be blown away from the updraft by horizontal winds, so larger hail typically falls closer to the updraft than smaller hail. If the winds near the surface are strong enough, hail can fall at an angle or even nearly sideways. Wind-driven hail can tear up siding on houses, break windows and blow into houses, break side windows on cars, and cause severe injury or death to people and animals.

There is no clear distinction between storms that do and do not produce hailstones. Nearly all severe thunderstorms probably produce hail aloft, though it may melt before reaching the ground. In all cases, the hail falls when the thunderstorm's updraft can no longer support the weight of the ice. The stronger the updraft, the larger the hailstone can grow, and the greater the potential for loss or damage. [1]

[1] National Oceanic and Atmospheric Administration, National Severe Storms Laboratory, Severe Weather 101.

Location

Hailstorms are an extension of severe thunderstorms. As a result, they are not confined to any specific geographic location and can vary greatly in size, location, intensity, and duration. Therefore, the entire City of New Orleans, including all educational institutions and special districts, is equally at risk to the hazard of hail. Refer to Figure 9-1 for the location of past hail events in the planning area.

Extent

The National Weather Service (NWS) classifies a storm as "severe" if there is hail three-quarters of an inch in diameter (approximately the size of a penny) or greater, based on radar intensity or as seen by observers. The intensity category of a hailstorm depends on hail size and the potential damage it could cause, as depicted in the National Centers for Environmental Information (NCEI) Intensity Scale in Table 9-1.

Table 9-1. Hail Intensity and Magnitude[2]

Size Code	Intensity Category	Size (Diameter Inches)	Descriptive Term	Typical Damage
H0	Hard Hail	Up to 0.33	Pea	No damage
H1	Potentially Damaging	0.33 – 0.60	Marble	Slight damage to plants and crops
H2	Potentially Damaging	0.60 – 0.80	Dime	Significant damage to plants and crops
H3	Severe	0.80 – 1.20	Nickel	Severe damage to plants and crops
H4	Severe	1.2 – 1.6	Quarter	Widespread glass and auto damage
H5	Destructive	1.6 – 2.0	Half Dollar	Widespread destruction of glass, roofs, and risk of injuries
H6	Destructive	2.0 – 2.4	Ping Pong Ball	Aircraft bodywork dented and brick walls pitted
H7	Very Destructive	2.4 – 3.0	Golf Ball	Severe roof damage and risk of serious injuries
H8	Very Destructive	3.0 – 3.5	Hen Egg	Severe damage to all structures

[2] NCEI Intensity Scale, based on the TORRO Hailstorm Intensity Scale.

Size Code	Intensity Category	Size (Diameter Inches)	Descriptive Term	Typical Damage
H9	Super Hailstorms	3.5 – 4.0	Tennis Ball	Extensive structural damage, could cause fatal injuries
H10	Super Hailstorms	4.0 +	Baseball	Extensive structural damage, could cause fatal injuries

The intensity scale in Table 9-1 ranges from H0 to H10, with increments of intensity or damage potential in relation to hail size (distribution and maximum), texture, fall speed, speed of storm translation, and strength of the accompanying wind. Speed of storm translation refers to the horizontal speed at which the entire storm system is moving from one location to another. Based on the best available data regarding the previous occurrences for the area, the City of New Orleans may experience hailstorms ranging from an H0 (pea size) to an H5 (half dollar size). The largest size hail to be reported in the planning area was 1.75 inches in diameter, or an H5, which is considered a destructive hailstorm capable of causing injuries and widespread destruction of glass and roofing. Events of this magnitude have occurred on seven occasions since 1962. This is likely the greatest extent the planning area can anticipate in the future, based on historical events.

Historical Occurrences

Historical evidence shown in Figure 9-1 demonstrates that the risk of hail is equally distributed across the planning area. Historical hail events are shown in Table 9-2. A total of 37 reported historical hail events impacted the City of New Orleans between 1962 and 2024; these events were reported to NCEI and NOAA databases and may not represent all hail events to have occurred during the past 63 years. Data for participating educational institutions and special districts is included in the NCEI data for the City of New Orleans.

Figure 9-1. Spatial Historical Hail Events, 1962 – 2024

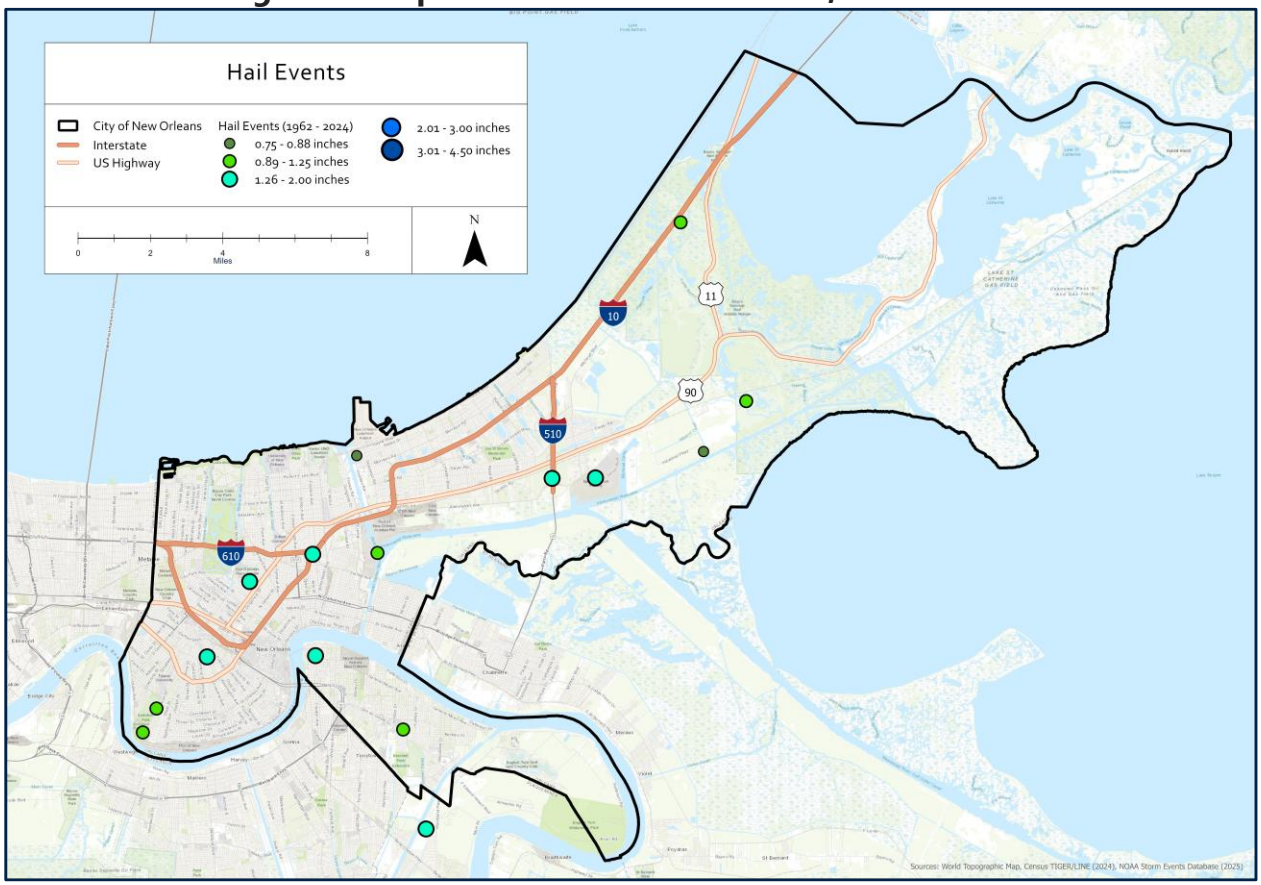


Table 9-2. Damaging Historical Hail Events, 1962 – 2024[3]

Jurisdiction	Date	Magnitude (Inches)	Deaths	Injuries	Property and Crop Damage
City of New Orleans	2/5/1962	1.75	0	0	$0
City of New Orleans	4/26/1964	1.75	0	0	$0
City of New Orleans	3/30/1972	1.75	0	0	$0
City of New Orleans	6/17/1973	0.75	0	0	$0
City of New Orleans	9/1/1974	1	0	0	$0
City of New Orleans	5/7/1975	1.5	0	0	$0
City of New Orleans	7/1/1977	1.75	0	0	$0
City of New Orleans	4/18/1980	1	0	0	$0

[3] Note: No reports of monetary damages, injuries, or fatalities were recorded in the NCEI database.

Jurisdiction	Date	Magnitude (Inches)	Deaths	Injuries	Property and Crop Damage
City of New Orleans	4/26/1982	1.75	0	0	$0
City of New Orleans	7/5/1984	0.75	0	0	$0
City of New Orleans	5/21/1985	0.75	0	0	$0
City of New Orleans	3/2/1991	0.75	0	0	$0
City of New Orleans	4/9/1991	1	0	0	$0
City of New Orleans	2/17/1992	1	0	0	$0
City of New Orleans	6/4/1992	1	0	0	$0
City of New Orleans	4/10/1995	0.75	0	0	$0
City of New Orleans	4/14/1996	0.75	0	0	$0
City of New Orleans	7/28/1996	0.75	0	0	$0
City of New Orleans	1/24/1997	0.88	0	0	$0
City of New Orleans	3/29/1997	1.5	0	0	$0
City of New Orleans	6/21/1998	0.75	0	0	$0
City of New Orleans	1/23/2000	1	0	0	$0
City of New Orleans	1/23/2000	0.75	0	0	$0
City of New Orleans	6/21/2001	0.88	0	0	$0
City of New Orleans	5/30/2002	0.75	0	0	$0
City of New Orleans	2/4/2004	1.75	0	0	$0
City of New Orleans	7/8/2004	0.75	0	0	$0
City of New Orleans	5/26/2011	1	0	0	$0
City of New Orleans	6/7/2011	1	0	0	$0
City of New Orleans	2/24/2013	1	0	0	$0
City of New Orleans	4/8/2014	0.75	0	0	$0
City of New Orleans	4/15/2015	1.75	0	0	$0
City of New Orleans	4/15/2015	1.5	0	0	$0
City of New Orleans	1/21/2017	1	0	0	$0
City of New Orleans	2/7/2017	1.5	0	0	$0

Jurisdiction	Date	Magnitude (Inches)	Deaths	Injuries	Property and Crop Damage
City of New Orleans	3/11/2022	1	0	0	$0
City of New Orleans	4/16/2023	1	0	0	$0
Totals		**1.75 (Max Extent)**	**0**	**0**	**$0**

Table 9-3. Historical Hail Events Summary, 1962 – 2024

Jurisdiction	Number of Events	Max Magnitude (Inches)	Deaths	Injuries	Property and Crop Damage
City of New Orleans	37	1.75	0	0	$0
Loyola University	0	------	------	------	------
Tulane University	0	-----	------	------	------
Housing Authority of New Orleans	0	-----	------	------	------
New Orleans Redevelopment Authority	0	------	------	------	------
Sewage and Water Board of New Orleans	0	------	------	------	------
Totals	**37**	**(Max Extent)**	**0**	**0**	**$0**

Two of the events have been reported since the 2021 Plan.

Climate Change Considerations

Although the impact of climate change on the frequency and severity of hail events is uncertain, some climate studies attempt to give insight into the future conditions of hailstorms. As ocean temperatures rise due to climate change, more moisture is evaporating into the atmosphere. The warm and moist air masses that fuel severe weather may become more unstable on average, which could favor the increased development of thunderstorms and hail. However, it is also suggested that in a warming climate, the average melting level will rise in thunderstorms, meaning small hailstones will have more of a chance to melt as they fall to the ground. Therefore, hail may become less frequent,

but large hail can be expected when it does occur, leading to the possibility of increased damages.[4]

Probability of Future Events

The City of New Orleans experienced 37 hail events over a 63-year period, averaging approximately one hail event every one to two years. This supports a "Highly Likely" probability of future hail events, with another event expected within the next year.

Vulnerability and Impact

Crops are typically the most vulnerable to damage from hail. Vehicles, roofs of buildings and homes, and landscaping are also damaged by hail. Utility systems on roofs of buildings and critical facilities are vulnerable and could be damaged. Hail may pose a significant threat to people, as they could be struck by hail or falling trees and branches. Outdoor activities and events may elevate the risk to residents and visitors when a hailstorm strikes with little warning. Portable buildings typically utilized by schools and commercial sites such as construction areas would be more vulnerable to hail events than the typical site-built structures.

According to the American Community Survey (ACS) five-year estimates for 2023, a total of 874 manufactured homes is located in the City of New Orleans (less than one percent of total housing stock). In addition, 75 percent (146,793 structures) of the housing structures in the City of New Orleans were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damage during hail events.

Table 9-4. Structures at Greater Risk by Participating Jurisdiction

Jurisdiction	Structures
	SFR Built Before 1980
City of New Orleans	146,793
Loyola University	21
Tulane University	144
Housing Authority of New Orleans (HANO)	2
New Orleans Redevelopment Authority (NORA)	0

[4] Yale Climate Connections, Hailstorms and Climate Change, March 17, 2022.

Jurisdiction	Structures
	SFR Built Before 1980
Sewerage and Water Board of New Orleans (SWBNO)	0

While all residents are at risk of the impacts of hail, forced relocation and disaster recovery disproportionately impact low-income residents who lack the financial means to rebuild or repair their homes. An estimated 23 percent of the planning area population live below the poverty level (Table 9-5). While warning times for this type of hazard events should be substantial enough for these individuals to seek shelter, the elderly, children, and people with a disability may have trouble taking shelter due to mobility issues or a lack of awareness, making them more susceptible to injury or harm. In addition, people who speak a language other than English may face increased vulnerability due to language barriers that limit their access to important information such as weather-related warnings and instructions regarding safety measures.

Table 9-5. Populations at Greater Risk[5]

Jurisdiction	Population				
	65 and Older	Under 5	With a Disability	Below Poverty Level	Limited English Speaking
City of New Orleans	61,879	20,845	52,249	84,984	11,359

People experiencing homelessness are particularly vulnerable to severe weather events, including hail, because they lack access to safe and weather-protected shelter. Hail can cause serious injuries, such as bruises or broken bones, and without safe housing, individuals are exposed directly to falling ice. According to the 2025 Point-in-Time Count, more than 1,400 people are experiencing homelessness in New Orleans.

While ongoing socioeconomic challenges continue to push people into homelessness, Unity of Greater New Orleans reports that street homelessness is declining due to the Home for Good Initiative.[6] The goal of the initiative is to close homeless encampments and transition individuals into housing, focusing on moving residents from underpasses into shelters and, ultimately, permanent housing with wraparound services to reduce street homelessness. As of May 2025, the initiative housed over 1,000 people, closed eight encampments, and dramatically reduced emergency responses to street homelessness. The Home for Good Sustainability Plan, the guiding document for the initiative, includes

[5] US Census Bureau 2023 data for the City of New Orleans.

[6] UNITY of Greater New Orleans. 2025 Point in Time Count. https://unitygno.org/2025-point-in-time-count.

an operational roadmap through 2034 for continued improvements in support and service delivery for unhoused people in New Orleans.

Participating educational institutions and special districts also have vulnerable populations based on work location, such as employees that work outdoors who may be subject to severe weather conditions (Table 9-6).

Table 9-6. Populations at Greater Risk by Participating Special District

Special District	Population
	Works Outdoors
Loyola University	73
Tulane University	152
Housing Authority of New Orleans (HANO)	0
New Orleans Redevelopment Authority (NORA)	0
Sewerage and Water Board of New Orleans (SWBNO)	700

The City of New Orleans Planning Team identified the following critical facilities (Table 9-7) as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by hail events. For a comprehensive list of facilities for each participant, please see Appendix F.

Table 9-7. Critical Facilities Vulnerable to Hail

Critical Facility Type	Potential Impacts
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers	• Emergency operations and services may be disrupted due to damaged facilities and/or loss of communications. • Emergency vehicles can be dented or damaged by hailstones. • Power outages could disrupt communications, delaying emergency response times.
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental	• Roofs, windows, and outdoor equipment in older or historic structures are especially vulnerable to hail damage. • Power outages could disrupt critical care in hospitals, shelters, or assisted living facilities. • Backup power sources could be damaged. • Historical sites and properties are placed at a higher risk of impact due to materials used. There are 202 historical sites

Critical Facility Type	Potential Impacts
Facilities, Residential/ Assisted Living Facilities	on the National Register of Historic Places of the City of New Orleans.
Commercial Supplier (Food, fuel, etc.)	• Facilities, delivery trucks, or outdoor storage may be damaged or rendered temporarily inoperable. • Essential supplies like medicines, water, food, and equipment deliveries may be delayed.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Hail can damage above-ground utility infrastructure, such as power lines, transformers, and communication towers. • Power outages could disrupt communications, delaying emergency response times.

Hail has been known to cause injury to humans and occasionally has been fatal, though no injuries have been reported within the City of New Orleans. While numerous hail events have been reported in the planning area since 1962, none of these events resulted in reported monetary damages, based on best available data. Based on the limited historic losses and damages, the impact of hail on the City of New Orleans, including all educational institutions and special districts, is considered "Limited" severity of impact, meaning injuries and illnesses are treatable with first aid, shutdown of critical facilities and services for 24 hours or less, and less than 10 percent of property destroyed or with major damage.



Section 10

High Wind

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Section 10: High Wind

Hazard Description



Severe storm with high winds over New Orleans on April 17, 2012. Photo by Michael DeMocker, The Times-Picayune.

Wind is the horizontal motion of the air past a given point, beginning with differences in air pressures. Pressure that is higher at one place than another sets up a force pushing from high toward low pressure: the greater the difference in pressures, the stronger the force. The distance between the area of high pressure and the area of low pressure also determines how fast the moving air accelerates.

High wind events, those that sustain speeds of 40 mph or greater according to the National Weather Service (NWS), are often associated with severe thunderstorms. These wind events can cause significant property and crop damages. Winds in New Orleans are typically straight-line winds, which are generally any thunderstorm wind that is not associated with rotation or tornados. Straight-line winds are responsible for most high wind damages. One type of straight-line wind, the downburst, is a small area of rapidly descending air beneath a thunderstorm. A downburst can cause damage equivalent to a strong tornado and make air travel extremely hazardous. High heat and humidity can lead to strong thunderstorm winds becoming more frequent or extreme during the spring and summer months, overlapping with hurricane season in New Orleans which occurs from late summer to early fall.

High winds can also occur in the absence of other definable hazard conditions creating "windstorms." According to the NWS, high winds not associated with thunderstorms are often referred to as gradient winds. They are usually the result of tight pressure gradients between strong areas of low pressure and high pressure. These strong winds can be just as strong as thunderstorm wind gusts, but cover a much larger area, and can result in widespread damage.

Location

High wind events are common in Louisiana, can occur randomly, and are not confined to geographical boundaries. The entire City of New Orleans planning area, including educational institutions and special districts, are uniformly exposed to this hazard.

Extent

The extent or magnitude of a high wind event is measured by the Beaufort Wind Scale. Table 10-1 describes the different intensities of wind in terms of speed and effects, from calm to violent and destructive.

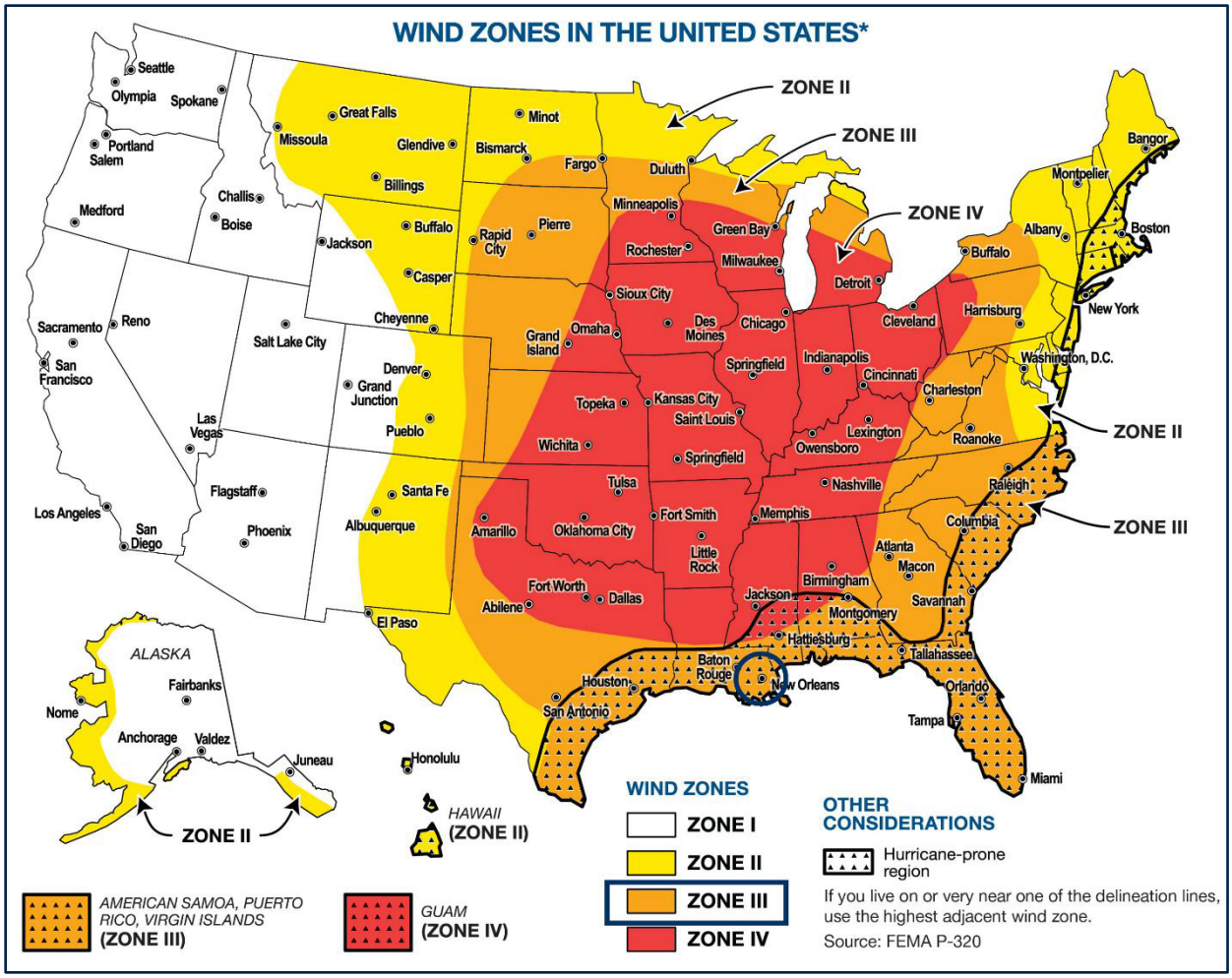
Table 10-1. Beaufort Wind Scale[1]

Force	Wind (mph)	Wind (knots)	WMO Classification	Appearance of Wind Effects
0	Less than 1	Less than 1	Calm	Calm, smoke rises vertically
1	1-3	1-3	Light Air	Smoke drift indicates wind direction, still wind vanes
2	4-7	4-6	Light Breeze	Wind felt on face, leaves rustle, vanes begin to move
3	8-12	7-10	Gentle Breeze	Leaves and small twigs constantly moving, light flags extended
4	13-18	10-16	Moderate Breeze	Dust, leaves and loose paper lifted, small tree branches move
5	19-24	17-21	Fresh Breeze	Small trees in leaf begin to sway
6	25-31	22-27	Strong Breeze	Larger tree branches moving, whistling in wires
7	32-38	28-33	Near Gale	Whole trees moving, resistance felt walking against wind
8	39-46	34-40	Gale	Whole trees in motion, resistance felt walking against wind
9	47-54	41-47	Strong Gale	Slight structural damage occurs, slate blows off roofs
10	55-63	48-55	Storm	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	64-72	56-63	Violent Storm	If experienced on land, widespread damage
12	72-83	64-71	Hurricane	Violence and destruction

Figure 10-1 displays the wind zones as derived from NOAA.

[1] Source: World Meteorological Organization

Figure 10-1. Wind Zones in the United States[2]



On average, New Orleans experiences two to three high wind events each year. The City of New Orleans is located within Wind Zone III, as well as the hurricane-susceptible region (Figure 10-1), meaning the planning area can experience maximum windspeeds up to 200 mph. The City of New Orleans planning area has experienced a significant wind event, or an event with winds in the range of "Force 12" on the Beaufort Wind Scale with winds above 72 mph. The highest magnitude reported event occurred on February 1, 1970, with winds recorded at 90 knots, or approximately 104 mph. This is the worst to be anticipated for the entire planning area based on historic events.

[2] Note: The City of New Orleans planning area is indicated by the black circle.

Historical Occurrences

The National Centers for Environmental Information (NCEI) Storm Events database is a national data source organized under the National Oceanic and Atmospheric Administration (NOAA). The NCEI is the largest archive available for historic storm events data; however, it is important to note that only incidents recorded in the NCEI have been factored into this risk assessment unless otherwise noted. It is likely that a high number of occurrences and damages have gone unreported over the past 67 years. Tables 10-2, 10-3, and 10-4 depict historical occurrences of high wind events for the City of New Orleans according to the NCEI database.

Since 1958, 183 high wind events are known to have occurred in the City of New Orleans. Table 10-4 provides information on those historical events impacting the City of New Orleans resulting in damages, injuries, or fatalities. The strongest event reported in the planning area occurred on February 1, 1970, with reported wind speeds of 90 knots, or approximately 104 mph.

It is important to note that high wind events associated with other hazards, such as tornadoes and tropical cyclones, are not accounted for in this section. Property damage estimates are not always available. Table 10-4 provides event and damage summaries for the planning area. Where an estimate has been provided in a table for losses, the dollar amounts have been modified for inflation to indicate the damage in 2025 dollars.

Historical high wind event data for the participating educational institutions and special districts is provided within the City of New Orleans events. In the NCEI database, these entities do not have events reported separate and apart from the reported jurisdiction events. No participating educational institution nor special district reported additional high wind damages which were not captured in the NCEI database.

Table 10-2. Historical High Wind Speeds, 1958 – 2024

Maximum Wind Speed Recorded (Knots)	**Number of Reported Events**
0-30	0
31-40	1
41-50	39
51-60	67
61-70	16
71-80	8

Maximum Wind Speed Recorded (Knots)	Number of Reported Events
81-90	1
91-100+	0
Unknown	51

Table 10-3. Historical High Wind Events, 1958 – 2024[3]

Jurisdiction	Date	Magnitude (Knots)	Deaths	Injuries	Property & Crop Damage
City of New Orleans	5/27/1990	-----	0	1	$0
City of New Orleans	5/8/1995	-----	0	0	$1,565,400
City of New Orleans	5/8/1995	50	0	0	$521,800
City of New Orleans	2/13/1997	------	0	0	$1,000
City of New Orleans	4/26/1997	57	0	0	$99,200
City of New Orleans	6/21/1998	-----	0	0	$2,000
City of New Orleans	1/2/1999	-----	0	0	$2,000
City of New Orleans	7/14/2000	-----	0	0	$1,000
City of New Orleans	7/22/2000	-----	0	0	$18,400
City of New Orleans	8/20/2000	-----	0	0	$9,200
City of New Orleans	9/1/2000	-----	0	0	$9,200
City of New Orleans	9/1/2000	-----	0	0	$1,900
City of New Orleans	11/6/2000	-----	0	0	$91,300
City of New Orleans	6/5/2001	-----	0	0	$26,800
City of New Orleans	4/8/2002	-----	0	0	$26,600
City of New Orleans	4/8/2002	-----	0	0	$17,700
City of New Orleans	7/7/2002	-----	0	0	$7,100
City of New Orleans	7/13/2002	-----	0	0	$500
City of New Orleans	12/12/2002	-----	0	0	$1,800
City of New Orleans	7/17/2003	50	0	0	$5,200

[3] Only recorded events with fatalities, injuries or damages are listed. Magnitude is listed when available. Damage values are in 2025 dollars.

Jurisdiction	Date	Magnitude (Knots)	Deaths	Injuries	Property & Crop Damage
City of New Orleans	11/18/2003	50	0	0	$13,800
City of New Orleans	7/6/2004	50	0	0	$25,200
City of New Orleans	11/24/2004	50	0	0	$2,500
City of New Orleans	1/13/2005	50	0	0	$2,500
City of New Orleans	7/3/2005	50	0	0	$2,500
City of New Orleans	8/15/2006	50	0	0	$500
City of New Orleans	11/6/2006	50	0	0	$1,600
City of New Orleans	5/4/2007	50	0	0	$1,600
City of New Orleans	2/12/2008	50	0	0	$3,100
City of New Orleans	5/15/2008	50	0	0	$2,200
City of New Orleans	3/27/2009	50	0	0	$1,500
City of New Orleans	4/2/2009	50	0	0	$6,000
City of New Orleans	5/16/2009	50	0	0	$4,500
City of New Orleans	3/1/2010	52	0	0	$14,600
City of New Orleans	3/1/2010	45	0	0	$7,300
City of New Orleans	6/4/2010	52	0	0	$3,000
City of New Orleans	11/30/2010	61	0	0	$72,600
City of New Orleans	4/3/2012	60	0	0	$20,800
City of New Orleans	7/3/2012	55	0	0	$7,000
City of New Orleans	4/3/2013	73	0	0	$27,400
City of New Orleans	4/24/2013	52	0	0	$13,700
City of New Orleans	4/24/2013	56	0	0	$1,400
City of New Orleans	5/10/2013	70	0	0	$81,900
City of New Orleans	8/4/2016	60	0	0	$131,900
City of New Orleans	9/5/2016	55	0	0	$13,200
City of New Orleans	1/11/2018	45	0	0	$2,600
City of New Orleans	5/18/2018	45	0	0	$63,200

Jurisdiction	Date	Magnitude (Knots)	Deaths	Injuries	Property & Crop Damage
City of New Orleans	5/18/2018	45	0	0	$1,300
City of New Orleans	2/5/2020	50	0	1	$0
City of New Orleans	5/6/2023	52	0	0	$800
City of New Orleans	5/16/2024	61	0	0	$4,100
Totals			**0**	**2**	**$2,942,400**

Table 10-4. Summary of Historical Events by Jurisdiction, 1958 – 2024

Jurisdiction	Number of Events	Magnitude (Knots)	Deaths	Injuries	Property and Crop Damage
City of New Orleans	183	90	0	2	$2,942,400
Housing Authority of New Orleans	0	-----	-----	-----	-----
Loyola University	0	-----	-----	-----	-----
New Orleans Redevelopment Authority	0	-----	-----	-----	-----
Sewage and Water Board of New Orleans	0	-----	-----	-----	-----
Tulane University	0	-----	-----	-----	-----
Totals	**183**	**90 (Max Extent)**	**0**	**2**	**$2,942,400**

A total of 24 high wind events have been reported since the 2021 Plan.

Significant Events

August 4, 2016

A hot, unstable airmass over the City of New Orleans produced scattered thunderstorms with severe winds, as well as one tornado. In the 7th Ward of New Orleans, straight-line winds up to 70 mph caused damage along Claiborne Avenue from Esplanade to Orleans. In this area, four structures were totally or partially collapsed, power lines were downed, and several homes suffered damaged siding. Total property damage was estimated at $131,900 (2025 dollars).

May 16, 2024
Severe storms originating from southeastern Texas formed into a linear complex and traveled north across the Gulf Coast, eventually bringing multiple rounds of severe storms in southeastern Louisiana. These storms brought severe and damaging winds to the City of New Orleans, with multiple 82 mph wind gusts reported at New Orleans Lakefront Airport. Near the airport, several people were trapped in an overturned vehicle on France Road during the storm, though no injuries were reported. Total property damage was estimated at $4,100 (2025 dollars).

Climate Change Considerations

The impacts on the frequency and severity of severe wind events due to climate change are unclear. However, as ocean temperatures rise due to climate change, more moisture is evaporating into the atmosphere. The warm and moist air masses that fuel severe weather may become more unstable on average, which could favor the increased development of thunderstorms and wind-related events. It is suspected that an increase in thunderstorms would mean an increase in damaging winds, but there is limited data available to understand the full scope of future climate change impacts.

Probability of Future Events

Most high winds occur during the spring and summer seasons and during the months of March, April, May, and September. The City of New Orleans experienced 183 events over a 67-year period, averaging approximately two to three high wind events a year. This supports a “Highly Likely” probability of future hail events, with another event expected within the next year.

Vulnerability and Impact

Vulnerability is difficult to evaluate since high wind events can occur at different strength levels, in random locations, and can create relatively narrow paths of destruction. All existing and future structures and facilities within the City of New Orleans are potentially vulnerable to injury and property loss from strong winds.

Trees, power lines, and utility poles are often damaged by high winds, resulting in widespread, and sometimes prolonged, power outages that disrupt critical services. Windborne debris such as roofing materials, fencing, signage, and unsecured outdoor items frequently cause secondary damage to adjacent structures or utility lines. Manufactured homes and portable structures commonly used at schools, construction

sites, and commercial properties are especially vulnerable and can become hazardous debris during storms.

In the City of New Orleans, high wind events primarily impact aging residential structures, overhead power infrastructure, and a large inventory of uninsured or underinsured properties. Many neighborhoods contain older homes with aged roofing, siding, and windows that are particularly susceptible to wind damage. Losses to these structures are often uninsured, increasing the financial burden on residents and slowing recovery after high wind events.

The City's tree canopy currently encompasses approximately 18.5 percent of the planning area. Many trees in New Orleans tend to have shallow, widespread root systems due to the city's high water table and moist, often saturated soil conditions. Shallow-rooted trees common to the area, like Water Oaks, Laurel Oaks, and Southern Magnolias, often fall during high wind events causing power outages, damaging structures, and blocking roadways.

According to the American Community Survey (ACS) five-year estimates for 2023, a total of 874 manufactured homes is located in the City of New Orleans (less than one percent of total housing stock). In addition, 75 percent (146,793 structures) of the housing units were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damage during significant wind events.

Table 10-5. Structures at Greater Risk by Participating Jurisdiction

Jurisdiction	Structures	
	SFR Built Before 1980	Manufactured Homes
City of New Orleans	146,793	874
Loyola University	21	0
Tulane University	144	15
Housing Authority of New Orleans (HANO)	2	0
New Orleans Redevelopment Authority (NORA)	0	0
Sewerage and Water Board of New Orleans (SWBNO)	0	3

While all citizens are vulnerable to the impacts of high wind, forced relocation and disaster recovery disproportionately impact low-income residents who lack the financial means to travel, afford a long-term stay away from home, or rebuild or repair their homes. An estimated 23 percent of the planning area population live below the poverty level (Table 10-6). While warning times for these types of hazard events should be substantial enough for these individuals to seek shelter, the elderly, children, and people with a disability may have trouble taking shelter due to mobility issues or a lack of awareness, making them more susceptible to injury or harm. In addition, people who speak a language other than English may face increased vulnerability due to language barriers that limit their access to important information such as weather-related warnings and instructions regarding safety measures.

Table 10-6. Populations at Greater Risk[4]

Jurisdiction	Population				
	65 and Older	Under 5	With a Disability	Below Poverty Level	Limited English Speaking
City of New Orleans	61,879	20,845	52,249	84,984	11,359

Participating educational institutions and special districts also have vulnerable populations based on work location, such as employees that work outdoors and may be subject to severe weather conditions (Table 10-7).

Table 10-7. Populations at Greater Risk by Participating Special District

Special District	Population
	Works Outdoors
Loyola University	73
Tulane University	152
Housing Authority of New Orleans (HANO)	0
New Orleans Redevelopment Authority (NORA)	0
Sewerage and Water Board of New Orleans (SWBNO)	700

People experiencing homelessness are particularly vulnerable to severe weather events, including high winds, because they lack access to safe and weather-protected shelter. Strong winds can cause serious injuries from flying debris, falling tree limbs, and

[4] US Census Bureau 2023 data for the City of New Orleans.

unsecured objects. Individuals outdoors are directly exposed to these hazards. Tents and makeshift shelters offer little resistance to high winds and may collapse, tear, or become airborne, further increasing the risk of injury. High wind events can also displace individuals from encampments or separate them from personal belongings. According to the 2025 Point-in-Time Count, more than 1,400 people are experiencing homelessness in New Orleans. While ongoing socioeconomic challenges continue to push people into homelessness, Unity of Greater New Orleans reports that street homelessness is declining due to the Home for Good Initiative.[5] The goal of the initiative is to close homeless encampments and transition individuals into housing, focusing on moving residents from underpasses into shelters and, ultimately, permanent housing with wraparound services to reduce street homelessness. As of May 2025, the initiative housed over 1,000 people, closed eight encampments, and dramatically reduced emergency responses to street homelessness. The Home for Good Sustainability Plan, the guiding document for the initiative, includes an operational roadmap through 2034 for continued improvements in support and service delivery for unhoused people in New Orleans.

Notably, manufactured homes are especially vulnerable to high wind events due to their lightweight construction, elevated foundations, and reliance on anchoring systems. Manufactured homes are more susceptible to uplifting, sliding, and overturning during high wind events. Damage commonly includes roof failure, wall separation, and displacement from foundations, which can result in complete structural loss and injuries or fatalities. The City of New Orleans features a relatively small number of mobile or manufactured homes; U.S. Census data indicates a total of 874 (less than one percent of total housing stock) manufactured homes located in the City of New Orleans.

The age and construction of many New Orleans homes are also vulnerabilities, as 75 percent (146,793 structures) of the housing structures in the City of New Orleans were built before 1980 and many are built of peer and beam construction. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damage during significant high wind events (Table 10-8).

Table 10-8. Structures at Greater Risk by Participating Jurisdiction

Jurisdiction	Structures
	SFR Built Before 1980
City of New Orleans	146,793
Loyola University	21

[5] UNITY of Greater New Orleans. 2025 Point in Time Count. https://unitygno.org/2025-point-in-time-count.

Jurisdiction	Structures
	SFR Built Before 1980
Tulane University	144
Housing Authority of New Orleans (HANO)	2
New Orleans Redevelopment Authority (NORA)	1
Sewerage and Water Board of New Orleans (SWBNO)	59

The City of New Orleans Planning Team identified the following critical facilities (Table 10-9) as assets that are susceptible to a range of impacts caused by high wind events. The critical infrastructure with the greatest vulnerability to thunderstorms are power and communications facilities. Failures of these facilities can result in a loss of service and cascading impacts such as enormous risk to individuals dependent on electricity as a medical necessity. For a comprehensive list of critical facilities for each participant, please see Appendix F.

Table 10-9. Critical Facilities Vulnerable to High Wind Events

Critical Facility Type	Potential Impacts
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers	• Emergency operations and services may be significantly impacted due to damaged facilities, loss of communications, and/or loss of power. • Emergency vehicles can be damaged by falling trees or flying debris. • Debris/downed trees can impede emergency response vehicle access to areas. • First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.

Critical Facility Type	Potential Impacts
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	• Structures can be damaged by falling trees or flying debris. • Power outages could disrupt critical care. • Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities. • Damaged or destroyed highway infrastructure may substantially increase the need for airport operations.
Commercial Supplier (food, fuel, etc.)	• Essential supplies like medicines, water, food, and equipment deliveries may be delayed. • Economic disruption due to power outages and fires negatively impact airport services as well as commercial businesses reliant on airport operations. • High wind events can disrupt cargo handling at the Port of New Orleans. Containers can shift or topple during times of high wind.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Utility operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Utility vehicles can be damaged by falling trees or flying debris. • Power outages could disrupt communications, delaying emergency response times. • Debris/downed trees can impede utility response vehicle access to areas. • Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel.

A high wind event can also result in traffic disruptions, injuries and in rare cases, fatalities. The impacts of high winds experienced in the City of New Orleans has resulted in two reported injuries. Overall, in the past 67 years there has been an estimated total of $2,942,400 in damages (2025 dollars) in the City of New Orleans due to high wind events. The estimated average annual loss from high wind events is $43,900. Based on historic damages to the built environment, the impact of high winds on the City of New Orleans

planning area would be considered limited severity of impact, meaning critical facilities and services shut down for 24 hours or less and less than 10 percent of property destroyed or with major damage. However, with multiple reported injuries due to past wind events, the severity of impact is considered "Minor," meaning multiple injuries are possible depending on the severity of the event.

Table 10-10. Estimated Annualized Losses by Participating Jurisdiction

Jurisdiction	Total Property & Crop Loss	Average Annual Loss Estimates
City of New Orleans	$2,942,400	$43,900
Loyola University	$0	$0
Tulane University	$0	$0
Housing Authority of New Orleans	$0	$0
New Orleans Redevelopment Authority	$0	$0
Sewage and Water Board of New Orleans	$0	$0
Planning Area	**$2,942,400**	**$43,900**



Section 11
Land Subsidence

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Section 11: Land Subsidence

Hazard Description



A sinkhole on Canal Street on May 15, 2016. Photo by Michael DeMocker, The Times-Picayune.

Land subsidence is the gradual or sudden sinking of the Earth's surface. According to the United States Geological Survey (USGS), subsidence is a global problem, and in the United States more than 17,000 square miles in 45 states have been directly affected by subsidence. New Orleans is experiencing significant, widespread subsidence, with the city sinking at rates ranging from 5-10 mm per year up to more than 40 mm annually. Key areas like the Ninth Ward, Metairie, and near the airport are particularly affected, with sinking driven by drainage and oxidation of organic soils, sediment compaction, and tectonic shifts.

Human developments that changed the hydrology of southeast Louisiana contribute to coastal land subsidence and loss in the planning area. These changes include constructing canals and roads through wetlands and controlling the Mississippi River to prevent floods and aid navigation. These changes to the hydrology of southeast Louisiana have reduced the supply of new sediment to offset the impacts of subsidence on coastal wetland loss. River deltas naturally undergo accretion and subsidence. Accretion is the process by which sediments accumulate through the flooding of the banks and natural levees. Subsidence occurs as these sediments compact over time. Prior to the 20th century, the accretion process equaled or exceeded the subsidence process in the Mississippi River Delta. However, the creation of flood-protection levees along the Mississippi River has reduced sediment supply in recent decades. Thus, there is nothing to counteract the natural subsidence that occurs in this area, which leads to an overall loss of elevation and causes coastal land loss.

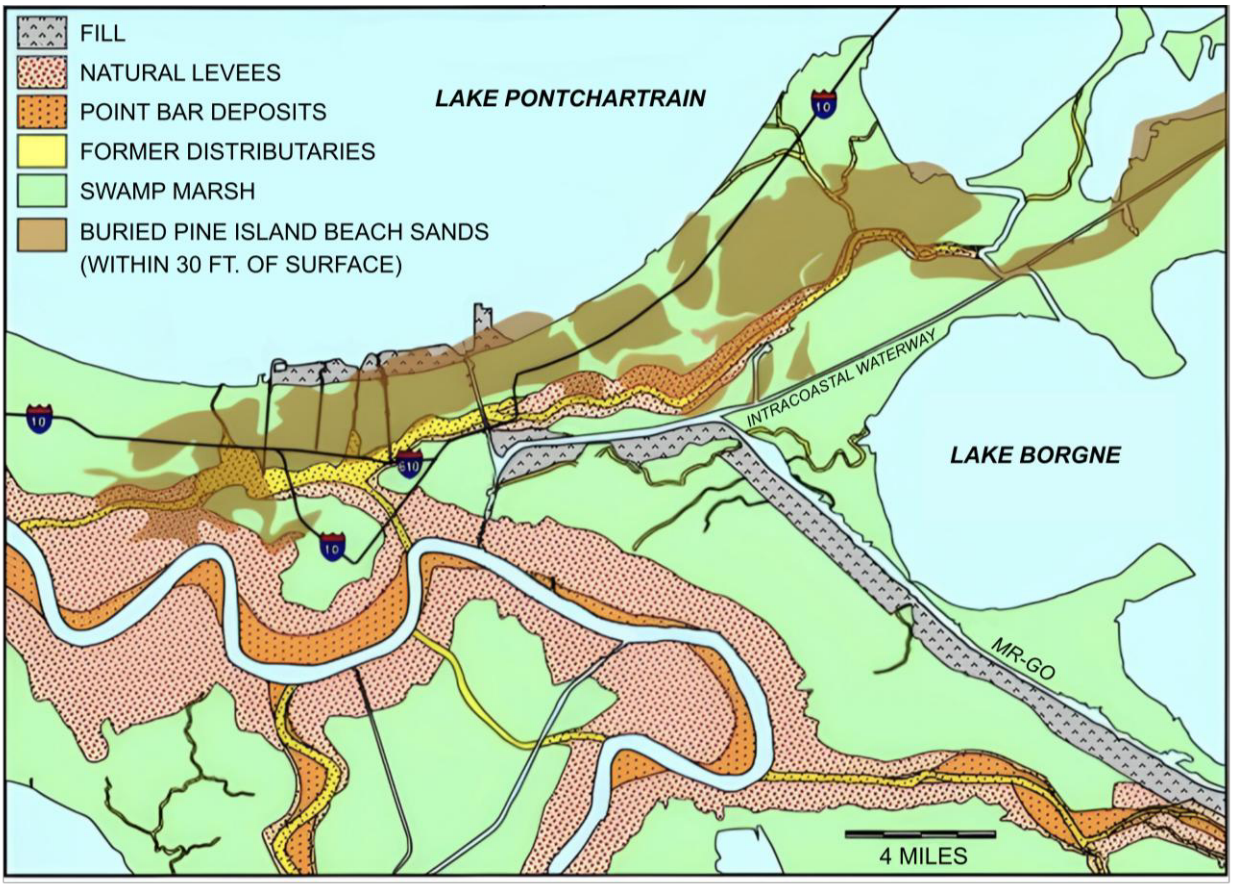
The subsidence of the land surface in New Orleans is mainly attributable to the drainage and oxidation of organic soils, natural compaction, and dewatering of surface sediments. The problem is exacerbated as a result of flood-protection measures and disruption of natural drainage paths that reduce sediment deposition in the New Orleans area. The compaction of new sediment (deltaic geology) and the presence of fault lines between geologic layers are significant contributors to the region's high rate of subsidence.

Location

Land subsidence can be widespread and impact entire states, or it can be small and localized. Higher land subsidence rates in New Orleans can be found where former marshland has been built upon by buildings, roads, and levee causeways including areas found along the Mississippi River levee system such as industrial areas in Norco, Michoud, and sections near the Louis Armstrong International Airport where subsidence rates are as high as 40 to 47 mm per year. High subsidence rates also affect areas like Lakeview along the southern shore of Lake Pontchartrain, New Orleans East, and regions bordering St. Bernard Parish. While rates vary, the entire region is subject to subsidence. Subsidence occurs regionally at gradual rates but can be rapid and localized at times.

The historic landscape of New Orleans helps explain these variations in subsidence across the planning area. Figure 11-1 shows that much of New Orleans was developed on former marsh and backswamp deposits between natural levee ridges of the Mississippi River. Areas built on these former wetlands are generally more susceptible to subsidence than the natural levee corridors.

Figure 11-1. Historic Geomorphic Setting of New Orleans[1]

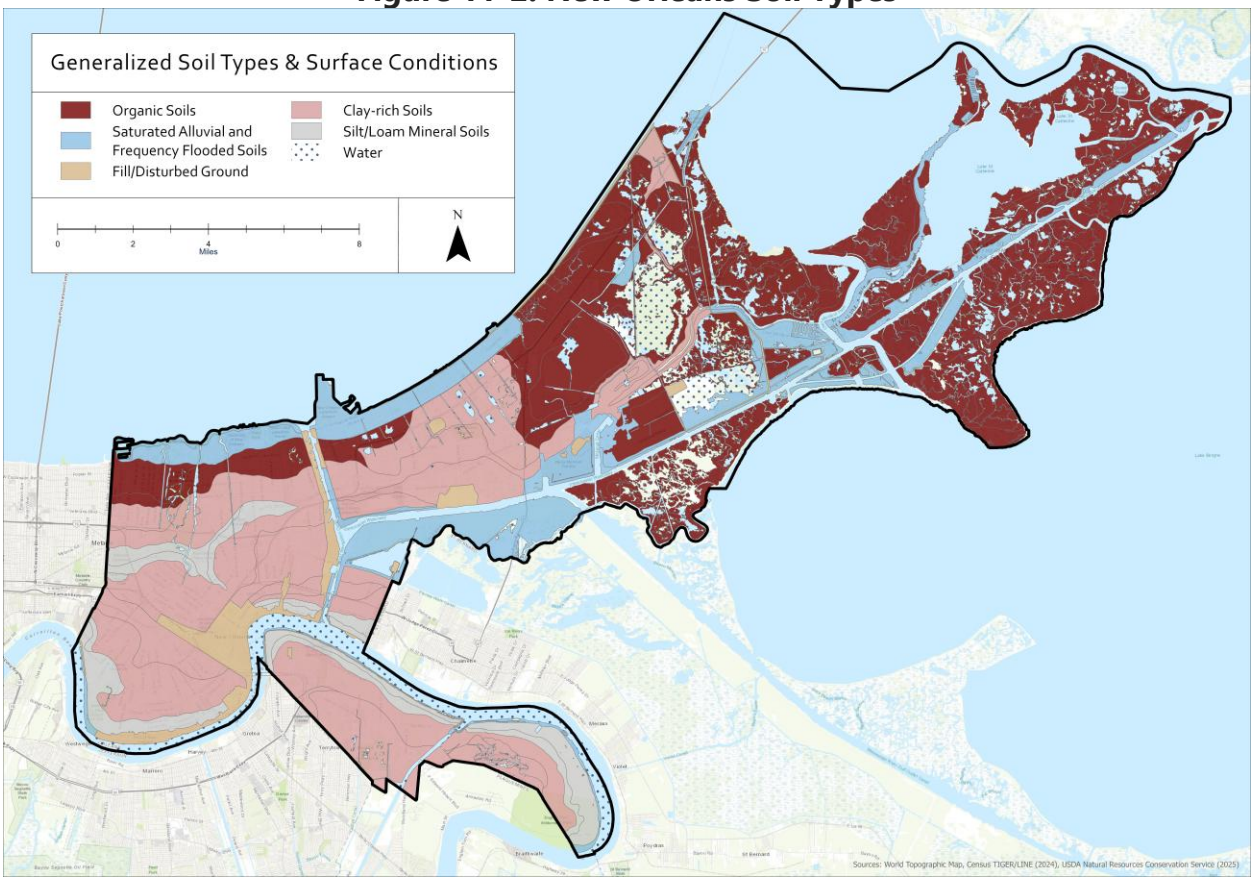


These geomorphic differences influence the types of soils present across the planning area and contribute to where subsidence is most pronounced.

Subsidence and soils maps indicate a moderate correlation between soil type and subsidence rates. Figure 11-2 shows the generalized soils types throughout the planning area.

[1] Nelson, S.A., Tulane University. *Why New Orleans is Vulnerable to Hurricanes – Geologic and Historical Factors. https://www2.tulane.edu/~sanelson/New_Orleans_and_Hurricanes/New_Orleans_Vulnerability.htm*

Figure 11-2. New Orleans Soil Types



The land surface in New Orleans lowers as underlying sediments compact, a process that is accelerated by human activities such as the drainage of organic soils and flood-control infrastructure that limits sediment deposition. These conditions increase the susceptibility of certain soil types to subsidence.

Organic rich soils are highly susceptible to subsidence in New Orleans, primarily due to compaction and oxidation. When waterlogged, organic sediments in areas like Lakeview, Gentilly, and New Orleans East are drained for development, the organic matter dries out and shrinks, causing the land to sink. Fine-grained, cohesive mineral soils like silt and clay are characterized by high moisture content, compressibility, and susceptibility to shrinking when drained.

Saturated alluvial soils and organic peat soils are also highly susceptible to subsidence, especially when drained, causing them to compact and oxidize. Draining, pumping, or otherwise lowering the water table to prevent flooding causes these soils to dry out, oxidize, and shrink. Similarly, areas developed on top of filled-in wetlands are prone to high rates of soil compression and sinking. Fill material typically features loose, unconsolidated, or organic material that compacts easily.

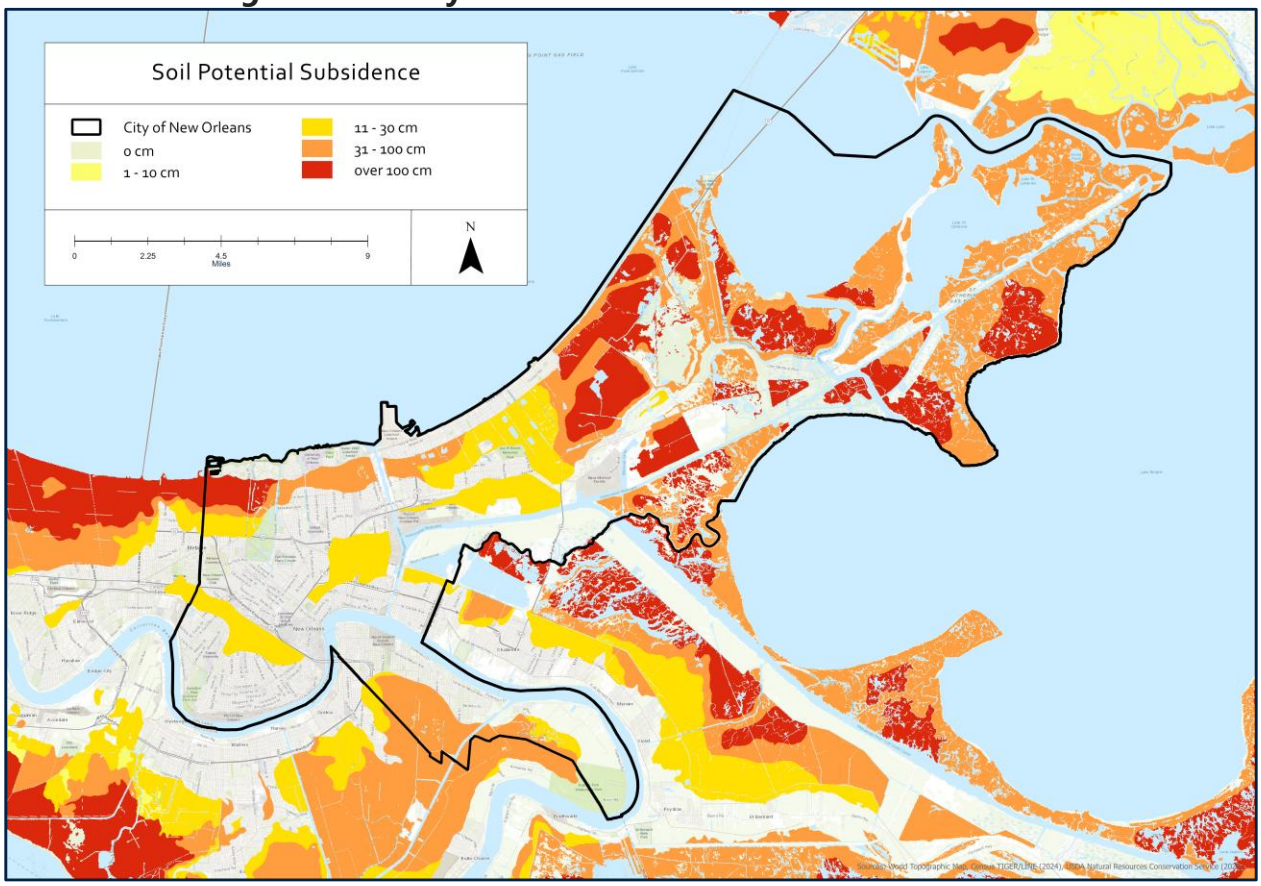
Extent

In some rare cases, extreme land subsidence can lead to sinkholes when the subsurface land cannot support the surface land any longer. A sinkhole is described as a portion of the ground that possesses no natural external surface drainage, typically draining water into the subsurface.[2] The development of sinkholes can range from slow to a dramatic collapse which may result in property damage or injury and loss of life. These events can differ in size from a few feet to many acres with equal variety in depth. Subsidence areas for New Orleans are typically smaller in size since the city does not have the shallow, soluble, limestone-based "karst" geology common to major sinkhole areas, but it is heavily impacted by subsidence and localized surface collapses.

The U.S. Department of Agriculture, Natural Resources Conservation Service Soil Survey Geographic Database (SSURGO) contains annually updated maps measuring potential land subsidence when wet soils are drained; this map is meant to inform communities of their risk to land subsidence. According to this data, presented in Figure 11-3 below, the City of New Orleans (indicated by the black outline) can anticipate a wide range (0-1000 millimeters per year) of land subsidence. The areas of greatest potential subsidence in the planning area are largely along the coast. The marshlands of the Bayou Sauvage Urban National Wildlife Refuge also contain large areas of potentially high subsidence extents. The City of New Orleans, generally, has more moderate susceptibility to land subsidence compared to more southern coastal regions across much of coastal Louisiana.

[2] United States Geological Survey (USGS). Water Science School (2018). Sinkholes. https://www.usgs.gov/special-topics/water-science-school/science/sinkholes

Figure 11-3. City of New Orleans Subsidence Potential[3]



Historical Occurrences

Land subsidence occurring along the Louisiana Coast is often a result of the combination of groundwater loss and soil types which are vulnerable to subsidence. New Orleans and surrounding areas in Louisiana allow the withdrawal of water for industrial, oil, and gas use, primarily from the Mississippi River and local aquifers, subject to state regulation. Such activities require permits from the Louisiana Department of Environmental Quality (LDEQ) and compliance with Office of Conservation rules. Large-scale groundwater withdrawal for industry is known to drive regional subsidence.[4]

There are instances of subsidence known to have occurred in the City of New Orleans; however, the available data primarily measures the overall trends of groundwater loss and land subsidence over long periods of time. There is no comprehensive database available

[3] USDA, Natural Resources Conservation Service. Soil Survey Geographic Data. 2025. https://nolagis.maps.arcgis.com/home/item.html?id=3a1100ca5f6d4bd99a93601e156479bf

[4] USGS, Water withdrawals in Louisiana. June 2025. https://www.usgs.gov/data/water-withdrawals-louisiana-2020#:~:text=The%20U.S.%20Geological%20Survey%20(USGS)%20Lower%20Mississippi%2DGulf,irrigation:%20250%20Mgal/d%20*%20Aquaculture:%20590%20Mgal/d

to provide information on the extent and magnitude of specific land subsidence events. Information about known subsidence events primarily depends on local knowledge and local news sources. The following section provides a description of two known significant events, though it's likely that many instances remain unreported.

Significant Events

June 8, 2023
A massive sinkhole opened on June 8, 2023, at the intersection of Ursulines Avenue and Chartres Street. This sinkhole was much more severe than typical roadway potholes, measuring approximately 10 feet wide and 6 feet deep. Residents stated that it originally started as a normal pothole but quickly progressed and became much worse within the span of a week.[5]

November 11, 2024
A massive sinkhole opened on November 11, 2024, by the Fillmore Bridge. Residents of the area stated this sinkhole was roughly the size of a person and created risk for injury to pedestrians passing by. This sinkhole was likely caused by the sidewalk settling differently than the bridge over time, as well as the erosion from standing water and rain.[6]

Climate Change Considerations

While data regarding the direct impact of climate change on land subsidence in non-coastal areas is limited, certain climate change conditions can increase land subsidence risk. As climate change causes higher temperatures, more severe drought, and changes in overall precipitation, the demand for water increases. Climate change indirectly accelerates the impact of land subsidence in New Orleans by compounding relative sea-level rise and increasing flood risks. Rising sea levels and intense, unpredictable rainfall aggravate the sinking of already fragile soils. While primary subsidence is caused by natural sediment compaction, climate-driven factors like intense storms, drought, and rising sea levels intensify the overall vulnerability for the city.

[5] WWL Louisiana. Massive Sinkhole in New Orleans Continues to Grow. 2023. https://www.wwltv.com/article/news/local/sinkhole-chartres-ursulines-pothole-new-orleans-louisiana/289-d8c4d23d-c30e-422b-b4fc-432100ada1ab
[6] WWL Louisiana. About the Size of a Person | Sinkhole Opens Next to a Bridge. 2024. https://www.wwltv.com/article/news/local/orleans/about-the-size-of-a-person-sinkhole-opens-next-to-filmore-bridge/289-a43a0b8b-75e5-4dec-a8a2-e17f3b59c4dc

Probability of Future Events

New Orleans faces a high probability of continued, significant land subsidence, with parts of the city sinking at rates up to 47 mm per year. Driven by geological compaction, water management, and deep tectonic shifts, the sinking combined with rising sea levels indicates a "Highly Likely" probability of future events, meaning a high likelihood of occurrence within the next year.

Vulnerability and Impact

Vulnerability is difficult to evaluate since land subsidence events can occur at any time, in random locations, and soil conditions can be very difficult and costly to monitor. Due to the randomness of these events, all existing and future structures and facilities within the City of New Orleans, including all educational institutions and special districts, could potentially be impacted and remain vulnerable to possible damage and property loss. The amount of monetary damage associated with previous events is unknown, but costs related to property damage can be expected in the future.

Damage is likely to occur to underground utility systems including water, sewage, and electrical systems, which can lead to water and power outages, disrupting critical services. Land subsidence can also cause significant damage to roads, buildings, houses, and other structures. While all structures in the planning area may be susceptible, those built above major aquifers or otherwise closest to groundwater removal sites may be at highest risk.

Land subsidence typically poses limited risk to people. While all citizens are vulnerable to the impacts of subsidence, forced relocation and disaster recovery disproportionately impacts low-income residents who lack the financial means to repair their homes. The elderly, children, and people with a disability may have trouble evacuating if needed, making them more susceptible to injury or harm. In addition, people who only speak a language other than English may face increased vulnerability due to language barriers that limit their access to important information regarding safety measures.

Table 11-1. Populations at Greater Risk[7]

Jurisdiction	Population				
	65 and Older	Under 5	With a Disability	Below Poverty Level	Limited English Speaking
City of New Orleans	61,879	20,845	52,249	84,984	11,359

[7] US Census Bureau 2023 data for City of New Orleans.

The City of New Orleans Planning Team identified the following critical facilities (Table 11-2) as assets that are considered the most important to the planning area and are potentially susceptible to land subsidence. The critical infrastructure with the greatest vulnerability are utility services, transportation structures, and municipal infrastructure. Failures of these facilities can result in a loss of service and cascading impacts. For a comprehensive list of critical facilities for each participant, see Appendix F.

Table 11-2. Critical Facilities Vulnerable to Land Subsidence

Critical Facility Type	Potential Impacts
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers	• Fire stations, police stations, and hospitals may suffer structural damage, affecting their ability to function effectively. • Damaged roads or transportation structures can impede emergency response vehicle access to areas.
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	• Structures and critical infrastructure can be damaged by the shifting of the Earth.
Commercial Supplier (Food, fuel, etc.)	• No known impacts.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Damage to underground utility systems including water, sewage, and electrical can lead to a disruption of essential services. • Damaged roads or transportation structures can impede utility response vehicle access to areas.

The City of New Orleans experiences gradual and episodic subsidence events; however, there are no reported damages, injuries, or fatalities from these incidents based on best available data. The impact on the planning area, including the City of New Orleans and all educational institutions and special districts, is considered "Limited" severity, meaning minor quality of life lost, critical facilities and services shut down for 24 hours or less, and less than 10 percent of property destroyed or with major damage.



Section 12

Levee Failure

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Section 12: Levee Failure

Hazard Description

A levee is a human-made barrier designed to reduce the frequency of flooding to a specific area of the floodplain, often referred to as a levee system. Most levees in the United States are earthen embankments primarily made of local soil materials. However, many levees are made of or include more than one type of material.

In the early 1700's, the French built the first man-made levee system near the City of New Orleans. In 1885, the U.S. Army Corps of Engineers (USACE) adopted a "levees-only" policy to manage the Mississippi River by restricting the river with earthen embankments. For the next forty years, the USACE extended the levee system, sealing many of river's natural outlets along the way. By 1926, levees extended from Cairo, Illinois, to the City of New Orleans. Following devastating flooding in 1927, Congress authorized the USACE to begin the Mississippi River and Tributaries project through the 1928 Flood Control Act. The project's aim was to consolidate river levees under the USACE and create a comprehensive, unified system within the lower Mississippi Valley that would provide unprecedented flood risk management as well as an efficient navigation channel.

In 1955, an extreme and costly hurricane season led to Congress tasking the USACE with conducting the first hurricane impact studies, focusing not just on flood prevention but storm surge protection. Following the devastation caused by Hurricane Betsy, Congress passed the Flood Control Act of 1965, and the USACE assumed sole responsibility for levee design and construction in the New Orleans area.[1]

Currently, New Orleans is protected by more than 350 miles of levees, floodwalls and pump stations, known as the Hurricane and Storm Damage Risk Reduction System (HSDRRS). Following Hurricane Katrina, congress approved the HSDRRS to construct a 139-mile system of levees, floodwalls, and gates designed to provide a 1-in-100-year storm surge protection for the Greater New Orleans area. It was funded through federal appropriations, including measures to address levee settlement and sea-level rise.

The U.S. Army Corps of Engineers redesigned the entire levee system, replacing and strengthening old infrastructure with upgraded engineering and technology including the Lake Borgne Surge Barrier. Completed in 2013, this 1.8-mile-long concrete barrier sits at the confluence of the Gulf Intracoastal Waterway and the Mississippi River Gulf Outlet,

[1] The Journal of American History. "New Orleans Levee System: Timeline." https://archive.oah.org/special-issues/katrina/resources/levee.html.

protecting areas like the Lower Ninth Ward and New Orleans East. The Lake Borgne Surge Barrier works in tandem with the Seabrook Floodgate Complex to prevent storm surge from Lake Pontchartrain from entering the Inner Harbor Navigation Canal. The floodgate complex consists of a 95-foot-wide navigable sector gate and two vertical lift gates that can be lowered to also block the waters of Lake Pontchartrain. In the event of a storm, they are swung tightly closed, sealing the waterways from Lake Pontchartrain storm surge, thereby protecting the City of New Orleans from flooding. The HSDRRS also features the West Closure Complex, the world's largest pumping station, capable of pumping 19,000 cubic feet of water per second. The HSDRRS is considered the primary flood defense system for the Greater New Orleans area, integrating Lake Pontchartrain, West Bank, and New Orleans to Venice hurricane protection projects to provide protection against the one percent annual chance storm.

Figure 12-1. Levee System in the City of New Orleans



Location

The National Levee Database identifies six levees in the City of New Orleans, which are part of a greater complex system of levees designed to protect the city from the Mississippi River, Lake Pontchartrain, and a network of canals used for drainage and industrial purposes. This includes both levees as part of the HSDRRS, and others that are separate and locally managed. Each levee was analyzed individually by location, volume, elevation, and condition (where available) when determining risk. Each levee system was

further analyzed for potential risks utilizing FEMA's National Flood Hazard Layer to map locations and fully understand development protected by these levee systems and topographical variations that may increase risk in the event of a breach.

All structures are listed in Tables 12-1 with regulation information. The levees are profiled in detail in the Extent section of this hazard profile. Figure 12-2 illustrates the entire levee protected area within the City of New Orleans.

The risk associated with each levee is assessed in terms of the number of buildings, number of people, critical structures, and acres of farmland located behind the levee. Consequence data is collected by the USACE National Levee Database and is derived by the intersection of the leveed area with select national datasets, including the USACE National Structure Inventory (2023), U.S. Department of Agriculture (USDA) Cropland Data (2022), Department of Homeland Security (DHS) Infrastructure-Level Data (2023), and the FEMA Communities Layer (2020).

The jurisdictions and participants profiling levee failure include the City of New Orleans, Loyola University, Tulane University, the Sewerage and Water Board of New Orleans (SWBNO), the Housing Authority of New Orleans (HANO), and New Orleans Redevelopment Authority (NORA).

Figure 12-2. Levee Protected Areas

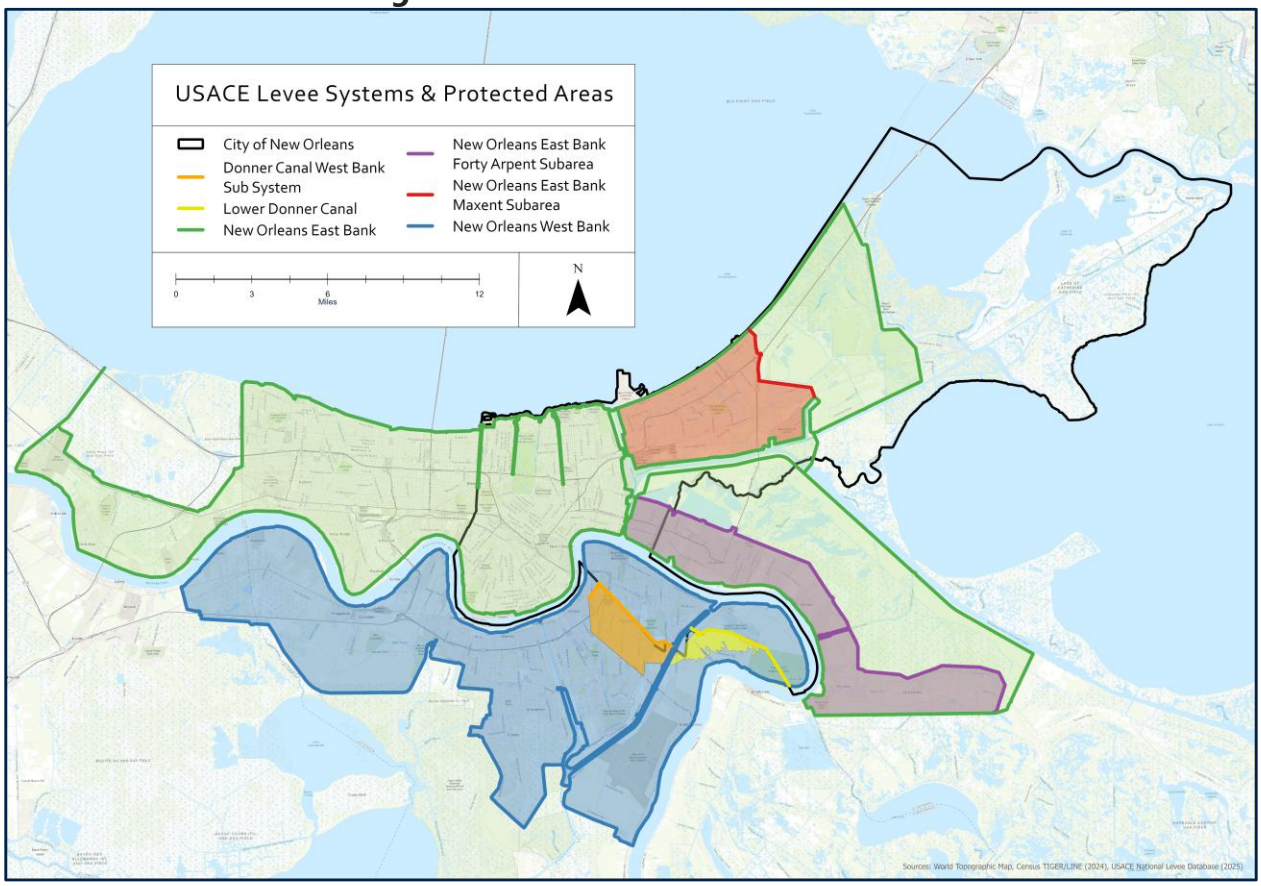


Table 12-1. City of New Orleans Levee Survey

Jurisdictions at Risk	Levee System Name	Length (Miles)	Height (Feet)	Buildings/Populations at Risk
City of New Orleans	Donner Canal West Bank Sub System	4.4	Unavailable	7,055 / 5,977
City of New Orleans	Lower Donner Canal	5.1	Unavailable	15 / 1,055
City of New Orleans	New Orleans East Bank	179.3	22	323,422 / 849,939
City of New Orleans	New Orleans East Bank Forty Arpent Subarea	23.1	Unavailable	18,712 / 44,887
City of New Orleans	New Orleans East Bank Maxent Subarea	4.8	5	23,729 / 76,687

Jurisdictions at Risk	Levee System Name	Length (Miles)	Height (Feet)	Buildings/Populations at Risk
City of New Orleans	New Orleans West Bank	110.1	17	90.436 / 248,334

Extent

The extent or magnitude of a levee failure event is described in terms of the classification of damages that could result from a levee's failure, not the probability of failure. The risk associated with each levee is assessed in terms of the number of buildings, number of people, critical structures, acres of farmland, and estimated property value located behind the levee. Consequence data is collected by the USACE National Levee Database and is derived by the intersection of the leveed area with select national datasets. The areas at risk are provided in Figure 12-2.

The maximum extent for potential flooding due to levee failure is represented by the historic Hurricane Katrina scenario in 2005, when approximately 80 percent of New Orleans was inundated with floodwaters, reaching depths up to 20 feet in some areas. While this scenario is far less likely due to the substantial upgrades to the HSDRRSS, this is the greatest extent the community can anticipate in the event of a catastrophic failure. While the system is highly interdependent, it is not considered "fail-proof." It is designed to reduce risks rather than eliminate them, with engineers constantly adjusting for factors like subsidence and sea-level rise.

Donner Canal West Bank Sub System

The Donner Canal West Bank Sub System is located in the City of New Orleans along Donner Canal. The levee is approximately 4.4 miles in length. According to data presented by the USACE, there are 7,055 buildings that may be at risk in the event of a levee failure. This includes 879 commercial structures, 112 industrial structures, 87 public structures, and 5,977 residential structures. This amounts to $4 billion in property value. The daytime population at risk includes 27,067 people, and the nighttime population at risk includes 23,302 people. An estimated 24 critical structures and 3.3 acres of farmland may also be impacted. A levee failure could cause infrastructure damage, power outages, and disrupt utilities systems. Livestock and crops would be vulnerable. Anticipated downstream impacts may include some flooding that disperses debris and potential hazardous materials.

Lower Donner Canal

The Lower Donner Canal is located in the City of New Orleans. Its flooding source is the Gulf. The levee is approximately 5.1 miles in length. According to data presented by the USACE, there are 15 buildings that may be at risk in the event of a levee failure. This includes 7 commercial structures, 3 industrial structures, 4 public structures, and 1 residential structure. This amounts to $90 million in property value. The total population at risk includes 1,055 people. An estimated 1.6 acres of farmland and one critical structure may also be impacted. A levee failure could cause limited infrastructure damage, power outages, and disrupt utilities systems. Livestock and crops would be vulnerable. Anticipated downstream impacts may include some flooding that disperses debris and potential hazardous materials.

New Orleans East Bank

The New Orleans East Bank is located in the City of New Orleans and is part of the Mississippi River Levees (MRL) and the Hurricane and Storm Damage Risk Reduction System (HSDRRS). Its flooding sources are the Gulf and the Mississippi River. The levee is approximately 179.3 miles in length, and its average height is 22 feet. If overtopped or breached, both commercial and residential areas in St. Charles, Orleans, Jefferson, and St. Bernard parishes would be inundated with water. The protected area of New Orleans East Bank encompasses the main downtown area of the City of New Orleans, as well as a number of historic districts, including the French Quarter and the Garden District.

According to data presented by the USACE, there are 323,422 buildings that may be at risk in the event of a levee failure. This amounts to $74 billion in property value. The total population at risk includes 849,393 people. An estimated 740 critical structures are at risk. This includes two airports, 23 communication structures, 24 colleges and university structures, 27 EMS structures, 8 electric power generation structures, 70 electric substations, 26 fire stations, 24 fire station EMS structures, 14 heliports, 27 hospitals, 229 intermodal terminal facilities, 18 law enforcement structures, 8 petroleum terminals, 224 schools, and 16 wastewater treatment plants. An estimated 72.5 acres of farmland may also be impacted. A levee failure could cause infrastructure damage, power outages, disrupt utilities systems and public services, and impact transportation infrastructure. Livestock and crops would be vulnerable. Anticipated downstream impacts may include localized flooding that disperses debris and potential hazardous materials.

New Orleans East Bank Forty Arpent

The New Orleans East Bank Forty Arpent is located in the City of New Orleans. The levee is approximately 23.1 miles in length. According to data presented by the USACE, there are 18,712 buildings that may be at risk in the event of a levee failure. This includes 1,195 commercial structures, 151 industrial structures, 182 public structures, and 17,184

residential structures. This amounts to $8 billion in property value. The daytime population at risk includes 44,887 people, and the nighttime population at risk includes 39,907 people. An estimated 65 critical structures and 12.9 acres of farmland may also be impacted. A levee failure could cause infrastructure damage, power outages, and disrupt utilities systems. Livestock and crops would be vulnerable. Anticipated downstream impacts may include some flooding that disperses debris and potential hazardous materials.

New Orleans East Bank Maxent Subarea

The New Orleans East Bank Maxent Subarea is located in the City of New Orleans. The levee completes a secondary ring of the Hurricane and Storm Damage Risk Reduction System (HSDRRS) where a division between zoned wetlands and urban development occurs. The principal function of the levee segment is to reduce the risk to people and property for rainfall events by pumping water from populated areas into the adjacent wetlands.

The levee was built in 1953 and is approximately 4.8 miles in length and 5 feet in average height. According to data presented by the USACE, there are 23,729 buildings that may be at risk in the event of a levee failure. This amounts to $11 billion in property value. The total population at risk includes 76,687 people. An estimated 35 critical structures may be impacted. This includes 3 electric power generation structures, 7 electric substations, 4 fire stations, 3 hospitals, 1 law enforcement structure, 15 schools, and 2 wastewater treatment plants. An estimated 9.1 acres of farmland may also be impacted. A levee failure could cause infrastructure damage, power outages, and disrupt utilities systems. Livestock and crops would be vulnerable. Anticipated downstream impacts may include some flooding that disperses debris and potential hazardous materials.

New Orleans West Bank

The New Orleans West Bank is located in the City of New Orleans and is made up of Mississippi River Levees (MRL) and the Hurricane and Storm Damage Risk Reduction System (HSDRRS). Its flood source includes the Gulf and the Mississippi River. If overtopped or breached, both commercial and residential areas in St. Charles, Jefferson, Orleans, and Plaquemines parishes would be inundated with water.

The levee is approximately 110.1 miles in length and 17 feet in average height. According to data presented by the USACE, there are 90,436 buildings that may be at risk in the event of a levee failure. This amounts to $19 billion in property value. The total population at risk includes 248,334 people. An estimated 235 critical structures may be impacted. This includes 3 airports, 20 communication structures, 3 colleges and university structures, 23 EMS structures, 2 electric power generation structures, 23 electric substations, 17 fire

stations, 15 fire station EMS structures, 3 heliports, 7 hospitals, 1 intermodal terminal facility, 6 law enforcement structures, 9 petroleum terminals, 88 schools, and 14 wastewater treatment plants. In addition, an estimated 87 acres of farmland may also be impacted. A levee failure could cause infrastructure damage, power outages, disrupt utilities systems and public services, and impact transportation infrastructure. Livestock and crops would be vulnerable. Anticipated downstream impacts may include localized flooding that disperses debris and potential hazardous materials.

Historical Occurrences

Historically, there have been several incidents of levee failure that have resulted in major impacts. Four significant storm surge flood events have resulted in either a breach or complete failure of the levee system in the City of New Orleans. These events, described in detail below, occurred in 1915, 1947, 1965, and 2005.

Significant Events

Levee Failure on September 29, 1915

Heavy rain, high winds, and storm surge from an unnamed hurricane overwhelmed New Orleans' drainage and levee systems. The hurricane made landfall near Grand Isle and greatly impacted the City of New Orleans infrastructure. Drainage facilities suffered severe damage, and small levee overflows were reported throughout the day. Lake Pontchartrain waters surged into the drainage canals, flooding the city in a pattern later seen again during Hurricane Katrina in 2005. By the next morning, multiple breaches along navigation canals, drainage outfall canals, and rear protection levees allowed lake water to flood into the city. Combined with over seven inches of rainfall, the flooding significantly complicated efforts to drain and restore the city.

Levee Failure on September 19, 1947

Hurricane George, the first named tropical system to impact the continental United States, made its second landfall, impacting the densely populated City of New Orleans. The storm dropped over two feet of rain and produced storm surges exceeding 11 feet in some areas. Its 25-mile-wide eye passed directly over the city's business district; a path no other storm would repeat until Hurricane Katrina in 2005. Increasing northerly winds drove Lake Pontchartrain's waters over sections of the levees, submerging lakefront streets in over three feet of water. Flooding spread across much of Greater New Orleans. The nine-foot Orleans Parish seawall, built in the 1920s to prevent a repeat of the 1915 disaster, was overtopped, sending water across nine square miles of the parish as far inland as Gentilly Ridge. In the subsided low-lying areas behind the levees, floodwaters pooled into

"topographic bowls," some holding up to six feet of water, which had to be removed through extensive dredging and pumping back into Lake Pontchartrain.

Levee Failure on September 9, 1965

Hurricane Betsy struck Louisiana, becoming the first Atlantic storm to cause over $1 billion in damages and resulting in 70–80 deaths. Making landfall in New Orleans as a Category 4 hurricane with winds up to 140 mph, Betsy pushed a ten-foot storm surge into Lake Pontchartrain. Levees along several of the city's canals failed, including those in the Lower Ninth Ward and on both sides of the Industrial Canal, flooding much of New Orleans for days. An estimated 164,000 homes were inundated, mostly in the Lower Ninth Ward. This led to several fatalities and it took ten days for waters to fully recede. In response to the widespread levee failures, the federal government tasked the USACE with rebuilding and maintaining New Orleans' flood protection system, leading to the development of the Hurricane Protection Program.

Levee Failure on August 29, 2005

Hurricane Katrina, a powerful Category 5 storm over the Gulf and Category 3 at landfall, struck near the Louisiana–Mississippi border, becoming one of the most severe disasters in U.S. history. One of the most catastrophic effects was the widespread flooding in the City of New Orleans, caused by multiple levee breaches during and immediately after the storm. The combination of storm surge, heavy rainfall, and high winds overwhelmed the city's flood defenses. Once floodwaters entered the area, removal relied entirely on pumping, leaving much of the city and surrounding parishes submerged for several weeks and causing extensive damage to homes, businesses, vehicles, and infrastructure.

The first levee failure occurred along the Industrial Canal near the Orleans–St. Bernard Parish line, allowing water to inundate the Lower Ninth Ward. Shortly afterward, a levee along the 17th Street Canal, on the Orleans Parish side and connecting Lake Pontchartrain to the city, also failed. Floodwaters from these breaches spread throughout Orleans Parish, impacting neighborhoods including Lakeview, Mid-City, Carrollton, Uptown, the Central Business District, and the French Quarter. This resulted in the flooding of homes, businesses, vehicles, and infrastructure, and endangered the lives of humans and animals. In total, over 50 levee breaches were documented, with 46 resulting from overtopping due to storm surge and wave action. According to the Association of State Dam Safety Officials, the failures were exacerbated by settlement and subsidence of levee crests, erodible materials, gaps in defense lines, inadequate understanding of hydraulic conditions, flow concentrations at levee transitions, lack of floodwall armoring, and the loss of protective land and vegetation around the levees.

By September 1st, more than 80 percent of the New Orleans metropolitan area was flooded. Two-thirds of the flooding was attributed to water flowing through breaches and the remainder was attributed to overtopping and rainfall from the hurricane.[2] The failure of the levee system during Hurricane Katrina resulted in over 1,800 lives lost, billions in economic damages, and a long-term redistribution and migration of over half the city's population.

Figure 12-3. Flooding in the City of New Orleans on September 1, 2005



Climate Change Considerations

Climate change is causing warmer waters which fuel stronger tropical cyclones. Warming also causes sea level rise through increased melting from glaciers and ice sheets and thermal expansion. Taken together, rising sea levels and intensifying storms increase the risk that the levee system's design conditions will be exceeded, leading to levee failure.

The Louisiana Coastal Protection and Restoration Authority has published a 4th edition of Louisiana's Comprehensive Master Plan for a Sustainable Coast in 2023, which aims to preserve the State's history, culture, ecosystems, and natural resources from ongoing land loss and flood risk threats. The plan cites climate change modeling from external sources

[2] American Society of Civil Engineers. (2007). The New Orleans hurricane protection system: What went wrong and why. https://biotech.law.lsu.edu/katrina/reports/erpreport.pdf.

such as the National Oceanic and Atmospheric Administration (NOAA), Lousiana's Coastwide Reference Monitoring System, and the Intergovernmental Panel on Climate Change to define climate change projections under both a higher and lower environmental scenario. Under the lower environmental scenario of this master plan, an additional 1.6 feet sea level rise is expected over the next 50 years. Additionally, hurricanes are assumed to increase in intensity by 5 percent over the same period, exacerbating the risk posed by levee failure.

Sea level rise directly increases the risk of levee failure in the City of New Orleans. The USACE states that sea level rise will require future lifts of the levees to sustain performance of the HSDRRS. The HSDRRS was originally engineered for 100-year flood protection, however, an engineering report issued in 2021 indicates the HSDRRS will no longer provide 100-year flood level risk reduction as early as 2023.[3]

Climate change is causing more intense and frequent storms, including hurricanes. These storms bring stronger winds and higher storm surges, which can overwhelm existing levee systems. In addition, Louisiana's coastal wetlands, barrier islands, and marshes act as natural buffers that absorb storm surge waters before they reach the levees. However, coastal erosion is increasing due to climate change, reducing the effectiveness of natural barrier systems and allowing higher and faster-moving water to hit levee systems.

Probability of Future Events

Based on historical occurrences of levee failure, the probability for future events is "Unlikely" for the City of New Orleans, meaning an event is possible in the next ten years. This probability is highly dependent on future changing conditions, including changes in infrastructure, maintenance practices, and climate change which could greatly influence levee safety.

Vulnerability and Impact

There are six levees in the City of New Orleans. All structures were evaluated in-depth to assess the risk associated with each levee. This analysis indicated that all six levees present a potential risk to structures or infrastructure in the planning area.

Flooding is the most prominent effect of levee failure. If the levee failure is extensive, a large amount of water would flood the downstream area. There may be significant flooding that could disperse debris and hazardous materials throughout the planning

[3] USACE. Lake Pontchartrain and Vicinity General Re-evaluation Report. (2021). https://www.mvn.usace.army.mil/About/Projects/LPV-GRR/.

area, causing catastrophic damage. Schools and area businesses may be temporarily closed and city services disrupted.

New Orleans' levee system divides the city into polders. A polder is a low-lying tract of land enclosed by levees that relies on pumps and drainage systems to keep it dry. A breach in one or more levees could result in extensive flooding across the entire polder where the failure occurred. Much of New Orleans lies below sea level, which makes draining floodwaters after a breach challenging, time-intensive, and costly. Until the levee is repaired and water is pumped out, structures and infrastructure in the affected area may remain submerged for extended periods. The worst-case scenario for flooding from a levee failure is exemplified by Hurricane Katrina in 2005, when approximately 80 percent of the city was inundated, with water depths ranging from 6 to 20 feet. In certain locations, flood depths could exceed current building code design standards, impacting even critical facilities constructed to the 500-year flood protection level. For specific vulnerability, please refer to the narrative for each levee under the Extent section of this profile.

The City of New Orleans Planning Team identified the following critical facilities as assets that are considered the most important to the planning area and are susceptible to a range of potential impacts caused by levee failure events. All critical facilities listed in Appendix F are assumed to be at risk in the event of a levee failure. For specific structures at risk and levee consequence data, please refer to the Extent section of this profile.

Table 12-3. Critical Facilities Vulnerable to Levee Failure Events

Critical Facilities	Potential Impacts
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers	• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Structures, and emergency vehicles, including critical equipment, can be damaged by rising flood waters and floating debris. • Power outages could disrupt communications, delaying emergency response times. Power outages could disrupt critical care leaving medical facilities without life-sustaining systems. • Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities. • Debris can impede emergency response vehicle access to areas. • Washed out roads and bridges can impede emergency response vehicle access to areas.

Critical Facilities	Potential Impacts
	• Flood-related rescues may be necessary at swift and low water crossings or in flooded neighborhoods where roads have become impassable, placing first responders in harm's way. • Evacuations may be required for entire neighborhoods because of rise of floodwaters, or at hospitals due to extended power outages, gas line ruptures, or structural damages to facilities, further taxing limited response capabilities and increasing sheltering needs for displaced residents. • Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel. • First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	• Structures can be damaged by rising flood waters. • Power outages could disrupt critical care. • Backup power sources could be damaged, inundated or otherwise inoperable. • Critical staff may be impacted and unable to report for duty, limiting response capabilities. • Evacuations may be necessary due to extended power outages, gas line ruptures, or inundation of facilities. • Levee failure may cause long-term displacement of residents. • Additional emergency responders and critical aid workers may not be able to reach the area for days. • Temporary break in airport operations may significantly inhibit post event evacuations. • Damaged or destroyed highway infrastructure may substantially increase the need for airport operations.
Commercial Supplier (food, fuel, etc.)	• Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable. • Essential supplies like medicines, water, food, and equipment deliveries may be delayed. Levee failure can shut down the Port of New Orleans shipping, rail yards, and trucking terminals. • Economic disruption due to power outages negatively impacts airport services as well as area businesses reliant on airport operations.

Critical Facilities	Potential Impacts
	• Levee failure can lead to inundation of industrial zones containing hazardous materials.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Utility operations and critical services may be significantly impacted due to damaged facilities and/or loss of communications. • Levee breaches can quickly overwhelm New Orleans' drainage network, causing pump stations to lose power or become submerged, which prevents the city from removing floodwater until the breaches are closed and often results in weeks of inundation. • Flooding may also damage water treatment facilities, sewerage pump stations, and wastewater lines, allowing untreated wastewater to mix with floodwaters and create significant public health hazards. • Power stations, substations, and transmission lines can flood, leading to widespread outages and long restoration timelines. • Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel. • Utility workers are exposed to downed power lines, contaminated and unusual debris, hazardous materials, and generally unsafe conditions.

Annualized loss-estimates for levee failure are not available; neither is there a breakdown of potential dollar losses for critical facilities, infrastructure and lifelines, or hazardous-materials facilities. If a major levee fails, the severity of impact could be catastrophic. Historically, the overall severity of impact from a levee failure would be considered "Substantial," meaning multiple deaths possible, the complete shutdown of facilities for 30 days or more, and more than 50 percent of property destroyed or with major damage.



Section 13
Lightning

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Section 13: Lightning

Hazard Description

Lightning is a discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm, creating a "bolt" when the buildup of charges becomes strong enough. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Lightning rapidly heats the sky as it flashes but the surrounding air cools following the bolt. This rapid heating and cooling of the surrounding air causes thunder which often accompanies lightning strikes. While most often affiliated with severe thunderstorms, lightning often strikes outside of heavy rain and might occur as far as 10 miles away from any rainfall.

According to the National Weather Service (NWS), the 10-year (2012–2021) average for fatalities is 23 people with an average of 300 injuries in the United States each year by lightning. Lightning can occur as cloud-to-ground flashes or as intra-cloud lightning flashes. Direct lightning strikes can cause significant damage to buildings, critical facilities, infrastructure, and communication equipment affecting emergency response. Lightning is also responsible for igniting wildfires that can be catastrophic.

Location

Lightning can strike in any geographic location and is considered a common occurrence in Louisiana. The City of New Orleans is in a region of the country that is moderately susceptible to lightning strikes. Therefore, lightning could occur at any location within the entire planning area. It is assumed that the entire City of New Orleans planning area is uniformly exposed to the threat of lightning.

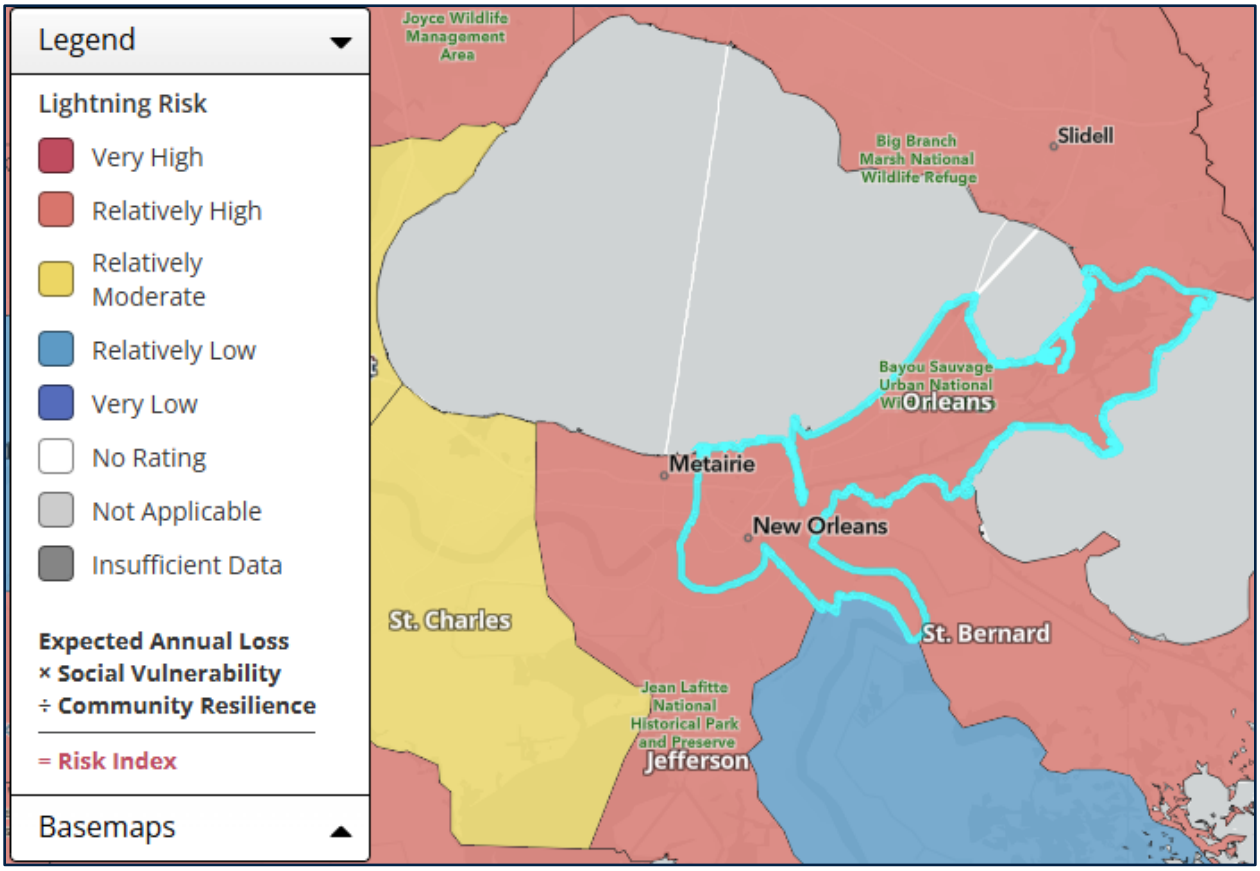
Extent

According to the 2024 Annual Lightning Report by Vaisala, the State of Louisiana ranks third in the U.S. for lightning strike density with an average of 185.7 flashes per square mile.[1] Vaisala's U.S. National Lightning Detection Network lightning flash density map shows an average of 350 lightning events per square mile per year for Orleans Parish. This rate equates to approximately 59,200 flashes per year for the entire City of New Orleans planning area, or approximately or one to two flashes per 15-minute interval during storm events for the City of New Orleans.

[1] Source: https://www.xweather.com/annual-lightning-report

FEMA's National Risk Index includes an analysis of the planning area's expected annual loss and the community's risk factor which incorporates social vulnerability as well as community resilience to determine the lightning risk for the area, compared to the rest of the United States. The City of New Orleans is located in an area where the extent is classified as relatively high (Figure 13-1).

Figure 13-1. City of New Orleans Lightning Risk, National Risk Index, August 2025[2]



Historical Occurrences

The National Centers for Environmental Information (NCEI) database indicates eight recorded lightning events for the City of New Orleans. It is highly likely multiple lightning occurrences have gone unreported before and during the recording period. The NCEI is a national data source organized under the National Oceanic and Atmospheric Administration and considered a reliable resource for hazards. However, the flash density

[2] Source: Map | National Risk Index, https://hazards.fema.gov/nri/map

for the planning area along with input from local team members indicates regular lightning occurrences that simply have not been reported.

Historical lightning event data for the participating educational institutions and special districts is provided within the City of New Orleans, these entities do not have events reported separate and apart from the city events. No participating educational institution nor special district reported additional lightning events or damages not already captured in the NCEI database.

Table 13-1. Historical Lightning Events, 1996 – 2024[3]

Jurisdiction	Date	Deaths	Injuries	Property and Crop Damages
City of New Orleans	4/14/1996	0	0	$0
City of New Orleans	4/17/1996	1	0	$0
City of New Orleans	6/21/1998	0	0	$233,900
City of New Orleans	9/6/1999	0	0	$94,700
City of New Orleans	6/4/2000	2	0	$0
City of New Orleans	5/30/2005	0	0	$0
City of New Orleans	6/6/2005	0	0	$0
City of New Orleans	6/4/2007	0	0	$76,300
Totals		**3**	**0**	**$404,900**

[3] Values are in 2025 dollars. Database was searched for events between 1996 and 2024.

Table 13-2. Historical Lightning Events Summary, 1996 – 2024[4]

Jurisdiction	Number of Events	Deaths	Injuries	Property and Crop Damages
City of New Orleans	8	3	0	$404,900
Loyola University	0	-----	-----	-----
Tulane University	0	-----	-----	-----
Housing Authority of New Orleans	0	-----	-----	-----
New Orleans Redevelopment Authority	0	-----	-----	-----
Sewage and Water Board of New Orleans	0	-----	-----	-----
Totals	**8**	**3**	**0**	**$404,900**

There have been no reported events since the 2021 Plan.

Significant Events

April 17, 1996
A teenage boy was killed when he was struck by lightning standing under a tree in front of his home during an afternoon thunderstorm.

June 21, 1998
A strong thunderstorm that developed in the area brought heavy rain and intense lightning. During the storm, lightning struck a residential home, igniting a fire. As a result, the fire caused a considerable amount of property damage. Damages from this incident were estimated at $233,900 (2025 dollars).

June 4, 2000
Two men were struck by lightning while standing under a tree on a golf course, where they were seeking shelter during a thunderstorm. Both were fatally injured, dying several days after the storm.

[4] Participants with no reported events show a "-----" in table columns where damages, deaths or injuries would be otherwise reported.

June 4, 2007
A series of strong, isolated thunderstorms developed in the area due to an unstable atmosphere. As the storms grew, lightning struck a house, igniting a fire which heavily damaged the home. Property damages from this incident were estimated at $76,300 (2025 dollars).

Climate Change Considerations

As CO_2 increases and the land surface warms, stronger updrafts are more likely to produce lightning. In a climate with double the amount of CO_2, we may see fewer lightning storms overall, but 25 percent stronger storms, with a 5 percent increase in lightning in those storms. Lightning damage is also likely to increase because of its role in igniting forest fires, where dry vegetation caused by rising temperatures creates more 'fuel' for fires, so even a small climate change may have huge consequences. While the impact climate change will have on our weather still remains uncertain, researchers agree that implementing simple measures like lightning detection systems and installing grounding systems in buildings could go a long way in avoiding deaths and injuries.[5]

Lightning events have the potential to pose a significant risk to people and property throughout the City of New Orleans. The economic and financial impacts of lightning on the area will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. While no increase in the number of hazard events is anticipated, the impact of the hazard may see an increase in losses. As populations grow and urban development continues to rise, the "urban heat island" effect and increased air pollution can actually enhance local lightning activity, a phenomenon known as the "urban lightning effect". In addition, the growing number and value of sensitive electronic equipment in homes and businesses make them more susceptible to damage from ground surges, which causes nearly half of all lightning claims. Therefore, overall vulnerability and impact are expected to increase for the city in the next five years.

Probability of Future Events

Based on historical records and input from the planning team the probability of occurrence for future lightning events in the City of New Orleans planning area is considered "Highly Likely", or an event probable in the next year. The planning team stated that lightning occurs regularly in the area. According to the 2024 Annual Lightning Report by Vaisala, the City of New Orleans experiences approximately 350 lightning

[5] Environmental Journal, Nathan Neal, January 11, 2021.

flashes per square mile per year (approximately 59,200 flashes per year). Given this estimated probability of events, it can be expected that future lightning events will continue to threaten life and cause minor property damage throughout the planning area. Impacts of climate change are not expected to substantially increase the average frequency of lightning events but may lead to an increase in the intensity of events when they do occur.

Vulnerability and Impact

Lightning strikes are random and vary in strength and impact. All people, structures, and infrastructure in the City of New Orleans planning area remain vulnerable to potential injury, property damage, and service disruptions. The peak lightning season in the State of Louisiana is from June to August; historically, most fatalities have occurred during these summer months.[6] Those caught outdoors during a lightning event, such as outdoor workers, tourists walking through the French Quarter, or unhoused populations, are more vulnerable to potential lightning strikes. Moving to a lower risk location will decrease a person's vulnerability.

The entire general building stock and all infrastructure of the City of New Orleans are considered exposed to the lightning hazard. Lightning can be responsible for damages to buildings, cause electrical, forest and/or wildfires, and damage infrastructure such as power transmission lines and communication towers. The Planning Team noted that lightning strikes often cause marsh fires, damaging natural ecosystems, compromising air quality, and threatening structures and infrastructure.

While all citizens are at risk to the impacts of lightning, disaster recovery disproportionately impacts low-income residents who lack the financial means to rebuild or repair their homes. An estimated 23 percent of the planning area population live below the poverty level. In addition, people who speak a language other than English may face increased vulnerability due to language barriers that limit their access to important information such as weather-related warnings and instructions regarding safety measures. Table 13-3 lists these vulnerable populations and several others for the City of New Orleans.

[6] Lightning Safety Council, A Detailed Analysis of Lightning Deaths in the United States from 2006 through 2024, 2025.

Table 13-3. Populations at Greater Risk[7]

Jurisdiction	Population				
	65 and Older	Under 5	With a Disability	Below Poverty Level	Limited English Speaking
City of New Orleans	61,879	20,845	52,249	84,984	11,359

The participating educational institutions and special districts also have vulnerable populations based on work location, as those working outdoors would be subject to greater lightning risk if working during periods of lightning activity (Table 13-4).

Table 13-4. Population at Greater Risk by Participating Special District

Special District	Population
	Works Outdoors
Loyola University	73
Tulane University	152
Housing Authority of New Orleans (HANO)	0
New Orleans Redevelopment Authority (NORA)	0
Sewerage and Water Board of New Orleans (SWBNO)	700

The City of New Orleans Planning Team identified the following critical facilities (Table 13-5) as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by lightning events. For a comprehensive list of critical facilities for each participant, please see Appendix F.

Table 13-5. Critical Facilities Vulnerable to Lightning Events

Critical Facilities	Potential Impacts
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers	• Emergency operations and services may be significantly impacted due to power outages, damaged facilities, fires and/or loss of communications as a result of lightning strikes. • Emergency vehicles, including critical equipment, can be damaged by lightning strikes or by falling trees damaged by lightning.

[7] US Census Bureau, American Community Survey Five-Year Estimates, 2023

Critical Facilities	Potential Impacts
	• Power outages could disrupt communications, delaying emergency response times. • Downed trees due to lightning strikes can impede emergency response vehicle access to areas. • Lightning strikes can be associated with structure fires and wildfires, further straining the capacity and resources of emergency personnel.
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	• Structures can be damaged by falling trees damaged by lightning. • Power outages could disrupt critical care. • Backup power sources could be damaged. • Lightning can damage air traffic control systems, radar equipment, communication lines, and runway lighting. • Ramp workers, including baggage handlers and mechanics, are at high risk, necessitating prompt suspension of outdoor tasks, causing delays in operations.
Commercial Supplier (food, fuel, etc.)	• High-voltage strikes directly damage transformers, electrical panels, and robotic systems, causing immediate operational failures and delivery delays. • Automated warehouses and sorting equipment damages may bring commercial operations to a standstill, halting the fulfillment process. • Lightning causes power surges that ruin sensitive electronic equipment, including fuel pumps, point-of-sale (POS) systems, and monitoring consoles.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Utility operations and critical services may be significantly impacted due to power outages, damaged facilities, fires and/or loss of communications as a result of lightning strikes. • Sewerage and Water Board (S&WB) pump stations are especially vulnerable to surge damage because many depend on overhead electrical feeders, which lightning can easily strike. Out of service pump stations can lead to flooding. • Utility vehicles, including critical equipment, can be damaged by lightning strikes or by falling trees damaged by lightning. • Power outages could disrupt communications, delaying emergency response times.

Critical Facilities	Potential Impacts
	• Lightning strikes can be associated with structure fires and wildfires, further straining the capacity and resources of emergency personnel.

Overall, the total loss estimate of property and crops in the planning area is considered $404,900 (2025 dollars) with an average annualized loss of $14,000. Based on historic damages to the built environment, the impact of lightning on the City of New Orleans planning area would be considered limited severity of impact, meaning critical facilities and services shut down for 24 hours or less and less than 10 percent of property destroyed or with major damage. However, with multiple reported fatalities due to past lightning events, the severity of impact is considered "Substantial," meaning multiple fatalities are possible depending on the severity of the event.

Table 13-6. Estimated Annualized Losses by Jurisdiction

Jurisdiction	Total Property & Crop Loss	Average Annual Loss Estimates
City of New Orleans	$404,900	$14,000
Loyola University	$0	-----
Tulane University	$0	-----
Housing Authority of New Orleans	$0	-----
New Orleans Redevelopment Authority	$0	-----
Sewerage and Water Board of New Orleans	$0	-----
Totals	**$404,900**	**$14,000**



Section 14

Storm Surge / Coastal Flood

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Section 14: Storm Surge and Coastal Flooding

Hazard Description

Storm surge is an abnormal rise in water above the predicted astronomical tides. Storm surge occurs when strong winds rotating cyclonically, meaning they spiral inward around a low-pressure storm system counterclockwise in the Northern Hemisphere, push ocean water toward the coastline. While intense storms are also associated with low atmospheric pressure, its effect on storm surge is minor compared to the force of wind driving water onshore.[1] Storm surge alone can generate storm tides reaching 20 feet or more, and these levels may be increased even further when combined with other factors like normal high tide.

In New Orleans, coastal flooding occurs when storm surge driven water overtops, or otherwise breaches, natural and manmade barriers and spreads inland across low-lying terrain. Elevated water levels along the coast, Lake Borgne, and surrounding waterways allow surge to propagate through bays, canals, and wetlands, inundating areas that lie at or below sea level. This flooding is most pronounced in locations outside the levee system. While storm surge is the primary driver of coastal flooding, it can also be caused by heavy rainfall, high astronomical tides, and riverine backwater effects, though this is much less common.

Storm surge is a complex phenomenon because its height is dependent on characteristics such as storm intensity, forward speed, size (radius of maximum winds), and angle of approach to the coast, with wind playing a much greater role than central pressure. Similarly, the severity of flooding caused by storm surge is determined by coastal features, including the shape of the coastline and the presence of bays, estuaries, and other shallow water bodies that can amplify surge inland.

The broad and shallow continental shelf of the northern Gulf of America allows storm surge to build to greater heights, while bays, estuaries, and navigation channels can guide the water further inland. In New Orleans, the low elevation, existing levee system, and surrounding water bodies such as Lake Pontchartrain and nearby wetlands influence how storm surge propagates, where it is trapped, and how long flooding persists.

[1] National Weather Service. Storm Surge. https://www.weather.gov/phi/stormsurge#:~:text=Storm%20surge%20is%20produced%20by,the%20shore%20by%20the%20wind.

Generally, the factors impacting storm surge include:

- **Storm Intensity (Wind Speed):** The extent of hurricane winds directly influences storm surge, with higher-category storms generating greater surge levels.
- **Forward Speed:** Fast moving storms generate higher surges along the immediate coastline, while slow storms push surge waters farther inland.
- **Size (Radius of Maximum Winds):** Larger storms generate higher storm surges due to pushing on a greater area of the ocean and producing strong winds that affect coastal regions for a longer duration than smaller storms.
- **Angle of Approach:** Storms moving perpendicular to the shoreline typically produce higher surges than those moving parallel or at an oblique angle.
- **Width and Slope of Ocean:** A wide, gently sloping continental shelf allows for higher storm surges, while a narrow, steeply sloping shelf limits surge development. The Gulf Coast, particularly Louisiana and Mississippi, is especially vulnerable because the ocean floor gradually deepens offshore.
- **Shape of the Coastline:** Storm surge tends to be higher along concave coastlines than along convex coastlines. Local features and barriers that influence water flow also play a major role in surge levels. For example, in New Orleans, the asymmetric shape of Lake Pontchartrain can direct storm surges toward the city depending on the storm's approach angle, with storms from the east or west producing different surge patterns.

Storm surge presents one of the greatest hazards to life and property along coastal areas and remains the primary cause of hurricane-related fatalities. Communities throughout the East and Gulf coasts of the United States are at risk, as storm surge can extend inland by traveling up rivers and canals far beyond the immediate shoreline. [2]

In the City of New Orleans, storm surge is primarily managed through a system of federal levees known as the Hurricane Storm Damage Risk Reduction System (HSDRRS), which was rebuilt by the U.S. Army Corps of Engineers following Hurricane Katrina. The levee system is designed to reduce flood risk from storm surge associated with the 1-percent-annual-chance (100-year) storm event, meaning water levels up to this elevation are intended to be contained within the system. For more extreme events exceeding the 100-year level, the HSDRRS is designed to allow for controlled overtopping while maintaining structural integrity and resisting erosion and catastrophic failure. Further details on the levee system are provided in the Levee Failure section of this Plan.

[2] NOAA National Hurricane Center and Central Pacific Hurricane Center, Storm Surge Overview: https://www.nhc.noaa.gov/surge/

Location

The City of New Orleans' proximity to Lakes Pontchartrain and Borgne, the Mississippi River, and Barataria Bay makes it highly vulnerable to storm surge driven coastal flooding. Storm surge, generated by tropical cyclones and other severe storms, is the primary cause of coastal flooding along the Louisiana coast. In the city, storm surge typically results from tropical cyclones approaching from the Gulf of America. Storms making landfall farther away may contribute to elevated water levels in surrounding water bodies, but surge impacts within the city are generally limited and typically confined to areas outside the levee protection system.

The 2023 edition of Louisiana's Comprehensive Master Plan for a Sustainable Coast is the source of the storm surge maps used to illustrate flooding from both the 100-year and 500-year storm surge events. The plan uses the Advanced Circulation Model (ADCIRC) and the Simulating Waves Nearshore Model (SWAN) to simulate and predict storm surge along Louisiana's coast. These models account for local features like the shape of the coastline and wind patterns to estimate water levels during storms.

The simulated data is then supplemented by the Coastal Louisiana Risk Assessment Model (CLARA), which calculates flood depths and potential damages to structures. The CLARA model doesn't assume all levees or pumps will work perfectly during a storm. It looks at levees holding versus possible breaches and pumps fully operating, partially operating, or not working to determine a range of flooding scenarios. This data is considered the best available because it combines detailed, regional modeling with probabilistic simulations, evaluating a wide range of storm scenarios and future conditions, like sea level rise. The maps below show expected inundation areas associated with storm surge for each event type.

While storm surge describes elevated water levels along the coast and major water bodies, coastal flooding is where that water ultimately spreads over land. This is most pronounced in unprotected, low-lying neighborhoods. In New Orleans, coastal flooding is most likely to occur in areas outside the levee system, resulting in deeper and more widespread flooding.

For example, the Venetian Isles neighborhood is outside the main levee protection system and faces an extreme risk of flooding from storm surge. Located along Lake Pontchartrain and the Chef Menteur Highway, this area regularly requires mandatory evacuations during tropical events due to its vulnerability to surge, most recently during Hurricane Isaac. Figure 14-2 shows the majority of the Venetian Isles neighborhood in burnt orange, indicating current 100-year storm surge heights between 16 and 21 feet. This area is also

highly susceptible to coastal flooding due to tidal surges and rain-driven flooding. The area's low elevation, proximity to open water, and land subsidence all contribute to the flood risk during high tide or heavy rainfall events. Other neighborhoods outside the levee system with similarly elevated coastal flooding and storm surge risks include the West End and Lake St. Catherine.

Low lying areas are subject to earlier onset of flooding, longer flood durations, and greater flood depths compared to areas protected by the levee system. Under more extreme events, such as the 500-year storm, localized overtopping of the levee system may occur during both coastal flood and storm surge events, extending into some protected areas. These conditions could result in increased flood depths compared to the 100-year event. Parts of the Lower Ninth Ward and New Orleans East are vulnerable to flooding from levee overtopping during coastal flood and storm surge events, as illustrated in Figures 14-2 and 14-3.

Figure 14-2. City of New Orleans 100 Year Storm Surge

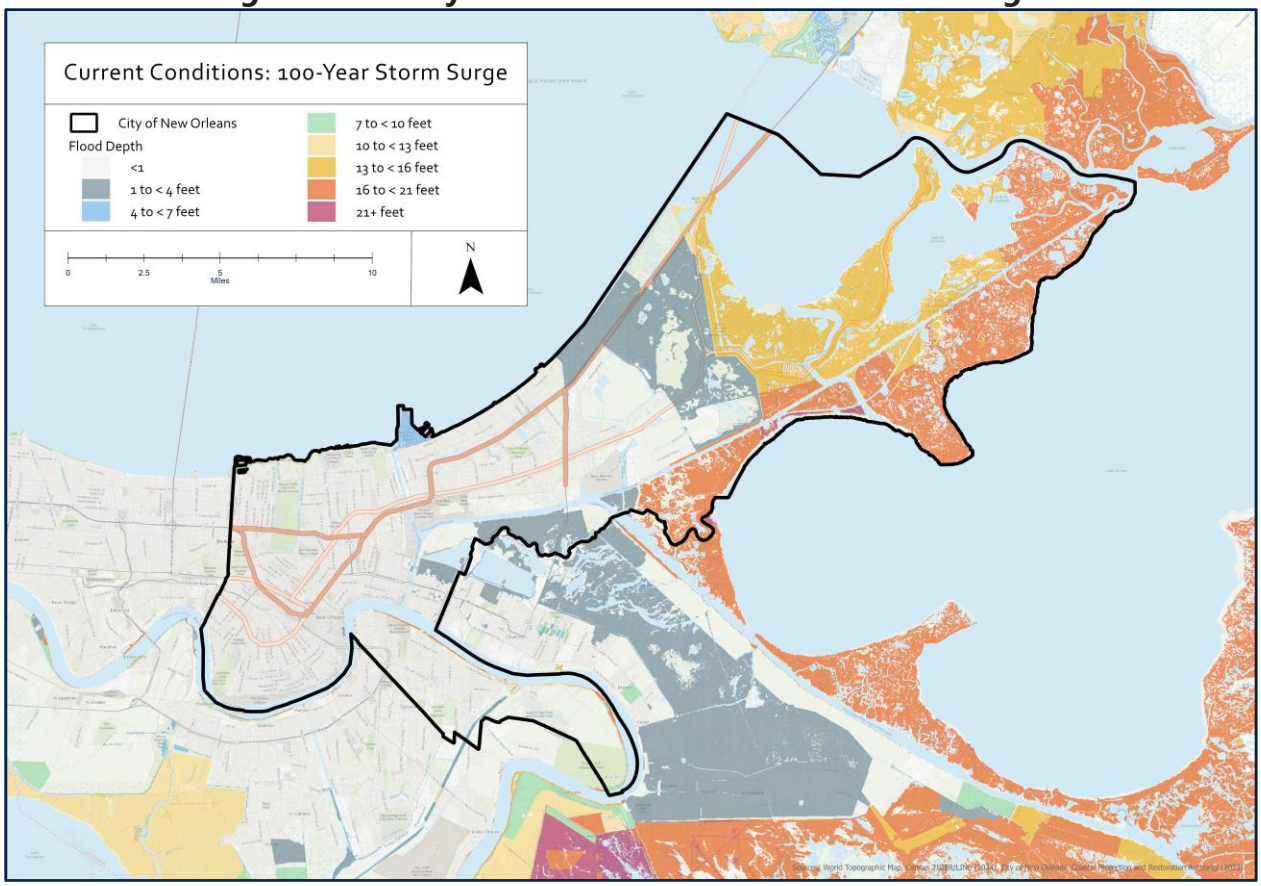
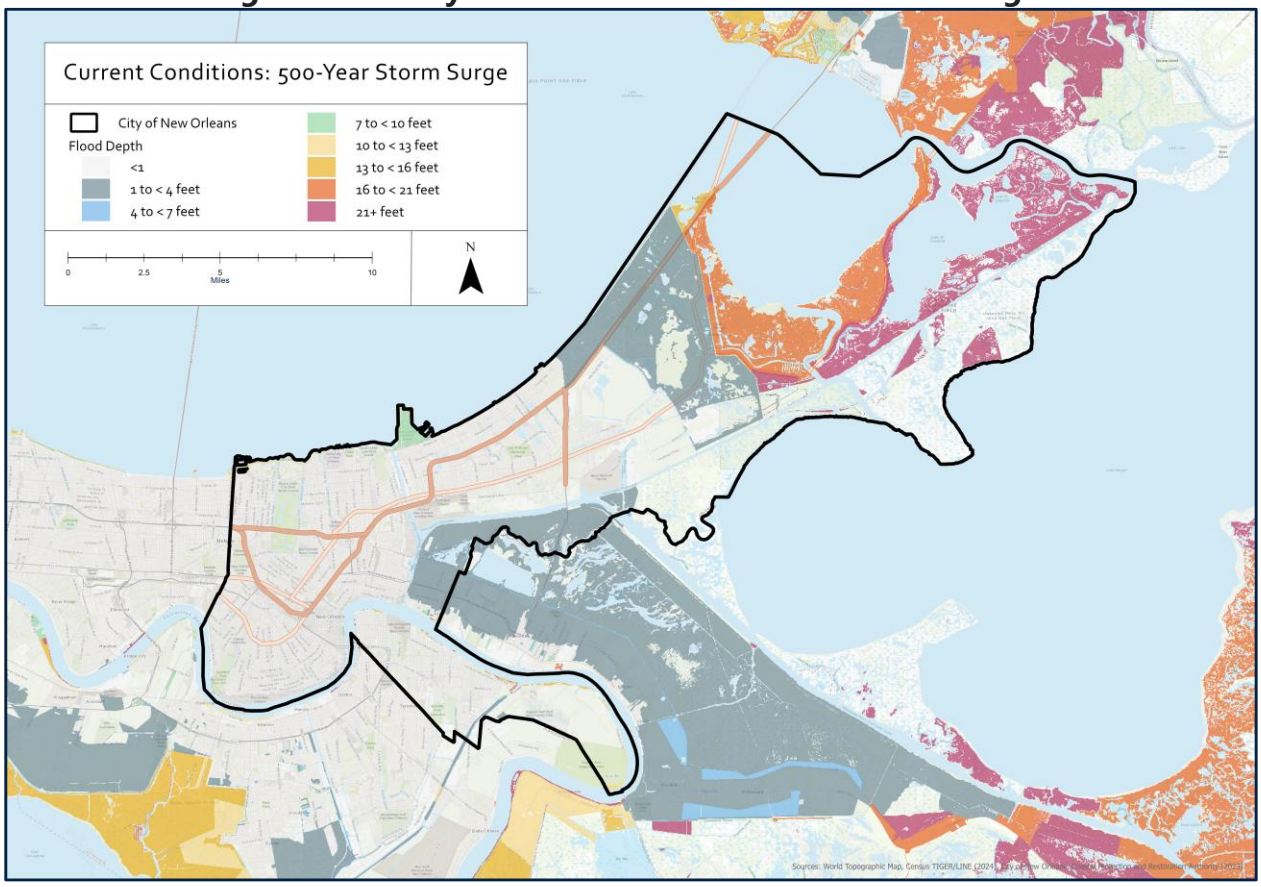


Figure 14-3. City of New Orleans 500 Year Storm Surge



Extent

The severity of storm surge depends on multiple factors, including a tropical cyclone's track, wind speeds, forward speed, and the shape of the coastline. Risks are greatest in areas outside the protected levee system and in low lying areas within the levee protected system, where flood depths can increase if surge levels exceed design elevations. The impacts are influenced by levee condition, ongoing maintenance, and the potential for localized levee overtopping or failure during extreme events, which can compound storm surge and coastal flooding hazards.

In New Orleans, the threat from storm surge has grown over the past 150 years due to coastal erosion, wetland loss, sea-level rise, and the construction of navigation and drainage canals. Urban development has also increased exposure by placing additional structures, transportation networks, and critical facilities in areas subject to coastal flooding.

Extent is often measured by storm surge and coastal flood depths. For coastal flooding, the National Weather Service has created coastal flooding thresholds. "Minor" flooding

corresponds to up to two feet of inundation in waterfront and shoreline areas, posing a low risk of property damage. “Moderate” flooding ranges from two to three feet in shoreline and vulnerable areas, creating an elevated risk of property damage. “Major” flooding occurs at three to five feet of inundation, flooding numerous roads and buildings and posing a significant threat to both property and life.

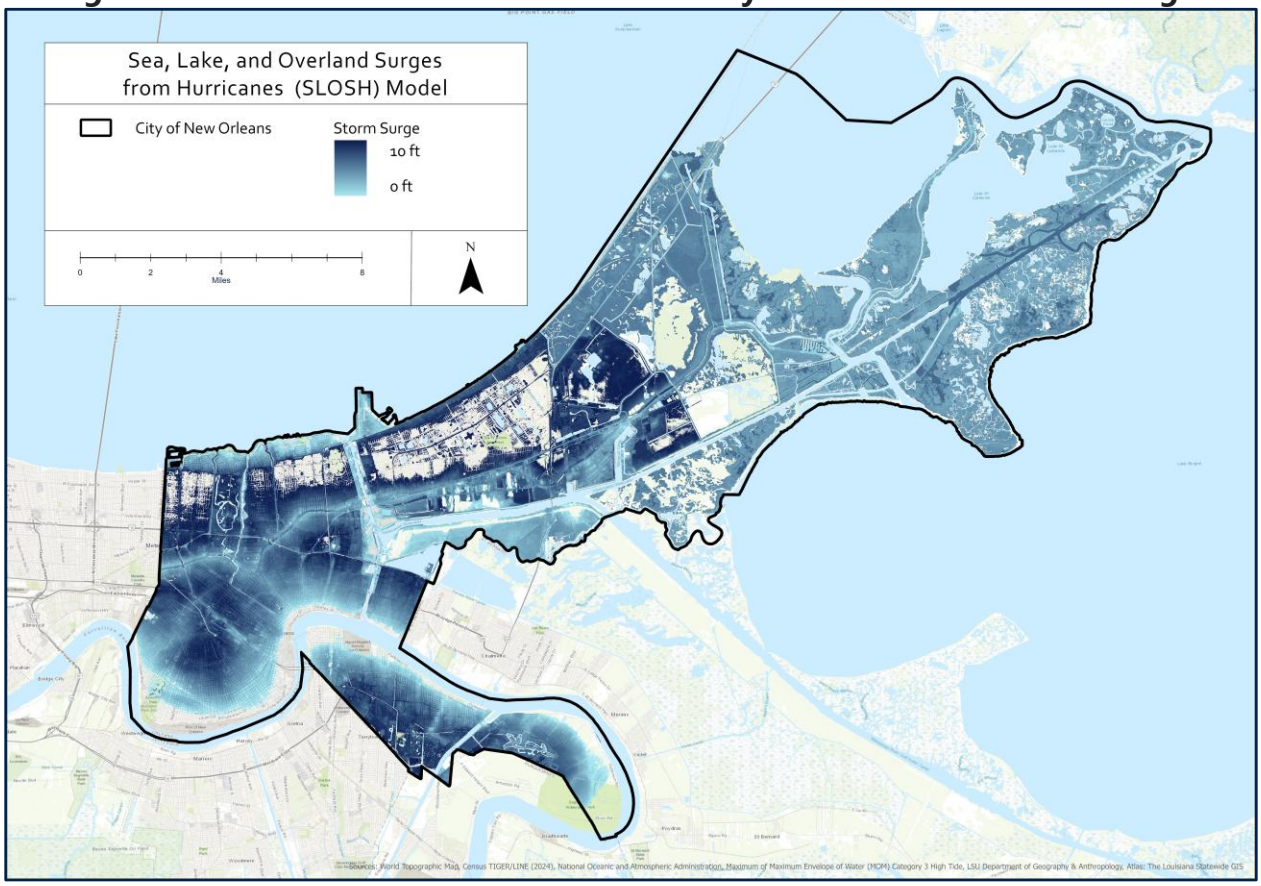
NOAA monitors tides and water levels at specific stations across the nation. At the New Canal Station located on the Lake Pontchartrain lakefront in the West End and Lakeview areas of New Orleans, near the historic New Canal Lighthouse, water levels reached a maximum of 5.97 feet on August 30, 2012, during Hurricane Isaac. Historical records from NOAA stations indicate that New Orleans can experience conditions exceeding the “Major” flooding threshold, meaning residents and property face a significant risk from coastal flooding.

Storm surge extent is analyzed using NOAA’s Sea Lake and Overland Surges from Hurricanes (SLOSH) model, which shows the specific areas within the City of New Orleans that may experience the highest storm surge depths (Figure 14-4). It is important to note that the CPRA-based surge modeling used above highlights regional and coastal concentrations of storm surge, particularly outside the levee system and along major waterways. The SLOSH model shown below provides a complementary perspective by estimating potential storm surge extents under a 100-year hurricane scenario, including how surge may interact with the urban footprint. While these results extend into developed areas, they represent storm surge only and should not be interpreted as a comprehensive depiction of urban flooding, which is discussed separately in Section 8.

During a 100-year event, the City of New Orleans can anticipate storm surge depths between 1 and 21 feet (Figure 14-2). Lower surge depths are typically observed within the HSDRRS-protected areas, such as Bayou Sauvage, Bayou Bienvenue, and the Inner Harbor Canal. In contrast, the highest surge levels are expected in far eastern Orleans Parish along the New Orleans East Land Bridge, where surge is accompanied by wave action. During a 500-year storm event, the planning area may experience storm surge depths up to and greater than 21 feet (Figure 14-3) with the worst impacts in the unprotected coastal and estuarine zones.

As demonstrated by Hurricane Katrina, storm surge can reach depths of up to 30 feet above sea level. Storm surge risk is also likely to increase over time due to coastal erosion, rising sea levels, and the increasing intensity of hurricanes associated with climate change.

Figure 14-4. NOAA's SLOSH Model for the City of New Orleans Storm Surge



The National Weather Service has a storm surge threat scale to categorize the severity of storm surge based on flood depths with associated impacts. The City of New Orleans can experience an extreme level of storm surge, as defined and presented by Table 14-1.

Table 14-1. Hurricane Storm Surge Threats and Impacts[3]

Storm Surge Threat	Potential Impacts from Storm Surge
Extreme	**With 15 to 20 feet or greater inundation:** There is an extreme threat to life and property. Life threatening flooding is likely with deep and widespread storm surge flooding across many areas. Hurricane protection levees in southeast Louisiana will be over topped with potential of massive and widespread flooding. Severe flooding will occur around Lakes Pontchartrain and Maurepas impacting many communities near the lakes with deep flooding. Water levels may exceed 15 feet or more behind over topped levees for several weeks. Full recovery will take months if not years. People who fail

[3] National Weather Service. NWS New Orleans/Baton Rouge - Hurricane Storm Surge Threats and Impacts Interactive Display. https://www.weather.gov/lix/htikmlstormsurge.

Storm Surge Threat	Potential Impacts from Storm Surge
	to evacuate may be swept to their deaths while others may be stranded for days surrounded by floodwaters. Dozens of roads will be washed away.
	With 7 to 15 foot inundation: There is an extreme threat to life and property. Life threatening flooding is possible in areas outside hurricane protection levees and in areas around Lakes Pontchartrain and Maurepas. Sections of west Jefferson Parish, east St. Charles Parish and lower Lafourche Parish hurricane protection levees could be over topped. Water levels may exceed 7 feet or more behind over topped levees.
High	**With 5 to 7 foot inundation:** There is a critical threat to life and property. Significant storm surge flooding will move well inland especially along bays and bayous. Life threatening flooding is possible in areas outside hurricane protection levees and in areas around Lakes Pontchartrain and Maurepas. Sections of west Jefferson Parish and lower Lafourche Parish hurricane protection levees could be over topped.
Moderate	**With 3 to 5 foot inundation:** There is a significant threat to life and property. Storm surge flooding can be expected outside hurricane protection levees, in areas around Lakes Pontchartrain and Maurepas and along the immediate Mississippi coast and bays. Flooding of several feet of water will occur in non-elevated structures or those built on slabs, causing damage. Roads along the coast, bayous, bays, and low-lying areas will be impassable.
Elevated	**With 1 to 3 foot inundation:** There is an elevated threat to life and property. Minor storm surge flooding can be expected outside of hurricane protection levees, in areas around Lakes Pontchartrain and Maurepas and along the immediate Mississippi coast and bays. Some non-elevated homes in these areas may experience flooding. Minor tidal flooding of property and some flooding of low-lying roads may occur.
None	**Little to no inundation:** No discernible threat to life and property. No storm surge expected. Coastal flooding is not expected.

Historical Occurrences

Historical data is provided by the Storm Prediction Center (NOAA), National Centers for Environmental Information (NCEI) database for City of New Orleans. However, detailed information on damages or location specific impacts is often limited, so some local effects may not be fully captured. Between 1996 and 2024, a total of 26 storm surge and coastal flooding events have been recorded by the NCEI. This includes 22 records of storm surge and 4 records of coastal flood. Table 14-2 identifies historical events that resulted in

damages, injuries, or fatalities in the planning area. Table 14-3 provides a historical event summary of all reported events.

Historical storm surge and coastal flood events for all educational institutions and special districts are provided in the NCEI database within the city where they are located unless otherwise noted. No additional events, injuries, fatalities, or monetary damages were reported separately or apart from the city's reported events.

Table 14-2. Historical Storm Surge and Coastal Flood Events, 1996 – 2024[4]

Jurisdiction	EVENT TYPE	Date	Deaths	Injuries	Property & Crop Damage
City of New Orleans	Storm Surge	6/30/2003	0	0	$174,100
City of New Orleans	Storm Surge	9/15/2004	0	0	$673,600
City of New Orleans	Storm Surge	10/9/2004	0	0	$16,800
City of New Orleans	Storm Surge	7/5/2005	0	0	$409,200
City of New Orleans	Storm Surge	8/29/2005	638[5]	0	$29,146,641,600
City of New Orleans	Storm Surge	9/23/2005	0	0	$6,949,400
City of New Orleans	Storm Surge	9/1/2008	0	0	$1,096,300
City of New Orleans	Storm Surge	9/2/2011	0	0	$21,100
City of New Orleans	Storm Surge	8/28/2012	0	0	$86,758,900
City of New Orleans	Storm Surge	10/10/2020	0	0	$61,400
City of New Orleans	Storm Surge	10/28/2020	0	0	$30,704,100
City of New Orleans	Storm Surge	8/28/2021	0	0	$1,169,000
City of New Orleans	Storm Surge	6/16/2024	0	0	$10,200
Totals			**638**	**0**	**$29,274,685,700**

[4] Note: Table only includes historical storm surge and coastal flood events that resulted in damages, injuries, or fatalities between 1996 and 2024 in the NCEI database. Values are in 2025 dollars.

[5] Note: This includes the total reported fatalities associated with Hurricane Katrina, including those attributed with storm surge.

Table 14-3. Summary of Historical Storm Surge and Coastal Flood Events, 1996 – 2024

Jurisdiction	Number of Events	Deaths	Injuries	Property & Crop Damage
City of New Orleans	26	638	0	$29,274,685,700

A total of 11 events have occurred since the 2020 Plan.

Significant Events

Storm Surge on August 29, 2005

Hurricane Katrina was a record-breaking storm that brought strong winds and storm surge to the Gulf Coast. In New Orleans, loss of life and property was heightened by breaks in the levees that separate New Orleans from Lake Pontchartrain.

According to the National Weather Service, storm surge flooding of 10 to 20 feet above normal tide levels occurred along the southeastern Louisiana coast. Additionally, FEMA data indicated a storm surge of 15 to 19 feet in eastern New Orleans, St. Bernard Parish, and Plaquemines Parish, severely impacting neighborhoods such as the Lower Ninth Ward. At the same time, the surge was 10 to 14 feet in western New Orleans along the southern shores of Lake Pontchartrain affecting neighborhoods including Gentilly and Lakeview. Farther west, observations indicate a storm surge of 5 to 10 feet along the shores of western Lake Pontchartrain.

According to the U.S. Army Corps of Engineers, the August 29th storm surge caused 50 major levee breaches in the pre-existing hurricane protection system for New Orleans, prompting subsequent federal efforts to redesign and strengthen the region's flood risk reduction infrastructure. It is reported that 34 of 71 pumping stations were damaged, and 169 of 350 miles of protective structures were compromised, mainly due to erosion from overtopping. Surge water overtopped levees in Orleans and St. Bernard Parishes and pushed into the Intracoastal Waterway, the Industrial Canal, and canals along Lake Pontchartrain's southern shore, including the 17th Street and London Avenue Canals.

The consequences of the flooding were catastrophic and deadly for the City of New Orleans. Approximately 80 percent of New Orleans was flooded to depths exceeding 15 feet in many areas. An estimated 147,000 residential homes were flooded. According to the NCEI, the storm surge for this event resulted in $29,146,641,600 (2025 dollars) in property damages. As the floodwaters rose, thousands of residents who were unable to evacuate became trapped, many on rooftops and some in their attics. Many areas were flooded for an extended period of time before repairs could be made to the levees and

pump stations, and the water drained out of the city. The pumps were brought back online 43 days after Hurricane Katrina made landfall. The devastation caused by the storm surge of Hurricane Katrina resulted in one of the largest displacements of a population since the Great Depression.

Storm Surge on August 28, 2012

Hurricane Isaac Hurricane entered the Gulf of America on August 26th and made landfall in Plaquemines Parish as a Category 1 hurricane on August 28th, followed by a second landfall near Port Fourchon on August 29th. Storm surge was the primary cause of flooding and damage across southeast Louisiana.

A storm surge of 8 to 13 feet occurred in eastern Plaquemines and St. Bernard Parishes, with a maximum of 13 feet recorded near Pointe à la Hache. Levees in the Braithwaite area were overtopped or breached. Significant surge impacts also occurred around Lakes Pontchartrain and Maurepas, where water levels of 5 to 9 feet flooded 5,000 to 10,000 homes in low-lying areas across multiple parishes.

South and southwest of New Orleans, storm tides of 4 to 7 feet overtopped or breached local levees in areas such as Lafitte and Myrtle Grove, flooding numerous homes and roadways. Heavy rainfall of over 20 inches at the New Orleans Carrollton gauge, combined with storm surge, exceeded the pump-based drainage system and caused urban flooding, primarily in low lying areas of the city. However, the city's post-Katrina levee and pump system prevented major surge inundation inside the protection system. Overall, this storm surge event resulted in an estimated $86,758,900 (2025 dollars) in property damages for the City of New Orleans.

Storm Surge on October 28, 2020

Hurricane Zeta formed in the northwestern Caribbean on October 24, 2020, strengthened rapidly, and after making landfall on the Yucatán Peninsula as a strong tropical storm on October 26th, struck Louisiana later that day, moving directly over the City of New Orleans as a strong Category 2 hurricane before continuing into southern Mississippi.

In southeast Louisiana, Zeta produced extensive wind damage, widespread power outages, and localized storm surge flooding. Leading up to the storm, the Orleans Parish issued voluntary evacuation orders for areas outside the hurricane and storm damage risk reduction system levees. This included Irish Bayou, Lake Catherine, and Venetian Isles. Several people were housed in a shelter for medical needs. Storm surge along Lake Pontchartrain peaked at 6.30 feet at West End (WEGL1), 5.32 feet near the Rigolets (RIGL1), 4.84 feet at New Canal (NWCL1), 4.21 feet at the Lakefront (PLAL1), and 4.04 feet at Chef Pass (CMPL1). Zeta mostly produced wind damage in New Orleans, and while most

properties in the impacted areas are elevated, the flooding likely did not result in significant structural damage, though it temporarily displaced several hundred households. According to the NCEI, this event resulted in $30,704,100 (2025 dollars) in property damages.

Storm Surge on August 28, 2021

Hurricane Ida formed in the Caribbean on August 23rd, rapidly intensified to a Category 4 storm with 150 mph winds over the Gulf, and made landfall near Port Fourchon on August 29th. While impacts of this storm were widespread, much of the damage in New Orleans is attributed primarily to strong winds.

Hurricane Ida produced a devastating storm surge that penetrated far inland from the immediate coastline across southeastern Louisiana. Areas impacted included both the east and west banks of the Mississippi River and communities bordering Lake Pontchartrain.

In the City of New Orleans, storm surge affected areas outside of the Hurricane and Storm Damage Risk Reduction System. Several feet of water covered portions of U.S. Highway 90, with estimated peak inundation of 5 to 7 feet. Water was also a few feet deep throughout the neighborhood of Venetian Isles, flooding several garages and under-home storage areas, and threatening some homes. The NCEI reports $1,169,000 (2025 dollars) in property damages.

Climate Change Considerations

Sea level change is the rise or fall of the ocean's surface, caused by factors like melting ice, warming and expanding water, changes in the shape of ocean basins, and local land sinking or rising. Sea level rise is expected to worsen storm surge and coastal flooding risks due to the effects of climate change.

According to the Fifth National Climate Assessment, tide gauges in the Southeast region of the United States show that relative sea level rose approximately 6 inches between 1970 and 2020. By 2050, sea levels in the region, including New Orleans, are projected to rise 16–23 inches (1.3–1.9 feet) relative to 2000. By 2100, the rise could reach 2.2–7.3 feet. These increases are higher than the global average because of land subsidence, groundwater pumping, and regional ocean currents. In New Orleans, this means storm surge and coastal flood events could become much more frequent, with some communities across the region experiencing significant increases even before 2050.

SECTION 14: STORM SURGE AND COASTAL FLOODING

The Louisiana Coastal Protection and Restoration Authority has published a 4th edition of Louisiana's Comprehensive Master Plan for a Sustainable Coast in 2023, which provides climate and land change projections under a lower and higher environmental scenario.

According to the lower scenario in this master plan, coastal Louisiana would experience moderate climate change impacts, including sea level rise of 1.6 feet over a 50-year period, adding height to already concerning storm surge levels. The lower scenario also predicts 1,100 square miles of land lost (or coastal erosion) in that same time period. Much of the projected loss is concentrated in lower basins and on marsh edges. Without additional mitigation efforts, statewide flood damages could increase by up to $19 billion annually, with 17,000 additional structures damaged due to significant increases in coastal flood depths. Additionally, hurricanes are assumed to increase in intensity by 5 percent over the same period, exacerbating the risk posed by storm surge.

With higher scenario projections, it is clear that more severe climate change impacts, such as sea level rise of up to 2.5 feet, increased hurricane intensity of up to 10 percent over the 50-year period, and higher subsidence have a significant impact on the potential depth of storm surge and coastal flood depths. The expansion of areas projected to experience the largest storm surge heights, greater than 21 feet in some areas, can be seen under high scenario projections.[6] Both the lower and higher environmental scenarios are presented in Figures 14-5 and 14-6 below.

Continued coastal erosion and land loss (described in Section 5), will also contribute to a future increase in storm surge risk. Local flood protection systems will become more vulnerable as the land around them erodes, reducing their effectiveness in protecting urban neighborhoods. The city may need to rely on multiple lines of defense, such as coastal wetlands, which can help absorb storm surge energy and reduce waves, providing an important additional layer of protection alongside built defenses.

[6] Louisiana Coastal Protection and Restoration Authority. May 25, 2023.Louisiana's Comprehensive Master Plan.

Figure 14-5. Future Storm Surge Conditions Under the Lower Environmental Scenario

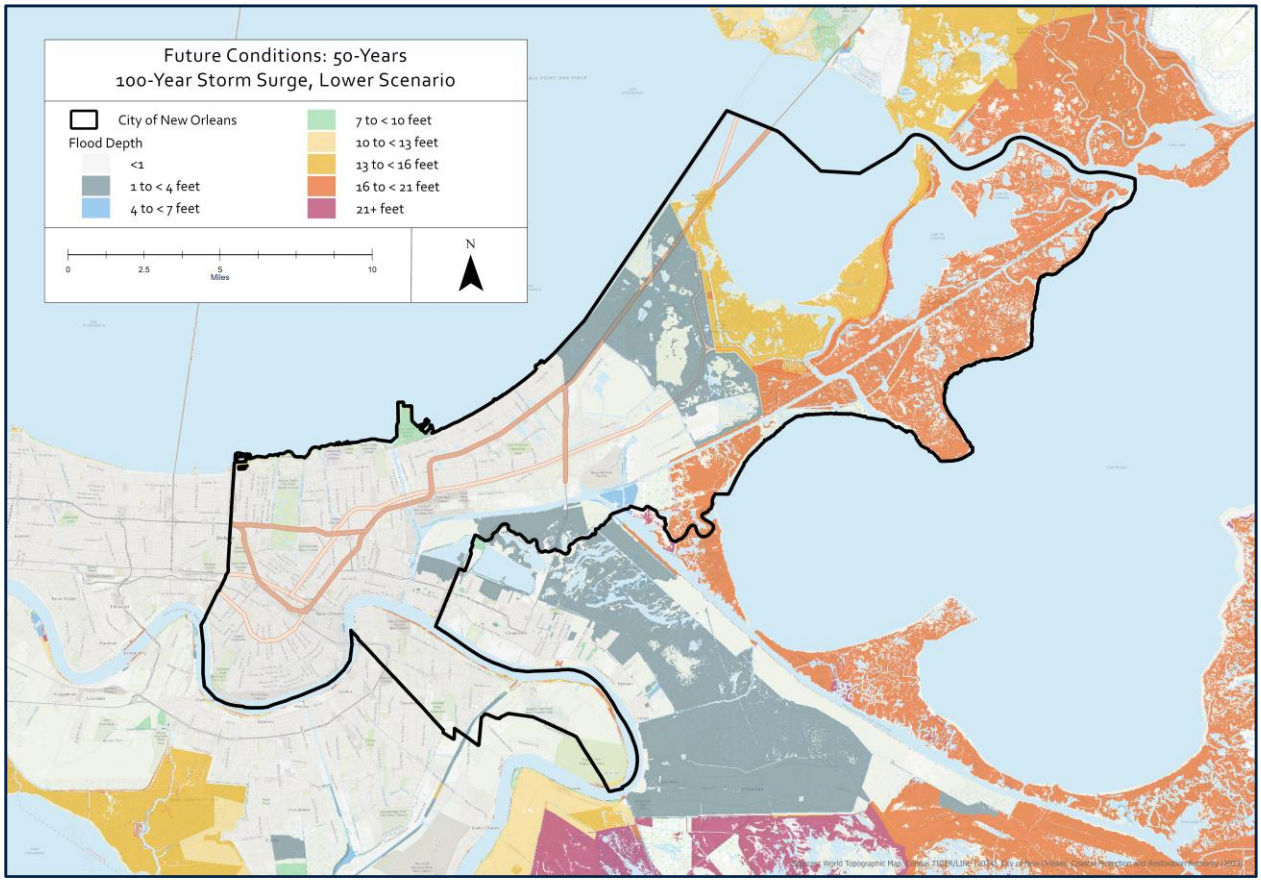
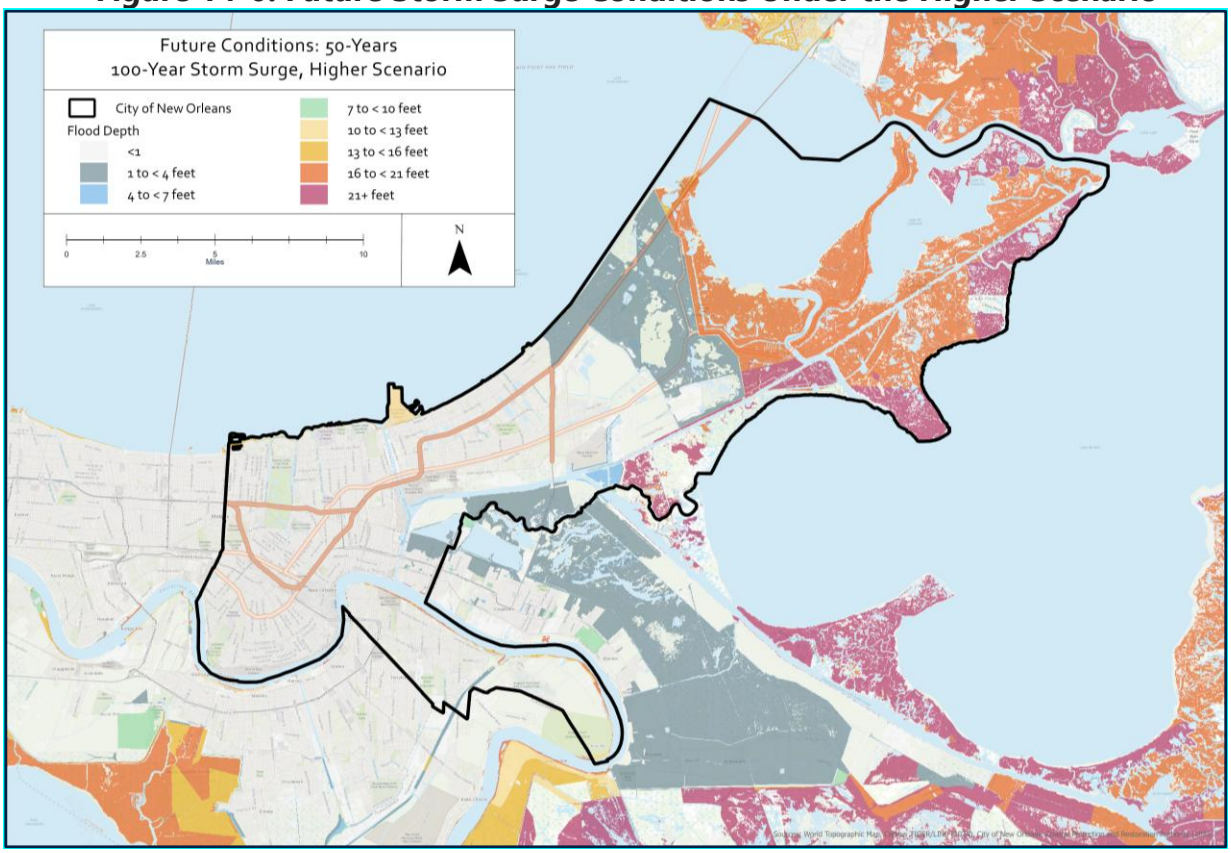


Figure 14-6. Future Storm Surge Conditions Under the Higher Scenario



Probability of Future Events

There were 26 recorded historical occurrences within a 29-year reporting period within the City of New Orleans, including all educational institutions and special districts. Smaller storm surge events occur more frequently in New Orleans, while major storm surges, like those seen during Hurricane Katrina, happen less often but pose a serious risk. Based on historical records and future conditions such as levee system maintenance, all storm surge and coastal flood events are considered "Highly Likely, meaning an event is probable within the next year. This assessment is supported by future projections, which indicate an ongoing and increasing risk of storm surge and coastal flooding due to sea level rise, coastal erosion, and increases in storm intensity.

Vulnerability and Impact

Storm surge and coastal flooding accelerate coastal erosion, stripping away protective beaches, undermining dunes, and destabilizing the foundations of roads, bridges, and other critical infrastructure and facilities. Even buildings that survive tropical cyclone winds may later collapse if the supporting ground erodes beneath them. Storm surge can lead

to the long-term displacement of a population when severe flooding destroys homes, damages critical infrastructure, and creates uninhabitable living conditions, while increasing future flood risk.

New Orleans is home to one of the largest and busiest ports in the world, and the greater metropolitan area serves as a hub for maritime industry, oil refining, and petrochemical production. Storm surge and coastal flooding can disrupt port operations and may damage terminals, shipping infrastructure, refineries, and petrochemical plants, leading to significant economic losses for these critical industries.

Storm surge can also have severe economic impacts on communities that rely on tourism, such as the City of New Orleans. Damage to hotels, restaurants, historical sites and tourist attractions can deter visitors, disrupt local businesses, and result in long term revenue losses.

Saltwater intrusion carried inland by storm surge further compounds impacts and vulnerabilities by contaminating freshwater supplies, degrading soils, killing vegetation, and displacing wildlife. These cascading hazards highlight the interconnected risks that storm surge poses to both the built and natural environments in vulnerable coastal regions such as southern Louisiana.

Much of the City of New Orleans is situated below sea level, making it especially vulnerable to storm surge and coastal flooding. The city's "bowl-like" topography means that floodwaters do not naturally drain, often sitting in low lying areas for extended periods of time. Water must be actively pumped out using the city's drainage and pumping systems, which can delay recovery and exacerbate the impacts of flooding on homes, infrastructure, and businesses.

Table 14-4 includes the comprehensive critical facilities identified in Appendix F that are subject to a range of impacts due to storm surge and coastal flooding. For a comprehensive list of critical facilities for each participant, please see Appendix F.

Table 14-4. Critical Facilities in the Floodplain by Participant

Critical Facility Types	Potential Impacts
Emergency Response Departments (EOC, Fire, Police, EMS), Hospitals	• Emergency vehicles can be damaged by storm surge waters. • Rescues may be necessary in flooded neighborhoods where roads have become impassable, placing first responders in harm's way. • Evacuations may be required for entire neighborhoods, further taxing limited response capabilities and increasing sheltering needs for displaced residents. • Power outages could disrupt communications, delaying emergency response times. • Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities. • First responders are exposed to downed power lines, contaminated and unusual debris, hazardous materials, and generally unsafe conditions.
Airport, Academic Institutions, Community Residential Facilities, Day Care Facilities, Evacuation Centers & Shelters, Governmental Facilities	• Structures can be damaged by storm surge waters. • Power outages could disrupt critical care. • Backup power sources could be damaged, inundated or otherwise inoperable. • Critical staff may be impacted and unable to report for duty, limiting response capabilities. • Evacuations may be necessary due to extended power outages, gas line ruptures, or inundation of facilities. • Shelters may be overwhelmed if storm surge floods residential areas. • Additional emergency responders and critical aid workers may not be able to reach the area for days. • Power outages and infrastructure damage may prevent larger airports from acting as temporary command centers for logistics, communications, and emergency operations. • Temporary break in airport operations may significantly inhibit post event evacuations. • Damaged or destroyed highway infrastructure may substantially increase the need for airport operations.
Commercial Suppliers (food, gas, etc.)	• Facilities or infrastructure may be damaged, destroyed or otherwise inaccessible. • Essential supplies like medicines, water, food, and equipment deliveries may be significantly delayed.

Critical Facility Types	Potential Impacts
	• Storm surge may damage storage facilities, leading to the spoilage of perishable goods. • Surge floodwaters can dislodge chemical/petroleum tanks or release hazardous materials. • Storm surge may disrupt rail, maritime, trucking and logistics facilities along the river and lakefront.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Saltwater intrusion from storm surge can corrode electrical and water infrastructure, delaying restoration. • Storm surge can overwhelm or damage pump stations, hindering the ability to remove floodwater. • Utility operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Utility service vehicles can be damaged by storm surge waters. • Rescues may be necessary in flooded neighborhoods where roads have become impassable, placing emergency service workers in harm's way. • Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel. • Utility workers are exposed to downed power lines, contaminated and unusual debris, hazardous materials, and generally unsafe conditions.

Additionally, according to the National Weather Service, in coastal areas such as southern Louisiana, storm surge is the most dangerous aspect of hurricanes. Storm surge alone causes nine out of every ten hurricane-related deaths. The risk of drowning is high during a storm surge event and can lead to significant injuries and fatalities. When storm surge overtops levees or barriers, or when protective structures fail, it can inundate entire communities within hours, cutting off evacuation routes, damaging infrastructure, and leaving little time for residents to seek safety.

While storm surge poses a risk to all residents, the impacts often fall disproportionately on vulnerable populations. Low-income households are particularly at risk, because they may lack the financial resources to evacuate, find temporary housing for extended periods of time, or repair and rebuild homes. In addition, factors like limited mobility, communication difficulties, medical needs, reliance on support services, transportation challenges, housing accessibility issues, and possible shortages in emergency shelter

accommodations, contribute to the disproportionate impact on vulnerable populations. People who speak a language other than English may also face increased vulnerability due to language barriers that limit their access to important information such as weather-related warnings and instructions regarding safety measures.

The population over 65 in the City of New Orleans planning area is estimated at 16 percent of the total population and children under the age of 5 are estimated at 6 percent. The population with a disability is estimated at 14 percent of the total population. An estimated 23 percent of the planning area population live below the poverty level and 3 percent of the population speaks English "less than very well."

Table 14-5. Populations at Greater Risk[7]

Jurisdiction	Population				
	65 and Older	Under 5	With a Disability	Below Poverty Level	Limited English Speaking
City of New Orleans	61,879	20,845	52,249	52,249	11,359

Due to historical injuries fatalities, infrastructure damages, and service disruptions, the impact of flooding in City of New Orleans is considered "Substantial" meaning multiple deaths possible, the complete shutdown of facilities for 30 days or more, and more than 50 percent of property destroyed or with major damage.

Historic loss estimates due to storm surge and coastal flood are presented in Table 14-6 below. Considering 26 flood events over a 29-year reporting period, frequency is around one event every year.

Table 14-6. Average Annualized Losses, 1996 – 2024[8]

Jurisdiction	Total Property & Crop Loss	Average Annual Loss Estimates
City of New Orleans	$29,274,685,700	$1,009,471,921

[7] U.S. Census Bureau Five-Year estimates.

[8] Losses for participants are often accounted for and included in the total damages reported within the city where the special district is located.



Section 15

Tornado

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Section 15: Tornado

Hazard Description

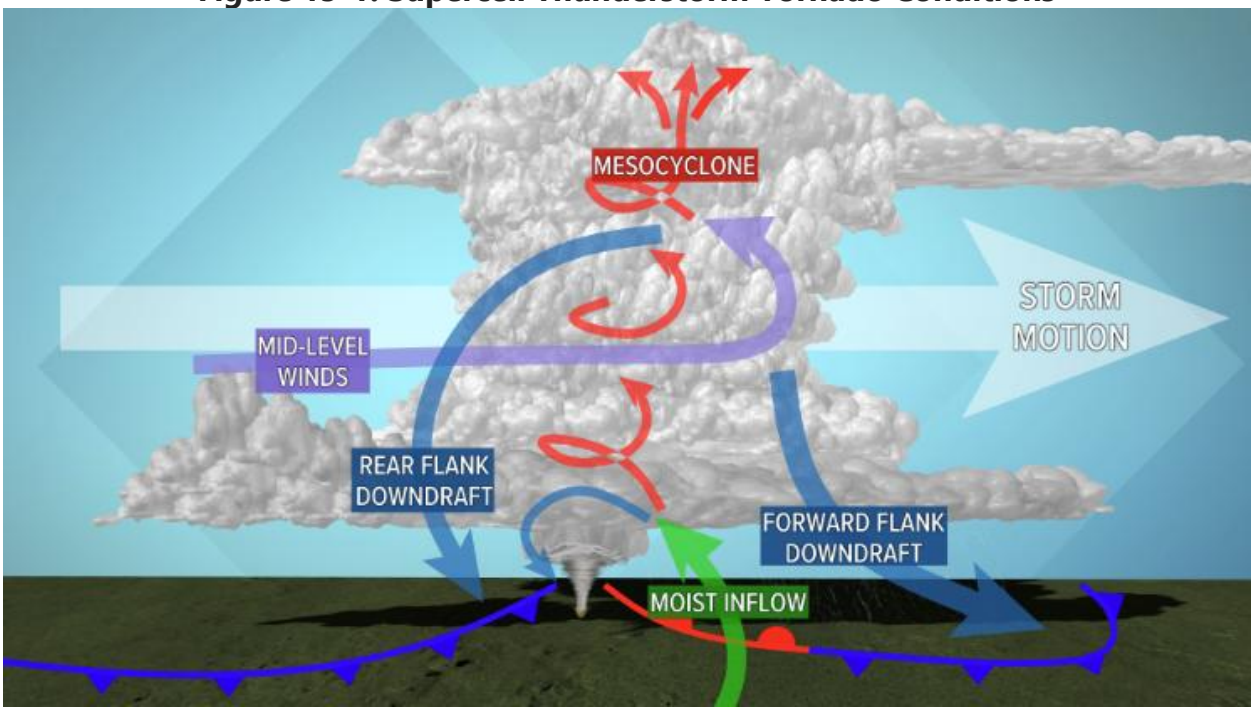


Tornado damage path in New Orleans in March of 2022. Photo courtesy of PBS News.

Tornadoes are among the most violent storms on the planet. A tornado is a rapidly rotating column of air extending between, and in contact with, a cloud and the surface of the earth. The most violent tornadoes are capable of tremendous destruction and have wind speeds of 250 miles per hour (mph) or more. In extreme cases, winds may approach 300 mph. Damage paths can be in excess of one mile wide and 50 miles long.

The most powerful tornadoes are produced by "Supercell Thunderstorms." These supercell thunderstorms are created when horizontal wind shears (winds moving in different directions at different altitudes) begin to rotate the storm. The rotating updraft is known as a mesocyclone. The horizontal rotation can be tilted vertically by violent updrafts, and the rotation radius can shrink, forming a vertical column of very quickly swirling air. This rotating air can eventually reach the ground, forming a tornado (Figure 15-1).

Figure 15-1. Supercell Thunderstorm Tornado Conditions



According to the National Oceanic and Atmospheric Administration, there are three basic categories of tornadoes: weak, strong, and violent. The majority of tornados, 69 percent, are considered "weak". "Strong" tornados make up about 29 percent of all tornadoes, and only an estimated 2 percent of tornados are considered "violent". Violent tornados account for approximately 70 percent of tornado related fatalities (Table 15-1).

Table 15-1. Variations among Tornadoes

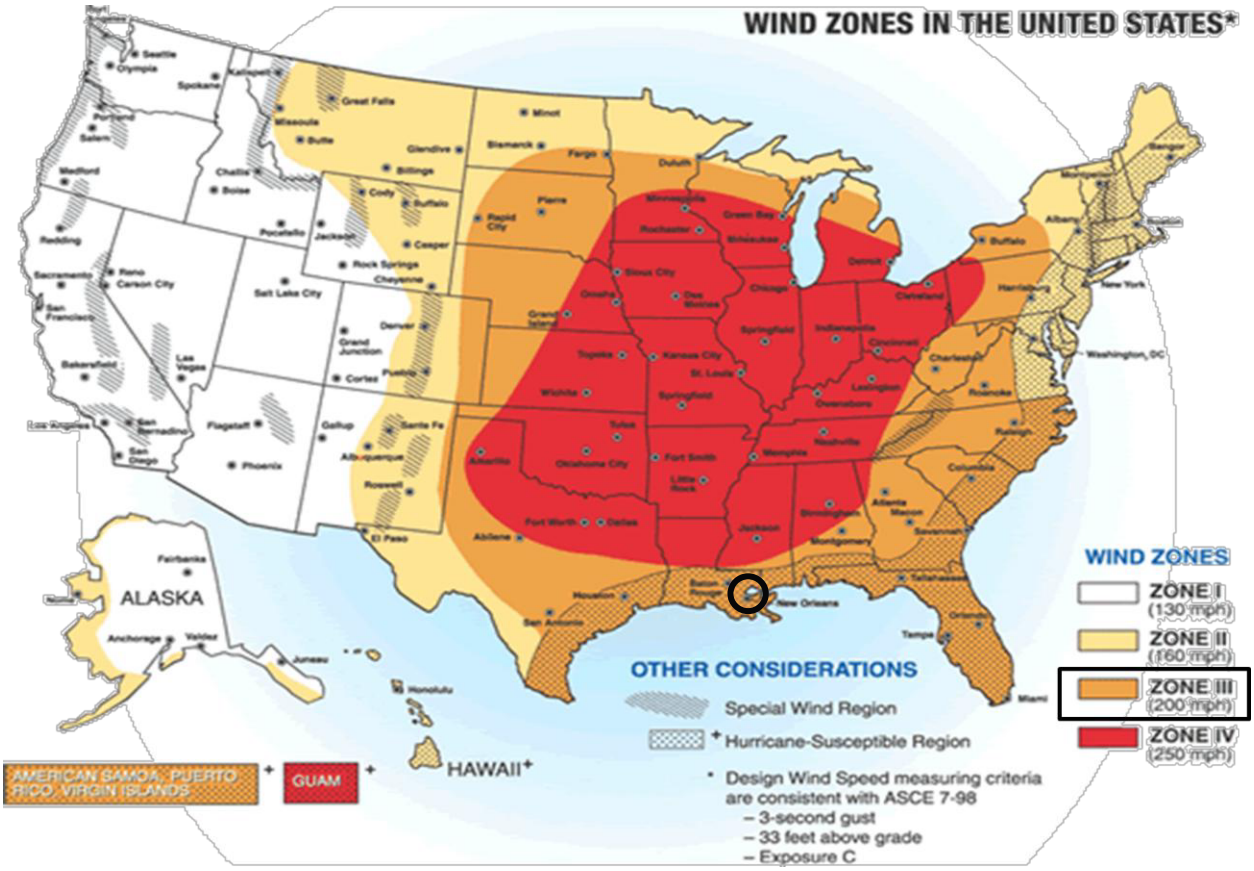
Weak Tornadoes	Strong Tornadoes	Violent Tornadoes
• 69% of all tornadoes • Less than 5% of tornado deaths • Lifetime 1-10+ minutes • Winds less than 110 mph	• 29% of all tornadoes • Nearly 30% of all tornado deaths • May last 20 minutes or longer • Winds 110–205 mph	• 2% of all tornadoes • 70% of all tornado deaths • Lifetime can exceed one hour • Winds greater than 205 mph

Location

Tornadoes do not have any specific geographic boundary and can occur throughout the planning area uniformly. The City of New Orleans is in Wind Zone III. Although it is highly

unlikely for the planning area, this category signifies that winds can be as high as 200 mph.

Figure 15-1. FEMA Wind Zones in the United States[1]



Extent

The destruction caused by tornadoes ranges from minor to major, depending on the intensity, size, and duration of the storm. Typically, tornadoes cause the greatest damage to structures of light construction, such as residential homes (particularly mobile homes).

Tornado magnitudes prior to 2007 were determined using the traditional version of the Fujita Scale, which estimated tornado wind speeds based on the damage caused by an event. Since February 2007, the Enhanced Fujita Scale has been utilized to classify tornadoes, which included improvements to the original scale. The original Fujita scale had limitations, such as a lack of damage indicators, no account for construction quality and variability, and no definitive correlation between damage and wind speed. These

[1] Note: The City of New Orleans planning area is indicated by the circle.

limitations led to some tornadoes being rated in an inconsistent manner and, in some cases, an overestimate of tornado wind speeds. The newer scale reflects more refined assessments of tornado damage surveys, standardization, and damage consideration to a wider range of structures. Table 15-2 includes both scales for reference, since tornado events prior to 2007 were recorded using the original Fujita Scale.

Table 15-2. The Fujita and Enhanced Fujita Tornado Scale[2]

Enhanced Fujita Scale				Fujita Scale			
Category	**Wind Speed**	**Damage Level**	**Damage**	**Category**	**Wind Speed**	**Intensity**	**Damage**
EF0	65-85 MPH	Gale	The environment sustained minor damage: tree branches are broken, some shallow-rooted trees are uprooted, and some chimneys are damaged.	**F0**	45-78 MPH	Gale	Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.
EF1	86-110 MPH	Weak	The environment sustained moderate damage: mobile homes are tipped over, windows are broken, roof tiles may be blown off, and some tree trunks have snapped.	**F1**	79-117 MPH	Moderate	Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads.
EF2	111-135 MPH	Strong	The environment sustained considerable damage: mobile homes are destroyed, roofs are damaged, debris flies in the air, and large trees are snapped or uprooted.	**F2**	118-161 MPH	Significant	Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF3	136-165 MPH	Severe	The environment sustained severe damage: roofs and walls are ripped off buildings, small buildings are destroyed, and most trees are uprooted.	**F3**	162-209 MPH	Severe	Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
EF4	166-200 MPH	Devastating	The environment sustained devastating damage: well-built homes are destroyed, buildings are lifted off their foundations, cars are blown	**F4**	210-261 MPH	Devastating	Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown, and large missiles generated.

[2] Source: http://www.tornadoproject.com/fscale/fscale.htm

Enhanced Fujita Scale				Fujita Scale			
Category	**Wind Speed**	**Damage Level**	**Damage**	**Category**	**Wind Speed**	**Intensity**	**Damage**
			away, and large debris flies in the air.				
EF5	200+ MPH	Incredible	The environment sustained incredible damage: well-built homes are lifted from their foundations, reinforced concrete buildings are damaged, the bark is stripped from trees, and car-sized debris flies through the air.	**F5**	262-317 MPH	Incredible	Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yds); trees debarked; incredible phenomena will occur.

The greatest magnitude reported within the planning area is EF3, a severe tornado capable of causing severe damage to structures, uprooting or snapping large trees, and demolishing mobile homes and small buildings. Previous tornado events in the City of New Orleans planning area (converted from the Fujita Scale) have all been between EF0 and EF3 magnitudes (Figure 15-2). While tornado wind speeds in the region can theoretically exceed 200 mph, historical events indicate that the most severe tornado likely to affect the planning area would be an EF3, with wind speeds reaching up to approximately 165 mph.

Historical Occurrences

The National Centers for Environmental Information (NCEI) Storm Events database is a national data source organized under the National Oceanic and Atmospheric Administration (NOAA). The NCEI is the largest archive available for historic storm events data; however, it is important to note that only incidents recorded in the NCEI have been factored into this risk assessment and it is likely that a number of occurrences have gone unreported over time.

Figure 15-2 identifies the locations of previous occurrences in the City of New Orleans from 1951 through 2024. A total of 24 events have been recorded by NOAA's Storm Prediction Center and the NCEI Storm Events databases. The strongest magnitude reported in the planning area is an EF3 tornado, which occurred on February 7, 2017 (Table 15-3). Historical tornado event data for participating educational institutions and special districts are provided within the City of New Orleans events.

Figure 15-2. Spatial Historical Tornado Events, 1951 –2024[3]

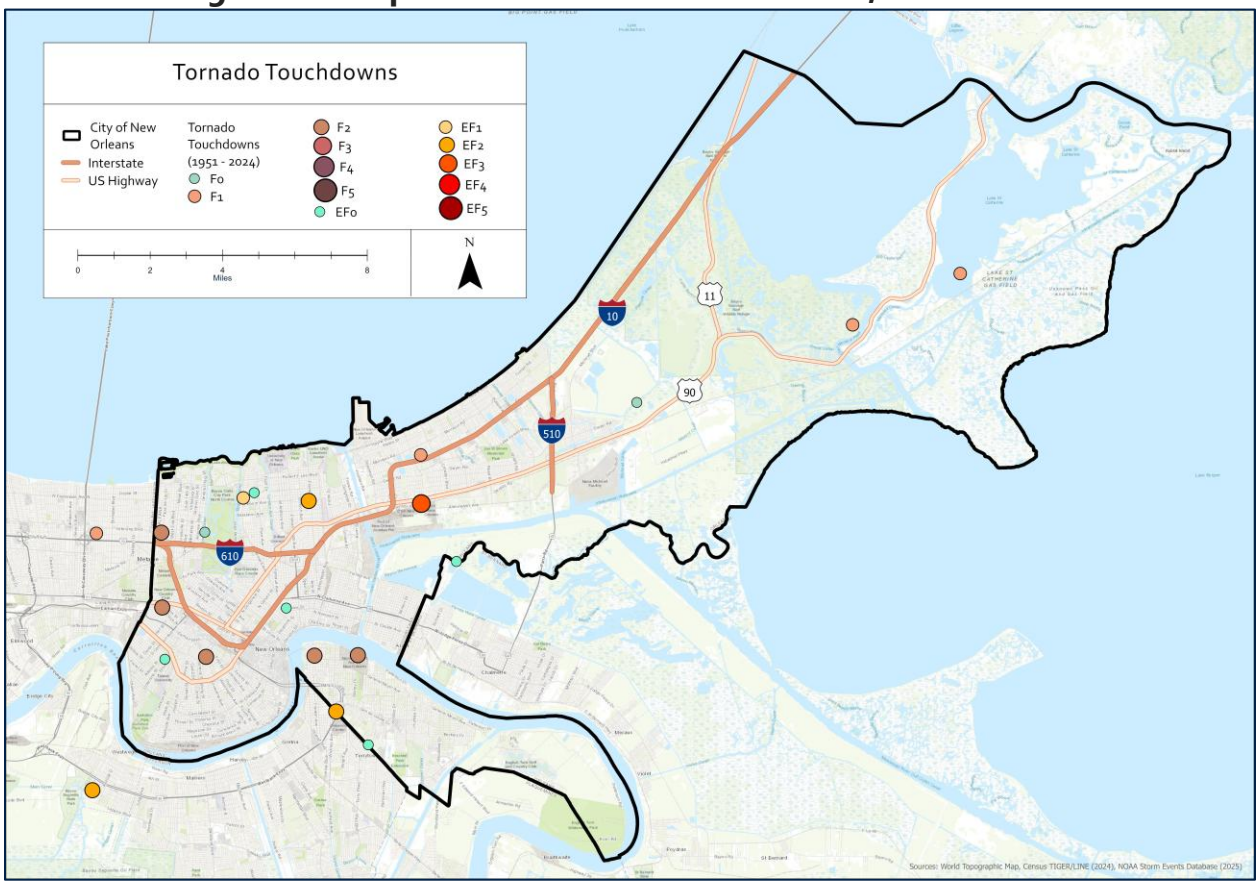


Table 15-3. Historical Tornado Events, 1951 – 2024[4]

Jurisdiction	Date	Magnitude	Deaths	Injuries	Property and Crop Damage
City of New Orleans	11/1/1951	F1	0	0	$300,900
City of New Orleans	7/17/1953	F2	0	2	$2,963,400
City of New Orleans	6/27/1957	F0	0	0	$282,700
City of New Orleans	7/13/1957	F0	0	0	$28,100
City of New Orleans	3/31/1962	F1	0	0	$26,400

[3] Source: NOAA Storm Prediction Center
[4] Damage values are in 2025 dollars.

Jurisdiction	Date	Magnitude	Deaths	Injuries	Property and Crop Damage
City of New Orleans	10/3/1964	F2	0	2	$25,536,300
City of New Orleans	3/10/1971	F2	0	0	$19,854,500
City of New Orleans	12/6/1971	F1	0	0	$193,300
City of New Orleans	7/29/1977	F1	0	3	$130,200
City of New Orleans	6/22/1981	F2	0	0	$87,700
City of New Orleans	4/19/1991	F1	0	0	$58,800
City of New Orleans	8/10/2000	F0	0	0	$0
City of New Orleans	6/30/2003	F0	0	0	$8,700
City of New Orleans	2/2/2006	F2	0	0	$799,400
City of New Orleans	2/13/2007	EF2	1	10	$1,561,100
City of New Orleans	2/13/2007	EF2	0	15	$3,122,100
City of New Orleans	7/6/2010	EF0	0	0	$14,600
City of New Orleans	8/4/2016	EF0	0	2	$0
City of New Orleans	2/7/2017	EF3	0	33	$38,200,000
City of New Orleans	7/10/2019	EF1	0	0	$371,500
City of New Orleans	5/12/2021	EF0	0	0	$29,600
City of New Orleans	3/22/2022	EF0	0	0	$1,105,000
City of New Orleans	3/22/2022	EF0	0	0	$552,500

Jurisdiction	Date	Magnitude	Deaths	Injuries	Property and Crop Damage
City of New Orleans	12/14/2022	EF3	0	4	$53,516,600
Totals			**1**	**71**	**$148,743,400**

Table 15-4. Summary of Historical Tornado Events, 1951 – 2024

Jurisdiction	Number of Events	Max Magnitude	Deaths	Injuries	Property and Crop Damage
City of New Orleans	24	EF3	1	71	$148,743,400
Loyola University	0	-----	-----	-----	-----
Tulane University	0	-----	-----	-----	-----
Housing Authority of New Orleans	0	-----	-----	-----	-----
New Orleans Redevelopment Authority	0	-----	-----	-----	-----
Sewage and Water Board of New Orleans	0	-----	-----	-----	-----
Totals	**24**	**EF3 (Max Extent)**	**1**	**71**	**$148,743,400**

There have been four recorded events since the 2021 Plan Update.

Significant Events

February 13, 2007

In the early morning, rotating supercell storms in southeastern Louisiana led to the formation of two EF2 tornadoes in the City of New Orleans. The first tornado touched down in neighboring Jefferson Parish before moving north into portions of the Uptown and Carrolton areas within the City of New Orleans. Significant damage was observed along this tornado's 6.5-mile path to numerous residential and commercial structures, including collapsed roofs and exterior walls. The second tornado touched down just south

of the intersection of Franklin Avenue and Prentiss Street, then moving northeast across Pontchartrain Park toward the Industrial Canal. This tornado caused major damage to several structures as well as one fatality, an occupant of a travel trailer which was destroyed in the tornado. In total, these two tornadoes reportedly destroyed 32 homes, damaged 295 others, and caused 25 injuries. Total property damage was estimated at $4,683,200 (2025 dollars).

February 7, 2017

A very large 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 EF2 tornado. In this area, numerous power poles were snapped and several buildings suffered significant roof damage. The tornado then traveled east, where its worst impacts were felt along Grant Street from read Boulevard to Chalmark Drive. In this area, dozens of structures were damaged, with impacts including blown off roofs, collapsed walls, and complete destruction of the top floors of several two-story homes. Additional impacts along the tornado's path included a rolled rail tanker car, damage to the NASA Michoud facility, and multiple bent steel electrical transmission poles. In total, the tornado caused moderate to severe damage to 638 homes, approximately half of which were considered total losses. Additionally, the tornado resulted in 33 injuries, with six of those considered serious. Total property damages were estimated at $38,200,000 (2025 dollars).

March 22, 2022

A large, unstable airmass brought severe weather to southeastern Louisiana resulting in the formation of five tornadoes, two of which were EF0 tornadoes occurring in the City of New Orleans. The first moved into the planning area from Jefferson Parish near Wyoming Street, causing minor tree and structural damage along a 2.5-mile path before extending into St. Bernard Parish. A second tornado moved into the City of New Orleans from St. Bernard Parish near the Intercoastal waterway, with damage reported on the east side of the waterway in New Orleans East. The greatest impacts were generally in the area bounded by Read Boulevard, Chef Menteur Boulevard, Pressburg Street, and Good Drive. Impacts in this location consisted of downed trees and utility poles, roof and siding damage to structures, and damage to vehicles in the area. Between these two tornadoes, total property damage was estimated at $1,657,500 (2025 dollars).

December 14, 2022

Several supercell thunderstorms across southeast Louisiana and southern Mississippi led to the formations of 6 tornadoes across the region. Among these was an EF3 tornado which crossed the Westbank Expressway into the City of New Orleans from Jefferson Parish. As the tornado moved into Algiers, it completely destroyed one home and significantly damaged three others along Tita Street. Additionally, a church on Wiltz Lane

was also shifted from its foundation and destroyed. Four injuries were also reported, in addition to the estimated $53,516,600 (2025 dollars) in total property damage.

Climate Change Considerations

According to the National Oceanic and Atmospheric Administration (NOAA), the average annual number of EF1+ tornadoes is stable and has not shown a significant increase or decrease so far. However, the number of violent, clustered tornado outbreaks, meaning events with 16 or more EF1+ tornadoes, are increasing in frequency across the U.S., with a noticeable eastward shift in activity toward the Southeast, including Louisiana and the New Orleans area. While total annual U.S. tornado numbers remain relatively stable, the intensity and concentration of outbreaks in this region have grown.[5] The impacts on the frequency and severity of tornado events due to climate change can be hard to understand and results are generally inconclusive.[6]

Probability of Future Events

Tornadoes can occur at any time of year and at any time of day, but they are typically more common in the spring months during the late afternoon and evening hours. A smaller, high frequency period can emerge in the fall during the brief transition between the warm and cold seasons. With 24 historical events over a 74-year reporting period, the City of New Orleans planning area can anticipate a tornado touchdown approximately once every three years. This frequency supports a "Likely" probability of future events for the City of New Orleans planning area, meaning an event is probable within the next three years. Climate change projections do not necessarily indicate increases in tornado frequency overall, however, larger tornado outbreaks and tornadoes outside of the traditional severe weather season may occur more often.

Vulnerability and Impact

Because tornadoes often cross jurisdictional boundaries, all existing and future buildings, facilities, and populations in the City of New Orleans are considered to be exposed to this hazard and could potentially be impacted. The damage caused by a tornado is typically a result of high wind velocity, wind-blown debris, lightning, and large hail.

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[5]National Oceanic and Atmospheric Administration. Is tornado frequency increasing across the U.S.? https://www.weather.gov/lmk/niu_tornado_frequency_study#:~:text=A%20study%20published%20in%20*npj%20Climate%20and,A%20significant%20upward%20trend%20in%20tornado%20frequency.

[6] National Oceanic and Atmospheric Administration. Tornadoes and Climate Change. https://www.noaa.gov/sites/default/files/2023-10/Tornadoes_Climate_OnePager_July2023.pdf.

The average tornado moves from southwest to northeast, but tornadoes have been known to move in any direction. Consequently, vulnerability of humans and property is difficult to evaluate since tornadoes form at different strengths, in random locations, and create relatively narrow paths of destruction. Although tornadoes strike at random, making all buildings vulnerable, three types of structures are more likely to suffer damage:

- Manufactured Homes;
- Homes built of peer and beam construction (more susceptible to lift); and
- Buildings with large spans, such as shopping malls, gymnasiums, and factories.

Tornadoes can be a significant threat to people as they could be struck by flying debris, falling trees or branches, utility lines, and poles. Blocked roads could prevent first responders from responding to calls. Tornadoes commonly cause power outages which could cause health and safety risks to residents and visitors,.

The City of New Orleans features a relatively small number of mobile or manufactured homes; these structures are typically more vulnerable to tornado events than site-built structures. The U.S. Census data indicates a total of 874 (less than one percent of total housing stock) manufactured homes located in the City of New Orleans. The age and construction of many New Orleans homes is a vulnerability, as 75 percent (146,793 structures) of the housing structures in the City of New Orleans were built before 1980 and many are built of peer and beam construction. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damage during significant tornado events (Table 15-5).

Table 15-5. Structures at Greater Risk by Participating Jurisdiction

Jurisdiction	Structures
	SFR Built Before 1980
City of New Orleans	146,793
Loyola University	21
Tulane University	144
Housing Authority of New Orleans (HANO)	2
New Orleans Redevelopment Authority (NORA)	1
Sewerage and Water Board of New Orleans (SWBNO)	59

While all citizens are at risk to the impacts of a tornado, forced relocation and disaster recovery disproportionately impacts low-income residents who lack the financial means

to travel, afford a long-term stay away from home, or rebuild or repair their homes. The elderly, children, and people with a disability may have trouble taking shelter due to mobility issues or a lack of awareness, making them more susceptible to injury or harm. In addition, people who speak a language other than English may face increased vulnerability due to language barriers that limit their access to important information such as weather-related warnings and instructions regarding safety measures.

The population over 65 in the City of New Orleans is estimated at 16 percent of the total population and children under the age of 5 are estimated at 6 percent. The population with a disability is estimated at 14 percent of the total population. An estimated 23 percent of the planning area population live below the poverty level and 3 percent of the populations speak English "less than very well" (Table 15-6).

Table 15-6. Populations at Greater Risk[7]

Jurisdiction	Population				
	65 and Older	Under 5	With a Disability	Below Poverty Level	Limited English Speaking
City of New Orleans	61,879	20,845	52,249	84,984	11,359

Participating educational institutions and special districts also have vulnerable populations based on work location, such as employees that work outdoors and may be subject to severe weather conditions (Table 15-7).

Table 15-7. Populations at Greater Risk by Participating Special District

Special District	Population
	Works Outdoors
Loyola University	73
Tulane University	152
Housing Authority of New Orleans (HANO)	0
New Orleans Redevelopment Authority (NORA)	0
Sewerage and Water Board of New Orleans (SWBNO)	700

[7] U.S. Census Bureau 2023 data for The City of New Orleans.

The City of New Orleans Planning Team identified the following critical facilities as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by tornado events (Table 15-8). The critical infrastructure with the greatest vulnerability to tornadoes are power and communications facilities. Failures of these facilities can result in a loss of service and cascading impacts such as posing enormous risk to individuals dependent on electricity as a medical necessity. For a comprehensive list of critical facilities for each participant, please see Appendix F.

Table 15-8. Critical Facilities Vulnerable to Tornado Event

Critical Facilities	Potential Impacts
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers	• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Tornado winds can damage roofs, building facades and parking structures. • Emergency vehicles can be damaged by falling trees or flying debris. • Power outages could disrupt communications, delaying emergency response times. • Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities. • Debris/downed trees can impede emergency response vehicle access to areas. • First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	• Structures can be damaged by falling trees or flying debris. • Power outages could disrupt critical care. • Evacuations may be necessary due to extended power outages, fires, or other associated damage to facilities. • Airport operations could be disrupted due to high winds, power loss, and equipment damage. • Damaged or destroyed highway infrastructure may substantially increase the need for airport operations.

Critical Facilities	Potential Impacts
Commercial Supplier (Food, fuel, etc.)	• Facilities or infrastructure may be damaged, destroyed or otherwise inaccessible. • Tornado winds can damage cranes and port machinery. • Essential supplies like medicines, water, food, and equipment deliveries may be significantly delayed. • Additional emergency responders and critical aid workers may not be able to reach the area for days.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Utility vehicles can be damaged by falling trees or flying debris. • Power outages could disrupt communications, delaying emergency response times. • Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities. • Utility workers are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.

The total loss estimate due to tornado events in the City of New Orleans is $148,743,400 (2025 dollars), having an approximate average annual loss estimate of $2,010,000. Additionally, tornadoes have caused 71 reported injuries and one reported fatality within the planning area. In terms of structure and infrastructure damage, the impact of tornado events on the City of New Orleans, including all educational institutions and special districts, is considered minor severity of impact, meaning complete shutdown of critical facilities for up to one week, and more than 10 percent of property destroyed or with major damage. However, with one fatality and 71 injuries from past events, the severity of impact from tornadoes in the planning area is considered "Substantial," meaning multiple deaths are possible depending on the size and extent of the event.

Table 15-9. Estimated Average Annual Losses by Jurisdiction

Jurisdiction	Total Property & Crop Loss	Average Annual Loss Estimates
City of New Orleans	$148,743,400	$2,010,000
Loyola University	$0	$0
Tulane University	$0	$0

Jurisdiction	Total Property & Crop Loss	Average Annual Loss Estimates
Housing Authority of New Orleans	$0	$0
New Orleans Redevelopment Authority	$0	$0
Sewage and Water Board of New Orleans	$0	$0
Totals	**$148,743,400**	**$2,010,000**



Section 16

Tropical Cyclone

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Section 16: Tropical Cyclone

Hazard Description



The Lakeview neighborhood in New Orleans underwater on September 9, 2005, following Hurricane Katrina. Photo courtesy of The Times-Picayune.

Hurricanes, tropical storms, and typhoons, collectively known as tropical cyclones, are among the most devastating naturally occurring hazards in the United States. As a tropical cyclone develops, the barometric pressure at its center falls and wind speeds increase. If the atmospheric and oceanic conditions are favorable, it can intensify into a tropical depression with wind speeds up to 38 miles per hour. When maximum sustained winds reach or exceed 39 miles per hour, the system is designated a tropical storm, given a name, and closely monitored by the National Hurricane Center in Miami, Florida. When sustained winds reach or exceed 74 miles per hour, the storm becomes a hurricane. At this point, the intensity of a landfalling hurricane is expressed in categories relating wind speeds to potential damage.

Tropical cyclones affecting the City of New Orleans typically form over warm waters of the tropical Atlantic or Caribbean Sea before rapidly intensifying in the Gulf of America. These storms are characterized by a relatively calm eye at the center, surrounded by an eyewall composed of dense clouds that contain the storm's most severe winds. Beyond the eyewall are the storm's outer rainbands, consisting of thunderstorms rotating around the eye of the cyclone. While the exact size of a tropical cyclone varies, the average hurricane can span several hundred miles in diameter, with tropical-storm-force winds often extending 100–300 miles from the center.

Tropical cyclones can be incredibly powerful storm systems which bring several risks beyond damaging straight-line winds. Heavy rainfall and storm surge can cause catastrophic flooding along the coast and inland. In the City of New Orleans, the intense and rapid inundation from tropical cyclones can result in devastating failures of the City's levee system, as was seen during Hurricane Katrina in 2005. The overall hazard of a tropical cyclone depends on numerous factors, including wind speed, storm size, rainfall, forward speed, and angle of approach.

SECTION 16: TROPICAL CYCLONE

Location

The official Atlantic U.S. hurricane season lasts from June to November, and the City experiences most hurricanes and tropical storms during this season. The City of New Orleans is in a high-risk area for major hurricane wind speeds of 111 miles per hour (mph) or higher.[1]

The City of New Orleans, including all educational institutions and special districts, is located in southeastern Louisiana along the Gulf Coast. Due to its low elevation, proximity to the coast, and reliance of levee and pump systems, the planning area is vulnerable to threats directly and indirectly related to a hurricane event, such as storm surge, high-force winds, and heavy rainfall. Within the city, the lowest-lying neighborhoods and areas near levees are at elevated risk of levee failure and major flooding during tropical cyclone events. These include the Lower Ninth Ward near the Industrial Canal, low-lying areas between Lake Pontchartrain and Lake Borgne, and Gentilly.

A tropical cyclone's angle of approach is a critical driver of risk in the City of New Orleans. Storms approaching from the south or southeast present the greatest storm surge threat, as surges are pushed directly into Lake Pontchartrain and surrounding waterways, increasing stress on the canals and levee system. Weaker storms approaching from the south or southeast may result in more intense and prolonged surge and flooding impacts than stronger storms approaching from other angles.

Extent

Hurricanes are categorized according to the strength and intensity of their winds using the Saffir-Simpson Hurricane Scale (Table 16-1). A Category 1 storm has the lowest wind speeds, while a Category 5 hurricane has the highest. Wind speed is only one measure of the potential impact of a tropical cyclone. A lower category storm can inflict greater damage than higher category storms depending on where they strike, the amount of storm surge, other weather they interact with, how slow they move, and the amount of rainfall.

[1] Source: National Oceanic and Atmospheric Administration, https://www.nhc.noaa.gov/climo/

Table 16-1. Extent Scale for Hurricanes[2]

Category	Maximum Sustained Wind Speed (Mph)	Minimum Surface Pressure (Millibars)	Storm Surge (Feet)
1	74 – 95	Greater than 980	3 – 5
2	96 – 110	979 – 965	6 – 8
3	111 – 130	964 – 945	9 – 12
4	131 – 155	944 – 920	13 – 18
5	155+	Less than 920	19+

Based on the historical storm tracks, the majority of tropical cyclones in or near the planning area are tropical storms at landfall. While the average anticipated extent in the City of New Orleans is a Category 1 storm, the maximum anticipated extent is a Category 5 hurricane.

Historical Occurrences

The last known system to track across the City of New Orleans was Hurricane Francine in 2024. Historical tropical cyclones that have tracked near the planning area, bringing storm systems, excessive precipitation, and potentially damaging wind to the City of New Orleans are presented in Figure 16-1 and Figure 16-2. According to the historical hurricane tracks from NOAA's National Hurricane Center, there have been 71 storms known to come within 300 miles of the City of New Orleans from 1996 through 2024. These storm tracks are presented in Figure 16-1 below. A 300-mile radius is used to capture large systems with significant impact potential on the New Orleans region, regardless of the storm center track. As demonstrated by Ida and Gustav, the damaging impacts often reach far beyond their center.

[2] Source: National Hurricane Center, https://www.nhc.noaa.gov/HAW2/english/basics/saffir_simpson.shtml

Figure 16-1. Hurricane Storm Tracks within a 300 Mile Radius

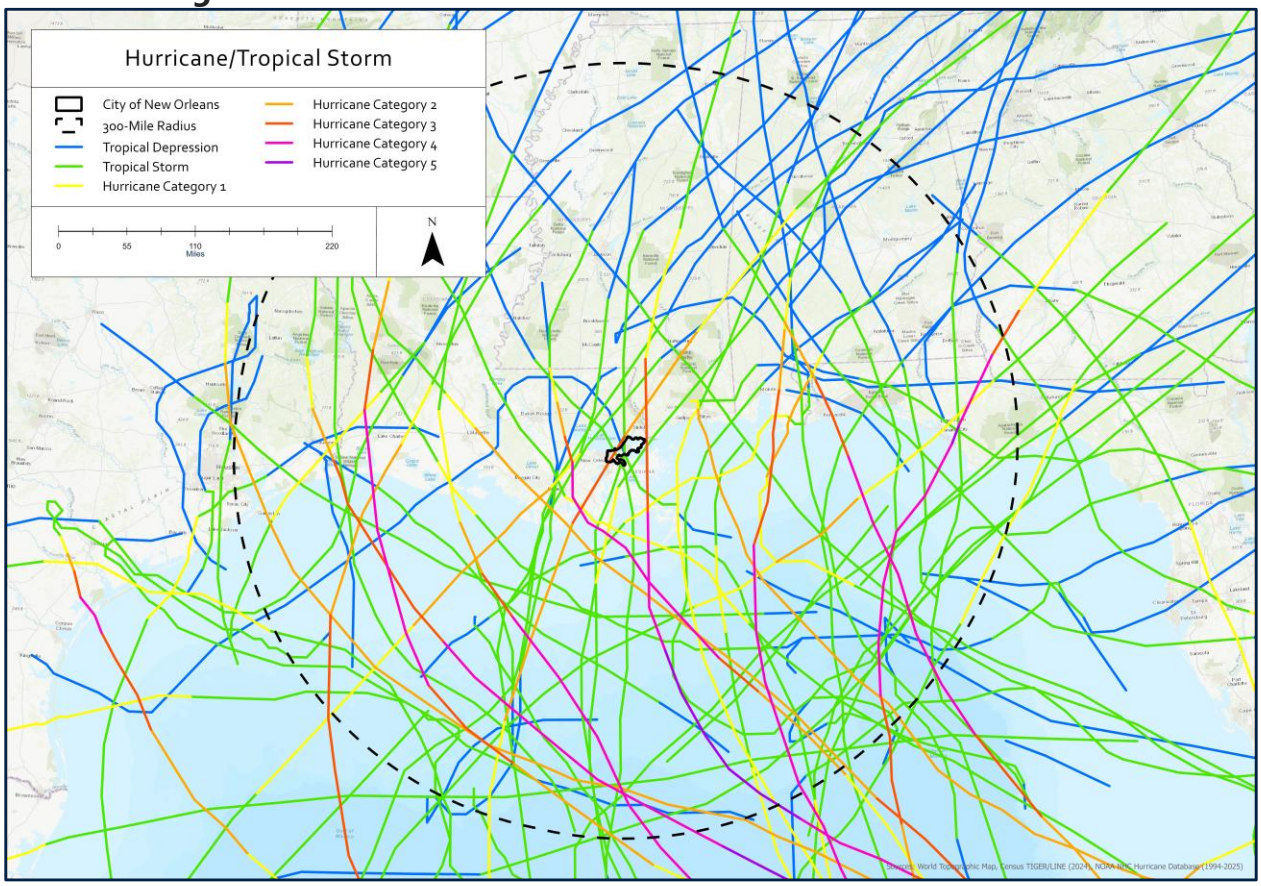


Figure 16-2 identifies selected storm tracks for six hurricanes which resulted in major impacts within the City of New Orleans planning area.

Figure 16-2. Selected Historically Significant Hurricane Storm Tracks

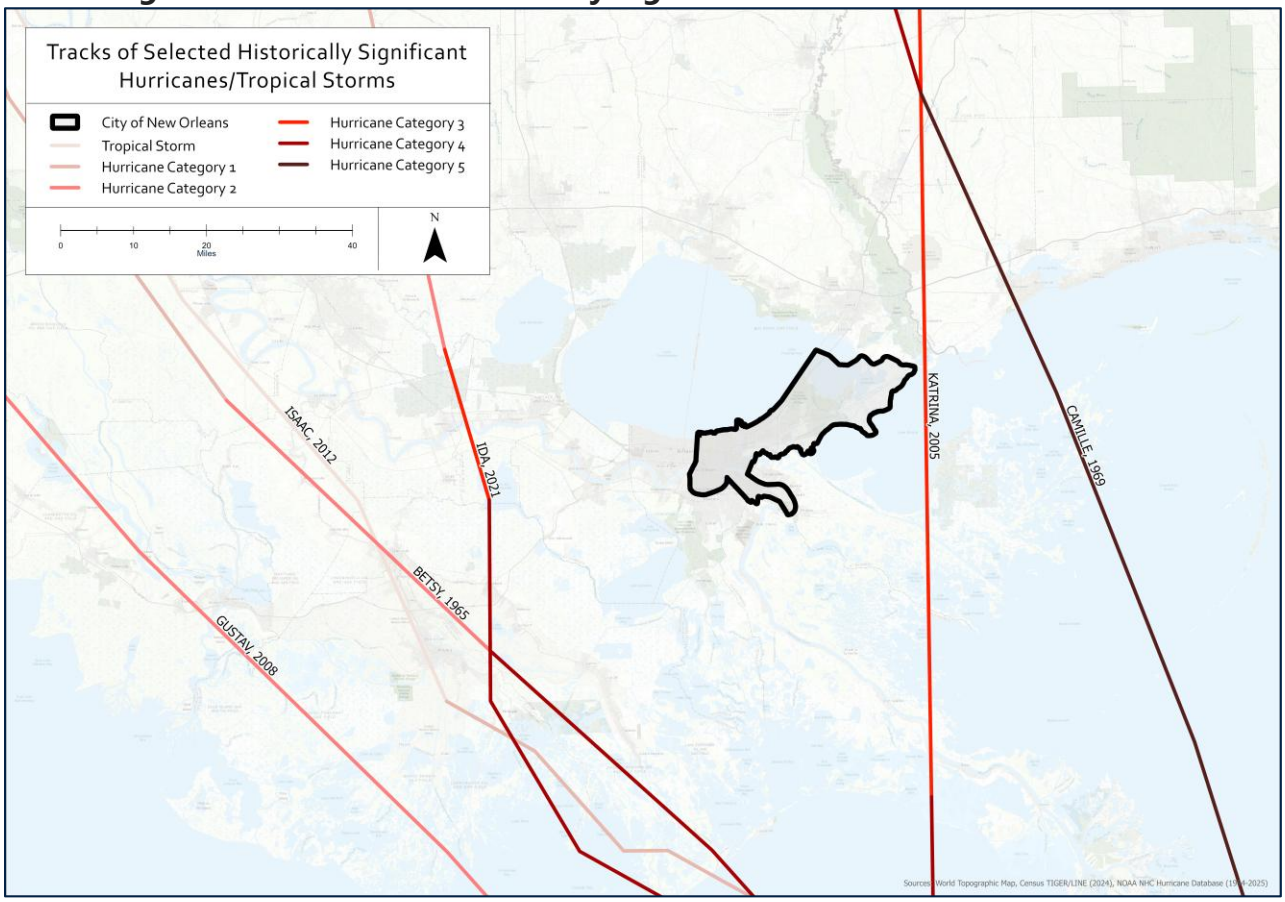


Table 16-3 lists the storms that have impacted the City of New Orleans from 1996 through 2024. To create the most comprehensive dataset possible, this analysis includes all NCEI events related to tropical cyclones including hurricanes, tropical storms, storm surge, and coastal flooding. Where available, this analysis also includes federally declared Individual Assistance (IA) and Public Assistance (PA) dollar obligations, insured losses data, and other tropical cyclone losses reported by the Planning Team. Not all events reported by the NOAA National Hurricane Center are reported by the NCEI, so some damages and events may be underreported. Historical hurricane data for the City of New Orleans is provided on a parish wide basis by the NCEI and NOAA databases.[3]

[3] Note: Some of these events were reported under flooding or storm surge in the NCEI database, and an analysis was performed to cross reference applicable hurricane and tropical storm events to create the most comprehensive dataset possible.

Table 16-2. Historical Tropical Cyclone Events, 1996 – 2024[4]

Jurisdiction	Date	Storm Name	Category (Max)	Deaths	Injuries	Property and Crop Damage
City of New Orleans	7/17/1997	Danny	Category 1	0	0	$0
City of New Orleans	09/10/1998	Frances	Tropical Storm	0	0	$8,349,600
City of New Orleans	09/19/1998	Hermine	Tropical Storm	0	0	$0
City of New Orleans	09/27/1998	Georges	Category 4	0	0	$11,650,600
City of New Orleans	06/07/2001	Allison	Tropical Storm	0	0	$134,000
City of New Orleans	08/04/2002	Bertha	Tropical Storm	0	0	$0
City of New Orleans	09/14/2002	Hanna	Tropical Storm	0	0	$0
City of New Orleans	09/25/2002	Isidore	Category 3	0	0	$11,215,100
City of New Orleans	10/02/2002	Lili	Category 4	0	0	$9,707,200
City of New Orleans	06/30/2003	Bill	Tropical Storm	0	0	$3,857,600
City of New Orleans	09/15/2004	Ivan	Category 5	0	0	$1,075,100
City of New Orleans	10/09/2004	Matthew	Tropical Storm	0	0	$21,800
City of New Orleans	07/05/2005	Cindy	Category 1	0	0	$28,047,000
City of New Orleans	07/10/2005	Dennis	Category 4	0	0	$0
City of New Orleans	08/28/2005	Katrina	Category 5	638	0	$37,085,965,400
City of New Orleans	09/23/2005	Rita	Category 5	0	0	$6,949,400
City of New Orleans	09/01/2008	Gustav	Category 4	0	0	$10,906,200

[4] Note: Values are in 2025 dollars.

Jurisdiction	Date	Storm Name	Category (Max)	Deaths	Injuries	Property and Crop Damage
City of New Orleans	09/11/2008	Ike	Category 4	0	0	$145,200
City of New Orleans	11/09/2009	Ida	Category 2	0	0	$0
City of New Orleans	09/02/2011	Lee	Tropical Storm	0	0	$49,300
City of New Orleans	08/28/2012	Isaac	Category 1	0	0	$125,834,100
City of New Orleans	06/20/2017	Cindy	Tropical Storm	0	0	$0
City of New Orleans	07/12/2019	Barry	Category 1	0	0	$0
City of New Orleans	10/09/2020	Delta	Category 4	0	0	$183,400
City of New Orleans	10/28/2020	Zeta	Category 3	1	1	$62,440,600
City of New Orleans	06/19/2021	Claudette	Tropical Storm	0	0	$17,600
City of New Orleans	08/28/2021	Ida	Category 4	1	1	$984,218,200
City of New Orleans	09/11/2024	Francine	Category 2	0	1	$3,682,200
Totals				**640**	**3**	**$38,354,449,600**

Ten events have occurred since the 2020 Plan.

Several of the participating educational institutions and special districts reported tropical cyclone impacts to their facilities and staff which are separate from the parish-wide data. Table 16-3 provides a summary of fatalities, injuries, and damages sorted by participating jurisdiction.

Table 16-3. Historical Tropical Cyclone Impacts Summary, 1996 – 2024

Jurisdiction	Deaths	Injuries	Property and Crop Damage
City of New Orleans	640	2	$38,518,018,900
Loyola University	0	0	$192,600
Tulane University	0	1	$25,077,900
Housing Authority of New Orleans	0	0	$0
New Orleans Redevelopment Authority	0	0	$0
Sewage and Water Board of New Orleans	0	0	$11,160,200
Totals	**640**	**3**	**$38,554,449,600**

Significant Events

Between 1996 and 2024, there have been 21 tropical cyclone events which received emergency or major disaster declarations (Table 16-4). These declarations were related to variety hurricanes and tropical storms, with major systems including Hurricane Katrina, Hurricane Ida and Hurricane Francine.

Table 16-4. Disaster Declarations for Tropical Cyclone, 1996-2024

Year	Declaration Title	Declaration Type	Disaster No.
1998	Hurricane Georges/Tropical Storm Frances	DR	1246
2001	Tropical Storm Allison	DR	1380
2002	Tropical Storm Isidore	DR	1435
2003	Hurricane Lili	DR	1437
2004	Hurricane Ivan	DR	1548
2005	Hurricane Katrina	DR	1603

Year	Declaration Title	Declaration Type	Disaster No.
2005	Hurricane Rita	DR	1607
2008	Hurricane Gustav	DR	1786
2008	Hurricane Ike	DR	1792
2012	Hurricane Isaac	DR	4080
2018	Tropical Storm Nate	EM	3392
2019	Hurricane Barry	DR	4458
2020	Tropical Storm Cristobal	EM	3527
2020	Tropical Storms Laura and Marco	EM	3538
2020	Hurricane Laura	DR	4559
2020	Hurricane Sally	EM	3543
2021	Hurricane Delta	DR	4570
2021	Hurricane Zeta	DR	4577
2021	Hurricane Ida	DR	4611
2021	Tropical Storm Nicholas	EM	3574
2024	Hurricane Francine	DR	4817

Hurricane Katrina on August 23 – August 31, 2005 (DR-1603 and EM 3212)
On August 23, 2005, a tropical depression formed over the southeastern Bahamas, becoming Tropical Storm Katrina the following day. The system made landfall on the southeast coast of Florida as a Category 1 hurricane on August 25th. After crossing South Florida and entering the Gulf of America, Katrina rapidly intensified, reaching Category 5 strength on August 28th before weakening slightly. The storm made landfall near Buras, Louisiana, approximately 60 miles southeast of New Orleans, on August 29th as a Category 3 hurricane with sustained winds exceeding 125 mph.

In the City of New Orleans, flooding began an hour before landfall and by 9:00 AM, levee breaks were reported along the Industrial Canal and the 17th Street Canal. This resulted in flooding of the Lower Ninth Ward and eastern New Orleans. The highest storm surge reported in New Orleans was 19 feet in the eastern part of the city and 14 feet in the western portion.

Much of the flooding during Hurricane Katrina resulted from levee system failures, with floodwalls and levees failing in over 50 locations across the city. Approximately 80 percent of the city was underwater at the storm's peak, making Katrina one of the worst urban floods in U.S. history. Damage to several pump stations further prevented drainage, causing floodwater to remain trapped within the city. The pumps were finally functioning 43 days after Hurricane Katrina made landfall.

In areas of the Gulf Coast located inland from the storm surge, the primary sources of damage were strong winds and blown debris. By the afternoon of August 29th, high winds from the storm damaged the Superdome, placing the sheltered population at further risk. Maximum sustained winds were estimated to be 125 mph. On Bourbon Street, wind speeds exceeded 105 mph, tearing shutters from buildings. Many of the high-rises experienced extensive window damage. Katrina's winds damaged both residential and commercial buildings across the city, tearing roofs and breaking exterior windows and doors, which allowed wind-driven rain to penetrate interiors.

The high winds, storm surge, and prolonged storm conditions caused significant erosion along the coastline, leading to increased long-term vulnerabilities to hurricane, storm surge, and flooding.

Hurricane Katrina disproportionately impacted low-income families, elderly residents, and those without adequate transportation to evacuate. In the Lower Ninth Ward and other neighborhoods where residents were unable to evacuate, rising floodwaters filled homes, and some individuals tragically drowned inside their residences. According to the University of Colorado Boulder, people over the age of 65 only made up 12 percent of the population in the City of New Orleans at this time but made up 67 percent of the fatalities associated with Hurricane Katrina.

Hurricane Katrina resulted in major economic impacts, including the temporary shutdown of nearly all Gulf of America oil production. An estimated 20 offshore oil rigs sustained significant damage, which resulted in gas prices skyrocketing across the country in the weeks following. In the City of New Orleans, all major oil refineries were shut down temporarily, with many facing prolonged shutdowns due to extensive damage and power outages. At the refinery outage's peak, nearly 29 percent of U.S. refining capacity was shutdown. Katrina was responsible for spilling between 7 to 8 million gallons of oil throughout the region, largely caused by storage tank failure and the shut down and restart of production processes. Many of these releases were caused by storm surge flooding, though some resulted from strong winds.[5]

[5] Source: Newswise, https://www.newswise.com/articles/katrina-storm-surge-led-to-over-200-onshore-releases-of-petroleum-and-hazardous-materials-rivaling-exxon-valdez-oil-spill?utm_source=chatgpt.com

Katrina destroyed 100 of the 128 public school buildings in the City of New Orleans. Public schools were closed for the remainder of the school year, which led to 7,500 people losing their jobs. Thousands of families and students were displaced along the Gulf Coast, with more than half coming from New Orleans. The City's public school system was permanently restructured following Katrina, with schools gradually reopening in a new charter-based system in the 2006-2007 school year.

Hurricane Katrina's impact on the Southeast Louisiana Coast, and the City of New Orleans, was catastrophic. According to NCEI reports and local records, Hurricane Katrina caused an estimated $37,085,965,400 (2025 dollars) in damages for the City of New Orleans. Additionally, the NCEI reports 638 fatalities in the City of New Orleans alone. The city was faced with wide-spread destruction and severe damage to thousands of homes, businesses, and infrastructure, along with the displacement of an estimated 250,000 people. Power outages and transportation failures persisted for weeks following Katrina. Prolonged public health concerns also endured, such as harmful mold growth and mosquito infestations caused by homes sitting in floodwaters.

Figure 16-3. Aerial Footage of Katrina in the City of New Orleans[6]



[6] U.S. Department of War. 2005. Katrina. https://www.war.gov/Multimedia/Photos/igphoto/2001275634/.

Hurricane Rita on September 18 – September 26, 2005 (DR-1607 and EM-3260)
On September 24, 2005, Hurricane Rita made landfall in southwestern Louisiana, in Cameron Parish, as a Category 3 storm. Just three weeks after Hurricane Katrina's devastating impact on Louisiana, Hurricane Rita brought high winds and heavy rainfall. In the City of New Orleans, the maximum sustained winds were estimated at 34 mph, with wind gusts reaching an estimated 42 mph. The highest wind gusts recorded during Rita were estimated at 116 mph, and this was observed in Port Arthur, Texas. Repaired levees damaged by Hurricane Katrina were overtopped or breached along the Industrial Canal in New Orleans, causing renewed flooding in nearby areas of New Orleans and St. Bernard Parish, though the extent was far more limited than during Katrina. Most reported damages were associated with storm surge and estimated property damages for Hurricane Rita were $6,949,400 (2025 dollars), according to the NCEI.

Hurricane Zeta on October 24 – October 30, 2020 (DR-4577 and EM-3549)
Immediately following Hurricane Delta, Zeta developed into a tropical depression in the northwestern Caribbean on the afternoon of October 24th. After lingering in nearly the same area, Zeta strengthened and began moving northwest, making its first landfall on the Yucatán Peninsula on October 26th. As Zeta exited the Yucatán Peninsula, it had weakened but remained a strong tropical storm. As Zeta slowly strengthened, its track shifted from northwest to northeast, placing Louisiana directly in its path.

Zeta made landfall on October 28, 2020, as a Category 2 storm with maximum wind speeds of 110 mph. Zeta produced extensive damage across southeastern Louisiana with sustained winds measured at 87 mph and wind gusts measured at 110 mph. As a result, thousands of homes had minor structural damage and thousands of power poles were downed.

Leading up to the storm, the Orleans Parish issued voluntary evacuation orders for areas outside the hurricane and storm damage risk reduction system levees. This included Irish Bayou, Lake Catherine, and Venetian Isles. Several people were housed in a shelter for medical needs. Storm surge along Lake Pontchartrain peaked at 6.30 feet at West End (WEGL1), 5.32 feet near the Rigolets (RIGL1), 4.84 feet at New Canal (NWCL1), 4.21 feet at the Lakefront (PLAL1), and 4.04 feet at Chef Pass (CMPL1).

There was one reported injury and one reported fatality as a result of Hurricane Zeta. Estimated property damages for Hurricane Zeta were $62,440,600 (2025 dollars), which includes storm surge damages and direct damages reported from the Sewerage and Water Board of New Orleans.

Hurricane Ida on August 26 – September 4, 2021 (DR-4611 and EM-3568)
The ninth named storm, fourth hurricane, and second major hurricane of the 2021 Atlantic hurricane season, Ida originated in the Caribbean Sea on August 23, 2021, from a tropical wave. On August 26th, the wave developed into a tropical depression, which later became Tropical Storm Ida, near the Grand Cayman. While tracking northwestward, Ida intensified into a hurricane on August 27th, just before shifting westward over Cuba. The next day, Ida rapidly intensified over the Gulf of America, strengthening from a tropical depression to Category 4 hurricane in less than 72 hours. On August 29th, Ida made landfall near Port Fourchon, Louisiana.

The storm's impact caused the power grid to collapse, leaving over a million people without electricity during extreme heat and very humid conditions. Buildings across the region suffered both structural and roof damage, with some homes completely destroyed. Strong winds tore off awnings, caused buildings to sway, and pushed water from Lake Pontchartrain over its banks. In the City of New Orleans, the Coast Guard received over a dozen reports of breakaway barges. According to the National Weather Service (NWS), peak wind speeds recorded in the City of New Orleans were 113 mph.

Storm surge flooding also impacted areas outside the Hurricane and Storm Damage Risk Reduction System levees. Portions of U.S. Highway 90 were submerged under several feet of water, with peak inundation estimated at five to seven feet. In Venetian Isles, floodwaters reached a few feet deep, isolating the neighborhood and requiring stranded residents to be rescued by boat. Urban and flash flooding also occurred due to heavy rainfall (See Section 08). The NWS reported 10.74 inches of rain at the New Orleans Lakefront Airport.

Loyola University reported that Hurricane Ida destroyed the roof of its gymnasium. Tulane University also reported one injury due to Hurricane Ida. Estimated total property damages for Hurricane Ida were $984,218,200 (2025 dollars), which includes damages reported by the NCEI, Tulane University, the Sewerage and Water Board of New Orleans, and FEMA Public Assistance program claims.

Climate Change Considerations

Tropical cyclone events have the potential to pose a significant risk to people and property. The impact of climate change could produce larger, more severe hurricane events, exacerbating the current hurricane impacts.

Tropical cyclone intensities are projected to increase globally, meaning an increase in the destruction potential per storm. Additionally, tropical cyclone rainfall rates are expected

to increase in the future. Models project that, on average, rainfall near storms could rise by about 14 percent (ranging from 6 percent to 22 percent) if global temperatures increase by 2 °C.[7]

According to the Fifth National Climate Assessment, the likelihood of hurricanes stalling near the coast has increased in the Southeast region of the United States, exacerbating flooding risks. Rapid intensification of tropical systems is also expected to increase, meaning faster strengthening of storms prior to landfall. With additional global warming, more Atlantic hurricanes are expected to rapidly intensify to at least Category 4 and make landfall as more powerful storms.

The El Niño-Southern Oscillation (ENSO) is a recurring ocean-atmosphere cycle in the tropical Pacific that influences global weather patterns, including hurricane activity. The ENSO has two main phases, El Niño and La Niña, with El Niño being associated with warmer, wetter conditions in the southern United States. While global warming's effect on the ENSO is not certain, it is possible that ENSO impacts will be amplified, meaning higher likelihoods of extreme precipitation and flooding during El Niño conditions.

By 2050, sea levels in the region are projected to rise 16-23 inches (1.3-1.9 feet) relative to 2000. By 2100, the rise could reach 2.2-7.3 feet. Rising sea levels could lead to more frequent and severe coastal flooding and storm surge brought on by tropical cyclones, even before 2050.

Although the total number of storms in the Atlantic may decrease, increases in storm intensity and the likelihood of landfall may still lead to an overall increase in the severity of tropical cyclone impacts in the City of New Orleans.

Probability of Future Events

Based on historical occurrences of significant tropical cyclone events, the probability of future events is "Highly Likely", with an event probable in the next year for the City of New Orleans, including all educational institutions and special districts.

[7] Geophysical Fluid Dynamics Laboratory. Global Warming and Hurricanes. November 20, 2024. https://www.gfdl.noaa.gov/global-warming-and-hurricanes/.

Vulnerability and Impact

Tropical cyclone events can cause major damage to large areas; hence, all existing buildings, facilities, and populations are equally exposed and vulnerable to this hazard and could potentially be impacted. Historically, tropical cyclones have resulted in widespread damages, hundreds of fatalities and injuries, long-term economic, environmental, and social impacts.

Much of the City of New Orleans is situated below sea level, making it especially vulnerable to tropical cyclones. The city's "bowl-like" topography means that floodwaters do not naturally drain, often sitting in low lying areas for extended periods of time. Water must be actively pumped out using the city's drainage and pumping systems, which can delay recovery and exacerbate the impacts of flooding on homes, infrastructure, and businesses.

In the City of New Orleans, 75 percent of the Single-Family Residential (SFR) properties were built before 1980.[8] These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damage during significant events. In addition, manufactured homes are typically more vulnerable to hurricane events than typical site-built structures.

Table 16-5. Structures at Greater Risk

Jurisdiction	Structures	
	SFR Built Before 1980	Manufactured Homes
City of New Orleans	146,793	874

Table 16-6. Structures at Greater Risk by Special Districts

Jurisdiction	Structures
	SFR Built Before 1980
Loyola University	73
Tulane University	152
Housing Authority of New Orleans (HANO)	2
New Orleans Redevelopment Authority (NORA)	0

[8] U.S. Census Bureau American Community Survey Five-Year Estimates 2019-2023 data for City of New Orleans.

Jurisdiction	Structures
	SFR Built Before 1980
Sewerage & Water Board of New Orleans (SWBNO)	700

City of New Orleans Planning Team identified the following critical facilities as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by tropical cyclone events. For a comprehensive list of critical facilities for each participant, please see Appendix F.

Table 16-7. Critical Facilities Vulnerable to Tropical Cyclone Events

Critical Facilities	Potential Impacts
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers	• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Emergency vehicles may be inaccessible or damages and inoperable . • Power outages could disrupt communications, delaying emergency response times. • Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities. • Debris/downed trees can impede emergency response vehicle access to areas. • First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.
Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	• Structures can be damaged by falling trees or flying debris. • Power outages could disrupt critical care. • Backup power sources could be damaged. • Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities. • Evacuations may be necessary due to extended power outages, gas line ruptures, or structural damages to facilities. • Damage to the French Quarter, historic districts, and cultural landmarks could have both economic and cultural consequences. • Older structures built to less stringent building codes may suffer greater damage as they are typically more vulnerable

Critical Facilities	Potential Impacts
	to hurricane damage. In the City of New Orleans, 75 percent of homes were built before 1980, and 202 buildings and sites in the Parish are on the National Register of Historic Places, many of which pre-date modern building codes.
Commercial Supplier (Food, fuel, etc.)	• Facilities or infrastructure may be damaged, destroyed or otherwise inaccessible. • Essential supplies like medicines, water, food, and equipment deliveries may be significantly delayed.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Utility operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Utility vehicles can be damaged by falling trees or flying debris. • Hurricanes destroy substations, transmission lines, and poles, causing widespread outages. • Flooding from tropical cyclones can inundate chemical plants, refineries, and hazardous material sites. • Damage to or loss of power at pumping stations can prevent floodwaters from being removed, prolonging flooding in the city. • Debris/downed trees can impede emergency response vehicle access to areas. • Utility workers are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.

While tropical cyclones pose a risk to all residents, the impacts often fall disproportionately on vulnerable populations. Low-income households are particularly at risk, because they may lack the financial resources to evacuate, find temporary housing for extended periods of time, or repair and rebuild homes damaged or destroyed by storm surge and coastal flooding. In addition, factors like limited mobility, communication difficulties, medical needs, reliance on support services, transportation challenges, housing accessibility issues, and possible shortages in emergency shelter accommodations, contribute to the disproportionate impact on vulnerable populations.

The population over 65 in the City of New Orleans is estimated at 16 percent of the total population and children under the age of 5 are estimated at 6 percent. The population with a disability is estimated at 14 percent of the total population. People who speak a language other than English may face increased vulnerability due to language barriers

that limit their access to important information such as weather-related warnings and instructions regarding safety measures. An estimated 23 percent of the planning area population live below the poverty level and 3 percent of the population speaks English "less than very well."

Table 16-8. Populations at Greater Risk[9]

Jurisdiction	Population				
	65 and Older	Under 5	With a Disability	Below Poverty Level	Limited English Speaking
City of New Orleans	61,879	20,845	52,249	52,249	11,359

Storm track data was available for the past 150 years; however, property and crop loss data records in the NCEI are only available since 1996. Damage estimates are often difficult to determine following a significant event and are frequently underreported or unreported. Table 16-9 shows impact or loss estimation for storms impacting the City of New Orleans. Damages within the NCEI database are reported on a parish-wide basis. Annual loss estimates were based on the 29-year reporting period for such damages. The average annual loss estimate for the City of New Orleans planning area, including all educational institutions and special districts, is $1,322,567,200 (2025 dollars).

Table 16-9. Summary of Annualized Losses, 1996 – 2024

Jurisdiction	Total Property & Crop Loss	Average Annual Loss Estimates
City of New Orleans[10]	$38,354,449,600	$1,322,567,200

With major reported damages and multiple injuries and fatalities, the potential severity of impact from a tropical cyclone event for City of New Orleans planning area is considered "Substantial," meaning multiple deaths possible, complete shutdown of facilities for 30 days or more, and more than 50 percent of property destroyed or with major damage.

[9] U.S. Census Bureau Five-Year estimates

[10] Note: This estimate includes damages reported by special districts.



Section 17

Wildfire

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Section 17: Wildfire

Hazard Description

Wildfire is an unplanned fire burning in natural or wildland areas such as forests, shrublands, grasslands, or prairies.[1] Wildfires can start from both human causes, such as tossing a lit cigarette, and natural causes, such as lightning. According to the 2024 Louisiana State Hazard Mitigation Plan, most wildfires in Louisiana are caused by intentional acts of arson and negligence by people.

Wildfire risk is highest in the Functional Wildland Urban Interface (WUI). The WUI is described as the area where structures and other human improvements meet and intermingle with undeveloped wildland or vegetative fuels. Continued housing development in the WUI will put more people at a greater risk of catastrophic wildfire and put more pressure on land managers and fire department personnel to mitigate fire risk. While the City of New Orleans is significantly built out, vegetated and undeveloped areas can be found around the city. Key areas include the 100-acre Wisner Tract in City Park, the 27-acre Dillard Wetland, and some sparsely populated zones in New Orleans East and the Lower Ninth Ward. These areas consist of wetlands, bayous, and overgrown vacant land, particularly in neighborhoods still recovering from previous storm damage. These areas, particularly where vegetation and development intersect, pose the greatest wildfire risk. As population growth and redevelopment continue, even limited expansion into these vegetated areas may increase wildfire risk. The City of New Orleans WUI is presented in Figure 17-1 below.

Wildfires have the potential to spread quickly given the right environmental conditions, particularly within the WUI and intermix. The planning area has been experiencing hotter, drier climatic conditions in recent years, elevating wildfire risks in the wetlands and marshes surrounding the city. These factors put the City of New Orleans at a greater risk of wildfires. While the planning area is continually at some risk for wildfires, that risk is elevated during two periods each year: the winter wildfire season (February through April) and the summer wildfire season (September through November).

Wildfires spread based on the type and quantity of fuel that surrounds it. Wildfire fuels in the New Orleans WUI are characterized by a combination of dense, wet, and often organic materials from nearby swamps and wetlands, as well as typical urban vegetation. A key fuel source in this area is deep, compacted, and partially decomposed vegetative debris that can act as a carbon-based subterranean fuel, similar to peat. In this region, wildfires

[1] FEMA: https://hazards.fema.gov/nri/wildfire

are often associated with dry, marshy areas that can burn intensely during periods of drought. Marsh fires are challenging to combat as they are often located in remote areas, often on private land, and may burn below the surface, making fire suppression efforts difficult. The planning area is also subject to potential superfog conditions resulting from smoldering marsh fires. A superfog forms when damp organic material (like brush, leaves, and trees) smolders, releasing smoke and moisture that mixes with cooler air. This creates an extremely dense fog that restricts visibility to less than 10 feet, making it particularly dangerous for driving.

The amount of flammable material that surrounds a fire is referred to as the fuel load. Wildland fires are fueled almost exclusively by natural vegetation, while interface or intermix fires are urban/wildland fires in which vegetation and the built environment provide the fuel. Conditions in the weather and environment, such as drought, winds and extreme heat, can cause a fire to spread more quickly.[2] A wildfire often begins unnoticed and spreads quickly, lighting brush, trees, and homes on fire.

Location

The Southern Group of State Foresters Wildfire Risk Assessment Portal (SGSF WRAP) provides historical wildfire data for Louisiana communities along with mapping resources that include data layers on the WUI, ignition density, and fire damage potential for communities, along with multiple tips, recommendations and mitigation solutions for communities and residents. The SGSF WRAP was utilized to produce the maps found in this profile.

Wildfires can vary greatly in terms of size, location, intensity, and duration. While wildfires are not confined to any specific geographic location, they are most likely to occur in the wetlands, marshes, and forested areas surrounding the city, particularly during periods of extreme drought and high temperatures. The threat to people and property from a wildfire event is greater in the WUI (Figures 17-1 through 17-6). The zones used in the Functional WUI are described below. Critical facilities are only mapped within the Primary (Direct) Exposure Zone of the WUI, as these structures face the greatest risk from wildfire due to their proximity to flammable vegetation and potential fire pathways.

The **Primary (Direct) Exposure Zone** is burnable land cover within 75 meters of a structure. Reducing fire intensity and ember production in this zone would reduce the exposure of nearby buildings to heat and embers. Buildings in this zone also require hardening of the structure to resist ignition.

[2] NOAA Weather Forecasting: https://scijinks.gov/wildfires/

The **Secondary (Indirect) Exposure Zone** is non-burnable land cover within 1,500 meters of burnable land cover that is within 75 meters of a structure, meaning embers and home-to-home spread could reach within this zone. Indirectly exposed structures would benefit from hardening to resist ignition from embers and nearby structures, but defensible space is usually not required due to the heavily developed nature of the zone.

The **Wildfire Transmission Zone (Critical Fireshed)** is the unpopulated land within about 2.4 kilometers of a group of structures. Fires that originate within or spread to the Critical Fireshed have an immediate threat of reaching the nearby structures; fuel treatments that slow fire spread in this zone can reduce risk to these structures.

The **Sources of Ember Load to Buildings (SELB) Zone** is a critical area or burnable land cover that produces embers capable of reaching nearby buildings. Ember production is a function of fire type and intensity, and ember travel is a function of wind speed and direction. Fuel treatment in this zone is a priority for reducing ember load to the nearby buildings.

The **Little-to-No Exposure Zone** is non-burnable land that is within 75 meters of a structure but greater than 1,500 meters from a large contiguous block of burnable land cover. Flames, even from home-to-home spread, and embers are unlikely to reach the Little-to-No Exposure Zone. However, smoke and evacuations could still impact this area. Support should be given to those most vulnerable in the community. The need for a wildfire evacuation in this zone is unlikely.

Figure 17-1. Wildland Urban Interface Map – City of New Orleans

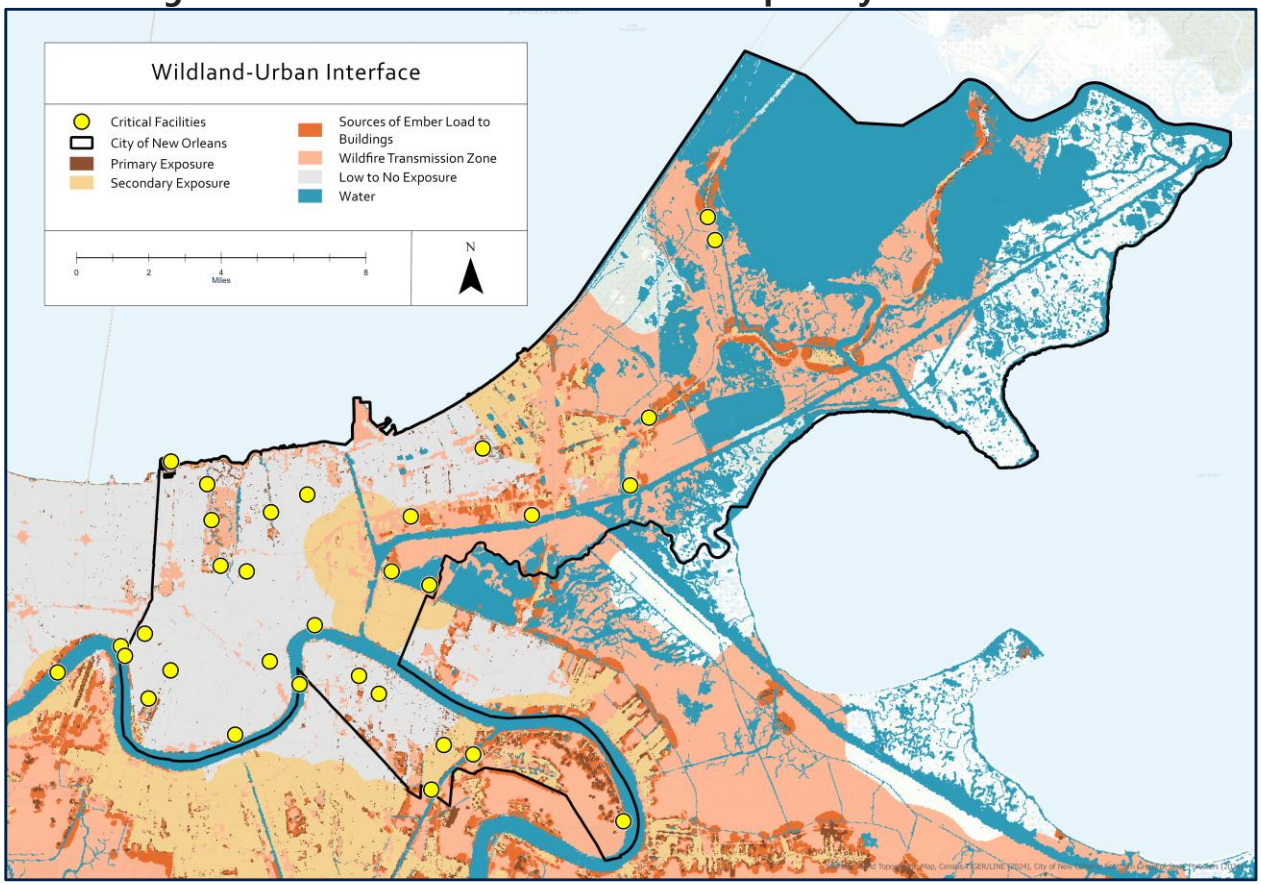


Figure 17-2. Wildland Urban Interface Map – Loyola University

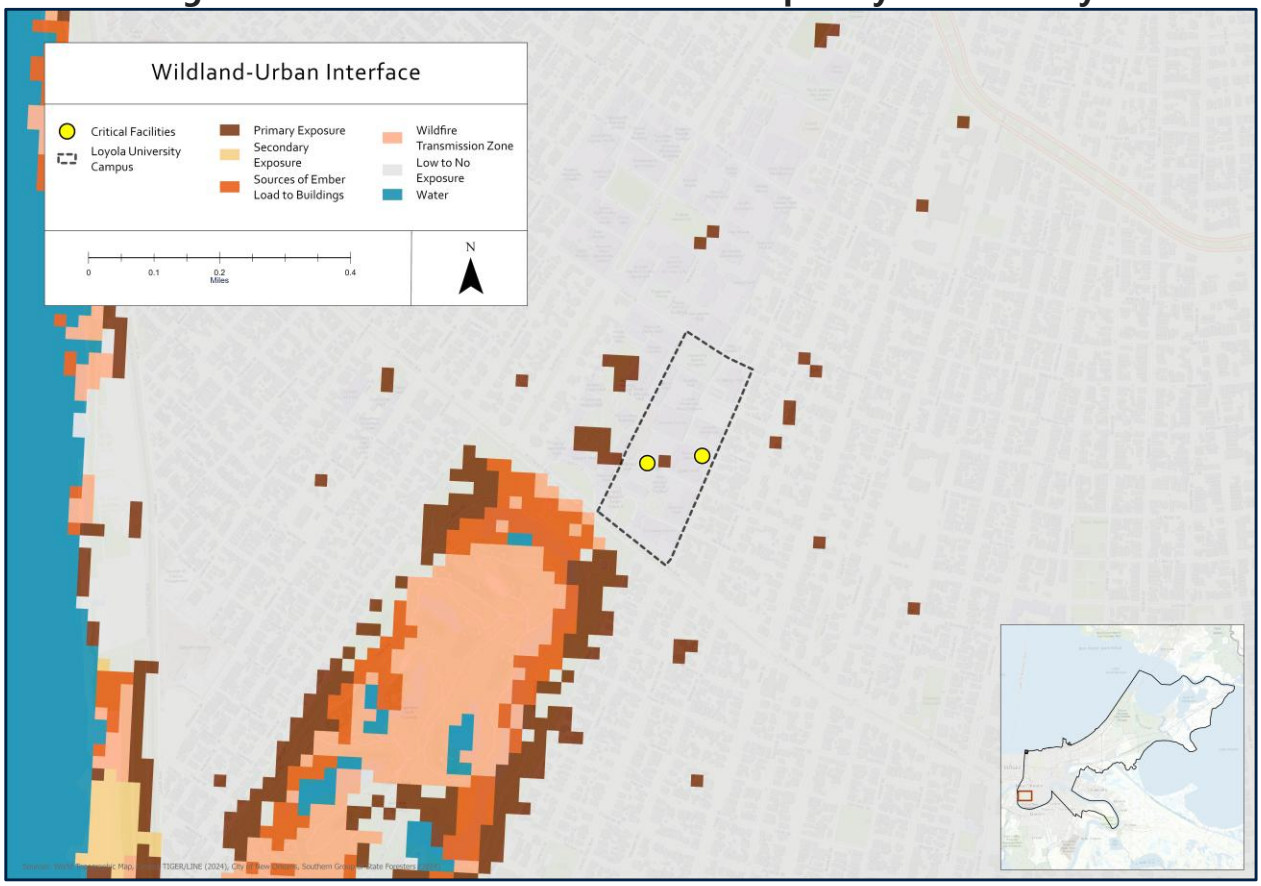


Figure 17-3. Wildland Urban Interface Map – Tulane University

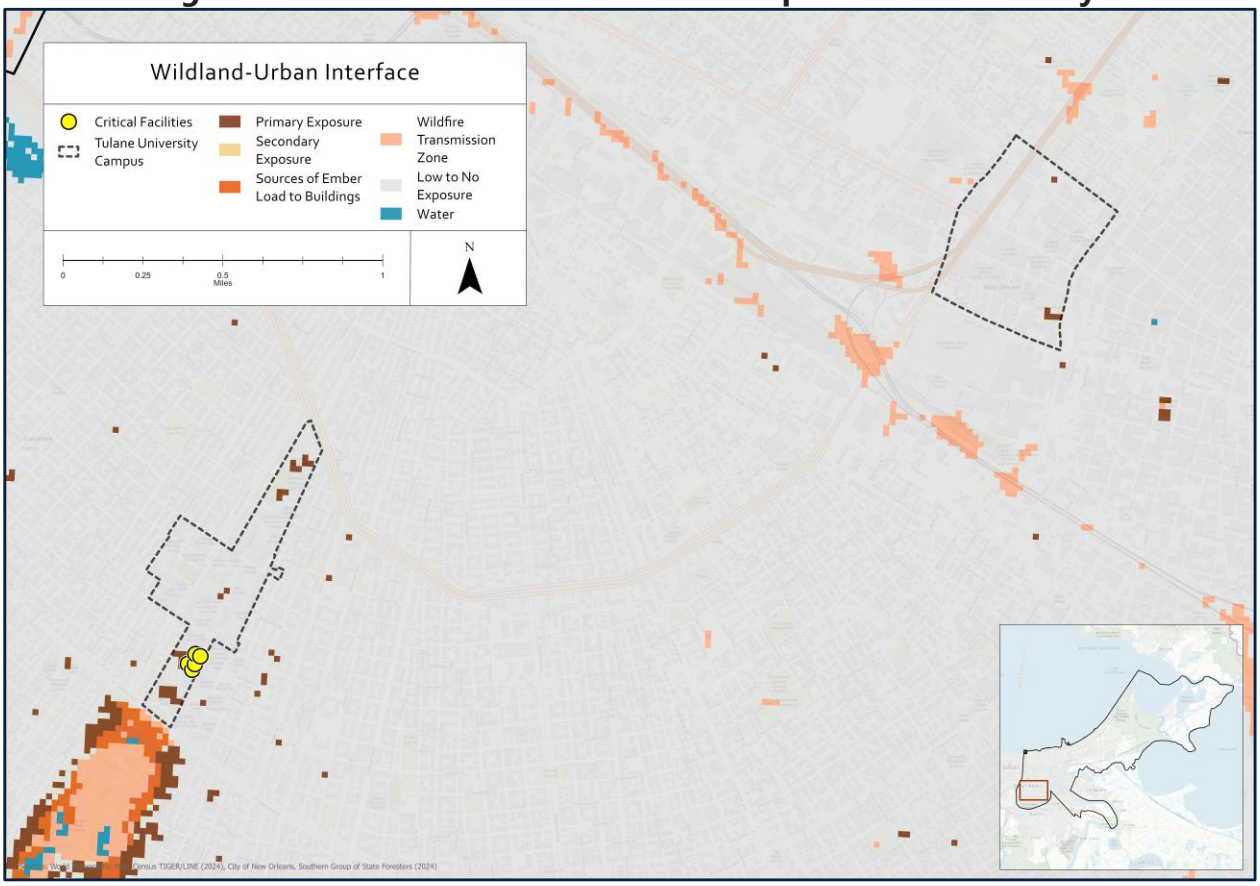
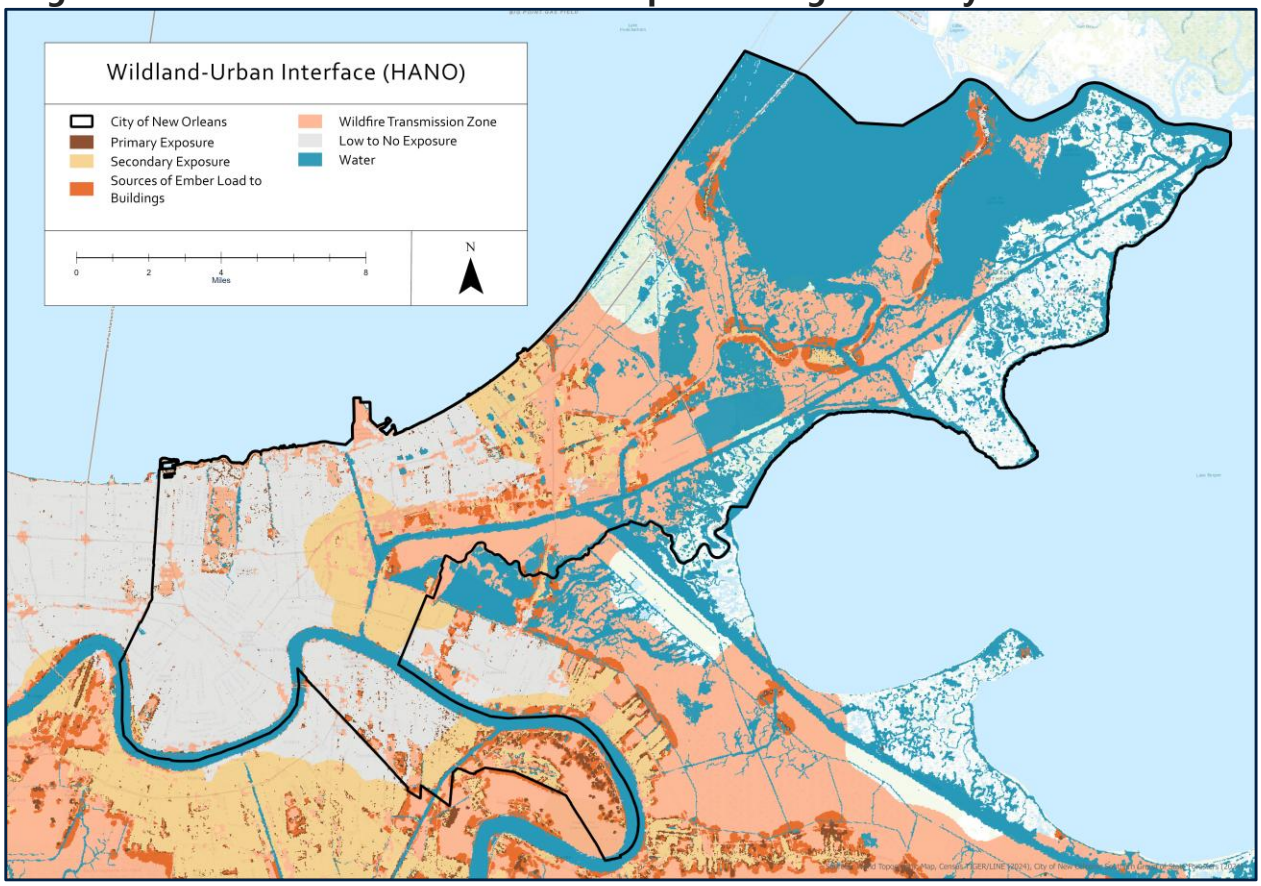
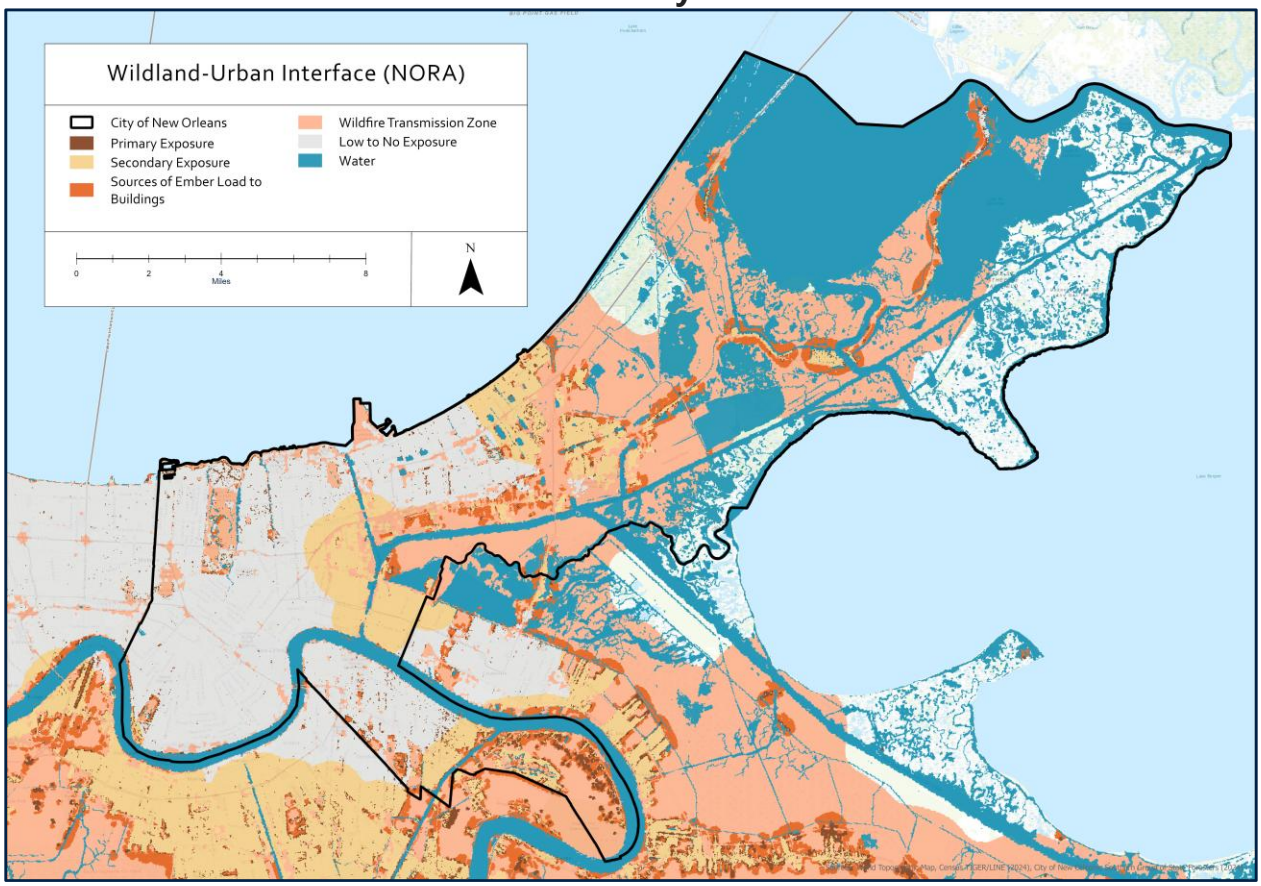


Figure 17-4. Wildland Urban Interface Map – Housing Authority of New Orleans[3]



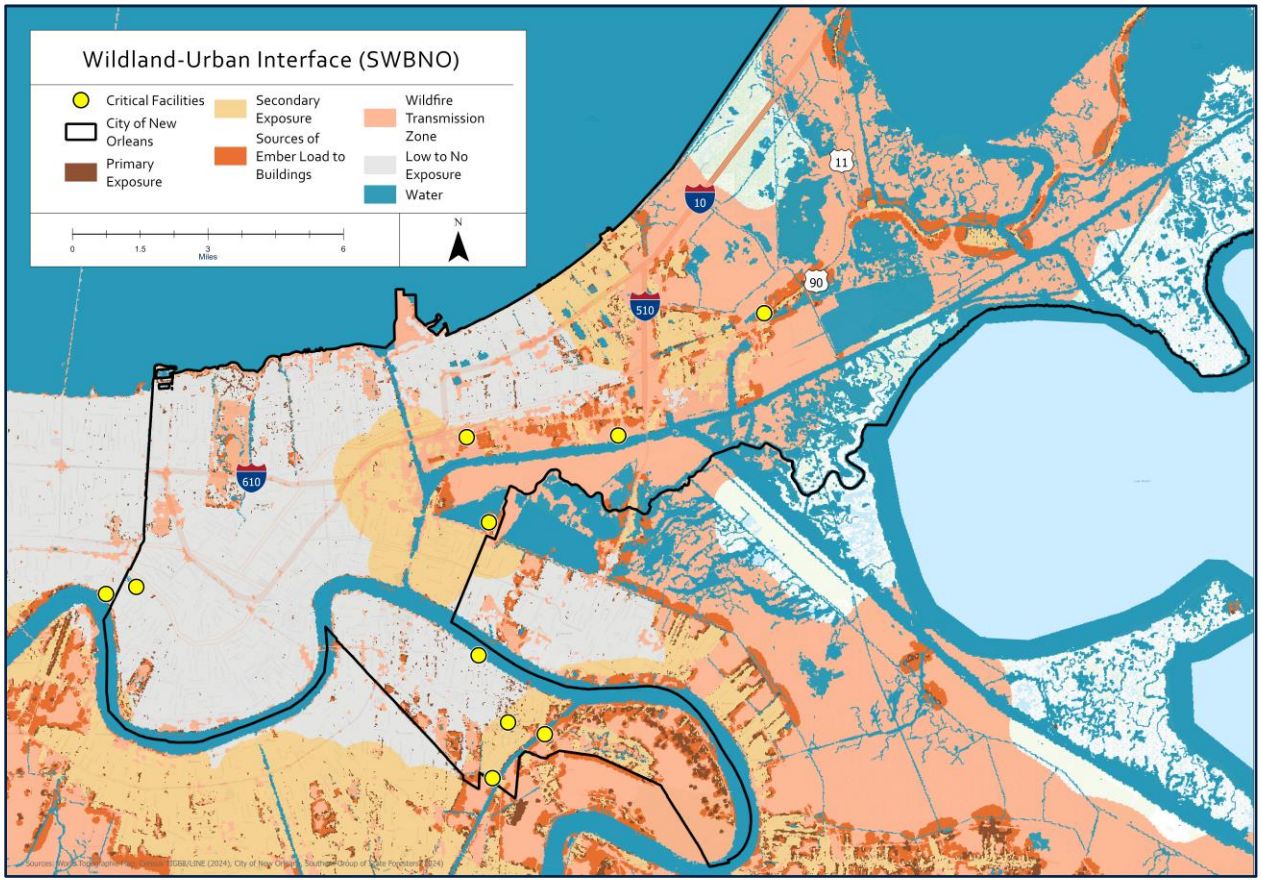
[3] Note: There are no critical facilities submitted by HANO which intersect with the Primary Exposure zone. HANO is a public entity established to service the City of New Orleans with no standalone jurisdictional boundary and is therefore depicted here as coterminous with the city boundary.

Figure 17-5. Wildland Urban Interface Map – New Orleans Redevelopment Authority[4]



[4] Note: There are no critical facilities submitted by NORA which intersect with the Primary Exposure zone. NORA is a public entity established to service the City of New Orleans with no standalone jurisdictional boundary and is therefore depicted here as coterminous with the city boundary.

Figure 17-6. Wildland Urban Interface Map – Sewerage and Water Board of New Orleans



Extent

The SGSF WRAP Fire Intensity Scale (FIS) identifies areas with high fuel hazards and dangerous fire behavior potential. This scale specifically identifies where significant fuel hazards and associated dangerous fire behavior potential exist based on fuel and weighted across a full range of wind and weather conditions calculated using the Wildfire Exposure Simulation Tool (WildEST), which is a cloud-based wildfire modeling system that simulates potential fire behavior and exposure across a wide range of weather conditions using multiple combinations of wind speed, wind direction, and fuel moisture scenarios. Rather than weighting results solely by how frequently the weather conditions occur, the WildEST process factors the disproportionate influence of high-spread conditions (such as hot, dry, and windy weather) into the weighting calculations, producing a probability-informed representation of potential wildfire intensity.

The FIS provides a standard scale to measure potential wildfire intensity. The FIS consists of five classes where the fire intensity between each class is multiplied by a factor of ten.

The minimum class, Class 1, represents very low wildfire intensities and the maximum class, Class 5, represents very high wildfire intensities (Table 17-1).

Table 17-1. Characteristic Fire Intensity Scale (FIS)

FIS Class	Class Description
Class 1 (Very Low)	Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment.
Class 2 (Low)	Small flames, usually less than 2 feet long; small amount of very short-range spotting possible. Fires are easy to suppress by trained firefighters with protective equipment and specialized tools.
Class 3 (Moderate)	Flames up to 9 feet in length; short-range spotting is possible. Trained firefighters will find these fires difficult to suppress without support from aircraft or engines, but dozer and plows are generally effective. Increasing potential for harm or damage to life and property.
Class 4 (High)	Large Flames, up to 40 feet in length; short-range spotting common; medium range spotting possible. Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective. Significant potential for harm or damage to life and property.
Class 5 (Very High)	Flames exceed 200 feet in length; expect extreme fire behavior.

The City of New Orleans is susceptible to the full range of FIS classes. Figures 17-7 through 17-12 identify the current estimated potential wildfire intensity for the planning area.

Figure 17-7. Fire Intensity Scale Map – City of New Orleans

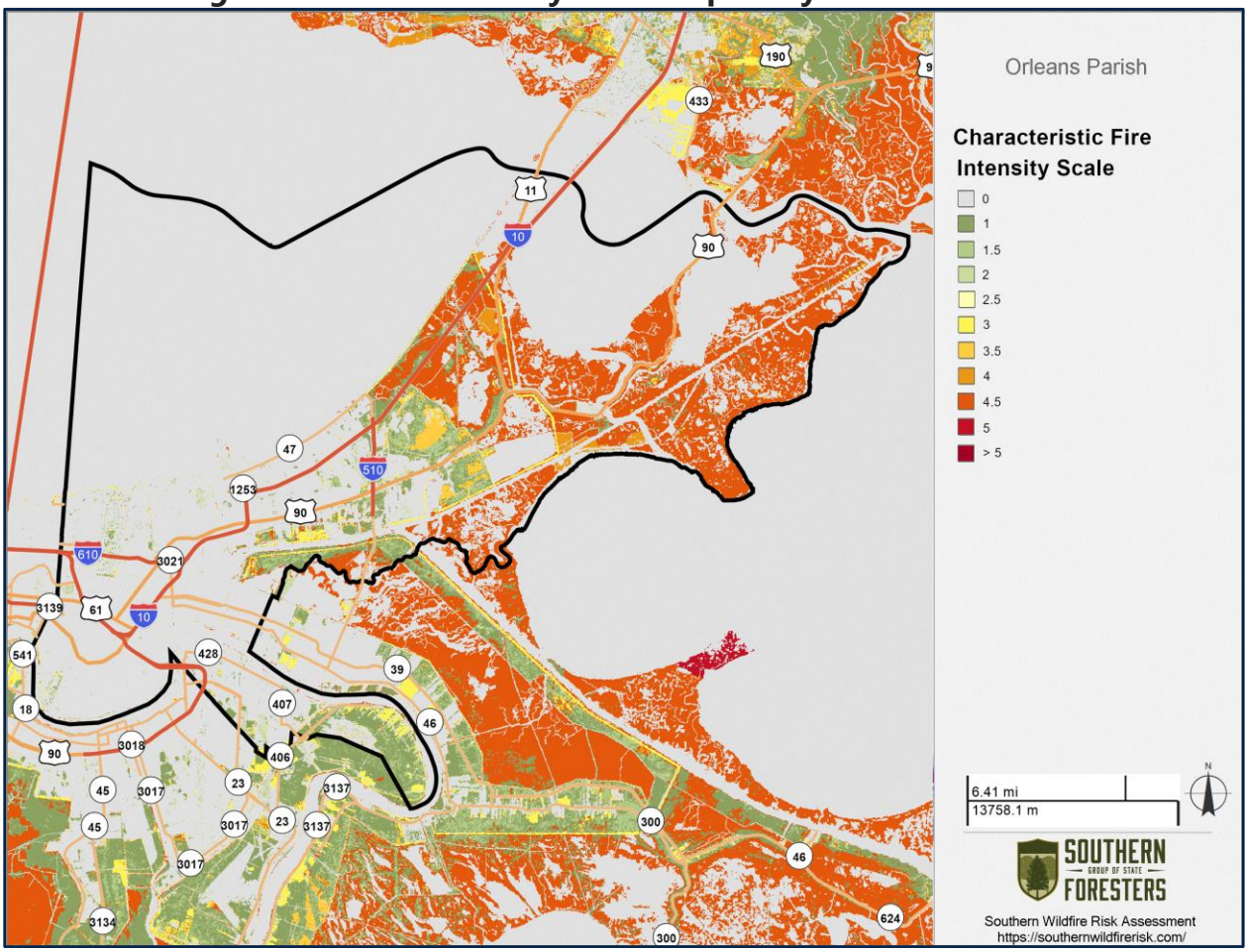


Figure 17-8. Fire Intensity Scale Map – Loyola University

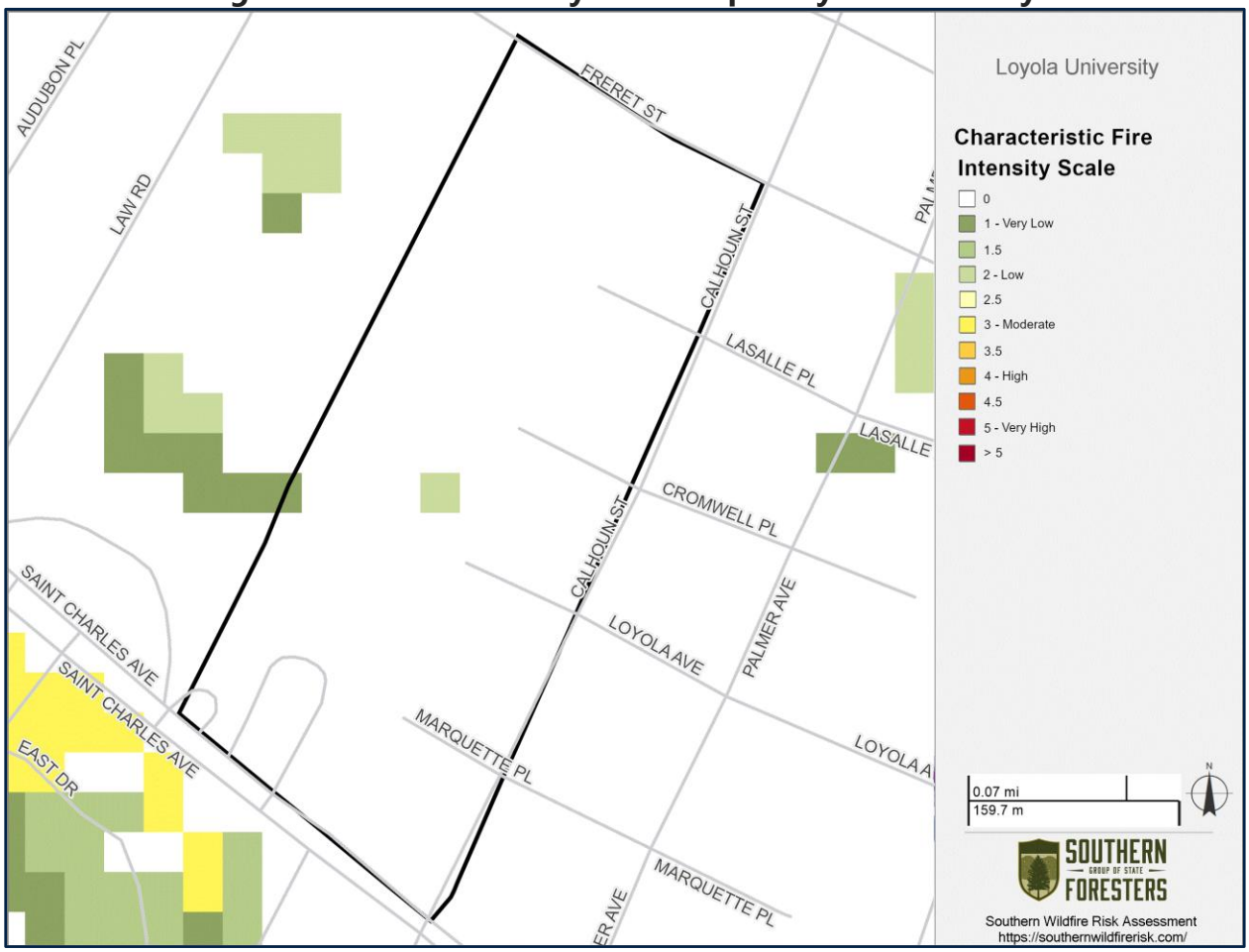


Figure 17-9. Fire Intensity Scale Map – Tulane University

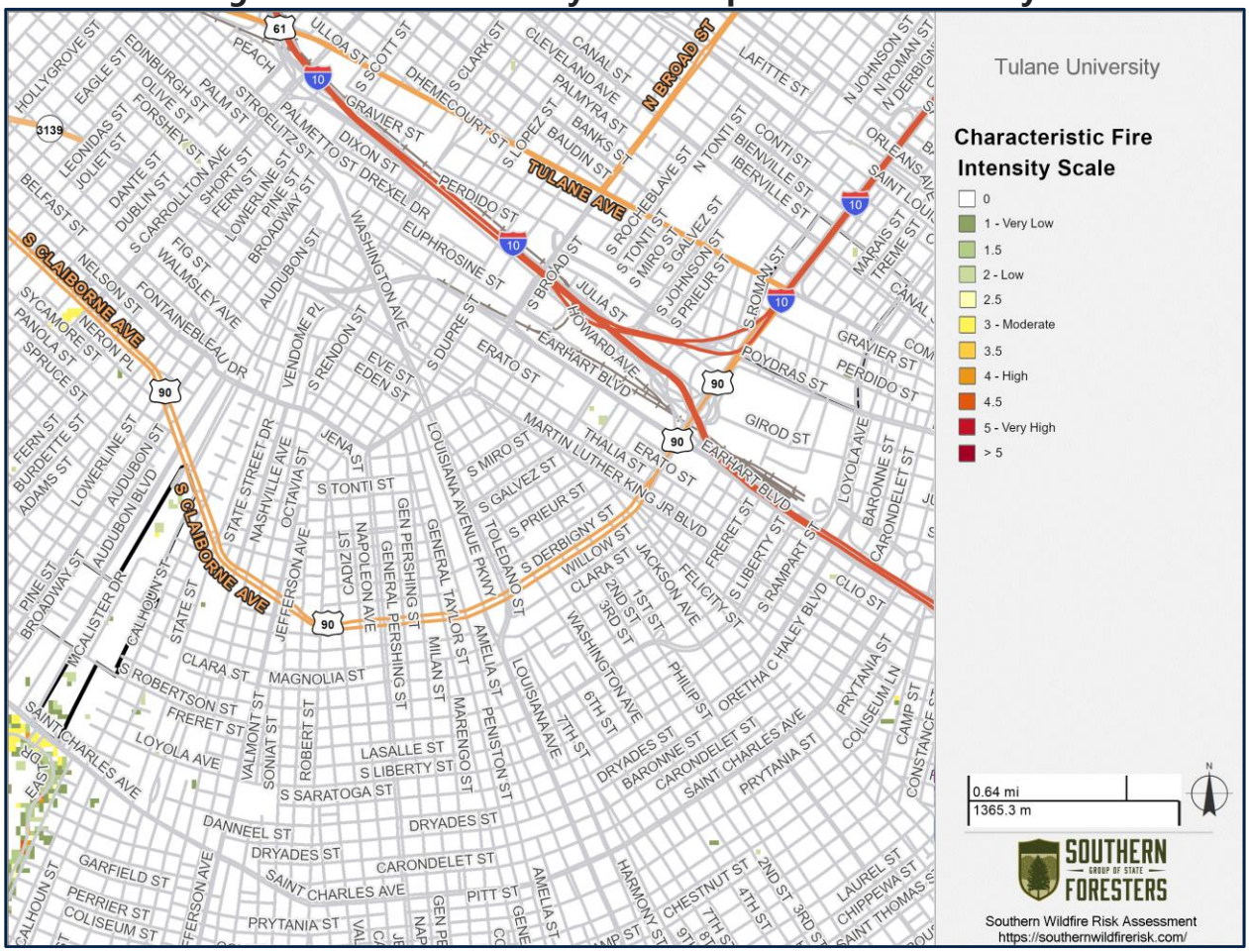
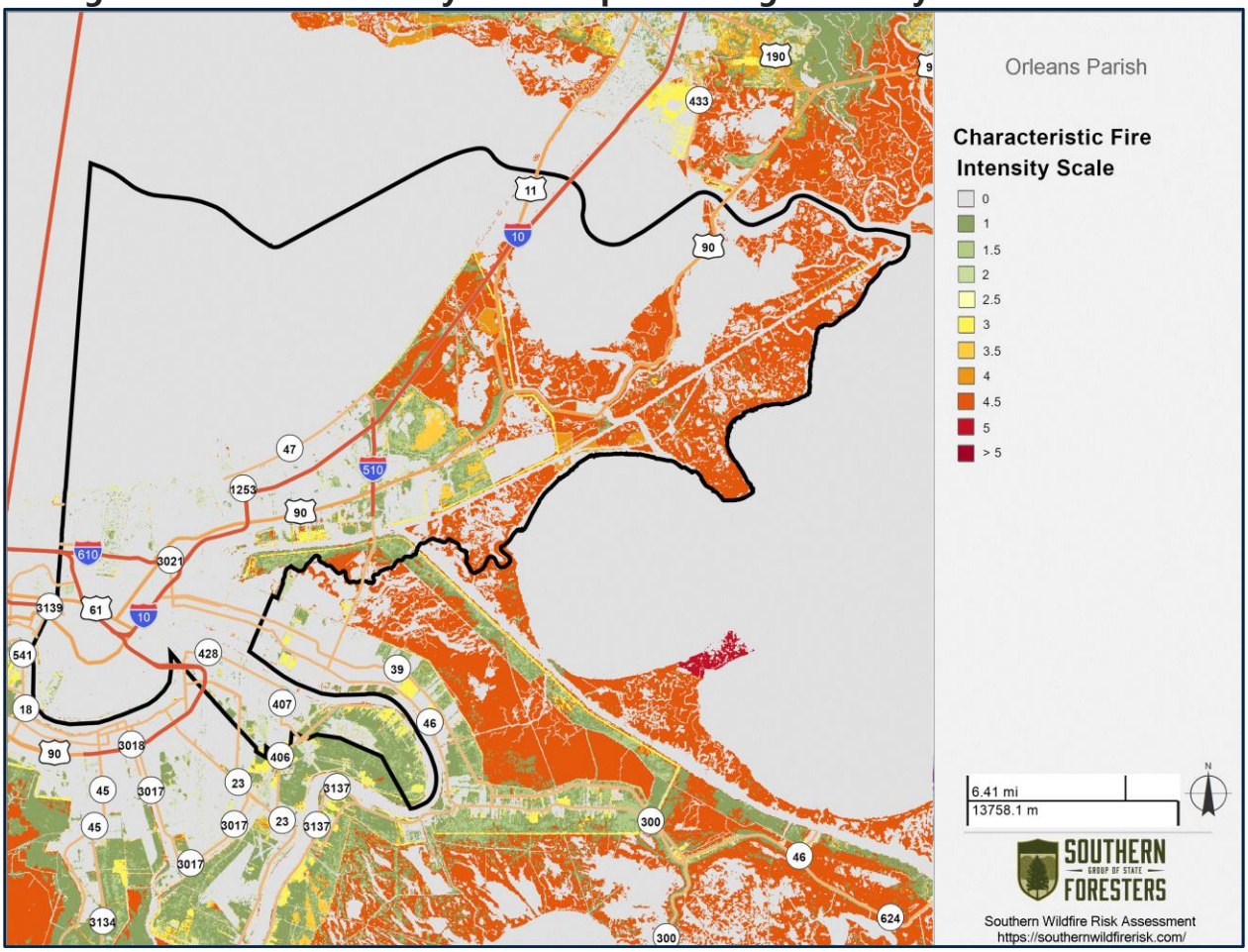
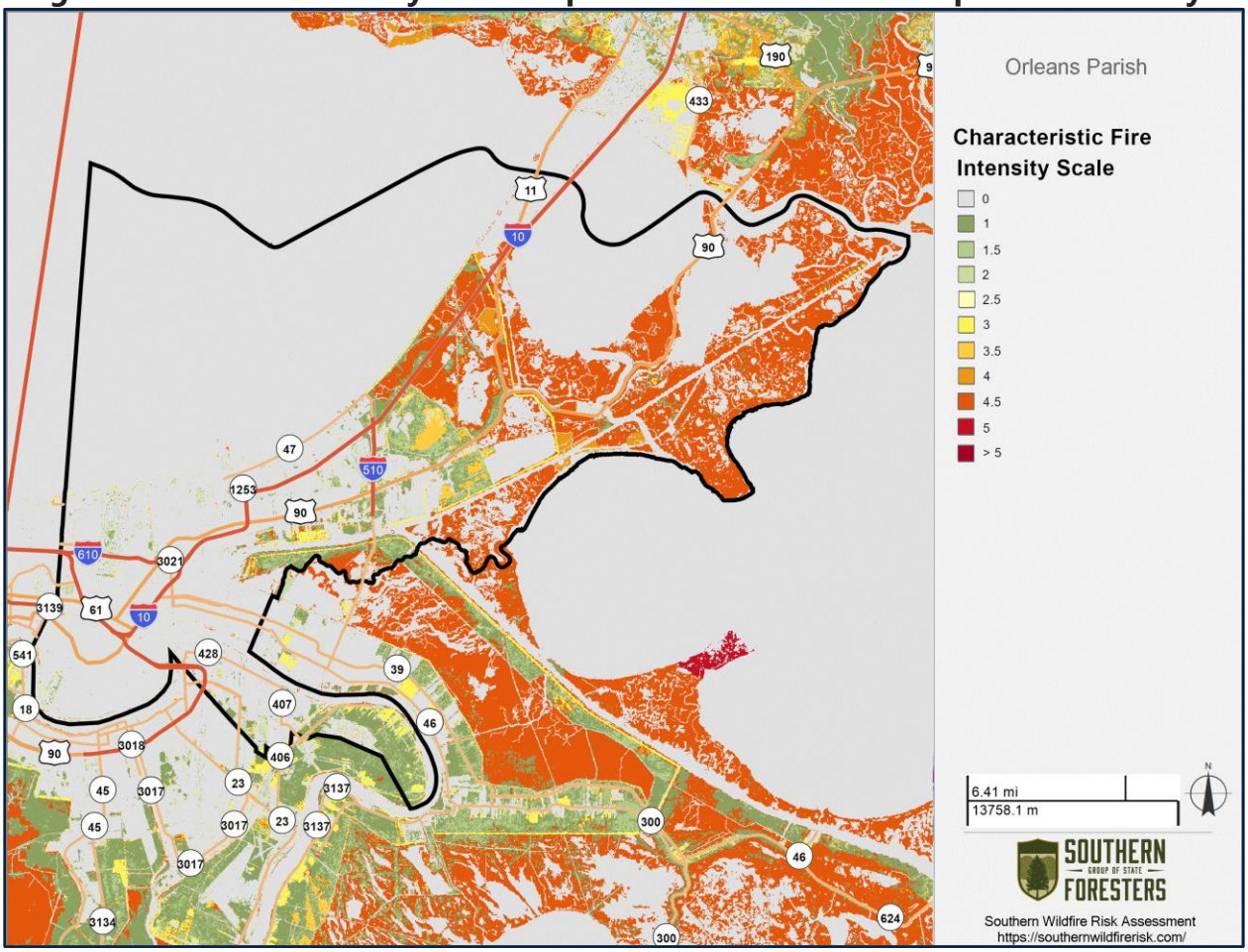


Figure 17-10. Fire Intensity Scale Map – Housing Authority of New Orleans[5]



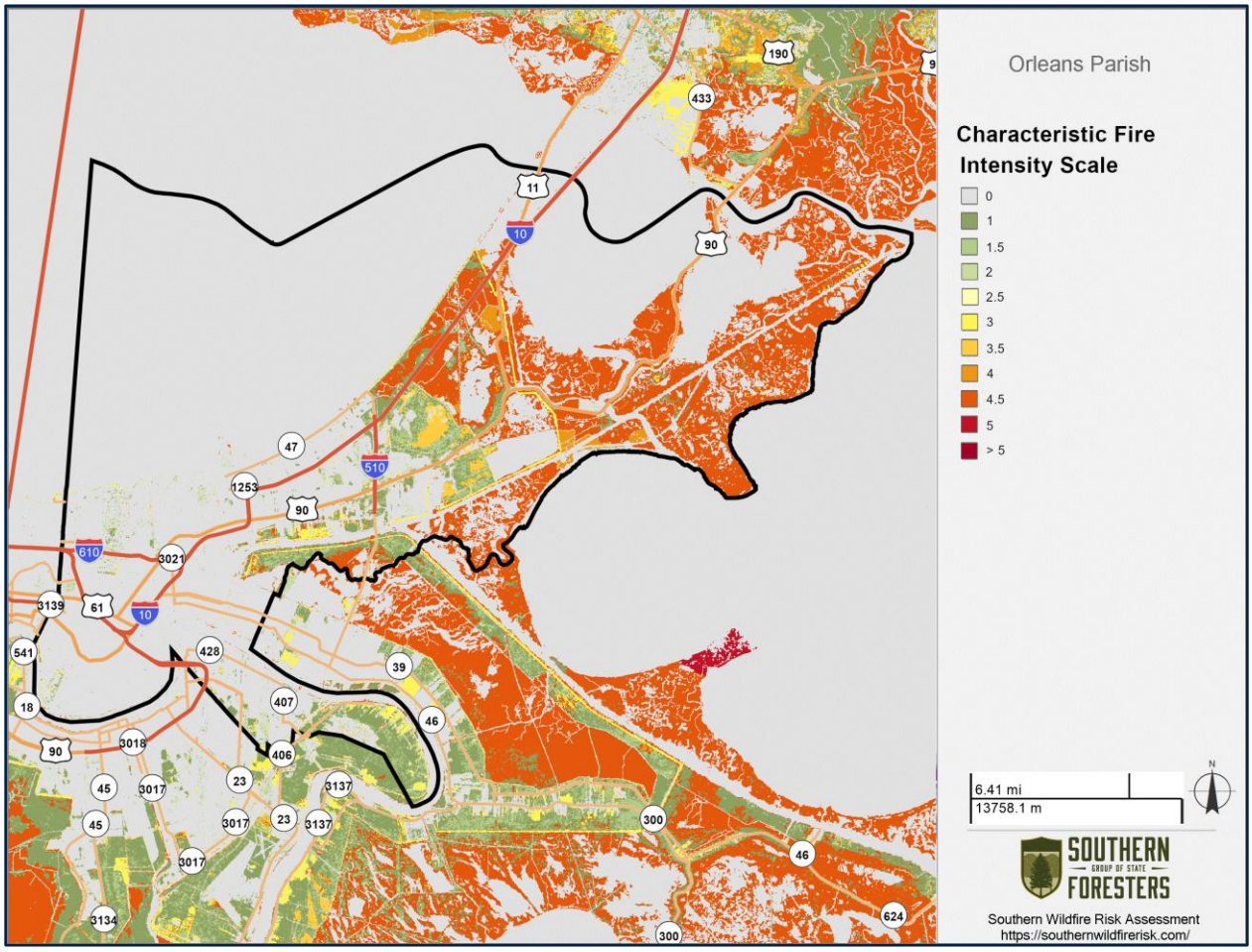
[5] Note: HANO is a public entity established to service the City of New Orleans with no standalone jurisdictional boundary and is therefore depicted here as coterminous with the city boundary.

Figure 17-11. Fire Intensity Scale Map – New Orleans Redevelopment Authority[6]



[6] Note: NORA is a public entity established to service the City of New Orleans with no standalone jurisdictional boundary and is therefore depicted here as coterminous with the city boundary.

Figure 17-12. Fire Intensity Scale Map – Sewerage and Water Board of New Orleans[7]



Historical Occurrences

Historical data for the City of New Orleans is provided on a parish-wide basis and includes all educational institutions and special districts. The National Interagency Fire Center reported 45 events between January 2014 and June of 2025. This includes wildfire incidents from the Integrated Reporting of Wildland Fire Information (IRWIN). IRWIN captures data beginning in 2014. Due to a lack of recorded data for wildfire events prior to 2014, frequency calculations are based on an 11.5-year reporting period, using only data from recorded years.

[7] Note: SWBNO is a public entity established to service the City of New Orleans with no standalone jurisdictional boundary and is therefore depicted here as coterminous with the city boundary.

Tables 17-2 and 17-3 identify the number of wildfires and total acreage burned each year within the parish boundaries. Data is limited and may not represent all wildfires that have occurred within the planning area.

Table 17-2. Historical Wildfire Events Summary, January 2014 – June 2024[8]

Jurisdiction	Number of Events	Acres Burned
City of New Orleans	45	1,410

Table 17-3. Historical Wildfire Events, January 2014 – June 2024

Date	Acres Burned
7/16/2014	0
6/28/2015	34
7/24/2015	125
8/5/2015	168
8/6/2015	25
10/8/2015	0
10/13/2015	0
11/21/2015	0
2/20/2016	0.2
2/24/2016	0
10/16/2016	0.3
10/18/2017	0
2/14/2018	0
6/15/2018	303
6/18/2018	0
8/17/2018	25
6/12/2019	0
11/9/2019	0
11/15/2019	0
4/24/2020	0
3/13/2021	0

[8] Source: National Interagency Fire Center

Date	Acres Burned
12/14/2021	0.1
9/20/2022	0
9/28/2022	0
10/4/2022	0
10/4/2022	0
10/5/2022	0.1
10/5/2022	0.1
11/10/2022	0
5/15/2023	0
6/13/2023	0
6/15/2023	0
7/3/2023	0
7/31/2023	529
8/8/2023	0
8/18/2023	0
10/14/2023	0
10/18/2023	200
2/15/2024	0
2/27/2024	0
8/2/2024	0.1
8/2/2024	0.5
8/28/2024	0
10/2/2024	0
3/9/2025	0
Total	**1,410**

A total of 25 events have been reported since the 2021 Plan.

Significant Events

October 23, 2023

On October 23, 2023, a "superfog" event caused a massive, 158-vehicle pileup on Interstate 55 near New Orleans, Louisiana, resulting in 7 fatalities, over 60 injuries, and fiery wreckage. The chain-reaction crashes occurred on a 1-mile stretch of the elevated interstate, with visibility reduced to less than 10 feet. The pileup occurred on the I-55 bridge over the Manchac Swamp between Ruddock and Manchac, Louisiana. The 158 vehicles involved included passenger cars and tanker trucks, with at least one car falling into the water below. The interstate was closed for over a day for cleanup, inspection, and to manage a fire that broke out during the pileup, which included a tanker truck carrying hazardous liquid.

July 31, 2023

Severe drought conditions in the summer of 2023 contributed to extreme fire weather across the state of Louisiana. Other parts of the state were battling large fires that resulted in mandatory evacuations, including the largest fire in state history in Beauregard Parish. Smoke from the many fires across the state was pushed towards southeast Louisiana and caused poor air quality issues in the New Orleans metropolitan area.

At the same time, according to local news reports, the Black Lagoon fire was started by a lightning strike in the Bayou Sauvage National Wildlife Refuge in New Orleans East. The biggest impact was on the residents and travelers in nearby communities, as the smoke impacted the air quality and posed a public health risk. This wildfire burned 529 acres in the city.

Climate Change Considerations

Climate change is projected to increase the risk of wildfire. Higher temperatures, coupled with increased drought frequency, are projected to create drier conditions and prolong the wildfire season. Extreme temperatures and periods of drought increase the available fuels that contribute to wildfires. Additional climate change impacts from drought and extreme heat are discussed in Sections 6 and 7 of this Plan. The projected rise of severity in drought and extreme heat events suggest a growing future risk of wildfires.

Probability of Future Events

Wildfires can occur at any time of the year. With 45 events in an 11.5-year period, an event within the City of New Orleans planning area, including all educational institutions and special districts, is “Highly Likely”, meaning an event is probable within the next year.

Future projections support this probability, showing increased wildfire risk will be driven by hotter and drier conditions.

Vulnerability and Impact

Periods of drought, dry conditions, high temperatures, and low humidity are factors that contribute to the occurrence of a wildfire event. In New Orleans, less developed areas, such as along interstates or in more remote sections of eastern New Orleans where vegetation and other fuels are more abundant, face a heightened risk of wildfire events. The more heavily populated areas of the planning area are not highly likely to experience large, sweeping fires. Some of the specific areas of concern include:

- New Orleans East: This area faces significant risk due to its proximity to large, undeveloped marshland, specifically near the Bayou Sauvage National Urban Wildlife Refuge.
- Maple Ridge Subdivision Area: Local firefighters have identified this subdivision in East New Orleans as being under threat from nearby marsh fires.
- Michoud Canal Area: The area between the Bayou Sauvage National Urban Wildlife Refuge and the Michoud Canal has experienced active, underground, and surface-level marsh fires.
- Violet and Surrounding Marshes: Areas near the Bayou east of Violet have been identified as high-risk, requiring monitoring by marine units.
- Irish Bayou: This area of New Orleans East faces a heightened risk of wildfire events, particularly during periods of drought. Marshland and wetlands in this neighborhood are susceptible to fast-moving or long-burning underground fires that can impact nearby infrastructure.
- Venetian Isles: The surrounding marshland and vegetation result in a significant fire hazard. The area is categorized as having a moderate, rather than high, risk of wildfire, though this is based on the specific threat to structures rather than just the prevalence of nearby flammable vegetation.

The City of New Orleans Planning Team identified the following critical facilities (Table 17-4) as assets that are susceptible to a range of impacts caused by wildfire events. Critical facilities within the Primary (Direct) Exposure Zone of the WUI are at the greatest risk from wildfire. For a comprehensive list of critical facilities for each participant, please see Appendix F.

Table 17-4. Critical Facilities Vulnerable to Wildfire Events

Critical Facilities	Critical Facilities At Risk	Potential Impacts
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers	City of New Orleans: 2 Fire Facilities, 2 Law Enforcement Facilities	• Emergency services and operations may be disrupted during a wildfire due to damaged facilities, loss of communications, inaccessible roadways, or personnel being unable to report for duty. • Critical city departments may not be able to function and provide necessary services depending on the location of the fire and the structures or personnel impacted. • First responders are at greater risk of injury when in close proximity to the hazard while extinguishing flames, protecting property, or evacuating residents in the area. • Roadways in or near the WUI could be damaged or closed due to smoke and limited visibility, slowing or preventing access for emergency response vehicles. • Power outages could disrupt critical care, especially if backup power sources are damaged or destroyed.
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	City of New Orleans: 8 Community Facilities, 1 Municipal Facility, 2 Transportation Facilities Loyola University: 2 University Facilities Tulane University: 5	• Facilities or infrastructure may be damaged, destroyed or otherwise inaccessible. • Additional emergency responders and critical aid workers may not be able to reach the area for days. • Essential supplies like medicines, water, food, and equipment deliveries may be significantly delayed. • Vulnerable populations may face heightened risk if facilities are compromised.

Critical Facilities	Critical Facilities At Risk	Potential Impacts
	University Facilities	
Commercial Supplier (food, fuel, etc.)	City of New Orleans: 1 Commercial Facility, 1 Maritime Infrastructure Facility	• Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable. • Essential supplies like medicines, water, food, and equipment deliveries may be delayed. • Economic disruption due to power outages and fires negatively impacts services as well as area businesses reliant on commercial suppliers.
Utility Services and Infrastructure (electric, water, wastewater, communications)	City of New Orleans: 17 Sewage and Water Facilities Sewerage and Water Board of New Orleans: 9 Sewage and Water Facilities	• Wastewater and drinking water facilities and infrastructure may be damaged or destroyed resulting in service disruption or outage for multiple days or weeks. • A break in essential and effective wastewater collection and treatment is a health concern, potentially spreading disease. • Any service disruptions can negatively impact or delay emergency management operations.

Wildfires can have major environmental impacts on wildlife and vegetation, especially in sensitive ecosystems such as the Bayou Sauvage Urban National Wildlife Refuge. Bayou Sauvage in New Orleans is one of the last remaining marsh areas adjacent to Lakes Pontchartrain and Borgne. This refuge supports diverse habitats, including marshes, wetlands, and waterways that provide critical nesting, feeding, and breeding grounds for migratory birds, fish, and other wildlife. Bayou Sauvage's marshes and waterways provide food and shelter for over 340 species of birds. When a wildfire occurs, it can destroy these habitats, displace species and disrupt the delicate balance of the ecosystem. The loss of vegetation not only reduces food and shelter for wildlife but can also lead to increased erosion and degraded water quality in connected wetlands and waterways.

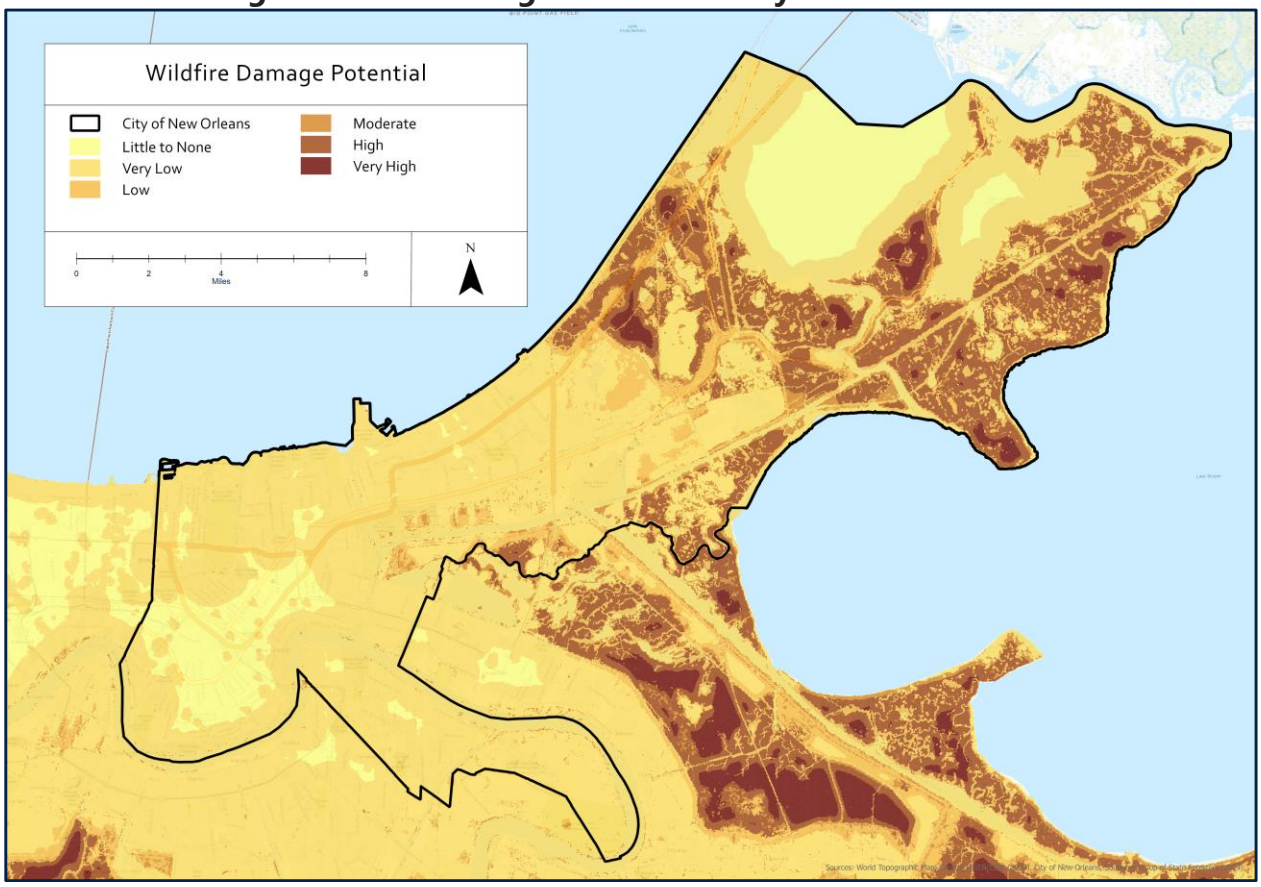
Historic loss and annualized estimates of acres burned due to wildfires are presented in Table 17-5 below. The average frequency is approximately four events every year.

Table 17-5. Average Annualized Acreage Losses[9]

Jurisdiction	Total Acres Burned	Average Annual Acre Losses
City of New Orleans	1,410	123

Damage Potential provides an index of potential damage to homes from wildfire. It considers factors like flame length and embers lofted from nearby fuel. Damage Potential is a relative index (from low to high), that provides a broad measure of the possible damage from wildfire, based generally on the landscape, rather than specific characteristics of a home or parcel. For planning uses and broad applications, the index is calculated for all areas regardless of whether a structure currently exists at that location. Notably, the areas with the highest Damage Potential from wildfire tend to be further from densely developed areas. This index does not incorporate a measure of wildfire likelihood. Figures 17-13 through 17-18 show the level of potential damage of wildfires in the City of New Orleans.

Figure 17-13. Damage Potential – City of New Orleans



[9] Note: Events divided by 11.5 years of data.

Figure 17-14. Damage Potential – Loyola University

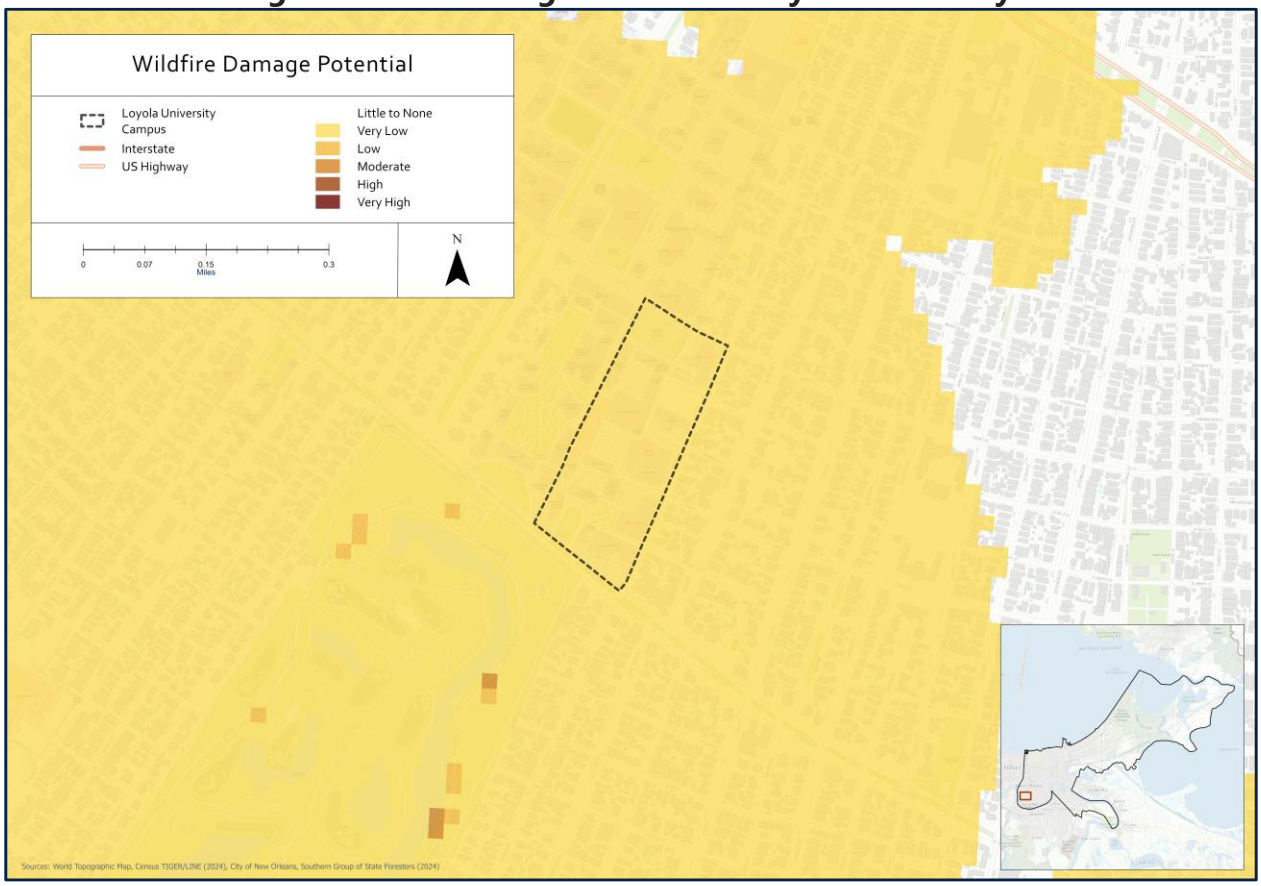


Figure 17-15. Damage Potential – Tulane University

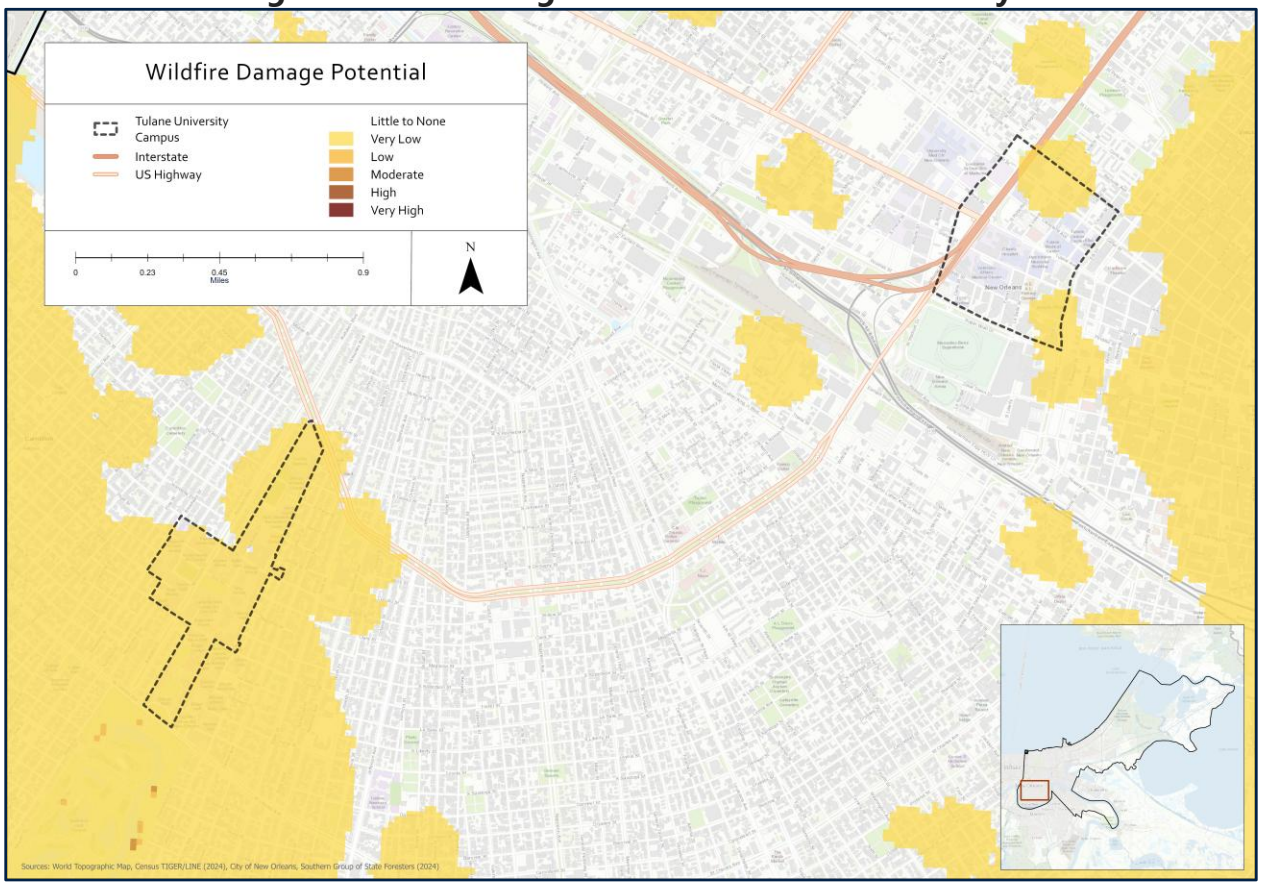
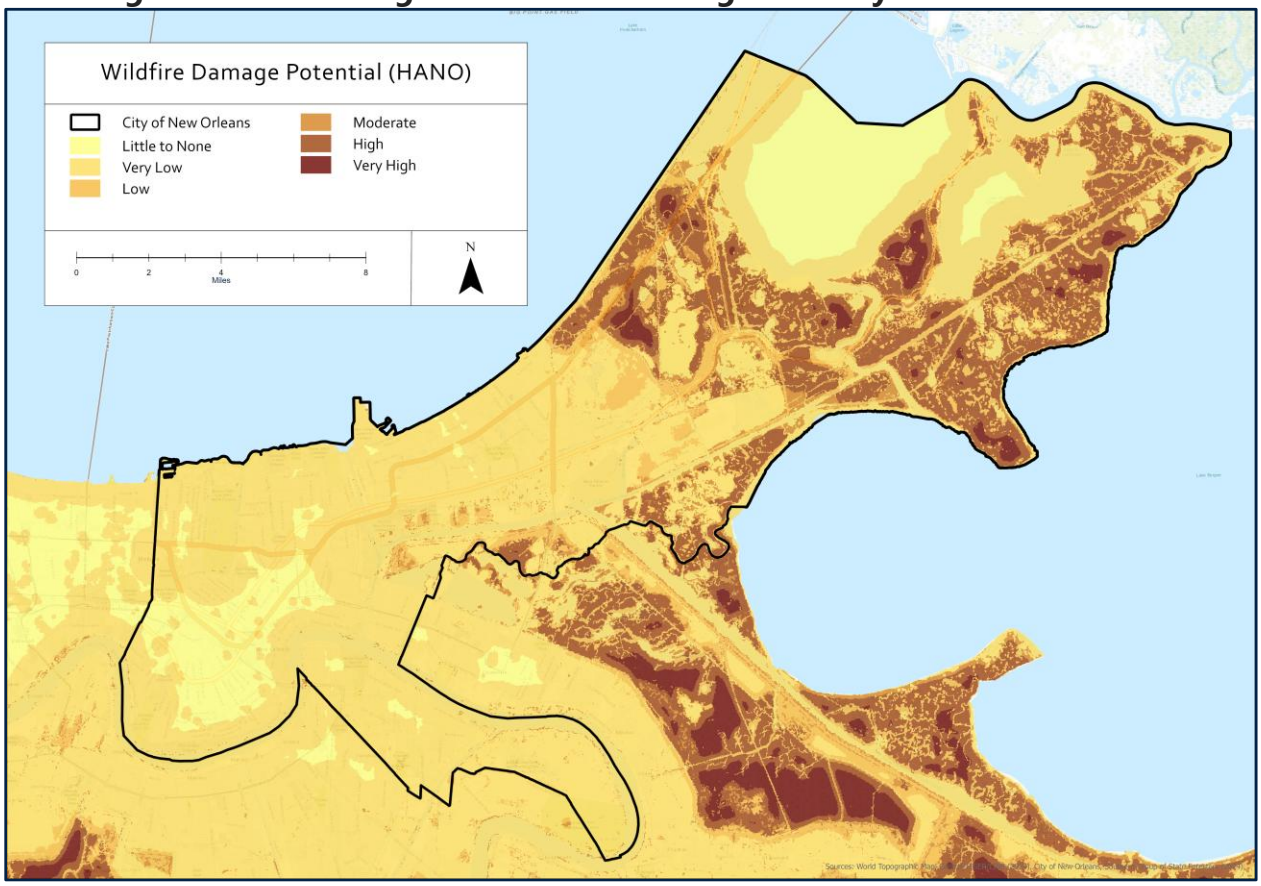
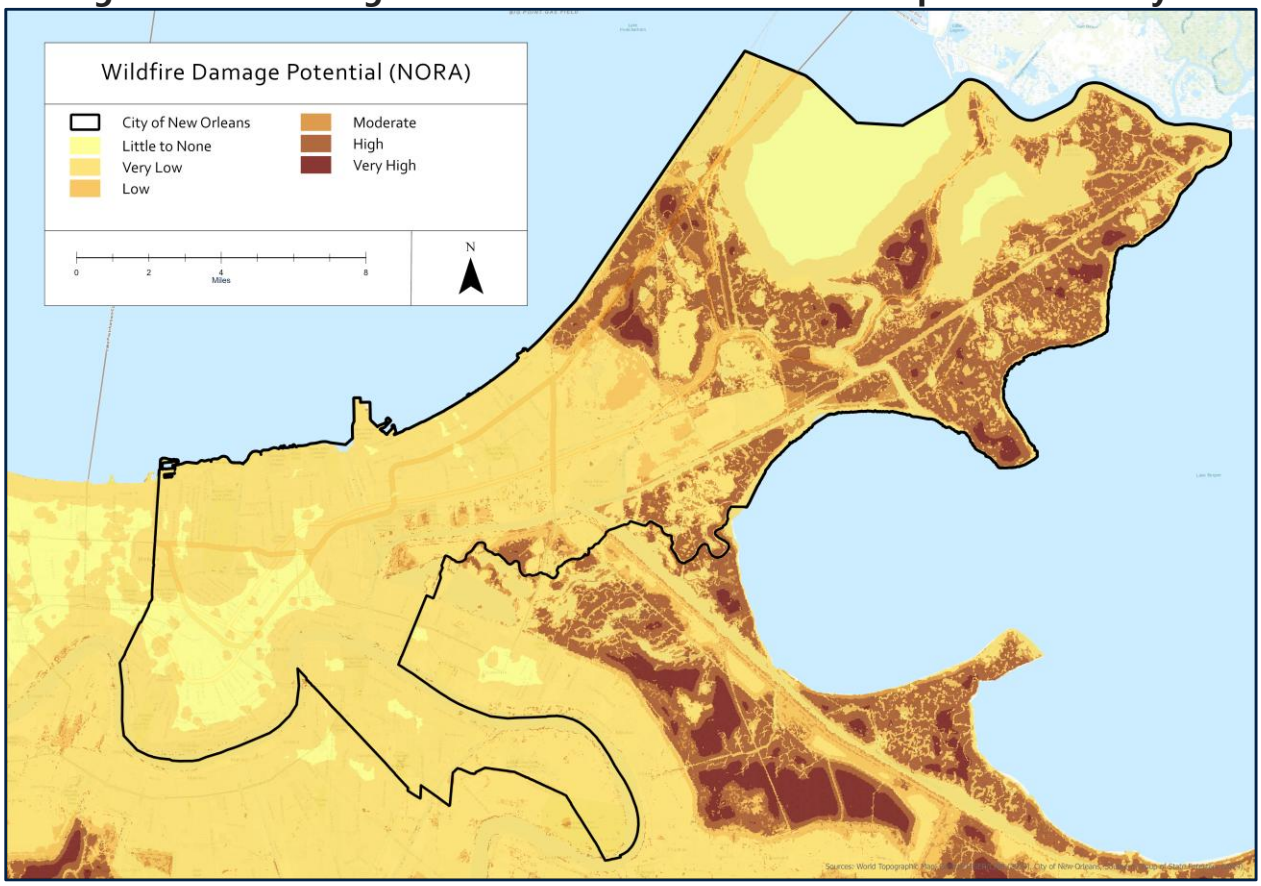


Figure 17-16. Damage Potential – Housing Authority of New Orleans[10]



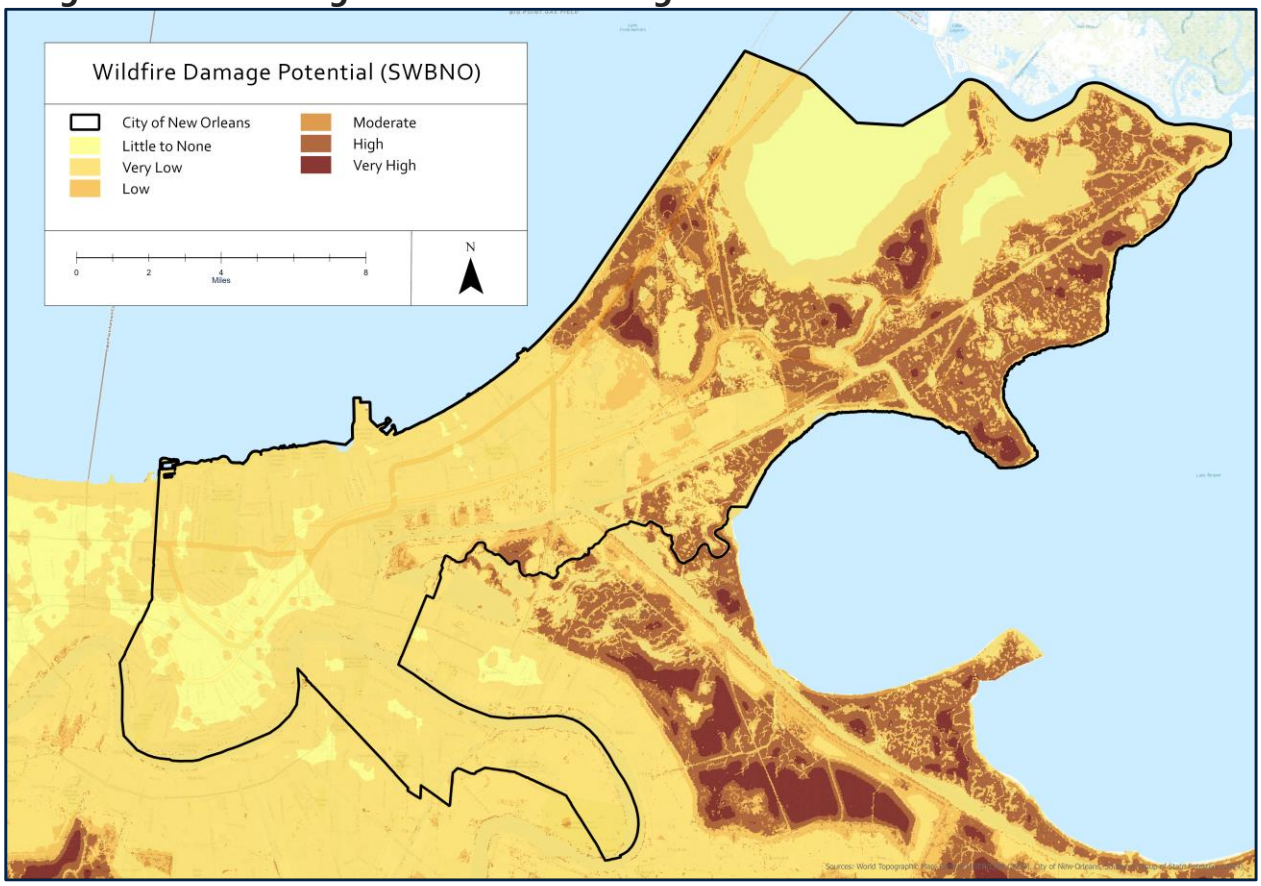
[10] Note: HANO is a public entity established to service the City of New Orleans with no standalone jurisdictional boundary and is therefore depicted here as coterminous with the city boundary.

Figure 17-17. Damage Potential – New Orleans Redevelopment Authority[11]



[11] Note: NORA is a public entity established to service the City of New Orleans with no standalone jurisdictional boundary and is therefore depicted here as coterminous with the city boundary.

Figure 17-18. Damage Potential – Sewerage and Water Board of New Orleans[12]

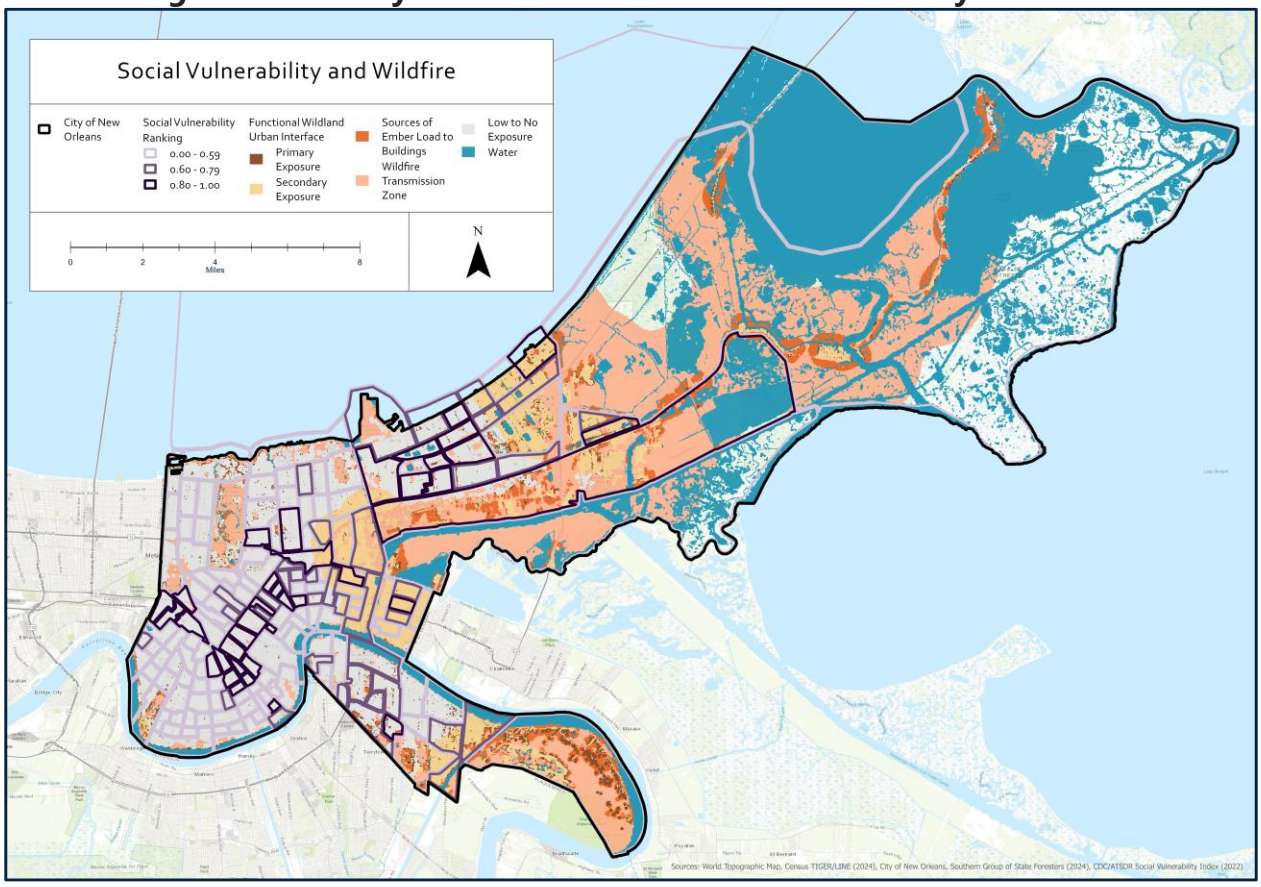


Diminished air quality is an environmental impact that can result from a wildfire event and pose a potential health risk. Wildfire smoke plumes may contain carcinogenic particles that can be inhaled. Fine particles of invisible soot and ash that are too small for the respiratory system to filter can cause immediate and possibly long-term health effects. The elderly or those individuals with compromised respiratory systems may be more vulnerable to the effects of diminished air quality after a wildfire event.

Populations experiencing social vulnerability may be adversely impacted by natural hazards, disasters, and other community-level stressors. Figure 17-19 identifies areas of social vulnerability using the CDC's Social Vulnerability Index (SVI) and where these areas overlap with the City of New Orleans WUI areas, where wildfire risk is considered the highest.

[12] Note: SWBNO is a public entity established to service the City of New Orleans with no standalone jurisdictional boundary and is therefore depicted here as coterminous with the city boundary.

Figure 17-19. City of New Orleans's Social Vulnerability and WUI



For the City of New Orleans planning area~~,~~ including all educational institutions and special districts, the impact from a wildfire event is considered "Limited," meaning injuries and/or illnesses are typically treatable with first-aid, complete shutdown of facilities and services for 24 hours or less, and less than 10 percent of property is destroyed or with major damage. The severity of impact is gauged by acreage burned, homes and structures lost, injuries, and fatalities.

Table 17-6. Impact for City of New Orleans

Jurisdiction	Impact	Description
City of New Orleans	Limited	A majority of the city (42 percent) is in the "very low" damage potential category. In addition, 37 percent is in the "little to none" category, 11 percent is in the "High" category, 6 percent is in the "low" category, 3 percent is in the "Moderate" category, and 1 percent is in the "Very High" category. City residents may suffer injuries that are treatable with first aid. Critical facilities

Jurisdiction	Impact	Description
		could be shut down for 24 hours, and less than 10 percent of total property could be damaged.
Loyola University	Limited	Loyola University has two facilities located within the WUI and has a low risk of wildfire. Students and staff may suffer injuries that are treatable with first aid. Critical facilities could be shut down for 24 hours, and less than 10 percent of total property could be damaged
Tulane University	Limited	Tulane University has five facilities located within the WUI and has a low risk of wildfire. Students and staff may suffer injuries that are treatable with first aid. Critical facilities could be shut down for 24 hours, and less than 10 percent of total property could be damaged
Housing Authority of New Orleans	Limited	HANO has no facilities located within the WUI and has a low risk of wildfire. Staff may suffer injuries that are treatable with first aid. Critical facilities could be shut down for 24 hours, and less than 10 percent of total property could be damaged.
New Orleans Redevelopment Authority	Limited	NORA has no facilities located within the WUI and has a low risk of wildfire. Staff may suffer injuries that are treatable with first aid. Critical facilities could be shut down for 24 hours, and less than 10 percent of total property could be damaged
Sewerage and Water Board of New Orleans	Limited	SWBNO has nine facilities located within the WUI and has a low risk of wildfire. Staff may suffer injuries that are treatable with first aid. Critical facilities could be shut down for 24 hours, and less than 10 percent of total property could be damaged



Section 18

Winter Weather

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Section 18: Winter Weather

Hazard Description

A severe winter weather event is a storm with snow, ice, or freezing rain, typically combined with strong winds and cold temperatures. Wind chill, a function of temperature and wind, is the "feels like" temperature, representing the rate of heat loss from exposed skin due to combined cold and wind, rather than just the actual temperature alone. It serves as a vital indicator of health risks, as higher wind speeds accelerate body heat loss, significantly increasing the danger of frostbite and hypothermia.

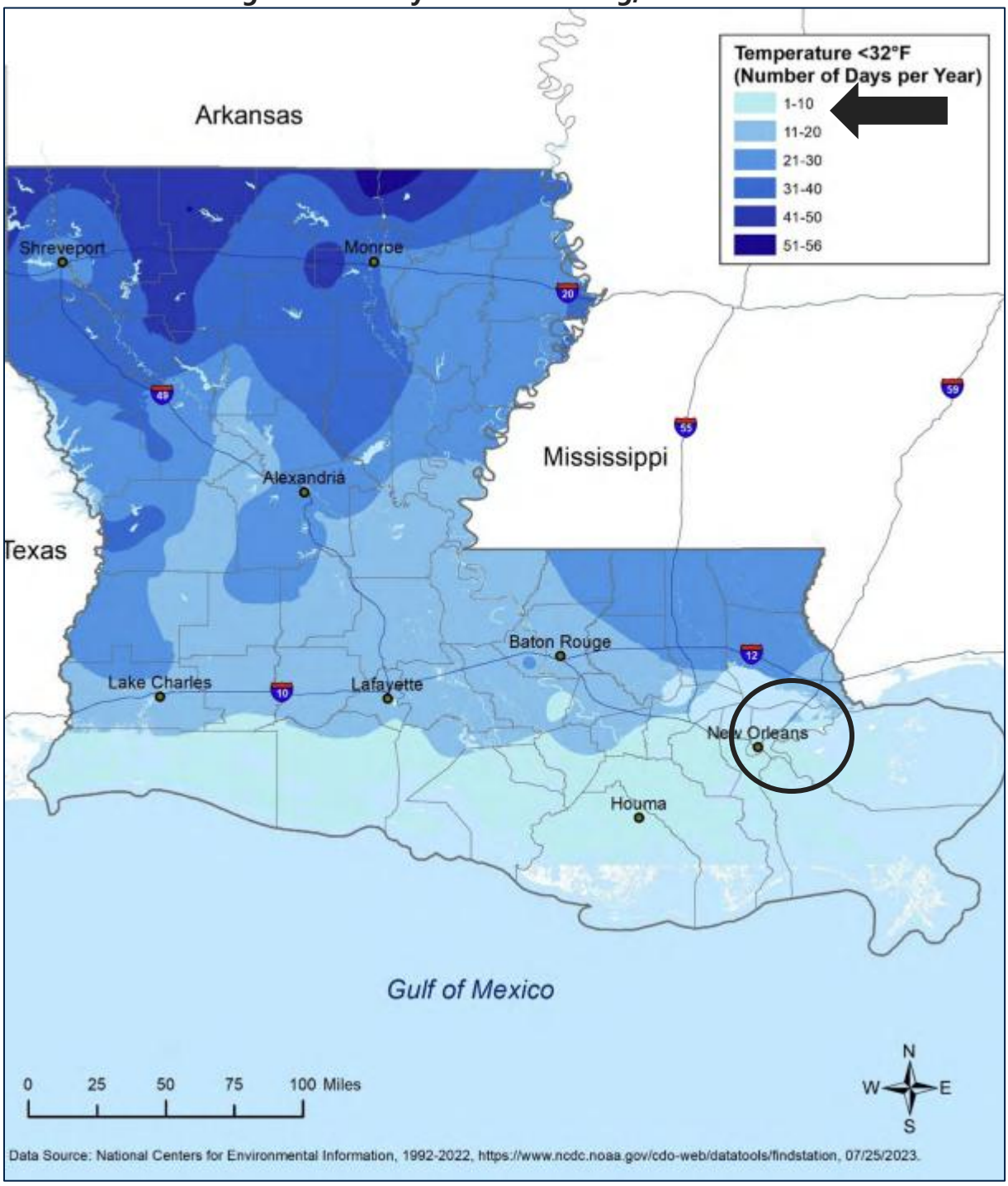


Snow covers Jackson Square in the French Quarter on January 21, 2025. Photo courtesy of New Orleans Public Radio.

Winter storms can cause significant problems including widespread power outages, hazardous travel conditions, and damage from falling trees or limbs. Winter weather that threatens the City of New Orleans usually begins as powerful cold fronts that push south from central Canada. This can cause a rapid temperature drop, occasionally plunging temperatures below freezing. This transition is frequently accompanied by cold, heavy rain that can occasionally be followed by risks like freezing rain, sleet, and ice accumulation.

The City of New Orleans is located in an area that experiences ten or fewer days of below freezing temperatures per year (Figure 18-1). The planning area is subject to a variety of winter weather including wind chill, frost, below freezing temperatures, freezing rain, sleet, and snow (Table 18-1). Winters are generally mild, humid, and temperate, with average highs in the low-to-mid 60s°F and lows in the 40s°F. Rain is common, while freezing temperatures and snow are less common.

Figure 18-1. Days Below Freezing, 1992-2022[1]



[1] Source : NOAA, National Center for Enviromental Information, Louisiana State Hazard Mitigation Plan Update 2024

Table 18-1. Types of Winter Weather

Type of Winter Weather	Description
Freezing Rain or Freezing Drizzle	Rain or drizzle is likely to freeze upon impact, resulting in a coating of ice glaze on roads and all other exposed objects.
Sleet	Small particles of ice usually mixed with rain. If enough sleet accumulates on the ground, it makes travel hazardous.
Blizzard	Sustained wind speeds of at least 35 mph are accompanied by considerable falling or blowing snow. This alert is the most perilous Winter weather with visibility dangerously restricted.
Frost / Freeze	Below freezing temperatures are expected and may cause significant damage to plants, crops, and fruit trees.
Wind Chill	A strong wind combined with a temperature slightly below freezing can have the same chilling effect as a temperature nearly 50 degrees lower in a calm atmosphere. The combined cooling power of the wind and temperature on exposed flesh is called the wind-chill factor.

Once the outside temperature or wind chill reaches a sustained temperature of 35°F or lower for more than four hours, the Citywide Freeze Plan (CFP) is activated. The City then opens temporary overnight warming shelters, typically located at spots like the Rosenwald Recreation Center, Ozanam Inn, and New Orleans Mission. Warming centers will generally operate from late afternoon to the following morning to ensure unhoused individuals have access to warm shelter facilities.

Location

Winter weather events are not confined to specific geographic boundaries. Therefore, all existing and future buildings, facilities, and populations in the City of New Orleans, including all educational institutions and special districts, are vulnerable to winter weather hazards and could potentially be impacted.

Extent

The extent or magnitude of a severe winter weather event is measured in intensity based on the temperature and level of accumulations as shown in Table 18-2.

Table 18-2. Magnitude of Severe Winter Weather Events

Intensity	Temperature Range (Fahrenheit)	Extent Description
Mild	40° – 50°	Winds less than 10 mph and freezing rain or light snow falling for short durations with little or no accumulations
Moderate	30° – 40°	Winds 10 – 15 mph and sleet and/or snow up to 4 inches
Significant	25° – 30°	Intense snow showers accompanied with strong gusty winds between 15 and 20 mph with significant accumulation
Extreme	20° – 25°	Wind driven snow that reduces visibility, heavy winds (between 20 to 30 mph), and sleet or ice up to 5 millimeters in diameter
Severe	Below 20°	Winds of 35 mph or more and snow and sleet greater than 4 inches

The City of New Orleans has experienced all categories of winter storm intensity. Typical winter storm conditions in New Orleans involve short term events with freezing rain, sleet, and sometimes light snow, with temperatures dropping into the 20s or low 30s°F. In January of 2025, Winter Storm Enzo impacted the City of New Orleans, bringing up to 10 inches of snow, freezing temperatures, and wind speeds up to 35 mph.[2] Snowfall during this event tied the storm of record for the city that occurred in 1895.

Historical Occurrences

The NCEI is a national data source organized under the National Oceanic and Atmospheric Administration (NOAA) and considered a reliable resource for historical event data. According to historical NCEI records there have been nine winter weather events in the City of New Orleans since 1996 (Table 18-3). These events were reported to the NCEI and NOAA databases and may not represent all winter storm events to have occurred during the past 29 years. Additionally, NCEI data may not capture all impacts and damages for reported winter storm events, such as frozen pipes in private facilities or public response expenses.

[2] Source: https://www.cnbc.com/2025/01/21/deep-south-braces-for-a-rare-winter-storm-threatening-heavy-snow-sleet-and-ice.html

Table 18-3. Historical Winter Weather Events, 1996 – 2025[3]

Jurisdiction	Date	Deaths	Injuries	Property and Crop Damage
City of New Orleans	2/2/1996	0	0	$0
City of New Orleans	12/18/1996	0	0	$0
City of New Orleans	12/25/2004	0	0	$0
City of New Orleans	1/3/2008	2	0	$0
City of New Orleans	12/11/2008	0	0	$0
City of New Orleans	1/24/2014	0	0	$0
City of New Orleans	1/17/2018	0	0	$0
City of New Orleans	1/16/2024	0	0	$0
City of New Orleans[4]	1/22/2025	0	0	$1,112,700
Tulane University[5]	1/22/2025	0	1	$120,000
Totals	**9**	**2**	**1**	**$1,232,700**

Table 18-4. Historical Winter Weather Events Summary, 1996 – 2025

Jurisdiction	Number of Events	Deaths	Injuries	Property and Crop Damages
City of New Orleans	9	2	1	$1,232,700

Two events have occurred since the 2021 Plan.

[3] Note: The reporting period for winter weather was extended through January 2025 in order to include the most recent event of record.

[4] Note: Damages and response costs provided by NOHSEP. Damage estimates include costs associated with generators, supplies, food, emergency snowplow contractors, and other miscellaneous costs.

[5] Tulane University reported estimated losses of $120,000 from Winter Storm Enzo.

Significant Events

January 3, 2008
A cold high-pressure system settled over the region, causing overnight temperatures to drop below freezing, with lows reaching the upper 20s. During the early morning hours of January 4th, two individuals experiencing homelessness died from hypothermia, according to the Orleans Parish Coroner's Office.

January 16, 2024
An amplified longwave upper-level trough positioned west of the Mississippi River Valley facilitated the southward intrusion of an Arctic airmass deep into the Gulf of America. As a result, surface temperatures across the region began to rapidly decline from west to east during the evening of January 15th and continued into the early morning hours of January 16th. Concurrently, a layer of mid-level moisture advected over the increasingly cold surface air, leading to precipitation. Surface temperatures fell below 32°F (~0°C) around 2:00 AM on January 16th. This temperature drop coincided with the transition from liquid rain to freezing rain, which resulted in ice accretion of approximately 0.1 inches.

Although temperatures in the mid-levels remained too warm to support snow formation, surface temperatures fell below freezing, allowing for the development of freezing rain and occasional sleet, extending as far south as coastal Louisiana. Ice accumulation across the region ranged from a light glaze to approximately 0.25 inches. Widespread travel impacts occurred, with numerous interstate highways, including portions of Interstate 10, as well as state highways and local roads with elevated structures, temporarily closed due to hazardous icy conditions.

January 21 to 22, 2025 – Winter Storm Enzo
A historically significant snowfall event impacted southeastern Louisiana beginning in the early hours of January 21st. Within Orleans Parish, snowfall began during the early morning and gradually diminished by mid-afternoon. The highest official snowfall total reported was 9.8 inches, though multiple unofficial reports on social media suggested localized amounts approaching 13 inches. Temperatures remained below freezing for approximately 60 consecutive hours, from the evening of January 20th through the afternoon of January 23rd. The coldest period occurred on the morning of January 22nd, when observed air temperatures and wind chill values ranged between 10°F and 20°F across the parish.

Unlike most historical snow events of the past century, this one was widespread with significant accumulations. All parishes in the affected area are estimated to have received a minimum of 6 inches of snow, with numerous observations of 12 and 13 inches in many

parts of New Orleans. Based on available climatological records, this event represents the most substantial snowfall in the region since 1895. The impacts of the storm were both severe and prolonged.

The City's Freeze Plan was activated with warming centers opening starting the evening of Sunday, January 19, 2025, and continued through Wednesday, January 22, 2025. Due to the size and duration of the event, the City opened additional warming shelters at multiple locations. Educational institutions across the region remained closed for the majority of the week. Many roadways, particularly elevated surfaces and bridges, remained impassable for several days due to persistent ice and snow cover. The Lake Pontchartrain Causeway was closed, disrupting the critical I-10 corridor.

An arctic air mass compounded the situation, bringing prolonged subfreezing temperatures to the area and significantly enhancing the storm's effects. Overnight lows fell into the single digits (°F) across portions of the region. There were many water line breaks across the city, the largest number on private structures, but the SWBNO was able to avoid a drop in water pressure that would have resulted in more significant impacts to water service. The one fatality indirectly attributed to the winter storm was caused by a structural fire started by a malfunctioning space heater in a residential home.

Climate Change Considerations

While winter weather events will still occur, climate change is expected to cause milder winters and less frequent winter weather events in the New Orleans region.[6]

Probability of Future Events

According to historical records, the City of New Orleans has experienced nine winter weather events over a 29-year reporting period. The probability of a future winter weather event affecting the City of New Orleans is considered "Likely," with a winter weather event probable in the next three years.

Vulnerability and Impact

Severe winter weather is relatively rare for New Orleans. The City's aging infrastructure was not designed for freezing temperatures. Older buildings, homes and pipes often lack insulation leading to damaged pipes and water damages. New Orleans' water infrastructure is vulnerable to cold-weather impacts due to shallow burial depths, limited

[6] Fourth National Climate Assessment. Chapter 23 Southern Great Plans. U.S. Global Change Program. 2018.

insulation, and placement in exposed or exterior locations typical of warm-climate construction. When temperatures fall below 32°F, water within pipes may freeze and expand, increasing internal pressure and resulting in pipe damage or failure. Widespread pipe damage resulting from winter weather can also lead to disruptions in the potable water supply due to decreased water pressure.

Elevated roads, bridges, and the Lake Pontchartrain Causeway are prone to icing, causing a shutdown of critical transit systems. Freezing rain and ice accumulation can damage trees and, subsequently, power lines, leading to prolonged power outages.

New Orleans and surrounding areas in Louisiana have faced significant power grid strain and outages during severe winter weather events like Winter Storm Enzo, which prompted emergency measures. The regional grid operator, Midcontinent Independent System Operator (MISO) may direct Entergy New Orleans to implement "load shedding" or rolling blackouts to prevent more extensive, prolonged grid failure during periods of extreme demand. The City of New Orleans is also a transmission island, meaning they import their electricity from elsewhere, and are therefore more vulnerable to external outages and strains on the grid.[7]

Due to the relative infrequency of winter storms, New Orleans does not have the capabilities (such as snowplows and material spreaders) necessary to respond to a significant winter storm. During Winter Storm Enzo, the City hired snowplows from outside the state to clear the roads, airports, and bridges. This was unprecedented as the City had not dealt with snow since 2009, when an inch was reported. NOHSEP reported a loss of $1,112,697 related to generators, supplies, food, emergency snowplow contractors, and miscellaneous costs during the response.

Additional economic impacts may occur during extreme winter weather due to increased consumption of heating fuel, which can lead to a spike in billing and a strain on residents. House fires and resulting deaths tend to occur more frequently from increased and improper use of alternate heating sources. Fires during winter weather events also present a greater danger because water supplies may freeze or water pressure may drop and impede firefighting efforts.

The City of New Orleans Planning Team identified the following critical facilities (Table 18-5) as assets that are considered the most important to the planning area and are

[7] Source: https://www.wwno.org/coastal-desk/2025-07-14/as-hurricane-season-ramps-up-how-likely-is-it-that-the-power-will-go-out-in-new-orleans

susceptible to a range of impacts caused by winter weather events. For a comprehensive list of critical facilities for each participant, please see Appendix F.

Table 18-5. Critical Facilities Vulnerable to Winter Weather Events

Critical Facilities	Potential Impacts
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers	• Emergency operations, services and response times may be significantly impacted due to power outages, and/or loss of communications. • Roads may become impassable due to snow and/or ice impacting response times by emergency services.
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	• Power outages could disrupt critical care. • Water pipes can freeze and burst leading to flooding within facilities. • Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable. • Economic disruption due to power outages negatively impacts airport services as well as area businesses reliant on airport operations. • Increased exposure risks for outdoor workers.
Commercial Supplier (food, fuel, etc.)	• Facilities, infrastructure, or critical equipment, including communications may be damaged, destroyed, or otherwise inoperable. • Essential supplies like medicines, water, food, and equipment deliveries may be delayed.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Utility operations, services and response times may be significantly impacted due to power outages, and/or loss of communications. • Roads may become impassable due to snow and/or ice impacting response times by emergency services. • Power outages could disrupt critical care. • Water pipes can freeze and burst leading to flooding within facilities.

Vulnerable populations are subject to health risks from extended exposure to cold air (Table 18-7). Elderly people are at greater risk of death from hypothermia, especially in neighborhoods with older housing stock. Disabled populations may face challenges due to factors like limited mobility, medical needs, or transportation challenges and may not be able to access appropriate sheltering to meet their functional needs. Inclusive measures are crucial to address these vulnerabilities and ensure their safety during severe weather events.

Substandard housing and older infrastructure make low-income residents more susceptible to winter storm impacts. Poor insulation is a significant contributor to New Orleans having one of the highest energy burdens in the nation. In addition, people who speak a language other than English may face increased vulnerability due to language barriers that limit their access to important information such as weather-related warnings and instructions regarding safety measures.

The population over 65 in the City of New Orleans is estimated at 16 percent of the total population and children under the age of 5 are estimated at 6 percent. The population with a disability is estimated at 14 percent of the total population. An estimated 23 percent of the planning area population live below the poverty level and 3 percent of the populations speaks English "less than very well" (Table 18-6).

Table 18-6. Populations at Greater Risk[8]

Jurisdiction	Population				
	65 and Older	Under 5	With a Disability	Below Poverty Level	Limited English Speaking
City of New Orleans	61,879	20,845	52,249	84,984	11,359

Participating educational institutions and special districts also have vulnerable populations based on work location, such as employees that work outdoors and may be subject to severe weather conditions (Table 18-7).

[8] U.S. Census Bureau 2023 data for City of New Orleans.

Table 18-7. Populations at Greater Risk by Participating Special District

Special District	Population
	Works Outdoors
Loyola University	73
Tulane University	152
Housing Authority of New Orleans (HANO)	0
New Orleans Redevelopment Authority (NORA)	0
Sewerage and Water Board of New Orleans (SWBNO)	700

Older homes tend to be more vulnerable to the impacts of winter weather events. Homes built before 1980 are generally more vulnerable to winter storm damage because they were constructed before modern energy codes, insulation standards, and wind-resistance requirements became mandatory. These older homes frequently lack sufficient insulation, feature single-pane windows, and have outdated plumbing and electrical systems that cannot handle the stress of extreme cold or power outages. Approximately 75 percent (an estimated 146,793 structures) of the housing units in the planning area were built before 1980 (Table 18-8).

Table 18-8. Structures at Greater Risk of Winter Weather Events

Jurisdiction	Structures
	SFR Built Before 1980
City of New Orleans	146,793
Housing Authority of New Orleans (HANO)	2
New Orleans Redevelopment Authority (NORA)	1
Sewerage and Water Board of New Orleans (SWBNO)	59
Loyola University	21
Tulane University	144

Winter weather has been known to cause injury to humans and occasionally has been fatal; two fatalities and one injury have resulted from winter weather in the City of New Orleans historically. Overall, the total loss estimate of property and crops in the planning area is $1,232,700 (in 2025 dollars) with an average annualized loss of $42,500. Based on historic loss and damages to the built environment, the impact of winter weather events

on the City of New Orleans planning area would be considered limited, meaning critical facilities and services shut down for 24 hours or less and less than 10 percent of property destroyed or with major damage. However, with multiple previous fatalities caused by winter weather, the severity of impact for the City of New Orleans planning area, including all educational institutions and special districts, is considered "Substantial," meaning multiple fatalities are possible depending on the extent and duration of the event.

Table 18-9. Winter Weather Event Damage Totals, 1996 - 2025

Jurisdiction	Property and Crop Loss	Average Annual Loss Estimates
City of New Orleans	$1,232,700	$42,500



Section 19

Mitigation Strategy

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Section 19: Mitigation Strategy

Mitigation Goals

At the Mitigation Strategy Workshop in June 2025, Planning Team members reviewed the goals, objectives, and mitigation strategy from the previous Plan. The mitigation strategy was informed by the risk assessment's identification of highest risks and the capability assessment's evaluation of existing functional capacity ensuring that mitigation actions were both targeted and achievable. The consensus among all members present was that the goals developed for the 2021 Plan remain relevant and will continue to serve as the framework for development and implementation of hazard mitigation actions in the 2026 Plan Update.

Goal 1

Reduce risk and vulnerability to the human environment, including cultural resources, homeowners, renters, visitors, and transient populations.

Goal 2

Reduce risk and vulnerability to the built environment, including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.

Goal 3

Reduce risk and vulnerability to the natural environment, including wetland restoration and recognition of New Orleans as a coastal city including prioritization of wetland restoration and explicit recognition of coastal conditions that inform risks.

Goal 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.

Goal 5

Promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.

Goal 6

Protect Orleans Parish and the surrounding region from the effects of natural and human-caused hazards, ensuring continuity and recovery in the event of such hazards.

Summary of the Mitigation Strategy

The recommended actions identified in Section 21 of this Plan Update encompass a range of approaches to mitigating the impacts of future disasters. While developing this Plan, the Planning Team considered actions that fall within each of four categories of mitigation actions as described by FEMA: Education and Awareness Programs, Local Plans and Regulations, Natural Systems Protection, and Structure and Infrastructure Projects.

Education and Awareness

Public education activities inform residents, businesses, and property owners about hazard risks and actions they can take to protect people and property. These activities may include radio, television, or social media outreach efforts; websites with maps and data sharing; real estate disclosures; presentations to school groups or neighborhood organizations; mailings to residents in hazard-prone areas; and access to relevant resources.

Potential/example actions include, but are not limited to:

- Educating residents on water-saving techniques such as installing low-flow water saving showerheads, checking for leaks in plumbing or dripping faucets, and installing rain-capturing devices for irrigation.
- Encouraging the installation of graywater systems in homes to support water reuse and conservation.
- Maintaining informational displays in public facilities such as libraries or community centers.
- Engaging with schools to incorporate hazard awareness and preparedness content into educational programs.

Outreach and information-sharing efforts are intended to strengthen hazard resilience at both the community and municipal levels. Input from the Planning Team, stakeholders, and the public guided mitigation actions that emphasize training, education, and the refinement of tools used to support risk-informed decision making.

Local Plans and Regulations

Local plans and regulatory activities help reduce the potential for hazards to cause damage. The use and development of hazardous areas are limited by planning, land acquisition, or regulation. They are usually administered by building, zoning, planning, and/or code enforcement offices. Examples of local plans and regulatory actions include hazard mapping, data collection and management, open space preservation, planning and zoning, building codes, and stormwater management.

Various actions target the compilation, monitoring, and management of data as the development of effective mitigation measures and strategies necessitate comprehensive, robust, and reliable information. Additional actions emphasize policy and planning-based measures, including the development and adoption of ordinances, the completion of feasibility studies, and related regulatory efforts to further support hazard mitigation. Selected actions identified in the Plan include, but are not limited to:

- Create a centralized database to integrate existing environmental monitoring networks.
- Conduct or locate funding for Regional Saltwater Intrusion Feasibility Study.
- Develop enforcement mechanisms and financial tools to support implementation of the Healthy Homes Ordinance.
- Identify funding sources to support construction and retrofits of residential properties meet fortified roof standards.
- Incorporate actions and recommendations from the Heat Mitigation Plan into local policy.

Natural Systems Protection

Nature-based and environmentally focused mitigation approaches play a key role in reducing hazard impacts while delivering broader community benefits. These approaches emphasize managing stormwater and environmental stressors at their source through the integration of natural systems and landscape-based solutions, rather than relying solely on traditional gray infrastructure. Common applications include vegetated stormwater features, expanded urban tree canopy, land conservation practices, green streets and parking areas, rainwater harvesting, and the preservation or restoration of natural areas.

Actions identified under this approach support increased stormwater retention, shoreline stabilization, and reduced flooding and erosion through nature-based flood reduction and restoration projects. These measures are intended to reduce flood-related damages to structures and infrastructure in and near floodplains and coastal areas, while also

supporting long-term environmental function through wetland creation, vegetative planting, and open space preservation.

Examples of actions identified in the Plan that support natural- and green infrastructure–based solutions include:

- Design and implement nature-based flood reduction measures such as rain gardens along the Claiborne Corridor.
- Identify and acquire open spaces adjacent to floodplain areas for green space flood reduction projects.
- Implement/construct projects from Irish Bayou Living Shoreline Project Phase I to promote shoreline stabilization.
- Complete Bayou Bienvenue Restoration Project design Phase I and construction Phase II for a restoration project in the Bayou Bienvenue Wetland Triangle.
- Establish a target property acquisition program in coordination with the City of New Orleans to target large or high-profile blighted and flood-prone properties for repurposing into low-maintenance urban forests and rain gardens.

The Planning Team also included an action to expand reforestation efforts and protect the City's tree canopy to support stormwater management, reduce extreme heat impacts, help make the City greener, and to richen the visual and aesthetic character of the City of New Orleans.

Structure and Infrastructure

Structure and infrastructure project approaches can address hazard risks through the design and construction of engineered systems that control or divert hazard forces at a broad scale. These projects may include flood control infrastructure, drainage systems, or measures to harden critical facilities and public utilities.

Structure and infrastructure actions also include property protection measures, which focus on reducing damage to at-risk structures by limiting hazard exposure, improving structural performance under hazard conditions, or reducing financial losses associated with damage. These measures may include physical modifications that prevent hazards from affecting buildings, enhancements that increase a structure's ability to withstand hazard impacts, and insurance mechanisms that provide post-disaster financial recovery. While often initiated at the property level, property protection measures may be supported through technical or financial assistance from local, regional, or federal entities, and may include actions such as acquisition or relocation of structures, building elevation, retrofitting, and the use of insurance to manage residual risk.

Structural and infrastructure project actions identified through the planning process include:

- Acquire and install generators with hard-wired quick connections at all critical facilities.
- Enhance and improvements to underground utility Infrastructure.
- Upgrade and improve transformer central plant.
- Design and implement solutions to reduce flooding at roadway underpasses.
- Implement a looped water system to the existing infrastructure to improve resiliency for existing water services.



Section 20

Previous Actions

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Section 20: Previous Actions

Summary

This section includes analysis from the 2021 Orleans Parish Hazard Mitigation Plan. Planning Team members were given copies of the actions in the 2021 Orleans Parish (CNO) Multi-Jurisdictional Mitigation Plan at the Mitigation Strategy Workshop. Previous participants reviewed the previous actions and provided an analysis as to whether the action had been completed, should be deferred for future implementation or be deleted from the Plan Update. The actions from the 2021 Plan are included in this section as they were written in 2021, except for the "2025 Analysis" section.

The New Orleans Office of Homeland Security and Emergency Preparedness (NOHSEP) has produced an annual report each year since the 2021 Plan was finalized, as part of regular plan maintenance. Each annual update includes a status update for each mitigation action, indicated if it is complete, in progress, or not yet started.

City of New Orleans Actions

Housing Authority of New Orleans (HANO) Actions

New Orleans Redevelopment Housing Authority (NORA) Actions

City of New Orleans Previous Action #2020.1.1	
Action Item:	Advocate for state and national policy supporting a Green New Deal for Housing. Along with local policy creation and implementation.
Background Information	
Description:	Incorporate recommendations from the national proposed Green New Deal for Public Housing Act into local public housing policies, such as converting buildings to electric energy, adding solar panels, and securing renewable energy sources.
Goal:	Goal 1: Reduce risk and vulnerability to the human environment, including cultural resources, homeowners, renters, visitors, and transient populations.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Extreme Heat, Winter Weather
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants, Private Financing
Lead Agency/Department Responsible:	HANO, OCD, FANO, NORA, GNOHA, Gulf South for a New Green Deal
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. Action priorities are now reflected in CNO Actions # 35, 41, 42, and 43. Current housing policy priorities are aimed at protecting resident health and strengthening resilience to hazard events.

City of New Orleans Previous Action #2020.1.2	
Action Item:	Actively plan for shifting risks, population movement, and changing development patterns in response to Climate Change.
Background Information	
Description:	Create local and regional plans for climate change-related threats, including the intensification of weather events, changing development patterns and methods, and population relocation due to environmental risk.
Goal:	Goal 1: Reduce risk and vulnerability to the human environment, including cultural resources, homeowners, renters, visitors, and transient populations.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge, Extreme Heat, Subsidence, Coastal Erosion, Infectious Disease Outbreak
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	NOHD, NOHSEP, ORS
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amend action's description to focus on developing a regional housing resilience strategy.

City of New Orleans Previous Action #2020.1.4	
Action Item:	Address equity issues within the floodplain management program: provide support for local match requirement.
Background Information	
Description:	Buildout and implement an equity strategy for the flood plain management program.
Goal:	Goal 1: Reduce risk and vulnerability to the human environment, including cultural resources, homeowners, renters, visitors, and transient populations.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge, Tornadoes, Tropical Cyclones, Coastal Erosion, Subsidence, Severe Thunderstorms, Extreme Heat, Winter Weather
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	NOHSEP, Water Collaborative of Greater New Orleans
Implementation Schedule:	1-5 years

2025 Analysis:
Delete Action. Action priorities are now reflected in CNO Actions # 59 and 60. This action has been redefined to focus on advocacy for and development of financing tools to support residents in meeting cost share requirements for mitigation grants.

City of New Orleans Previous Action #2020.1.3	
Action Item:	Refocus from coastal habitat to coastal communities.
Background Information	
Description:	Expand the scope of coastal habitat restoration, protection, and preservation to include the individuals and communities residing in these places. Incorporate the culture of coastal communities into policies surrounding coastal habitat management.
Goal:	Goal 1: Reduce risk and vulnerability to the human environment, including cultural resources, homeowners, renters, visitors, and transient populations.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge, Tornadoes, Tropical Cyclones, Coastal Erosion, Subsidence, Severe Thunderstorms, Extreme Heat, Winter Weather
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	DPW, NOHSEP, CRCL, National Wildlife Federation, Deep South Center for Environmental Justice, Southeast Louisiana VOICE
Implementation Schedule:	1-3 years

2025 Analysis:
Delete action. Action priorities are now reflected in CNO Actions # 45, 46, and 47 for coastal habitat management projects. The planning and design processes for these projects incorporated community engagement and input to ensure implementation aligns with community priorities.

City of New Orleans Previous Action #2020.2.1	
Action Item:	Complete BCEGS assessment.
Background Information	
Description:	Work to address the Building Code Effectiveness Grading Schedule
Goal:	Goal 2: Reduce risk and vulnerability to the built environment, including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tropical Cyclones, Severe Thunderstorms, Tornadoes
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund
Lead Agency/Department Responsible:	City of New Orleans (Safety and Permits)
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amend action verbiage to state "Complete BCEGS assessment and implement actions to achieve a score of 5 or better in support of CRS program credits." This action has been further specified to reflect the ongoing work of Safety and Permits.

City of New Orleans Previous Action #2020.2.2	
Action Item:	Duncan Plaza Drainage Improvement.
Background Information	
Description:	Address Storm Water Retention Needs with Improvements to the stormwater infrastructure in Duncan Plaza.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment, including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time, Contractor Labor
Potential Funding Sources:	CNO General Fund, State and Federal Grants
Lead Agency/Department Responsible:	DPW, ORS, SWBNO, Downtown Development Authority, Safety, and Permits, SOUL, GNOF, DDD
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. The City identified feasibility challenges with this project and no longer considers this action a priority.

City of New Orleans Previous Action #2020.2.3	
Action Item:	Audubon Golf Course Drainage Improvement.
Background Information	
Description:	Address Storm Water Retention Needs with Improvements to the stormwater infrastructure in the Audubon Park Golf Course.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment, including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time, Contractor Labor
Potential Funding Sources:	Audubon Institute Funds, CNO General Fund, State and Federal Grants
Lead Agency/Department Responsible:	DPW, ORS, SWBNO, Safety and Permits, Audubon Nature Institute
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amended action now reflected in CNO Action # 14 to reflect all locations in Council District A.

City of New Orleans Previous Action #2020.2.4	
Action Item:	Parks Master Plan - Drainage Project Scoping.
Background Information	
Description:	Scope potential drainage projects for inclusion in the Parks Master Plan for implementation. Make sure that there are no duplicate plans for the same area.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment, including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund
Lead Agency/Department Responsible:	DPW, ORS, NORDC, SWBNO, French Market Corporation, Parks for All, Water Collaborative of Greater New Orleans, City Park, Flood Protection Authority-East
Implementation Schedule:	1-5 years

2025 Analysis:
Action complete. Office of Youth and Families released the Big Green Easy Plan in 2024. Ongoing drainage project development is reflected in several new action items.

City of New Orleans Previous Action #2020.2.5	
Action Item:	Higher energy efficiency standards for new developments utilizing an incentive rebate and/or building code requirement.
Background Information	
Description:	Create a higher set of energy efficiency standards for building performance to reduce energy consumption and greenhouse gas emissions in new construction.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment, including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Extreme Heat, Winter Weather
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund
Lead Agency/Department Responsible:	DPW, ORS, Safety and Permits, CPC, SWBNO
Implementation Schedule:	1-5 years

2025 Analysis:
Action complete.

City of New Orleans Previous Action #2020.2.6	
Action Item:	N Claiborne Corridor Green Infrastructure.
Background Information	
Description:	Implement recommended green infrastructure improvements along the North Claiborne corridor that could include tree planting, bioswales, stormwater parks, and pervious pavement on public and private property.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment, including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Structural Projects

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Extreme Heat
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time, Contract Labor, Community Partner Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	PPW, DPW, ORS, CID, SOUL, Claiborne Avenue Alliance, local Neighborhood Associations, Merchants and Business Association, GNOF
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amended action now reflected in CNO Action # 20. City and community partners have completed multiple GI installations along the corridor and will continue to collaborate on new opportunities.

City of New Orleans Previous Action #2020.2.7	
Action Item:	2043-47 Felicity Green Infrastructure.
Background Information	
Description:	Implement recommended green infrastructure improvements along 2043- 47 Felicity Street.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment, including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Structural Projects

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Extreme Heat
Priority (High, Medium, Low):	Low
Estimated Cost:	City Staff Time, Contract Labor, Community Partner Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	ORS, DPW, PPW, SOUL
Implementation Schedule:	1-5 years

2025 Analysis:
Action complete.

City of New Orleans Previous Action #2020.2.8	
Action Item:	Lafitte Blue Way.
Background Information	
Description:	Implement recommended green infrastructure improvements along the Lafitte Greenway.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment, including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Structural Projects

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Extreme Heat
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time, Contract Labor, Community Partner Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	ORS, DPW, PPW, Friends of the Lafitte Greenway, NORDC, SWBNO, SOUL
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amended action now reflected in CNO Action # 20 to more accurately reflect project goals.

City of New Orleans Previous Action #2020.2.9	
Action Item:	Provide shade structures, and seating at all RTA stops and evacuation pick-up sites.
Background Information	
Description:	Work with the RTA to protect riders from the elements at RTA stops and evacuation sites.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment, including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Structural Projects

Mitigation Action Details	
Hazard(s) Addressed:	Extreme Heat
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time, Partner Agency Time, Contract Labor
Potential Funding Sources:	CNO General Fund, State and Federal Grants
Lead Agency/Department Responsible:	Safety and Permits, RTA, City Council, Mayor's Office of Transportation, DPW, RIDE New Orleans, RTA Rider's Advisory Committee
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amended action now reflected in CNO Action # 53 to reflect RTA's progress through the Better Bus Stops initiative since the 2020 Plan Update.

City of New Orleans Previous Action #2020.2.10	
Action Item:	Solar for All.
Background Information	
Description:	Make solar power a realistic and viable option for residential and commercial property owners and city-owned properties in Orleans Parish to increase energy security, reduce energy costs, and reduce dependence on fossil fuels.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment, including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Extreme Heat, Winter Weather, Infrastructure Failure
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants, Private Financing
Lead Agency/Department Responsible:	ORS, Community Development, Finance New Orleans, NORA, GNOHA
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amend action to include revised description to capture current priorities.

City of New Orleans Previous Action #2020.2.11	
Action Item:	Integrate design solutions into community stormwater behaviors (e.g., designate parking areas in neutral grounds to avoid damage to trees and underground infrastructure).
Background Information	
Description:	Implement citywide urban design standards intended to guide the community's response to stormwater management. Ensure the design guidelines and solutions consider the location of utilities and green infrastructure to prevent accidental and unintended damage to City facilities and improve safety and mobility.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment, including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Property Protection

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tornadoes, Tropical Cyclones, Severe Thunderstorms, Winter Weather, Active Threats, Infrastructure Failure
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time, Contract Labor
Potential Funding Sources:	Homeland Security, FEMA, Health and Human Services
Lead Agency/Department Responsible:	ORS, DPW, SWBNO
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amend action verbiage to state “Develop map of designated "no parking areas" in neutral grounds to avoid damage to trees and underground infrastructure.”

City of New Orleans Previous Action #2020.2.12	
Action Item:	Encourage voluntary installation of residential sprinkler systems. Create an incentive program for the voluntary installation of residential sprinklers in key areas.
Background Information	
Description:	Consider incentives for residential sprinklers for existing structures, renovated structures, and new construction.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment, including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Structural Projects

Mitigation Action Details	
Hazard(s) Addressed:	Winter Weather, Infrastructure Failure
Priority (High, Medium, Low):	Low
Estimated Cost:	
Potential Funding Sources:	
Lead Agency/Department Responsible:	New Orleans Fire Department, CPC
Implementation Schedule:	

2025 Analysis:
Action complete.

City of New Orleans Previous Action #2020.3A.1	
Action Item:	Complete a Methane Capture Feasibility Study at SWBNO Wastewater Treatment Plant.
Background Information	
Description:	Explore opportunities to capture and reuse methane as an energy source rather than allowing it to be released as a harmful pollutant.
Goal:	Goal 3: Reduce risk and vulnerability to the natural environment, including wetland restoration and recognition of New Orleans as a coastal city.
Type of Action:	Natural Resource Protection

Mitigation Action Details	
Hazard(s) Addressed:	Tornadoes, Tropical Cyclones, Severe Thunderstorms
Priority (High, Medium, Low):	Medium
Estimated Cost:	
Potential Funding Sources:	CNO General Fund, State and Federal Grants
Lead Agency/Department Responsible:	SWBNO
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. The City no longer considers this action a mitigation priority. This action is supportive of the goals of the Climate Action Plan and SWBNO may carry this forward through its Capital Improvement Plan.

City of New Orleans Previous Action #2020.3.2	
Action Item:	Sankofa Wetlands Enhancement.
Background Information	
Description:	Develop a wetland park and nature trail on 40 acres of space in the Lower Ninth Ward to help increase floodwater retention through bioretention ponds and mitigate stormwater overflow, as well as provide outdoor education and recreation space to support economic development in the Lower Ninth Ward and Greater New Orleans Area.
Goal:	Goal 3: Reduce risk and vulnerability to the natural environment, including wetland restoration and recognition of New Orleans as a coastal city.
Type of Action:	Natural Resource Protection

Mitigation Action Details	
Hazard(s) Addressed:	Coastal Erosion
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time, Community Partner Time
Potential Funding Sources:	Components of the project have been funded by Environmental Justice Small Grant from the US EPA, Coastal Resilience grant from CPRA, Kresge American Cities, Entergy Services Llc Environmental Initiatives Fund, WK Kellog Foundation, FEMA and DSCEJ.
Lead Agency/Department Responsible:	Lead: Sankofa; Supporting: Wetland Resources, Comite Resources, SWB, CNO, Earth Economics, Engineers without Borders, Batture Engineering, USDA NRCS, Asakura Robinson, Southern University Agricultural Research and Extension Center, Deep South Center for Environmental Justice, National Park Service Rivers Trails and Conservation Program
Implementation Schedule:	1-5 years

2025 Analysis:
Action complete.

City of New Orleans Previous Action #2020.3.3	
Action Item:	NO East Landbridge Restoration: Advocate for NRDA funding.
Background Information	
Description:	Advocate for NRDA Funding of the NOE Land Bridge Project at State and Federal Levels.
Goal:	Goal 3: Reduce risk and vulnerability to the natural environment, including wetland restoration and recognition of New Orleans as a coastal city.
Type of Action:	Natural Resources Protection

Mitigation Action Details	
Hazard(s) Addressed:	Coastal Erosion, Storm Surge
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	ORS, NOHSEP, DPW, Orleans Land Bridge, Pontchartrain Conservancy, MRGO Coalition, Mississippi Restore Coalition, St. Bernard Parish, Regional Planning Commission, Flood Protection Authority-East
Implementation Schedule:	1-5 years

2025 Analysis:
Action complete. CPRA has completed design and identified construction funding. A new action has been developed to focus on implementation of the project and is reflected in CNO Action # 47.

City of New Orleans Previous Action #2020.3.4	
Action Item:	Restore the Mississippi River Delta
Background Information	
Description:	Advocate for Funding of the continued restoration of the MRGO at State and Federal Levels.
Goal:	Goal 3: Reduce risk and vulnerability to the natural environment, including wetland restoration and recognition of New Orleans as a coastal city.
Type of Action:	Natural Resources Protection

Mitigation Action Details	
Hazard(s) Addressed:	Coastal Erosion, Storm Surge
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	ORS, DPW, NOHSEP, Restore the Delta Gulf Program for National Wildlife Federation, Pontchartrain Conservancy, Food Protection Authority-East
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Now that federal legislation has allocated funding for MRGO restoration projects, the state is leading coordination efforts to advocate for implementing priority shoreline protection projects.

City of New Orleans Previous Action #2020.3.5	
Action Item:	Bayou Bienvenue/Central Wetlands Restoration.
Background Information	
Description:	Advocate for Funding of the restoration of Bayou Bienvenue at State and Federal Levels.
Goal:	Goal 3: Reduce risk and vulnerability to the natural environment, including wetland restoration and recognition of New Orleans as a coastal city.
Type of Action:	Natural Resources Protection

Mitigation Action Details	
Hazard(s) Addressed:	Coastal Erosion, Storm Surge
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	ORS, Sankofa Community Development Corporation, Center for Sustainable Engagement, MRGO Must Go, Flood Protection Authority-East, St. Bernard Parish
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amended action now reflected in CNO Action # 46.

City of New Orleans Previous Action #2020.3.6	
Action Item:	Scale-up tree planting to the neighborhood level, opt-out approach, contiguous planting grids.
Background Information	
Description:	Promote tree clustering strategy, which will allow plantings to have a more impactful scale. It is a proven strategy that produces numerous environmental benefits, which has been implemented in numerous major cities, including Atlanta. Explore an opt-out planting strategy where the community pre-selects streets for plantings; property owners can "opt-out" of the project if they desire.
Goal:	Goal 3: Reduce risk and vulnerability to the natural environment, including wetland restoration and recognition of New Orleans as a coastal city.
Type of Action:	Natural Resources Protection

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Extreme Heat
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund
Lead Agency/Department Responsible:	NOHSEP, CPC, Parks and Parkways, Sustaining Our Urban Landscape (SOUL), NOLA Tree Project
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. Action priorities are now reflected in CNO Actions # 51 and 52.

City of New Orleans Previous Action #2020.3.7	
Action Item:	Former Recovery 1 Landfill maintenance and environmental protection of Bayou Sauvage.
Background Information	
Description:	Ensure the former Recovery 1 landfill site located adjacent to Bayou Sauvage, a National Wildlife Refuge, is properly and safely maintained over time to prevent contamination of Bayou Sauvage.
Goal:	Goal 3: Reduce risk and vulnerability to the natural environment, including wetland restoration and recognition of New Orleans as a coastal city.
Type of Action:	Natural Resources Protection

Mitigation Action Details	
Hazard(s) Addressed:	Infrastructure Failure
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time, Contract Labor
Potential Funding Sources:	CNO General Fund, EPA Grants, other State, and Federal Grants
Lead Agency/Department Responsible:	Sanitation and DPW, ORS
Implementation Schedule:	1-5 years

2025 Analysis:
Action complete.

City of New Orleans Previous Action #2020.4.1	
Action Item:	Complete a job study to institutionalize floodplain management training as a requirement for key positions. Provide training in floodplain management principles for local officials and increase the number of Certified Floodplain Managers on City staff.
Background Information	
Description:	Work with the Civil Service Commission to require building officials employed at the city to become Certified Floodplain Managers (CFM) through ASFPM. Work with SHMO to schedule trainings in Orleans Parish. Explore adding CFM as a requirement for resilience officers, others.
Goal:	Goal 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.
Type of Action:	Public Education & Awareness

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tropical Cyclones, Coastal Erosion, Subsidence, Infrastructure Failure
Priority (High, Medium, Low):	Low
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants
Lead Agency/Department Responsible:	Civil Service, Safety and Permits, Water Collaborative of Greater New Orleans
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update.

City of New Orleans Previous Action #2020.4.2	
Action Item:	Realtor education on flood risk and a city/state policy on real estate disclosures about flood risk.
Background Information	
Description:	Work with the Metropolitan Realtors Association and Louisiana Realtors Association to understand this issue from their point of view. Also, hold meetings for public comment on this issue to fully inform the policy. Develop and implement a policy at the State and Local level.
Goal:	Goal 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.
Type of Action:	Public Education & Awareness

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund
Lead Agency/Department Responsible:	Orleans Parish Civil Clerk of Court, Urban Conservancy, Water Collaborative of Greater New Orleans
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amended action with revised description of the action to develop policy recommendations and provide educational opportunities for realtors.

City of New Orleans Previous Action #2020.4.3	
Action Item:	Leverage Resilience work to create workforce development opportunities.
Background Information	
Description:	Work with the WIB and JOB1 to build out a strategy for workforce development in the field of resiliency. Leverage local resilience and mitigation efforts as opportunities to train the local workforce in 'green' jobs, such as sustainable construction, green infrastructure, adaptive reuse of demolition materials, energy and carbon capture and storage, and water quality technicians. Make sure all angles of workforce development are being addressed.
Goal:	Goal 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.
Type of Action:	Public Education & Awareness

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge, Tornadoes, Tropical Cyclones, Severe Thunderstorms, Extreme Heat, Subsidence, Winter Weather, Coastal Erosion, Infectious Disease Outbreak, Active Threats, Infrastructure Failure, Hazardous Materials, Economic Shock
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	Job1, Workforce Investment Board, ORS, DPW, GNOF, Schools and Universities, Job1, CCC OCD, Sankofa Community Development Corporation, LA Green Jobs Corps
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. The City no longer considers this action a mitigation priority but will continue to seek out workforce development opportunities and partnerships.

City of New Orleans Previous Action #2020.4.4	
Action Item:	Expand the residential lot-scale green infrastructure model piloted in the Gentilly Resilience District Community Adaptation Program.
Background Information	
Description:	Develop program criteria and identify a funding stream to allow for expansion of the Community Adaptation Program to additional neighborhoods.
Goal:	Goal 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.
Type of Action:	Public Education & Awareness

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Extreme Heat
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time, Contract Labor
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	ORS/SWBNO, NORA /CNO (Community Development and Public Works), NOHSEP, Water Wise Gulf South
Implementation Schedule:	1-2 years

2025 Analysis:
Defer action to Plan Update. Amend action's description as "Provide financial and technical assistance to homeowners to implement stormwater management measures through the Community Adaptation Program."

City of New Orleans Previous Action #2020.4.5	
Action Item:	Update and Maintain the Climate Adaptation decision support tool and encourage the use of the tool.
Background Information	
Description:	Update and Maintain the Climate Adaptation decision support tool and encourage the use of the tool.
Goal:	Goal 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.
Type of Action:	Public Education & Awareness

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge, Tropical Cyclones, Coastal Erosion, Subsidence, Severe Thunderstorms, Extreme Heat, Winter Weather
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time, Contract Labor
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	ORS, SWBNO, NOHSEP, CPC, Trust for Public Land
Implementation Schedule:	1-5 years

2025 Analysis:
Action complete.

City of New Orleans Previous Action #2020.4.6	
Action Item:	Increase water literacy curriculum development, teacher training, the goal of all students receiving 1 hour/year of qualified instruction.
Background Information	
Description:	Work with Orleans Parish School Board and other charter schools in the Parish to develop a curriculum for water ecology, rain gardens, best management practices for stormwater management (catch basin debris collection, etc.).
Goal:	Goal 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.
Type of Action:	Public Education & Awareness

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge, Coastal Erosion, Tropical Cyclones, Subsidence
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	Philanthropy, School Board
Lead Agency/Department Responsible:	New Orleans Public School Board, DPW, ORS, Ripple Effect, Flood Protection Authority-East, Green Light New Orleans, Water Collaborative of Greater New Orleans, Pontchartrain Conservancy, Water Institute
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. The City does not have authority over responsible agency for this action.

City of New Orleans Previous Action #2020.4.7	
Action Item:	Louisiana Watershed Initiative - City engagement in Region 6 and Region 8 planning and policy.
Background Information	
Description:	Continue coordination with Regional Planning Commission (RPC) and other parishes in Region 6 and Region 8 to implement the planning and policy development for watershed management in the region. Evaluation of flood risks and identification of projects in the region to minimize the flood risk in accordance with Louisiana Water Initiative launched by the State of Louisiana in 2018 based on the following principles: 1) Using scientific tools and data; 2) Enabling transparent, objective decision-making; 3) Maximizing the natural function of floodplains; 4) Establishing regional, watershed-based management of flood risk.
Goal:	Goal 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.
Type of Action:	Public Education & Awareness

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund
Lead Agency/Department Responsible:	CPC, RPC, ORS, Water Collaborative of Greater New Orleans, DPW, Greater New Orleans Water Collaborative
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. With a note that although this action is still considered a priority, Louisiana Watershed Initiative funding is either completely obligated or expended, so future of this program is uncertain.

City of New Orleans Previous Action #2020.4.8	
Action Item:	Reforestation community outreach plan
Background Information	
Description:	Develop a public outreach and education plan to involve residents, businesses, and public officials to promote an equitable and healthy tree canopy. This public outreach program will facilitate the ongoing city's reforestation initiative to restore and expand the urban forest to a 50 percent tree canopy coverage by 2030 as specified in the city master plan—link reforestation to complete streets elements like desirable walking conditions and traffic calming.
Goal:	Goal 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.
Type of Action:	Public Education & Awareness

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund
Lead Agency/Department Responsible:	NOHSEP, CPC, Parks and Parkways, Sustaining Our Urban Landscape (SOUL), NOLA Tree Project
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. Action priorities are now reflected in CNO Action # 52.

City of New Orleans Previous Action #2020.4.9	
Action Item:	Provide financial incentives to make mitigation accessible to all.
Background Information	
Description:	Provide financial incentives at the City, Parish, or State level to make hazard mitigation improvements to private property accessible to all residents. Examples of incentives include offering low loan insurance rates for renovations, insurance discounts, home interest rate reductions, and SBA loan guarantee programs.
Goal:	Goal 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.
Type of Action:	Public Education & Awareness

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tornadoes, Tropical Cyclones, Severe Thunderstorms, Extreme Heat, Subsidence, Winter Weather, Coastal Erosion, Infectious Disease Outbreak, Active Threats, Infrastructure Failure, Hazardous Materials, Economic Shock
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	State and Federal Grants
Lead Agency/Department Responsible:	NOHSEP, OCD, ORS
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. Action priorities are now reflected in CNO Action # 41.

City of New Orleans Previous Action #2020.4.10	
Action Item:	Develop a tool with City monitoring data (AFWS) similar to the education/data monitoring tools that federal agencies use.
Background Information	
Description:	Create an online, interactive tool utilizing City monitoring data around hazard mitigation initiatives for public use and education. This tool can be modeled after federal agency data monitoring tools. Ensure the tool is accessible to all, including K-12 audiences.
Goal:	Goal 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.
Type of Action:	Public Education & Awareness

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tornadoes, Tropical Cyclones, Severe Thunderstorms, Extreme Heat, Subsidence, Winter Weather, Coastal Erosion, Infectious Disease Outbreak, Active Threats, Infrastructure Failure, Hazardous Materials, Economic Shock
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time, Contract Labor
Potential Funding Sources:	City capital bond funds, GOMESA, CDBG, CDBG-NDR, Sewerage and Water Board, State capital outlay, FHWA, FEMA- HMGP, US Army Corps of Engineers, FEMA
Lead Agency/Department Responsible:	NOHSEP, DPW, PPW, ITI
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. Action priorities are now reflected in CNO Action # 11.

City of New Orleans Previous Action #2020.4.11	
Action Item:	Improve access to green jobs from a young age as a means to greater social equity.
Background Information	
Description:	Integrate green jobs education and skill-building into K-12 school and after school curriculums. Coordinate with education-focused organizations in the greater New Orleans area to offer additional educational opportunities pertaining to green jobs as a means to high-paying careers.
Goal:	Goal 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.
Type of Action:	Public Education & Awareness

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge, Tornadoes, Tropical Cyclones Severe Thunderstorms, Extreme Heat, Winter Weather, Coastal Erosion, Subsidence
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time, Contract Labor
Potential Funding Sources:	GOMESA, CPRA, CWPPRA, Sewerage and Water Board
Lead Agency/Department Responsible:	WIB, Job1, ORS, DPW, Louisiana Department of Education, CCC, Thrive NOLA, City Council, New Orleans School Board, Charter schools, Delgado Horticultural Tech, Edible Schoolyards, STEM Nola
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. This action is not a mitigation action and the intent is addressed through existing workforce development policies and programs.

City of New Orleans Previous Action #2020.4.12	
Action Item:	Household Hazard Waste drop-off days: involve volunteers, scale-up material recovery, and landfill diversion.
Background Information	
Description:	Advertise and coordinate household hazardous waste drop-off days with local jurisdictions. Recruit volunteers to assist with expanding City efforts to scale up material recovery and landfill diversion. Improve public education to Orleans Parish residents about household hazardous waste Materials Collection Day and related efforts.
Goal:	Goal 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.
Type of Action:	Public Education & Awareness

Mitigation Action Details	
Hazard(s) Addressed:	Hazardous Materials
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time and Disposal
Potential Funding Sources:	CNO General Fund, State and Federal Grants
Lead Agency/Department Responsible:	New Orleans Department of Sanitation, Keep New Orleans Beautiful
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amended action with revisions to focus on increasing the frequency of hazardous waste drop-off events.

City of New Orleans Previous Action #2020.4.13	
Action Item:	Green Infrastructure maintenance manual.
Background Information	
Description:	Create a comprehensive green infrastructure maintenance manual for Orleans Parish that details procedures such as who is the party responsible for maintenance, what are the steps and needed equipment and materials to maintain the green infrastructure, plans for biological risk monitoring, how these efforts can be sustainably funded over time, and how maintenance will be properly inspected and enforced.
Goal:	Goal 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.
Type of Action:	Public Education & Awareness

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tornadoes, Tropical Cyclones, Severe Thunderstorms, Extreme Heat, Winter Weather, Coastal Erosion, Subsidence
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time, Contract Labor
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	ORS, DPW, NOHSEP, PPW, SWBNO, Water Wise Gulf South
Implementation Schedule:	1-5 years

2025 Analysis:
Action complete.

City of New Orleans Previous Action #2020.5.1	
Action Item:	Create and Maintain Databases to aid in Floodplain Management.
Background Information	
Description:	Create an Elevation Certificate database and FFE estimation tool to augment the RLAA findings and aid floodplain management planning. Train building officials to enter data from new ECs in order to maintain the database.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund
Lead Agency/Department Responsible:	City of New Orleans (Safety and Permits, ITI), GNO Inc.
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. The City has been collaborating with UNO, SWBNO, ORS and others partners.

City of New Orleans Previous Action #2020.5.2	
Action Item:	Stormwater Fee.
Background Information	
Description:	Draft a citywide policy to levy and administer a stormwater fee to fund stormwater mitigation projects across the city. Study how this would impact and interact with other fees (e.g., how this will impact non-profits).
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund
Lead Agency/Department Responsible:	ORS, SWBNO
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. The city indicated SWBNO is the lead agency for the implementation of this action.

City of New Orleans Previous Action #2020.5.3	
Action Item:	Insurance credit for fortified roofs to incentivize builders to use resilient materials and methods.
Background Information	
Description:	Create a state-level insurance credit to incentivize the installation of roofs adhering to fortified building methods, which are designed to strengthen residential and commercial buildings against high winds and hurricanes. Promote community education opportunities around this incentive for new and existing homeowners.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Property Protection

Mitigation Action Details	
Hazard(s) Addressed:	Tropical Cyclones, Severe Thunderstorms, Tornadoes
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	State Revenue
Lead Agency/Department Responsible:	OCD, IGA, Finance New Orleans
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. The LA insurance commission established policy to create insurance credits for fortified roofs; ongoing policy advocacy will continue to expand and improve the insurance premium reductions. Action priorities are now reflected in CNO Action # 41 with focus on IGA's role in advocating at state level for expanding fortified roof premium reductions.

City of New Orleans Previous Action #2020.5.4	
Action Item:	"Green" Specifications to promote the use of resilient building materials in City projects.
Background Information	
Description:	Develop a set of standards aimed at promoting the use of resilient building materials in government-owned, commercial, and residential projects.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Extreme Heat, Winter Weather
Priority (High, Medium, Low):	Low
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund
Lead Agency/Department Responsible:	City of New Orleans (PDU-SI), DPW, Safety and Permits
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. The intent of this action is addressed through current building codes and retrofit programs.

City of New Orleans Previous Action #2020.5.5	
Action Item:	Develop "Green" Specifications to promote use of resilient building materials in City projects.
Background Information	
Description:	Develop and implement a set of standards aimed at promoting the use of resilient building materials in government-owned, commercial, and residential projects.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Extreme Heat, Winter Weather
Priority (High, Medium, Low):	Low
Estimated Cost:	Staff Time
Potential Funding Sources:	TBD
Lead Agency/Department Responsible:	HANO
Implementation Schedule:	1-3 years

2025 Analysis:
Defer action to Plan Update. Amend action verbiage to state “Promote use of resilient building materials in City developments.”

City of New Orleans Previous Action #2020.5.6	
Action Item:	Urban Heat Island Study.
Background Information	
Description:	Conduct an Urban Heat Island Study that addresses extreme heat threats on a neighborhood-by-neighborhood level. Identify areas most in need of interventions to prevent extreme heat threats and prioritize project implementation in those places.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Extreme Heat
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time, Contract Labor
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	NOHD, NOHSEP, NACCHO, Growing Gardens, Earth Economics
Implementation Schedule:	Medium

2025 Analysis:
Delete action. Action priorities are now reflected in CNO Action # 36. New action reflects ongoing work by NOHD, ORS, and Hazard Mitigation to develop a Heat Adaptation Plan.

City of New Orleans Previous Action #2020.5.7	
Action Item:	Advocate for NFIP reforms.
Background Information	
Description:	Advocate for National Flood Insurance Program (NFIP) reforms, including increasing the cap on Increased Cost of Compliance (ICC) coverage and freezing premiums for properties enrolled in Hazard Mitigation Assistance (HMA) programs.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund
Lead Agency/Department Responsible:	NOHSEP, Mayors Office, City Council, Regional Planning Commission, Housing Nola, Urban Conservancy, Flood Protection Authority-East and West
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update.

City of New Orleans Previous Action #2020.5.8	
Action Item:	Explore incorporating repetitive damage provision in the City's floodplain ordinance.
Background Information	
Description:	Including a Repetitive Loss provision would increase access to ICC funds for repetitive loss property owners. This would help fund residential mitigation projects. CPC to investigate adding a repetitive loss mechanism to the CZO that would enable ICC to be triggered for repetitive loss of residential properties. This would help some homeowners meet their non-federal match for mitigation grant projects. IGA to advocate at the federal level with support from Hazard Mitigation Office and ORS to raise the ICC funding cap.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge, Tropical Cyclones, Tornadoes
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund
Lead Agency/Department Responsible:	NOHSEP, Safety and Permits, ORS, Housing Nola, Urban Conservancy, Flood Protection Authority-East and West, Water Collaborative of Greater New Orleans
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. This is due to concerns about a lack of social and political support, and potential impacts to housing affordability.

City of New Orleans Previous Action #2020.5.9	
Action Item:	Develop in-house custom HAZUS model for risk assessment and decision support.
Background Information	
Description:	Create an in-house HAZUS model, a nationally standardized methodology from FEMA for estimating potential losses from natural disasters, designed to support risk-informed decision-making efforts specific to Orleans Parish.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Public Education & Awareness

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge, Tornadoes, Tropical Cyclones, Severe Thunderstorms, Extreme Heat, Winter Weather
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants
Lead Agency/Department Responsible:	NOHSEP
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. This action is no longer considered a priority.

City of New Orleans Previous Action #2020.5.10	
Action Item:	Complete update to Climate Action Plan Update.
Background Information	
Description:	Perform an update of the Climate Action Plan and incorporate relevant actions into the HM plan.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge, Coastal Erosion, Tropical Cyclones
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	ORS, NOHSEP, Climate Action Equity Advisory Group, C40
Implementation Schedule:	1-5 years

2025 Analysis:
Action complete.

City of New Orleans Previous Action #2020.5.11	
Action Item:	Financing for State and Local adaption.
Background Information	
Description:	Examine the financing mechanism from other states and municipalities for funding adaptation beyond FEMA recovery dollars. Advocate for federal authorization and ACE implementation for levees that can protect up to the 500-year level.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge, Coastal Erosion, Tropical Cyclones
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	NOHSEP, Economic Development, Finance Authority, Regional Planning Commission, Sankofa Community Development Corporation, Urban Conservancy
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. Action priorities are now reflected in CNO Action # 41 and Retained Actions # 2020.1.4 and 2020.4.9.

City of New Orleans Previous Action #2020.5.12	
Action Item:	HSDDRS authorized level of protection, MP goal of 500-year protection: assign City team. This is a Congressional Authorization of the levee system that could include a higher level of protection than the ACE have approved.
Background Information	
Description:	Utilize City Team to address 500-year flood protection.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge, Coastal Erosion, Tropical Cyclones
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	ORS, Tulane Center for Environmental Law, Flood Protection Authority-East
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amend action with refocus as an advocacy action.

City of New Orleans Previous Action #2020.5.13	
Action Item:	Conduct a study to evaluate the potential impacts of a catastrophic rain event.
Background Information	
Description:	Conduct a study to better understand and evaluate the potential impacts of catastrophic rain events. Incorporate the outcomes of this study into recommendations for regional emergency preparedness planning.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time, Contract Labor, Imagine Water Works, Urban Conservancy, IC Change
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	NOHSEP, NOHD, DPW, SWBNO
Implementation Schedule:	1-5 years

2025 Analysis:
Action complete.

City of New Orleans Previous Action #2020.5.14	
Action Item:	Investigate HSDDRS authorization to make a case for nonstructural investment.
Background Information	
Description:	Study how non-structural investments could be implemented from the HSDDRS authorization.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time, Contract Labor
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	DPW, ORS, Tulane Center for Environmental Law, New Orleans City Council Governmental Affairs Committee, Flood Protection Authority-East
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. The City no longer considers this action a priority.

City of New Orleans Previous Action #2020.5.15	
Action Item:	Develop a policy for the adaptive re-use and recycling of demolition materials.
Background Information	
Description:	Develop a city-wide policy regarding re-use of materials from structure demolitions, other ways to reduce the greenhouse gas footprint of new construction or retrofits.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Hazardous Materials
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	Sanitation, ORS, CPC
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. The City no longer considers this action a priority.

City of New Orleans Previous Action #2020.5.16	
Action Item:	Explore code/policy models related to canopy preservation on private property.
Background Information	
Description:	Look at Houston Tree Ordinance as a potential guide for such a policy.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Extreme Heat
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	CPC, Parks and Parkways, ORS, SOUL
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amend action to remove SOUL from lead agency/department responsible.

City of New Orleans Previous Action #2020.5.17	
Action Item:	Coordinate with USACE on recertification on HSDRRS at the 100-year level of protection.
Background Information	
Description:	Work with USACE to update the HSDRRS risk assessment (conducted in 2013) to obtain NFIP recertification (due in 2023) for 100-year flood protection from FEMA.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund
Lead Agency/Department Responsible:	SLFPA-E, SLFPA-W, ORS, CPRA
Implementation Schedule:	1-5 years

2025 Analysis:
Action complete.

City of New Orleans Previous Action #2020.5.18	
Action Item:	Complete study on the economic impact of Green Infrastructure investments and implement policy recommendations.
Background Information	
Description:	Work with GNOF and partners to implement the recommendations of the 2020 Green Infrastructure economic impact study.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tornadoes, Tropical Cyclones, Severe Thunderstorms
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund
Lead Agency/Department Responsible:	GNOF, OCD, Water Collaborative of Greater New Orleans, Healthy Community Services, Nola BA, GNO Inc., Finance Authority, Upper Alliance Energy
Implementation Schedule:	1-5 years

2025 Analysis:
Action completed through NDR.

City of New Orleans Previous Action #2020.5.19	
Action Item:	Explore new ordinance for new construction to include native tree planting, protection of existing canopy, including on private property
Background Information	
Description:	Evaluate the options for amending the building code and zoning ordinance to require/promote the preservation of existing native trees and planting of new native trees in the development of new properties.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tornadoes, Tropical Cyclones, Severe Thunderstorms
Priority (High, Medium, Low):	Low
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund
Lead Agency/Department Responsible:	CPC, Parks and Parkways
Implementation Schedule:	1-5 years

2025 Analysis:
Action complete. A Tree Protection Ordinance was approved in March of 2025, however, the ordinance does not extend to tree canopy protection on private property. Plan Update includes Retained Action # 2020.5.16 for private property.

City of New Orleans Previous Action #2020.5.20	
Action Item:	List the permitting process for tree planting and some types of concrete removal as Green Infrastructure rather than a Construction project.
Background Information	
Description:	Reclassify the tree planting activities under green infrastructure projects instead of construction projects.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Extreme Heat
Priority (High, Medium, Low):	Low
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund
Lead Agency/Department Responsible:	CPC, DPW, Safety and Permits, SOUL, Nola Tree Project
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amend action verbiage to state "Revise existing city policy to streamline permitting process for Green Stormwater Infrastructure." Removed SOUL and NOLA Tree Project from lead agency/department responsible.

City of New Orleans Previous Action #2020.5.21	
Action Item:	Create a citywide data platform for all green infrastructure projects
Background Information	
Description:	Coordinate between the City of New Orleans, local jurisdictions, Orleans Parish, neighboring Parishes, regional planning organizations, environmental organizations, and any other relevant stakeholder groups to compile a user-friendly, interactive data platform displaying green infrastructure projects and initiatives.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tornadoes, Tropical Cyclones, Severe Thunderstorms, Extreme Heat, Winter Weather, Coastal Erosion, Subsidence
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time, Contract Labor
Potential Funding Sources:	EPA, US Army Corps of Engineers, FEMA-HMGP
Lead Agency/Department Responsible:	IT, Love Your City
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amend action verbiage to state "Work with relevant city stakeholders and partners to develop a consolidated database to track all green infrastructure initiatives across the city."

City of New Orleans Previous Action #2020.5.22	
Action Item:	Link cross-parish projects to LWI and DOTD priorities, including Claiborne Ave, N Broad St, and Tulane Ave.
Background Information	
Description:	Coordinate Orleans Parish mitigation initiatives with neighboring parishes to meet regional goals around safety and mobility, including those outlined by the Louisiana Watershed Initiative and the Louisiana Department of Transportation and Development. Cross-jurisdictional project examples focused on major thoroughfares include Claiborne Avenue, Broad Street, and Tulane Avenue.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time, Contract Labor
Potential Funding Sources:	EPA, Health and Human Services, Port of New Orleans
Lead Agency/Department Responsible:	Regional Planning Commission, NOHSEP, DPW, Jefferson Parish, St. Bernard Parish, RIDE
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. There is currently ongoing coordination between the State and the City on the N Claiborne Ave Project.

City of New Orleans Previous Action #2020.5.23	
Action Item:	Create a citywide data platform of all green infrastructure projects.
Background Information	
Description:	Coordinate with the City of New Orleans to compile a user-friendly, interactive data platform displaying green infrastructure projects and initiatives.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tornadoes, Tropical Cyclones, Severe Thunderstorms, Extreme Heat, Winter Weather, Coastal Erosion, Subsidence
Priority (High, Medium, Low):	Medium
Estimated Cost:	Staff Time, Contract Labor
Potential Funding Sources:	EPA, US Army Corps of Engineers, FEMA-HMGP
Lead Agency/Department Responsible:	SWBNA/CNO, (Information Technology & Innovation)
Implementation Schedule:	4-5 years

2025 Analysis:
Defer action to Plan Update. Amend action to include the priorities of CNO Previous Actions # 2020.5.25 and 2020.5.26.

City of New Orleans Previous Action #2020.5.24	
Action Item:	Implement system to monitor green infrastructure projects and/or other resilience measures on NORA properties.
Background Information	
Description:	Utilize resilience metrics and/or technology provided by the City of New Orleans to track the impact of green infrastructure projects and other resilience initiatives.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tornadoes, Tropical Cyclones, Severe Thunderstorms, Extreme Heat, Winter Weather, Coastal Erosion, Subsidence
Priority (High, Medium, Low):	Medium
Estimated Cost:	Staff Time, Contract Labor
Potential Funding Sources:	CNO General Fund, EPA, US Army Corps of Engineers, FEMA-HMGP
Lead Agency/Department Responsible:	ORS/SWBNO, NORA/CNO, (Information Technology & Innovation)
Implementation Schedule:	4-5 years

2025 Analysis:
Defer action to Plan Update.

City of New Orleans Previous Action #2020.5.25	
Action Item:	Create a citywide data platform of all green infrastructure projects.
Background Information	
Description:	Coordinate with the City of New Orleans to compile a user-friendly, interactive data platform displaying green infrastructure projects and initiatives.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tornadoes, Tropical Cyclones, Severe Thunderstorms, Extreme Heat, Winter Weather, Coastal Erosion, Subsidence
Priority (High, Medium, Low):	Medium
Estimated Cost:	Staff Time, Contract Labor
Potential Funding Sources:	EPA, US Army Corps of Engineers, FEMA-HMGP
Lead Agency/Department Responsible:	HANO/CNO (information Technology & Innovation)
Implementation Schedule:	4-5 years

2025 Analysis:
Delete action. Action priorities are now reflected in Retained Action # 2020.5.23.

City of New Orleans Previous Action #2020.5.26	
Action Item:	Create a citywide data platform of all green infrastructure projects.
Background Information	
Description:	Coordinate with the City of New Orleans to compile a user-friendly, interactive data platform displaying green infrastructure projects and initiatives.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tornadoes, Tropical Cyclones, Severe Thunderstorms, Extreme Heat, Winter Weather, Coastal Erosion, Subsidence
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time, Contract Labor
Potential Funding Sources:	EPA, US Army Corps of Engineers, FEMA-HMGP
Lead Agency/Department Responsible:	Tulane University/ CNO (Information Technology & Innovation)
Implementation Schedule:	4-5 years

2025 Analysis:
Delete action. Action priorities are now reflected in Retained Action # 2020.5.23.

City of New Orleans Previous Action #2020.5.27	
Action Item:	Link cross-parish projects to LWI and DOTD priorities, including Claiborne Ave, N Broad St, and Tulane Ave.
Background Information	
Description:	Coordinate Orleans Parish mitigation initiatives with neighboring parishes to meet regional goals around safety and mobility, including those outlined by the Louisiana Watershed Initiative and the Louisiana Department of Transportation and Development. Cross-jurisdictional project examples focused on major thoroughfares include Claiborne Avenue, Broad Street, and Tulane Avenue.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time, Contract Labor
Potential Funding Sources:	EPA, Health and Human Services, Port of New Orleans
Lead Agency/Department Responsible:	CNO (Homeland Security & Emergency Preparedness) /Regional Planning Commission, DPW, Jefferson Parish, St. Bernard Parish, RIDE
Implementation Schedule:	1 year

2025 Analysis:
Delete action. The City no longer considers this action a priority.

City of New Orleans Previous Action #2020.5.28	
Action Item:	Define common metrics to measure resilience progress.
Background Information	
Description:	Develop a set of metrics that can be used to track and measure the progress of various resiliency projects and initiatives in Orleans Parish. Ensure these data-informed metrics can be measured consistently over time to clearly communicate the impact of projects and programs on regional resiliency and mitigation.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tornadoes, Tropical Cyclones, Severe Thunderstorms, Extreme Heat, Winter Weather, Coastal Erosion, Subsidence
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time, Contract Labor
Potential Funding Sources:	Health and Human Services, CDC, EPA
Lead Agency/Department Responsible:	CNO (Office of Resilience & Sustainability) / Universities, Love Your City
Implementation Schedule:	1-2 years

2025 Analysis:
Defer action to Plan Update. Amend action verbiage to state “Continue to refine data-informed metrics that measure the progress of resilience projects.”

City of New Orleans Previous Action #2020.5.29	
Action Item:	Create a digital database of City infrastructure plans, surveys, and other spatial data to inform project design, stormwater modeling, and other uses.
Background Information	
Description:	Digitize hard copies of historic plans and create a standard operation procedure for new projects. Create a comprehensive citywide digital database of existing City infrastructure plans, utility plans, surveys, GIS, and other spatial data to inform project design, stormwater modeling, and other hazard mitigation initiatives.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	CNO (Department of Public Works) / ITI
Implementation Schedule:	1-3 years

2025 Analysis:
Defer action to Plan Update.

City of New Orleans Previous Action #2020.5.30	
Action Item:	Integrate hazard mitigation strategies with MS4 permit activities.
Background Information	
Description:	Identify hazard mitigation provisions that can be included in the Municipal Separate Storm Sewer Systems (MS4) permitting process in order to promote a comprehensive and innovative urban water management approach throughout Orleans Parish. Focus on identifying actions that address both water quality and flooding.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time, Contract Labor
Potential Funding Sources:	CNO General Fund, State and Federal Grants
Lead Agency/Department Responsible:	CNO (Office of Resilience & Sustainability, Department of Public Works)
Implementation Schedule:	1-2 years

2025 Analysis:
Defer action to Plan Update. Amend action to include an updated lead agency, funding source, and verbiage to state "Deploy litter collection devices in drainage canals and catch basins."

City of New Orleans Previous Action #2020.5.31	
Action Item:	Implement a comprehensive program of drainage improvements and other flood mitigation measures via GNO Urban Water Plan.
Background Information	
Description:	Use the Urban Water Plan to provide a roadmap for better management of flood and subsidence threats, while creating economic value and enhancing quality of life. This plan seeks to work in tandem and create multiple lines of defense with the region's levee system and Louisiana's 2012 Coastal Master Plan (ref: GNO Urban Water Plan). Implement projects from the Urban Water Strategy, including but not limited to, the Monticello Canal, 40 Arpent Canal, I-610 Corridor/Desire/Florida Canal, expanding the Blue Green Corridor Network, Interceptor Streets and Urban Parks, and the New Orleans East Water Walk.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Subsidence
Priority (High, Medium, Low):	High
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, HMGP
Lead Agency/Department Responsible:	CNO (Homeland Security & Emergency Preparedness) / DPW, GNO, Inc., Water Collaborative of Greater New Orleans, Flood Protection Authority East, Green Light New Orleans, GNOF
Implementation Schedule:	1-3 years

2025 Analysis:
Delete action. Action priorities are now reflected in CNO Action # 16 and 61.

City of New Orleans Previous Action #2020.5.32	
Action Item:	Educate the public about building methods which are hazard resistant and built above the current building code standards. Provide information on hazards and mitigation resources and publicize success stories.
Background Information	
Description:	Coordinate public information and education with City of New Orleans. Provide stakeholders with information about building standards, incentive programs and financing options for homeowners and builders Publicize success stories.
Goal:	Goal 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.
Type of Action:	Public Education & Awareness

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tropical Cyclones, Coastal Erosion, Subsidence, Infrastructure Failure, Tornadoes, Storm Surge
Priority (High, Medium, Low):	Medium
Estimated Cost:	Staff Time
Potential Funding Sources:	TBD
Lead Agency/Department Responsible:	ORS/SWBNO, NORA /CNO (Homeland Security & Emergency Preparedness), Office of Resilience & Sustainability), FANO
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amend action verbiage to state "Provide information resources for homebuilders, relators and the general public that outline construction materials and elevated building codes that can improve resiliency to natural hazards."

City of New Orleans Previous Action #2020.6.1	
Action Item:	Establish Neighborhood Resilience Hubs Provide to provide hazard mitigation information and resources.
Background Information	
Description:	Create neighborhood resilience hubs that are focused on community-serving initiatives. Resilience hubs provide an opportunity to build local community power and leadership, can support neighborhood residents before, during, or after a natural or manmade hazard event, and can ensure timely resource and service distribution during disasters. Include 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.
Goal:	Goal 6: To protect Orleans Parish and the surrounding region from the effects of natural and manmade hazards, ensuring community continuity in the event of such hazards.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tornadoes, Tropical Cyclones, Severe Thunderstorms, Extreme Heat, Subsidence, Winter Weather, Coastal Erosion, Infectious Disease Outbreak, Active Threats, Infrastructure Failure, Hazardous Materials, Economic Shock
Priority (High, Medium, Low):	Medium
Estimated Cost:	City Staff Time
Potential Funding Sources:	CNO General Fund, State and Federal Grants, Philanthropic Grants
Lead Agency/Department Responsible:	CNO (Neighborhood Engagement Office, Office of Resilience and Sustainability)/ New Orleans Health Department, Homeland Security and Emergency Preparedness
Implementation Schedule:	1-5 years

2025 Analysis:
Delete action. Action priorities are now reflected in CNO Actions # 38, 39, and 40 and indicate the City's updated priorities related to the Community Resilience Hub project.

Tulane University Actions

City of New Orleans Previous Action #2020.Tulane.1 (4.A.1)	
Action Item:	Harden/retrofit infrastructure and critical facilities to reduce impacts of multiple hazards.
Background Information	
Description:	Implement mitigation projects and programs intended to reduce risk to people; critical facilities; critical infrastructure; and the University mission. Facilitate project development and timely submittal of project applications.
Goal:	Goal 4: Pursue Opportunities to Mitigate risks/hazards to campus facilities and other appropriate hazard mitigation projects, programs and activities.
Type of Action:	Structural Projects

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tornadoes, Tropical Cyclones, Severe Thunderstorms, Storm Surge, Extreme Heat, Winter Weather
Priority (High, Medium, Low):	High
Estimated Cost:	Cost will be project specific
Potential Funding Sources:	GOHSEP; FEMA
Lead Agency/Department Responsible:	Tulane University (Office of Risk Management) /CNO (Homeland Security & Emergency Preparedness)
Implementation Schedule:	On Going

2025 Analysis:
Defer action to Plan Update. Amended action now reflected in Tulane University Action # 9.

City of New Orleans Previous Action #2020.Tulane.2 (2.B.1)	
Action Item:	Acquire and maintain detailed critical facility data such that these sites can be prioritized and risk assessed for possible mitigation actions.
Background Information	
Description:	Develop and/or enhance repository for storage and access of hazard, risk and vulnerability data for all University assets, including specific data regarding University assets and infrastructure.
Goal:	Goal 2: Enhance Data Collection, Use, and Sharing to reduce the impact of hazards.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tornadoes, Tropical Cyclones, Severe Thunderstorms, Winter Weather, Extreme Heat, Subsidence, Coastal Erosion
Priority (High, Medium, Low):	High
Estimated Cost:	Staff Time and Data Costs
Potential Funding Sources:	TBD
Lead Agency/Department Responsible:	Tulane University (Office of Capital Projects and Real Estate)
Implementation Schedule:	1 year

2025 Analysis:
Defer action to Plan Update.

City of New Orleans Previous Action #2020.Tulane.3 (1.A.5)	
Action Item:	Enhance emergency and evacuation procedure signage and capabilities.
Background Information	
Description:	Improve emergency and evacuation procedure signage for downtown campus.
Goal:	Goal 1: Enhance Education and Outreach efforts regarding potential impacts of hazards and the identification of specific measures that can be taken to reduce their impact.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Active Threats, Infrastructure Failure (levee failure)
Priority (High, Medium, Low):	Moderate
Estimated Cost:	Staff Time and Materials
Potential Funding Sources:	GOHSEP; FEMA
Lead Agency/Department Responsible:	Tulane Office of Emergency Preparedness and Response/OHES
Implementation Schedule:	1- 2 years

2025 Analysis:
Defer action to Plan Update. Amended action now reflected in Tulane University Action # 3.

City of New Orleans Previous Action #2020.Tulane.4	
Action Item:	Provide power resilience in key facilities by installing backup generators and incorporating energy efficient designs into new or substantially improved facilities.
Background Information	
Description:	Develop and implement a power resilience strategy to mitigate impacts of extreme heat and power outages. This strategy may include such actions as installing backup generators, co-generation, and energy efficient building designs/retrofits.
Goal:	Goal 1: Reduce risk and vulnerability to the human environment including cultural resources, homeowners, renters, visitors, and transient populations.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Extreme Heat, Infrastructure Failure (power outages)
Priority (High, Medium, Low):	High
Estimated Cost:	TBD
Potential Funding Sources:	Unknown
Lead Agency/Department Responsible:	Tulane University Office of Planning and Office of Capital Projects
Implementation Schedule:	2-5 years

2025 Analysis:
Defer action to Plan Update. Amended action now reflected in Tulane University Action # 16.

City of New Orleans Previous Action #2020.Tulane.5	
Action Item:	Improve Hurricane Storm Damage Risk Reduction System (HSDRRS) system to achieve at least 500-year flood protection.
Background Information	
Description:	Tulane University Center for Environmental Law will develop policy analysis to assist the City in implementing the Greater New Orleans HSDDRS authorized level of protection, as stated in the Louisiana Master Plan for a Sustainable Coast as the goal for 500-year protection.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge, Coastal Erosion, Tropical Cyclones
Priority (High, Medium, Low):	High
Estimated Cost:	Unknown
Potential Funding Sources:	TBD
Lead Agency/Department Responsible:	Tulane Center for Environmental Law/ CNO (Office of Resilience & Sustainability) and Flood Protection Authority East and West
Implementation Schedule:	1-3 years

2025 Analysis:
Action complete.

City of New Orleans Previous Action #2020.Tulane.6	
Action Item:	Engage with regional and statewide efforts for the protection of coastal wetlands – including coordination regarding wetlands policy.
Background Information	
Description:	Provide policy and programmatic support to regional efforts as a partner in the Louisiana Watershed Initiative (LWI), coordinate with CPRA.
Goal:	Goal 3: Reduce risk and vulnerability to the natural environment including wetland restoration and recognition of New Orleans as a coastal city.
Type of Action:	Natural Resource Protection

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge, Tropical Cyclones, Coastal Erosion, Subsidence, Infrastructure Failure (levee failure)
Priority (High, Medium, Low):	High
Estimated Cost:	Unknown
Potential Funding Sources:	TBD
Lead Agency/Department Responsible:	Tulane University Center for Environmental Law/ CNO (Office of Resilience & Sustainability)
Implementation Schedule:	1-5 years

2025 Analysis:
Action complete.

City of New Orleans Previous Action #2020.Tulane.7	
Action Item:	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.
Background Information	
Description:	Continue programs to mitigate at-risk university structures by physically elevating buildings to be compliant with the Floodplain Ordinance, wet flood proofing, and/or dry floodproofing where appropriate.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Property Protection

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Storm Surge, Tropical Cyclones, Coastal Erosion, Subsidence, Levee Failure
Priority (High, Medium, Low):	High
Estimated Cost:	Unknown
Potential Funding Sources:	TBD
Lead Agency/Department Responsible:	Tulane University (Office of Capital Projects and Real Estate)/ CNO (Homeland Security & Emergency Preparedness)
Implementation Schedule:	3-5 years

2025 Analysis:
Delete action. Action priorities are now reflected in Tulane University Actions # 10, 11, 12, and 13. This action has been further specified to address floodproofing of specific at-risk buildings.

City of New Orleans Previous Action #2020.Tulane.8	
Action Item:	Incorporate green stormwater management infrastructure to manage runoff onsite.
Background Information	
Description:	Maximize onsite retention of stormwater runoff to reduce flooding and soil compaction.
Goal:	Goal 5: To promote, implement, and sustain mitigation measures in Orleans Parish in order to reduce and manage risks to human life, the environment, and property.
Type of Action:	Property Protection

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Subsidence
Priority (High, Medium, Low):	High
Estimated Cost:	Unknown
Potential Funding Sources:	TBD
Lead Agency/Department Responsible:	Tulane University Office of Capital Projects
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amended action now reflected in Tulane University Action # 18.

Sewerage and Water Board of New Orleans (SWBNO) Actions

City of New Orleans Previous Action #2020.SWBNO.1	
Action Item:	Generators and Transfer Switches at SPS.
Background Information	
Description:	See 6.8 Sewage & Water Board Master Plan.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Structural Projects

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tropical Cyclone, Infrastructure Failure
Priority (High, Medium, Low):	High
Estimated Cost:	$25,000,000
Potential Funding Sources:	PDM/S&WB
Lead Agency/Department Responsible:	S&WB Operations
Implementation Schedule:	1-5 years

2025 Analysis:
Defer action to Plan Update. Amended action now reflected in SWBNO Action # 2.

City of New Orleans Previous Action #2020.SWBNO.2	
Action Item:	Safe House and Resiliency center
Background Information	
Description:	See 6.5.2 Sewage & Water Board Master Plan
Goal:	Goal 2: Reduce risk and vulnerability to the built environment including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Emergency Services Measures

Mitigation Action Details	
Hazard(s) Addressed:	All
Priority (High, Medium, Low):	Medium
Estimated Cost:	$21,000,000
Potential Funding Sources:	PDM/SWBNO
Lead Agency/Department Responsible:	SWBNO Emergency Mgmt
Implementation Schedule:	TBD

2025 Analysis:
Defer action to Plan Update. Amend action verbiage to state “Design and build a Safe House and Resiliency Center that will house SWBNO Emergency Operations Center and support continuity of operations during emergency incidents.”

City of New Orleans Previous Action #2020.SWBNO.3	
Action Item:	Water Hammer Mitigation
Background Information	
Description:	See 6.6.1 Sewage & Water Board Master Plan.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Structural Projects

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tropical Cyclone, Severe Thunderstorms
Priority (High, Medium, Low):	Medium
Estimated Cost:	$90,000,000
Potential Funding Sources:	PW
Lead Agency/Department Responsible:	SWBNO Operations
Implementation Schedule:	45290

2025 Analysis:
Defer action to Plan Update. Amend action verbiage to state “Water Hammer Mitigation Project: Complete pump system upgrades in Phase 3 (final phase) of this project by installing new meters and valves at the Panola and High Lift Pumping Stations to monitor water flow rates.”

City of New Orleans Previous Action #2020.SWBNO.4	
Action Item:	Power House
Background Information	
Description:	See 6.7 Sewage & Water Board Master Plan.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Structural Projects

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tropical Cyclone, Infrastructure Failure
Priority (High, Medium, Low):	High
Estimated Cost:	$213,000,000
Potential Funding Sources:	HMGP/SWBNO
Lead Agency/Department Responsible:	SWBNO Operations
Implementation Schedule:	44560

2025 Analysis:
Defer action to Plan Update. Amend action verbiage to state "Power Complex Project: Improve the reliability of SWBNO's drainage pumps during major weather events by installing redundant power sources and upgrading power conversion capabilities."

City of New Orleans Previous Action #2020.SWBNO.5	
Action Item:	Soil Sampling/Analysis.
Background Information	
Description:	See 6.63 Sewage & Water Board Master Plan.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	Low
Estimated Cost:	$ 97,795.25
Potential Funding Sources:	SWBNO
Lead Agency/Department Responsible:	SWBNO, CNO (Office of Resilience & Sustainability)/Eustis Engineering, EPA ORD
Implementation Schedule:	43830

2025 Analysis:
Action complete.

City of New Orleans Previous Action #2020.SWBNO.6	
Action Item:	Flood Risk Analysis.
Background Information	
Description:	See 6.6.4 Sewage & Water Board Master Plan.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	Medium
Estimated Cost:	
Potential Funding Sources:	UNO Grant
Lead Agency/Department Responsible:	CNO (Homeland Security & Emergency Preparedness), SWBNO/UNO
Implementation Schedule:	TBD

2025 Analysis:
Delete action. The City of New Orleans is partnering with UNO-CHART to study over 90,000 buildings protective factors from flooding by reviewing street-level photographs and conducting occasional field checks without entering private property. The data collected will help inform city policies and programs to better support property owners in flood mitigation efforts. This is led by CNO with limited interaction with SWBNO.

City of New Orleans Previous Action #2020.SWBNO.7	
Action Item:	Upgrade and improve the SWBNO Drainage System, including Canals Upgrades, Pump Station Rehabilitation, Pump Upgrades, and Power Controls.
Background Information	
Description:	See 6.6.6 Sewage & Water Board Master Plan.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Structural Projects

Mitigation Action Details	
Hazard(s) Addressed:	Flooding, Tropical Cyclone, Infrastructure Failure
Priority (High, Medium, Low):	High
Estimated Cost:	$1,000,000,000
Potential Funding Sources:	USACE
Lead Agency/Department Responsible:	SWBNO /USACE
Implementation Schedule:	On Going

2025 Analysis:
Defer action to Plan Update.

City of New Orleans Previous Action #2020.SWBNO.8	
Action Item:	Storm Water Fee
Background Information	
Description:	Draft a city policy on stormwater fees/ Budget/Finance/GSO.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Structural Projects

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	
Estimated Cost:	
Potential Funding Sources:	
Lead Agency/Department Responsible:	SWBNO, ORS
Implementation Schedule:	

2025 Analysis:
Defer action to Plan Update. Amend action verbiage to state "Conduct a Rate Study and stakeholder outreach to develop a stormwater fee structure for Board approval, creating a dedicated funding source for drainage infrastructure."

City of New Orleans Previous Action #2020.SWBNO.9	
Action Item:	SWBNO Water, Sewer, and Drainage Facilities.
Background Information	
Description:	Intrusion Detection, Fiber Upgrade, Security Camer Upgrades.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Prevention

Mitigation Action Details	
Hazard(s) Addressed:	Active Threats
Priority (High, Medium, Low):	High
Estimated Cost:	$10,500,000
Potential Funding Sources:	SWBNO
Lead Agency/Department Responsible:	SWBNO
Implementation Schedule:	3-5 years

2025 Analysis:
Action complete.

City of New Orleans Previous Action #2020.SWBNO.10	
Action Item:	Drainage Pumping Station anti-siphon projects.
Background Information	
Description:	Upgrade drainage facilities to help prevent pump backflow in the event of a power outage or pump trip.
Goal:	Goal 2: Reduce risk and vulnerability to the built environment including current and future structures; critical facilities; historic structures; and infrastructure, including communications infrastructure.
Type of Action:	Structural Projects

Mitigation Action Details	
Hazard(s) Addressed:	Flooding
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000,000
Potential Funding Sources:	SWBNO
Lead Agency/Department Responsible:	SWBNO
Implementation Schedule:	5-7 years

2025 Analysis:
Defer action to Plan Update. Amended action now reflected in SWBNO Action # 3.



Section 21
Mitigation Actions

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Section 21: Mitigation Actions

Summary

The mitigation planning process is designed to help communities identify feasible and cost-effective mitigation strategies to reduce the risk of being impacted by natural disasters. The 44 CFR § 201.6(c)(3)(ii) states that the plan must include "A section that *identifies* and *analyzes* a comprehensive range of specific mitigation actions and projects *being considered* to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure." The mitigation planning process is designed to help communities identify feasible and cost-effective mitigation strategies. Implementation of actions is dependent on factors such as funding, staff time, and evolving community priorities.[1]

As discussed in Section 2, the Planning Team and stakeholders proposed mitigation actions for each of the natural hazards included in the Plan Update. Each of the actions were evaluated based on technical, administrative, economic, and environmental criteria to identify any issues that could affect the feasibility of implementing the action.

A priority was assigned to each mitigation action by marking them as High (H), Moderate (M), or Low (L). An action ranked as "High" indicates that the action is intended for implementation once funding becomes available. Actions ranked as "Moderate**"** may be implemented following higher-priority actions or as resources allow. Actions ranked as "Low" are anticipated to be implemented after higher-ranked actions and are typically contingent on securing additional funding.

The Consultant Team developed planning-level estimates of implementation costs to support prioritization and funding discussions and to help distinguish between actions requiring substantial investment and those that may be more readily funded. The estimates do not reflect detailed design or formal cost determinations. Within each mitigation action worksheet, the Planning Team considered all potential funding sources that could be utilized to implement the proposed project and identified the likely funding sources for each proposed action. See Appendix K for a list of all available State and Federal grant programs as of 2025. The Planning Team will continue to seek out other available funding sources during the 5-year cycle implementation cycle of this Plan.

[1] Note: Cost, funding sources, and implementation schedules are subject to change upon full scoping of project and grant availability.

SECTION 21: MITIGATION ACTIONS

The previous Plan organized mitigation actions using FEMA's standard action type classifications. This organizational framework has been carried forward into the current Plan Update to maintain consistency with FEMA guidance and to allow for continuity between planning cycles. Mitigation actions continue to be grouped by action type to support clear categorization, review, and implementation tracking. The updated mitigation actions are presented in the form of a Mitigation Action Table. Actions presented in this section represent a comprehensive range of mitigation actions per current State and FEMA Guidelines, including one action per hazard, and at least two different types of action for each participating jurisdiction. Some actions may address more than one natural hazard.

The City of New Orleans is a participant in the National Flood Insurance Program (NFIP). Flooding was identified as a significant risk for the community; therefore, many of the mitigation actions were developed with flood mitigation in mind.

Table 21-1. City of New Orleans Mitigation Action Matrix

Type of Action	
Action #1 – Plans/Regulations (Blue)	**Action #4 – Structural (Orange)**
Action #2 – Education/Awareness (Red)	**Action #5 – Preparedness/Response (Black)**
Action #3 – Natural Systems Protections (Green)	

Hazards	City of New Orleans	Loyola University	Tulane University	HANO	NORA	SWBNO
Coastal Erosion	●●●●	●●	●●●●	●	●	●●
Drought	●●●●	●●	●●●	●	●	●●
Extreme Heat	●●●●●	●●	●●●	●●	●	●●
Flood	●●●●●	●●	●●●●	●●	●●●	●●
Hail	●●●	●●	●●●	●●	●	●●
High Winds	●●●●	●●	●●●	●●	●●	●●
Land Subsidence	●●●●	●●	●●●	●	●	●
Levee Failure	●●●●	●●	●●●	●●	●	●●
Lightning	●●●	●●	●●●	●●	●	●●
Storm Surge/ Coastal Flooding	●●●●	●●	●●●●	●●	●	●●

Hazards	City of New Orleans	Loyola University	Tulane University	HANO	NORA	SWBNO
Tornado	●●●	●●	●●●	●●	●●	●●
Tropical Cyclone	●●●●	●●	●●●●	●●	●●	●●
Wildfire	●●●	●●	●●●	●●	●	●●
Winter Weather	●●●●	●●	●●●	●●	●	●●
Human-Caused Hazards	●●●	●●	●●●	●●		●●

City of New Orleans

City of New Orleans Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
1	Provide training for healthcare professionals and patients on extreme heat impacts.	City-wide	Promote hazard awareness and protect citizens from potential injuries and damages.	Education and Awareness	Extreme Heat	Communication	N/A	M	$10,000	Local Budget; Federal Grants: FEMA HMA Grants	NOHD, 504Health Net	36 Months	Citywide Heat Mitigation Plan
2	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages.	City-wide	Promote hazard awareness and protect citizens from potential injuries and damages.	Education and Awareness	Coastal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Communication	N/A	M	$5,000	Local Budget; FEMA HMA Grants	NOHSEP, via NOLA Ready	24 Months	Emergency Operations Plan
	Description of the Solution: Monthly tips can be promoted for each hazard type via NOLA Ready calendars or other media outlets: Example messaging could include: **Coastal Erosion:** Provide information on structure elevation; **Drought**: Drought tolerant landscaping guidance; **Extreme Heat**: Provide tree planning guidance to reduce heat island effects; **Flood**: Elevating appliances and personal items to protect from flood waters; **Hail**: Replace roofing with hail resistant materials; **High Winds:** Provide information on securing outdoor items and reinforcing windows; **Land Subsidence:** Provide tips on vegetation management to reduce soil erosion; **Levee Failure**: Install backflow valves to prevent back water flooding; **Lightning**: Tips on indoor surge protection and installing lightning rods; **Storm Suge/Coastal Flooding:** Tips for homeowners: Install GI, roof repair/replacement, tree and yard maintenance.; **Tornado**: Provide information on the safest room in the house and when to seek shelter; **Tropical Cyclone:** Tips for fiberglass entry doors and garage door reinforcement; **Wildfire**: Creating defensible space; **Winter Storm**: Provide information on when and how to wrap exposed and outdoor pipes.												

City of New Orleans Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
3	Acquire and install generators with hard-wired quick connections at all critical facilities.	City-wide*	Provide power for critical facilities during power outages and ensure continuity of critical services.	Structure and Infrastructure	Extreme Heat, Flood, Hail, High Winds, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Energy (Power/Fuel)	Y	H	$1,000,000**	Local Budget; Federal Grants: FEMA HMA Grants; CDBG	Property Management, NOHSEP, NOMTRCB, NOFD, 504Health Net	36 Months	Capital Improvements Plan
	*Locations include but are not limited to: Fire Station 8: 3300 Florida Ave., Fire Station 9: 449 Esplanade Ave., Fire Station 14: 200 S Robertson St., Fire Station 18: 773 Harrison Ave., Fire Station 20: 425 Opellousas Ave., Fire Station 21: 3940 Paris Ave., Fire Station 24: 1040 Poland Ave., Fire Station 26: 436 S Norman C. Francis Pkwy., Fire Station 35: 964 N Carrollton Ave., Fire Station 38: 4940 Clara St.; priority 504 HealthNet Buildings to ensure access to medical services and treatment; NOMTRCB Warehouse 5744 Haynes Blvd., NOMTRCB Lab Facility: 13200 Old Gentilly Rd., NOMTRCB Hangar 6601 Stars and Stripes Blvd., NOMTRCB Warehouse: 5744 Haynes Blvd. **Approximate cost per facility												
4	Harden/retrofit critical facilities to be resistant to hurricane-force winds. Retrofits can include roofing material upgrades, window and door hardening, and hardening of other building envelope elements.	City-wide*	Reduce damages at critical facilities.	Structure and Infrastructure	High Winds, Tropical Cyclone	Safety/Security	Y	H	$1,000,000**	Local Budget; Federal Grants: FEMA HMA Grants; CDBG	Property, Management, NOHSEP	48 Months	Capital Improvements Plan

City of New Orleans Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
	*Locations include but are not limited to: EMS HQ 2929 Earhart Blvd., Public Safety Warehouse 3035 Earhart Blvd., NOPD Special Operations Division Warehouse 1899 Tchoupitoulas St., Priority Fire Stations: Fire Dept Communications Building 701 Rosedale Dr., Fire Station E-25 2430 S Carrollton Ave., Fire Station E-01 2920 Magazine St., 4th Fire District HQ 5403 Read Blvd., Flying Squad Station 801 Girod St., Fire Station E-029 HQ 317 Decatur St., Fire Station E-14 200 S Robertson St., Fire Station E-09 449 Esplanade Ave., Fire Station E-24 1040 Poland Ave., Fire Station E-20 425 Opelousas Ave., Fire Station E-17 4115 Woodland Hwy., Fire Station E-016 2000 MLK Blvd., Fire Station E-10 14069 Morrison Rd., Fire Station E-04 6900 Downman Rd., Fire Station E-33 3340 General Meyer Ave., Fire Station E-15 1211 Arabella St., Fire Station E-35 964 N Carrollton Ave., Fire Station E-13 987 Allen Toussaint Blvd., Fire Station E-37 13400 Chef Hwy., Fire Station E-38 4940 Clara St., Fire House Building 901 N Rampart St., NOMTRCB Administration Building: 2100 Leon C. Simon Dr., NOMTRCB Hangar: 6001 Stars and Stripes Blvd Suite 204, NOMTRCB Warehouse 5744 Haynes Blvd **Approximate cost per facility												
5	Build city government capacity to protect public health by providing education and training to city staff on lead exposure due to flooding or lead pipes.	City-wide	Reduce injuries, loss of life, and property.	Preparedness /Response Education and Awareness	Drought	N/A	N	M	$100,000	Local Budget; Federal Grants: EPA; HUD	NOHD	36 Months	N/A
6	Create and implement a process to ensure equity for those that are impacted by lead exposure due to lead pipes.	City-wide	Reduce injuries, loss of life, and property.	Preparedness /Response	Drought	N/A	N	M	$100,000	Local Budget; Federal Grants: EPA; HUD	NOHD	36 Months	N/A

City of New Orleans Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
7	Lakefront Airport Drainage Improvement Project: Implement this project to address the increase in water levels in Lake Pontchartrain that have impacted the Lakeview Airport drainage system and left it unable to properly drain.	Lakeview Airport	Avoid disruption at the airport.	Structure and Infrastructure	Flood, Levee Failure, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Winter Weather	Safety/Security	Y	H	$7,982,700	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; FAA; EPA; USBR	Lakeview Airport Administration	36 Months	New Orleans Lakefront Airport Capital Improvement Plan
8	Airport Floodwall Upgrade Phase II: Provide the environmental design for a flood protection system for the Lakeview Airport during Phase II of this project.	Lakefront Airport	Reduce risk of damages and injuries; Maintain access to critical infrastructure and critical systems during hazard events.	Structure and Infrastructure	Flood, Levee Failure, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Winter Weather	Safety/Security	Y	H	$27 Million	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; FAA; EPA; USBR	Lakeview Airport Administration	36 Months	New Orleans Lakefront Airport Capital Improvement Plan

City of New Orleans Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
9	Airport Floodwall Upgrade Project Phase III: Implement/construct recommended project from Phase II findings to reduce flooding at Lakeview Airport.	City-wide	Reduce risk of damages and injuries; Maintain access to critical infrastructure and critical systems during hazard events.	Structure and Infrastructure	Flood, Levee Failure, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Winter Weather	Safety/Security	Y	H	$275 Million	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; FAA; EPA; USBR	Lakeview Airport Administration	36 Months	New Orleans Lakefront Airport Capital Improvement Plan
10	Expand the existing stormwater monitoring program by increasing the number of flood sensors throughout the City.	City-wide	Reduce injuries and property damage due to hazard events.	Structure and Infrastructure	Flood, Levee Failure, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Winter Weather	Safety/Security	Y	H	$200,000	Local Budget; State Grants: DEQ; Federal Grants: FEMA HMA Grants; CDBG; NOAA; SBIR; USDOT; USDA	NOHSEP	24 Months	N/A
11	Create an accessible and interactive tool that provides publicly available environmental monitoring data.	City-wide	Reduce injuries, loss of life, and property.	Local Plans and Regulations	Flood	Safety/Security	Y	H	$200,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; NFIP	NOSHEP ORS and NOHD, with support from external partner, Tulane Bywater Institute	48 Months	N/A

City of New Orleans Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
12	Create an online portal where residents can upload information for the home elevation program and see the status of applications.	City-wide	Reduce injuries, loss of life, and property.	Local Plans and Regulations	Flood	Safety/Security	Y	H	$100,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; NFIP	NOSHEP, ITI	48 Months	N/A
13	Design and implement solutions to reduce flooding at roadway underpasses.	City-wide*	Reduce risk of flood damages through improved drainage capacity.	Structure and Infrastructure	Flood	Safety/Security	Y	H	$17 Million	Local Budget; State Grants: LWI; Federal Grants: FEMA HMA Grants; CDBG; USDOT; USDA	Office of Resiliency and Sustainability (ORS), Department of Public Works (DPW), Sewerage and Water Board (SWBNO)	48 Months	Stormwater Management Plan
	* Priority locations include: S. Carrollton Ave @ I-10/Amtrak (I-10 Interchange) City Park Ave @ I-10 Canal Blvd @ NSRR, Marconi Dr @ NSRR, St. Bernard Ave @ NSRR, Paris Ave @ NSRR, Gentilly Blvd @ NSRR, Broad St @ NSRR, Franklin Ave @ CSX RR, Chef Menteur Hwy @ NSRR, Press Dr @ NSRR, Downman Rd @ NSRR, General deGaulle Dr @ CCC												
14	Design and implement drainage improvement construction projects in Council District A.	Council District A*	Reduce risk of flood damages through improved drainage capacity.	Structure and Infrastructure	Flood	Safety/Security	Y	H	$65 Million	Local Budget; State Grants: LWI; Federal Grants: FEMA HMA Grants; CDBG; USDOT; USDA	Office of Resiliency and Sustainability (ORS), Department of Public Works (DPW), Sewerage and Water Board (SWBNO)	48 Months	Stormwater Management Plan
	* Locations Include: New Basin Canal: Pontchartrain Blvd and West End Blvd; West Harrison Ave: Fleur de Lis Dr and W. Harrison Ave; Upper West End: Pontchartrain Blvd and West End Blvd; Mouton Street Project: Mouton St; Kenilworth Street Project: Kenilworth St.; Comiskey Park: Norma C. Francis Parkway; Fleur de Lis Park Project: Fleur de Lis Dr; Riverview Mississippi River Bank Erosion Stabilization, Audubon Park Stormwater Management, Hollygrove Drainage Project.												

City of New Orleans Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
15	Design and implement drainage improvement construction projects in Council District D.	Council District D*	Reduce risk of flood damages through improved drainage capacity.	Structure and Infrastructure	Flood	Safety/Security	Y	H	$16,230,000	Local Budget; State Grants: LWI; Federal Grants: FEMA HMA Grants; CDBG; USDOT; USDA	Office of Resiliency and Sustainability (ORS), Department of Public Works (DPW), Sewerage and Water Board (SWBNO)	48 Months	Stormwater Management Plan
	* Locations Include: 404 Jewel St, 758 Jewel St.												
16	Identify neighborhoods in need of drainage improvements and conduct H&H Studies.	City-wide	Reduce risk of flood damages through improved drainage capacity.	Structure and Infrastructure	Flood	Safety/Security	Y	H	$5,578,200	Local Budget; State Grants: LWI; Federal Grants: FEMA HMA Grants; CDBG; USDOT; USDA	Office of Resiliency and Sustainability (ORS)	48 Months	Stormwater Management Plan
17	Implement DPS 01 (Broadmoor) Hazard Mitigation Phase II drainage improvements.	Council District B	Reduce risk of flood damages through improved drainage capacity.	Structure and Infrastructure	Flood	Safety/Security	Y	H	$60,970,243	Local Budget; State Grants: LWI; Federal Grants: FEMA HMA Grants; CDBG; USDOT; USDA	Office of Resiliency and Sustainability (ORS)	48 Months	Stormwater Management Plan

City of New Orleans Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
18	Upper 9th Ward Bunny Friend Community Flood Mitigation Construction Project Phase II: Implement/Construct recommended project from Phase I findings to reduce flooding in the Upper 9th Ward Neighborhood.	Upper 9th Ward	Reduce risk of flood damages through improved drainage capacity.	Structure and Infrastructure	Flood	Safety/Security	Y	H	$10,000,000	Local Budget; State Grants: LWI; Federal Grants: FEMA HMA Grants; CDBG; USDOT; USDA	Office of Resiliency and Sustainability (ORS), Hazard Mitigation Office	48 Months	Stormwater Management Plan
19	Resilient Algiers Hung Dao Local Drainage Improvement Project Phase II: Implement/construct recommended project from Phase I findings to improve drainage in the Algiers Neighborhood.	Council District C*	Reduce risk of flood damages through improved drainage capacity.	Structure and Infrastructure	Flood	Safety/Security	Y	M	$10,000,000	Local Budget; State Grants: LWI; Federal Grants: FEMA HMA Grants; CDBG; USDOT; USDA	Office of Resiliency and Sustainability (ORS), Hazard Mitigation Office, Song CDC	36 Months	N/A
	*Location: 4300 Sullen Place												
20	Design and implement nature-based flood reduction measures such as rain gardens along the Claiborne Corridor.	City-wide*	Reduce flood risk to structures and infrastructure in and near the floodplain.	Natural Systems Protection	Flood, Levee Failure, Storm Surge / Coastal Flooding, Tropical Cyclone	N/A	N/A	M	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; NRCS	Office of Resiliency and Sustainability (ORS), Hazard Mitigation Office, Claiborne Cultural Innovation District	36 Months	N/A
	* Current proposed rain garden location: Along N. Claiborne												

City of New Orleans Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
21	Identify and acquire open spaces adjacent to floodplain areas for green space flood reduction projects.	City-wide	Reduce flood risk to structures and infrastructure in and near the floodplain.	Natural Systems Protection	Flood, Levee Failure, Storm Surge / Coastal Flooding, Tropical Cyclone	N/A	N/A	M	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; NRCS	Office of Resiliency and Sustainability (ORS), Hazard Mitigation Office, OCAI	48 Months	N/A
22	Design and implement a rain garden in the Bayou Michoud area to reduce flooding and subsidence.	Bayou Michoud	Reduce risk of flood damages through improved drainage capacity.	Structure and Infrastructure Natural Systems Protection	Extreme Heat, Flood, Land Subsidence	N/A	N/A	M	$500,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; NRCS	Office of Resiliency and Sustainability (ORS), Sewerage and Water Board (SWBNO), Song CDC	36 Months	N/A
23	US 90 Floodwall at Victory Road Project: Raise roadway grade by adding asphalt.	Victory Road	Reduce risk of flood damages.	Structure and Infrastructure	Flood	Safety/Security	Y	M	$1,400,000	Local Budget; State Grants: LWI; Federal Grants: FEMA HMA Grants; CDBG; USDOT; USDA	Regional Planning Commission, NOHSEP	60 Months	Metropolitan Transportation Plan (MTP) 2052
24	Create and implement a process to capture CRS 600 series Warning and Response projects.	City-wide	Reduce injuries, loss of life, and property.	Local Plans and Regulations	Flood	Safety/Security	Y	H	$100,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; NFIP	Safety and Permits, NOSHEP	48 Months	N/A

City of New Orleans Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
25	Review and update the 2021 Repetitive Loss Analysis to maintain CRS credits.	City-wide	Reduce injuries, loss of life, and property.	Local Plans and Regulations	Flood	Safety/Security	Y	H	$100,000	Local Budget; State Grants: LWI; Federal Grants: FEMA HMA Grants; CDBG; USDOT; USDA	Safety and Permits, Hazard Mitigation Office	36 Months	N/A
26	Install LiDAR surveillance system to helicopter for improved tree canopy visibility when conducting mosquito abatement activity in densely wooded areas. Safety and spraying equipment for a rotary-wing aircraft used for mosquito abatement and the protection of public health specifically equipped with LiDAR to determine breeding sites in Orleans Parish.	City-wide	Reduce the loss of life and instances of injuries due to vector borne diseases.	Preparedness /Response	Human-Caused Hazards	N/A	Y	M	$500,000	Local Budget; State Grants: LDH; Federal Grants: CDC	Mosquito, Termite and Rodent Control Board (NOMTRCB)	36 Months	N/A

City of New Orleans Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
27	Create rodent surveillance and population monitoring system through the installation of cameras, GIS tracking tools and other technology.	City-wide	Reduce the loss of life and instances of injuries due to vector borne diseases.	Preparedness /Response	Human-Caused Hazards	N/A	Y	M	$150,000	Local Budget; State Grants: LDH; Federal Grants: CDC	Mosquito, Termite and Rodent Control Board (NOMTRCB)	36 Months	N/A
28	Replace open air trash cans in heavy tourist areas with closed cans.	City-wide	Reduce the spread of infectious disease through vector control.	Preparedness /Response	Human-Caused Hazards	N/A	Y	M	$100,000	Local Budget; State Grants: LDH; Federal Grants: CDC	Mosquito, Termite and Rodent Control Board (NOMTRCB)	36 Months	N/A
29	Purchase equipment to increase arbovirus, larval habitat, and insecticide resistance surveillance capability in Orleans Parish.	City-wide	Reduce the loss of life and instances of injuries due to vector borne diseases.	Preparedness /Response	Human-Caused Hazards	N/A	Y	M	$100,000 - $500,000	Local Budget; State Grants: LDH; Federal Grants: CDC	Mosquito, Termite and Rodent Control Board (NOMTRCB)	36 Months	N/A

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30	Develop a community-based Integrated Vector Management Education Program. Program would consist of creating educational materials and training events with tractable outcomes to better educate our community on vector management. Integrated pest management requires multiple practices to control pests and relies on a foundation of education.	City-wide	Promote hazard awareness and protect citizens from potential injuries and damages.	Education and Awareness	Human-Caused Hazards	N/A	Y	M	$100,000 - $500,000	Local Budget; State Grants: LDH; Federal Grants: CDC	Mosquito, Termite and Rodent Control Board (NOMTRCB)	36 Months	N/A
31	Implement projects to increase laboratory capacity to screen local populations of rodents and mosquitoes for diseases to understand and mitigate the risk to public health, including but not limited to acquiring equipment.	City-wide	Reduce the loss of life and instances of injuries due to vector borne diseases.	Preparedness /Response	Human-Caused Hazards	N/A	Y	M	$100,000 - $500,000	Local Budget; State Grants: LDH; Federal Grants: CDC	Mosquito, Termite and Rodent Control Board (NOMTRCB)	36 Months	N/A

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32	Purchase dump truck, two dump truck trailers, and backhoe so NOMTRCB can expand source reduction and vector control efforts by removing illegally dumped waste without reliance on external agencies.	Warehouse (5744 Hayne Blvd.)	Reduce the loss of life and instances of injuries due to vector borne diseases.	Preparedness /Response	Human-Caused Hazards	N/A	Y	M	$100,000 - $500,000	Local Budget; State Grants: LDH; Federal Grants: CDC	Mosquito, Termite and Rodent Control Board (NOMTRCB)	36 Months	N/A
33	Conduct an assessment for the construction of a vector and pest control museum to be established in a newly constructed building. This would house the wealth of history and artifacts our department already has and serve as an educational center to train the community ways they can help prevent the spread of vector-borne diseases in our community.	City-wide	Promote hazard awareness and protect citizens from potential injuries and damages.	/Response	Human-Caused Hazards	N/A	N/A	M	$1,000,000	Local Budget; State Grants: LDH; Federal Grants: CDC	Mosquito, Termite and Rodent Control Board (NOMTRCB)	36 Months	N/A
	Vector borne diseases in mosquitos with the following pathogens already known in region: West Nile Virus, St. Louis encephalitis, Eastern equine encephalitis, and pathogens that could be in region in future: dengue, chikungunya, Zika virus.												

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34	Develop plans for a renewable backup power system to improve power resiliency at critical 504 HealthNet buildings.	City-wide	Reduce risk to citizens by providing power resiliency to primary healthcare provider clinics	Education and Awareness Structure and Infrastructure	Extreme Heat, Flood, Hail, High Winds, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Communication	N/A	M	$100,000	Local Budget; State Grants: LWI; Federal Grants: FEMA HMA Grants; CDBG; USDA	Hazard Mitigation Office, 504Health Net	60 Months	N/A
35	Healthy Homes Support: Develop enforcement mechanisms and financial tools to support implementation of the healthy homes ordinance.	City-wide	Reduce injuries, loss of life, and property related to extreme heat events.	Local Plans and Regulations	Extreme Heat	N/A	N/A	M	$50,000	Local Budget; Federal Grants: CDBG; HUD	Health Department, Code Enforcement	24 Months	N/A
36	Heat Mitigation Plan: Incorporate actions and recommendations from the Heat Mitigation Plan into local policy.	City-wide	Reduce injuries, loss of life, and property related to extreme heat events.	Local Plans and Regulations	Extreme Heat	N/A	N/A	M	$100,000	Local Budget; Federal Grants: FEMA HMA Grants	Health Department, Office of Resiliency and Sustainability (ORS), Hazard Mitigation Office	24 Months	Extreme Heat Protocol

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37	Develop a pre-event reporting and response procedure for Orleans Parish rental properties during emergent natural hazards (i.e., heat, rain, heavy wind) that occur during non-declared emergency periods, including assignments for responding agencies and a list of equipment needed for response.	City-wide rental properties	Reduce injuries, loss of life, and property.	Preparedness /Response	Coastal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	N/A	N/A	L	$100,000	Local Budget; Federal Grants: EDA; SBA	Health Department, NOHSEP	60 Months	N/A
38	Community Resilience Hub Project (Homeless Shelters): Design and construct power resiliency systems at the Ozanam Inn, Rebuild Center, New Orleans Mission, Covenant House, Women's and Children's Center, Salvation Army, Hotel Hope, and Low Barrier Shelter.	City-wide*	Resilience hubs allow for designated spaces to enhance the community's ability to continue to provide care during hazard events.	Structure and Infrastructure	Flood, Hail, High Winds, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Winter Weather	Energy (Power/Fuel)	Y	H	$100,000 - $1,000,000 (based on site location)	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; DOH; EDA; HUD	Office of Resiliency and Sustainability (ORS), Together New Orleans and Community Lighthouse Project	48 Months	Emergency Management Action Plan
	* Priority locations include: 2239 Poydras Street, New Orleans, LA 70112, 1803 Gravier Street, New Orleans, LA 70113, 1130 Oretha Castle Haley Blvd, New Orleans, LA 70113, 611 North Rampart St, New Orleans, LA 70112, 2625 Iberville St, New Orleans, LA 70119, 4500 S. Claiborne Ave, New Orleans, LA 70125, 3923 Martin Luther King Blvd, New Orleans, LA 70125, 1530 Gravier St, New Orleans, LA 70112												

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39	Community Resilience Hub Project (Senior Residences): Design and construct power resiliency systems at the Wisdon Manor, Flint-Goodridge Apartments, Boyd Manor, Treme Market Apartments, G.O. Mondy School Apartments, Lake Forest Manor, St. John Berchman's Manor, Village de Jardin, Oak Villa, Redemptorist Apartments, and Cornerstone Homes.	City-wide*	Resilience hubs allow for designated spaces to enhance the community's ability to continue to provide care during hazard events.	Structure and Infrastructure	Flood, Hail, High Winds, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Winter Weather	Energy (Power/Fuel)	Y	H	$100,000 - $1,000,000 (based on site location)	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; DOH; EDA; HUD	Office of Resiliency and Sustainability (ORS), Hazard Mitigation Office	48 Months	Emergency Management Action Plan
	* Priority locations include: 8900 Quince St, New Orleans, LA 70118, 2425 Louisiana Ave, New Orleans, LA 70115, 6440 General Meyer Ave, New Orleans, LA 70131, 1601 Orleans Ave, New Orleans, LA 70112, 2327 Saint Philip St, New Orleans, LA 70119, 10101 Lake Forest Blvd, New Orleans, LA 70127, 3400 Saint Anthony Ave, New Orleans, LA 70122, 8801 Lake Forest Blvd, New Orleans, LA 70127, 3601 Bender Blvd, New Orleans, LA 70114, 2050 Constance Ave, New Orleans, LA 70130, 13000 Hayne Blvd, New Orleans, LA 70128												

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40	Community Resilience Hub Project (Healthcare Facility): Design and construct power resiliency systems at the Depaul FQHC, St. Thomas Community HC Center, EXCELth, Inc., NO East Hospital, and Crescent Care Mid City.	City-wide*	Resilience hubs allow for designated spaces to enhance the community's ability to continue to provide care during hazard events.	Structure and Infrastructure	Flood, Hail, High Winds, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Winter Weather	Energy (Power/Fuel)	Y	H	$100,000 - $1,000,000 (based on site location)	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; DOH; EDA; HUD	Office of Resiliency and Sustainability (ORS), 504Health Network and Greater New Orleans Foundation	48 Months	Emergency Management Action Plan
	* Priority locations include: 3201 S. Carrollton Ave, New Orleans, LA 70118, 1936 Magazine St, New Orleans, LA 70130, 4422 General Meyer Ave, New Orleans, LA 70131, 5620 Read Blvd, New Orleans, LA 70127, 2515 Canal St, New Orleans, LA 70117												
41	Identify funding source to support construction and retrofits of residential properties to meet fortified roof standards.	City-wide	Reduce impacts to High wind events.	Local Plans and Regulations	Extreme Heat, High Winds, Flood	N/A	N/A	M	$1,000,000	Local Budget; State Grants: DOTD; KLB; LDNR; Federal Grants: FEMA HMA Grants; EDA; EPA; USFS	Office of Resiliency and Sustainability (ORS), Hazard Mitigation Office	48 Months	Economic Development Plan

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42	Identify Feasible Energy Demand Response Programs.	City-wide	Ensure resiliency of power grid by identifying and reducing demand during hazard events.	Local Plans and Regulations	Extreme Heat, High Winds, Winter Weather,	Energy/Power	N/A	M	$1,000,000	Local Budget; Federal Grants: DOE	Office of Resiliency and Sustainability (ORS)	48 Months	N/A
43	Develop a Heat Pumps Window Unit Pilot Program to support residents with no A/C or insufficient A/C.	City-wide	Reduce injuries, loss of life, and property related to extreme heat events.	Local Plans and Regulations	Extreme Heat	N/A	N/A	M	$1,000,000	Local Budget; Federal Grants: CDBG; HUD	Office of Resiliency and Sustainability (ORS)	24 Months	N/A
44	Develop a strategy to enhance funding and technical assistance for small business resilience/Continuity of Operations Planning to improve natural hazard resiliency.	City-wide	Reduce injuries, loss of life, and property.	Education and Awareness	Coastal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Safety/Security	N/A	L	$100,000	Local Budget; Federal Grants: EDA; SBA	Office of Resiliency and Sustainability (ORS), Office of Economic Development (OED), NOHSEP	24 Months	Economic Development Plan

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45	Irish Bayou Living Shoreline Project: Implement/construct recommended projects from Phase I findings to promote shoreline stabilization along the Irish Bayou.	Irish Bayou	Reduce risk of flood damages due to erosion or scour during flood events.	Natural Systems Protection	Coastal Erosion	Water Systems	N/A	M	$10,000,000	Local Budget; State Grants: CPRA; LDWF; Federal Grants: FEMA HMA Grants; CIAP; CWPPRA; NFWF; NOAA	Office of Resiliency and Sustainability (ORS)	48 Months	Climate Change Adaptation Plan
46	Bayou Bienvenue Restoration Project: Complete design Phase I and construction Phase II for a restoration project in the Bayou Bienvenue Wetland Triangle that includes marshland creation, vegetative planting and hydraulic restoration.	Council District E Bayou Bienvenue Central Wetlands Unit	Reduce risk of flood damages due to erosion or scour during flood events.	Natural Systems Protection	Coastal Erosion	Water Systems	N/A	M	$10,000,000	Local Budget; State Grants: CPRA; LDWF; Federal Grants: FEMA HMA Grants; CIAP; CWPPRA; NFWF; NOAA	Office of Resiliency and Sustainability (ORS), Center for Sustainable Engagement, National Wildfire Foundation, St. Bernand Parish	48 Months	Climate Change Adaptation Plan

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47	New Orleans East Landbridge Project: Complete the PO-191 shoreline stabilization and marsh creation project identified by CPRA, and secure funding for implementation of future increments of the Coastal Master Plan project.	8.7 miles of the northwestern shoreline of Lake Borgne	Reduce risk of flood damages due to erosion or scour during flood events.	Natural Systems Protection	Coastal Erosion	Safety/Security	Y	M	$10,000,000	Local Budget; State Grants: CPRA; LDWF; Federal Grants: FEMA HMA Grants; CIAP; CWPPRA; NFWF; NOAA	Office of Resiliency and Sustainability (ORS)	36 Months	Climate Action Plan
48	Expand reforestation efforts and tree canopy protection throughout the City.	City-wide	Reduce injuries due to extreme heat and nature-based stormwater management.	Structure and Infrastructure Natural Systems Protection	Extreme Heat, Flood	N/A	N/A	M	$2,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; NRCS; USFS	Parks and Parkway Department (PPW), Office of Resiliency and Sustainability (ORS)	60 Months	Big Green Easy Parks Plan Climate Action Plan
49	Design and build splashpads with other cooling features and shaded structures across the city.	City-wide*	Reduce injuries and property damage due to extreme heat.	Structure and Infrastructure	Extreme Heat	N/A	N/A	M	$100,000 - $500,00	Local Budget; Federal Grants: CDBG; HUD	Office of Community Assets & Investment (OCAI), Parks and Parkways	60 Months	Big Green Easy Parks Plan
	* Proposed locations include: Marsalis Harmony Park, Burke Playground, Mickey Markey Park, Milne Playground (District D and E)												

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50	Implement a process to reduce urban heat island effects by identifying locations for passive cooling architecture (cool roofs/green roofs/green buildings). Cool Pavements: Identify locations where cool pavement can be installed.	City-wide	Reduce impacts of Urban Island Heat effect in densely populated areas through tree planting; Reduce flooding effects.	Local Plans and Regulations	Extreme Heat	N/A	N/A	M	$1,000,000	Local Budget; State Grants: DOTD; KLB; LDNR; Federal Grants: FEMA HMA Grants; EDA; EPA; USFS	Office of Resiliency and Sustainability (ORS), Hazard Mitigation Office	48 Months	Economic Development Plan
51	Conduct Tree Canopy Inventory Update.	City-wide	Reduce impacts of Urban Island Heat effect in densely populated areas through tree planting; Reduce flooding effects.	Local Plans and Regulations	Extreme Heat, Flood	N/A	N/A	M	$500,000	Local Budget; State Grants: LCF; LDAF; LTP; Federal Grants: FEMA HMA Grants; NFWF; USFS	Parks and Parkway Department (PPW)	48 Months	Parks Master Plan Reforestation Plan

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52	Conduct update of existing reforestation plan and implement recommended projects.	City-wide	Reduce impacts of Urban Island Heat effect in densely populated areas through tree planting; Reduce flooding effects.	Local Plans and Regulations	Extreme Heat, Flood	N/A	N/A	M	$500,000	Local Budget; State Grants: LCF; LDAF; LTP; Federal Grants: FEMA HMA Grants; NFWF; USFS	Parks and Parkway Department (PPW)	48 Months	Parks Master Plan Reforestation Plan
53	Better Bus Stops: Assess current bus stops and implement mitigation projects to promote shade at bus stops in targeted areas.	City-wide	Reduce injuries, loss of life, and property related to extreme heat events.	Structure and Infrastructure	Extreme Heat	Safety/Security	N/A	M	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; EPA; USDOT;	Regional Transit Authority (RTA), Office of Resiliency and Sustainability (ORS)	24 Months	Transportation Plan

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54	Reverse Osmosis Water System Project: Implement a reverse osmosis water treatment system at the Louis Armstrong Airport to ensure consistent access to potable water during hazard events.	City-wide	Reduce risk of damages and injuries; Maintain access to critical infrastructure and critical systems during hazard events.	Structure and Infrastructure	Drought, Extreme Heat, Flood, Hail, High Winds, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Tornado, Wildfire, Winter Weather	Water Systems	Y	M	$4,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; FAA; EPA; USBR	Louis Armstrong Airport and New Orleans Aviation	18 Months	MSY Water Resiliency Project
55	Domestic Water Storage Capacity Project: Implement a domestic water storage project to provide a backup source of potable water for the Louis Armstrong Airport.	City-wide	Reduce risk of damages and injuries; Maintain access to water systems during hazard events.	Structure and Infrastructure	Drought, Extreme Heat, Flood, Hail, High Winds, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Tornado, Wildfire, Winter Weather	Water Systems	Y	M	$5,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; FAA; EPA; USBR	Louis Armstrong Airport and New Orleans Aviation	36 Months	N/A

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56	Make-Up Water Well Project: Implement a water well project at the Louis Armstrong Airport to improve resiliency and provide a backup source of water that serves the central utility plant and HVAC system.	City-wide	Reduce risk of damages and injuries; Maintain access to critical infrastructure and critical systems during hazard events.	Structure and Infrastructure	Drought, Extreme Heat, Flood, Hail, High Winds, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Tornado, Wildfire, Winter Weather	Water Systems	Y	M	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; FAA; EPA; USBR	Louis Armstrong Airport and New Orleans Aviation	12 Months	MSY Water Resiliency Project
57	Looped Water System Project: Implement a looped water system to the existing infrastructure at the Louis Armstrong Airport to improve resiliency for existing water services.	City-wide	Reduce risk of damages and injuries; Maintain access to critical infrastructure and critical systems during hazard events.	Structure and Infrastructure	Drought, Extreme Heat, Flood, Hail, High Winds, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Tornado, Wildfire, Winter Weather	Water Systems	Y	M	$4,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; FAA; EPA; USBR	Louis Armstrong Airport and New Orleans Aviation	18 Months	MSY Water Resiliency Project

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58	Conduct or locate funding for Regional Saltwater Intrusion Feasibility Study. Support USACE implementation of the feasibility study authorized in 2024 WRDA.	City-wide	Reduce impacts to drinking water infrastructure.	Local Plans and Regulations	Coastal Erosion, Drought	Safety/Security	N/A	M	$1,000,000	Local Budget; State Grants: DEQ; LDWF; Federal Grants: FEMA HMA Grants; NOAA; NRCS; USACE	Office of Resiliency and Sustainability (ORS), Hazard Mitigation Office	36 Months	Climate Change Adaption Plan
59	Develop financing tools to help residents meet cost-share requirements for mitigation grants	City-wide	Reduce risk and vulnerability to the human environment, including cultural resources.	Preparedness	Flood, Storm Surge, Tornadoes, Tropical Cyclones, Coastal Erosion, Land Subsidence, Severe Thunderstorms, Extreme Heat, Winter Weather	N/A	N/A	M	City Staff Time	CNO General Fund, State and Federal Grants, Philanthropic Grants	NOHSEP, Water Collaborative of Greater New Orleans	1-5 years	N/A
60	Advocate for funding and implementation of the state's mitigation revolving loan fund	City-wide	Reduce risk and vulnerability to the human environment, including cultural resources.	Preparedness	Flood, Storm Surge, Tornadoes, Tropical Cyclones, Coastal Erosion, Land Subsidence, Severe Thunderstorms, Extreme Heat, Winter Weather	N/A	N/A	M	City Staff Time	CNO General Fund, State and Federal Grants, Philanthropic Grants	NOHSEP, Water Collaborative of Greater New Orleans	1-5 years	N/A

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61	Develop a Stormwater Master Plan	City-wide	Reduce risk of flood damage.	Local Plans and Regulations	Flood	Safety/Security	Y	H	City Staff Time	CNO General Fund, HMGP	CNO (Homeland Security & Emergency Preparedness) / DPW, GNO, Inc., Water Collaborative of Greater New Orleans, Flood Protection Authority East, Green Light New Orleans, GNOF	1-3 years	N/A
62	Implement recommended green infrastructure improvements along the Lafitte Greenway.	Lafitte Green-way	Reduce flood risk to structures and infrastructure in and near the floodplain.	Natural Systems Protection	Flood, Levee Failure, Storm Surge / Coastal Flooding, Tropical Cyclone	N/A	N/A	M	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; NRCS	Office of Resiliency and Sustainability (ORS), Hazard Mitigation Office, Claiborne Cultural Innovation District	36 Months	N/A

Loyola University

Loyola University Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
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1	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for residents.	District-wide	Promote hazard awareness and protect citizens from potential injuries and damages.	Education and Awareness	Coastal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Communication	N/A	M	$5,000	Local Budget; Federal Grants: FEMA HMA Grants	Loyola University Emergency Management	24 Months	N/A

Loyola University Mitigation Actions													
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Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
	Description of the Solution: Monthly tips can be promoted for each hazard type via social media or other media outlets: **Coastal Erosion:** Provide information on structure elevation; **Drought**: Drought tolerant landscaping guidance; **Extreme Heat**: Provide tree planning guidance to reduce heat island effects; **Flood**: Elevating appliances and personal items to protect from flood waters; **Hail**: Replace roofing with hail resistant materials; **High Winds:** Provide information on securing outdoor items and reinforcing windows; **Land Subsidence:** Provide tips on vegetation management to reduce soil erosion; **Levee Failure**: Install backflow valves to prevent back water flooding; **Lightning**: Tips on indoor surge protection and installing lightning rods; **Storm Suge / Coastal Flooding:** Tips for protecting windows and doors using storm shutters and high impact glass; **Tornado**: Provide information on the safest room in the house and when to seek shelter; **Tropical Cyclone:** Tips for fiberglass entry doors and garage door reinforcement; **Wildfire**: Creating defensible space; **Winter Weather**: Provide information on when and how to wrap exposed and outdoor pipes.												
2	Acquire and install generators with hard-wired quick connections at all critical facilities.	District-wide*	Provide power for critical facilities during power outages and ensure continuity of critical services.	Structure and Infrastructure	Extreme Heat, Flood, Hail, High Winds, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Energy (Power/Fuel)	Y	H	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG	Loyola University Emergency Management and Facilities	36 Months	Capital Improvements Plan
	* Central Plant, other identified locations												
3	Feasibility Study: Phase I: Assess Danna Center as potential EOC location. This study will assess the location for suitability for an EOC and provide recommended construction and upgrade projects.	District-wide	Ensure continuity of critical services during and after event.	Structure and Infrastructure	Coastal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Energy (Power/Fuel)	Y	H	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; EMPG	Loyola University Emergency Management and Facilities	48 Months	Capital Improvements Plan

Loyola University Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
4	Phase II: Complete recommended construction or upgrade projects identified in the EOC Phase I Feasibility Study.	District-wide	Ensure continuity of critical services during and after event.	Structure and Infrastructure	Coastal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Energy (Power/Fuel)	Y	H	$500,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; EMPG	Loyola University Emergency Management and Facilities	48 Months	Capital Improvements Plan
5	Feasibility Study: Phase I: Assess Danna Center second floor for additional square footage to bring the offices and critical infrastructure items out of the basement and avoid loss due to flooding.	District-wide	Reduce damages at critical facilities; Ensure continuity of critical services during and after event.	Structure and Infrastructure	Flood, Land Subsidence, Levee Failure, Storm Surge / Coastal Flooding, Tropical Cyclone	Safety/Security	Y	H	$500,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG	Loyola University Emergency Management and Facilities	48 Months	Capital Improvements Plan
6	Phase II: Complete construction and/or upgrade projects and build to specifications outlined in Phase I.	District-wide	Reduce damages at critical facilities; Ensure continuity of critical services during and after event.	Structure and Infrastructure	Flood, Land Subsidence, Levee Failure, Storm Surge / Coastal Flooding, Tropical Cyclone	Safety/Security	Y	H	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG	Loyola University Emergency Management and Facilities	48 Months	Capital Improvements Plan

Tulane University

Tulane University Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
1	Provide legal and policy information/support regarding the hazard mitigation and disaster recovery landscape amidst changes to FEMA and GOHSEP - including implications for the city and TU.	District-wide	Promote hazard awareness and protect citizens from potential injuries and damages.	Preparedness /Response Education and Awareness	Coastal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Communication	N/A	H	$10,000	Local Budget; Federal Grants: FEMA HMA Grants	Tulane Institute on Water Resources Law & Policy; Tulane Center for Environmental Law	12 Months	University All Hazards Plan
2	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for residents.	District-wide	Promote hazard awareness and protect citizens from potential injuries and damages.	Education and Awareness	Coastal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Communication	N/A	M	$5,000	Local Budget; FEMA HMA Grants	Tulane Office of Emergency Preparedness and Response	24 Months	University All Hazards Plan

Tulane University Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
	Description of the Solution: Monthly tips can be promoted for each hazard type via social media or other media outlets: **Coastal Erosion:** Provide information on structure elevation; **Drought**: Drought tolerant landscaping guidance; **Extreme Heat**: Provide tree planning guidance to reduce heat island effects; **Flood**: Elevating appliances and personal items to protect from flood waters; **Hail**: Replace roofing with hail resistant materials; **High Winds:** Provide information on securing outdoor items and reinforcing windows; Land S**ubsidence:** Provide tips on vegetation management to reduce soil erosion; **Levee Failure**: Install backflow valves to prevent back water flooding; **Lightning**: Tips on indoor surge protection and installing lightning rods; **Storm Suge/Coastal Flooding:** Tips for protecting windows and doors using storm shutters and high impact glass; **Tornado**: Provide information on the safest room in the house and when to seek shelter; **Tropical Cyclone:** Tips for fiberglass entry doors and garage door reinforcement; **Wildfire**: Creating defensible space; **Winter Weather**: Provide information on when and how to wrap exposed and outdoor pipes.												
3	Enhance emergency and evacuation procedure signage and capabilities. Improve emergency and evacuation procedures and signage.	District-wide	Reduce injury to staff, faculty, students and visitors.	Education and Awareness	Extreme Heat, Flood, Hail, High Winds, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Safety/Security	Y	N/A	$10,000	Local Budget; Federal Grants: FEMA HMA Grants	Tulane Office of Emergency Preparedness and Response	24 Months	University All Hazards Plan
4	Develop community outreach materials to support public education and engagement initiatives aimed at enhancing hurricane preparedness and resilience.	District-wide	Promote hazard awareness and protect citizens from potential injuries and damages.	Education and Awareness	Flood, Storm Surge / Coastal Flooding, Tropical Cyclone	Safety/Security	Y	M	$100,000	Local Budget; Federal Grants: FEMA HMA Grants	Tulane Office of Emergency Preparedness and Response	12 Months	University All Hazards Plan

Tulane University Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
5	Install mass notification hardware in laboratories and public areas to ensure timely dissemination of emergency alerts for natural and human-caused incidents, enhancing situational awareness and protective action response.	District-wide – Labs and Public Areas	Promote hazard awareness and protect citizens from potential injuries and damages.	Education and Awareness	Extreme Heat, Flood, Hail, High Winds, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Safety/Security	Y	H	$100,000	Local Budget; Federal Grants: FEMA HMA Grants	Tulane Office of Emergency Preparedness and Response	12 Months	University All Hazards Plan
6	Procure a high-water rescue vehicle to support emergency response operations, including the safe transport of personnel and individuals during flood conditions and high-water events.	District-wide	Protect citizens from potential injuries and damages.	Preparedness /Response	Flood, Storm Surge / Coastal Flooding, Tropical Cyclone	Safety/Security	Y	H	$500,000	Local Budget	Tulane Office of Emergency Preparedness and Response	24 Months	University All Hazards Plan
7	Implement secure door locking hardware to facilitate rapid lockdown capabilities, enhancing life safety and security for students, faculty, and staff during active threat situations.	District-wide – Campus Buildings	Reduce injuries and loss of life.	Structure and Infrastructure	Human-Caused Hazards	Safety/Security	Y	H	$500,000	Local Budget; Federal Grants: FEMA HMA Grants; NSGP; UASI	Tulane Office of Emergency Preparedness and Response	24 Months	University All Hazards Plan

Tulane University Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
8	Install life-saving emergency medical equipment such as AEDs and hemorrhage control kits in high-traffic and high-risk areas to improve immediate response capabilities during medical emergencies.	District-wide	Reduce injuries and loss of lives.	Preparedness /Response	Human-Caused Hazards	N/A	Y	H	$100,000	Local Budget	Tulane Office of Emergency Preparedness and Response	12 Months	University All Hazards Plan
9	Harden/retrofit infrastructure and critical facilities to reduce impacts of multiple hazards. Implement mitigation projects and programs intended to reduce risk to people; critical facilities; critical infrastructure; and the University mission.	District-wide	Reduce damages at critical facilities.	Structure and Infrastructure	Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Safety/Security	Y	H	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG	Tulane Facilities Services Downtown	36 Months	University Capital Projects Plan
10	Implement window and building envelope waterproofing on the Tidewater building to mitigate water intrusion to 25 story downtown office and academic building.	Downtown Campus	Reduce damages to infrastructure.	Structure and Infrastructure	Flood, Storm Surge, Tropical Cyclone	Safety/Security	Y	H	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants	Tulane Facilities Services Downtown	36 Months	University Capital Projects Plan

Tulane University Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
11	Implement window and building envelope waterproofing on the Elks building to mitigate water intrusion to 25 story downtown office and academic building.	Downtown Campus	Reduce damages to infrastructure.	Structure and Infrastructure	Flood, Storm Surge / Coastal Flooding, Tropical Cyclone	Safety/Security	Y	H	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants	Tulane Facilities Services Downtown	36 Months	University Capital Projects Plan
12	Implement window and building envelope waterproofing on the Downtown Campus Center (Former Tulane Hospital) to mitigate water intrusion to 25 story downtown office and academic building.	Downtown Campus	Reduce damages to infrastructure.	Structure and Infrastructure	Flood, Storm Surge / Coastal Flooding, Tropical Cyclone	Safety/Security	Y	H	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants	Tulane Facilities Services Downtown	36 Months	University Capital Projects Plan
13	Implement window and building envelope waterproofing to the Uptown Campus to mitigate water intrusion to office and academic building.	Uptown Campus	Reduce damages to infrastructure.	Structure and Infrastructure	Flood, Storm Surge / Coastal Flooding, Tropical Cyclone	Safety/Security	Y	H	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants	Tulane Facilities Services Uptown	24 Months	University Capital Projects Plan

Tulane University Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
14	Upgrade and improve transformer central plant.	Uptown Campus	Reduce damages to infrastructure.	Structure and Infrastructure	Extreme Heat, Flood, Hail, High Winds, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Energy (Power/Fuel)	Y	M	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants	Tulane Facilities Services Uptown	24 Months	University Capital Projects Plan
15	Enhance and improvements to underground utility Infrastructure.	Uptown Campus	Reduce damages to infrastructure.	Structure and Infrastructure	Extreme Heat, Flood, Hail, High Winds, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Safety/Security	Y	H	$3,000,000	Local Budget; Federal Grants: FEMA HMA Grants; DOE	Tulane Facilities Services Uptown	24 Months	University Capital Projects Plan
16	Acquire/install/upgrade generators with hard-wired quick connections at all critical facilities and incorporating energy-efficient designs into new or substantially improved facilities.	District-wide*	Provide power for critical facilities during power outages and ensure continuity of critical services.	Structure and Infrastructure	Extreme Heat, Flood, Hail, High Winds, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Energy (Power/Fuel)	Y	H	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG	Tulane Office of Emergency Preparedness and Response	36 Months	University All Hazards Plan

Tulane University Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
	* Downtown Campus												
17	Engage with and provide policy support to regional and statewide entities (Louisiana Watershed Initiative, CPRA, City of NOLA) regarding floodplain protection and stormwater management – including coordination regarding wetlands policy.	District-wide	Reduce flood damages and risk of injuries or fatalities.	Local Plans and Regulations	Coastal Erosion, Flood, Storm Surge / Coastal Flooding, Tropical Cyclone	Safety/Security	N/A	M	$10,000	Local Budget; State Grants: CPRA; LWI; Federal Grants: FEMA HMA Grants; CDBG; NFIP	Tulane Institute on Water Resources Law and Policy	24 Months	University All Hazards Plan
18	Incorporate green stormwater management infrastructure to manage runoff onsite, by maximizing onsite retention of stormwater runoff to reduce flooding and soil compaction.	Uptown District	Reduce impacts from flooding and subsidence.	Structure and Infrastructure	Coastal Erosion, Flood, Land Subsidence, Levee Failure, Storm Surge / Coastal Flooding, Tropical Cyclone	Water Systems	Y	H	$1,000,000	Local Budget; State Grants: LWI; Federal Grants: FEMA HMA Grants; CDBG; USDOT; USDA	Tulane Office of Capital Planning	36 Months	University Master Plan

Housing Authority of New Orleans (HANO)

Housing Authority Of New Orleans (HANO) Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
1	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for residents.	District-wide	Promote hazard awareness and protect citizens from potential injuries and damages.	Education and Awareness	Coastal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Communication	N/A	M	$5,000	Local Budget; FEMA HMA Grants	HANO	24 Months	Capital Improvements Plan
	Description of the Solution: Monthly tips can be promoted for each hazard type via social media or other media outlets: **Coastal Erosion:** Provide information on structure elevation; **Drought**: Drought tolerant landscaping guidance; **Extreme Heat**: Provide tree planning guidance to reduce heat island effects; **Flood**: Elevating appliances and personal items to protect from flood waters; **Hail**: Replace roofing with hail resistant materials; **High Winds:** Provide information on securing outdoor items and reinforcing windows; **Land Subsidence:** Provide tips on vegetation management to reduce soil erosion; **Levee Failure**: Install backflow valves to prevent back water flooding; **Lightning**: Tips on indoor surge protection and installing lightning rods; **Storm Suge / Coastal Flooding:** Tips for protecting windows and doors using storm shutters and high impact glass; **Tornado**: Provide information on the safest room in the house and when to seek shelter; **Tropical Cyclone:** Tips for fiberglass entry doors and garage door reinforcement; **Wildfire**: Creating defensible space; **Winter Weather**: Provide information on when and how to wrap exposed and outdoor pipes.												

Housing Authority Of New Orleans (HANO) Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
2	Acquire and install generators with hard-wired quick connections at all critical facilities.	District-wide*	Provide power for critical facilities during power outages and ensure continuity of critical services.	Structure and Infrastructure	Extreme Heat, Flood, Hail, High Winds, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Energy (Power/Fuel)	Y	H	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG	HANO	36 Months	Capital Improvements Plan
	* HANO Main Office: 4100 Touro Street												
3	Educate decision makers on how local, state, and national policies regarding green infrastructure in housing can mitigate hazard damages.	District-wide*	Promote hazard awareness and protect housing from potential damages.	Education and Awareness	Coastal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Communication	N/A	M	$5,000	Local Budget; FEMA HMA Grants	HANO	24 Months	Capital Improvements Plan

New Orleans Redevelopment Authority (NORA)

New Orleans Redevelopment Authority (NORA) Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
1	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for residents.	District-wide	Promote hazard awareness and protect citizens from potential injuries and damages.	Education and Awareness	Coastal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Communication	N/A	M	$5,000	Local Budget; FEMA HMA Grants	NORA	24 Months	N/A
	Description of the Solution: Monthly tips can be promoted for each hazard type via social media or other media outlets: **Coastal Erosion:** Provide information on structure elevation; **Drought**: Drought tolerant landscaping guidance; **Extreme Heat**: Provide tree planning guidance to reduce heat island effects; **Flood**: Elevating appliances and personal items to protect from flood waters; **Hail**: Replace roofing with hail resistant materials; **High Winds:** Provide information on securing outdoor items and reinforcing windows; **Land Subsidence:** Provide tips on vegetation management to reduce soil erosion; **Levee Failure**: Install backflow valves to prevent back water flooding; **Lightning**: Tips on indoor surge protection and installing lightning rods; **Storm Suge / Coastal Flooding:** Tips for protecting windows and doors using storm shutters and high impact glass; **Tornado**: Provide information on the safest room in the house and when to seek shelter; **Tropical Cyclone:** Tips for fiberglass entry doors and garage door reinforcement; **Wildfire**: Creating defensible space; **Winter Weather**: Provide information on when and how to wrap exposed and outdoor pipes.												

New Orleans Redevelopment Authority (NORA) Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
2	Establish a target property acquisition program in coordination with the City of New Orleans to target large or high-profile blighted and flood-prone properties for repurposing into low-maintenance urban forests and rain gardens.	District-wide*	Eliminate risk of flood damages to high-risk structures and prevent future losses in high-risk flood hazard areas.	Structure and Infrastructure Natural Systems Protection	Flood	Safety/Security	N/A	M	$1,000,000	Local Budget; State Grants: OCD; Federal Grants: FEMA HMA Grants; CDBG; HUD; USDA	NORA	60 Months	N/A
	* Priority locations include: Lower Ninth Ward, New Orleans East												
3	Urban Forest - plant vacant properties owned by NORA in flood prone areas with low maintenance urban forests and rain gardens to assist with natural stormwater management.	District-wide	Eliminate risk of flood damages to high-risk structures and prevent future losses in high-risk flood hazard areas.	Natural Systems Protection	Flood	Safety/Security	N/A	M	$500,000	Local Budget; State Grants: LDEQ; GNOF; OCD; Federal Grants: FEMA HMA Grants; CDBG; EPA	NORA	60 Months	N/A

New Orleans Redevelopment Authority (NORA) Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
4	Develop three resilient home models on NORA-owned properties in the Gentilly Resilience District to demonstrate best practices in hazard resilience, energy efficiency, and stormwater management near schools and stormwater sites.	District-wide	Eliminate risk of flood damages to high-risk structures and prevent future losses in high-risk flood hazard areas.	Structure and Infrastructure	Flood	Safety/Security	N/A	M	$1,000,000	Local Budget; State Grants: LDEQ; GNOF; OCD; Federal Grants: FEMA HMA Grants; CDBG; EPA	NORA	60 Months	N/A
5	Develop a program that can provide grant assistance for households at or below 80% AMI to replace roofs with installation that meets Fortified Roof criteria to reduce homeowners wind/hurricane risk and insurance premiums.	District-wide	Reduce injuries and loss of property during hazard events.	Local Plans and Regulations	High Winds, Tornado, Tropical Cyclone	Safety/Security	N/A	M	$1,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG	NORA	60 Months	N/A

Sewerage and Water Board of New Orleans (SWBNO)

Sewerage And Water Board Of New Orleans (SWBNO) Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
1	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for residents.	District-wide	Promote hazard awareness and protect citizens from potential injuries and damages.	Education and Awareness	Drought, Extreme Heat, Flood, Land Subsidence, Winter Weather	Communication	N/A	M	$5,000	Local Budget; FEMA HMA Grants	SWBNO – Emergency Management	24 Months	Emergency Management Action Plan
	Description of the Solution: Monthly tips can be promoted for each hazard type via social media or other media outlets: **Drought**: Drought tolerant landscaping guidance; **Extreme Heat**: Provide tree planning guidance to reduce heat island effects; **Flood**: Elevating appliances and personal items to protect from flood waters; **Land Subsidence:** Provide tips on vegetation management to reduce soil erosion; **Winter Weather**: Provide information on when and how to wrap exposed and outdoor pipes.												

Sewerage And Water Board Of New Orleans (SWBNO) Mitigation Actions													
***Reduces risk to new and/or existing buildings and infrastructure**													
Action #	**Proposed Action**	**Site**	**Benefit**	**Action Type**	**Hazards**	**Community Lifeline**	**Infra.***	**Priority (High, Mod., Low)**	**Cost**	**Potential Funding Sources**	**Lead Agency**	**Timeline**	**Plan Integration**
2	Acquire/install/upgrade generators with hard-wired quick connections/transfer switches at all critical facilities.	District-wide*	Provide power for critical facilities during power outages and ensure continuity of critical services.	Structure and Infrastructure	Extreme Heat, Flood, Hail, High Winds, Levee Failure, Lightning, Storm Surge / Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	Energy (Power/Fuel)	Y	H	$25,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG	SWBNO	36 Months	Emergency Management Action Plan
	*Priority focus on identified critical facilities												
3	DPS Anti-Siphon Project: Implement drainage pump upgrades to DPS 12.	District-wide	Reduce damages at critical facilities.	Structure and Infrastructure	Flood	Safety/Security	Y	H	$10,000,000	Local Budget; Federal Grants: FEMA HMA Grants; CDBG; FAA; EPA; USBR	SWBNO	60 Months	Stormwater Management Plan
4	Plan and implement a solution to secure potable water supply that is resilient to saltwater intrusion, including but not limited to constructing an upriver intake system.	District-wide	Reduce impacts to drinking water infrastructure.	Structure and Infrastructure	Coastal Erosion, Drought	Water Systems	Y	H	$1,000,000	Local Budget; State Grants: DEQ; LDWF; Federal Grants: FEMA HMA Grants; NOAA; NRCS; USACE	SWBNO – Program Management and Business Services	36 Months	Stormwater Management Plan

2020 Retained Actions

Action #	Action Item	Description	Action Type	Hazards	Priority (High, Med., Low)	Cost	Potential Funding Sources	Lead Agency	Timeline
2020.1.2	Develop a regional housing resilience plan in coordination with neighboring parishes, state agencies, and academic partners.	Actively plan for shifting risks, population movement, and changing development patterns in response to Climate Change.	Prevention	Coastal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Lightning, Storm Surge/Coastal Flooding, Human-Caused Hazards	M	City Staff Time	CNO General Fund, State and Federal Grants, Philanthropic Grants	NOHD, NOHSEP, ORS	1-5 years
2020.2.1	.Work to address the Building Code Effectiveness Grading Schedule.	Complete BCEGS assessment and implement actions to achieve a score of 5 or better in support of CRS program credits	Prevention	Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Lightning, Storm Surge/Coastal Flooding, Tropical Cyclone, Tornado, Wildfire, Winter Weather	H	City Staff Time	CNO General Fund	City of New Orleans (Safety and Permits)	1-5 years

Action #	Action Item	Description	Action Type	Hazards	Priority (High, Med., Low)	Cost	Potential Funding Sources	Lead Agency	Timeline
2020.2.10	Solar for All.	Make solar power, battery storage, and community solar a realistic and viable option for residential and commercial property owners to increase energy security, reduce energy costs, and reduce dependence on fossil fuels. Provide technical and financial assistance and address policy barriers to streamline implementation.	Prevention	Extreme Heat, Hail, High Winds, Lightning, Winter Weather, Human-Caused Hazards	H	City Staff Time	CNO General Fund, State and Federal Grants, Philanthropic Grants, Private Financing	ORS, Community Development	1-5 years
2020.2.11	Develop map of designated "no parking areas" in neutral grounds to avoid damage to trees and underground infrastructure	Implement citywide urban design standards intended to guide the community's response to stormwater management. Ensure the design guidelines and solutions consider the location of utilities and green infrastructure to prevent accidental and unintended damage to City facilities and improve safety and mobility.	Property Protection	Flood, Hail, Levee Failure, Tornado, Tropical Cyclone, Winter Weather	M	City Staff Time, Contract Labor	Homeland Security, FEMA, Health and Human Services	ORS, DPW, SWBNO	1-5 years
2020.3.4	Restore the Mississippi River Delta.	Advocate for Funding of the continued restoration of the MRGO at State and Federal Levels.	Natural Resources Protection	Coastal Erosion, Storm Surge/Coastal Flooding	M	City Staff Time	CNO General Fund, State and Federal Grants, Philanthropic Grants	ORS, DPW, NOHSEP, Restore the Delta Gulf Program for National Wildlife Federation, Pontchartrain Conservancy, Food Protection Authority-East	1-5 years

Action #	Action Item	Description	Action Type	Hazards	Priority (High, Med., Low)	Cost	Potential Funding Sources	Lead Agency	Timeline
2020.4.1	Complete a job study to institutionalize floodplain management training as a requirement for key positions. Provide training in floodplain management principles for local officials and increase the number of Certified Floodplain Managers on City staff.	Work with the Civil Service Commission to require building officials employed at the city to become Certified Floodplain Managers (CFM) through ASFPM. Work with SHMO to schedule trainings in Orleans Parish. Explore adding CFM as a requirement for resilience officers, others.	Public Education & Awareness	Coastal Erosion, Flood, Land Subsidence, Levee Failure, Storm Surge/Coastal Flooding, Tropical Cyclone	L	City Staff Time	CNO General Fund, State and Federal Grants	Civil Service, Safety and Permits	1-5 years
2020.4.2	Realtor education on flood risk and a city/state policy on real estate disclosures about flood risk.	Work with the Metropolitan Realtors Association and Louisiana Realtors Association to develop policy recommendations and provide educational opportunities for realtors. Develop and implement a policy at the State and Local level.	Public Education & Awareness	Flood, Storm Surge/Coastal Flooding	M	City Staff Time	CNO General Fund	Orleans Parish Civil Clerk of Court, Urban Conservancy, Water Collaborative of Greater New Orleans	1-5 years
2020.4.4	Expand the residential lot-scale green infrastructure model piloted in the Gentilly Resilience District Community Adaptation Program.	Provide financial and technical assistance to homeowners to implement stormwater management measures through the Community Adaptation Program.	Public Education & Awareness	Flood, Extreme Heat	H	City Staff Time, Contract Labor	CNO General Fund, State and Federal Grants, Philanthropic Grants	ORS/SWBNO, NORA /CNO (Community Development and Public Works), NOHSEP, Water Wise Gulf South	1-2 years

Action #	Action Item	Description	Action Type	Hazards	Priority (High, Med., Low)	Cost	Potential Funding Sources	Lead Agency	Timeline
2020.4.7	Louisiana Watershed Initiative - City engagement in Region 6 and Region 8 planning and policy.	Continue coordination with Regional Planning Commission (RPC) and other parishes in Region 6 and Region 8 to implement the planning and policy development for watershed management in the region. Evaluation of flood risks and identification of projects in the region to minimize the flood risk in accordance with Louisiana Water Initiative launched by the State of Louisiana in 2018 based on the following principles: 1) Using scientific tools and data; 2) Enabling transparent, objective decision-making; 3) Maximizing the natural function of floodplains; 4) Establishing regional, watershed-based management of flood risk.	Public Education & Awareness	Flood	H	City Staff Time	CNO General Fund	CPC, RPC, ORS, Water Collaborative of Greater New Orleans, DPW, Greater New Orleans Water Collaborative	1-5 years

Action #	Action Item	Description	Action Type	Hazards	Priority (High, Med., Low)	Cost	Potential Funding Sources	Lead Agency	Timeline
2020.4.12	Household Hazard Waste drop-off days: Increase the frequency of hazardous waste drop off days	Advertise and coordinate household hazardous waste drop-off days with local jurisdictions by increasing the frequency of hazardous waste drop-off events. Recruit volunteers to assist with expanding City efforts to scale up material recovery and landfill diversion. Improve public education to Orleans Parish residents about household hazardous waste Materials Collection Day and related efforts.	Public Education & Awareness	Human-Caused Hazards	H	City Staff Time and Disposal	CNO General Fund, State and Federal Grants	New Orleans Department of Sanitation, Keep New Orleans Beautiful	1-5 years
2020.5.1	Create and Maintain Databases to aid in Floodplain Management.	Create an Elevation Certificate database and FFE estimation tool to augment the RLAA findings and aid floodplain management planning. Train building officials to enter data from new ECs in order to maintain the database.	Prevention	Flood	H	City Staff Time	CNO General Fund	City of New Orleans (Safety and Permits, ITI), GNO Inc.	1-5 years

Action #	Action Item	Description	Action Type	Hazards	Priority (High, Med., Low)	Cost	Potential Funding Sources	Lead Agency	Timeline
2020.5.5	Promote use of resilient building materials in City developments	Develop and implement a set of standards aimed at promoting the use of resilient building materials in government-owned, commercial, and residential projects.	Prevention	Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Lightning, Storm Surge/ Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather	L	Staff Time	TBD	HANO	1-3 years
2020.5.7	Advocate for NFIP reforms.	Advocate for National Flood Insurance Program (NFIP) reforms, including increasing the cap on Increased Cost of Compliance (ICC) coverage and freezing premiums for properties enrolled in Hazard Mitigation Assistance (HMA) programs.	Prevention	Flood	H	City Staff Time	CNO General Fund	NOHSEP, Mayors Office, City Council, Regional Planning Commission, Housing Nola, Urban Conservancy, Flood Protection Authority-East and West	1-5 years
2020.5.12	Advocate for Congressional Authorization and funding to increase HSDDRS level of protection to at least 500-year design flood.	Utilize City Team to address 500-year flood protection.	Prevention	Coastal Erosion, Flood, Levee Failure, Storm Surge/ Coastal Flooding, Tropical Cyclone	H	City Staff Time	CNO General Fund, State and Federal Grants, Philanthropic Grants	ORS, Tulane Center for Environmental Law, Flood Protection Authority-East	1-5 years

Action #	Action Item	Description	Action Type	Hazards	Priority (High, Med., Low)	Cost	Potential Funding Sources	Lead Agency	Timeline
2020.5.16	Explore code/policy models related to canopy preservation on private property.	Look at Houston Tree Ordinance as a potential guide for such a policy.	Prevention	Extreme Heat, Flood	M	City Staff Time	CNO General Fund, State and Federal Grants, Philanthropic Grants	CPC, Parks and Parkways, ORS	1-5 years
2020.5.20	Revise existing city policy to streamline permitting process for Green Stormwater Infrastructure.	Reclassify the tree planting activities under green infrastructure projects instead of construction projects.	Prevention	Extreme Heat, Flood	L	City Staff Time	CNO General Fund	CPC, DPW, Safety and Permits	1-5 years
2020.5.21	Work with relevant city stakeholders and partners to develop a consolidated database to track all green infrastructure initiatives across the city.	Coordinate between the City of New Orleans, local jurisdictions, Orleans Parish, neighboring Parishes, regional planning organizations, environmental organizations, and any other relevant stakeholder groups to compile a user-friendly, interactive data platform displaying green infrastructure projects and initiatives.	Prevention	Costal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Lightning, Storm Surge/Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather	M	City Staff Time, Contract Labor	EPA, US Army Corps of Engineers, FEMA-HMGP	IT, ORS	1-5 years

Action #	Action Item	Description	Action Type	Hazards	Priority (High, Med., Low)	Cost	Potential Funding Sources	Lead Agency	Timeline
2020.5.23	Create a citywide data platform of all green infrastructure projects.	Coordinate with the City of New Orleans internal and external partners to compile a user-friendly, interactive data platform displaying green infrastructure projects and initiatives.	Prevention	Costal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Lightning, Storm Surge/Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather	M	Staff Time, Contract Labor	EPA, US Army Corps of Engineers, FEMA-HMGP	SWBNO Environmental Services, SWBNA/CNO, (Information Technology & Innovation), ORS, and support of other internal and external partners	1-5 years
2020.5.24	Implement system to monitor green infrastructure projects and/or other resilience measures on NORA properties.	Utilize resilience metrics and/or technology provided by the City of New Orleans to track the impact of green infrastructure projects and other resilience initiatives.	Prevention	Costal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Lightning, Storm Surge/Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather	M	Staff Time, Contract Labor	CNO General Fund, EPA, US Army Corps of Engineers, FEMA-HMGP	ORS/SWBNO, NORA/CNO, (Information Technology & Innovation)	4-5 years

Action #	Action Item	Description	Action Type	Hazards	Priority (High, Med., Low)	Cost	Potential Funding Sources	Lead Agency	Timeline
2020.5.28	Continue to refine data-informed metrics that measure the progress of resilience projects.	Develop a set of metrics that can be used to track and measure the progress of various resiliency projects and initiatives in Orleans Parish. Ensure these data-informed metrics can be measured consistently over time to clearly communicate the impact of projects and programs on regional resiliency and mitigation.	Prevention	Costal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Lightning, Storm Surge/Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather	M	City Staff Time, Contract Labor	Health and Human Services, CDC, EPA	CNO (Office of Resilience & Sustainability) / Universities	1-2 years
2020.5.29	Create a digital database of City infrastructure plans, surveys, and other spatial data to inform project design, stormwater modeling, and other uses.	Digitize hard copies of historic plans and create a standard operation procedure for new projects. Create a comprehensive citywide digital database of existing City infrastructure plans, utility plans, surveys, GIS, and other spatial data to inform project design, stormwater modeling, and other hazard mitigation initiatives.	Prevention	Flood	H	City Staff Time	CNO General Fund, State and Federal Grants, Philanthropic Grants	CNO (Department of Public Works) / ITI	1-3 years

Action #	Action Item	Description	Action Type	Hazards	Priority (High, Med., Low)	Cost	Potential Funding Sources	Lead Agency	Timeline
2020.5.30	Deploy litter collection devices in drainage canals and catch basins.	Identify hazard mitigation provisions that can be included in the Municipal Separate Storm Sewer Systems (MS4) permitting process in order to promote a comprehensive and innovative urban water management approach throughout Orleans Parish. Focus on identifying actions that address both water quality and flooding.	Prevention	Flood	M	SWBNO Staff Time, Contract Labor	State and Federal Grants	SWBNO, ORS	1-2 years
2020.5.32	Provide information resources for homebuilders, relators and the general public that outline construction materials and elevated building codes that can improve resiliency to natural hazards.	Coordinate public information and education with City of New Orleans. Provide stakeholders with information about building standards, incentive programs and financing options for homeowners and builders Publicize success stories.	Public Education & Awareness	Costal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Lightning, Storm Surge/Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather	M	Staff Time	TBD	ORS/SWBNO, with support from NORA	1-5 years

Action #	Action Item	Description	Action Type	Hazards	Priority (High, Med., Low)	Cost	Potential Funding Sources	Lead Agency	Timeline
2020.SWBNO.2	Design and build a Safe House and Resiliency Center that will house SWBNO Emergency Operations Center and support continuity of operations during emergency incidents	See 6.5.2 Sewage & Water Board Master Plan.	Emergency Services Measures	Costal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Levee Failure, Lightning, Storm Surge/Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather, Human-Caused Hazards	M	$21,000,000	PDM/SWBNO	SWBNO Emergency Management	1-3 years
2020.SWBNO.3	Water Hammer Mitigation Project: Complete pump system upgrades in Phase 3 (final phase) of this project by installing new meters and valves at the Panola and High Lift Pumping Stations to monitor water flow rates.	See 6.6.1 Sewage & Water Board Master Plan.	Structural Projects	Flood, Hail, High Winds, Lightning, Storm Surge/Coastal Flooding, Tropical Cyclone	M	$90,000,000	PW	SWBNO Operations, Engineering Division	1-5 years

Action #	Action Item	Description	Action Type	Hazards	Priority (High, Med., Low)	Cost	Potential Funding Sources	Lead Agency	Timeline
2020.SWBNO.4	Power Complex Project: Improve the reliability of SWBNO's drainage pumps during major weather events by installing redundant power sources and upgrading power conversion capabilities.	See 6.7 Sewage & Water Board Master Plan.	Structural Projects	Flood, Storm Surge/Coastal Flooding, Tropical Cyclone, Human-Caused Hazards	H	$213,000,000	HMGP/SWBNO	SWBNO Operations	1-5 years
2020.SWBNO.7	Upgrade and improve the SWBNO Drainage System, including Canals Upgrades, Pump Station Rehabilitation, Pump Upgrades, and Power Controls.	See 6.6.6 Sewage & Water Board Master Plan.	Structural Projects	Flood, Storm Surge/Coastal Flooding, Tropical Cyclone, Human-Caused Hazards	H	$1,000,000,000	USACE	SWBNO / USACE	1-5 years
2021.SWBNO.8	Conduct a Rate Study and stakeholder outreach to develop a stormwater fee structure for Board approval, creating a dedicated funding source for drainage infrastructure.	Draft a city policy on stormwater fees/ Budget/Finance/GSO.	Structural Projects	Flood	H	Staff Time	District Budget	SWBNO / ORS	1-5 years
2020.Tulane.2 (2.B.1)	Acquire and maintain detailed critical facility data such that these sites can be prioritized and risk assessed for possible mitigation actions.	Develop and/or enhance repository for storage and access of hazard, risk and vulnerability data for all University assets, including specific data regarding University assets and infrastructure.	Prevention	Costal Erosion, Drought, Extreme Heat, Flood, Hail, High Winds, Land Subsidence, Levee Failure, Lightning, Storm Surge/Coastal Flooding, Tornado, Tropical Cyclone, Wildfire, Winter Weather	H	Staff Time and Data Costs	TBD	Tulane University (Office of Capital Projects and Real Estate)	1 year



Section 22
Plan Maintenance

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Section 22: Plan Maintenance

Plan Maintenance Procedures

The following is an explanation of how the City of New Orleans, participating educational institutions and special districts, and the general public will be involved in implementing, evaluating, and enhancing the Plan Update over time. The sustained hazard mitigation planning process consists of four main parts:

- Incorporation
- Monitoring and Evaluation
- Updating
- Continued Public Involvement

Incorporation

The City of New Orleans and the participating educational institutions and special districts will be responsible for further development and implementation of mitigation actions. Each action has been assigned to a specific department within the City, participating educational institutions, and/or special districts. The following describes the process by which the City of New Orleans and participating educational institutions and special districts will incorporate elements of the Mitigation Plan into other planning mechanisms.

Process of Incorporation

Upon formal adoption of the Plan Update, the City of New Orleans and participating educational institutions and special districts will implement actions based on priority and the availability of funding. The City will support the participating agencies and departments as they implement mitigation actions and will adjust long-term plans and budgets to stay aligned with the updated Hazard Mitigation Plan. The potential funding sources noted for each action can guide participants when seeking support and include a timeline to promote timely completion and measure progress.

All agencies and departments that participated in this planning process will work to align their mitigation actions with existing plans and policies, such as construction standards and Emergency Management Plans, and ensure these actions appear in related planning efforts. Integrating these plans will help maximize funding, enable cost-sharing, and reduce risks to people and property.

The Planning Team members will work to integrate hazard mitigation strategies into other plans and codes as they are developed. Participating team members will conduct periodic

reviews of relevant plans and policies at least annually, and ensure that future capital improvement planning aligns with the goals of this Hazard Mitigation Plan to reduce long-term risk to life and property from all hazards. To guide and manage development, the Planning Team will review Comprehensive Land Use Plans, Capital Improvement Plans, Emergency Operations or Management Plans, and Transportation Plans as applicable to each jurisdiction.

Table 22-1 identifies types of planning mechanisms and examples of methods for incorporating the Plan Update into other planning efforts. The team members, listed in Table 22-2 below, will be responsible for the review of these planning mechanisms and their incorporation of the Plan Update, with the exception of the Floodplain Management Plans; the Floodplain Administrator on staff will be responsible for incorporating the Plan when the Floodplain Management Plan is updated, or a new plan is developed.

Table 22-1. Methods of Incorporation of the Plan

Planning Mechanism	Department / Office: Title Responsible	Incorporation of Plan
Annual Budget Review	**City of New Orleans –** Administration: Chief Administrative Officer **Loyola University –** Human Resources, Payroll, Risk Management & Emergency Preparedness: Director **Tulane University –** Emergency Preparedness and Response: Associate Director **Housing Authority of New Orleans (HANO) –** Strategic Planning: Director **New Orleans Redevelopment Authority (NORA) –** Strategy, Programs, and Projects: Chief **Sewerage and Water Board of New Orleans (SWBNO) –** Emergency Management: Assistant Director / Senior Planning Coordinator	Various departments and key personnel that participated in the planning process will review this Plan Update and mitigation actions therein when conducting their annual budget review.

Planning Mechanism	Department / Office: Title Responsible	Incorporation of Plan
Capital Improvement Plans	**City of New Orleans –** Capital Projects Administration: Director **Loyola University –** Facility Operations: Director **Tulane University –** Emergency Preparedness and Response: Associate Director **Housing Authority of New Orleans (HANO) –** Strategic Planning: Director	The City of New Orleans along with several participating educational institutions and special districts each have a Capital Improvement Plan (CIP) in place or under development. Prior to any revisions to the CIP, City, University and Special District departments will review the risk assessment and mitigation strategy sections of the HMAP, avoid locating new development in high hazard areas and incorporate risk reduction standards and methods in capital projects.
Comprehensive Plans	**City of New Orleans –** City Planning Commission: Executive Director **Loyola University –** Facility Operations: Director **Tulane University –** Emergency Preparedness and Response: Associate Director **Housing Authority of New Orleans (HANO) –** Strategic Planning: Director **Sewerage and Water Board of New Orleans (SWBNO) –** Emergency Management: Assistant Director / Senior Planning Coordinator	The City of New Orleans along with several participating educational institutions and special districts have a Comprehensive Plan in place or under development. Since Comprehensive Plans involve developing a unified vision for a community, the mitigation vision and goals of the Plan Update will be reviewed in the revision of the Comprehensive Plan.

Planning Mechanism	Department / Office: Title Responsible	Incorporation of Plan
Floodplain Management Plans	**City of New Orleans –** Floodplain Manager / Coastal Zone Manager	Floodplain Management Plans include preventative and corrective actions to address the flood hazard. Therefore, the actions for flooding and information found in Section 8 of this Plan Update discussing the people and property at risk to flood will be reviewed and revised when the City updates its Flood Management Plan.
Grant Applications	**City of New Orleans –** NOHSEP: Hazard Mitigation Director **Loyola University –** Human Resources, Payroll, Risk Management & Emergency Preparedness: Director **Tulane University –** Emergency Preparedness and Response: Associate Director **Housing Authority of New Orleans (HANO) –** Strategic Planning: Director **New Orleans Redevelopment Authority (NORA) –** Strategy, Programs, and Projects: Chief **Sewerage and Water Board of New Orleans (SWBNO) –** Emergency Management: Assistant Director / Senior Planning Coordinator	This Plan Update will be evaluated when grant funding is sought for mitigation projects. If a project is not in the Plan Update, a Plan Revision may be necessary to include the action in the Plan.
Regulatory Plans	**City of New Orleans –** NOHSEP: Hazard Mitigation Director **Loyola University –** Human Resources, Payroll, Risk Management & Emergency Preparedness: Director **Tulane University –** Emergency Preparedness and Response: Associate Director	Currently, the City of New Orleans and all participating educational institutions and special districts have regulatory plans in place or under development, such as a Continuity of Operations Plan, Land Use Plan, and / or Evacuation Plan. The Plan Update will be consulted when City, University, or Special District departments review

Planning Mechanism	Department / Office: Title Responsible	Incorporation of Plan
	Housing Authority of New Orleans (HANO) – Strategic Planning: Director **New Orleans Redevelopment Authority (NORA) –** Strategy, Programs, and Projects: Chief **Sewerage and Water Board of New Orleans (SWBNO) –** Emergency Management: Assistant Director / Senior Planning Coordinator	or revise their current regulatory planning mechanisms, or in the development of regulatory plans that are not currently in place.

Monitoring, Evaluating, and Updating

This section outlines the procedures for monitoring and evaluating the Plan and for completing required reviews, revisions, and updates. Table 22-2 identifies the departments and titles responsible for these activities.

Table 22-2. Team Members Responsible for Monitoring, Evaluating, and Updating of the Plan

Organization / Department / Office	Title
City of New Orleans – Homeland Security and Emergency Preparedness (NOHSEP)	Hazard Mitigation Director
City of New Orleans – Homeland Security and Emergency Preparedness (NOHSEP)	Senior Hazard Mitigation Coordinator
Loyola University – Facility Operations	Director
Loyola University – Human Resources, Payroll, Risk Management & Emergency Preparedness	Director
Tulane University – Disaster Assistance and Recovery	Assistant Director
Housing Authority of New Orleans (HANO) – Strategic Planning	Director
New Orleans Redevelopment Authority (NORA) – Real Estate Development and Planning	Project Manager
Sewerage and Water Board of New Orleans (SWBNO) – Emergency Management	Assistant Director

SECTION 22: PLAN MAINTENANCE

Monitoring

The NOHSEP Hazard Mitigation Office will be responsible for monitoring implementation of the mitigation strategy and coordinating regular updates to the Plan to ensure it remains an effective tool. The lead agency responsible for implementing each mitigation action in this Plan will submit annual progress reports to the Hazard Mitigation Office.
The Hazard Mitigation Office will continue to facilitate meetings with the individuals holding the titles listed in Table 22-2 on an annual basis and will produce an annual report that includes updates on the implementation status of the Plan, updates to the risk assessment and capability assessment to incorporate new data and developments, and new mitigation action items. In addition to the annual monitoring, the Plan may be similarly reviewed immediately after major weather events, including state or federal disaster declarations.

Evaluating

As part of the evaluation process, the NOHSEP Hazard Mitigation Office and the Planning Team members will assess changes in risk; determine whether the implementation of mitigation actions is on schedule; determine whether there are any implementation problems, such as technical, political, legal, or coordination issues; and identify changes in land development or programs that affect mitigation priorities for each respective department or organization. When needed, the goals, objectives, mitigation actions, and priorities will be changed to reflect the changing needs of the community.

The Planning Team will meet on an annual basis to evaluate the Plan Update, including the risk and capability assessments, to identify any changes needed, and assess the effectiveness of the Plan Update in achieving its stated purpose and goals. The team will evaluate the number of mitigation actions implemented, changes in vulnerability due to the completion of mitigation projects, and the loss reduction associated with each action. In addition, the Plan Update may be similarly evaluated immediately after extreme weather events, including but not limited to state and federally declared disasters.

Updating

The Planning Team (Appendix D, Table D-1) will meet to review the Plan Update in advance of the next five-year update. Additionally, following a disaster, including state or federal disaster declarations, the Plan may be updated to reflect changes in the community's vulnerabilities or mitigation priorities according to the process outlined above, as necessary.

Factors that may affect the content of the revised Plan include new development in identified hazard areas, increased exposure to hazards, disaster declarations, increase or decrease in capability to address hazards, and changes to federal or state legislation. The Plan update process also provides the Planning Team an opportunity to evaluate mitigation actions that have been successful, identify losses avoided due to the implementation of specific mitigation measures, and address mitigation actions that may not have been successfully implemented as assigned.

Upon completion of the review, revision, and update planning process, the revised Plan will be submitted to GOHSEP and FEMA for final review and approval in coordination with FEMA within the five-year cycle.

It is important to note that grant and planning cycles may extend beyond one year. Given the five-year lifespan of an approved plan, early consideration of update timelines is relevant to ensure continuity and avoid a lapse in plan status.

Continued Public Involvement

It is important that stakeholders and the immediate community maintain a vested interest in preserving the functionality of the planning area as it pertains to the overall goals of the Mitigation Plan. Opportunities for public input were provided during preparation of this Plan Update and will continue to be available throughout the Plan's implementation, annual monitoring and evaluation process, and future updates. Feedback received will be considered during the City's monitoring process and may inform future plan revisions, as appropriate.

The public can review the Plan Update on the City of New Orleans' and participating educational institutions' and special districts' websites, where officials and the public are invited to provide ongoing feedback via email. A paper copy of the entire Plan Update will be kept at the New Orleans Office of Homeland Security and Emergency Preparedness (NOHSEP) Hazard Mitigation Office.



Appendix A

Human-Caused Hazards

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Appendix A: Human-Caused Hazards

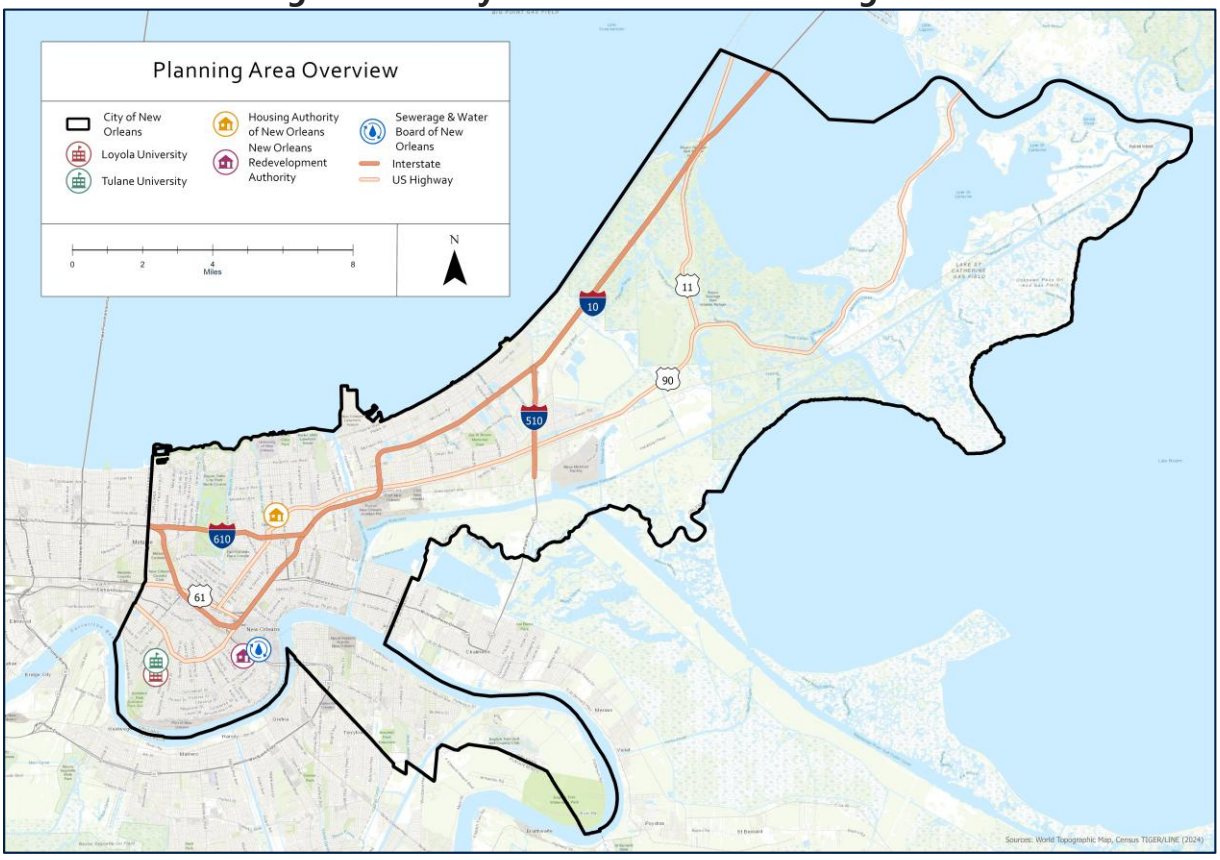
Overview

During the early stages of the planning process the team analyzed a broad range of hazards that had the potential to impact the planning area. The team reviewed human-caused and technological hazards including Hazardous Materials, Infectious Disease, and Terrorism. This section includes a description of each hazard along with an analysis of the planning area's overall vulnerability to each. Annualized loss data is provided where available. The impact of each hazard is addressed looking at the warning time or potential speed of onset of the hazard, where appropriate. The planning team provided data for human-caused and technological hazards included in this section, where applicable.

Study Area Definition

All areas of City of New Orleans, including all participating educational institutions and special districts, are considered part of the planning area. Figure A-1 shows the planning area for the City of New Orleans Hazard Mitigation Action Plan Update 2026.

Figure A-1. City of New Orleans Planning Area



Hazard Profiles, Vulnerability, and Impact

For each of the human-caused or technological hazards, a description of the hazard and the City of New Orleans planning area's overall vulnerability to that hazard was developed. Impact is assigned based on exposure and vulnerability to each participant's population and built environment. Impact statements are defined in Table A-1 below.

Table A-1. Impact Statements

Potential Severity	Description
Substantial	Multiple deaths. Complete shutdown of facilities for 30 days or more. More than 50 percent of property destroyed or with major damage.
Major	Injuries and illnesses resulting in permanent disability. Complete shutdown of critical facilities between one and four weeks. More than 25 percent of property destroyed or with major damage.
Minor	Injuries and illnesses do not result in permanent disability. Complete shutdown of critical facilities for up to one week. More than 10 percent of property destroyed or with major damage.
Limited	Injuries and illnesses are treatable with first aid. Shutdown of critical facilities and services for 24 hours or less. Less than 10 percent of property destroyed or with major damage.

The term "technological hazards" refers to incidents that usually originate from technological malfunctions, structural failure, industrial accidents, negligence, and certain human activities. The use of hazardous materials across all industries can represent a technological hazard, as well as water contamination, cyber-attack, and acts of terrorism. The scope of this risk assessment assumes that hazardous material incidents addressed in this section would be accidental in nature and that their consequences are unplanned and unintended.

Hazardous Materials (Fixed and Mobile)

Hazard Description

Hazardous materials come in the form of explosives, flammable and combustible substances, poisons, and radioactive materials. A hazardous material (HAZMAT) incident involves a substance outside normal safe containment in sufficient concentration to pose a threat to life, property, or the environment. These incidents can happen across various

sectors, including industrial facilities, road transportation, pipeline transportation, rail transportation, maritime transportation, and aviation transportation.

Chemicals are found everywhere. They purify drinking water, increase crop production, and simplify household chores. But chemicals also can be hazardous to humans or the environment if used or released improperly. Hazards can occur during production, storage, transportation, use, or disposal. The public is at risk if a chemical is used unsafely or released in harmful amounts into the environment.



In a hazardous materials incident, solid, liquid, and/or gaseous contaminants may be released from fixed or mobile containers. Weather conditions will directly affect how the hazard develops. The Toxics Release Inventory (TRI) is a publicly available database from the federal Environmental Protection Agency (EPA) which contains information on toxic chemical releases and other waste management activities that are reported annually by certain covered industry groups federal facilities. This inventory was established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and expanded by the Pollution Prevention Act of 1990. Each year, facilities that meet certain activity thresholds must report their releases and other waste management activities for listed toxic chemicals to the EPA and their state or tribal entity. A facility must report if it meets the following three criteria:

- The facility falls within one of the following industrial categories: manufacturing; metal mining; coal mining; electric generating facilities that combust coal and/or oil; chemical wholesale distributors; petroleum terminals and bulk storage facilities; Resource Conservation and Recovery Act (RCRA) Subtitle C Treatment, Storage and Disposal (TSD) facilities; and solvent recovery services.
- Have ten or more full-time employee equivalents.
- Manufactures or processes more than 25,000 pounds or otherwise uses more than 10,000 pounds of any listed chemical during the calendar year. Persistent, Bio-accumulative and Toxic (PBT) chemicals are subject to different thresholds of ten pounds, 100 pounds or 0.1 grams depending on the chemical.

Submission of a Tier II form is required under Section 312 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA). Under EPCRA, all facilities which store significant quantities of hazardous chemicals must share this information with state and local emergency responders and planners. Facilities in Louisiana share this information by

filing annual hazardous chemical inventories with the Louisiana Department of Health (LDH), Local Emergency Planning Committees (LEPCs), and local fire departments. The Louisiana Tier II Report contains facility identification information and detailed chemical data about hazardous chemicals stored at the facility.

A facility must report if it meets the following criteria:

- Any company using chemicals that could present a physical or health hazard must report them if the quantities of those chemicals exceed Tier II threshold limits.
- If an industry has an Occupational Safety and Health Administration (OSHA) deemed hazardous chemical that exceeds the appropriate threshold at a certain point in time, then the chemical must be reported. These chemicals may be on the list of 355 Extremely Hazardous Substances (EHS) or could be one of the 650,000 reportable hazardous substances (not on the EHS list). This reporting format is for a "snapshot in time." EHS chemicals must be reported if the quantity is greater than 500 pounds or the Threshold Planning Quantity (TPQ) amount, if the TPQ is less than 500 pounds. Chemicals not considered to be EHS must be reported if their quantity is 10,000 pounds or greater.

Location

A hazardous material spill occurring along major highways, arterial roads, or other heavily trafficked roadways near populated areas in the City of New Orleans planning area is of concern to the planning team. Trains and trucks can carry a variety of materials that would, in large quantity, threaten the health and safety of people and the natural environment in the vicinity of a spill. This also includes spills on local roads that serve as primary routes for commercial or industrial transport.

The Greater New Orleans region, which includes New Orleans and surrounding parishes, is an important operational hub for the state's offshore oil and gas industry and energy infrastructure. The region is home to 17 oil refineries and extensive oil, gas, and petrochemical operations. A spill in or near the planning area could directly impact the city itself as well as regional oil and gas production and transportation facilities. The energy sector employs an estimated 19,259 people in the greater New Orleans area, with nearly 125,700 miles of onshore and offshore pipelines.[1]

All major highways, railroads, waterways, and the surrounding areas are at risk of a HAZMAT incident. In the City of New Orleans hazardous materials are transported via highways, railroads, and the waterways in the Port of New Orleans. Rail lines carrying hazardous materials run directly through densely populated neighborhoods, including

[1] Source: https://gnoinc.org/doing-business/industries/energy/#:~:text=Facts%20&%20Figures,%232

parts of the Central Business District, the Lower Garden District, Mid-City, and New Orleans East. A spill or derailment is these densely populated areas could have significant impacts on residents and businesses..

The City of New Orleans has the only seaport in the United States that serves six Class I railroads. These railroads are connected by the New Orleans Public Belt Railroad Commission (NOPB). The NOPB is a Class III switching railroads that serves the Port of New Orleans. NOPB was founded in 1908 and is an independent political subdivision of the State of Louisiana. The Port of New Orleans has multiple lines of business including rail and cargo. Hazardous materials cargo makes up a small portion of the cargo transported in and out of the port. At any given time, there are numerous hazardous materials such as toluene, naphthalene, and battery fluids in and around the planning area. This transportation hub with access to the planning area's roads, railways, and waterways presents an elevated risk of spills as hazardous materials are frequently transported into and out of the area.

I-10 and I-610 are highways of concern due to their high volume of commercial traffic and proximity to residential areas and major industrial facilities. I-10 or the Caliborne Expressway is heavily used by commercial traffic with access to densely populated areas. I-610 is a major connector for traffic as it bypasses the central business district. The access roads to the Port of New Orleans are also of concern due to their high volume of traffic. Trucks on the roadway may also be carrying hazardous materials, and a spill could significantly impact the surrounding area.

The National Hazardous Materials Route Registry (NHMRR) lists, as reported by States and Tribal governments, all designated and restricted roads and preferred highway routes for transportation of highway route-controlled quantities of Class 7 radioactive materials and non-radioactive hazardous materials. According to NHMRR data, there are no National Hazardous Materials Routes in or near the City of New Orleans planning area.[2]

Under the Community Right-to-Know program laws upheld at the state and federal level, all facilities which store significant quantities of hazardous chemicals must share this information with state and local emergency responders and planners. Facilities in Louisiana share this information by filing annual hazardous chemical inventories with the state, with Local Emergency Planning Committees (LEPCs), and with local fire departments. Figure A-2 shows the locations of available georeferenced TRI toxic sites in the City of New Orleans planning area as of 2023. Only toxic sites that have georeferenced data

[2] Source: https://www.fmcsa.dot.gov/regulations/hazardous-materials/national-hazardous-materials-route-registry-state

available were analyzed; 500-meter and 2500-meter circle buffers are also drawn around each hazardous material site.

Based on EPA's Toxic Release Inventory (TRI), 26 TRI sites are located within the City of New Orleans planning area, 25 of which have reported at least one instance of chemical releases since 1987. Two sites of these sites, Air Products & Chemical Inc. and U.S. Gypsum Co., reported chemical releases in 2023, the most recent reporting year available. These sites reported releases as high as 6,008 pounds of chemicals in such as methanol, lead and lead compounds, and mercury and mercury compounds in 2023. Air Products & Chemical Inc. accounted for the largest amount of chemicals (6,008 lbs.) released into or managed within the planning area in 2023, according to TRI data.

In terms of the Risk-Screening Environmental Indicator (RSEI) score, a unitless value which estimates potential risk to human health from a chemical release, the highest risk chemical managed and/or released in the planning area in 2023 was 6,008 lbs. of methanol. Table A-2 lists the names, locations, and hazardous chemicals associated with available TRI toxic sites in and around the City of New Orleans planning area that reported toxic releases for 2023.

Figure A-2. EPA 2023 Toxic Release Inventory (TRI) Facility Locations

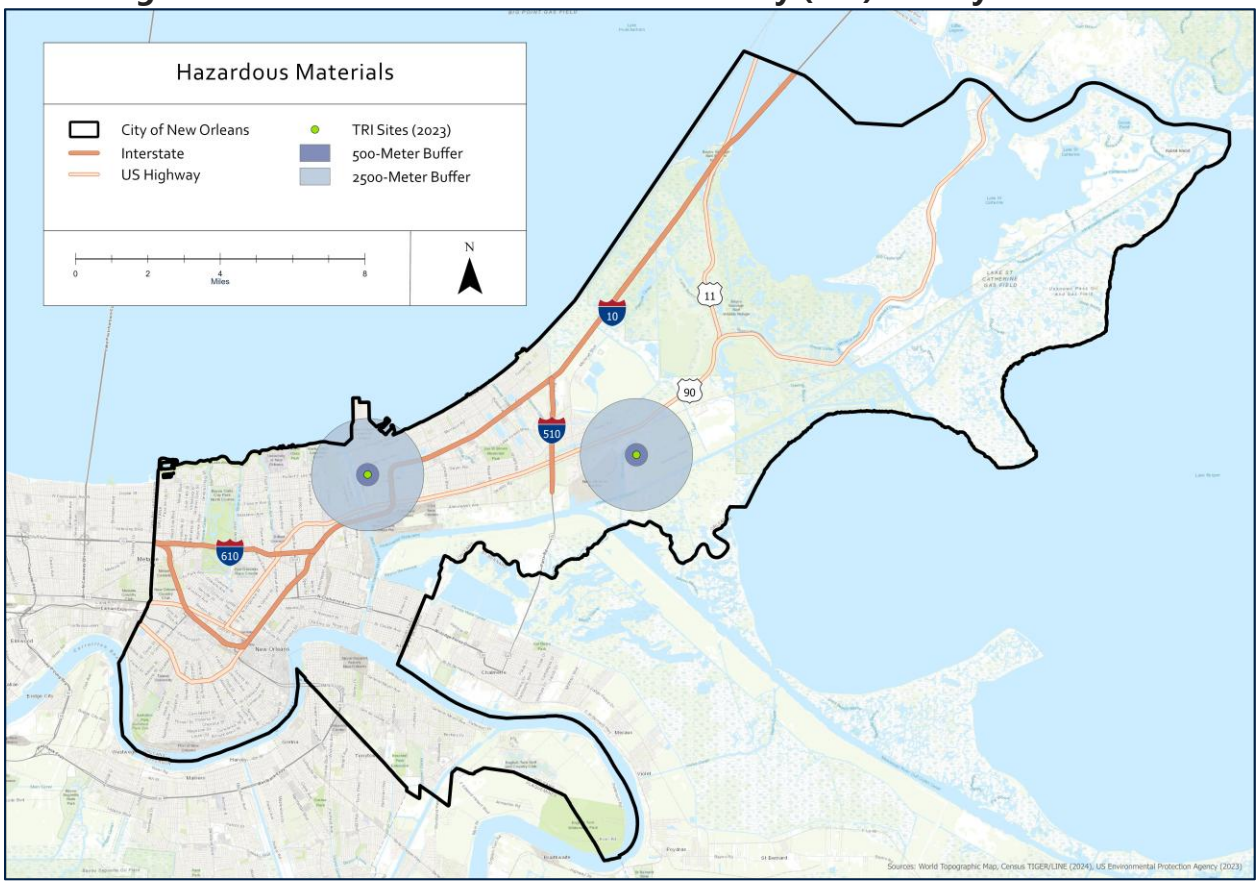


Table A-2. EPA 2023 Toxic Release Inventory (TRI) for the City of New Orleans[3]

Tri Facility Name	Location	Associated Chemicals
Air Products & Chemicals Inc. (New Orleans LA Facility)	City of New Orleans	Methanol
U.S. Gypsum Co	City of New Orleans	Lead Compounds, Mercury Compounds

The entire City of New Orleans planning area, including all educational institutions and special districts, is at risk of hazardous materials incidents. This risk is due in part to the presence of several TRI sites and the close proximity of densely populated neighborhoods to major transportation networks, including highways, rail lines, and port facilities. Additional concern comes from nearby industrial facilities, such as the Norco, Chalmette, and Meraux refineries, where accidental chemical releases or equipment failures could impair air quality, create hazardous fumes, and impact the health and safety of residents across the city. Additionally, hazardous materials being transported via the Stillwater Central Railroad elevates the risk of spills impacting the planning area. These factors heighten the planning area's vulnerability to hazardous material exposure.

Extent

The extent of hazardous material release will depend on whether it is from a mobile or fixed site and the size of impact. The range of intensity will vary greatly depending on the circumstances. These factors and conditions include the material, toxicity, duration of the release, and environmental conditions such as the wind and precipitation.

Hazardous materials or toxic releases can have a substantial impact on communities. Such events can cause multiple deaths, completely shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. In a hazardous materials incident, solid, liquid and/or gaseous contaminants may be released from fixed or mobile containers. Weather conditions would directly affect how the hazard develops. The micro-meteorological effects on buildings and terrain can alter travel patterns and duration of agents. Shielding in the form of permanent shelter can protect people from harmful effects. Non-compliance with fire and building codes, as well as failure to maintain existing fire and containment features can substantially increase damage from a hazardous materials release. The duration of a hazardous materials incident can range from hours to days. Warning time is minimal to none.

[3] Only TRI sites with reported chemical releases for 2023 are listed. Source: https://www.epa.gov/toxics-release-inventory-tri-program

Historical Occurrences

Hazardous materials are substances that if released or misused can cause death, serious injury, long-lasting health effects, and damage to infrastructure and the environment. Many products containing hazardous chemicals are used and stored in homes routinely. These products are also shipped daily on the nation's highways, railroads, waterways, and pipelines.

A total of 490 spill incidents were reported in City of New Orleans between 2002 and 2024 according to the U.S. Department of Transportation Pipeline and Hazardous Safety Administration database.[4] This includes chemical spills reported to and investigated by Louisiana Department of Environmental Quality (LDEQ). Many of these events were spills occurring on highways and consisted of mostly paint related material and crude oil (though specific substances for many entries were not provided). The vast majority of the events reported relatively small amounts of materials spilled, often less than 100 gallons or pounds. Damages, injuries, and fatalities are not reported in this database, and a spill's inclusion in this dataset does not necessarily indicate significant damage to public health, property, or the natural environment occurred.

Based on the best available data, previous occurrences of hazardous materials incidents within the planning area have been minor and not resulted in any significant impacts to the population, built environment, or natural environment. However, the frequency of these events does indicate a significant level of risk for the planning area.

Climate Change Considerations

As a non-natural hazard, climate change has no direct impact on the future occurrences of hazardous material incidents. However, climate change is associated with an increase in severe weather. Severe weather events may cause damage to the storage of hazardous materials and can lead to an increase in chemical spills, leaks, or fires. Research and data regarding the impact of climate change on non-natural events is minimal and limited.

Probability of Future Events

Hazardous material spills are usually the result of human error and/or accidents, which cannot be predicted. However, given the concentration of industrial and petrochemical facilities, along with the given amount of traffic through the planning area, and its network of terrestrial and maritime transportation, it is probable that an incident will occur in any given year. Most spills will not lead to negative health or safety impacts and will not cause substantial negative impacts on the air, soil, or water. The probability of a spill threatening

[4] Source: https://www.phmsa.dot.gov/hazmat-program-management-data-and-statistics/data-operations/incident-statistics

the health of thousands and of having long-term negative environmental consequences is, based on previous experience, low.

Based on the historic incident records and team input, the frequency of occurrence for typical hazardous material incidents would be considered highly likely. However, many of the previous spill incidents were minor and related to vehicle or rail incidents resulting in fuel and oil spills. Based on the best available data, the frequency of occurrence for more significant hazardous material incidents is considered "Occasional," meaning an event is probable in the next five years for the City of New Orleans planning area.

Vulnerability and Impact

Based on the geographic proximity of major land, rail, and water transportation routes, most of the City of New Orleans planning area is minimally vulnerable to the impacts of a HAZMAT incident. Several communities are considered the most vulnerable due to their close proximity to I-10 as well as their denser populations.

Public health and environmental impacts are the most common effects of a hazardous materials incident. The release of toxic chemicals can pose immediate health effects including respiratory problems, chemical burns, poisoning, and long-term illnesses such as cancer. Vulnerable populations including children and the elderly may be more susceptible to health impacts. The population over 65 in the City of New Orleans planning area is estimated at 16 percent of the total population and children under the age of 5 are estimated at 6 percent.

In extreme cases, an evacuation may be ordered to remove people from the hazardous area. Residents with disabilities or functional needs may require additional assistance to safely evacuate or access protective measures. People living below the poverty line often lack private transportation, financial resources, or flexible support networks, which can limit their ability to quickly respond to evacuation orders. Non-English speakers may face additional challenges understanding emergency warnings and safety instructions, further increasing their risk.

The population with a disability is estimated at 14 percent of the total population. An estimated 23 percent of the planning area population live below the poverty level. In addition, an estimated 3 percent of the planning area speak English "less than very well."

Table A-3. Populations at Greater Risk of HAZMAT Incidents[5]

Jurisdiction	Population				
	65 and Older	Under 5	With a Disability	Below Poverty Level	Limited English Speaking
City of New Orleans	61,879	20,845	52,249	84,984	11,359

Additionally, residents living near industrial facilities face higher exposure to toxic air pollutants and airborne contaminants from routine operations and accidental releases. The area along the Mississippi River between New Orleans and Baton Rouge is often referred to as "Cancer Alley" because it contains hundreds of petrochemical plants and refineries whose emissions have been linked to elevated levels of carcinogens and other harmful airborne substances that can travel downwind into surrounding communities. These airborne hazards can worsen respiratory conditions, increase cancer risks, and exacerbate other health problems, especially for populations with limited mobility, existing health issues, or fewer economic resources to respond to or relocate from such exposures.[6] The close proximity of these facilities to residential neighborhoods, schools, and other community assets exposes residents not only to acute release events but also to chronic air-quality degradation that compounds vulnerability across multiple pathways.

Hazardous materials can have significant and long-term environmental and public health impacts in the New Orleans area. Spills or leaks of chemicals may contaminate the soil, particularly in low lying neighborhoods and areas near industrial corridors, potentially affecting parks, community gardens, or other recreational spaces. Runoff from contaminated sites can carry pollutants into the Mississippi River, Lake Pontchartrain, and local drainage canals, threatening aquatic life, disrupting ecosystems, and posing risks to drinking water sources. Gaseous releases can lead to air pollution and air quality concerns, which can become widespread. Toxic fumes and particulate matter can be carried by prevailing winds, exposing residents, especially those in eastern New Orleans near the Chalmette and Meraux industrial corridor, to respiratory hazards and other health impacts. HAZMAT incidents can also disrupt the local ecosystem, harming animals, and insects, leading to the displacement of native species.

While the best available data does not provide historical dollar loss amounts, hazardous material incidents can also be costly and impact the local economy. Emergency

[5] U.S. Census Bureau, American Community Survey, 2023

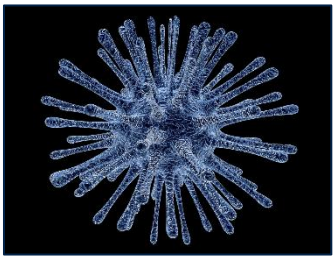
[6] Frontiers in Public Health. 2025. "Social Vulnerability and Cancer Risk from Air Toxins in Louisiana: A Spatial Analysis of Environmental Health Disparities." https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2025.1601868.

containment, clean up, and disposal may strain local resources and budgets. HAZMAT incidents can also lead to property damage, most commonly to industrial facilities and transportation networks. Based on best available data, the impact of hazardous materials incidents in City of New Orleans planning area is considered "Limited" meaning injuries and/or illnesses are treatable with first aid, shutdown of facilities and services for 24 hours or less, and less than 10 percent of property destroyed or with major damage.

Critical facilities in the planning area are vulnerable to a range of direct and indirect impacts caused by HAZMAT incidents. Many of the impacts on critical facilities identified by the City of New Orleans Planning Team are similar to the impacts listed in Sections 5 through 18. For a comprehensive list of critical facilities for each participant, please see Appendix F.

Infectious Disease

Hazard Description



An infectious disease is a clinically evident disease resulting from germs, such as bacteria, viruses, and fungi, which enter the body, multiply, and cause infection. Some infectious diseases are contagious or communicable, meaning they can spread from one person to another. Other infectious diseases can be spread by germs carried in air, water, food, or soil. They can also be spread by vectors, like biting insects, or by animals to humans.[7]

There are three classifications commonly used to identify disease impacts: endemic, epidemic, and pandemic. An endemic is the baseline level of disease, or the normal amount of a particular disease expected in the community. An epidemic is a sudden rise or increase in the number of reported diseases, usually above what is normally expected within a specific population or area. A pandemic is an epidemic that has spread over several countries or continents, affecting a large number of people.[8]

Infectious diseases are a major threat around the world, killing many globally each year.[9] Concerns of pandemics have risen because of the globalized economy and growing population which foster large scale international travel and trade. Growing populations

[7] Source: Centers for Disease Control and Prevention (CDC), https://www.cdc.gov/ncezid/who-we-are/index.html#:~:text=Infectious%20diseases%20are%20illnesses%20caused,from%20one%20person%20to%20another.

[8] Source: Centers for Disease Control and Prevention (CDC), https://www.cdc.gov/scienceambassador/nerdacademy/glossary.html

[9] FEMA. 2022. Key Planning Factors and Considerations for Response to and Recovery from a Biological Incident. https://www.fema.gov/sites/default/files/documents/fema_biological-incident-kpf-2022.pdf.

increase the vulnerability of all areas to disease because a denser population increases the risk of exposure to an infectious disease and advances the spread of infection.

The United States Centers for Disease Control and Prevention (CDC) monitors and reports infectious disease outbreaks across the region. These outbreaks are published on the CDC website (https://www.cdc.gov/outbreaks/index.html). The CDC also manages the Nationally Notifiable Disease List. A notifiable disease is one that, when diagnosed, requires health providers by law to report to state or local public health officials. Notifiable diseases must be reported due to their contagiousness, severity, or frequency. The list is compiled through collaborative efforts among state health departments and the CDC, therefore, diseases that are considered notifiable vary from state to state. Internationally notifiable diseases (i.e., cholera, plague, and yellow fever) are also reportable in compliance with the World Health Organization's International Health Regulations. The Louisiana Department of Health (LDH) manages the state's list of notifiable conditions, which includes but is not limited to, the following:

- Coronavirus
- Diphtheria
- Hepatitis A and B
- Human Immunodeficiency Virus (HIV)
- Influenza
- Measles
- Plague
- Human Rabies
- Smallpox
- Cholera
- Viral Hemorrhagic Fever (including Ebola)
- Yellow Fever

Location

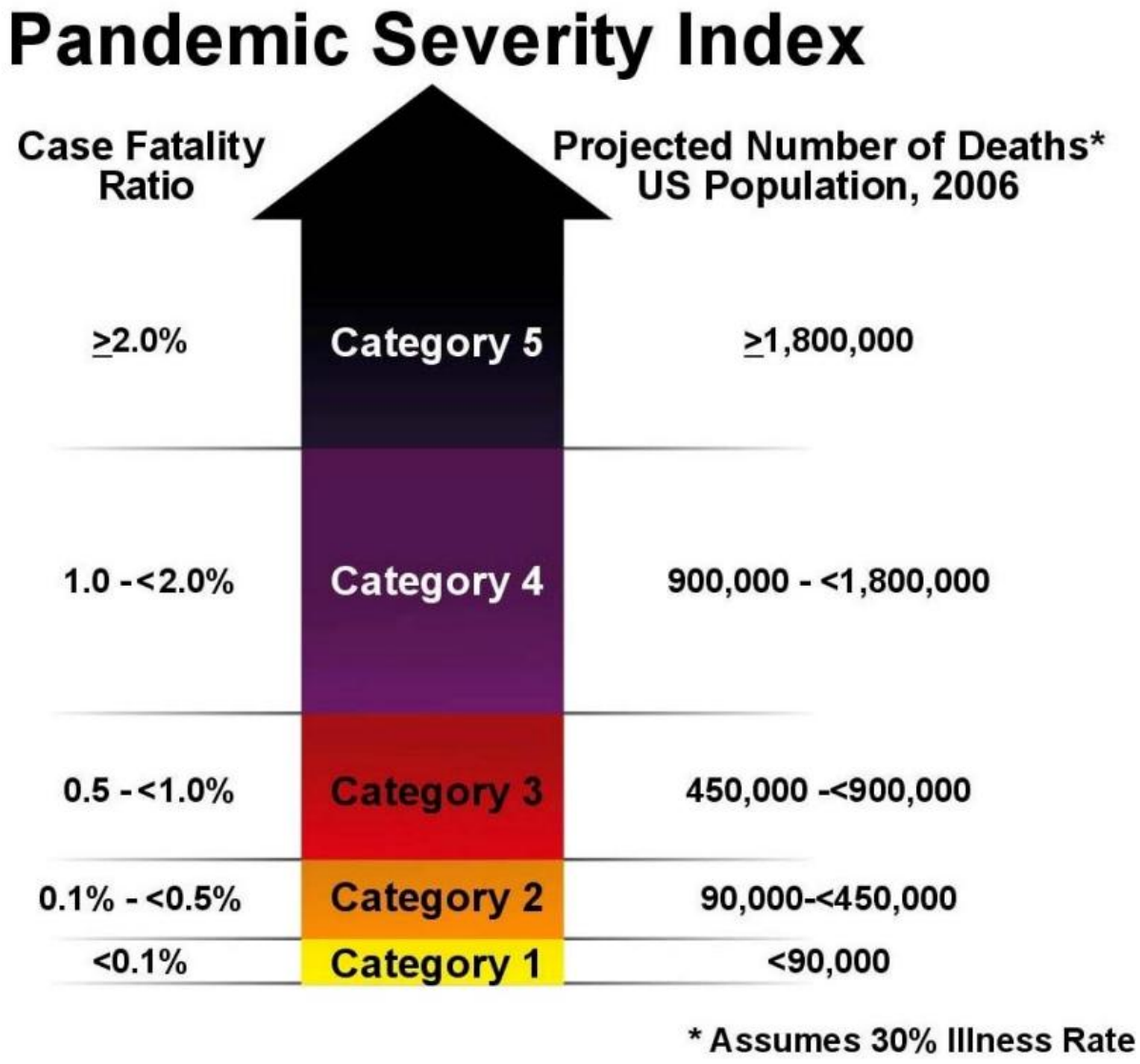
Pandemics cannot be predicted and only a few happen every century. The impacts from an infectious disease can affect all areas of the world, therefore all areas are vulnerable, as evidenced by the COVID-19 pandemic. Since air travel and worldwide shipping have increased, it has become increasingly difficult to contain localized outbreaks as infected or exposed people travel across the globe in a matter of hours. Third world countries have fewer resources to fight disease and may be more vulnerable than more industrialized nations. In the United States, the U.S. public health system works at the federal, state, and local level to monitor diseases, plan, and prepare for outbreaks, and prevent epidemics where possible.

There is no distinct geographic boundary to infectious disease, therefore, it can occur throughout the entire City of New Orleans planning area.

Extent

An outbreak can range from a local endemic to a worldwide pandemic. The severity of a pandemic virus can be evaluated by using the Case Fatality Ratio (CFR) method. The CFR is the proportion of the number of deaths divided by the number of confirmed patients of a disease, which is then used to assess and compare the severity of the endemic, epidemic, or pandemic. It also can be used to evaluate the effect of new treatments, with measures decreasing as treatments improve. As depicted in Figure A-3 through A-5, the higher the CFR, the more severe the infectious disease outbreak, and the greater the extent. The City of New Orleans planning area is subject to the full range of extent in an infectious disease event.

Figure A-3. Case-Fatality Rate for Severity[10]



[10] Source: Centers for Disease Control and Prevention (CDC): https://www.cdc.gov/media/pdf/mitigationslides.pdf

Figure A-4. Pandemic Severity Index Interventions

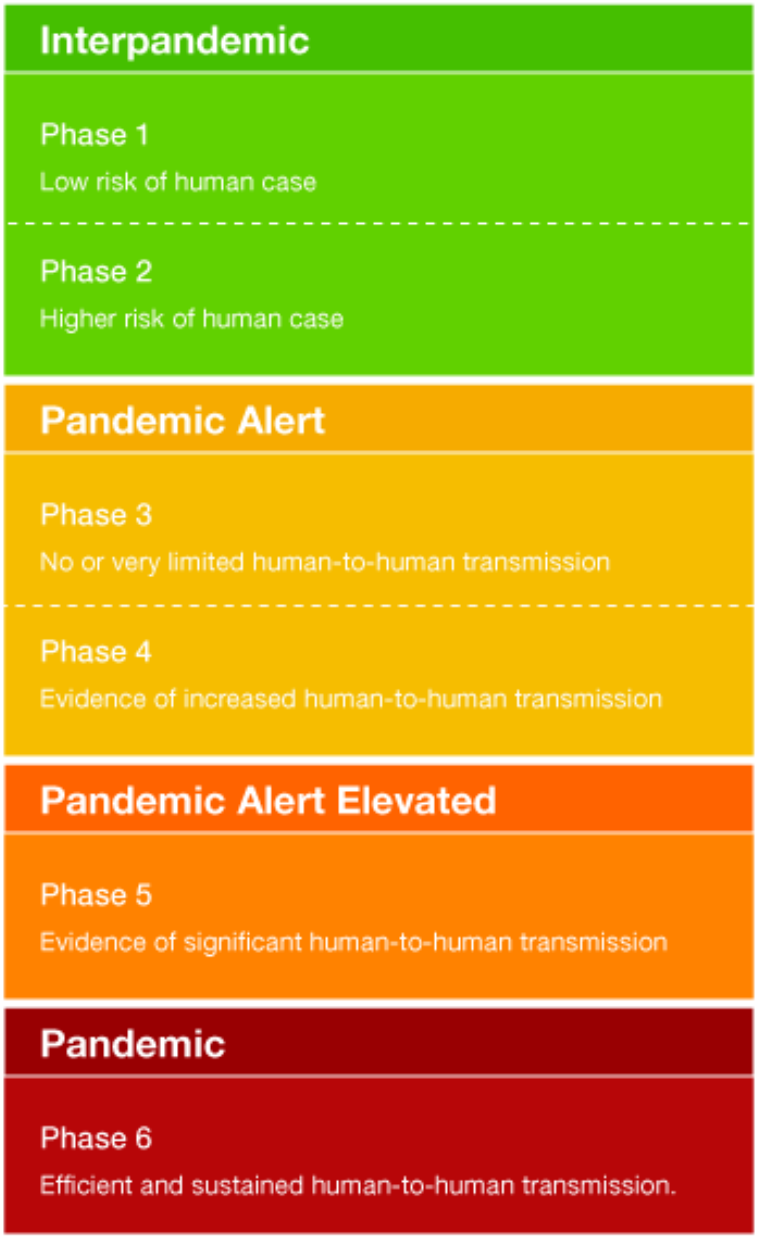
	Pandemic Severity Index		
Interventions by Setting	**1**	**2 and 3**	**4 and 5**
Home			
Voluntary isolation of ill at home (adults and children); combine with use of antiviral treatment as available and indicated	Recommend	Recommend	Recommend
Voluntary quarantine of household members in homes with ill persons (adults and children); consider combining with antiviral prophylaxis if effective, feasible, and quantities sufficient	Generally not recommended	Consider	Recommend
School			
Child social distancing –dismissal of students from schools and school-based activities, and closure of child care programs	Generally not recommended	Consider: ≤ 4 weeks	Recommend: ≤ 12 weeks
–reduce out-of-school contacts and community mixing	Generally not recommended	Consider: ≤ 4 weeks	Recommend: ≤ 12 weeks

Figure A-5. Pandemic Severity Index Interventions

	Pandemic Severity Index		
Interventions by Setting	**1**	**2 and 3**	**4 and 5**
Workplace/Community Adult social distancing			
–decrease number of social contacts (e.g., encourage teleconferences, alternatives to face-to-face meetings)	Generally not recommended	Consider	Recommend
–increase distance between persons (e.g., reduce density in public transit, workplace)	Generally not recommended	Consider	Recommend
–modify, postpone, or cancel selected public gatherings to promote social distance (e.g., stadium events, theater performances)	Generally not recommended	Consider	Recommend
–modify workplace schedules and practices (e.g., telework, staggered shifts)	Generally not recommended	Consider	Recommend

In addition, the World Health Organization (WHO) established various warning levels for pandemic events, as depicted in Figure A-6. During the COVID-19 pandemic, the planning area was in Phase 6.

Figure A-6. Risk levels for Pandemic (World Health Organization)



Historical Occurrences

Occurrences of infectious disease events are fairly common and have the ability to affect entire regions at one time. Louisiana has experienced various outbreaks beginning in the late 1700s to now. The City of New Orleans planning area has also been impacted by other nation-wide and global outbreaks including the epidemics and pandemics provided in the table below.

Table A-4. Historical Infectious Disease Outbreaks in Louisiana

Year	Infectious Disease Outbreak
1769	A yellow fever epidemic occurred in 1769. In 1796 there were 638 people who died from the disease. Yellow fever lasted 67 years in the City of New Orleans and the last known cases occurred in 1905.[11]
1918	An influenza (flu) pandemic occurred and caused 20 million deaths worldwide.
2002	There have been multiple instances of West Nile Virus outbreaks in Louisiana. The Louisiana Department of Health (LDH) maintains surveillance data and publishes annual reports, with data dating back to 2002. The LDH reported 57 confirmed cases of West Nile Virus, including three deaths.[12]
2009	A novel strain of H1N1, or "Swine Flu" was detected in Mexico and the United States which caused approximately 60.8 million cases, 274,304 hospitalizations and more than 12,000 deaths.[13]
2020	Louisiana identified its first case of COVID-19 in 2020, which quickly became a pandemic, impacting millions of people worldwide. As of 2023, more than 1,400,000 cases of COVID-19 have been reported in Louisiana alone.[14] Between March 2020 and May 2023, the City of New Orleans planning area reported 106,755 confirmed or probable cases of the virus, as well as 1,169 deaths. It is likely many more unreported cases occurred in the planning area over the course of the pandemic.[15]
2025	The CDC confirmed the first severe case of avian influenza A (H5N1) virus or "H5N1 Bird Flu" in Louisiana. Since April 2024 there have been 61 reported human cases of H5 bird flu. In January 2025, the LDH reported that the patient had passed, marking the first death in the United States from H5N1 bird flu.[16]

Some infectious diseases, such as the influenza, occur annually and predictably, like the flu. Other viruses such as the human immunodeficiency virus (HIV), which has impacted millions of people worldwide, are an ongoing issue. Other infectious diseases are very dangerous, and outbreaks may be localized.

[11] Source: https://64parishes.org/entry/yellow-fever-in-louisiana#:~:text=Louisiana%20in%201905.-,Due%20to%20the%20intensity%20and%20frequency%20of%20these%20epidemics%2C%20it,translating%20into%20a%20mortality%20rate

[12] Source: https://ldh.la.gov/news/2025-WNV-1st-case

[13] Source: Carrat, F. et al. Timelines of Infection and Disease in Human Influenza: A Review of Volunteer Challenge Studies. American Journal of Epidemiology, 2008, 167: 775–785.

[14] Source: https://usafacts.org/visualizations/coronavirus-covid-19-spread-map/state/louisiana/

[15] Source: https://usafacts.org/visualizations/coronavirus-covid-19-spread-map/state/louisiana/county/orleans-parish/

[16] Source: https://www.cdc.gov/media/releases/2024/m1218-h5n1-flu.html#:~:text=December%2018%2C%202024%2D%2D%20A,dead%20birds%20in%20backyard%20flocks.

Climate Change Considerations

According to the CDC and other climate change specialists, climate change does increase the risk of health threats. Mild winters, early springs, and warmer temperatures are giving mosquitoes and ticks more time to reproduce, spread diseases, and expand their habitats throughout the United States. Between 2004 and 2018, the number of reported illnesses from mosquito, tick, and flea bites more than doubled, with more than 760,000 cases reported in the United States. Nine new germs spread by mosquitoes and ticks were discovered or introduced into the United States during this period. A major concern with this shift is the potential spread of Lyme disease, the West Nile virus, and the Zika virus.

Climate change has forced some animal species into new habitats as their natural habitats disappear, and it has expanded the habitats of other animals. This movement of animals into new areas increases opportunities for contact between humans and animals and the potential spread of zoonotic diseases, for example, wildlife carrying the rabies virus are expanding to new geographic areas of the country. In addition, as global temperatures rise, deadly diseases that are a threat in other countries, like Ebola, Lassa, Rift Valley fever, and monkeypox, will increase along with the risk of them being imported into the United States.[17]

Probability of Future Events

Epidemics and pandemics have occurred in human and animal populations for thousands of years. As humans began to gather and congregate in urban areas, the potential for pandemics and epidemics increased. As trade routes became established and contact with other cities became more frequent, the potential for transmission of illnesses increased. In modern society, the ease of global travel has created a situation where viruses and bacteria can spread quickly from one continent to another.

Historical evidence shows that the population of the City of New Orleans planning area is vulnerable to disease outbreak, and the probability of future infectious disease or pandemic events is possible, however, it is considered "Unlikely" due to the frequency of such outbreaks. Federal, state, and local public health officials maintain surveillance in hopes of identifying disease prominence and containing potential threats before they become epidemics.

Vulnerability and Impact

Estimated potential losses to the built environment are difficult to calculate because infectious disease causes little damage to the built environment and generally losses are experienced through public health response and medical costs, and lost wages of patients.

[17] Source: CDC, https://www.cdc.gov/ncezid/what-we-do/climate-change-and-infectious-diseases/index.html

Therefore, it is assumed that all buildings and facilities are exposed to disease but would experience negligible damage in the occurrence of an outbreak event. For example, the upkeep and maintenance of buildings and facilities would fall behind due to the high absenteeism of employees or the closing of facilities.

Critical infrastructure services, such as emergency services, utility services, water services and telecommunications can be limited by an infectious disease event. As seen during the COVID-19 pandemic, many jurisdictions executed a mandatory shutdown of non-essential businesses. The gradual re-opening of businesses and restaurants was completed in incremental stages to try and limit the spread of the infection and protect consumers while restarting the economy. Larger gatherings of people were limited to 50 and below and at times to 10 and below. In addition, local schools closed all campuses and implemented remote learning. Similar impacts are expected during future infectious disease outbreaks.

The COVID-19 pandemic in New Orleans highlighted some of the most crucial disparities and vulnerabilities to infectious diseases. These vulnerabilities in New Orleans are closely tied to race and socio-economic status. Compared to other urban hotspots, New Orleans experiences higher poverty rates and lower average incomes. Nearly one in five households lack access to a vehicle, making drive-up testing and other transportation-dependent services difficult to access. Many residents also have limited or no internet access, including smartphones, which restricts access to vital information and services. In addition, New Orleans adults experience higher rates of chronic health conditions, including high blood pressure, diabetes, and chronic kidney disease, than adults in cities such as Seattle, New Rochelle, or New York City, further increasing vulnerability during public health emergencies.[18]

In New Orleans, many residents live in crowded or multi-generational households, which can make isolating or practicing effective social distancing extremely difficult during infectious disease outbreaks. High housing density in neighborhoods such as the Lower Ninth Ward, Central City, and parts of New Orleans East means that multiple family members often share bedrooms, bathrooms, and common living spaces. This increases the risk of disease transmission within households, particularly for vulnerable individuals such as older adults or those with preexisting health conditions. Limited living space, combined with socioeconomic constraints that make temporary relocation or quarantine impractical.

[18] National Library of Medicine. 2020. Mental health framework: coronavirus pandemic in post-Katrina New Orleans. https://pmc.ncbi.nlm.nih.gov/articles/PMC7487127/.

Other populations most vulnerable to infectious disease outbreaks include the elderly, children, and people with disabilities. In addition, people living in poverty may not have the means to purchase personal protection equipment (PPE), medicine, and may have limited access to healthcare resources. People with limited English-speaking may be unable to receive important updates on health protocols and safety information due to language barriers.

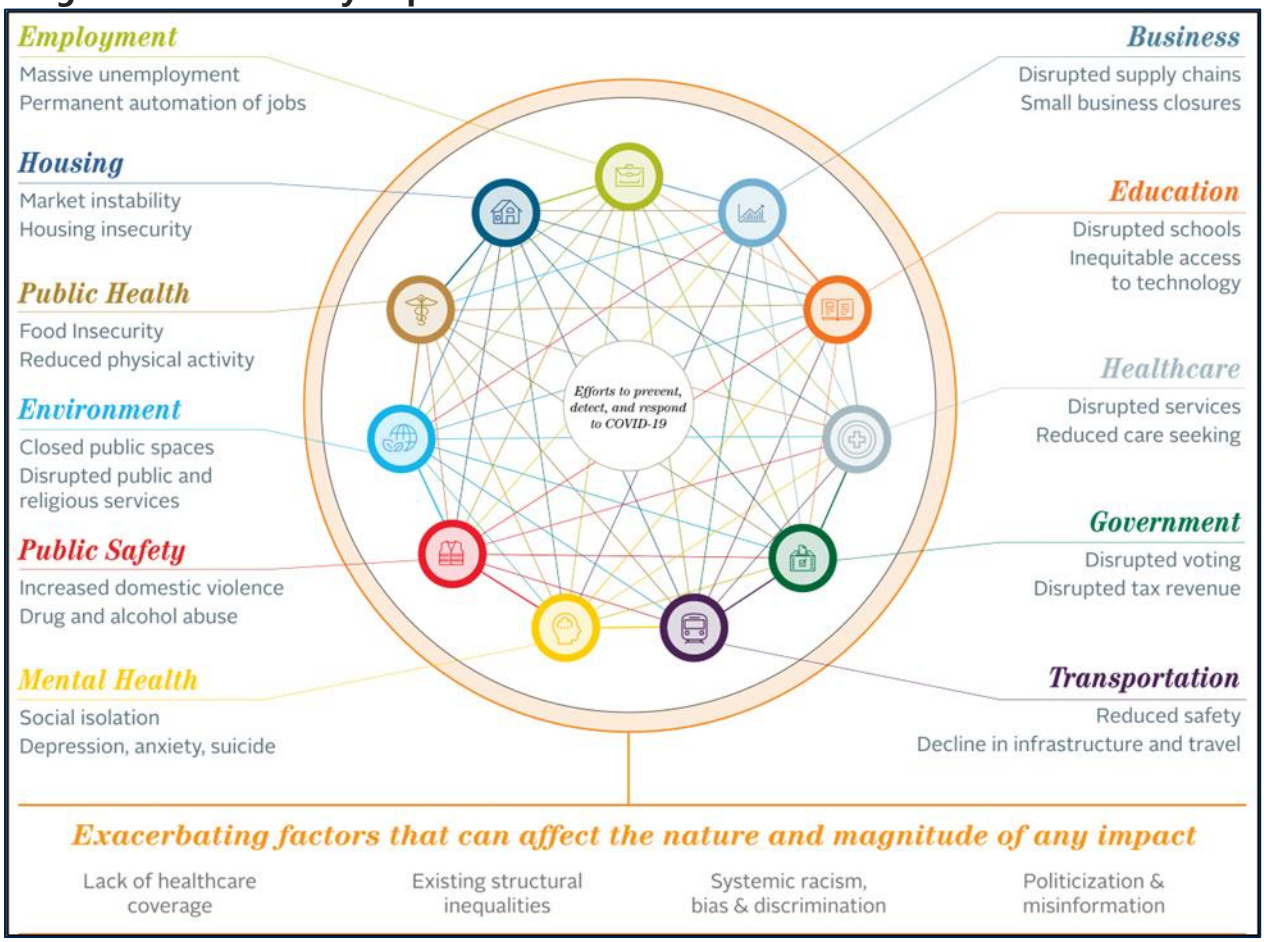
The population over 65 in the City of New Orleans planning area is estimated at 16 percent of the total population and children under the age of 5 are estimated at 6 percent. The population with a disability is estimated at 14 percent of the total population. An estimated 23 percent of the planning area population live below the poverty level and 3 percent of the population speaks English "less than very well."

Table A-5. Populations at Greater Risk of Infectious Disease Outbreaks

Jurisdiction	Population				
	65 and Older	Under 5	With a Disability	Below Poverty Level	Limited English Speaking
City of New Orleans	61,879	20,845	52,249	84,984	11,359

The recent COVID-19 pandemic demonstrated that the response costs to the public health sectors for an outbreak, the economic impact, and the impact to health for the City of New Orleans planning area, is "Substantial." Multiple deaths can be expected, and the City of New Orleans planning area facilities could be shut down for 30 days or more. Other, unexpected, secondary impacts may also occur, as learned during the COVID-19 pandemic. Figure A-7 provides an overview of secondary impacts of COVID-19 in the United States, which can be expected in the future.

Figure A-7. Secondary Impacts of the COVID-19 Pandemic in the United States[19]



[19] Degrees, Model shows intersecting secondary impacts of COVID-19 in the US, August 6, 2020, website: https://degrees.fhi360.org/2020/08/model-shows-intersecting-secondary-impacts-of-covid-19-in-the-united-states/



Appendix B
Consequence Analysis

APPENDIX B: CONSEQUENCE ANALYSIS

Appendix B is **For Official Use Only (FOUO)** and may be exempt from public release under FOIA.



Appendix C

CRS Requirements

APPENDIX C: CRS REQUIREMENTS

Appendix C is **For Official Use Only (FOUO)** and may be exempt from public release under FOIA.



Appendix D
Planning Team

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Appendix D: Planning Team

Planning Team Members

The City of New Orleans Hazard Mitigation Action Plan Update 2026 was organized using a direct representative model. Table D-1 reflects the Planning Team, consisting of area organizations and departments from the participating jurisdiction, educational institutions, and special districts that participated throughout the planning process. The Planning Team members are involved in hazard mitigation activities; those with the authority to regulate development are identified within Table D-1 with an (R) after their title. Table D-2 is comprised of stakeholders who were invited to provide Plan input. Table D-3 reflects those stakeholder agencies that share valuable input and expertise on potential flood risks and impacts to the planning area and identify mitigation strategies. Public outreach efforts and meeting documentation are provided in Appendix G[1].

Table D-1. Planning Team

Organization / Department / Office	Title
City of New Orleans – Homeland Security and Emergency Preparedness (NOHSEP)	Hazard Mitigation Director
City of New Orleans – Homeland Security and Emergency Preparedness (NOHSEP)	Senior Hazard Mitigation Coordinator
Loyola University – Facility Operations	Director
Loyola University – Human Resources, Payroll, Risk Management & Emergency Preparedness	Director
Tulane University – Emergency Preparedness and Response	Assistant Director of Disaster Assistance and Recovery / Director of Disaster Cost Recovery and Business Continuity
Housing Authority of New Orleans (HANO) – Strategic Planning	Director
New Orleans Redevelopment Authority (NORA) – Real Estate Development and Planning	Project Manager
Sewerage and Water Board of New Orleans (SWBNO) – Emergency Management	Assistant Director
City of New Orleans – Administration	Chief Administrative Officer

[1] Information contained in Appendix G is exempt from public release under the Freedom of Information Act (FOIA).

Organization / Department / Office	Title
City of New Orleans – Capital Projects Administration	Director
City of New Orleans – Capital Projects Administration	Capital Budget Director
City of New Orleans – City Planning	Deputy Director
City of New Orleans – City Planning	Executive Director
City of New Orleans – Community Assets and Investment	Director
City of New Orleans – Community Assets and Investment	Director of Policy and Data
City of New Orleans – Community Assets and Investment	Director of Strategic Property Initiatives
City of New Orleans – Community Development	Director
City of New Orleans – Community Development	Disaster Programs Manager
City of New Orleans – Homeland Security and Emergency Preparedness (NOHSEP)	Closeout Specialist
City of New Orleans – Homeland Security and Emergency Preparedness (NOHSEP)	Community Engagement Manager
City of New Orleans – Homeland Security and Emergency Preparedness (NOHSEP)	Deputy Planning Section Chief / Emergency Management Operations Administrator
City of New Orleans – Homeland Security and Emergency Preparedness (NOHSEP)	Deputy Director
City of New Orleans – Homeland Security and Emergency Preparedness (NOHSEP)	Director
City of New Orleans – Homeland Security and Emergency Preparedness (NOHSEP)	Operations Section Chief
City of New Orleans – Homeland Security and Emergency Preparedness (NOHSEP)	Volunteer Coordinator
City of New Orleans – Emergency Medical Services (EMS)	Deputy Director / Chief
City of New Orleans – Emergency Medical Services (EMS)	Director / Medical Director
City of New Orleans – Emergency Medical Services (EMS)	Emergency Operations / NOHSEP LNO
City of New Orleans – Fire	Captain / NOSHEP Liaison

Organization / Department / Office	Title
City of New Orleans – Fire	Deputy Superintendent of Operations
City of New Orleans – Fire	Superintendent
City of New Orleans – Government	Mayor (R)
City of New Orleans – Government Affairs	Director
City of New Orleans – Health	Climate and Health Officer
City of New Orleans – Health	Director
City of New Orleans – Health	Public Health Emergencies Coordinator
City of New Orleans – Homeless Services and Strategy	Deputy Director
City of New Orleans – Homeless Services and Strategy	Director
City of New Orleans – Human Rights and Equity	Director
City of New Orleans – Human Rights and Equity	Equity Program Manager
City of New Orleans – Information Technology and Innovation	Chief Information Officer
City of New Orleans – Information Technology and Innovation	Director
City of New Orleans – Mosquito, Termite and Rodent Control Board (MTRCB)	Director
City of New Orleans – Mosquito, Termite and Rodent Control Board (MTRCB)	Entomologist
City of New Orleans – Mosquito, Termite and Rodent Control Board (MTRCB)	Research Entomologist
City of New Orleans – Parks and Parkways	Director
City of New Orleans – Parks and Parkways	Executive Assistant
City of New Orleans – Parks and Parkways	Landscape Architect
City of New Orleans – Parks and Parkways	Senior Planner
City of New Orleans – Police	Sergeant - Legal Research and Planning
City of New Orleans – Police	Superintendent
City of New Orleans – Project Delivery Unit	Director

APPENDIX D: PLANNING TEAM

Organization / Department / Office	Title
City of New Orleans – Property Management	Deputy Director
City of New Orleans – Property Management	Director
City of New Orleans – Public Works	Director
City of New Orleans – Public Works	Lead Engineer - Mobility and Safety
City of New Orleans – Resilience and Sustainability	Deputy Chief Resilience Officer
City of New Orleans – Resilience and Sustainability	External Affairs Manager
City of New Orleans – Safety and Permits	Assistant Floodplain Manager
City of New Orleans – Safety and Permits	Director
City of New Orleans – Safety and Permits	Floodplain Manager
City of New Orleans – Sanitation	Director
City of New Orleans – Youth and Families	Deputy Director
City of New Orleans – Youth and Families	Director
Loyola University – Administration	President
Loyola University – Biological Sciences	Assistant Professor, Environment Program
Loyola University – Emergency and Risk Management	Director
Loyola University – Police	Deputy Chief
Tulane University – Administration	Crisis & Grants Manager at Deloitte & Adjunct Lecturer for Tulane University's Disaster Resilience Leadership Academy
Tulane University – Administration	President
Tulane University – Emergency Preparedness and Response	Associate Director
Tulane University – Local Government and Community Relations	Director
Housing Authority of New Orleans (HANO) – Administration	Chief of Staff
Housing Authority of New Orleans (HANO) – Administration	Director

Organization / Department / Office	Title
Housing Authority of New Orleans (HANO) – Asset Management	Director
Housing Authority of New Orleans (HANO) – Asset Management	Special Advisor
Housing Authority of New Orleans (HANO) – Client Services	Director
Housing Authority of New Orleans (HANO) – Communications and Intergovernmental Relations	Director
New Orleans Redevelopment Authority (NORA) – Administration	Executive Director
New Orleans Redevelopment Authority (NORA) – Strategy, Programs, and Projects	Chief
Sewerage and Water Board of New Orleans (SWBNO) – Administration	General Superintendent
Sewerage and Water Board of New Orleans (SWBNO) – Emergency Management	Associate
Sewerage and Water Board of New Orleans (SWBNO) – Emergency Management	Director
Sewerage and Water Board of New Orleans (SWBNO) – Environmental Affairs	Chief

Stakeholders

The following groups listed in Table D-2 represent a list of organizations invited to stakeholder meetings, public meetings, and workshops throughout the planning process and include members of community groups, non-profit organizations, private businesses, utility providers, neighboring parishes, schools, state and federal agencies. The asterisks below denote those agencies from the City of New Orleans Stakeholder Advisory Committee (SAC) that were given an opportunity to participate in the Plan Update. The Stakeholder Advisory Committee consists of 121 agencies and organizations that work closely with the planning area during a natural disaster event. This committee contains valuable insight and expertise to enhance the plan's development and resiliency for the City of New Orlean's planning area. Those that participated in the planning process and public meetings are identified with a plus symbol (+) next to their stakeholder type. The public were also invited to participate via e-mail throughout the planning process. Many of the organizations and stakeholders invited participated and were integral to providing

comments and data for the Plan. For a list of attendees at meetings, please see Appendix G.

Table D-2. Stakeholders

Agency	Title	Stakeholder Type
504HealthNet*	Executive Director	Community Organization+
ACCA	General Representative	Community Organization+
Adventist Community Services	Director	Community Organization
Agenda for Children	Director of Contracts	Community Organization
Algiers Community Concerns Association	Old Algiers	Neighborhood Association
Algiers Point Association	Algiers Point	Neighborhood Association
Alliance for Affordable Energy*	Executive Director	Community Organization
Alliance for Affordable Energy	Climate Policy Coordinator	Community Organization
Americares	Manger, U.S. Emergency Response	Community Organization
Arc of Greater New Orleans (GNO)	Development Manager	Community Organization
Ashe	Chief Operations Officer	Community Organization
Ashe	Health Equity Leader	Community Organization
Audubon Riverside Neighborhood Association	Audubon	Neighborhood Association
Aurora Gardens Neighborhood Association	Old Aurora	Neighborhood Association
Autism Society of Greater New Orleans (GNO)	Executive Director	Community Organization
Baptist Community Ministries	Health Program Coordinator	Community Organization
Bayou Sauvage National Wildlife Refuge	General Representative	Community Organization
Below Sea Level Aid	Executive Director & Co-Founder	Community Organization
Bethany Church	Safety Director	Community Organization

Agency	Title	Stakeholder Type
Birthmark Doulas	Infant Ready Program Coordinator	Community Organization
Bouligny Improvement Association	West Riverside	Neighborhood Association
Broad Community Connections	General Representative	Community Organization+
Broadmoor Improvement Association	Broadmoor	Neighborhood Association
Broadmoor Improvement Association	Community Engagement and Advocacy Coordinator	Community Organization
Broadmoor Improvement Association	General Representative	Community Organization
Brotherhood Inc	Executive Director	Community Organization
Bunny Friend Neighborhood Association	Upper 9th Ward	Neighborhood Association
Burlington Northern Santa Fe	Sales Manager	Transportation
Business Council of New Orleans	General Representative	Community Organization
Bywater Neighborhood Association	Bywater	Neighborhood Association
Caesars Superdome	General Representative	Community Organization
Cajun Navy Relief	CAO	Community Organization
Canadian National	General Representative	Transportation
Carrollton Riverbend Neighborhood Association & Carrollton United	Leonidas	Neighborhood Association
Catholic Charities NOLA	Division Director	Community Organization
Center for Sustainable Engagement & Development (CSED)*	Director	Community Organization
Central Carrollton Association	East Carrollton	Neighborhood Association
Central City Faubourg Livaudais Neighborhood Association	Central City	Neighborhood Association

Agency	Title	Stakeholder Type
Chessie Seaboard X (CSX) Transportation	Police	Transportation
Children's Bureau of New Orleans	President / Chief Executive Officer	Community Organization
Church of Jesus Christ of Latter-Day Saints	General Representative	Community Organization
City Park-Parkview Neighborhood Association	City Park	Neighborhood Association
Claiborne Cultural Innovation District (CID)*	Program Manager	Community Organization+
Climana Neighborhood Association	Milan	Neighborhood Association
Clover	Director of Community and Supportive Services	Community Organization
Coalition for Coastal Louisiana*	Executive Director	Community Organization
Coalition for Community Connection	General Representative	Community Organization
Coastal Environments, Incorporated	Coastal Environmental	Community Organization+
Coastal Protection and Restoration Authority (CPRA)	Public Information Director	State Agency
Coastal Protection and Restoration Authority (CPRA)	General Representative	State Agency+
ComJoT LLC	General Representative	Community Organization
Committee for a Better New Orleans*	Executive Director	Community Organization
Common Ground Relief	Co-Director	Community Organization
Common Ground Relief*	Co-Director[2]	Community Organization
Communities In Schools Gulf South	Director of Advocacy	Community Organization
Concerned Citizens for a Better Algiers (CCFBA) NOLA	Executive Director	Community Organization
Country Club Gardens Association Inc.	Lakeview	Neighborhood Association

[2] Not a duplicate entry.

Agency	Title	Stakeholder Type
Covenant House	Chief Operating Officer	Community Organization
Covenant House	Facilities Manager	Community Organization
Creative Alliance of New Orleans	General Representative	Community Organization
Crescent Care*	Chief Operating Officer	Community Organization+
Culture Aid NOLA*	Logistics Manager	Community Organization
Data Center*	Executive Director	Community Organization
Center for Environmental Justice (DSCEJ)*	Education Leader	Community Organization+
Deep South Center for Environmental Justice (DSCEJ)*	Executive Director	Regional and Local Agency+
Deep South Center for Environmental Justice (DSCEJ)	Researcher – Water Justice Projects	Regional and Local Agency+
Deep South Center for Environmental Justice (DSCEJ)	Technical Training Director	Regional and Local Agency+
Deep South Center for Environmental Justice (DSCEJ)*	General Representative	Regional and Local Agency
Delachaise Neighborhood Association	Milan	Neighborhood Association
Delgado Community College	Safety and Risk Manager	Academia
Department of Agriculture and Forestry	Commissioner Of Agriculture & Forestry	State Agency
Department of Agriculture and Forestry	Office of Animal Health and Food Safety (AHFS)	State Agency
Department of Agriculture and Forestry	Office of Forestry	State Agency
Department of Agriculture and Forestry	Office of Soil and Water Conservation	State Agency
Department of Agriculture and Forestry	Press Secretary	State Agency
Department of Culture, Recreation, and Tourism	Administrative Coordinator – Cultural Department	State Agency

Agency	Title	Stakeholder Type
Department of Culture, Recreation, and Tourism	Keep Louisiana Beautiful – Executive Director	State Agency
Department of Culture, Recreation, and Tourism	Office Coordinator – Tourism	State Agency
Department of Culture, Recreation, and Tourism	Public Information Director	State Agency
Department of Environmental Quality	Assistant Secretary – Office of Environmental Assessment	State Agency
Department of Health	Deputy Secretary	State Agency
Department of Insurance	Public Affairs	State Agency
Department of Natural Resources	Assistant Secretary – Office of Coastal Management	State Agency
Department of Natural Resources	General Representative	State Agency
Department of Natural Resources	Manager – Office of Mitigation	State Agency
Department of Public Safety	Louisiana State Fire Marshal – Administrative Coordinator	State Agency
Department of Public Safety	Louisiana State Police – Public Information Officer (PIO)	State Agency
Department of Transportation and Development	Communications Director	State Agency
Department of Wildlife and Fisheries	Wildlife Diversity Program Manager	State Agency
DeSaix Area Neighborhood Association	Fairgrounds / Gentilly	Neighborhood Association
Dillard University	Interim President	Academia
Donna Villa Neighborhood Association	Donna Villa	Neighborhood Association
Earth Economics	Project Director – Community-Driven Green Infrastructure	Community Organization

Agency	Title	Stakeholder Type
East New Orleans Neighborhood Advisory Commission (ENONAC)	New Orleans East	Neighborhood Association
ECCO Community Center*	Founder & Director	Community Organization
Edgewood Heights Neighborhood Association	Gentilly	Neighborhood Association
Edgewood Park Neighborhood Association	Gentilly Terrace	Neighborhood Association
Ellis Marsails Center for Music*	Director of Development and Communications	Community Organization
Entergy New Orleans	Project Manager, Business and Economic Development	Utility Provider
Environmental Protection Agency (EPA)	Director of Superfund an Emergency Management Division	Federal Agency
Environmental Protection Agency (EPA)	Regional Administrator	Federal Agency
Ephesus Church*	General Representative	Community Organization
Ernest N. Morial Convention Center	Director of Executive Operations	Community Organization
Familias Unidas	Operations Director	Community Organization+
Familias Unidas*	Executive Director	Community Organization+
Families Helping Families of Greater New Orleans (GNO)*	Community Resource Specialist	Community Organization
Families Helping Families NOLA / People First of NOLA*	People First Coordinator	Community Organization
Family Justice Center*	Executive Director	Community Organization
Family Justice Center	Director of Emergency Services	Community Organization
Faubourg Avart Neighborhood Association (FANA)	Faubourg Avart	Neighborhood Association
Faubourg Delachaise Neighborhood Association	East Riverside	Neighborhood Association

Agency	Title	Stakeholder Type
Faubourg Homeowners Neighborhood Association	Read Blvd East	Neighborhood Association
Faubourg Marengo Neighborhood Association	East Riverside	Neighborhood Association
Faubourg Marigny Improvement Association	Marigny	Neighborhood Association
Faubourg St. John Neighborhood Association	Mid-City	Neighborhood Association
Faubourg St. Roch Improvement Association	St. Roch	Neighborhood Association
Feed the Second Line*	Executive Director	Community Organization
Finance Authority of New Orleans*	Chief Executive Officer	Regional and Local Agency
Finance Authority of New Orleans	Communications Specialist	Regional and Local Agency
Finance Authority of New Orleans	Senior Director of Programs	Regional and Local Agency
The First 72+*	Director of Client Services	Community Organization
Flood Authority East	Public Information Director	State Agency
Fontainebleau Improvement Association	Marlyville – Fontainbleau	Neighborhood Association
For The Love of NOLA	President	Community Organization
For The Love of NOLA*	Executive Director	Community Organization
Foundation for Louisiana	Vice President of Programs	Community Organization
Foundation for Louisiana*	Racial Justice Program Coordinator	Community Organization
Foundation for Louisiana*	President & Chief Executive Officer	Community Organization
Franklin Ave Baptist Church*	Church Administrator	Community Organization
Freestanding Communities*	Executive Director	Community Organization
Friends of Codey's NOLA*	Executive Director	Community Organization
Garifuna Organization*	General Representative	Community Organization

Agency	Title	Stakeholder Type
Gentilly Terrace & Gardens	Gentilly Terrace	Neighborhood Association
Gentilly Woods Subdivision Association	Gentilly Woods	Neighborhood Association
Glassroots*	Resilience Coordinator	Community Organization
Governor's Office of Homeland Security and Emergency Preparedness	Assistant Director, Hazard Mitigation	State Agency
Governor's Office of Homeland Security and Emergency Preparedness	Executive Officer, SHMO, Hazard Mitigation Technical Services	State Agency
Governor's Office of Homeland Security and Emergency Preparedness	Hazard Mitigation Planner	State Agency
Governor's Office of Homeland Security and Emergency Preparedness	Program Coordinator – Mitigation Planning	State Agency
Governor's Office of Homeland Security and Emergency Preparedness	Technical Program Manager	State Agency
Governor's Office of Homeland Security and Emergency Preparedness	Technical Services Section Chief	State Agency
Grace at the Greenlight	Program Director	Community Organization
Grace at the Greenlight*	Executive Director	Community Organization
Greater New Orleans (GNO) Inc.	Chief Operating Officer	Regional and Local Agency
Greater New Orleans (GNO) Inc.	Executive Vice President	Regional and Local Agency
Greater New Orleans (GNO) Inc.*	President & Chief Executive Officer	Regional and Local Agency
Greater New Orleans (GNO) Inc.	Vice President of Strategic Initiatives	Regional and Local Agency
Greater New Orleans Association of the Deaf*	Vice President	Community Organization
Greater New Orleans (GNO) Caring Collective*	Founder and President	Community Organization

Agency	Title	Stakeholder Type
Greater New Orleans Foundation	Director for Environmental Programs	Community Organization
Greater New Orleans Foundation*	Policy Advisor and Special Assistant	Community Organization+
Greater New Orleans Foundation	Senior Program Officer	Community Organization+
Greater New Orleans Foundation	President & Chief Executive Officer	Community Organization
Greater New Orleans Housing Alliance*	Executive Director	Non-Profit / Community Organization+
Greater St. Stephens Baptist Church	Elder	Community Organization
Greater St. Stephens Baptist Church*	Pastor	Community Organization
Hands On New Orleans*	Executive Director	Community Organization
Hands On New Orleans	Assistant Director	Community Organization
Harry Thompson Center (Rebuild Center)*	Executive Director	Community Organization
Harry Thompson Center (Rebuild Center)	General Representative	Community Organization
Hispanic Apostolate*	General Representative	Community Organization
Historic District Landmarks Commission	Deputy Director	Regional and Local Agency
Historic District Landmarks Commission	Executive Director	Regional and Local Agency
Hoffman Triangle Neighborhood Association	Hofffman Triangle	Neighborhood Association
Hollygrove Neighbors	Hollygrove	Neighborhood Association
Hollygrove-Dixon Neighborhood Association	Hollygrove-Dixon	Neighborhood Association
Hotel Hope*	Director of Operations	Community Organization
International Alliance of Theatrical Stage Employees (IATSE)*	5th Executive Board Member at Large	Community Organization

Agency	Title	Stakeholder Type
International Alliance of Theatrical Stage Employees (IATSE)	President	Community Organization
Immaculate Conception Parish Ministry*	Pastor	Community Organization
Imagine Waterworks*	Board Member	Community Organization+
Imagine Waterworks	Executive Director	Community Organization
Inner Harbor Navigation Canal (IHNC)	General Representative	Transportation
Innocence Project New Orleans*	Director of Operations & Communications	Community Organization
Institute of Women & Ethnic Studies (IWES) *	Co-Executive Director	Community Organization+
Institute of Women & Ethnic Studies (IWES) *	Research and Evaluation Manager	Community Organization
Irish Channel Neighborhood Association	Irish Channel	Neighborhood Association
Islamic Circle of North America Relief (ICNA) USA*	Director	Community Organization
Jefferson Parish	Director of Floodplain Management and Hazard Mitigation	Neighboring Parish
Jefferson Parish Voluntary Organizations Active in Disaster (JP VOAD) *	Primary Representative	Community Organization
Jen Care*	Cultural Community Specialist	Community Organization
Jewish Family Services*	Executive Director	Community Organization
Jewish Federation of Greater New Orleans*	Chief Operating Officer	Community Organization
Junior League of New Orleans (JLNO)	Fund Development and Community Relations Administrator	Community Organization
Junior League of New Orleans (JLNO)*	President	Community Organization
Kansas City Southern	General Representative	Transportation

Agency	Title	Stakeholder Type
Kingswood Improvement District Association	Kingswood	Neighborhood Association
La Calle	President / Chief Executive Officer	Community Organization
Lake Carmel Subdivision Improvement District	Little Woods	Neighborhood Association
Lake Forest Estates Improvement Association	West Lake Forest	Neighborhood Association
Lake Vista Property Owners Association	Lakeshore – Lake Vista	Neighborhood Association
Lake Willow Homeowner's Association	Lake Willow	Neighborhood Association
Lakeshore Property Owner's Association	Lakeshore – Lake Vista	Neighborhood Association
Lakeview Civic Improvement Association	Lakeview	Neighborhood Association
Lakewood Property Owners Association	Lakewood	Neighborhood Association
Language Access Coalition & Latino Forum*	Co-Founder and Co-Chair	Community Organization
Language Access Coalition & Latino Forum	General Representative	Community Organization
Lantern Light*	Executive Director	Community Organization+
Level Up Campaign*	Director of Communications	Community Organization
Lighthouse Louisiana*	Orientation and Mobility Specialist	Community Organization
Lincoln Beach Neighborhood Association	New Orleans East	Neighborhood Association
Local Relief*	Executive Director	Community Organization+
Louis Armstrong New Orleans International Airport	Deputy Director of Aviation – Operations and Maintenance	Transportation
Louis Armstrong New Orleans International Airport	Deputy Director of Aviation – Planning, Development, and Construction	Transportation+

Agency	Title	Stakeholder Type
Louisiana Economic Development	Secretary	State Agency
Louisiana Film Entertainment Association*	President	Community Organization
Louisiana Language Access Coalition (LLAC)*	Cofounder and Facilitator	Community Organization
Louisiana Organization for Refugees and Immigrants (LORI)*	Program and Organizing Manager	State Agency
Louisiana Society for the Prevention of Cruelty to Animals (LASPCA)*	Chief Executive Officer	Non-Profit / Community Organization
Louisiana State Animal Response Team (LSART)*	Director	State Agency
Louisiana State Animal Response Team (LSART)*	Training Coordinator	State Agency
Louisiana State Office of Community Development	Director	State Agency
Louisiana State Office of Community Development	Senior Officer	State Agency
Louisiana State Representative	House District 93	State Legislature
Louisiana State Senate	Senate District 5	State Legislature
Louisiana State University (LSU) Teaching Hospitals	General Representative	Healthcare Agency
Louisiana State University Health Sciences Center	Environmental Health & Safety – Vice Chancellor for Institutional Services	Academia
Low Barrier Shelter / Start Corp*	Program Director	Community Organization
Lower Garden District Association	Lower Garden District	Neighborhood Association
Lower Ninth Ward Neighborhood Association	Lower Ninth Ward	Neighborhood Association
LowerNine.Org*	Executive Director	Community Organization

Agency	Title	Stakeholder Type
Loyola University	Director of Local Government & Community Relations	Academia
Manning Family Children's	General Representative	Healthcare Agency
Maple Area Residents Inc (MARI)	Uptown	Neighborhood Association
Mary Queen of Vietnam Church*	Deacon	Community Organization
Mary Queen of Vietnam Church	Father	Community Organization
Melia Subdivision Association	Melia	Neighborhood Association
Mid-City Neighborhood Organization	Mid-City	Neighborhood Association
Milneburg Neighborhood Association	Milneburg	Neighborhood Association
Mission Rebirth*	Executive Director	Community Organization
The Music and Culture Coalition of New Orleans*	Community Engagement Coordinator	Community Organization
National Weather Service	WCM / SCH	State Agency
Neighbors First for Bywater	Bywater	Neighborhood Association
New Marigny Neighborhood Association	South 7th Ward / New Marigny	Neighborhood Association
The New Neighbor Project*	Executive Director	Community Organization
New Orleans and Company*	Vice President of External Affairs and Membership	Community Organization+
New Orleans Aviation Board (NOAB)	Manager of Airport Planning	Community Organization+
New Orleans Baptist Theological Seminary	Chief of Staff / Vice President for Institutional Strategy	Academia
New Orleans Black Deaf Advocates*	President	Community Organization
New Orleans City Council	At-Large	Local Government

Agency	Title	Stakeholder Type
New Orleans City Council	At-Large[3]	Local Government
New Orleans City Council	District A	Local Government
New Orleans City Council	District B	Local Government
New Orleans City Council	District C	Local Government
New Orleans City Council	District D	Local Government+
New Orleans City Council	District E	Local Government
New Orleans Council on Aging*	Executive Director	Community Organization
New Orleans Delta Foundation	President	Community Organization+
New Orleans East Opportunity Center*	Director	Community Organization
New Orleans Family Justice Center	Assistant Director of Services	Community Organization
New Orleans Family Justice Center*	Executive Director	Community Organization
New Orleans Jewish Community Center (NOJCC)*	Director of Facility Operations	Community Organization
New Orleans Lakefront Airport	General Representative	Transportation
New Orleans Metropolitan Association of Realtors	Director	Regional and Local Agency
New Orleans Metropolitan Association of Realtors	Senior Vice President	Regional and Local Agency
New Orleans Metropolitan Association of Realtors*	Chief Executive Officer	Regional and Local Agency
New Orleans Mission*	Executive Director	Community Organization
New Orleans Mission	Operations Manager	Community Organization
New Orleans Musicians' Clinic & Assistance Foundation (NOMC & AF)*	Public Health Director	Community Organization
New Orleans Preservation Coalition / New Orleans	Co-Chair	Community Organization

[3] Not a duplicate entry.

Agency	Title	Stakeholder Type
Alliance for Response (NOPC / NOAR)*		
New Orleans Preservation Coalition / New Orleans Alliance for Response (NOPC / NOAR)	Co-Chair[4]	Community Organization
New Orleans Public Belt Railroad (NOPBRR)	General Representative	Transportation
New Orleans Public Library	Director	Community Organization
New Orleans Recreation Development Commission (NORD)	Chief Executive Officer	Local Agency
New Orleans Recreation Development Commission (NORD)	Director	Local Agency+
New Orleans Regional Planning Commission	Environmental Planner	Regional and Local Agency+
New Orleans Regional Planning Commission	Principal Planner	Regional and Local Agency+
New Orleans Regional Planning Commission	Senior Transportation and Incident Management Planner	Regional and Local Agency
New Orleans Resources for Independent Living (NORIL)*	Assistant Director	Community Organization
New Orleans Resources for Independent Living (NORIL)	General Representative	Community Organization
New Orleans Resources for Independent Living (NORIL)	Project Manager	Community Organization
City of New Orleans – Office of Neighborhood Engagement	Faith-Based Coordinator	Local Department
City of New Orleans – Office of Neighborhood Engagement	Interim Liaison of District C	Local Department

[4] Not a duplicate entry.

Agency	Title	Stakeholder Type
City of New Orleans – Office of Neighborhood Engagement	Liaison of District A	Local Department
City of New Orleans – Office of Neighborhood Engagement	Liaison of District B	Local Department
City of New Orleans – Office of Neighborhood Engagement	Liaison of District D	Local Department
City of New Orleans – Office of Neighborhood Engagement	Liaison of District E	Local Department
New Orleans Women & Children's Shelter*	Executive Director	Community Organization
New Orleans Workers' Center for Racial Justice*	Executive Director	Community Organization
New Orleans Workers' Center for Racial Justice	Organizer	Community Organization
NOELA Community Health Center*	Chief Executive Officer	Community Organization
NOLA Business Alliance	General Representative	Regional and Local Agency
NOLA Business Alliance	President & Chief Executive Officer	Regional and Local Agency
NOLA Public Schools	Chief Operations Officer	Academia
NOLA Public Schools	Executive Assistant	Academia
NOLA Public Schools	Superintendent of Schools	Academia
NOLATree Project	Executive Director	Non-Profit / Community Organization
NOLA Tree Project*	Chief Administrator	Non-Profit / Community Organization
NOLA Village (Pueblo NOLA)*	Executive Director	Community Organization
NOLA Water / The Water Collaborative*	Executive Director	Community Organization+
Norfolk Southern	Media Representative	Transportation

Agency	Title	Stakeholder Type
Notre Dame Seminary	Executive Administrative Assistant	Academia
One Voice Nola*	Founder	Community Organization
Operation BBQ Relief*	Leader of Disaster Response and Regional Directors (AC/RD)	Community Organization+
Our Lady of Holy Cross College (University of Holy Cross)	Assistant Director of Public Safety	Academia
Our Lady of Holy Cross College (University of Holy Cross)	Director of Public Safety	Academia
Our Voice / Nuestra Voz*	Executive Director	Community Organization
Ozanam Inn*	Chief Executive Officer	Community Organization
Park Timber Homeowner Association	President	Community Organization+
Plaquemines Parish	Director of Homeland Security and Emergency Preparedness	Neighboring Parish
Pontchartrain Conservancy*	Executive Director	Regional and Local Agency+
Pontchartrain Park Neighborhood Association	Pontchartrain Park	Neighborhood Association
Port of New Orleans	Chief Operations & Strategy Officer	Community Organization
Port of New Orleans*	Emergency Management Coordinator	Community Organization+
Port of New Orleans	Vice President of Infrastructure	Community Organization
Port of New Orleans	Director of Sustainable Development	Community Organization
Preservation Resource Center*	Executive Director	Non-Profit / Community Organization
Pressburg East Homeowners Association	Read Blvd East	Neighborhood Association

Agency	Title	Stakeholder Type
Program of All-Inclusive Care for the Elderly (PACE) Greater New Orleans*	Senior Life Enrichment Coordinator	Community Organization
Project Lazarus*	Executive Director	Community Organization
Propeller*	Executive Director	Community Organization
Propeller	Planner	Non-Profit / Community Organization
Propeller	Strategic Project Manager	Non-Profit / Community Organization
Puentes New Orleans*	Program Manager and Instructor	Community Organization
Rebuilding Together*	Executive Director	Community Organization
Regional Transit Authority (RTA)	Deputy Chief Executive Office of Infrastructure and Planning	Transportation
Rosedale Neighborhood Association	Plum Orchard	Neighborhood Association
Saint Bernard Project (SBP)*	Director of Community Operations	Community Organization+
Saint Bernard Project (SBP)*	Director of Disaster Response	Community Organization
Saint Claire Gardens Neighborhood Association	St. Claire Gardens Subdivision	Neighborhood Association
Seabrook Neighborhood Association	Milneburg	Neighborhood Association
Seventh Ward Neighborhood Association	Seventh Ward	Neighborhood Association
Sherwood Forest Improvement Association of New Orleans	Read Blvd East	Neighborhood Association
Song Community Development Corporation (CDC)*	Co-Executive Director	Community Organization+
Song Community Development Corporation (CDC)	Manager of Community Services	Community Organization+

Agency	Title	Stakeholder Type
Southeast Louisiana Flood Protection Authority – East / Orleans Levee District	Director of Engineering	State Agency
Southeast Louisiana Flood Protection Authority – West	General Representative	State Agency
Southeast Louisiana Flood Protection Authority – West	Regional Director	State Agency
Southern University at New Orleans	Chancellor	Academia
Split Second*	Program Director	Community Organization
Spring Lake Neighborhood Association	Little Woods	Neighborhood Association
Sprout NOLA*	Executive Director	Community Organization
St. Bernard Parish	Director of Homeland Security	Neighboring Parish
St. George's Episcopal Church*	Rector	Community Organization+
St. Tammany Parish	Director of Homeland Security and Emergency Preparedness	Neighboring Parish
Storm Scouts*	Emergency Manager	Community Organization+
Team Gleason	Support Services Coordinator	Community Organization
Team Gleason*	Support Services Coordinator[5]	Community Organization
TNOLA Languages*	Founder	Community Organization
TNT 360 Mobility*	President	Community Organization
Together Gert Town Neighborhood Association	Gert Town	Neighborhood Association
Together Gert Town*	Chair	Community Organization+
Together New Orleans	Lead Organizer	Community Organization+
Together New Orleans*	Lead Organizer[6]	Community Organization

[5] Not a duplicate entry.
[6] Not a duplicate entry.

Agency	Title	Stakeholder Type
Travelers Aid New Orleans	Client Services Director	Community Organization
Travelers Aid New Orleans*	Executive Director	Community Organization
Travelers Aid Society*	Director of Case Management Services	Community Organization
Tulane Bywater Institute	Associate Director of Emergency Preparedness and Response	Academia
Tulane Bywater Institute	Director	Academia
Tulane Bywater Institute	Director [7]	Academia
Tulane Bywater Institute	Director of Emergency Preparedness and Response	Academia+
Tulane School of Public Health	Program Director - Disaster Management - Assistant Professor	Academia
Tulane University	Lawyer	Academia+
Union Migrante*	Volunteer, Interpreter	Community Organization
Union Pacific	General Representative	Transportation
United Cajun Navy*	Disaster Liaison	Community Organization
United Way of Southeast Louisiana*	Chief Strategy Officer	Community Organization+
Unity of Greater New Orleans*	Executive Director	Community Organization
University Medical Center (UMC) - Tulane	Human Resources	Healthcare Agency
University of New Orleans	Department of Public Safety/ Police	Academia
University of New Orleans	Director UNO CHART	Academia+
University of New Orleans	Graduate Assistant	Academia
Uptown Triangle Association	President	Neighborhood Association
U.S. Army Corps of Engineers	Representative	Federal Agency

[7] Not a duplicate entry.

Agency	Title	Stakeholder Type
U.S. Fish & Wildlife	Louisiana Ecological Services	Federal Agency
Verite News	Reporter	Media+
Versailles Protective Association	Versailles Blvd	Neighborhood Association
Veterans Affairs (VA) Medical Center	Department of Safety Representative	Healthcare Agency
Vietnamese American Young Leaders Association (VAYLA)*	Executive Director	Community Organization
Vieux Carre Property Owners, Residents & Associates	French Quarter	Neighborhood Association
Villa Sites / South Shores Subdivision	Villa Sites South / Shores	Neighborhood Association
Village De L'Est Improvement Association	Village De Lest	Neighborhood Association
Viva NOLA*	Founder & Director	Community Organization
Voice of the Experienced (VOTE)*	Director of Operations	Community Organization
Walnut Bend Association	Walnut Bend	Neighborhood Association
Warehouse District Neighborhood Association	Central Business District	Neighborhood Association
WGNO	Broadcaster	Media+
WGNO	Broadcaster[8]	Media+
Willowbrook Neighborhood Association	Willowbrook	Neighborhood Association
WSSU Meteorologist	WDSU Chief Meteorologist	Regional and Local Agency
Xavier University of Louisiana	Associate Vice President of Government & Community Relations	Academia
Xavier University of Louisiana	President	Academia

The City of New Orleans Stakeholder Advisory Committee, consisting of various City and community representatives, were given an opportunity to participate in the Plan Update.

[8] Not a duplicate entry.

Due to the importance of these agencies and their focus on enhancing community resiliency, the committee was integrated into the planning process. The Stakeholder Advisory Committee held a meeting on July 1, 2025, to share valuable input and expertise on potential risks and impacts to the planning area and identify mitigation strategies. Table D-3 reflects those partners who represented this committee.

Table D-3. Stakeholder Advisory Committee

Organization / Department / Office	Title
City of New Orleans – Homeland Security and Emergency Preparedness (NOHSEP)	Hazard Mitigation Director
City of New Orleans – Homeland Security and Emergency Preparedness (NOHSEP)	Senior Hazard Mitigation Coordinator
City of New Orleans – Human Rights & Equity	Director
City of New Orleans – Safety and Permits	Assistant Floodplain Manager
City of New Orleans – Safety and Permits	Director
City of New Orleans – Safety and Permits	Floodplain Manager
504HealthNet	Executive Director
Crescent Care	Chief Operations Officer
Claiborne Cultural Innovation District (CID)	Program Manager
Deep South Center for Environmental Justice (DSCEJ)	Executive Director
Deep South Center for Environmental Justice (DSCEJ)	Technical Training Director
Deep South Center for Environmental Justice (DSCEJ)	Researcher, Water Justice Projects
Familias Unidas	Executive Director
Greater New Orleans Foundation	Policy Advisor and Special Assistant
Greater New Orleans Foundation	Senior Program Officer
Greater New Orleans Housing Alliance	Executive Director
Housing Authority of New Orleans (HANO) – Strategic Planning	Chief of Staff
Imagine Waterworks	Executive Director
Institute of Women and Ethnic Studies (IWES)	Co-Executive Director
Lantern Light	Executive Director

Organization / Department / Office	Title
Local Relief	Executive Director
Louis Armstrong New Orleans International Airport	Deputy Director of Aviation – Planning, Development, and Construction
New Orleans and Company	Vice President of External Affairs
New Orleans Recreation Development Commission (NORD)	Chief Executive Officer
NOLA Water / The Water Collaborative	Executive Director
Operation BBQ Relief	Leader of Disaster Response and Regional Directors
Port of New Orleans	Emergency Manager Coordinator
Song Community Development Corporation	Manager of Community Services
St. George's Episcopal Church	Rector
Storm Scouts	Emergency Manager
Together Gert Town	Chair
Together New Orleans	Lead Organizer
Tulane Bywater Institute	Director of Emergency Preparedness and Response
Tulane University	Assistance Director for Disaster Assistance and Recovery
United Way of Louisiana	Chief Strategy Officer



Appendix E

Public Survey Results

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Appendix E: Public Survey Results

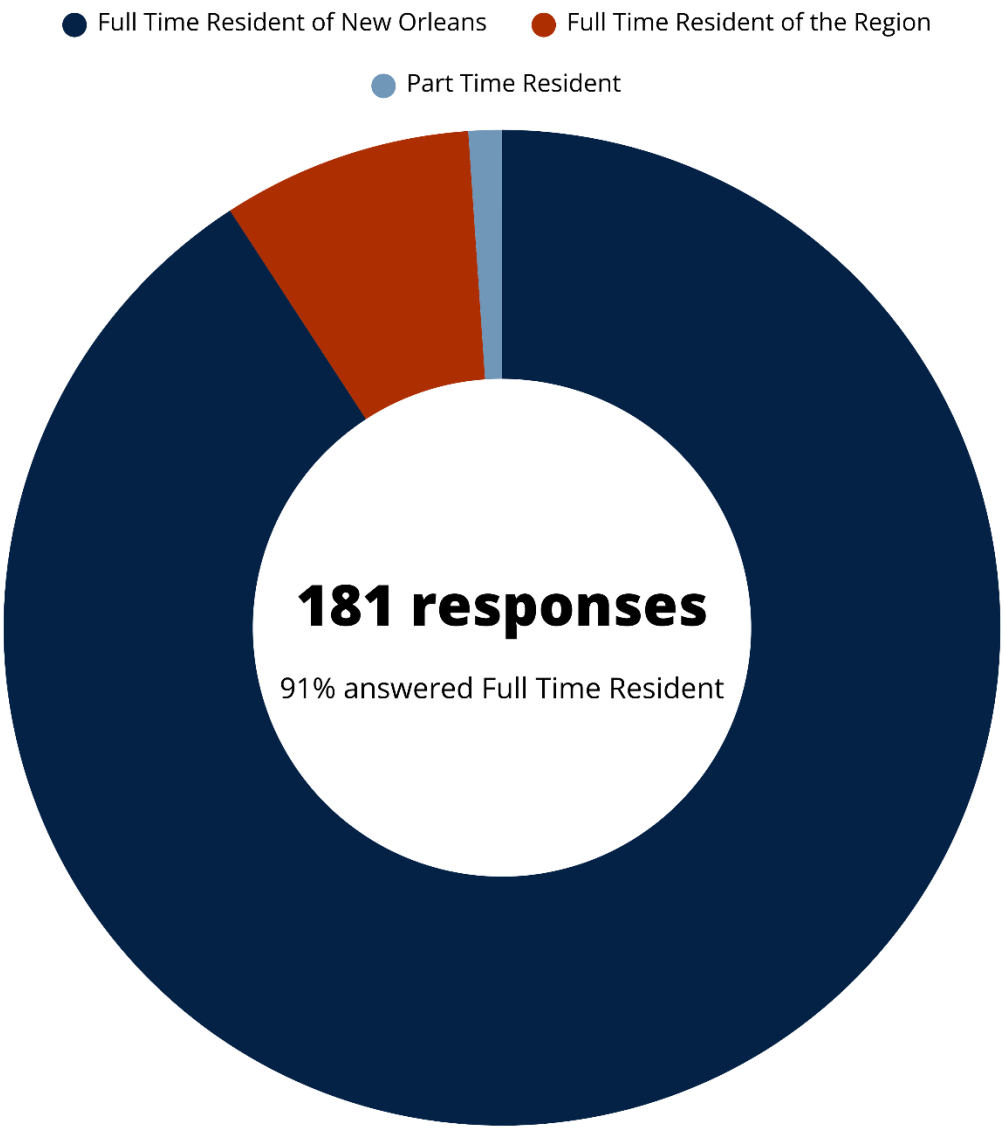
Overview

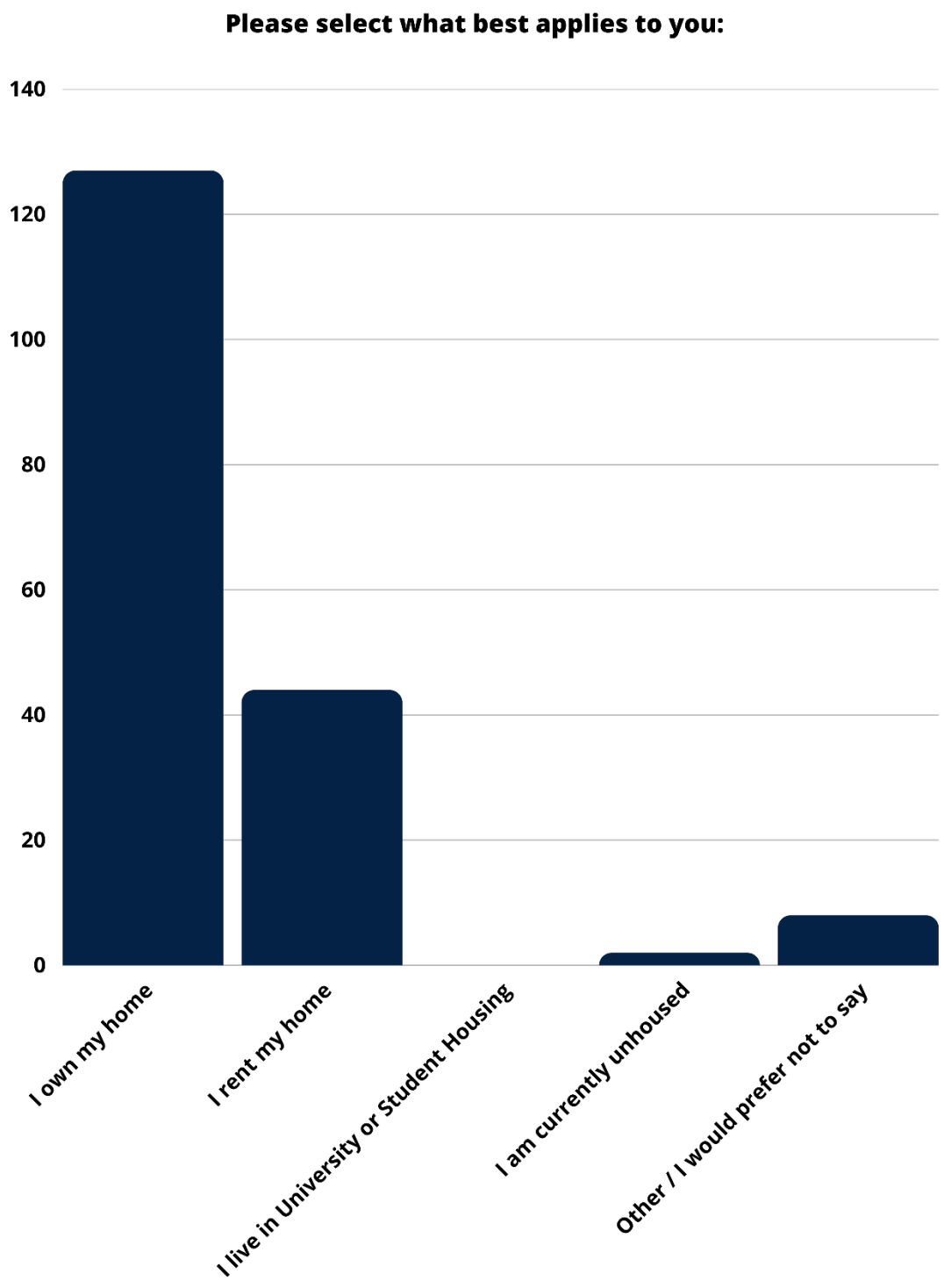
The City of New Orleans prepared a public survey that requested public opinion on a wide range of questions relating to natural and human-caused hazards. The survey was made available through the City of New Orleans's website and social media, with support of the participating educational institutions and special districts within the Plan Update. Printed copies of the survey were available throughout the community. See Appendix J for survey promotion. This survey link was also distributed at public meetings and stakeholder events throughout the planning process. Both online and printed surveys were available in three languages prevalent within the planning area: English, Spanish, and Vietnamese.

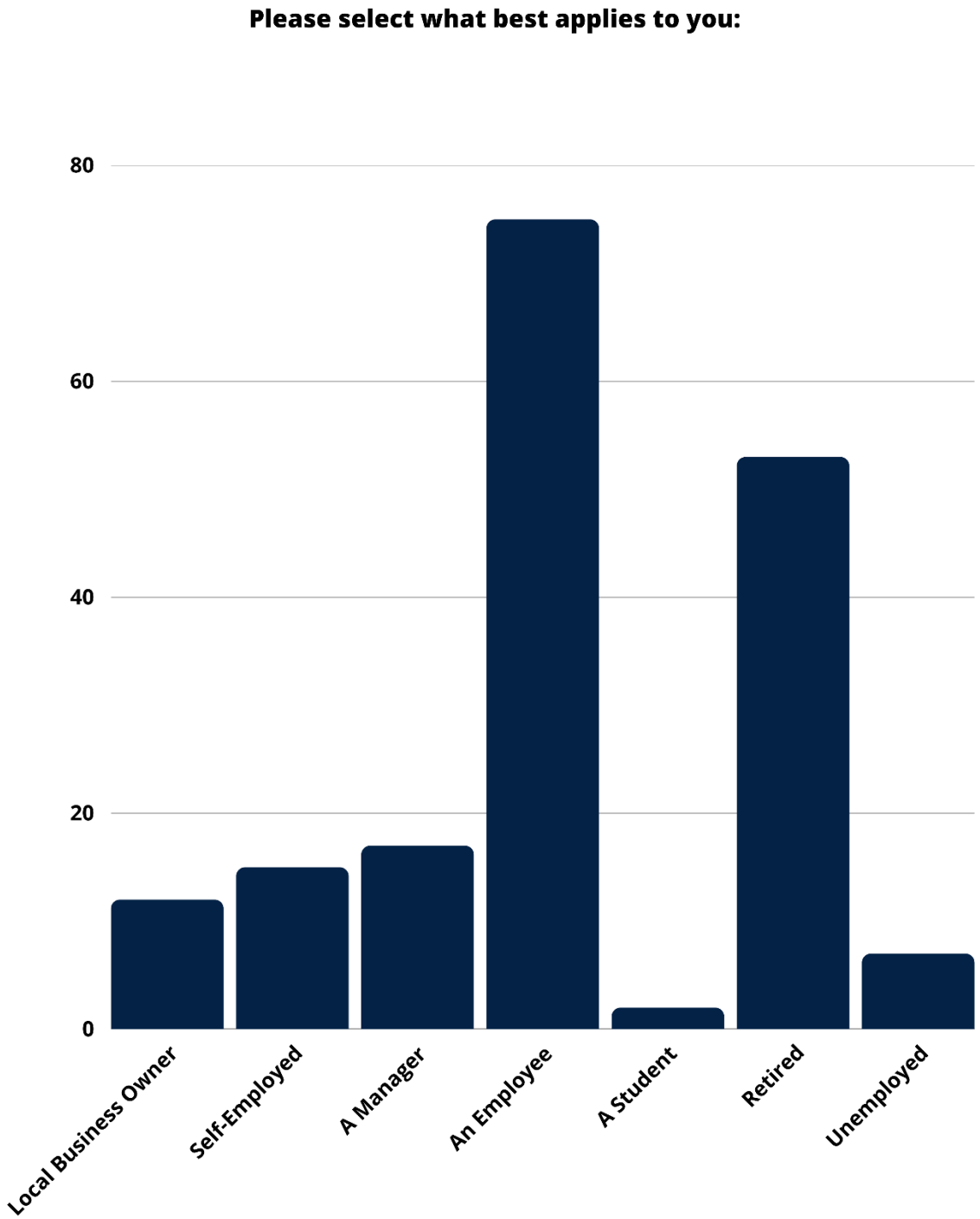
A total of 181 surveys were collected, the results of the survey are presented in Appendix E. The purpose of the survey was twofold: 1) to solicit public input during the planning process, and 2) to help the jurisdictions identify any potential mitigation actions or problem areas.

All public survey results were discussed and shared with the Planning Team during the Mitigation Strategy Workshop. These results are also provided below. The survey results provide information regarding the public's experience with natural hazards, their perceived hazards of concern, recommended mitigation actions, and additional valuable insights. Overall, this survey enhances the mitigation planning process by ensuring the plan properly represents the community, is informed through local knowledge, and by promoting equity.

Public Survey Results

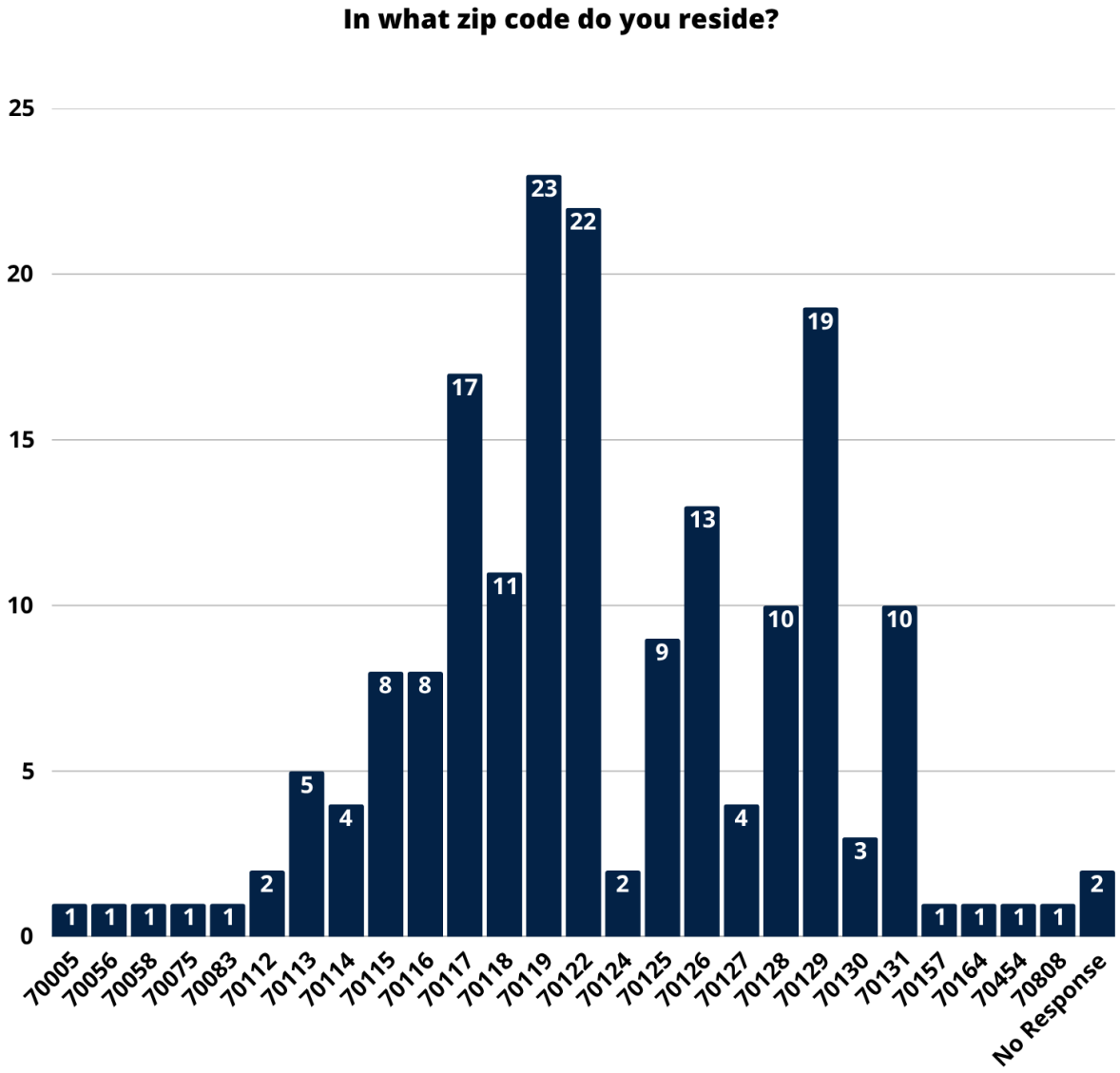



Please select what best applies to you:
140
120
100
80
60
40
20
0
I own my home
I rent my home
I live in University or Student Housing
I am currently unhoused
Other / I would prefer not to say

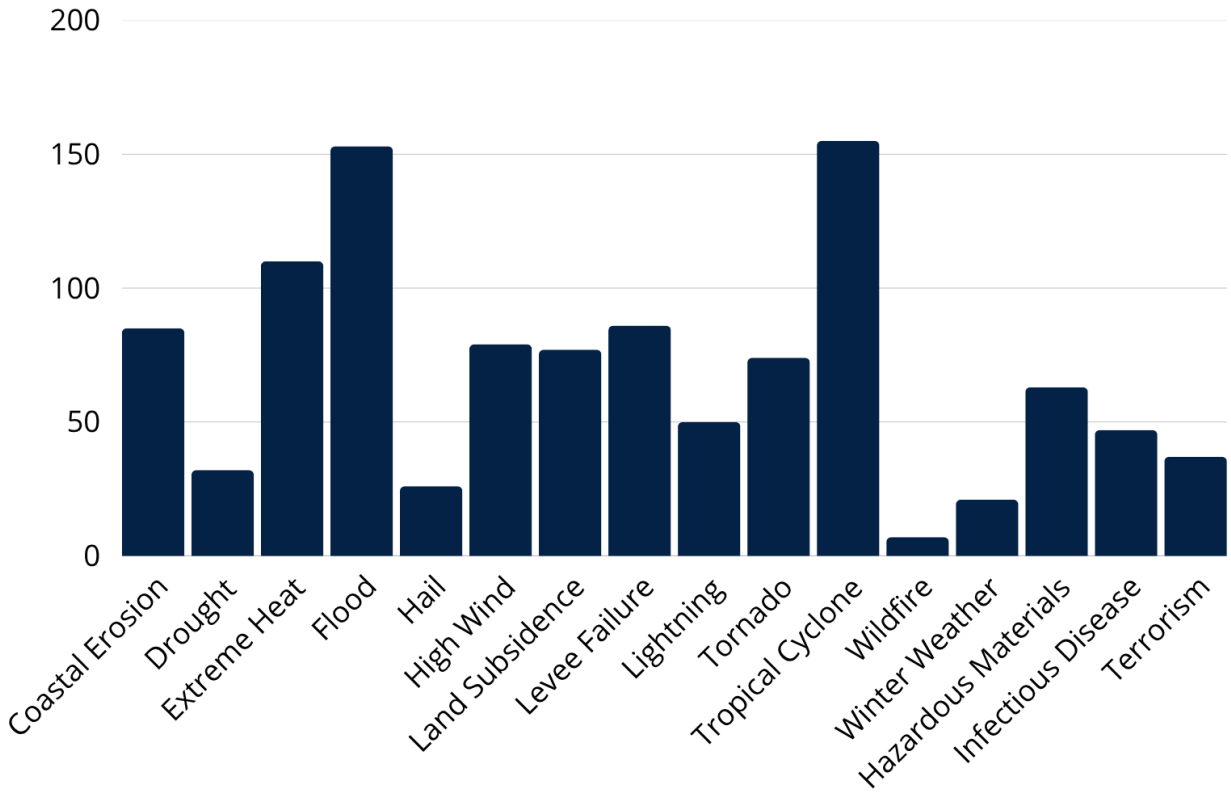

Please select what best applies to you:
80
60
40
20
0
Local Business Owner
Self-Employed
A Manager
An Employee
A Student
Retired
Unemployed

If you represent an organization/agency, please provide the name.

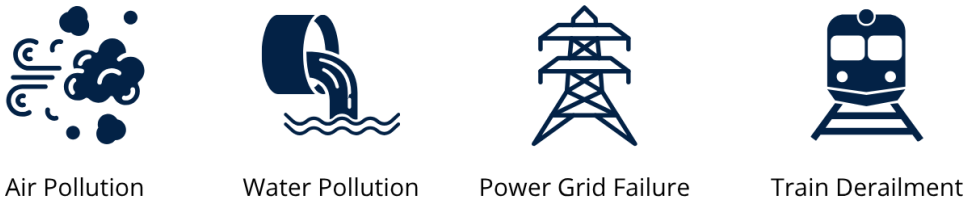
504HealthNet
Adventist Community Services Center, Inc.
Algiers Neighborhood Presidents Council
Alliance for Community Transfusion Services
Ashe Cultural Arts Center
Carter Perriott Group
Central City Faubourg Livaudais Neighborhood Association (CCFL)
City Attorney's Office
City of New Orleans
Deep South Center for Environmental Justice (DSCEJ)
East New Orleans Neighborhood Advisory Commission
Familias Unidas En Accion
Fauberg Homeowners & ENONAC
HandsOn New Orleans
Healthy Community Services
Her GUMBEAUX
Hollygrove-Dixon Neighborhood Association
Hubbard and Tennyson, LLC
JJAD SERVICES INC
Latines Unides de Nueva Orleans en Accion
Louisiana SPCA
LSU Health Sciences Center New Orleans
Mechanical Contractors Association of Louisiana
New Orleans Council on Aging
New Orleans East Green Infrastructure Collective (NOEGIC)
New Orleans Food Policy Action Council
New Orleans Office of Homeland Security and Emergency Preparedness
New Orleans Public Library
New Orleans Redevelopment Authority (NORA)
Nuvara Tech
OCHBMA
Orleans Parish Assessor's Office
Pontchartrain Conservancy
RSM
Seabrook Neighborhood Association
Song Community Development Corporation (CDC)
The Water Collaborative
Tulane Institute on Water Resources Law & Policy
Tulane University
U.S. Fish And Wildlife Service
Xavier University Center for Minority Health and Health Disparities for Research & Education
Xavier University of Louisiana


In what zip code do you reside?
25
20
15
10
5
0
1
1
1
1
1
2
5
4
8
8
17
11
23
22
2
9
13
4
10
19
3
10
1
1
1
1
2
70005
70056
70058
70075
70083
70112
70113
70114
70115
70116
70117
70118
70119
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70126
70127
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70129
70130
70131
70157
70164
70454
70808
No Response

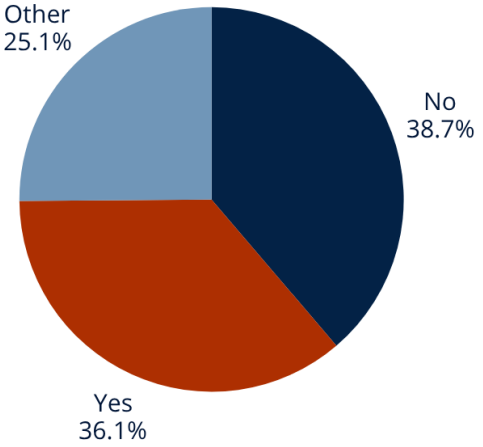
Which of the following hazards are you most affected or threatened by?



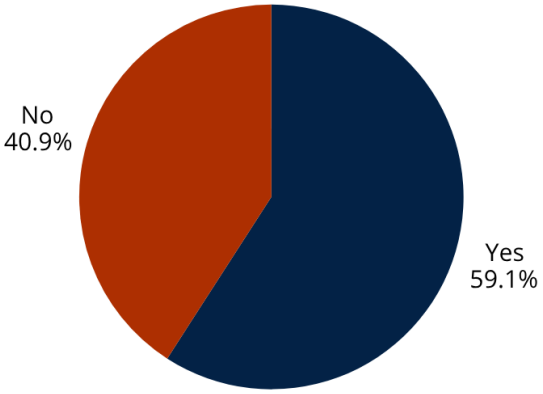
Are there any natural or human-caused hazards not listed above that you think can have a wide-scale impact on your community?



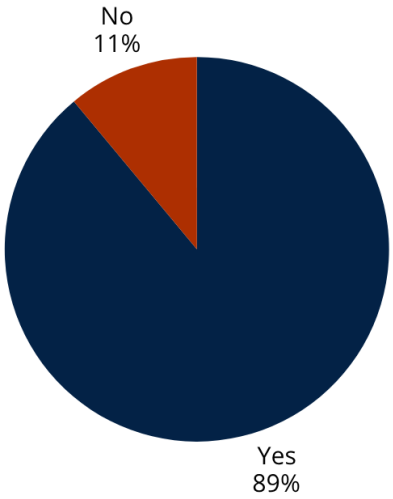
Do you know what flood zone you live in?

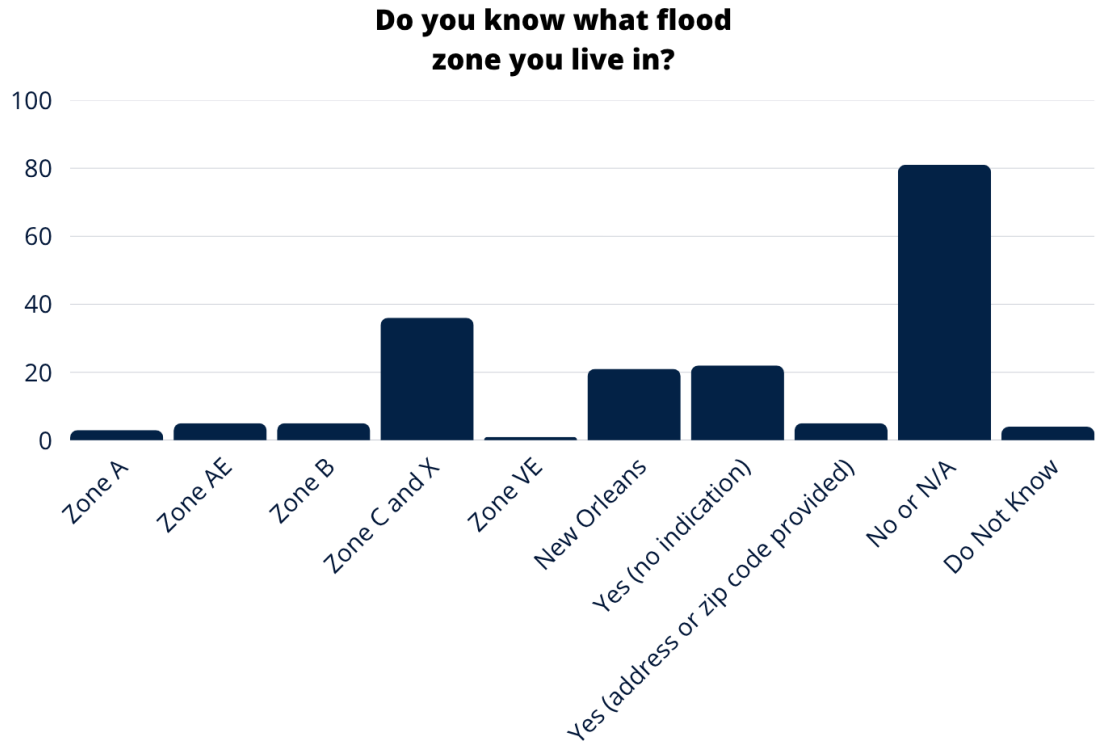


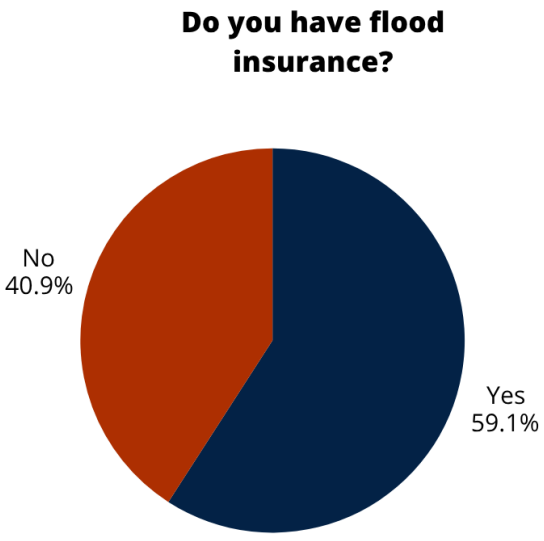
Do you have flood insurance?

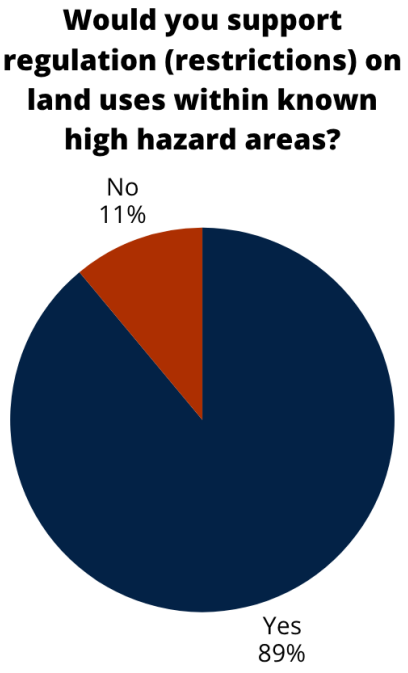


Would you support regulation (restrictions) on land uses within known high hazard areas?

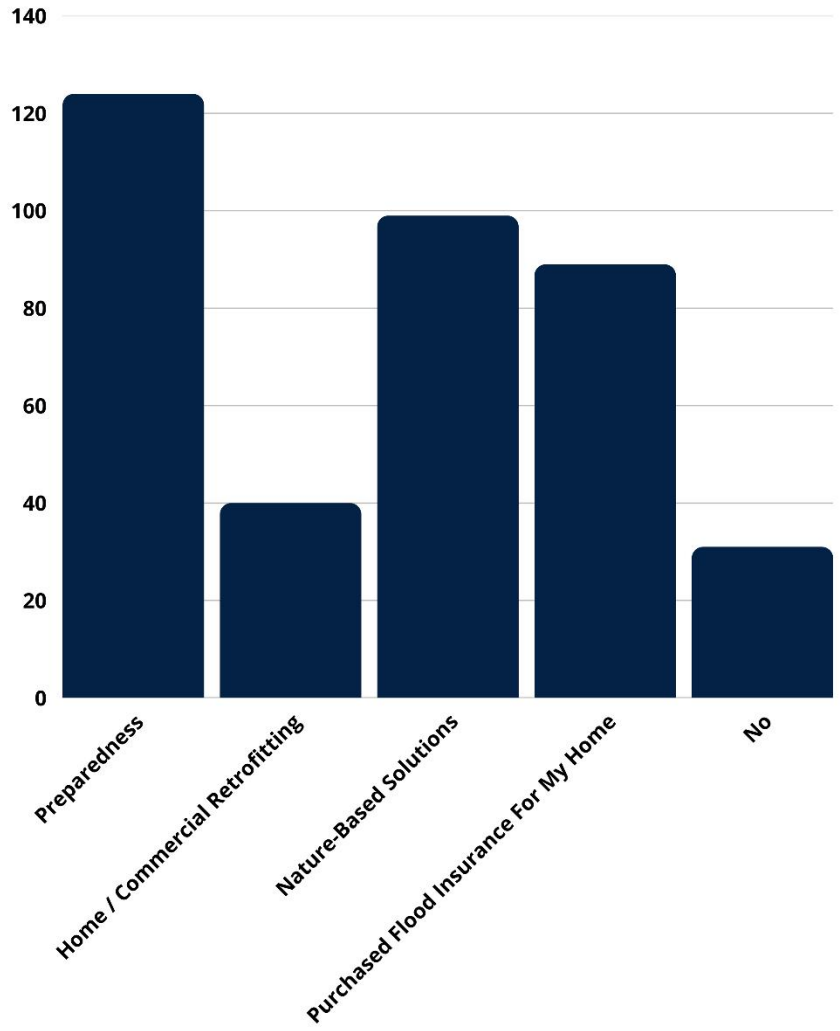



Do you know what flood zone you live in?
100
80
60
40
20
0
Zone A
Zone AE
Zone B
Zone C and X
Zone VE
New Orleans
Yes (no indication)
Yes (address or zip code provided)
No or N/A
Do Not Know


Do you have flood insurance?
No
40.9%
Yes
59.1%


Would you support regulation (restrictions) on land uses within known high hazard areas?
No
11%
Yes
89%

Have you taken any actions to make your home or neighborhood more resistant to hazards?

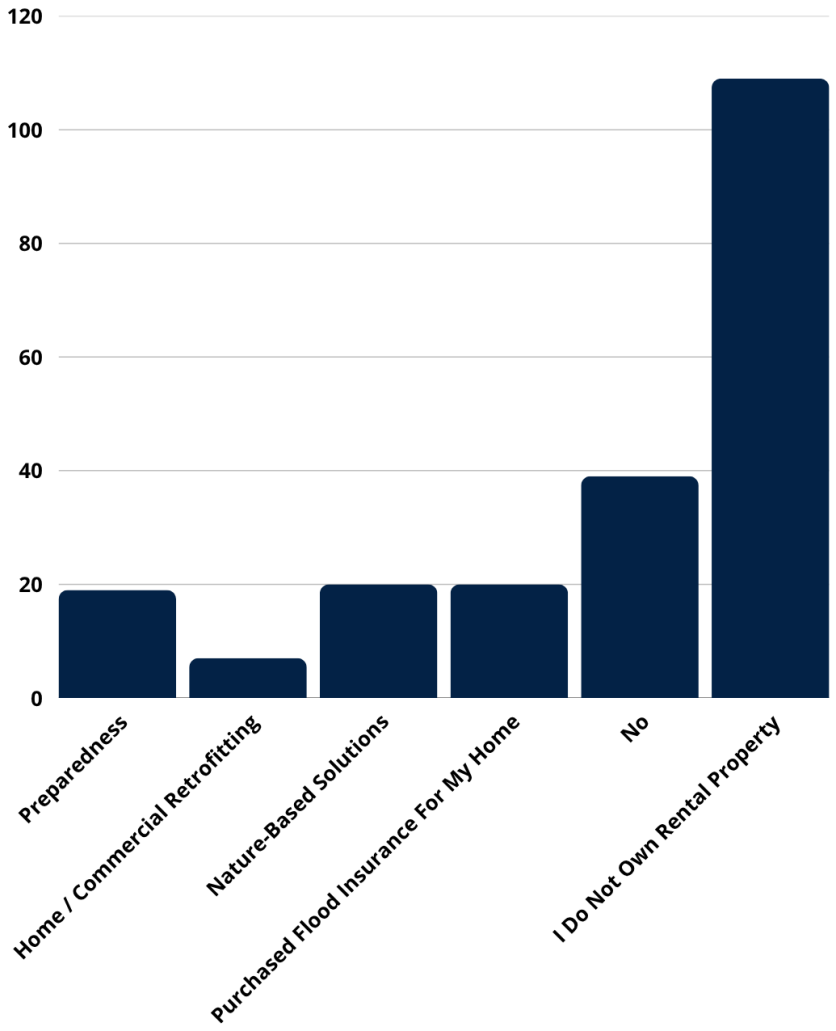


Preparedness (i.e. generators, to-go kit, fire extinguishers, boarding windows, sandbags, etc.)

Home/Commercial Retrofitting (i.e., wind-resistant shingles/windows, home elevation, French drains, home weatherization, etc.)

Nature-Based Solutions (i.e., tree trimming, removal of debris, rain garden, permeable pavers, etc.)

If you own rental property, have you taken any actions to make the property more resistant to hazards?

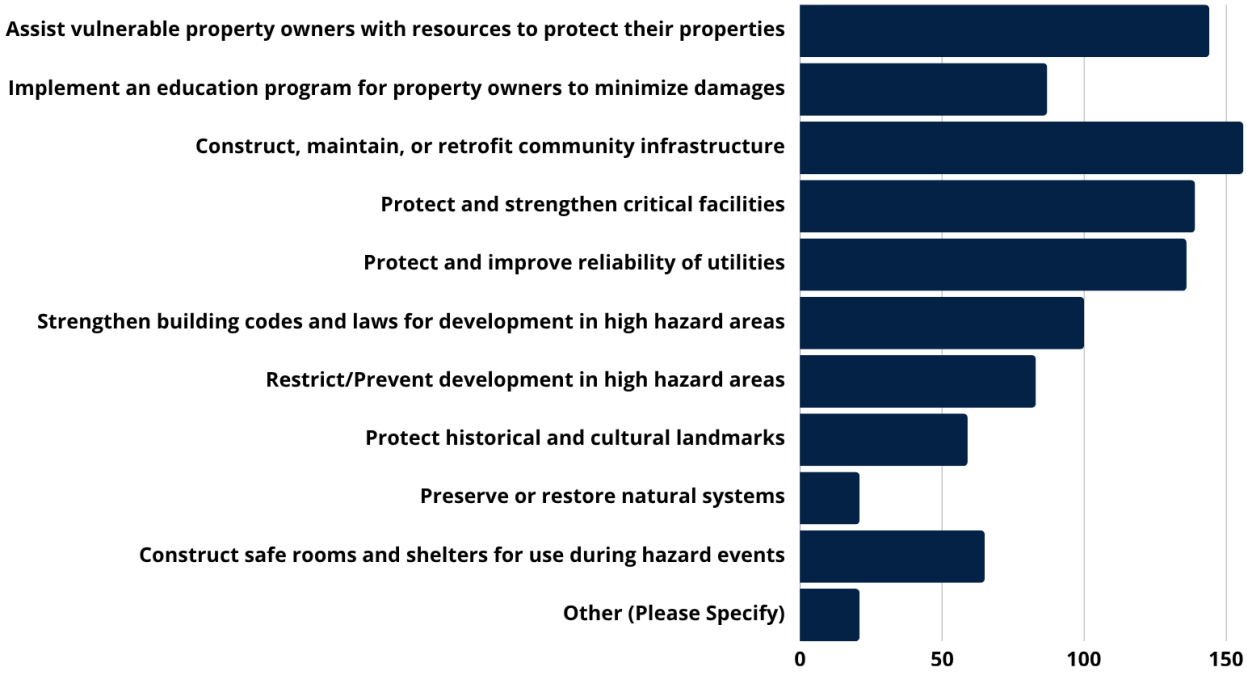


Preparedness (i.e. generators, to-go kit, fire extinguishers, boarding windows, sandbags, etc.)

Home/Commercial Retrofitting (i.e., wind-resistant shingles/windows, home elevation, French drains, home weatherization, etc.)

Nature-Based Solutions (i.e., tree trimming, removal of debris, rain garden, permeable pavers, etc.)

In your opinion, please select steps your local government should prioritize to reduce or eliminate the risk of future hazard damages in your neighborhood.



Other:

"Include pets in all aspects of hazard mitigation and response."

"Help homeowners whose homes need to be elevated."

"Require landlords to do more to protect rental units from hazardous events and effects."

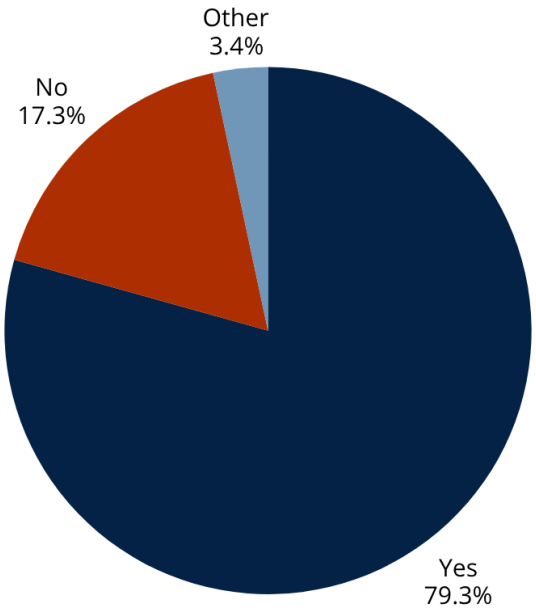
"Develop CERT for the region."

"Invest in solar assets to strengthen the grid in power outage events..."

"Enforce existing laws and ordinance."

"Not only address property owners but also increase community awareness (via education) and support communities with resources before, during, and after hazard event..Have individuals from and living in New Orleans with hazard mitigation education and experience who are from community-based environmental organizations have a seat/sit at the Office of Emergency Preparedness table to act as a liaison between the city and community members to ensure the best interest of the community..."

Do you currently receive text alerts from NOLA Ready? If not, where do you typically get emergency information from?



Other:



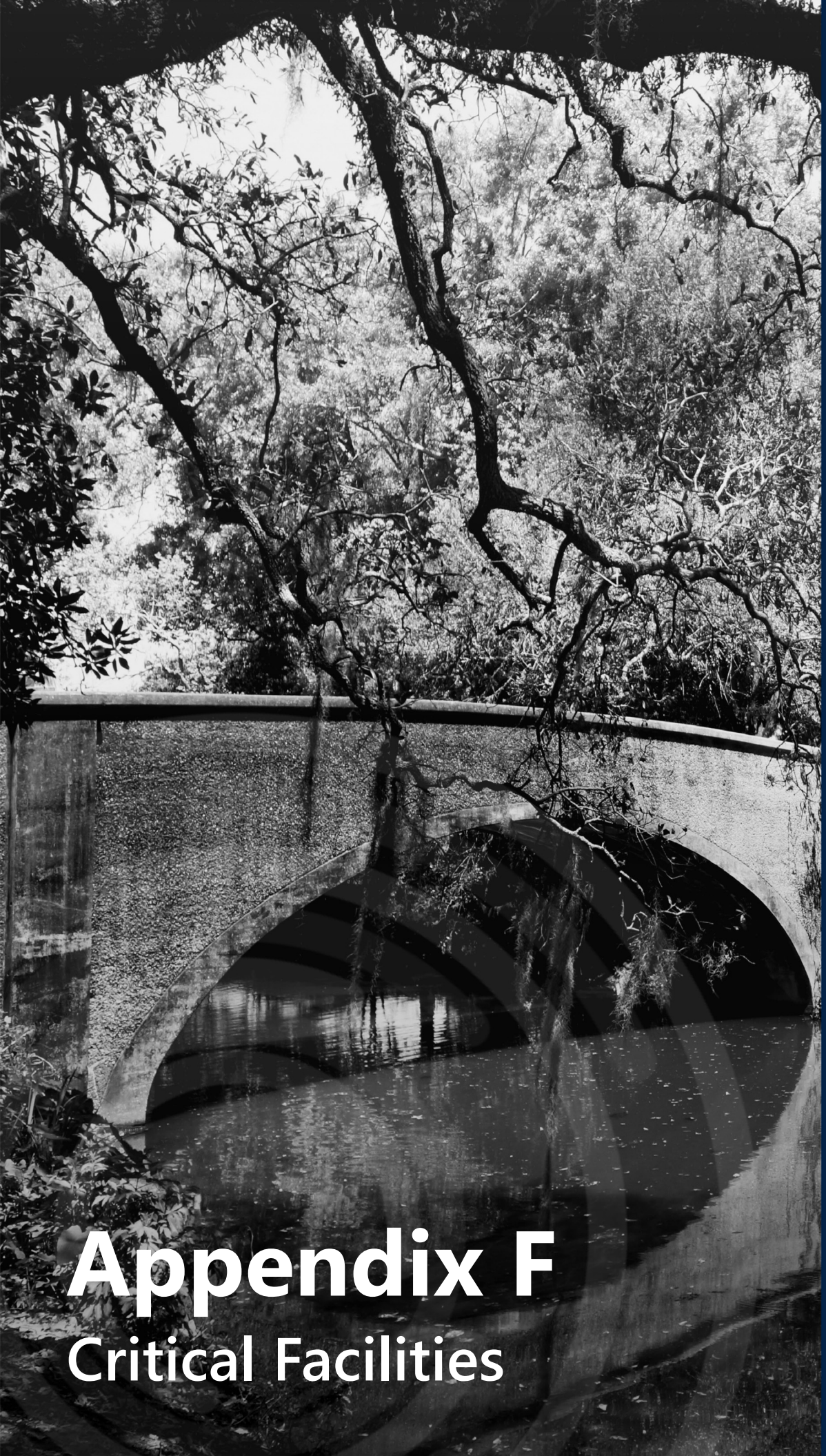
Social Media



Homeowners Association



Cell Service



Appendix F
Critical Facilities

APPENDIX F: CRITICAL FACILITIES

Appendix F is **For Official Use Only (FOUO)** and may be exempt from public release under FOIA.



Appendix G

Meeting Documentation

APPENDIX G: MEETING DOCUMENTATION

Appendix G is **For Official Use Only (FOUO)** and may be exempt from public release under the Freedom of Information Act (FOIA).



Appendix H

Capability Assessment

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Appendix H: Capability Assessment

Overview

A Community Capability Assessment is an integral component of the Hazard Mitigation Planning Process. It is an invaluable tool in assessing a community's existing planning, regulatory, administrative, technical, fiscal, and political capabilities to support implementation of mitigation strategy objectives.

Beginning on Page 3, a completed Capability Assessment Checklist provides information on existing policies, plans, and regulations in place for Planning Team members at the local level or that may be provided by the Parish on an as-needed basis. ***Participation is denoted with an "X" on the Checklist.***

Community Capability Assessments

Community Capability Checklist	*City of New Orleans*	*Loyola University*	*Tulane University*	*Housing Authority of New Orleans (HANO)*	*New Orleans Redevelopment Authority*	*Sewerage & Water Board (SWBNO)*
Plans						
Capital Improvements Plan	X	X	X	X		
Climate Change Adaptation Plan	X					X
Community Wildfire Protection Plan						
Comprehensive / Master Plan / Land Use Plan	X	X	X	X		X
Continuity of Operations Plan	X	X	X		X	X
Drought Contingency Plan / Protocol on Water Restrictions						
Economic Development Plan	X					X
Emergency Management Action Plan	X		X			X
Emergency Operations Plan	X	X	X	X		X
Evacuation Plan	X	X	X	X		X
Extreme Heat Protocol	X		X			X
Hazard Mitigation Plan	X	X	X	X	X	X
Main Street Resilience Plan	X					
Parks Master Plan	X					
Reforestation Plan	X					
Stormwater Management Plan	X	X				X
Transportation Plan	X					X

Community Capability Checklist	*City of New Orleans*	*Loyola University*	*Tulane University*	*Housing Authority of New Orleans (HANO)*	*New Orleans Redevelopment Authority*	*Sewerage & Water Board (SWBNO)*
Other (Coastal Plans, Redevelopment, Etc.)	X					
Policies / Ordinances						
Building Codes	X	X				X
Coastal Zone Management / Coastal Use Permits	X					
Fire Code	X	X				X
Floodplain Ordinance	X	X				X
Manufactured Home Restrictions						
Site Plan Review Requirements	X					
Stormwater Ordinance	X	X				X
Subdivision Regulations	X					X
Wildfire Ordinance						
Zoning Ordinance / Land Use Restrictions	X	X				X
Programs						
Firewise Communities						
Floodplain Maps / Flood Insurance Studies	X	X				X
Hydrologic / Hydraulic Studies	X					X
Maintenance Programs (Tree Trimming, Clearing Drainage, etc.)	X					
Mutual Aid Agreement	X		X			X

Community Capability Checklist	*City of New Orleans*	*Loyola University*	*Tulane University*	*Housing Authority of New Orleans (HANO)*	*New Orleans Redevelopment Authority*	*Sewerage & Water Board (SWBNO)*
National Flood Insurance Program Participant	X	[1]				[1]
NFIP Community Rating System Participant	X					
Property Acquisition Program	X					
Public Education / Awareness Programs	X		X	X		X
Storm Drainage Systems Maintenance Program	X					X
Stream Maintenance Program						X
StormReady Communities	X					
Warning Systems / Services (Reverse 911, Outdoor Warning Sirens)	X	X	X			X
Staff / Departments						
Building Code Official	X	X				X
Emergency Manager	X	X	X			X
Engineers	X	X				X
Environmental Conservation Specialist	X					X
Floodplain Administrator	X					
Geographic Information System (GIS) Coordinator	X		X			X
Personnel with Hazard Knowledge	X	X	X			X
Planners	X		X	X	X	X

[1] Note: Loyola University and SWBNO both maintain current flood insurance policies. However, it is noted that neither entity is eligible to participate in the NFIP.

Community Capability Checklist	*City of New Orleans*	*Loyola University*	*Tulane University*	*Housing Authority of New Orleans (HANO)*	*New Orleans Redevelopment Authority*	*Sewerage & Water Board (SWBNO)*
Public Information Official	X	X	X			X
Resource Development / Grant Writer	X	X	X	X		X



Appendix I

Hazus Outputs

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Appendix I: Hazus

Overview

Hazus is a nationally standardized risk modeling methodology that can be used to estimate potential damage, economic loss, and social impacts from earthquake, flood, tsunami and hurricane hazards. The flood model was utilized as an enhancement to the risk assessment for this plan. This model generates flood (riverine and coastal) hazard data using nationwide hydrological datasets, estimating the expected levels of damage to infrastructure and buildings. The model assumes a combined 100-year riverine and coastal flood scenario to estimate damages from a flood impacting the City of New Orleans. A summary of the results is included in Tables I-1 through I-4.

Hazus Summary Output

Table I-1. Essential Facilities

Essential Facilities	City of New Orleans		
	Total (Count)	Building Loss USD	Content Loss USD
Schools	141	$ 318,622	$2,265,754
Police Stations	20	$ -----	$ -----
Fire Stations	35	$740,761	$3,373,118
Emergency Operations Centers	1	$ -----	$ -----
Medical Care Facilities	14	$ -----	$ -----
Totals	**211**	**$1,059,383**	**$5,638,872**

Table I-2. Utility Systems

Utility Systems	City of New Orleans	
	Total (Count)	Loss USD
Waste Water Facilities	3	$ -----
Potable Water Facilities	1	$ -----
Oil Facilities	0	$ -----
Natural Gas Facilities	0	$ -----
Totals	**4**	**$ -----**

Table I-3. Building Inventory

Aggregated Baseline Inventory (City of New Orleans)						
Building Damage	**Total Buildings**		**Buildings w/ Substantial Damage**		**Undamaged Buildings**	
	564		392		27	
Economic Loss*	**Total Loss USD**	**Building Loss USD**	**Contents Loss USD**	**Inventory Loss USD**	**Income Loss USD**	**Wage Loss USD**
	881,933,000	299,793,000	259,559,000	13,531,000	80,129,000	$133,838,000
Shelter	**Displaced Population**			**People Needing Shelter**		
	4,658			1,431		

Table I-4. Economic Loss by General Occupancy

Economic Loss by General Occupancy* (City of New Orleans)						
Occupancy Type	**Total Loss USD**	**Building Loss USD**	**Contents Loss USD**	**Inventory Loss USD**	**Income Loss USD**	**Wage Loss USD**
AGR – Agriculture	$2,652,000	$604,000	$808,000	$974,000	$148,000	$57,000
COM – Commercial	$284,486,000	$39,523,000	$79,708,000	$10,127,000	$68,500,000	$59,420,000
EDU – Education	$29,557,000	$2,178,000	$8,851,000	$ -----	$4,868,000	$11,465,000
GOV – Government	$57,354,000	$684,000	$3,633,000	$ -----	$966,000	$49,854,000
IND – Industrial	$24,210,000	$5,772,000	$13,688,000	$2,430,000	$587,000	$999,000
REL – Religion / Non-Profit	$22,891,000	$2,149,000	$9,059,000	$ -----	$2,993,000	$7,129,000
RES – Residential	460,783,000	248,883,000	143,812,000	$ -----	$2,067,000	$4,914,000



Appendix J

Public Engagement / Outreach Summary

City of New Orleans

Public Engagement/ Outreach Plan and Summary

April 2025



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Public Engagement/Outreach Plan and Summary

Introduction

The City of New Orleans holds a unique geographic and cultural position in the United States. Nestled between the Mississippi River and Lake Pontchartrain and near the Gulf of Mexico, these natural features greatly influence the city's culture, economy, and identity. However, they also expose New Orleans to significant vulnerabilities regarding natural hazards. The city has long faced challenges from hurricanes, flooding, storm surges, subsidence, coastal erosion, and extreme weather events, with climate change intensifying the frequency and severity of these risks.

Since 2005, New Orleans has endured multiple natural disasters that have caused loss of life, widespread property damage, and long-term disruption. Hurricane Katrina in 2005 was the most catastrophic, breaching levees, flooding much of the city, and killing over 1,800 people. In the years since, the city has been hit by several other major storms, including Hurricane Gustav in 2008, Hurricane Isaac in 2012, Hurricane Ida in 2021, and most recently, a historic Winter Storm event in 2025. Each of these storms caused varying degrees of impact. Through each natural event, the City has advanced its capabilities, while continually evaluating potential vulnerabilities and responding to the evolving needs of the community.

Recognizing the geographic factors that heighten exposure to natural disasters, the City of New Orleans is dedicated to safeguarding lives and property and ensuring the city's long-term sustainability. In 2020, the City of New Orleans updated their HMAP and expanded it in the form of a multi-jurisdictional plan, bringing their partner agencies into the planning process. In addition to the City of New Orleans, the 2020 update included participation from the Sewerage and Water Board of New Orleans (SWBNO), Housing Authority of New Orleans (HANO), New Orleans Redevelopment Authority and Tulane University. This initiative was designed to meet the requirements outlined in 44 CFR 201.6 and by the Federal Emergency Management Agency (FEMA) under the Disaster Mitigation Act of 2000. The HMAP serves as a framework and guide for reducing the city's risks from both natural and human-caused hazards. As mandated by FEMA, updates are required every five years. To meet the update requirements, the City of New Orleans hired consultants, referred to as the Consultant Team, to write and develop the 2026 Plan Update. To accomplish this Plan Update, the City has partnered with Loyola University,[1] Tulane University, HANO, NORA, and SWBNO.

[1] Note: New planning participant.

Fundamentally, an HMAP helps communities shift from a reactive disaster response model to a proactive strategy focused on risk reduction. Further, a FEMA-approved HMAP is required for eligibility for grant funds through FEMA's Hazard Mitigation Assistance (HMA) programs, which include the Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance (FMA). Funds from these federal grant programs may be awarded directly to the city to implement the mitigation projects identified in the 2026 Plan Update. The Plan Update will enable the City and its planning partners to prioritize infrastructure and community investments that reduce risk and promote resilient land use and development. Effective coordination among departments and agencies supports a comprehensive approach to hazard mitigation, especially when these efforts are coupled with public engagement that builds local awareness and preparedness. The Plan Update provides a strategic framework for the City of New Orleans to thoughtfully manage risk, prioritize resilient investments, and better safeguard its communities from future natural disasters.

The Plan Update demonstrates the city's continued commitment to reducing risks and building a more resilient future. It integrates the latest data, lessons learned from previous disaster events, and input from a diverse and equitable group of stakeholders. The goal is not only to respond to disasters more effectively, but to also reduce their impact through proactive planning, infrastructure improvements, and sustained public engagement. This comprehensive approach will guide future investments in mitigation actions that help protect the city for generations to come.

The Planning Team

In 2025, the City of New Orleans formed a planning team to participate in the update of the current HMAP. The City, in coordination with Loyola University, Tulane University, HANO, NORA, and SWBNO, are referred to as the "Planning Team." To foster a diverse and inclusive planning effort, the Planning Team included representatives from various city departments, district divisions, and university departments.

Stakeholders

Stakeholders include neighboring parishes, local and regional agencies involved in mitigation activities, agencies that have the authority to regulate, in addition to academia, business, healthcare, organizations with community ties, and the general public. Stakeholders had the opportunity to collaborate directly with the Planning Team throughout the process and are thus the target audience for the City of New Orleans Public Engagement/Outreach Plan.

Through this structure, the SAC strengthened the quality, relevance, and impact of the Plan Update in numerous ways by:

- **Expanding Public Engagement**
  The SAC served as a bridge between the Planning Team and community entities by promoting communication, sharing information, and encouraging the collection of public input.

- **Supporting Cross-Jurisdictional Coordination**
  The committee fostered collaboration among governments, agencies, and organizations to align mitigation efforts and minimize duplication of resources.

- **Providing Local Insight**
  Committee members contributed firsthand knowledge of the city's vulnerabilities, past disasters, and the effectiveness of prior mitigation strategies. This ensured that the plan was rooted in practical experience and addressed real-world conditions.

- **Ensuring Broad-Based Representation**
  The committee ensured that the updated plan addressed the needs of multiple sectors, including public safety, infrastructure, business, the environment, and at-risk populations.

- **Building Trust and Accountability**
  Stakeholder involvement built public trust in the process and ensured broader support for plan implementation.

Engagement and Outreach Objectives

Effective engagement and outreach are essential for building public trust, strengthening partnerships, and developing a comprehensive and actionable mitigation strategy. The objectives of the 2025 City of New Orleans Public Engagement and Outreach Plan were to:

1. **Provide** information and create opportunities for stakeholders and the general public to actively participate in creating a safer, more resilient New Orleans.

2. **Educate** the community about the natural hazards impacting New Orleans and the importance of mitigation.

3. **Involve** historically underserved and high-risk communities – particularly those most vulnerable – to ensure their voices are acknowledged, included, and meaningfully represented in the planning process.

4. **Clearly convey** the planning process, timeline, and how public input helps align mitigation activities which foster long-term trust and stakeholder buy-in.



5. **Integrate** public insight and lived experiences to enhance the accuracy, relevance, and impact of risk assessments and mitigation strategies within the Plan Update.

6. **Collaborate and strengthen** partnerships with state agencies, nonprofits, institutions, and community-based organizations to align mitigation efforts and maximize the use of available resources.

Target Audience

The Planning Team's engagement and outreach strategy was designed to actively involve the New Orleans community in the planning process. Residents were provided with the opportunity to identify areas that are at higher risk for flooding and extreme heat, as well as provide insight into what types of mitigation projects they view as a priority for the city moving forward.

For a full representation of the target audience, please see **Exhibit A: Stakeholders List** and **Exhibit F: Public Meeting Summaries** at the end of this Public Engagement and Outreach Plan.

Strategies for Building Partnerships and Collaborations

The Hazard Mitigation Office has developed and refined a list of stakeholders, referred to as the Stakeholder Advisory Committee (SAC). The SAC includes approximately 115 partner agencies within the city, the transportation sector, the healthcare sector, academia, local utility providers, local and regional non-profits, engaged VOAD groups, libraries, and federal and state partners. These partnerships were established based on shared goals and a desire for mutual collaboration on various mitigation themes and projects to benefit the City of New Orleans. The Planning Team and the Consultant Team

facilitated stakeholder engagement through the promotion of public meetings and a participation survey which was available for the duration of the planning process.[2] In addition, the Planning Team conducted debriefs following each public meeting to evaluate and make any necessary adjustments to their public engagement and outreach strategy.

Public meetings were hosted at libraries in different areas of the city to provide residents with the opportunity to attend in the neighborhood closest to them. Outreach materials were also translated in Spanish and Vietnamese, which are the two most commonly spoken languages in New Orleans besides English. Outreach strategies extended to coordination with city elected officials, neighborhood associations, utility providers, and critical infrastructure partners.

The intent of public engagement is to promote a meaningful opportunity for the public to be informed and included in the planning strategy. This stakeholder-driven approach throughout the Plan Update strengthened the city's ability to set clear priorities, reduce risk, and support equitable outcomes across neighborhoods.



Public Engagement and Outreach Strategy

The Public Engagement and Outreach Strategy for the City of New Orleans Plan Update was designed to ensure inclusive stakeholder participation in order to develop a comprehensive and effective plan for disaster risk reduction. A key part of this strategy

[2] Note: The public participation survey closed on August 23, 2025.

included engaging community organizations to help promote the upcoming public meetings and encourage survey participation.

This section outlines the approach used to engage key stakeholders, foster relationships, and promote awareness, participation, and support throughout the planning process. The primary objective of this strategy was to foster meaningful connections and ensure effective two-way communication with the stakeholders.

Key Messaging

Key messaging highlighted the intent of the planning process and the City's commitment to inclusive and effective communication aimed at addressing public needs and achieving mitigation goals. Key messaging included:

1. **Purpose of the Update**
Communicating the benefits of a FEMA-approved HMAP, along with how these plans must be updated every five years to maintain FEMA compliance and preserve eligibility for future hazard mitigation funding.

2. **Community Role and Value of Participation**
Reinforcing local experiences, feedback, and knowledge was essential to identifying risks and prioritizing strategies that reflect the needs of neighborhoods across the city.

3. **Shared Benefits of Hazard Mitigation**
Highlighting that hazard mitigation benefits the community by reducing the impacts of disasters, protecting critical services and infrastructure, and supporting long-term resilience and recovery.

4. **Transparency and Accountability**
Emphasizing the City's commitment to an open and inclusive planning process, incorporating feedback wherever possible to represent community priorities.

Clear communication about upcoming public meetings and engagement opportunities were published across multiple platforms. The Planning Team promoted multiple avenues for participation to ensure residents had several ways to contribute their perspectives. These methods included in-person public meetings, multi-lingual promotional flyers and surveys, community maps to address areas of high concern, and feedback tools. Flyers and surveys were developed to promote accessibility for diverse populations in the New Orleans area. This outreach included content design considerations for those with

disabilities or other potentially vulnerable groups, such as using icons to communicate logistics and content.

By reinforcing these key messages across advertisements, outreach materials, and meeting promotions, the City of New Orleans advanced its goal of creating meaningful opportunities for stakeholders and the general public to participate in the Plan Update in ways that reflect the community's lived experiences. This messaging strategy enhanced awareness, increased engagement, and ensured that the community understood the significance of their contributions to the planning process. To support these key messages, the public meetings utilized a variety of engagement methods.

Public Engagement and Outreach Methods

Successful mitigation planning entails collaboration among city departments, local businesses, and communities to identify areas that are at a higher risk to impacts of natural hazards and sharing strategies on reducing risk and enhancing resiliency.

There were four public meetings held during the planning process. Throughout each promotion period for these meetings, the City of New Orleans utilized social media channels such as Instagram, Twitter and Facebook, published a press release from the Mayor's Office, as well as distributed e-newsletters via the New Orleans Agenda to enhance outreach, encourage attendance, and ensure meaningful participation. The goal was to inform residents of the importance of hazard mitigation, explain the planning process, and highlight the critical role of community input in shaping the updated plan.

The Planning Team coordinated engagement efforts with NOLA Ready to align public preparedness messages. NOLA Ready is the public engagement arm of the New Orleans Office of Homeland Security and Emergency Preparedness (NOHSEP) and serves as the City's primary emergency preparedness campaign. NOLA Ready ensures residents are prepared for emergencies and provides resources, tools, and information to help individuals, families, and businesses plan for situations such as hurricanes, flooding, and other potential hazards.

The Planning Team also posted outreach flyers and public surveys at all 15 public libraries and eight high-traffic recreational facilities.



The social media postings were tailored to the platforms utilized by the Planning Team. Concurrently, email campaigns and newsletters were distributed to keep the public informed about ongoing efforts and developments. The Planning Team utilized the support of the Stakeholder Advisory Committee and the Neighborhood Engagement Office to solicit public engagement and advertisement. As discussed previously, the SAC contains 115 agencies within the city's planning area, where the Neighborhood Engagement Office provided a compiled list of 68 associations focused on enhancing the quality of life, preserving growth, and fostering community advocacy.

Collaborative efforts with community-based and faith-based organizations, academic institutions, and businesses enhanced outreach. Media engagement raised awareness and built credibility, by means of press releases, interviews, and features in local publications. Finally, implementing surveys and feedback mechanisms ensured that the public's voices were heard and integrated into decision-making, fostering a sense of shared ownership.

For a full representation of collaborating organizations, please see **Exhibit A: Stakeholders List** at the end of this Public Engagement and Outreach Plan.

Implementation Timeline

The Planning Team hosted a series of public meetings throughout the Plan Update. Public meetings were scheduled in 2025 for April 23, June 25, July 23 and July 24. Tables were equipped with printed materials and QR codes for easy access to the online survey. The SAC was invited to a meeting on July 1 to discuss various elements of the Plan Update and to share insights from the committee's prior experience in disaster response and recovery. Once all public meetings were held, public feedback was provided to the Planning Team for their review and implementation into the Plan Update. A copy of the Plan Update will be made available in December of 2025 for public review and commentary.

Summary of Statistics

Tracking attendance and participation at public meetings provided insight into public interest and involvement. Feedback through surveys and public forums was used to capture valuable perspectives and help identify strengths, areas for improvement, and emerging needs. These metrics collectively informed strategic adjustments, ensuring that outreach remained responsive, inclusive, and impactful.



Meeting and Workshop Attendance	
Public Meeting #1:	17
Public Meeting #2:	20
Public Meeting #3:	24
Public Meeting #4:	15 *(Inclement weather and competing community meetings affected attendance)*
Stakeholder Advisory Committee Meeting:	29
Total Surveys Submitted:	180

Public Engagement and Outreach Activities

From April through July 2025, public engagement and outreach activities focused on distributing flyers and information through multiple community organizations and venues, including but not limited to local coffee shops, social aid and pleasure clubs, and small businesses. These activities maintained a strong emphasis on religious institutions and faith-based organizations, as these stakeholder types consistently serve as vital part of community hubs.

To broaden engagement, the team also directly targeted 68 neighborhood associations across Orleans Parish in June and July. These efforts included coordinated email blasts that included flyers and meeting details, encouraging neighborhood leaders to share the information with their networks.

Outreach efforts were further enhanced through promotions at eight New Orleans recreation facilities with swimming pools, as these facilities are more commonly utilized

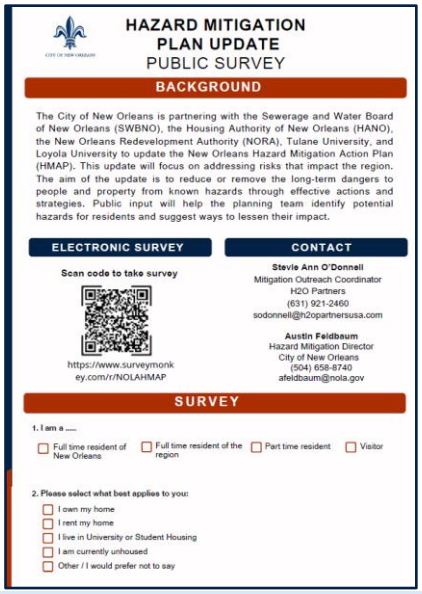
during the summer months when the public meetings were held. These combined efforts ensured that meeting notices were shared widely through trusted, community-rooted channels.

For a full representation of targeted locations for public engagement and outreach activities, please see **Exhibit B: Target Locations**.

Public Engagement and Outreach Materials

Public flyers featured essential details such as meeting dates, locations, and objectives, while the survey provided opportunities for the public to share their feedback and insight. The flyers and surveys were designed, in collaboration with NOHSEP's Disaster Accessibility Coordinator, to ensure accessibility for all populations in the New Orleans area. Flyers and surveys were provided in English, Spanish, and Vietnamese, with content design considerations for those with disabilities. Both electronic and physical copies of flyers and surveys were provided. Please see **Exhibit C: Sample Surveys** and **Exhibit D: Sample Flyers** at the end of this Public Engagement and Outreach Plan for additional examples of these outreach materials.



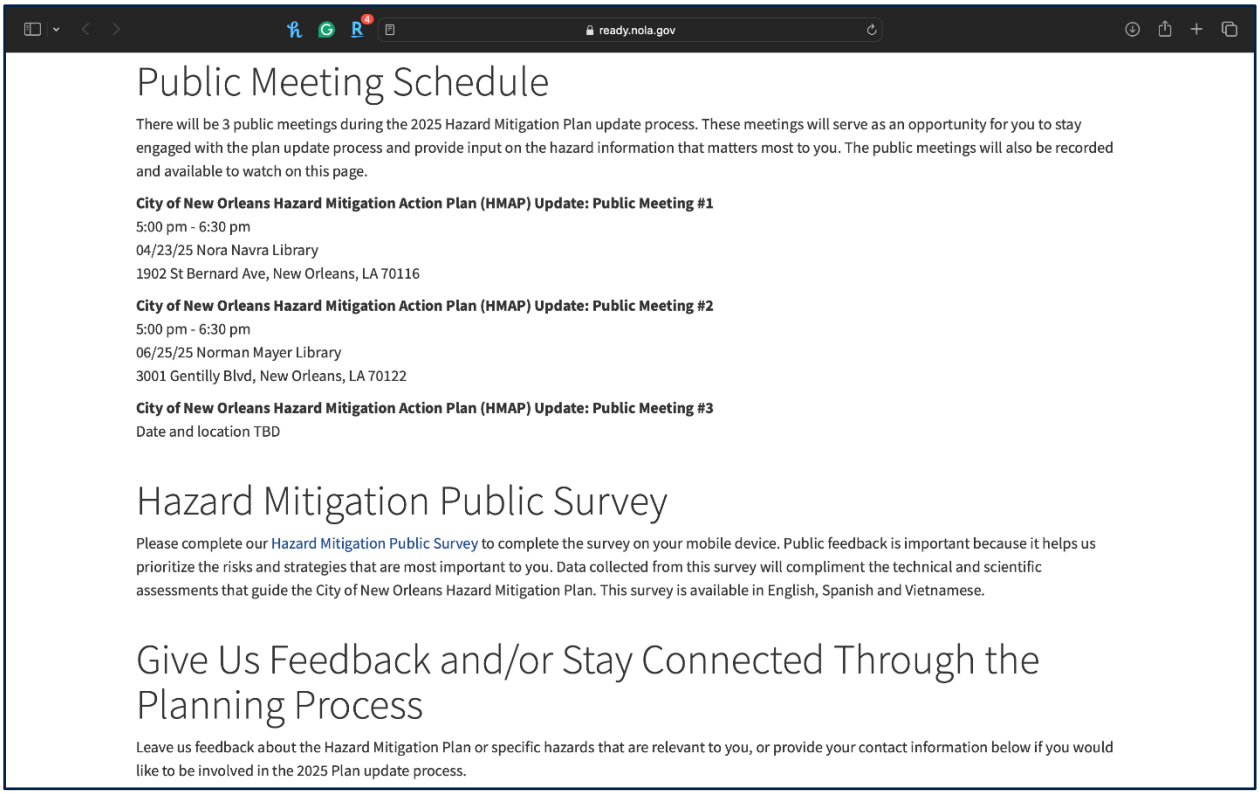


Public Websites

To maximize public engagement and widespread awareness, digital platforms were used to promote public meeting flyers and survey links. Planning Team members expanded outreach methods through coordination with internal departments to facilitate promotion

on public websites[3], including elected city officials, which served as trusted channels to disseminate information.

Promotion of each public meeting was implemented at least three (3) weeks prior to each scheduled event. Advertisement of the survey link was made public starting in April of 2025 and remained open for the duration of planning process.[4] The City of New Orleans provided information related to public meetings on a centralized website[5] to provide relevant information regarding public participation in the Plan Update.



Public Meetings

A series of public meetings were held to provide an overview of the planning process and provide an in-person forum to foster public feedback and collaborative planning. Public meetings were hosted in multiple different neighborhoods across the city to ensure residents could attend at the location most easily accessible to them. Each meeting included a brief presentation outlining the goals of the Plan Update, followed by an interactive Q&A session to discuss concerns and gather feedback.

[3] Planning Team promotions can be viewed in Appendix G of the City of New Orleans Hazard Mitigation Action Plan Update 2026
[4] Note: The public survey closed on August 23, 2025.
[5] https://ready.nola.gov/hazard-mitigation/home/

Between April and July 2025, the City of New Orleans hosted four public meetings to involve stakeholders and the general public in collaborating with the Planning Team during the development of the Plan Update. Each meeting followed a similar agenda:

- An overview of FEMA's four-phase planning process;
- Discussion of hazards and mitigation strategies;
- Updates on ongoing mitigation projects within their community; *and*
- Opportunities for public input through surveys, mapping activities, and open discussion.

Across all meetings, the emphasis was on building long-term resilience, leveraging federal funding, and ensuring that community input was considered in the development on mitigation goals and strategies. Across all four meetings, the city reinforced the important of stakeholder participation and feedback to ensure the Plan Update reflects local needs. Stakeholders were encouraged to stay engaged by attending meetings, sharing input through the methods and activities outlined above, and reviewing the draft plan when it becomes available in February 19, 2026.

Participants were provided the opportunity to identify specific areas of the city that experience flooding and extreme heat through an interactive mapping activity. Much of the feedback provided by residents aligned with the City's priorities for flood and heat mitigation projects.[6]

Public Meeting #1	
Date:	April 23, 2025
Address:	Nora Navra Library, 1902 St. Bernard Ave, New Orleans, LA 70116
Number of Attendees:	17

The April 23 meeting at Nora Navra Library focused on introducing the planning process and highlighting FEMA-funded successes like flood control and home elevation projects. District D Councilmember spoke directly with the Planning Team about building a more resilient New Orleans. Channel 8 Fox News covered the event, and surveys were available in English, Spanish, and Vietnamese to gather community input.

Public Meeting #2	
Date:	June 25, 2025

[6] A list of full mitigation actions can be viewed in Section 21 of the City of New Orleans Hazard Mitigation Action Plan Update 2026.

Address:	Rosa Keller Library, 4300 S. Broad St, New Orleans, LA 70125
Number of Attendees:	20

The June 25 meeting at Rosa Keller Library centered on storm surge protection and climate adaptation strategies, with an emphasis on green infrastructure and resilience initiatives.

Public Meeting #3	
Date:	July 23, 2025
Address:	Algiers Regional Library, 3014 Holiday Dr. New Orleans, LA 70131
Number of Attendees:	24

During the July 23 meeting at Algiers Regional Library, participants raised strong concerns about drainage, illegal dumping, and canal maintenance, particularly for the De Gaulle canal. Those who attended focused on significant flooding issues in Algiers and emphasized the need to prioritize concerns in General De Gaulle. During the mapping exercise, participants further identified specific locations they viewed as areas of concern.

Public Meeting #4	
Date:	July 24, 2025
Address:	New Orleans East Regional Library, 5641 Read Blvd, New Orleans, LA 70127
Number of Attendees:	15

The July 24 meeting at New Orleans East Regional Library highlighted community-specific projects, including flood mitigation at Joe Brown Park, a living shoreline project, and the expansion of the city's flood sensor network. Participants engaged in a robust discussion about neighborhood flooding, canal usage, and the Bayou Michaud Project. The mapping exercise enhanced residents' awareness and understanding of flood elevations affecting their communities.

Public Surveys

A public participation survey was designed to solicit public feedback as an additional means of engaging the public. Public surveys were shared on social and traditional media outlets and printed copies were made available for residents who may not have access to digital platforms.
Printed copies of surveys were left at the following sites:

- City of New Orleans City Hall
- Local Libraries
- New Orleans Council on Aging
- Vietnamese Initiative and Economic Training *(Vietnamese Community)*
- Song Community Development Corporation *(Vietnamese Community)*
- Coffee Shops
- Ideal Market *(Spanish Community)*
- Familias Unidas En Acción *(Spanish Community)*

Public meetings were equipped with printed survey material, in addition to QR codes for easy access to complete the participation survey online. This approach focused on meeting the public where they are at and creating a welcoming, informative environment. By doing so, the aim was to increase awareness, encourage dialogue, and drive higher levels of participation.

A total of 181 responses were collected throughout the planning process. Results were presented to the Planning Team for consideration to help further identify risk areas and potential mitigation actions. For example, survey results indicate that tropical cyclones and floods are the hazards of highest concern for the public. Constructing, maintaining, and protecting infrastructure as well as assisting vulnerable property owners with resources to protect their properties were the two main actions indicated that the local government should take to mitigate risk to these hazards[7]

Exhibits

Exhibit A: Stakeholders List

The following groups listed in this table represent those agencies from the City of New Orleans Stakeholder Advisory Committee (SAC) that were given an opportunity to participate in the Plan Update. The Stakeholder Advisory Committee consists of 115 agencies and organizations that work closely with the planning area during a natural disaster event. This committee contains valuable insight and expertise to enhance the plan's development and resiliency for the City of New Orlean's planning area. Those that

[7] Public Survey Results can be viewed in Appendix E of the City of New Orleans Hazard Mitigation Action Plan Update 2026.

participated in the planning process and public meetings are identified with a plus symbol (+) next to their stakeholder type.

Agency/Organization	Title	Stakeholder Type
504HealthNet	Executive Director	Community Organization+
Alliance for Affordable Energy	Executive Director	Community Organization
Center for Sustainable Engagement & Development (CSED)	Director	Community Organization
Claiborne Cultural Innovation District (CID)	Program Manager	Community Organization+
Coalition for Coastal Louisiana	Executive Director	Community Organization
Committee for a Better New Orleans	Executive Director	Community Organization
Common Ground Relief	Co-Director	Community Organization
Crescent Care	Chief Operating Officer	Community Organization+
Culture Aid NOLA	Logistics Manager	Community Organization
Data Center	Executive Director	Community Organization
Deep South Center for Environmental Justice (DSCEJ)	Executive Director	Regional and Local Agency+
ECCO Community Center	Founder & Director	Community Organization
Ellis Marsails Center for Music	Director of Development and Communications	Community Organization
Ephesus Church	General Representative	Community Organization
Familias Unidas	Executive Director	Community Organization+
Families Helping Families of Greater New Orleans (GNO)	Community Resource Specialist	Community Organization
Families Helping Families NOLA / People First of NOLA	People First Coordinator	Community Organization
Family Justice Center*	Executive Director	Community Organization
Feed the Second Line	Executive Director	Community Organization
Finance Authority of New Orleans	Chief Executive Officer	Regional and Local Agency

Agency/Organization	Title	Stakeholder Type
The First 72+	Director of Client Services	Community Organization
For The Love of NOLA	Executive Director	Community Organization
Foundation for Louisiana	President & Chief Executive Officer	Community Organization
Franklin Ave Baptist Church	Church Administrator	Community Organization
Freestanding Communities	Executive Director	Community Organization
Friends of Codey's NOLA	Executive Director	Community Organization
Garifuna Organization	General Representative	Community Organization
Glassroots	Resilience Coordinator	Community Organization
Grace at the Greenlight	Executive Director	Community Organization
Greater New Orleans (GNO) Inc.	President & Chief Executive Officer	Regional and Local Agency
Greater New Orleans Association of the Deaf	Vice President	Community Organization
Greater New Orleans (GNO) Caring Collective	Founder and President	Community Organization
Greater New Orleans Foundation	Policy Advisor and Special Assistant	Community Organization+
Greater New Orleans Housing Alliance	Executive Director	Non-Profit / Community Organization+
Greater St. Stephens Baptist Church	Pastor	Community Organization
Hands On New Orleans	Executive Director	Community Organization
Harry Thompson Center (Rebuild Center)	Executive Director	Community Organization
Hispanic Apostolate	General Representative	Community Organization
Hotel Hope	Director of Operations	Community Organization
International Alliance of Theatrical Stage Employees (IATSE)	5th Executive Board Member at Large	Community Organization
Immaculate Conception Parish Ministry	Pastor	Community Organization
Imagine Waterworks	Board Member	Community Organization+

Agency/Organization	Title	Stakeholder Type
Innocence Project New Orleans	Director of Operations & Communications	Community Organization
Institute of Women & Ethnic Studies (IWES)	Co-Executive Director	Community Organization+
Islamic Circle of North America Relief (ICNA) USA	Director	Community Organization
Jefferson Parish Voluntary Organizations Active in Disaster (JP VOAD)	Primary Representative	Community Organization
Jen Care	Cultural Community Specialist	Community Organization
Jewish Family Services	Executive Director	Community Organization
Jewish Federation of Greater New Orleans	Chief Operating Officer	Community Organization
Junior League of New Orleans (JLNO)	President	Community Organization
Language Access Coalition & Latino Forum	Co-Founder and Co-Chair	Community Organization
Lantern Light	Executive Director	Community Organization+
Level Up Campaign	Director of Communications	Community Organization
Lighthouse Louisiana	Orientation and Mobility Specialist	Community Organization
Local Relief	Executive Director	Community Organization+
Louisiana Film Entertainment Association	President	Community Organization
Louisiana Language Access Coalition (LLAC)	Cofounder and Facilitator	Community Organization
Louisiana Organization for Refugees and Immigrants (LORI)	Program and Organizing Manager	State Agency
Louisiana Society for the Prevention of Cruelty to Animals (LASPCA)	Chief Executive Officer	Non-Profit / Community Organization
Louisiana State Animal Response Team (LSART)	Director	State Agency

Agency/Organization	Title	Stakeholder Type
Low Barrier Shelter / Start Corp	Program Director	Community Organization
LowerNine.Org	Executive Director	Community Organization
Mary Queen of Vietnam Church	Deacon	Community Organization
Mission Rebirth	Executive Director	Community Organization
The Music and Culture Coalition of New Orleans	Community Engagement Coordinator	Community Organization
The New Neighbor Project	Executive Director	Community Organization
New Orleans and Company	Vice President of External Affairs and Membership	Community Organization+
New Orleans Black Deaf Advocates	President	Community Organization
New Orleans Council on Aging	Executive Director	Community Organization
New Orleans East Opportunity Center	Director	Community Organization
New Orleans Family Justice Center	Executive Director	Community Organization
New Orleans Jewish Community Center (NOJCC)	Director of Facility Operations	Community Organization
New Orleans Metropolitan Association of Realtors	Chief Executive Officer	Regional and Local Agency
New Orleans Mission	Executive Director	Community Organization
New Orleans Musicians' Clinic & Assistance Foundation (NOMC & AF)	Public Health Director	Community Organization
New Orleans Preservation Coalition / New Orleans Alliance for Response (NOPC / NOAR)	Co-Chair	Community Organization
New Orleans Resources for Independent Living (NORIL)	Assistant Director	Community Organization
New Orleans Women & Children's Shelter	Executive Director	Community Organization

Agency/Organization	Title	Stakeholder Type
New Orleans Workers' Center for Racial Justice	Executive Director	Community Organization
NOELA Community Health Center	Chief Executive Officer	Community Organization
NOLA Tree Project	Chief Administrator	Non-Profit / Community Organization
NOLA Village (Pueblo NOLA)	Executive Director	Community Organization
NOLA Water / The Water Collaborative	Executive Director	Community Organization+
One Voice Nola	Founder	Community Organization
Operation BBQ Relief	Leader of Disaster Response and Regional Directors (AC/RD)	Community Organization+
Our Voice / Nuestra Voz	Executive Director	Community Organization
Ozanam Inn	Chief Executive Officer	Community Organization
Pontchartrain Conservancy	Executive Director	Regional and Local Agency+
Port of New Orleans	Emergency Management Coordinator	Community Organization+
Preservation Resource Center	Executive Director	Non-Profit / Community Organization
Program of All-Inclusive Care for the Elderly (PACE) Greater New Orleans	Senior Life Enrichment Coordinator	Community Organization
Project Lazarus	Executive Director	Community Organization
Propeller	Executive Director	Community Organization
Puentes New Orleans	Program Manager and Instructor	Community Organization
Rebuilding Together	Executive Director	Community Organization
Saint Bernard Project (SBP)	Director of Community Operations	Community Organization+
Song Community Development Corporation (CDC)	Co-Executive Director	Community Organization+

Agency/Organization	Title	Stakeholder Type
Split Second	Program Director	Community Organization
Sprout NOLA	Executive Director	Community Organization
St. George's Episcopal Church	Rector	Community Organization+
Storm Scouts	Emergency Manager	Community Organization+
Team Gleason	Support Services Coordinator	Community Organization
TNOLA Languages	Founder	Community Organization
TNT 360 Mobility	President	Community Organization
Together Gert Town	Chair	Community Organization+
Together New Orleans	Lead Organizer	Community Organization
Travelers Aid New Orleans	Executive Director	Community Organization
Travelers Aid Society	Director of Case Management Services	Community Organization
Union Migrante	Volunteer, Interpreter	Community Organization
United Cajun Navy	Disaster Liaison	Community Organization
United Way of Southeast Louisiana	Chief Strategy Officer	Community Organization+
Unity of Greater New Orleans	Executive Director	Community Organization
Vietnamese American Young Leaders Association (VAYLA)	Executive Director	Community Organization
Viva NOLA	Founder & Director	Community Organization
Voice of the Experienced (VOTE)	Director of Operations	Community Organization

Exhibit B: Target Locations

Community Locations	
Algiers Regional Library	Mid-City Library
Alvar Library	Milton H. Latter Memorial Library
Back of Town Coffee Parlor	New Orleans Food Cooperative
Baldwin and Company	New Orleans Main Public Library

Community Locations	
Central City Library	Nix Library
Cherry Coffee Roasters	Nora Navra Library
Children's Resource Center Library	Norman Mayer Library
Cita Dennis Hubbell Library	PJ'S Coffee
Congregation Coffee	Robert E. Smith Library
Dr. Martin Luther King, Jr. Library	Rose F. Keller Library & Community Center
East New Orleans Regional Library	Sports Drink Café and Comedy Club
Evolve Coffee Shop	The Orange Couch
Gentilly Mail & Copy Center	The Station Coffee Shop & Bakery
Ideal Market	Tout De Suite Café
Jen Care Clinic	Trumpet & Drum Coffee House

Electronic Media	
Nextdoor	New Orleans Agenda

Neighborhood Associations	
Algiers Community Concerns Association	Kingswood Improvement District Association
Algiers Point Association	Lake Carmel Subdivision Improvement District
Audubon Riverside Neighborhood Association	Lake Forest Estates Improvement Association
Aurora Gardens Neighborhood Association	Lake Vista Property Owners Association
Bouligny Improvement Association	Lake Willow Homeowner's Association
Broadmoor Improvement Association	Lakeshore Property Owner's Association
Bunny Friend Neighborhood Association	Lakeview Civic Improvement Association
Bywater Neighborhood Association	Lakewood Property Owners Association
Carrollton Riverbend Neighborhood Association & Carrollton United	Lincoln Beach Neighborhood Association

Neighborhood Associations	
Central Carrollton Association	Lower Garden District Association
Central City Faubourg Livaudais Neighborhood Association	Lower Ninth Ward Neighborhood Association
City Park-Parkview Neighborhood Association	Maple Area Residents Inc (MARI)
Climana Neighborhood Association	Melia Subdivision Association
Country Club Gardens Association Inc.	Mid-City Neighborhood Organization
Delachaise Neighborhood Association	Milneburg Neighborhood Association
DeSaix Area Neighborhood Association	Neighbors First for Bywater
Donna Villa Neighborhood Association	New Marigny Neighborhood Association
East New Orleans Neighborhood Advisory Commission (ENONAC)	Pontchartrain Park Neighborhood Association
Edgewood Heights Neighborhood Association	Pressburg East Homeowners Association
Edgewood Park Neighborhood Association	Rosedale Neighborhood Association
Faubourg Avart Neighborhood Association (FANA)	Saint Claire Gardens Neighborhood Association
Faubourg Delachaise Neighborhood Association	Seabrook Neighborhood Association
Faubourg Homeowners Neighborhood Association	Seventh Ward Neighborhood Association
Faubourg Marengo Neighborhood Association	Sherwood Forest Improvement Association of New Orleans
Faubourg Marigny Improvement Association	Spring Lake Neighborhood Association
Faubourg St. John Neighborhood Association	Together Gert Town Neighborhood Association
Faubourg St. Roch Improvement Association	Uptown Triangle Association
Fontainebleau Improvement Association	Versailles Protective Association
Gentilly Terrace & Gardens	Vieux Carre Property Owners, Residents & Associates
Gentilly Woods Subdivision Association	Villa Sites/South Shores Subdivision

Neighborhood Associations	
Hoffman Triangle Neighborhood Association	Village De L'Est Improvement Association
Hollygrove Neighbors	Walnut Bend Association
Hollygrove-Dixon Neighborhood Association	Warehouse District Neighborhood Association
Irish Channel Neighborhood Association	Willowbrook Neighborhood Association

Non-University Affiliated	
Alpha Kappa Alpha (Alpha Beta Omega)	Kappa Alpha Psi
Alpha Kappa Alpha (Omicron Lambda Omega)	Links Inc. (175 members)
Alpha Phi Alpha	Omega Psi Phi (130 members)
Delta Sigma Theta (Electronic) (700 members)	Phi Beta Sigma
Iota Phi Theta	Sigma Gamma Rho Sorority
Junior League	Zeta Phi Beta

Organizations	
Clover	Family Center of Hope
Familias Unidas Louisiana	New Orleans Council on Aging

Religious Organizations	
Archdiocese	New Home Ministries
Believers Temple of Faith	New Hope Baptist Church
Cathedral-Basilica of Saint Louis King of France	New Light Baptist Churches
Celebration Church	Olive Branch Baptist Church
Christian Fellowship Cathedral Church	One Hope Church
Christian Unity Baptist Church	Our Lady of Guadalupe Church & International Shrine of St. Jude
City Church	Pavillion at Our Lady of Lavang

Religious Organizations	
City of Love	Rock of Ages Baptist Churches
Edgewater Baptist Church	St. Augustine Catholic Church
Family Center of Hope	St. Joseph Catholic Church
First Baptist New Orleans	St. Martin de Porres Parish
First Grace United Methodist	St. Patrick's Church
Greater St. Stephen	St. Peter Claver
Holy Trinity Baptist Church	St. Raymond & St. Leo The Great
Household of Faith	The Light of the World
Lakeview Christian Church	The Upperroom Bible Church
Mary Queen of Angels	Watson Memorial Teaching Ministry
Mount Hermon Baptist Church	

Social Aid and Pleasure Clubs	
Autocrat Social and Pleasure Club	McDonogh 35
	Nord Center Main Campus
Masonic Temple	Zulu Social Aid and Pleasure Club

Exhibit C: Sample Surveys

Social Media Graphic for Online Survey – NOLA Ready



Printed Survey – English

CITY OF NEW ORLEANS

HAZARD MITIGATION PLAN UPDATE
PUBLIC SURVEY

BACKGROUND

The City of New Orleans is partnering with the Sewerage and Water Board of New Orleans (SWBNO), the Housing Authority of New Orleans (HANO), the New Orleans Redevelopment Authority (NORA), Tulane University, and Loyola University to update the New Orleans Hazard Mitigation Action Plan (HMAP). This update will focus on addressing risks that impact the region. The aim of the update is to reduce or remove the long-term dangers to people and property from known hazards through effective actions and strategies. Public input will help the planning team identify potential hazards for residents and suggest ways to lessen their impact.

ELECTRONIC SURVEY

Scan code to take survey

https://www.surveymonkey.com/r/NOLAHMAP

CONTACT

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(504) 658-8740
afeldbaum@nola.gov

SURVEY

1. I am a .....

- ☐ Full time resident of New Orleans
- ☐ Full time resident of the region
- ☐ Part time resident
- ☐ Visitor

2. Please select what best applies to you:

- ☐ I own my home
- ☐ I rent my home
- ☐ I live in University or Student Housing
- ☐ I am currently unhoused
- ☐ Other / I would prefer not to say

HAZARD MITIGATION PLAN UPDATE PUBLIC SURVEY

SURVEY (CONTINUED)

3. I am a ....

- ☐ Local business owner
- ☐ Self-employed
- ☐ A manager
- ☐ An employee
- ☐ A student
- ☐ Retired
- ☐ Unemployed

4. If organization/agency please provide the name.

5. In what zip code do you reside?

6. Which of the hazards listed below are you most affected or threatened by? You may select multiple hazards.

- ☐ Coastal Erosion /Sea Level Rise
- ☐ Dam/Levee Failure
- ☐ Drought
- ☐ Extreme Heat
- ☐ Flood
- ☐ Hail
- ☐ Hurricane / Tropical Storm
- ☐ Lightning
- ☐ Land Subsidence (i.e. sinking land mass, sink hole, etc.)
- ☐ Thunderstorm Wind
- ☐ Tornado
- ☐ Wildfire
- ☐ Winter Storm
- ☐ Hazardous Materials
- ☐ Infectious Disease
- ☐ Terrorism

HAZARD MITIGATION PLAN UPDATE PUBLIC SURVEY

SURVEY (CONTINUED)

7. Are there any natural or human-caused hazards not listed above that you think can have a wide-scale impact on your community? If so, please list them here.

8. Do you know what flood zone you live in?

9. Do you have flood insurance?

- ☐ Yes
- ☐ No

10. Would you support regulation (restrictions) on land uses within known high hazard areas?

- ☐ Yes
- ☐ No

11. Have you taken any actions to make your home or neighborhood more resistant to hazards? If yes, please check the boxes below that apply.

- ☐ Preparedness (i.e. generators, to-go kit, fire extinguishers, boarding windows, sandbags, etc)
- ☐ Home/Commercial Retrofitting (i.e., wind-resistant shingles/windows, home elevation, french drains, home weatherization, etc.)
- ☐ Nature-Based Solutions (i.e., tree trimming, removal of debris, rain garden, permeable pavers, etc.)
- ☐ Purchased flood insurance for my home
- ☐ No

HAZARD MITIGATION PLAN UPDATE PUBLIC SURVEY

SURVEY (CONTINUED)

12. If you own rental property, have you taken any actions to make the property more resistant to hazards? If yes, please check the boxes below that apply.

- ☐ Preparedness (i.e. generators, to-go kit, fire extinguishers, boarding windows, sandbags, etc)
- ☐ Home/Commercial Retrofitting (i.e., wind-resistant shingles/windows, home elevation, french drains, home weatherization, etc.)
- ☐ Nature-Based Solutions (i.e., tree trimming, removal of debris, rain garden, permeable pavers, etc.)
- ☐ Purchased flood insurance for my home
- ☐ No

13. Please select the top five steps your local government should prioritize to reduce or eliminate the risk of future hazards in the planning area:

- ☐ Assist vulnerable property owners with resources to protect their properties
- ☐ Implement an education program for property owners to minimize damages
- ☐ Construct, maintain, or retrofit community infrastructure (e.g. roadways, drainage systems, etc.)
- ☐ Protect and strengthen critical facilities (e.g. transportation, hospitals, schools, fire stations, community centers, etc.)
- ☐ Protect and improve reliability of utilities
- ☐ Strengthen building codes and laws to improve standards for development in high hazard areas
- ☐ Restrict/Prevent development in high hazard areas
- ☐ Protect historical and cultural landmarks
- ☐ Construct safe rooms and shelters for use during a hazard events.
- ☐ Preserve or restore natural systems (e.g. floodplain protection, coastal erosion, habitat preservation, etc.)
- ☐ Other (please specify)

14. Do you currently receive text alerts from NOLA Ready? If not, where do you typically get emergency information from?

☐ Yes ☐ No ☐ Other (please specify)

Printed Survey – Spanish

CITY OF NEW ORLEANS

ACTUALIZACIÓN DEL PLAN DE MITIGACIÓN DE RIESGOS ENCUESTA PÚBLICA

FONDO

La Ciudad de Nueva Orleans se ha asociado con la Junta de Agua y Alcantarillado de Nueva Orleans (SWBNO), la Autoridad de Vivienda de Nueva Orleans (HANO), la Autoridad de Reurbanización de Nueva Orleans (NORA), la Universidad de Tulane y la Universidad de Loyola para actualizar el Plan de Acción para la Mitigación de Riesgos de Nueva Orleans (HMAP). Esta actualización se centrará en abordar los riesgos que afectan a la región. El objetivo es reducir o eliminar los peligros a largo plazo para las personas y las propiedades derivados de los peligros conocidos mediante acciones y estrategias eficaces. La participación ciudadana ayudará al equipo de planificación a identificar los posibles riesgos para los residentes y a sugerir maneras de mitigar su impacto.

ENCUESTA ELECTRÓNICA

Escanee el código para realizar la encuesta

https://www.surveymonkey.com/r/NOLAHMAP

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ENCUESTA

1. Yo soy un.....

- ☐ Residente a tiempo completo de Nueva Orleans
- ☐ Residente a tiempo completo de la región.
- ☐ Residente a tiempo parcial
- ☐ Visitante

2. Seleccione la opción que mejor se aplique a usted:

- ☐ Soy dueño de mi casa
- ☐ Alquilo mi casa
- ☐ Vivo en una residencia universitaria o de estudiantes.
- ☐ Actualmente no tengo vivienda
- ☐ Otro/Preferiría no decirlo

Printed Survey – Vietnamese

CITY OF NEW ORLEANS

CẬP NHẬT KẾ HOẠCH GIẢM THIỂU NGUY CƠ KHẢO SÁT CÔNG KHAI

LÝ LỊCH

Thành phố New Orleans đang hợp tác với Ban quản lý nước và cống rãnh của New Orleans (SWBNO), Cơ quan nhà ở của New Orleans (HANO), Cơ quan tái phát triển New Orleans (NORA), Đại học Tulane và Đại học Loyola để cập nhật Kế hoạch hành động giảm thiểu nguy cơ của New Orleans (HMAP). Bản cập nhật này sẽ tập trung vào việc giải quyết các rủi ro tác động đến khu vực. Mục đích của bản cập nhật là giảm hoặc loại bỏ các mối nguy hiểm lâu dài đối với con người và tài sản từ các mối nguy hiểm đã biết thông qua các hành động và chiến lược hiệu quả. Ý kiến đóng góp của công chúng sẽ giúp nhóm lập kế hoạch xác định các mối nguy hiểm tiềm ẩn đối với cư dân và đề xuất các cách để giảm thiểu tác động của chúng.

KHẢO SÁT ĐIỆN TỬ

Quét mã để thực hiện khảo sát

https://www.surveymonkey.com/r/NOLAHMAP

LIÊN HỆ

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Thành phố New Orleans
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afeldbaum@nola.gov

SỰ KHẢO SÁT

1. Tôi là một .....

- ☐ Cư dân toàn thời gian của New Orleans
- ☐ Cư dân toàn thời gian của khu vực
- ☐ Cư dân bán thời gian
- ☐ Khách thăm

2. Vui lòng chọn những gì phù hợp nhất với bạn:

- ☐ Tôi sở hữu ngôi nhà của tôi
- ☐ Tôi cho thuê nhà của tôi
- ☐ Tôi sống ở trường đại học hoặc nhà ở sinh viên
- ☐ Hiện tại tôi đang vô gia cư
- ☐ Khác / Tôi không muốn nói

Exhibit D: Sample Flyers

Public Meeting #1 Flyer – English

CITY OF NEW ORLEANS

ATTEND A MEETING

April 23, 2025
5:00 PM - 6:30 PM

Nora Navra Library
1902 St Bernard Ave
New Orleans, LA 70116

SCAN TO TAKE SURVEY

https://www.surveymonkey.com/r/NOLAHMAP

BE READY NOLA

Protect and prepare yourself and your family in case of emergency. Stay connected by visiting https://ready.nola.gov/hazard-mitigation/home/

CITY OF NEW ORLEANS HAZARD MITIGATION ACTION PLAN UPDATE

Be Part of a Safer and Resillient New Orleans

The City of New Orleans is partnering with the Sewerage and Water Board of New Orleans (SWBNO), the Housing Authority of New Orleans (HANO), the New Orleans Redevelopment Authority (NORA), Tulane University, and Loyola University to update the New Orleans Hazard Mitigation Action Plan (HMAP). This update will focus on addressing risks that impact the region. The aim of the update is to reduce or remove the long-term dangers to people and property from known hazards through effective actions and strategies. The city will host meetings where public input will help the planning team identify potential hazards for residents and suggest ways to lessen their impact.



QUESTIONS? CONTACT:

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sodonnell@h2opartnersusa.com

Austin Feldbaum
Hazard Mitigation Director
City of New Orleans
(504) 658-8740
afeldbaum@nola.gov

Public Meeting #1 Flyer – Spanish

CITY OF NEW ORLEANS

ASISTIR A UNA REUNIÓN

23 de abril de 2025
17:00 - 18:30

Biblioteca Nora Navra
1902 St Bernard Ave
Nueva Orleans, LA 70116

ESCANEAR PARA REALIZAR LA ENCUESTA

https://www.surveymonkey.com/r/NOLAHMAP

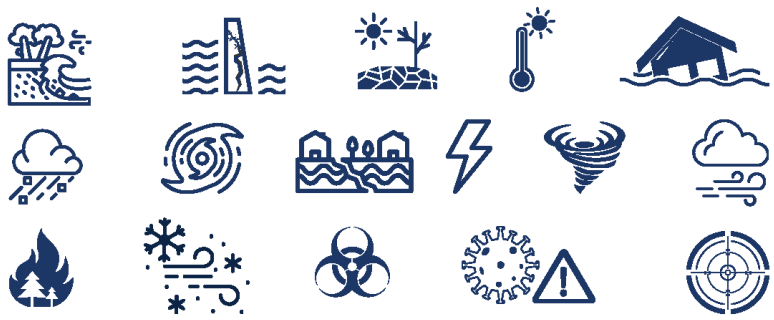
ESTÉ PREPARADO NOLA

Protéjase y prepárese, junto con su familia, en caso de emergencia. Manténgase informado visitando https://ready.nola.gov/hazard-mitigation/home/

ACTUALIZACIÓN DEL PLAN DE ACCIÓN PARA LA MITIGACIÓN DE RIESGOS DE LA CIUDAD DE NUEVA ORLEANS

Sea parte de una Nueva Orleans más segura y resiliente

La Ciudad de Nueva Orleans se ha asociado con la Junta de Agua y Alcantarillado de Nueva Orleans (SWBNO), la Autoridad de Vivienda de Nueva Orleans (HANO), la Autoridad de Reurbanización de Nueva Orleans (NORA), la Universidad de Tulane y la Universidad de Loyola para actualizar el Plan de Acción para la Mitigación de Riesgos de Nueva Orleans (HMAP). Esta actualización se centrará en abordar los riesgos que afectan a la región. El objetivo es reducir o eliminar los peligros a largo plazo para las personas y las propiedades derivados de los peligros conocidos mediante acciones y estrategias eficaces. La ciudad organizará reuniones donde la participación ciudadana ayudará al equipo de planificación a identificar los posibles riesgos para los residentes y a sugerir maneras de mitigar su impacto.



¿PREGUNTAS? CONTACTO:

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Ciudad de Nueva Orleans
(504) 658-8740
afeldbaum@nola.gov

Public Meeting #1 Flyer – Vietnamese

CITY OF NEW ORLEANS

THAM DỰ CUỘC HỌP

Ngày 23 tháng 4 năm 2025
5:00 Chiều - 6:30 Chiều

Thư viện Nora Navra
1902 Đường St Bernard
New Orleans, LA 70116

QUÉT ĐỂ KHẢO SÁT

https://www.surveymonkey.com/r/NOLAHMAP

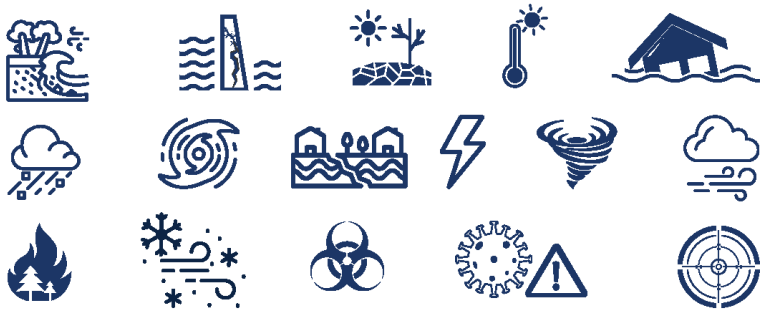
HÃY SẴN SÀNG NOLA

Bảo vệ và chuẩn bị cho bản thân và gia đình bạn trong trường hợp khẩn cấp. Hãy kết nối bằng cách truy cập https://ready.nola.gov/hazard-mitigation/home/

CẬP NHẬT KẾ HOẠCH HÀNH ĐỘNG GIẢM THIỂU NGUY CƠ CỦA THÀNH PHỐ NEW ORLEANS

Hãy là một phần của một New Orleans an toàn và bền vững hơn

Thành phố New Orleans đang hợp tác với Ban quản lý nước và cống rãnh của New Orleans (SWBNO), Cơ quan nhà ở của New Orleans (HANO), Cơ quan tái phát triển New Orleans (NORA), Đại học Tulane và Đại học Loyola để cập nhật Kế hoạch hành động giảm thiểu nguy cơ của New Orleans (HMAP). Bản cập nhật này sẽ tập trung vào việc giải quyết các rủi ro tác động đến khu vực. Mục đích của bản cập nhật là giảm hoặc loại bỏ các mối nguy hiểm lâu dài đối với con người và tài sản từ các mối nguy hiểm đã biết thông qua các hành động và chiến lược hiệu quả. Thành phố sẽ tổ chức các cuộc họp, nơi mà ý kiến đóng góp của công chúng sẽ giúp nhóm lập kế hoạch xác định các mối nguy hiểm tiềm ẩn đối với cư dân và đề xuất các cách để giảm thiểu tác động của chúng.

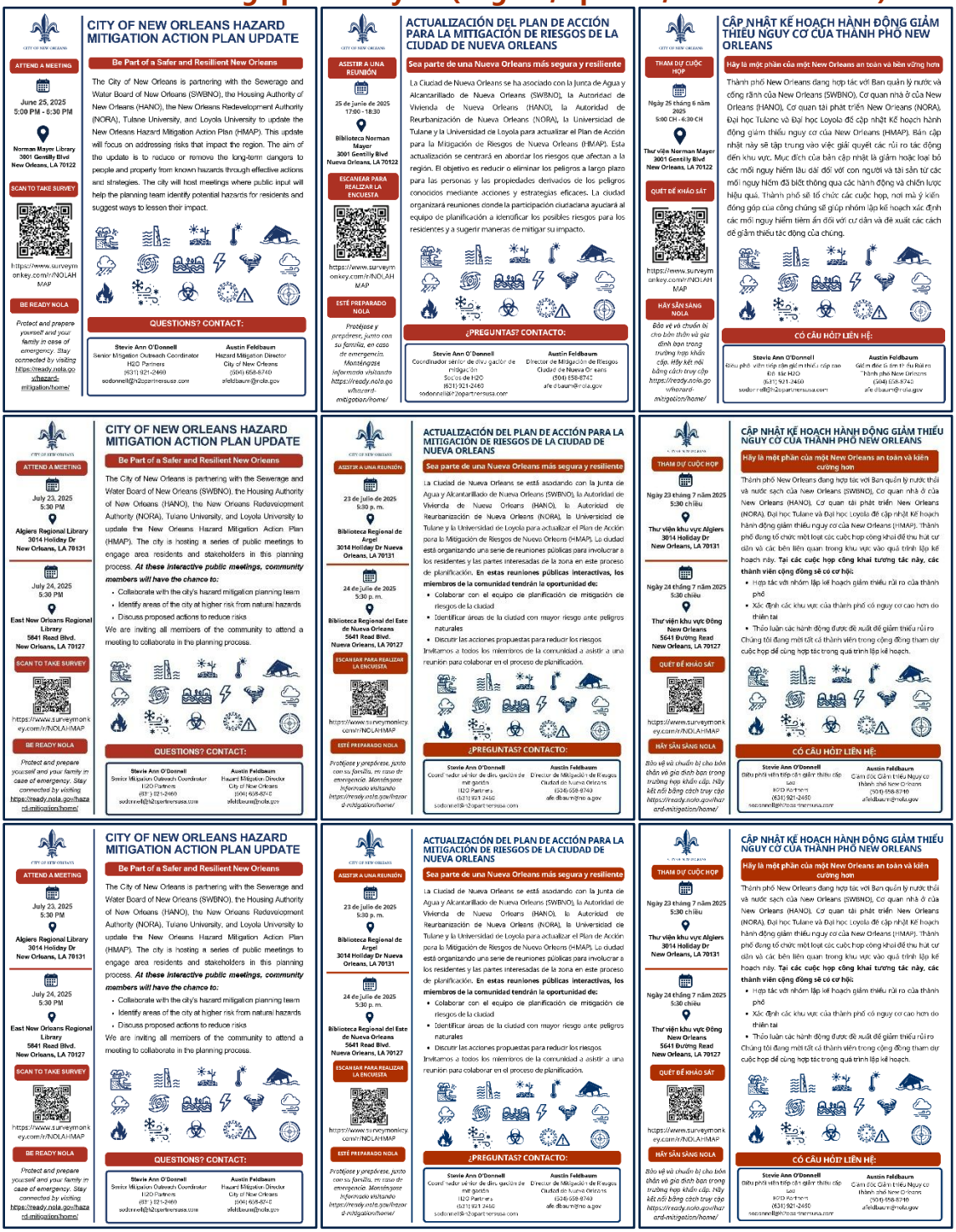


CÓ CÂU HỎI? LIÊN HỆ:

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Public Meeting Specific Flyers (English, Spanish, and Vietnamese)



CITY OF NEW ORLEANS HAZARD MITIGATION ACTION PLAN UPDATE

ATTEND A MEETING

Be Part of a Safer and Resilient New Orleans

June 25, 2025
5:00 PM - 6:30 PM

Norman Mayer Library
3001 Gentilly Blvd
New Orleans, LA 70122

SCAN TO TAKE SURVEY

https://www.surveymonkey.com/r/NOLAHMAP

BE READY NOLA

Protect and prepare yourself and your family in case of emergency. Stay connected by visiting https://ready.nola.gov/hazard-mitigation/home/

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ACTUALIZACIÓN DEL PLAN DE ACCIÓN PARA LA MITIGACIÓN DE RIESGOS DE LA CIUDAD DE NUEVA ORLEANS

ASISTIR A UNA REUNIÓN

Sea parte de una Nueva Orleans más segura y resiliente

25 de junio de 2025
17:00 - 18:30

Biblioteca Norman Mayer
3001 Gentilly Blvd
Nueva Orleans, LA 70122

ESCANEAR PARA REALIZAR LA ENCUESTA

https://www.surveymonkey.com/r/NOLAHMAP

ESTÉ PREPARADO NOLA

Prodígase y prepárese, junto con su familia, en caso de emergencia. Manténgase informado visitando https://ready.nola.gov/hazard-mitigation/home/

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CẬP NHẬT KẾ HOẠCH HÀNH ĐỘNG GIẢM THIỂU NGUY CƠ CỦA THÀNH PHỐ NEW ORLEANS

THAM DỰ CUỘC HỌP

Hãy là một phần của một New Orleans an toàn và bền vững hơn

Ngày 25 tháng 6 năm 2025
5:00 CH - 6:30 CH

Thư viện Norman Mayer
3001 Gentilly Blvd
New Orleans, LA 70122

QUÉT ĐỂ KHẢO SÁT

https://www.surveymonkey.com/r/NOLAHMAP

HÃY SẴN SÀNG NOLA

Bảo vệ và chuẩn bị cho bản thân và gia đình bạn trong trường hợp khẩn cấp. Hãy kết nối bằng cách truy cập https://ready.nola.gov/hazard-mitigation/home/

Thành phố New Orleans đang hợp tác với Ban quản lý nước và cống rãnh của New Orleans (SWBNO), Cơ quan nhà ở của New Orleans (HANO), Cơ quan tái phát triển New Orleans (NORA), Đại học Tulane và Đại học Loyola để cập nhật Kế hoạch hành động giảm thiểu nguy cơ của New Orleans (HMAP). Bản cập nhật này sẽ tập trung vào việc giải quyết các rủi ro tác động đến khu vực. Mục đích của bản cập nhật là giảm hoặc loại bỏ các mối nguy hiểm lâu dài đối với con người và tài sản từ các mối nguy hiểm đã biết thông qua các hành động và chiến lược hiệu quả. Thành phố sẽ tổ chức các cuộc họp, nơi mà ý kiến đóng góp của công chúng sẽ giúp nhóm lập kế hoạch xác định các mối nguy hiểm tiềm ẩn đối với cư dân và đề xuất các cách để giảm thiểu tác động của chúng.

CÓ CÂU HỎI? LIÊN HỆ:

Stevie Ann O'Donnell
Điều phối viên tiếp cận giảm thiểu rủi ro
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sodonnell@h2opartnersusa.com

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(504) 658-8740
afeldbaum@nola.gov

CITY OF NEW ORLEANS HAZARD MITIGATION ACTION PLAN UPDATE

ATTEND A MEETING

Be Part of a Safer and Resilient New Orleans

July 23, 2025
5:30 PM

Algiers Regional Library
3014 Holiday Dr
New Orleans, LA 70131

July 24, 2025
5:30 PM

East New Orleans Regional Library
5641 Read Blvd.
New Orleans, LA 70127

SCAN TO TAKE SURVEY

https://www.surveymonkey.com/r/NOLAHMAP

BE READY NOLA

Protect and prepare yourself and your family in case of emergency. Stay connected by visiting https://ready.nola.gov/hazard-mitigation/home/

The City of New Orleans is partnering with the Sewerage and Water Board of New Orleans (SWBNO), the Housing Authority of New Orleans (HANO), the New Orleans Redevelopment Authority (NORA), Tulane University, and Loyola University to update the New Orleans Hazard Mitigation Action Plan (HMAP). The city is hosting a series of public meetings to engage area residents and stakeholders in this planning process. ***At these interactive public meetings, community members will have the chance to:***

- Collaborate with the city's hazard mitigation planning team
- Identify areas of the city at higher risk from natural hazards
- Discuss proposed actions to reduce risks

We are inviting all members of the community to attend a meeting to collaborate in the planning process.

QUESTIONS? CONTACT:

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Austin Feldbaum
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City of New Orleans
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afeldbaum@nola.gov

ACTUALIZACIÓN DEL PLAN DE ACCIÓN PARA LA MITIGACIÓN DE RIESGOS DE LA CIUDAD DE NUEVA ORLEANS

ASISTIR A UNA REUNIÓN

Sea parte de una Nueva Orleans más segura y resiliente

23 de julio de 2025
5:30 p. m.

Biblioteca Regional de Argel
3014 Holiday Dr Nueva Orleans, LA 70131

24 de julio de 2025
5:30 p. m.

Biblioteca Regional del Este de Nueva Orleans
5641 Read Blvd.
Nueva Orleans, LA 70127

ESCANEAR PARA REALIZAR LA ENCUESTA

https://www.surveymonkey.com/r/NOLAHMAP

ESTÉ PREPARADO NOLA

Prodígase y prepárese, junto con su familia, en caso de emergencia. Manténgase informado visitando https://ready.nola.gov/hazard-mitigation/home/

La Ciudad de Nueva Orleans se está asociando con la Junta de Agua y Alcantarillado de Nueva Orleans (SWBNO), la Autoridad de Vivienda de Nueva Orleans (HANO), la Autoridad de Reurbanización de Nueva Orleans (NORA), la Universidad de Tulane y la Universidad de Loyola para actualizar el Plan de Acción para la Mitigación de Riesgos de Nueva Orleans (HMAP). La ciudad está organizando una serie de reuniones públicas para involucrar a los residentes y las partes interesadas de la zona en este proceso de planificación. **En estas reuniones públicas interactivas, los miembros de la comunidad tendrán la oportunidad de:**

- Colaborar con el equipo de planificación de mitigación de riesgos de la ciudad
- Identificar áreas de la ciudad con mayor riesgo ante peligros naturales
- Discutir las acciones propuestas para reducir los riesgos

Invitamos a todos los miembros de la comunidad a asistir a una reunión para colaborar en el proceso de planificación.

¿PREGUNTAS? CONTACTO:

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sodonnell@h2opartnersusa.com

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Director de Mitigación de Riesgos
Ciudad de Nueva Orleans
(504) 658-8740
afeldbaum@nola.gov

CẬP NHẬT KẾ HOẠCH HÀNH ĐỘNG GIẢM THIỂU NGUY CƠ CỦA THÀNH PHỐ NEW ORLEANS

THAM DỰ CUỘC HỌP

Hãy là một phần của một New Orleans an toàn và kiên cường hơn

Ngày 23 tháng 7 năm 2025
5:30 chiều

Thư viện khu vực Algiers
3014 Holiday Dr
New Orleans, LA 70131

Ngày 24 tháng 7 năm 2025
5:30 chiều

Thư viện khu vực Đông New Orleans
5641 Đường Read
New Orleans, LA 70127

QUÉT ĐỂ KHẢO SÁT

https://www.surveymonkey.com/r/NOLAHMAP

HÃY SẴN SÀNG NOLA

Bảo vệ và chuẩn bị cho bản thân và gia đình bạn trong trường hợp khẩn cấp. Hãy kết nối bằng cách truy cập https://ready.nola.gov/hazard-mitigation/home/

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- Hợp tác với nhóm lập kế hoạch giảm thiểu rủi ro của thành phố
- Xác định các khu vực của thành phố có nguy cơ cao hơn do thiên tai
- Thảo luận các hành động được đề xuất để giảm thiểu rủi ro

Chúng tôi đang mời tất cả thành viên trong cộng đồng tham dự cuộc họp để cùng hợp tác trong quá trình lập kế hoạch.

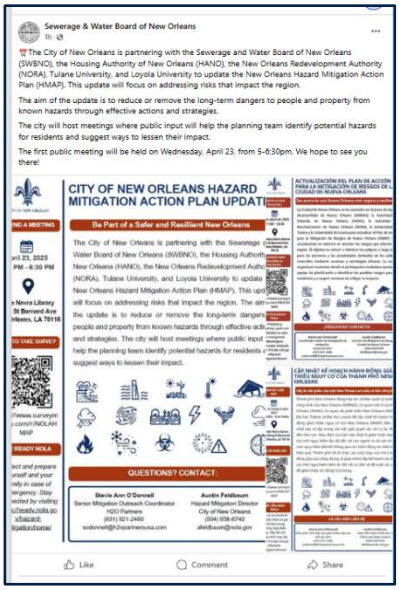
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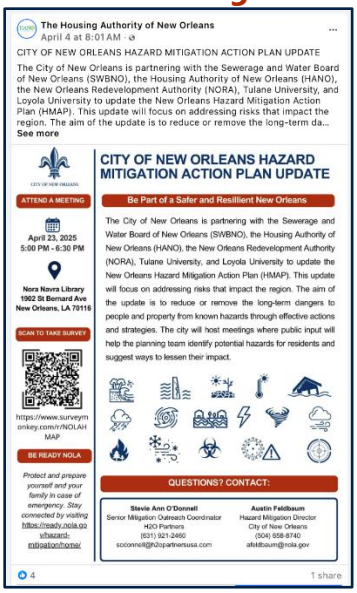
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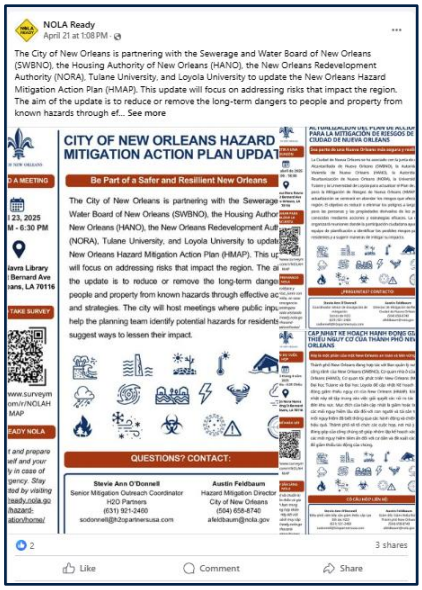
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Exhibit E: Sample Public Engagement and Outreach Activities

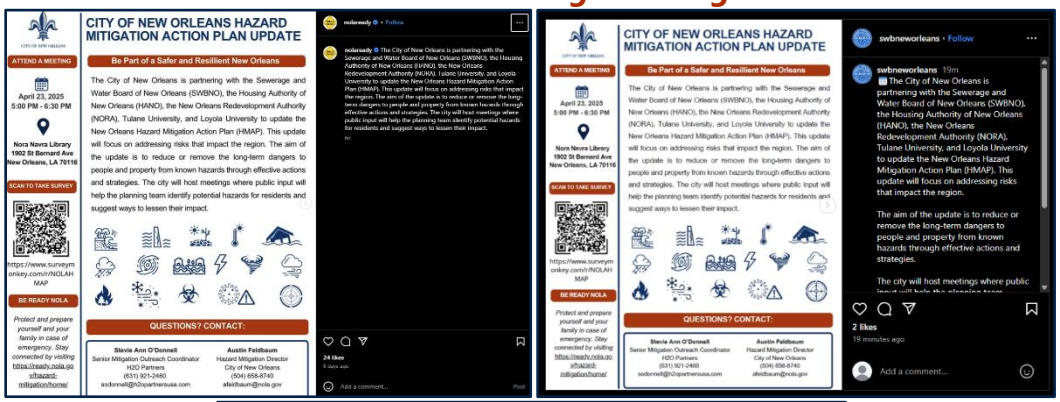
Social Media Postings – Facebook

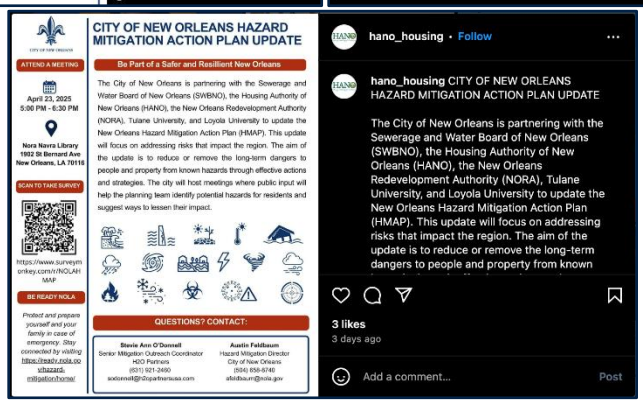






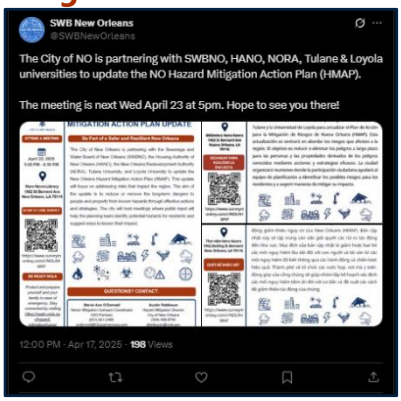
Social Media Postings – Instagram



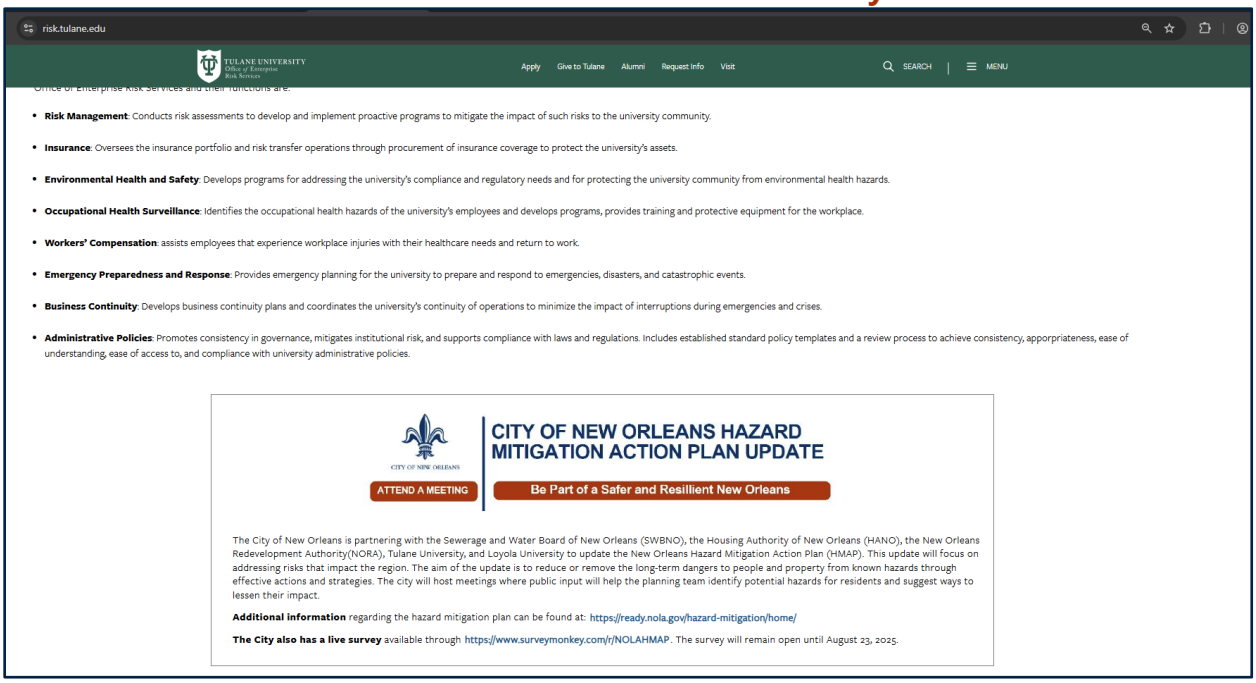


Social Media Postings – X

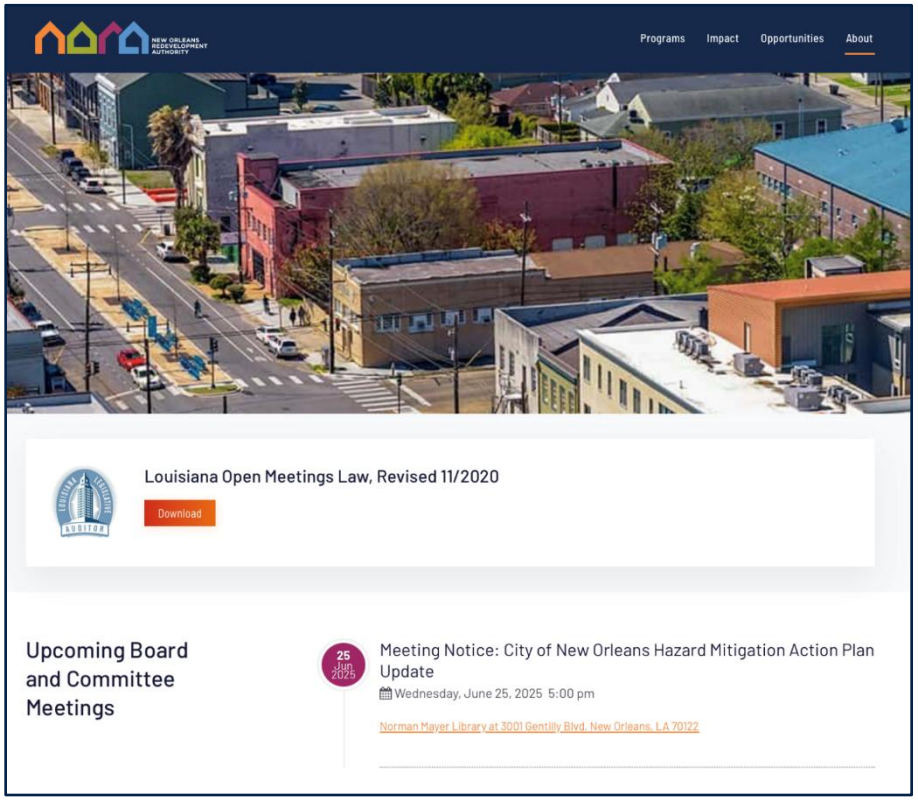




Public Website – Tulane University

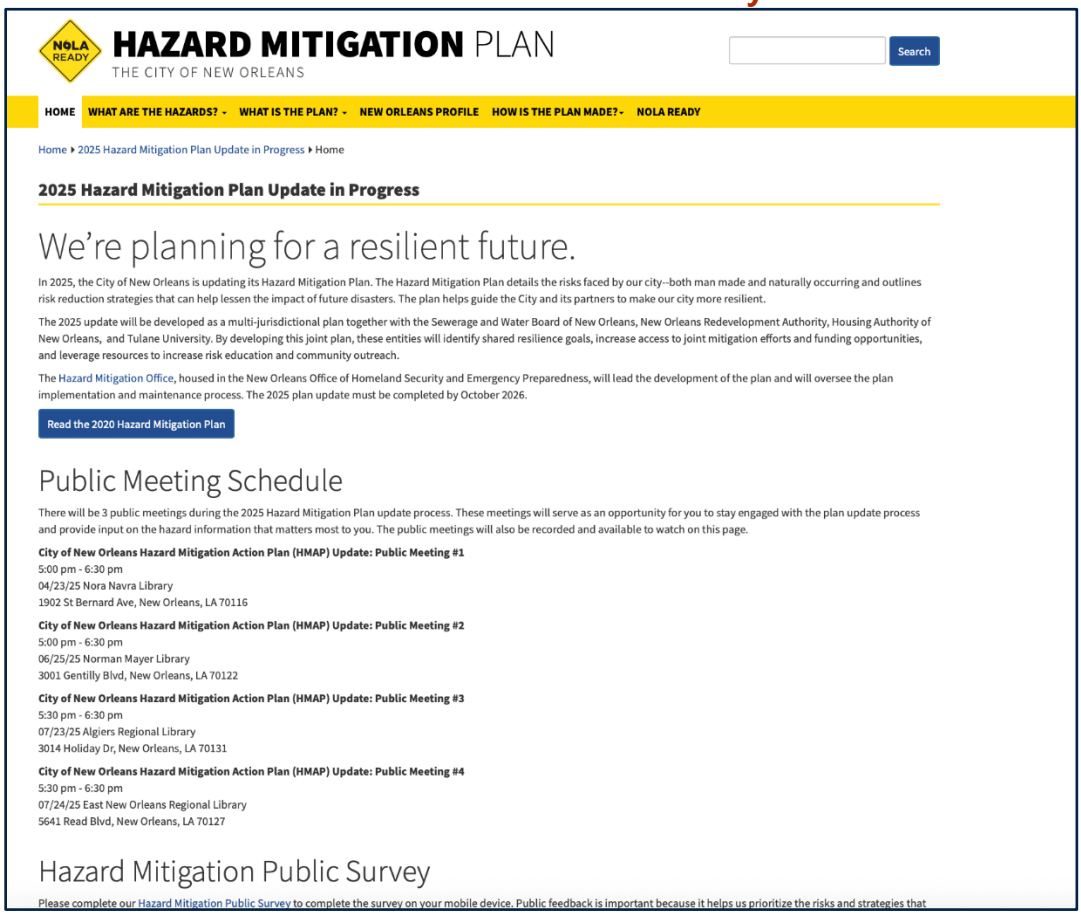


Public Website – NORA





Public Website – NOLA Ready



NOLA READY

HAZARD MITIGATION PLAN

THE CITY OF NEW ORLEANS

Search

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2025 Hazard Mitigation Plan Update in Progress

We're planning for a resilient future.

In 2025, the City of New Orleans is updating its Hazard Mitigation Plan. The Hazard Mitigation Plan details the risks faced by our city--both man made and naturally occurring and outlines risk reduction strategies that can help lessen the impact of future disasters. The plan helps guide the City and its partners to make our city more resilient.

The 2025 update will be developed as a multi-jurisdictional plan together with the Sewerage and Water Board of New Orleans, New Orleans Redevelopment Authority, Housing Authority of New Orleans, and Tulane University. By developing this joint plan, these entities will identify shared resilience goals, increase access to joint mitigation efforts and funding opportunities, and leverage resources to increase risk education and community outreach.

The Hazard Mitigation Office, housed in the New Orleans Office of Homeland Security and Emergency Preparedness, will lead the development of the plan and will oversee the plan implementation and maintenance process. The 2025 plan update must be completed by October 2026.

Read the 2020 Hazard Mitigation Plan

Public Meeting Schedule

There will be 3 public meetings during the 2025 Hazard Mitigation Plan update process. These meetings will serve as an opportunity for you to stay engaged with the plan update process and provide input on the hazard information that matters most to you. The public meetings will also be recorded and available to watch on this page.

City of New Orleans Hazard Mitigation Action Plan (HMAP) Update: Public Meeting #1
5:00 pm - 6:30 pm
04/23/25 Nora Navra Library
1902 St Bernard Ave, New Orleans, LA 70116

City of New Orleans Hazard Mitigation Action Plan (HMAP) Update: Public Meeting #2
5:00 pm - 6:30 pm
06/25/25 Norman Mayer Library
3001 Gentilly Blvd, New Orleans, LA 70122

City of New Orleans Hazard Mitigation Action Plan (HMAP) Update: Public Meeting #3
5:30 pm - 6:30 pm
07/23/25 Algiers Regional Library
3014 Holiday Dr, New Orleans, LA 70131

City of New Orleans Hazard Mitigation Action Plan (HMAP) Update: Public Meeting #4
5:30 pm - 6:30 pm
07/24/25 East New Orleans Regional Library
5641 Read Blvd, New Orleans, LA 70127

Hazard Mitigation Public Survey

Please complete our Hazard Mitigation Public Survey to complete the survey on your mobile device. Public feedback is important because it helps us prioritize the risks and strategies that

NOLA Ready – Tabling at Dillard University's 17th Annual Housing, Health and Community Resources Conference Workshop





Posting Flyers



















Email Communications – Mayor's Neighborhood Engagement Office Newsletter

Guiding the Future of Mitigation Projects through NOHSEP's Hazard Mitigation Plan!

Hazard Mitigation Plan

The City of New Orleans is partnering with the Sewerage and Water Board of New Orleans (SWBNO), the Housing Authority of New Orleans (HANO), the New Orleans

Redevelopment Authority (NORA), Tulane University, and Loyola University to update the New Orleans Hazard Mitigation Action Plan (HMAP). This update will focus on addressing risks that impact the region. The aim of the update is to reduce or remove the long-term dangers to people and property from known hazards through effective actions and strategies. Public input will help the planning team identify potential hazards for residents and suggest ways to lessen their impact.

Please Click Here to Take the Survey!

Exhibit F: Public Meeting Summaries

Nora Navra Library – Public Meeting #1

Date: April 23, 2025
Time: 5:00 – 6:30 p.m.
Address: 1902 St. Bernard Ave
New Orleans, LA 70116

Number of Registered Attendees: 17


CITY OF NEW ORLEANS

ATTEND A MEETING

April 23, 2025
5:00 PM - 6:30 PM

Nora Navra Library
1902 St Bernard Ave
New Orleans, LA 70116

SCAN TO TAKE SURVEY

https://www.surveymonkey.com/r/NOLAHMAP

BE READY NOLA

Protect and prepare yourself and your family in case of emergency. Stay connected by visiting https://ready.nola.gov/hazard-mitigation/home/

CITY OF NEW ORLEANS HAZARD MITIGATION ACTION PLAN UPDATE

Be Part of a Safer and Resillient New Orleans

The City of New Orleans is partnering with the Sewerage and Water Board of New Orleans (SWBNO), the Housing Authority of New Orleans (HANO), the New Orleans Redevelopment Authority (NORA), Tulane University, and Loyola University to update the New Orleans Hazard Mitigation Action Plan (HMAP). This update will focus on addressing risks that impact the region. The aim of the update is to reduce or remove the long-term dangers to people and property from known hazards through effective actions and strategies. The city will host meetings where public input will help the planning team identify potential hazards for residents and suggest ways to lessen their impact.

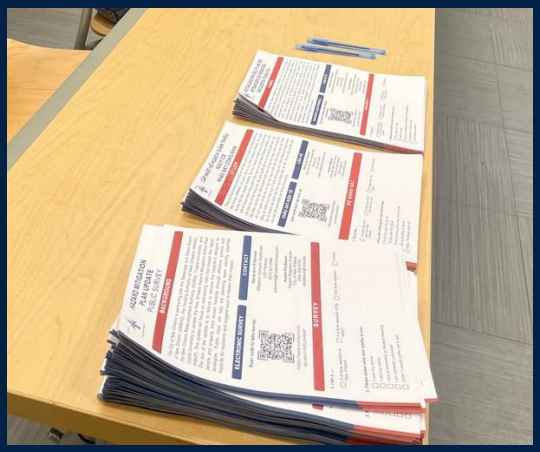
QUESTIONS? CONTACT:

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At the April 23 public meeting at Nora Navra Library, Councilmember Eugene Green spoke with Hazard Mitigation Director Austin Feldbaum about building a more resilient New Orleans. Channel 8 Fox News covered the event, and surveys were available in English, Spanish, and Vietnamese to gather community input.







Nora Navra Library – Public Meeting #1

Hazard Mitigation Planning Meeting
April 23, 2025
5:00 – 6:30 p.m.

The meeting discussed FEMA's hazard mitigation planning process for Orleans Parish. The process involves four phases: identifying the planning area, conducting a risk assessment, developing mitigation strategies, and implementing the plan. Key points addressed the inclusion of all natural hazards, the participation of special districts and universities, and the importance of community input. The plan aims to leverage FEMA's Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance (FMA) grants, which have funded projects like $30 million for minor flood control and $7 million for private structure elevation. Public engagement is encouraged through surveys and meetings.

Action Items

- Distribute the survey to the community and collect responses.
- Schedule and hold the upcoming public meetings in June and July.
- Incorporate public feedback into the draft mitigation plan.
- Submit the final mitigation plan to the state for review in November.
- Make a public copy of the final plan available in December.

FEMA's Evolution and Community Hazard Planning

- The speaker explains the evolution of FEMA's hazard ranking program, emphasizing the shift to include all natural hazards impacting the community.
- The state plan must address all potential hazards, with local communities reducing irrelevant ones.
- Three additional human-caused hazards (hazardous materials, infectious disease, and terrorism) were included in the community plan due to local priorities.

- The planning process is divided into four phases, with the current phase focusing on risk assessment.

Identifying Planning Areas and Participants

- The planning area includes the City of New Orleans and three special districts, with two universities participating.
- Special districts and universities participate to simplify funding applications for their mitigation projects.
- Capability assessments help identify gaps and build partnerships to fill those gaps.
- The second phase involves a risk assessment, where historical events and future risks are analyzed.

Developing Mitigation Strategies and Goals

- Phase three involves developing strategies, goals, and objectives to reduce risks, with projects identified later in the summer.
- The plan is a tool for sound decision-making when funding becomes available, not a mandate for immediate implementation.
- The final phase focuses on implementing the plan, with annual evaluations over a five-year period.
- Communities must provide status updates on implemented projects at the end of the five years.

Community Involvement and Data Collection

- Contractors conduct research and gather data, with community input critical for the planning process.
- Participants are responsible for attending meetings, providing additional data, and facilitating mitigation strategies.
- FEMA requires updates to the plan if new projects are identified when funding becomes available.
- Public engagement and adoption of the plan are essential for the process.

Mitigation Goals and Objectives

- Mitigation goals are developed based on the former plan, with broad ideas subject to change.
- The planning process aims to identify mitigation solutions to address recurring issues and damages.
- The stringent planning process helps leverage FEMA funding for mitigation projects.
- Four FEMA grant programs, including the Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance (FMA), are relevant to the city of New Orleans.

FEMA Grant Programs and Eligibility

- HMGP funds are triggered by a disaster, with a portion of disaster funds allocated to HMGP.
- FMA aims to reduce the burden on the National Flood Insurance Program, focusing on acquisitions and elevations.
- The Fire Management Assistance Grant program (FMAG) is similar to HMGP but is for fire mitigation, with funding mechanisms over 10 years.
- The High Hazard Potential Dam (HHPD) program is not relevant to the city of New Orleans because there are no high-hazard dams.

Examples of Funded Projects

- The City of New Orleans has received multiple grants, including $30 million for minor flood control and $7 million for elevation of private structures.
- Generators are now eligible for HMGP funds with a cost-benefit analysis, making them more accessible for critical facilities.
- Warning systems and other projects previously considered long-term mitigation are now eligible under the 5% set-aside.
- The city has successfully implemented many mitigation projects through partial FEMA funding.

Public Participation and Survey

- Public participation is encouraged through surveys and attending meetings.
- The timeline for the planning process includes team meetings in June and July, with a public review in November and December.
- Surveys are available in English, Spanish, and Vietnamese, with paper copies available for those who prefer.
- Contact information for the outreach coordinator and other team members is provided for questions or comments.

Rosa Keller Library – Public Meeting #2

Date: June 25, 2025
Time: 5:00 – 6:30 p.m.
Address: 4300 S. Broad St, New Orleans, LA 70125
Number of Registered Attendees: 20


CITY OF NEW ORLEANS

ATTEND A MEETING

June 25, 2025
5:00 PM - 6:30 PM

Norman Mayer Library
3001 Gentilly Blvd
New Orleans, LA 70122

SCAN TO TAKE SURVEY

https://www.surveymonkey.com/r/NOLAHMAP

BE READY NOLA

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CITY OF NEW ORLEANS HAZARD MITIGATION ACTION PLAN UPDATE

Be Part of a Safer and Resillient New Orleans

The City of New Orleans is partnering with the Sewerage and Water Board of New Orleans (SWBNO), the Housing Authority of New Orleans (HANO), the New Orleans Redevelopment Authority (NORA), Tulane University, and Loyola University to update the New Orleans Hazard Mitigation Action Plan (HMAP). This update will focus on addressing risks that impact the region. The aim of the update is to reduce or remove the long-term dangers to people and property from known hazards through effective actions and strategies. The city will host meetings where public input will help the planning team identify potential hazards for residents and suggest ways to lessen their impact.

QUESTIONS? CONTACT:

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Austin Feldbaum
Hazard Mitigation Director
City of New Orleans
(504) 658-8740
afeldbaum@nola.gov

The June 25 public meeting at Rosa Keller Library centered on storm surge protection and climate adaptation strategies, with an emphasis on green infrastructure and resilience initiatives. Surveys were available in English, Spanish, and Vietnamese to gather community input.







Hazard Mitigation Planning Meeting
June 25, 2025
5:00 – 6:30 p.m.

The meeting focused on the Hurricane and Storm Damage Risk Reduction System, managed by the US Army Corps of Engineers, which aims to protect New Orleans against storm surge and flooding. The Climate Adaptation and Resilience Strategy and hazard mitigation planning were also discussed, with an emphasis on reducing long-term risks, improving emergency response, and building a resilient city. Key hazards include coastal flooding, storm surge, and extreme heat, with mitigation projects such as green infrastructure, resilient building, and workforce development being prioritized.

Community engagement was a major theme, with speakers highlighting the importance of anonymous surveys and tools like Ready.Nola.gov to gather public input and prioritize neighborhood-level flood solutions. Ongoing projects include a FEMA-funded initiative in Algiers and efforts to balance park development with housing affordability. The role of public agencies, universities, and the state in funding and project management was also discussed. The plan, which integrates with other city initiatives and updates every five years, encourages community feedback through events.

Action Items

- Provide input on potential mitigation projects or ideas by filling out the survey.
- Attend the upcoming public meetings on July 23 and July 24.
- Continue working with public agencies, partners, and academic institutions to document the next steps and aspirations for the city's mitigation efforts.
- Draft and report on the strategy at the next meeting, which will provide another opportunity to gather ideas and prioritize needs.

- Encourage participants to visit the Ready.Nola.gov website to comment on the current mitigation plan and contact the team with any other feedback.
- Explore the possibility of investing in water management infrastructure, such as drainage parks, in addition to housing development in flood-prone areas.
- Follow up on the status of FEMA funding and its potential impact on ongoing and future projects.

Purpose and Goals of the Hurricane and Storm Damage Risk Reduction System

- H2O Partners explains the primary purpose of the hurricane and storm damage risk reduction system, which includes supplying emergency food, tracking hurricanes, protecting against storm surge and flooding, and evacuating residents.
- The system is managed by the US Army Corps of Engineers and includes a network of levees, floodwalls, pumps, and other infrastructure.
- Spoke about the main goal of the climate adaptation and resilience strategy, with responses including "resilient New Orleans" and "climate-smart crescent."
- The goal of hazard mitigation planning is discussed, with responses indicating it includes reducing long-term risk, evacuation planning, and increasing tax rates.

Hazard Mitigation and Emergency Response

- H2O Partners discusses the importance of staying informed during emergencies, mentioning "Ready Alerts" and social media as ways to stay updated.
- The definition of hazard mitigation is provided: any long-term or sustained activity or project that reduces or eliminates future hazard risk.

- Examples of hazard mitigation measures include tree planting, shoreline stabilization, and rain gardens.
- H2O Partners opens the floor for participants to share their reasons for attending the meeting, with a reporter from Veritas mentioning their interest in hurricane season reporting.

Planning Process and Community Engagement

- H2O Partners explains the purpose of the planning process: to promote community resiliency and help the city bounce back after a disaster.
- The planning process involves four stages, with the current phase focusing on developing the mitigation strategy. The plan must be updated every five years and reapproved by FEMA to reflect current conditions and lessons learned.
- H2O Partners emphasizes the importance of integrating the planning process with other initiatives in the city, such as disaster recovery, climate action, and equity strategies.

Hazard Assessment and Mitigation Goals

- Provide lists of assessed hazards, including coastal flooding, storm surge, subsidence, and terrorism. The planning team conducts a hazard ranking to prioritize projects based on their importance.
- Example mitigation goals include protecting public health and safety, building local support for hazard mitigation activities, and promoting sustainable growth through nature-based solutions.
- Emphasize the importance of ensuring that mitigation actions align with the goals outlined in the plan.

Grant Eligibility and Programs

- H2O Partners explains the importance of grant eligibility, which allows the city to access funding for hazard mitigation projects. Programs such as the Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance (FMA) are mentioned, which provide funding for mitigation projects triggered by presidential disaster declarations.

- Emphasizes the importance of maintaining grant eligibility to ensure funding is used effectively. Outlines the HMGP, FMA, and HMGP Post Fire programs, detailing their eligibility requirements and funding priorities.

Progress and Future Plans

- Discuss the progress made in the current hazard mitigation plan, which includes over 100 specific project ideas. Examples of completed projects include green infrastructure projects, resilient building initiatives, and workforce development programs.
- NOSHEP mentions the Gentilly Resilience District and other ongoing projects to improve stormwater management and create green spaces. Tracking open space and parks is emphasized, and plans are made to redevelop and utilize these areas for long-term resilience.

Community Engagement and Feedback

- H2O Partners encourages participants to share their ideas and concerns about hazard mitigation projects. A map is provided for participants to mark locations where they would like to see mitigation projects implemented.
- H2O Partners and community members discuss the importance of community engagement in the planning process and the role of local officials in prioritizing projects.

Community Survey and Feedback Process

- H2O Partners explains the importance of community feedback, including anonymous survey results, and asks if there are any further questions or topics to discuss.
- Outlines upcoming collaboration with public agencies, partners, and universities to draft a strategy over the next few months and notes that the current plan is available on the website, encouraging feedback through comments.

Community Engagement and Prioritization

- Community members support the idea and share personal experiences with flooding and the need for better mitigation.
- Community members emphasize the need for focused neighborhood efforts to address specific flooding issues.
- NOSHEP discusses ongoing community meetings and funding from grants to prioritize flood mitigation projects and highlights the importance of community input in identifying and prioritizing flood mitigation projects.

Potential City Investments and Park Development

- Community members inquire about the possibility of the city investing in water parks or drainage parks. NOSHEP explains the balance between developing parks and addressing housing affordability issues.
- NOSHEP mentions specific projects, like the Brazilian Algiers project, which combines stormwater management and urban farming and discusses the challenges of maintaining parks and the need for strategic land use.

State and Federal Funding and Project Management

- NOSHEP talks about the role of the state and the Governor's Office of Public Security and Preparedness in funding and project management. They mention the uncertainty of funding from FEMA and the need to negotiate with engineers.
- NOSHEP explains the intermediary role of the state in securing funding and the challenges of project implementation.

Closing Remarks and Contact Information

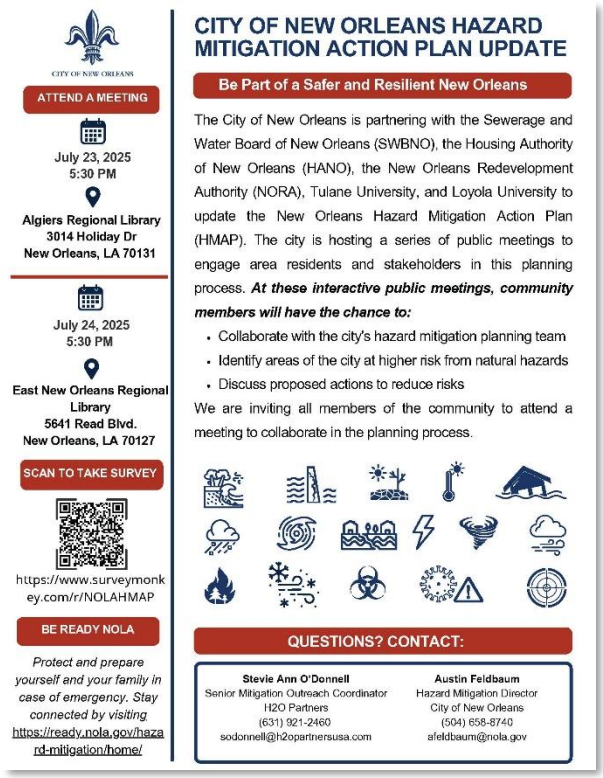
- H2O Partners thanks everyone for attending and encourages further questions and comments. and provides contact information for key consultant team members from H2O Partners.

- H2O Partners mentions the availability of project ideas and encourages participants to reach out via email and concludes the meeting, wishing everyone a good evening and inviting further engagement.

Algiers Regional Library – Public Meeting #3

Date: July 23, 2025
Time: 5:30 – 7:00 p.m.
Address: 3014 Holiday Drive, New Orleans, LA, 70131
Number of Registered Attendees: 24

During the July 23 public meeting at Algiers Regional Library, participants raised strong concerns about drainage, illegal dumping, and canal maintenance, particularly for the De Gaulle canal. Those who attended focused on significant flooding issues in Algiers and emphasized the need to prioritize concerns in General De Gaulle. During the mapping exercise, participants further identified specific locations they viewed as areas of concern. Surveys were available in English, Spanish, and Vietnamese to gather community input.



CITY OF NEW ORLEANS

ATTEND A MEETING

July 23, 2025
5:30 PM

Algiers Regional Library
3014 Holiday Dr
New Orleans, LA 70131

July 24, 2025
5:30 PM

East New Orleans Regional Library
5641 Read Blvd.
New Orleans, LA 70127

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CITY OF NEW ORLEANS HAZARD MITIGATION ACTION PLAN UPDATE

Be Part of a Safer and Resilient New Orleans

The City of New Orleans is partnering with the Sewerage and Water Board of New Orleans (SWBNO), the Housing Authority of New Orleans (HANO), the New Orleans Redevelopment Authority (NORA), Tulane University, and Loyola University to update the New Orleans Hazard Mitigation Action Plan (HMAP). The city is hosting a series of public meetings to engage area residents and stakeholders in this planning process. ***At these interactive public meetings, community members will have the chance to:***

- Collaborate with the city's hazard mitigation planning team
- Identify areas of the city at higher risk from natural hazards
- Discuss proposed actions to reduce risks

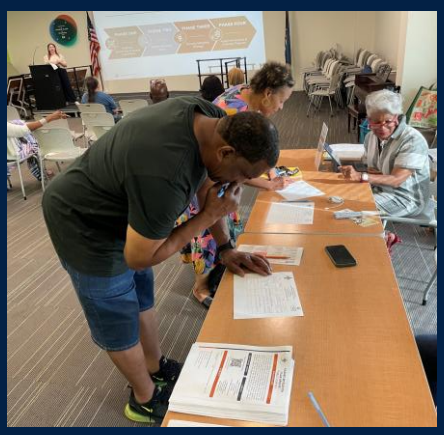
We are inviting all members of the community to attend a meeting to collaborate in the planning process.

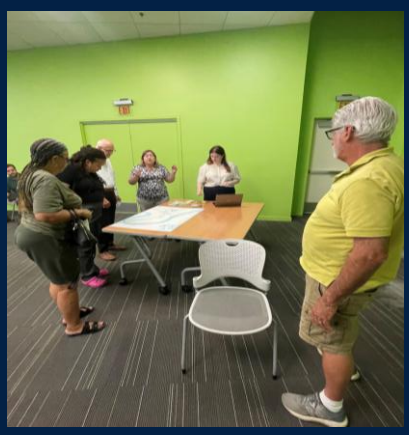
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sodonnell@h2opartnersusa.com

Austin Feldbaum
Hazard Mitigation Director
City of New Orleans
(504) 658-8740
afeldbaum@nola.gov







Hazard Mitigation Planning Meeting
July 23, 2025
5:30 – 7:00 p.m.

The meeting focused on the City's hazard mitigation planning process, which aims to reduce long-term risks through strategic projects and community engagement. Currently in Phase three of a four-phase plan, the city is identifying specific mitigation projects and pursuing grant funding. The 2021–2026 plan outlines 102 actions to address high-ranked hazards such as coastal erosion, dam failure, extreme heat, flooding, high winds, storm surges, and infectious diseases. Examples of proposed projects include expanding tree canopies to reduce heat and stabilizing shorelines to prevent erosion.

Community input is critical not only for prioritizing these actions but also for strengthening grant applications. Attendees highlighted persistent local flooding issues; one resident described repeated flooding on their street, while another noted water reaching their steps. Concerns were raised about responsibility for clearing ditches, the replacement of open ditches with catch basins in older neighborhoods, and the impact of illegal dumping, which clogs drainage systems. A particular concern was the De Gaulle canal, which has overflowed and affected 358 homes. The meeting concluded with a call for greater public participation in mapping flood zones and signing up for flood alerts to support future planning and mitigation efforts.

Action Items

- Provide feedback and ideas for new mitigation projects through the survey.
- Review the draft hazard mitigation plan when it is made available online.
- Provide information on the status of the drainage and flood mitigation projects, including the Gaulle canal and the overall downstream impacts.

- Investigate the responsibility for clearing and maintaining the ditches and catch basins; provide guidance on the appropriate channels for residents to report issues and request assistance.
- Explore options for stricter enforcement and increased penalties for illegal dumping and improper trash disposal; consider implementing more frequent street cleaning for drains.
- Ensure that ongoing construction and development projects are properly monitored and that their impact on the drainage system is assessed and mitigated.

Hazard Mitigation Overview and Definitions

- H2O Partners explains the concept of hazard mitigation as long-term projects aimed at reducing future hazard risks, emphasizing the importance of thinking long-term and making investments.
- Examples of hazard mitigation projects include tree canopy for extreme heat and water absorption, shoreline stabilization to prevent erosion, and flyover or rainwater management systems.
- The purpose of the hazard mitigation planning process is to build community resilience. This allows communities to bounce back quickly after a disaster and reduce loss of life and property.
- The planning process follows four phases: organizing, risk and capability assessment, specific mitigation projects, and implementation and evaluation.

Phases of Hazard Mitigation Planning

- Phase One involves organizing and gathering the right people and departments to ensure comprehensive insight and feedback.
- Phase Two assesses existing capabilities and potential risks, identifying gaps and strengths.
- H2O Partners mentions that the city is currently in Phase Three, working on a list of specific mitigation projects and seeking grant funding for the next five years.

- Phase Four involves implementing and evaluating the chosen mitigation projects. Plans need to be updated every five years to reflect lessons learned and new challenges.

High-Ranked Hazards and Mitigation Solutions

- H2O Partners lists high-ranked hazards including coastal erosion, dam failure, extreme heat, flood, high winds, storm surge, tropical cyclone, and infectious disease. Though not as high-ranked, other hazards are still important and will influence future projects.
- Community member #1 questions the exclusion of subsidence, which NOSHEP explains is listed separately due to different physical forces and solutions.
- The plan aims to protect public health, build local capacity, increase public understanding, promote sustainable growth, and maximize resources for hazard mitigation.

Goals and Objectives of the Hazard Mitigation Plan

- The plan aims to reduce risk to the built environment, promote equity, protect vulnerable populations, and ensure community continuity.
- The plan's core goal is identifying mitigation solutions and long-term investments to prevent future conditions.
- The plan ensures the city's eligibility for specific grant programs to help fund the identified projects.
- H2O Partners outlines various grant programs available, including the Hazard Mitigation Program, Flood Mitigation Assistance Grant, and Hazard Mitigation Grant Program Post-Fire Assistance.

Current and Future Hazard Mitigation Projects

- The current hazard mitigation plan runs from 2021 to 2026, with 102 actions identified to reduce hazard risk.
- These actions are categorized under green infrastructure, resilient building, workforce development, and economic resilience.

- The new plan will provide a status update on these actions, with some being carried over and others modified based on recent developments.
- NOSHEP shares examples of current and future projects, including a stormwater management project in a flooded neighborhood and redeveloping open spaces into amenities.

Community Input and Participation

- H2O Partners encourages community input and participation, highlighting the importance of community feedback in shaping mitigation projects.
- Participants can highlight areas of concern and submit ideas for mitigation projects through a mapping activity and survey.
- The survey is available online and in hard copy, with results helping prioritize future projects.
- H2O Partners emphasizes the importance of community voices in guiding the city's hazard mitigation efforts and ensuring that projects meet local needs.

Challenges and Solutions in Hazard Mitigation

- Community member #1 discusses the challenges of drainage and flooding, particularly in areas with new development and outdated infrastructure.
- The importance of addressing zoning changes and ensuring proper drainage systems is highlighted.
- NOSHEP explains the flood sensors' technical aspects and limitations in providing real-time driving advice during heavy rain.
- The discussion includes the need for better infrastructure and maintenance to address ongoing flooding issues and improve community resilience.

Historical and Current Infrastructure Issues

- Community members discuss the historical changes in drainage systems and the impact of new development on existing infrastructure.

- The conversation touches on the challenges of maintaining and upgrading infrastructure to meet current needs.
- Community member #1 mentions the importance of using modern technology, such as LIDAR, to locate and assess historical infrastructure.
- The discussion highlights the need for a comprehensive hazard mitigation approach, considering historical and current challenges.

Community Concerns and Recommendations

- Community members share personal experiences and observations of flooding and drainage issues in their communities.
- The conversation includes specific recommendations for improving drainage and infrastructure, such as reopening historical drainage paths and upgrading pumps.
- Community member #2 emphasizes the importance of community engagement and advocacy in addressing these issues.
- The discussion underscores the need for ongoing efforts to improve hazard mitigation and community resilience.

Flooding and Community Concerns

- Community members discuss the frequent flooding in their neighborhood, emphasizing the recurring issue. They fear the floodwater might move past their initial step, indicating a growing concern.
- Community member #3 mentions significant changes in the community, including unregulated building and remodeling.
- Community member #4 questions the responsibility for clearing ditches, noting that they have taken action.
- Community members discussed drainage challenges in older neighborhoods, noting that open ditches have often been replaced by catch basins due to increased density. Concerns were raised about the limitations of individual efforts, the impact of illegal dumping on clogging drainage systems, and how tools like leaf blowers contribute to debris buildup in streets and canals.

- Residents raised concerns about canal water sources, neighborhood low points, and pump functionality, particularly in areas affecting 358 homes. They emphasized the need for a comprehensive approach to drainage system design and monitoring and encouraged directing specific issues to the appropriate city offices for follow-up.

Mapping and Mitigation Actions (Map Activity)

- H2O Partners led the interactive portion of the meeting, focused on flood zone mapping, guiding participants in pinning their addresses to help identify flood-prone areas.
- H2O Partners emphasized the importance of community input in shaping effective flood mitigation plans and encouraged attendees to sign up for flood alerts and complete surveys.
- H2O Partners also discussed the potential for funded studies and mitigation efforts, invited ideas for improving drainage and communication, and reiterated that detailed mapping and active engagement are key to addressing local flood hazards.
- H2O Partners discussed the potential for funded studies and mitigation efforts, emphasizing the need for detailed mapping and community input to develop effective flood mitigation plans.
- Participants were invited to share broad-scale ideas for improving drainage and communication. H2O Partners highlighted the critical role of community engagement in identifying and addressing flood hazards.

General Overview

- Attendee asked about how subsidence is being considered within flood risk, as subsidence exacerbates flood impacts.
    - NOSHEP responded that while they are related, different strategies are needed to address both, so they are being profiled separately in the plan.
- Attendees asked about the flood sensors the City has implemented.
    - NOSHEP responded that the ultimate point of them is in issuing flood advisories, and that they would not recommend trying to

rely on them for real-time updates as you're driving during a storm.

- A representative from the Park Timbers HOA stated they need information on De Gaulle near their neighborhood, such as where flooding comes from, status of development, what areas are more or less safe from flood, etc. Their subdivision (358 homes) is below sea level.
- Attendee stated Algiers has a "skeleton crew" for police protection during hazard events, compounding the impacts and safety concerns of disasters.

Specific Flood Problems

- Bad flooding and drainage along General Meyer Avenue; flood problems here have worsened in recent years.
- Flooding issues at the underpass on Carrollton near Costco (this does not seem to be in Algiers).
- Zoning issues and development will continue to stress the drainage system, many multifamily units are being put in.
- "Everything in Algiers drains through De Gaulle to two pumps, if development continues, those pumps will get more overwhelmed."
- Trash in the drainage system is creating blockages, leading to worse flooding impacts; attendee cited street cleaners not being used frequently enough as part of the problem.
- Flooding on the east side near I-10 (not in Algiers) gets bad enough where water almost overtakes the roadway.
- Also mentioned Jazzland property in this area as a potential location for a flood mitigation project.
- Northern area of Holiday Drive noted as having flood issues (marked on map during exercise).
- 1301 Elizardi – marked during mapping exercise – this address has flood issues.

Project Suggestions

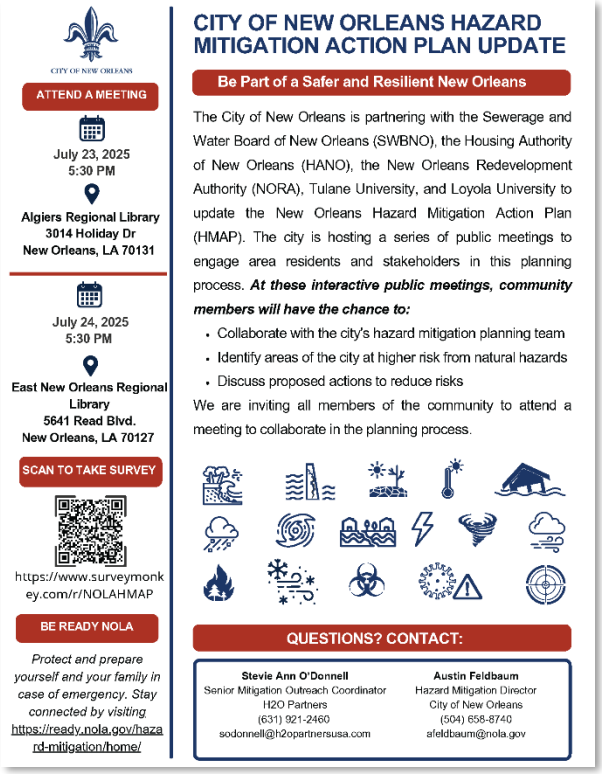
- Retaining pond at the Bridge in Algiers.

- A flood sensor is needed on General De Gaulle Drive by the bridge.
- A flood sensor is needed at General Meyer Ave near the bridge.
- Unblocking streams and canals by removing overgrowth, trash, debris, etc.
- Studies to better understand stream inflows/outflows/drainage.
- In Algiers, there is a pond within a larger park area around it (marked during mapping exercise with a green sticky note); attendee suggested the entire green area surrounding the pond should all be updated to mitigate flood/drainage issues.
- Old parking lot near fire department (marked in blue on mapping exercise) – this property should be turned into a retention pond.

New Orleans East Regional Library – Public Meeting #4

Date: July 24, 2025
Time: 5:30 – 7:00 p.m.
Address: 5641 Read Blvd, New Orleans, LA 70127
Number of Registered Attendees: 15

The July 24 public meeting at New Orleans East Regional Library highlighted community-specific projects, including flood mitigation at Joe Brown Park, a living shoreline project, and the expansion of the city's flood sensor network. Participants engaged in a robust discussion about neighborhood flooding, canal usage, and the Bayou Michaud Project. The mapping exercise enhanced residents' awareness and understanding of flood elevations affecting their communities. Surveys were available in English, Spanish, and Vietnamese to gather community input.



CITY OF NEW ORLEANS

ATTEND A MEETING

July 23, 2025
5:30 PM

Algiers Regional Library
3014 Holiday Dr
New Orleans, LA 70131

July 24, 2025
5:30 PM

East New Orleans Regional Library
5641 Read Blvd.
New Orleans, LA 70127

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CITY OF NEW ORLEANS HAZARD MITIGATION ACTION PLAN UPDATE

Be Part of a Safer and Resilient New Orleans

The City of New Orleans is partnering with the Sewerage and Water Board of New Orleans (SWBNO), the Housing Authority of New Orleans (HANO), the New Orleans Redevelopment Authority (NORA), Tulane University, and Loyola University to update the New Orleans Hazard Mitigation Action Plan (HMAP). The city is hosting a series of public meetings to engage area residents and stakeholders in this planning process. ***At these interactive public meetings, community members will have the chance to:***

- Collaborate with the city's hazard mitigation planning team
- Identify areas of the city at higher risk from natural hazards
- Discuss proposed actions to reduce risks

We are inviting all members of the community to attend a meeting to collaborate in the planning process.

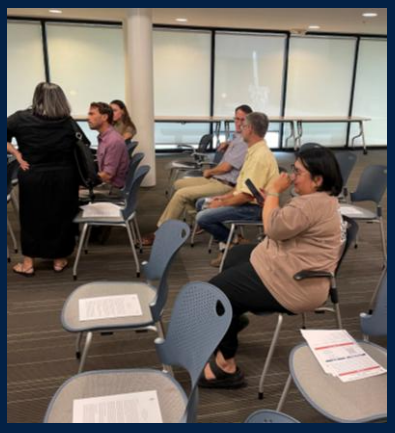
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Austin Feldbaum
Hazard Mitigation Director
City of New Orleans
(504) 658-8740
afeldbaum@nola.gov







Hazard Mitigation Planning Meeting
July 24, 2025
5:30 – 7:00 p.m.

The Hazard Mitigation Planning Meeting discussed the city's five-year plan to mitigate disasters, integrating diverse stakeholders and departments. Key strategies include updating the plan every five years, focusing on natural and man-made hazards, and aligning it with other city plans like the Climate Action Plan. Specific projects mentioned include flood mitigation at Joe Brown Park, a living shoreline project, and flood monitoring with 50 sensors. The community was encouraged to provide feedback through surveys and public reviews. The meeting also highlighted the importance of community engagement and the need for continuous funding and updates to ensure effective hazard mitigation.

Action Items

- Promote the public survey to gather community input on hazard priorities and potential mitigation projects.
- Post the draft hazard mitigation plan online for public review and feedback.
- Explore opportunities to incorporate stormwater management and coastal restoration elements into the Lincoln Beach project.
- Investigate expanding the city's flood monitoring sensor network, particularly in the New Orleans East area.
- Develop a community-based water management plan for the canal system in New Orleans East.

Hazard Mitigation Planning Overview

- H2O Partners starts the meeting by explaining the hazard mitigation plan's five-year life cycle and emphasizing its role in guiding community decision-making.
- The plan involves city officials, the Sewage and Water Board, the New Orleans Housing Authority, the New Orleans Redevelopment Authority, Tulane University, and the University.

- FEMA's concept of the "whole community" is highlighted, focusing on integrating diverse stakeholders and plans across departments.
- The planning process aims to align broad strategies with other city planning efforts, such as the Disaster Recovery Plan, Climate Action Plan, and Resilient New Orleans.

Expanding Hazard Mitigation Focus

- H2O Partners mentions the expansion of hazard mitigation to include natural hazards, hazardous materials, infectious diseases, and terrorism.
- Historical events, community structures, and social impacts are considered in the risk assessment.
- Probability calculations are used to estimate the likelihood of future hazards.
- H2O Partners outlines the ranking process for hazards, prioritizing severe or high-rank hazards like coastal erosion, extreme heat, and tropical cyclones.

Mitigation Goals and Strategies

- H2O Partners lists broad mitigation goals, including protecting public health and safety, building local support, and promoting sustainable growth.
- Examples of mitigation strategies include green infrastructure, reforestation, resilient buildings, and workforce development.
- The plan includes a list of potential projects for grant funding, emphasizing long-term investments.
- The plan ensures the city's eligibility for FEMA mitigation funding programs like the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance Program (FMA), and HMGP Post-Fire.

Community-Specific Projects

- NOSHEP discusses community-specific projects, including neighborhood-level drainage improvements and city-wide hurricane protections.
- The Joe Brown Park and Audubon Nature Center project aims to hold water in the park to reduce flooding in surrounding areas.
- The state's coastal protection restoration authority is working on a living shoreline project to protect roads and neighborhoods from erosion and waves.
    - Support the fish population.
- If Lincoln Beach eventually opens to the public, they are considering how to incorporate coastal restoration.
- Waters Bayou is a project that plans to enhance canals and support flood protection.

Flood Monitoring and Community Engagement

- NOSHEP highlights the city's flood monitoring efforts, including installing flood sensors and weather stations.
- The city has a higher density of weather measurements than any other city, providing real-time warning and safety information.
- H2O Partners encourages public participation through surveys and the review of the draft plan.
- The importance of community feedback in informing actions and projects is emphasized.

Q&A and Community Feedback

- Community Member #1 asks about the Joe Brown Park initiative and its impact on flood management and how utilizing it as a reservoir for flood water will impact the park's community use.
    - NOSHEP explains the preliminary discussions with the Audubon Nature Institute and the focus on the nature center for the area to old water.
    - Community Member #3 offers a comment on the situation, as they worked on a project that considered utilizing space behind

the nature institute as a reservoir, so as not to impact community use of the park HMA

- Community Member #1 raises concerns about flood monitoring in the East, the need for better community engagement, the use of the canals for flood protection, and how the city can enhance the area around the canals to help keep them clean.
    - In response to this comment, Community Member #4, who works with the Waters Bayou Project, discussed the Waters Bayou project, its community involvement, including youth volunteer efforts, native tree planting, and cleaning the canals.

Mapping and Mitigation Actions (Map Activity)

- H2O Partners introduces a mapping exercise to identify community hazards and potential mitigation actions.
- The map shows various hazards, including flooding, and encourages community input on mitigation ideas.
- H2O Partners provides information on residential floodproofing measures, such as waterproofing and elevation.
- The meeting concludes with a call for community participation and feedback on the hazard mitigation plan.

General Overview:

- Attendee asked about the Joe Brown Park Restoration, as their organization wants to install a carousel at the park. How will mitigation projects in the park affect that?
    - NOSHEP: We know we have limits on what we are able to do and flood mitigation here is not meant to negatively impact other efforts at the park. The main focus is to deepen lagoons and connect them within the park, which would ideally reduce flood risk for park amenities such as the carousel.
- Many canals in East New Orleans are not maintained; removing brush and trash from canals would improve flood issues.

- Several attendees spoke about ongoing efforts they are a part of to clean up the canals and mentioned the importance of having the community engaged in living with the canals and upkeeping them.
- Lincoln Beach area is generally prone to flooding.
- The area below industrial canal (east of the Lower Ninth Ward) is of flood concern.
- Attendee stated that public awareness is very important for City Plans and Projects and the community organizations in East New Orleans should be contacted.
- A Water Plan for East New Orleans was suggested as an action for the HMAP.
- Attendee voiced frustration that studies on water and drainage are not leading to the implementation of projects.
- Yellow flag on mapping exercise marks a canal in attendee's backyard which is overgrown leading to flooding.
- Attendee suggested to consider wide range of different funding sources to get projects implemented, including international funding programs.
- Attendee suggested we look at flood example mitigation projects internationally, as many other countries are more progressive in their adaptation approaches regarding sea level rise.



Appendix K

State and Federal Funding Opportunities

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Appendix K: State and Federal Assistance Programs

Overview

Louisiana utilizes state funds to improve statewide hazard mitigation capabilities and advance their hazard mitigation goals to help identify, understand, and manage various risks associated with natural hazards. State funds also provide funding for state facilities and infrastructure upgrades, hazard mapping, mitigation planning, and other mitigation programmatic activities. In addition to state-funded programs, many local jurisdictions benefit from federal mitigation funding opportunities. For instance, FEMA's Hazard Mitigation Assistance is a primary source for the implementation of mitigation projects throughout the nation. Table K-1 and Table K-2 identify the state agencies that source and/or administer funding programs, as well as federal source agencies relevant to the programs referenced in this section. Table K-3 describes federal, state, local, and nonprofit mitigation funding sources and technical assistance programs accessible to communities, local governments, and/or individuals within the State of Louisiana.

Table K-1. Summary of State Agencies

State Agencies
Coastal Protection and Restoration Authority (CPRA)
Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP)
Louisiana Department of Agriculture and Forestry (LDAF)
Louisiana Department of Conservation and Energy (DCE)[1]
Louisiana Department of Environmental Quality (LDEQ)
Louisiana Division of Administration (DOA)
Louisiana Department of Health (LDH)
Louisiana Department of Public Safety & Corrections (DPS&C)
Louisiana Department of Transportation and Development (DOTD)
Louisiana Department of Wildlife and Fisheries (LDWF)

[1] Note: The *Louisiana Department of Energy and Natural Resources (LDENR)* was renamed the *Louisiana Department of Conservation and Energy (DCE)* under Senate Bill 244, effective October 1, 2025.

Table K-2. Federal Source Agencies and Subagencies

Federal Source Agencies	
Agency	**Subagencies and Program Offices**
U.S. Department of Homeland Security (DHS)	• Cybersecurity and Infrastructure Security Agency (CISA) • Federal Emergency Management Agency (FEMA) ○ Grant Programs Directorate (GPD)

U.S. Department of Commerce (DOC)	• Economic Development Administration (EDA)
	• National Oceanic and Atmospheric Administration (NOAA)
	  ○ National Weather Service (NWS)
	  ○ Office of Oceanic and Atmospheric Research (OAR)

U.S. Department of Defense (DOD)	• U.S. Army Corps of Engineers (USACE)
U.S. Department of Energy (DOE)	• Grid Deployment Office (GDO) • Office of State and Community Energy Programs (SCEP)
U.S. Department of the Interior (DOI)	• Bureau of Land Management (BLM) • Bureau of Ocean Energy Management (BOEM) • Bureau of Reclamation (USBR) • National Park Service (NPS) • U.S. Fish and Wildlife Service (USFWS) • U.S. Geological Survey (USGS)
U.S. Department of Justice (DOJ)	• Office of Justice Programs ○ Bureau of Justice Assistance (BJA)

Environmental Protection Agency (EPA)	• Office of Air and Radiation (OAR)
	• Office of Land and Emergency Management (OLEM)
	  ○ Office of Underground Storage Tanks (OUST)
	  ○ Office of Brownfields and Land Revitalization (OBLR)
	• Office of the Chief Financial Officer (OCFO)
	• Office of Water (OW)
	  ○ Office of Ground Water and Drinking Water (OGWDW)
	  ○ Office of Wetlands, Oceans, and Watersheds (OWOW)

U.S. Department of Health and Human Services (HHS)	• Centers for Disease Control and Prevention (CDC) • Administration for Strategic Preparedness and Response (ASPR)

Federal Source Agencies	
Agency	**Subagencies and Program Offices**
U.S. Department of Housing and Urban Development (HUD)	• Office of Community Planning and Development (CPD) • Office of Public and Indian Housing (PIH)

National Science Foundation (NSF)	• Social, Behavioral and Economic Sciences (SBE) Directorate
	  ○ Division of Social and Economic Sciences (SES)
	• Geosciences (GEO) Directorate
	  ○ Division of Earth Sciences (EAR)

U.S. Department of Agriculture (USDA)	• Agricultural Marketing Service (AMS) • Farm Service Agency (FSA) • National Institute of Food and Agriculture (NIFA) • Natural Resources Conservation Service (NRCS) • Rural Development (RD) ○ Rural Housing Service (RHS) • U.S. Forest Service (USFS) • USDA – Louisiana State Offices
U.S. Department of Transportation (USDOT)	• Federal Aviation Administration (FAA) • Federal Highway Administration (FHWA) • Federal Transit Administration (FTA) • Pipeline and Hazardous Materials Safety Administration (PHMSA)
U.S. Small Business Administration (SBA)	• Office of Disaster Assistance (ODA) • SBA Louisiana District Office

Table K-3. Federal, State, Local and Nonprofit Mitigation Funding Sources and Technical Assistance Programs in Louisiana

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Agricultural and Food Research Initiative (AFRI)	Federal	USDA-NIFA		Supports competitive research, education, and extension projects that address priority areas in agricultural sciences, including water resources and watershed processes. Projects may focus on improving water use efficiency, developing sustainable management practices, and enhancing water quality to benefit agricultural, forestry, and related natural resource systems. Funding levels vary by program area and project type.
Agricultural Conservation Easement Program (ACEP)	Federal	USDA-NRCS	USDA-NRCS Louisiana State Office	Provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits.
Airport Construction and Development Priority Program (ACDPP)	State	DOTD	DOTD	Provides funds for priority airport development projects statewide. Eligible activities include construction, expansion, and upgrades that improve safety, capacity, and resilience of airports (e.g., airfield drainage rehabilitation).
Airport Improvement Program (AIP)	Federal	USDOT-FAA	DOTD	Provides federal grants to public airports for capital improvement projects that enhance safety, capacity, and resiliency. Eligible activities include infrastructure upgrades, hazard-mitigation measures, and improvements that increase the ability of airports to withstand or resume operations after natural disasters.
Aquatic Ecosystem Restoration	Federal	DOD-USACE		Direct support for carrying out aquatic ecosystem restoration project that will improve the quality of the environment.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Assistance to Firefighters Program – Fire Prevention & Safety (FP&S) **Grants**	Federal	FEMA-GPD		Fire Prevention & Safety (FP&S) Grants support projects that enhance the safety of the public and firefighters from fire and related hazards. The primary goal is to target high-risk populations and reduce injury and prevent death.
BEACH Act Grants	Federal	EPA	LDH	EPA awards grants under the authority of the BEACH Act to eligible states, territories, and tribes with beaches on oceans and the Great Lakes coasts to develop and implement programs to monitor their beaches and notify the public when it is not safe to swim.
Brownfield Cleanup Revolving Loan Fund (BCRLF)	Federal	EPA-OLEM-OBLR	LDEQ	Offers below-market loans and subgrants to support cleanup of contaminated brownfield sites across Louisiana. Funds help communities, nonprofits, and eligible municipalities address petroleum and hazardous substance contamination, enabling safe redevelopment and economic revitalization of blighted properties.
Carbon Reduction Program (CRP)	Federal	USDOT-FHWA	DOTD	Provides funds for projects that are designed to reduce transportation emissions (CO2). This program can fund a wide range of projects designed to reduce carbon dioxide emissions from on-road highway sources.
Capacity Development Program	Federal	EPA-OW-OGWDW	LDH	A comprehensive approach to ensuring that public waters systems are well-equipped to provide safe and reliable drinking water to all residents by focusing on enhancing technical, managerial, and financial capabilities of public water systems. This program includes lead testing in public schools and childcare facilities.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Clean Water Act Section 319 Grants	Federal	EPA	LDEQ	Provides grants to address nonpoint source pollution through watershed-based planning and implementation of best management practices (BMPs). Supports activities such as stream restoration, agricultural runoff reduction, and community watershed projects.
Clean Water Act Section 604(b) – Water Quality Management Program	Federal	EPA-OW	LDEQ	Funds support development and implementation of comprehensive water quality management plans, including watershed planning, monitoring, and coordination with councils of government.
Clean Water State Revolving Fund (CWSRF)	Federal	EPA-OW	LDEQ	Provides low-cost financing for a wide range of wastewater, stormwater, reuse, and other pollution control projects.
Climate Pollution Reduction Grant (CPRG)	Federal	EPA-OAR	DOA	Supports the State in creating two climate action plans (i.e., one priority plan and one comprehensive plan) for implementing effective greenhouse gas reduction strategies while ensuring the benefits of these actions are delivered to Louisianans, especially Low Income or Disadvantaged communities (LIDAC) as defined by US EPA. This grant will give Louisiana communities the opportunity to collaborate with the state to build projects and programs that provide high-quality jobs, improve health, and keep families safe where they live.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Coastal Management Program (CMP)	Federal	NOAA	DCE (LDENR)	Provides NOAA funding for Louisiana's coastal management, including planning, education, and restoration activities. Funds support long-term ecological and economic productivity through projects such as hazard response, water quality improvements, and local government assistance.
Coastal Science Assistantship Program (CSAP)	Federal State	NOAA CPRA	CPRA	Graduate assistantship program supporting Louisiana students in research relevant to coastal protection and restoration, co-funded by CPRA and NOAA Sea Grant.
Coastal Wetlands Planning, Protection, and Restoration Act Program (CWPPRA)	Federal State	DOI-USFWS CPRA	CPRA	Louisiana's dedicated coastal-wetlands program under the 1990 Breaux Act. Funds marsh creation, shoreline / barrier-island restoration, hydrologic restoration, and related projects using the USFWS' Sport Fish Restoration & Boating Trust Fund plus a required 15 percent CPRA match. Managed by a task force comprised of representatives from the USACE, EPA, USFWS, NOAA, USDA, and the State of Louisiana.
Community Assistance Program (CAP)	Federal	DHS-FEMA-NFIP		Product-oriented financial assistance program directly related to the flood loss reduction objectives of the National Flood Insurance Program (NFIP).

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Community Development Block Grant (CDBG)	Federal	HUD-CPD	DOA	The primary objective is to develop viable communities by providing decent housing and suitable living environments and expanding economic opportunities principally for persons of low- to moderate- income. Eligible applicants are non-entitlement cities under 50,000 in population and non-entitlement counties that have a non-metropolitan population under 200,000 and that are not eligible for direct CDBG funding from HUD may apply for funding through any of the Louisiana CDBG programs.
Community Development Block Grant – Disaster Recovery (CDBG-DR)	Federal	HUD-CPD	DOA	Often following a disaster, the state may receive a CDBG-DR Supplement intended for mitigation and disaster recovery projects in the affected areas. Funding can be used to acquire properties in hazard prone areas. Because CDBG funds can be counted as non-federal match, they may be used to meet cost-share requirements for other programs such as FEMA HMA grants. Funding also supports public facilities including water and wastewater.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Community Development Block Grant – Mitigation (CDBG-MIT)	Federal	HUD-CPD	DOA	Eligible grantees use this assistance in areas impacted by recent disasters to carry out strategic, high-impact activities that mitigate disaster risks and reduce future losses. Congress appropriates CDBG-MIT funds on a supplemental basis following qualifying disasters. In Louisiana, these funds support major resilience initiatives such as the Louisiana Watershed Initiative (LWI) and the Spillway Resilience Program, which focus on regional flood risk reduction, long-term watershed planning, and infrastructure improvements to better withstand future disasters.
Community Water Enrichment Fund (CWEF)	State	DOA	DOA	Supports the rehabilitation, improvement, and construction of community water systems across Louisiana. Eligible activities include rehabilitation, improvement, and new construction projects for community potable water systems. Reasonable engineering expenses are allowed. Award amounts are limited according to jurisdiction type, and funds are appropriated on an annual basis.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Community Wildfire Defense Grant	Federal	USDA-USFS		Offers financial assistance to at-risk local communities with planning for and against the risk of catastrophic wildfire. This program is authorized in Public Law 117-58, the Infrastructure Investment and Jobs Act. Two primary objectives: The development and revision of Community Wildfire Protection Plans (CWPP), and the implementation of projects described in a CWPP that is less than ten years old. Prioritizes at-risk communities that are in an area identified as having high or very high wildfire hazard potential, are low-income, and/or have been impacted by a severe disaster with no minimum federal funding limit for projects.
Conservation and Restoration Partnership Fund	State	CPRA	CPRA	Provides cost-share funding to local governments, nonprofits, and landowners for small-scale coastal restoration and conservation projects in partnership with CPRA.
Conservation Innovation Grants (CIG)	Federal	USDA-NRCS	USDA-NRCS Louisiana State Office	A voluntary program intended to stimulate the development and adoption of innovative conservation approaches and technologies while leveraging federal investment in environmental enhancement and protection, in conjunction with agricultural production.
Conservation Stewardship Program (CSP)	Federal	USDA-NRCS	USDA-NRCS Louisiana State Office	A voluntary program that provides financial and technical assistance to help agricultural and forest producers enhance conservation on their working lands.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Decision, Risk, and Management Science Program (DRMS)	Federal	NSF-SBE-SES		Funding is provided for research and related educational activities focused on risk, perception, communication, and management, with an emphasis on technological hazards.
Drinking Water State Revolving Fund (DWSRF)	Federal State	EPA-OW-OGWDW LDH	LDH	Provides funding for infrastructure improvements to drinking water systems. The program also emphasizes providing funds to small and disadvantaged communities and towards programs that encourage pollution prevention as a tool for ensuring safe drinking water.
Economic Development Administration Grants and Investments	Federal	DOC-EDA		Provides federal grants for both construction and non-construction economic development projects. Typical awards fund public works infrastructure (e.g., water / sewer, roads / site preparation, industrial facilities, broadband) and planning / technical assistance.
Economic Injury Disaster Loan (EIDL)	Federal	SBA	SBA Louisiana District Office	Provides low-interest loans to small businesses, cooperatives, and private nonprofit organizations that suffer "substantial economic injury" from a federally declared disaster. These funds are used to cover working capital and operating expenses such as rent, utilities, payroll, and debt payments when revenue is disrupted by disaster-related conditions.
Emergency Community Water Assistance Grants (ECWAG)	Federal	USDA-RD	USDA-RD Louisiana State Office	Grants available to rural communities (≤ 10,000 population) to address drinking-water emergencies (e.g., contamination, loss/decline of supply). Awards are up to $1,000,000 for developing a new water source and up to $150,000 for repairs to existing systems.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Emergency Management / Mitigation Training	Federal	DHS-FEMA	GOHSEP	Provides training in disaster mitigation, preparedness, and planning to enhance the capabilities of emergency management personnel.
Emergency Management Institute	Federal	DHS-FEMA		Provides education training programs to prepare emergency management professionals to prepare for, respond to, and recover from disasters and emergencies.
Emergency Management Performance Grant (EMPG)	Federal	DHS-FEMA-GPD	GOHSEP	Provides a yearly allocation of funding to support state and local emergency management programs. This has included providing funding for local mitigation plans, mitigation-oriented studies, and related activities.
Emergency Relief (ER) **Program**	Federal	USDOT - FHWA	DOTD	Provides funding for the repair or reconstruction of roads and bridges on Federal-aid highways that have sustained damage as a direct result of a natural disaster or a catastrophic failure due to an external cause.
Emergency Watershed Protection (EWP)	Federal	USDA-NRCS	USDA-NRCS Louisiana State Office	Provides funding and technical assistance for emergency measures, including floodplain easements in impaired watersheds. Funding is available through Simplified Acquisition Procedures (SAP). Support is provided through contracts between project sponsors and the Natural Resources Conservation Service (NRCS); grants are not offered under this program. The NRCS covers up to 75 percent of total project costs.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Energy Efficiency and Conservation Block Grant (EECBG) **Program**	Federal	DOE-SCEP	DCE (LDENR)	Provides formula and competitive funding to support energy efficiency, renewable energy, and conservation projects. Louisiana administers its allocation through LDENR, with funds available to state, local, and tribal governments for activities such as building retrofits, clean energy planning, and community energy programs.
Environmental Quality Incentives Program (EQIP)	Federal	USDA-NRCS	USDA-NRCS Louisiana State Office	Provides funding and technical assistance to farmers and ranchers to promote agricultural production and environmental quality as compatible goals.
Farm Ownership Loans	Federal	USDA-FSA	USDA-FSA Louisiana State Office	Direct loans, guaranteed / insured loans, and technical assistance to farmers so that they may develop, construct, improve, or repair farm homes, farms, and service buildings, and to make other necessary improvements.
Federal Land Transfer / Federal Land to Parks Program	Federal	DOI-NPS		Identifies, assesses, and transfers available federal real property for acquisition for use in state and local parks and recreation, such as open space.
Fire-Adapted Communities Program (FAC)	Federal	USDA-USFS		USFS's Fire-Adapted Communities framework provides guidance and training to help communities assess wildfire risk and take coordinated mitigation actions.
Fire Management Assistance Grants (FMAG)	Federal	DHS-FEMA-GPD		Provides fire suppression support to states when loss of life and property is imminent. Wildfire mitigation is also eligible under emergency protection if life is in imminent danger.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Firewise USA Program	Federal	NFPA USDA-USFS NASF	LDAF	Provides a collaborative framework to help neighbors in a geographic area organize and enhance ignition resistance of their homes and community to reduce wildfire risks at the local level.
Five Star and Urban Waters Restoration Grant Program	Federal	National Fish and Wildlife Foundation (NFWF)		Funds community-based projects that restore wetlands, streams, urban forests, and water quality while engaging local partners and promoting environmental education.
Flood Mitigation Assistance Program (FMA)	Federal	DHS-FEMA	GOHSEP	Repetitive flood loss property reduction and projects that mitigate losses to NFIP-insured properties.
Floodplain Management Services (FPMS)	Federal	DOD-USACE		Provides technical and planning assistance at the local, regional, or national level needed to support effective floodplain management.
Forest Legacy Program (FLP)	Federal	USDA-USFS	LDAF	Provides funding to protect private forest lands that are environmentally, economically, and socially critical, thereby reducing development in the wildland-urban interface.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Forestry Productivity Program (FPP)	State	LDAF	LDAF	The Forestry Productivity Program is a state-funded cost-share initiative that assists Louisiana private landowners in establishing and managing sustainable timber resources. The program provides partial reimbursement for approved forestry practices, including site preparation, tree planting, and vegetation control on tracts of 10 to 100 contiguous acres. Participants enter into a cooperative agreement with LDAF requiring the property to be maintained in forest use for a minimum of ten years, thereby ensuring long-term timber productivity and conservation of Louisiana's forest resources.
Grassland Conservation Reserve Program (CRP)	Federal	USDA-FSA	USDA-FSA Louisiana State Office	A voluntary program administered by the USDA Farm Service Agency (FSA), that allows agricultural producers and landowners to enroll environmentally sensitive land to establish long-term vegetative cover while continuing grazing and haying practices. It aims to enhance wildlife habitat, improve water quality, and control soil erosion, while providing a stable income through rental payments.
Greenhouse Gas Reduction Fund (GGRF)	Federal	EPA-OP EPA-OAR EPA-OCFO		The program is designed to combat the climate crisis by mobilizing financing and private capital for greenhouse gas- and air pollution-reducing projects in communities across the country.
Grid Resilience Program (GRIP)	Federal	DOE-GDO	DCE (LDENR)	Enhance grid flexibility and improve the resilience of the nation's power grid against threats of extreme weather and climate change.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Gulf of Mexico Energy Security Act (GOMESA)	Federal	DOI-BOEM	CPRA	The Gulf of Mexico Energy Security Act (GOMESA) authorizes the sharing of offshore oil and gas leasing revenues with Gulf states, their coastal parishes, and the Land & Water Conservation Fund to support coastal restoration, conservation, and hurricane protection projects.
Hazard Mitigation Grant Program (HMGP)	Federal	FEMA	GOHSEP	Hazard Mitigation Grant Program (HMGP) provides funding to state, local, tribal and territorial governments to develop hazard mitigation plans and rebuild in ways that reduce or mitigate future disaster losses in their communities. This funding becomes available following a Presidentially declared disaster.
Hazardous Materials Training Program	Federal	USDOT-PHMSA	DPS&C	Provides free hazardous materials training courses for local, state, and federal responders in Louisiana. The program is funded by the federal HMEP grant through PHMSA and administered by the Louisiana State Police Emergency Services Unit.
Healthy Forests Reserve Program (HFRP)	Federal	USDA-NRCS	USDA-NRCS Louisiana State Office	Assist landowners, on a voluntary basis, in restoring, enhancing and protecting forestland resources on private lands through various means, including conservation easements and cost-sharing agreements.
HOME Investment Partnerships Program (HOME)	Federal	HUD		Provides formula grants to states and local governments for building, buying, and rehabilitating affordable housing or providing direct rental assistance. HOME funds may also support disaster recovery following a presidentially declared disaster by reducing the match requirements.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Homeland Security Grant Program (HSGP)	Federal	DHS-FEMA-GPD	GOHSEP	Funding supports homeland security activities identified in state and local strategic plans, including threat and hazard risk identification for natural, technological, and human-caused hazards.
Hospital Preparedness Program (HPP) **Cooperative Agreement**	Federal	HHS-ASPR	LDH	The HPP is the primary source of federal funding for health care system preparedness and response. In collaboration with public health, it prepares health-care delivery systems to save lives through the development of health care coalitions (HCCs). Under the direction of the HPP providers, the HCCs develop plans, provide training, and coordinate regional exercises.
Hubs for Energy Resilient Operations (HERO) **Program**	State	DCE (LDENR)	DCE (LDENR)	The HERO Program provides state funding to support Integrated Community Energy Planning (ICEP) grants. These grants assist local governments, utilities, and critical facilities in identifying vulnerabilities within their energy systems and collaboratively planning for more resilient, reliable, and affordable energy solutions.
Indian Housing Assistance – Housing Improvement Program (HIP)	Federal	DOI-BIA		The Housing Improvement Program (HIP) is a home repair, renovation, replacement and new housing grant program administered by the Bureau of Indian Affairs (BIA) and federally recognized Indian tribes. It is designed to assist American Indian and Alaska Native (AI/AN) individuals and families who lack immediate standard housing resources.
Individual Assistance (IA)	Federal	DHS-FEMA	GOHSEP	Following a disaster, funds can be used to mitigate hazards when repairing individual and family homes.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
In-Lieu Fee Program Mitigation Projects	Federal	DOD-USACE	DCE (LDENR)	Supports the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements for Department of the Army permits.
Land Acquisition	Federal	DOI-USFWS		Acquires high-quality lands and waters, or conservation easements, from willing sellers for inclusion in the National Wildlife Refuge System. Land acquisitions are conducted within the Land and Water Conservation Fund (LWCF) framework to support habitat protection and long-term resource management.
Local Government Assistance Program (LGAP)	State	DOA	DOA	Provides funding to rural municipalities and parishes for high-priority needs related to basic human health and safety. Eligible activities include improvements to water and sewer systems, drainage projects, road and street repairs, fire and police protection, essential government building renovations, land acquisition, demolition, equipment, and reasonable engineering costs. Award amounts are limited according to jurisdiction type, and funds are appropriated on an annual basis.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Louisiana Longleaf Pine Initiative (LLPI)	Federal	USDA-NRCS	USDA-NRCS Louisiana State Office	NRCS works with producers on private lands in nine states to improve the sustainability of longleaf pine forests. NRCS provides technical and financial assistance to producers, helping them identify and implement a variety of conservation practices. These practices enable landowners to improve these unique forests by establishing new trees and maintaining the ecosystem using prescribed burning or other stand improvement techniques.
Mitigation Banks	Federal	DOD-USACE	Community Applicants	Mitigation Banks are Corps-approved sites that sell compensatory mitigation credits for projects that cause unavoidable impacts to waters of the U.S. When a permit requires compensatory mitigation, it specifies the number of credits to be purchased from an approved mitigation bank.
National Cooperative Soil Survey	Federal	USDA-NRCS		Maintains soil surveys through the National Cooperative Soil Survey, a partnership led by USDA–NRCS with state agencies, universities, local governments, and other cooperators. Soil data supports conservation, land use planning, agriculture, and hazard mitigation by identifying soil properties relevant to flooding, erosion, and other natural hazards.
National Dam Safety Program	Federal	DHS-FEMA	DOTD	Provides technical assistance, training, and grants to enhance state dam safety programs.
National Earthquake Hazards Reduction Program (NEHRP)	Federal	DHS-FEMA	GOHSEP	Provides funding to support enhanced earthquake risk assessments in local hazard mitigation plans, as well as other earthquake hazard mitigation and preparedness activities.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
National Earthquake Hazards Reduction Program (NEHRP)	Federal	DOI-USGS		NEHRP's work encompasses research, development, and implementation activities. Research helps to advance our understanding of why and how earthquakes occur and impact the natural and built environments. The program develops strategies, tools, techniques, and other measures that can reduce the adverse effects of earthquakes and facilitates and promotes implementation of these measures, thereby strengthening earthquake resilience among at-risk communities.
National Flood Insurance Program (NFIP)	Federal	DHS-FEMA	DOTD	Provides affordable insurance to property owners and encourages communities to adopt and enforce floodplain management regulations.
National Training and Education (NTE)	Federal	DHS-FEMA		Offers educational and training programs through online course catalog, which provides searchable, integrated information on courses provided or managed by FEMA's Center for Domestic Preparedness (CDP), Emergency Management Institute (EMI), and National Training and Education Division (NTED).
National Weather Service (NWS)	Federal	NOAA - NWS		Provides storm spotter training (SKYWARN) and public education resources such as weather safety guides, outreach campaigns, and awareness materials to help communities prepare for severe weather hazards. NWS may also provide signage to recognized communities when funding permits through the StormReady program.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Natural Resources Damage Assessment and Restoration Program (NRDAR)	Federal	DOI-USFWS DOC-NOAA		Designed to address injuries to public natural resources caused by oil spills or releases of hazardous substances into the environment. When such incidents occur designated trustee agencies assess the extent of harm to resources such as wildlife, habitats, wetlands, fisheries, beaches, and other ecological components, as well as associated losses in public recreational uses. The program quantifies these injuries then determines the restoration needed to return resources to their pre-incident baseline condition, such as restoring coastal wetlands or shorelines following storm surge, erosion, or flooding events.
NOAA Cooperative Institutes (CIWRO / National Water Center)	Federal	DOC-NOAA-OAR / NWS		Supports university-led cooperative research on hydrology, flooding, severe weather, and related hazards. These institutes (e.g. CIWRO for severe weather, NGI for Gulf region) generate scientific tools and insights that may indirectly support state and local hazard mitigation efforts.
Nonprofit Security Grant Program (NSGP)	Federal	DHS-FEMA	GOHSEP	The Nonprofit Security Grant Program (NSGP) is a federal grant program administered by FEMA that provides funding to nonprofit organizations at high risk of terrorist or other extremist attacks to enhance their physical security.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Non-Structural Alternatives to Structural Rehabilitation of Damaged Flood Control Works	Federal	DOD-USACE		Allows communities to use funds originally earmarked for structural repairs of flood control works and instead apply them toward non-structural alternatives, such as buyouts, floodplain restoration, relocation, or natural habitat rehab, when a damaged structure is no longer intended to function as a flood control asset.
North American Wetland Conservation Act (NAWCA) **Grants**	Federal	DOI-USFWS		Provides funding for wetland conservation projects.
Office of Disaster Assistance	Federal	SBA	SBA Louisiana District Office	Provides financial assistance through low interest disaster loans to businesses of all sizes, private non-profit organizations, homeowners, and renters to repair or replace real estate, personal property, machinery & equipment, inventory and business assets that have been damaged or destroyed in a declared disaster.
Parish Matching Program	State	CPRA	CPRA	Competitive program providing state matching funds to parishes for coastal protection and restoration projects. Supports local governments in implementing projects aligned with the Coastal Master Plan.
Partners for Fish and Wildlife	Federal	DOI-USFWS		Provides financial and technical assistance to landowners for wetland restoration projects in "focus areas" of the state.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Planning Assistance to States (PAS)	Federal	DOD-USACE		Provides technical and planning assistance to states, tribes, and local governments for the development, management, and conservation of water and related land resources, under Section 22 of the Water Resources Development Act, administered by USACE.
Port Construction and Development Priority Program	State	DOTD	DOTD	Ensures that adequate landside facilities are available to meet a definite market need by providing guidance and public funds to build landside infrastructure; thereby, providing jobs and competitive transportation cost to move cargo, minimizing highway congestion, improving safety and reducing maintenance costs on Louisiana highways. The types of projects that shall be funded by the program are limited to the construction, improvement, capital facility rehabilitation and expansion of publicly owned port facilities including intermodal facilities and maritime-related industrial park infrastructure developments.
Post-Disaster Economic Recovery Grants and Assistance	Federal	DOC-EDA	GOHSEP	Provides funding to assist with the long-term economic recovery of communities, industries, and firms adversely impacted by disasters.
Preparedness (Non-Disaster) Grants	Federal	DHS-FEMA	GOHSEP	Provides financial assistance to state and local governments for preparedness programs. Funding is allocated to enhance the capacity of emergency responders to prevent, respond to, and recover from terrorism incidents involving weapons of mass destruction (chemical, biological, radiological, nuclear, and explosive devices), as well as cyber-attacks.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Project Modifications for Improvement of the Environment (Section 1135)	Federal	DOD-USACE		Provides funds for ecosystem restoration by modifying structures and / or operations of water resources projects constructed by the U.S. Army Corps of Engineers (USACE), or by restoring areas where a USACE project contributed to environmental degradation.
Public Assistance (PA) **Grant Program**	Federal	DHS-FEMA	GOHSEP	Provides funding to states, tribes, and communities to repair or replace damaged infrastructure and public facilities following a disaster, and to help restore government or government-related services. The program also includes Section 406 Hazard Mitigation authority, which funds cost-effective mitigation measures incorporated into the repair of damaged facilities to reduce the risk of future damage.
Public Health Emergency Preparedness (PHEP) **Cooperative Agreement**	Federal	HHS-CDC	LDH	Aids health departments in building and strengthening their ability to effectively respond to a range of public health threats, including infectious diseases, natural disasters, and biological, chemical, nuclear, and radiological events. Preparedness activities funded by the PHEP Cooperative Agreement specifically target the development of emergency-ready public health departments that are both flexible and adaptable.
Public Housing Capital Fund	Federal	HUD-PIH	LHC	Funding available towards public housing agencies for modernization needs resulting from natural disasters including elevation, flood proofing, and retrofitting.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Recreational Trails Program (RTP)	Federal	USDOT-FHWA	CRT	Provides funds to develop and maintain recreational trails and trail-related facilities for both motorized and nonmotorized use. Eligible projects include construction of new trails, maintenance and restoration of existing trails, acquisition of trail corridors, and educational programs to promote trail safety and environmental protection.
Remediation Program	State	LDEQ	LDEQ	The Remediation Program aims to maintain and enhance Louisiana's environment by preventing, investigating, and remediating contamination (soil, groundwater, etc.). Key duties include site evaluation/investigation, corrective action, corrective action monitoring, field verification, risk evaluation (via the RECAP regulation), and public communication. It handles releases from past uncontrolled contaminant discharges under state regulatory authority.
Risk MAP Program	Federal	DHS-FEMA		Supports the development and updating of floodplain maps and multi-hazard risk products to improve community resilience. FEMA administers the program in partnership with state NFIP coordinators.
Rural Utilities Service (RUS)	Federal	USDA-RD	USDA-RD Louisiana State Office	Programs designed to provide needed infrastructure or infrastructure improvements to rural communities, including water and wastewater treatment, electric power, and telecommunications services.
Section 14: Emergency Streambank and Shoreline Protection	Federal	DOD-USACE		Provides technical assistance to ensure bank protection for highways, highway bridges, essential public works, churches, hospitals, schools, and other nonprofit public services endangered by flood-caused erosion.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Section 108 Loan Guarantee Program	Federal	HUD-CPD		Provides loan guarantees under the Community Development Block Grant (CDBG) program to support large-scale community and economic development projects. Eligible uses include infrastructure improvements, public facilities, and mitigation measures that reduce long-term risks to residents and businesses.
Section 502 Loan Guaranteed Loan Program	Federal	USDA-RD-RHS	USDA-RD Louisiana State Office	Provides loans, loan guarantees, and technical assistance to very low- and low-income applicants seeking to purchase, build, or rehabilitate homes in rural areas.
Section 504 Loans for Housing	Federal	USDA-RHS	USDA-RD Louisiana State Office	Provides loans and grants to very low-income rural homeowners to repair, improve, or modernize their homes. Assistance may also be used to remove health and safety hazards or improve accessibility for residents with disabilities.
Silver Jackets	Federal	DOD-USACE		Provides funding for flood-related studies, public awareness efforts, risk analysis, flood response plans, and the construction of small flood control projects.
Small Flood Control Projects (USACE Section 205)	Federal	DOD-USACE		Authorizes USACE to partner with local sponsors on small-scale flood risk management projects. USACE funds up to 65 percent of planning, design, and construction costs (capped at $10 million per project), while non-federal sponsors provide the remaining cost share through cash, services, or land value.
Specialty Crop Block Program (SCBGP)	Federal	USDA-AMS	LDAF	Provides grants to enhance competitiveness of specialty crops in Louisiana (marketing, research, promotion, food safety, pest control).

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
State Acres for Wildlife Enhancement (CRP-SAFE)	Federal	USDA-FSA	USDA-FSA Louisiana State Office	Provides financial and technical assistance to landowners to establish or restore high-priority wildlife habitats identified by the state. Eligible lands are enrolled under long-term contracts to improve habitat for targeted species, enhance biodiversity, and support environmental quality.
State and Local Cybersecurity Grant Program (SLCGP)	Federal	DHS-CISA	GOHSEP	The State and Local Cybersecurity Grant Program provides funding to eligible entities to address cybersecurity risks and threats to information systems owned or operated by, or on behalf of, state, local, or tribal governments.
State Homeland Security Program (SHSP)	Federal	DHS-FEMA-GPD	GOHSEP	Provides support to state, local, tribal, and territorial governments in expanding and improving capabilities vital to terrorism (and other hazards) preparation, protection, and response efforts.
State Water Resources Research Act Program	Federal	DOI-USGS		The U.S. Geological Survey (USGS), in cooperation with the National Institutes for Water Resources (NIWR), issues an annual call for proposals that address water challenges and concerns of regional or interstate significance, or that relate to a specific program priority identified by the Secretary of the Interior and the Institutes.
State Wildlife Grants Program	Federal	DOI-USFWS	LDWF	Provides federal funding to the states for conservation of nongame species and their habitat. The goal of the program is to prevent these species from being listed as threatened or endangered under the Endangered Species Act.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Surface Transportation Block Grant Program (STBG)	Federal	USDOT-FHWA		Provides flexible funding for state and local transportation priorities, including safety improvements, roadway and bridge projects, transit, and other enhancements. Eligible uses range from safety education to environmental and community-focused activities, with broad flexibility under FHWA guidance.
Transfers of Inventory Farm Properties to Federal and State Agencies for Conservation Purposes	Federal	USDA-FSA		Transfers the titles of certain inventory farm properties owned by the FSA to federal and state agencies for conservation purposes, including the restoration of wetlands and floodplain areas to reduce future flood potential.
Transportation Alternatives Program	Federal	USDOT-FHWA	DOTD	A federally funded program administered through DOTD. The goal is to work toward building a more balanced transportation system that includes pedestrians and cyclists as well as the motoring public. Eligible projects can include bicycle and pedestrian facilities, safe routes for non-drivers, conversion of abandoned railway corridors to trails, scenic turnouts, overlooks and viewing areas, archaeological activities, storm water mitigation, wildlife management and community improvement activities.
Underground Storage Tank (UST) **Grant Program**	Federal	EPA-OLEM-OUST	LDEQ	Provides assistance to help prevent, detect, and clean up leaks from underground storage tanks (USTs). Funds support activities such as tank inspections, remediation of petroleum contamination, and protection of groundwater resources.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Urban and Community Forestry	Federal	USDA-USFS		Provides technical assistance and cost-share support to help communities plant, maintain, and restore trees in urban and suburban areas. The program enhances local forest health, improves air and water quality, reduces energy costs, and strengthens community resilience.
USDA Conservation Programs	Federal	USDA	USDA Louisiana State Offices	These programs[2] work to address a large number of farming and ranching related conservation issues including drinking water protection, soil erosion reduction, wildlife habitat preservation, the preservation and restoration of forests and wetlands, and aiding farmers whose farms have been damaged by natural disasters.
Volunteer Fire Assistance Grants (VFA)	Federal	USDA-USFS	LDAF	Provides financial assistance to rural volunteer fire departments serving communities of fewer than 10,000 residents. The program requires a 50/50 cost share between federal funds and the recipient department and is structured to strengthen local firefighting capacity through equipment, training, and facility improvements. In Louisiana, VFA encompasses three funding opportunities: the Natural Disaster and Recovery Supplement Grant, the Wildland Fire Grant, and the core Volunteer Fire Assistance Grant, which together support departments in preparing for, responding to, and recovering from fire and disaster events.

[2] Note: Programs include Conservation Reserve Program, Conservation Reserve Enhancement Program, Emergency Conservation Program, Emergency Forest Restoration Program, Farmable Wetlands Program, Grassland Reserve Program, Source Water Protection Program.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Water and Waste Disposal Loan and Grant Program	Federal	USDA-RD	USDA-RD Louisiana State Office	Assists rural communities in developing and improving water supply and waste disposal systems, including drinking water treatment, sewer systems, solid waste disposal, and stormwater drainage. Funding is available through loans, grants, or a combination, with priority given to communities with populations under 10,000.
Water Conservation Field Services Program (WCFSP)	Federal	DOI-USBR		Provides cost-share assistance for water districts to develop conservation plans, improve system efficiency, and adopt water-saving practices under the Reclamation Reform Act of 1982.
Watershed Protection and Flood Prevention Operations Program (WFPO)	Federal	USDA-NRCS		Provides technical and financial assistance for planning and implementing watershed projects to prevent flooding, protect water quality, and improve water management. Projects may also address water supply, erosion control, and wildlife habitat.
WaterSMART	Federal	DOI-USBR		WaterSMART is a Bureau of Reclamation initiative that funds projects to improve water sustainability and resilience in the western United States. Programs include Applied Science Grants that support watershed and research studies, Water and Efficiency Grants that help districts and communities modernize water delivery and conserve supplies, and the Drought Response Program, which funds planning and resilience strategies to address shortages.

Name	Level	Source Agency	Managing State Agency	Purpose of Programs
Weather Program (WPO) **Grants**	Federal	DOC-NOAA-OAR		Provides competitive funding for applied research to improve the nation's weather, water, and climate prediction capabilities, including projects that advance hydrologic modeling and forecasting.
Wetlands Protection – Development Grants	Federal	EPA-OW-OWOW		Provides funds to support the development and enhancement of state and tribal wetlands protection programs.



Adoption Resolutions