Introduced September 10, 2024, by Councilwoman Haggerty, seconded by Councilman Disanti, (by request of Administration)

RESOLUTION R24-28

A resolution adopting the Repetitive Loss Area Analysis for use and implementation by the City of Slidell and its departments.

WHEREAS, the City of Slidell participates in the National Flood Insurance Program (NFIP), administered by the Federal Emergency Management Agency (FEMA) in order to qualify residents for flood insurance;

WHEREAS, the City of Slidell participates voluntarily in the NFIP Community Rating System (CRS) where by residents qualify for flood insurance premium discounts and higher levels of community resilience; and

WHEREAS, the Repetitive Loss Area Analysis (RLAA) provides specific guidance on ways to reduce damage from repetitive flooding and analyzes flood sources and risks; and

WHEREAS, the City of Slidell is rated and recertified annually within the NFIP CRS program; and

WHEREAS, the Repetitive Loss Area Analysis has been prepared in accordance with the guidelines provided by FEMA and must be adopted by official act of the governing body for the city.

NOW, THEREFORE, BE IT RESOLVED by the City of Slidell City Council that it hereby adopts the Repetitive Loss Area Analysis for use and implementation by the City of Slidell and its departments. The Repetitive Loss Area Analysis is attached herein in Exhibit A.

ADOPTED this 10th day of September, 2024.

Megan Haggerty
President of the Council
Councilwoman, District C

Thomas P. Reeves
Council Administrator

Palm Lake Area

Repetitive Loss Area Analysis

Version 1.0 – This report will be updated routinely as the City continues conducting data collection, research, and recommendations to reduce flood losses in the subject area.

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EXHIBIT A

Introduction

In 2024, the Slidell City Council and the Department of Engineering identified the Palm Lake Area as a part of the City containing a concentration of structures subject to repeated flood risks. The City has decided to conduct a repetitive loss area analysis (RLAA) for the Palm Lake Area to:

1. Analyze flood sources impacting the area,
2. Analyze structure type and construction methods,
3. Create a flood mitigation plan for the area, and tie this plan to the Parish Hazard Mitigation Plan, and
4. Make recommendations on how to reduce flood damages in the area, including by installing flood control projects, grant programs, or retrofitting / improving existing structures.

This is the first RLAA established in the City of Slidell, and will be hosted at: [WEBSITE], including yearly progress reports and updates.

What is an RLAA?

A Repetitive Loss Area Analysis is a report that the Federal Emergency Management Agency (FEMA) encourages communities to produce so that they can reduce flood risk over time and enhance community resilience to future flooding.

FEMA's goal is to help communities better mitigate, prepare for, respond, and recover from hazards and disasters. FEMA also administers the National Flood Insurance Program (NFIP), which aims to reduce the impacts of flooding on communities by offering flood insurance to residents (fema.gov). Communities like the City of Slidell are required to administer floodplain regulations to enable individual residents to purchase flood insurance policies through the NFIP.

A repetitive loss analysis can help inform residents and the government in an area that floods, empowering them to implement projects or regulations that can reduce the impacts of the next flood on loss of life and property.

The Community Rating System (CRS)

The Community Rating System (CRS) is another program available to communities that participate in NFIP. It is a voluntary incentive program that encourages community floodplain management activities that go above and beyond the minimum NFIP requirements. The goals of the CRS are to reduce flood damage to property, support the flood insurance program, and promote comprehensive floodplain management practices. The City of Slidell is a participant in the CRS program, and every resident with a flood insurance policy received a discount on their yearly premiums as a result of the City's participation in this program.

Repetitive Loss

Through its administration of the NFIP program, FEMA processes flood insurance claims and maintains geographic data on these claim locations. Over years of administering the NFIP program, FEMA has identified some properties that have flooded repeatedly, and has created a category called "Repetitive Loss" to describe these sites. A repetitive loss property is defined as:

Any insurable building for which two or more claims of more than $1,000 were paid by the NFIP within any rolling ten-year period, since the NFIP started in 1978.

Some properties have flooded even more than two times, so FEMA has also created the category called "Severe Repetitive Loss," which is defined as:

An insurable building which has had four or more separate claim payments of more than $5,000 each (including building and contents payments) since 1978; or two or more separate claim payments (building payments only) where the total of the payments exceeds the current value of the property since 1978.

Repetitive loss properties make up only 1% of flood insurance policies in the nation, but the account for almost 33% of flood insurance claims, therefore they are a significant strain on the solvency of the NFIP program[1].

FEMA identifies Repetitive Loss properties and Severe Repetitive Loss properties because these can indicate an acute flood risk in a neighborhood or can indicate that many homes in an area are experiencing flooding from a single source within the drainage or flood protection system. These can be indicators of areas where grant funding should be focused or where infrastructure projects should be built. This report analyses commonalities among the buildings in the Palm Lake Area to identify potential mitigation measures to prevent future floods.

The Study Area

The City of Slidell is in St. Tammany Parish, Louisiana, which lies at the eastern edge of Louisiana bordering Mississippi and on the mouth of Lake Pontchartrain.

Figure 1: St. Tammany Parish, LA

Source: https://countypedia.fandom.com/wiki/St._Tammany_Parish,_Louisiana

[1] Repetitive Flood Loss Area Analysis for the Town of Jean Lafitte, Louisiana. Jefferson Parish, LA. https://www.jeffparish.gov/DocumentCenter/View/502/Town-of-Jean-Lafitte-PDF

City of Slidell Repetitive Loss Area Analysis
Palm Lake Area

The City of Slidell is at the eastern edge of St. Tammany Parish and is home to approximately 28,781 people per the 2020 Decennial Census, with 11,975 housing units in the City[2]. The Flood Loss Outreach and Awareness Taskforce Program for Public Information notes:

> "Slidell's coastal location, numerous bayous and canals, and low elevation and flat topography make it vulnerable to flooding from a number of causes that include hurricane generated storm surge, back flooding from an over filled Lake Pontchartrain, inundation from heavy rains during tropical storms and other storm events, and localized drainage issues. Major flooding incidents occurred during an unnamed major storm in May 1995 ($25.4 million), Tropical Storm Allison in 2001 ($12.8 million), Hurricane Isidore and Tropical Storm Lili in 2002 ($12.4 Million), and Hurricane Isaac in 2012 ($23.4 million). By far the worst event was Hurricane Katrina, a 396 year storm, which struck in August of 2005. The 4,070 flood claims for Hurricane Katrina exceeded $369 million in claim payments and over 51% of the city's 7,917 flood claims and 81% of the city's $454 million in claim payments since the National Flood Insurance Program began in 1978[3]."

The FLOAT PPI goes on to note the Palm Lake Area specifically at risk, describing it as:

> "Storm Surge and Flooding The southern part of the City of Slidell and those areas bordering Bayou Bonfouca are the most susceptible to flooding from storm surge and back flooding from Bayous Bonfouca, Liberty, Vincent, and Patassat. A challenge during the most recent hurricane to strike the city, Hurricane Isaac, was the inability of the city's pumps to remove rain water from inside the city's drainage area, because the pumps could not overcome the pressure of a saturated Bayou Bonfouca. The impact of regular flood events, occurring approximately every five years, has created underinvestment in the southern part of the city and has led to an increase in blighted properties, from single family homes to commercial properties.
>
> The greatest concentration of flood vulnerable properties is located in the Palm Lake area, where houses sit on a series of canals connected to Lake Pontchartrain by way of Bayou Bonfouca."

The Palm Lake area is on the southwestern side of the City of Slidell and is not protected by federalized levees or major flood control systems, and relies solely on gravity and pumped drainage systems which feed into Lake Pontchartrain.

The Palm Lake area is bounded on the north and west side by Bayou Bonfouca and the City limits, it is bounded on the east side by Front Street and bounded on the south by Bayou Bonfouca and Camellia Drive. There are 276 repetitive loss (RL) properties and [NUMBER] severe repetitive loss (SRL) properties in the Palm Lake Area, which is approximately 27% of the RL structures in the City.

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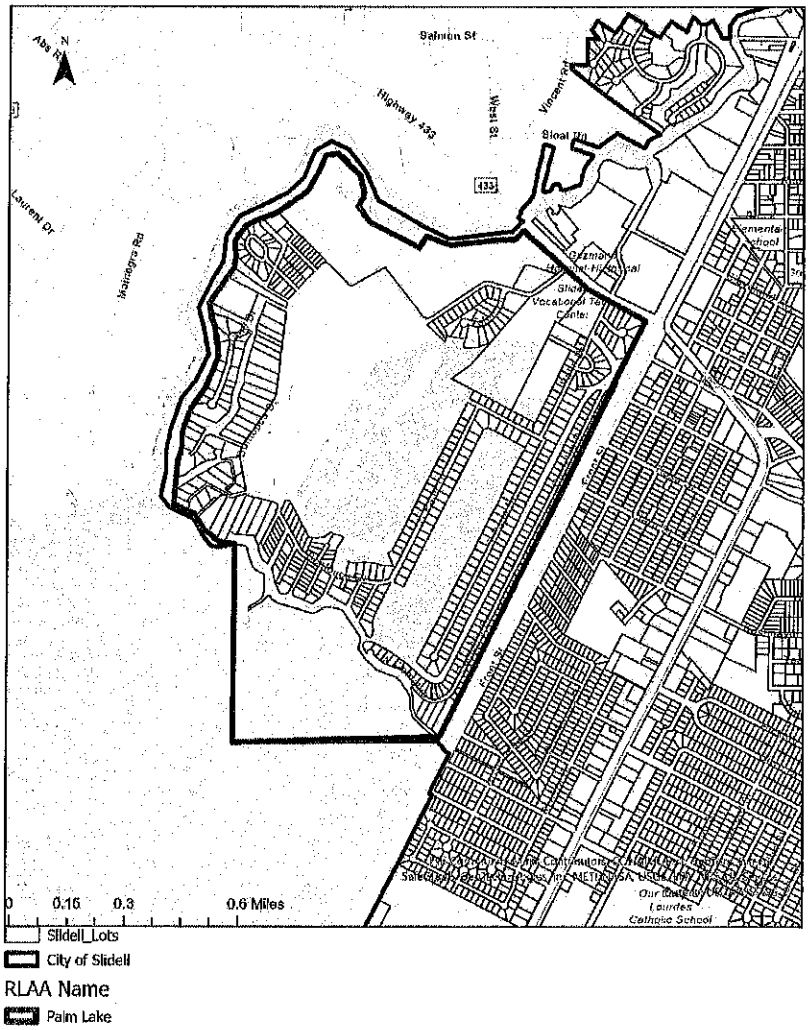
[2] https://data.census.gov/profile/Slidell_city,_Louisiana?g=160XX00US2270805 US 2020 Decennial Census, Tables P1 and H1.

[3] FLOAT PPI, UNO CHART https://www.mvn.usace.army.mil/Portals/56/Flood%20Loss%20Outreach%20&%20Awareness%20Taskforce%20(FLOAT)%20Lake%20Pontchartrain%20Floodplain%20and%20Stormwater%20Management.pdf

Figure 2: Study Area



The study area is directly north of Lake Pontchartrain, with the flood source being hurricane flooding from the lake. Bayou Bonfouca receives tidal influence from the lake, further exacerbating this effect in a hurricane. The 1999 FIRM shows the entire study area in zone AE with a Base Flood Elevation (BFE) of nine (9) feet (NGVD1929). The 2008 Preliminary DFIRM shows the study in both AE and VE zones, with a BFE ranging from eleven (11) feet to thirteen (13) feet (NAVD1988).

Figure 3: FIRMette of Study Area from 1999 FIRM

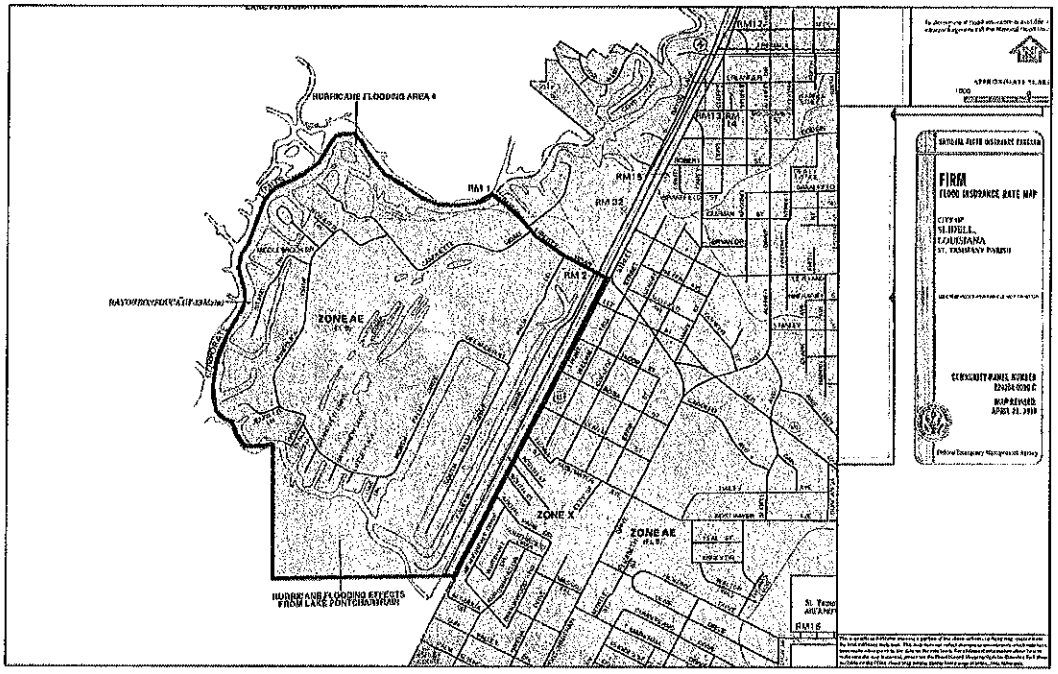


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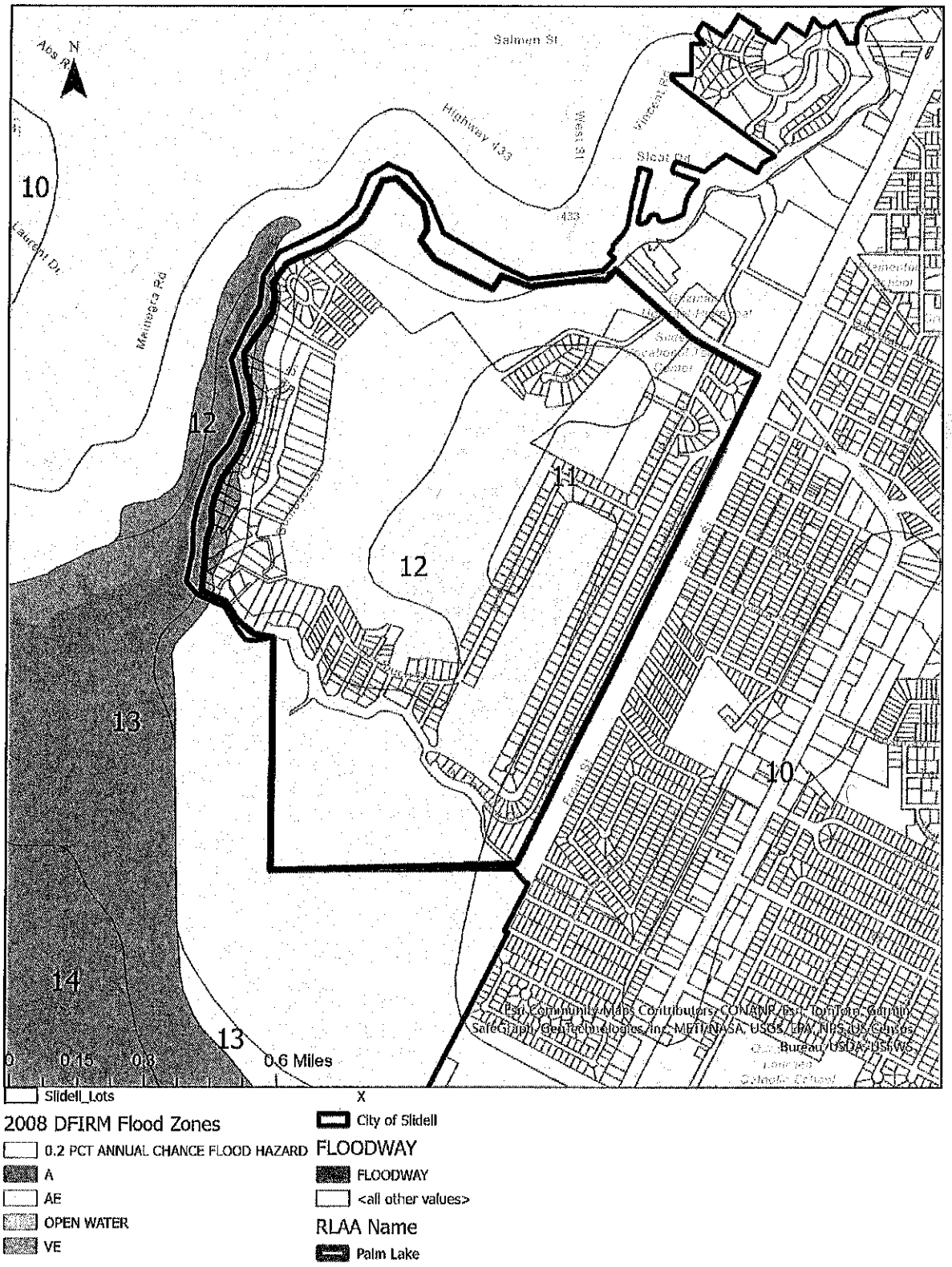
Figure 4: 2008 Preliminary DFIRM Map of Study Area (not adopted)



RLAA Study Requirements Applicable to the City of Slidell

A community must maintain repetitive loss data and update it annually to participate in CRS. Since many of the losses under the NFIP come from repetitively flooded properties, addressing these properties is a priority for participating in the CRS Program. Depending on the severity of the repetitive loss problem, a CRS community has different responsibilities, the categories of communities are:

Category A: A community with no unmitigated repetitive loss properties. No special requirements from the CRS.

Category B: A community with at least one, but fewer than 10, unmitigated repetitive loss properties. Category B communities are required by the CRS to research and describe their repetitive loss problem, create a map showing the showing the location of all repetitive loss areas and complete an annual outreach activity directed to repetitive loss properties.

Category C: A community with 50 or more unmitigated repetitive loss properties. Category C communities are required to do everything in Category B and prepare either a floodplain management plan that covers all repetitive loss areas or prepare a RLAA for all repetitive loss areas. The City of Slidell has 1,027 repetitive loss structures so it is designated as a Category C repetitive loss community.

Identifying and Mapping Repetitive Loss Areas

The City Department of Engineering and Department of Planning have reviewed the NFIP / CRS Publication "Mapping Repetitive Loss Areas for CRS: A Handout for the National Flood Insurance Program Community Rating System" published in October, 2015[4], and have used the method described therein. In conducting this analysis, the City has identified four repetitive loss areas.

The City of Slidell has received updates to its Repetitive Loss list (AW-501) regularly from FEMA, and maintains GIS maps of all RL and SRL properties, as well as maps of repetitive loss areas that include multiple RL structures within topographic boundaries sharing floodplain characteristics or a common flood source.

The subject area – Palm Lake – is subject to coastal flood risk from the same source throughout the RLAA area, and is separated from property outside of the RLAA area by topographic boundaries including: Bayou Bonfouca on the west, Front Street and the Norfolk Southern Railway on the east, and Highway 433 / Bayou Liberty Road on the North. Both the railway and Highway 433 function as partial impoundment structures surrounding the RLAA area, further unifying the risk profile of those structures in the subject area.

Upon identifying the initial four repetitive loss areas, of which Palm Lake is one, the City published an advertisement in the journal of record, the St. Tammany Farmer, showing maps of these areas (without address-specific data), and requested input from the public regarding this analysis.

[4] NFIP / CRS Publication "Mapping Repetitive Loss Areas for CRS: A Handout for the National Flood Insurance Program Community Rating System" published in October, 2015
https://crsresources.org/files/500/mapping_repetitive_loss_areas.pdf

Figure 5: RLAA Legal Advertisement

September 4, 2024

RLAA Submittal to Governing Body, Media, and Public

The Slidell Engineering Department and Planning Department in coordination with the City Council has conducted a Repetitive Loss Area Analysis (RLAA) to generate a detailed flood mitigation plan for up to four areas in the city. The areas under study may include:

1. The Palm Lake area – bounded on the north and west side by Bayou Bonfouca and the city limits, bounded on the east side by Front Street, and bounded on the south by Bayou Bonfouca and Camellia Drive.
2. North Slidell area – bounded on the north by Brownswitch Road, bounded on the east and south side by Robert Boulevard, bounded on the south by Fountain Drive, and bounded on the west by Highway 11.
3. Park Place neighborhood – bounded on the north by Fremaux Avenue / Highway 190, bounded on the east by Shortcut Highway and Town Center Parkway, bounded on the south by Daney Street, and bounded on the west by 5th Street.
4. Lee Street / Dellwood – bounded on the north and east by Pontchartrain Drive, bounded on the south by the city limits, and bounded on the west by Front Street.

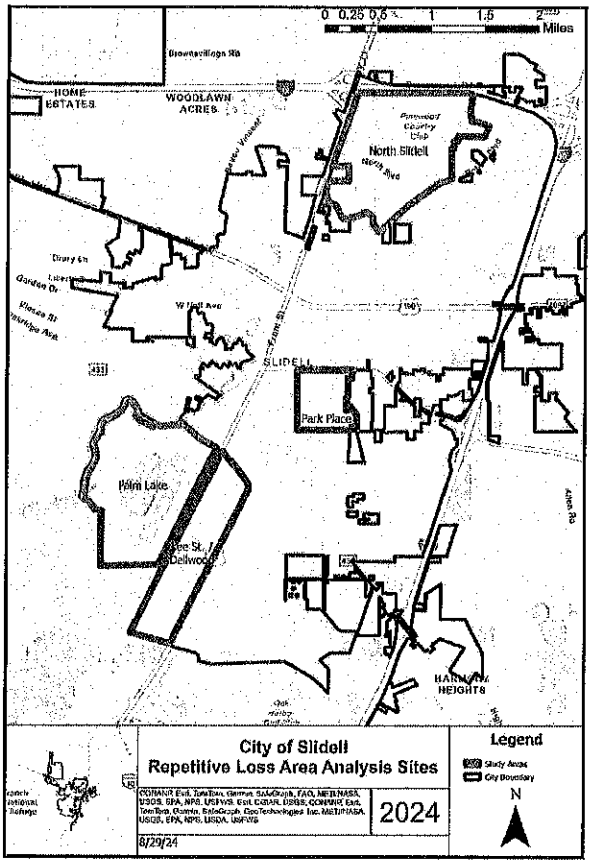
See Exhibit 1 for a Map of Up to Four Areas Under Study.

This Repetitive Loss Area Analysis (RLAA) provides specific guidance on ways to reduce damage from repetitive flooding and analyzes flood sources and risks. The City Council, Media, and Residents in the study areas are hereby notified of this study and are invited to provide input to the City regarding flood hazards and recommended actions.

The final draft of this study will be presented to the City Council and may be adopted by the Council upon review.

To provide input, please email planningdept@cityofslidell.org, or call (985) 646-4320.

Exhibit 1: Map of Up to 4 RLAA Areas Under Study.



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Repetitive Loss Area Analysis Process

The City of Slidell consulted the following sources and professionals in preparing this RLAA report:

- Section 510 of the 2017 CRS Coordinator's Manual and the 2021 Addendum to the CRS Coordinator's Manual[5].
- Insurance Services Office, Inc. (ISO) publication "Developing a Repetitive Loss Area Analysis for Credit Under Activity 510 (Floodplain Management Planning) of the Community Rating System" published in 2017[6].
- FEMA publication 511 published in June 2005 "Reducing Damage from Localized Flooding: A Guide for Communities[7]".
- CRS publication Mapping Repetitive Loss Areas dated October, 2015[8].
- The University of New Orleans Center for Hazards Assessment Response and Technology, publication The Guidebook to Conducting Repetitive Loss Area Analyses.
- Consultation with City Department of Engineering staff – Blaine Clancy, PE, Director of Engineering; Christi Lambertson, PE, Assistant Director of Engineering.
- Consultation with City Planning Department staff – Daniel McElmurray, Planning Department Director; Anatolii Sysoiev, Planner; Theresa Alexander, Planner
- Consultation with City Building Safety, Permits, and Code Enforcement staff – Tara Ingram-Hunter, Director of Building Safety, Permits, and Code Enforcement; Joe France, Chief Building Official, CFM
- Professional Engineering Services and Consulting Services by Principal Engineering, Inc.
- Professional Planning and Floodplain Management Services by Desire Line LLC
- Consultation with the University of New Orleans Center for Hazards Assessment Response and Technology staff and leadership
- Consultation with the St. Tammany Parish Floodplain Management and Homeland Security and Emergency Preparedness staff

The methodology used for this RLAA includes all five planning steps included in the 2017 CRS Coordinator's Manual:

- Step 1: Advise all the properties in the repetitive loss areas that the analysis will be conducted and request their input on the hazard and recommended actions.
- Step 2: Contact agencies and organizations that may have plans or studies that could affect the cause or impacts of the flooding. The agencies and organizations must be identified in the analysis report.
- Step 3: Visit each building and collect basic data.
- Step 4: Review alternative approaches and determine whether any property protection measures or drainage improvements are feasible.
- Step 5: Document the findings. A separate analysis report must be prepared for each area.

[5] https://crsresources.org/manual/
[6] https://crsresources.org/files/500/rlaa-guide-2017.pdf
[7] https://www.fema.gov/pdf/fima/FEMA511-complete.pdf
[8] https://crsresources.org/files/500/mapping_repetitive_loss_areas.pdf

The City of Slidell also meets the additional credit criteria that must be met per the CRS Coordinator's Manual including:

1. The community must have at least one repetitive loss area delineated in accordance with the criteria in Section 503 of the 2017 CRS Coordinator's Manual.
2. The repetitive loss area must be mapped as described in Section 503.b. A Category "C" community must prepare analyses for all of its repetitive loss areas if it wants to use RLAA to meet its repetitive loss planning prerequisite.
3. The repetitive loss area analysis report(s) must be submitted to the community's governing body and made available to the media and the public. The complete repetitive loss area analysis report(s) must be adopted by the community's governing body or by an office that has been delegated approval authority by the community's governing body.
4. The community must prepare an annual progress report for its area analysis.
5. The community must update its repetitive loss area analyses in time for each CRS cycle verification visit.

Step 1: Tell Residents About the Analysis

The City notified residents of the study area that the RLAA study was taking place prior to windshield surveys and field work commencing for this RLAA. To accomplish this step, the City placed an advertisement in the newspaper of record and discussed the RLAA at the City Council meeting on September 10, 2024, as well as mailing notice to each resident and property owner (including homeowners and rental occupants) in the study area. These notice letters advised property owners about the analysis, advised that field teams would be in their area, and requested their input on flood risk and recurring flooding in the area, as well as any actions that they have taken to improve their structures' resilience to flooding or prevent flood damage. The notice advised residents (both property owners and renters), how they could provide comments on the draft report and included a paper and online survey to return to the City.

The survey issued to residents included the following questions:

1. When did you move into your home?
    a. < 10 years ago
    b. 10-20 years ago
    c. 20-30 years ago
    d. 30-40 years ago
    e. >40 years ago
2. Has your property ever been flooded with water in your house?
    a. Y / N / Unsure
3. When did the flooding occur?
    a. 2005
    b. 2008
    c. 2009
    d. 2012

   e. Other
4. How deep did the water get when it flooded?
   a. 6" – 3 feet inside the house
   b. 3 feet – 6 feet inside the house
   c. First floor inside the house
   d. Yard only
5. If you had to evacuate your household today, do you know the evacuation route?
   a. Y / N / Unsure
6. Are you aware that flooding can happen in your neighborhood at any time of the year and that flooding can make streets inaccessible and can damage homes in your neighborhood?
   a. Y / N / Unsure
7. Have you signed up for the St. Tammany Alert Telecommunications (STAT) system?
   a. Y / N / Unsure
8. Do you have flood insurance for your property (property that you rent or own)?
   a. Y / N / Unsure
9. Have you dropped your flood insurance within the past 5 years?
10. Have you ever done one of the following to your home?
    a. Stacked sandbags or placed plastic wrap around doors to prevent flood waters from coming in your house.
    b. Used a "sump pump" mechanism to divert water away from your home's foundation
    c. Elevated your home
    d. Renovated your home or added an addition that had a higher floor than the rest of the structure
    e. Elevated your a/c unit, water heater, appliances, or pool equipment.
    f. Purchased a generator
    g. Used interior finishes that can get wet
    h. Installed electrical wiring that is higher than three-feet from the floor
11. How many times have you evacuated your home for a flood or hurricane in the past 10 years?
12. Have you applied for a grant to elevate your home or otherwise protect your family against flooding?
13. Do you have concerns about any of the following?
    a. Being able to access my home with mobility challenges or as I age (ex: trouble climbing up stairs).
    b. Land subsidence and erosion under my home.
    c. Uneven foundation
    d. Flooding in my street or yard, that doesn't reach the inside of my house
    e. Flooding that impacts my vehicle
    f. Taking my pets with me if I have to evacuate
    g. Maintaining power to take my medication or get medical treatments in my house
14. Do you have City sewer or a septic system?
15. If you were offered a grant to elevate your home, would you take advantage of this opportunity?

16. What kind of advice would you give a friend or family member considering moving to your neighborhood?

Step 2: Plans Inventory and Analysis

The City reviewed the USACE St. Tammany Louisiana Feasibility Study, which examines flood risk and historic damage in the study area. This report examines a number of potential mitigation approaches, considers each potential impacts, cost, and benefit, and identified a preferred mitigation approach. The USACE St. Tammany Louisiana Feasibility Study describes the need for mitigation in the subject area as follows:

"St. Tammany Parish has experienced repeated, widespread flooding from both riverine, rainfall and coastal storm flood events (i.e., riverine bank overtopping, drainage, and storm surge) including historic flood impacts during Hurricane Katrina (August 2005) and the flood August 2016. The flood events caused major disruptions, damages, and adverse economic impacts to the parish. Opportunities to address the problems include:

- Public Safety - Decrease risk to public safety during flood events;
- Flood Damages - Reduce the risks of flood damage to public, governmental, commercial, and residential properties and infrastructure;
- Community Resilience - Improve the communities' ability to prepare for, mitigate, and recover from flood events;
- Transportation and Evacuation - Increase the reliability of the national transportation corridors (I-10, I-12, and I-59) by providing alternatives that could potentially lessen damages to roads and interstates; reduce flooding to evacuation routes used for flood events;
- Natural Resources - Protect the function and increase the resiliency of the ecosystem to reduce flood damages.

The USACE St. Tammany Louisiana Feasibility Study describes the considered alternatives as follows:

Alternative 1. No Action - Future without project condition (FWOP): The No Action Alternative assumes the future conditions in the absence of taking Federal action to address the identified problems. Consideration of a No Action Alternative is a requirement of the National Environmental Policy Act (NEPA) and forms the basis against which all other alternatives plans are measured. Under the No Action Alternative, current flooding problems and concerns in the study area would persist. The area would continue to experience damages from riverine, rainfall, surge, and coastal storm related flooding. Neither the TSP nor any of the other alternatives would be implemented. During analysis of the Final Array, the

PDT determined that Alternative 1 does not address the planning objectives. Consequently, Alternative 1 was screened out based on completeness since it would not alleviate problems or provide flood risk reduction benefits.

Alternative 2. Nonstructural: Alternative 2 included the standalone comprehensive nonstructural measures which reduce flood damages without significantly altering the cause or extent of flooding. Nonstructural measures and plans were evaluated using a logical aggregation method (e.g., grouping by structures' main floor elevation; census block or tract boundaries; neighborhoods or communities sharing common infrastructure; neighborhoods or communities sharing common floodplains; and structures within other geophysical boundaries or sharing other flood characteristics). Nonstructural measures (i.e., elevation, floodproofing etc.) focus on reducing the consequence of flooding for a specific structure rather than constructing hard infrastructure measures (i.e., levees, floodwalls, culverts, pump stations, etc.) which are physical modifications designed to reduce the frequency of damaging levels of flood inundation. Flood damage reduction from nonstructural measures is accomplished by changing the use of the floodplains, or by accommodating existing uses to the flood hazard. The nonstructural measures that were considered for the study area included floodproofing, elevations, buyouts, and relocations. For the Final Array, the logical aggregation method used to evaluate the nonstructural measures were the AEP floodplains. The study area was assessed and structures that incurred damages in the 10, 20, 50 and 100 year floodplains were grouped together for evaluation. During analysis of the Final Array, the PDT screened out the standalone comprehensive nonstructural alternative in favor of the combined structural and nonstructural alternative, which would provide more net benefits. The combined structural and nonstructural measure was retained and is included in the Draft TSP. The draft nonstructural plan was optimized during feasibility of design. [Note: Alternative 3: Lake Pontchartrain Surge Reduction was eliminated during an earlier screening stage in the planning process. See Appendix B: Plan Formulation for additional details.]

Alternative 4. Lacombe: Alternative 4 included variations of a levee system to reduce coastal storm flooding in Lacombe, Louisiana (Variations 4a and 4a.1). A longer levee, extending from Lacombe to the West Slidell area, was also considered (Variation 4b). Although the PDT determined that Alternative 4 met the planning objectives and was complete and effective, none of the levee variations (Variations 4a, 4a.1 and 4b) had a positive benefit-cost ratio (BCR) and therefore, Alternative 4 was screened out based on lack of efficiency. Alternative 4 was not included in the Draft TSP.

Alternative 5. Bayou Liberty/ Bayou Vincent/Bayou Bonfouca: Alternative 5 included measures to address riverine, rainfall, and coastal storm flooding in the areas of Bayou Liberty, Bayou Vincent, and Bayou Bonfouca. To address riverine flooding, the Bayou Bonfouca Regional Detention Pond and channels improvements on Bayou Liberty and Bayou Patassat were considered. A West Slidell levee with floodgates and pump stations was also considered to reduce coastal storm surge impacts to the area. During analysis of the Final Array, the Bayou Bonfouca Detention Pond and Bayou Liberty Channel improvements were screened out based on lack of efficiency due to a negative BCR. It should be noted that ultimately the West Slidell Levee was incorporated into Alternative 6c as part of the Draft TSP. Bayou Patassat was initially retained and included in the Draft TSP, but was ultimately screened out and removed from the Optimized TSP.

Alternative 6. South Slidell Storm Surge: Alternative 6 included a combination of levees and pump stations to reduce damages from coastal storm events, including a levee and floodwall system in South Slidell (6a). Variation (6b) incorporated the Eden Isle community into the South

Slidell levee system. A combination of the measures in Variation 6a and the West Slidell levee from Alternative 5, was created to form Variation 6c. During analysis of the Final Array, Variation 6b was screened out due to the combined South Slidell and West Slidell combination providing the greatest net benefits. Variation 6b, which incorporated the Eden Isle community into the levee alignment, was screened based on lack of efficiency due to a negative BCR. Variation 6c was moved forward into the Draft TSP and was optimized during feasibility level of design.

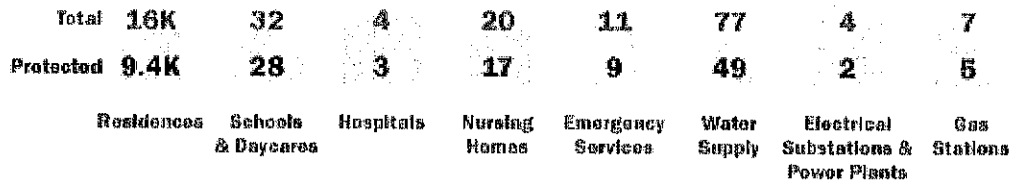
Alternative 7. Eastern Slidell: Alternative 7 included measures to address riverine, rainfall, and coastal storm flooding to eastern Slidell. Measures included a diversion at Gum Bayou, Poor Boy Canal Improvements, channel improvements on Doubloon Bayou, and a levee to prevent riverine flooding from the Pearl River. During analysis of the Final Array, the Pearl River Levee, Doubloon Bayou channel improvements, Gum Bayou Diversion, and Poor Boy Canal improvements were all screened out based on lack of efficiency due to a negative BCR. Alternative 7 was not included in the Draft TSP.

Alternative 8. Upper Tchefuncte/Covington: Alternative 8 includes channel modifications to Mile Branch in Covington to reduce riverine flooding. The evaluation also included enlarging the lower 2 miles of Mile Branch and enlargement of Lateral "A." During analysis of the Final Array, the Lateral A channel improvements were screened out based on lack of efficiency resulting in a negative BCR, and because the improvements would not be effective in reducing flooding (the H&H modeling only showed minor reductions in water surface elevations). The Mile Branch Channel Improvement measure of Alternative 8 was moved forward into the Draft TSP and was optimized during feasibility level of design.

Alternative 9. Mandeville Lakefront: Alternative 9 considered three variations of replacing and raising the existing Lake Pontchartrain seawall and providing additional improvements, such as floodwalls, floodgates and or pumps to address tidal and storm surge flooding in Mandeville, Louisiana. This Alternative investigated both variations with forced drainage and pump stations and passive (gravity) drainage systems at Little Bayou Castine and Ravine aux Coquille. During analysis of the Final Array, all structural measures that made up Alternative 9 were screened out based on lack of efficiency due to a negative BCR. Alternative 9 was not included in the Draft TSP.

The City also reviewed the CPRA 2023 Coastal Master Plan, which includes as an "Implementation Period 1" project the "Slidell Ring Levees," Project ID: 032. This indicates that the project, consisting of a 76000 foot earth levee between 13-17 feet high with T-wall, barge gates, and log gates would provide significant protection to the study area under numerous environmental scenarios.

Figure 6: Potential benefits of the Slidell Ring Levee project per CPRA Master Plan



Step 3: Data Collection and Fieldwork

The City conducted a field survey of each structure and drainage channel in the subject study area. The field survey indicated the foundation type, height above grade, and building type of each structure, as well as its location in the floodplain and each survey included a photo image of the structure at each address. The City then analyzed the field work results to identify potential risk and mitigation approaches. **See Appendix B for all site surveys and analysis of survey data.**

Step 4: Review Mitigation Actions

The City reviewed the USACE St. Tammany Louisiana Feasibility Study, which examines flood risk and historic damage in the study area. This report examines a number of potential mitigation approaches, considers each potential impacts, cost, and benefit, and identified a preferred mitigation approach.

A significant portion of the homes in the study area are already elevated, and many residents attest to the effectiveness of these home elevations in reducing the frequency of flooding, however the area remains subject to coastal influence and tidal flooding from Lake Pontchartrain, threatening many structures and making roads impassable in the area even outside of a major regional flood event.

Beyond nonstructural mitigation on a site-by-site basis, the City has determined that the construction of the Slidell Ring Levees are the most effective way to significantly mitigate the properties in the subject RLAA study area.

This report will follow the progress of this project concept and will recount residents and the City's efforts to provide structural protection to the Palm Lake area.

Step 5: Findings and Recommendations

The City has proposed the Slidell Ring Levee project for funding through a multitude of programs and funding opportunities.

With the publication of the USACE Feasibility Study[9], the City must continue to coordinate with state, regional, and federal partners to pursue implementation of large-scale flood mitigation to the area.

[9] https://www.mvn.usace.army.mil/Missions/Environmental/NEPA-Compliance-Documents/Bipartisan-Budget-Act-2018-BBA-18/BBA-18-Projects/St-Tammany-Parish-Feasibility-Study/

Step 6: Project and Funding Strategy

The City of Slidell will pursue the following strategies and implementation actions in support of flood mitigation in the Palm Lake area:

Strategy or Action	Category	Responsible Party	Coordinating Party	Timeline	Funding Need
Coordinate with CPRA to ensure that the Slidell Ring Levees project is prioritized in the annual plan for funding	State Coordination	City of Slidell, CPRA	Legislators, City Engineering Dept.	1-3 years	$390 – 460M
Coordinate with stakeholders across the Northshore to support the USACE Feasibility Study implementation	Regional Coordination	City of Slidell, incorporated areas in St. Tammany, St. Tammany Parish, Tangipahoa Parish	City leadership, legislators, local engineers and modelers, USACE	1-5 years	TBD
Coordinate with local land owners in the footprint of the Slidell Ring Levee project to begin working on ROW access	Regional Coordination	City of Slidell, St. Tammany Levee, Drainage, and Conservation District	USACE, CPRA	3-10 years	TBD

Appendices

Appendix A. Public Meeting and Outreach Summary

This section underway pending public meeting.

Appendix B. Field Data Collection and Analysis

This section underway pending data consolidation and mapping.

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Appendix C. Funding / Implementation Resources Map

This section underway pending additional research.

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Appendix D. References

Appendix E. Resident Data Sheets

This section underway pending survey responses from residents.

Appendix F. Maps

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