

Flood Risk Report

Amite Watershed

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FEMA

Flood Risk Report History

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Preface

The Department of Homeland Security, Federal Emergency Management Agency's (FEMA) Risk Mapping, Assessment, and Planning (Risk MAP) program provides States, Tribes, and local communities with flood risk information, datasets, risk assessments, and tools that they can use to increase their resilience to flooding and better protect their residents. By pairing accurate floodplain maps with risk assessment tools and planning and outreach support, Risk MAP transforms the traditional flood mapping efforts into an integrated process of identifying, assessing, communicating, planning for, and mitigating flood-related risks.

This Flood and Natural Hazard Risk Report provides datasets for floods and other natural hazards to help local or Tribal officials, floodplain managers, planners, emergency managers, and others better understand their flood risk, take steps to mitigate those risks, and communicate those risks to their residents and local businesses. Flood risk often extends beyond community limits. This report provides flood risk data for the Amite Watershed.

Flood risk is always changing, and studies, reports, or other sources may be available that provide more comprehensive information. This report is not intended to be regulatory or the final authoritative source of all flood risk data in the project area. Rather, it should be used in conjunction with other data sources to provide a comprehensive picture of flood risk within the project area.

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Executive Summary

The Federal Emergency Management Agency's (FEMA) Risk Mapping, Assessment, and Planning (Risk MAP) program provides communities with flood information to help them understand their current flood risk and make informed decisions about taking action to become stronger and more resilient in the face of future risk. The Risk MAP process provides communities with new or improved information about their flood risk based on watershed models that use information from local, regional, State, and Federal sources. Communities can use the resulting tools and data to enhance mitigation plans and better protect their residents.

This report is one such tool for communities impacted from an updated flood hazard analysis of the Amite Watershed. The Flood Risk Report has two goals: (1) **inform communities of their risks** related to certain natural hazards, and (2) **enable communities to act** to reduce their risk. It is intended to assist Federal, State, and local officials with the following:

- Update local hazard mitigation plans and community comprehensive plans
- Update emergency operations and response plans
- Communicate risk
- Inform the modification of development standards
- Identify mitigation projects

During this phase of the process, communities are encouraged to review the flood hazard changes closely and provide feedback to FEMA Region VI, based on their local knowledge and any additional data available.

About the Amite Watershed

The Amite study area intersects both Louisiana and Mississippi and covers many communities including 19 municipalities (Baker, Baton Rouge, Central, Centreville, Clinton, Denham Springs, French Settlement, Gloster, Jackson, Killian, Liberty, Livingston, Norwood, Port Vincent, Slaughter, St. Gabriel, Walker, Wilson, and Zachary) and 10 counties/parishes (Amite, Ascension, East Baton Rouge, East Feliciana, Franklin, Iberville, Livingston, St. Helena, and Wilkinson). The first FEMA flood maps for the Amite Watershed were released over 40 years ago. Since then, there have been several updates to these maps for each of the communities within Amite Watershed. The most recent update was in 2013. The watershed begins in the southern part of Mississippi and travels south through a series of streams and rivers into Lake Maurepas in Louisiana. In August of 2016, the watershed experienced catastrophic flooding when over 20 inches of rain fell in the area.



Figure 1: Flooding in Denham Springs, August 2016

About the Risk MAP Project

Much of the information garnered for the Risk MAP project originates from the careful leverage of pre-existing resources. The information relating to the demographics of the watershed is derived from the 2000 and 2010 censuses. Additionally, local community and parish governments provided further, locally obtained flooding information. Utilizing that pre-existing information allows the Risk MAP Project to increase its overall scope and detail without increasing the cost or length of the project.

FEMA, through its contractor Compass, completed the collection and creation of Base Level Engineering (BLE) for the Amite Watershed in March 2017. The Base Level Engineering analysis was performed to support the overall Risk MAP program and to perform a validation of the effective Zone A Special Flood Hazard Areas (SFHAs) in the watershed.

In April 2018 the Louisiana Department of Transportation and Development (LA DODT) with support from FEMA Region 6, initiated the Phase 1 Discovery phase of this project. The goal of Discovery is to gain a more holistic picture of the flood hazards within a watershed, to collect data to validate the flood risks, identify opportunities to facilitate migration planning, and aid local communities in identifying further actions to reduce flood risk. Furthermore, because flood risks change over time, this Discovery project will help identify areas for future flood risk identification and assessment. The Discovery process is designed to open lines of communication and relies on local involvement for productive discussions. For additional information on the Discovery portion of this project see the section of this report titled “Phase 1: Discovery.”

For more information about ways your community can take action or take advantage of available resources, please review the attached appendices.

Introduction

Flood Risk

Floods are naturally occurring phenomena that can and do happen almost anywhere. In its most basic form, a flood is an accumulation of water over normally dry areas. Floods become hazardous to people and property when they inundate an area where development has occurred, causing losses. Mild flood losses may have little impact on people or property, such as damage to landscaping or the accumulation of unwanted debris. Severe flood losses can destroy buildings and crops and cause severe injuries or death.

Calculating Flood Risk

It is not enough to simply identify where flooding may occur. Even if people know where a flood might occur, they may not know the risk of flooding in that area. The most common method for determining flood risk, also referred to as vulnerability, is to identify both the probability and the consequences of flooding:

Flood Risk (or Vulnerability) = **Probability x Consequences**; where

Probability = the likelihood of occurrence

Consequences = the **estimated** impacts associated with the occurrence

The probability of a flood is the likelihood that it will occur. The probability of flooding can change based on physical, environmental, and/or engineering factors. Factors that affect the probability of flood will have an impact on the area that range from changing weather patterns to the existence of mitigation projects. The ability to assess the probability of a flood, and the level of accuracy for that assessment, are also influenced by modeling methodology advancements, better knowledge, and longer periods of record for the water body in question.

The consequences of a flood are the estimated impacts associated with its occurrence. Consequences relate to human activities within an area and how a flood affects the natural and built environment.

The Flood Risk Report has two goals: (1) inform communities of their risks related to certain natural hazards and (2) enable communities to act to reduce their risk. The information within this Risk Report is intended to assist Federal, State and local officials to:

- **Communicate risk** – Local officials can use the information in this report to communicate with property owners, business owners, and other residents about risks and areas of mitigation interest.
- **Update local hazard mitigation plans and community comprehensive plans** – Planners can use risk information to develop and/or update hazard mitigation plans, comprehensive plans, future land use maps, and zoning regulations. For example, zoning codes can be changed to provide for more appropriate land uses in high-hazard areas.
- **Update emergency operations and response plans** – Emergency managers can identify high-risk areas for potential evacuation and low-risk areas for sheltering. Risk assessment information may show vulnerable areas, facilities, and infrastructure for which continuity of operations plans, continuity of government plans, and emergency operations plans would be essential.

- **Inform the modification of development standards** – Planners and public works officials can use information in this report to support the adjustment of development standards for certain locations.
- **Identify mitigation projects** – Planners and emergency managers can use this risk assessment to determine specific mitigation projects of interest. For example, a floodplain manager may identify critical facilities that need to be elevated or removed from the floodplain.

This report showcases risk assessments, which analyze how a hazard affects the built environment, population, and local economy, to identify mitigation actions and develop mitigation strategies.

The information in this report should be used to identify areas for mitigation projects as well as for additional efforts to educate residents on the hazards that may affect them. The areas of greatest hazard impact are identified in the Areas of Mitigation Interest section of this report, which can serve as a starting point for identifying and prioritizing actions a community, can take to reduce its risks.

Watershed Basics

Amite watershed is made up of a series of streams and rivers varying in size. The watershed begins in southern Mississippi and travels south into Louisiana. The watershed continues to move south and empties into Lake Maurepas. Heavy rainfall and prolonged precipitation are the main causes for flooding within the watershed. Flooding within the watershed may also happen due to the occasional tropical storm or hurricane. Flooding events throughout the Amite watershed tend to be rapid events. As demonstrated by the August 2016 floods, over 20 inches of rain can fall in as little as a few days; causing mass flooding events capable of leaving thousands homeless.

Of key importance are the two primary tributaries to the Amite River: the Comite River and Bayou Manchac. The former joins with the Amite River near the city of Denham Springs. The Comite River is surrounded on most sides by hills and pine forest, rapidly channeling heavy rains into the normally calm Comite. The Comite has been known to flood the suburbs to the east of Baton Rouge and flow into the Amite to magnify the Amite's destructive force. This contrasts with Bayou Manchac, which in part serves as a connection between the Mississippi and the Amite River. It serves as a source of substantial ecologic tourism and acts as a buffer between the Mississippi and the Amite watersheds. The Amite River's final destination, Lake Maurepas, also poses a subtle threat to the larger area. As a shallow lake with a median depth of around 10 feet, it is prone to both flooding and overflow. While this threat is concentrated primarily on Livingston Parish's unincorporated areas, it does represent a systemic threat to one of the watershed's most populated communities.

As it enters Louisiana, the Amite River gains two important tributaries: the Comite River and Bayou Manchac. The Comite is the larger of the two and historically has led to flooding events. Heavy rains often flow rapidly into the Comite and subsequently the Amite. The Comite has an established tendency of going from placid stream to raging torrent in the span of only a few days causing massive damage along the way. The August 2016 flooding is the most recent testament to that destructive power. The less important tributary is Bayou Manchac. While known throughout Louisiana as one of the most beautiful examples of bayou ecology, the Manchac has declined massively in both size and importance. Beginning in the mid-20th century levees were constructed around the Manchac to both control it and sever its ties to the larger Mississippi River. The resultant Bayou is somewhat disjointed with the upper sections dried out and portions cut off by construction. The bayou still acts as an important tributary for

the Amite River, but much of its regional importance these days stems from tourism and recreation. With influxes from the Manchac and Comite, the Amite flows into Lake Maurepas; a relatively shallow lake next to the far larger Lake Pontchartrain. With its shallowness and close connection to Lake Pontchartrain, the Maurepas also has a historic tendency to flood, threatening Livingston Parish in the process.

Even within the already high precipitation rates of Southern Louisiana, the area around the Amite River stands out as one of the wettest parts of the state. Annual precipitation rates in the watershed come to a staggering 68 inches per year with an excess of 80 inches not unheard of. This contrasts to the 59 inches the rest of the state will receive in the average year. Additionally, massive downpours make for equally massive flooding events. The August 2016 floods were triggered by over 20 inches of rain falling over a period of a few days. Compounding this problem is the topography around the Comite River. The forested slopes on either side insure that virtually all rain near the Comite flows into it and by extension the Amite. Flooding is thus highly dependent on rainfall and often follows tropical storms or hurricanes hitting the watershed.

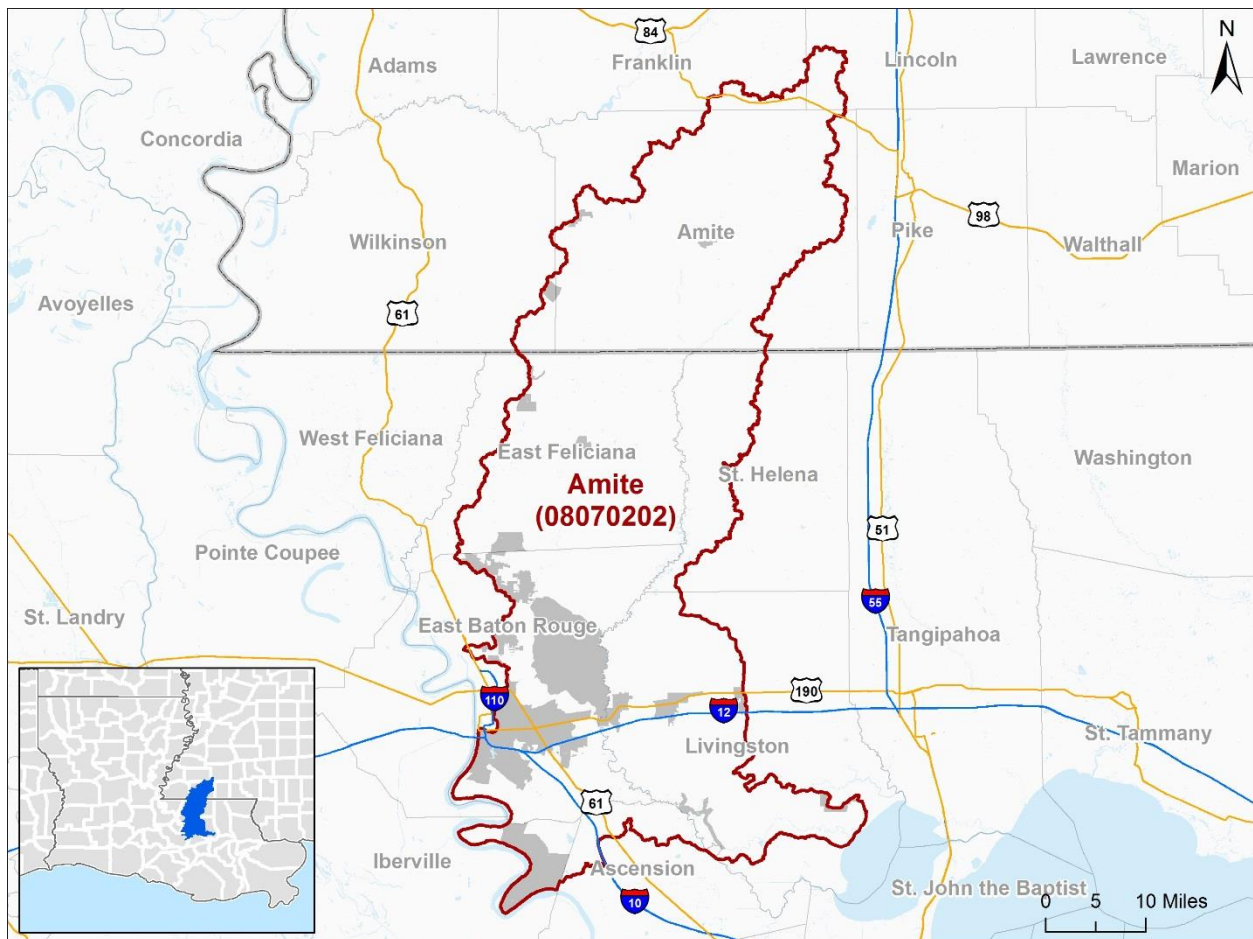


Figure 2: Overview map for the Amite Watershed

Most of the parishes within the Amite watershed have seen some growth in population over recent years, especially Ascension, East Baton Rouge, and Livingston. The municipalities of Central, Walker, and Zachary have experienced growth as well.

Table 1: Population and Area Characteristics ¹

Risk MAP Project	Total Population	Average % Population Growth/Yr (2000-2010)	Predicted Population (by 2023)	Land Area	Developed Area	Open Water
Amite Watershed	554,218	14.12%	588,050	1884 sq. mi.	17.12%	1.19%

To help mitigate the risk to areas where increased population and development are expected, communities can adopt (or exceed) the minimum standards of the National Flood Insurance Program (NFIP). This is recommended as a proactive strategy to manage construction within the floodplain and avoid negative impacts to existing and future development.

To increase mitigation efforts and community flood awareness through potentially discounted premium rates, an NFIP community that has adopted more stringent ordinances or is actively completing mitigation and outreach activities is encouraged to consider joining the Community Rating System (CRS). The CRS program is a voluntary incentive-based program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions.

Parts of four parishes, East Baton Rouge Parish, East Feliciana Parish, Livingston Parish and Tangipahoa Parish, have a level of regulation, suitable for managing floodplains with mapped regulatory floodways and Base (1-percent-annual-chance) Flood Elevations (44 CFR 60.3(d)). Parts of East Baton Rouge Parish, Iberville Parish and Livingston Parish have a level of regulation, suitable for managing floodplains with mapped Base (1-percent-annual-chance) Flood Elevations without mapped regulatory floodways (44 CFR 60.3(c)). Parts of Livingston Parish Unincorporated areas have a level of regulation, suitable for managing floodplains to include coastal high hazard areas (44 CFR 60.3(e)).

Communities can review their current ordinances and reflect potential flood hazard changes by adopting updated ordinances early. This action can reduce future flood losses by affecting how substantial improvements or new construction are regulated. Table 2 depicts NFIP and CRS participation status and provides an overview of the effective flood data availability.

¹ Data obtained from the U.S. Census Bureau; ESRI Demographic 5-year Projections; and National Land Cover Database

Table 2: NFIP and CRS Participation ²

Risk MAP Project	Participating NFIP Communities/ Total Communities	Number of CRS Communities	CRS Rating Class Range	Average Years since FIRM Update	Level of Regulations (44 CFR 60.3)
Amite Watershed	16/16	9	9-7	6.6	60.3(c), 60.3(d), 60.3(e)

Like much of Southern Louisiana, the Amite River serves as an economic corridor for the land it flows through. The lower 37 miles of the river, prior to it flowing into Lake Maurepas, are navigable allowing for it to act as an important hub for both tourism and recreation. These activities have proven susceptible to flooding events. The Diversion Canal and Amite River are periodically closed to recreational boat traffic hampering the river’s use as a source of tourism. Were the frequency of such closures to intensify then the entire recreation industry could suffer from inconsistent service.

The Amite Watershed contains 34 dams. Regionally speaking this represents a fairly high number, but one of the important factors involved is the relative size of created reservoirs. With average storage of only 278.99 acre-feet, the resultant reservoirs are below the regional average. This low average volume prevents the amount of water overflowing from any one reservoir from becoming catastrophic, but also has the capacity for any one reservoir to be overwhelmed by a single flooding event. Additionally, 99 miles of the watershed’s western boundary is protected from the Mississippi River by a levee.

Table 3: Risk MAP Project Dam Characteristics³

Risk MAP Project	Total Number of Identified Dams	Number of Dams Requiring EAP	Percentage of Dams without EAP	Average Years since Inspection	Average Storage (acre-feet)
Amite Watershed	34	4	96%	4.6	278.99

Project Phases and Map Maintenance

Background

FEMA manages several risk analysis programs, including Flood Hazard Mapping, National Dam Safety, Earthquake Safety Program, Multi-Hazard Mitigation Planning, and Risk Assessment Program, that assess the impact of natural hazards and lead to effective strategies for reducing risk. These programs support the Department of Homeland Security’s objective to “strengthen nationwide preparedness and mitigation against natural disasters.”

² Data obtained from FEMA Community Information Systems.

³ Data obtained from USACE National Inventory of Dams (June 2018)

FEMA manages the NFIP, which is the cornerstone of the national strategy for preparing American communities for flood hazards. In the Nation’s comprehensive emergency management framework, the analysis and awareness of natural hazard risk remains challenging. For communities to make informed risk management decisions and take action to mitigate risk, a consistent risk-based approach to assessing potential vulnerabilities and losses is needed, as well as tools to communicate the message. Flood hazard mapping remains a basic and critical component for a prepared and disaster-resilient Nation.

Flood-related damage between 1980 and 2013 totaled \$260 billion, but the total impact to our Nation was far greater—more people lose their lives annually from flooding than any other natural hazard.

FEMA, “Federal Flood Risk Management Standard (FFRMS)” (2015)

In Fiscal Year 2009, FEMA’s Risk MAP program began to synergize the efforts of Federal, State, and local partners to create timely, viable, and credible information identifying natural hazard risks. The intent of the Risk MAP program is to share resources to identify the natural hazard risks a community faces and ascertain possible approaches to minimizing them. Risk MAP aims to provide technically sound flood hazard information to be used in the following ways:

- To update the regulatory flood hazard inventory depicted on FIRMs and the National Flood Hazard Layer
- To provide broad releases of data to expand the identification of flood risk (flood depth grids, water surface elevation grids, etc.)
- To support sound local floodplain management decisions
- To identify opportunities to mitigate long-term risk across the Nation’s watersheds

How are FEMA’s Flood Hazard Maps Maintained?

FEMA’s flood hazard inventory is updated through several types of revisions.

Community-submitted Letters of Map Change. First and foremost, FEMA relies heavily on the local communities that participate in the NFIP to carry out the program’s minimum requirements. These requirements include the obligation for communities to notify FEMA of changing flood hazard information and to submit the technical support data needed to update the FIRMs.

Although revisions may be requested at any time to change information on a FIRM, FEMA generally will not revise an effective map unless the changes involve modifications to SFHAs. Be aware that the best floodplain management practices and proper assessments of risk result when the flood hazard maps present information that accurately reflects current conditions.

Under the current minimum NFIP regulations, a participating community commits to notifying FEMA if changes take place that will affect an effective FIRM no later than 6 months after project completion.

Section 65.3, Code of Federal Regulations

Letters of Map Amendment (LOMA). The scale of an effective FIRM does not always provide the information required for a site-specific analysis of a property's flood risk. FEMA's LOMA process provides homeowners with an official determination on the relation of their lot or structure to the SFHA. Requesting a LOMA requires a homeowner to work with a surveyor or engineering professional to collect site-specific information related to the structure's elevation; it may also require the determination of a site-specific Base Flood Elevation (BFE). Fees are associated with collecting the survey data and developing a site-specific BFE. Local survey and engineering professionals usually provide an Elevation Certificate to the homeowner, who can use it to request a LOMA. A successful LOMA may remove the Federal mandatory purchase requirement for flood insurance, but lending companies may still require flood insurance if they believe the structure is at risk.

FEMA-Initiated Flood Risk Project. Each year, FEMA initiates a number of Flood Risk Projects to create or revise flood hazard maps. Because of funding constraints, FEMA can study or restudy only a limited number of communities, counties, or watersheds. As a result, FEMA prioritizes study needs based on a cost-benefit approach whereby the highest priority is given to studies of areas where development has increased and the existing flood hazard data has been superseded by information based on newer technology or changes to the flooding extent. FEMA understands communities require products that reflect current flood hazard conditions to best communicate risk and implement effective floodplain management.

Flood Risk Projects may be delivered by FEMA or one of its Cooperating Technical Partners (CTPs). The CTP initiative is an innovative program created to foster partnerships between FEMA and participating NFIP communities, as well as regional and State agencies. Qualified partners collaborate in maintaining up-to-date flood maps. In Region 6, CTPs are generally state-wide agencies that house the State Floodplain Administrator. However, some Region 6 CTPs are also large River Authority or Flood Control Districts. They provide enhanced coordination with local, State, and Federal entities, engage community officials and technical staff, and provide updated technical information that informs updates to the national flood hazard inventory.

Risk MAP has modified FEMA's project investment strategy from a single investment by fiscal year to a multi-year phased investment, which allows the Agency to be more flexible and responsive to the findings of the project as it moves through the project lifecycle. Flood Risk Projects are funded and completed in phases.

General Flood Risk Project Phases

Each phase of the Flood Risk Project provides both FEMA and its partner communities an opportunity to discuss the data that has been collected to determine a path forward. Local engagement throughout each phase of the project enhances the opportunities for partnership and discussion about current and future risk, as well as offering the opportunity to identify projects and activities that local communities may pursue to reduce their long-term natural hazard risk.

Flood Risk Projects may be funded for one or more the following phases:

- Phase Zero – Investment
- Phase One – Discovery
- Phase Two – Risk Identification and Assessment

- Phase Three – Regulatory Product Update

Local input is critical throughout each phase of a Flood Risk Project. More detail about the tasks and objectives of each phase are included below.

Phase Zero: Investment

Phase Zero of a Flood Risk Project initiates FEMA’s review and assessment of the inventories of flood hazards and other natural hazards within a watershed area. During the Investment Phase, FEMA reviews the availability of information to assess the current flood plain inventory. FEMA maintains several data systems to perform watershed assessments and selects watersheds for a deeper review of available data and potential investment tasks, based on the following factors:

Availability of High-Quality Ground Elevation. FEMA reviews readily available and recently acquired ground elevation data. This information helps identify development and earth-moving activities near streams and rivers. Where necessary, FEMA may partner with local, State, and other Federal entities to collect necessary ground elevation information within a watershed.



If [high-quality ground elevation](#) is both available for a watershed area and compliant with FEMA’s quality requirements, FEMA and its mapping partners may prepare engineering data to assess, revise, replace, or add to the current flood hazard inventory.

Mile Validation Status within Coordinated Needs Management Strategy (CNMS). FEMA uses the CNMS database to track the validity of the flood hazard information prepared for the NFIP. The CNMS database reviews 17 criteria to determine whether the flood hazard information shown on the current FIRM is still valid.



Communities may also inform and request a review or update of the inventory through the CNMS website at <https://msc.fema.gov/cnms/>. The [CNMS Tool Tutorial](#) provides an overview of the online tool and explains how to submit requests.

Local Hazard Mitigation Plans. Reviewing current and historic hazard mitigation plans provides an understanding of a community’s comprehension of its flood risk and other natural hazard risks. The mitigation strategies within a local hazard mitigation plan provide a lens to local opportunities and underscore a potential for local adoption of higher standards related to development or other actions to reduce long-term risk.

Cooperating Technical Partner State Business Plans. In some States, a CTP generates an annual State business plan that identifies future Flood Risk Project areas that are of interest to the state. Within the Amite, the Louisiana Department of Transportation & Development and the Louisiana Governor’s Homeland Security and Emergency Preparedness provided both information and insight. In this project area, FEMA has worked closely with both entities to develop the project scope and determine the necessary project tasks.



Communities that have identified local issues are encouraged to indicate their data needs and revision requests to the State CTP so that they can be prioritized and included in the State Business Plans.

Possible Investment Tasks. After a review of the data available within a watershed, FEMA may choose to (1) purchase ground elevation and/or (2) create some initial engineering modeling against which to compare the current inventory. This type of modeling is known as Base-Level Engineering.

Phase One: Discovery

Phase One, Discovery is the current phase of this study of the Amite watershed.

Phase One, the Discovery Phase, provides opportunities both internally (between the State and FEMA) and externally (with communities and other partners interested in flood potential) to discuss local issues with flooding and examine possibilities for mitigation action. This effort is made to determine where communities currently are with their examination of natural hazard risk throughout their community and to identify how State and Federal support can assist communities in achieving their goals.



The Discovery process includes an opportunity for local communities to provide information about their concerns related to natural hazard risks. Communities may continue to inform the project identification effort by providing previously prepared survey data, as-built stream crossing information, and engineering information.

For a holistic community approach to risk identification and mapping, FEMA relies heavily on the information and data provided at a local level. Flood Risk Projects are focused on identifying (1) areas where the current flood hazard inventory does not provide adequate detail to support local floodplain management activities, (2) areas of mitigation interest that may require more detailed engineering information than is current available, and (3) community intent to reduce the risk throughout the watershed to assist FEMA's future investment in these project areas. Watersheds are selected for Discovery based on these evaluations of flood risk, data needs, availability of elevation data, regional knowledge of technical issues, identification of a community-supported mitigation project, and input from Federal, State, and local partners.

Possible Discovery Tasks. Discovery may include a mix of interactive webinars sessions, conference calls, informational tutorials, and in-person meetings to reach out to and engage with communities for input. Data collection, interviews and interaction with community staff, and data-mining activities provide the basis for watershed-, community- and stream-level reviews to determine potential projects that may benefit the communities. A range of analysis approaches are available to determine the extent of flood risk along streams of concern. FEMA and its mapping partners will work closely with communities to determine the appropriate analysis approach, based on the data needs throughout the community. These potential projects may include local training sessions, data development activities, outreach support to local communities wanting to step up their efforts, or the development of flood risk datasets within areas of concern, to allow a more in-depth discussion of risk.

Phase Two: Risk Identification and Assessment

Phase Two (Risk Identification and Assessment) continues the risk awareness discussion with communities through watershed analysis and assessment. Analyses are prepared to review the effects of physical and meteorological changes within the project watershed. The new or updated analysis provides an opportunity to identify how development within a watershed has affected the amount of stormwater generated during a range of storm probabilities and shows how effectively stormwater is transported through communities in the watershed.



Coordination with a community's technical staff during engineering and model development allows FEMA and its mapping partners to include local knowledge, based on actual on-the-ground experience, when selecting modeling parameters.

The information prepared and released during Phase Two is intended to promote better local understanding of the existing flood risk by allowing community officials to review the variability of the risk throughout their community. As FEMA strives to support community-identified mitigation actions, it also looks to increase the effectiveness of community floodplain management and planning practices, including local hazard mitigation planning, participation in the NFIP, use of actions identified in the CRS Manual, risk reduction strategies for repetitive loss and severe repetitive loss properties, and the adoption of stricter standards and building codes.



FEMA is eager to work closely with communities and technical staff to determine the current flood risk in the watershed. During the Risk Identification and Assessment phase, FEMA would like to be alerted to any community concerns related to the floodplain mapping and analysis approaches being taken. During this phase, FEMA can engage with communities and review the analysis and results in depth.

Possible Risk Identification and Assessment Tasks. Phase Two may include a mixture of interactive webinars, conference calls, informational tutorials, and in-person meetings to reach out to and engage with communities for input. Flood Risk Project tasks may include hydrologic or hydraulic engineering analysis and modeling, floodplain mapping, risk assessments using Hazus software, and preparation of flood risk datasets (water surface elevation, flood depth, or other analysis grids). Additionally, projects may include local training sessions, data development activities, outreach support to local communities that want to step up their efforts, or the development of flood risk datasets within areas of concern, to allow a more in-depth discussion of risk.

Phase Three: Regulatory Products Update

If the analysis prepared in the previous Flood Risk Project phases indicate that physical or meteorological changes in the watershed have significantly changed the flood risk since the last FIRM was printed, FEMA will initiate the update of the regulatory products that communities use for local floodplain management and NFIP activities.

Delivery of the preliminary FIRMs and FIS reports begins another period of coordination between community officials and FEMA to discuss the required statutory and regulatory steps both parties will perform before the preliminary FIRM and FIS reports can become effective. As in the previous phases, FEMA and its mapping partners will engage with communities through a variety of conference calls, webinars, and in-person meetings.



Once the preliminary FIRMs are prepared and released to communities, FEMA will initiate the statutory portions of the regulatory product update. FEMA will coordinate a Consultation Coordination Officer (CCO) meeting and initiate a 90-day comment and appeal period. During this appeal period, local developers and residents may coordinate the submittal of their comments and appeals through their community officials to FEMA for review and consideration.

FEMA welcomes this information because additional proven scientific and technical information increases the accuracy of the mapping products and better reflects the community's flood risks identified on the FIRMs.



Communities may host or hold Open House meetings for the public. The Open House layout allows attendees to move at their own pace through several stations, collecting information in their own time. This format allows residents to receive one-on-one assistance and ask questions pertinent to their situation or their interest in risk or flood insurance information.

All appeals and comments received during the statutory 90-day Appeal Period, including the community's written opinion, will be reviewed by FEMA to determine the validity of the appeal. Once FEMA issues the appeal resolution, the associated community and all appellants will receive an appeal resolution letter and FEMA will make any revisions to the FIRM as appropriate. A 30-day period is provided for review and comment on successful appeals. Once all appeals and comments are resolved, the flood map is ready to be finalized.



After the Appeal Period, FEMA will send community leaders a Letter of Final Determination (LFD) stating that the preliminary FIRM will become effective in six months. The letter also discusses the actions each affected community participating in the NFIP must take to remain in good standing in the NFIP.

After the preceding steps are complete and the six-month compliance period ends, the FIRMs are considered effective maps and new building and flood insurance requirements become effective.

That is a brief general overview of a flood risk project. Next, the Flood Risk Report will provide details on the efforts in the Amite Watershed.

Phase One: Discovery

Overview

The Louisiana Department of Transportation and Development (LA DOTD) in conjunction with FEMA Region 6 elected to pursue a Phase 1 Discovery project in the Amite Watershed during Fiscal Year 2017 (FY18). This was a natural progression given the completion of the BLE analysis in March 2017 and the results of its assessment and validation.

The Discovery process provides an opportunity not only to collect additional information that can be used to further refine areas of interest, but more importantly offers opportunities to work directly with communities within the watershed to discuss local issues which may not be apparent from the BLE analysis and research.

During Discovery the project team has contacted the communities through a variety of means to not only let them know that the project is underway, but to actively engage them so as to open lines of communication and make the resulting discussion more productive.

The following sections are a summary of the information gathered and a discussion of how that information may inform the discussion of future investments. The information that follows comes from FEMA, other Federal agencies, and the states and communities that make up the watershed.

Watershed Information and Review

The following section will explore data from a number of sources to develop a better understanding of the level of risk that the watershed communities face. This will include, but not be limited to, information on the number of flood insurance policies, the number of claims, past disaster declarations, information about hazard mitigation plans, and NFIP engagement with both FEMA and state representatives.

National Flood Insurance Program (NFIP) Information.

All of the communities within the watershed participate in the National Flood Insurance Program. It should be noted that the Parish of East Baton Rouge and the City of Baton Rouge are run by a consolidated government, so the City is not listed as an individual community as it related to the NFIP. Table 4 show community CRS ratings, the date and status of their effective maps, and the estimated 2016 population. Please note that the population figures represents the population for the entire community and not just the portion in the watershed.

Table 4: NFIP Information⁴

Community Name	CID	NFIP Participant	CRS Rating	FIRM Date	FIRM Status	Population (2016 ACS Estimate)
Ascension Parish	220017	Y	8	8/16/2007		117,009
City of Baker	225193	Y	9	5/2/2008	Revised	13,754
City of Baton Rouge	220159	N/A	N/A	N/A	NOT NFIP Community	228,694
City of Central	220060	Y	8	6/19/2012		28,017
Town of Clinton	220249	Y	-	4/3/2012		1,340
City of Denham Springs	220116	Y	8	4/3/2012		10,278
East Baton Rouge Parish	220058	Y	7	6/19/2012	Revised	445,337
East Feliciana Parish	220364	Y	-	4/3/2012	Original	19,756
Village of French Settlement	220117	Y	9	4/3/2012		1,405
Iberville Parish	220083	Y	-	11/6/2013		33,159
Town of Jackson	220333	Y	-	4/3/2012	Revised	3,795
Town of Killian	220355	Y	-	4/3/2012		1,108
Livingston Parish	220113	Y	9	4/3/2012		135,925
Town of Livingston	220118	Y	-	4/3/2012		1,816
Village of Norwood	220302	Y	-	4/3/2012	All Zone A, C, X - No Elev	287
Village of Port Vincent	220119	Y	10	4/3/2012		919
Town of Slaughter	220259	Y	-	4/3/2012	All Zone A, C, X - No Elev	1,322
City of St. Gabriel	220402	Y	-	11/6/2013		6,984
St. Helena Parish	220161	Y	-	4/2/2013		10,714
Town of Walker	220121	Y	8	4/3/2012		6,256
Village of Wilson	220352	Y	-	4/3/2012	All Zone A, C, X - No Elev	559
City of Zachary	220061	Y	7	6/19/2012	Revised	16,154

Table 6 includes both the number of flood insurance policies in each community but the coverage of those policies.

Table 5: NFIP Policy Information⁵

Community Name	CID	Policies in Force	Insurance in Force
Amite County	280268	16	\$328,800
Ascension Parish	220013	13,131	\$338,045,600
City of Baker	225193	776	\$16,089,100
City of Baton Rouge	220159	N/A	N/A
City of Central	220060	4,887	\$118,443,600
Town of Centreville	280358	1	\$35,000
Town of Clinton	220249	78	\$725,500

⁴ FEMA Community Information System (June 2018)

⁵ FEMA Community Information System (June 2018)

Community Name	CID	Policies in Force	Insurance in Force
City of Denham Springs	220116	2,068	\$41,872,500
East Baton Rouge Parish	220058	35,726	\$914,347,300
East Feliciana Parish	220364	107	\$2,828,800
Franklin County	280005	12	\$126,900
Village of French Settlement	220117	179	\$3,827,100
Town of Gloster	280004	-	-
Iberville Parish	220083	988	\$25,414,100
Town of Jackson	220333	12	\$274,800
Town of Killian	220355	229	\$5,131,800
Town of Liberty	280005	-	-
Lincoln County	280273	-	-
Livingston Parish	220113	15,163	\$328,587,900
Town of Livingston	220118	165	\$4,823,100
Village of Norwood	220302	-	-
Village of Port Vincent	220119	133	\$2,234,000
Town of Slaughter	220259	21	\$626,100
City of St. Gabriel	220402	244	\$6,484,100
St. Helena Parish	220161	133	\$2,987,900
Town of Walker	220121	1,125	\$25,936,800
Wilkinson County	280202	85	\$1,230,000
Village of Wilson	220352	-	-
City of Zachary	220061	1,149	\$32,069,800

Table 6 shows the total number of flood insurance claims, the number of paid claims, the total amount paid out for those claims, and the number of substantial damage claims for each community since 1978.

Table 6: NFIP Claims Information⁶

Community Name	CID	Claims	Paid Claims	Losses Paid
Amite County	280268			
Ascension Parish	220013	5,686	4,995	\$307,071,670
City of Baker	225193	462	387	\$16,550,657
City of Baton Rouge	220159	-	-	-
City of Central	220060	1,320	1,197	\$116,993,026
Town of Centreville	280358			
Town of Clinton	220249	67	59	\$1,888,871
City of Denham Springs	220116	2,877	2,671	\$188,199,989

⁶ FEMA Community Information System (June 2018), FEMA Region 4 and FEMA Region 6 (June 2018)

Community Name	CID	Claims	Paid Claims	Losses Paid
East Baton Rouge Parish	220058	17,603	11,909	\$673,957,129
East Feliciana Parish	220364	11	10	\$751,786
Village of French Settlement	220117	205	177	\$10,798,506
Iberville Parish	220083	459	386	\$6,056,434
Town of Jackson	220333	3	2	\$85,080
Town of Killian	220355	395	350	\$10,860,399
Livingston Parish	220113	9,733	8,573	\$535,044,313
Town of Livingston	220118	40	38	\$1,424,759
Village of Norwood	220302	-	-	-
Village of Port Vincent	220119	290	250	\$7,315,018
Town of Slaughter	220259	-	-	-
City of St. Gabriel	220402	12	10	\$887,896
St. Helena Parish	220161	44	31	\$1,974,147
Town of Walker	220121	567	509	\$47,791,770
Village of Wilson	220352	-	-	-
City of Zachary	220061	374	316	\$15,322,475

Table 8 show the total number of properties that have repetitive flood claims, the total number of claims made for those properties, the total amount paid out for those claims, and the number of severe repetitive loss properties. Repetitive loss and severe repetitive loss properties are good targets for mitigation as they are certainly in a location that has a higher proclivity for flooding. Mitigation actions may include elevating the structure or a property buyout. Decisions on the best approach will likely be based on the depth and frequency of floods affecting the property.

Table 7: Repetitive Loss Property Information⁷

Community Name	Total Properties	Total Claims	Total Paid Losses	Severe Repetitive Loss Properties
Amite County				
Ascension Parish	313	1045	\$28,079,919.75	72
City of Baker	23	63	\$1,488,193.22	4
City of Baton Rouge	-	-	-	-
City of Central	128	661	\$21,477,663.59	55
Town of Centreville				
Town of Clinton	10	34	\$1,347,776.02	2
City of Denham Springs	178	627	\$19,088,563.26	45
East Baton Rouge Parish	881	3319	\$110,037,982.87	289
East Feliciana Parish	1	2	\$147,621.00	-
Franklin County				

⁷ Information obtained from FEMA Region 6 (June 2018)

Community Name	Total Properties	Total Claims	Total Paid Losses	Severe Repetitive Loss Properties
Village of French Settlement	17	47	\$1,552,255.36	1
Town of Gloster				
Iberville Parish	56	152	\$1,579,182.69	2
Town of Jackson	-	-	-	-
Town of Killian	70	238	\$7,844,744.17	17
Town of Liberty				
Lincoln County				
Livingston Parish	932	2977	\$78,149,831.82	206
Town of Livingston	4	8	\$256,712.59	-
Village of Norwood	-	-	-	-
Village of Port Vincent	39	133	\$2,778,803.16	7
Town of Slaughter	1	2	\$28,896.58	-
City of St. Gabriel	-	-	-	-
St. Helena Parish	5	12	\$525,800.90	-
Town of Walker	21	68	\$2,645,927.05	2
Wilkinson County				
Village of Wilson	-	-	-	-
City of Zachary	41	115	\$4,109,943.01	5

Disaster Declarations

Table 9 lists the Federal Disaster Declaration for the watershed. Disasters are declared at the county/parish level. In the Amite watershed Livingston Parish has the largest number of declarations at 32, Ascension has 28, East Baton Rouge has 26, Iberville has 24, Lincoln County has 21, both East Feliciana Parish and Wilkinson County have 20, St. Helena Parish has 19, Amite County has 18, and Franklin County has 13. Declarations for flood events include nine for Ascension, eight for both East Baton Rouge and Iberville, seven for Livingston, four for East Feliciana, three for both Lincoln and Wilkinson, two for both Franklin and St Helena, and one for Amite.

Table 8: Disaster Declarations in the Watershed⁸

Date	Title	Amite County	Ascension Parish	East Baton Rouge Parish	East Feliciana Parish	Franklin County	Iberville Parish	Lincoln County	Livingston Parish	St. Helena Parish	Wilkinson County
9/10/1965	HURRICANE BETSY	x	x	x	x	x	x	x	x	x	x
8/18/1969	HURRICANE CAMILLE	x						x			x

⁸ FEMA <https://www.fema.gov/openfema-dataset-disaster-declarations-summaries-v1> , (April 2018)

Date	Title	Amite County	Ascension Parish	East Baton Rouge Parish	East Feliciana Parish	Franklin County	Iberville Parish	Lincoln County	Livingston Parish	St. Helena Parish	Wilkinson County
10/13/1971	HURRICANE EDITH		x	x			x				
1/19/1972	HEAVY RAINS & FLOODING	x				x		x			x
3/27/1973	HEAVY RAINS, TORNADOES & FLOODING	x				x		x			x
4/27/1973	SEVERE STORMS & FLOODING		x	x			x		x		
4/18/1974	HEAVY RAINS & FLOODING					x		x			
1/18/1975	TORNADOES							x			
1/30/1975	TORNADOES							x			
2/22/1977	DROUGHT & FREEZING	x	x		x	x		x	x	x	x
5/2/1977	SEVERE STORMS & FLOODING			x	x				x		
4/24/1978	TORNADOES	x									
4/16/1979	STORMS, TORNADOES, FLOODS										x
5/2/1979	SEVERE STORMS & FLOODING		x	x			x		x		
4/9/1980	SEVERE STORMS & FLOODING						x				
4/16/1983	SEVERE STORMS, FLOODING & TORNADOES					x					
4/20/1983	SEVERE STORMS AND FLOODING		x	x					x		
6/1/1983	SEVERE STORMS, TORNADOES, AND FLOODING										x
11/1/1985	HURRICANE JUAN		x						x		
5/20/1989	SEVERE STORMS & FLOODING				x						
6/16/1989	SEVERE STORMS & TORNADOES			x			x		x	x	
7/17/1989	TROPICAL STORM ALLISON			x			x				
2/28/1990	SEVERE STORMS, TORNADOES & FLOODING	x						x			x
5/3/1991	SEVERE STORMS, TORNADOES & FLOODING						x		x		
8/26/1992	HURRICANE ANDREW		x	x	x		x		x	x	
11/25/1992	SEVERE STORMS, HIGH WINDS & TORNADOES	x						x			x
2/2/1993	SEVERE STORMS & FLOODING		x	x			x		x		
5/10/1995	SEVERE STORMS & FLOODING		x								
9/23/1998	HURRICANE GEORGES/TS FRANCES		x						x		
2/23/2001	SEVERE STORMS AND TORNADOES	x				x		x			x
6/11/2001	TROPICAL STORM ALLISON		x	x	x		x		x	x	
9/27/2002	TROPICAL STORM ISIDORE	x		x				x	x		
10/3/2002	HURRICANE LILI		x	x	x		x		x	x	
2/1/2003	LOSS OF SPACE SHUTTLE COLUMBIA		x	x	x				x		
4/24/2003	SEVERE STORMS, TORNADOES, FLOODS	x				x		x			
6/8/2004	SEVERE STORMS AND FLOODING						x		x		

Date	Title	Amite County	Ascension Parish	East Baton Rouge Parish	East Feliciana Parish	Franklin County	Iberville Parish	Lincoln County	Livingston Parish	St. Helena Parish	Wilkinson County
9/15/2004	HURRICANE IVAN	x	x	x	x	x		x	x	x	x
8/27/2005	HURRICANE KATRINA		x	x	x		x		x	x	
8/29/2005	HURRICANE KATRINA	x	x	x	x	x	x	x	x	x	x
9/21/2005	HURRICANE RITA		x	x	x		x		x	x	
9/24/2005	HURRICANE RITA		x	x	x		x		x	x	
11/2/2006	SEVERE STORMS AND FLOODING									x	
5/8/2008	SEVERE STORMS AND FLOODING										x
8/29/2008	HURRICANE GUSTAV	x	x	x	x	x	x	x	x	x	x
9/2/2008	HURRICANE GUSTAV	x	x	x	x	x	x	x	x	x	x
9/13/2008	HURRICANE IKE								x		
5/12/2009	SEVERE STORMS, FLOODING, AND TORNADOES	x						x	x		x
5/4/2011	FLOODING										x
5/6/2011	FLOODING		x	x	x		x				
5/11/2011	FLOODING										x
8/18/2011	FLOODING		x	x			x				
10/28/2011	TROPICAL STORM LEE				x						
8/27/2012	TROPICAL STORM ISAAC	x	x	x	x		x	x	x	x	x
8/29/2012	HURRICANE ISAAC	x	x	x	x	x	x	x	x	x	x
2/22/2013	SEVERE STORMS AND FLOODING								x		
3/13/2016	SEVERE STORMS AND FLOODING		x						x	x	
3/25/2016	SEVERE STORMS AND FLOODING							x			
8/14/2016	SEVERE STORMS AND FLOODING		x	x	x		x		x	x	
2/11/2017	SEVERE STORMS, TORNADOES, AND STRAIGHT-LINE WINDS								x		
10/6/2017	TROPICAL STORM NATE								x	x	

Hazard Mitigation Plan Review

Table 10 lists the status of hazard mitigation plans for the communities in the watershed. It should be noted that most communities participate in multi-jurisdiction plans that cover entire parishes. The four counties in Mississippi (Amite, Franklin, Lincoln, and Wilkinson) are in the MEMA District 7 Regional Hazard Mitigation Plan.

Table 9: Hazard Mitigation Plan Status

Plan	Date Plan Approved	Plan Expiration Date
Ascension Parish Hazard Mitigation Plan Update	7/12/2015	7/12/2020

Plan	Date Plan Approved	Plan Expiration Date
East Baton Rouge Parish Hazard Mitigation Plan	8/17/2017	8/17/2022
East Feliciana Parish Hazard Mitigation Plan	12/4/2017	12/4/2022
Iberville Parish Hazard Mitigation Plan	12/15/2016	12/15/2021
Livingston Parish Hazard Mitigation Update - 2015	2/21/2016	2/21/2021
MEMA District 7 Regional Hazard Mitigation Plan	Pending Approval	
St. Helena Parish Hazard Mitigation Update - 2015	12/28/2015	12/28/2020

Ascension Parish

The Ascension Parish Hazard Mitigation Update (2015) is a multi-jurisdictional plan. Mitigation actions identified within the plan are organized by five goals identified by the steering committee.

- Goal 1 – Preventative structural and non-structural measures to reduce future damages
 - Construction of a safe room
 - Hardening of critical facilities
 - Widen drainage ditches and upgrade culverts
- Goal 2 – Enhance public awareness and understanding of disaster preparedness
 - Effectively communicate and coordinate flood mitigation issues
 - Improve NFIP compliance
 - Utilize various methods to distribute hazard information to the public
- Goal 3 – Reduce repetitive flood losses
 - Asses risk of flooding through surge and inundation models
 - Acquisition or elevation of severe repetitive loss structures
- Goal 4 – Facilitate sound development to reduce or eliminate the impact of hazards
 - Improve stormwater management planning
- Goal 5 – Improve the ability to recover and restore facilities and services
 - Installation of backup generators for critical facilities

East Baton Rouge Parish

The East Baton Rouge Parish Hazard Mitigation Plan (2017) is a multi-jurisdictional plan that includes the cities of Baker, Baton Rouge, Central, and Zachary. Communities within the Parish had actions that mirrored the parish actions or mandated cooperation with the parish. Funded mitigation actions identified include:

- Goal 1 - Reducing repetitive flooding throughout the parish
 - Mitigation of repetitive loss structures
- Goal 2 - Improving drainage system capacity for all bodies of water within the parish
 - Creation of master drainage plan
 - Upgrading drainage pumps, culverts, canals, bridges, berms, and retention ponds where necessary
- Goal 3 - Increasing public awareness that focuses on preparing for and mitigating against disasters
 - Sponsoring a “Multi-Hazard Awareness Week”
 - Promote purchasing of flood insurance through the NFIP

- Goal 4 - Mitigation of infrastructure and government facilities to prepare, protect, respond, and recover in the event of a disaster
 - Hardening of critical facilities so that they may be used before, during, and after a disaster
 - Construction of a safe room that may be used for first responders
 - Installation of generators to continue operations throughout events
 - Upgrade public warning system

East Feliciana Parish

The East Feliciana Parish Hazard Mitigation Plan (2018) is a multi-jurisdictional plan that includes the towns of Clinton, Jackson, and Slaughter, and the villages of Norwood and Slaughter. Mitigation actions within the plan are organized as goals identified by the steering committee.

- Goal 1 – Preventive measures to reduce future damages
 - Retrofit public buildings so that they may be used before or after a disaster
 - Elevation or acquisition of repetitive loss structures
 - Construction of a safe room for first responders
 - Installation of power generators to continue essential operations during power outages
 - Update public warning system
- Goal 2 – Increase public awareness and understanding of disaster preparedness
 - Enhance public outreach programs
 - Promote purchase of flood insurance through NFIP
- Goal 3 – Implement training exercises to prepare government officials to mitigate against, respond to, and recover from disasters
 - Create a working group to assess the effects of a possible dam failure
- Goal 4 – Facilitate sound development to reduce or eliminate the impact of hazards
 - Improve drainage

Iberville Parish

The Iberville Parish Hazard Mitigation Update (2016) is a multi-jurisdictional plan that includes the City of St. Gabriel. Mitigation actions identified within the plan can be organized by the four goals identified by the steering committee.

- Goal 1 – Reduce flood losses within the parish
 - Improve drainage
 - Create a levee failure working group
- Goal 2 – Increase disaster resistance within the parish
 - Construction of a safe room for first responders
 - Installation of power generators to continue essential operations during power outages
 - Installation of lightning rods and surge protectors in public buildings
 - Update/upgrade public warning system
- Goal 3 – Ensure new construction is hazard resistant and does not lead to increased risk
- Goal 4 – Identify, introduce, and implement cost effective mitigation measures
 - Enhance public outreach programs through technical assistance, mail outs, and training
 - Promote the purchase of flood insurance

Livingston Parish

The Livingston Parish Hazard Mitigation Plan Update (2016) is a multi-jurisdictional plan that includes the Village of Albany, Town of Killian, Town of Livingston, and the Town of Springfield. Mitigation actions identified within the plan are organized by four goals identified by the plan committee. Funded mitigation actions identified include:

- Goal 1 - Identify and pursue preventative measures that will reduce future damages
 - Hardening of critical infrastructure to allow operations to continue during disasters
 - Construct safe rooms in critical facilities
 - Construct new shelters and upgrade current shelters
 - Install generators at critical facilities
- Goal 2 – Increase public awareness and understanding of disaster preparedness
 - Advertise public meetings during hazard mitigation planning process
 - Sponsor a “Multi-Hazard Awareness Week”
- Goal 3 – Reduce repetitive flood losses
 - Elevation or acquisition projects for severe repetitive loss and repetitive loss properties
 - Flood proof public buildings that are vulnerable to flood damage
 - Public outreach campaign to homeowners in floodplains to explain NFIP coverage
 - Evaluate CRS participation
- Goal 4 – Facilitate sound development to reduce or eliminate the impact of hazards
 - Install hazard early warning system
 - Upgrade drainage system
 - Creation of a cohesive drainage plan
 - Guide development away from hazard areas using zoning regulations

St. Helena Parish

The St. Helena Parish Hazard Mitigation Plan Update (2015) is a multi-jurisdictional plan. Mitigation actions identified within the plan are organized by four goals identified by the steering committee.

- Goal 1 – Identify and pursue preventative measures that will reduce future damages
 - Hardening of critical infrastructure to allow operations to continue during disasters
 - Construct emergency shelters
 - Develop a master drainage plan
 - Install generators at critical facilities
 - Construct safe rooms in government buildings
- Goal 2 – Increase public awareness and understanding of disaster preparedness
 - Utilize various methods to distribute hazard information to the public
 - Sponsor a “Multi-Hazard Awareness Week”
 - Creation of public education programs
- Goal 3 – Reduce repetitive flood losses in the parish
 - Elevation or acquisition projects for severe repetitive loss properties
 - Floodproofing or structural solutions for repetitive loss properties
- Goal 4 – Facilitate sound development to reduce or eliminate the impact of hazards
 - Implement mitigation measures that will alleviate road erosion
 - Implement a public notification system

- Participate in the “Community Rating System (CRS)”
- Develop and pass ordinances to regulate new development, such as requiring proper drainage, requiring freeboard above the base flood elevation, or encouraging underground utilities

MEMA District 7 Regional Mitigation Plan

The hazard mitigation plan for Amite, Franklin, Lincoln, and Wilkinson Counties is part of the MEMA District 7 Regional Mitigation Plan. This district covers nine counties, Adams, Amite, Franklin, Jefferson, Lawrence, Lincoln, Pike, Walthall, and Wilkinson. There are six mitigation goals identified by the counties in coordination with the other participating jurisdictions.

- Goal 1 – Increase public awareness of natural hazards in the region
- Goal 2 – Retrofit critical facilities and/or critical infrastructure to lower risk from hazards
- Goal 3 – Improvement of regional or local mitigation planning
- Goal 4 – Support state identified mitigation initiatives
- Goal 5 – Reduce loss of life, property, economic costs, recovery and disruption of economic activity
- Goal 6 – Foster cooperation among government and private sector to improve, update, and implement the hazard mitigation plan

The mitigation actions proposed are organized by the hazards addressed. The following is a listing of high priority actions for the counties.

- Hurricane
 - Utilize the StormReady program to improve community preparedness.
 - Purchase and install backup generators for critical public facilities
 - Improve communication by acquiring a satellite phone system.
 - Creation of a Comprehensive Land Use Plan.
 - Retrofit existing public buildings for wind resistance.
 - Construct a new emergency shelter
- Flooding
 - Attend regular floodplain management workshops to build capabilities.
 - Acquire improved GIS data to assess flood risk.
- Tornado
 - Install sirens/warning system throughout the county.
 - Use GIS to create detailed hazard risk assessments.
 - Retrofit existing public buildings for wind resistance.
- Dam Failure
 - Perform community outreach and education regarding dam failure risk.
- Wildfire
 - Offer public information and outreach workshops on the Firewise program and encourage attendance of public officials, vulnerable residents and firefighters at workshops presented by the Forestry Commission.
 - Use GIS to create detailed hazard risk assessments.
- Radiological

- Recommend community officials, first responders, and primary care facility employees periodically attend workshops on evacuation procedures and treatment of affected individuals.
- Conduct community workshops and media campaign to educate public on evacuation routes and procedures should a radiological release occur.
- Winter Storms
 - Utilize StormReady program to better prepare for and mitigate effects of extreme weather

Ordinances and Regulations Review

A review of development regulations helps shed light on how a community tries to limit their exposure to damages from disasters by guiding development away from floodplains or insuring flood proofing strategies are utilized. The following section will review the ordinances, development regulations, and any additional guidelines as they are related to development activities, or renovations, within flood zones or areas affected by flooding.

City of Central

Chapter 15 of the City of Central code of ordinances addresses floods. This chapter of the ordinance establishes the need and purpose to prevent flood damage and then provides a framework for ensuring that purpose is fulfilled. Specifically, the ordinance creates the floodplain administrator position and assigns their duties and responsibilities, and also outlines the need for and processes related to development permits, including procedures for obtaining variances.

Part V, of the chapter identifies the provisions for flood hazard reduction. This article is divided into five sections general standards, specific standards, establishment of development and disturbance permits, standards for areas of shallow flooding, and floodways. General standards include, but are not limited to, providing proper anchoring to prevent structures from being moved by flood waters, utilizing construction methods that minimize potential flood damage, using materials that are flood resistant, locating service facilities in a manner that minimizes flood damage, and ensuring water supply systems and sanitary sewage systems are designed to minimize or eliminate infiltration of floodwaters as well as the discharge of sewage into flood waters. Specific standards require having the lowest floor be at or above the base flood elevation and certification requirements, as well as specific requirements for the placement of manufactured homes, restrictions on the placement of recreational vehicles on sites within floodplains, and restriction on landfill material. The establishment of development and disturbance permits sets standards for requiring permits when mechanized equipment is used on the site. The standards for areas of shallow flooding add the requirement that the elevation of structures and facilities be above the base flood elevation in AO and AH zones, that drainage paths be provided around structures on slopes to guide flood waters around and away from the structure, and that a professional engineer provide certification to the floodplain administrator that these standards are met. The floodway standards prohibit encroachments on the floodway, including fill new construction, substantial improvements and other development within the floodway unless it is certified by a professional registered engineer providing that the encroachment will not increase flood levels.

The City of Central Code of Ordinances can be found here:

https://library.municode.com/la/central/codes/code_of_ordinances

East Baton Rouge Parish/City of Baton Rouge

The City of Baton Rouge and East Baton Rouge Parish operate as a unified government so the ordinances and regulations discussed below govern the both the City and the unincorporated areas of the Parish.

The City/Parish government has a Unified Development Code (UDC) which defines zoning and planning regulations. The UDC is available online at <https://www.brla.gov/706/Unified-Development-Code>

Chapter 15 of the UDC, titled “Floodways, Floodplains, Drainage and Water Quality” specifically addresses issues pertaining to flooding and storm water. The document details various provisions for reducing flood hazards, this includes: the designation of a floodplain administrator and a listing of their duties, procedures for obtaining a development permit and procedures for obtaining a variance. The document also covers stormwater management plans for developments, drainage requirements, drainage impact studies, water quality as it relates to stormwater and runoff management, and water quality studies. Lastly, the document addresses flood prevention and lists a number of methods used to reduce flood losses. The list includes restricting or prohibiting uses that are dangerous in times of flood, requiring that uses vulnerable to floods be protected against flood damage at the time of initial construction, control the alteration of natural floodplains, stream channels, etc., control filling, grading, and dredging, and preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters. The following sections address standards for new development as well as certain redevelopment activities. Some examples include anchoring structures to prevent flotation, the use of flood resistant materials, and locating electrical, plumbing and other service facilities so as to prevent ware from entering or accumulating. Additionally, the document calls for providing FEMA approved Certificates of Elevation for new and substantially improved structures to show compliance with slab elevations and freeboard based on the BFE or other floods of record depending on the mapped flood zone for the property. The document also specifies a number of standards that apply to subdivision development, development within AO or AH Zones, and permitted developments and standards for properties located within floodways.

There are additional specifications included within the Baton Rouge, East Baton Rouge Parish Code of Ordinances which is available here:

https://www.municode.com/library/la/baton_rouge,_east_baton_rouge_parish/codes/code_of_ordinances

The relevant portion of the Code of Ordinances is “Title 8 - Building Regulations”. This section is a lightly amended version of the International Building Code (IBC), International Residential Code (IRC), and International Existing Building Code (IEBC). Amendments largely consist of codes updated by the Louisiana State Uniform Construction Code Council (LSUCCC). The portion of this code that addresses flooding is a small, generic section of text that mirrors the underlying fundamentals detailed within the UDC.

Though not a portion of the code of ordinances or development regulations, the City-Parish does have a storm water manual. The document titled “Stormwater: Best Management Practices for East Baton Rouge Parish – Master Development Program” was prepared in a joint effort by the Louisiana Department of Environmental Quality (LDEQ), the City-Parish Planning Commission (CPPC), and the Louisiana State University’s School of the Coast and Environment in association with a grant titled “Mitigating Nonpoint Source Pollution in Urban Watersheds with Spatial Modeling, Best Practices for Wetland and Community Outreach.” In addition to preventing nonpoint source pollution the manual

discusses various drainage systems and techniques such as detention and retention ponds which can have an added benefit of reducing flood hazards.

East Feliciana Parish

Chapter 5A of the East Feliciana code of ordinances addresses floods. This chapter of the ordinance establishes the need and purpose to prevent flood damage and then provides a framework for ensuring that purpose is fulfilled. Specifically, the ordinance creates the floodplain administrator position and assigns their duties and responsibilities, and also outlines the need for and processes related to development permits, including procedures for obtaining variances.

Article four, division 1, of the chapter identifies the provisions for flood hazard reduction. This article is divided into five sections general standards, specific standards, standards for subdivision proposals, standards for areas of shallow flooding, and floodways. General standards include, but are not limited to, providing proper anchoring to prevent structures from being moved by flood waters, utilizing construction methods that minimize potential flood damage, using materials that are flood resistant, locating service facilities in a manner that minimizes flood damage, and ensuring water supply systems and sanitary sewage systems are designed to minimize or eliminate infiltration of floodwaters as well as the discharge of sewage into flood waters. Specific standards require having the lowest floor be elevated above the base flood elevation and certification requirements, as well as specific requirements for the placement of manufactured homes and restrictions on the placement of recreational vehicles on sites within floodplains. The subdivision standards require compliance with the general and specific standards outlined in the previous sections. The standards for areas of shallow flooding add the requirement that the elevation of structures and facilities be increase by a minimum of two feet above the base flood elevation in AO and AH zones and that drainage paths be provided around structures on slopes to guide flood waters around and away from the structure. The floodway standards prohibit and sort of encroachment on the floodway, including fill, new development or substantial improvements to existing development within the floodway without hydrologic and hydraulic analyses indicating that such encroachment would not increase flood levels.

The East Feliciana Parish Code of Ordinances can be found here:

https://library.municode.com/la/east_feliciana_parish/codes/code_of_ordinances

Iberville Parish

Chapter 7.5, of the Iberville Parish code of ordinances addresses flood damage prevention. This chapter of the ordinance establishes the need and purpose to prevent flood damage and then provides a framework for ensuring that purpose is fulfilled. Specifically, the ordinance creates the floodplain administrator position and assigns their duties and responsibilities, and also outlines the need for and processes related to development permits, including procedures for obtaining variances.

Article V states the provisions for flood hazard reduction. This section is divided into four sections general standards, specific standards, standards for subdivision proposals, and standards for areas of shallow flooding (AO/AH zones). General standards include proper anchoring to prevent the structure from floatation, using construction methods that minimize flood damage, the use of construction materials that are resistant to flood damage, locating service facilities where flood damage will be minimized, and water supply and sanitary sewage systems will minimize or eliminate infiltration of floodwaters and the discharge into floodwaters. Specific standards require that the lowest floor is

elevated to or above the base flood elevation, that mobile homes are elevated and anchored and restrictions on the placement of recreational vehicles. The subdivision standards require compliance with the previous standards. The standards for shallow flooding state that the lowest floor is elevated at least two feet or at least as high as the depth number specified on the FIRM, adequate drainage paths to guide floodwaters around and away, and that a registered professional engineer submits certification to the floodplain administrator.

The Iberville Parish Code of Ordinances can be found here:

https://library.municode.com/la/iberville_parish_council/codes/code_of_ordinances

City of Denham Springs

Chapter 50, article II of the Denham Springs code of ordinances addresses flood damage prevention. This article of the ordinance establishes the need and purpose to prevent flood damage and then provides a framework for ensuring that purpose is fulfilled. Specifically, the ordinance creates the floodplain administrator position and assigns their duties and responsibilities, and also outlines the need for and processes related to development permits, including procedures for obtaining variances.

Article II, division 2 states the provisions for flood hazard reduction. This section is divided into four sections general standards, specific standards, standards for subdivision proposals, and standards for areas of shallow flooding (AO/AH zones). General standards include proper anchoring to prevent the structure from floatation, using construction methods that minimize flood damage, the use of construction materials that are resistant to flood damage, locating service facilities where flood damage will be minimized, and water supply and sanitary sewage systems will minimize or eliminate infiltration of floodwaters and the discharge into floodwaters. Specific standards require that the lowest floor is elevated to or above the base flood elevation, that mobile homes are elevated and anchored and restrictions on the placement of recreational vehicles. The subdivision standards require compliance with the previous standards. The standards for shallow flooding state that the lowest floor is elevated at least two feet or at least as high as the depth number specified on the FIRM, adequate drainage paths to guide floodwaters around and away, and that a registered professional engineer submits certification to the floodplain administrator.

The City of Denham Springs Code of Ordinances can be found here:

https://library.municode.com/la/denham_springs/codes/code_of_ordinances

Town of Walker

Chapter 8, article II of the Walker code of ordinances addresses flood damage prevention. This article of the ordinance establishes the need and purpose to prevent flood damage and then provides a framework for ensuring that purpose is fulfilled. Specifically, the ordinance creates the floodplain administrator position and assigns their duties and responsibilities, and also outlines the need for and processes related to development permits, including procedures for obtaining variances.

Article V, states the provisions for flood hazard reduction. This section is divided into three sections general standards, specific standards, and standards for subdivision proposals. General standards include proper anchoring to prevent the structure from floatation, using construction methods that minimize flood damage, the use of construction materials that are resistant to flood damage, locating service facilities where flood damage will be minimized, and water supply and sanitary sewage systems will minimize or eliminate infiltration of floodwaters and the discharge into floodwaters. Specific

standards require that the lowest floor is elevated one foot above the base flood elevation, that mobile homes are elevated and anchored and restrictions on the placement of recreational vehicles. The subdivision standards require compliance with the previous standards.

The Town of Walker Code of Ordinances can be found here:

https://library.municode.com/la/walker/codes/code_of_ordinances

City of Baker

Chapter 12 of the City of Baker code of ordinances addresses floods. This chapter of the ordinance establishes the need and purpose to prevent flood damage and then provides a framework for ensuring that purpose is fulfilled. Specifically, the ordinance creates the floodplain administrator position and assigns their duties and responsibilities, and also outlines the need for and processes related to development permits, including procedures for obtaining variances.

Article two, division 4, of the chapter identifies the provisions for flood hazard reduction. This article is divided into four sections general standards, specific standards, standards for subdivision proposals, and standards for areas of shallow flooding. General standards include, but are not limited to, providing proper anchoring to prevent structures from being moved by flood waters, utilizing construction methods that minimize potential flood damage, using materials that are flood resistant, locating service facilities in a manner that minimizes flood damage, and ensuring water supply systems and sanitary sewage systems are designed to minimize or eliminate infiltration of floodwaters as well as the discharge of sewage into flood waters. Specific standards require having the lowest floor be elevated above the base flood elevation and certification requirements, as well as specific requirements for the placement of manufactured homes and restrictions on the placement of recreational vehicles on sites within floodplains. The subdivision standards require compliance with the general and specific standards outlined in the previous sections. The standards for areas of shallow flooding add the requirement that the elevation of structures and facilities be above the base flood elevation in AO and AH zones, that drainage paths be provided around structures on slopes to guide flood waters around and away from the structure, and that a professional engineer provide certification to the floodplain administrator that these standards are met.

The City of Baker Code of Ordinances can be found here:

https://www.municode.com/library/la/baker/codes/code_of_ordinances

Livingston Parish

Chapter 13, article V of the Livingston Parish code of ordinances addresses flood damage prevention. This chapter of the ordinance establishes the need and purpose to prevent flood damage and then provides a framework for ensuring that purpose is fulfilled. Specifically, the ordinance creates the floodplain administrator position and assigns their duties and responsibilities, and also outlines the need for and processes related to development permits, including procedures for obtaining variances.

Division III states the provisions for flood hazard reduction. This section is divided into six sections general standards, specific standards, standards for subdivision proposals, standards for areas of shallow flooding (AO/AH zones), floodways, and coastal high hazard areas. General standards include proper anchoring to prevent the structure from floatation, using construction methods that minimize flood damage, the use of construction materials that are resistant to flood damage, locating service facilities

where flood damage will be minimized, and water supply and sanitary sewage systems will minimize or eliminate infiltration of floodwaters and the discharge into floodwaters. Specific standards require that the lowest floor is elevated above the base flood elevation, that mobile homes are elevated and anchored and restrictions on the placement of recreational vehicles. The subdivision standards require compliance with the previous standards. The standards for shallow flooding state that the lowest floor is elevated at least two feet or at least as high as the depth number specified on the FIRM, adequate drainage paths to guide floodwaters around and away, and that a registered professional engineer submits certification to the floodplain administrator. The floodway standards prohibit encroachments on the floodway, including fill new construction, substantial improvements and other development within the floodway unless it is certified by a professional registered engineer providing that the encroachment will not increase flood levels. The standards for coastal high areas include elevation on pilings and columns so that the lowest floor is elevated above the base flood level, the space below the lowest floor is free of obstruction or use breakaway walls, the use of fill for structural support is prohibited, man-made alteration of sand dunes or mangroves is prohibited, and there are restrictions on recreational vehicles.

The Livingston Parish Code of Ordinances can be found here:

https://library.municode.com/la/livingston_parish_council/codes/code_of_ordinances

St. Helena Parish

Chapter 5, subchapter F of the St. Helena Parish code of ordinances addresses flood damage prevention. This chapter of the ordinance establishes the need and purpose to prevent flood damage and then provides a framework for ensuring that purpose is fulfilled. Specifically, the ordinance creates the floodplain administrator position and assigns their duties and responsibilities, and also outlines the need for and processes related to development permits, including procedures for obtaining variances.

Part V states the provisions for flood hazard reduction. This section is divided into five sections general standards, specific standards, standards for subdivision proposals, standards for areas of shallow flooding (AO/AH zones), and floodways. General standards include proper anchoring to prevent the structure from floatation, using construction methods that minimize flood damage, the use of construction materials that are resistant to flood damage, locating service facilities where flood damage will be minimized, and water supply and sanitary sewage systems will minimize or eliminate infiltration of floodwaters and the discharge into floodwaters. Specific standards require that the lowest floor is elevated to or above the base flood elevation, that mobile homes are elevated and anchored and restrictions on the placement of recreational vehicles. The subdivision standards require compliance with the previous standards. The standards for shallow flooding state that the lowest floor is elevated at least two feet or at least as high as the depth number specified on the FIRM, adequate drainage paths to guide floodwaters around and away, and that a registered professional engineer submits certification to the floodplain administrator. The floodway standards prohibit encroachments on the floodway, including fill new construction, substantial improvements and other development within the floodway unless it is certified by a professional registered engineer providing that the encroachment will not increase flood levels.

The St. Helena Parish Code of Ordinances can be found here:

https://library.municode.com/la/st._helena_parish_police_jury

City of Zachary

Chapter 46 of the City of Zachary code of ordinances addresses flood damage prevention. This chapter of the ordinance establishes the need and purpose to prevent flood damage and then provides a framework for ensuring that purpose is fulfilled. Specifically, the ordinance creates the floodplain administrator position and assigns their duties and responsibilities, and also outlines the need for and processes related to development permits, including procedures for obtaining variances.

Article five of the chapter identifies the provisions for flood hazard reduction. This article is divided into nine sections general standards, specific standards, standards for subdivision proposals, standards for areas of shallow flooding, standards for floodways, minimum lowest floor elevation requirements, requirements for structures on piers, the prohibition on the use of landfill material, and the prohibition of depositing material in waterways. General standards include, but are not limited to, providing proper anchoring to prevent structures from being moved by flood waters, utilizing construction methods that minimize potential flood damage, using materials that are flood resistant, locating service facilities in a manner that minimizes flood damage, and ensuring water supply systems and sanitary sewage systems are designed to minimize or eliminate infiltration of floodwaters as well as the discharge of sewage into flood waters. Specific standards require having the lowest floor be elevated above the base flood elevation and certification requirements, as well as specific requirements for the placement of manufactured homes and restrictions on the placement of recreational vehicles on sites within floodplains. The subdivision standards require compliance with the general and specific standards outlined in the previous sections. The standards for areas of shallow flooding add the requirement that the elevation of structures and facilities be one foot above the base flood elevation in AO and AH zones, that drainage paths be provided around structures on slopes to guide flood waters around and away from the structure, and that a professional engineer provide certification to the floodplain administrator that these standards are met. The floodway standards prohibit and sort of encroachment on the floodway, including fill, new development or substantial improvements to existing development within the floodway without hydrologic and hydraulic analyses indicating that such encroachment would not increase flood levels. The minimum lowest floor elevation standards provide elevations for all new structures regardless of their mapped flood zone. For example zone A and AE are required to meet all of the following: one foot about the base flood elevation, one foot above the recorded inundation, one foot above the centerline of the street, and one foot above the nearest upstream or downstream sanitary sewer. The next section requires that structures on piers not enclose the space beneath the lowest floor in a manner that inhibits the free flow of flood waters. The landfill prohibition section restricts the use of fill material in special flood hazard areas unless various listed requirements are met. Lastly, the standards for depositing material in waterways prohibits any person from discarding trash or other materials into waterways that potentially carry surface water runoff. Persons found to violate this will face penalties outlined within the ordinance.

The City of Zachary Code of Ordinances can be found here:

https://www.municode.com/library/la/zachary/codes/code_of_ordinances

Land Use Change

Development in the watershed has been expanding. Examining National Land Cover Data (<https://www.mrlc.gov/finddata.php>) from 2001 and 2011, the latest available, the watershed has seen quite a bit of development. From 2001 to 2011, developed land increased by 16 square miles, which is a

7.2% increase. This development is primarily seen in East Baton Rouge Parish, City of Baton Rouge, Ascension Parish, Denham Springs, and Walker.

Letters of Map Change

Letters of Map Change are letters that revise the special flood hazard area on a given map panel or panels. A Letter of Map Amendment, or LOMA usually applies to a single property that is higher than the mapped 1%-annual-chance floodplain, but due to limitations of scale or topographic detail appears to be located within the floodplain on the FIRM panel. A Letter of Map Revision is a letter that revises a FIRM panel or panels usually due to a project designed to reduce flood risk in an area. A Letter of Map Revision Based on Fill, or LOMR-F, revises a FIRM panel of panels due to a property having fill placed on it that raises it above the map flood elevation for an area. The number and types of map revisions in a community can provide insight into measures being taken to reduce or manage flood risk, or be an indication that a community’s maps are in need of revision. Communities within the Amite Watershed have a total of 1,880 Letters of Map Change, consisting of 1,427 LOMAs and 453 LOMR-Fs. Table 12 below illustrates which communities have Letter of Map Change and their types.

Table 10: Letters of Map Change

Community Name	LOMA	LOMR-F
Amite County	1	-
Ascension Parish	135	38
City of Baker	7	-
City of Baton Rouge	188	43
City of Central	161	35
Town of Centreville	-	-
Town of Clinton	-	-
City of Denham Springs	27	6
East Baton Rouge Parish	232	216
East Feliciana Parish	2	1
Franklin County	-	1
Village of French Settlement	6	-
Town of Gloster	-	-
Iberville Parish	-	-
Town of Jackson	-	-
Town of Killian	-	-
Town of Liberty	-	-
Lincoln County	-	-
Livingston Parish	595	94
Town of Livingston	11	-
Village of Norwood	-	-
Village of Port Vincent	1	-
Town of Slaughter	1	-
City of St. Gabriel	1	-
St. Helena Parish	-	-
Town of Walker	55	17

Community Name	LOMA	LOMR-F
Wilkinson County	-	-
Village of Wilson	-	-
City of Zachary	4	2

Flood Risk Assessment

Flood risk assessment data is developed using a FEMA flood loss estimation tool, Hazus. Hazus (<https://www.fema.gov/hazus>) is a standardized risk assessment tool that estimates potential losses from a variety of disaster types. For the Amite watershed Hazus was used in conjunction with the 1-percent-annual-chance depth grid created during the Phase Zero Base Level Engineering analysis to perform a Level 2 analysis for the communities in the watershed. The flood loss estimates that were calculated are expressed in dollar amounts and cover only the portion of the community that falls within the watershed. These estimates should be used to understand relative risk from flood and potential losses. Flood loss estimates provide by this project include asset losses (building and content loss) for residential, commercial, industrial, government, education, and religious uses, as well as business disruption losses. The following section offers a high level discussion of these losses, however communities can dig into the results further by using data found in the BLE Database that will be available upon the completion of this project. Specific data that communities will find useful include the S_Cen_Blz_Ar feature layer and accompanying L_RA_ALL, L_RA_Composite, and L_RA_Refined tables. For additional information on the BLE Database and the data contained within please visit <https://www.fema.gov/media-library/assets/documents/160060>.

Losses from the 1% Annual-Chance Flood

The 1%-annual-chance flood is the standard flood used for mapping flood zones on NFIP FIRM Panels. In the Amite watershed 24 of the 29 communities sustained losses during the 1%-annual-chance flood modeled during the BLE analysis, with the Town of Centreville, Franklin County, Town of Gloster, Town of Jackson, and Town of Liberty that sustained no losses. Of the 24 communities that did sustain losses the East Baton Rouge Parish saw the greatest losses at more than \$859 million while the Town of Killian saw about \$31K in losses. Figure 2 below show the losses for all of the communities in the watershed. For specific loss numbers for each community see the "TOT_LOSSES" column of the L_RA_Composite table found in the BLE Database.

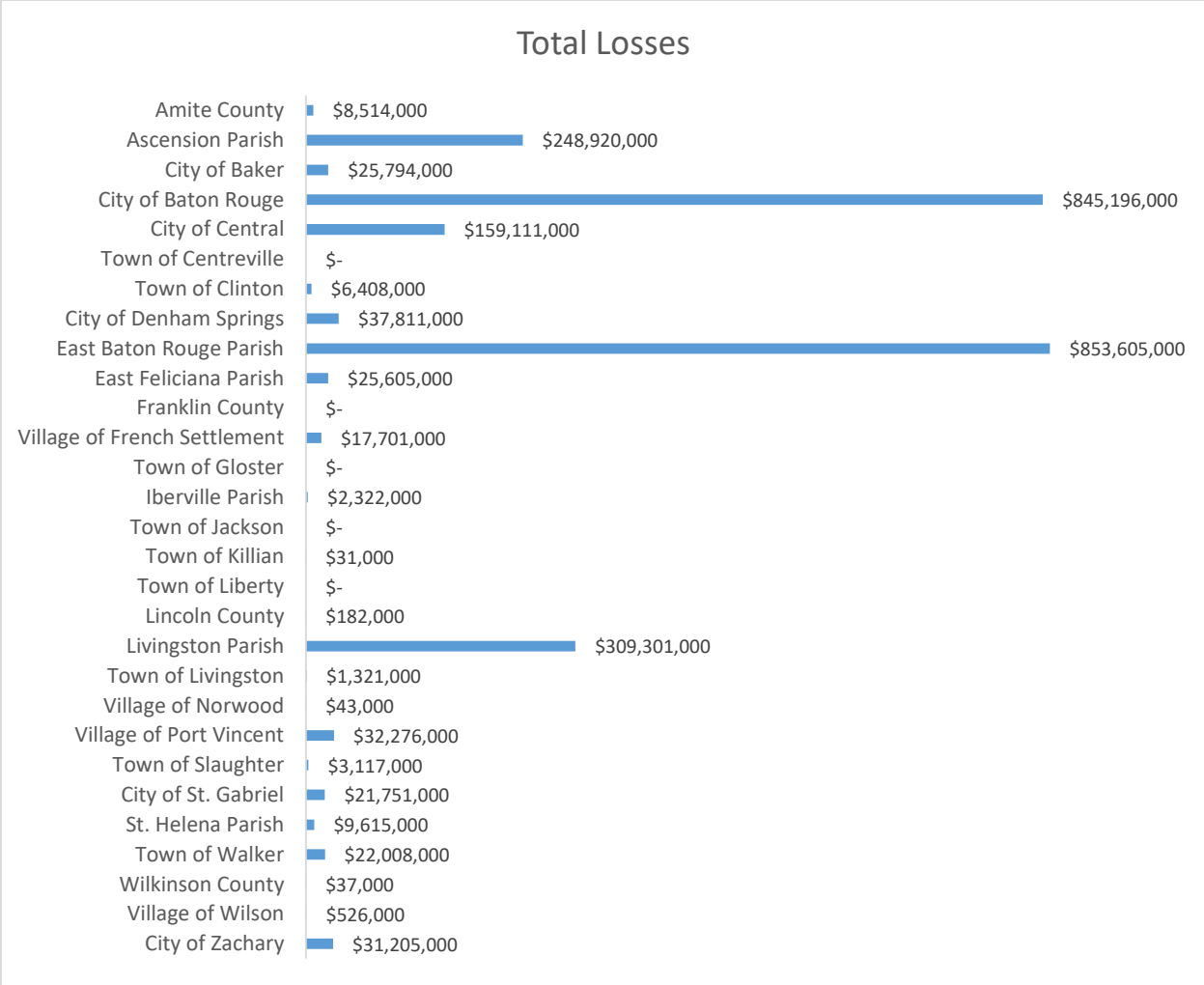


Figure 2: Total Losses for the 1-Percent-Annual-Chance Flood Event

Since communities vary in terms of physical size and population, the total losses incurred during a flood may not reflect the magnitude of the loss. In order to more accurately compare the figures below normalize the dollar losses for population and the area covered by the community respectively.

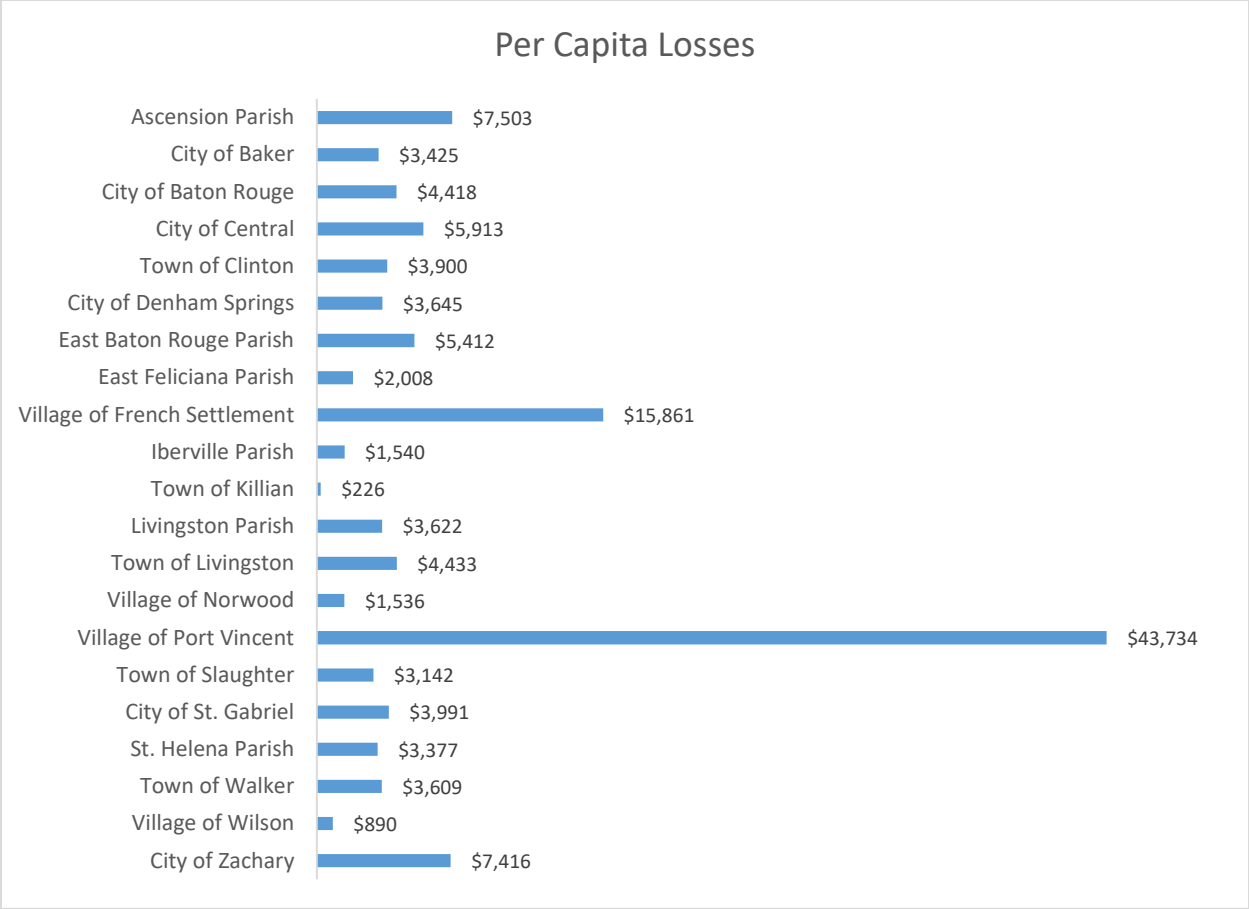


Figure 3: Per Capita Losses for the 1-Percent-Annual-Chance Flood Event

When normalized for population (Figure 3 above) the Village of Port Vincent has the highest losses by far, followed by the Village of French Settlement.

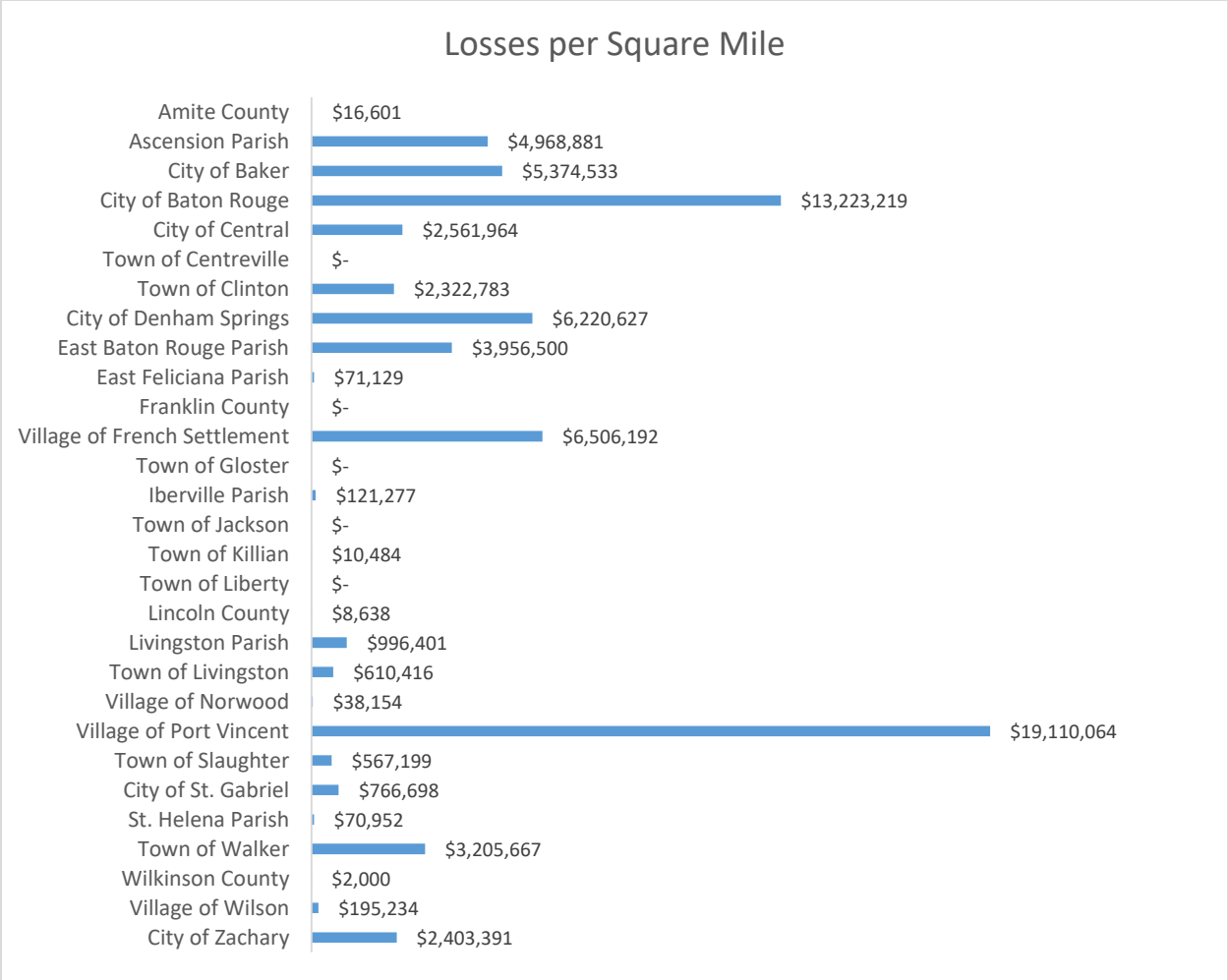


Figure 4: Losses per Square Mile for the 1-Percent-Annual-Chance Flood Event

When normalized for area (Figure 4 above) the Village of Port Vincent has the greatest losses, while Wilkinson County has the lowest losses.

Discovery Outreach and Meeting

In developing a comprehensive analysis of the Amite watershed, several government agencies and departments contributed information. In April 2018 staff of the Louisiana Department of Transportation and Development and Dewberry, the state’s CTP contractor, held a project kickoff meeting. Having finalized a list of community contacts compiled from DOTD information and public sources, the communities within the watershed were first contacted in April 2018 via telephone to inform them on the Discovery Project and to verify contact information. The week of September 3rd, 2018 saw the first mailing go out to the communities. This mailing included a Discovery Introduction letter that outlines the purpose and goals of the project, informed the communities that planning was underway for a meeting to be held the week of September 17th and asked that they begin sending relevant information to the CTP contractor. The mailing also include a Pre-Discovery newsletter which provided further information on the Discovery process and listed specific kinds of information that the project team could utilize.

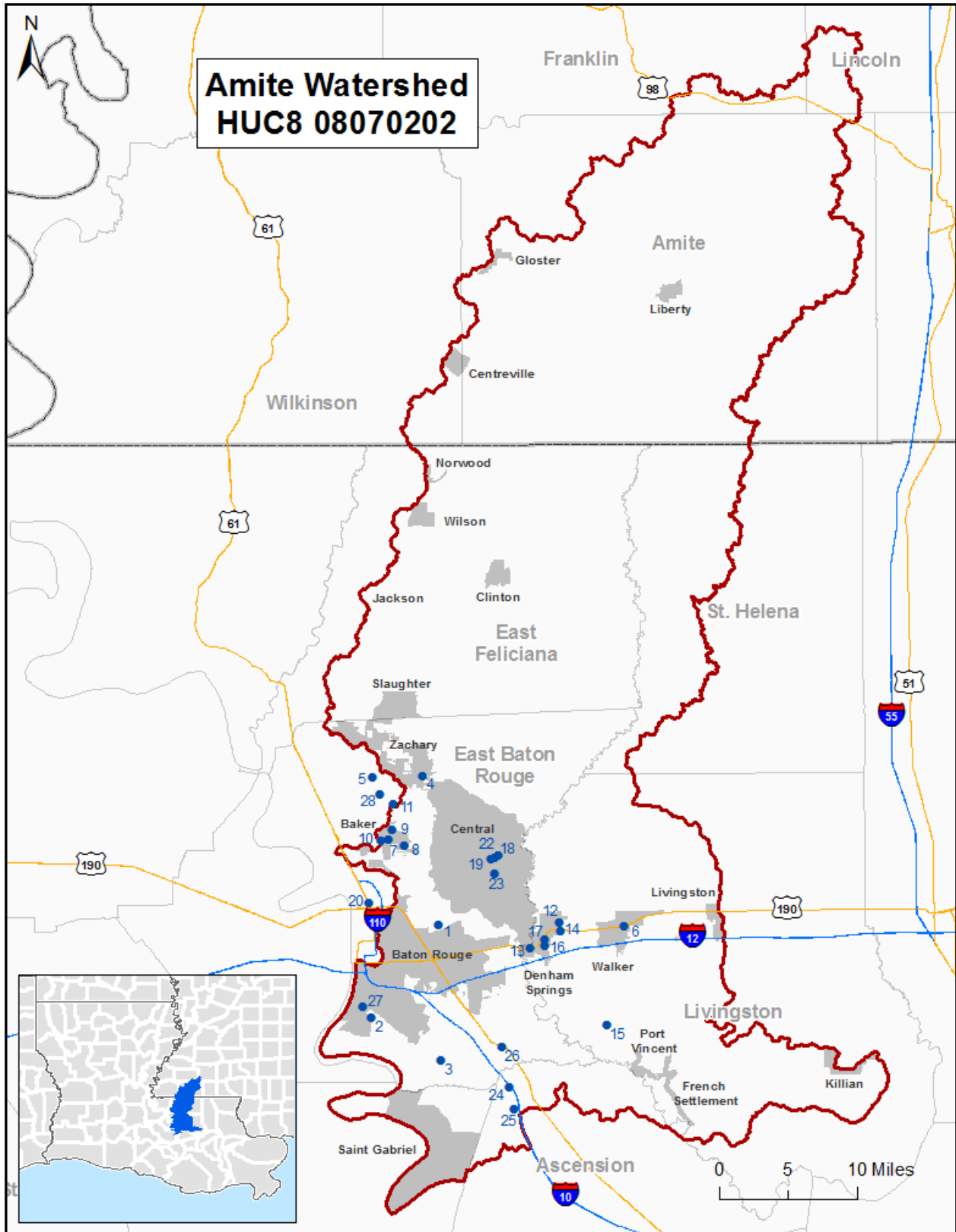


Figure 5: Map of concerns collected at the Discovery Meeting

Table 12: Issues and Concerns Collected During Discovery

Item	Location	Information Provided By	Discovery Workshop Comment Summary
1	East Baton Rouge Parish	Community Official	Hurricane Creek area. Under estimation. Terrible backwater from Comite.
2	East Baton Rouge Parish	Community Official	Bayou Fountain. Over estimation. 15 grants submitted.
3	East Baton Rouge Parish	Community Official	Willows at Bayou Fountain subdivision. Record inundation prior to 2016. 2001, 1989
4	Town of Zachary	Community Official	South of 64, west of 67- roads serve as a dam, needs to be modeled more accurately.
5	Town of Zachary	Community Official	Cypress Bayou, under estimation south of 64, In Bayou Sara-Thompson watershed
6	Town of Walker	Community Official	In general the maps are wrong. Mostly an over estimation everywhere. BFEs too high.
7	City of Baker	Community Official	Do not agree with the BLE data. Still too conservative. West side of town too wide.
8	City of Baker	Community Official	Bozenia(sp?) Creek. Huge drainage projects, should reduce floodplains
9	City of Baker	Community Official	Whites Bayou. Did not flood. Disagree with designation.
10	City of Baker	Community Official	Canal bank stabilization. Boeuf Chaleur
11	City of Baker	Community Official	Canal that flows north. Adding capacity.
12	City of Denham Springs	Community Official	Jason Dr. drainage issue, cross drain improvement at street level, GDO1 canal improvement. South Wood Crest- same approach as Jason Dr.
13	City of Denham Springs	Community Official	SRL/RP area shown out in BLE floodway
14	City of Denham Springs	Community Official	Gravity drainage and Quality Engineering Gray's Creek to Hwy 190 2D analysis
15	City of Denham Springs	Community Official	Hwy 133/Scivicque Rd at Gray's Creek new bridges widening of flooding source H+H modeling
16	City of Denham Springs	Community Official	High water marks Denham Springs. Mitigation activities follow up with Jeanette Clark.
17	City of Denham Springs	Community Official	Concerned for such a dramatic reduction in the floodplain.
18	City of Central	Community Official	North of Hooper Rd to Bridlewood to Beaver Bayou culvert improvement completed. Check to determine if H+H exist
19	City of Central	Community Official	Tributary to Beaver Bayou at Beaver Bayou at Cimmaron subdivision design project to be implemented. This is an area of severe repetitive loss. H+H modeling will be available.
20	East Baton Rouge Parish	DOTD District 61 Engineers	Flooding during rain events. Culvert in scrapyard not functioning. Scenic hwy drains very slowly.
22	City of Central	DOTD District 61 Engineers	Beaver Bayou backflows
23	City of Central	DOTD District 61 Engineers	Beaver Bayou backflows
24	Ascension Parish	DOTD District 61 Engineers	Manchac gets close to I 10 during heavy rain events

Item	Location	Information Provided By	Discovery Workshop Comment Summary
25	Ascension Parish	DOTD District 61 Engineers	Heavy rain leads to standing water near road
26	East Baton Rouge Parish	DOTD District 61 Engineers	Canal backs up onto road
27	City of Baton Rouge	DOTD District 61 Engineers	Whole road will go under water during heavy rain event
28	East Baton Rouge Parish	DOTD District 61 Engineers	During heavy rains water will get close to road

Appendix I: Resources

State Partners

Organization/Title	Name	Partner Location	Contact Information
Louisiana Department of Transportation & Development State NFIP Coordinator	Cindy O’Neal, CFM	P.O. Box 94245 Baton Rouge, LA 70804	Phone: 225-379-3005 Email: cindy.oneal@la.gov Web Page: http://floods.dotd.la.gov
Mississippi Emergency Management Agency State NFIP Coordinator	Stacey Ricks, CFM	P.O. Box 5644 Pearl, MS 39288	Phone: 601-933-6610 Email: sricks@mema.ms.gov Web Page: http://www.msema.org/floodplain-management/
Louisiana Governor’s Office of Homeland Security and Emergency Preparedness State Hazard Mitigation Officer	Jeffrey Giering, CFM	1201 Capitol Access Rd. Baton Rouge, LA 70802	Phone: 225-379-3005 Email: jeffrey.giering@la.gov Web Page: http://gohsep.la.gov
Mississippi Emergency Management Agency State Hazard Mitigation Officer	Jana Henderson, CFM	P.O. Box 5644 Pearl, MS 39288	Phone: 601-933-6636 Email: jhenderson@mema.ms.gov Web Page: http://www.msema.org/

Watershed Follow Up Points of Contact

Subject/Topic of Interest	Name	Contact Information
FEMA Project Monitor <i>Project Outreach</i>	Diane Howe Risk Analysis Branch	Phone: 940-898-5171 Email: diane.howe@fema.dhs.gov
<ul style="list-style-type: none"> Floodplain Management Floodplain Ordinance Community Assistance Visits Higher Standards 	John Miles, Jr.	Phone: 840-297-0185 Email: john.milesjr@fema.dhs.gov
<ul style="list-style-type: none"> Community Rating System Flood Insurance 	Jonathan Smith	Phone: 228-235-6506 Email: jsmith@iso.com
<ul style="list-style-type: none"> How to find and read FIRMs Letters of Map Change and Elevation Certificates Flood zone disputes Mandatory insurance purchase guidelines Map Service Center (MSC) & National Flood Hazard Layer 	FEMA Map Information eXchange	Phone: 877.FEMA.MAP (336.2627) Email: FEMAMapSpecialist@riskmapcdfs.com Live Chat: https://www.floodmaps.fema.gov/fhm/fmx_main.html

Governor's Office of Homeland Security and Emergency Preparedness

<http://gohsep.la.gov/>

Louisiana is a high-risk state for emergency events and disasters. The Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) is the agency responsible for coordinating the state's efforts throughout the emergency management cycle to prepare for, prevent where possible, respond to, recover from, and mitigate against to lessen the effects of man-made or natural disasters that threaten the state. GOHSEP can save lives and reduce property damage by understanding risks and taking action to address those risks, as well as minimizing disaster impacts and increasing the resiliency in our communities, environment, and economy.



HELPFUL LINKS:

FLOOD INDEX: <http://gohsep.la.gov/ABOUT/LOUISIANA-HAZARDS-THREATS/FLOODING>

GOHSEP CONTACTS: <http://gohsep.la.gov/ABOUT/CONTACT-US/GOHSEP-CONTACTS>

FLOOD MITIGATION ASSISTANCE GRANT PROGRAM: <http://gohsep.la.gov/GRANTS/RECOVERY-GRANTS/Hazard-Mitigation-Assistance>

GOHSEP MITIGATION PLANNING: <http://getagameplan.org/planMitigate.htm>

Louisiana Department of Transportation and Development

<http://floods.dotd.la.gov>

The Louisiana Department of Transportation and Development (DOTD) is the State Coordinating Agency for the NFIP as designated by the Governor. The purpose of the program is to promote local government compliance with NFIP regulations to ensure the availability of low-cost flood insurance, and in doing so, minimize loss of life and property due to catastrophic flooding. This is accomplished through on-site assessments, distribution of a quarterly newsletter, conducting workshops, providing technical assistance on local government ordinance development, and participation in post-disaster Flood Hazard Mitigation activities.



DOTD FLOOD INFORMATION & RESOURCES

Louisiana Floodplain Management Desk Reference—The Louisiana Floodplain Management Desk Reference is a comprehensive guide that gives detailed information on administering floodplain ordinances at the community level.

POINTS OF CONTACT:

Cindy O'Neal, CFM
State NFIP Coordinator

Phone: 225-379-3005

Fax: 225-379-3002

Email: cindy.oneal@la.gov

Mississippi Emergency Management Agency

<http://www.msema.org/floodplain-management/>

The Mississippi Emergency Management Agency (MEMA) is the designated the state agency for NFIP. The flood management branch has responsibility for the 312 communities that participate in the NFIP and the 23 communities that belong to the Community Rating System. We continue our commitment to reducing flood losses and preserving natural floodplain functions by embracing the broad and ever-changing field of floodplain management, flood hazard mitigation and the requirements of NFIP.



MEMA FLOOD INFORMATION & RESOURCES

<http://www.msema.org/floodplain-management/nfip/>

POINTS OF CONTACT:

Al Goodman, Jr., CFM
State NFIP Coordinator

Phone: 601-366-6325

Fax: 601-366-5349

Email: agoodman@mema.ms.gov

Louisiana Floodplain Management Association

Organization	Contact Information	Website
Louisiana Floodplain Management Association (LFMA)	Phone: 318-226-6934	http://lfma.org

Certified Floodplain Manager (CFM) Certification

The Association of State Floodplain Managers (ASFPM) established a national program for certifying floodplain managers. This program recognizes continuing education and professional development that enhances the knowledge and performance of local, state, federal, and private-sector floodplain management professionals.

The role of the nation's floodplain managers is expanding due to increases in disaster losses, the emphasis on mitigation to alleviate the cycle of damage-rebuild-damage, and a recognized need for professionals to adequately address these issues. This certification program will lay the foundation for ensuring that highly qualified individuals are available to meet the challenge of breaking the damage cycle and stopping its negative drain on the nation's human, financial, and natural resources.

CFM® is a registered trademark and available only to individuals certified and in good standing under the ASFPM Certified Floodplain Manager Program.

For more information, you may want to review these available CFM Awareness Videos:

- [What is the CFM Program?](#)
- [Who can be a CFM?](#)
- [What are the Benefits of a CFM?](#)

Study Materials for those interested in applying for the CFM certification can be found on the ASFPM Website at: <http://www.floods.org/index.asp?menuID=215>

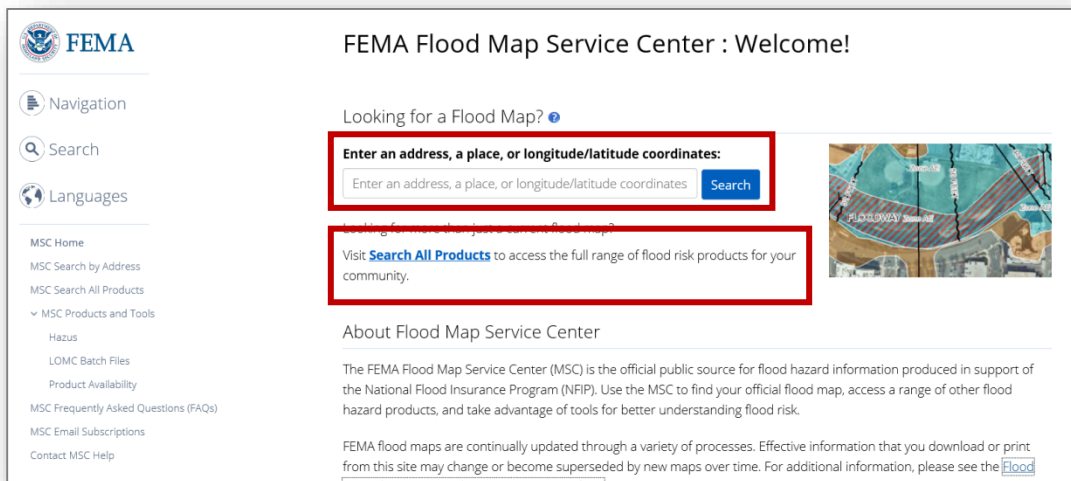
Map Service Center – Preliminary Map Data

The [FEMA Flood Map Service Center \(MSC\)](#) is the official public source for flood hazard information produced in support of the NFIP. Use the MSC to find your official effective flood map, preliminary flood maps, and access a range of other flood hazard products.

FEMA flood maps are continually updated through a variety of processes. Effective information that you download or print from this site may change or become superseded by new maps over time. For additional information, please see the [Flood Hazard Mapping Updates Overview Fact Sheet](#).

At the Map Service Center, there are two ways to locate flood maps in your vicinity.

1. Enter an address, place name, or latitude/longitude coordinates and click search. This will provide the current effective FIRM panel that the location exists on.
2. Or [Search All Products](#), which will provide access to the full range of flood risk information available.



Visiting the more advanced search option, “Search All Products,” users may access current, preliminary, pending, and historic flood maps. Additionally, GIS data and flood risk products may be accessed through the site with these few steps.