

# Terrebonne Parish Hazard Mitigation Plan Update 2014



Prepared for



March 2015



**TERREBONNE PARISH, LOUISIANA**

**HAZARD MITIGATION PLAN**

***Project No. PDMC – PC – 06 – LA – 2012 – 003***

***March 2015***



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## EXECUTIVE SUMMARY

### Terrebonne Parish, Louisiana

### 2015 Hazard Mitigation Plan Update

#### Introduction

This Hazard Mitigation Plan Update is the third such plan in 15 years. The last update development was completed in 2008 just prior to hurricanes Gustav and Ike. Due to the severity of the storms, Terrebonne Parish was allocated significant federal funds to recover from the damage, retrofit existing structures to increase resilience, improve and add to the levee system, or relocate critical infrastructure outside the floodplain. The Parish benefitted from the flexibility of not only Federal Emergency Management Agency (FEMA) funds, but Community Development Block Grant (CDBG) funds from the U.S. Department of Housing and Urban Development (HUD) as well. The agencies have complementary goals and preferred projects which allowed the Parish to implement many of the priorities that had been identified in the meetings held right before the storm. Located directly on the Gulf of Mexico, the risks are still significant, and there is much that can be implemented to adapt from education and better building to regulations and coastal restoration.

Since 2010, Terrebonne Parish implemented 26 projects specifically listed in the HMPU 2010. Advances were from across the spectrum of activities from increased public education and outreach to the local implementation of levees to protect the lower reaches of the Parish and the flood control structure on the Houma Navigational Canal to stop surge from reaching the City of Houma. A complete list of the accomplishments in the last five years is included on pages 76-79. Each project completed or ongoing has resulted in an incremental reduction in risk of damages, from flood and wind in particular. The risk of continued inundation is reduced in the areas with the elevated pump stations, and the bar screen cleaners reduce the risk of pump failure when debris levels are high. Essential government functions are being moved from the special flood hazard area or, if the facility must function in place, the structures are hardened and supplied with alternative power sources to facilitate continuous function or expedited recovery after an evacuation/event.

Due in part to the significant and unexpected insecurity regarding flood insurance over the past two years, the Parish has escalated plans in place since 2011 to revise and streamline the flood ordinance to maximize all areas of the Community Ratings System. The process undertaken to update this plan followed the eight (8) steps required in Section 510 of the Community Ratings System Coordinators Manual (September 2013) and other planning guidance to engage the public and thereby reduce risk through engagement.

Through the HMPU process, the Parish HMPU Steering Committee engaged members of the public, neighboring parishes, and statewide stakeholders to develop a consensus of priorities. While the implementation of the plan is fluid based on funding sources and storm events, the HMPU will serve as a resource in all Parish planning, response, and recovery activities.

### **Step 1 - Organize**

The Parish has embarked on multiple lines of defense as a strategy to reduce risk through various mechanisms including levees, nonstructural elevation projects, wind hardening projects and other infrastructure hardening projects. As important are the educational activities taken on throughout the Parish to invite participation from the general public both in planning and risk reduction activities.

Recognizing the importance of mitigation to every department and division in the Parish, all were invited to participate in the project and every department committed at least one individual to participate in the meetings. Further, specialists in various divisions provided data and their professional opinion upon request, which uncovered a number of previously obscure needs not previously captured. The planning department was the best represented due to the mandate to enforce building codes, land use, floodplain, as well as the subdivision and stormwater management regulations, and to implement the Comprehensive, Hazard Mitigation, and the Long Term Recovery Plans. The Chair of the Planning Commission participated as well. The Office of Emergency Preparedness assisted from the beginning participating in the procurement process, the public meetings, and updates on critical facilities. The Utilities Department, the Public Information Officer, and the Coastal Restoration and Preservation Department director provided feedback as did several divisions of the Public Works Department. Prior to the meetings, the Departments combed through the existing Hazard Mitigation Plan updating the status of the projects proposed at that time in preparation for the public meetings. This was a gratifying process, but was a reminder that there is still much more to be done to make the Parish safer and more resilient.

### **Step 2 - Involve the Public**

The Parish Council adopted the steering committee and proposed process by resolution. Some members of the Council participated in the public meetings thereafter. The Steering Committee was comprised of members from the private and public sectors. The Parish President approached each member and invited them to participate. This group was established prior to the first meeting and committed to up to six (6) meetings. These members represented a broad spectrum of interests including industries, tribes, nonprofits, academia and public safety. Each brought their perspective and interests to the table providing a range of expertise.

The general public was invited to participate through multimedia invitations and documentation of the meetings. The Parish President invited participants to join the effort in his town hall meetings and other public appearances. Each planning effort in the Parish has been augmented by multimedia recruitment of public input through meetings around the Parish, ads in the newspaper, posts on the TPTV site, and several specialized

web sites. The Hazard Mitigation Plan Update was the fourth major planning effort since the current plan was adopted. The public was invited to five meetings and all presentations, meeting notes, and advertisements were posted on a website. Three FloodSafe Minutes regarding the planning process, the importance of the plan, and chances to participate were sent to the Council and posted on the website. Members of the media were invited to observe or participate and the process earned coverage in news print (Houma Courier) and the radio (WWNO, NPR). People who had participated in the Comprehensive Plan and the focus group for the Flood Ordinance Amendment Outreach were approached for their input due to their prior commitment to reducing risk and willingness to engage.

It is worth noting that the Parish had encouraged and facilitated discussion throughout the Parish since the last plan was developed. Throughout the recovery for hurricanes Gustav and Ike, the Flood Ordinance Outreach, the Comprehensive Plan Vision 2030 process, and a targeted repetitive loss study in two neighborhoods, meetings were held throughout the Parish to encourage participation. This advance research has been incorporated into this plan, and the public feedback has been appended to document the results of in person and web surveys and the memorialization of input in these public meetings.

### **Step 3 - Coordinate**

In order to prepare for the kickoff of this planning process, the Parish provided copies of a set of relevant plans on the website for all to access and a CD for all Steering Committee members and forecasted discussion of the sufficiency of the subdivision regulations, stormwater regulations, flood ordinance and invited submission of other plans that might affect future risk. This included the Hazard Mitigation Plan from 2010 and the updated project list showing what had been accomplished since that time. The deliberations included the review of these earlier plans, studies, and the list of projects completed since the last update to reduce risks of hazards.

The content and sufficiency of the plans was discussed during multiple meetings. During one such discussion, it was proposed that the Comprehensive Plan did not deal directly with relative sea level rise, or how regulations might best reflect adaptations for subsidence. Though this issue was not resolved in the meeting process, this area of research and future action has been captured as a higher priority area of interest.

During the planning process, the consultant and committee members sought out data and input from a number of agencies and groups outside the government. Local tribes were members of the steering committee, and were approached outside the meetings as well to discuss what goals the tribes individually or collectively were planning to achieve independent of the Parish process to ensure the safety of their community.

### **Step 4 - Assess the Hazard**

Due to the long history of natural disasters in Terrebonne Parish, a broad range of hazards are always a consideration in planning, building, regulations, and discussions of future investment. The 2010 Hazard Mitigation Plan Update reviewed the history up to hurricane Katrina, and this update includes flooding and wind damage from hurricanes

Gustav, Ike, Isaac and tropical storm Lee. The HAZUS model compiles the inundation maps of all of the national presidential disaster declared storms in Terrebonne Parish to estimate the level of risks from the composite flood hazard.

The events of the last five years have increased understanding of the dangers of coastal changes and projections of effects on the built environment and cultural assets. The Parish has expanded the objectives to prepare or respond to these challenges in addition to the original plan. The steering committee discussed the options for action at this time and the consensus was to commit the Parish to study the projections and consideration of alternative development or mitigation strategies in light of those projections. The future stability of the land, and ability or lack of ability of the Parish and its partners to improve that stability, will be a consideration factor in future decision making. This is consistent with the Comprehensive Plan and allows the Parish flexibility based on the findings of future studies at the local, regional, state and national levels.

All hazards were discussed though, other than flood and wind, no significant occurrences have been experienced in the Parish since the 2010 plan was adopted. A synopsis is provided in summary fashion on pages 26-29. There was some discussion of the sink holes in other parts of the state, but this was not added as a concern in Terrebonne at this time. There are few geological features in Terrebonne Parish that would logically become a sink hole, and saltwater injection wells and other landfills have been banned from the special flood hazard area in a 2014 flood ordinance amendment. Other proposed ordinance changes will be discussed on page 65 including the data on the Coastal A zone and a new zoning designation to protect environmentally sensitive lands.

### **Step 5 - Assess the Problem**

The planning process provided an opportunity to review the accomplishments of the past, the new or postponed challenges of today and in the future. In some cases, the residual risk requires more of the same approaches. In other cases, the activity itself created a need for more action, whether that would be a physical project or education. For example, the Parish identified an issue with pump station and stormwater intake in the last plan, and elevated pump stations, purchased portable and stationary generators, and installed automatic trash screens on key facilities. During this plan development, the remaining targets were updated, and a new project for telemetry automation on pump stations was added to supplement these efforts. A business owner suggested that much of this work was not understood by the general public, and requested to see simple maps throughout the Parish that show where the water is expected to flow in a storm event. By educating the public, misimpressions and feelings of either false security or overestimated risk could be moderated through a better understanding of the pump systems.

Some of these discussions are captured in the text of the plan in that section, but there was a lot of effort to identify gaps in the proposed projects to address outstanding risk, and the responses are recorded in part by the listing of the updated project list.

### **Step 6 - Set Goals**

The goals of the Parish remain broad as the threats and risks are great. While there is some level of predictability in coastal areas, for example, that there will be another hurricane, the trajectory and strength of the event can't be forecast. Therefore, the goals remained broad and were considered representative of the overarching Parish perception of the risks and risk reduction options.

The objectives were broadened to include some discussions that have been ongoing within the Parish, but not included in previous plans. The connection between oil mining and subsidence has been discussed, but the oil spill and those ramifications had not been entertained. There are risks from combining manmade disasters with natural disasters including the spread of pollutants over a larger area that would not otherwise have been contaminated. These manmade risks and cultural sensitivity were added as objectives.

### **Step 7 - Review Possible Activities**

Regardless of the topic, education was central to all activities reviewed. Ongoing efforts were applauded, but in most instances, increased education was identified as a necessary component of any resulting plan. Several of the newly proposed projects are related to improved outreach regarding preparation for storm season, immediate response, recovery, and general risk management decisions at the government, business, and individual scale. Committee members and business interests stressed the need for increased education and enforcement of existing regulations.

### **Section 8 - Draft and Action Plan**

The Steering Committee and participants discussed the priorities of the Parish and the feasibility of certain actions throughout the process. A rough survey was given to pit types of projects against each other to stimulate conversation about priorities. The outcome of the survey is included in the following section. The priority projects, the approximated cost where available; feasibility, and the responsible party are provided in a chart form.

## 1.0 INTRODUCTION AND PARISH BACKGROUND

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The information presented in this section provides a synopsis of Terrebonne Parish, Louisiana, including descriptions of its geographic location, land use characteristics, geologic features, and socioeconomic composition. With this context, data provided in subsequent sections may be more easily evaluated.

### *TERREBONNE PARISH CONSOLIDATED GOVERNMENT*



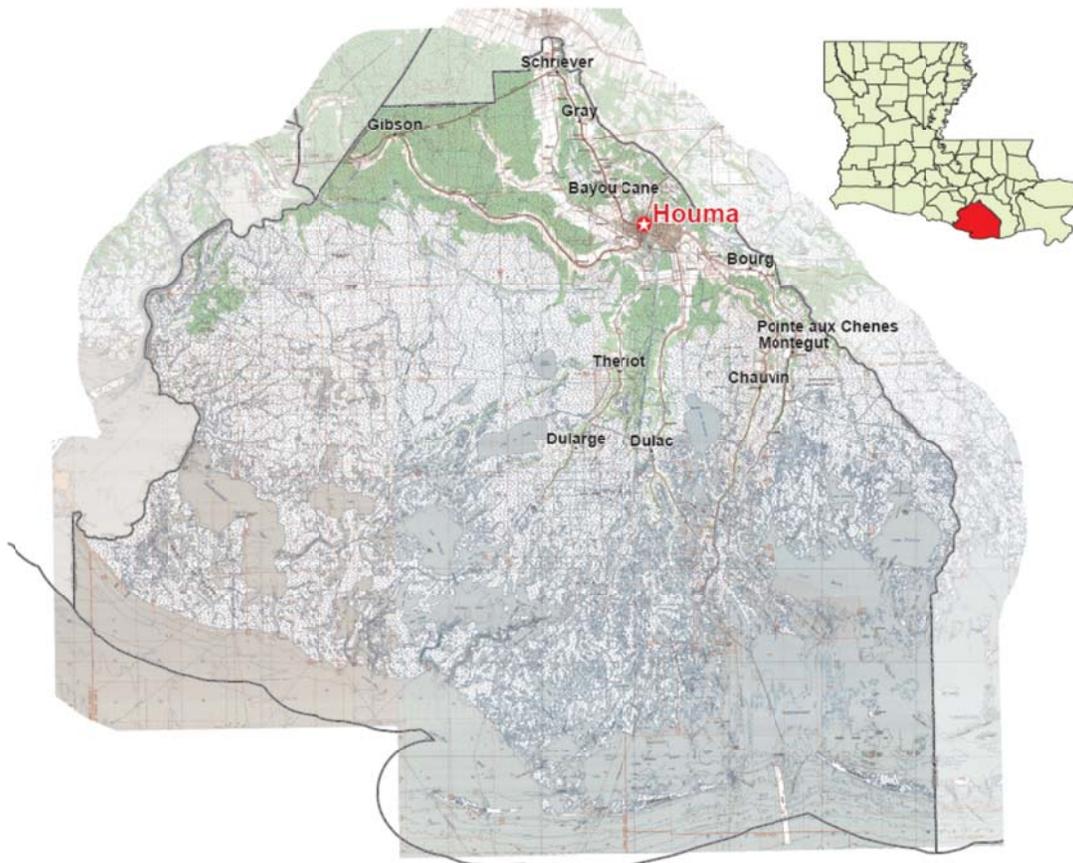
In 1984, Terrebonne Parish instituted a consolidated form of government. At that time, the governmental functions of the City of Houma (the sole municipality in the parish) were consolidated with the governmental functions of Terrebonne Parish. The formal name of the parish's government is the Terrebonne Parish Consolidated Government which is commonly referred to as the "parish." The governing authority consists of an elected parish president who is the chief executive officer, (i.e.) head of the executive branch, and nine elected council members. The council members each represent a single district consisting of relatively equal areas of population. The Terrebonne Parish Council represents the legislative branch of the parish. As stated in its Home Rule Charter and parish code, the Terrebonne Parish Consolidated Government has all the powers, rights, privileges, immunities, and authority heretofore possessed by the City of Houma and Terrebonne Parish under the laws of the state. The parish shall have and exercise such other powers, rights, privileges, immunities, authority and functions not inconsistent with this charter as may be conferred on or granted to a local governmental subdivision by the constitution and general laws of the state. More specifically, the parish shall have and is hereby granted the right and authority to exercise any power and perform any function necessary, requisite or proper for the management of its affairs, not denied by this charter, or by general law, or inconsistent with the constitution.

The parish has the right, power, and authority to pass all ordinances requisite or necessary to promote, protect and preserve the general welfare, safety, health, peace and good order of the parish, including, but not by way of limitation, the right, power and authority to pass ordinances on all subject matters necessary, requisite or proper for the management of parish affairs, and all other subject matter.

Eleven unincorporated communities with small concentrations of residences and assets are dispersed throughout the parish. The aggregate population of each of these communities represents approximately two-thirds of the parish's total population. These communities are also governed by the Terrebonne Parish Consolidated Government. The following communities are identified on many maps and figures throughout this Hazard Mitigation Plan Update (HMPU); Bayou Cane, Gray, Bourg, Montegut, Chauvin, Pointe-Aux-Chenes, Dulac, Schriever, Dularge, Theriot, and Gibson.

## 1.1 Geographic Setting

Terrebonne Parish is situated in southeast Louisiana along the state's Gulf of Mexico coastline. The parish includes approximately 2,100 square miles and is the second largest parish in Louisiana regarding land area. Greater than 85% of the parish area is water and wetlands. Lafourche Parish is to the east, St. Mary Parish is westward, and Assumption Parish is located north of Terrebonne. The map below shows communities in Terrebonne Parish, its position in the state, and its large expanse of water and wetlands (light blue and gray).



The Terrebonne Levee Conservation District is currently constructing reaches of the Morganza to the Gulf system. The majority of the parish's existing levee system is comprised of a series of forced drainage levees. The levee system is augmented with pump stations in the populated portions of the parish to drain storm water and minimize flooding. According to the Terrebonne Parish needs assessment provided via the Louisiana Speaks Long-Term Community Planning website ([www.louisianaspeaks-parishplans.org](http://www.louisianaspeaks-parishplans.org)), all levees in the parish located south of the Intracoastal Canal, and with a crown height lower than 10 feet, were compromised during Hurricane Rita in 2005. The layout of all drainage districts, including levees and pump stations, is presented in the risk assessment section of this HMPU (Section III).

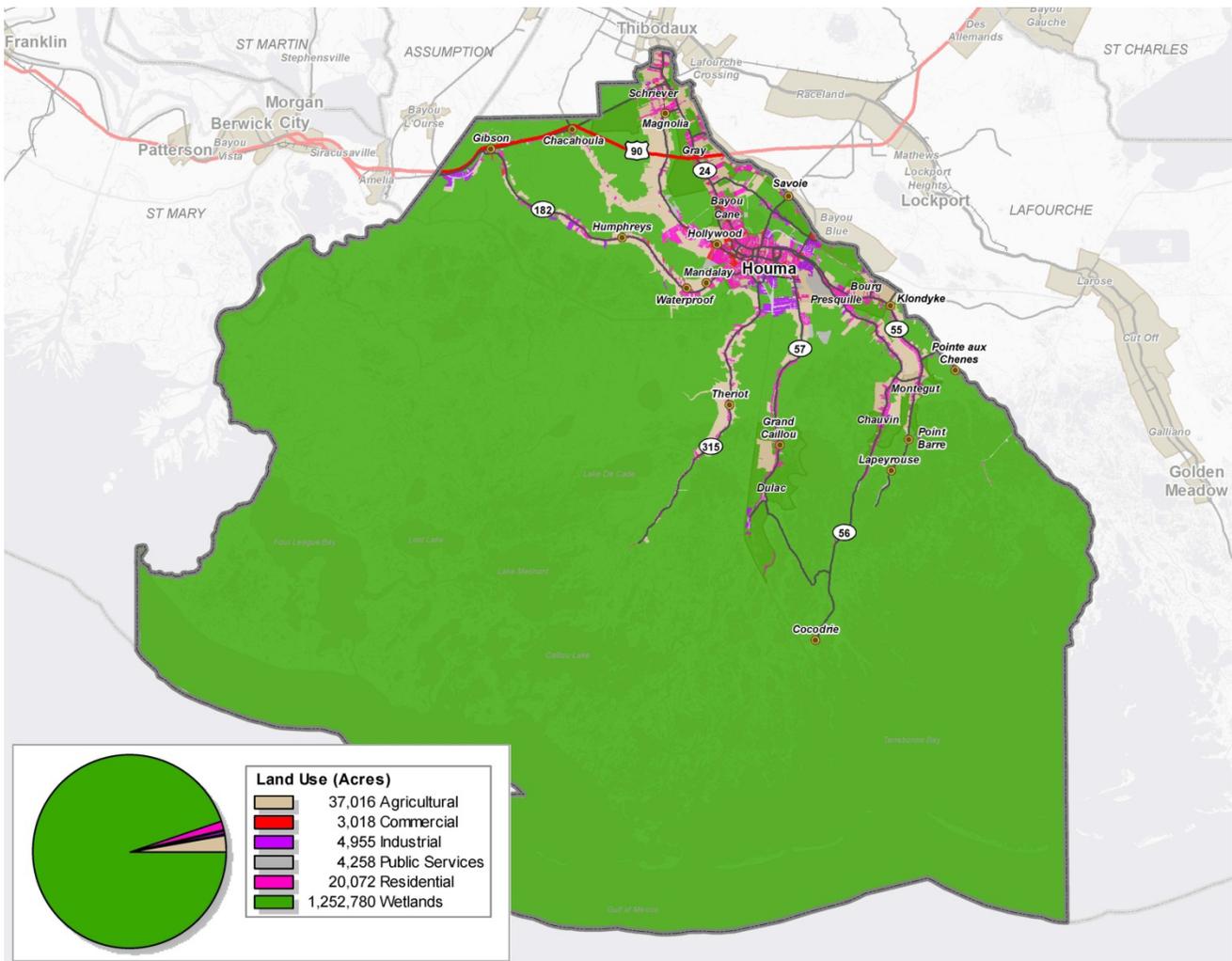
## 1.2 Land Use

As a snapshot of the community, the following land use/land cover table and associated chart are provided. Based upon Environmental Protection Agency data, only 5.6% of the parish is urbanized and/or under cultivation. The remaining 94.6% of the 1,326,748 acre parish is forested, wetlands, or water.

Table 2-1: Terrebonne Parish Existing Land Use/Land Cover

Description	Acres	%
Agricultural	37,016	2.8%
Commercial	3,018	0.2%
Industrial	4,955	0.4%
Public Services	4,258	0.3%
Residential	20,072	1.5%
Wetlands	1,252,780	94.8%
<b>Total</b>	<b>1,322,099</b>	<b>100.0%</b>

Terrebonne Parish Existing Land Use/Land Cover Map



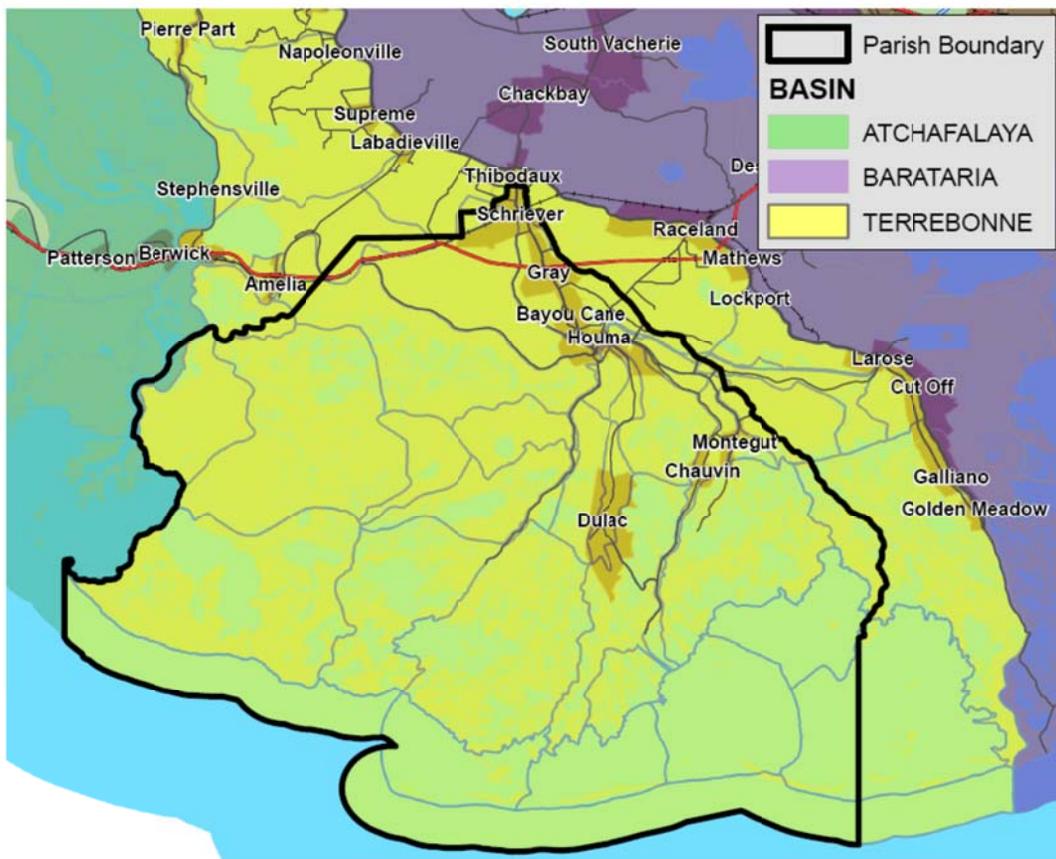
The geographic distribution of land use/land cover is illustrated on the parish map. Portions of the parish that are residential, industrial or commercial are concentrated in the north-central portion of the parish in the vicinity of Houma and the previously described ridges along major bayous.

The land formation of Terrebonne Parish is largely a result of an historic alignment of the Mississippi River delta known as the Lafourche Delta. The following is an excerpt from the *Roadside Geology of Louisiana* by Darwin Spearing, which explains the development of the Lafourche Delta:

“About 3,500 years ago, the Mississippi River shifted west again, this time running south along the course of Bayou Lafourche. Many remnants of the distributary streams of the Lafourche delta remain as part of the landscape south of Thibodaux. The Lafourche delta grew between 3,500 and 400 years ago, the last of the great deltas that preceded the modern delta. Lake-filled marshes in Terrebonne Parish, Terrebonne Bay, and Timbalier Bay, and the arcuate offshore islands of Isles Dernieres, Timbalier, and East Timbalier are relics of the Lafourche Delta.”

The parish is located at the southernmost reach of the Terrebonne drainage basin. The drainage basins within and in the immediate vicinity of Terrebonne Parish are identified in the following illustration.

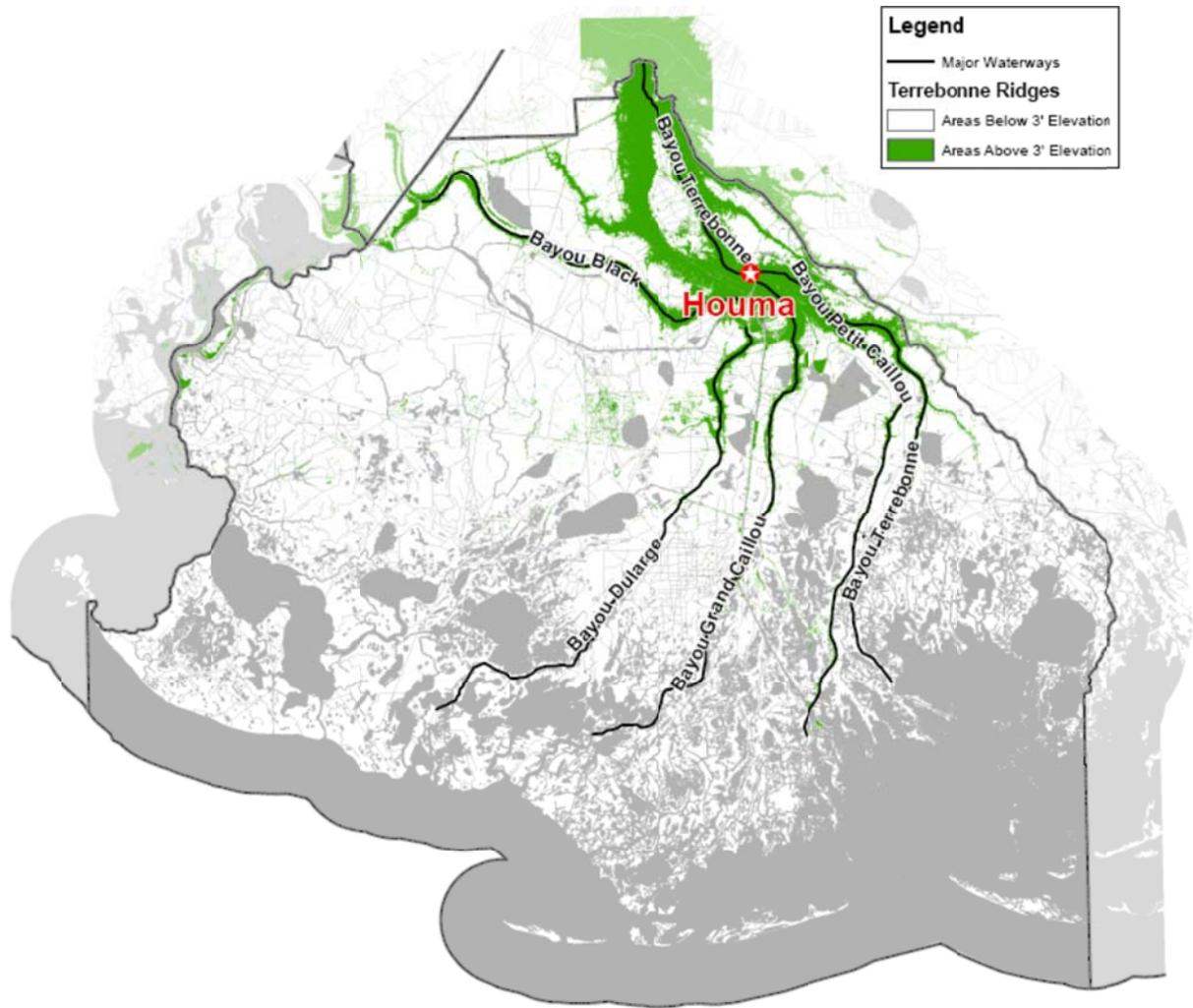
Terrebonne Drainage Basin



A combination of its deltaic creation, its proximity to the Gulf of Mexico, and a historical concentration of oil and gas exploration activities (construction of man-made access canals) is responsible for greater than 85% of the parish's total acreage being represented by either water or wetlands. Generally from north to south, the wetlands include fresh marsh, intermediate brackish marsh, and salt marsh near the coast line. These marshes are intertwined with hundreds of lakes, bays, bayous, and canals. Some of the more notable water bodies within the parish include:

- Bayou Black
- Bayou Dularge
- Bayou Grand Caillou
- Bayou Petit Caillou
- Bayou Terrebonne
- Houma Navigation Channel
- Intracoastal Waterway

These bayous are significant as they have historically provided the land-building sediment that created the highest areas of the parish. The sediment was deposited during annual flooding cycles of Bayou Lafourche on the Lafourche delta lobe. It is upon these finger-like ridges that all urban and agriculture land exist in the parish today. Because of the formation of these ridges through alluvial processes, the three-foot contour clearly defines the ridges as the "high-ground" of the parish. The depiction of these ridge lines form an image that is repeated in this report as virtually all land area other than these ridge areas is susceptible to frequent flooding of some sort; either stormwater, river/bayou flooding, storm surge, or backwater flooding. The graphic on the following page depicts the ridges that form the bulk of non-flooding urban and agricultural land in the parish.



***Land Loss: An Ongoing Threat***

Land subsidence and coastal erosion are two causes of land loss in coastal Louisiana. Coastal erosion destroys land and removes sediments critical to the existence of environmental features such as beaches, and wetlands. High wind and water events, especially wave action, are increasing contributors to coastal erosion. Land subsidence refers to the lowering of lands' elevation, or land sinking. Land subsidence is often related to events such as the extraction and storage of natural resources and their byproducts, as well as natural hazard events such as earthquakes. Land subsidence related to man-made activity such as the collapsed salt dome in Bayou Corne in Assumption Parish can lead to sinkholes that reclaim surface land, inundating the cavern to the surface with water.

***Terrebonne Basin Persistent Land Loss 1932-2010***

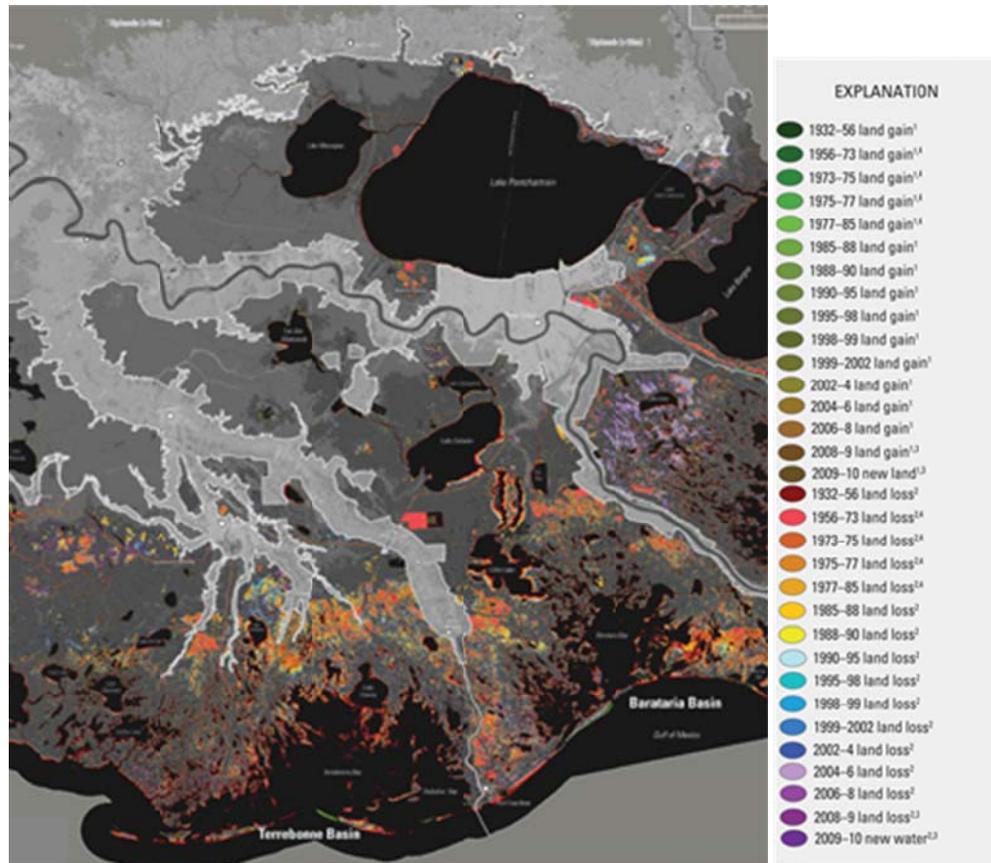
The figure below details wetland loss along coastal Louisiana, showing persistent land loss and land gain along the Terrebonne Basin. It can be observed in the figure that between 1932 and 2010 Terrebonne Basin lost land at a faster rate than it was replaced. Though USGS cites hurricanes and extreme storms as major drivers of this historic land

loss, the figure to follow also shows that land is eroding at a slower rate than the previous highs seen in the 70's. The tables on the following pages show persistent land loss and gain in the coastal Louisiana basin as well as total land areas in Louisiana. Terrebonne Basin has lost 29.3 percent of its land area while 25 percent of land has been lost coastwide between 1932 and 2010.

Persistent Land Loss and Land Gain in Terrebonne Basin, as defined by the Coastal Wetlands Planning, Protection and Restoration Act Program (n.d.), 1932-2010

Loss																
1932-1956	1956-1973	1973-75	1975-77	1977-85	1985-88	1988-90	1990-95	1995-98	1998-99	1999-02	2002-04	2004-06	2006-08	2008-09	2009-10	Total Land Loss
-75.28	-46.25	-46.65	-50.87	-35.11	-22.97	-27.54	-30.63	-23.12	-22.5	-11.99	-9.63	-18.27	-23.4	-12.31	-4.49	-459.99
Gain																
1932-1956	1956-1973	1973-75	1975-77	1977-85	1985-88	1988-90	1990-95	1995-98	1998-99	1999-02	2002-04	2004-06	2006-08	2008-09	2009-10	Total Land Gain
2.96	0.21	0.25	0.31	0.49	0.26	0.24	0.28	0.4	0.76	0.47	0.37	1.67	0.67	0.66	0.43	10.43

Source: USGS



Persistent land loss and land gain in coastal Louisiana by basin, as defined by the Coastal Wetlands Planning, Protection and Restoration Act Program (n.d.), 1932-2010

[Land area in square miles]

Basin	1932-56	1956-73	1973-75	1975-77	1977-85	1985-88	1988-90	1990-95	1995-98	1998-99	1999-2002	2002-4	2004-6	2006-8	2008-9	2009-10	Total persistent
<b>Loss</b>																	
Atchafalaya Delta	-4.48	-1.92	-1.75	-0.90	-0.64	-0.99	-1.37	-1.15	-0.83	-0.49	-0.39	-0.51	-0.37	-0.66	-0.01	-0.02	-16.49
Barataria	-56.46	-70.98	-64.21	-27.94	-42.81	-16.80	-26.30	-26.76	-16.76	-17.83	-9.12	-8.95	-13.76	-15.86	-3.94	-3.23	-421.71
Breton Sound	-30.94	-11.34	-9.95	-9.58	-7.97	-5.67	-8.28	-9.64	-6.93	-6.47	-4.26	-5.48	-29.32	-12.25	-0.98	-1.79	-160.87
Calcasieu-Sabine	-8.41	-66.70	-17.30	-15.08	-9.59	-6.19	-4.22	-6.90	-7.15	-5.19	-2.85	-1.59	-22.00	-23.74	-1.30	-0.72	-198.94
Mermentau	-18.68	-24.35	-7.00	-9.31	-10.01	-6.59	-5.49	-6.58	-5.74	-3.96	-4.03	-2.76	-22.26	-6.13	-0.43	-0.60	-134.37
Mississippi River Delta	-34.06	-61.93	-10.51	-9.61	-4.86	-2.44	-5.64	-4.41	-1.89	-1.02	-1.02	-3.46	-10.11	-0.90	-0.14	-0.03	-152.02
Pontchartrain	-34.41	-32.50	-12.74	-12.84	-9.47	-6.88	-9.67	-11.07	-7.85	-6.68	-4.20	-5.70	-15.14	-7.24	-1.26	-1.60	-179.25
Teche-Vermilion	-14.68	-8.40	-4.43	-4.22	-3.06	-3.23	-3.23	-2.81	-3.57	-3.15	-1.71	-3.23	-3.78	-4.51	-0.29	-0.29	-64.61
Terrebonne	-75.28	-46.25	-45.65	-50.87	-35.11	-22.97	-27.54	-30.63	-23.12	-22.50	-11.99	-9.63	-18.27	-23.40	-12.31	-4.49	-459.99
<b>Total</b>	<b>-277.41</b>	<b>-324.39</b>	<b>-173.55</b>	<b>-140.35</b>	<b>-123.52</b>	<b>-71.78</b>	<b>-92.18</b>	<b>-99.94</b>	<b>-73.83</b>	<b>-67.29</b>	<b>-39.57</b>	<b>-41.30</b>	<b>-135.02</b>	<b>-94.69</b>	<b>-20.65</b>	<b>-12.77</b>	<b>-1,788.24<sup>1</sup></b>
<b>Gain</b>																	
Atchafalaya Delta	0.89	1.12	0.63	0.32	1.77	1.17	0.60	2.47	0.76	4.74	0.98	1.12	2.28	2.08	3.77	5.25	29.95
Barataria	1.11	0.10	0.05	0.45	0.24	0.05	0.08	0.15	0.29	0.09	0.30	0.31	1.25	0.58	0.35	0.52	5.91
Breton Sound	1.34	0.32	0.01	0.12	0.20	0.06	0.16	0.14	0.38	0.20	0.31	0.27	1.15	0.59	0.29	0.49	6.03
Calcasieu-Sabine	1.87	1.68	0.18	0.26	0.74	0.19	0.19	0.57	0.20	0.28	0.40	0.86	0.81	0.51	0.08	0.19	9.02
Mermentau	1.71	0.57	0.12	0.10	0.28	0.13	0.53	1.16	0.70	0.18	0.33	0.28	0.44	0.19	0.04	0.11	6.87
Mississippi River Delta	2.43	0.50	0.95	2.34	2.52	1.10	1.06	0.67	0.83	1.62	1.43	0.63	2.62	2.52	0.37	2.16	23.74
Pontchartrain	1.59	1.69	0.61	0.17	0.30	0.16	0.28	0.20	0.16	0.07	0.32	0.30	1.11	0.64	0.27	0.46	8.31
Teche-Vermilion	1.64	0.34	0.01	0.04	0.13	0.05	0.05	0.16	0.09	0.10	0.12	0.14	0.51	0.24	0.13	0.11	3.85
Terrebonne	2.96	0.21	0.25	0.31	0.49	0.26	0.24	0.28	0.40	0.76	0.47	0.37	1.67	0.67	0.66	0.43	10.42
<b>Total</b>	<b>15.53</b>	<b>6.52</b>	<b>2.82</b>	<b>4.10</b>	<b>6.68</b>	<b>3.17</b>	<b>3.21</b>	<b>5.79</b>	<b>3.80</b>	<b>8.03</b>	<b>4.66</b>	<b>4.27</b>	<b>11.82</b>	<b>8.03</b>	<b>5.95</b>	<b>9.71</b>	<b>104.11<sup>1</sup></b>

<sup>1</sup>Data are rounded to two decimal places; values shown may not add to totals shown.

Source: USGS

Land area in coastal Louisiana by basin, as defined by the Coastal Wetlands Planning, Protection and Restoration Act Program (n.d.), 1932-2010

[Land area in square miles. Dates are approximate averages of imagery used for various portions of the coast. Area estimates are known to be highly influenced by water levels on the date of acquisition of the imagery. Refer to table 2 for water level information]

Decimal date <sup>1</sup>	Basin									
	Atchafalaya Delta	Barataria	Breton Sound	Calcasieu-Sabine	Mermentau	Mississippi River Delta	Pontchartrain	Teche-Vermilion	Terrebonne	Coastwide
1932 <sup>2</sup>	212.58	1,479.78	427.63	824.99	958.27	262.07	1,105.19	548.94	1,726.48	7,545.92
1956 <sup>2</sup>	197.57	1,382.60	376.07	810.52	918.78	241.82	1,038.25	520.24	1,618.43	7,104.28
1973.9	197.04	1,339.06	395.08	691.40	888.94	80.34	1,029.61	529.78	1,598.43	6,749.68
1975.7	210.52	1,224.77	347.76	697.76	902.95	94.27	999.08	528.12	1,529.68	6,534.90
1977.4	190.51	1,297.88	356.49	591.98	799.89	138.71	993.72	500.33	1,396.13	6,265.65
1985.1	186.80	1,149.74	333.87	615.44	780.54	121.63	979.22	492.36	1,325.53	5,985.12
1988.1	205.89	1,170.51	339.86	636.36	785.76	129.06	991.19	487.43	1,393.58	6,139.65
1990.8	198.92	1,104.10	313.00	659.23	835.71	137.99	970.87	477.91	1,322.58	6,020.31
1995.7	225.18	1,026.72	292.17	637.31	849.77	136.91	934.51	476.86	1,263.14	5,842.57
1998.2	180.94	1,092.40	313.33	596.14	738.04	114.04	961.99	484.70	1,266.84	5,748.43
1999.9	231.23	1,055.72	300.26	644.40	834.03	152.01	946.91	489.33	1,270.68	5,924.58
2002.2	211.68	1,082.12	304.58	629.88	781.19	133.59	944.58	485.88	1,294.11	5,867.61
2004.9	218.90	1,048.56	295.87	654.05	816.48	119.02	936.71	474.31	1,253.01	5,816.89
2006.8	213.99	1,035.94	264.10	625.14	731.29	105.98	912.33	477.43	1,241.69	5,607.89
2008.8	203.15	1,016.36	240.40	580.23	727.70	113.74	900.98	464.57	1,204.62	5,451.75
2009.8	219.35	1,010.85	242.50	568.86	731.03	108.69	903.23	470.82	1,204.45	5,459.78
2010.8	229.31	1,024.19	253.40	611.42	803.09	138.03	910.96	471.57	1,220.73	5,662.71

<sup>1</sup>Decimal dating is a more specific dating system than the calendar year and is used to facilitate statistical analyses. It is derived by dividing the day of the year (in the Julian system) by the number of days in the year.  
<sup>2</sup>Calendar dates were not available.

Source: USGS

## 1.4 Economy

The population of the parish was 104,503 in 2000 and grew seven percent by 2010, to 111,860. As of 2013, the United States American Community Survey estimates that the population of Terrebonne is 112,749. Twelve percent of the population is over the age of 65 and approximately 26% are under 18 years of age. The population is distributed such that the heaviest concentration of people and most urbanized area is in Houma.

According to 2012 U.S. Census data, the parish's top four primary industry sectors based on employment include (1) educational services, and health care, and social assistance, (2) agriculture, forestry, fishing and hunting, and mining (3), retail trade, and (4) manufacturing. These sectors represent over 50 percent of the parish's total employment (populations 16 years and older) of 47,750 in 2012. The following table provides a summary of the overall economy based upon employment.

Table 2-2: Terrebonne Parish Employment by Industry Sector, 2012

<b>2012 American Community Survey 5-Year Estimates</b>		
<b>Industry Sector</b>	<b>Number of Workers*</b>	<b>Approx. %</b>
Educational Services, and Health Care and Social Assistance	8,999	19%
Agriculture, Forestry, Fishing and Hunting, and Mining	6,741	14%
Retail Trade	5,716	12%
Manufacturing	4,520	9%
Arts, Entertainment, Recreations, and Accommodation, and Food Services	3,979	8%
Construction	3,689	8%
Professional, Scientific, and Management, and Administrative and Waste Management Services	3,373	7%
Other Services Except Public Administration	2,935	6%
Transportation and Warehousing, and Utilities	3,094	6%
Finance and Insurance, and Real Estate, Rental, and Leasing	2,751	6%
Wholesale Trade	1,397	3%
Information	556	1%
<b>Total</b>	<b>47,750</b>	<b>100%</b>

\* Population 16 years and over in the labor force

According to 2012 U.S. Census data, the parish's primary industry sectors based on employment include (1) educational services, health care, and social assistance, (2) retail trade, (3) agriculture, forestry, fishing and hunting, mining, and (4) manufacturing. These four sectors represent 54% of the parish's total employment of 47,750 in 2012. The table above provides a summary of the overall economy based upon employment.

Regarding annual payroll by industry, Transportation and Warehousing (\$583,078), Healthcare and Social Assistance (\$470,778), Manufacturing (\$462,576), Mining,

Quarrying, and Oil and Gas Extraction (\$356,921), and Construction (\$266,811) generate the five largest payrolls in the Houma-Thibodaux MSA. The table on the following page shows payroll for all industries MSA-wide.

Regarding the number of businesses located within the parish by industry, a majority of firms within the parish employ between one and four employees.

2012 Houma - Thibodaux MSA Business Patterns, Payroll by Industry

Industry code description	Paid employees for pay period including March 12 (number)	First-quarter payroll (\$1,000)	Annual payroll (\$1,000)	Total establishments
Total for all sectors	77,518	826,982	3,574,802	4,826
Agriculture, Forestry, Fishing and Hunting	67	341	1,288	24
Mining, Quarrying, and Oil and Gas Extraction	5,302	82,670	356,921	140
Utilities	172	2,275	9,590	9
Construction	4,427	58,599	266,811	360
Manufacturing	7,373	108,712	462,576	201
Wholesale Trade	3,426	49,668	199,384	296
Retail Trade	11,195	63,802	265,753	794
Transportation and Warehousing	8,747	134,814	583,078	352
Information	662	7,061	28,053	46
Finance and Insurance	2,196	24,365	97,163	375
Real Estate and Rental and Leasing	2,207	30,627	143,349	238
Professional, Scientific, and Technical Services	3,191	36,514	164,697	449
Management of Companies and Enterprises	409	7,927	39,277	23
Administrative and Support and Waste Management and Remediation Services	4,923	48,752	228,253	195
Educational Services	332	2,334	9,739	33
Health Care and Social Assistance	11,180	110,939	470,778	476
Arts, Entertainment, and Recreation	679	2,644	11,382	67
Accommodation and Food Services	7,591	28,214	117,949	396
Other Services (except Public Administration)	3,423	26,563	118,127	350
Industries not classified	<u>a</u>	<u>D</u>	<u>D</u>	2

2012 Houma - Thibodaux MSA Business Patterns, Total Establishments by Industry

Industry code description	Total establishments	Number of establishments by employment-size class								
		1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000 or more
Total for all sectors	4,826	2,292	1,070	697	485	156	86	30	9	1
Agriculture, Forestry, Fishing and Hunting	24	20	3	0	1	0	0	0	0	0
Mining, Quarrying, and Oil and Gas Extraction	140	47	21	26	27	10	4	3	2	0
Utilities	9	3	0	2	3	1	0	0	0	0
Construction	360	211	72	34	26	7	8	2	0	0
Manufacturing	201	73	39	28	28	15	11	6	1	0
Wholesale Trade	296	115	88	48	34	9	2	0	0	0
Retail Trade	794	316	245	143	56	12	17	5	0	0
Transportation and Warehousing	352	152	57	68	37	21	10	4	3	0
Information	46	14	8	13	9	2	0	0	0	0
Finance and Insurance	375	222	105	32	13	3	0	0	0	0
Real Estate and Rental and Leasing	238	144	44	24	19	3	4	0	0	0
Professional, Scientific, and Technical Services	449	320	64	37	17	6	4	1	0	0
Management of Companies and Enterprises	23	12	1	5	3	1	1	0	0	0
Administrative and Support and Waste Management and Remediation Services	195	92	31	23	27	12	5	5	0	0
Educational Services	33	19	5	4	3	2	0	0	0	0
Health Care and Social Assistance	476	185	128	79	52	13	13	3	2	1
Arts, Entertainment, and Recreation	67	31	15	12	7	2	0	0	0	0
Accommodation and Food Services	396	95	78	83	107	26	6	1	0	0
Other Services (except Public Administration)	350	220	66	35	16	11	1	0	1	0
Industries not classified	2	1	0	1	0	0	0	0	0	0

## ***2.0 §201.6 (b) THE PLANNING PROCESS***

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An open public involvement process is essential to the development of an effective plan. To develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include the following:

### ***2.1 §201.6 (b)(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval***

Various methods which encouraged and facilitated public comment during the drafting stage and prior to plan approval were incorporated into the planning process. To create the nucleus of parish/local participation, a Hazard Mitigation Plan Update (HMPU) Steering Committee was formed. The HMPU Steering Committee was comprised of a diverse group of citizens and professionals from throughout the parish. The Terrebonne Parish Council approved the steering committee.

The primary mode of plan update participation included six HMPU Steering Committee meetings, five of which were open to the public. Each HMPU Steering Committee meeting that was open to the public was advertised to increase public awareness and encourage participation. Additionally, the news media was contacted prior to all meetings. The HMPU Steering Committee meetings occurred on the following dates:

- May 22, 2014
- July 17, 2014
- August 7, 2014
- September 12, 2014
- September 22, 2014
- October 6, 2014

Supporting documentation (advertisements, attendance lists, agendas, PowerPoint presentations, etc.) related to the aforementioned meetings are included in Attachments c1-3.1A - c1-3.6C (page 6-86).

### ***2.2 §201.6 (b)(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as business, academia and other private nonprofit interests to be involved in the planning process***

Local and regional agencies were directly involved in the planning process by way of their participation on the HMPU Steering Committee. These parties included the parish planning and zoning director, the parish director of emergency preparedness, and key operations personnel from the public works departments of the parish. Business interests,

nonprofit and academic institutions such as the Terrebonne Parish School Board, the Louisiana State University (LSU) Agricultural Center, and Sea Grants, as well as Tribes with interests in multiple parishes were also represented on the committee. Additionally, the real estate industry, engineering firms, and the Southeast Louisiana Homebuilders Association served on the committee or participated as stakeholders. The HMPU Steering Committee member list is provided as attachment c1-1 (page 1-3).

GOHSEP representatives from Planning and Hazard Mitigation were invited to all committee meetings. They provided input as needed throughout the planning process.

### ***2.3 §201.6 (b)(3) Review and incorporation if appropriate, of existing plans, studies, reports, and technical information***

At the outset of the HMPU planning process, a preliminary list of existing plans, studies and guidance documents was established in cooperation with parish officials and the HMPU Steering Committee. Documents that were initially identified included the following:

- Louisiana State Hazard Mitigation Plan, April 2014
- Terrebonne Parish – Vision 2030 Comprehensive Master Plan, February 2013
- NFIP Community Ratings System Coordinator’s Manual (2013)
- Local Mitigation Plan Review Guide (2011)
- Terrebonne Parish Hazard Mitigation Plan Update, 2010
- Local Multi-Hazard Mitigation Planning Guidance (2008)
- Terrebonne Parish Long Term Recovery Plan (ESF-14), February 2007
- Louisiana’s Comprehensive Master Plan for a Sustainable Coast (CPRA), April 2007
- Louisiana Coastal Impact Assistance Plan (CIAP), June 2007
- Coastal Wetlands Planning Protections & Restoration Act (CWPPRA), April 2006
- Terrebonne Parish Hazard Mitigation Plan, 2004
- Terrebonne Parish Comprehensive Master Plan, October 2003

Each document was reviewed for relevant content. Information from the plans was incorporated into the planning process as necessary following discussions with the HMPU Steering Committee.

Examples of technical information reviewed and incorporated into the HMPU include historical flood data from FEMA, documented high water marks from the U. S. Army Corps of Engineers, and light detection and ranging (LIDAR) elevation data from the U.S. Geological Survey. Much of this data was incorporated into the risk assessment component of the plan relative to plotting historical events and the magnitude of damages that occurred. Relevant geospatial information was provided upon request by the Terrebonne Parish geospatial information group (GIS). In addition, the Area Risk Assessment of Roberta Grove and Senator Circle, developed by the University of New

Orleans Center for Hazards Assessment, Response & Technology (CHART), was consulted for this HMPU as well.

The discussion of the sufficiency of the Comprehensive Plan, building codes, zoning ordinances, floodplain management regulations, subdivision ordinance and stormwater management regulations spanned several meetings. Each was revisited as projects and proposed risk reduction solutions were proposed. Members of the building community, developers, engineering firms, the planning commission, and the building code enforcement staff participated providing for depth of experience and motivations.

The Office of Homeland Security and Emergency Preparedness and Public Works Departments provided projects and perspectives regarding preparation, response, and mitigation. The advance registration system; outreach messaging over the internet, Twitter, and Facebook; sandbag site consistency; and evacuation procedures were considered sufficient. Due to the advance notice the Parish has for the types of events most likely, the warning system has a greater amount of time to reach the public than other more acute events elsewhere. Some projects were proposed to broaden the definition of critical facilities to include industry key to recovery. The maps of critical facilities therefore include hospitals, home improvement stores, pharmacies, gas stations, and communications towers. This information was not included in the HAZUS loss estimate as the information regarding the costs of the outage on this number of structures was not attainable in the timeline of the plan update process.

The Houma Police Department proposed several efforts including better coordination between agencies to ensure that Tier 1 critical businesses are assured reentry privileges, and better mobile signage to communicate when major roads and bridges are inoperable.

The Department of Coastal Preservation and Restoration (DCRP) provided a set of projects and educational initiatives that included actions by the state and federal governments. Protection and nurturing of the natural environment is crucial to the stability of the culture and the structural installations to protect the built environment. The Planning Department has teamed with the DCRP to successfully earn a grant for a Living Mitigation Pilot Program. This partnership with local, state, and federal agencies including the Army Corps of Engineers will showcase the efficacy of natural enhancements such as mangroves to stabilize the coast and lakeshores. This will be the Parish's first opportunity to work with the newly developed Louisiana Silver Jackets program.

In another case, business interests close to the East Houma Surge Levee and the extension of Thompson Road indicated that they did not know what the plan was for water movement now that this was installed. The resolution of this insecurity was proposed by a business owner. They would like to see a simple map, in this case and throughout the Parish, that shows where the water is expected to flow in a storm event. By educating the public, misimpressions and feelings of either false security or overestimated risk could be moderated.

### **3.0 §201.6 (c) PLAN CONTENT**

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#### **3.1 §201.6 (c)(1) Documentation of the planning process used to develop the plan including (a) how it was prepared, (b) who was involved in the process, and (c) how the public was involved.**

##### **3.1.1 How it was prepared...**

Terrebonne Parish’s most recent Hazard Mitigation Plan was adopted in 2010. The development of the 2015 Terrebonne Parish HMPU complies with 44 CFR §201.6(d)(3) which requires the adoption of formalized hazard mitigation plan updates every five years. These updates ensure that the parish maintains eligibility for FEMA hazard mitigation project funding. The update is meant to reflect changes in development, to document progress on local mitigation efforts outlined in the 2010 HMPU, and to adapt mitigation efforts to changing priorities. The HMPU Steering Committee provided information that was critical to developing the HMPU.

A combination of procedures spelled out in CFR §201.6, workshop manuals, and how-to guidelines were followed throughout the update process. They include the Local Multi-Hazard Mitigation Planning Guidance (2008), the Local Mitigation Plan Review Guide (2011), and the NFIP Community Ratings System Coordinator’s Manual (2013).

##### **3.1.2 Who was involved in the process...**

The HMPU Steering Committee served as the parish’s primary representative body throughout the plan update. Goals of the HMPU Steering Committee included incorporating new data, especially that from recent storm and flood events, identifying new hazards, updating risk and vulnerability assessments, and updating mitigation goals and action items.

Committee membership was comprised of a broad cross-section of the community. A detailed list of HMPU Steering Committee members is presented as Attachment c1-1 (page 1-3). Pat Gordon, Planning & Zoning Director, volunteered to accept the position of committee chair. Agencies represented by the 35-person committee included the following:

- Terrebonne Parish Consolidated Government
- Terrebonne Parish Readiness and Assistance Coalition
- Terrebonne Parish Sheriff’s Office
- Terrebonne General Medical Center
- Terrebonne Parish School Board
- Terrebonne Parish Levee & Conservation District
- Houma Fire Department
- Houma-Terrebonne Chamber of Commerce

- Board of Health
- Consolidated Waterworks District No. 1
- Traditional Chief Albert P. Naquin Isle de Jean Charles Band of Biloxi-Chitimacha-Choctaw
- Thomas Dardar, Jr, Principal Chief, United Houma Nation
- Shirell Parfait-Dardar, Chief, Grand Caillou/Dulac Band of Biloxi-Chitimacha-Choctaw
- Pointe-au-Chien Indians
- Regulatory Planning Commission
- South Central Industrial Association
- 911 Communications
- Local Engineering Firms
- Office of Homeland Security and Emergency Preparedness
- Southeastern Louisiana Home Builders Association

Separate from the HMPU Steering Committee, select members were assigned additional roles for Community Rating System (CRS) compliance. Committee members serving dual CRS roles are as follows:

- Geoff Large - Preventative Measures (codes)
- Pat Gordon - Property Protection
- Lisa Ledet - Floodplain Manager
- Mitch Marmande, Reggie Dupre, Nick Matherne - Natural Resources Protection
- Darrel Waire - Housing
- Earl Sues, Chief Dufrene, Sherriff - Emergency Services
- Todd Duplantis - HPD, Structural Flood Control Projects (Greg Bush, Mitch Matherne/Reggie Dupre)
- Doug Bourg - Public Information

### *3.1.3 How the public was involved*

The public was well represented through the participation of the Consolidated Government, a comprehensive group of parish regulatory agencies, and local engineering firms on the HMPU Steering Committee. Over a six month period, the group met six times to collaborate on the plan's development. Input from the steering committee was key to identifying potential hazard events, collecting data on hazard events that had occurred since the 2010 update, identifying critical facilities, and identifying and prioritizing hazard mitigation projects. Summaries of the public meetings are presented below and a listing of attendees is presented as Attachment c1-2 on pages 4 and 5.

Public participation was also encouraged through public advertisement of HMPU Steering Committee meetings on the parish website and through local media outlets. Media coverage served as another medium to convey information to and encourage future participation of members of the public unable to attend face-to-face meetings. A public notice was also published in the newspaper of record and the *Tri-Parish Times* prior to

each HMPU Steering Committee meeting. Highlights from press coverage included a *The Courier* article that was picked up by WWNO radio and at least the KLFY 10, WHFB 9, WLOX, KTBS, and KNOE 8 television station websites following the September 12, 2014 steering committee meeting. *The Courier* also ran an article for the July 17, 2014 meeting. PowerPoint presentations and meeting notes were posted on the Parish website following all four meetings, and meeting notices were posted on bulletin boards in the Government Tower where council and other civic announcements are viewed.

### **Meeting No. 1 - May 22, 2014**

The Terrebonne Parish Hazard Mitigation Plan Update Committee held its first public meeting at the Terrebonne Parish Council Meeting Room in Houma, Louisiana, on Thursday, May 22, 2014. The purpose of the meeting was to introduce the steering committee and discuss an overview of the Plan Update process. Prepared handouts included an agenda, the Hazard Mitigation Plan Update from 2010, the Terrebonne Parish Comprehensive Master Plan, and the mitigation project list. Below is a general summary of meeting highlights. A PowerPoint and accompanying notes for this meeting are found in Attachment c1-3.1C (pages 9-12) and Attachment c1-3.1D (pages 13-23).

The steering committee structure was discussed and Pat Gordon, Terrebonne Parish Consolidated Government (TPCG) Planning and Zoning Director, volunteered to assume the role of Committee Chair Person for the Terrebonne Parish Hazard Mitigation Plan Update. CB&I discussed new data that should be incorporated into the plan update, including vulnerability analyses, changes in hazard identification, different flood inundation areas, committee priorities for modeling, and progress of projects that have been implemented since the 2010 plan. Such projects were updated in the plan maintenance process by the responsible Parish departments. CB&I noted that Community Rating System (CRS) principles would be discussed throughout the planning process.

Goals and Critical Facilities were discussed. The steering committee recommended that the Civic Center, Public Works, and Acadian Ambulance be added to the Critical Facilities list.

The hazards to be identified in the plan were discussed. Some hazards that the steering committee recommended for inclusion were sea level rise, coastal erosion, sinkholes, and ice events. Also, Hurricane Lee, Atchafalaya Flooding of 2011, and May/October flooding were to be added to the plan's flood event profiles.

## Meeting No. 2 - July 17, 2014

The Terrebonne Parish Hazard Mitigation Plan Update Committee held their second open to the public meeting at the Folk Life Museum in Houma, Louisiana, on Thursday, July 17, 2014. The purpose of the meeting was to review updated maps, add new or update existing projects on the project list, and receive attendees' input on hazard events.



The steering committee was presented with updated maps and provided an opportunity to provide feedback for integration in future map revisions.

CB&I discussed impacts that occurred during past hurricanes, such as Gustav, Ike, Isaac, etc. and flooding events, such as Flood of May 2011, Flood of July 18, 2011, Tropical Storm Lee, etc. The role of the Bayou Chene barge in preventing backwater flooding from reaching Terrebonne Parish during the Flood of May 2011 was also discussed. CB&I shared that data was unavailable for the October Flooding (2013) and May Flooding (2014). As such, the steering committee agreed to remove these flood events from the hazard mitigation plan.

Reggie Dupre, Executive Director of the Terrebonne Levee & Conservation District noted that Reach J2 experienced flood damage during Hurricanes Lee and Isaac. Temporary levee reach overtopping occurred during Hurricane Gustav and the parish jail flooded during Hurricane Ike.

Nicole Cutforth, the CB&I Project Manager, explained that historically, the identification of hazard events has emphasized flooding and wind because those hazards generate the most damage in South Louisiana. However, Ms. Cutforth stressed that the 2015 HMPU will also profile every other natural hazard that impacts Terrebonne Parish and is eligible for mitigation funds. Other hazards include drought, hailstorms, tornadoes, winter storms, land subsidence, sea level rise, coastal erosion, saltwater erosion, and sinkholes.

Mitigation goals and the project list were discussed. The project list will be prioritized at Meeting No. 3. A PowerPoint and accompanying notes for this meeting are found in Attachment c1-3.2C and Attachment c1-3.2D. The advertisement can also be viewed in Attachment c1-3.2A.

An overview of flood protection outreach materials were also presented at the meeting. These materials, which include the parish's Flood Damage Prevention Outreach Survey Results and the Flood Damage Prevention Ordinance Update Proposal can be found in Attachment c3-2.

### Meeting No. 3 - August 7, 2014

The Terrebonne Parish Hazard Mitigation Plan Update Committee held their third open to the public meeting at the Bayou Terrebonne Waterlife Museum in Houma, Louisiana, on Thursday, August 7, 2014. The purpose of the meeting was to provide an opportunity to review updated risk assessment maps, review Worksheet #3A and Worksheet #4, and allow attendees to provide input on project prioritization.



Nicole Cutforth, CB&I Project Manager, explained the flood composite risk assessment process to the steering committee as well as how inundation information and loss estimates were developed using FEMA's HAZUS software program.

Repetitive Loss Structures were defined and it was noted that they are tracked by FEMA and the National Flood Insurance Program (NFIP). The definition of Repetitive Loss properties changed since the last update.

The project priority list was also discussed at Meeting No. 3. In order to gauge committee members' project priorities, a series of questions were posed, to which committee members responded, revealing their preferences. The list of questions and response percentages can be viewed in the project prioritization subsection within Section 5.0 of this plan.

Recommendations regarding critical facilities and priority projects are as follows:

- Chief Dufrene discussed that he would like to add a Safe House to the project list. The chief shared that this recommendation and all of his previous recommendations were vetted through all of the Fire Chiefs prior to submission ensuring that the goals of all stations and communities were included.
- Chris Pulaski with Terrebonne Parish questioned where major retail outlets such as Home Depot, Lowes, etc. would fit in on the Critical Facilities list. Nicole explained that the critical facilities list is typically just Government Buildings but all major retail outlets can be listed if locations are provided along with a replacement value, contents value, and a value of how much it would cost a day that each store is out of commission.
- It was noted that the CNG Station located at 550 South Van Ave. should be listed as a priority on the project list.

Meeting discussions also included a review of the FloodSafe Outreach recommendations for the Flood Damage Prevention Ordinance. The topics covered more broadly included freeboard, valuation of properties according to risk and safety, and knowledge of the flood history of properties. It was agreed that knowing which houses were substantially

damaged, and therefore limited in what permits they can receive due to noncompliance with flood regulations, would be valuable to both government agencies and consumers. Education of mortgage companies, architects and builders regarding freeboard were discussed as methods to increase the flexibility of builders to produce elevated houses without taking a loss a the foundation that has value not recognized by the mortgage community. This led to a discussion of broader educational activities including adult education (reading) classes that use flood safety as a subject when adults learn to read. These materials are already available and there was some discussion of ordering and disseminating them in the community.

A PowerPoint and accompanying notes for this meeting are found in Attachment c1-3.3C and Attachment c1-3.3D. The advertisement can also be viewed in Attachment c1-3.3A.

#### **Meeting No. 4 - September 12, 2014**

The fourth open to the public and advertised HMPU steering committee meeting was held on September 12, 2014 at the Waterlife Museum at 7910 W. Park Avenue Houma, Louisiana 70360. Nicole Cutforth, with CB&I, reviewed the maps, risk assessment, and repetitive loss inventory with the committee. It was noted that zoom-in maps of the composite risk area would be removed due to the Privacy Act of 1974. The mitigation project list was also reviewed and no new projects were discussed. Ms. Cutforth also reviewed with the committee the mitigation project list and provided an opportunity for new projects to be added. No new projects were discussed.

CD's of the draft plan were provided to all attendees and a copy was placed on the Parish Website. Ms. Cutforth requested that the committee review the draft plan and provide comments so that FEMA and GOHSEP can begin reviewing the draft mid-October. Once pertinent comments are incorporated, the draft plan will be submitted to GOHSEP and FEMA. Once approved by GOHSEP and FEMA, a resolution will be placed on the TPCG Council agenda for review and adoption. It is estimated that this will occur in February or March of 2015.

A PowerPoint and accompanying notes for this meeting are found in Attachment c1-3.4C and Attachment c1-3.4D. The advertisement can also be viewed in Attachment c1-3.4A. An overview of flood protection outreach materials were also presented at the meeting. These materials, which include the parish's Flood Damage Prevention Outreach Survey Results and the Flood Damage Prevention Ordinance Update Proposal can be found in Attachment c3-2.



## Meeting No. 5 - September 22, 2014

The Terrebonne Parish Hazard Mitigation Plan Update Committee held their fifth meeting at the Folklife Cultural Center in Houma, Louisiana, on Monday September 22, 2014. The purpose of the meeting was to provide an opportunity to review the preliminary draft, and allow attendees to provide further input on all aspects of the plan. This meeting was not advertised to the public as it was an internal steering committee meeting. However, media was in attendance and an article was written about the meeting. The meeting notes which are provided in their entirety below, can also be viewed in Attachment c1-3.5C for recording purposes.

- I. Maps – Generally
  - a. But for floodmap, Terrebonne geographical area map, environmentally sensitive area map, zoom to only that area that is developed rather than the full scope of Terrebonne Parish including the Gulf and uninhabited coastline.
  - b. For maps with a lot of information, like the land use map, zoom to the North, South, Houma, and West (if applicable) so that the detail is visible/useful.
  - c. Take out the MPO data. The brown layer is confusing where it is seen and where it is overlaid with blue in the floodzone making a different color.
  - d. Where the City of Houma is shown, add the shape file to show the boundaries of the city.
  - e. Take out the Morganza to the Gulf from the historical flood inundation slides as it was confusing to some readers. On the risk slides it shows where the risk is still great even after the levee system would be built, and therefore needn't be removed.
  
- II. Specific Maps
  - a. The jail is still not on the map
  - b. The map of the Parish shows the Gulf of Mexico as wetlands rather than open water. Open water posed threats that wetlands decrease.
  - c. C2-3 Floodgates not on the maps
    - i. Bayou Sale to Chauvin – new floodgate under design that will be completed in the next year.
    - ii. Falgout Canal floodgate in development on the West side.
    - iii. Existing floodgate on Bayou Terrebonne not shown.
    - iv. Existing floodgate on Boudreaux Canal not shown.
  - d. C2-4 Use the regular flood map showing the 100 year and 500 year floodplain. Take all other MPO information off.
  - e. C2-5 Write out the ABFE in the legend and add a caption that defines the term for the reader.
  - f. C2-6 Land use. Zoom to the smaller defined areas. Add the percentage to the graphic pie chart. Blowup the insert to make these numbers more legible.
  - g. C2-8 Jack – any changes?

- h. C2-9. Government Buildings. The text says 60 and the map says 7. Is this 7 the facilities that are not in another category? I didn't know how to reconcile the two for those who questioned it.
  - i. C2-10. Chief Dufrene checking for accuracy.
  - j. C2-11. Some substations for police not included. Were these excluded after a discussion with the Chief of Police? Earl did not see any reason not to include.
    - i. Senator Circle
    - ii. Town Hall
    - iii. 879 Bayou Black Drive
    - iv. Motor Pool on Capital Boulevard
    - v. Rifle Range on Savanne Road
  - k. C2-13. Ask Tom if he wants to put all or some substations on
  - l. C2-14 Send to Department
  - m. C2-15 – Communications. What is in this list? Junction boxes. Have cell towers on it?
  - n. C2-26.1 As with others, take MPO out. On the composite map, is that the additive impact of all the known storms added together, or some projected worst case scenario? When asked, I agreed that this was my understanding. Earl had a Category V National Hurricane Center surge model with a more dire view (3' of water in Gray). Please clarify/confirm the definition of the composite map.
  - o. C2-26.2. add the shape file to show the boundaries of the city.
- III. Pat – “Proceeds from the sales of the land from the buyout program should be reinvested in mitigation efforts whenever possible. The funding raised from mitigation efforts should naturally be used to further decrease risk in the Parish through proven existing programs or new initiatives.
- IV. Background: Some discussion of the timeline proposed for the LAMP process was suggested. Pat offered that it was on track to be completed in 18-24 months.
- V. Projects:
- a. Outreach applicable to various subjects
    - i. Lisa showed the materials again and will send a sample to you.
    - ii. LSU Ag Center and Bayou Grant are teaming up to provide more and better targeted materials about storm preparation and recovery. The materials will be more visually attractive, and single subject so that one could go to the library and pull out just the sheet that is wanted, like elevating a house, packing for evacuation, or preventing mold.
    - iii. Chris Pulaski is going to send a description of the Levee Safety Initiative that has a small grant at this time and may develop into a multimedia campaign about using the levee for personal safety and the preservation of the levee itself.

- iv. Julie – SeaGrants expressed interest (joined by several) in including assessing the Safe Harbor slips in the parish for sufficiency to meet the demand and outreach regarding the location of the safe harbors, how to reserve a slip before a storm, when the gates will be open, what the rules are, and what one can store in that space, etc. As well, outreach on where NOT to park your boat is needed. This information needs to be centralized and easy to access. LSU Ag Center and SeaGrants can bring together fishing interests for the assessment and beta testing of materials followed by printed materials and educational outreach meetings.
- b. Code Enforcement – 2 projects – Geoffrey Large will provide synopses
  - i. Temporary Capacity Building for Code Enforcement Poststorm.
  - ii. Expansion of Pilot Structure Inventory previously provided for the lower bayou communities. Assesses the status of each structure with notations regarding whether or not it suffered wind or flooding in an event, the magnitude of the damage, and the current condition of the structure Parishwide.
- c. Fire Department
  - i. Safe Room project still not on the list. (May not be incorporated since Meeting IV).
  - ii. The chief shared that his recommendations were vetted through all of the Fire Chiefs prior to submission ensuring that the goals of all stations and communities were included. If that could be included in the plan it would show the internal level of involvement in the process.
  - iii. Chief will look at the projects that he requested be removed and provide a brief explanation (i.e. station no longer exists).

## VI. Text Comments

- a. The plan requires an executive summary limited to 3-4 pages.
- b. Meeting notes and presentations should be together in their own section
- c. The steering committee list is not complete (see attached)
- d. P4. Levees above 10’ were not overtopped, so not all levees failed. Some were overtopped and some were breached.
- e.
  - i. The council adoption should be moved to the end of the plan before the appendices as it is the last action prior to the FEMA approval. It is not required to be in the front of the plan and is confusing to reviewers now.
  - ii. Any reason not to state the Terrebonne Parish Council rather than the generic “governing body?”
- f. P3.
  - i. TPCG is referred to as “the Parish.”
  - ii. Please be consistent in the spelling of Pointe aux Chenes throughout the documents

- iii. This may be a good place to note the population living south of the intercoastal or outside the Morganza to the Gulf footprint.
- g. P7. The Houma Navigational Canal and Intercoastal Waterway are notable waterways that have an influence on flooding and damages. The HNC adds to the risk to the Parish with the potential to bring the Gulf of Mexico into downtown Houma.
- h. P25.
  - i. Simpson scale no longer uses storm surge, so that shouldn't be cited there.
- i. P52. The project list has duplications. 23 and 26 are duplicates. Without further discussion on specifics, suggestion that there are more duplications. Group did not have suggestion on how to improve the project list, but were confused about the separation of the projects into a FEMA list in the body and the rest in the appendix. Concerns about further duplication and ease of access repeated.

### **Meeting No. 6 - October 6, 2014**

The Terrebonne Parish Hazard Mitigation Plan Update Committee held their sixth meeting at the Bayou Terrebonne Waterlife Museum in Houma, Louisiana, on Monday October 6, 2014. The purpose of the meeting was to provide an opportunity to review the preliminary draft, and allow attendees to provide further input on all aspects of the plan.

Comments and questions that arose from this meeting are as follows:

1. According to the plan, there are 158 pumps in the Parish. Where is the water from a particular destination supposed to go? Education necessary for the public about how the pump systems work would better set expectations. Plan shows the maps, but doesn't show the area that each pump drains.
  - a. Response: This information was not available at the meeting. The educational component will be taken into consideration in the plan if there is no current document available.
2. Maintenance of the drainage system needs to be improved. Is there a maintenance plan and a set schedule that ensures that the system will work in an event? An education campaign about litter is needed to protect the drainage system, and at least as important is enforcement by the Sheriff's office.
  - a. Response: These are important observations. The parish does have a maintenance schedule that is too broad to include in the plan. However, committee members not present at the meeting will respond to the request. On the litter issue, there have been ongoing educational efforts to encourage proper trash disposal. Fines for littering have been increased. Storm drain protection and maintenance have been brought up by community members in offline discussions during the planning process.

In continued discussion, the increased fines were not seen as a strong deterrent since enforcement was not consistent. The storm drains in particular were a concern (grass clippings, etc) as it can create backup and flooding in an event.

3. Chabert has a new levee system and drainage valves. Who is responsible for those valves and their operation? Is there a maintenance or day to day operational plan that is available to the public?
  - a. Response. The levee department is participating on the committee, and will respond with the information that is available. If the information is not available, the development of this and other levees will be considered as a project to update public information in the future.
  
4. Who is responsible for which levees, and is there a maintenance plan for that? Is the same party responsible for enforcement of restrictions on levee use or abuse? Without enforcement, how are people to know the importance of the levee system, how it performs, and what activities are allowed? Is the maintenance proactive?
  - a. Response. There are surge levees and drainage levees, and the Levee District and the Parish have responsibility for specific levees. The responsible party was not certain though the sheriff's office may prosecute. This was tabled until further information could be provided. There is a new levee safety video being developed as a result of a grant. Like other videos on topics such as permitting and mitigation options, the video provides an overview of the importance of the levees, appropriate and inappropriate activities, and the need for citizens to report any activity that could weaken the levee and increase risk of failure.
  
5. The plan doesn't speak to threats from outside the parish. Flooding from the Mississippi and the Atchafalaya is not covered. Is there a plan for a breach in Donaldsonville or elsewhere?
  - a. Response: The Steering Committee discussed this topic in light of the potential flooding in 2013 that was averted. Due to the lack of control the Parish felt it had over the upstream dams and levees, the topic was not pursued. Rather, state and federal sources were considered more appropriate to lead these efforts.
  
6. What protections do we have for the water supply if there is a manmade disaster or act of terrorism. Examples could be an oil spill followed by a hurricane which washes the oil into the bayou system, or contamination within the water system. How secure are the water treatment facilities, and can this be a part of this multithread plan?

- a. Response: The tribes submitted similar concerns about the combination of manmade and natural disasters on recovery and resources. This objective is being considered for inclusion in the plan. The plan does outline various methods for providing potable water in the event that saltwater intrusion affects the water sources for the Parish. These plans for saltwater intrusion are likely to be applicable to other contamination scenarios.
- b. The plan is focused on natural disasters for the most part, and not terrorism. Staff will request any plan related to this threat to the water system be provided.

The summary of the public discussion was that proactive maintenance of the built infrastructure and enforcement of current regulations will be more effective than more new regulations that are not enforced. Likewise, plans or standard operating procedures for maintenance should be developed if they don't exist, but regularly scheduled implementation is just as important.

A detailed account of meeting notes is provided in Attachment c1-3.6C.

**3.2 §201.6 (c)(2) *A risk assessment that provides factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.***

Risk Assessment is a four-step process: hazards are identified; hazard events are profiled; an inventory of assets within the community is conducted, and; the potential losses experienced by a community due to a hazard event are estimated. This section is divided into subsections that address each component of the risk assessment process. This section contains data from the National Oceanic and Atmospheric Administration (NOAA), the Federal Emergency Management Agency (FEMA), Terrebonne Parish, and FEMA HAZUS software which is used to support the four-step risk assessment process. HAZUS is a software program that can estimate property losses that a community may experience as a result of a specific hazard event. In this HMPU, estimated losses resulting from flooding and hurricanes were calculated due to these storm events' high probability of occurrence in Terrebonne.

The Terrebonne Parish Hazard Mitigation Plan Risk Assessment is outlined below. The section is divided in components parts including **§201.6 (c)(2)(i)**, **§201.6 (c)(2)(ii)**, **§201.6 (c)(2)(ii) (A)**, **§201.6 (c)(2)(ii)(B)**, and **§201.6 (c)(2)(ii)(C)**,

The risk assessment shall include the following:

*3.2.1 §201.6 (c)(2)(i) A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazards events.*

The identification of hazards is in the risk assessment process. The planning team utilized a combination of sources such as the NOAA National Climatic Data Center (NCDC) information, the 2010 Terrebonne Parish HMPU, and the HMPU Steering Committee to identify hazards that may potentially impact Terrebonne Parish.

According to the NCDC, there have been 245 recorded climatic events recorded in Terrebonne Parish within the 56-year period from 1957 to 2013. Table 4-1 is a summary of those events. In order of highest magnitude, Floods, Hurricanes/Tropical Storms/Tropical Depressions, and Wind generate the most property damage within the parish. It should be noted that the Wind climatic event has the highest probability of occurring and is most attributable to thunderstorm wind.

Table 4-1: NOAA National Climatic Data Center Recorded Climatic Events in Terrebonne Parish, 1957 - 2013

Event Type	Number of Events	Events/Year	Probability	Property Damage	Crop Damage	Damage/Event
<b>Flood</b>	<b>35</b>	<b>0.63</b>	<b>63%</b>	<b>\$ 295,718,000</b>	<b>\$ -</b>	<b>\$ 8,449,086</b>
Flash Flood	15	0.27	27%	\$ 1,445,000		\$ 96,333
Coastal Flood	4	0.07	7%	\$ -		\$ -
Flood	2	0.04	4%	\$ -		\$ -
Storm Surge	13	0.23	23%	\$ 294,273,000		\$ 22,636,385
Heavy Rain	1	0.02	2%	\$ -		\$ -
<b>Cold</b>	<b>8</b>	<b>0.13</b>	<b>13%</b>		<b>\$ 100,000</b>	<b>\$ 20,000</b>
Cold/Wind Chill	5	0.09	9%	\$ -	\$ 100,000	\$ 20,000
Winter Storm	2	0.04	4%	\$ -	\$ -	
Heavy Snow	1	0.02	2%			
<b>Wind</b>	<b>121</b>	<b>2.16</b>	<b>216%</b>	<b>\$ 13,201,500</b>		<b>\$ 109,103</b>
Funnel Cloud	10	0.18	18%	\$ -	\$ -	\$ -
High Wind	2	0.04	4%	\$ -	\$ -	\$ -
Thunderstorm Wind	76	1.36	136%	\$ 402,000	\$ -	\$ 5,289
Tornado	31	0.55	55%	\$ 12,779,500	\$ -	\$ 412,242
Waterspout	2	0.04	4%	\$ 20,000	\$ -	\$ 10,000
<b>Excessive Heat</b>	<b>2</b>	<b>0.04</b>	<b>4%</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Drought</b>	<b>6</b>	<b>0.11</b>	<b>11%</b>	<b>\$ -</b>	<b>\$ 4,390,000</b>	<b>\$ 731,667</b>
<b>Hail</b>	<b>21</b>	<b>0.38</b>	<b>38%</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Hurricane/Tropical Storm/Tropical Depression</b>	<b>37</b>	<b>0.66</b>	<b>66%</b>	<b>\$ 137,087,000</b>	<b>\$ -</b>	<b>\$ 3,705,054</b>
<b>Lightning</b>	<b>15</b>	<b>0.27</b>	<b>27%</b>	<b>\$ 677,500</b>	<b>\$ -</b>	<b>\$ 45,167</b>
<b>Total</b>	<b>245</b>	<b>4.36</b>	<b>436%</b>	<b>\$ 446,684,000</b>	<b>\$ 4,490,000</b>	<b>\$ 13,060,076</b>

## Hazard Identification

Based on the combination of NOAA Climatic Data Center Recorded Climatic Events listed in the above table, the 2010 HMPU, and the HMPU Steering Committee, this section lists and describes potential hazard events that may impact the community.

During the HMPU Steering Committee kick-off meeting held on May 22, 2014 (meeting presentation as Attachment c1-3.1D), HMPU Steering Committee members were presented with a list of identified hazards. The worksheet was developed based on the abovementioned data sources, and was reviewed and revised based on HMPU Steering Committee comments. The HMPU Steering Committee recommended that the 2010 list of identified hazards be amended to include sea level rise, coastal erosion, sinkholes, and ice events.

For reference, the ten hazards listed in the 2010 Terrebonne Parish HMPU identified ten hazards as potential threats to Terrebonne Parish are listed below.

- Coastal Erosion
- Coastal (Tropical) Storm
- Levee (Dam) Failure
- Drought
- Flood
- Hurricane
- Land Subsidence
- Saltwater Intrusion
- Tornado
- Thunderstorms/Lightning/High Winds

<b>Identified Hazard</b>	<b>Comments</b>	<b>Hazards Profiled in Plan Update</b>
<b>Natural Hazards</b>		
Avalanche	No recorded avalanche events have occurred in the parish and therefore will not be explored further as a potential threat in this HMPU.	-
Coastal Erosion	As previously described in Section II of this HMP, more than 85% of the parish’s land area consists of water and wetlands. The Gulf of Mexico comprises the entire southern border of the parish, a large portion of which is subjected to erosion. Coastal erosion is prevalent and will be combined with land subsidence, due to their interconnectedness, and treated as a single hazard in this plan.	Coastal Erosion
Coastal (Tropical) Storm	During the planning session, “coastal storm” was regarded as similar to hurricanes and therefore considered redundant. Impacts of coastal storms are similar to those generated by hurricanes. For purposes of this report, storm water and surge events created by tropical storms and tropical depressions and hurricanes are considered. However, storm water and surge events related to hurricanes are considered the most serious. Based upon	Tropical Storm

	historical events, coastal storms are often the cause of heavy rainfall events with less wind than hurricanes. The heaviest rainfalls in recent history resulted from tropical depressions.	
Hurricane	Hurricane hazards are a primary concern regarding flooding from both storm water events and storm surge. Wind damage is also of significant concern. Storm water issues and surge issues are also addressed as flood concerns.	Hurricane
Flood	Flooding is the second most prevalent hazard event type recorded by the NCDC in Terrebonne Parish. Thirty-three flood events have been recorded in the last 56 years. Flood concerns are addressed as the major hazard issue in the parish, and as such, will be detailed throughout this HMPU. Additionally, with high river stages and as a result of storm surge, flooding occurs in areas far removed from the source of the primary event. Locally, the term “backwater flooding” identifies this phenomenon. The issue is of such concern that the steering committee chose to identify flooding as a hazard independent of the riverine, stormwater, and storm surge hazards.	Flood
Earthquake	No recorded earthquake events have occurred in the parish.	-
Drought	Drought is a minimal concern in Terrebonne Parish as depicted in the NOAA table above. Most of the land is marsh so it does not have a big impact on crops or people. Only six recorded events were noted in the last 56 years, and no anticipated drought related mitigation issues were noted in Terrebonne Parish. While the hazard is possible, it is not considered to be probable.	-
Expansive Soils	According to Terrebonne Parish’s 2005 HMP, expansive soils are likely to occur. However, the HMPU Steering Committee determined that expansive soils in the parish are not of a magnitude that warrants inclusion in this plan.	-
Extreme Heat	One recorded excessive heat event has been recorded in the last 56 years in Terrebonne Parish. Therefore, the HMPU Steering Committee determined that the hazard is not of a magnitude to be addressed as a prevalent hazard in this plan.	-
Saltwater Intrusion	The parish has three freshwater intakes available for its supply of potable water. These intakes have become increasingly vulnerable to saltwater intrusion. In fact, storm surge from past hurricanes has forced the parish to abandon certain intakes due to high salt concentrations.	Saltwater Intrusion

	For this reason, the HMPU Steering Committee agreed that saltwater intrusion should be recognized as a significant hazard within this HMPU.	
Land Subsidence	According to Terrebonne Parish's 2005 HMP, land subsidence is likely to occur in the region. As of 2012, this hazard has recently become a concern for the parish in consideration of the Assumption Parish Bayou Corne sinkhole which developed as a result of severe land subsidence related to underground energy storage. The hazard is thus identified as a prevalent hazard and will be combined with coastal erosion, due to their interconnectedness, and treated as a single hazard in this plan.	Land Subsidence
Sinkhole	There have been no recorded sinkhole events in Terrebonne Parish. Terrebonne's location on the Gulf Coast Salt Dome Basin makes it vulnerable to sinkholes that have been mined and/or utilized for energy storage. Concerns for potential sinkholes in Terrebonne Parish are heightened given the Bayou Corne (Assumption Parish) sinkhole that formed in 2012 as a result of a collapsed underground salt dome. As of February 2014, the sinkhole has expanded to 25 acres. However, according to the Department of Natural Resources there is only one permitted salt cavern facility location in Terrebonne Parish. This location is the Caillou Island location which is plugged and abandoned.	-
Hail Storm	The steering committee concurred that hailstorms will not be of further consideration for the purposes of this plan because the damages incurred per event and frequencies are not significant. Any mitigation actions completed for tornados and hurricane winds will more than mitigate for hail.	-
Wildfire	No wildfire events of significance have been recorded in Terrebonne Parish and will not be of further consideration for the purposes of this HMPU.	-
Tsunami	Tsunami events have never been noted in Terrebonne Parish and will not be considered further in this HMPU.	-
Volcano	No volcanoes exist in Terrebonne Parish and will not be of further consideration for the purposes of this HMPU.	-
Severe Winter Storm	Because severe winter storms are so seldom in the coastal area, impacts were considered neither prevalent nor applicable to this planning effort. While winter storms do occur, disruption of government and business is minimal.	-
Landslide	No recorded landslide events have occurred in Terrebonne Parish and will not be of further consideration for the purposes of this HMPU.	-

Tornadoes	Tornadoes are a function of high winds. They have occurred historically in the parish and are likely to occur in the future. Due to the limited impacts created by any single event upon the parish, the HMPU Steering Committee concluded that addressing mitigation measures relative to tornados as a stand-alone hazard should not be considered in this plan, but the tornado hazard will be profiled due to the high probability of occurrence.	Tornadoes
Ice Events	In January 2014, a mixture of freezing rain and ice impacted the Gulf Coast of Louisiana. However, ice events are not a common occurrence in Louisiana and the NCDC does not record any ice events occurring between 1957 and 2013. This hazard will not be profiled in this HMPU.	-
Sea Level Rise	Sea level rise is directly related to land subsidence in coastal Louisiana. Despite the magnitude of the impact that land subsidence has on Louisiana, GOHSEP acknowledges that the scale of the problem would be better addressed under the auspices of the Louisiana Department of Transportation and Development, the Department of Natural Resources, and the Coastal Protection and Restoration Authority. This hazard will not be profiled in this HMPU.	-
Lightning	Lightning is a natural electrical discharge in the atmosphere that is a by-product of thunderstorms. Every thunderstorm produces lightning. There are three primary types of lightning: intra-cloud, cloud-to-ground, and cloud-to-cloud. Lightning will be profiled for the purposes of this plan.	Lightning
Sink Holes/Salt Domes	Sinkholes are areas of ground—varying in size from a few square feet to hundreds of acres, and reaching in depth from 1 to more than 100 ft.—with no natural external surface drainage. Sinkholes are usually found in karst terrain—that is, areas where limestone, carbonate rock, salt beds, and other water-soluble rocks lie below the Earth’s surface. Karst terrain is marked by the presence of other uncommon geologic features such as springs, caves, and dry streambeds that lose water into the ground. In general, sinkholes form gradually (in the case of cover subsidence sinkholes), but they can also occur suddenly (in the case of cover-collapse sinkholes). Sink holes and Salt Domes will be profiled for the purposes of this plan.	Sink Holes

## Man Made Hazards

Levee Failure	Dams do not exist in Terrebonne Parish. However, levees, as in most areas of south Louisiana, are common. In the case of Terrebonne Parish, the majority of the levees that do exist were not designed for hurricane protection, but are rather used as forced drainage mechanisms due to their limited height. All levees within the parish that are located south of the Intracoastal Canal were reportedly topped and/or breached during Hurricane Rita in 2005. Therefore, levee failure is considered a highly significant hazard event in the area. A map of levees and pump stations, as well as, drainage areas is displayed in Attachment c2-3 (page 89) at the end of this section.	Levee Failure
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### Prevalent Hazards to the Community

Although many of the hazards in the previous section occur in the parish, attention was focused on the most prevalent hazards which include the following:

- (a) Levee failure
- (b) Flooding
- (c) Hurricanes and Coastal/Tropical Storms
- (d) Saltwater Intrusion
- (e) Tornadoes
- (f) Subsidence
- (g) Coastal Erosion

This list was confirmed by HMPU Steering Committee members in Meeting No. 1 and with consideration of the former HMP (2010).

### Additional Hazards of Concern

In addition to the hazards identified by the HMPU Steering Committee, manmade hazards, such as environmental disasters, have the potential to cause extensive detrimental impacts to the residents, environment, and economy of Terrebonne Parish. Although this plan does not profile environmental disasters, it is worth noting that the Deepwater Horizon incident in 2010 had profound impacts on various economic sectors within the Parish that resulted in social disruption as well as health impacts on individuals. The impacts of the oil spill continue to be felt by Parish residents, and the long-term consequences to the environment, as well as to the health of residents, as yet unknown.

**3.2.2 §201.6 (c)(2)(ii) A description of the jurisdiction’s vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.**

A general description of specific events and their overall impact to the community is addressed in the following section. This section will be followed by an inventory of critical facilities and a detailed estimation of losses that could occur as a result of future hazards. A detailed analysis of buildings, infrastructure, values, etc. follows in later sections (c)(2)(ii)(A and B).

**Hazard Vulnerability**

**A Profile of Hazard Events and Hazard Impacts**

As discussed in section §201.6 (c)(2)(i), levee failure, flooding, hurricanes, coastal/tropical storms, coastal erosion, and saltwater intrusion were identified as prevalent hazards to Terrebonne Parish.

*3.2.2.1 Flooding*

The issue of flooding was discussed in detail and committee members determined that it is the most prevalent and the most frequent hazard to the parish. According to NOAA data, flooding has a 63 percent probability in the parish. Committee members recommended that the issue of flooding be the main focus during this HMPU planning process. It was also determined that flooding would be subdivided into four categories based on the type of flooding: riverine, backwater, storm water, and storm surge. By separating the types of flooding into these four categories, the parish was able to identify specific portions of the parish that may be prone to each type of flooding or hazard event. This approach proved valid in defining both the varying causes of flooding hazards and in determining vulnerability.

In addition to damages from storm surge that would be expected near the coast, the Parish experiences flooding in the northern communities that may be caused by poor drainage, road improvements, or subsidence. These flood prone areas outside the SFHA are included in the repetitive loss map. The addresses of repetitive loss structures are not shown specifically due to privacy concerns, but are shown generally both within the SFHA and without. The data mapped is from NFIP claims and calls to the public works department, the Office of Emergency Preparedness, and the mitigation division of the planning department that are logged after every moderate to severe storm. NFIP claims are not reflective of the flooding in these areas. Claims are suppressed due to unfamiliarity with flood insurance rules or a desire to retain a preferred insurance rate. More specific education regarding flood insurance details is needed rather than general information about the importance of getting flood insurance. The importance of flood insurance and the mitigation benefits of insurance have been the focus to this point. <sup>1</sup>

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<sup>1</sup> The Parish has applied for and was awarded a grant for Flood Risk Modeling. From the assessment of available data, it seems likely after committee discussion that data gathering and modeling will target the areas north of Woodland Ranch Road and Bayou Cane in particular to assess the relationship of the structure first floor elevations in relation to the centerline of the road and/or nearby forced drainage or other flood reduction infrastructure components.

*Storm water*

Storm water excesses caused by large amounts of rainfall in a short period of time occur frequently in this coastal parish. Generally, the most damaging events were a function of tropical storms and hurricanes. Primarily low lying areas of the parish suffered damage from past events including Hurricane Juan in 1985 and Tropical Storm Allison in 2001.

*Storm surge*

Storm surge caused by winds of hurricanes and tropical storms cause inundation of coastal floodplains and through coastal river and drainage systems. In the case of storm surge, southerly winds and high tides rise over and through bayous, canals and marshlands. Low lying coastal areas of Terrebonne Parish are vulnerable to this type of flooding due to its predominate marshland coast and its proximity to the Gulf of Mexico.

*Riverine*

Riverine flooding, by definition, is river based. Despite the abundance of waterways located within the parish, there are no rivers that are subject to significant water level fluctuations and contribute to flooding. There are however, many bayous, canals, and marshland that effectively drain the parish into the Gulf of Mexico in the absence of a strong southerly push created by wind. Riverine flooding is not considered a significant threat to Terrebonne Parish.

*Backwater flooding*

Backwater flooding is normally associated with riverine flooding and connotes a lack of velocity. Low lying areas, particularly those outside of protection levees are at risk. A heavy rainfall event combined with a strong southerly wind hinders drainage outflow causing backwater flooding to the same areas susceptible to storm surge. This phenomenon generally results in the flooding of areas of the parish located south of the City of Houma. Historically, flooding is generally wide spread but shallow in these areas. Backwater flooding occurred when the storm surge flowed through the pump station outfall pipes inhibiting drainage as recently as Hurricanes Rita and Ike.

Previous occurrences of flood events are detailed in the table to follow.

**Terrebonne Parish Historical Flood Events 1998-2013**

<b>Date</b>	<b>Type</b>	<b>Property Damage</b>	<b>Rainfall</b>
1/6/1998	Flash Flood	\$35,000	4-9"
6/26/1999	Flash Flood	\$500,000	3-10"
6/6/2001	Flash Flood	\$500,000	11-23"
6/6/2001	Flash Flood	\$75,000	11-23"
6/10/2001	Flash Flood	\$250,000	11-23"
10/9/2004	Flash Flood	\$50,000	N/A
10/22/2007	Flash Flood	N/A	3-10"
5/22/2008	Flash Flood	N/A	1-5"

8/17/2008	Flash Flood	N/A	1-3"
3/27/2009	Flash Flood	N/A	1-8"
12/14/2009	Flash Flood	N/A	1"
7/18/2011	Flash Flood	N/A	1-3"
9/4/2011	Flash Flood	\$25,000	1-4"
3/23/2012	Flash Flood	N/A	1-3"
7/20/2012	Flash Flood	\$10,000	1-4"
2/12/1997	Flood	N/A	N/A
9/10/1997	Flood	N/A	N/A
9/12/1998	Storm Surge/Tide	N/A	N/A
6/30/2003	Storm Surge/Tide	\$1,000,000	5-10"
9/15/2004	Storm Surge/Tide	\$5,000	N/A
9/22/2004	Storm Surge/Tide	\$5,000	N/A
10/9/2004	Storm Surge/Tide	\$18,000	N/A
9/23/2005	Storm Surge/Tide	\$138,240,000	1-2"
9/23/2005	Storm Surge/Tide	\$34,560,000	1-2"
8/3/2008	Storm Surge/Tide	N/A	1-4"
9/1/2008	Storm Surge/Tide	\$9,400,000	1-5"
9/11/2008	Storm Surge/Tide	\$100,000,000	1"
9/2/2011	Storm Surge/Tide	\$45,000	1-2"
8/28/2012	Storm Surge/Tide	\$10,000,000	<1"
8/28/2012	Storm Surge/Tide	\$1,000,000	<1"
10/5/1996	Coastal Flood	N/A	N/A
4/5/1997	Coastal Flood	N/A	N/A
10/16/2006	Coastal Flood	N/A	1-2"
5/1/2010	Coastal Flood	N/A	N/A
12/21/2006	Heavy Rain	N/A	1-6"
<b>Total</b>		<b>\$295,718,000</b>	
<i>Source: NCDC</i>			

Based on previous occurrences the parish is susceptible to between one and 23 inches of rainfall in a flood event.

The most recent flood event to threaten Terrebonne Parish occurred in 2011 and is detailed below.

### **The Mississippi River Flood of 2011 (April – May)**

The combination of springtime snowmelt and rainfall resulting from multiple major storm systems between April 23 and May 2 made 2011 a record-setting year for flooding in the central United States.<sup>2</sup> For the Mississippi River, this caused the most intense river flooding recorded within the past century. The National Oceanic and Atmospheric Administration estimates that economic losses related to the flooding ranged from three to \$4 billion.

<sup>2</sup> [http://www.srh.noaa.gov/jan/?n=2011\\_05\\_ms\\_river\\_flood](http://www.srh.noaa.gov/jan/?n=2011_05_ms_river_flood)

The adjacent picture shows water being diverted from the Mississippi River to Lake Pontchartrain on May 10, 2011 via the Bonnet Carre Spillway. Water from the Mississippi River was also diverted to the Atchafalaya River, which resulted in its cresting on May 30, 2011. Terrebonne Parish mobilized pumps to the western part of the parish in preparation for flooding; however, St. Mary Levee District installed a barge in Bayou Chene, which prevented flooding in Terrebonne Parish.



Lake Pontchartrain near the Bonnet Carre Spillway, 2011

Source: nola.com

### Bayou Cane - Flooding Frequency in Surrounding Areas

According to TPCG, Bayou Cane experiences flooding from rains more often than hurricanes. In particular, there is flooding on Douglas around the intersection of D Street. The neighborhood occasionally ropes off the intersection to stop cars from driving through as the car traffic makes waves that in turn flood some of the homes along the street. Mire, Collins and Funderburke in Bayou Cane experience shallow flooding in rains as well. The intersection of Alma and Westside Boulevard has been closed to traffic between 2013 and 2014 due to high waters from flooding caused by rain events. Projects are in place to alleviate this to some extent. They are expected to come online between 2015 and 2017. Closer to Martin Luther King Boulevard, but still in Bayou Cane, Jean Street, Mike Street, and sometimes all the way to Duet Street residents experience flooding in rains. Some improvements have been made and buyouts executed, but the risk remains the same for the other structures. Westview and Louis Streets have experienced flooding and the end of Westview has been a target for buyouts due to the consistent flooding regardless of improvements. Structures on Harding and Louis were also purchased due to shallow but repeated flooding. Prospect Street sees some flooding near the bridge in rains. This is nearer to the Roberta Grove area.

#### 3.2.2.2 *Hurricane and Tropical Storm Hazard Events*

Because of the proximity of the parish along the Gulf coast, the region is highly prone to hurricanes and tropical storms. The parish has a history of damage linked to hurricanes and tropical storms that have occurred in the past. Seventeen presidentially declared disasters associated with hurricanes and tropical storms have occurred in the parish since 1965. Even more, hurricanes and tropical storms have a 66 percent probability in the parish. As such, hurricanes and the resultant wind and flooding damage were designated as a significant hazard to the community. More detailed examples are noted in Attachments c2-17 through c2-23 (pages 103 through 109). Based on the storm events profiled later in this section and Terrebonne Parish's location in coastal Louisiana, it is estimated that Terrebonne Parish could experience between 2.5 and 15 feet storm surges,

and between 1- 23' of rain related specifically to hurricanes, tropical storms, and tropical depressions.

The design of the Morganza to the Gulf Hurricane Protection Levee in Terrebonne Parish does not provide protection for several communities, including: Grand Caillou, Dulac, Isle de Jean Charles, and portions of Bayou Dularge and Point-au-Chene. These communities may even see increased surge heights as a result of the construction of the Morganza levees. Hazard mitigation strategies, including community relocation, may become necessary in order to reduce the vulnerability of these communities.

Numerous hurricanes and tropical storms have impacted the study area. A table summarizing these instances is noted in this section. Information includes dates, names, impact to the area, and dollar damage estimates (if available).

**Table 4-2: Terrebonne Parish Presidential Disaster Declarations (1965 to 2013)**

Year	DR#	Storm Name	Impact	Damage (billions)
1965	208	Hurricane Betsy	Storm surge, flooding, and destructive winds	\$ 21.9
1971	315	Hurricane Edith	Flooding and high winds	\$ 0.3
1973	374	Severe storms, flooding	Heavy rains and flooding	N/A
1974	448	Hurricane Carmen	High winds and tidal flooding	\$ 1.6
1980	616	Severe storms/flooding	Heavy rains and flooding	N/A
1985	752	Hurricane Juan	Storm surge, heavy rain, and flooding	\$ 4.1
1991	902	Severe storms/flooding	Heavy rains and flooding	N/A
1991	904	Flooding, severe storm, tornado	Heavy rains and flooding	N/A
1992	956	Hurricane Andrew	High winds, heavy rains, and flooding	\$ 56.0
1995	1049	Rain storm/flood	Heavy rains and flooding	N/A
1998	1246	Tropical Storm Frances & Hurricane Georges	Destructive winds, storm surge, tornado, and flooding	\$ 4.6
2001	1380	Tropical Storm Allison	High winds, heavy rains, and flooding	\$ 6.5
2002	1435	Tropical Storm Isidore	High winds, heavy rains, and flooding	\$ 0.4
2002	1437	Hurricane Lili	High winds and storm surge	\$ 1.1
2004	1548	Hurricane Ivan	Winds	\$ 15.5
2005	1603 & 3212	Hurricane Katrina	High winds	\$ 81.0
2005	1607 & 3260	Hurricane Rita	Storm surge and flooding	\$ 10.0
2008	1792	Hurricane Ike	Heavy rains, high winds	Gustav and Ike cause
2008	1786	Hurricane Gustav	Heavy rains, high winds	\$8 to \$20B
2009	1863	Severe Storms/ Tornadoes/Flooding	High winds, heavy rains, and flooding	N/A
2011	4015	Flooding	Mississippi River flooding	\$ 4.0
2011	4041	Tropical Storm Lee	High winds, heavy rains, and flooding	\$ 1.6
2012	4080	Hurricane Isaac	Heavy rains, high winds	\$ 1.0
2013	4102	Severe Storms and Flooding	High winds, heavy rains, and flooding	N/A

Note <sup>(1)</sup>: Loss estimates for all affected areas and are not necessarily limited to Terrebonne Parish, estimates in 2000 dollars. Data obtained from *Normalized Hurricane Damage in the United States: 1900-2005*, R. Pielke, et. al.

### Hurricane and Tropical Storm Profiles

The most extreme examples of the hazard events that have impacted Terrebonne Parish are presented in the following text beginning in 1965 with Hurricane Betsy. Each event description includes a graphic that illustrates the path taken by the storm. The path is color coded according to the Saffir-Simpson Hurricane Scale to establish the storm's intensity as it approached and made landfall. Every category of hurricane (1-5) can occur

in the entirety of the planning area. The colors and the Saffir-Simpson Hurricane Scale are illustrated to the right.

Saffir Simpson is no longer being followed; however, it is used in this section due to its previous use in describing past storm events.

Saffir-Simpson Hurricane Wind Scale	
Category	Wind Speed
5 (major)	≥157 mph ≥252 km/h
4 (major)	130–155 mph 209–251 km/h
3 (major)	111-129 mph 178-208 km/h
2	96-110 mph 154-177 km/h
1	74-95 mph 119-152 km/h
Additional Classifications	
Tropical Storm	39-73 mph 63-117 km/h
Tropical Depression	0-38 mph 0-62 km/h

**Hurricane Betsy (1965)**

Hurricane Betsy made landfall near the mouth of the Mississippi River in Louisiana on September 9, 1965. The hurricane was a category 3 storm with maximum winds of 140 miles per hour recorded in Terrebonne Parish. According to NOAA, Terrebonne experienced approximately five inches of rainfall during this storm. Grand Isle, which is 70 miles southeast of Houma, experienced 15’ storm surge. The event caused wide spread wind and water damage to area homes and businesses in Terrebonne. In addition, the area’s agricultural crops (sugarcane) suffered significant losses. One fatality was reported. It should be noted that at this period in history there was not an extensive levee system in place. The level of damage experienced in Louisiana reflected that reality. Hurricane Betsy is often referred to as “Billion Dollar Betsy.”

Hurricane Betsy's Storm Track



Source: noaa.gov

A map of the flood impact area of Hurricane Betsy is shown in Exhibit c2-17 in the Attachments section. The storm’s path is illustrated in the above graphic.

**Hurricane Juan (1985)**

Hurricane Juan struck the Louisiana coast in the vicinity of Morgan City on October 29, 1985 as a Category 1 hurricane. Maximum sustained winds were approximately 85 miles per hour. The storm had a very erratic and slow moving track allowing several passes over coastal Louisiana before moving eastward (see storm path to the right).

Hurricane Juan's Storm Track



Source: noaa.gov

Hurricane Juan consisted mainly of large amounts of rainfall dropped over a short period of time. Rainfall totals for southern

Louisiana ranged from 10 to 15 inches accounting for the extreme amount of flooding. Greater than 11 inches of rainfall was recorded in the City of Houma over a four day period. NOAA records approximately 10 inches of rainfall parishwide. A combination of storm surge and extraordinary rainfall led to extensive flooding. The flooding caused significant losses to agricultural crops and hundreds of homes and businesses were flooded in Terrebonne Parish. A map of inundation for Hurricane Juan is shown in Attachment c2-18 (page 104). Similar to Hurricane Betsy, there was not an extensive levee system in place. In addition, the 1970's marked a period of intensive land loss in coastal Louisiana as discussed previously. Accordingly, widespread damage reflected that reality.

### **Hurricane Andrew (1992)**

Hurricane Andrew is the second most destructive hurricane in United States (U.S.) history with damages estimated at \$56 billion. It made its second U.S. landfall (first in Florida) on August 26, 1992 at Point Chevreuil, Louisiana, (southwest of Morgan City) as a Category 3 storm with winds of 115 miles per hour. The storm's track would guide it up the Atchafalaya River system just west of Terrebonne Parish. Hurricane Andrew's path is illustrated in the adjacent graphic.



Source: noaa.gov

Terrebonne Parish was located on the eastern side of the storm's eye wall and therefore sustained widespread damage. The damage was caused by a combination of high winds and storm surge (9 feet recorded in Terrebonne Bay). In addition to storm surge, Terrebonne experienced between five and seven inches of rainfall (NOAA). Notable effects include estimated losses of 25% of the parish's sugarcane crop, extensive power outages, and inundation of several hundred homes by flood waters. Flooded communities included Pointe-Aux-Chenes, Chauvin, Dulac, Montegut, Isle de Jean Charles, and Dularge. A map of the inundation caused by Hurricane Andrew in Terrebonne Parish is included as Attachment c2-19 (page 105). The following graphic illustrates the magnitude of the storm's surge on Louisiana's central coastline. At this point in time Terrebonne Parish was still protected by drainage levees that were less than 6 feet in height.

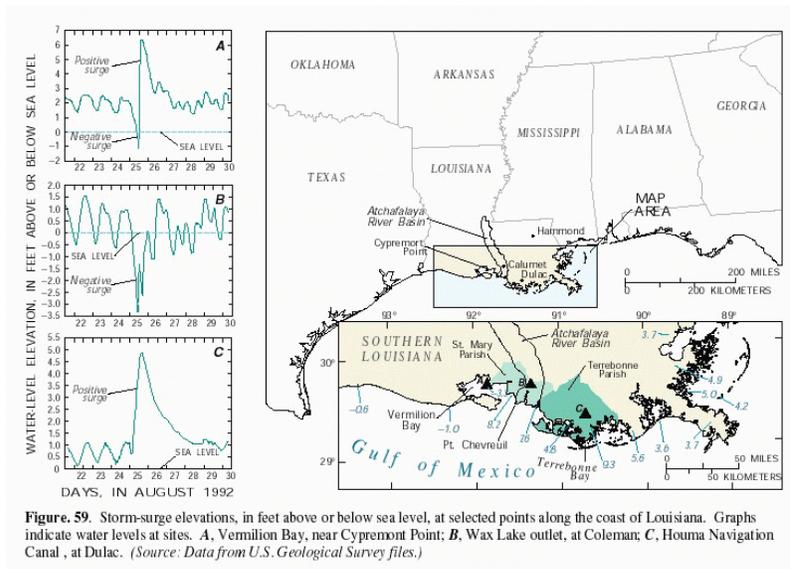
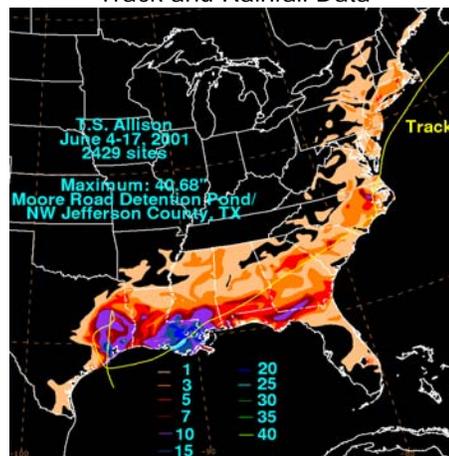


Illustration of Hurricane Andrew's Storm Surge

### Tropical Storm Allison (2001)

Tropical Storm Allison made its initial landfall near Freeport, Texas on June 5, 2001 with 50 mile per hour winds. The storm stalled over land in Texas and retreated south and re-entered the Gulf of Mexico. It slowly drifted to the east and made a second landfall near Morgan City, Louisiana on June 11, 2001. Tropical Storm Allison left a severely drenched Texas and Louisiana in its path. Many areas in southeast Louisiana received as much as 20" of rain over three days. The storm produced a 2.5' storm surge in Cameron, Louisiana and isolated areas reported rainfall totals approaching 35 inches as a result of the storm. The community of Schriever in northern Terrebonne Parish experienced 30 inches of rain. Generally, the parish experienced between 15 and 23 inches of rainfall. It is estimated that 131 homes in the parish were damaged or destroyed by flood waters and 25,000 residents were displaced due to high water. The accompanying graphic illustrates the storm's track as well as rainfall accumulations produced by the storm. Allison will be remembered as the costliest Tropical Storm in U.S. history with 41 deaths and a \$5 billion price tag associated with the damage. A map of the inundation caused by Tropical Storm Allison in Terrebonne Parish is included as Attachment c2-20 (page 106).

### Tropical Storm Allison's Storm Track and Rainfall Data



### **Hurricane Lili (2002)**

Hurricane Lili made landfall on October 3, 2002 near Intracoastal City, Louisiana (Vermilion Parish) as a Category 1 storm; however, the designation of the storm is not truly representative of the storm itself. Just prior to making landfall, the storm had a maximum designation of a Category 4, causing all oil production in the central area of the Gulf of Mexico to cease operations. Hurricane Lili's path is illustrated to the right.

Hurricane Lili's Storm Track



Source: noaa.gov

The storm was responsible for damages associated with both wind (greater than 78 miles per hour) and storm surge (6 to 8 feet) in Terrebonne Parish. NOAA also records that Terrebonne experienced up to five inches in rainfall from this storm event. The strongest effects of the storm were experienced in the southern portion of the parish. Damage included widespread power outages, destruction of approximately 35% of the parish's sugarcane crop and substantial damage of more than 300 homes. The extent of parish inundation caused by the storm is displayed in Attachment c2-21 (page 107) at the end of this section.

### **Hurricane Katrina (2005)**

After crossing southern Florida, Hurricane Katrina made U.S. landfall for the second time on August 29, 2005, near Buras/Triumph, Louisiana. The hurricane was a category 3 storm with wind speeds of 125 miles per hour. Hurricane Katrina was the most damaging natural disaster in U.S. history with an estimated \$81 Billion worth of damage. Much of that damage was limited to extreme east and southeast Louisiana and the Mississippi gulf coast and was caused by high winds and large storm surge (estimated 14 feet in Plaquemines Parish, Louisiana). Between

Hurricane Katrina's Storm Track



Source: noaa.gov

three and five inches of rain fell in Terrebonne. However, Terrebonne Parish was largely spared of Hurricane Katrina's devastating effects due to its location on the western side of the storm's eye wall. The parish experienced minimal wind damage as a result of the storm. As the graphic illustrates, Katrina pushed inland along the southeastern Louisiana-Mississippi border and then established a north-northeast track.

### Hurricane Rita (2005)

Hurricane Rita made landfall on September 24, 2005, along the Louisiana-Texas border near Johnsons Bayou, Louisiana. The hurricane came ashore as a Category 3 storm with sustained winds of 120 mph. As graphically depicted below, Hurricane Rita initially followed a path along the western Louisiana-Texas border and then turned northwest.

Hurricane Rita caused an estimated \$10 billion in damages. Despite the fact that the eye of the storm made landfall approximately 190 miles west of the City of Houma, Hurricane Rita had a significant impact on Terrebonne Parish - much more than did Hurricane Katrina. Approximately one inch of rain fell in Terrebonne, and the impact and damages were largely a result of storm surge that caused extensive flooding, primarily south of Houma. An 8' storm surge was recorded in Calcasieu Parish. All levees located south of the Intracoastal Canal failed and more than 10,000 homes and business were flooded. The Rita inundation map is presented as Attachment c2-22 (page 108).

Hurricane Rita's Storm Track



Source: noaa.gov

Cattle Round Up After a Levee Break in Chauvin, Louisiana



Source: TPCG

### Hurricanes Gustav (Sept. 1) and Ike (Sept. 12-13), 2008

Hurricane Gustav is known as one of the most devastating hurricanes of 2008, causing physical damage and fatalities in multiple countries including Jamaica, the Cayman Islands, Cuba, Haiti, the Dominican Republic, and the United States (namely Louisiana). Hurricane Gustav was the first storm in Louisiana's history to necessitate a mandatory evacuation of residents within all at-risk coastal parishes.<sup>3</sup> Over two million people were evacuated from the region.

Hurricane Gustav entered the Gulf of Mexico and made its final landfall on September 1, 2008, as a Category 2 hurricane in Cocodrie, Louisiana, a shrimping and crabbing village located in Terrebonne Parish south of



<sup>3</sup> State of Louisiana Governor's Office of Homeland Security and Emergency Preparedness. State of Louisiana After-Action Report and Improvement Plan: Hurricanes Gustav and Ike.

Houma. The storm produced maximum sustained winds of 104 miles per hour and inundated the southernmost portion of the parish from the Lower Atchafalaya River to just east of State Route 317. Terrebonne Parish experienced mostly wind damage from the hurricane and avoided widespread flooding.

Another hurricane impacted Louisiana approximately two weeks after Hurricane Gustav. Though Hurricane Ike made landfall in Galveston Island, Texas, on September 12 and 13, 2008, Category 2 winds from Hurricane Ike produced surges in coastal Louisiana that ranged between three feet and six feet in height in areas east of Grand Isle. Storm surge heights increased west of Grand Isle, reaching a maximum of 10 feet at some locations. In Terrebonne nearly every levee was overtopped, and there was widespread residential and roadway flooding. According to NOAA, Hurricanes Gustav and Ike caused between one and two inches of rainfall in Terrebonne Parish. The Louisiana Economic Development Department estimates that Hurricanes Gustav and Ike caused 51 deaths and between \$8 and \$20 billion in physical damage across the state.



The following table details Terrebonne Parish recovery projects that resulted from Hurricanes Gustav and Ike impacts.

Gustav & Ike Table of Public Works Projects

Problem	Recovery Action	Storm	PW #	Project Cost	CAT
Fence Down	Demolition and installation of new galvanized steel fence	Gustav	5148	\$5,596.32	G
Part of Roof Damaged	Replaced damaged metal in permanent roof repair	Gustav	5151	\$4,987.93	E
Northside Corner Blown Out - Fiberglass shattered and metal ripped off. Door damaged by flying debris beyond repair.	Remove damaged elements and replace fiberglass, sluminum, and door.	Gustav	5158	\$4,392.49	E
Roof damage and light damaged by flying debris	Replaced aluminum and	Gustav	5311	\$1,211.88	E

beyond repair	lighting fixture				
Chain Door Blew Out. Radio Tower for SCADA structurally damaged beyond repair by wind.	Tower replaced by higher wind resistance tower and new antenna. Door repaired.	Gustav	5508	\$9,108.67	G
One Side of Building Gone	Damaged siding removed and replaced.	Gustav	5123	\$1,299.21	E
Fence on Both Ends Torn Up	Demoition and replacement of fencing	Gustav	5133	\$5,596.32	G
Minor Roof Damage (One Panel).	Removal of damaged material and replacement	Gustav	5442	\$1,187.42	E
Minor Roof Damage (One Panel)	Tower replaced by higher wind resistance tower. Roof repaired.	Gustav	5516	\$584.00	
Radio Tower for SCADA Down			5516	\$6,194.00	G
Roll Up Door Blown Out, Roof Flapping	Replaced the door	Gustav	5162	\$1,556.32	E
Roll Up Door Blown Out, Roof Flapping	Replaced the door	Gustav	5157	\$2,161.08	E
Radio Tower for SCADA Down	Tower replaced by higher wind resistant tower and new antenna.	Gustav	5431	\$6,194.60	G
Utility Pole	Replace utility pole and associatied connections/ ground.	Gustav	5015	\$2,383.65	D
Forced Account: Labor, Equip., Material. Rented and Contract Service	Employee labor and force account materials /equipment	Gustav	4479	\$340,690.98	B

Gustav Total					\$393,144.87	
Forced Account: Labor, Equip., Material. And Rented	Employee labor and force account materials/ equipment	Ike	1272	\$893,395.00	B	
Contract Work	Levee assessments and engineering services	Ike	1295	\$182,343.67	B	
Forced Account: Labor, Equip., Material. Rented and Contract Service	Employee labor and force account materials/ equipment. List of pump stations repaired and other detail available.	Ike	1234	\$79,291.41	B	
Southern Face of Building Gone	Labor, equipment, and materials to remove and permanently replace damaged siding.	Ike	1293	\$7,407.66	E	
Truck was Flooded When Operator was Driving and Road Gave Way \$30,000.00	Truck replacement. No record of road repair costs.	Ike	1235	\$12,938.32	E	
Building Flooded, All Electrical Destroyed	Replaced pwer feed, pump motore, switch panel and motor starter and raised all elements to avoid future flooding.	Ike	1347	\$12,287.25	F	
Ike Total				\$1,187,663.31		
2008 Total				\$1,973,953.05		

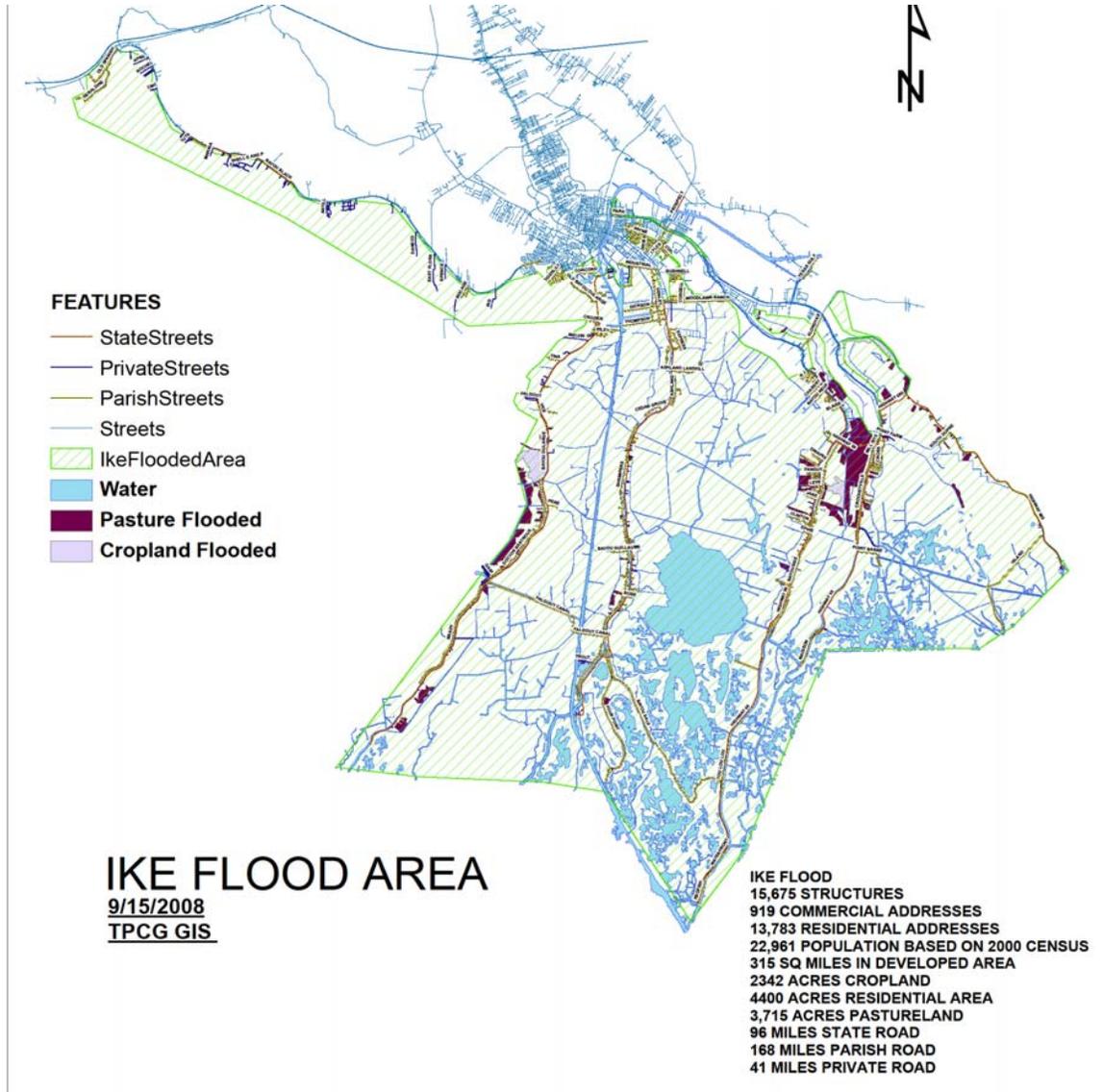
Below is a list of projects that were kicked off or ongoing in the last five years though Hurricane Ike was in 2008. The vast majority of these projects were funded with CDBG funding, though some demolitions were Public Assistance and the elevations were HMGP.

Selected Gustav Ike Recovery Plan (CDBG) and Hazard Mitigation Plan (FEMA)  
Projects 2010 to Present

<u>Project Name</u>	<u>Value</u>
Non-fed levee - Reach E - Falgout Canal Levee	\$14,000,000.00
Non-fed levee - Suzie Canal Ext. (North)	\$2,257,096.72
Non-fed levee - Ashland North	\$3,050,409.40
Non-fed levee - Cane Break to Ashland	\$10,180,430.00
Non-fed levee - Upper Dularge (East)	\$19,799,947.00
Non-fed levee - Pointe Aux Chenes	\$1,537,176.00
Non-fed levee - Ward 7	\$15,910,524.89
Non-fed levee - East Houma Surge Levee / Thompson Road Ext.	\$2,985,000.00
Forced Drainage - Upper Grand Caillou Pump Station	\$4,591,114.37
Forced Drainage - Ashland Drainage Pump Station	\$3,309,886.52
Forced Drainage - Baroid Pump Station/Bayou Lacarpe	\$4,946,469.48
Forced Drainage - Buquet Drainage Improvements	\$916,536.73
Forced Drainage - Summerfield Pump Station	\$4,115,108.36
Ashland Drainage Pump Station Outfall Canal Improvement	\$511,234.85
Waterworks Valve Replacement for Hospital	\$980,000.00
Juvenile justice Facility – move youth from SFHA	\$10,265,108.20
DPW Administrative Building	\$5,540,340.66
Gray Facility Sewerage Improvements	\$2,655,420.48
Clean Waterways/ Derelict Vessels – 49 units	\$1,030,047.00
Falgout Canal Pontoon Bridge	\$1,455,530.00
Parkwood Place LMI Housing	\$3,100,000.00
Owner Occupied Housing - Housing Study	\$75,000.00
1st Time Homebuyers Assistance	\$3,890,000.00
Homeowner Buyout – 21 units	\$4,604,625.00
Repair Assistance - Owner Occupied	\$750,540.86
Demolition of Blighted Properties – 689 units	\$160,972.48
Elevation of substantially damaged homes	\$15,000,000

To supplement the information provided in the previous table, the following map shows the extent of flooding from Hurricane Ike in Terrebonne Parish.

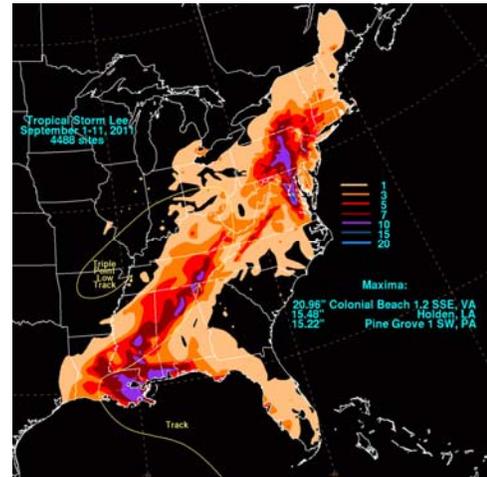
### Extent of Hurricane Ike Inundation



## Tropical Storm Lee (September 2011)

On October 28, 2011, President Obama declared a state of emergency in Louisiana as a result of damage caused by Tropical Storm Lee. The storm made landfall between September 1 and 11, 2011. The tropical storm impacted the parishes of East Feliciana, Jefferson, Lafourche, Plaquemines, St. Bernard, St. Charles, Terrebonne, and West Feliciana. Terrebonne Parish was impacted by tidal surge that brought Bayou Terrebonne to 6.5 feet above sea level at the Montegut floodgate and up to five feet of flood waters into some areas. Between four and five inches of rain fell in the parish. Fortunately, there were no major road closures and no reports of house flooding in northern Terrebonne, although there were reports of homes flooding in the low portions of the Parish such as Cocodrie, Isle de Jean Charles, and Pointe-aux-Chenes.

Tropical Storm Lee Storm Track and Rainfall Data



Source: NOAA

## Hurricane Isaac Aug. 29, 2012

Hurricane Isaac was a Category 1 hurricane that reached Terrebonne Bay on August 29, 2012.<sup>4</sup> The hurricane generated maximum sustained winds of 80 miles per hour along the coast but weakened to a tropical storm and then a tropical depression as it progressed over southeastern Louisiana. It reached winds of up to 60 miles per hour in Houma. Approximately one billion dollars in damage was caused by the hurricane. According to NOAA, approximately 1.5 and 6 inches of rain fell as a result of the storm.

Hurricane Isaac, 2012



Source: noaa.gov

Terrebonne Parish experienced extensive damage to barrier islands and marshland, especially those that were in the process of being restored by the Coastal Protection and Restoration Authority, including Whiskey Island Back Barrier Marsh and Timbalier Island Dune Marsh. Over the last century Louisiana's barrier islands have decreased in land mass, with some decreasing by more than 50%. This trend has significant impacts for future storm surge protection in coastal Louisiana, which is why CPRA endeavored to undertake the Whiskey and Timbalier Island projects. However, damage to these critical restoration projects only compounds the financial toll of resulting property damage on communities. It is estimated that damage to the restoration projects in Terrebonne (\$18M) totaled more than the cost of property damage (\$16M) caused by the storm in the parish.

<sup>4</sup> [http://www.doa.louisiana.gov/cdbg/DR/Isaac/Isaac\\_Background.htm](http://www.doa.louisiana.gov/cdbg/DR/Isaac/Isaac_Background.htm)

In Terrebonne, over 1,000 homes were damaged with approximately 20 homes with reported water inside. Damage in Terrebonne Parish represented a small fraction of the total 59,000 homes damaged statewide by the storm. Roads were inundated and fields of sugar cane were damaged.

Isle de Jean Charles, which is located in the coastal southeastern portion of the Parish has been repeatedly damaged with each storm event impacting coastal Louisiana, and Hurricane Isaac is the most recent incidence. Some homes on this island experienced between one and three feet of water from Isaac. Many homes have roof and interior damage. As a result, the Louisiana Native American community of Isle de Jean desires voluntary resettlement to a more secure inland Terrebonne Parish location. The Isle de Jean Charles Band of Biloxi-Chitimacha-Choctaw community is the first community in the lower 48 states to be so severely impacted by coastal erosion and sea level rise that permanent relocation is warranted.

The Parish endured significant damage and received roughly \$1.5 million in HMGP funds for this storm.

The below photos show impacts to Terrebonne Parish.



*Source: Subra Company/LEAN/LMRK Louisiana Environmental Action Network*



*Source: Subra Company/LEAN/LMRK Louisiana Environmental Action Network*

It should be noted that according to the National Climatic Data Center, there have been no reported injuries or deaths associated with hurricanes or tropical storms in Terrebonne Parish.

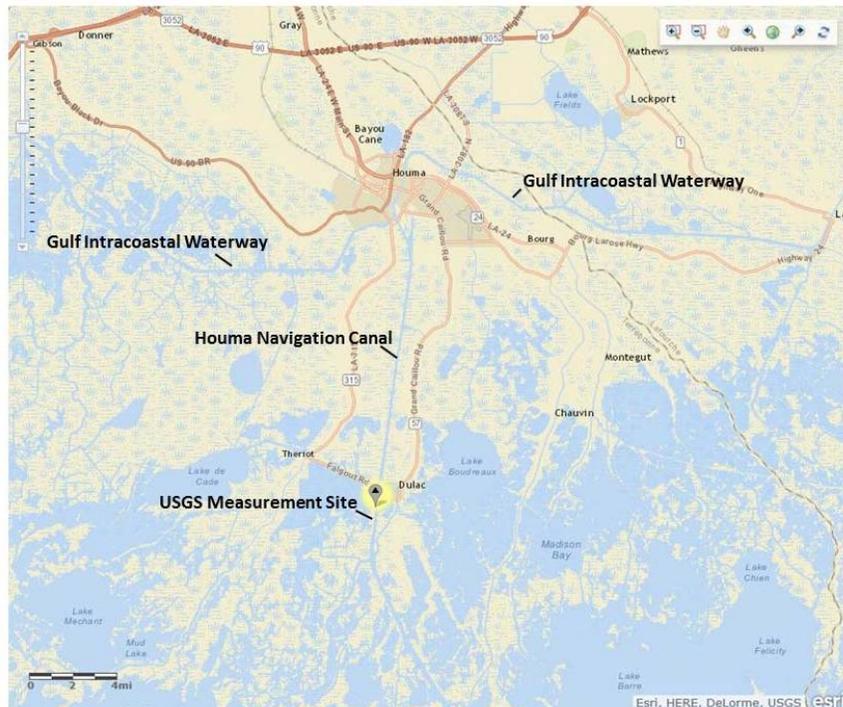
### *3.2.2.3 Saltwater Intrusion*

The Houma Navigation Canal is the primary waterway through which saltwater reaches Terrebonne Parish fresh waterways and marshes. At present, normal tide brings saltwater from the Gulf north into the parish by intruding the Gulf Intracoastal Waterway (GIWW). Due to the location of smaller waterways that feed into the HNC, when the saltwater travels north towards Houma, surrounding freshwater marshes are also destroyed. Saltwater intrusion in the GIWW also occurs in a similar manner from tidal influences from Bayou Lafourche. Furthermore, storm events exaggerate saltwater intrusion occurrences as storm surge push more saltwater further inland, reaching more fresh waterways and marshes than would occur during normal tidal events.

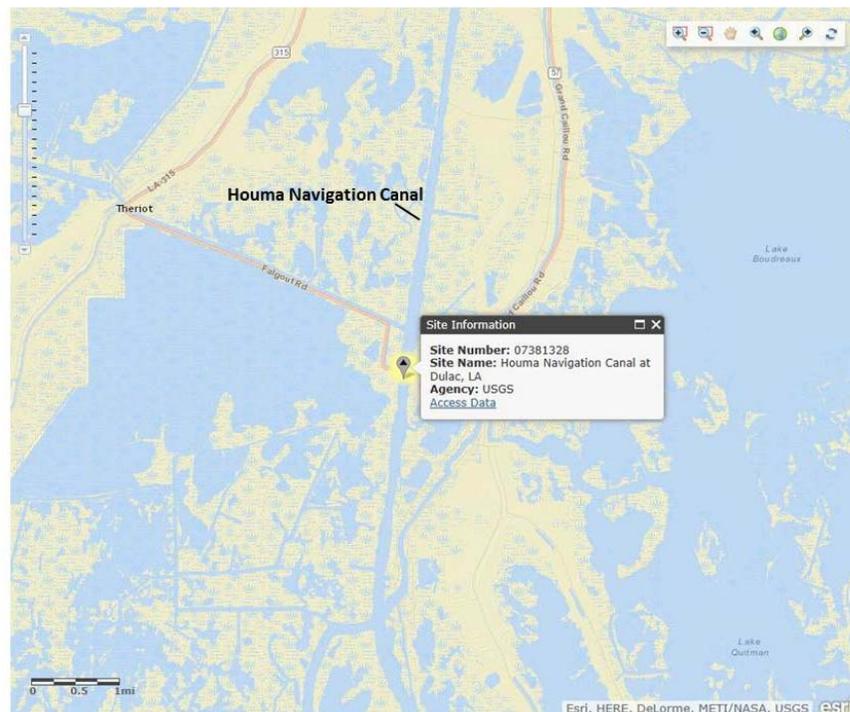
To alleviate saltwater intrusion's impacts on the Parish, a lock for the Houma Navigation Canal is currently being designed to assist in storm protection and resulting intrusion.

The figure on the next page shows the location of the Houma Navigation Canal and the GIWW in relation to Houma, as well as a USGS measurement station that records salinity levels in the channel. According to measurements taken at this station, daily mean salinity levels in the Houma Navigation Canal were recorded at 3.91 parts per thousand for the year 2009, 1.78 for 2010, and 4.89 for 2012 (USGS Water Information System).

## Location of HNC and GIWW in Terrebonne Parish



## Location of USGS Measurement Site along the HNC



As described previously, a marked harm of salt water intrusion is the loss of marsh or wetland. This leads to further land subsidence, more open water, more erosion of soils, and higher winds over newly open water in a hurricane situation. In the case of a strong

northward tidal push due to sustained south winds (as is the case in a tropical storm or hurricane event), saltwater intrusion significantly impacts the parish's potable water sources.

The parish's potable water intakes are jeopardized by salt water from the Gulf of Mexico, especially the Houma water treatment plant # 1. There have been documented instances where the City of Houma has resorted to its secondary potable water intake at Houma Water Treatment Plant # 2 due to chloride concentrations in excess of the U.S. EPA's regulatory threshold of 250 parts per million. An example of this occurred following the storm surge of Hurricane Rita.

The parish has the ability to obtain its potable water supply from three different sources referred to as "water treatment plants." The location of each plant is provided on a map of the critical facilities associated with potable water included as Attachment c2-14 (page 100). A brief description of each source follows.

Schriever Water Treatment Plant - This plant pumps surface water from Bayou Lafourche, which in turn, obtains most of its water from the Mississippi River.

Houma Water Treatment Plant # 1 - The primary source of water for this treatment plant is surface water pumped from the Gulf Intracoastal Waterway (GIWW). The GIWW is fed by a combination of sources, including: rainwater runoff, Mississippi River influence, Atchafalaya River influence, and tidal water influence.

Houma Water Treatment Plant # 2 - Surface water pumped from Bayou Black serves as the secondary or backup supply of water for this treatment plant. This supply is activated when excessive chloride (salt) concentrations are detected in the GIWW.

According to Terrebonne Parish Consolidated Waterworks (TPCW), within the time period of July 1, 2013 to June 30, 2014, for which the most recent data is available, salinity levels from the GIWW exceeded EPA standards a total of 57 days. TPCW estimates that it costs \$1,600 per day to convert to its secondary water source, Bayou Black. Therefore, it cost Terrebonne \$91,200 to use its alternate water source for the 57 days that water was taken from Bayou Black.

TPCW has recorded a trend developing over the years, whereby salinity levels peak during hurricane season between August and November. As saltwater intrusion is a result of hurricane storm surge, one can assume the probability of the occurrence to be the same as a hurricane in any given year, or 66%.

#### 3.2.2.4 *Levee Failure (includes floodwalls) and Pump Stations*

As previously discussed in Section II of this HMPU, a comprehensive system of hurricane protection levees are being constructed in Terrebonne Parish (Morganza-to-the-Gulf). The parish also relies on drainage levees to force water to drain in certain patterns. When confronted with hurricane storm surge of excessive height or velocity, the drainage levees in Terrebonne Parish have historically been overtopped. The design of the

drainage levees is overcome by the magnitude of these events, resulting in failure to keep floodwater from entering the protected area. In addition, degradation of wetlands from storm events and manmade activity make the impacts of surge greater in Terrebonne. The parish's drainage levees are no match for tropical storm or hurricane induced surge waters. This is illustrated in previous occurrences shown in the inundation maps provided in Attachments c2-17 - c2-23 and described in the Hurricane and Tropical Storms Profiles section of this plan. Hurricanes Betsy, Juan, Andrew, Allison, Lili, Rita, and Ike caused significant flooding in Terrebonne. Tropical Storm Lee and Hurricane Isaac caused minimal damage, including wind damage, sign/bridge/traffic light repair, the flooding of Bellaire Lift Station, and damage to rock dike on Lake Boudreaux. Levee failure did not occur for Tropical Storm Lee and Hurricane Isaac.

Considering the four hurricanes (Allison, Lili, Rita, and Ike) which have resulted in levee failure since the year 2000, the probability of levee failure in Terrebonne can be estimated at 31% per year. However, this yearly probability varies based on a storm's track in relation to parish levees, as well as the construction of new levees and upgrades to existing ones in the parish. It should be noted that once completed, the Morganza-to-the-Gulf levee protection system will reduce the probability of levee failure in Terrebonne.

All hurricane protection levees in the parish are maintained by the Terrebonne Levee & Conservation District. There are no USACE certified levees in the parish. All drainage levees and pump stations are operated by TPCG.

Pump stations are also a major consideration in the parish. According to information provided by the Terrebonne Parish Department of Public Works (DPW), there are individual pumps dispersed throughout the parish. These pumps are a critical component of the parish's flood protection system as they facilitate the movement of storm water out of developed areas, over drainage levees, and into the surrounding bayous and marshes. A detailed inventory of pump stations in the parish is provided in Attachment c2-3 (page 89.)

Pump Station D-58 in Coteau



*Source: Terrebonne Parish Department of Public Works*

Pump Station D-45 in Tiger Bayou



*Source: Terrebonne Parish Department of Public Works*

The forced drainage levees and the drainage pumps combine to form individual drainage systems. These systems or areas are managed by the Terrebonne Parish DPW. A map depicting the drainage areas is presented as Attachment c2-3 on page 89.

Inundation (Attachments c2-17 to c2-23) for hurricane events ranged from two to six feet. Future loss estimates for a levee overtopping failure are captured in the HAZUS model. The total structure use and function cost that would result from a hurricane and levee overtopping would be \$157.3 million, according to HAZUS estimates.

However, the Parish is taking steps to educate its residents on the important role of levees in their communities and what efforts they can take to preserve them. One such effort involves the Levee Safety Project. Central to the program is Terrebonne Parish's belief that a complete system of storm protection includes structural (levees and pumps), non-structural (elevation, land use planning and flood proofing), and coastal restoration and protection (wetland and forest restoration). This system relies on all strategies working together and protecting one another – wetlands protect levees from direct storm surge, etc. In order to sustain these systems, the Parish is charged with educating the public on how to care for them. The Gulf of Mexico Alliance and Mississippi-Alabama Sea Grant have awarded Terrebonne Parish a grant to design and implement a program to inform and educate local agencies, emergency responders and the general public on the various activities that are permitted in and around parish levees. The importance of the levee system is generally understood by area residents; however, there are still those who engage in personal activities on levees that may weaken the system. The Levee Safety Project consists of creating a campaign and image that over time will be representative of levee safety along with accompanying video, publications and public safety awareness messages.

#### *3.2.2.5 Tornadoes*

As previously stated, HMPU Steering Committee concluded that the tornado hazard will be profiled in this plan due to its high probability of occurrence although addressing mitigation measures relative to tornados as a stand-alone hazard will not be considered.

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. It is spawned by a thunderstorm or sometimes as a result of a hurricane and produced when cool air overrides a layer of warm air, forcing the warm air to rise rapidly. Tornadoes often form in convective cells like that of thunderstorms or in the right forward quadrant of a hurricane, far from the hurricane eye. The damage from a tornado is the result of high wind speeds and wind-blown debris. Tornadoes can occur at any time of year. Tornado damage severity is measured by the Fujita Tornado Scale based on wind speed and described in the table to follow. The entirety of the planning area is susceptible to tornadoes ranging between an F0 and F2, as recorded by historic NCDC information for Terrebonne.

<b>Fujita Tornado Measurement Scale</b>		
<b>Category</b>	<b>Wind Speed</b>	<b>Examples of Possible Damage</b>
F5 (major)	Incredible 261-318 mph	Incredible damage. Strongframe houses lifted off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yds); trees debarked; incredible phenomena will occur.
F4 (major)	Devastating 207-260 mph	Devastating damage. Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large projectiles generated.
F3 (major)	Severe 158-206 mph	Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; cars lifted off ground and thrown.
F2	Significant 113-157 mph	Considerable damage. Roofs torn off frame houses; mobile homes demolished; box cars overturned; large trees snapped or uprooted, light-object projectiles generated.
F1	Moderate 73- 112 mph	Moderate damage. Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads.
F0	<73 mph	Light damage. Some damage to chimneys branches broken off trees; shallow rooted trees pushed over; sign boards damaged.

*Note: These precise wind speed numbers are actually guesses and have never been scientifically verified. Different wind speeds may cause similar-looking damage from place to place even from building to building. Without a thorough engineering analysis of tornado damage in any event, the actual wind speeds needed to cause that damage are unknown. Source: NOAA*

Because of the unpredictability of tornado paths and the destruction of commonly used instruments, direct measurements of wind speeds have not been made in tornadoes. Wind speeds are judged from the intensity of damage to buildings.

High winds are capable of imposing large lateral (horizontal) and uplift (vertical) forces on buildings. Residential buildings can suffer extensive wind damage when they are improperly designed and constructed and when wind speeds exceed design levels. The effects of high winds on a building will depend on the following factors:

- Wind speed (sustained and gusts) and duration of high winds
- Height of building above ground
- Exposure or shielding of the building (by topography, vegetation, or other buildings) relative to wind direction
- Strength of the structural frame, connections, and envelope (walls and roof)
- Shape of building and building components
- Number, size, location, and strength of openings (windows, doors, vents)
- Presence and strength of shutters or opening protection
- Type, quantity, velocity of windborne debris

A tornado watch is issued to alert people to the possibility of a tornado developing in the area. Under a tornado watch, a tornado has not been seen but the conditions are very favorable for tornadoes to occur at any moment. Conditions favorable for a tornado to occur include:

- Dark greenish or orange-gray skies
- Large hail
- Large, dark, low-lying, rotating or funnel-shaped clouds
- A loud roar that is similar to a freight train

A tornado warning is issued when a tornado has actually been sighted or when Doppler radar identifies a distinctive “hook-shaped” area within a local partition of a thunderstorm line that is likely to form a tornado.

People who reside in mobile homes are most exposed to damage from tornadoes. Even if anchored, mobile homes do not withstand high wind speeds as well as permanent, site-built structures. There are 36 mobile home parks in Terrebonne Parish. They are listed in the following table.

#	<b>MOBILE HOME PARKS IN TERREBONNE PARISH</b>				
1	A & G RENTALS, LLC	LONESOME BULL CT.	SCHRIEVER	LA	70395
2	BAKER'S TRAILER PARK	EAST	HOUMA	LA	70363
3	BAYOU VIEW TRAILER PARK	HIGHWAY 20	GIBSON	LA	70356
4	BAYOU WINDS MOBILE HOME PARK	VEGA	GIBSON	LA	70356
5	BLUE BAYOU MOBILE HOME COURT	BLUE BAYOU	HOUMA	LA	70364
6	BONVILLAIN'S MOBILE HOME	BON VILLA	GRAY	LA	70359
7	CAPRI COURT CAMPGROUNDS	CAPRI	HOUMA	LA	70364
8	CARRIAGE COVE MOBILE	PARK	HOUMA	LA	70363
9	CLIFFWOOD MOBILE HOME COURT	CLIFFWOOD	HOUMA	LA	70364
10	COASTAL ESTATES, LLC	N. BAYOU BLACK	GIBSON	LA	70356
11	COUNTRY BOY MOBILE HOME PARK	ALCEE	HOUMA	LA	70364
12	COUNTRY BOY MOBILE HOME PRK #2	HARMONY	GRAY	LA	70359
13	DANIEL TURNER MOBILE HOME PARK	EAST	HOUMA	LA	70360

14	DARCEY'S TRAILER PARK	ELLENDER	HOUMA	LA	70363
15	DUPLANTIS TRAILER PARK	HIGHWAY 56	HOUMA	LA	70363
16	FAITH RENTALS, LLC	COTEAU	HOUMA	LA	70364
17	FAITH RENTALS, LLC	PARK	HOUMA	LA	70364
18	GOODMAN'S MOBILE HOME PARK INC	GOODMAN	HOUMA	LA	70364
19	HOUMA MOBILE HOMES	HOUMA MOBILE	HOUMA	LA	70363
20	K.E.P.T. MOBILE HOME PARK	WEST MAIN	HOUMA	LA	70360
21	LA VISAGE ROUGE	RUE TETE ROUGE	BOURG	LA	70343
22	LA VISAGE ROUGE MOBILE	RUE TETE ROUGE CT.	BOURG	LA	70343
23	LECOMPTE TRAILER PARK, LLC	LECOMPTE	HOUMA	LA	70363
24	LOST BAYOU MOBILE HOME PARK	WEST MAIN	HOUMA	LA	70360
25	MANDALAY MANOR	LINDA LEE CT.	HOUMA	LA	70360
26	MOBILE HOME PARK	SOUTH VAN	HOUMA	LA	70363
27	MOTT'S TRAILER PARK	COACH	HOUMA	LA	70363
28	NAQUIN PARK	SOUTH VAN	HOUMA	LA	70363
29	NEIL'S RENTAL CO., LLC	HIGHWAY 665	MONTEGUT	LA	70377
30	REMWOOD PARK, L.L.C.	REMBERT	HOUMA	LA	70364
31	SHADY OAKS TRAILER COURT	WEST MAIN	HOUMA	LA	70360
32	SMITH'S MOBILE COURT, LLC	AGNES	HOUMA	LA	70363
33	SUNDOWN TRAILER PARK	SUNDOWN	GIBSON	LA	70356
34	TAYLOR'S TRAILER COURT	WEST PARK	THIBODAUX	LA	70301
35	TUT'S TRAILER PARK	BAYOU BLACK	GIBSON	LA	70356
36	WHISPERING OAKS MOBILE	MAIN	HOUMA	LA	70363

Terrebonne Parish is most vulnerable to the effects of tornadoes during severe tropical storms and hurricanes. Some structural mitigation actions have been identified which will reduce damages caused by tornadoes; however, some wind mitigation actions identified under the hurricane hazard may also lessen the effects of tornado-force winds. Historical occurrences of tornadoes are detailed in the table to follow.

**Terrebonne Parish Tornado History 1957-2013**

<b>Date</b>	<b>Type</b>	<b>Magnitude</b>	<b>Injury</b>	<b>Property Damage</b>
3/21/1957	Tornado	N/A	0	\$25,000
5/11/1959	Tornado	F0	0	N/A
11/22/1961	Tornado	F2	0	\$2,500
9/6/1967	Tornado	F1	0	\$25,000
11/1/1977	Tornado	F1	0	\$25,000
11/8/1977	Tornado	F1	2	\$250,000
7/9/1982	Tornado	F0	0	\$2,500
2/12/1984	Tornado	F1	0	\$250,000
11/16/1987	Tornado	F1	0	\$250,000
7/24/1988	Tornado	F1	0	\$25,000
3/29/1990	Tornado	F1	7	\$250,000
5/28/1990	Tornado	F0	0	N/A
11/1/1991	Tornado	F1	0	\$250,000
11/20/1992	Tornado	F1	0	\$2,500
1/17/1994	Tornado	F0	0	\$5,000
1/18/1995	Tornado	F1	0	\$250,000
8/24/1998	Tornado	F0	0	N/A
1/2/1999	Tornado	F1	0	\$700,000
3/15/2000	Tornado	F2	36	\$10,000,000
8/31/2000	Tornado	F0	0	N/A
12/13/2001	Tornado	F1	0	\$100,000
3/31/2002	Tornado	F1	0	\$75,000
10/3/2002	Tornado	F1	0	\$25,000
7/6/2004	Tornado	F0	0	\$5,000
11/2/2004	Tornado	F0	0	\$2,000
11/27/2004	Tornado	F1	0	\$50,000
3/14/2007	Tornado	F0	0	\$5,000
12/26/2007	Tornado	F0	0	\$25,000
3/5/2011	Tornado	N/A	0	\$50,000
11/16/2011	Tornado	N/A	0	\$30,000
2/25/2013	Tornado	N/A	0	\$100,000
<b>Total</b>			<b>45</b>	<b>\$12,779,500</b>
<i>Source: NCDC</i>				

The parish has not had any federally declared disasters due to a tornado alone. Climate data from the NOAA reports 31 tornadoes within Terrebonne Parish between the years 1957-2013 with an annual probability of fifty-five percent. All 42,560 structures in the parish are vulnerable to some sort of tornado damage at any given time. One can estimate that the average losses for a tornado event would average \$412,242, based on historical losses from the NOAA. For this reason, the steering committee agreed to assign the Terrebonne Parish at a medium risk for tornadoes. All wind related mitigation actions can be found in Attachment c3-1 on page 142.

### 3.2.2.6 Coastal Erosion and Land Subsidence

Coastal erosion and land subsidence are intricately connected in Louisiana, and as such, for the purpose of this plan they will be treated as one hazard. However, because coastal erosion and saltwater intrusion are always happening it can't be measured by individual events.

According to Restore or Retreat, a nonprofit organization focused on coastal advocacy, 90 percent of all wetlands loss in the lower 48 states occurs in Louisiana, with approximately 60 percent of Louisiana's land loss occurring in the Barataria and Terrebonne basins. Barataria and Terrebonne Basins are losing between 10 and 11 square miles of wetlands per year, as stated by Restore or Retreat. As discussed in Section I of this report, coastal erosion destroys land and removes sediments critical to the existence of environmental features such as beaches, and wetlands. High wind and water events, especially wave action, are increasing contributors to coastal erosion. Coupled with land subsidence, Terrebonne faces marked challenges to storm protection.

Land subsidence in Terrebonne Parish can be defined as the loss of surface elevation due to the loss of subsurface density. According to *Faulting, Subsidence and Land Loss in Coastal Louisiana* subsidence in Terrebonne Parish has been measured to be between 2.1' and 3.5' of loss of elevation every 100 years with the probability of continued subsidence at 100 percent.

In Terrebonne, the most concentrated land loss has occurred south of the Intracoastal Waterway near populated communities. West of Dulac and south of Theriot, significant land loss occurred in the period 1956-1973. Within the same time period, significant land loss occurred south of Montegut as well. Southeast of Morgan City, the period from 1932 to 1956 marked a period of concentrated land loss. More recently occurring land loss concentrations are located south of Amelia and the Gulf Intracoastal Waterway and west of Montegut.

It is assumed that subsidence has always occurred in Terrebonne, but because seasonal flooding and the sediment associated with it has been limited by water control structures, the natural balance has been adversely affected by man-made structures. Subsidence is caused by a diverse set of human activities and natural processes. Those two causes are profiled below.

Collapse of surface materials into underground voids is the most dramatic form of subsidence. In Terrebonne Parish, it is presumed that the removal of oil and gas deposits have caused most of the subsidence-related voids in this area. The area most affected by this process has been the wetlands. In the early part of the 20th century, this area was found to be rich in oil and gas, and significant amounts of these resources were removed from the wetlands.

In addition, tides and heavy storms in the Gulf are eroding Louisiana's marshy coastline at an alarming rate. Coastlines in southern Terrebonne Parish are sinking or eroding

away with incoming water eating at the marshes and wetlands that buffer and drain the higher and drier land.

Two related factors contributing to subsidence in Terrebonne Parish have been the disconnection of Bayou Terrebonne to the Mississippi River and the introduction of levee systems. The construction of levee systems with forced drainage has eliminated natural river sediment functions from occurring. These forced drainage areas have essentially dried out and compacted at a higher rate than surrounding areas, causing subsidence within the levee system. These risks are most prominent in the Southern region of Terrebonne Parish, south of the Intracoastal Canal but areas to the north have been affected, to a lesser extent. Maximum rates measured by geodetic surveys are approximately 0.5 inches per year.

All states with low-lying coasts are vulnerable to accelerated sea-level rise, but Louisiana's coast is much more so because of the subsidence of the Mississippi River delta. Until humans intervened, the surface elevation of the broad delta complex had kept pace with rising sea level for several thousand years, largely because the river built delta lobes and nourished wetland vegetation. The rates of natural subsidence and sea-level rise along the Louisiana coast have been exacerbated by human modifications, primarily levees which have isolated the Mississippi River from a delta complex that depends on an annual flooding cycle. These modifications cut off the delta-building process of the river. Louisiana's coastal system has also been heavily impacted by channels dug for navigation and mineral extraction, which have allowed high-salinity Gulf waters to migrate inland. Over a million acres of coastal land have been lost since the 1930s, and between 25 and 35 square miles continue to be lost each year. Louisiana's coastal ecosystems are threatened with systemic collapse.

Areas of Terrebonne Parish, as described above, face a high risk of continued subsidence in years to come. Terrebonne Parish is highly vulnerable to continued subsidence due to its close proximity to the surrounding wetlands, highly organic soils, and dependence on forced drainage systems which remove water from localized areas. All 42,560 structures in the parish are vulnerable to the effects of subsidence, including agricultural, commercial, government, industrial, residential, religious/nonprofit, and school structures. There is no way to quantify per event loss estimates for strictly coastal erosion and land subsidence in this plan. However, since subsidence heightens the effects of flooding, one can assume subsidence increases flood losses by 0.01% per year.

## Rates of Relative Sea Level Rise Across the Northern Gulf of Mexico Region

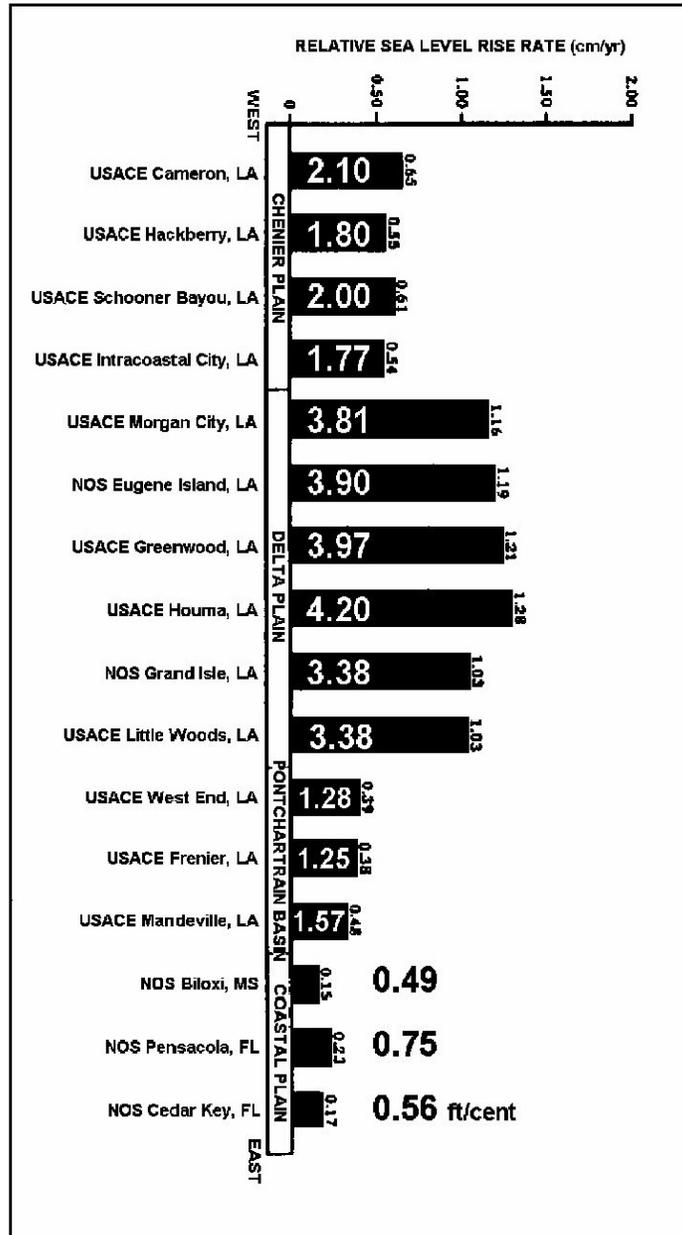
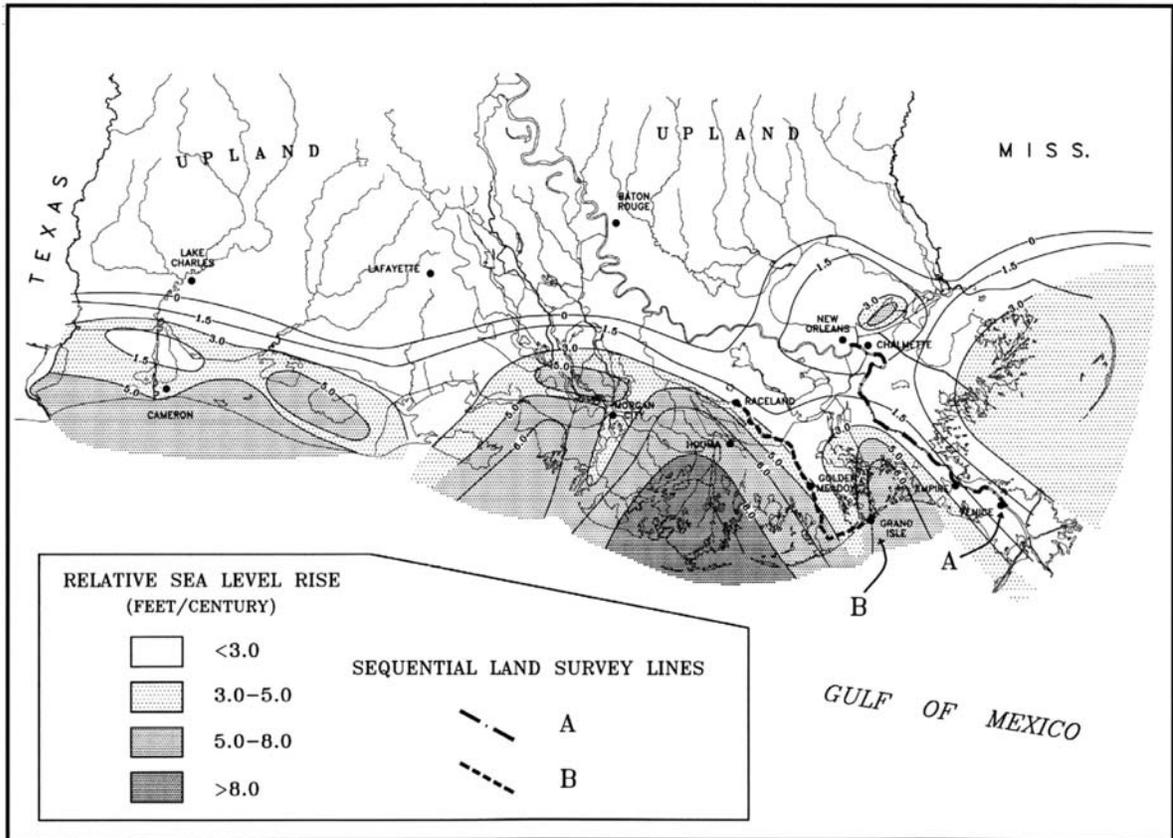


Figure 1-19. Rates of relative sea level rise across the northern Gulf of Mexico region from Cameron, LA to Cedar Key, FL based on records from the National Ocean Survey and U.S. Army Corps of Engineers tide gage stations. The Pensacola, FL gage land location is considered to be stable, and this gage provides a record of eustatic sea level rise in the Northern Gulf Region. The rates of rise of all stations in coastal Louisiana exceed the rate of eustatic rise. The differences are attributed to subsidence (after Penland et al., 1988).

Source: *Faulting, Subsidence and Land Loss in Coastal Louisiana*, Coastal Environments, Inc., 1999.

Evaluating land loss at a narrower geographic scale, the Deltaic Plan of Louisiana has experienced the greatest sea level rise as recorded by USACE tide gage stations located between Cameron, Louisiana to Cedar Key Florida. According to *Faulting, Subsidence and Land Loss in Coastal Louisiana*, the rate of sea level rise attributable to melted glaciers has been exceeded by the rate of sea level rise observed along coastal Louisiana. This increased sea level rise is related to subsidence.

# Relative Sea Level Rise in Coastal Louisiana



## Subsidence Rates in Coastal Louisiana

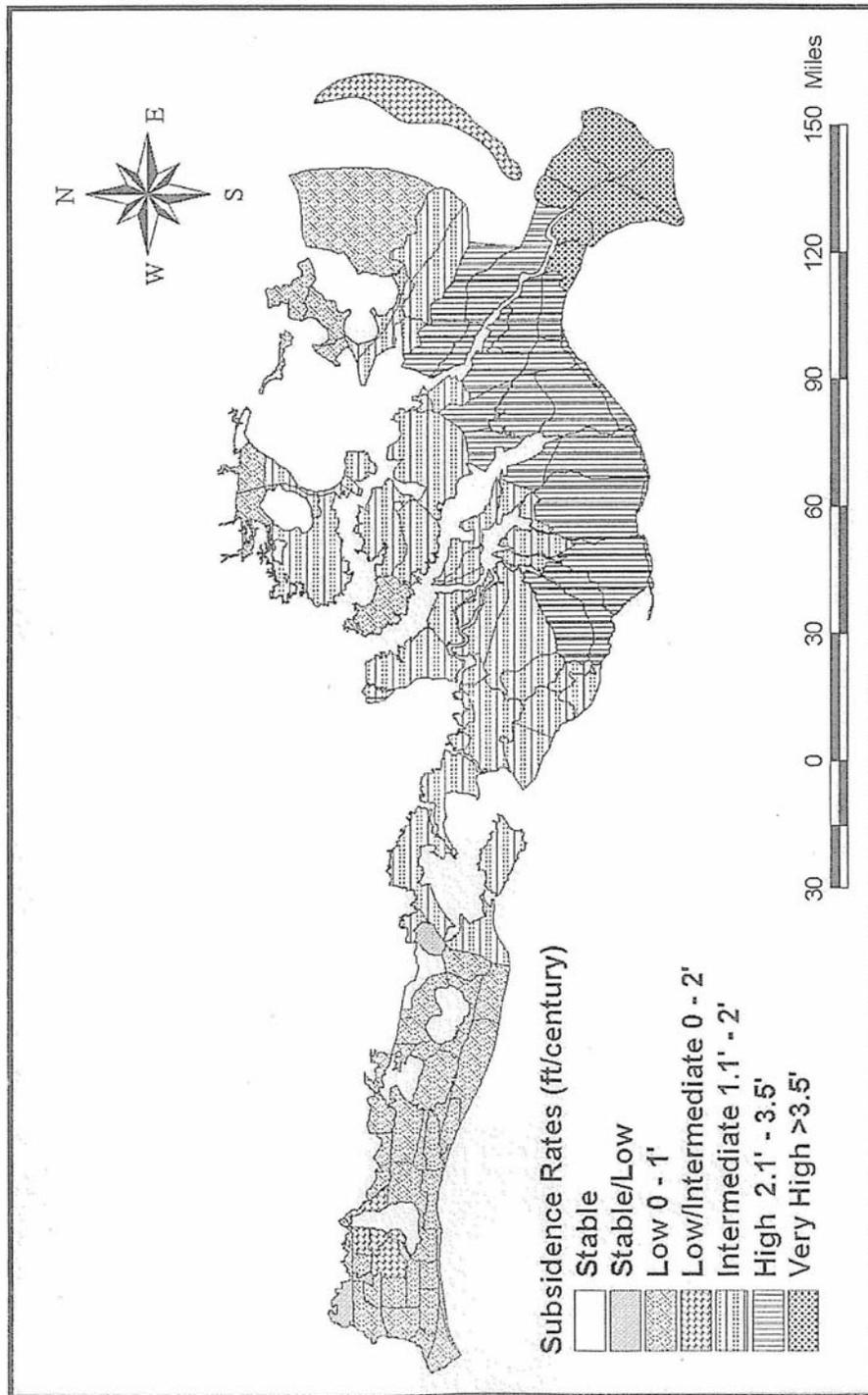
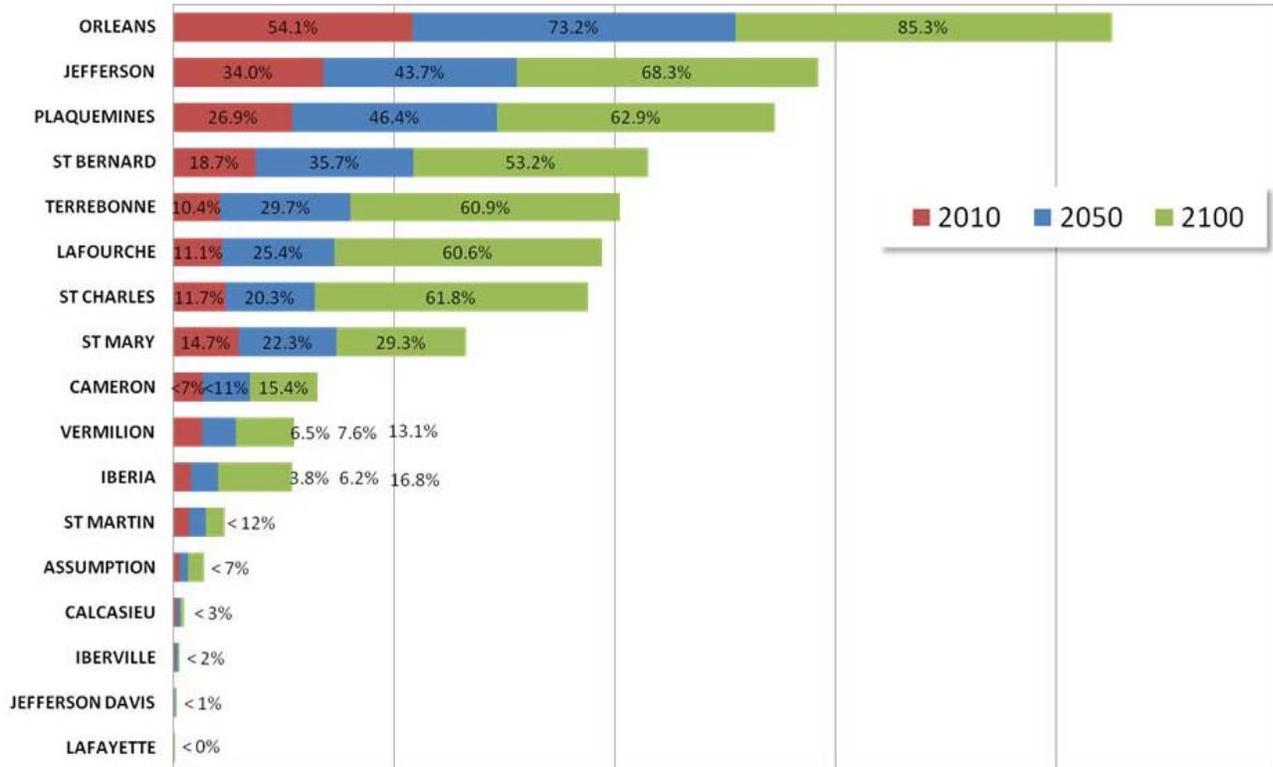


Figure 1-29. Coastal subsidence rates by environmental planning units.

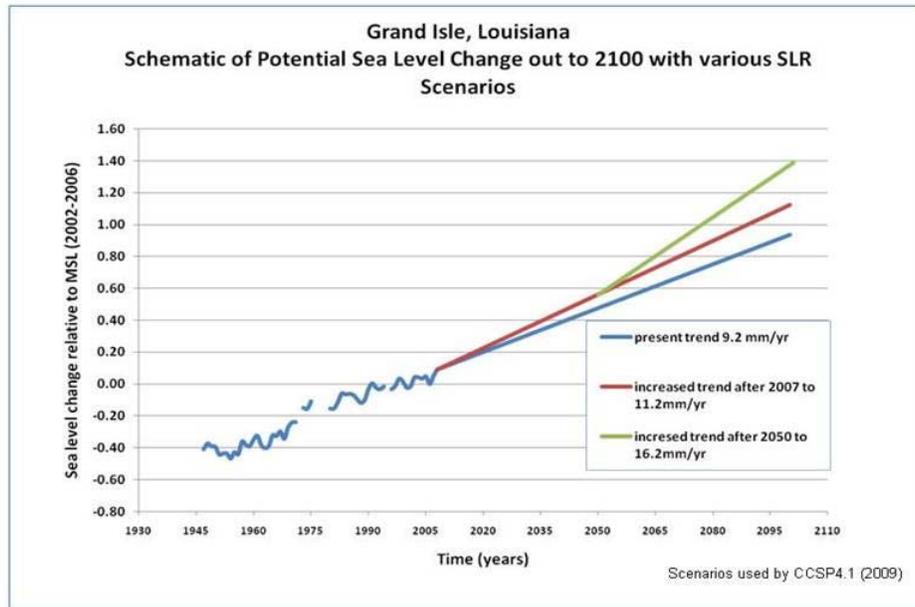
Terrebbonne Parish is located within a local planning unit that has a “high” subsidence rate that ranges between 2.1’ and 3.5’ of land loss per century.

## Percent Land Below Sea Level by Parish Through 2100



Approximately 60.9 percent of Terrebonne’s land mass is anticipated to be below sea level by the year 2100. This percentage is nearly double the projected proportion of land below sea level in Terrebonne by 2050.

## Climate models project acceleration in Sea Level Rise starting before 2100 due to climate change



The aforementioned rise in the proportion of Terrebonne's land mass below sea level is attributable to climate change, according to the National Oceanic and Atmospheric Administration (NOAA). As can be observed in the above NOAA graphic, the rate of sea level rise accelerates after 2050.

Some steering committee members were concerned about the lack of information on the effects of relative sea level rise and subsidence. Due in part to the statewide efforts to confront sea level rise and resulting coastal land loss it was decided that the Parish would not take independent action on these issues, but would work in tandem with the state to ascertain the rates of each hazard independently and combine and develop adaptations in the future to reduce associated risks.

### 3.2.2.7 Lightning

Lightning is a natural electrical discharge in the atmosphere that is a by-product of thunderstorms. Every thunderstorm produces lightning. There are three primary types of lightning: intra-cloud, cloud-to-ground, and cloud-to-cloud. Cloud-to-ground lightning has the potential to cause the most damage to property and crops, while also posing as a health risk to the populace in the area of the strike.

Damage caused by lightning is usually to homes or businesses. These strikes have the ability to damage electrical equipment inside the home or business and can also ignite a fire that could destroy homes or crops.

Lightning continues to be one of the top three storm-related killers in the United States per FEMA, but it also has the ability to cause negative long-term health effects to the individual that is struck.

NOAA has developed a lightning activity level (LAL) to measure the number of lightning strikes per 15 minutes. Terrebonne can expect all levels (1-6) throughout all areas of the parish.

**NOAA’s Lightning Activity Level (LAL)**

<b>LAL</b>	<b>Cloud and Storm Development</b>	<b>Lightning Strikes / 15 minutes</b>
1	No thunderstorms.	-
2	Cumulus clouds are common but only a few reach the towering cumulus stage. A single thunderstorm must be confirmed in the observation area. The clouds produce mainly virga, but light rain will occasionally reach the ground. Lightning is very infrequent.	1-8
3	Towering cumulus covers less than two-tenths of the sky. Thunderstorms are few, but two to three must occur within the observation area. Light to moderate rain will reach the ground, and lightning is infrequent.	9-15
4	Towering cumulus covers two to three-tenths of the sky. Thunderstorms are scattered and more than three must occur within the observation area. Moderate rain is common and lightning is frequent.	16-25
5	Towering cumulus and thunderstorms are numerous. They cover more than three-tenths and occasionally obscure the sky. Rain is moderate to heavy and lightning is frequent and intense.	>25
6	Similar to LAL 3 except thunderstorms are dry.	

Lightning is a climatological based hazard and has the same probability of occurring throughout the entire planning area for Terrebonne Parish. An extensive search of lightning strikes to have any significant impact to property or people in the Terrebonne

Parish planning area over the last 56 years returned fifteen incidents as shown in the table below with related loss estimates.

**Terrebonne Parish Lightning History 1957-2013**

<b>Date</b>	<b>Type</b>	<b>Time</b>	<b>Property Damage</b>
7/24/1999	Lightning	1100	-
9/8/1999	Lightning	1300	500,000
7/25/2002	Lightning	1230	20,000
6/2/2004	Lightning	550	500
7/18/2004	Lightning	645	2,000
8/5/2004	Lightning	2230	-
6/6/2005	Lightning	1800	-
6/16/2005	Lightning	1630	-
8/21/2005	Lightning	800	15,000
8/21/2005	Lightning	1530	65,000
7/1/2007	Lightning	1200	-
8/17/2008	Lightning	1700	15,000
7/9/2009	Lightning	834	-
8/21/2009	Lightning	1455	20,000
8/20/2010	Lightning	1300	40,000
<b>Total</b>			<b>\$677,500</b>

Lightning can strike anywhere and is produced by every thunderstorm, so the chance of lightning occurring in Terrebonne Parish is high. However, lightning that meets the definition that is used by NCDC that actually results in damages to property and injury or death to people is a less likely event. According to the State Hazard Mitigation Plan, a major lightning strike in Terrebonne Parish is likely to occur more than once a year. The annual probability of a lightning strike is 100%.

Since 1999, there have been 15 significant lightning events that have resulted in property damages according to the NCDC database. The total property damages associated with those events have totaled \$677,500. To estimate the potential losses of a lightning event on an annual basis, the total damages recorded for lightning events was divided by the total number of years of available major lightning strike data in NCDC (1957-2013). This provides an annual estimated potential loss of \$12,098. All 42,560 buildings in Terrebonne Parish are vulnerable to lightning strikes. There have been no reports of death due to lightning strike events. Since lightning is a common occurrence in Terrebonne Parish, development trends will not be affected. Recent development has not affected Terrebonne Parish's vulnerability to lightning as it is a parishwide hazard. Recently constructed buildings are not more vulnerable to lightning than existing structures, however, critical facilities will be encouraged to be constructed with lightning rods in the future. See section 4.2 for mitigation action items relating to lightning.

### 3.2.2.8 Sinkholes

Sinkholes are areas of ground—varying in size from a few square feet to hundreds of acres, and reaching in depth from 1 to more than 100 ft.—with no natural external surface drainage. Sinkholes are usually found in karst terrain—that is, areas where limestone, carbonate rock, salt beds, and other water-soluble rocks lie below the Earth’s surface. Karst terrain is marked by the presence of other uncommon geologic features such as springs, caves, and dry streambeds that lose water into the ground. In general, sinkholes form gradually (in the case of cover subsidence sinkholes), but they can also occur suddenly (in the case of cover-collapse sinkholes).

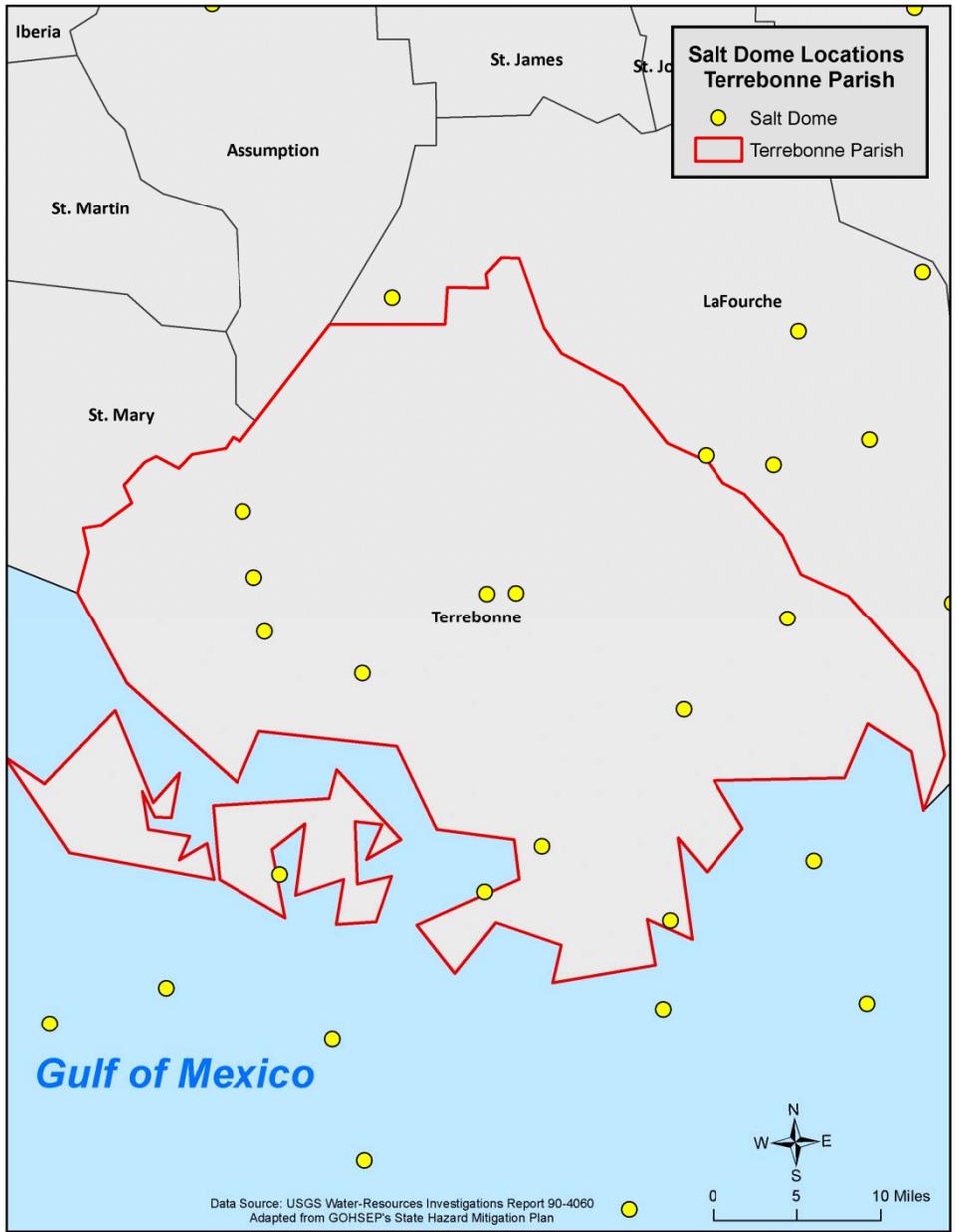
Sinkhole formation is a very simple process. Whenever water is absorbed through soil, encounters water-soluble bedrock, and then begins to dissolve it, sinkholes start to form. The karst rock dissolves along cracks; as the fissures grow, soil and other particles fill the gaps, loosening the soil above the bedrock. The increase of water and soil in the rock pushes open the cracks, again drawing more soil and water into it. This positive feedback loop continues, unless clay plugs into the cracks in the bedrock, at which time a pond may form. A sudden cover-collapse sinkhole occurs when the top soil above dissolving bedrock does not sink, but forms a bridge over the soil that is sinking beneath it.

Both kinds of sinkholes can occur naturally or through human influence. While sinkholes tend to form naturally in karst areas, sinkholes can form in other geological areas that have been altered by humans such as mining, sewers, hydraulic fracture drilling, groundwater pumping, irrigation, or storage ponds. In all of these cases, and others, the cause for the sinkhole is that support for surface soil has been weakened or substantially removed.

In the United States, 20% of land in the United States is susceptible to sinkholes. Most of this area lies in Florida, Texas, Alabama, Missouri, Kentucky, Tennessee, and Pennsylvania. In Louisiana, most of the sinkholes are precipitated by the human-influenced collapse of salt dome caverns. The collapse of a salt dome is usually a slow process; however, it may occur suddenly and without any advance warning.

Currently, there are twelve identifiable salt dome locations in Terrebonne Parish. The figure below displays the locations of these salt domes. As depicted in the figure to follow, the sink holes are dispersed throughout the Parish. Data had not been collected on the area, depth, or rate of expansion at the time of the 2015 Plan Update. TPCG will work to fill in this data gap prior to the next plan update.

# Salt Domes in Terrebonne Parish



## Sinkholes in Terrebonne Parish



There have been no recorded incidents of sinkholes or salt dome collapses in Terrebonne Parish to date. Due to the fact there have been no reported sink holes in Terrebonne Parish, the annual probability for a sink hole is assessed at less than 1%.

There have been two notable sinkhole incidents in Louisiana, Bayou Corne in neighboring Assumption Parish in 2012, and the Lake Piegneur sinkhole in Iberia Parish in 1980. The Bayou Corne consumed approximately 30 acres or 0.05 square miles and the Lake Piegneur sinkhole consumed 65 acres or 0.1 square miles. Based on these two previous sinkholes, the area in danger of being immediately consumed by a sinkhole in Louisiana (including Terrebonne Parish) is between 0.05 and 0.1 square miles.

Each of the twelve salt domes that influence Terrebonne parish were analyzed to determine the number of people and houses that are potentially susceptible to losses from a sink hole materializing from one of the salt domes. The following tables are based on conducting a two mile buffer around the center of the salt dome. The values were determined by querying the 2010 U.S. Census block data to determine the number of houses and people were located within two miles of each salt dome.

The following table represents the number of structures, and citizens within a 2-mile buffer zone of the salt dome.

### 2-Miles of Salt Domes HAZUS

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures		
	# in Community	# in Hazard Area	% in Hazard Area	\$ in Community	\$ in Hazard Area	% in Hazard Area
Agricultural	5	5	100%	\$ 412,000	\$ 412,000	100%
Commercial	37	37	100%	\$ 13,159,000	\$ 13,159,000	100%
Government	1	1	100%	\$ 307,000	\$ 307,000	100%
Industrial	9	9	100%	\$ 4,254,000	\$ 4,254,000	100%
Religious/Non Profit	2	2	100%	\$ 1,810,000	\$ 1,810,000	100%
Residential	1,140	1,140	100%	\$ 128,392,000	\$ 128,392,000	100%
Schools	3	3	100%	\$ 4,949,000	\$ 4,949,000	100%
<b>Total</b>	<b>1,197</b>	<b>1,197</b>	<b>100%</b>	<b>\$ 153,283,000</b>	<b>\$ 153,283,000</b>	<b>100%</b>

	# in Community	# in Hazard Area	% in Hazard Area
<b>Population</b>	2,440	2,440	100%

Due to isolated locations of the salt domes there is little to no risk to lives of citizens with the exception being the residents within two miles of the salt domes if they were to collapse. Future development will be discouraged within the 2-mile buffer zone surrounding the salt domes. No new critical facilities were constructed within the 2-mile buffer zone since the last plan update and no salt domes were noted to have expanded. In addition, the activity surrounding the salt domes has remained consistent and has not increased.

### 3.2.3 Risk Assessments

The risk assessment process was developed using data from past hazard events, existing land use data, HAZUS, FEMA flood maps, and FEMA repetitive loss structures. The land use map used for this purpose is displayed in Attachment c2-6 (page 92) of this section.

The four individual risk assessment analyses include: the 100-year flood plain based on DFIRMs and the data included therewith; risk assessment based on past storm events; levee failure; and FEMA repetitive loss structures. A summary of the approach utilized in each independent map of the composite series is noted below.

#### 100-Year Flood Plain—FEMA DFIRMs

The 100-year flood plain map was developed using FEMA FIRM data and GIS software. Since a majority of the parish is within the 100-year flood plain, this mapped data along

with the ABFEs were used in evaluation of the parish that is prone to present and future flooding damage. This map depicts which areas of the parish are vulnerable to a 100-year flood regardless of land use and with no regard for the source or type of flooding. A map of the 100-year flood plain is displayed as Attachment c2-5 (page 91) at the end of this section.

#### Risk Assessment Based on Past Storm Events

The second risk assessment technique utilized in the preparation of this HMPU is based upon past storm events. This approach was developed using data such as specific flood elevations from major past hazard events. The events and data captured to create this image are as follows (in chronological order): Hurricane Betsy, Hurricane Juan, Hurricane Andrew, Tropical Storm Allison, Hurricane Lili, Hurricane Rita, Hurricane Gustav, and Hurricane Ike.

The approach and methodology was found to be useful in determining what specific areas and land uses of the parish are vulnerable to hazards (primarily flooding) and which specific types of flooding are generating or creating that vulnerability. The past storm event assessment maps are displayed in Attachments c2-17 through c2-23 (pages 103 through 109) at the end of this section.

#### Levee Failure

The third risk assessment technique utilized in the preparation of this plan was based on catastrophic, parish wide levee failure. Historical high water levels from the USACE gauge data as well as USGS gauge data were used to establish theoretical elevation for flood waters that would inundate the parish if all levees were to fail. The inundation area was interpreted with LIDAR to produce water depth levels. A parish wide levee failure map is displayed as Attachment c2-27 (page 113).

#### FEMA Repetitive Loss Structures

The fourth independent vulnerability assessment mapping task was based on the FEMA repetitive loss structures inventory. Within the framework of NFIP the number and frequency of repetitive losses play critical roles in determining flood insurance premiums within a community. The National Flood Insurance Program is a system setup by Congress to provide property owners with protection from flooding damages related to hurricanes, tropical storms, heavy rains, etc., not covered by traditional homeowners insurance. A community must formally participate in the NFIP for residents within a jurisdiction to be eligible. Eligibility hinges on a community's success in becoming more resilient and mitigating potential impacts from hazard events. Persistent repetitive losses in a community with little mitigation typically yields higher flood insurance premiums. For those communities that are aggressive in mitigating impacts and reducing losses, the NFIP offers voluntary participation in the Community Ratings System (CRS) program. This program incentivizes communities to go beyond minimum NFIP standards by offering greater flood insurance premium rate discounts. Terrebonne Parish participates

in both the NFIP and CRS. Though Terrebonne has a significant number of repetitive losses, the parish continues to engage in mitigation efforts to improve its rating, and it is currently engaged in the Levee Analysis and Mapping Procedures for Non-Accredited Levees process which will result in more accurate flooding forecasts which will inform future development patterns. Terrebonne's efforts to reduce losses are described in the Repetitive Loss Strategy section found in Section **3.2.5 §201.6 (c)(2)(ii)(B)**.

According to the parish, Terrebonne Parish has a total of 1,067 repetitive loss structures defined as structures flooded two times or more at a value of at least \$1,000 per occurrence. Of these, 141 are severe repetitive loss structures, 107 of which are residential. Of these only thirty-three are insured according to the latest record provided by FEMA. A Severe Repetitive Loss is defined as a one-to-four family residential property with at least four National Flood Insurance Program (NFIP) payments over \$5,000 and the cumulative amount exceeds \$20,000 or two to three separate claims payments have been made with the total payments exceeding the market value of the building (FEMA 2004).

Due to the new definition from the Biggert Waters Act of 2012, the Flood Mitigation Assistance funding is limited to a more restrictive definition of repetitive loss that requires the structure to have flooded at least twice with damages exceeding 25 percent of the value of the structure. This is consistent with the historical requirement for the insurance benefit called "Increased Cost of Compliance." When a structure has been over 50 percent damaged by flood (rising water), it is considered substantially damaged and out of compliance with the National Flood Insurance Program (NFIP) requirements. To encourage mitigation, the NFIP provides policy holders with up to \$30,000 to help in attaining compliance. Uninsured structures do not have access to this benefit. In Terrebonne, the new definition limits eligible applicants to 514 repetitive loss structures, 64 of which are on the FEMA Severe Repetitive Loss list. This is a subset of the broader definition used more generally.

This data was useful in (a) determining which residential and commercial properties have been damaged as a result of past hazard events and (b) in focusing on specific losses and groups of losses, especially when common causes were apparent. Findings noted significant vulnerability throughout the inhabited areas of the parish.

As noted in Attachment c2-4, the majority of the parish is within the 100-year flood zone as defined by FEMA's DFIRM maps. When comparing this data to actual flood event data, the land comprising the meandering ridges of various bayous that converge in Houma in the northern portion of the parish are readily discernable. This layered combination shows the vulnerable areas in the parish.

Even with the magnitude of technical data used, the most accurate and objective data inventoried was that of specific repetitive losses. As previously stated, the parish has greater than 500 repetitive loss structures that are essentially dispersed throughout the inhabited areas of the parish. Areas south of the City of Houma are highly susceptible to

storm surge, while areas in and north of Houma are more likely to be impacted by a combination of storm water and poor drainage.

**3.2.4 §201.6 (c)(2)(ii)(A) *The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located on the identified hazard areas***

A general list of assets that could be damaged by a hazard event was developed and mapped using GIS software. This list was collected from sources including local government officials and HAZUS following the guidelines prepared for HMPU preparation. Details and results of that process are noted below.

**Worksheet #3A**

**Composite Flood Risk**

**Inventory of Assets for Entire Parish**

Composite Flood Risk - Inventory of Assets for Entire Parish Worksheet #3A (Attachment c2-28) provides a general overview of the assets of the parish as a whole as well as the assets located in the hazard area. Two scenarios are represented in the worksheet – flood events and levee failure.

While collecting and researching the data within this worksheet, several information sources were utilized including HAZUS, mapped data from parish, state mapping sources, and mapped and tabular data from the parish assessor’s office. For this worksheet and supporting tabular data, a combination of the 100-year flood plain and the past storm event risk assessment map coverage area was used as the hazard area for the entire parish.

In the determination of hazard area percentages, an inundation polygon file that represents a composite flood (i.e. a combination of all applicable storm inundations or gauge data for a particular storm) was used. The inundation polygon was overlaid with HAZUS Census Block data and those blocks which intersected the inundation polygons had their building information included in the HAZUS estimates. The composite was necessary to account for differences in the data sets. The worksheets are represented as Attachment c2-28 (page 114-115). The following summary represents the information provided in composite version of Worksheet #3A.

**Parishwide HAZUS**

A total of 42,560 structures in the parish with an estimated value of \$7,275,577,000 were noted. An estimated 26,373 of these with a value of \$4,407,015,000 are in the hazard area. The total residential population within Terrebonne Parish is 104,503, and 64,961 or 62% are in the composite risk area, which is the area within the 100-year floodplain, in addition to those areas that are at risk beyond the floodplain as evidenced by past storm events.

### *Residential*

The residential classification of Terrebonne Parish is the largest building group within the parish. Data indicates that 39,273 structures (dwelling units) with an estimated value of \$5,323,060,000 are located within the Parish. Of these buildings, 62% are located in the hazard area with an estimated value of \$3,108,102,000.

### *Commercial*

Commercial buildings number 2,200 in the parish. The estimated value of these buildings is \$1,274,572,000 and 56% of the buildings are located in the hazard area. The value of the buildings in the hazard area is estimated at \$789,141,000.

### *Industrial*

The industrial classification of the parish consists of 669 buildings with an estimated value of \$424,320,000. Of the buildings noted, approximately 67% are in the hazard area with an estimated value of \$347,546,000.

### *Agricultural*

In the agricultural class, 104 buildings exist with an estimated value of \$23,133,000. Of these, approximately 65% are in the hazard area and have an estimated value of \$19,067,000. While many of these structures are in the areas classified as agricultural, many are actually residential in use.

### *Religious/Nonprofit*

The religious/nonprofit buildings total 188 with an estimated value of \$127,108,000. In this classification, it is estimated that 57% of the buildings are in the hazard area and have an estimated value of \$73,180,000.

### *Government*

Government buildings in the parish total 60 with an estimated value of \$36,499,000. Approximately 62% of these buildings are located in the hazard area and have an estimated value of \$16,690,000.

### *Educational*

Educational structures number 66 having an estimated value of \$66,885,000. Of these buildings, 68% are within the hazard area with an estimated value of \$53,289,000.

## **Houma HAZUS**

A total of 13,973 structures in the city with an estimated value of \$2,569,733,000 were noted. An estimated 5,508 of these with a value of \$1,001,028,000 are in the hazard area. The total of the residential population within the City of Houma is 32,970, and 14,197 or 43% of these are in the hazard area.

## **Unincorporated Areas HAZUS**

A total of 28,587 structures in the unincorporated areas of the parish with an estimated value of \$4,705,844,000 were noted. An estimated 20,865 of these with a value of \$3,405,987,000 are in the hazard area. The total of the residential population within the unincorporated areas of Terrebonne Parish is 71,533, and 50,764 or 71% of these are in the hazard area.

### **Critical Facilities of the Parish**

A detailed list of 195 critical facilities located throughout the parish is seen in Attachment c2-29 (pages 116 through 123). This list was compiled according to the following pre-defined groups:

- Essential facilities
- Lifeline utility systems
- Other important facilities

This information was gathered from sources including HAZUS and interviews with Terrebonne Parish government officials. After the list of critical facilities for the parish was completed, the HMPU Steering Committee reviewed the list and made necessary revisions. Critical facility maps are displayed in Attachments c2-7 through c2-16 (pages 93 through 102) at the end of this section.

Although this list includes only critical facilities, repetitive loss structures, including residential properties, were considered during mitigation planning. However, repetitive loss structures are not listed on the critical facilities table as not all RL properties are critical facilities, in addition to the inability to determine content and function values or displacement costs as needed. This information is presented in Section (c)(2)(iii).

In addition, an expanded list of critical facilities is provided in the attachments as “2014 Building Content Listing w-Flood Elevation.” The accompanying PDF’s list facilities included in the HAZUS analysis as well as those that hold importance to the parish regarding its operations although they may not necessarily be included in a FEMA evaluation.

### **Critical Facilities within Hazard Areas**

A list of critical facilities within the hazard area was compiled to identify at risk areas. As with critical facilities in the parish, the definition of the hazard area was based on risk assessment determined as a function of past storm events in combination with the FEMA-based 100-year flood plain. All facilities within these areas are identified in a second critical facilities list as seen in Attachment c2-30 (pages 124-129) at the end of this section.

Past discussions considered moving all critical facilities from the SFHA, but due to the extent of the bayou system, fire, drainage, water, energy, and police all need a functional presence in the area. The police are mobile, but fire first responders are required by law to be within a certain distance of the at risk structures.

Several critical facilities are being relocated out of the SFHA currently (O.H.S.E.P., public works administration, and the Juvenile Justice Complex, for examples). Those remaining in place are being hardened or are priorities to be wind hardened or if possible floodproofed in order to provide continuity of services. Several critical facilities have been retrofitted with alternative power supplies or quick connects and portable generators to enable continuous service or quick recovery.

#### **Worksheet #4**

Using the aforementioned critical facilities list, HAZUS replacement value data, GIS models, and input from the HMPU Steering Committee members, FEMA Worksheet #4 loss estimates were compiled (as presented in attachments c2-31 and c2-32) for hypothetical levee failure and hurricane flood events.

Using historical high water flood marks, the respective areas were inundated and the critical facilities flood levels noted. The flood levels were then compared to FEMA damage estimate models for structure percent damaged, contents loss, and function loss, to come up with a total loss estimate for the parish critical facilities in each event.

The total estimated losses were \$72,221,031 for the levee failure and \$80,053,508 for the total structure use and function loss resulting from that failure. Detailed cost estimates for each critical facility can be found in attachment c2-31 and c2-32. Total estimates losses are projected to be \$288,190,959 for a hurricane flood event with \$77,231,290 in structure use and function loss resulting from that event.

#### ***3.2.5 §201.6 (c)(2)(ii)(B) An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(a) of this section and a description of the methodology used to prepare the estimate***

The HMPU planning team used GIS software, HAZUS, interviews with parish officials, and historical data to estimate the potential dollar losses if the parish was to experience a flooding event. The vulnerable structures and facilities were identified earlier in section §201.6 (c)(2)(ii)(A). As noted previously, all FEMA repetitive loss data was gathered from GOHSEP, FEMA Region IV, and the parish. Efforts to identify accurate addresses were exhaustive.

The repetitive loss structures map is displayed in Attachment c2-25 (page 111). Supporting data was gathered from GOHSEP. Information such as function loss, displacement days, function use, and capacity do not apply to residential properties.

Therefore, the FEMA average claimed loss value was used in estimating losses for residential structures. The estimated costs are as follows:

**Potential Flood Losses:**

As previously stated, in Terrebonne, the new definition for flood mitigation assistance limits eligible repetitive loss structures to 514, 64 of which are on the FEMA Severe Repetitive Loss list. Terrebonne Parish has 493 residential and 21 non-residential repetitive loss properties. FEMA insurance paid a total average of \$35,694 per event for the 493 residential properties and \$50,999 per event for the 21 non-residential properties.

Due to the prevalence of repetitive loss properties and the number of severe repetitive loss properties, Terrebonne Parish will need to initiate a plan to address its repetitive loss problem as specified in Sections 501-504 of the *NFIP CRS Coordinator’s Manual*. In the past, Terrebonne Parish has taken measures to identify concentrations of RL properties, better understand the causes of those losses, and develop recommendations for reducing those losses. As recently as 2013, The University of New Orleans Center for Hazards Assessment, Response and Technology evaluated the prevalence of repetitive loss and severe repetitive loss structures for the Terrebonne Parish Roberta Grove and Senator Circle neighborhoods. The study, which was initiated by Terrebonne Parish, found that 60.19 percent of building in the Roberta Grove neighborhood were repetitive loss structures, with 5.82 percent of those considered severe repetitive loss structures. The Senator Circle neighborhood had 25.38 percent repetitive loss structures with no severe repetitive loss structures noted. A detailed listing of recommendations for decreasing the number of repetitive loss and severe repetitive loss structures are disclosed in the *Roberta Grove – Senator Circle Repetitive Loss Area Analysis* found in Attachment C3-3 (pages 175-236). Improvement of the Parish’s Community Rating System (CRS) Class is one key recommendation from the report.

Terrebonne Parish has engaged in a public outreach effort to inform the public and industry about flood damage prevention and to obtain their preferences regarding flood damage prevention issues.

**Flood Insurance and Community Rating System**

Terrebonne Parish participates in both the National Flood Insurance Program (NFIP) and the Community Rating System (CRS). The following tables provide details regarding NFIP and CRS participation.

**NFIP Participation in Terrebonne Parish**

CID	Community Name	Initial FHBM Identified	Initial FIRM Identified	Current Effective Map Date	Reg-Emer Date	Tribal
225206	Terrebonne Parish	NA	11/20/1970	04/02/92	11/20/70	No

*This information was obtained from FEMA’s Community Status Book – [www.fema.gov/cis/LA.html](http://www.fema.gov/cis/LA.html)*

## CRS Participation in Terrebonne Parish

Community Number	Name	CRS Entry Date	Current Effective Date	Current Class	% Discount for SFHA	% Discount for Non-SFHA	Status
225206	Terrebonne Parish	10/1/92	10/1/11	6	20	10	C

*This information was obtained from FEMA's Community Rating System – [www.fema.gov](http://www.fema.gov)*

### **Repetitive Loss Strategy**

The approach to repetitive loss structures is multifaceted. The Parish has approached high risk structures individually and by area. Terrebonne Parish has developed a strategy to approach, motivate, and fund owners of repetitive loss structures. Structures have been targeted for elevation, demolition, and acquisition. Communities have been targeted for education and improved drainage and continuous pumping station service. Where feasible, levee structures and floodgates have been constructed to limit water flow and assist nonstructural flood control efforts. As evidenced by the efforts described in this section, the parish has worked diligently to lower their class and will continue to do so in the future.

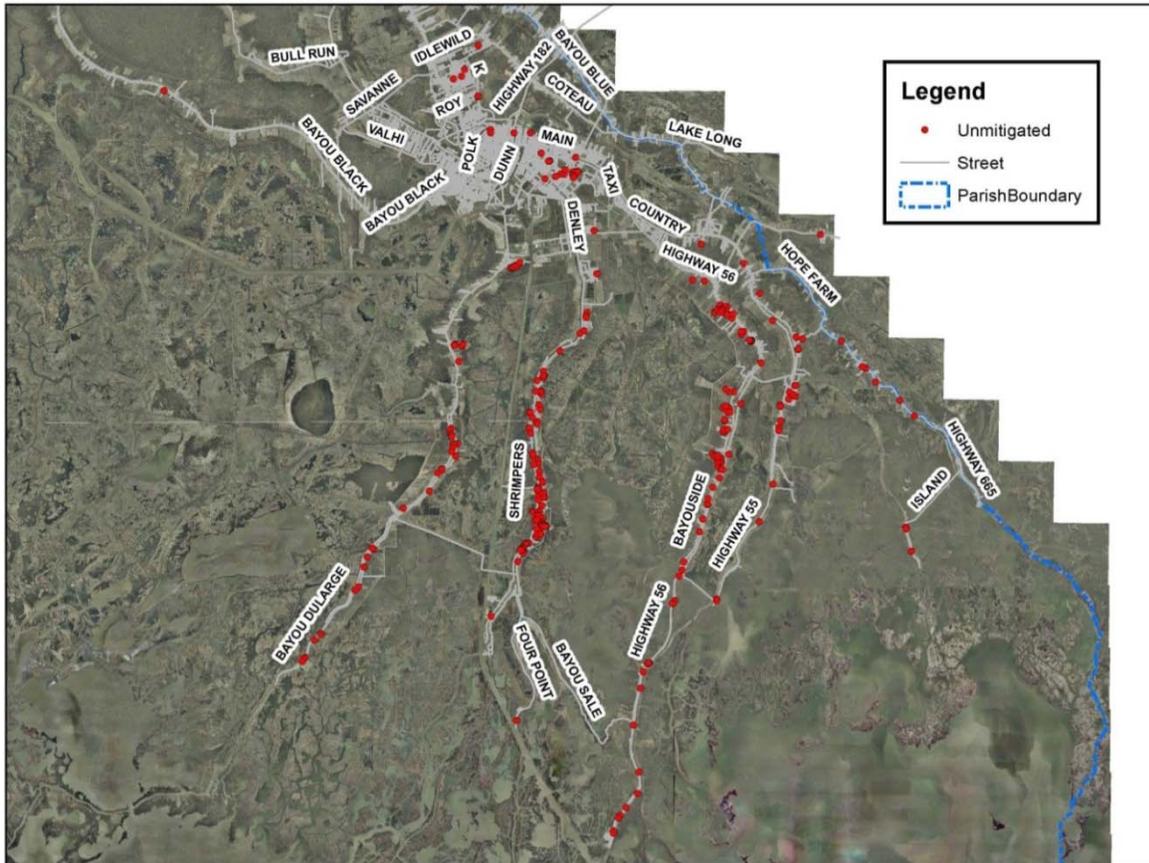
For example, since the last plan was adopted, the Parish embarked on a Repetitive Loss Strategy for two communities with substantial and repetitive flooding; Roberta Grove and Senator Circle. The communities are different in that one is single family residential, and the other, rental units, but both suffer from repeated flooding. Both communities met with the parish and UNO CHART to discuss their vulnerability and the resulting plan can be viewed in Attachment c3-3. The approach mirrors that for most of the Parish which is to elevate structures as funding becomes available, educate the community on the mitigation funds in insurance policies, and improve structural installations such as levees and improved drainage to avoid the need for individual nonstructural projects. The report goes further to identify relatively inexpensive methods to avoid shallow flooding without elevation. To date Roberta Grove households have participated in the elevation or buyout programs. Senator Circle residents learned about their ability to purchase contents insurance to protect themselves and outreach will continue. The East Houma Surge Levee and floodgate on the Houma Navigational Canal were developed in part to protect these areas as well. In the next event, this area is expected to have significantly lower losses. Efforts to educate and recruit participation will continue.

The funding raised from mitigation efforts should naturally be used to further decrease risk in the Parish through proven existing programs or new initiatives. On a broader scale, the Parish will continue to target funding to substantially damaged structures whether on the repetitive loss list (NFIP insured losses) or designated as substantially damaged through permitted activity not covered by insurance. This is broader than the NFIP focus, and includes the uninsured in the Parish risk reduction strategy. At this time the Hazard Mitigation Grant Program benefit cost assessments are based on risk and risk reduction rather than past NFIP damages. This is an opportunity to take advantage of that advance in approach to serve those who might not have been served in the past. This population is

often of lower income, and highest vulnerability to disruption in the event of a disaster. Currently, the Parish has declared 332 properties to be substantially damaged and not yet mitigated. The Parish participation in NFIP insurance relies, in part, on the enforcement of this provision. Substantially damaged structures are also targets of significant insurance premium increases, which will burden homeowners and may require them to sell the structure if they can. Funding will be prioritized to mitigate these structures. A map showing substantially damaged structures is provided on the following page.

As a result of Hurricane Gustav, the Parish was allocated funding from the Department of Housing and Urban Development (HUD) managed through the Louisiana Office of Community Development Disaster Recovery Unit. This new funding source allowed the Parish to acquire flooded or wind damaged properties without leaving the land as open space. While some lots may not be redeveloped, due to the scarcity of buildable land, and the high percentage of participants in established neighborhoods, the Parish will only acquire structures if rebuilding is possible. The cost of maintaining lots, particularly in neighborhoods, is prohibitive, and the loss of property taxes and economically viable land is not sustainable. This program will also prioritize repetitive loss structures and substantially damaged homes. Proceeds from the sales of the land from the buyout program should be reinvested in mitigation efforts whenever possible.

Terrebonne Parish Substantially Damaged, Unmitigated Properties



Source: TPCG

Funding from HUD has also opened the door to recruitment for elevation from low to moderate income applicants. The parish is participating in a pilot program to provide the homeowner match for the FEMA funded projects. The programs generally require the homeowner to pay at least 25% of the cost of an elevation project. This is cost prohibitive, particularly for the uninsured. This new program could make these programs accessible to a previously underserved population reducing risk where it was not possible before.

The Parish will meet with stakeholders and property owners to develop a plan specific to severe repetitive loss structures. These structures may be camps, and it was suggested by some committee members that they should not participate in the NFIP as they are not held to the same building standards and are not critical to recovery like residences or businesses. Records show that two thirds of the structures are not insured, which suggests that they are not under a mortgage. Federally backed mortgages require flood insurance. Therefore, the insurance reform that increases the premiums for severe repetitive loss structures to the actuarial rates may encourage owners to drop insurance rather than encourage elevation or other mitigation options. This increases risk rather than lowers it. The parish participates in the yearly, nationally competitive funding opportunities the pay 90 to 100 percent of the cost. More needs to be learned about motivating the owners of these structures to participate.

Terrebonne Parish is continuously implementing mitigation strategies and actions that improve its CRS rating. The Parish has recently studied the costs and benefits of streamlining the codes that are pertinent to flood risk reduction. The Planning Department commissioned an engineering study of flood ordinance changes that could be adopted by the Council to decrease flood risk and keep flood insurance rates within reach. The Parish first engaged an engineering firm to recommend actions supported by the Community Ratings System and employed by communities with good CRS ratings. Recommendations and actions taken are discussed below. The recommendations were then presented to the general public, professional associations and the business community. The outreach summaries are included in Attachment c3-2. To date, two recommendations have been adopted to limit landfills in the SFHA and make mobile homes as floodsafe as other homes. During the HMPU meetings, several of the proposed flood ordinance amendments were discussed, and members supported various approaches to risk reduction. None were highlighted for prioritized action by the steering committee in part due to the deliberative character of the separate hearings and council approval needed for any advances.

The discussion of the expansion of erosion control education, enforcement and applicability is discussed later in this section. A similar discussion arose out of the proposed addition of some freeboard to new construction and substantially improved properties. The home builders explained that the mortgage banking industry did not value the additional flood safety, and therefore would not pay the incremental increase in the cost of construction. The assessor's office representative concurred in a later meeting that there was an adaptation to recognize the value of a newly elevated structure above the base flood elevation, but no corresponding reduction for substantially damaged or



resulted in development of areas landward of the non-accredited levee being developed as if the levee did not exist. The inclusion of non-accredited levees' flood reduction capabilities as inputs to flood modeling will result in more accurate forecasts.

### ***3.2.6 §201.6 (c)(2)(ii)(C) Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions***

A detailed description of land use data is provided in the first section of this report in the section entitled "Introduction." Physical and cultural aspects of the parish including land use, drainage basins, and the economy were noted. The text below focuses on future land use and its bearing on this Hazard Mitigation Plan.

From 1980 to 2000, the parish population increased from 94,393 to 104,503. In October of 2003, when the parish government completed its comprehensive master plan (CMP), it was anticipated that the population would continue to experience positive growth. According to the 2010 U.S. Census, Terrebonne's population grew to 111,860 over the ten year period from 2000 to 2010, exceeding previous growth projections.

Terrebonne Parish completed a Comprehensive Master Plan (CMP) in 2003, which was updated in 2009 and 2013. In that original planning document, for the purpose of evaluation the Parish was segregated into 18 development zones. A brief discussion of the anticipated population changes within each zone as well as existing influences or issues that impact population trends was provided. Though this discussion was last updated in 2003 and it is possible that population projections may have adjusted due to an increase of over 17,000 residents between the 2000 and 2010 Census, it still reflects the present push and pull factors influencing migration out of and into the development zones, and is relevant to the priorities that the Parish has carried forward into the present HMPU process. The discussion below provides an understanding of anticipated migration patterns within the Parish.

It is anticipated that residential areas that existed in the 1980s will accommodate expected growth. However, the subdivision of land holdings and resulting new home sites have continued to develop at a minimal rate in some areas and a more accelerated rate in others. As more impervious surfaces are constructed with increased development, runoff rates will increase and enhanced pumping capacity may become a concern. At this time, and in the foreseeable future, this is considered significant.

#### ***Development Zone 1 (Montegut)***

The twenty-year projection for this zone is a 9.4 % decrease in population. This is consistent with current out migration trends due to increased risk of flooding, which limits the available land for development. Most current residents live there because of the commercial fishing, family heritage, or because of easy access to the vast amounts wetlands in this area.

*Development Zone 2 (Bourg)*

The twenty-year population forecast for this zone is a 26.4 % increase in population. This is consistent with current trends of in migration. This area is attractive to residents because of availability of residential neighborhoods, and less risk of flooding.

*Development Zone 3 (Chauvin)*

A 7.9% decrease in population is predicted for this zone over the next twenty-years. It appears the out migration documented in this area will continue, based on flooding concerns, and available, protected property elsewhere.

*Development Zone 4 (Grand Caillou)*

Population is projected to increase in this zone by 30% over the next twenty years. This increase will most likely occur in the northern region of this development zone. The lower areas of this zone are vulnerable to the same flooding events that affect the previously discussed areas. However, the northern portion of this development zone includes a substantial mobile home community. This neighborhood was developed in the early 1980's, and when the economy declined the land was difficult to market and the development was entrenched in bankruptcy for many years. Although, the Federal Emergency Management Agency (FEMA) has stiffened elevation requirements in this zone, mobile homes are generally placed approximately 4 feet above the natural ground, which meets the FEMA requirements. This area will continue to develop.

*Development Zone 5 (Dularge)*

An 8.1% decrease in population is predicted in this zone during the next twenty years. This is a bayou community, and population changes will be affected by issues similar to Development Zones 1 and 3.

*Development Zone 6 (East Houma)*

A very small increase (0.6%) in population is projected in the next twenty years. This is because adequate housing exists and there is very little available space for further residential development.

*Development Zone 7 (South Industrial)*

The projection is for a 7.9% decrease in population for the next twenty years. This area is dominated by industrial development, and there is little are for residential development. It is anticipated that over years those few residents will either move, or will not expand their households.

*Development Zone 8 (North Industrial)*

The projection is for an increase by 13.2% over the next twenty years in this zone. This increase can be attributed to the availability of developable land, and the recent conversion of agricultural areas to residential.

*Development Zone 9 (Schriever)*

This zone has witnessed considerable growth over the last ten years and population is expected to grow by 26.8% over the next twenty years. This area has vast amounts of

available land suitable for development, and has been positively impacted by the completion of Highway 90. This area offers residents the ability to locate in an urban setting while still enjoying a rural life.

*Development Zone 10 (Upper Bayou Blue)*

Population is projected to expand by 35.9% in the next twenty years in this zone. This area has been positively impacted by the opening of Bayou Gardens Boulevard which provides easier access to a major retail center (Southland Mall).

*Development Zone 11 (Bayou Cane)*

Population is expected to grow at a moderate 13.8% rate over the next twenty years. This area is presently well developed, but there are still a few large tracts of land that can be developed.

*Development Zone 12 (Hwy. 311)*

This is the fastest growing zone in the Parish with a projected 79.2% population increase in the next twenty years. Many reasons for the expected high growth are transportation accessibility, little flooding issues, and availability of land.

*Development Zone 13 (Chacahoula)*

The projection for this zone is a population decrease by 29.6% over the next twenty years. This percent change is somewhat misleading due to the relatively low present population in this area. This area will continue to be impacted negatively by flooding concerns. It appears residents are finding other areas of the parish more attractive for residential living.

*Development Zone 14 (Gibson)*

The projection for this area is for a decrease by almost 87.1% over the next twenty years. Similar to the Chacahoula area, flooding impacts and availability of land elsewhere in the parish affect residential development.

*Development Zone 15 (Bayou Black)*

Population in this zone is expected to grow at a rate of 19.7% over the next twenty years. This is due to the rural qualities of Old Bayou Black. There is a vast amount of agriculture land suitable for residential development, and the areas close to Houma will be developed first.

*Development Zone 16 (Lower Bayou Blue)*

Population in this zone is projected to grow at a rate of 51.1% over the next twenty years. There is suitable land available for development along Coteau Road and lower Bayou Blue and the recent completion Prospect Avenue to U.S. 182 provides easy access to Houma.

*Development Zone 17 (West Houma)*

This area is currently the most populous Development Zone and is projected to experience a 21.4% growth rate over the next twenty years. The area has currently many lots available with more anticipated for future development.

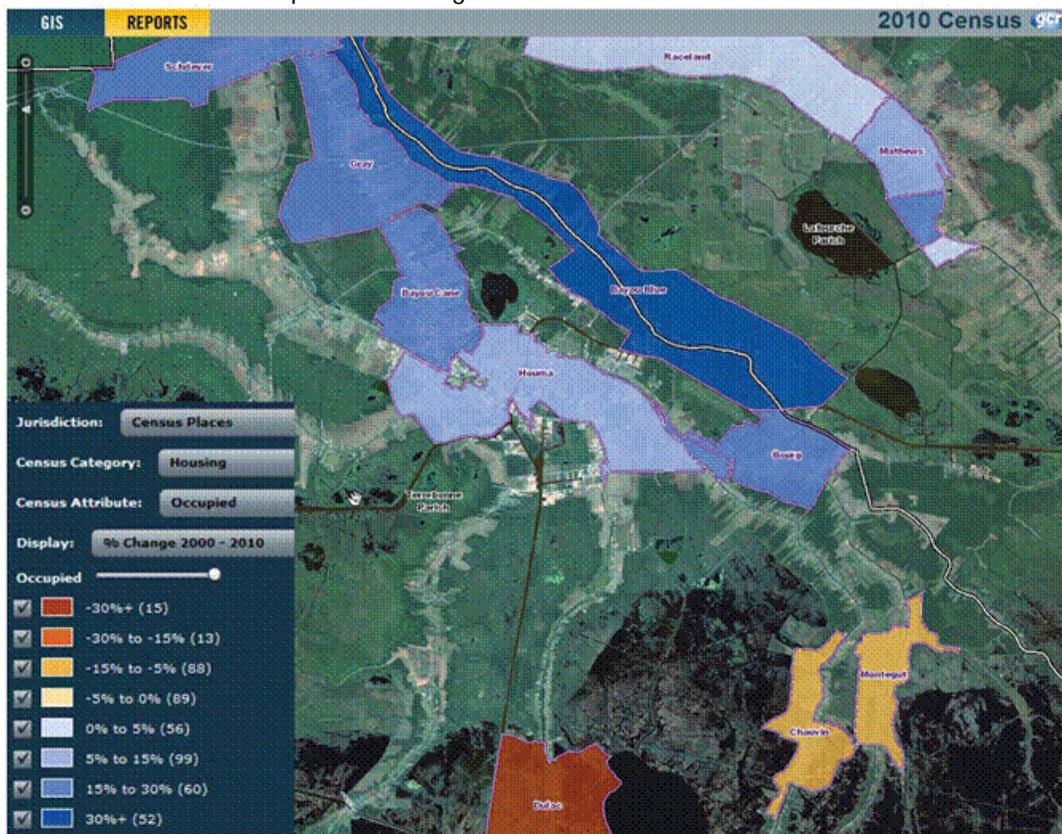
*Development Zone 18 (Western Marsh)*

This zone consists entirely of wetlands. There are no residences in this zone, and no population change is projected.

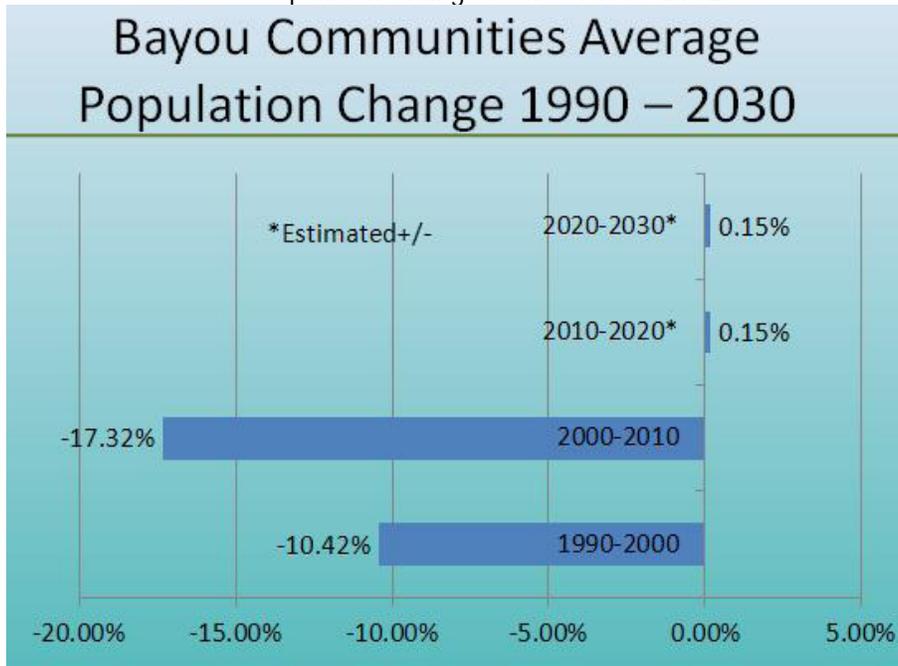
Based upon the past several decades of parish development and the management of that development, Terrebonne Parish Consolidated Government is fully aware of state and federal mandates regarding coastal zone management, flood zone and hazard management, and protecting the valuable coastal areas of the state.

The parish recently completed a Comprehensive Plan Update, *Vision 2030: Terrebonne's Plan for Its Future*, in February 2013. The plan asserts that while the parish has experienced considerable growth over the last 20 years, the parish's population will grow at a slower rate over the next 20 years, peaking at 122,250 by 2030. Nevertheless, the importance of orderly land development remains a concern for the parish, and as such, the CMP presented three land use projection scenarios for the parish based on past and current comprehensive plans. The population change between 2000 and 2010 is presented in the figure below, followed by a graph showing the forecast population change between 1900 and 2030 and the three land use scenarios.

Population Change between 2000 and 2010



Forecast Population Change between 1990 and 2030



Forecast Land Use Scenarios

Scenario	Projection Span	Acres Consumed Per Span	Year of Total Consumption
Scenario #1	7 Years	3,021	2154
Scenario #2	19 Years	5,832	2229
Scenario #3	20 Years	3,085	2450

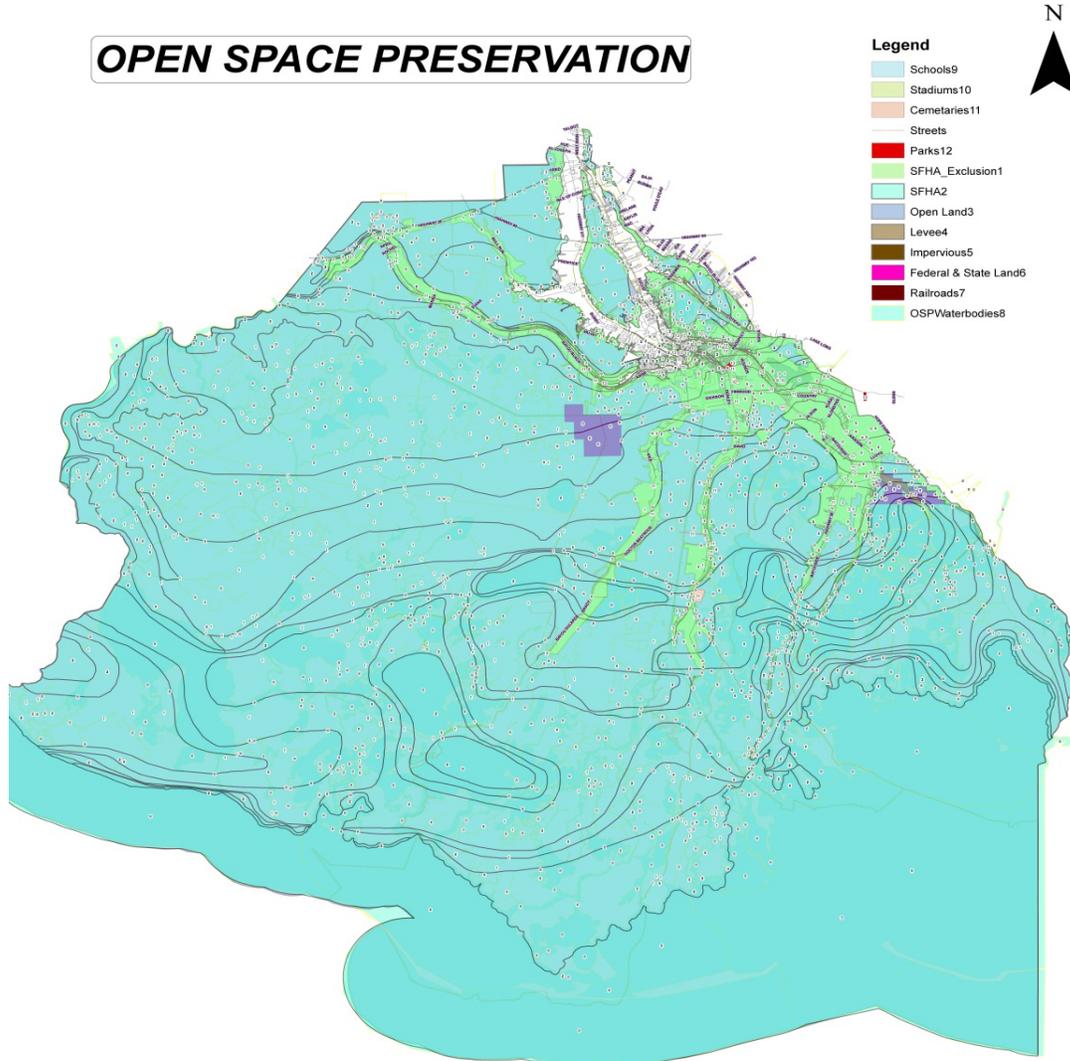
Source: Vision 2030: Terrebonne’s Plan for Its Future

It should be noted that 90 percent of Terrebonne’s land is considered environmentally sensitive. Therefore, the land that is available for development is generally related to farming, vacant, and open space uses. Regardless of the year of total consumption of available developable land, the increase in impervious surfaces related to development and the resulting reduction in agricultural, vacant, and open space land will undoubtedly increase pressure on environmentally sensitive lands within the parish. This concern reflects the 2003 CMP development zone discussion as it highlights the role of flooding concerns and protected developable land in projected population growth or decline. In this way the 2003 discussion still holds relevance to this HMPU, especially as the 2013 Comprehensive Plan proposes a series of action items that aim to achieve a sustainable balance between development activities, preservation of natural resources, and open space.

The Parish has retained the same goals for approaching hazard mitigation as were adopted in the 2009 HMPU, which are the goals outlined in Section 4.1. In alignment with those goals, Terrebonne Parish Consolidated Government has instituted preventative measures to minimize repetitive losses resulting from hazard events since the last plan.

The Parish's existing zoning ordinances and corresponding maps conform to FEMA guidelines, and the parish will update its zoning ordinances if and when needed to ensure compliance to FEMA regulations. There Parish has proposed an open space zoning area that includes the environmentally sensitive marshland and wetlands as viewed in the figure below. No permits will be awarded in the zone. The Parish also has adopted the International Building Codes (IBCs) and advisory base flood elevations (ABFEs) which dictate wind and flood related guidelines.

Terrebonne Parish Open Space Preservation Map



**OPEN SPACE PRESERVATION**

- Schools9
- Stadiums10
- Cemeteries11
- Streets
- Parks12
- SFHA\_Exclusion1
- SFHA2
- Open Land3
- Levee4
- Impervious5
- Federal & State Land6
- Railroads7
- OSPWaterbodies8

SFHA Area = 1,309,147 Acres  
 Open Land Area = 1,228,376 Acres  
 Waterbodies = 605,020 Acres  
 Levees = 709 Acres  
 Impervious Surfaces = 152 Acres  
 Federal & State Land = 9,591 Acres  
 Railroad = 540 Acres  
 SFHA not in Open Land = 80,540 Acres  
 Net Open Land Area = 612,364 Acres

OTHER OPEN AREAS NOT IN SFHA:  
 SCHOOLS = 517 ACRES  
 STADIUMS = 179 ACRES  
 PARKS = 213 ACRES  
 CEMETARIES = 632 ACRES

Source: Terrebonne Parish

*3.2.7 §201.6 (c)(2)(iii) For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area*

As discussed previously in Section II of this HMPU, Terrebonne Parish is a consolidated government so the plan is not multi-jurisdictional.

## 4.0 §201.6 (c)(3) HAZARD MITIGATION STRATEGIES

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Information presented below provides documentation in conformance with sections (c)(3)(i, ii, iii, and iv) relative to mitigation strategies evaluated for hazards identified in Terrebonne Parish, Louisiana.

### 4.1 §201.6 (c)(3)(i) *A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.*

The Terrebonne Parish HMPU Steering Committee reviewed and analyzed the risk assessment evaluation performed for the parish as well as goals reflective of that risk assessment. Goals and action items that would have the greatest benefit in reducing or eliminating hazard damage to the parish were identified. The evaluation criteria used in determining these goals and action items are as follows:

- *Social* - Is the mitigation strategy socially acceptable?
- *Technical* - Is the proposed action technically feasible and cost effective? Does it provide the appropriate level of protection?
- *Administrative* - Does the parish have the capability to implement the action? Is the lead agency capable of carrying out oversight of the project?
- *Political* - Is the mitigation action politically acceptable?
- *Legal* - Does the parish have the authority to implement the proposed measure?
- *Economic* - Does the economic base, protected growth and opportunity costs justify the mitigation project?
- *Environmental* - Does the proposed action meet statutory considerations and public desire for sustainable and environmentally healthy communities?

The goals developed to reduce or avoid long-term vulnerabilities to the identified hazards are listed below:

**Goal 1:** Identify and pursue preventive measures that will reduce future damages from hazards.

**Goal 2:** Enhance public awareness and understanding of disaster preparedness.

**Goal 3:** Reduce repetitive flood losses in the parish.

**Goal 4:** Facilitate sound development in the parish to reduce or eliminate the potential impact of hazards.

**4.2 §201.6 (c)(3)(ii)** *The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.*

The Terrebonne Parish Hazard Mitigation Plan Update Committee identified several projects that would reduce and/or prevent future damage from naturally occurring hazard events. This coordinated effort, which included the planning committee, the consultant team, and other engineering representatives, was accomplished with frequent and open communications including committee meetings, telephone conversations, emails, and face-to-face meetings.

The projects and resulting action items relate to community goals which are presented immediately following the Project List attachment. Projects were initially filtered to only include those projects that were eligible under FEMA's HMG program and those of the highest local priority. However, to ensure a comprehensive list of mitigation projects, non-HMPG eligible projects and those from the original hazard mitigation plan (2005) and the first update (2010) are included with status updates.

Regardless of the topic, education was central to all activities reviewed. Ongoing efforts were applauded, but in most instances, increased education was identified as a necessary component of any resulting plan. For example, a modest expansion of erosion control requirements was proposed to a subcommittee for approval, and was not voted on ye or nay. Rather, the Department of Planning and Zoning began a series of educational events to explain what erosion control methodologies were required, how to implement them, and what the benefits are to the stormwater drainage system. While the ordinance revision may move forward to protect the stormwater system capacity, the educational initiatives are necessary to bring the industry a more detailed knowledge of the expectations. Without the education, the enforcement would be frustrating, expensive, and less productive, it was decided, than to work toward a common goal. Action items and the proposed project list includes outreach initiatives from the Multijurisdictional Program for Public Information, Levee Safety, Safe Harbor, etc.

The established and agreed upon objectives and actions relative to the established goals are as follows:

- **Goal 1: Identify and pursue preventative measures that will reduce future damages from hazards**
  - **Objective 1.1:** Ensure existing structures are structurally sound to endure hurricane-force winds
    - Action 1.1.1: Wind harden structures (see c3-1 for locations)*

- Timeframe: 1-5 years, as funding permits
  - Funding: HMGP, local, regional, and federal
  - Staff: Public Works, Planning and Zoning
  - Hazard Event Mitigated: Hurricane
- **Objective 1.2:** Ensure all citizens and employees of Terrebonne Parish are safe from high winds (hurricanes and tornado related)
- Action 1.2.1: Construct safe rooms at critical facilities (see Attachment c3-1 for locations)*
- Timeframe: 1-5 years, as funding permits
  - Funding: HMGP, local, regional, and federal
  - Staff: Public Works, Planning and Zoning, Public Safety
  - Hazard Event Mitigated: Hurricane/Tornado
- Action 1.2.2: Install a hazard early warning system*
- Timeframe: 1-5 years, as funding permits
  - Funding: HMGP, local, regional, and federal
  - Staff: Public Safety
  - Hazard Event Mitigated: Hurricane/Tornado
- Action 1.2.3: Work with communities currently residing in at risk areas on the development of evacuation plans including access to shelter and transportation assistance as needed.*
- Timeframe: 1-5 years, as funding permits
  - Funding: HMGP, local, regional, and federal
  - Staff: Planning and Zoning, Public Safety
  - Hazard Event Mitigated: Hurricane/Tornado/Flooding/Levee Failure
- **Objective 1.3:** Ensure all first responders are adequately equipped to respond to a storm event
- Action 1.3.1: Purchase communication devices (see Attachment c3-1 for details)*
- Timeframe: 1-5 years, as funding permits
  - Funding: HMGP, local, regional, and federal
  - Staff: Existing parish administration
  - Hazard Event Mitigated: Hurricane/Tornado/Flooding/Levee Failure
- Action 1.3.2: Purchase generators for critical facilities (see Attachment c3-1 for locations) to ensure operation during and after a hazard event*
- Timeframe: 1-5 years, as funding permits
  - Funding: HMGP, local, regional, and federal
  - Staff: Public Safety
  - Hazard Event Mitigated: Hurricane/Tornado/Flooding/Levee Failure
- **Objective 1.4:** Protect citizens from saltwater intrusion
- Action 1.4.1: Maintain dual potable water intakes*
- Timeframe: Ongoing
  - Funding: Local

- Staff: Planning and Zoning
  - Hazard Event Mitigated: Saltwater Intrusion
  - Action 1.4.2:** *Acquire bottled water in event of saltwater intrusion*
  - Timeframe: As needed
  - Funding: local, federal
  - Staff: Public Safety
  - Hazard Event Mitigated: Saltwater Intrusion
  - Action 1.4.3:** *Continue to construct Morganza to the Gulf storm surge protection levee which in turn would reduce the effects of saltwater intrusion*
  - Timeframe: 1-5 years
  - Funding: local, federal
  - Staff: Public Works, Planning and Zoning
  - Hazard Event Mitigated: Hurricane/Flooding/Levee Failure/Saltwater Intrusion/ Coastal Erosion
- **Objective 1.5:** Reduce the effects of Land Subsidence
- Action 1.5.1:** *Pursue coastal protection projects to reduce land subsidence in coastal areas*
  - Timeframe: Ongoing
  - Funding: Local
  - Staff: Planning and Zoning, Public Works
  - Hazard Event Mitigated: Coastal Erosion/Land Subsidence
  - Action 1.5.2:** *Ensure accurate survey points are located throughout the parish to monitor continued subsidence*
  - Timeframe: Ongoing
  - Funding: local, federal
  - Staff: Existing parish administration
  - Hazard Event Mitigated: Coastal Erosion/Land Subsidence
  - Action 1.5.3:** *Monitor agricultural activities and encourage smart farming practices to reduce soil compaction and acceleration of subsidence*
  - Timeframe: As needed
  - Funding: local, federal
  - Staff: Planning and Zoning
  - Hazard Event Mitigated: Land Subsidence
- **Objective 1.6:** Protect historic and cultural resources, such as cemeteries and gathering places from all hazards
- Action 1.6.1:** *Identify vulnerable historic and cultural resources, as well as opportunities to protect and/or relocate historic assets*
  - Timeframe: Ongoing
  - Funding: local, federal
  - Staff: Planning and Zoning

- Hazard Event Mitigated: Hurricane/Flooding/Levee Failure/Saltwater Intrusion/ Coastal Erosion/Land Subsidence
- **Objective 1.7:** Protect critical facilities from lightning strikes
  - Action 1.7.1: Install lightning rods on all critical facilities*
    - Timeframe: As needed
    - Funding: local, federal
    - Staff: Public Safety/Public Works
    - Hazard Event Mitigated: Lightning
  - Action 1.7.2: Install and maintain surge protection on all critical electronic equipment*
    - Timeframe: As needed
    - Funding: local, federal
    - Staff: All Parish Departments and Public Safety
    - Hazard Event Mitigated: Lightning
- **Objective 1.8:** Protect citizens from sinkholes
  - Action 1.8.1: Initiate study on salt domes to fill in data gaps and identify hazard effects*
    - Timeframe: Ongoing
    - Funding: local, federal
    - Staff: Planning and Zoning
    - Hazard Event Mitigated: Sinkholes
- **Goal 2: Enhance public awareness and understanding of disaster preparedness**
  - **Objective 2.1:** Increase public awareness of hazard areas and educate the public on mitigation
    - Action 2.1.1: Continue to advertise public meetings during the hazard mitigation planning process*
      - Timeframe: 3-5 years
      - Funding: HMGP
      - Staff: Planning and Zoning
      - Hazard Event Mitigated: Hurricane/Flooding/Levee Failure/Saltwater Intrusion/Coastal Erosion/Tornado/Sinkholes/Lightning
    - Action 2.1.2: OEP continues to attend public gatherings, provide yearly materials for preparedness, and updates to the registration system for people needing evacuation or other services in preparation for an event.*
      - Timeframe: Ongoing
      - Funding: Local
      - Staff: OEP
      - Hazard Event Mitigated: Hurricane/Flooding/Levee Failure/Saltwater Intrusion/ Coastal Erosion/ Tornado/Lightning/Sinkholes

*Action 2.1.3: Continue web and email postings of mitigation programs available to reduce risks.*

- Timeframe: Ongoing
- Funding: Local
- Staff: Planning and Zoning
- Hazard Event Mitigated: Hurricane/Flooding/Levee Failure/Saltwater Intrusion/ Coastal Erosion/ Tornado/Lightning/Sinkholes

*Action 2.1.4: Place pamphlets in the libraries and the Parish Government Tower regarding the risk of sinkholes*

- Timeframe: Ongoing
- Funding: Local
- Staff: Planning and Zoning
- Hazard Event Mitigated: Sinkholes

▪ **Goal 3: Reduce repetitive flood losses in the parish**

- **Objective 3.1.:** Eliminate threat of flood damage to structures in Terrebonne Parish including storm surge and levee failure

*Action 3.1.1: Upgrade current drainage infrastructure (see Attachment c3-1 for locations)*

- Timeframe: 1-5 years
- Funding: HMGP
- Staff: Public Works, Planning and Zoning
- Hazard Event Mitigated: Hurricane/Flooding/Levee Failure

*Action 3.1.2: Construct new flood control structures and levees (see Attachment c3-1 for locations)*

- Timeframe: 1-10 years
- Funding: local, regional, and federal
- Staff: Public Works, Planning and Zoning
- Hazard Event Mitigated: Hurricane/Flooding/Levee Failure/Saltwater Intrusion/ Coastal Erosion

*Action 3.1.3: Elevate all RL and SRL structures in Terrebonne Parish (see Attachment c2-25 on page 111)*

- Timeframe: 1-10 years, as funding permits
- Funding: HMGP, FMA, PDM
- Staff: Planning and Zoning
- Hazard Event Mitigated: Hurricane/Flooding/Levee Failure

*Action 3.1.4: Acquire all RL and SRL structures in Terrebonne Parish (see Attachment c2-25 on page 111)*

- Timeframe: 1-10 years, as funding permits
- Funding: CDBG, FMA, PDM
- Staff: Planning and Zoning
- Hazard Event Mitigated: Hurricane/Flooding/Levee Failure

*Action 3.1.5: Elevate equipment that is vulnerable to flood damage (see Attachment c3-1 for locations)*

- Timeframe: 1-5 years, as funding permits
  - Funding: HMGP
  - Staff: Public Works
  - Hazard Event Mitigated: Hurricane/Flooding/Levee Failure
- Action 3.1.6:** *Flood proof all public buildings vulnerable to flood damage (see Attachment c3-1 for locations)*
- Timeframe: 1-5 years, as funding permits
  - Funding: HMGP
  - Staff: Public Works, Planning and Zoning
  - Hazard Event Mitigated: Hurricane/Flooding/Levee Failure
- Action 3.1.7:** *Construct Morganza to the Gulf Hurricane Protection Levee which would protect both new and current developments*
- Timeframe: 1-10 years, as funding permits
  - Funding: local, regional, and federal
  - Staff: Public Works, Planning and Zoning
  - Hazard Event Mitigated: Hurricane/Flooding/Levee Failure
- Action 3.1.8:** *Collaborate with communities to design, evaluate, and implement Relocation Strategies for communities located outside the levee systems*
- Timeframe: 1-10 years, as funding permits
  - Funding: local, regional, and federal
  - Staff: Planning and Zoning, Public Safety
  - Hazard Event Mitigated: Hurricane/Flooding/Levee Failure
- Action 3.1.9:** *Ensure that current and future building elevations take the needs of those individuals with access and functional needs into account. This includes the incorporation of lifts.*
- Timeframe: 1-10 years, as funding permits
  - Funding: local, regional, and federal
  - Staff: Public Works, Planning and Zoning
  - Hazard Event Mitigated: Hurricane/Flooding/Levee Failure
- Action 3.1.10:** *Identify mechanisms to protect the Island Road from surge and tidal impacts. This might include engineered solutions to decrease wave impacts and/or erosion control mechanisms along the edges of the road.*
- Timeframe: 1-10 years, as funding permits
  - Funding: local, regional, and federal
  - Staff: Public Works, Planning and Zoning
  - Hazard Event Mitigated: Hurricane/Flooding/Levee Failure

▪ **Goal 4: Facilitate sound development in the parish to reduce or eliminate potential impacts of hazards**

- **Objective 4.1:** Promote and permit commercial and industrial development, including public critical facilities, outside of hazard areas to limit business interruption, property damage, and impairment to critical facilities in strict

accordance with the parish zoning, flood management, and other applicable state and federal regulations.

***Action 4.1.1:** Ensure that future development does not increase hazard losses by enforcing building codes*

- Timeframe: Ongoing
- Funding: No additional funds required
- Staff: Planning and Zoning
- Hazard Event Mitigated: Hurricane/Flooding/Levee Failure/Saltwater Intrusion/ Coastal Erosion/ Tornado

***Action 4.1.2:** Guide future development away from hazard areas using zoning regulations while maintaining other parish goals such as economic development and improving the quality of life*

- Timeframe: Ongoing
- Funding: No additional funds required
- Staff: Planning and Zoning
- Hazard Event Mitigated: Hurricane/Flooding/Levee Failure/Saltwater Intrusion/ Coastal Erosion/ Tornado/Sinkholes

***Action 4.1.3:** Provide safe locations for files, records, and computer equipment*

- Timeframe: Ongoing
- Funding: HMGP/FMA
- Staff: Parish
- Hazard Event Mitigated: Hurricane/Flooding/Levee Failure/ Tornado

***Action 4.1.4:** Examine current zoning regulations and determine what new regulations could be passed to reduce the effects of hazards on new buildings and infrastructure*

- Timeframe: Ongoing
- Funding: Not additional funds required
- Staff: Planning and Zoning
- Hazard Event Mitigated: Hurricane/Flooding/Levee Failure/Saltwater Intrusion/ Coastal Erosion/ Tornado

- **Objective 4.2:** Promote preservation and/or conservation of flood prone areas for parish parks, recreation areas, and general flood plain management

***Action 4.2.1:** Participate in existing programs at the state and federal levels oriented to environmental enhancement and conservation*

- Timeframe: Ongoing
- Funding: local, regional, and federal
- Staff: Planning and Zoning, Recreation, Parks, & Grounds, Coastal Restoration and Preservation
- Hazard Event Mitigated: Hurricane/Flooding/Levee Failure/Saltwater Intrusion/ Coastal Erosion/ Tornado

***Action 4.2.2:** Continue to participate in the NFIP (including Houma under the Consolidated Government)*

- Timeframe: Ongoing

- Funding: No additional funds required
  - Staff: Planning and Zoning
  - Hazard Event Mitigated: Hurricane/Flooding/Levee Failure
- Action 4.2.3:** *Establish a public outreach campaign to ensure all homeowners in floodplains are aware of the various types of coverage options under the NFIP*
- Timeframe: Ongoing
  - Funding: HMGP, state
  - Staff: Planning and Zoning, Housing and Human Services
  - Hazard Event Mitigated: Hurricane/Flooding/Levee Failure
- Action 4.2.4:** Establish homeowner education program on flood mitigation measures
- Timeframe: Ongoing
  - Funding: HMGP, state
  - Staff: Planning and Zoning, Housing and Human Services
  - Hazard Event Mitigated: Hurricane/Flooding/Levee Failure
- Action 4.2.5:** Multijurisdictional Program for Public Information to educate population on risk reduction strategies, their responsibilities, and the Parish's responsibility for enforcement
- Timeframe: Ongoing
  - Funding: HMGP, state
  - Staff: Planning and Zoning
  - Hazard Event Mitigated: Hurricane/Flooding/Levee Failure/Saltwater Intrusion/ Coastal Erosion
- Action 4.2.6:** Work with communities currently residing in flood prone areas, particularly outside of the levee systems, on the identification of flood mitigation and climate adaptation measures to reduce flood risk.
- Timeframe: Ongoing
  - Funding: HMGP, state
  - Staff: Planning and Zoning
  - Hazard Event Mitigated: Hurricane/Flooding/Levee Failure/Saltwater Intrusion/ Coastal Erosion

### **2015 HMPU Project List**

The Terrebonne Parish Project List resulting from the 2015 HMPU is presented in Attachment c3-1 (pages 142-149). Two truncated listings of projects based on projects' status and prioritization are provided in this section.

The parish's mitigation consultant, CB&I, assisted the HMPU Steering Committee in reviewing and evaluating the potential project list. Consideration was given to a variety of factors including the STAPLEE method, as previously noted, a project's eligibility for federal mitigation grants and its ability to be funded. This process required evaluation of each project's engineering feasibility, cost effectiveness, and environmental and cultural factors.

The following table lists projects that are ongoing or have been completed, funded, or removed from the project list since the 2010 Hazard Mitigation Plan Update.

<b>Terrebonne 2004 HMPU Ongoing or Completed Projects</b>		
	<b>Project Description</b>	<b>Status</b>
<b>1</b>	Promote Purchase of Flood Insurance	Ongoing
<b>2</b>	Increase Public Awareness of Hazards and Hazard Areas	Ongoing
<b>3</b>	Pursue elevation/acquisition/flood proofing project and structural solutions to flooding	Ongoing
<b>4</b>	Review the existing floodplain ordinance and evaluate ways to improve the Parish's Community Rating System (CRS) rating to reduce flood insurance premium. Choose from a variety of methods and projects available that can be implemented to improve the CRS rating.	Ongoing
<b>Terrebonne 2010 HMPU Ongoing or Completed Projects</b>		
<b>5</b>	Drainage Improvement – (Chabert Medical Center Levee/Houma Industrial Park) Build Levee from Thompson Road to Industrial Pump Station	Completed
<b>6</b>	Drainage Improvement – Ann Carroll, Jean Street, Duet Street, and Grace Street (Upgrade culvert size to drain water from middle of streets)	Ongoing/ Priority
<b>7</b>	Drainage Improvement – Ashland North D-60 Tideflex valves on discharge pipes	Completed
<b>8</b>	Drainage Improvement – Bayou Lacache Pump Canal (Widen and Deepen Canal from Lacache Estate to Pump Station)	Ongoing
<b>9</b>	Drainage Improvement – Bayou Lacarpe (Widen Channel from Tunnel Blvd to pump station and upgrade bar screen cleaner)	Ongoing/ Priority
<b>10</b>	Drainage Improvement – Bonanza Pump Station D-27 Tideflex valves on discharge pipes	Funded by HMGP
<b>11</b>	Drainage Improvement – Coteau 1-1B Bar Screen Cleaner	Completed
<b>12</b>	Drainage Improvement – D-07 Smithridge Pump Station Bar Screen Cleaner	Completed
<b>13</b>	Drainage Improvement – D-3 Upper Montegut Bar Screen Cleaner	Completed
<b>14</b>	Drainage Improvement – Island Road (Stabilize roadway shoulders and embankment)	Funded and Completed
<b>15</b>	Drainage Improvement – Lower Montegut D-2 Tideflex Valves on discharge pipes	Completed
<b>16</b>	Drainage Improvement – Michael Street, Buquet Street, and Daigle Street (Increase culvert size to drain streets during heavy rainfall)	CDBG Funded and Completed
<b>17</b>	Drainage Improvement – Woodlawn Ranch pump Canal (From D-12 to Cement in Lined Ditch, Widen and Deepen	Completed

	Canal)	
<b>18</b>	Elevator – Generator for Riley Drive Lift Station	Completed
<b>19</b>	Elevation – Lift Stations with Self Priming Pumps (Bourg heights, Edgewood, Ashland North, Ashland North II, Ashland South, Woodlawn Ranch, Saia, Prospect, Carriage Cove, Green Acres I, Green Acres II, Lafayette Woods, Lorraine Park, Presque Isle, Presque isle II, Chabert Medical Center, Service Center, Smithridge I, Smithridge II, South Terrebonne Estates, Riley Drive)	Completed
<b>20</b>	Elevation – Lift Stations with Submersible Pumps (Bobtown, Dulac, Orange Street, Airbase Jr., Patriot Point, Rounds Road, Applied Hydraulics, Gemoco, Indian Ridge, James Road, Sandcastle, Thunderbird)	Completed
<b>21</b>	Elevation – Orange Street Wastewater Plant Controls	Completed
<b>22</b>	Elevation – Terrebonne General Medical Center Main Plant Electrical Switch Gear, Boilers, and Chillers (\$2,750,000)	Completed
<b>23</b>	Emergency Preparedness – Nursing Home Evacuation Coordination/Plan	Remove/ Obsolete
<b>24</b>	Emergency Preparedness – Message Boards	Ongoing
<b>25</b>	Generator -- 150KW for Valhi Lift Station	Completed
<b>26</b>	Generator -- 200KW for South Wastewater Treatment Plant	Completed
<b>27</b>	Generator -- City Hall (with switching capacity)	Completed
<b>28</b>	Generator -- Gov't Towers	Completed
<b>29</b>	Generator -- Houma Police Department Building (Cummings model GFGA 500 KW 120/208 Volt 3 phase, 60 hertz, 1800RPM NG set)	Completed
<b>30</b>	Generator -- North Terrebonne Treatment Plant	Completed
<b>31</b>	Generator -- OEP 911 (60KW)	Completed
<b>32</b>	Generator -- Pollution Control Portable Unit Trailer Mounted for 10 treatment plants (50 KW)	Completed
<b>33</b>	Generator -- Pollution Control, S. Treatment Plant Effluent Lift Station (250 KW)	Completed
<b>34</b>	Generator -- Public Works -- Portable Generator for Bridges (80 KW)	Completed
<b>35</b>	Generator -- Public Works -- Portable Trailer Unit Mounted for 6 Treatment Plants (56KW)	Completed
<b>36</b>	Generator -- Public Works Service Center Yard (400KW)	Completed
<b>37</b>	Generator -- Public Works, Buquet Bridge (75 KW 120/240 Volt)	Completed
<b>38</b>	Generator -- Public Works, Klondyke Bridge (75 KW 120/240 Volt)	Completed
<b>39</b>	Modification to Village East Lift Station (Conversion from Dry Pit to Submersible Station)	Completed
<b>40</b>	Infiltration Reduction of Underground Wastewater System	Some completed,

	(Testing needed for Locations)	more to test
41	RL and Severe RL Properties -- Elevation, Acquisition, Mitigation Reconstruction (Parish)	Ongoing
42	Safe Room -- (Pet Shelter)	Funded
43	Wind Retrofit -- City Hall (IT Department)	Ongoing
44	Wind Retrofit -- Civic Center (Windows and Roof Hardening)	Funded
45	Wind Retrofit -- Courthouse Annex (Wind Hardening and Floodproofing)	Funded
46	Wind Retrofit -- Government Tower (Screens on Windows and Doors)	Ongoing
47	Wind Retrofit -- Harden Front and Back Doors of Convention Center	Funded
48	Wind Retrofit -- Houma PD	Ongoing
49	Wind Retrofit -- Juvenile Detention Center	Ongoing
50	Wind Retrofit -- New Roll-up Door at EOC -- 911	Ongoing
51	Wind Retrofit -- Roof of Convention Center	Ongoing
52	Wind Retrofit -- Schriever Elementary	Funded
53	Generator -- Major Lift Stations, Highland Drive (150 KW)	Budgeted for 2014
54	Drainage Improvement -- Highway 24 in Gray	Removed/ Obsolete
55	Drainage Improvement -- Isle of Cuba Transfer (Off-site fuel storage -- gas and diesel)	Removed/ Obsolete
56	Emergency Preparedness -- Military Showers	Under Contract
57	Emergency Preparedness -- Small Power Radio Station for Hazard Alert	Removed
58	Emergency Preparedness -- Creation of alternative staging area	Removed
59	Wind Retrofit -- Coteau Fire Station (Include main structure, apparatus room, generator room doors)	Completed
60	Wind Retrofit -- Fire Stations (central) Shutters	Removed/Duplicate
61	Doors (22'x10', 14'x10') and 3 windows (35"x36")	Removed/Duplicate
62	Elevation -- Fire Station (raise 2', history of flooding, 75'x75' Slab) (1466 Highway 665)	Removed
63	Elevation Montegut Station (100'x75')	Removed
64	Wind Retrofit --Bourg Fire Station, 2 Bay Doors (22'x10', 14'x10') and 3 windows (35"x36")	Removed
65	Generator -- Houma Fire Department, Central Station (50KW)	Completed
66	Generator -- Coteau Fire Station (Natural Gas, includes change over switch to ensure response to emergency calls)	Completed
67	Safe House -- EOC (2101 East Tunnel Blvd)	Removed/Obsolete
68	Safe Room -- Country Bayou Road	Funded/Ongoing

In the previous HMPU, CB&I assisted the Parish in applying the STAPLEE method as well as a Benefits-Cost Analysis ratio to project priorities. The projects with the highest preliminary BCA ratio and the highest local priority were then selected for scoping. Six wind hardening projects resulted from this process and they are as follows:

- Wind Hardening – Terrebonne Parish General Medical Center
- Wind Hardening – Houma Consolidated Waterworks Treatment Plant
- Wind Hardening – Houma Police Department
- Wind Hardening – Government Tower
- Wind Hardening – Schriever Water Treatment Plant

However, moving forward in the 2015 HMPU process, a more comprehensive approach to prioritization was adopted, which resulted in the inclusion of priorities beyond wind hardening. On August 7, 2014, Hazard Mitigation Plan Update Committee Meeting No. 3 was held. At this meeting, members were asked to respond to a series of questions that gauged their input on project priorities. Feedback gained from these questions was utilized in prioritizing projects for the HMPU. Below is a list of questions along with the corresponding percent of individuals who voted for each option. If the top rated answer equaled less than 50 percent, the top two rated answers were used to develop the highest priority.

<b>HMPU Steering Committee Priority Projects Survey Responses</b>		
<p><b>Question 1</b> Which type of project do you consider the highest priority?</p> <p>1. Residential Elevations (30%) 2. Commercial Elevations (5%) 3. Elevations of Critical Facilities (65%)</p>	<p><b>Question 2</b> Which type of project do you consider the highest priority?</p> <p>1. Generators for Schools (5%) 2. Generators for Sewer Lift Stations (10%) 3. Generators for Potable Water Facilities (15%) 4. Generators for First Responders (30%) 5. Generators for Drainage Pump Stations (40%)</p>	<p><b>Question 3</b> What type of drainage improvement do you think should be the highest priority?</p> <p>1. Existing Culvert or Ditch Upgrades (35%) 2. Pump Station Upgrades (59%) 3. Installation of new Drainage Ditches/ Culverts where none currently exists (6%)</p>
<p><b>Question 4</b> What type of critical facility elevation do you think should be the top priority?</p> <p>1. Elevation of utilities (water/sewer)</p>	<p><b>Question 5</b> What type of wind hardening project do you think should be the top priority?</p> <p>1. Schools</p>	<p><b>Question 6</b> What type of project would be of the highest priority to prevent coastal erosion?</p> <p>1. Inform community of risks</p>

(0%) 2. Elevation of First Responder structures <b>(38%)</b> 3. Elevation of evacuation routes with flood history <b>(46%)</b> 3. Elevation of pump station controls (15%)	(12%) 2. First Responders <b>(35%)</b> 3. Utilities (18%) 4. Evacuation Shelters <b>(35%)</b> 5. Other Government Structures (0%)	(0%) 2. Acquire and demolish structures in at risk area (18%) 3. Stabilization or rebuilding of barrier islands <b>(82%)</b>
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<b>HMPU Steering Committee Priority Projects Survey Responses Continued</b>		
<b>Question 7</b> What type of project do you think would be of the highest priority to combat sea level rise? 1. Study to investigate baseline risk (21%) 2. Zoning/Subdivision Regulations (7%) 2. Locate utilities outside high risk areas (7%) 3. Additional Freeboard requirement (7%) 4. Natural Buffer Restoration <b>(57%)</b>	<b>Question 8</b> What type of project do you think would be the highest priority to combat subsidence? 1. Study to Identify Baseline Risk (24%) 2. Zoning/Subdivision Regulations (12%) 3. Generators for Potable Water Facilities <b>(65%)</b>	<i>This cell is intentionally left blank</i>

Below is a list of prioritized projects identified through consideration of the abovementioned survey results as well as HMPU Steering Committee input. It should be noted that projects were extracted from Attachment c3-1 (pages 142-149). Only those projects that are potentially eligible for Hazard Mitigation Grant Program funding were prioritized.

<b>Parish Priority Projects List</b>	
<b><u>Question 1 Which type of project do you consider the highest priority?</u></b>	
<b><i>Q1. Elevations of Critical Facilities (65%)</i></b>	
	<b>Project Description</b>
<b>1</b>	Elevation -- Bayou Dularge Tank building and chlorination equipment

<b>2</b>	Elevation -- Fire Station in Chauvin 6668 Hwy 56
<b>3</b>	Elevation -- Grand Caillou Tank building
<b>4</b>	Elevation -- Industrial Blvd from Van Ave to Pump Station
<b>5</b>	Elevation -- Leachate Removal System
<b>6</b>	Elevation -- Lower Dulac Tank building and chlorination equipment
<b>7</b>	Elevation -- Pointe-Aux-Chenes Pump Station building and electrical pump, regulating valve and meter
<b>8</b>	Elevation -- Robinson Canal P.S. Building, electrical pump, regulating valve and meter
<b>9</b>	Elevation -- South Terrebonne Pump Station building and pump
<b>10</b>	Elevation -- Texaco Master Meter Building, regulating valve and meter
<b>11</b>	Elevation -- West Gibson Tank building and chlorination equipment
<b>12 - 40 (Considered one project)</b>	Elevation of Pump Station Roads -- D-19, D-12, and D-5 Pumps
	Elevation to ABFE -- D-02 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-02 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-04 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-06 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-11 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-15 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-21 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-36 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-37 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-40 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-42 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-43 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-44 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-46 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-47 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-48 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-49 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-50 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-51 Gear Drives, Motors, and Controls
	Elevation to ABFE -- D-53 Gear Drives, Motors, and Controls
Elevation to ABFE -- D-54 Gear Drives, Motors, and Controls	
Elevation to ABFE -- D-56 Gear Drives, Motors, and Controls	
Elevation to ABFE -- D-59 Gear Drives, Motors, and Controls	
Elevation to ABFE -- D-60 Gear Drives, Motors, and Controls	
Elevation to ABFE -- D-61 Gear Drives, Motors, and Controls	
Elevation to ABFE -- D-62 Gear Drives, Motors, and Controls	
Elevation to ABFE -- D-65 Gear Drives, Motors, and Controls	
Elevation to ABFE -- D-69 Gear Drives, Motors, and Controls	
<b>41</b>	Wind Retrofit and Elevation -- Houma Plant 3 (Install shutters or impact resistant glass on windows, strengthen doors, raise pumps and electrical panels)

42	Wind Retrofit and Elevation -- Houma Plant High Service pumps and electrical panels, strengthen door
43	Wind Retrofit and Elevation -- Lafort Canal RW PS (elevate pumps and generator, strengthen door)
44	Wind Retrofit and Elevation -- Munson PS (Elevate Building, electrical pumps, regulating valves and meters, Install Shutters on windows, strengthen the doors)
45	Wind Retrofit and Elevation -- Schriever Plant (install shutters or impact resistant glass on windows, strengthen doors, elevate pumps)
46	Wind Retrofit and Elevation -- Williams Street Pump Station (elevate pumps and electrical panels, strengthen door)

***Q1. Residential Elevations (30%)***

All Repetitive Loss Properties

***Q1. Commercial Elevations (5%)***

From Repetitive Loss List

**Question 2 Which type of project do you consider the highest priority?**

***Q2. Generators for First Responders + Generators for Pump Stations (70%)***

1	Generator -- 100KW for W. Woodlawn Station
2	Generator -- Pollution Control, S. Treatment Plant Perimeter Drainage Pump Station (100 KW)
3	Generator -- Port Commission Forced Drainage (50 KW)
4	100 Amp, 3-way SS Disconnects for generator ready connections (approx. 40 Lift station sites)
5	Connect Station to emergency generator – Munson PS

***Q2. Generators for Potable Water Facilities (15%)***

No Sites Noted

***Q2. Generators for Sewer Lift Stations (10%)***

1	150kw generators for Mire, Idlewild, and Elysian Lift Stations
2	Generator -- Lift Stations Receiving Effluent from Hospitals, Terrebonne General Medical Center (50 KW)
3	Generator -- Lift Stations Receiving Effluent from Hospitals, Chabert Medical Center (50 KW)
4	Generator -- Major Lift Stations, Douglas (50 KW)
5	Generator -- Major Lift Stations, Mire (75 KW)
6	Generator -- Major Lift Stations, Westside (50 KW)
7	Generator -- Major Lift Stations, Westview (100 KW)
8	Generators -- Lift Stations Receiving Effluent from Hospitals, Valhi II (125 KW)

***Q2. Generators for Schools (5%)***

No Sites Noted

**Question 3 What type of drainage improvement do you think should be the highest priority?**

***Q3. Pump Station Upgrades (59%)***

1	Drainage Improvement -- Industrial Pump D-13 Trash Screen and Bar Screen Cleaner
2	Drainage Improvement -- D-20 Schriever Pump Station Bar Screen Cleaner
3	Drainage Improvement -- Pump Station Telemetry
4	Scada telemetry, The automation of Forced drainage Pump Stations To reduce response time and flooding.
<b>Q3. Existing Culvert or Ditch Upgrades (35%)</b>	
1	Drainage Improvement -- Bellaire Drive (Increase culvert sizes and slope ditches)
2	Drainage Improvement -- Martin Luther King Blvd. (Increase culvert size in pump canal under highway in bonanza system)
3	Drainage Improvement -- Oak Forest Street (Increase culvert sizes and pump station)
4	Drainage Improvement -- Royce Street (Increase culvert size to stop rainfall flooding)
5	Elevation of Local Evacuation Route -- 1 Mile Section of LA 56 in Chauvin, LA (Ward 7 Evacuation Routes)
6	Elevation of Local Evacuation Route -- 1.5 Mile Section of LA 315 near the Dularge Bridge (Evacuation Route for Bayou Dularge and Crozier, Floods in a strong south wind)
<b><u>Question 4 What type of critical facility elevation do you think should be the top priority?</u></b>	
<b>Q4. Elevation of pump station controls (15%)</b>	
All locations below BFE	
<b>Q4. Elevation of utilities (water/sewer) 0%</b>	
All locations below BFE	
<b><u>Question 5 What type of wind hardening project do you think should be the top priority?</u></b>	
<b>Q5. Wind Hardening for First Responders and Evacuation Shelters (70%)</b>	
1	Wind Retrofit and Garage Doors -- 407 Island Road
2	Wind Retrofit -- Fire Stations (#2, #3, #4) Shutters
3	1105 Highway 55 Montegut Street Garage Doors
4	Wind Retrofit -- 4317 Highway 24 Bourg Street Shutters
5	Wind Retrofit -- Gulf States LTAC
6	Wind Retrofit -- 2325 Coteau Road Coteau Street Shutters
7	Wind Retrofit -- 4588 Highway 56, 5610 Highway 56, and 6668 Highway 56 Shutters
8	Safe Room -- Coteau Fire Station
9	Wind Retrofit -- Morgue
10	Wind Retrofit -- Montague, Pointe-Aux-Chenes Fire Stations (5 windows at 1466 Hwy 665, 6 Windows at 1746 Hwy 55, 6 windows at 407 Island Road)

<b><i>Q5. Wind Hardening for Utilities (18%)</i></b>	
1	Wind Retrofit -- Schriever Water Treatment Facility
2	Wind Retrofit -- Bac-T Lab at Schriever Water Treatment Facility (install shutters or impact resistant glass on windows, strengthen doors)
<b><i>Q5. Wind Hardening for Schools (12%)</i></b>	
1	Wind Retrofit -- Evergreen Junior High
2	Wind Retrofit -- Headstart Center
3	Wind Retrofit -- Houma Junior High
4	Wind Retrofit -- Houma Municipal Auditorium
5	Wind Retrofit -- Legion Park Middle
6	Wind Retrofit -- South Terrebonne High School
7	Wind Retrofit -- Southdown Elementary
8	Wind Retrofit -- Terrebonne High School
<b><i>Q5. Wind Hardening for Other Government Structures (0%)</i></b>	
1	Wind Retrofit -- Bob Jones Building (Cat 4 or 5)
2	Wind Retrofit -- Buquet Bridge and Klondyke Bridge Tender's Buildings (Cat 3)
3	Wind Retrofit -- Director's Building (Cat 3)
4	Wind Retrofit -- Drainage Building (Cat 3)
5	Wind Retrofit -- Gulf States LTAC
6	Wind Retrofit -- Mail Library
7	Wind Retrofit -- Main Office (Install shutters or impact resistant glass on windows, strengthen doors)
8	Wind Retrofit -- Sludge Press Building (strengthen doors)
9	Wind Retrofit -- Waterworks Office Complex at 8814 Main Street, Houma, LA
<b><u>Question 6 What type of project would be of the highest priority to prevent coastal erosion?</u></b>	
<b><i>Q6. Stabilization or rebuilding barrier islands (82%)</i></b>	
<b><i>Q6. Acquire and demolish structures in at risk area (18%)</i></b>	
<b><i>Q6. Inform community of risks (0%)</i></b>	
<b><u>Question 7 What type of project do you think would be of the highest priority to combat sea level rise?</u></b>	
<b><i>Q7. Natural Buffer Restoration</i></b>	
<b><i>Q7. Zoning/Subdivision Regulations + Local utilities outside high risk areas + Additional freeboard requirement (21%)</i></b>	
No Applicable Projects	
<b><u>Question 8 What type of project do you think would be the highest priority to combat subsidence?</u></b>	

<b><i>Q8. Generators for Potable Water Facilities (65%)</i></b>
All locations currently without generators.
<b><i>Q8. Study to Identify Baseline Risk (24%)</i></b>
<b><i>Q8. Zoning/Subdivision Regulations (12%)</i></b>

***4.3 §201.6 (c)(3)(iii) ...shall include an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.***

The Hazard Mitigation Committee has identified several hazard mitigation projects to be included in the parish Hazard Mitigation Plan. The actions presented on the previous pages were categorized to organize priorities by HMGP grant eligibility. Projects not deemed eligible and/or covered in other programs can be located in the full project list in Attachment c3-1. Potential projects identified included properties and areas that have localized flooding or drainage problems as noted in the Terrebonne Parish Hazard Mitigation Plan (2010). Projects carried over from the HMP (2010) can also be found in Attachment 3-1. Most of the projects from the original plan were not eligible for HMGP funding, but those that were carried forward to project prioritization. The project list reviewed for prioritization also included consideration of repetitive loss (RL) and severe repetitive loss (SRL) properties in the parish.

**Implementation**

Upon approval of the Hazard Mitigation Plan by state and federal authorities, parish officials will meet with each of the respective governmental units regarding planning and implementation of the respective projects. The parish will then initiate activities required to implement the projects in each district.

On parishwide projects the Planning and Zoning Director, and Mitigation Planner will meet with appropriate staff to ensure conformance to the plan requirements.

**Administration**

As noted, the administration of said projects is the responsibility of policy and permitting matters as they relate to the siting of structures in flood-prone areas will continue to be administered by the parish government. Public awareness of all of the above initiatives will also be facilitated by the parish government.

## 5.0 §201.6 (c)(4) PLAN MAINTENANCE PROCEDURES

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### **A plan maintenance process that includes:**

#### **5.1 §201.6 (c)(4)(i) *A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.***

Terrebonne Parish has developed a plan maintenance process to ensure that regular review and update of the Hazard Mitigation Plan occurs. The parish has formed a Hazard Mitigation Plan Evaluation Committee that consists of select members from municipalities, local agencies, and the Hazard Mitigation Plan Update Committee, which was responsible for preparing the HMPU as included herewith. The HMP Evaluation Committee consists of the following representation:

1. Terrebonne Parish President
2. Terrebonne Parish Manager
3. Planning and Zoning Director (responsible for overall coordination of HMP maintenance activities)
4. Terrebonne Parish Recovery Planner
5. Terrebonne Parish Director of Public Works
6. Terrebonne Parish OEP director
7. Terrebonne Parish Sheriff
8. Houma Police Department Chief
9. Houma Fire Department Chief

The Parish Planning and Zoning Director is responsible for contacting HMP Evaluation Committee members in January on an annual basis. Members have a one-month period in which to respond to or initiate a meeting if any one member feels that issues need to be addressed. However, should a hazard event occur and the need for update analysis surface, a meeting can be called by the Parish Planning and Zoning Director or requested by a committee member through the Parish Administration.

The Parish Planning and Zoning Director is also responsible for maintaining plan review comments. Members of the evaluation committee will monitor the plan on an ongoing basis using phone calls and emails to contact those responsible for implementing the plan's action items and bring the project status reports to the yearly evaluation meetings. Ideas to be discussed will include, but are not limited to, the following:

- Does the steering committee membership need to be updated?
- Have new hazard events occurred?
- Has new funding been allotted?
- Have projects been implemented?
- Have project priorities changed?
- Are there new projects to discuss?

In addition to the yearly evaluations, the questions listed above and additional considerations will be made during the formal update process to be completed and approved by FEMA within a five-year cycle. Updates to the Hazard Mitigation Plan will be made fully utilizing the representation of the HMP committee formed for this purpose. The Parish Planning and Zoning Director is also responsible for monitoring the progress of the action items and will report the status of the projects to the HMP Evaluation Committee yearly.

**5.2 §201.6 (c)(4)(ii) *A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate***

Members of parish departments who interact on planning issues, such as the Parish President, Parish Manager, Parish Director of Planning and Zoning, Parish OEP Director, and the Sheriff will review the relevance of the HMP's risks and vulnerabilities identified. They will also review the goals, objectives, and actions for mitigating the risks, and catalogue all said information for use in future HMP updates as well as other local planning mechanisms.

When appropriate, Parish Government, by way of the individuals who served on the HMPU Steering Committee and the HMP Evaluation Committee, will address the need to incorporate requirements of the mitigation plan into the respective zoning ordinances, comprehensive plans, and/or capital improvement plans if deemed necessary and if not previously included. An effort will be made by all HMPU Steering Committee members to ensure consistency in all future planning efforts with the mitigation goals and risk assessment presented in this plan. Consistency between all planning efforts will ensure a decrease in losses related to hazard events within future and existing developments. During the last five year update cycle, the former hazard mitigation plan's (2010) goals were incorporated into Goal 5 of *Vision 2030: Terrebonne's Plan for Its Future*. If amendments to existing ordinances or new ordinances are required, the Parish Council will be responsible for its respective updates.

**5.3 §201.6 (c)(4)(iii) *Discussion on how the community will continue public participation in the plan maintenance process***

The Parish Planning and Zoning Director is responsible for coordinating continued public participation. Copies of the plan will be kept on file at the parish government office. Contained in the plan and presented in section (c)(4)(i) is a list members of the plan evaluation committee that can be contacted. In addition, copies of the plan and proposed changes will be posted on the parish government website. This website will also have an e-mail address and phone numbers to which the public can direct their comments or concerns. The local newspaper will also be notified if HMP issues arise.

## **6.0 PREREQUISITES—COPY OF FORMAL PLAN ADOPTION**

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- 6.1 §201.6 (c)(5) Documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council). For multi-jurisdiction requesting approval of the plan must document that it has been formally adopted.**

Documentation that the plan has been formally approved by the Terrebonne Parish Council is presented on the following page. Terrebonne Parish is a consolidated government with no independent incorporated municipalities.

**Attachment c1-1**  
**Terrebonne Parish Hazard Mitigation Plan Update Committee**

*The Terrebonne Parish Committee List is presented on the following pages.*

<b>Last</b>	<b>First</b>	<b>Affiliation</b>	<b>Agency</b>	<b>Title</b>
Larpenier	Jerry	Government	Terrebonne Parish Sheriff's Office	Sheriff
Sobert	Michael	Government	Consolidated Waterworks District	General Manager
Marmande	Mitch	Government	Terrebonne Levee and Conservation District	Executive Director
LeBlanc	Kathy	Government	Louisiana Department of Health & Human Services	Sanitarian
Adams	Philip	Public	Terrebonne Parish Assessor's Office	
Moore	Jack	Public	Terrebonne Parish School District	Risk Manager
Case	Peggy	Public	Terrebonne Parish Readiness and Assistance Coalition	Executive Director
Waitz	David	Public	David Waitz Engineering & Surveying	
Schexnayder	Phil	Public	Gulf South Engineering Associates, Inc.	
Carlos	Suzanne	Public	Houma-Terrebonne Chamber of Commerce	Chief Executive Officer
Cloutier	Dr. Budd	Public	Regulatory Planning Commission	Chair
Underwood	Jason	Public	South Central Industrial Association (SCIA)	
Maloz	Simone	Public	Restore or Retreat	Executive Director
Smith	Kenneth	Public	T. Baker Smith	President & CEO
Crispino	Steve	Public	South Louisiana Bank	Vice President
Biegler	Mary	Public	Bayou Grace	Executive Director
Dardar	Shirell	Public	Grand Caillou/Dulac Band of Biloxi-Chitimacha-Choctaw	Chief
Naquin	Albert	Public	Isle de Jean Charles Band of Biloxi-Chitimacha-Choctaw	Traditional Chief
Gauthier	David	Public	Bayou Interfaith Shared Community Organizing	Organizer
Dardar	Thomas	Public	United Houma Nation	Principal Chief
Cehan	Connie	Public	Terrebonne Parish School District	
Bourg	Tom	Government	Terrebonne Parish Consolidated Government	Utility Director
Bush	Gregory	Government	Terrebonne Parish Consolidated Government	Public Works Director
Gordon	Patrick	Government	Terrebonne Parish Consolidated Government	Director of Planning and Zoning
Matherne	Nicholas	Government	Terrebonne Parish Consolidated Government	Director of Coastal Restoration and Preservation

<b>Last</b>	<b>First</b>	<b>Affiliation</b>	<b>Agency</b>	<b>Title</b>
Ledet	Lisa	Government	Terrebonne Parish Consolidated Government	Floodplain Manager
Pulaski	Chris	Government	Terrebonne Parish Consolidated Government	Senior Planner - Comprehensive Plan/ Zoning
Eues	Earl	Government	Terrebonne Parish Consolidated Government	O.H.S.E.P. Director /911
Dufrene	Todd	Government	Houma Fire Department	Fire Chief
Duplantis	Todd	Government	Houma Police Department	Uniform Commander
Bourg	Doug	Government	Terrebonne Parish Consolidated Government	Administrative Assistant-PIO
Large	Geoff	Government	Terrebonne Parish Consolidated Government	Assistant Director - Building Dept/Code Enforcement.
Gerbasi	Jennifer	Government	Terrebonne Parish Consolidated Government	President Elect of the Building Official Association of Louisiana
Waire	Darrel	Government	Terrebonne Parish Consolidated Government	Recovery Planner
				Director - Housing and Human Services
Invited Advisors				
O'Neal	Cindy		DOTD	State Floodplain Manager
Zeringue	Jerome		CPRA	CPRA Chair
Riley	Mark		GOHSEP	Deputy Director, GOHSEP
Daigle	Melissa		SeaGrants	Legal Coordinator, LSU LA Sea Grant Law & Policy Program
Matherne	Alan		LSU Ag Center	Area Agent (Fisheries & Coastal Issues), LSA Ag Center
TBD			Red Cross	LA Sea Grant Marine Extension Program
RBD			National Weather Service	
Consultant				
Cutforth	Nicole		CB&I	PM

\* **The invited organizations and individuals may send a designee in their stead if unable to attend.**

**Attachment c1-2**  
**Terrebonne Parish Hazard Mitigation Plan Update Committee**  
**Attendance Summary**

Last Name	First Name	Organization	Title	Meeting 1	Meeting 2	Meeting 3	Meeting 4	Meeting 5
Adams	Phillip	TPCG Assessor's Office		X	X	X	X	X
Alford	Tony	Terrebonne Levee & Conservation District	President					
Allemand	Gwen	Propriete Shoppe Real Estate	Realtor	X				
Amedee	Beryl	Terrebonne Parish Council	Concilwoman, District 4			X		
Arnette	Jane	South Central Industrial Association	Executive Director					
Babin	Danny	President of the Regulatory Planning Commission	Chairman					
Belanger	Wanda	Southeast LA HBA		X				
Benoit	Eric	Lafourche Parish	Asst. OEP					
Biegler	Mary	Bayou Grace	Executive Director	X	X		X	X
Boucvalt	Jobe	St. John Parish	OEP Director					
Boudreaux	Chris	Lafourche Parish	OEP Director					
Boudreaux	John	Assumption Parish	OEP Director					
Boug	Doug	Terrebonne Parish Consolidated Government	Administrative Assistant					
Bourg	Tom	Terrebonne Parish Consolidated Government	Utility Director	X	X	X	X	X
Bray	Jeanne	DPW	Engineer					
Bush	Gregory	Terrebonne Parish Consolidated Government	Public Works Director	X		X		
Carlos	Suzanne	Houma-Terrebonne Chamber of Commerce	President	X		X		
Case	Peggy	Terrebonne Parish Readiness and Assistance Coalition	Executive Director	X				
Cehan	Connie	TPSD						
Claudet	Michel	Terrebonne Parish Consolidated Government	Parish President					
Cloutier	Dr. Budd	Regulatory Planning Commission	Chair	X	X			
Crispino	Steve	South Louisiana Bank	Vice President		X			
Daigle	Melissa	SeaGrants	Legal Coordinator			X		
Dardar	Shirell	Biloxi-Chitamacha Confederation of Muskogees	Deputy Chief					
Dardar	Thomas	United Houma Nation	Principal Chief			X		
DeFraites	Arthur	Gulf South Engineering Associates, Inc.	President					
Deroche	Eric	St. James Parish	OEP Director					
Drury	David	TPCG	TPCG Facilities Manager		X			
Dufrene	Chirief	Houma Fire Department	Fire Chief		X	X		X
Duplantis	Duffy	TPCG						
Duplantis	Todd	Terrebonne Parish Consolidated Government	Police Chief					
Dupre	Reggie	TLCD	Executive Director		X			
English	Nicolette	GOHSEP	Planner	X				
Eues	Earl	Terrebonne Parish Consolidated Government	O.S.H.E.P. Director		X			X
Falgout	Julie	LA SeaGrant	Seafood Industry Liaison		X			X
Gauthé	David	BISCO		X	X		X	
Gerbasi	Jennifer	Terrebonne Parish Consolidated Government	Division Manager/Recovery Planner	X	X	X	X	X
Gordon	Pat	Terrebonne Parish Consolidated Government	Planning Director	X	X	X		X
Graham	Ken	National Weather Service	Meteorologist-in-Charge					
Hamilton	Rob	Southeast Louisiana Homebuilders' Association	President					
Hebert	Aaron	Terrebonne Parish Sheriff's Office	Assistant Uniform Commander			X		
Hymel	Francis	St. James Parish	Asst OEP					
Jofferson	Barton	LSU Ag Center	County Agent		X			
Landry	Katye	Assumption Parish	Asst. OEP					
Large	Geoff	Terrebonne Parish Consolidated Government	Assistant Director - Building Dept/ Code Enforcement	X			X	
Larpenier	Jerry	Terrebonne Parish Sheriff's Office	Sheriff			X		
LeBlanc	Chris	Houma Courier						X
LeBlanc	Kathy	Louisiana Department of Health & Human Services	Sanitarian					
Ledet	Brad	LaDay Construction		X				
Ledet	Lisa	Terrebonne Parish Consolidated Government	Permits Specialist	X	X	X	X	X
Levron	Al	Terrebonne Parish Consolidated Government	Capital Projects Admin					

Last Name	First Name	Organization	Title	Meeting 1	Meeting 2	Meeting 3	Meeting 4	Meeting 5
Liner	Michelle	Terbonne Readiness and Assistance Coalition	Administrative Assistant	X	X			X
Lombardo	John	Restore and Retreat	Outreach Coordinator	X	X		X	X
Maloz	Simone	Restore and Retreat	Representative			X		
Marmonde	Mitch	Terbonne Levee and Conservation District	Program Manager		X			
Martin	Phillip	Terbonne Parish School District	Superintendent					
Matheme	Alan	LSU Ag Center	Area Agent		X			X
Matheme	Nicolas	Terbonne Parish Consolidated Government	Director of Coastal Restoration				X	
Milford, III	Gene	Gene Milford and Associates, Inc	Professional Engineer					
Moore	Jack	Terbonne Parish School District	Risk Manager	X	X	X		X
Mullarkey	Christine	Region 3 American Red Cross	Resource Manager					
Nail	Shirin	REMAX	Broker	X	X			
Naquin	Albert	Biloxi-Chitamacha Island Road Band	Chief		X			
O'Neal	Cindy	DOTD	State Floodplain Manager					
Pellegrin	Cynthia	ReMax Good Earth	Real Estate Broker	X		X		
Pena	Oscar	CB&I	Senior Vice President					
Peoples	Phyllis	Terbonne General Medical Center	CEO					
Perry	Ron	St. Charles Parish	OEP Director					
Peterson	Kris							
Poche	Charlette	Terbonne Parish Council	Council Clerk					
Pulaski	Chris	Terbonne Parish Consolidated Government	Senior Planner	X	X	X		X
Riley	Mark	GOHSEP	Deputy Director, GOHSEP					
Rivette	Frank	National Weather Service	Meteorologist					
Roussel	Pam	GOHSEP						X
Rutter	Lea	Lea Rutter Homes, Inc.	Builder	X				
Schexnayder	Phil	Gulf South Engineering Associates, Inc.	Tech. Engineer		X			
Shaw	Ronnie					X		
Sobert	Michael	Consolidated Waterworks District	General Manager	X	X	X		
Smith	Kenneth	T. Baker Smith, Inc.	President/CEO					
Tastet	Jason	St. Charles Parish	OEP					
Underwood	Jason	South Central Industrial Association						
Waire	Darrell	Terbonne Parish Housing and Human Services	Director		X	X		
Waitz	David	David Waitz Engineering & Surveying	Professional Engineer	X				X
Wilson	Lex	Courier	Photographer		X			
Zeringue	Jerome	Terbonne Levee & Conservation District	Executive Director					

**Attachment c1-3.1A  
Meeting 1—Advertisement**

x053690, Publication 05/14/2014

**Public Notice  
Meeting Announcement  
Terrebonne Parish Hazard Mitigation Plan Update 2015**

The Terrebonne Parish Consolidated Government is updating the parish's Hazard Mitigation Plan. The purpose of the plan update is to identify and pursue preventative measures that will reduce future damages from natural hazards. During this kickoff meeting, the Steering Committee and anyone interested in participating will define the planning process, discuss a ways to encourage and facilitate public input and participation, and review the existing plan to see what has been accomplished and what remains to be accomplished or improved. The public is encouraged to attend this meeting.

**Thursday, May 22, 2014 at 2:00PM  
8026 Main Street, Second Floor  
Council Meeting Room  
Houma, Louisiana**

Please direct questions about the meeting to Nicole Cutforth, CB&I, at (225) 987-7373.

## Attachment c1-3.1B Meeting 1—Sign-in Sheets

Terrebonne Parish Hazard Mitigation Plan Update 2015 Committee Member List							
MEETING NO. 1, MAY 22, 2014, 2PM, COUNCIL MEETING ROOM, 2nd FLOOR, HOUMA, LA	SIGN IN	Last Name	First Name	Organization	Title	Contact	Email
1		Alford	Tony	Terrebonne Levee & Conservation District	President	985-851-2201	
2		Arnette	Jane	South Central Industrial Association	Executive Director	985-873-6422	dbabin@tpcg.org
3		Babin	Danny	President of the Regulatory Planning Commission	Chairman	985-532-8174	ericb@fourchegov.org
4		Benoit	Eric	Lafourche Parish	Asst. OEP	985-532-8174	chrisb@lafourche.gov
5		Boudreaux	Chris	Lafourche Parish	OEP Director	985-369-7386	johnboudreaux@assumptioncep.com
6		Boudreaux	John	Assumption Parish	OEP Director	985-692-2222	jboucaut@sjbparish.com
7		Boucaut	John	St. John	OEP Director	985-873-6401	dmbourg@tpcg.org
8		Bourg	Doug	Terrebonne Parish Consolidated Government	Parish President Assistant	985-873-6755	lbourg@tpcg.org
9		Bourg	Tom	Terrebonne Parish Consolidated Government	Utility Director	985-873-8941	lbourg@tpcg.org
10		Bray	Jeanne	DPW	Engineer	985-873-6735	glush@tpcg.org
11		Bush	Gregory	Terrebonne Parish Consolidated Government	Public Works Director	985-873-6735	pegass@tracfa.com
12		Case	Peggy	Terrebonne Parish Readiness and Emergency Coalition (TRAC)	Executive Director	985-861-2952	
13		Claudet	Michelle	Terrebonne Parish Consolidated Government	Parish President	985-873-6401	mclaudet@tpcg.org
14		Dardier	Shirell	Gulf South Engineering	President	985-217-1474	shirellparitalar@yahoo.com
15		DeFratris	Arthur	St. James Parish	OEP Director	985-876-6380	arthurdefratris@providenceeng.com
16		Deroche	Eric	St. James Parish	OEP Director	225-562-2346	eric.deroche@stjamesla.com
17		Drury	David	St. James Parish	OEP Director	985-873-6675	ddrury@tpcg.org
18		Dufrene	Chief	Dufrene	OEP Director	985-873-6391	taufrene@tpcg.org
19		Duplantis	Duffy	Duplantis	OEP Director	985-873-6708	dduplantis@tpcg.org
20		Duplantis	Todd	Duplantis	OEP Director	985-873-6319	tduplantis@tpcg.org
21		Dupre	Reggie	TLCD	Executive Director	985-866-8523	rdupre@tlcd.org
22		Eues	Earl	Houma-Terrebonne Chamber of Commerce	Member	985-873-6357	eeues@tpcg.org
23		Gauthie	David	Houma-Terrebonne Chamber of Commerce	Member	985-873-6357	eeues@tpcg.org
24		Gerbas	Jennifer	Terrebonne Parish Consolidated Government	Division Manager/Recovery Planner	985-873-6565	jgerbas@tpcg.org
25		Gordon	Patrick	Terrebonne Parish Consolidated Government	Director	985-873-6565	pgordon@tpcg.org
26		Grabert	Lonny Phillip	Planning and Zoning	Director	985-876-6620	grabert1@bellsouth.net
27		Graham	Kenn	Assessment Office	Deputy Assessment	985-649-0429	kenneth.graham@noaa.gov
28		Hymel	Francis	St. James Parish	Meteorologist-in-Charge	225-562-2310	francis.hymel@stjamesla.com
29		Landry	Kayle	Assumption Parish	Asst. OEP	985-369-7386	keylandry@assumptioncep.com
30		Larje	Jerry	Assumption Parish	Asst. OEP	985-873-6348	glarje@tpcg.org
31		LeBlanc	Kathy	Terrebonne Parish Sheriff's Office	Sheriff	985-857-3770	
32		LeBlanc	Lisa	Terrebonne Parish Sheriff's Office	Sheriff	985-857-3770	
33		LeBlanc	Lisa	Terrebonne Parish Consolidated Government	Chief Building Official	985-873-6789	lisleblanc@tpcg.org
34		Levon	Al	Terrebonne Parish Consolidated Government	Capital Projects Admth.	985-873-6407	allevron@tpcg.org
35		Maloz	Simone	South Central Industrial Association	Representative	985-448-4485	
36		Martin	Philip	South Central Industrial Association	Representative	985-876-7400	
37		Mellierne	Nicolas	Terrebonne Parish	Coastal	985-873-6989	mmatheme@tpcg.org
38		Millard, III	Gene	Gene Millard and Associates	Professional Engineer	985-668-2561	mllordassociates@bellsouth.net
39		Mullerkey	Christine	Gene Millard and Associates	Resource Manager	504-620-3108	Christine.Mullerkey@Reddress.org
40		Narquin	Albert	CB&I	Senior Vice President	985-594-3725	whitbuffalo@netscape.net
41		Pena	Oscar	Terrebonne General Medical Center	CEO	985-668-3434	oscar.pena@cbi.com
42		Peples	Phyllis	Terrebonne General Medical Center	CEO	985-783-5050	perry@stcharlesgov.net
43		Perry	Ron	St. Charles Parish	OEP Director	985-873-6523	cdpoche@tpcg.org
44		Peterson	Kris	Terrebonne Parish Council	Council Clerk	985-873-6568	cpulaski@tpcg.org
45		Poche	Charlote	Terrebonne Parish Council	Council Clerk	985-873-6568	cpulaski@tpcg.org
46		Pulaski	Chris	Terrebonne Parish Council	Council Clerk	985-873-6568	cpulaski@tpcg.org
47		Rivette	Frank	Terrebonne Parish Council	Council Clerk	985-649-0429	Frank.Reville@noaa.gov
48		Schexnayder	Phil	Gulf South Engineering Associates, Inc.	Meteorologist	985-876-6380	phil.schexnayder@providenceeng.com
49		Smith	Kenneth	Terrebonne Parish Council	Professional Engineer	985-866-1050	kenneths@bsmith.com
50		Sobart	Michael	Terrebonne Parish Council	President/CEO	985-879-2485	msobart@tpcg.org
51		Tastet	Jason	Terrebonne Parish Council	General Manager	985-783-5050	jtastet@schrecc.org



**Attachment c1-3.1C**  
**Meeting 1—Meeting Agenda and Summary Meeting Notes**

**TERREBONNE**  
**HAZARD MITIGATION PLAN UPDATE**

5/22/2014

@ 2:00 P.M

8026 Main Street

2<sup>nd</sup> Floor Council Meeting Room

Houma, Louisiana

**I. INTRODUCTIONS AND WELCOME**

The Terrebonne Parish Hazard Mitigation Plan Update Committee held their first open to the public meeting at the Terrebonne Parish Council Meeting Room in Houma, Louisiana, on Thursday, May 22, 2014. The purpose of the meeting was to introduce the committee and discuss an overview of the Plan Update process. Handouts attached include an agenda, the Hazard Mitigation Plan Update from 2010, the Comprehensive Master Plan, and the mitigation project list.

Michel Claudet, Terrebonne Parish President, welcomed and thanked everyone for coming and informed them that this is a parish effort and he is thankful for the participation of attendees.

Nicole Cutforth from CB&I introduced herself and discussed that CB&I was hired by Terrebonne Parish to update the Hazard Mitigation Plan for 2015. Nicole informed the attendees that throughout the planning process we want to make sure that we are incorporating the effort into other planning processes.

Jennifer Gerbasi from Terrebonne Parish also welcomed everyone and informed the committee that if anyone else is interested in the planning process that the meetings are open to the public and all are welcome to participate. The committee was also informed that the meetings will now be held at Folklife Museum.

Nicole asked attendees to introduce themselves and provide what agency they represent.

Nicole informed everyone that there are a total of 3 meetings and there will be meeting notes mailed out along with her information if anyone has any questions or input between meetings. Also, there will be significant data gathered between meetings. Prior to the second meeting all the maps will be updated along with the project list, critical facilities list and risk

portion from the past Hazard Mitigation Plan with input from the parish and committee.

Pat Gordon, Terrebonne Parish Consolidated Government (TPCG) Planning and Zoning Director, volunteered to take the role of Committee Chair Person for Terrebonne Parish Hazard Mitigation Plan Update.

## **II. PURPOSE, NEED, AND EXPECTATIONS**

Nicole informed the attendees about the grant that Terrebonne Parish has received to update the Hazard Mitigation Plan. The grant is a Pre-Disaster Mitigation Grant (PDM) and it flows from Federal Emergency Management Agency (FEMA) to the Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) to TPCG.

Nicole defined Hazard Mitigation Planning to the crowd and explained that it is "Planning for any sustained action(s) taken to reduce or eliminate the long-term risk to human life and property from hazards."

A few definitions that will be used throughout the planning process were discussed such as Hazard, Vulnerability, Vulnerability Assessment, Risk, and Risk Assessment.

The state (GOHSEP) is our guide in the planning process and will be attending the meetings to make sure that Terrebonne Parish is covering all topics necessary for approval. The past & present planning standards were discussed and the mitigation plan has to be updated every 5 years for TPCG to remain eligible for Hazard Mitigation Grant Program (HMGP) funds. Nicole informed the committee that this plan should be Terrebonne Parish's plan and the committee's input into this plan is much appreciated.

Terrebonne's plan was approved in 2010 but there are new hazards and criteria that need to be incorporated and including how the parish resources can be allocated to expedite the implementation of hazard mitigation projects. Input regarding the project lists that are sent out between updates is imperative to the planning process.

Nicole discussed all the new data that we need to incorporate into the new plan including vulnerability analyses, any changes in hazard identification, different flood inundation areas, where the committee thinks we should spend extra time on modeling, and progress of projects that has been made in the past 5 years. Community Rating System (CRS) principles will also be discussed in the future meetings.

The planning process was discussed and phases were described (see attached PowerPoint slide 10). The idea is to stay circling between phase

1, 2, and 3 within the planning process to ensure that there is enough input from the committee for the Hazard Mitigation Plan Update.

### **III. PARTICIPATION STRATEGY**

Participating Agencies and a list of stakeholders on the steering committee was discussed. Nicole encouraged attendees to invite as many people as possible to attend plan update meetings.

The committee structure was discussed and what would be discussed at the meetings in the future. Nicole encouraged the committee and parish for their input on this plan as it is imperative to make it customized to Terrebonne Parish.

### **IV. PLAN REVIEW**

Nicole discussed the existing plan overview and an overview of what this process holds.

Nicole broadly discussed the Community Rating System and how the planning process will be implemented.

Goals and Critical Facilities were discussed and will be updated throughout this plan. The committee asked to add the Civic Center, Public Works and Acadian Ambulance to the Critical Facilities list.

Nicole discussed the four tasks of risk assessment and eligible hazard mitigation projects (see handout) and discussed that the projects on the handout will be looked at for funding as it becomes available. Also, the committee was encouraged to list any projects so they can be incorporated including the following:

- Hardening or Retrofitting of Critical Facilities
- Drainage
- Increasing culvert size
- Increasing pump station capacities
- Elevation of structures that have flooded
- Safe Rooms
- Etc.

Funding and match percentages were discussed. Non-HMGP funds including PDM and Flood Mitigation Assistance (FMA), are available every year. The funding process flows from FEMA to GOSHEP to TPCG.

The hazards that are identified in the plan were discussed. Some hazards That the committee asks to add include sea level rise, coastal erosion,

sinkholes, and ice events. Also, Hurricane Lee, Atchafalaya Flooding of 2011, and May/October flooding needs to be added to the plan's flood event profiles.

Maps were discussed and will be updated for the next meeting.

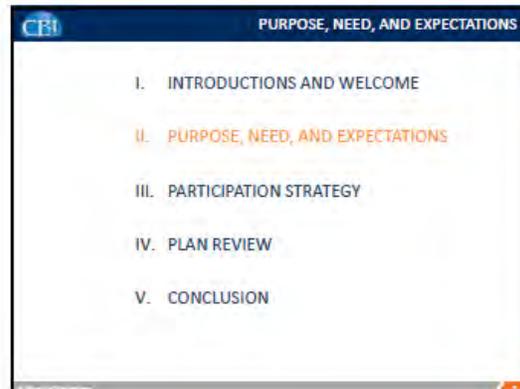
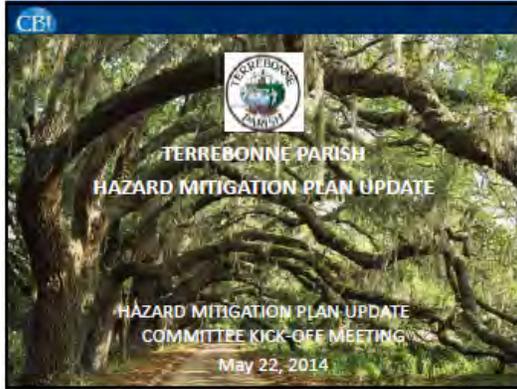
**V. QUESTIONS/COMMENTS**

- Data that will be sent out for committee's input includes the project list, goals, etc.
- Project list needs to have all projects that can reduce damages from hazards
- Between meetings, any participation is encouraged
- Next meeting (4-6 weeks) will include Risk Assessment, Map Review/Editing, Project list/Prioritize

**VI. CONCLUSION**

**VII. ADJOURN**

**Attachment c1-3.1D  
Meeting 1—PowerPoint Presentation Slides**



**CBI** PURPOSE, NEED, & EXPECTATIONS: DEFINITIONS

- **Hazard**—a source of potential danger
- **Vulnerability**—Degree of exposure or susceptibility to damage of an asset
- **Vulnerability Assessment**—The extent of damage that may result from a hazard event of a given intensity (50, 100 yr. flood; Cat. 1, 2, ...5 hurricane)
- **Risk**—The estimated impact that a hazard would have on people, services, facilities, and structures—quantifiable
- **Risk Assessment**—Process of measuring the potential loss of life, personal injury, economic injury, and property damage

**CBI** PURPOSE, NEED, & EXPECTATIONS: WHY HAZARD MITIGATION PLANNING?

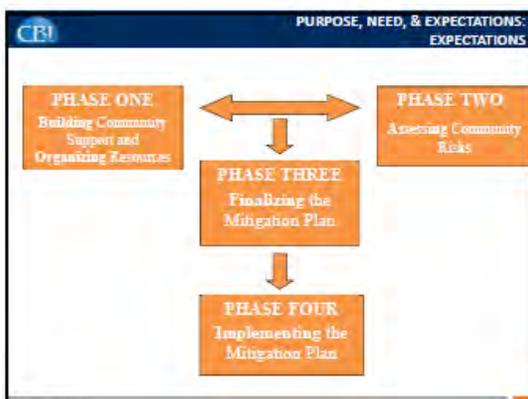
- **Why “plan”?**—State approach—parishes to state
  - Establish vision and mission
  - Establish common goals
  - Incorporate the “big picture”
  - Bring many stakeholders together
  - Establish community connectivity... coordination and communications
  - Look at resource allocation (time, money, etc.)
  - Ensure ability to implement, monitor, evaluate, and modify

**CBI** PURPOSE, NEED, & EXPECTATIONS: WHY UPDATE HAZARD MITIGATION PLAN?

- Eligibility for mitigation grant project funding
- Any changes in hazard identification
- Vulnerability analyses
- Local mitigation capabilities
- Progress made during the past five years to prevent or reduce future losses from natural hazards

**CBI** PURPOSE, NEED, & EXPECTATIONS: ORIGINS

- Past: Federal legislation funded disaster relief, recovery, and some mitigation planning
  - Standard codes and planning were linked in same law
- Present: Disaster Mitigation Act of 2000 (DMA 2000)
  - Reinforces importance of mitigation planning before hazards occur... to reduce the nation’s disaster losses ...” (FEMA Interim Final Rule)
  - Establishes a pre-disaster hazard mitigation program
  - Creates new requirements for national post-disaster Hazard Mitigation Grant Program (HMGP)
  - Requires states and communities to have an approved mitigation plan in place prior to receiving post-disaster HMGP funds



**CBI** LIST OF TASKS

- Planning Process
- Risk Assessment
- Mitigation Strategy
- Plan Maintenance
- Additional State Requirements
- Plan Hazard Mitigation Adoption and Approval
- Hazard Mitigation Plan Deliverables

**CBI** SECTION III: PARTICIPATION STRATEGY

- I. INTRODUCTIONS AND WELCOME
- II. PURPOSE, NEED, AND EXPECTATIONS
- III. PARTICIPATION STRATEGY
- IV. PLAN REVIEW
- V. CONCLUSION

**CBI** PARTICIPATION STRATEGY

Participating Agencies:

<ul style="list-style-type: none"> <li>City of Houma Fire Chief</li> <li>David Waltz Engineering &amp; Surveying</li> <li>Gene Milford and Associates, Inc.</li> <li>Gulf South Engineering Associates, Inc.</li> <li>Houma-Terrebonne Chamber of Commerce</li> <li>Regulatory Planning Commission</li> <li>CBSI</li> <li>South Central Industrial Association</li> <li>T. Baker Smith</li> </ul>	<ul style="list-style-type: none"> <li>Terrebonne General Medical Center</li> <li>Terrebonne Levee and Conservation District</li> <li>Terrebonne Parish Consolidated Government</li> <li>Terrebonne Parish Readiness and Emergency Coalition</li> <li>Terrebonne Parish Sheriff's Office</li> <li>Water District</li> </ul>
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**CBI** PARTICIPATION STRATEGY CONTINUED

- Committee Structure
  - 1. Expand/Contract
  - 2. Steering Committee
  - 3. Meeting Location/Frequency?
- Developing a Plan for Public Relations & Education
- Concerns, Comments, Questions
- Other Issues?

**CBI** PLAN REVIEW

- I. INTRODUCTIONS AND WELCOME
- II. PURPOSE, NEED, AND EXPECTATIONS
- III. PARTICIPATION STRATEGY
- IV. PLAN REVIEW
- V. CONCLUSION

**CBI** PLAN REVIEW: TERREBONNE PARISH HAZARD MITIGATION PLAN  
SEPTEMBER 2009



**CBI** EXISTING PLAN OVERVIEW

REVIEW AND UPDATE:

- **THE PLANNING PROCESS**
  - Public comment
  - Involvement in the planning process
  - Incorporate appropriate existing plans
- **PLAN CONTENT**
  - Documentation of the planning process
  - Risk assessment
    - Type, location, extent of all natural hazards that affect the jurisdiction
    - Jurisdiction vulnerability to the hazards, summary of each hazard and its impact on the community
      - Describe vulnerability of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas
      - Estimate of potential dollar losses

**CBI** EXISTING PLAN OVERVIEW (contd.)

REVIEW AND UPDATE:

- **HAZARD MITIGATION STRATEGIES**
  - Goals
  - Specific mitigation actions and projects
  - Action plan with prioritization
- **PLAN MAINTENANCE PROCEDURES**
  - Method and schedule of monitoring, evaluating, and updating the mitigation plan
  - Process by which local government can incorporate the requirements of the mitigation plan into other planning mechanisms (comprehensive or capital improvement plans) when appropriate
  - Discussion of how community will continue public participation and plan maintenance

**CBI** CRS/NFIP REQUIREMENTS

- **HANDOUT**
- The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements.
  - As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS:
  - Reduce flood damage to insurable property;
  - Strengthen and support the insurance aspects of the NFIP, and
  - Encourage a comprehensive approach to floodplain management.

<http://www.fema.gov/national-flood-insurance-program-community-rating-system>

**CBI** EXISTING PLAN (SEPTEMBER 2009) GOALS OVERVIEW

**GOAL 1** Identify and pursue preventive measures that will reduce future damages from hazards.

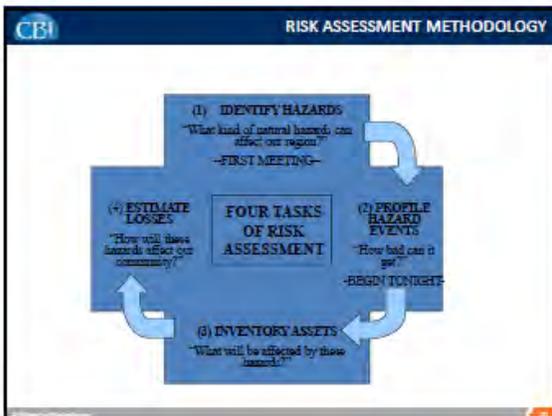
**GOAL 2** Enhance public awareness and understanding of disaster preparedness.

**GOAL 3** Reduce repetitive flood losses in the parish.

**GOAL 4** Facilitate sound development in the parish to reduce or eliminate the potential impact of hazards.

**CBI** PLAN REVIEW: CRITICAL FACILITIES

- **CRITICAL FACILITIES**
  - HOSPITALS
  - SCHOOLS
  - POLICE STATIONS
  - FIRE STATIONS
  - POWERPLANTS
  - SEWER
  - POTABLE WATER
  - EMERGENCY OPERATIONS CENTER



**CBI** ELIGIBLE HAZARD MITIGATION PROJECTS

- **HARDENING OR RETROFITTING OF CRITICAL FACILITIES**

**ELIGIBLE HAZARD MITIGATION PROJECTS (CONTD.)**

- DRAINAGE IMPROVEMENTS TO EXISTING FACILITIES



**ELIGIBLE HAZARD MITIGATION PROJECTS (CONTD.)**

- ELEVATION



**ELIGIBLE HAZARD MITIGATION PROJECTS**

- SAFE ROOMS
- 5% INITIATIVES (PUBLIC EDUCATION, WARNING SYSTEMS, GENERATORS, ETC.)

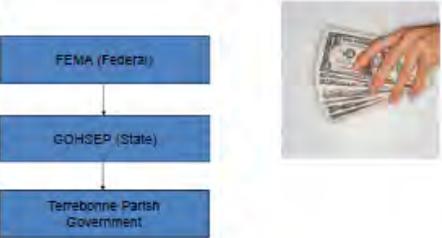


**FUNDING**

- MITIGATION FUNDING LEVELS HAVE VARIED...
  - PRE-KATRINA/RITA: GOHSEP FUNDING
    - TARGET=\$35-40M PER YEAR
  - POST-KATRINA/RITA: HMGP=\$1.5B TO AFFECTED AREAS
  - FUTURE FUNDING OF PROJECTS:=? (FUNCTION OF NEXT DISASTER EVENT)

...BUT FUNDING HAS BEEN AVAILABLE VIRTUALLY EVERY YEAR

**FUNDING PROCESS**



```

graph TD
    FEMA[FEMA (Federal)] --> GOHSEP[GOHSEP (State)]
    GOHSEP --> Terrebonne[Terrebonne Parish Government]
  
```

**RISK ASSESSMENT: IDENTIFY HAZARDS**

- Simply identify what hazards might affect the community
- Narrow the list to hazards that are most likely to impact
- Keep records of information gathered
  - News papers and other unofficial accounts
  - Federal and state data base info
  - Community expert and parish/municipal data
  - Etc.

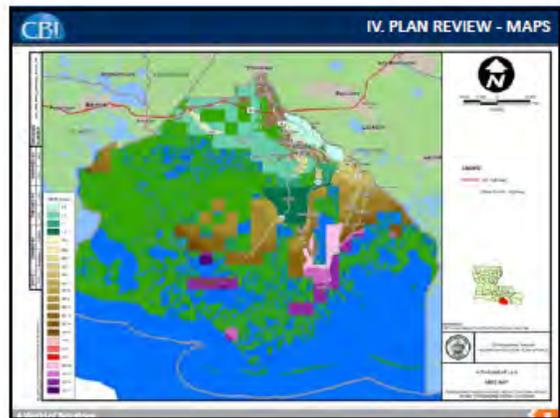
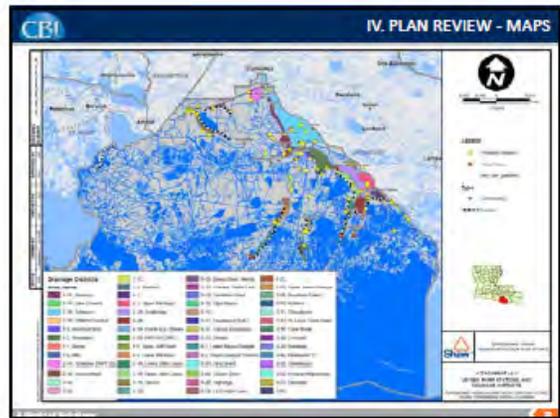


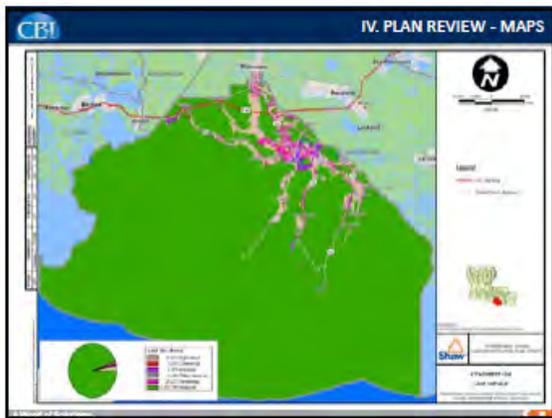
**RISK ASSESSMENT: PROFILE HAZARD EVENTS**

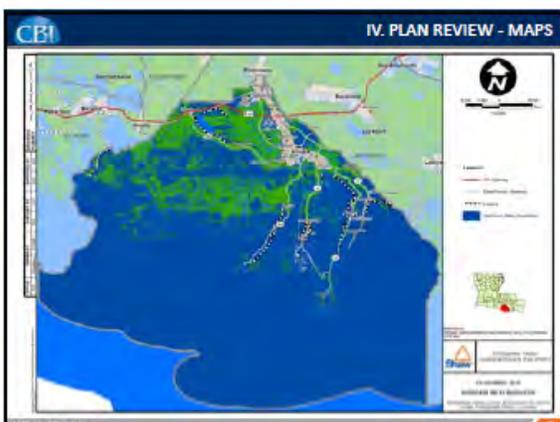
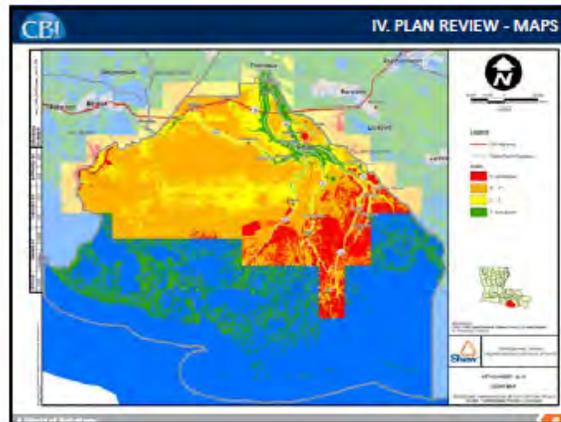
- Has your department/district suffered losses during past storm events due to flooding or wind that could have been prevented?
- Do you foresee a future scenario where your department/district might be susceptible to losses as a result of a storm event?
- Obtain and create base maps
- Obtain hazard event profile information.
- Record the hazard event profile information.

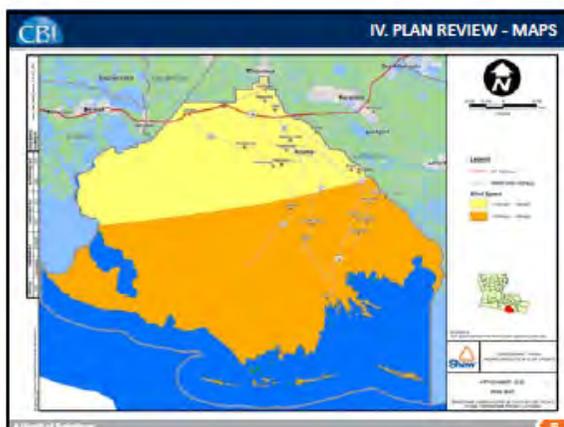
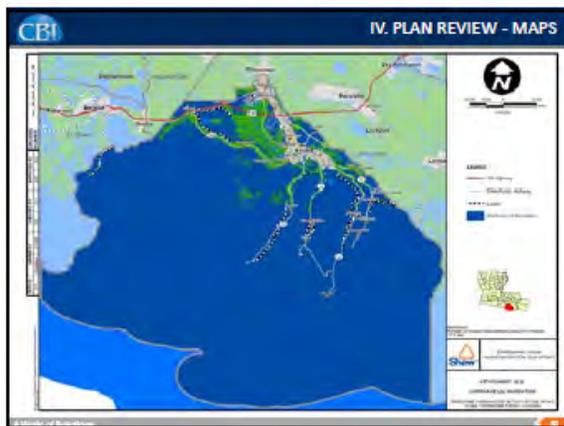
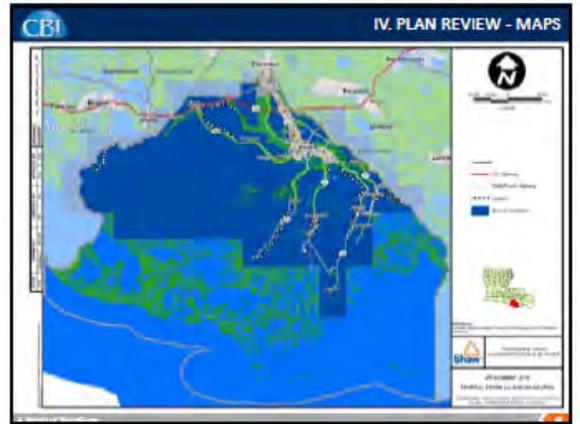
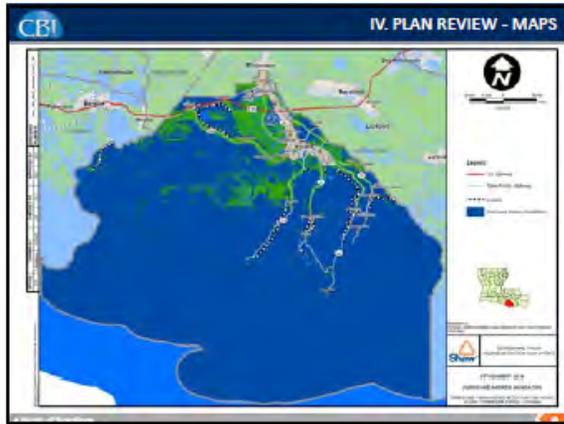
**Current Plan:**

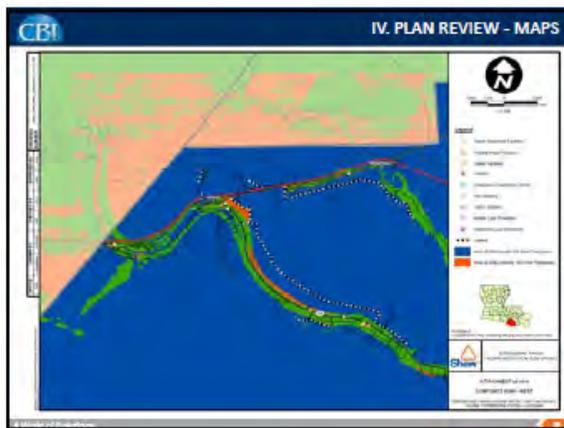
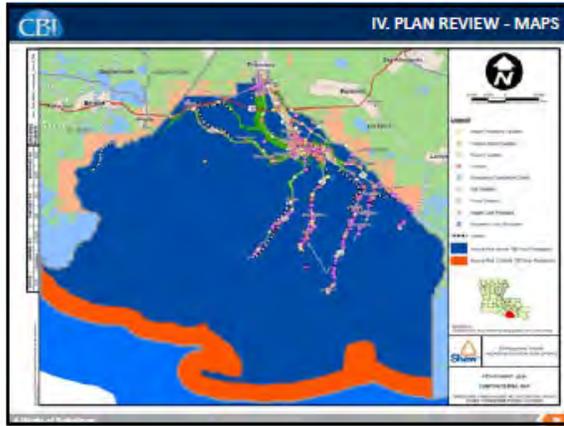
- Hurricane Betsy
- Hurricane Juan
- Hurricane Andrew
- Tropical Storm Allison
- Hurricane Lili
- Hurricane Rita











CBI

- Project List

CBI CONCLUSION

- I. INTRODUCTIONS AND WELCOME
- II. PURPOSE, NEED, AND EXPECTATIONS
- III. PARTICIPATION STRATEGY
- IV. PLAN REVIEW
- V. CONCLUSION

CBI CONCLUSION

- I. Meeting Summary
  - A. Purpose, Need, and Expectations
  - B. Participation Strategy
  - C. Plan Review
  - D. Conclusion
- II. Tentative Agenda for Meeting 2
  - A. Risk Assessment
  - B. Map Review
  - C. Project Prioritization
- III. Schedule/Locate Next Meeting
- IV. Adjourn

CBI CONTACT INFORMATION

NICOLE B. CLIFORTH  
PROJECT MANAGER  
CBI  
225-887-7573  
NICOLE.CLIFORTH@CBI.COM

**Attachment c1-3.2A  
Meeting 2—Advertisements**

**Public Notice  
Meeting Announcement  
Terrebonne Parish Hazard Mitigation Plan  
Update 2014**

The Terrebonne Parish Consolidated Government is updating the parish's Hazard Mitigation Plan. The purpose of the plan update is to identify and pursue preventative measures that will reduce future damages from natural hazards. To continue the plan update, the Terrebonne Parish Hazard Mitigation Committee will discuss the risk assessment, the mapping effort, mitigation projects, and existing authorities, policies, and programs. The public is encouraged to attend this meeting.

**Thursday, July 17th, 2014 at 2:00 pm  
Folk Life Museum  
317 Goode Street  
Houma, Louisiana 70360**

Please direct questions about the meeting to Nicole Cutforth, CB&I, at (985) 858-3983.

## Attachment c1-3.2B Meeting 2—Sign-In Sheets

 <b>SIGN IN</b>						 <b>Terrebonne Parish Hazard Mitigation Plan Update 2015</b> <b>Thursday, July 17, 2014 2 PM</b> <b>Folkife Museum</b> <b>317 Goode Houma, Louisiana</b>		
#	Last Name	First Name	Organization	Title	Comments			
1	Adams	Philip	TPOG Assessor's Office	Commercial Bldgs				
2	Allemand	Gwen						
3	Alford	Tony	Terrebonne Levee & Conservation District	President TLCD Board				
4	Arnette	Jane	South Central Industrial Association	Executive Director				
5	Babin	Danny	President of the Regulatory Planning Commission	Chairman				
6	Benoit	Eric	Lafourche Parish	Asst. OEP				
7	Belanger	Wanda	Southeast LA HBA					
8	Boudreaux	Chris	Lafourche Parish	OEP Director				
9	Boudreaux	John	Assumption Parish	OEP Director				
10	Boucvall	Jobe	St. John	OEP Director				
11	Bourg	Doug	Terrebonne Parish Consolidated Government	Parish President Assistant				
12	Bourg	Tom	Terrebonne Parish Consolidated Government	Utility Director				
13	Bray	Jeanne	DPW	Engineer				
14	Bush	Gregory	Terrebonne Parish Consolidated Government	Public Works Director				
15	Carlos	Suzanne	Houma-Terrebonne Chamber of Commerce					
16	Case	Peggy	Terrebonne Readiness and Assistance Coalition	Executive Director				
17	Cehan	Connie	Terrebonne Parish School District					
18	Claudet	Michel	Terrebonne Parish Consolidated Government	Parish President				
19	Cloutier	Budd	Planning Commission	Chair				
20	Crispino	Steve	South Louisiana Bank	Vice President				



**Terrebonne Parish Hazard Mitigation Plan Update 2015**  
**Thursday, July 17, 2014 2 PM Folklife Museum**  
**317 Goode Houma, Louisiana**



	Last Name	First Name	Organization	Title	Comments
21	Daigle	Melissa	LSU LA SeaGrants	Legal Coordinator	
22	Dardar	Thomas	United Houma Nation	Principal Chief	
23	Dardar	Shirell	Biloxi-Chitamacha Confederation of Misksogees	Deputy Chief	
24	DeFraitres	Arthur	Gulf South Engineering	President	
25	Deroche	Eric	St. James Parish	OEP Director	
26	Drury	David	TPCG		
27	Dufrene	Chief	Houma Fire Department	Fire Chief	TPCG Project Manager
28	Duplantis	Duffy	TPCG	GIS	
29	Duplantis	Todd	TPCG	Houma Police Chief	
30	Dupre	Reggie	TLCD	Executive Director	
31	English	Nicolette	GOHSEP	Planner	
32	Eues	Earl	OEP-Terrebonne	Director	
33	Gauthe	David	BISCO		
34	Gerbasi	Jennifer	Terrebonne Parish Consolidated Government	Division Manager/Recovery Planner	
35	Gordon	Patrick	Planning and Zoning	Director	
36	Grabert	Loney	TPCG	Assessor	
37	Graham	Ken	NOAA	Meteorologist-in-Charge	
38	Gueniot-Biegler	Mary	Bayou Grace	Executive Director	
39	Hymel	Francis	St. James Parish	Asst. OEP	



**Terrebonne Parish Hazard Mitigation Plan Update 2015**  
**Thursday, July 17, 2014 2 PM Folklife Museum**  
**317 Goode Houma, Louisiana**



	Last Name	First Name	Organization	Title	Comments
40	Landy	Kayle	Assumption Parish	Asst. OEP	
41	Large	Geoff	Terrebonne Parish Consolidated Government	Chief Building Official	
42	Larpenier	Jerry	Terrebonne Parish Sheriff's Office	Sheriff	
43	LeBlanc	Kathy	Louisiana Department of Health & Human Services	Sanitarian	
44	Ledet	Brad	LaDay Construction		
45	Ledet	Lisa	Terrebonne Parish Consolidated Government	Floodplain Manager	
45	Levron	Al	Terrebonne Parish Consolidated Government	Capital Projects Admin.	
47	Liner	Michelle	Terrebonne Readiness and Assistance Coalition	Administrative Assistance	
48	Lombardo	John	? Restore or Retreat	? Outreach Coord	
49	Maloz	Simone	South Central Industrial Association	Representative	
50	Marmande	Mitch	Terrebonne Levee and Conservation District	Program Manager	
51	Martin	Philip	Terrebonne Parish School District	Superintendent	
52	Matherne	Alan	LSU Ag Center	Area Agent	
53	Matherne	Nicolas	Terrebonne Parish	Coastal	
54	Millford, III	Gene	Gene Millford and Associates	Professional Engineer	
55	Moore	Jack	Terrebonne Parish School District	Risk Management	
56	Mullarkey	Christine	Red Cross	Resource Manager	



**Terrebonne Parish Hazard Mitigation Plan Update 2015**  
**Thursday, July 17, 2014 2 PM Folklife Museum**  
**317 Goode Houma, Louisiana**



	SIGN IN	Last Name	First Name	Organization	Title	Comments
57		Nail	Shirin	REMAX		
58	<i>S. Nail</i>	Naquin	Albert	Bloxi-Chitamacha Island Road Band	Chief	
59	<i>Bray Bullard</i>	O'Neal	Cindy	DOTD	State Floodplain Manager	
60		Pellegrin	Cynthia	ReMax Good Earth	Real Estate Broker	
61		Pena	Oscar	CB&I	Senior Vice President	
62		Peoples	Phyllis	Terrebonne General Medical Center	CEO	
63		Perry	Ron	St. Charles Parish	OEP Director	
64		Peterson	Kris	UNO-CHART		
65		Poche	Charlette	Terrebonne Parish Council	Council Clerk	
66	<i>Chris</i>	Pulaski	Chris	Terrebonne Parish Consolidated Government	Senior Planner - Plan/Zoning	
67		Riley	Mark	GOHSEP	Deputy Director, GOHSEP	
68		Rivette	Frank	NOAA	Meteorologist	
69		Rutter	Lea			
70	<i>F.D. Schexnayder</i>	Schexnayder	Phil	Gulf South Engineering Associates, Inc.	Professional Engineer	
71		Smith	Kenneth	T. Baker Smith	President/CEO	
72	<i>Michael A. Sobert</i>	Sobert	Michael	Consolidated Waterworks District	General Manager	
73		Tastet	Jason	St. Charles Parish	OEP	



**Attachment c1-3.2C**  
**Meeting 2—Meeting Agenda and Summary Meeting Notes**

**TERREBONNE**  
**HAZARD MITIGATION PLAN UPDATE**

7/17/2014

@ 2:00 P.M

Folk Life Museum  
317 Goode Street  
Houma, Louisiana 70360

- **WELCOME AND INTRODUCTIONS**

The Terrebonne Parish Hazard Mitigation Plan Update Committee held their second open to the public meeting at the Folk Life Museum in Houma, Louisiana, on Thursday, June 17, 2014. The purpose of the meeting was to provide an opportunity to update maps, add new or update existing projects, and receive attendees input on hazard events.

Nicole Cutforth from CB&I introduced herself and asked attendees to introduce themselves, provide what agency they represent, and also provide one statement about what they would like learn from the second meeting.

- **SUMMARY OF FIRST MEETING**

Nicole reviewed the first meeting agenda and discussed that the goal of the Hazard Mitigation Plan Update is for it to be approved by both FEMA and GOHSEP so that Terrebonne Parish remains eligible for Hazard Mitigation Grant Program funds. She reiterated that the plan is a living document.

- **DATA INVENTORY AND MAPS PRESENTATION**

Nicole broadly discussed the updated maps for the Hazard Mitigation Plan and explained that the updated maps and markers were provided on each table for input from the attendees.

Nicole explained that all hazard events should be profiled for the plan update procedure. She explained the impacts that occurred during past hurricanes, such as Gustav, Ike, Isaac, etc. and flooding events, such as Flood of May 2011, Flood of July 18, 2011, Tropical Storm Lee, etc., and also how the barge in Bayou Chene kept the backwater flooding from reaching Terrebonne Parish during the Flood of May 2011. Nicole discussed with the attendees that no data has been found for the October Flooding (2013)/ May Flooding (2014) and the attendees agreed to remove these flood events from the plan.

Reggie Dupre with TLCD noted flooding damage occurred to Reach J2 during Lee and Isaac. It was also discussed that there was overtopping of a few reached during Gustav but only lasted about two hours. Mitch Marmande with TLCD commented that the jail flooded during Ike instead of Gustav.

- **RISK ASSESSMENT**

Nicole discussed that FEMA has various worksheets (3A & 4) used for calculating risk assessments for the Hazard Mitigation Plan Update.

Nicole defined the composite risk flood area as a compiled map of the 100-year floodplain and historical flood events. She discussed worksheet #3A “Inventory Assets of the Parish” and what it entails. In the next meeting once all flood inundation maps are compiled, the map will then be inserted into HAZUS (a FEMA software). HAZUS produces loss estimates on types of structures (residential, commercial, etc.) and critical facilities. The data from HAZUS will be presented at the next meeting.

Repetitive Loss Structures were defined and it was noted that they are tracked by FEMA and the NFIP.

- **HAZARD EVENT PROFILES**

Nicole discussed the hazards that Terrebonne Parish will be profiling in the 2015 Update. The focus tends to be more on flooding and wind because those hazards create the most damage in South Louisiana, but Nicole stressed that the plan will also profile every other natural hazard that Terrebonne Parish can possibly have damages from and receive mitigation funds. The other hazards include drought, hailstorms, tornadoes, winter storms, land subsidence, sea level rise, coastal erosion, saltwater erosion, and sinkholes.

Mitigation Goals were discussed and explained that they are generic enough to be a “catch all” for any type of hazard mitigation project.

Nicole explained that the Project List is organized by source so there may be projects that are listed multiple times. She discussed how we want to include any project that will reduce or eliminate any type of hazards that have been discussed. She stressed that we do not want to focus on HMGP eligibility; various grants will be able to fund projects within a parish approved plan (ex. CDBG). The plan will go to council and will have to be approved as part of the FEMA requirements.

Some projects that were discussed are as follows:

- Two water treatment plants (Schriever/Houma) need shutters
- Drinking water structures on Bayou Black that Waterworks operates that fall in the Morganza alignment. The project to be added would elevate the structure.
- Gibson/Bayou Black (levee map) – Gibson alignment to be added

Pat Gordon with Terrebonne Parish Consolidated Government (TPCG) discussed that these projects are not 100% funded and it is normally a 25% match.

Jennifer Gerbasi with TPCG discussed that generators are now a stand-alone project.

A concern was raised that the Parish should analyze the HMGP funding process. For example, one expects the project to be \$600,000.00 and it turns into a \$1M job through GOHSEP/FEMA review.

Nicole discussed that they should look at the project list as a “wish list” and provide all projects that need to be completed that can lessen the effects from natural hazards so that all projects needing funding can be in a parish approved plan.

- **DETERMINE MITIGATION STRATEGIES**

Nicole explained that once all projects are identified, they will be prioritized in the next meeting. FEMA requires that we keep the STAPLEE criteria in mind while prioritizing.

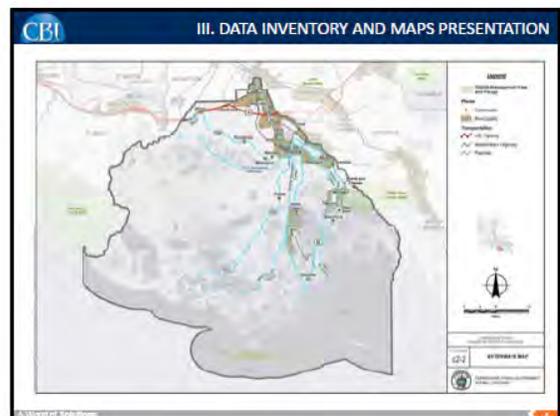
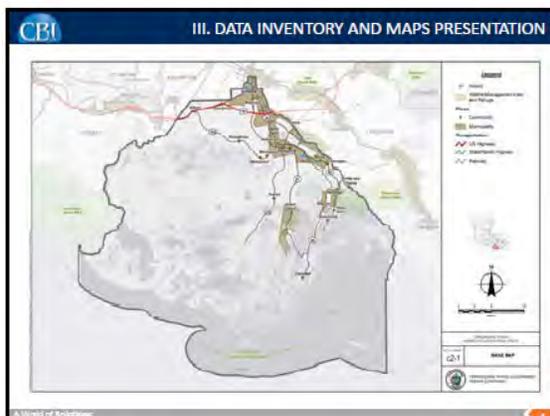
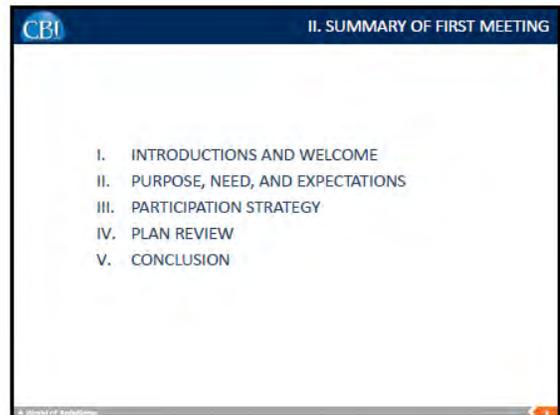
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- Economic – Does the economic base, protected growth and opportunity costs justify the mitigation project?
- Environmental – Does the proposed action meet statutory considerations and public desire for sustainable and environmentally healthy communities?

- **CONCLUSION**

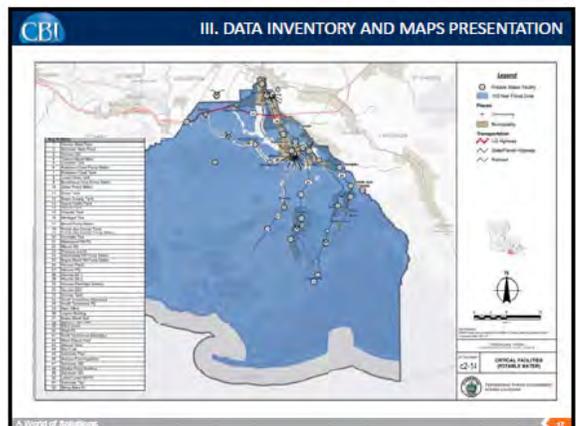
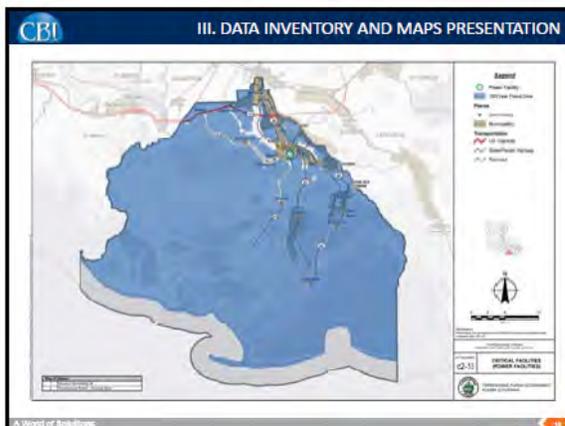
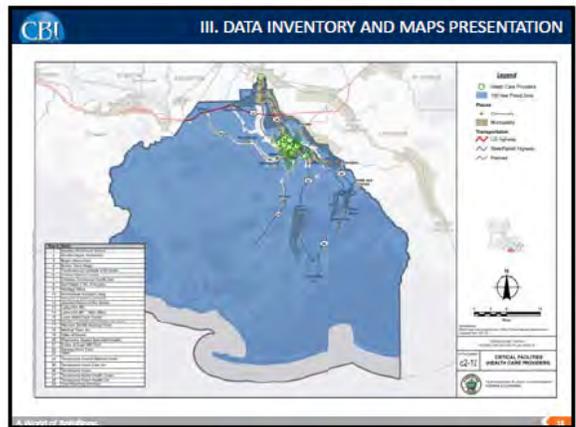
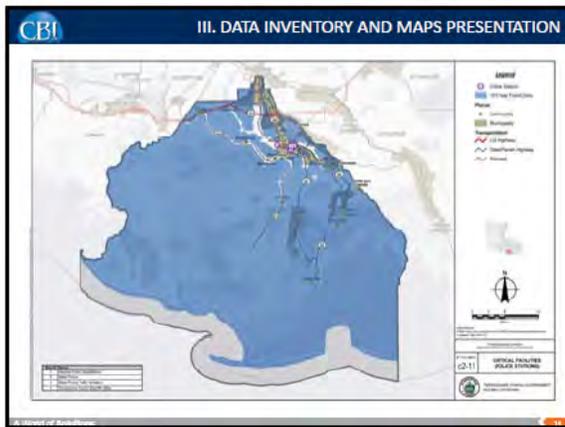
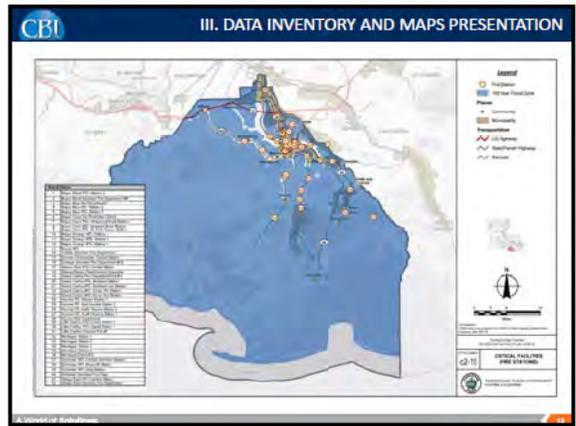
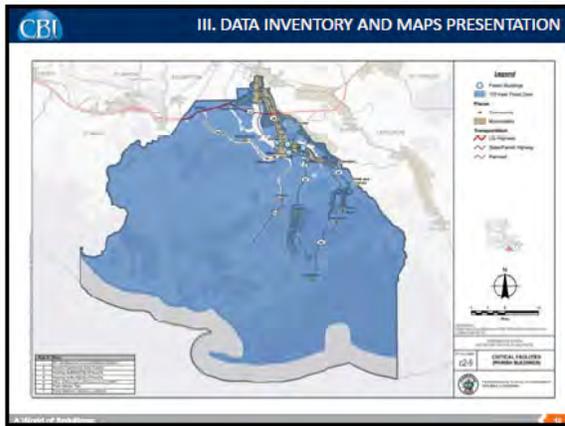
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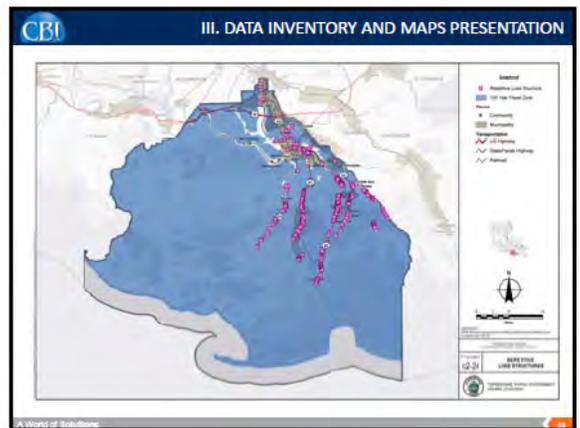
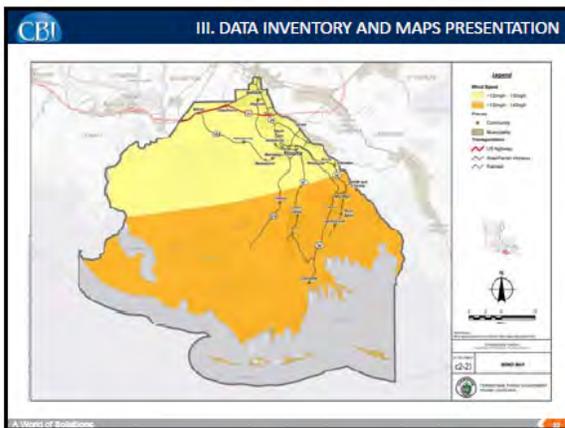
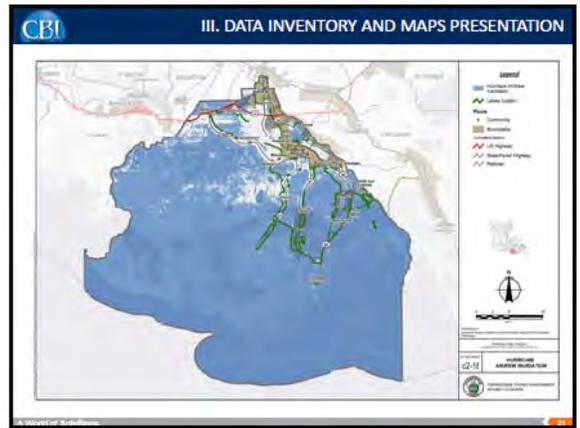
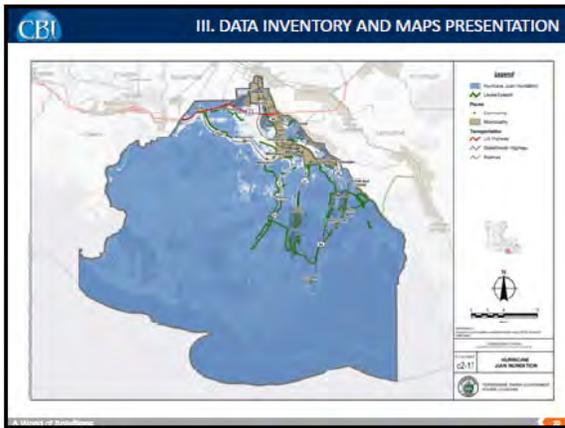
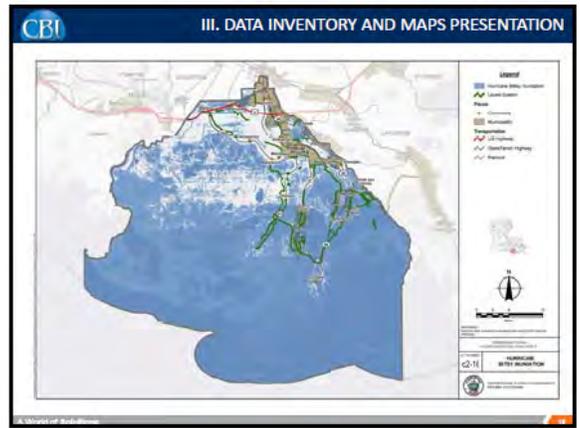
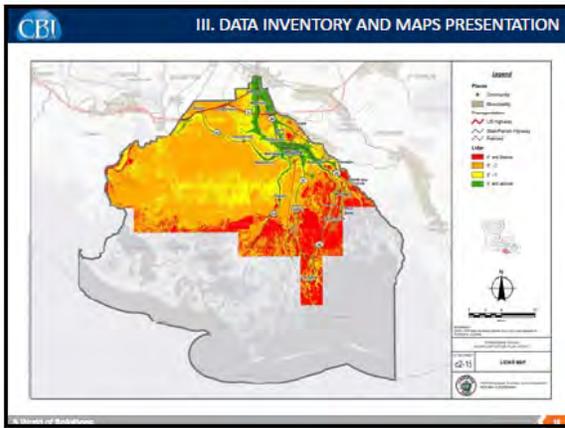
- Review Updated Maps
- Review Risk Assessment
- Prioritize Project List

## Attachment c1-3.2D Meeting 2—Power Point Presentation Slides











- **Hurricane Gustav**
- Mandatory Evacuation of 2,300 residents
- 100% of Parish experienced loss of electrical service
- Drinking water system damaged and required a boil water advisory, affected the opening of two major hospital systems within Terrebonne Parish
- Parish experienced Category 2 hurricane force winds
- Major structural damage widespread throughout Terrebonne Parish
- Jail flooded
- Hospital parking lot flooded (couldn't get to Chabert)



- **Hurricane Ike**
- Major storm surge flooding throughout Terrebonne Parish, mostly south of the Intracoastal Waterway. Storm surge flooding also noted in western end of Parish.
- Storm surge was approximately 7 to 8 feet.
- Levee breached and overtopped from storm surges
- Damage to drainage pump stations.
- Shelters opened to house residents affected by storm surge flooding.



- **Flood of May 2011 (Atchafalaya High Water Event)**
  - No flooding
- Prepped pumps
- Levees built in time to prevent damages
- Tiger Tubes, Sheetpile, Hesco baskets Placed
- If barge in Bayou Chene hadn't been successful, new levees wouldn't have held



- **Flood of July 18, 2011**
- Street flooding
- Catch basin clogging
- Debris blocking drains
- Clearing culverts & trash screens



- **Tropical Storm Lee**
- North shore of Lake Boudreaux Lost material /Rock Dike \$1.2MM
- Bellaire Lift Station Flooded
- Not as severe as other listed storms



- **Hurricane Isaac**
- Debris due to wind damage
- Signs/ bridges/ traffic lights needed repair
- Island Road shoulder damage
- Damage to the South treatment plant oxidation pond

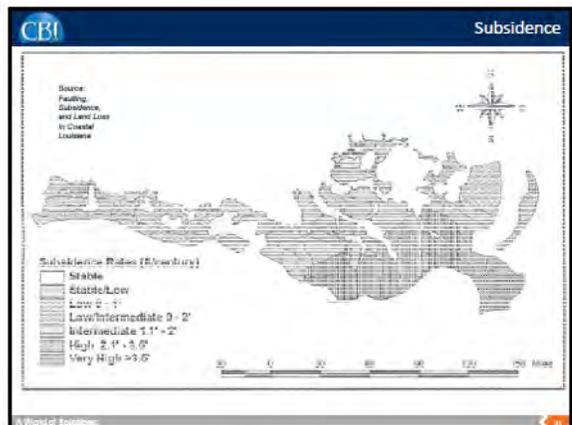
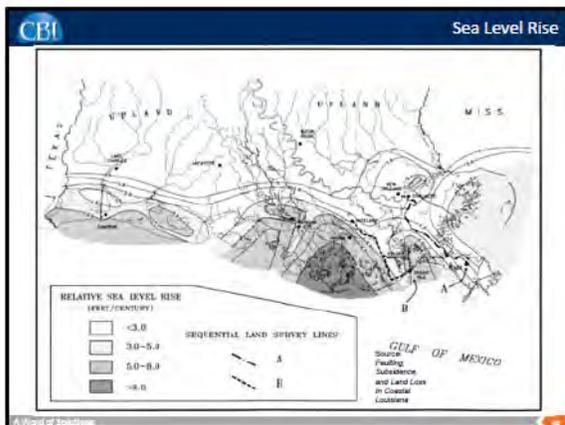
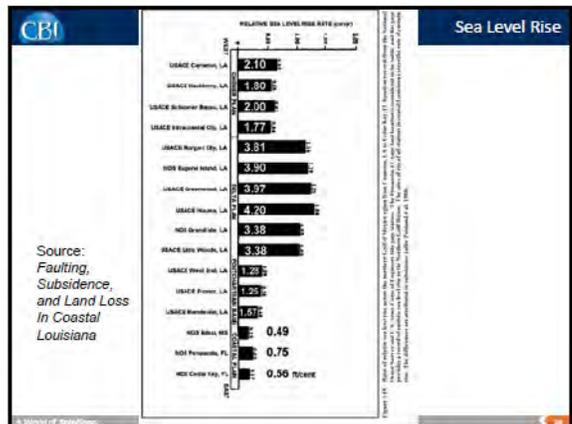
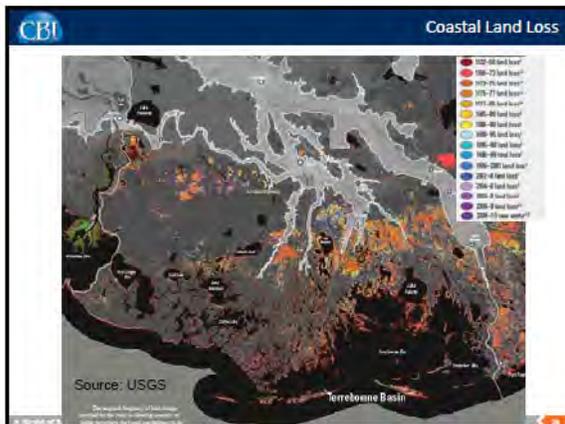


**V. HAZARD EVENT PROFILES**

- Drought**
  - Can adversely effect every jurisdiction in Louisiana
  - No fatalities, no injuries, no property damage in last 25 years
  - 6 occurrences in last 56 years (1957-2013) with damages totaling \$4.4 million
- Hailstorm**
  - 20 major hail storm instances reported by NCDC in last 56 years
  - 50 losses according to NCDC
- Tornadoes**
  - 30 tornadoes reported by NCDC
  - Losses total \$13 million
- Winter Storms**
  - 7 cold/winter storm events reported by NCDC in last 56 years
  - \$100,000 total damages

**V. HAZARD EVENT PROFILES**

- Non-NCDC Reported Hazard Events:**
  - Land Subsidence**
    - Worsened by Levee Construction and Pumping Stations that inhibit alluvial sedimentary deposits along ridges and wetlands in a deltaic region
  - Sea Level Rise**
    - Combined with subsidence, sea level rise will cause the Louisiana coastline to disappear into the gulf
    - USGS ranks Terrebonne Parish at a "very high" risk to land loss due to sea level rise
  - Coastal Erosion**
    - Worsened by Hurricane Events
    - Terrebonne Parish and the State of Louisiana has comprehensive list of coastal restoration and protection projects



**CBI** **V. HAZARD EVENT PROFILES**

- Non-NCDC Reported Hazard Events:
  - Saltwater Intrusion
    - Alternative backup water intakes
  - Sinkholes
    - The sinkhole in Bayou Corne, Assumption Parish brought to light the significance of this hazard.

Source: USGS

**CBI** **VI. DETERMINE MITIGATION STRATEGIES**

Mitigation Goals and Objectives

1. Identify and pursue preventative measures that will reduce future damages from hazards.
2. Enhance public awareness and understanding of disaster preparedness.
3. Reduce repetitive flood losses in the parish.
4. Facilitate sound development in the parish to reduce or eliminate the potential impact of hazards.

**CBI** **VI. DETERMINE MITIGATION STRATEGIES**

Preliminary Project List (handout)

Discussion of New or Additional Projects

**CBI** **VI. DETERMINE MITIGATION STRATEGIES**

Current Plans

- Louisiana State Hazard Mitigation Plan
- Coastal Wetlands Planning Protection & Restoration Act
- Coastal Impact Assistance Program
- Louisiana Comprehensive Master Plan for a Sustainable Coast
- Coastal Protection and Restoration Authority
- ESF 14
- Terrebonne Parish Feasibility Study for Levee Embankment Projects
- Terrebonne Parish Comprehensive Master Plan

**CBI** **VI. DETERMINE MITIGATION STRATEGIES**

- Identify and Prioritize Mitigation Measures:
  - Determine evaluation criteria
    - Social – Is the mitigation strategy socially acceptable?
    - Technical – Is the proposed action technically feasible and cost effective? Does it provide the appropriate level of protection?
    - Administrative – Does the parish have the capability to implement the action? Is the lead agency capable of carrying out oversight of the project?
    - Political – Is the mitigation action politically acceptable?
    - Legal – Does the parish have the authority to implement the proposed measure?
    - Economic – Does the economic base, protected growth and opportunity costs justify the mitigation project?
    - Environmental – Does the proposed action meet statutory considerations and public desire for sustainable and environmentally healthy communities?
  - Implementation Strategy
    - Identify who will implement the mitigation measures
    - Identify mitigation funding
    - Identify when the mitigation measures should be completed

**CBI** **VI. DETERMINE MITIGATION STRATEGIES**

- Capability Assessment
  - What plans reduce long-term vulnerability?
  - What capabilities could be used to implement mitigation and reduce vulnerability in the future?
  - Strengths/Opportunities for Improvement?
    - Planning and Regulatory
    - Administrative and Technical
    - Financial
    - Education and Outreach
- Discussion Questions:
  - What community capabilities can be identified?
  - What limits to community capabilities can be identified?
  - What improvements can be suggested?

Next Phase.....

- Review Updated Maps
- Review Risk Assessment
- Prioritize Project List
- Next Meeting: August 7, 2014

**Attachment c1-3.3A  
Meeting 3—Advertisement**

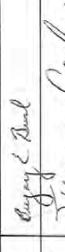
**Public Notice  
Meeting Announcement  
Terrebonne Parish Hazard  
Mitigation Plan Update 2014**

The Terrebonne Parish Consolidated Government is updating the parish's Hazard Mitigation Plan. The purpose of the plan update is to identify and pursue preventative measures that will reduce future damages from natural hazards. To continue the plan update, the Terrebonne Parish Hazard Mitigation Committee will discuss project prioritization, review the risk assessment, and review updated maps. Any concerns with the scope of the risk assessment or types of projects proposed should be raised at this meeting. The next meeting will be the review of the draft plan. The public is encouraged to attend this meeting.

**Thursday, August 7th, 2014 at 10:00 am  
Bayou Terrebonne Waterlife Museum  
7910 W Park Ave  
Houma, Louisiana 70360**

Please direct questions about the meeting to Nicole Cutforth, CB&I, at (985) 858-3983.

**Attachment c1-3.3B  
Meeting 3—Sign-in Sheets**

		<p align="center"><b>Terrebonne Parish Hazard Mitigation Plan Update 2015</b>  <b>Thursday, August 7, 2014 10 AM Waterlife Museum</b>  <b>7910 W Park Ave, Houma, Louisiana</b></p> <p align="center">Meeting topic: review updated maps, review risk assessment, and prioritize project list</p>																		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
SIGN IN		Last Name	First Name	Organization	Title	Comments														
		Adams	Phillip	TPCG Assessor's Office	Commercial Bldgs															21
		Allemand	Gwen																	
		Alford	Tony	Terrebonne Levee & Conservation District	President TLCD Board															
		Arnette	Jane	South Central Industrial Association	Executive Director															
		Babin	Danny	President of the Regulatory Planning Commission	Chairman															
		Benoit	Eric	Lafourche Parish	Asst. OEP															
		Belanger	Wanda	Southeast LA HBA																
		Boudreaux	Chris	Lafourche Parish	OEP Director															
		Boudreaux	John	Assumption Parish	OEP Director															
		Boucvalet	Jobe	St. John	OEP Director															
		Bourg	Doug	Terrebonne Parish Consolidated Government	Parish President Assistant															
		Bourg	Tom	Terrebonne Parish Consolidated Government	Utility Director						44									
		Bray	Jeanne	DPW	Engineer															
		Bush	Gregory	Terrebonne Parish Consolidated Government	Public Works Director															31
		Carlos	Suzanne	Houma-Terrebonne Chamber of Commerce																#34
		Case	Peggy	Terrebonne Readiness and Assistance Coalition	Executive Director															
		Cehan	Connie	Terrebonne Parish School District																
		Claudet	Michel	Terrebonne Parish Consolidated Government	Parish President															
		Cloutier	Budd	Planning Commission	Chair															
		Crispino	Steve	South Louisiana Bank	Vice President															



**Terrebonne Parish Hazard Mitigation Plan Update 2015**  
**Thursday, August 7, 2014 2 PM Waterlife Museum**  
**7910 W Park Ave, Houma, Louisiana**

Meeting topic: review updated maps, review risk assessment, and prioritize project list



	<b>SIGN IN</b>	Last Name	First Name	Organization	Title	Comments
21	<i>Melissa Daigle</i>	Daigle	Melissa	LSU LA SeaGrants	Legal Coordinator	13
22	<i>Thomas Dardar</i>	Dardar	Thomas	United Houma Nation	Principal Chief	24
23	<i>Shirell Dardar</i>	Dardar	Shirell	Biloxi-Chitamacha Confederation of Miskogees	Deputy Chief	
24	<i>Arthur DeFraitres</i>	DeFraitres	Arthur	Gulf South Engineering	President	
25	<i>Eric Deroche</i>	Deroche	Eric	St. James Parish	OEP Director	
26	<i>David Drury</i>	Drury	David	TPCG	TPCG Facilities Manager	
27	<i>Todd Dufrene</i>	Dufrene	Chief	Houma Fire Department	Fire Chief	43
28	<i>Duffy Duplantis</i>	Duplantis	Duffy	TPCG	GIS	
29	<i>Todd Duplantis</i>	Duplantis	Todd	TPCG	Houma Police Chief	
30	<i>Reggie Dupre</i>	Dupre	Reggie	TLCD	Executive Director	
31	<i>Nicolette English</i>	English	Nicolette	GOHSEP	Planner	
32	<i>Earl Eues</i>	Eues	Earl	OEP-Terrebonne	Director	
33	<i>Julie Falgout</i>	Falgout	Julie	LA. SeaGant	Seafood Industry Liaison	
34	<i>David Gauthie</i>	Gauthie	David	BISCO		
35	<i>Jennifer Gerbasi</i>	Gerbasi	Jennifer	Terrebonne Parish Consolidated Government	Division Manager/Recovery Planner	#8
36	<i>Patrick Gordon</i>	Gordon	Patrick	Planning and Zoning	Director	#1
37	<i>Loney Grabert</i>	Grabert	Loney	TPCG	Assessor	
38	<i>Ken Graham</i>	Graham	Ken	NOAA	Meteorologist-in-Charge	
39	<i>Mary Gueniot-Biegler</i>	Gueniot-Biegler	Mary	Bayou Grace	Executive Director	
40	<i>Francis Hymel</i>	Hymel	Francis	St. James Parish	Asst. OEP	



**Terrebonne Parish Hazard Mitigation Plan Update 2015**  
**Thursday, August 7, 2014 10 AM Waterliffe Museum**  
**7910 W Park Ave, Houma, Louisiana**

Meeting topic: review updated maps, review risk assessment, and prioritize project list



	Last Name	First Name	Organization	Title	Comments
41	Jofferson	Batron	LSU AG Center	County Agent	
42	Landry	Kayle	Assumption Parish	Asst. OEP	
43	Large	Geoff	Terrebonne Parish Consolidated Government	Chief Building Official	
44	Larpenter	Jerry	Terrebonne Parish Sheriff's Office	Sheriff	
45	LeBlanc	Kathy	Louisiana Department of Health & Human Services	Sanitarian	
46	Ledet	Brad	LaDay Construction		
47	Ledet	Lisa	Terrebonne Parish Consolidated Government	Floodplain Manager	#33
48	Levron	Al	Terrebonne Parish Consolidated Government	Capital Projects Admin.	
49	Liner	Michelle	Terrebonne Readiness and Assistance Coalition	Administrative Assistance	
50	Lombardo	John	Restore or Retreat	Outreach Coordinator	
51	Maloz	Simone	South Central Industrial Association	Representative	#32
52	Marmande	Mitch	Terrebonne Levee and Conservation District	Program Manager	
53	Martin	Philip	Terrebonne Parish School District	Superintendent	
54	Matherne	Alan	LSU Ag Center	Area Agent	
55	Matherne	Nicolas	Terrebonne Parish	Coastal	
56	Milford, III	Gene	Gene Milford and Associates	Professional Engineer	
57	Moore	Jack	Terrebonne Parish School District	Risk Management	#4
58	Mullarkey	Christine	Red Cross	Resource Manager	



**Terrebonne Parish Hazard Mitigation Plan Update 2015**  
**Thursday, August 7, 2014 10 AM Waterlife Museum**  
**7910 W Park Ave, Houma, Louisiana**

Meeting topic: review updated maps, review risk assessment, and prioritize project list



**SIGN IN**

	Last Name	First Name	Organization	Title	Comments
59	Nail	Shirin	REMAX		
60	Naquin	Albert	Bloxi-Chitamachia Island Road Band	Chief	
61	O'Neal	Cindy	DOTD	State Floodplain Manager	
62	Pellegrin	Cynthia	ReMax Good Earth	Real Estate Broker	
63	Pena	Oscar	CB&I	Senior Vice President	
64	Peoples	Phyllis	Terrebonne General Medical Center	CEO	
65	Perry	Ron	St. Charles Parish	OEP Director	
66	Peterson	Kris	UNO-CHART		
67	Poche	Charlette	Terrebonne Parish Council	Council Clerk	
68	Pulaski	Chris	Terrebonne Parish Consolidated Government	Senior Planner - Plan/Zoning	#2
69	Riley	Mark	GOHSEP	Deputy Director, GOHSEP	
70	Rivette	Frank	NOAA	Meteorologist	
71	Rutter	Lea			
72	Schexnayder	Phil	Gulf South Engineering Associates, Inc.	Tech. Engineer	
73	Smith	Kenneth	T. Baker Smith	President/CEO	
74	Soberit	Michael	Consolidated Waterworks District	General Manager	Myself Soberit #22
75	Tastet	Jason	St. Charles Parish	OEP	



**Attachment c1-3.3C**  
**Meeting 3—Meeting Agenda and Summary Meeting Notes**

**AGENDA & NOTES**  
FOR  
**TERREBONNE**  
**HAZARD MITIGATION PLAN UPDATE**

8/7/2014

@ 10:00 A.M

Bayou Terrebonne Waterlife Museum  
7910 W Park Ave  
Houma, Louisiana 70360

**I. WELCOME AND INTRODUCTIONS**

The Terrebonne Parish Hazard Mitigation Plan Update Committee held their third open to the public meeting at the Bayou Terrebonne Waterlife Museum in Houma, Louisiana, on Thursday, August 7, 2014. The purpose of the meeting was to provide an opportunity to review the updated maps, review Worksheet #3A and Worksheet #4, and allow attendees to provide input on project prioritization.

Nicole Cutforth from CB&I introduced herself and asked attendees to introduce themselves, provide what agency they represent, and also provide one statement about why they are attending the third Hazard Mitigation Update Meeting.

**II. SUMMARY OF SECOND MEETING**

Nicole reviewed the second meeting agenda and discussed what would be reviewed at meeting three. Nicole informed the attendees that it is very important to have all projects sent in by our final meeting held on September 12, 2014 in order for the projects to be listed in the updated Hazard Mitigation Plan.

**III. MODELING DATA GAP**

Nicole discussed the modeling grant that Terrebonne Parish has and ideas that committee members have for the use of the grant money. One idea that is listed is modeling of drainage/sub-drainage areas within the northern part of the parish. Ronnie Shaw explained that he would like grant funds to be used to model Corporate Drive where it is currently listed as a +2 and is subsiding quickly. Pat Gordon with Terrebonne Parish explained that the parish has already had numerous modeling projects that were completed by FTN and Gulf South and that Ronnie's concerns may have been covered in those. Pat suggested that the modeling grants be projected more to areas that haven't been modeled yet. Ronnie also discussed that the Gray/Schriever area has inadequate drainage and there will be more developments coming to that area in the future.

## **I. REVIEW RISK ASSESSMENT**

Nicole explained the flood composite risk assessment to the committee and how CB&I came up with the inundation information that was provided on the map. CB&I uses a FEMA program called HAZUS that comes up with loss estimates.

Nicole discussed FEMA worksheet #3A which is the inventory assets of Terrebonne Parish that is based off of Census Block Data within HAZUS.

Repetitive Loss Structures were defined and it was noted that they are tracked by FEMA and the NFIP. The definition of Repetitive Loss properties has changed since the last update.

Nicole explained FEMA Worksheet #4 and that HAZUS is also used for this worksheet. HAZUS uses the critical facilities in Terrebonne Parish, places them on the composite risk map and creates an inundation level (in feet) and provides replacement value. The inundation level is applied to percentage values assigned by FEMA to generate the total risk values.

## **II. DETERMINE MITIGATION STRATEGIES**

Nicole discussed that the project list is a wish list but also a list that shows the suggestions of top priority projects in Terrebonne Parish. Chief Dufrene discussed that he would like to add a Safe House to the project list. He would like this Safe House to hold 30 to 40 people and would like it located on 2101 East Houma Drive behind the training facility. Chief would like this to house firemen and policemen in the city in case of an emergency. Jennifer Gerbasi with Terrebonne Parish explained that since there was already going to be a Safe House built to house 200 that Chief Dufrene would need to explain why he would like his Safe House to house be funded.

Chris Pulaski with Terrebonne Parish questioned where major retail outlets such as Home Depot, Lowes, etc. would fit in on the Critical Facilities list. Nicole explained that the critical facilities list is typically just Government Buildings but all major retail outlets can be listed if locations are provided along with a replacement value, contents value, and a value of how much it would cost a day that each store is out of commission.

It was noted that the CNG Station located at 550 South Van Ave. should be listed as a priority on the project list.

Nicole discusses mitigation strategies and what Terrebonne Parish has already completed or is in the process of completing. Pat explained that Terrebonne Parish had eleven recommendations from an Engineering group from Baton Rouge for flood plain management that Terrebonne Parish has addressed such as prohibiting hazardous waste facilities and freeboard built-in for mobile homes which leaves nine other recommendations. Terrebonne Parish has decided they will move forward with some recommendations but not with others. Pat discussed

that Terrebonne Parish is and needs to continue to prohibit issuing building permits in special flood areas deemed as environmentally sensitive.

Each attendee received a remote to vote which project ranks highest priority to them. The results are as follows:

**Question 1** – What type of project do you consider the highest priority?

1. Residential Elevations – 30%
2. Commercial Elevations – 5%
3. Elevations of Critical Facilities – 65%

**Question 2** – What type of project do you consider the highest priority?

1. Generators for Schools – 5%
2. Generators for Sewer Lift Stations – 10%
3. Generators for Potable Water Facilities – 15%
4. Generators for First Responders – 30%
5. Generators for Drainage Pump Stations – 40%

**Question 3** – What type of drainage improvements do you think should be the highest priority?

1. Existing Culvert or Ditch Upgrades – 35%
2. Pump Station Upgrade – 59%
3. Installation of new Drainage Ditches/Culverts where none currently exists – 6%

**Question 4** – What type of critical facility elevation do you think should be the top priority?

1. Elevation of utilities (water/sewer) – 0%
2. Elevation of First Responder structures – 38%
3. Elevation of evacuation routes with flood history – 46%
4. Elevation of pump station controls – 15%

**Question 5** – What type of wind hardening project do you think should be the top priority?

1. Schools – 12%
2. First Responders – 35%
3. Utilities – 18%
4. Evacuation Shelters – 35%
5. Other Government Structures – 0%

**Question 6** – What type of project would be of the highest priority to prevent coastal erosion?

1. Inform community of risk – 0%
2. Acquire and demolish structures in at risk area – 18%
3. Stabilization of rebuilding of barrier island – 82%

**Question 7** – What type of project do you think would be of the highest priority to combat sea level rise?

1. Study to investigate baseline risk – 21%
2. Zoning/Subdivision Regulations – 7%
3. Locate Utilities outside high risk areas – 7%
4. Additional Freeboard Requirements – 7%
5. Natural Buffer Restoration – 57%

**Question 8** – What type of project do you think would be the highest priority to combat subsidence?

1. Study to Identify Baseline Risk – 24%
2. Zoning/Subdivision Regulations – 12%
3. Strengthen Building codes to resist subsidence loads – 65%

Nicole explained to the attendees that most Federal Grants have a 75% federal/ 25% local match and responsible entity had to come up with the local portion.

Nicole discussed the new FEMA requirement that requires a write for the projects that have been implemented in the new plan update.

Jack Moore with Terrebonne School Board noted that West Park Elementary will no longer be a shelter and to remove from Project List.

Nicole discussed with the attendees about the Capability Assessment and that all previous meeting notes, presentations, agendas, maps, and previous plan can be accessed online.

A few attendees discussed different types of funding such as HMGP and how the funding flows.

#### **IV. REVIEW UPDATED MAPS**

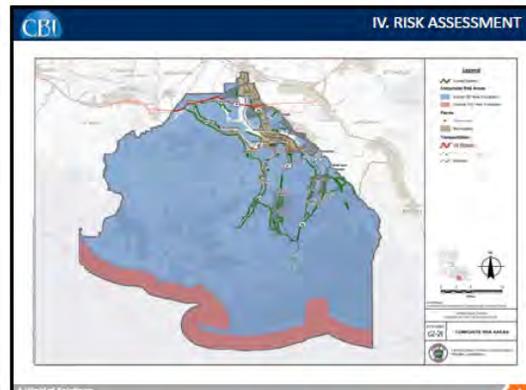
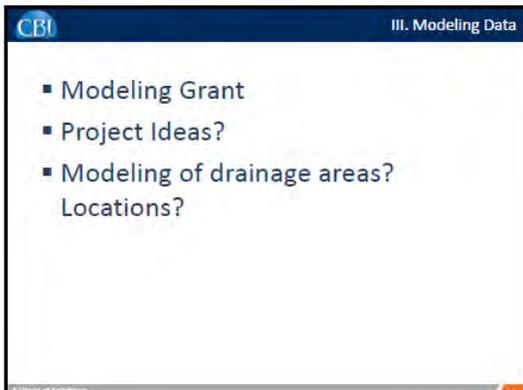
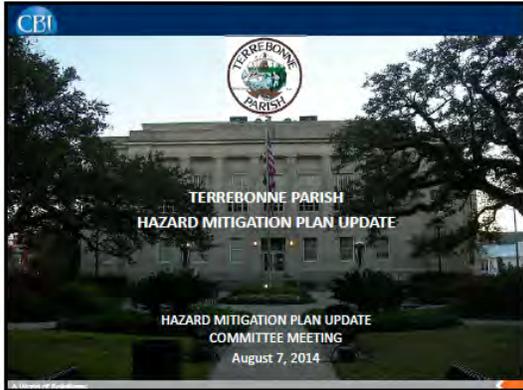
Nicole broadly discussed the updated maps for the Hazard Mitigation Plan and explained the Composite Risk areas and 100-year flood plain. Nicole noted that the latest inundation incorporated into the Composite Risk was Hurricane Ike.

#### **V. CONCLUSION**

##### **A. Next Phase**

1. Review Plan Update – will be posted online a week ahead of the meeting
2. Next Meeting: September 12, 2014

## Attachment c1-3.3D Meeting 3—PowerPoint Presentation Slides



**CBI** IV. RISK ASSESSMENT

Discussion of FEMA Worksheet #3A—Inventory Assets

	Number of Structures:			Value of Structures:			Number of People:		
	# in Community	# in Hazard Area	% in Hazard Area	\$ in Community	\$ in Hazard Area	% in Hazard Area	# in Community	# in Hazard Area	% in Hazard Area
Total	42,680	26,373	62%	\$7,276,677,000	\$4,487,016,000	61%	104,603	64,981	62%

**CBI** IV. RISK ASSESSMENT

Repetitive Loss Structures

- 514 structures identified
- Total amount of claims by these structures = \$50 Million
- Average claim amount = \$36,500

**CBI** IV. RISK ASSESSMENT

Discussion – FEMA Worksheet 4

- Replacement Value of Critical Facilities
  - \$1.3 Billion
- Contents Value
  - \$1.7 Billion
- Composite Risk Loss Estimate
  - \$1.8 Billion

**CBI** IV. DETERMINE MITIGATION STRATEGIES

Preliminary Project List (handout)

Discussion of New or Additional Projects?

**CBI** V. DETERMINE MITIGATION STRATEGIES

Existing Plans and Preventative Activities:

- Comprehensive Plan
- Building Code
- Zoning Ordinance
- Floodplain Management Regulations
- Subdivision Ordinance
- Stormwater Management Regulations

- How tools can reduce losses
- Current community standards
- Additional plans/regulations?

**CBI** V. DETERMINE MITIGATION STRATEGIES

Mitigation Goals and Objectives

- Identify and pursue preventative measures that will reduce future damages from hazards.
- Enhance public awareness and understanding of disaster preparedness.
- Reduce repetitive flood losses in the parish.
- Facilitate sound development in the parish to reduce or eliminate the potential impact of hazards.

**CBI** V. DETERMINE MITIGATION STRATEGIES

- Identify and Prioritize Mitigation Measures
  - Determine evaluation criteria
    - Social – Is the mitigation strategy socially acceptable?
    - Technical – Is the proposed action technically feasible and cost effective? Does it provide the appropriate level of protection?
    - Administrative – Does the parish have the capability to implement the action? Is the lead agency capable of carrying out oversight of the project?
    - Political – Is the mitigation action politically acceptable?
    - Legal – Does the parish have the authority to implement the proposed measure?
    - Economic – Does the economic base, protected growth and opportunity costs justify the mitigation project?
    - Environmental – Does the proposed action meet statutory considerations and public desire for sustainable and environmentally healthy communities?
  - Implementation Strategy
    - Identify who will implement the mitigation measures
    - Identify mitigation funding
    - Identify when the mitigation measures should be completed

**CBI** Question 1

Which type of project do you consider the highest priority?

- Residential Elevations
- Commercial Elevations
- Elevations of Critical Facilities

Project Type	Percentage
Residential Elevations	33%
Commercial Elevations	33%
Elevations of Critical Facilities	33%

**CBI** Question 2

Which type of project do you consider the highest priority?

- Generators for Schools
- Generators for Sewer Lift Stations
- Generators for Potable Water Facilities
- Generators for First Responders
- Generators for Drainage Pump Stations

Project Type	Percentage
Generators for Schools	0%
Generators for Sewer Lift Stations	0%
Generators for Potable Water Facilities	0%
Generators for First Responders	0%
Generators for Drainage Pump Stations	0%

**CBI** Question 3

What type of drainage improvement do you think should be the highest priority?

- Existing Culvert or Ditch Upgrades
- Pump Station Upgrades
- Installation of new Drainage Ditches/Culverts where none currently exists

Project Type	Percentage
Existing Culvert or Ditch Upgrades	0%
Pump Station Upgrades	0%
Installation of new Drainage Ditches/Culverts	0%

**CBI** Question 4

What type of critical facility elevation do you think should be the top priority?

- Elevation of utilities (water/sewer)
- Elevation of First Responder structures
- Elevation of evacuation routes with flood history
- Elevation of pump station controls

Project Type	Percentage
Elevation of utilities (water/sewer)	0%
Elevation of First Responder structures	0%
Elevation of evacuation routes with flood history	0%
Elevation of pump station controls	0%

**CBI** Question 5

What type of wind hardening project do you think should be the top priority?

- Schools
- First Responders
- Utilities
- Evacuation Shelters
- Other Government Structures

Project Type	Percentage
Schools	0%
First Responders	0%
Utilities	0%
Evacuation Shelters	0%
Other Government Structures	0%

**CBI**

### Question 6

What type of project would be of the highest priority to prevent coastal erosion?

1. Inform community of risks
2. Acquire and demolish structures in at risk area
3. Stabilization or re-building of barrier islands

Option	Percentage
Inform community of risks	0%
Acquire and demolish structures in at risk area	0%
Stabilization or re-building of barrier islands	0%

10

**CBI**

### Question 7

What type of project do you think would be of the highest priority to combat sea level rise?

1. Study to investigate baseline risk
2. Zoning/Subdivision Regulations
3. Locate Utilities outside high risk areas
4. Additional Freeboard Requirement
5. Natural Buffer Restoration

Option	Percentage
Study to investigate baseline risk	0%
Zoning/Subdivision Regulations	0%
Locate Utilities outside high risk areas	0%
Additional Freeboard Requirement	0%
Natural Buffer Restoration	0%

10

**CBI**

### Question 8

What type of project do you think would be the highest priority to combat subsidence?

1. Study to Identify Baseline Risk
2. Zoning/Subdivision Regulations
3. Strengthen Building codes to resist subsidence loads

Option	Percentage
Study to Identify Baseline Risk	0%
Zoning/Subdivision Regulations	0%
Strengthen Building codes to resist subsidence loads	0%

10

**CBI** V. DETERMINE MITIGATION STRATEGIES

Discussion Points:

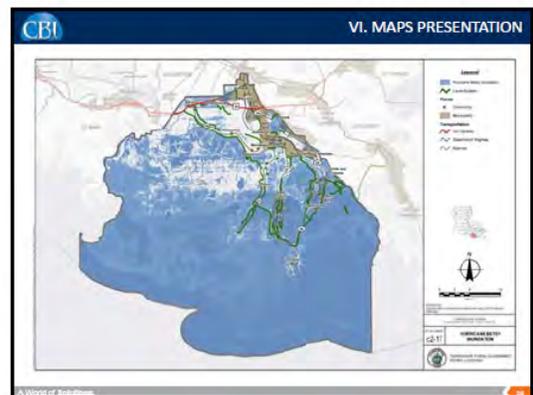
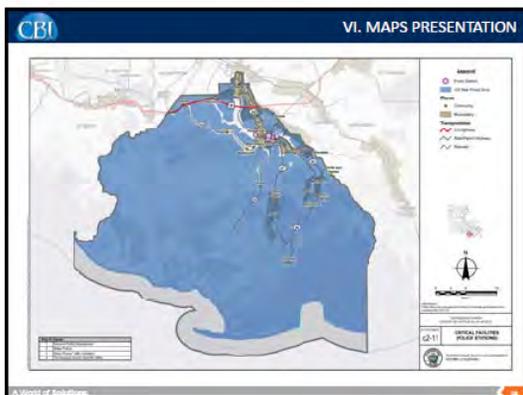
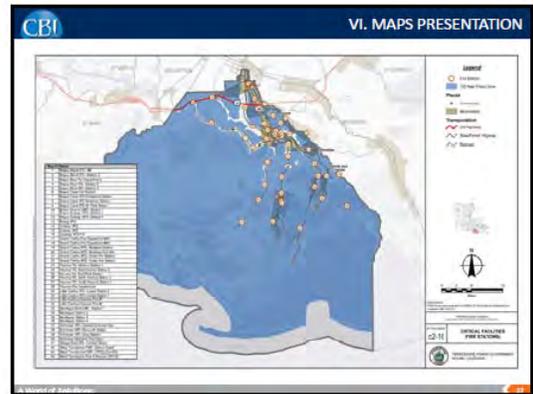
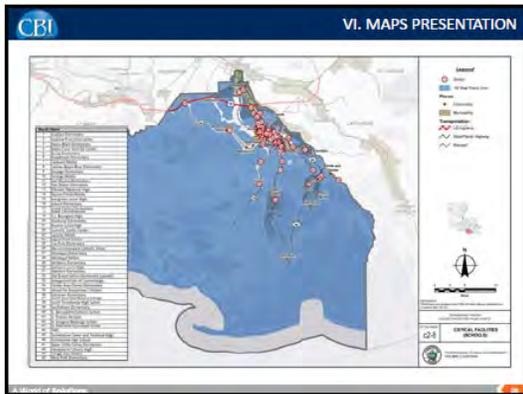
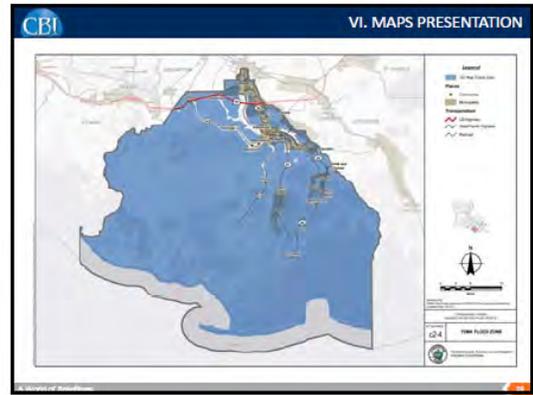
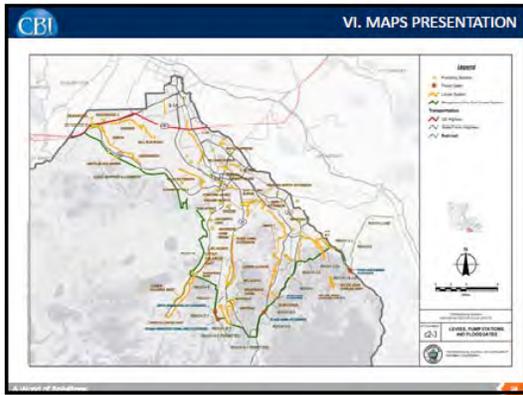
- Capability of community to fund and implement activity
- Discussion of implementation of current projects and achievement of expectations

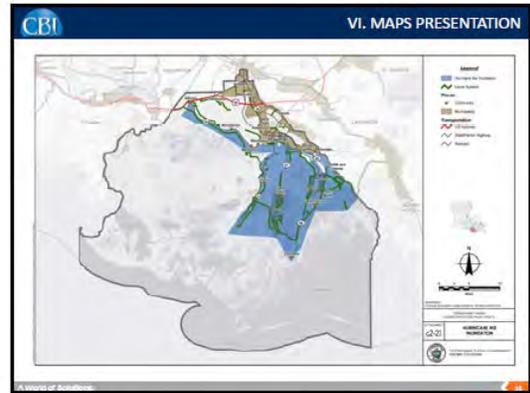
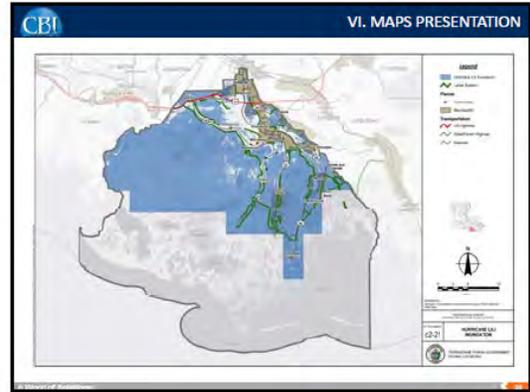
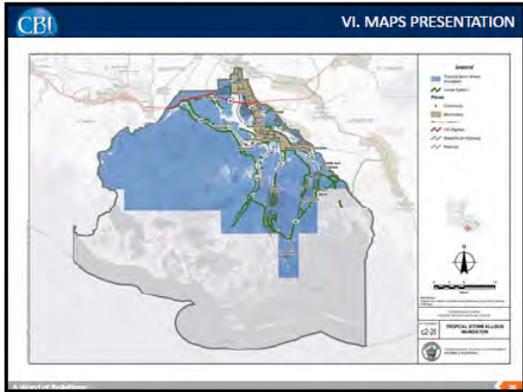
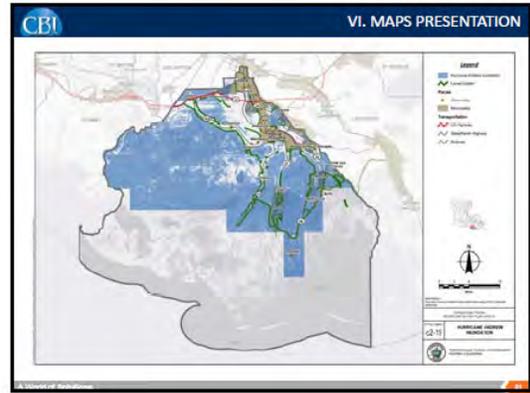
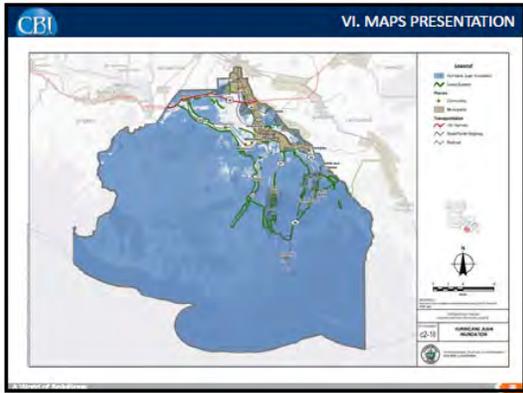
**CBI** V. DETERMINE MITIGATION STRATEGIES

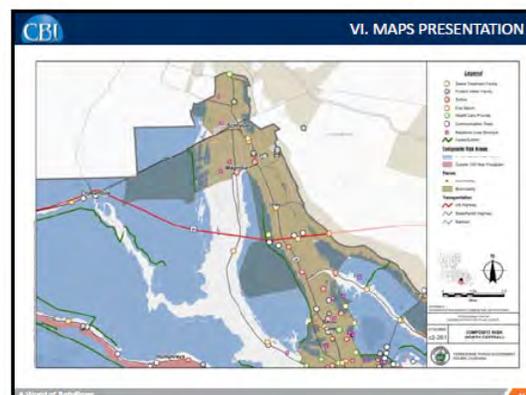
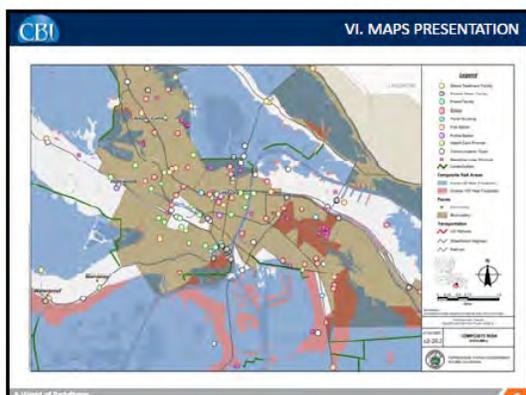
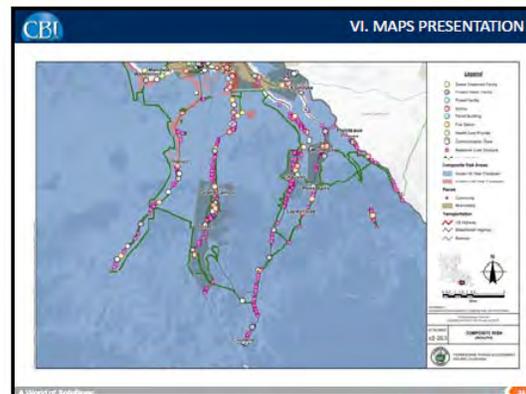
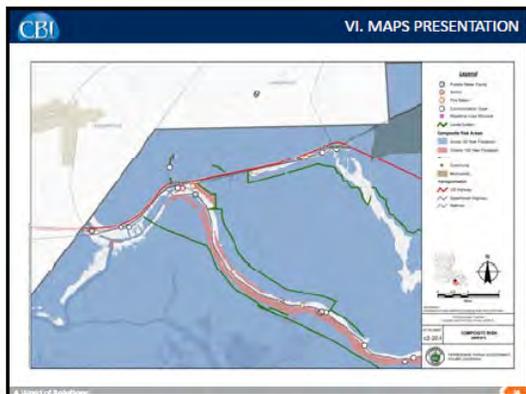
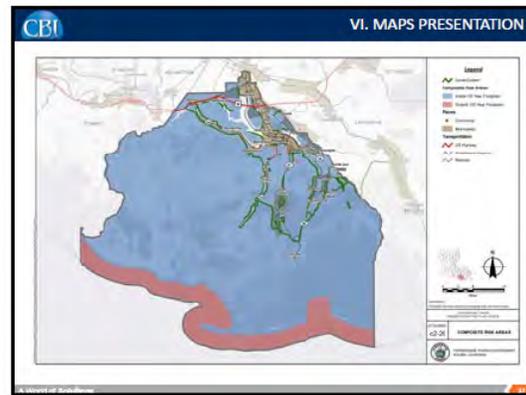
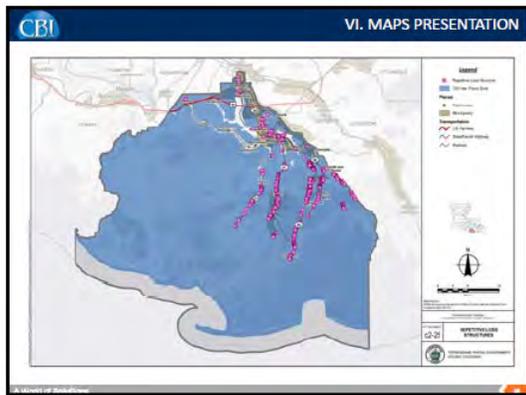
- Capability Assessment
  - What plans reduce long-term vulnerability?
  - What capabilities could be used to implement mitigation and reduce vulnerability in the future?
  - Strengths/Opportunities for Improvement?
    - Planning and Regulatory
    - Administrative and Technical
    - Financial
    - Education and Outreach
- Discussion Questions:
  - What community capabilities can be identified?
  - What limits to community capabilities can be identified?
  - What improvements can be suggested?

**CBI** VI. MAPS PRESENTATION

The map displays a coastal region with various colored zones and markers. A legend on the right side includes categories such as 'Map', 'Coastal Erosion', 'Sea Level Rise', 'Subsidence', 'High Risk Areas', and 'Low Risk Areas'. A scale bar and north arrow are also present.







Next Phase.....

- Review Plan Update
- Next Meeting: September 12, 2014

**Attachment c1-3.4A  
Meeting 4—Advertisement**

**Public Notice  
Meeting Announcement  
Terrebonne Parish Hazard Mitigation Plan Update 2014**

The Terrebonne Parish Consolidated Government is updating the parish's Hazard Mitigation Plan. The purpose of the plan update is to identify and pursue preventative measures that will reduce future damages from natural hazards. In meeting number four, the Terrebonne Parish Hazard Mitigation Committee will review the Hazard Mitigation Plan Update. The public is encouraged to attend.

**Friday, September 12<sup>th</sup>, 2014 at 2:00 pm  
Waterlife Museum  
7910 W Park Ave  
Houma, Louisiana 70360**

Please direct questions about the meeting to Nicole Cutforth, CB&I, at (985) 858-3983.

**Attachment c1-3.4B  
Meeting 4—Sign-in Sheets**

	Sign In	Last Name	First Name	Organization	Title	Comments
1		Adams	Phillip	TPCG Assessor's Office	Commercial Bldgs	
2		Allemand	Gwen			
3		Alford	Tony	Terrebonne Levee & Conservation District	President TLCD Board	
4		Amedee'	Beryl	Terrebonne Parish Council	Concil Woman, District 4	
5		Arnette	Jane	South Central Industrial Association	Executive Director	
6		Babin	Danny	President of the Regulatory Planning Commission	Chairman	
7		Benoit	Eric	Lafourche Parish	Asst. OEP	
8		Belanger	Wanda	Southeast LA HBA		
9		Boudreaux	Chris	Lafourche Parish	OEP Director	
10		Boudreaux	John	Assumption Parish	OEP Director	
11		Boucvall	Jobe	St. John	OEP Director	
12		Bourg	Doug	Terrebonne Parish Consolidated Government	Parish President Assistant	
13		Bourg	Tom	Terrebonne Parish Consolidated Government	Utility Director	
14		Bray	Jeanne	DPW	Engineer	
15		Bush	Gregory	Terrebonne Parish Consolidated Government	Public Works Director	
16		Carlos	Suzanne	Houma-Terrebonne Chamber of Commerce		
17		Case	Peggy	Terrebonne Readiness and Assistance Coalition	Executive Director	Council
18		Cehan	Connie	Terrebonne Parish School District		
19		Claudet	Michel	Terrebonne Parish Consolidated Government	Parish President	Con-Work
20		Cloutier	Budd	Planning Commission	Chair	
21		Crispino	Steve	South Louisiana Bank	Vice President	



**Terrebonne Parish Hazard Mitigation Plan Update 2015**  
**Friday, September 12, 2014 2 PM Waterlife Museum**  
**7910 W. Park Ave, Houma, Louisiana**  
 Meeting topic: Draft Plan Review





**Terrebonne Parish Hazard Mitigation Plan Update 2015**  
**Friday, September 12, 2014 2 PM Waterlife Museum**  
**7910 W. Park Ave. Houma, Louisiana**  
 Meeting topic: Draft Plan Review

	Last Name	First Name	Organization	Title	Comments
21	Dalgie	Melissa	LSU LA SeaGrants	Legal Coordinator	
22	Dardar	Thomas	United Houma Nation	Principal Chief	
23	Dardar	Shirell	Bloxi-Chilimacha Confederation of Miskogees	Deputy Chief	
24	DeFraties	Arthur	Gulf South Engineering	President	
25	Deroche	Eric	St. James Parish	OEP Director	
26	Drury	David	TPCG	TPCG Facilities Manager	
27	Dufrene	Chief	Houma Fire Department	Fire Chief	
28	Duplantis	Duffy	TPCG	GIS	
29	Duplantis	Todd	TPCG	Houma Police Chief	
30	Dupre	Reggie	TLCD	Executive Director	
31	English	Nicolette	GOHSEP	Planner	
32	Eues	Earl	OEP-Terrebonne	Director	
33	Falgout	Julie	LA. SeaGrant	Seafood Industry Liaison	
34	Gauthie	David	BISCO		
35	Gerbas	Jennifer	Terrebonne Parish Consolidated Government	Division Manager/Recovery Planner	
36	Gordon	Patrick	Planning and Zoning	Director	conflict
37	Grabert	Loney	TPCG	Assessor	
38	Graham	Ken	NOAA	Meteorologist-in-Charge	
39	Gueniot-Biegler	Mary	Bayou Grace	Executive Director	
40	Hebert	Aaron	TPSO	Asst. Uniform Commander	
40	Hymel	Francis	St. James Parish	Asst. OEP	

**Terrebonne Parish Hazard Mitigation Plan Update 2015**  
**Friday, September 12, 2014 2 PM Waterlife Museum**  
**7910 W. Park Ave, Houma, Louisiana**  
 Meeting topic: Draft Plan Review



	Last Name	First Name	Organization	Title	Comments
41	Jofferson	Batton	LSU AG Center	County Agent	
42	Landry	Kayle	Assumption Parish	Asst. OEP	
43	Large	Geoff	Terrebonne Parish Consolidated Government	Chief Building Official	
44	Larpenier	Jerry	Terrebonne Parish Sheriff's Office	Sheriff	
45	LeBlanc	Kathy	Louisiana Department of Health & Human Services	Sanitarian	
46	Ledet	Brad	LaDay Construction		
47	Ledet	Lisa	Terrebonne Parish Consolidated Government	Floodplain Manager	
48	Levron	Al	Terrebonne Parish Consolidated Government	Capital Projects Admin.	
49	Liner	Michelle	Terrebonne Readiness and Assistance Coalition	Administrative Assistance	
50	Lombardo	John	Restore or Retreat	Outreach Coordinator	<i>None</i>
51	Maloz	Simone	South Central Industrial Association	Representative	
52	Marmande	Mitch	Terrebonne Levee and Conservation District	Program Manager	
53	Martin	Phillip	Terrebonne Parish School District	Superintendent	
54	Matherne	Alan	LSU Ag Center	Area Agent	
55	Matherne	Nicolas	Terrebonne Parish	Coastal	
56	Milford, III	Gene	Gene Milford and Associates	Professional Engineer	
57	Moore	Jack	Terrebonne Parish School District	Risk Management	
58	Mullarkey	Christine	Red Cross	Resource Manager	



**Terrebonne Parish Hazard Mitigation Plan Update 2015**  
**Friday, September 12, 2014 2 PM Waterlife Museum**  
**7910 W. Park Ave, Houma, Louisiana**  
 Meeting topic: Draft Plan Review



	Last Name	First Name	Organization	Title	Comments
59	Nail	Shirln	REMAX		
60	Naquin	Albert	Biloxi-Chitamacha Island Road Band	Chief	
61	O'Neal	Cindy	DOTD	State Floodplain Manager	
62	Pellegrin	Cynthia	ReMax Good Earth	Real Estate Broker	
63	Pena	Oscar	CB&I	Senior Vice President	
64	Peoples	Phyllis	Terrebonne General Medical Center	CEO	
65	Perry	Ron	St. Charles Parish	OEP Director	
66	Peterson	Kris	UNO-CHART		
67	Poche	Charlette	Terrebonne Parish Council	Council Clerk	
68	Pulaski	Chris	Terrebonne Parish Consolidated Government	Senior Planner - Plan/Zoning	
69	Riley	Mark	GOHSEP	Deputy Director, GOHSEP	
70	Rivette	Frank	NOAA	Meteorologist	
71	Rutter	Lea			
72	Schexnayder	Phil	Gulf South Engineering Associates, Inc.	Tech. Engineer	
73	Shaw	Ronnie			
74	Smith	Kenneth	T. Baker Smith	President/CEO	
74	Sobert	Michael	Consolidated Waterworks District	General Manager	
75	Tastet	Jason	St. Charles Parish	OEP	



**Attachment c1-3.4C  
Meeting 4—Notes**

**AGENDA & NOTES  
FOR  
TERREBONNE  
HAZARD MITIGATION PLAN UPDATE**

9/12/2014

@ 2:00 P.M

Bayou Terrebonne Waterlife Museum  
7910 W. Park Ave  
Houma, Louisiana 70360

**VI. WELCOME AND INTRODUCTIONS**

Jennifer Gerbasi with Terrebonne Parish Consolidated Government (TPCG) opened the meeting with slides titled “Discussion Points.” Jennifer reviewed stormwater regulations and floodplain management principles including discussions from meetings past. The developers suggested that joint public/private stormwater areas be created. Projects that were added include the following:

- Develop flood mitigation areas (ex. retention ponds) jointly (public/private) as a community wide flood reduction system
- Public Outreach – support efforts to educate realtor, mortgage, and appraisal groups at the local, state and national levels through our associations to capture both flood safety and flood risk in appraisals using the base flood elevation as a proxy for safety or risk.
- Public Document Availability – The group supported the permit office recording of substantial damage letters to inform the assessor’s office, appraisers, title researchers, and buyers of the status.
- Flood disclosure – some conversation ensued regarding the ordinance amendment proposal to require disclosure of flood damages paid prior to the sale of a structure. The limited information the Parish can share from the repetitive loss data due to privacy concerns left a vacuum of information only available from the seller. This supported the conversation regarding the ability for the assessor/appraisers to include risk in the valuation of structures.
- Public Outreach – distribute adult education cards on hazard mitigation and disaster preparedness in English and Spanish (statewide initiative)
- Public Outreach – provide education in regards to levee safety including the allowable activities on levees.

No further input was provided in regards to ordinances that could be updated or edited to provide additional protection from hazards. It was noted that as previously noted, each department head should provide cost estimates for their respective projects and a better idea of the priorities of each department individually.

**VII. SUMMARY OF THIRD MEETING**

Nicole Cutforth with CB&I provided a short summary on the third committee meeting held on August 7, 2014. In meeting three the committee discussed the revised maps, the revised risk assessment, additional mitigation projects, and prioritized the mitigation projects by category.

**VIII. DATA REVIEW**

Nicole reviewed the maps, risk assessment, and repetitive loss inventory with the committee. It was noted that the zoom-in maps of the composite risk area should be removed due to the Privacy Act of 1974.

**IX. MITIGATION PROJECT REVIEW**

Nicole reviewed the mitigation project list and provided an opportunity for other projects to be added. No new projects were discussed. Geoffery Large and Nick Matherne with TPCG discussed the cost benefit difficulties in coastal restoration projects.

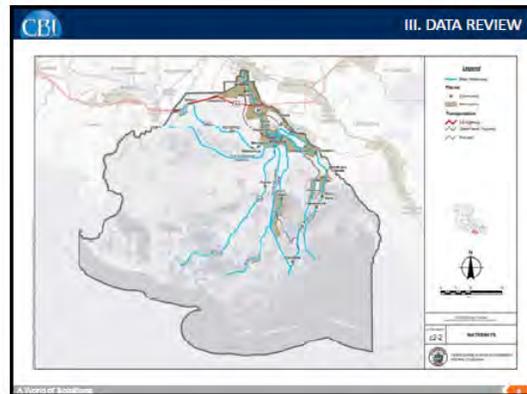
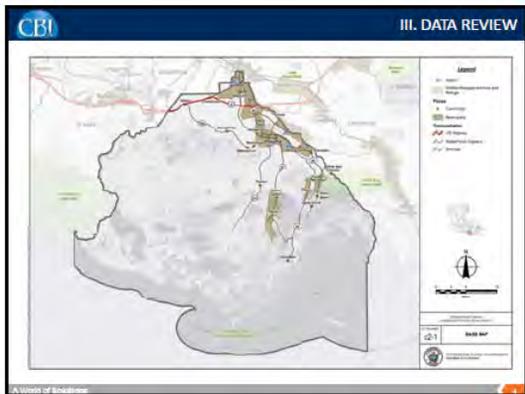
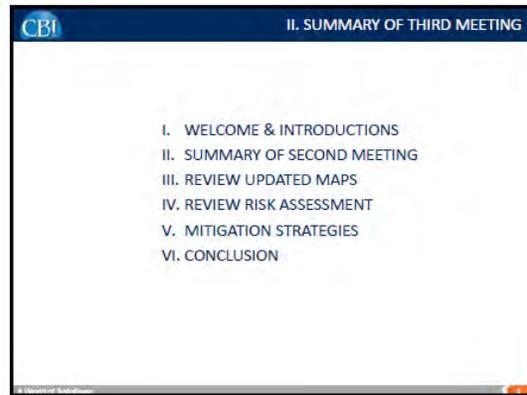
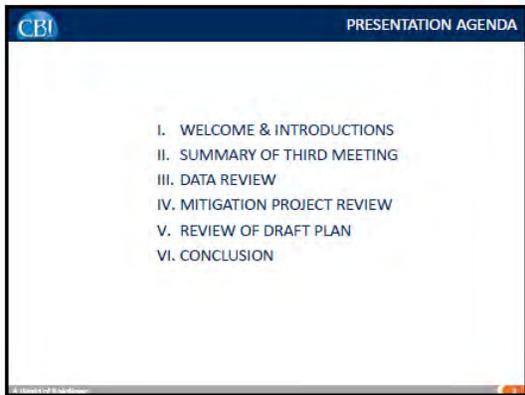
**X. REVIEW OF DRAFT PLAN – CD’S**

CD’s of the draft plan were provided to all attendees and a copy was placed on the Parish Website. Nicole requested that the committee review the draft plan and provide comments in the next few weeks so that FEMA and GOHSEP can begin reviewing the draft mid-October.

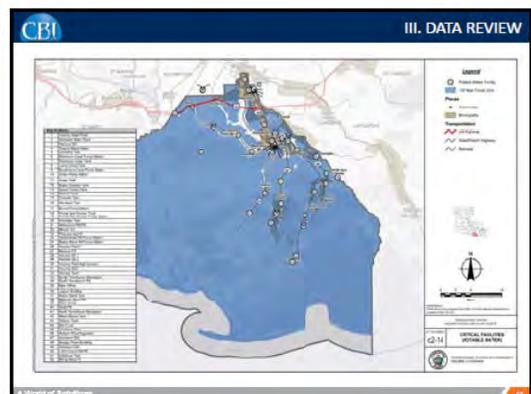
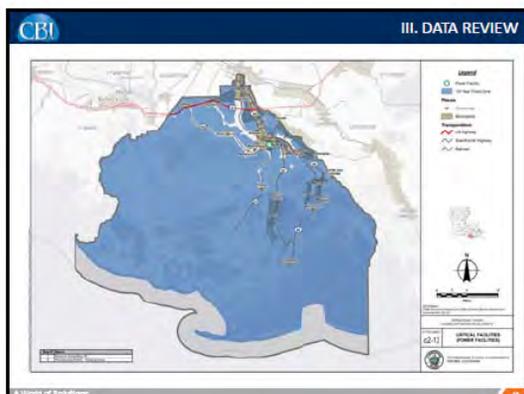
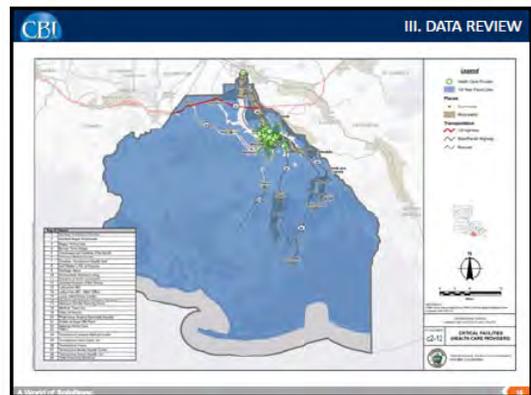
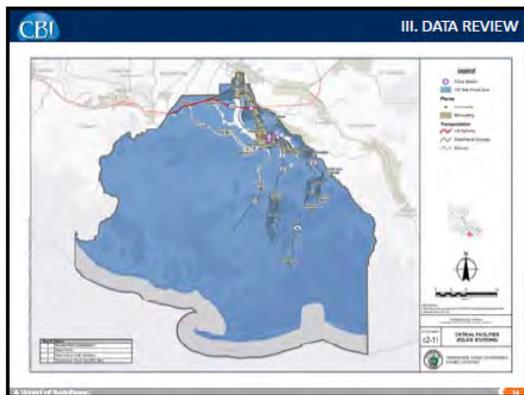
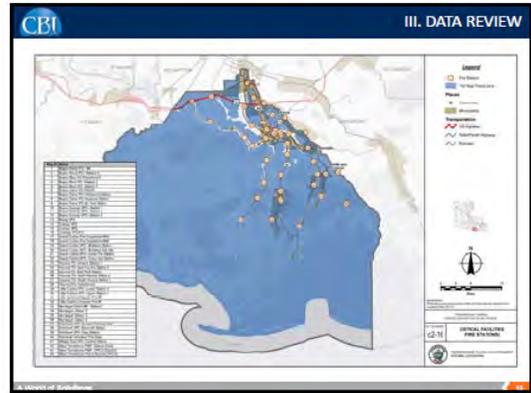
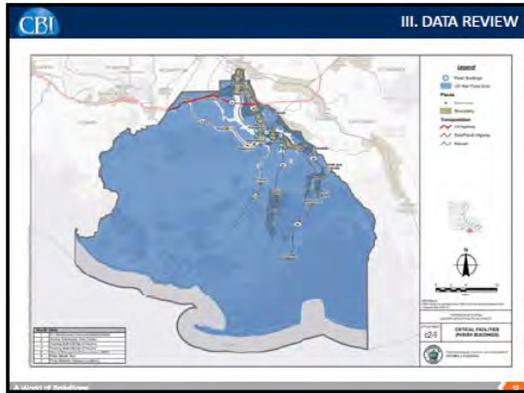
**XI. CONCLUSION**

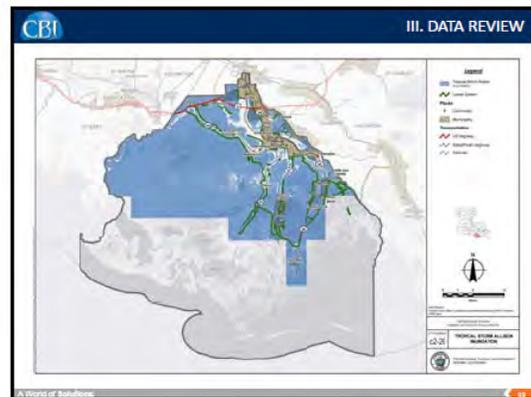
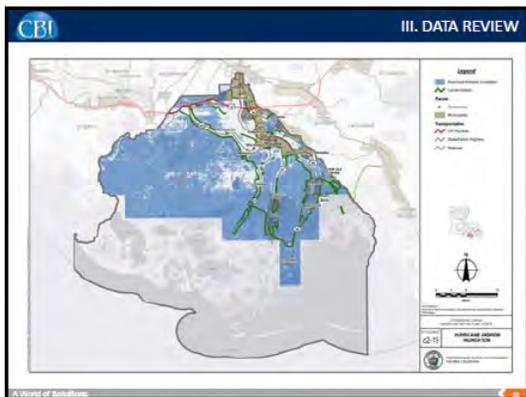
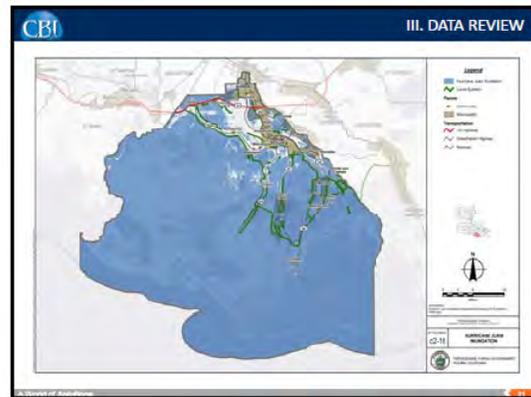
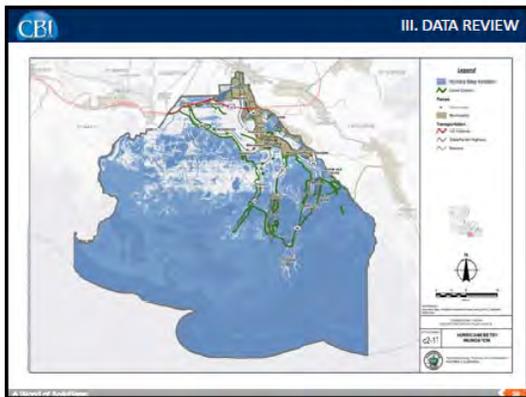
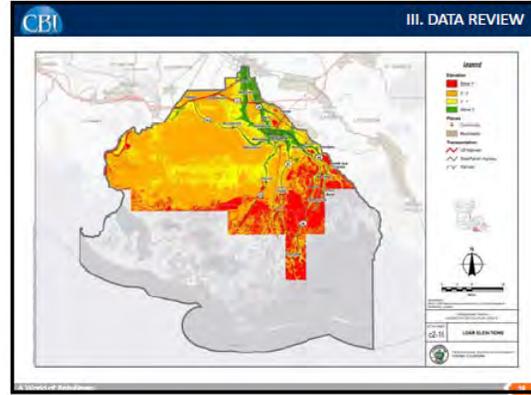
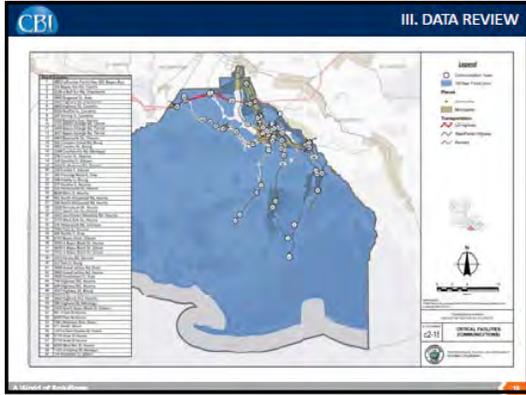
Once pertinent comments are incorporated, the draft plan will be submitted to GOHSEP and FEMA. Once approved by GOHSEP and FEMA, a resolution will be placed on the TPCG Council agenda for review and adoption. It is estimated that this will occur in February or March of 2015.

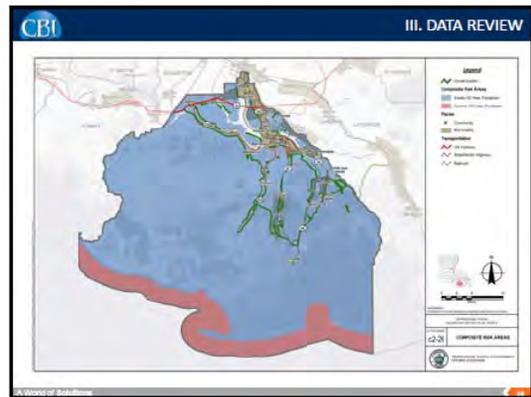
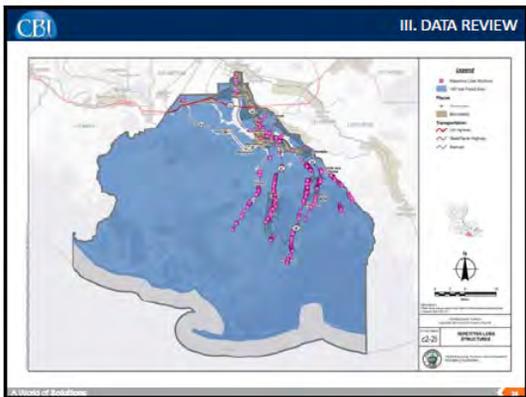
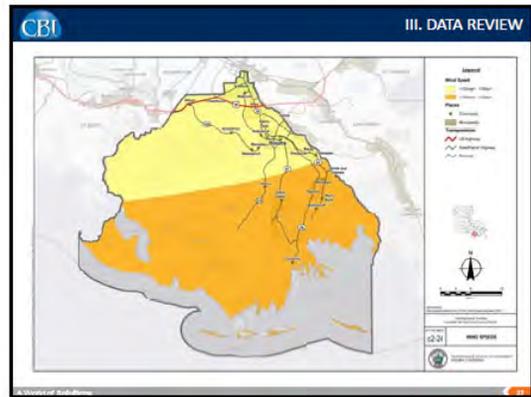
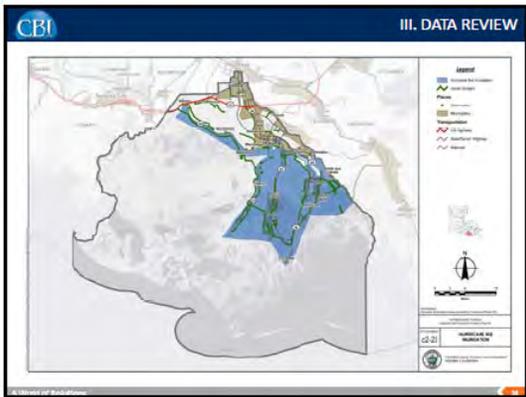
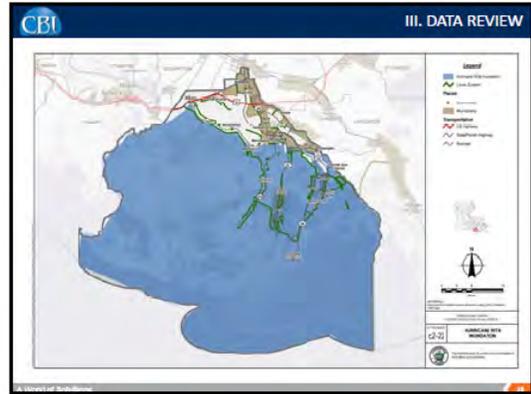
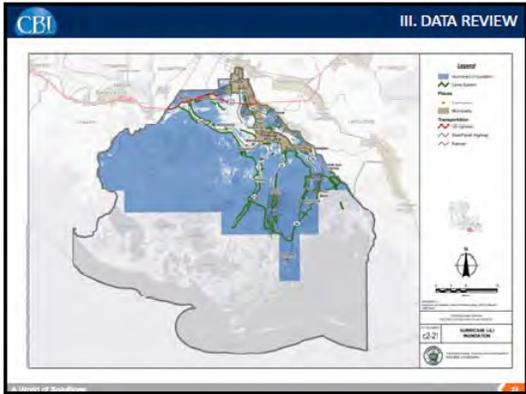
**Attachment c1-3.4D**  
**Meeting 4—PowerPoint Presentation Slides**













**CBI** III. DATA REVIEW

Discussion – FEMA Worksheet 4

- Replacement Value of Critical Facilities
  - \$1.3 Billion
- Contents Value
  - \$1.7 Billion
- Composite Risk Loss Estimate
  - \$1.8 Billion

**CBI** III. DATA REVIEW

D. REPETITIVE LOSS STRUCTURES

- 514 structures identified
- Total amount of claims by these structures = \$50 Million
- Average claim amount = \$36,500

**CBI** IV. PROJECT SCOPING

A. MITIGATION GOALS AND OBJECTIVES

B. PROJECT LIST (HANDOUT)

**CBI** V. REVIEW OF DRAFT PLAN

Terrebonne Parish  
Hazard Mitigation Plan Update 2014

September 2014 Draft

**CBI** VI. CONCLUSION

A. Next Phase

1. Receive Comments by September 19, 2014
2. Incorporate Comments
3. Submit Final Plan to GOSHEP, FEMA, FEMA Region
4. Receive Approval Pending Adoption Letter
5. Put Resolution on Council Agenda

B. Adjourn

## Discussion Points

Proposed for September 12, 2014

## Achievements and Adjustments

- Go over the project types (from last HMPU)
- See attachment for 2010 Goals and Activities

Examples of potential future projects if needed

- Pump station elevation
- Residential elevation
- Levees
- Generators
- Communication improvements
- Warning system
- Demolition
- Etc.

## Discussion to be Captured in Plan

- For each activity, there must be a discussion of why the activity is or is not appropriate for the community and its flood problems.
- For an activity that is determined to be appropriate,
  - Community's capacity to fund & implement the activity.
  - If an activity is currently being implemented, is it achieving expectations and, if not, should it be modified.
  - If the plan is an update of a previously credited plan, each activity recommended by the previous plan must be discussed, along with the status of implementation.

## Preventive Activities

- a. To what extent are zoning, stormwater management regulations, building codes, subdivision ordinances, and preservation of open space, and the effectiveness of current regulatory and preventive standards and programs sufficient to reach the desired level of flood protection?
  - The discussion must review
    - o How these tools can reduce future flood losses,
    - o The current standards in the community's plans and regulations, and
    - o Whether the community should adopt or revise such plans and regulations in light of the Step 5 problem assessment and the goals set in Step 6.

## Current Parish Law and Guidance

- o Comprehensive or land use plan,
- o Building code,
- o Zoning ordinance,
- o Floodplain management regulations,
- o Subdivision ordinance, and
- o Stormwater management regulations.

## Planning

- (b) review whether the community's floodplain management regulatory standards are sufficient for current and future conditions, as discussed under Steps 4(c) and 5(f).

### Planning

- (c) review property protection activities, such as acquisition, retrofitting, and flood insurance;

### Coastal

- (d) review activities to protect the natural and beneficial functions of the floodplain, such as wetlands protection;

### Engineering and OEP

- (e) review emergency services activities, such as warning and sandbagging;

### Levee Board

- (f) 5 points, if the plan reviews structural projects, such as levees, reservoirs, and channel modifications; and

### Planning

- (g) review public information activities, such as outreach projects and environmental education programs.

**Attachment c1-3.5A**  
**Meeting 5—Advertisement**

**Attachment c1-3.5B  
Meeting 5—Sign-in Sheets**


**Terrebonne Parish Consolidated Government**  
 HMPU Steering Committee Preliminary Draft Review  
 Folklife Culture Center

Meeting date: **September 22, 2014, 1:30-3:00**

Name	Agency/Department	Phone #
Pam Roussel	COHSEP	875-439-2047
Phil Adams	Assessor Office	980-876-0620
Sulie Falgout	LA SEA Grant	985 856 2477
Lisa Lelet	TPCG	873-6567
Jack Moore	TPSB	876-7400
Green haffey	TPCG	876-6567
Mary Theriot Giesler	Bayou Grace	985-594-5350
Todd DuFrene	Hanna Fire	985-873-6391
Patrick Gordon	Hanna Dept.	985-873-6569
DAVID WITZ	DAVID WITZ ENG & SURV	985 447 4017
Carol Eves	Reves & Sons, Inc.	985-873-6355
CHRIS PULASKI	TPCG	985-873-6568
CHRIS LEBLANC	Hanna Center	337-263-4778
Alan Mathews	TPAC/USC	985-677-0368
Michelle Dine	TPAC	858512950
John Corbello	ROR	985-859-8937



Terrebonne Parish Consolidated Government  
HMPU Steering Committee Preliminary Draft Review  
Folklife Culture Center

Meeting date: September 22, 2014, 1:30-3:00

Name	Agency/Department	Phone #
<i>Tom Baum</i>	<i>Utilities</i>	
<i>Janice Dubois</i>	<i>Planning</i>	

**Attachment c1-3.5C**  
**Meeting 5—Summary Meeting Notes**

**HMPU Review Meeting Comments**  
**September 22, 2014**

- I. Maps – Generally
  - a. But for floodmap, Terrebonne geographical area map, environmentally sensitive area map, zoom to only that area that is developed rather than the full scope of Terrebonne Parish including the Gulf and uninhabited coastline.
  - b. For maps with a lot of information, like the land use map, zoom to the North, South, Houma, and West (if applicable) so that the detail is visible/useful.
  - c. Take out the MPO data. The brown layer is confusing where it is seen and where it is overlaid with blue in the floodzone making a different color.
  - d. Where the City of Houma is shown, add the shape file to show the boundaries of the city.
  - e. Take out the Morganza to the Gulf from the historical flood inundation slides as it was confusing to some readers. On the risk slides it shows where the risk is still great even after the levee system would be built, and therefore needn't be removed.
- II. Specific Maps
  - a. The jail is still not on the map
  - b. The map of the Parish shows the Gulf of Mexico as wetlands rather than open water. Open water posed threats that wetlands decrease.
  - c. C2-3 Floodgates not on the maps
    - i. Bayou Sale to Chauvin – new floodgate under design that will be completed in the next year.
    - ii. Falgout Canal floodgate in development on the West side.
    - iii. Existing floodgate on Bayou Terrebonne not shown.
    - iv. Existing floodgate on Boudreaux Canal not shown.
  - d. C2-4 Use the regular flood map showing the 100 year and 500 year floodplain. Take all other MPO information off.
  - e. C2-5 Write out the ABFE in the legend and add a caption that defines the term for the reader.
  - f. C2-6 Land use. Zoom to the smaller defined areas. Add the percentage to the graphic pie chart. Blowup the insert to make these numbers more legible.
  - g. C2-8 Jack – any changes?
  - h. C2-9. Government Buildings. The text says 60 and the map says 7. Is this 7 the facilities that are not in another category? I didn't know how to reconcile the two for those who questioned it.
  - i.C2-10. Chief Dufrene checking for accuracy.
  - j.C2-11. Some substations for police not included. Were these excluded after a discussion with the Chief of Police? Earl did not see any reason not to include.
    - i. Senator Circle
    - ii. Town Hall
    - iii. 879 Bayou Black Drive
    - iv. Motor Pool on Capital Boulevard
    - v. Rifle Range on Savanne Road
  - k. C2-13. Ask Tom if he wants to put all or some substations on
  - l.C2-14 Send to Department
  - m. C2-15 – Communications. What is in this list? Junction boxes. Have cell towers on it?
  - n. C2-26.1 As with others, take MPO out. On the composite map, is that the additive impact of all the known storms added together, or some projected worst case scenario? When asked, I agreed that this was my understanding. Earl had a Category V National Hurricane Center surge model with a more dire view (3' of water in Gray). Please clarify/confirm the definition of the composite map.
  - o. C2-26.2. add the shape file to show the boundaries of the city.
- III. Pat – “Proceeds from the sales of the land from the buyout program should be reinvested in mitigation efforts whenever possible. The funding raised from mitigation efforts should naturally be used to further decrease risk in the Parish through proven existing programs or new initiatives. “

- IV. Background: Some discussion of the timeline proposed for the LAMP process was suggested. Pat offered that it was on track to be completed in 18-24 months.
- V. Projects:
  - a. Outreach applicable to various subjects
    - i. Lisa showed the materials again and will send a sample to you.
    - ii. LSU Ag Center and Bayou Grant are teaming up to provide more and better targeted materials about storm preparation and recovery. The materials will be more visually attractive, and single subject so that one could go to the library and pull out just the sheet that is wanted, like elevating a house, packing for evacuation, or preventing mold.
    - iii. Chris Pulaski is going to send a description of the Levee Safety Initiative that has a small grant at this time and may develop into a multimedia campaign about using the levee for personal safety and the preservation of the levee itself.
    - iv. Julie – SeaGrants expressed interest (joined by several) in including assessing the Safe Harbor slips in the parish for sufficiency to meet the demand and outreach regarding the location of the safe harbors, how to reserve a slip before a storm, when the gates will be open, what the rules are, and what one can store in that space, etc. As well, outreach on where NOT to park your boat is needed. This information needs to be centralized and easy to access. LSU Ag Center and SeaGrants can bring together fishing interests for the assessment and beta testing of materials followed by printed materials and educational outreach meetings.
  - b. Code Enforcement – 2 projects – Geoffrey Large will provide synopses
    - i. Temporary Capacity Building for Code Enforcement Poststorm.
    - ii. Expansion of Pilot Structure Inventory previously provided for the lower bayou communities. Assesses the status of each structure with notations regarding whether or not it suffered wind or flooding in an event, the magnitude of the damage, and the current condition of the structure Parishwide.
  - c. Fire Department
    - i. Safe Room project still not on the list. (May not be incorporated since Meeting IV).
    - ii. The chief shared that his recommendations were vetted through all of the Fire Chiefs prior to submission ensuring that the goals of all stations and communities were included. If that could be included in the plan it would show the internal level of involvement in the process.
    - iii. Chief will look at the projects that he requested be removed and provide a brief explanation (i.e. station no longer exists).
- VI. Text Comments
  - a. The plan requires an executive summary limited to 3-4 pages.
  - b. Meeting notes and presentations should be together in their own section
  - c. The steering committee list is not complete (see attached)
  - d. P4. Levees above 10' were not overtopped, so not all levees failed. Some were overtopped and some were breached.
  - e.
    - i. The council adoption should be moved to the end of the plan before the appendices as it is the last action prior to the FEMA approval. It is not required to be in the front of the plan and is confusing to reviewers now.
    - ii. Any reason not to state the Terrebonne Parish Council rather than the generic "governing body?"
  - f. P3.
    - i. TPCG is referred to as "the Parish."
    - ii. Please be consistent in the spelling of Pointe aux Chenes throughout the documents
    - iii. This may be a good place to note the population living south of the intercoastal or outside the Morganza to the Gulf footprint.
  - g. P7. The Houma Navigational Canal and Intercoastal Waterway are notable waterways that have an influence on flooding and damages. The HNC adds to the risk to the Parish with the potential to bring the Gulf of Mexico into downtown Houma.
  - h. P25.
    - i. Simpson scale no longer uses storm surge, so that shouldn't be cited there.
  - i. P52. The project list has duplications. 23 and 26 are duplicates. Without further discussion on specifics, suggestion that there are more duplications. Group did not have suggestion on how to improve the project list, but were confused about the separation of the projects into a FEMA list in the body and the rest in the appendix. Concerns about further duplication and ease of access repeated.

**Attachment c1-3.6A  
Meeting 6—Advertisement**

**Public Notice**

**Meeting Announcement**

**Terrebonne Parish Hazard Mitigation Plan Update**

Come and comment on the Hazard Mitigation Plan!

The Terrebonne Parish Consolidated Government is updating the parish's Hazard Mitigation Plan. With input from the steering committee, the public, and state and national data centers, the plan is ready for review. The purpose of the plan update is to identify and prioritize future efforts to reduce our risk of damages from natural hazards like floods and wind events. The draft plan will be available for review October 3rd.

Parish staff will be available to answer questions or take comments at a public meeting October 6th from 5:30 – 7:30. The public comment period will be open for two weeks. The public is encouraged to attend to provide feedback. All previous meeting presentations and drafts are available at [www.tpcg.org/hmpu](http://www.tpcg.org/hmpu).

**Monday, October 6th, 2014 at 5:30 pm**

**Bayou Terrebonne Waterlife Museum**

**7910 Park Ave.**

**Houma, LA 70360**

Please direct questions about the meeting to Jennifer Gerbasi, at (985) 873-6565. The setting is informal and children are welcome.



**Attachment c1-3.6C**  
**Meeting 6—Summary Meeting Notes**

**AGENDA & NOTES**  
FOR  
**TERREBONNE**  
**HAZARD MITIGATION PLAN UPDATE**

10/6/2014

@ 5:30 PM

Bayou Terrebonne Waterlife Museum  
7910 W Park Ave  
Houma, Louisiana 70360

**I. WELCOME AND INTRODUCTIONS**

The Terrebonne Parish Hazard Mitigation Plan Update Committee held their sixth open to the public meeting at the Bayou Terrebonne Waterlife Museum in Houma, Louisiana, on Monday October 6, 2014. The purpose of the meeting was to provide an opportunity to review the preliminary draft, and allow attendees to provide input on all aspects of the plan.

Jennifer Gerbasi of Terrebonne Parish introduced herself and asked attendees to introduce themselves and their goals in attending the meeting.

The presentation for this meeting is a repeat of Meeting No. 4.

**II. SUMMARY OF HMPU PROCESS TO DATE**

The previous meeting schedule and public notices and outreach were provided to start the meeting. The documents and studies available for review were listed and by consensus, the meeting moved on to comments on the plan contents or gaps.

**III. COMMENTS AND QUESTIONS ON THE PRELIMINARY DRAFT**

1. According to the plan, there are 158 pumps in the Parish. Where is the water from a particular destination supposed to go? Education necessary for the public about how the pump systems work would better set expectations. Plan shows the maps, but doesn't show the area that each pump drains.
  - a. Response: This information was not available at the meeting. The educational component will be taken into consideration in the plan if there is no current document available.
2. Maintenance of the drainage system needs to be improved. Is there a maintenance plan and a set schedule that ensures that the system will work in an event? An education campaign about litter is needed to protect the drainage system, and at least as important is enforcement by the Sheriff's office.

- a. Response: These are important observations. The parish does have a maintenance schedule that is too broad to include in the plan. However, committee members not present at the meeting will respond to the request. On the litter issue, there have been ongoing educational efforts to encourage proper trash disposal. Fines for littering have been increased. Storm drain protection and maintenance have been brought up by community members in offline discussions during the planning process.

In continued discussion, the increased fines were not seen as a strong deterrent since enforcement was not consistent. The storm drains in particular were a concern (grass clippings, etc) as it can create backup and flooding in an event.

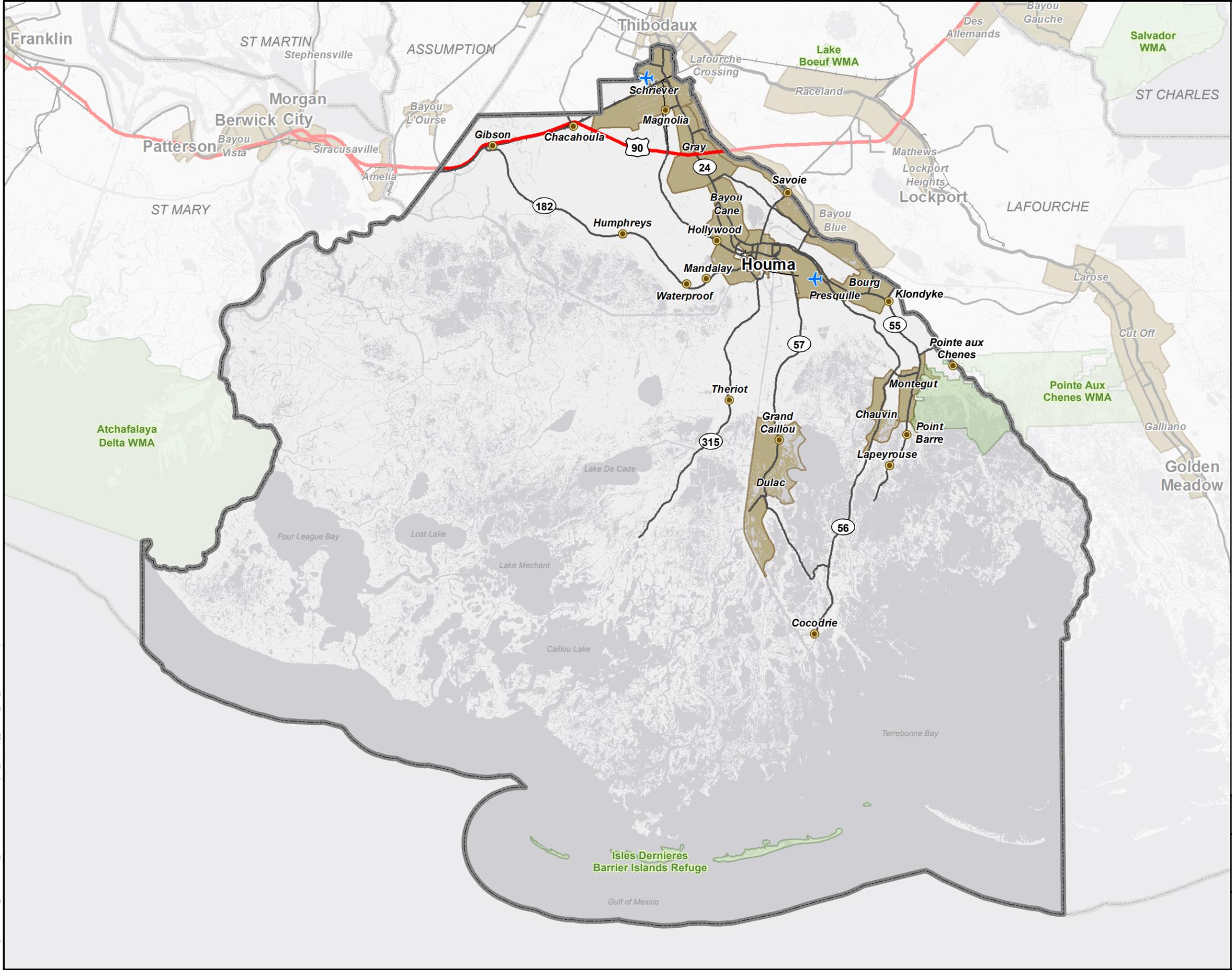
3. Chabert has a new levee system and drainage valves. Who is responsible for those valves and their operation? Is there a maintenance or day to day operational plan that is available to the public?
  - a. Response. The levee department is participating on the committee, and will respond with the information that is available. If the information is not available, the development of this and other levees will be considered as a project to update public information in the future.
4. Who is responsible for which levees, and is there a maintenance plan for that? Is the same party responsible for enforcement of restrictions on levee use or abuse? Without enforcement, how are people to know the importance of the levee system, how it performs, and what activities are allowed? Is the maintenance proactive?
  - a. Response. There are surge levees and drainage levees, and the Levee District and the Parish have responsibility for specific levees. The responsible party was not certain though the sheriff's office may prosecute. This was tabled until further information could be provided. There is a new levee safety video being developed as a result of a grant. Like other videos on topics such as permitting and mitigation options, the video provides an overview of the importance of the levees, appropriate and inappropriate activities, and the need for citizens to report any activity that could weaken the levee and increase risk of failure.
5. The plan doesn't speak to threats from outside the parish. Flooding from the Mississippi and the Atchafalaya is not covered. Is there a plan for a breach in Donaldsonville or elsewhere?
  - a. Response: The Steering Committee discussed this topic in light of the potential flooding in 2013 that was averted. Due to the lack of control the Parish felt it had over the upstream dams and levees, the topic was not pursued. Rather, state and federal sources were considered more appropriate to lead these efforts.

6. What protections do we have for the water supply if there is a manmade disaster or act of terrorism. Examples could be an oil spill followed by a hurricane which washes the oil into the bayou system, or contamination within the water system. How secure are the water treatment facilities, and can this be a part of this multithread plan?
  - a. Response: The tribes submitted similar concerns about the combination of manmade and natural disasters on recovery and resources. This objective is being considered for inclusion in the plan. The plan does outline various methods for providing potable water in the event that saltwater intrusion affects the water sources for the Parish. These plans for saltwater intrusion are likely to be applicable to other contamination scenarios.
  - b. The plan is focused on natural disasters for the most part, and not terrorism. Staff will request any plan related to this threat to the water system be provided.

The summary of the public discussion was that proactive maintenance of the built infrastructure and enforcement of current regulations will be more effective than more new regulations that are not enforced. Likewise, plans or standard operating procedures for maintenance should be developed if they don't exist, but regularly scheduled implementation is just as important.

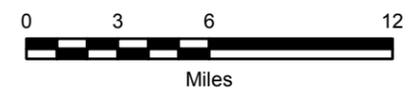
#### **IV. CONCLUSION**

Written or verbal comments were requested for any further comments on projects or the draft content, layout, or process.



**Legend**

-  Airport
-  Wildlife Management Area and Refuge
- Places**
-  Community
-  Municipality
- Transportation**
-  US Highway
-  State/Parish Highway
-  Railroad



TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

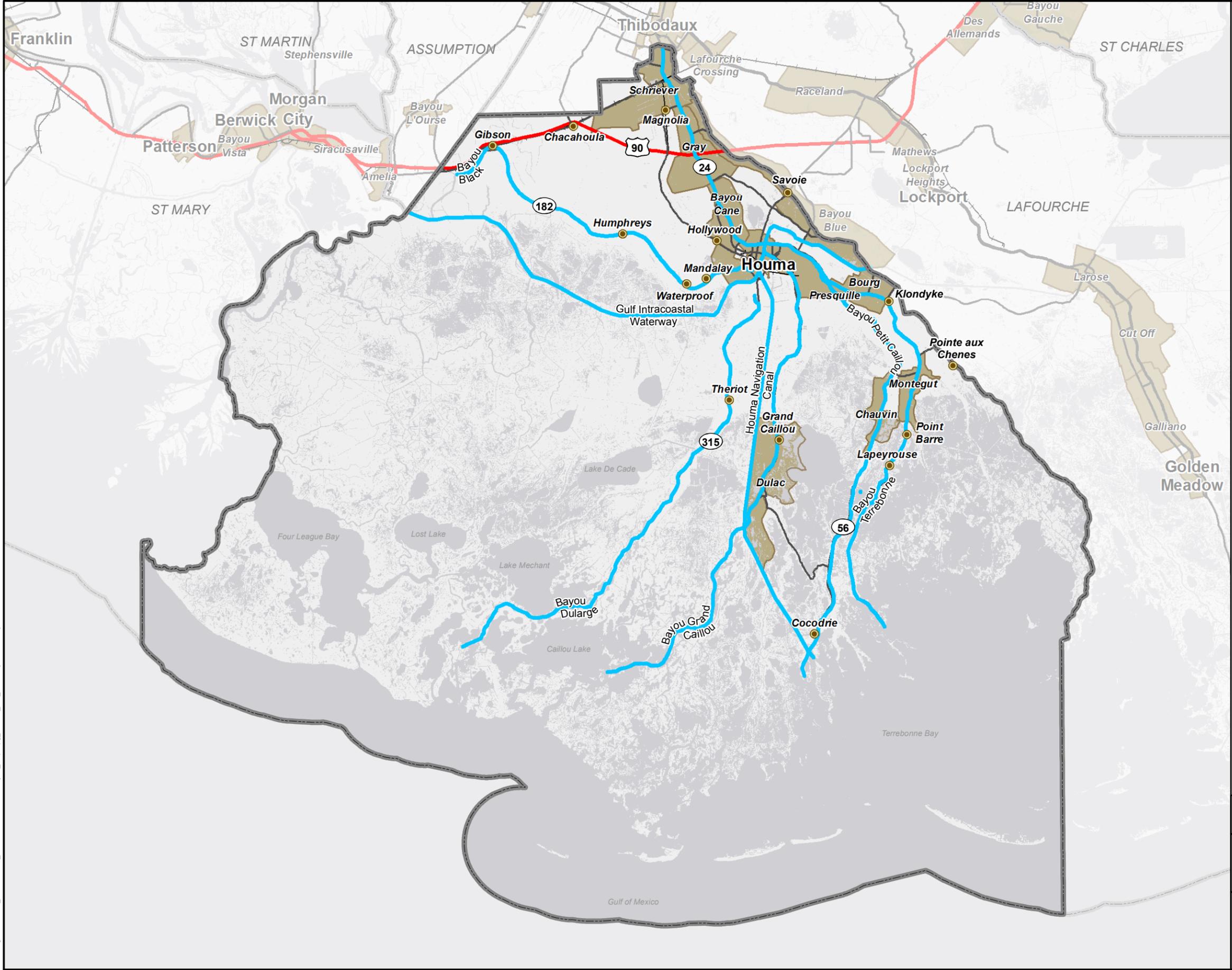
ATTACHMENT  
**c2-1**

**BASE MAP**



TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA

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**Legend**

Major Waterway

**Places**

Community

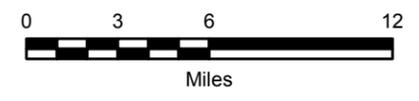
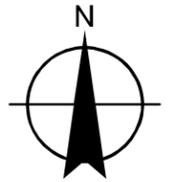
Municipality

**Transportation**

US Highway

State/Parish Highway

Railroad



TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

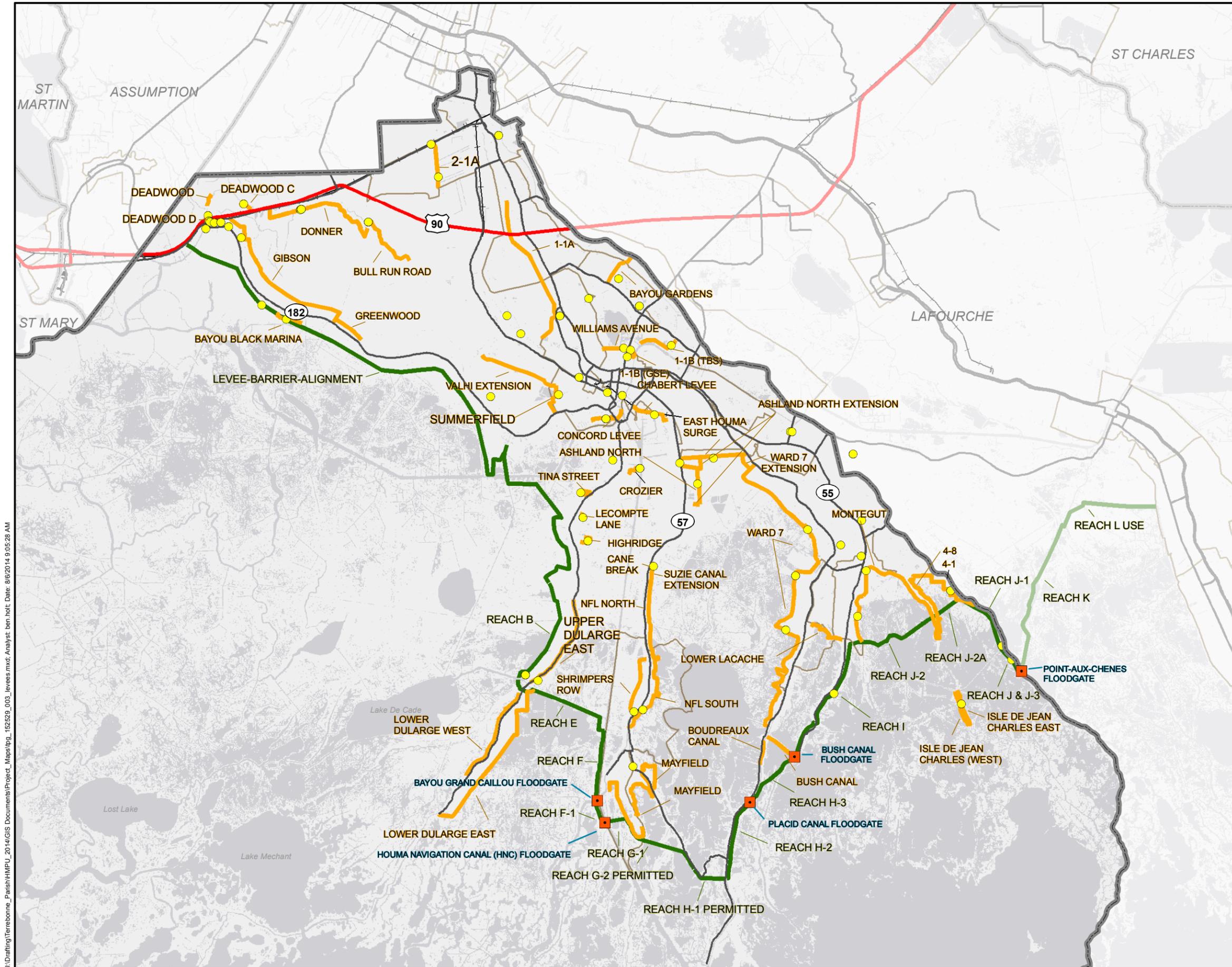
ATTACHMENT

**c2-2**

**WATERWAYS**

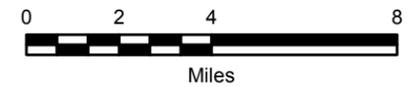
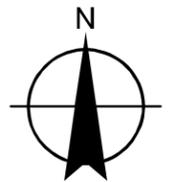


TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA



**Legend**

- Pumping Stations
  - Flood Gates
  - Levee System
  - Morganza to the Gulf Levee System
- Transportation**
- US Highway
  - State/Parish Highway
  - Railroad



TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

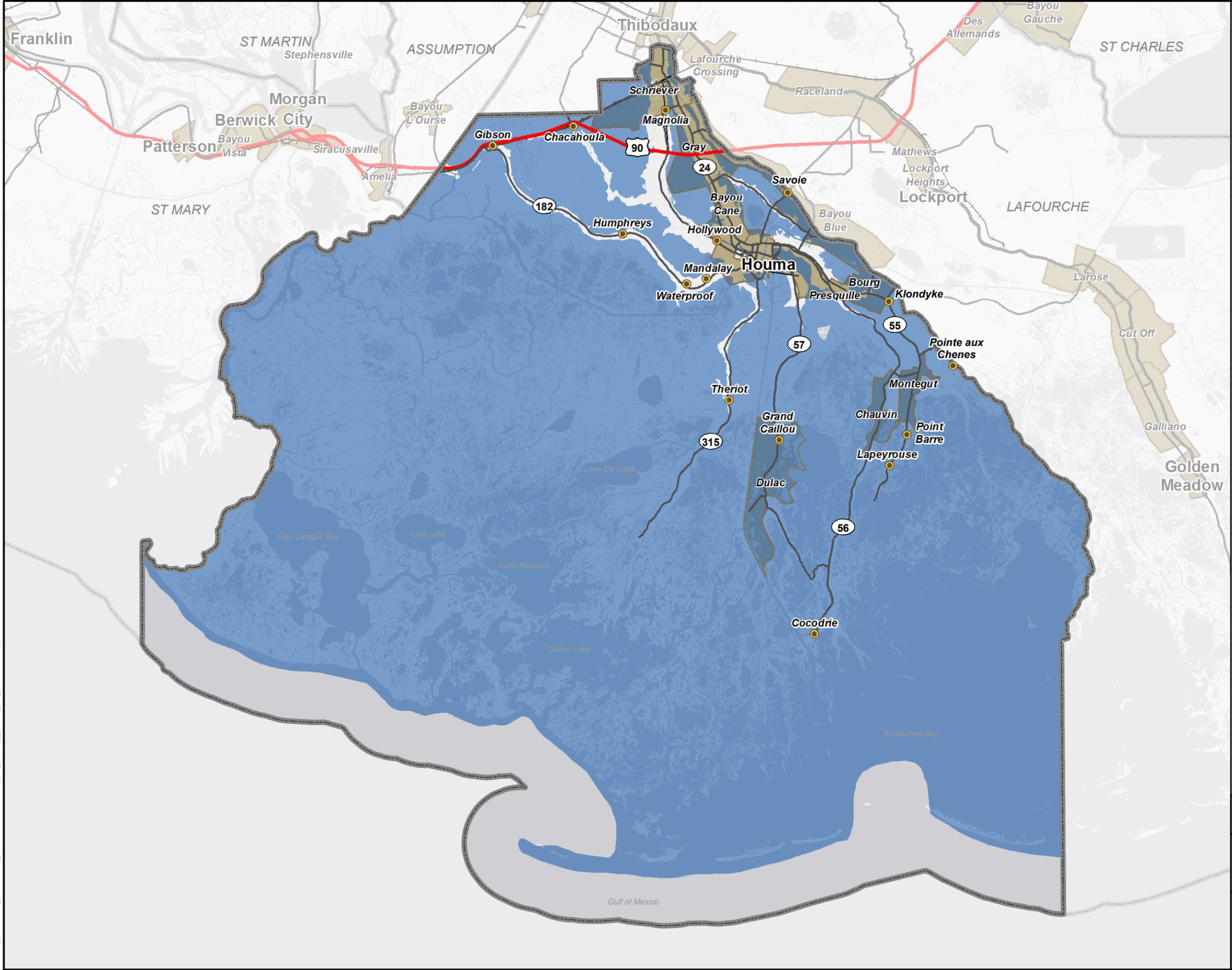
ATTACHMENT  
**c2-3**

**LEVEES, PUMP STATIONS,  
AND FLOOD GATES**



TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA

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**Legend**

100 Year Flood Zone

**Places**

Community

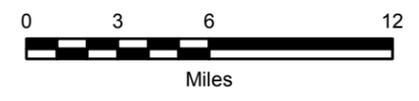
Municipality

**Transportation**

US Highway

State/Parish Highway

Railroad



REFERENCE:  
FEMA Flood Zones produced from FEMA Q3 flood data and obtained from Louisiana State GIS CD.

TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT

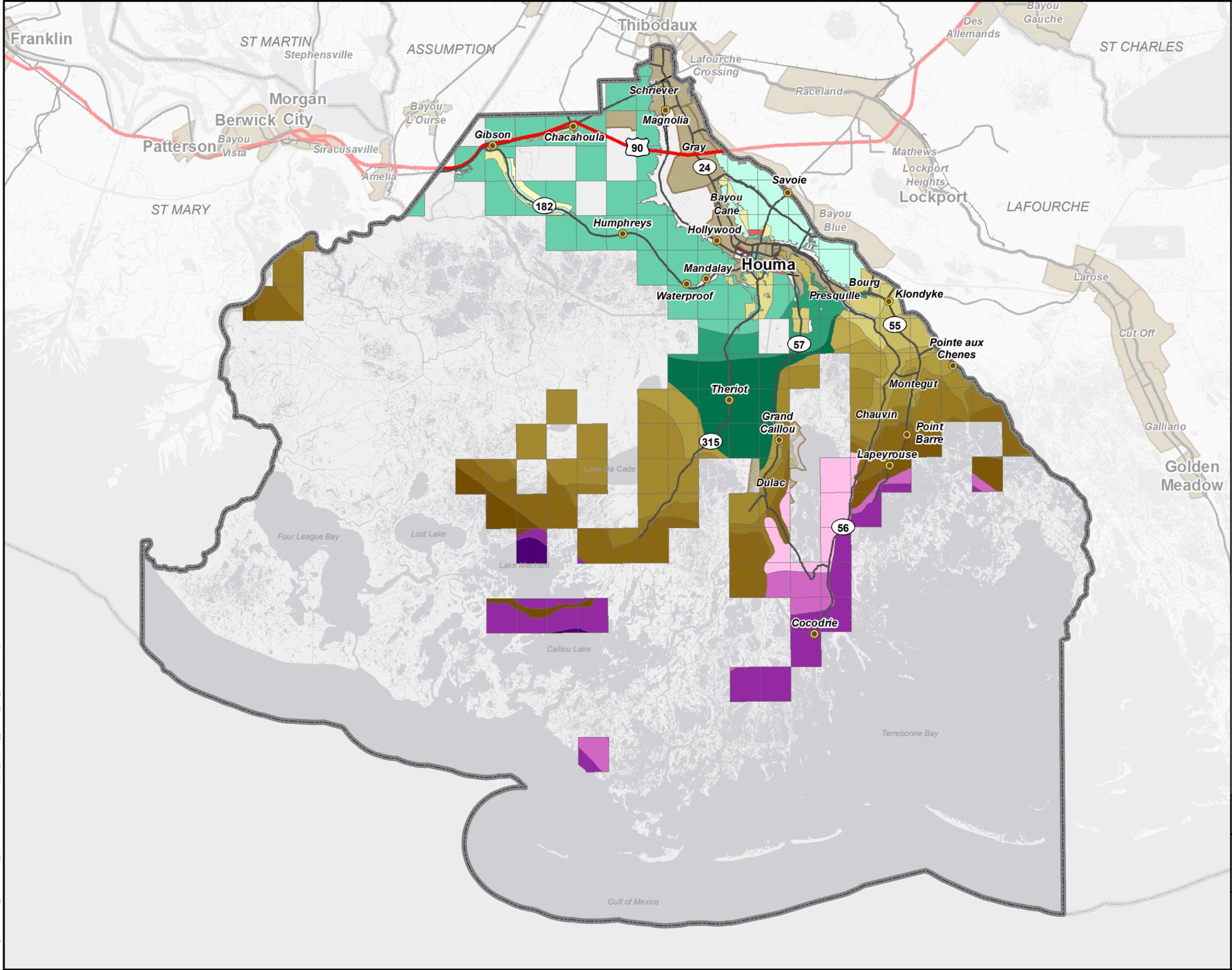
**c2-4**

**FEMA FLOOD ZONE**



TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA

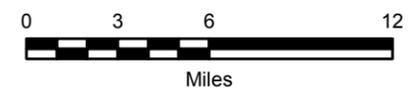
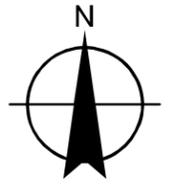
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**Legend**

- Places**
- Community
  - Municipality
- Transportation**
- US Highway
  - State/Parish Highway
  - Railroad

**ABFE Zones**

REFERENCE:  
ABFE data obtained from FEMA Flood Recovery Data page.

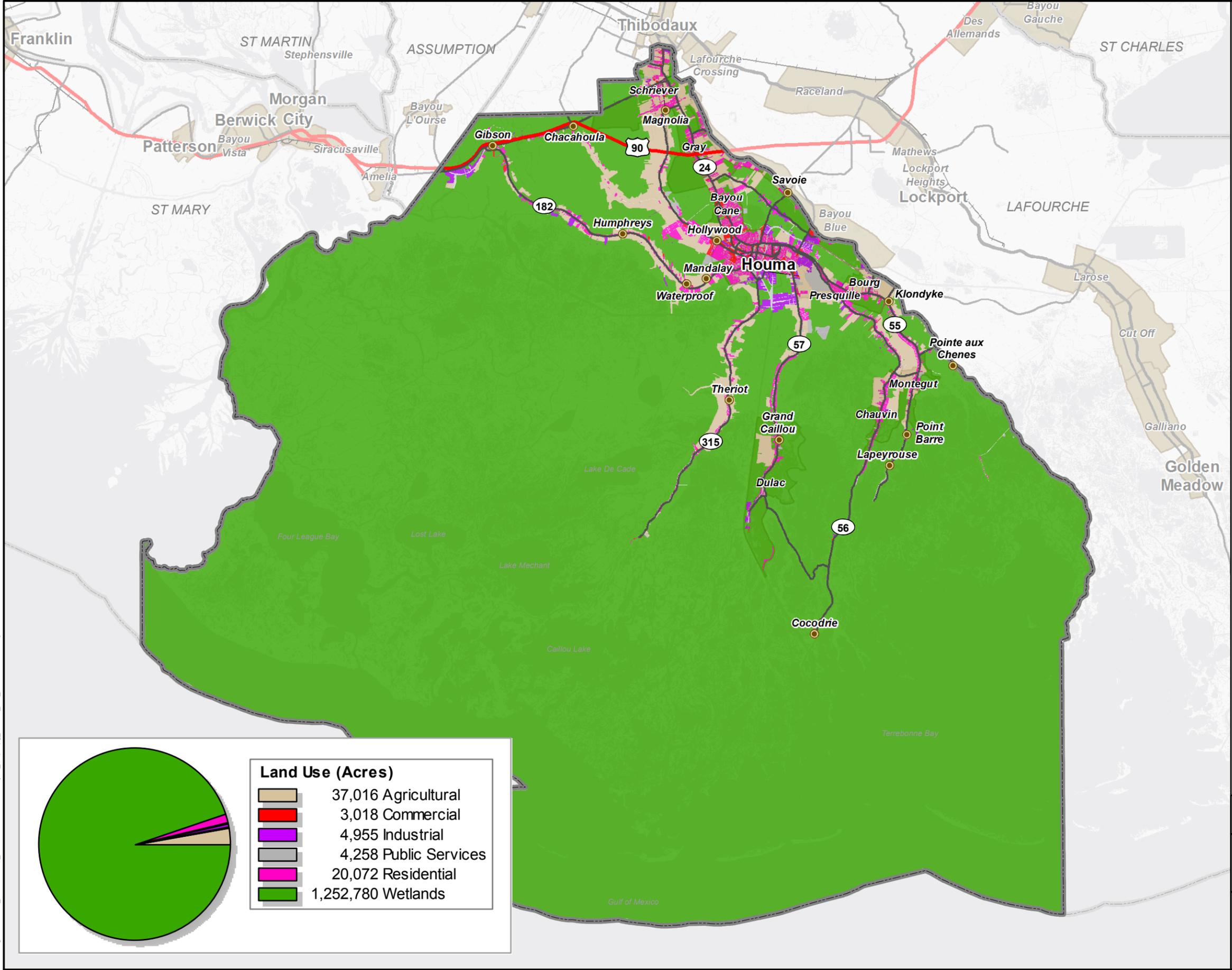
TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-5**

**ABFE ZONES**



TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA



**Legend**

**Land Use Code**

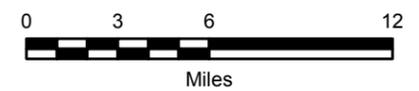
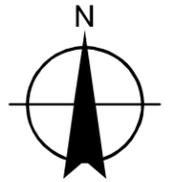
- Agricultural
- Commercial
- Industrial
- Public Services
- Residential
- Wetlands

**Places**

- Community
- Municipality

**Transportation**

- US Highway
- State/Parish Highway
- Railroad



REFERENCE:  
Land Use data obtained from Terrebonne Parish GIS group.

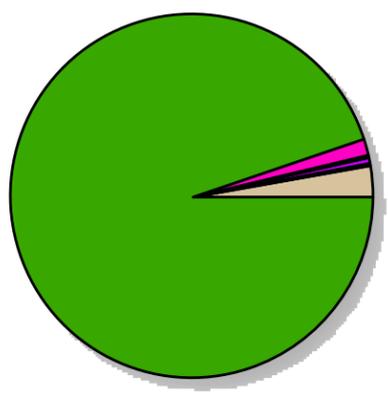
TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-6**

**LAND USE**



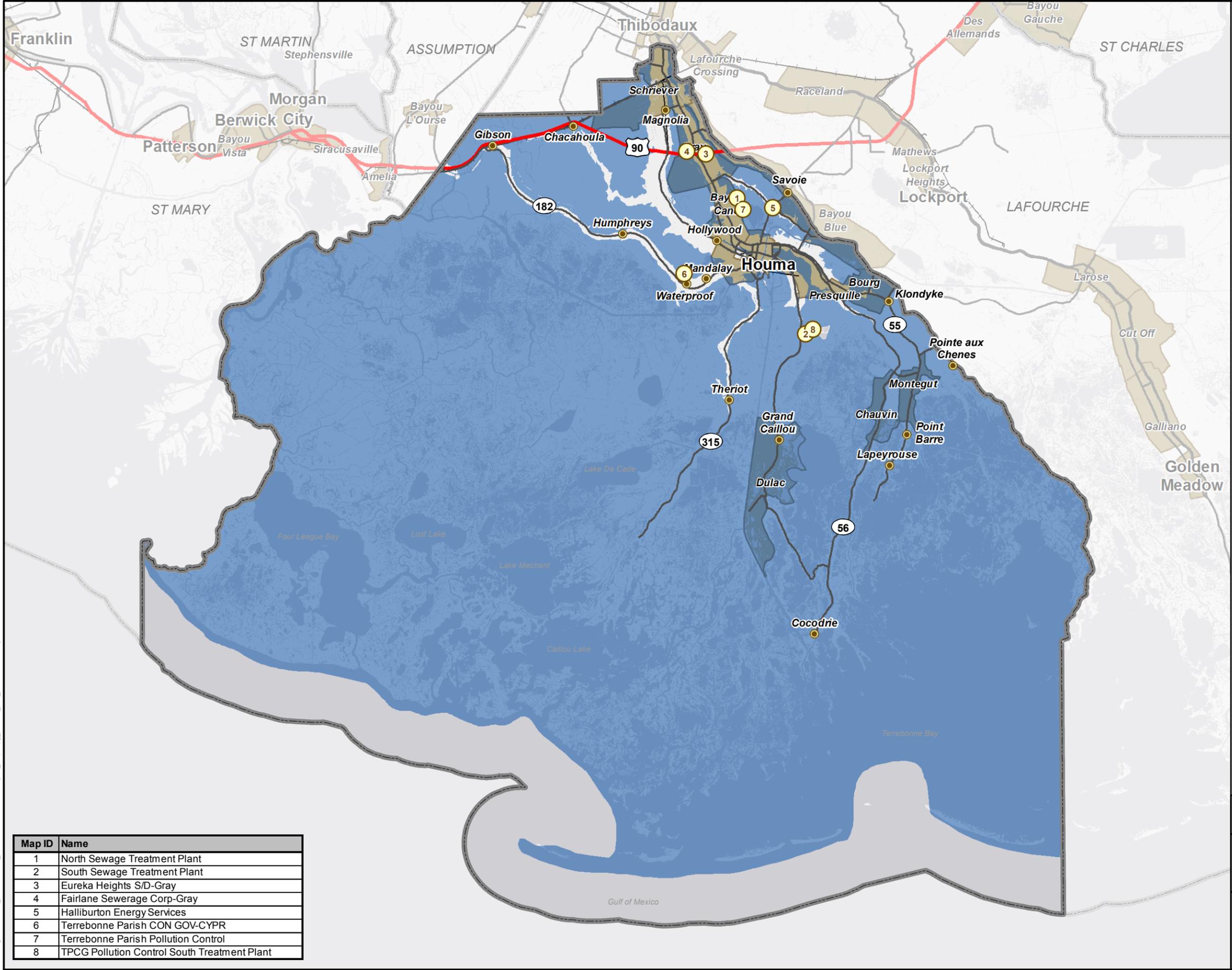
TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA



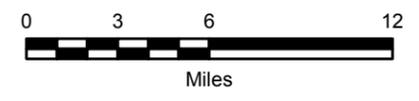
**Land Use (Acres)**

- 37,016 Agricultural
- 3,018 Commercial
- 4,955 Industrial
- 4,258 Public Services
- 20,072 Residential
- 1,252,780 Wetlands

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- Legend**
- Sewer Treatment Facility
  - 100 Year Flood Zone
- Places**
- Community
  - Municipality
- Transportation**
- US Highway
  - State/Parish Highway
  - Railroad



REFERENCE:  
 FEMA flood zone produced from FEMA Q3 flood data and obtained from Louisiana State GIS CD.

TERREBONNE PARISH  
 HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-7**

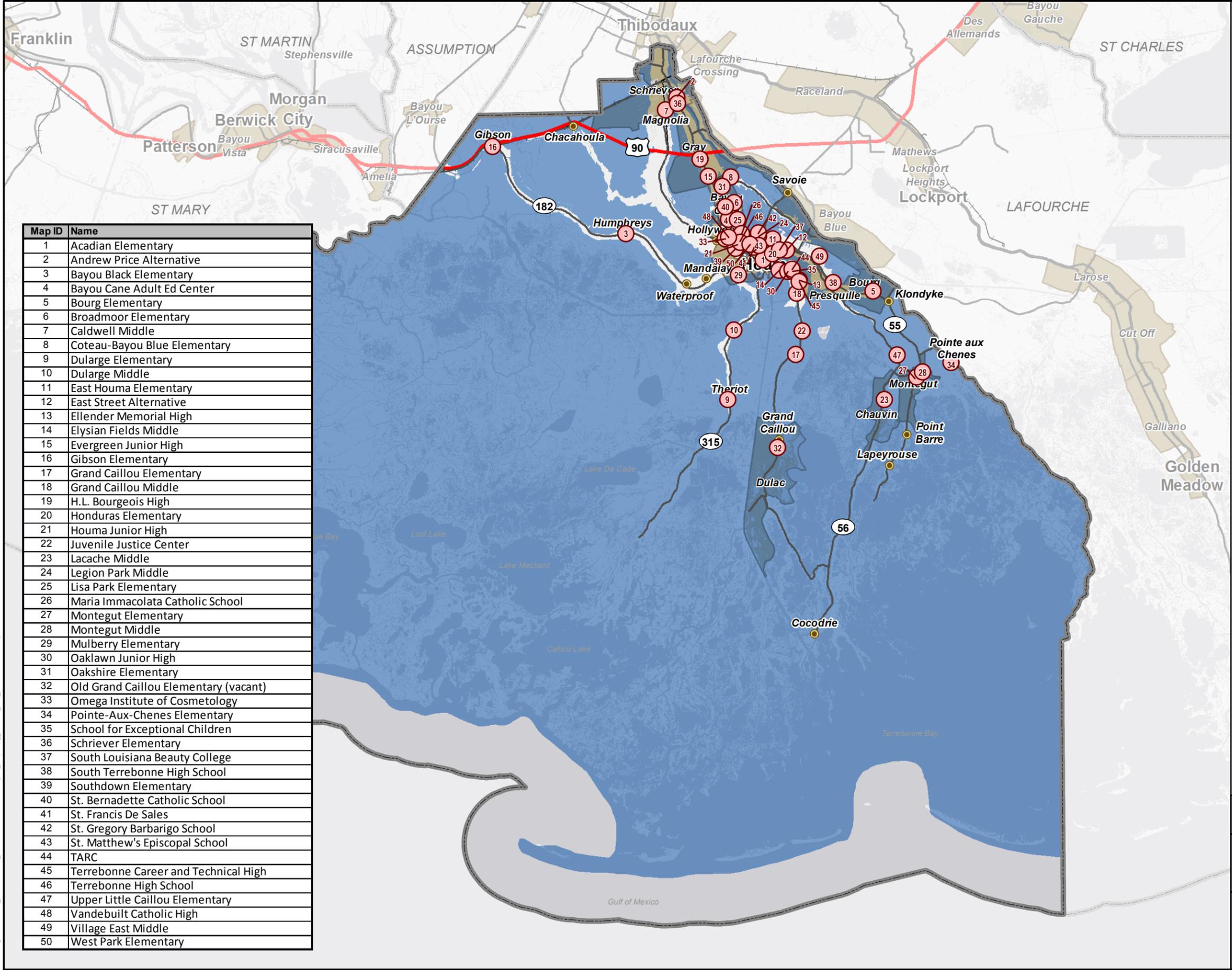
**CRITICAL FACILITIES  
 (SEWER TREATMENT)**



TERREBONNE PARISH GOVERNMENT  
 HOUMA, LOUISIANA

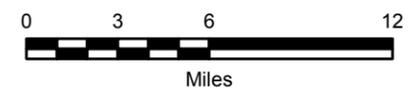
Map ID	Name
1	North Sewage Treatment Plant
2	South Sewage Treatment Plant
3	Eureka Heights S/D-Gray
4	Fairlane Sewerage Corp-Gray
5	Halliburton Energy Services
6	Terrebonne Parish CON GOV-CYPR
7	Terrebonne Parish Pollution Control
8	TPCG Pollution Control South Treatment Plant

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Map ID	Name
1	Acadian Elementary
2	Andrew Price Alternative
3	Bayou Black Elementary
4	Bayou Cane Adult Ed Center
5	Bourg Elementary
6	Broadmoor Elementary
7	Caldwell Middle
8	Coteau-Bayou Blue Elementary
9	Dularge Elementary
10	Dularge Middle
11	East Houma Elementary
12	East Street Alternative
13	Ellender Memorial High
14	Elysian Fields Middle
15	Evergreen Junior High
16	Gibson Elementary
17	Grand Caillou Elementary
18	Grand Caillou Middle
19	H.L. Bourgeois High
20	Honduras Elementary
21	Houma Junior High
22	Juvenile Justice Center
23	Lacache Middle
24	Legion Park Middle
25	Lisa Park Elementary
26	Maria Immacolata Catholic School
27	Montegut Elementary
28	Montegut Middle
29	Mulberry Elementary
30	Oaklawn Junior High
31	Oakshire Elementary
32	Old Grand Caillou Elementary (vacant)
33	Omega Institute of Cosmetology
34	Pointe-Aux-Chenes Elementary
35	School for Exceptional Children
36	Schriever Elementary
37	South Louisiana Beauty College
38	South Terrebonne High School
39	Southdown Elementary
40	St. Bernadette Catholic School
41	St. Francis De Sales
42	St. Gregory Barbarigo School
43	St. Matthew's Episcopal School
44	TARC
45	Terrebonne Career and Technical High
46	Terrebonne High School
47	Upper Little Caillou Elementary
48	Vandebuilt Catholic High
49	Village East Middle
50	West Park Elementary

- Legend**
- School
  - 100 Year Flood Zone
- Places**
- Community
  - Municipality
- Transportation**
- US Highway
  - State/Parish Highway
  - / Railroad



REFERENCE:  
FEMA flood zone produced from FEMA Q3 flood data and obtained from Louisiana State GIS CD.

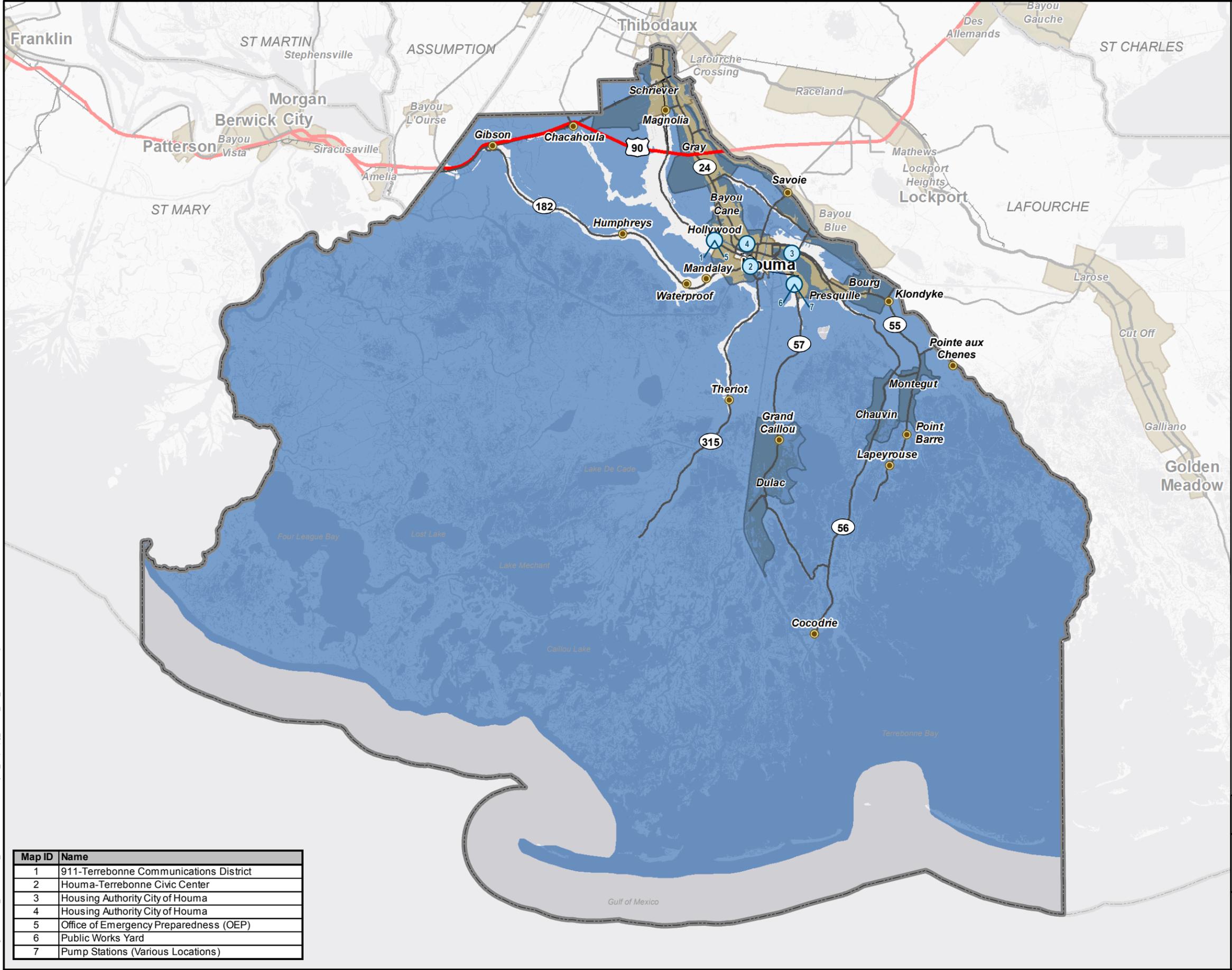
TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-8**

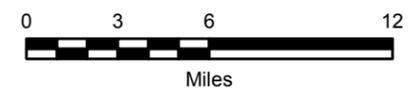
**CRITICAL FACILITIES  
(SCHOOLS)**



TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA



- Legend**
- Parish Buildings
  - 100 Year Flood Zone
- Places**
- Community
  - Municipality
- Transportation**
- ↗ US Highway
  - State/Parish Highway
  - Railroad



REFERENCE:  
FEMA flood zone produced from FEMA Q3 flood data and obtained from Louisiana State GIS CD.

TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-9**

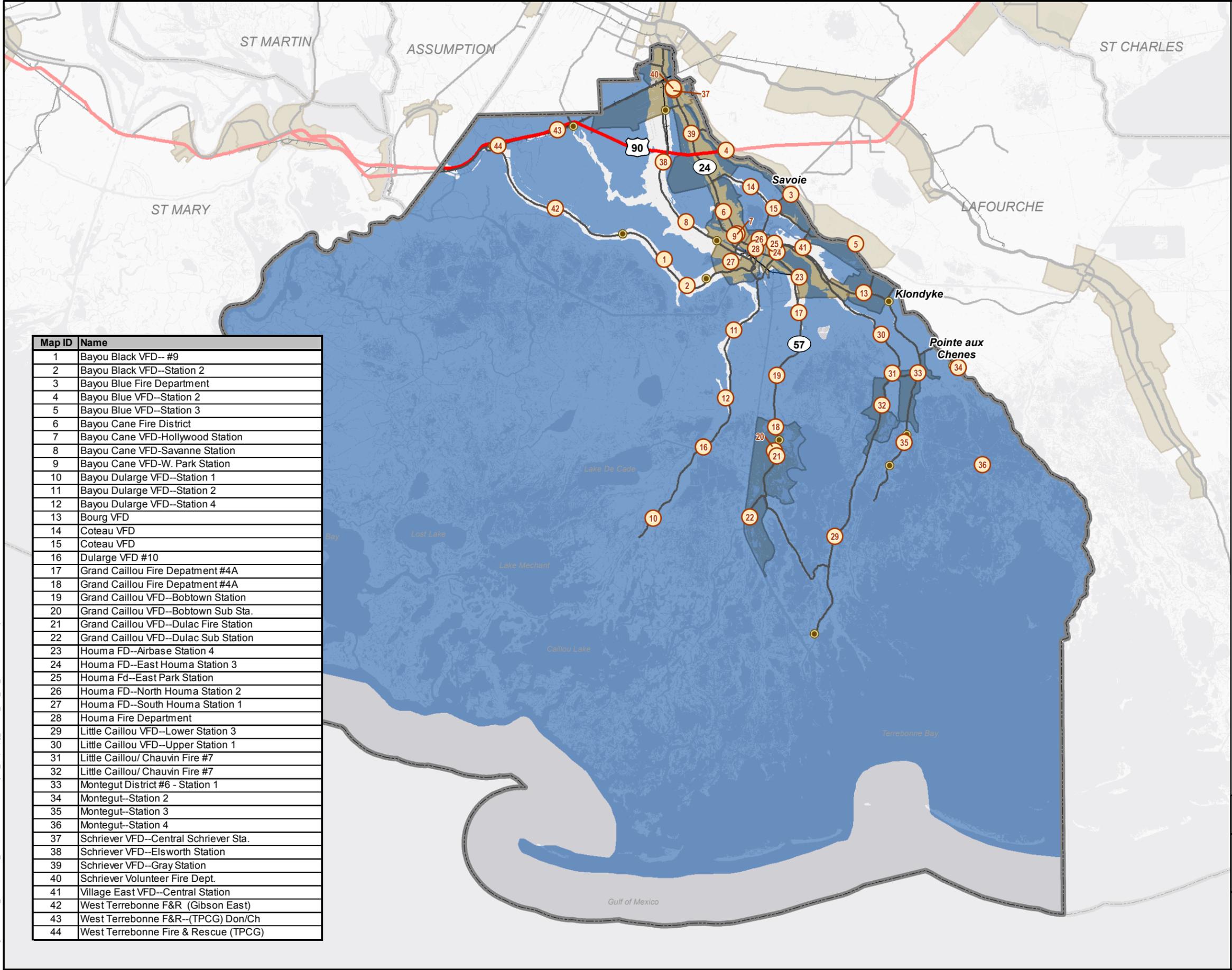
**CRITICAL FACILITIES  
(PARISH BUILDINGS)**



TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA

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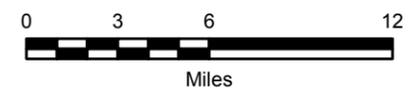
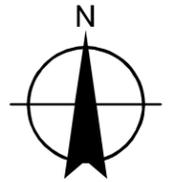
Map ID	Name
1	911-Terrebonne Communications District
2	Houma-Terrebonne Civic Center
3	Housing Authority City of Houma
4	Housing Authority City of Houma
5	Office of Emergency Preparedness (OEP)
6	Public Works Yard
7	Pump Stations (Various Locations)



Map ID	Name
1	Bayou Black VFD-- #9
2	Bayou Black VFD--Station 2
3	Bayou Blue Fire Department
4	Bayou Blue VFD--Station 2
5	Bayou Blue VFD--Station 3
6	Bayou Cane Fire District
7	Bayou Cane VFD-Hollywood Station
8	Bayou Cane VFD-Savanne Station
9	Bayou Cane VFD-W. Park Station
10	Bayou Dularge VFD--Station 1
11	Bayou Dularge VFD--Station 2
12	Bayou Dularge VFD--Station 4
13	Bourg VFD
14	Coteau VFD
15	Coteau VFD
16	Dularge VFD #10
17	Grand Caillou Fire Deptatn #4A
18	Grand Caillou Fire Deptatn #4A
19	Grand Caillou VFD--Bobtown Station
20	Grand Caillou VFD--Bobtown Sub Sta.
21	Grand Caillou VFD--Dulac Fire Station
22	Grand Caillou VFD--Dulac Sub Station
23	Houma FD--Airbase Station 4
24	Houma FD--East Houma Station 3
25	Houma Fd--East Park Station
26	Houma FD--North Houma Station 2
27	Houma FD--South Houma Station 1
28	Houma Fire Department
29	Little Caillou VFD--Lower Station 3
30	Little Caillou VFD--Upper Station 1
31	Little Caillou/ Chauvin Fire #7
32	Little Caillou/ Chauvin Fire #7
33	Montegut District #6 - Station 1
34	Montegut--Station 2
35	Montegut--Station 3
36	Montegut--Station 4
37	Schriever VFD--Central Schriever Sta.
38	Schriever VFD--Elsworth Station
39	Schriever VFD--Gray Station
40	Schriever Volunteer Fire Dept.
41	Village East VFD--Central Station
42	West Terrebonne F&R (Gibson East)
43	West Terrebonne F&R--(TPCG) Don/Ch
44	West Terrebonne Fire & Rescue (TPCG)

**Legend**

- Fire Station
- 100 Year Flood Zone
- Places**
- Community
- Municipality
- Transportation**
- US Highway
- State/Parish Highway
- Railroad



REFERENCE:  
FEMA flood zone produced from FEMA Q3 flood data and obtained from Louisiana State GIS CD.

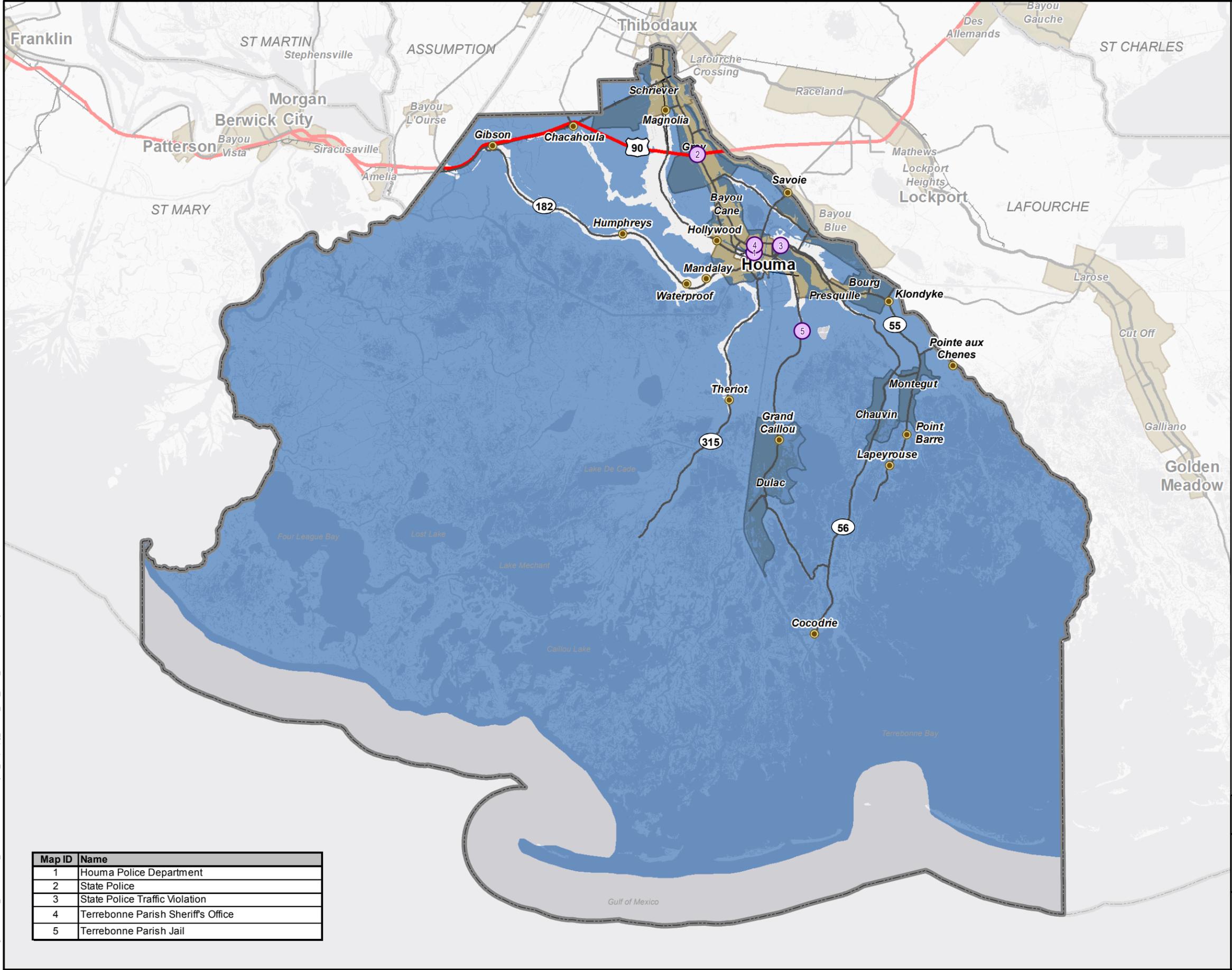
TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-10**

**CRITICAL FACILITIES  
(FIRE STATIONS)**

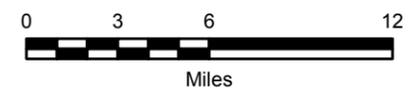
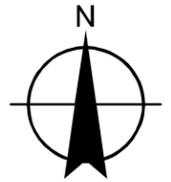


TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA



**Legend**

-  Police Station
-  100 Year Flood Zone
- Places**
-  Community
-  Municipality
- Transportation**
-  US Highway
-  State/Parish Highway
-  Railroad



REFERENCE:  
FEMA flood zone produced from FEMA Q3 flood data and obtained from Louisiana State GIS CD.

TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-11**

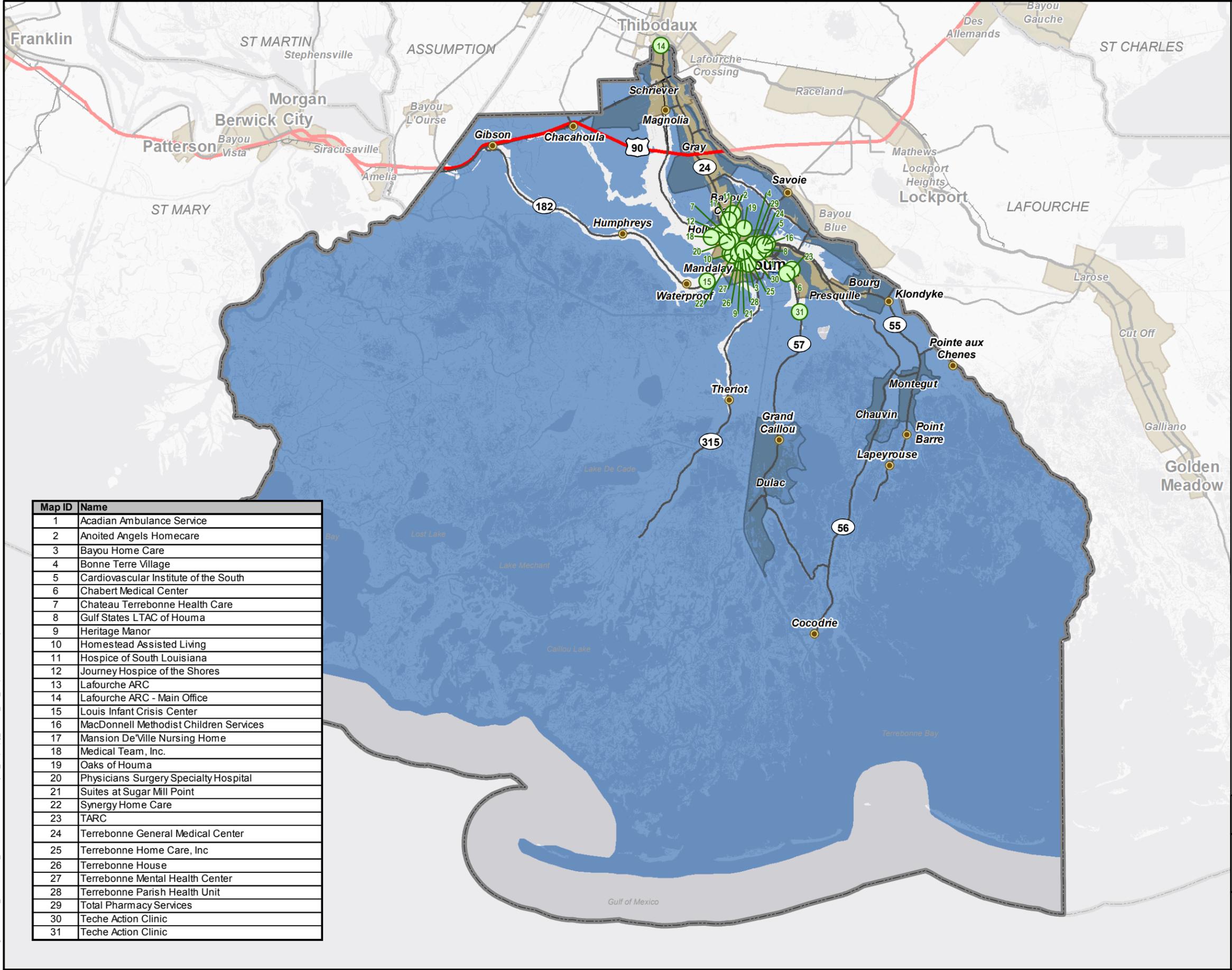
**CRITICAL FACILITIES  
(POLICE STATIONS)**



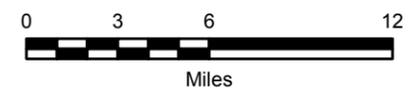
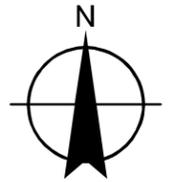
TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA

Map ID	Name
1	Houma Police Department
2	State Police
3	State Police Traffic Violation
4	Terrebonne Parish Sheriff's Office
5	Terrebonne Parish Jail

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- Legend**
- Health Care Provider
  - 100 Year Flood Zone
- Places**
- Community
  - Municipality
- Transportation**
- US Highway
  - State/Parish Highway
  - Railroad



REFERENCE:  
FEMA flood zone produced from FEMA Q3 flood data and obtained from Louisiana State GIS CD.

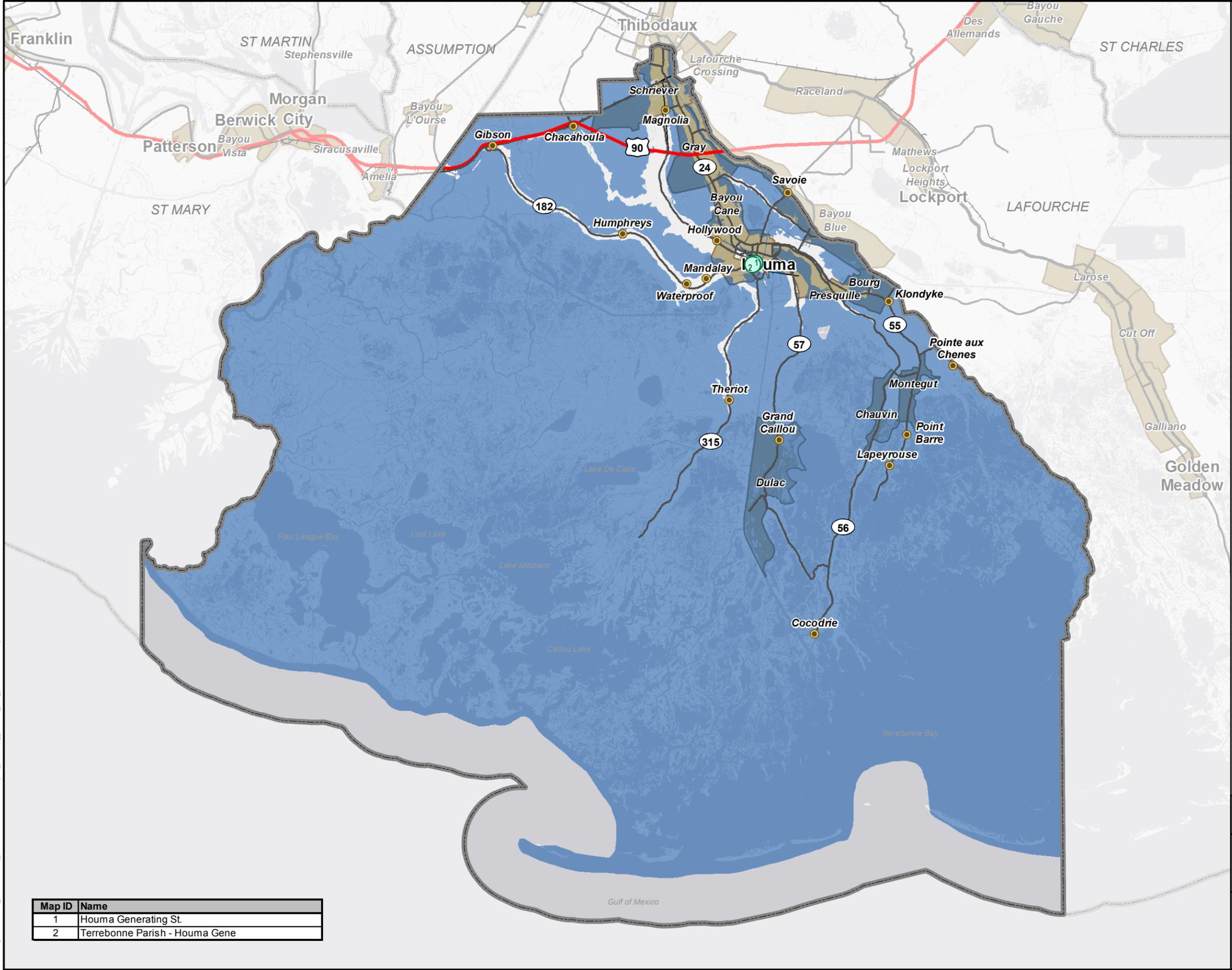
Map ID	Name
1	Acadian Ambulance Service
2	Anoited Angels Homecare
3	Bayou Home Care
4	Bonne Terre Village
5	Cardiovascular Institute of the South
6	Chabert Medical Center
7	Chateau Terrebonne Health Care
8	Gulf States LTAC of Houma
9	Heritage Manor
10	Homestead Assisted Living
11	Hospice of South Louisiana
12	Journey Hospice of the Shores
13	Lafourche ARC
14	Lafourche ARC - Main Office
15	Louis Infant Crisis Center
16	MacDonnell Methodist Children Services
17	Mansion De'Ville Nursing Home
18	Medical Team, Inc.
19	Oaks of Houma
20	Physicians Surgery Specialty Hospital
21	Suites at Sugar Mill Point
22	Synergy Home Care
23	TARC
24	Terrebonne General Medical Center
25	Terrebonne Home Care, Inc
26	Terrebonne House
27	Terrebonne Mental Health Center
28	Terrebonne Parish Health Unit
29	Total Pharmacy Services
30	Teche Action Clinic
31	Teche Action Clinic

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TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

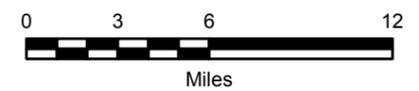
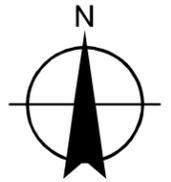
ATTACHMENT  
**c2-12** **CRITICAL FACILITIES  
(HEALTH CARE PROVIDERS)**

TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA



**Legend**

- Power Facility
- 100 Year Flood Zone
- Places**
- Community
- Municipality
- Transportation**
- ▬ US Highway
- State/Parish Highway
- Railroad



REFERENCE:  
FEMA flood zone produced from FEMA Q3 flood data and obtained from Louisiana State GIS CD.

TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-13**

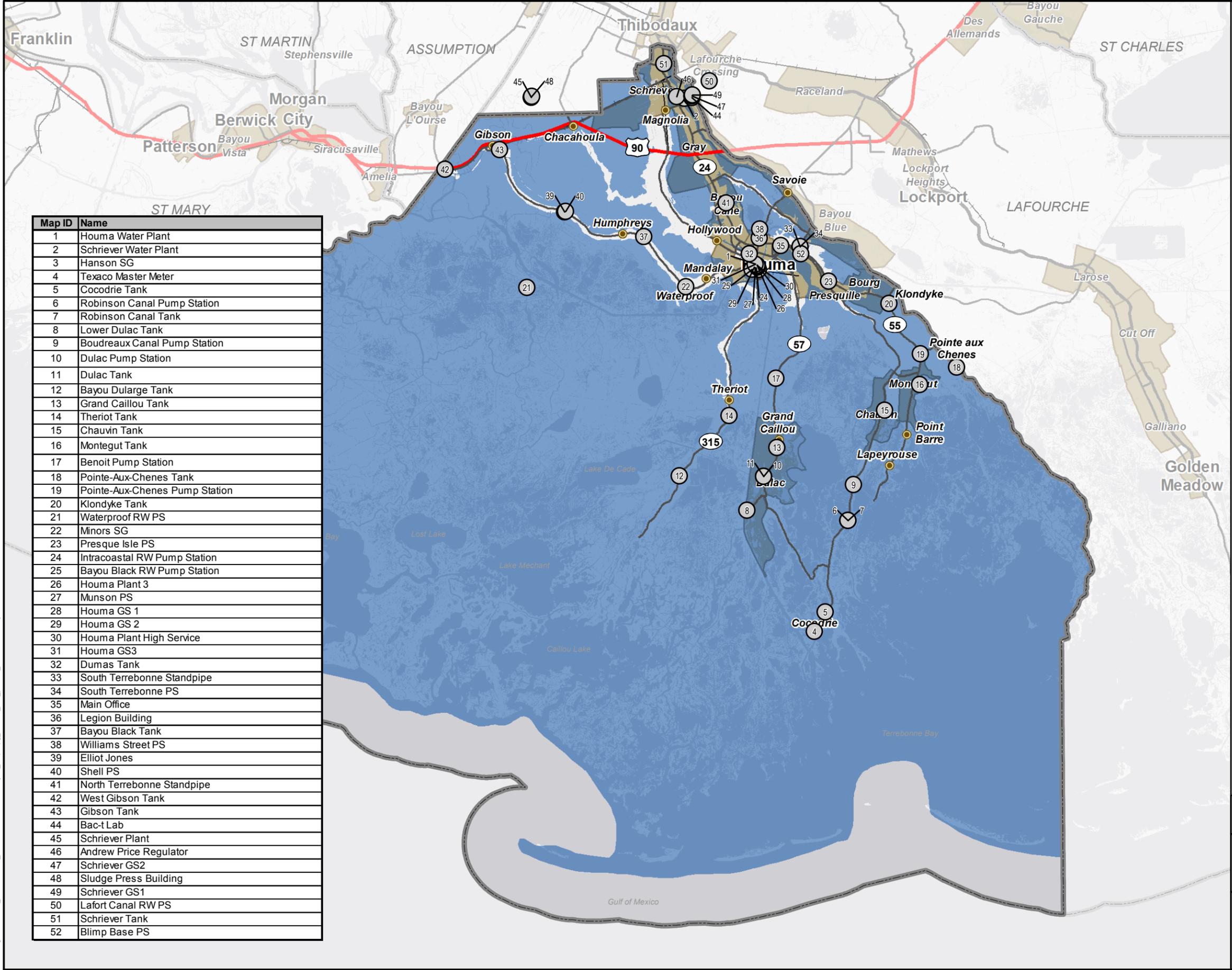
**CRITICAL FACILITIES  
(POWER FACILITIES)**



TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA

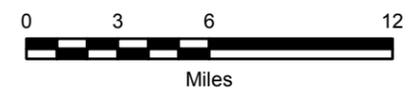
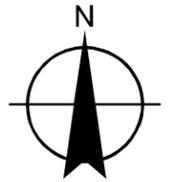
Map ID	Name
1	Houma Generating St.
2	Terrebonne Parish - Houma Gene

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Map ID	Name
1	Houma Water Plant
2	Schriever Water Plant
3	Hanson SG
4	Texaco Master Meter
5	Cocodrie Tank
6	Robinson Canal Pump Station
7	Robinson Canal Tank
8	Lower Dulac Tank
9	Boudreaux Canal Pump Station
10	Dulac Pump Station
11	Dulac Tank
12	Bayou Dularge Tank
13	Grand Caillou Tank
14	Theriot Tank
15	Chauvin Tank
16	Montegut Tank
17	Benoit Pump Station
18	Pointe-Aux-Chenes Tank
19	Pointe-Aux-Chenes Pump Station
20	Klondyke Tank
21	Waterproof RW PS
22	Minors SG
23	Presque Isle PS
24	Intracoastal RW Pump Station
25	Bayou Black RW Pump Station
26	Houma Plant 3
27	Munson PS
28	Houma GS 1
29	Houma GS 2
30	Houma Plant High Service
31	Houma GS3
32	Dumas Tank
33	South Terrebonne Standpipe
34	South Terrebonne PS
35	Main Office
36	Legion Building
37	Bayou Black Tank
38	Williams Street PS
39	Elliot Jones
40	Shell PS
41	North Terrebonne Standpipe
42	West Gibson Tank
43	Gibson Tank
44	Bac-t Lab
45	Schriever Plant
46	Andrew Price Regulator
47	Schriever GS2
48	Sludge Press Building
49	Schriever GS1
50	Lafort Canal RW PS
51	Schriever Tank
52	Blimp Base PS

- Legend**
- Potable Water Facility
  - 100 Year Flood Zone
- Places**
- Community
  - Municipality
- Transportation**
- US Highway
  - State/Parish Highway
  - Railroad



REFERENCE:  
FEMA flood zone produced from FEMA Q3 flood data and obtained from Louisiana State GIS CD.

TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-14**

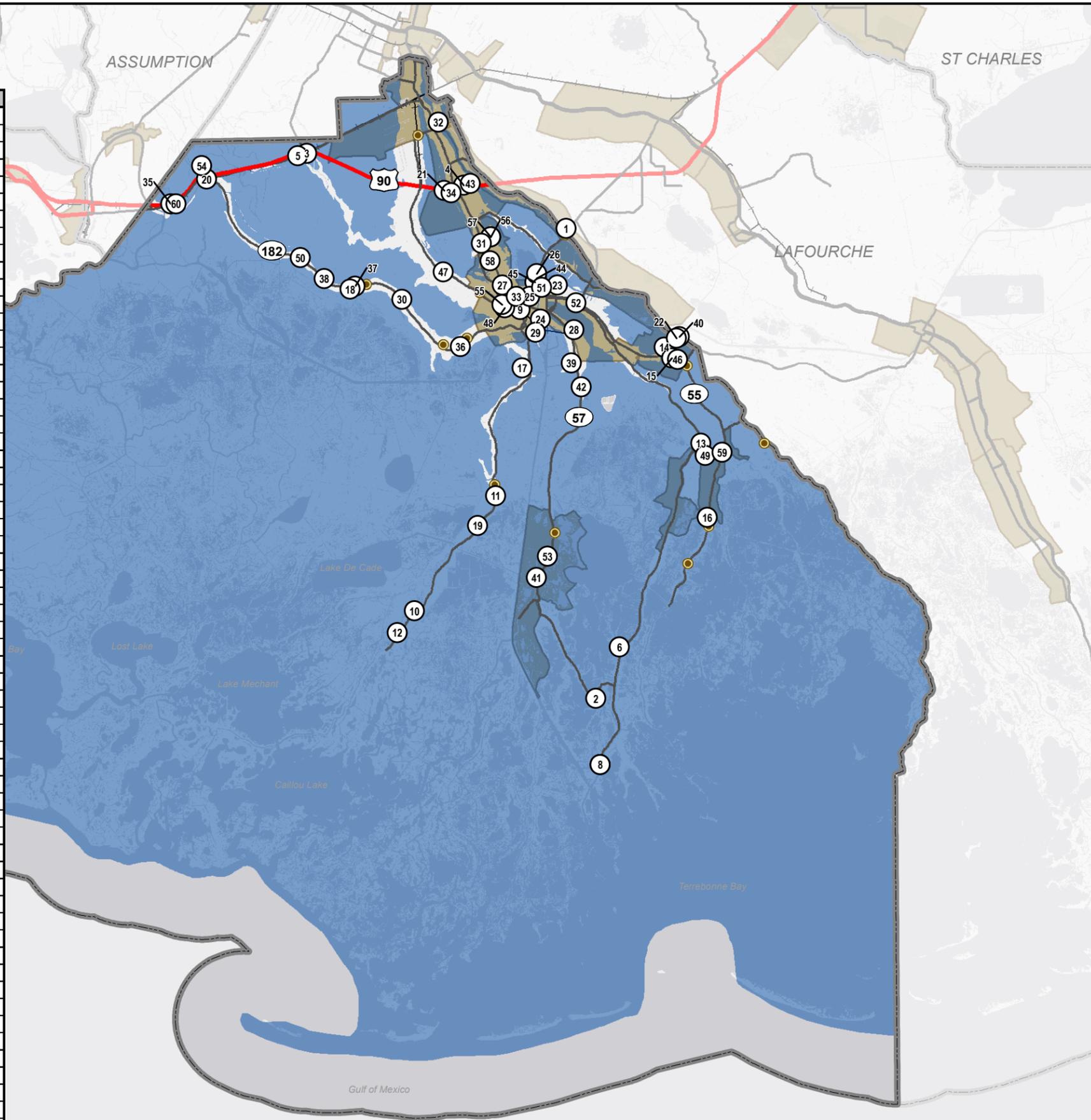
**CRITICAL FACILITIES  
(POTABLE WATER)**



TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA

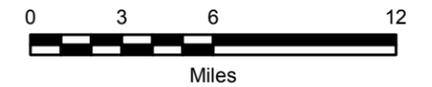
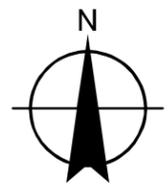
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Map ID	Location
1	4892 Lafourche Parish Hwy 182, Bayou Blue
2	311 Bayou Sale Rd, Cocodrie
3	2136-a Bull Run Rd, Chacahoula
4	3945 Dogwood St, Gray
5	1604 Highway 20, Chacahoula
6	6860 Highway 56, Cocodrie
7	8226 Redfish St, Cocodrie
8	105 Shrimp St, Cocodrie
9	1200 Barataria Ave, Houma
10	2711 Bayou Dularge Rd, Theriot
11	1449 Bayou Dularge Rd, Theriot
12	3017 Bayou Dularge Rd, Theriot
13	4943 Bayouside Dr, Chauvin
14	165 Company Canal Rd, Bourg
15	4452 Country Dr, Bourg
16	1598 Crochetville Rd, Montegut
17	278 Crozier Dr, Houma
18	154 Dorothy Ct, Gibson
19	1674 Dr Beatrous Rd, Theriot
20	218 Fandal St, Gibson
21	305 Frontage Road A, Gray
22	198 Hawky Ln, Bourg
23	377 Hunley Ct, Houma
24	132 Intracoastal Dr, Houma
25	8026 Main St, Houma
26	901 North Hollywood Rd, Houma
27	106 North Hollywood Rd, Houma
28	2509 Petroleum Dr, Houma
29	1977 South Van Av, Houma
30	4162 Southdown Mandalay Rd, Houma
31	5771 West Park Av, Houma
32	170 Waterplant Rd, Schriever
33	7491 Park Av, Houma
34	184 Roddy Ct, Gray
35	6745 Bayou Black, Gibson
36	3595-A Bayou Black Dr, Houma
37	4639-A Bayou Black Dr, Gibson
38	4901-A Bayou Black Dr, Gibson
39	2251 Denley Rd, Houma
40	217 Dot Ct, Bourg
41	7639 Grand Caillou Rd, Dulac
42	2892 Grand Caillou Rd, Houma
43	4005 Greatwood Ct, Gray
44	744 Highway 182, Houma
45	649 Highway 182, Houma
46	4547 Highway 24, Bourg
47	3956 Highway 311, Houma
48	5565 Highway 311, Houma
49	396 Highway 58, Montegut
50	5102 North Bayou Black Dr, Gibson
51	901-A Oak St, Houma
52	9295 Park Av, Houma
53	7061 Shrimpers Row, Dulac
54	211 South, Gibson
55	1203-a Saint Charles St, Houma
56	5776 Vicari St, Houma
57	5778 Vicari St, Houma
58	6250 West Main St, Houma
59	1105-a Highway 55, Montegut
60	144 Blackwater Ct, Gibson



**Legend**

- Communication Tower
- 100 Year Flood Zone
- Places**
- Community
- Municipality
- Transportation**
- US Highway
- State/Parish Highway
- Railroad



REFERENCE:  
FEMA flood zone produced from FEMA Q3 flood data and obtained from Louisiana State GIS CD.

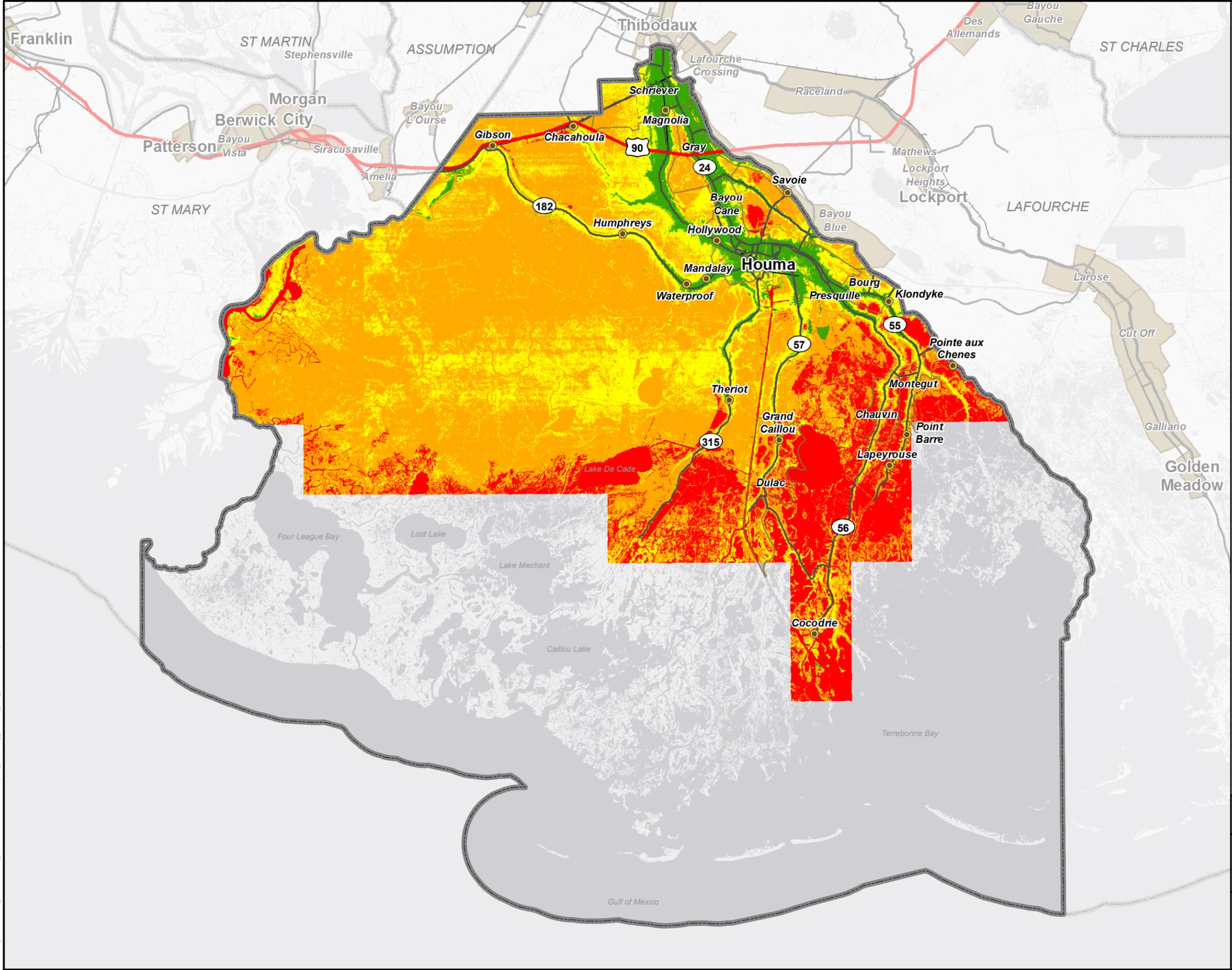
TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-15**

**CRITICAL FACILITIES  
(COMMUNICATIONS)**



TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA



**Legend**

**Elevation**

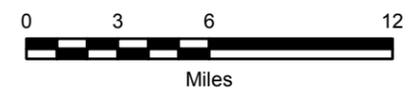
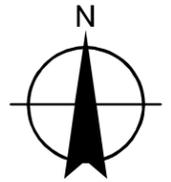
- Below 0'
- 0' - 2'
- 2' - 5'
- Above 5'

**Places**

- Community
- Municipality

**Transportation**

- US Highway
- State/Parish Highway
- Railroad



REFERENCE:  
USGS LIDAR data elevations obtained from LSU's Atlas Website for Terrebonne, Louisiana.

TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

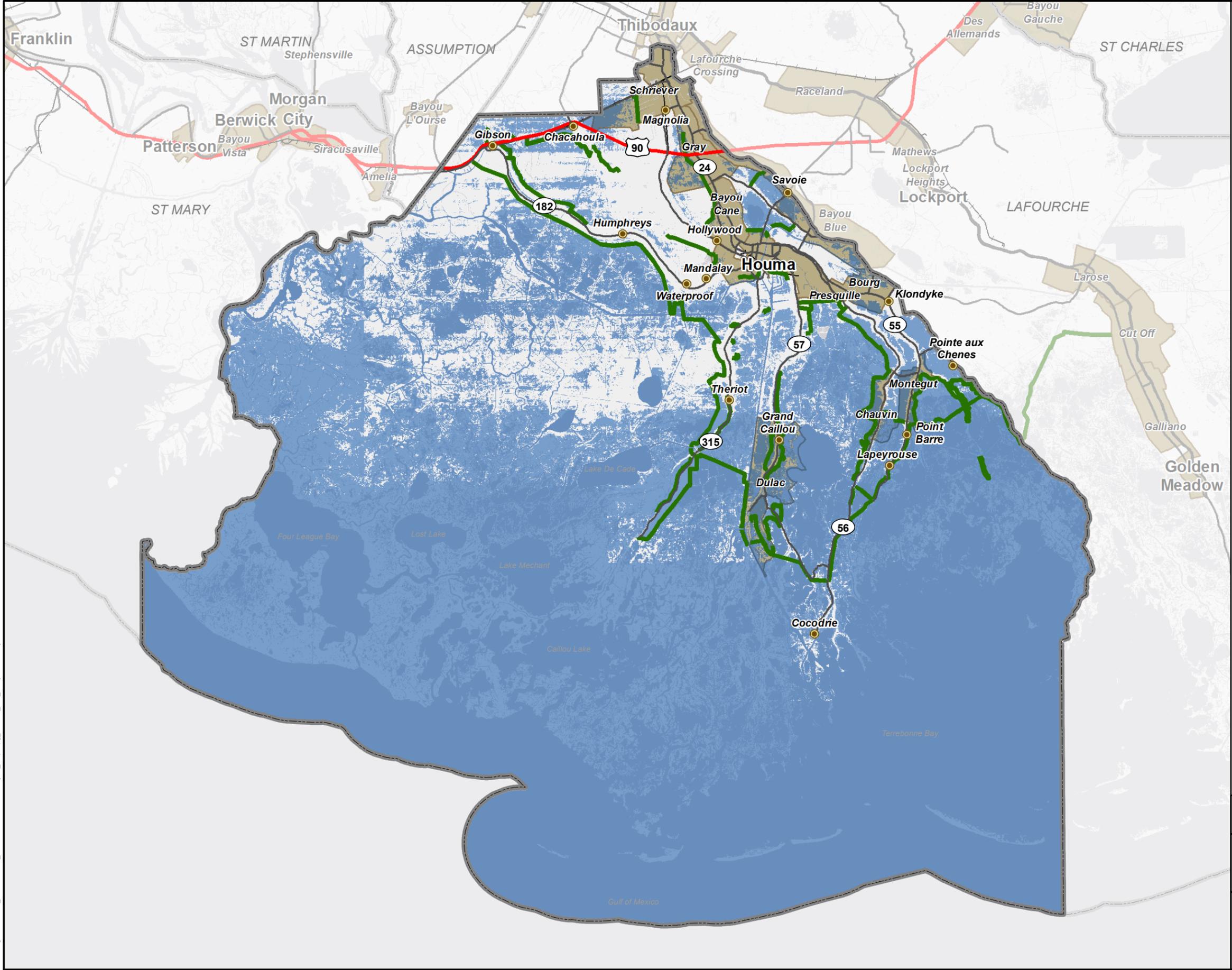
ATTACHMENT  
**c2-16**

**LIDAR ELEVATIONS**



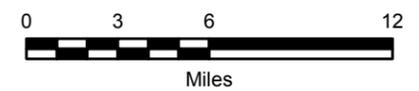
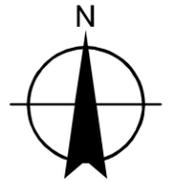
TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA

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**Legend**

- Hurricane Betsy Inundation
- ▬ Levee System
- Places**
- Community
- Municipality
- Transportation**
- ▬ US Highway
- ▬ State/Parish Highway
- ▬ Railroad



REFERENCE:  
Hurricane Betsy inundation areas determined using USACE historical HWM data.

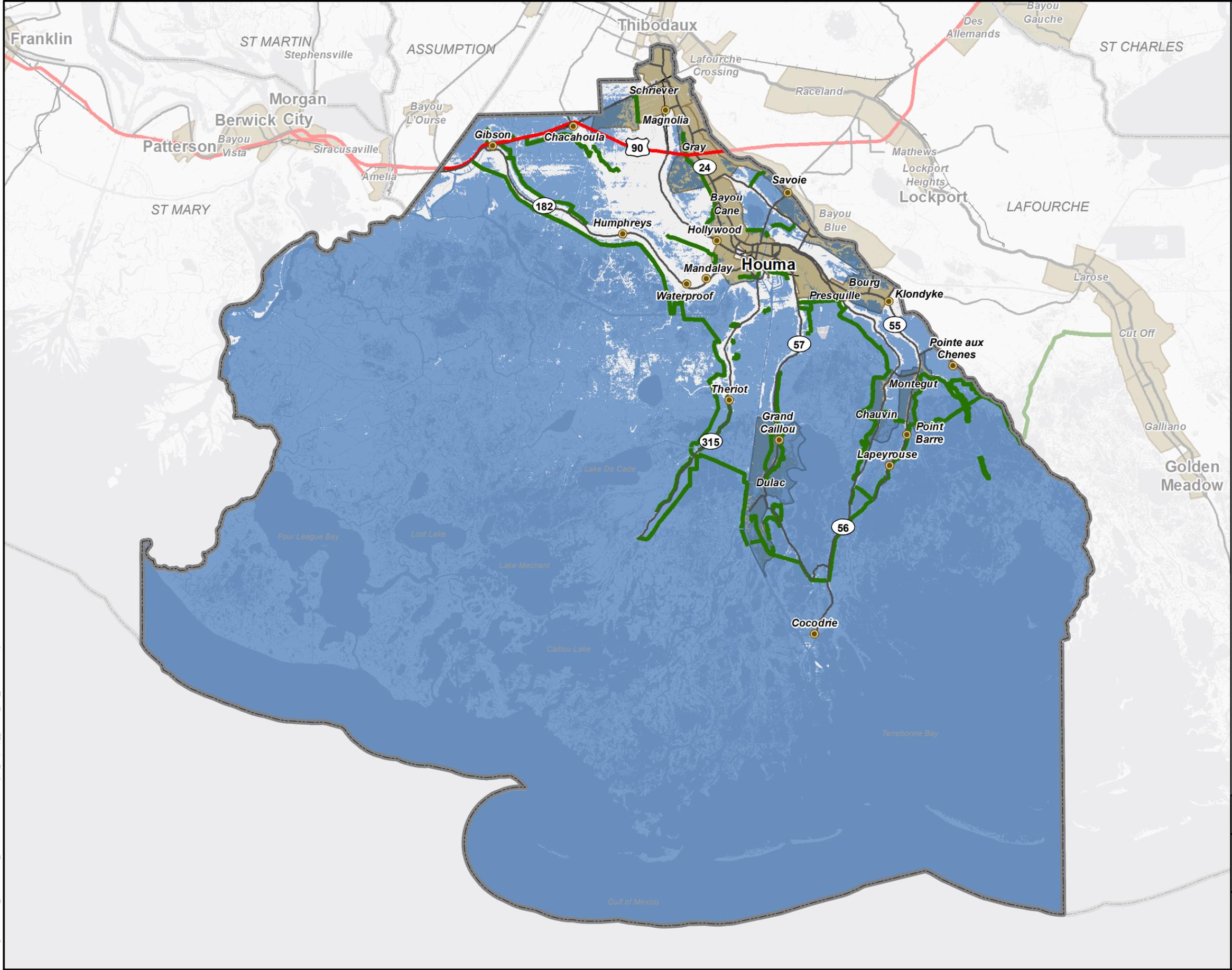
TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-17**

**HURRICANE BETSY  
INUNDATION**

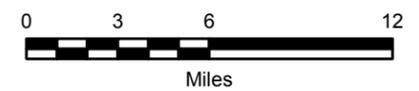
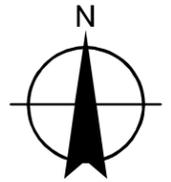


TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA



**Legend**

- Hurricane Juan Inundation
- ▬ Levee System
- Places**
- Community
- Municipality
- Transportation**
- ▬ US Highway
- ▬ State/Parish Highway
- ▬ Railroad



REFERENCE:  
Hurricane Juan inundation areas determined using USACE historical HWM data.

TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

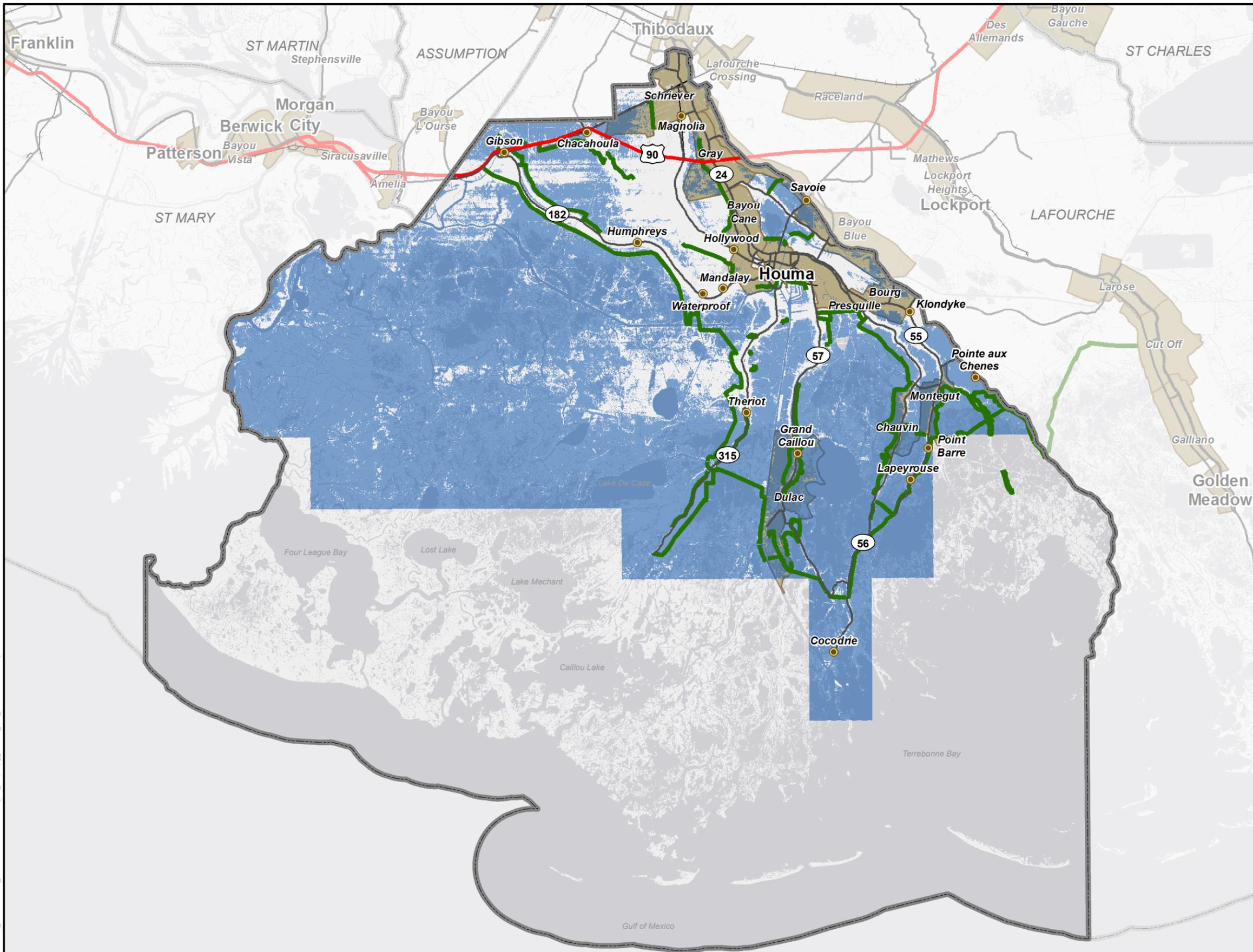
ATTACHMENT  
**c2-18**

**HURRICANE JUAN  
INUNDATION**



TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA

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**Legend**

-  Hurricane Andrew Inundation
-  Levee System
- Places**
-  Community
-  Municipality
- Transportation**
-  US Highway
-  State/Parish Highway
-  Railroad



REFERENCE:  
Hurricane Andrew inundation areas determined using USACE historical HWM data.

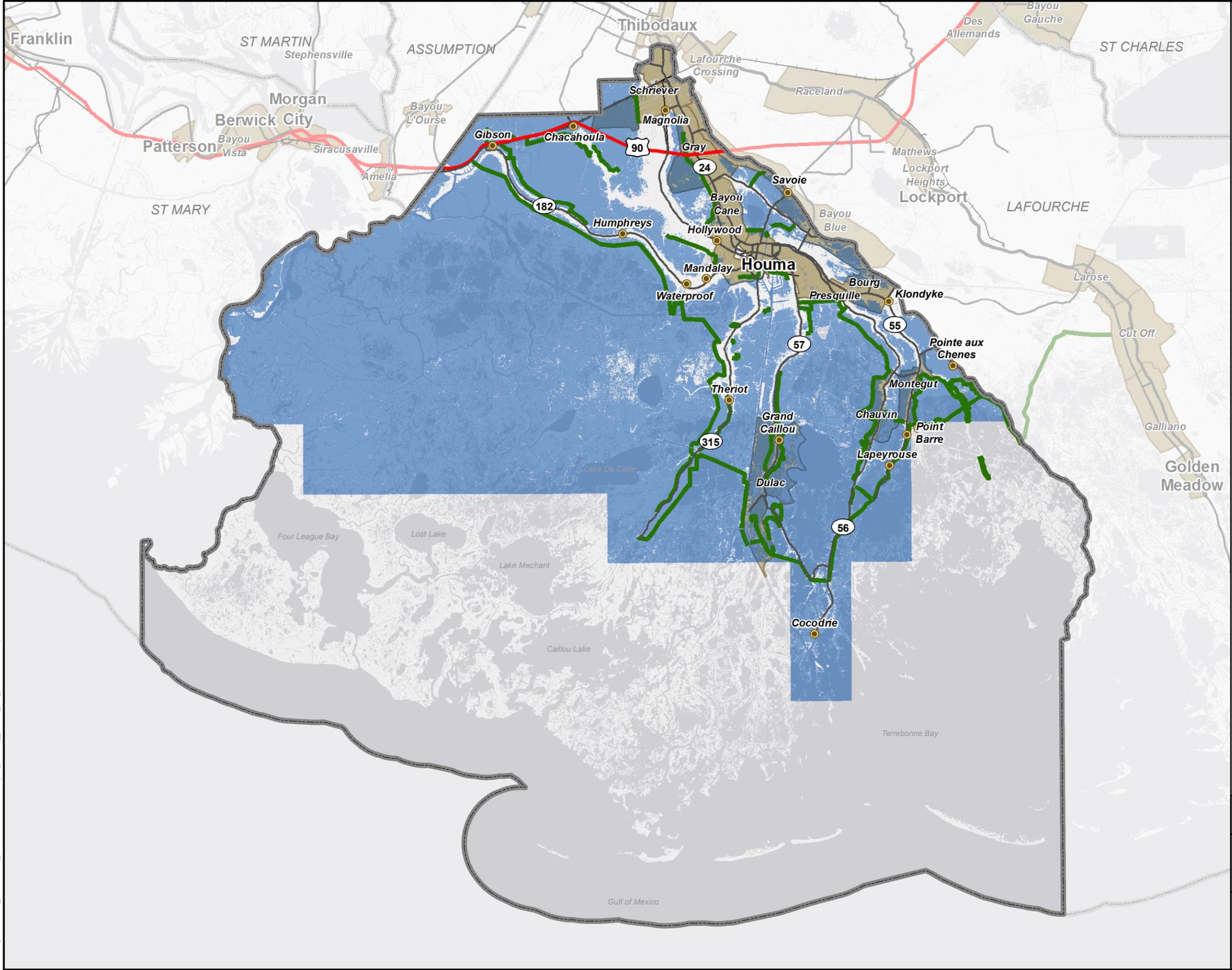
TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-19**

**HURRICANE ANDREW  
INUNDATION**

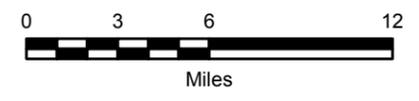


TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA



**Legend**

- Tropical Storm Allison Inundation
- Levee System
- Places**
- Community
- Municipality
- Transportation**
- US Highway
- State/Parish Highway
- Railroad



REFERENCE:  
Tropical Storm Allison inundation areas determined using USACE historical HWM data.

TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

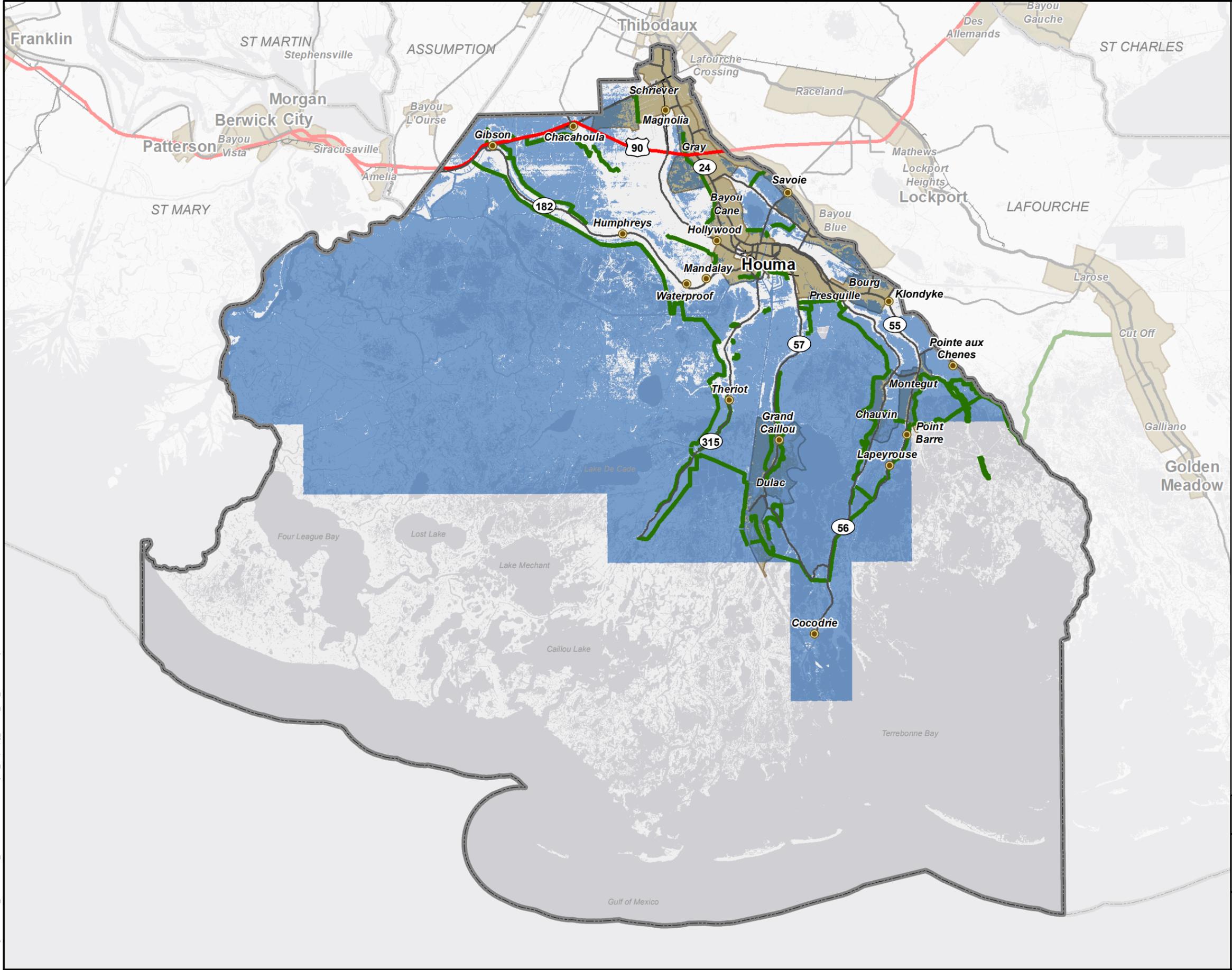
ATTACHMENT  
**c2-20**

**TROPICAL STORM ALLISON  
INUNDATION**



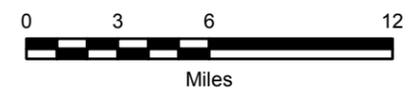
TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA

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**Legend**

- Hurricane Lili Inundation
- Levee System
- Places**
- Community
- Municipality
- Transportation**
- US Highway
- State/Parish Highway
- Railroad



REFERENCE:  
Hurricane Lili inundation areas determined using USACE historical HWM data.

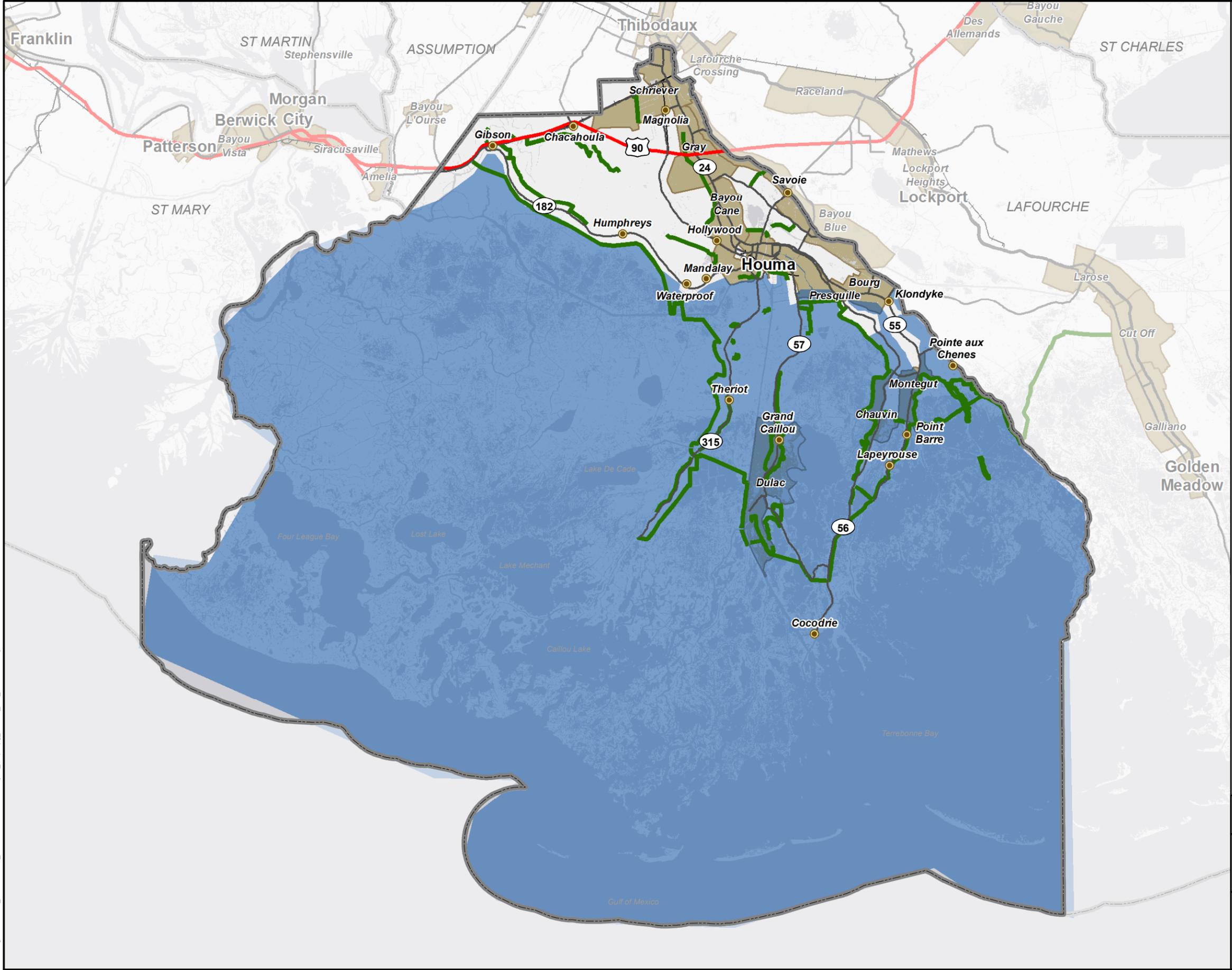
TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-21**

**HURRICANE LILI  
INUNDATION**

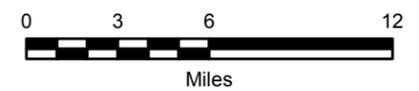


TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA



**Legend**

- Hurricane Rita Inundation
- Levee System
- Places**
- Community
- Municipality
- Transportation**
- US Highway
- State/Parish Highway
- Railroad



REFERENCE:  
Hurricane Rita inundation areas determined using USACE historical HWM data.

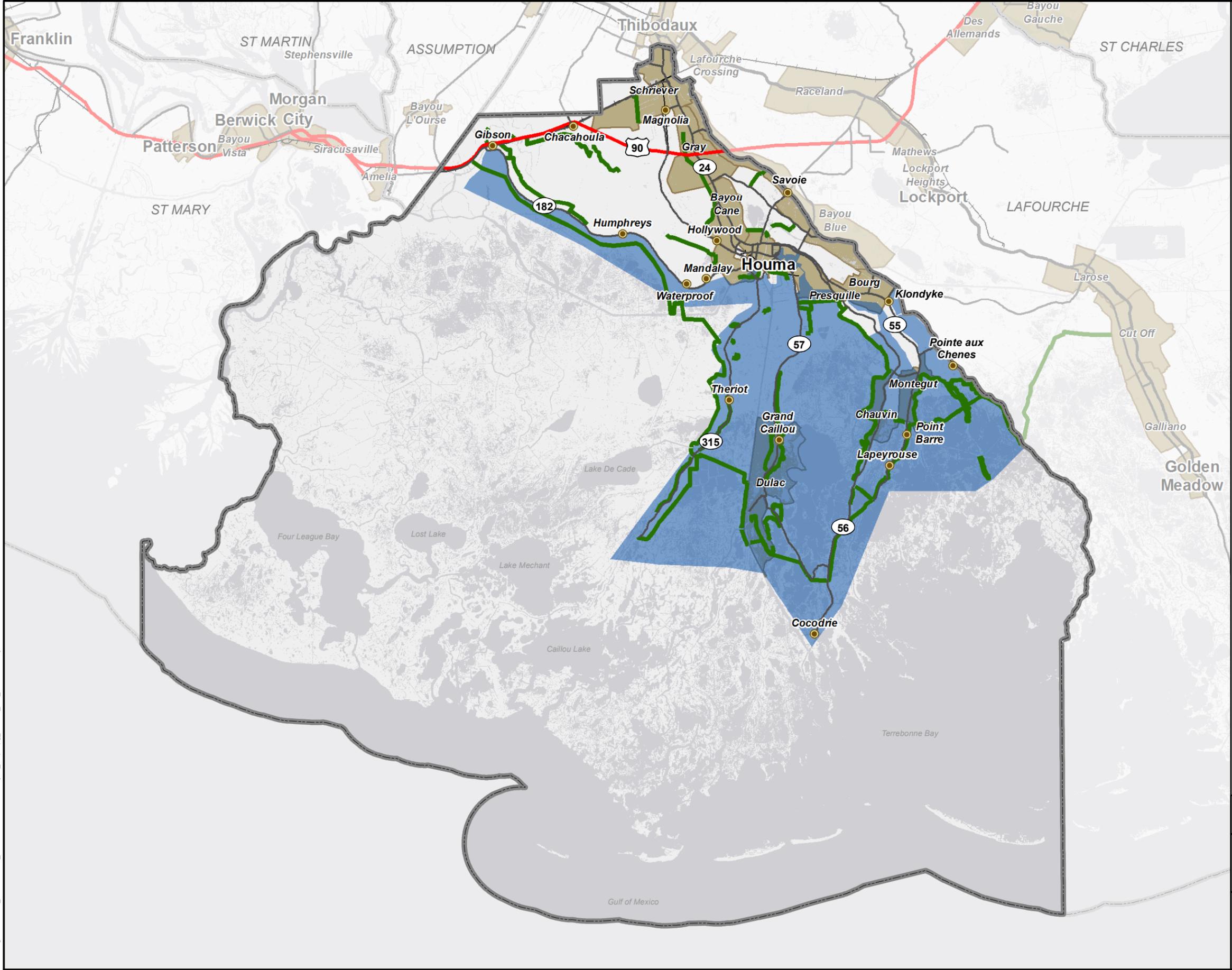
TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-22**

**HURRICANE RITA  
INUNDATION**

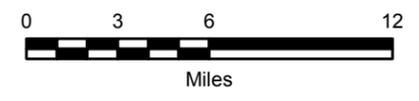
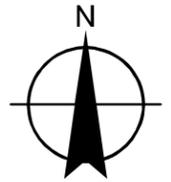


TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA



**Legend**

- Hurricane Ike Inundation
- Levee System
- Places**
- Community
- Municipality
- Transportation**
- US Highway
- State/Parish Highway
- Railroad



REFERENCE:  
Hurricane Ike inundation areas provided by Terrebonne Parish GIS.

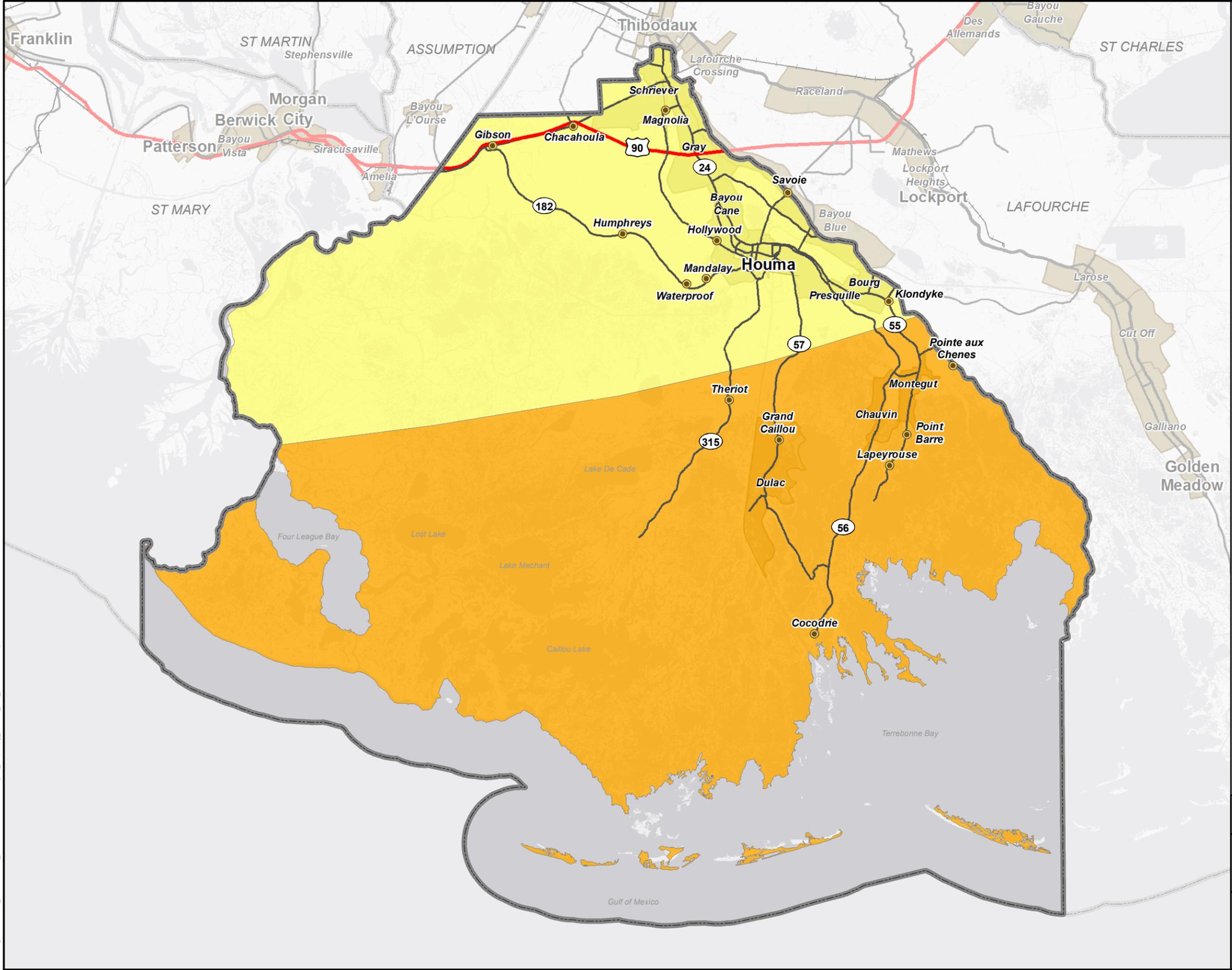
TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-23**

**HURRICANE IKE  
INUNDATION**

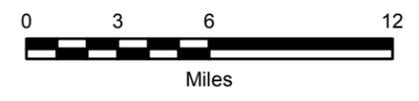
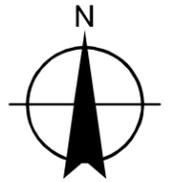


TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA



**Legend**

- Wind Speed**
- >120mph - 130mph
  - >130mph - 140mph
- Places**
- Community
  - Municipality
- Transportation**
- US Highway
  - State/Parish Highway
  - Railroad



REFERENCE:  
Wind speeds obtained from IRC/IBC Wind Speed Map dated 2003.

TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

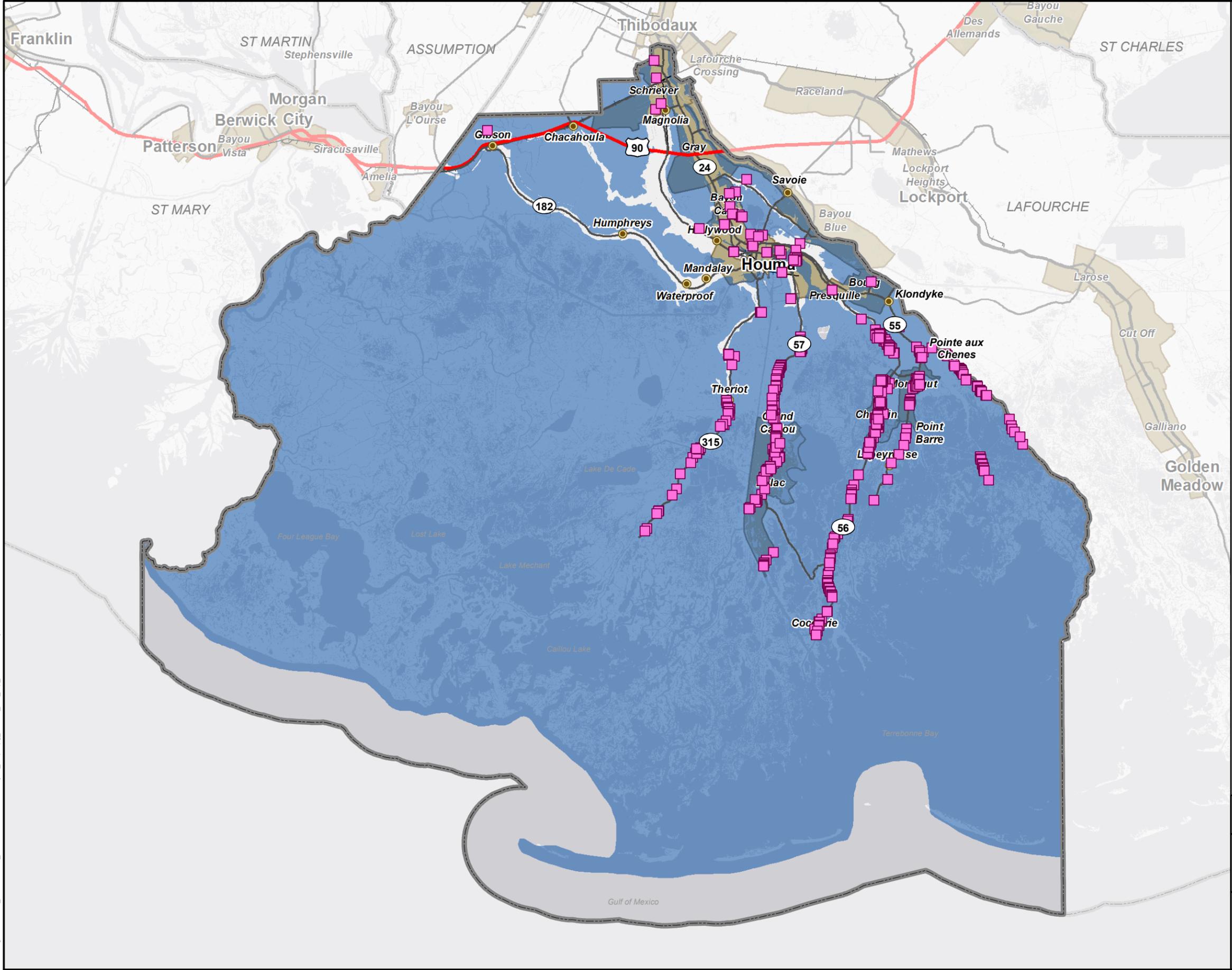
ATTACHMENT  
**c2-24**

**WIND SPEEDS**



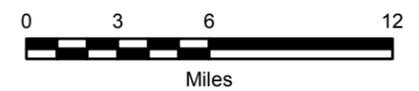
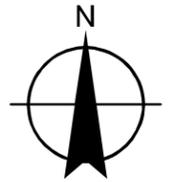
TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA

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**Legend**

- Repetitive Loss Structure
- 100 Year Flood Zone
- Places**
- Community
- Municipality
- Transportation**
- US Highway
- State/Parish Highway
- Railroad



REFERENCE:  
FEMA flood zone produced from FEMA Q3 flood data and obtained from Louisiana State GIS CD.

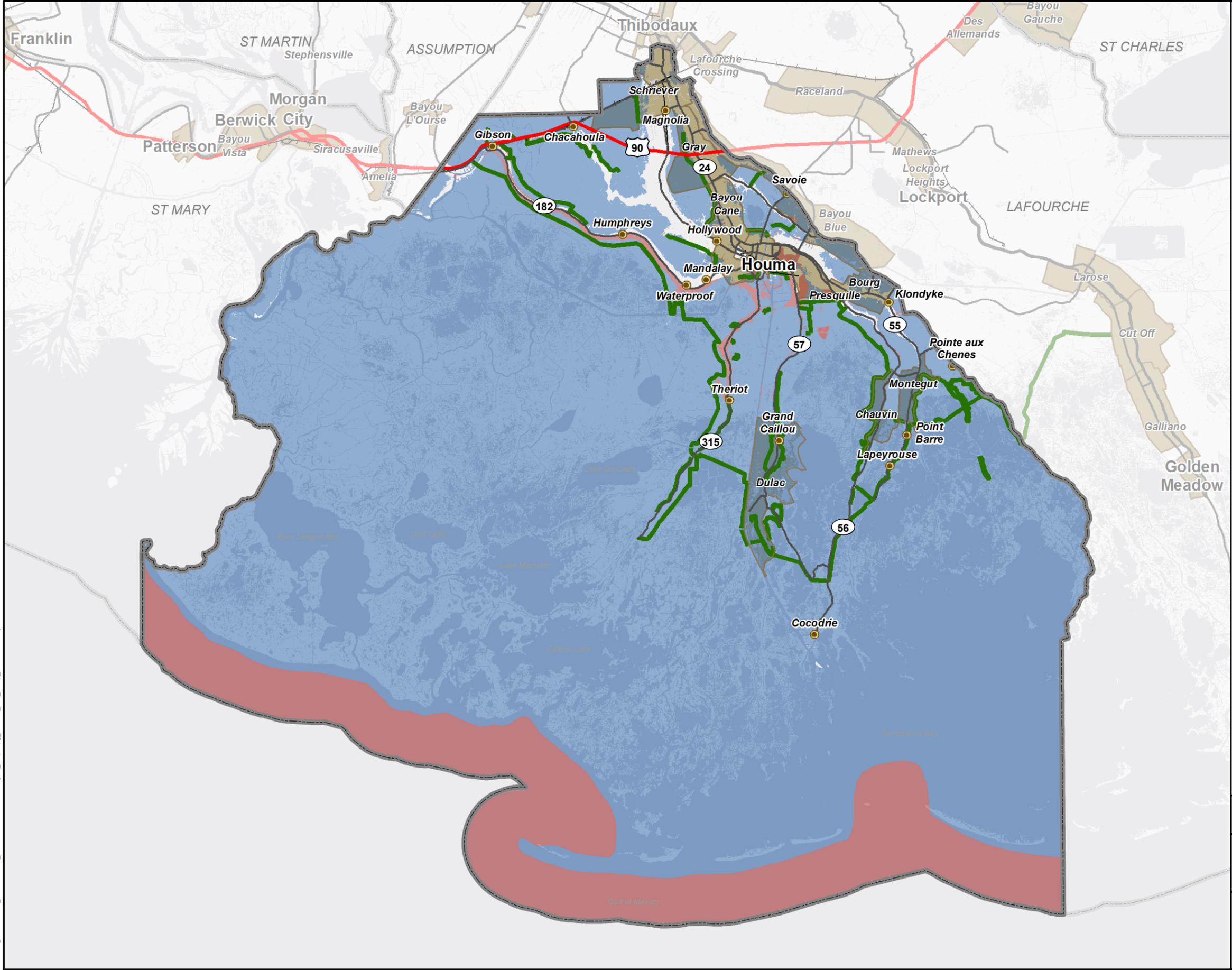
TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-25**

**REPETITIVE LOSS  
STRUCTURES**

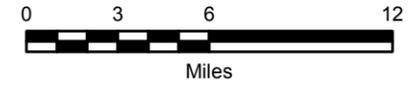


TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA



**Legend**

-  Levee System
- Composite Risk Areas**
-  Inside 100 Year Floodplain
-  Outside 100 Year Floodplain
- Places**
-  Community
-  Municipality
- Transportation**
-  US Highway
-  State/Parish Highway
-  Railroad



REFERENCE:  
Composite event area obtained by merging major storm event areas.

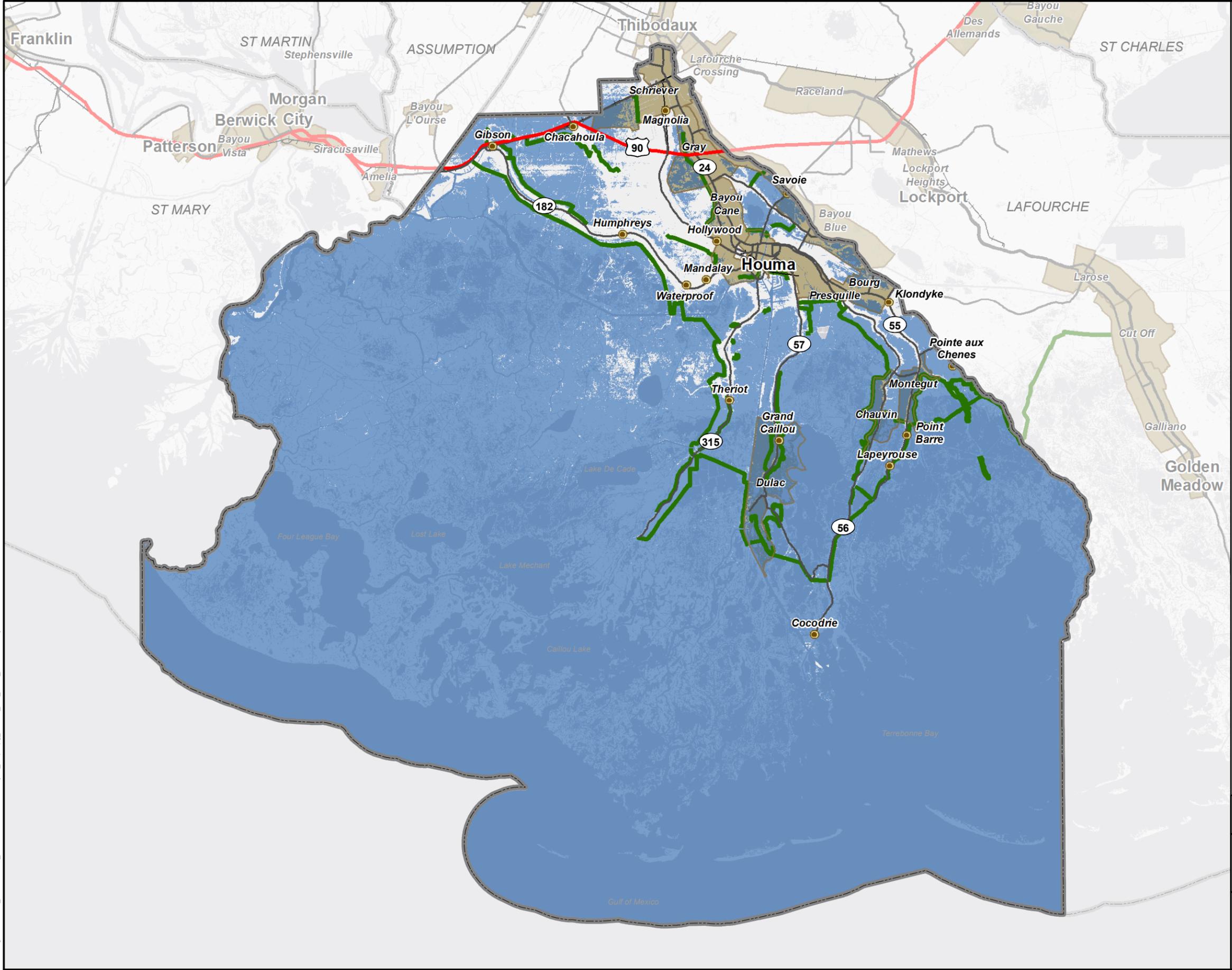
TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-26**

**COMPOSITE RISK AREAS**

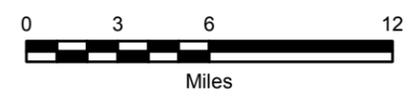
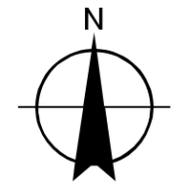


TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA



**Legend**

-  Levee System
-  Area of Inundation
- Places**
-  Community
-  Municipality
- Transportation**
-  US Highway
-  State/Parish Highway
-  Railroad



REFERENCE:  
Composite event area obtained by merging major storm event areas.

TERREBONNE PARISH  
HAZARD MITIGATION PLAN UPDATE

ATTACHMENT  
**c2-27**

**LEVEE FAILURE  
INUNDATION**



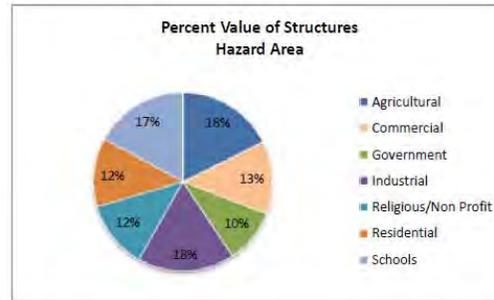
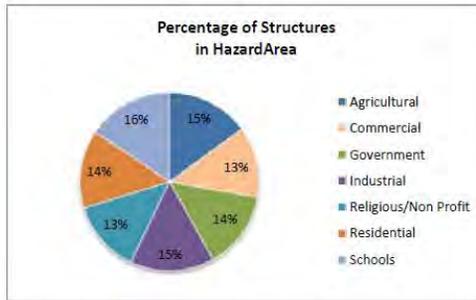
TERREBONNE PARISH GOVERNMENT  
HOUMA, LOUISIANA

## Attachment c2-28 Worksheet #3A—HAZUS

### Terrebonne Parishwide HAZUS

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures		
	# in Community	# in Hazard Area	% in Hazard Area	\$ in Community	\$ in Hazard Area	% in Hazard Area
Agricultural	104	68	65%	\$ 23,133,000	\$ 19,067,000	82%
Commercial	2,200	1,241	56%	\$ 1,274,572,000	\$ 789,141,000	62%
Government	60	37	62%	\$ 36,499,000	\$ 16,690,000	46%
Industrial	669	445	67%	\$ 424,320,000	\$ 347,546,000	82%
Religious/Non Profit	188	108	57%	\$ 127,108,000	\$ 73,180,000	58%
Residential	39,273	24,429	62%	\$ 5,323,060,000	\$ 3,108,102,000	58%
Schools	66	45	68%	\$ 66,885,000	\$ 53,289,000	80%
<b>Total</b>	<b>42,560</b>	<b>26,373</b>	<b>62%</b>	<b>\$ 7,275,577,000</b>	<b>\$ 4,407,015,000</b>	<b>61%</b>

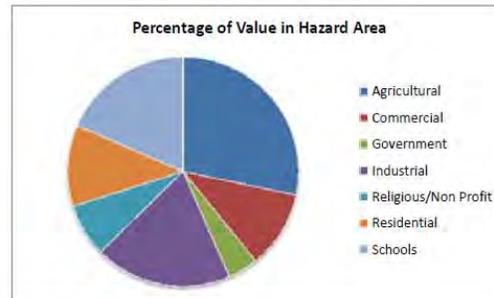
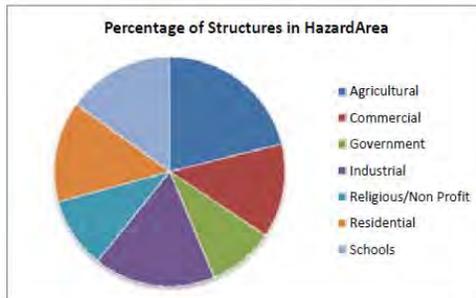
	# in Community	# in Hazard Area	% in Hazard Area
Population	104,503	64,961	62%



### Houma HAZUS

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures		
	# in Community	# in Hazard Area	% in Hazard Area	\$ in Community	\$ in Hazard Area	% in Hazard Area
Agricultural	29	17	59%	\$ 13,423,000	\$ 12,614,000	94%
Commercial	951	349	37%	\$ 469,759,000	\$ 169,909,000	36%
Government	27	7	26%	\$ 21,587,000	\$ 3,042,000	14%
Industrial	235	111	47%	\$ 119,733,000	\$ 76,324,000	64%
Religious/Non Profit	65	18	28%	\$ 44,209,000	\$ 10,926,000	25%
Residential	12,642	4,996	40%	\$ 1,883,170,000	\$ 717,283,000	38%
Schools	24	10	42%	\$ 17,852,000	\$ 10,930,000	61%
<b>Total</b>	<b>13,973</b>	<b>5,508</b>	<b>39%</b>	<b>\$ 2,569,733,000</b>	<b>\$ 1,001,028,000</b>	<b>39%</b>

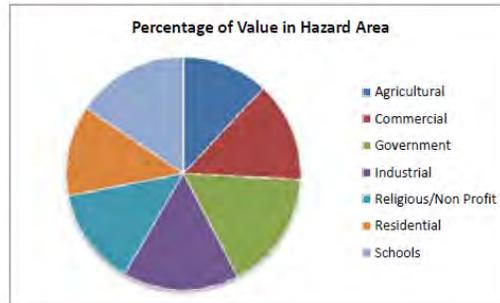
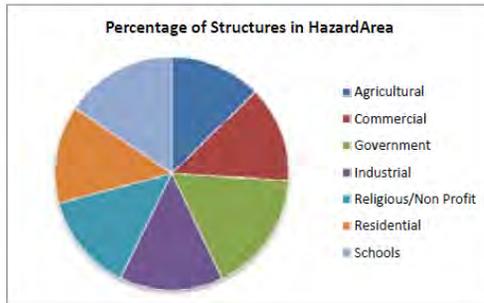
	# in Community	# in Hazard Area	% in Hazard Area
Population	32,970	14,197	43%



## Unincorporated HAZUS

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures		
	# in Community	# in Hazard Area	% in Hazard Area	\$ in Community	\$ in Hazard Area	% in Hazard Area
Agricultural	75	51	68%	\$ 9,710,000	\$ 6,453,000	66%
Commercial	1,249	892	71%	\$ 804,813,000	\$ 619,232,000	77%
Government	33	30	91%	\$ 14,912,000	\$ 13,648,000	92%
Industrial	434	334	77%	\$ 304,587,000	\$ 271,222,000	89%
Religious/Non Profit	123	90	73%	\$ 82,899,000	\$ 62,254,000	75%
Residential	26,631	19,433	73%	\$ 3,439,890,000	\$ 2,390,819,000	70%
Schools	42	35	83%	\$ 49,033,000	\$ 42,359,000	86%
<b>Total</b>	<b>28,587</b>	<b>20,865</b>	<b>73%</b>	<b>\$ 4,705,844,000</b>	<b>\$ 3,405,987,000</b>	<b>72%</b>

	# in Community	# in Hazard Area	% in Hazard Area
Population	71,533	50,764	71%



**Attachment c2-29  
List of Critical Facilities**

Type of Asset		Name/Description of Structure
	Hospitals	Chabert Medical Center
		Gulf States LTAC of Houma
		Physicians Surgery Specialty Hospital
		Terrebonne General Medical Center
	Assisted Living	Bonne Terre Village
		Chateau Terrebonne Health Care
		Heritage Manor of Houma
		Homestead Assisted Living
		Maison De'Ville Nursing Home
		Suites at Sugar Mill Point
		TARC
		Terrebonne House
		The Oaks of Houma
	Home Health	Anoited Care Services LLC
		Bayou Home Care
		Hospice of South Louisiana
		Journey Hospice
		Lafourche ARC - Main Office
		Lafourche ARC
		Synergy Home Health Care River Region
		Terrebonne Home Care, Inc
		The Medical Team
		Total Pharmacy Services
	Medical	Acadian Ambulance Service
		Cardiovascular Institute of the South
		Terrebonne Mental Health Center
		Terrebonne Parish Health Unit

Type of Asset		Name/Description of Structure
Essential Facilities, cont.	Emergency Operation Centers	911-Terrebonne Communications District
		Office of Emergency Preparedness (OEP)
	Police Stations	Houma Police Department
		State Police
		State Police Traffic Violation
		Terrebonne Parish Sheriff's Office
	Fire Stations	Bayou Black VFD--Station 2
		Bayou Black Volunteer Fire Department #9
		Bayou Blue Fire Department
		Bayou Blue VFD--Station 2
		Bayou Blue VFD--Station 3
		Bayou Cane Fire Protection District
		Bayou Cane VFD--Hollywood Road Station
		Bayou Cane VFD--Savanne Road Station
		Bayou Cane VFD--W. Park Avenue Station
		Bayou Dularge VFD--Station 1
		Bayou Dularge VFD--Station 2
		Bayou Dularge VFD--Station 4
		Bourg VFD
		Coteau Volunteer Fire Department
		Donner-Chacahoula--Central Station
		Dularge Volunteer Fire Department #10
Grand Caillou Fire Department Fire # 4A		
Grand Caillou Fire Department Fire # 4A		
Grand Caillou VFD--Bobtown Station		

Type of Asset		Name/Description of Structure
		Grand Caillou VFD--Bobtown Sub Station
		Grand Caillou VFD--Dulac Fire Station
		Grand Caillou VFD--Dulac Sub Station
		Houma FD--Airbase Station 4
		Houma FD--East Houma Station 3
		Houma FD - East Park Station
		Houma FD--North Houma Station 2
		Houma FD--South Houma Station 1
		Houma Fire Department
		Little Caillou VFD--Lower Station 3
Essential Facilities, cont.	Fire Stations, cont.	Little Caillou VFD--Upper Station 1
		Little Caillou/ Chauvin Fire #7
		Little Caillou/ Chauvin Fire #7
		Montegut District # 6 - Station 1
		Montegut--Station 2
		Montegut--Station 3
		Montegut--Station 4
		Schriever VFD--Central Schriever Station
		Schriever VFD--Elsworth Station
		Schriever VFD--Gray Station
		Schriever Volunteer Fire Dept.
		Village East VFD--Central Station
	West Terrebonne F&R (Gibson East)	
West Terrebonne F&R--(TPCG) Don/Ch		
West Terrebonne Fire & Rescue (TPCG)		
	Acadian Elementary	
	Andrew Price	

Type of Asset		Name/Description of Structure
Schools		Bayou Black Elementary
		Bayou Cane Adult Ed Center
		Bourg Elementary
		Broadmoor Elementary
		Caldwell Middle
		Coteau-Bayou Blue Elementary
		Dularge Elementary
		Dularge Middle
		East Houma Elementary
		East Street
		Ellender Memorial High
		Elysian Fields Middle
		Evergreen Jr. High
		Gibson elementary
		Grand Caillou Elementary
		Grand Caillou Middle
		H.L. Bourgeois High
		Honduras Elementary
		Houma Jr. High
		Juvenile Justice Center
		Lacache Middle
		Legion Park Middle
		Lisa Park Elementary
		Maria Immacolata Elementary
		Montegut Elementary
	Montegut Middle	

Type of Asset		Name/Description of Structure
Essential Facilities, cont.	Schools, cont.	Mulberry Elementary
		Oaklawn Jr. High
		Oakshire Elementary
		Omega Institute of Cosmetology
		Point-aux-Chenes Elementary
		School for Exceptional Children
		Schriever Elementary
		South Louisiana Beauty College
		South Terrebonne High
		Southdown Elementary
		St. Bernadette
		St. Francis De Sales
		St. Gregory Barbarigo
		St. Matthew's
		TARC
		Terrebonne High
		Terrebonne Career and Technical High
		Terrebonne Parish School Board
Upper Little Caillou Elementary		
Essential Facilities, cont.	Schools, cont.	Vandebilt Catholic High
		Village East Elementary
		West Park Elementary

Type of Asset		Name/Description of Structure
Other	Parish Owned Buildings	Houma Terrebonne Housing Authority (Bayou Towers)
		Public Works Yard
		Pump Stations (Various Locations)
	Child Care	Louis Infant Crisis Center
		MacDonnell Methodist Children Services
	Civic Center	Houma-Terrebonne Civic Center
Lifeline Utility Systems	Sewage	Eureka Heights S/D - Gray
		Fairlane Sewerage Corp - Gray
		Halliburton Energy Services
		North Sewage Treatment Plant
		South Sewage Treatment Plant
		Terrebonne Parish Con Gov-Cyp
		Terrebonne Parish Pollution Control
		TPCG Pollution Control South Treatment Plant
	Power Plants	Houma Generating St.
		Terrebonne Parish - Houma Gene
	Water	Andrew Price Regulator
		Bac-t Lab
		Bayou Black RW Pump Station
		Bayou Black Tank
		Bayou Dularge Tank
		Benoit Pump Station
		Blimp Base PS
		Boudreaux Canal Pump Station
		Chauvin Tank
		Cocodrie Tank

Type of Asset		Name/Description of Structure
		Dulac Pump Station
		Dulac Tank
		Dumas Tank
		Elliot Jones
		Gibson Tank
		Grand Caillou Tank
		Hanson SG
		Houma GS 1
		Houma GS 2
Lifeline Utility Systems, cont.	Water, cont.	Houma GS3
		Houma Plant 3
		Houma Plant High Service
		Houma Water Plant
		Intracoastal RW Pump Station
		Klondyke Tank
		Lafort Canal RW PS
		Legion Building
		Lower Dulac Tank
		Main Office
		Minors SG
		Montegut Tank
		Munson PS
		North Terrebonne Standpipe
		Pointe-Aux-Chenes Pump Station
Pointe-Aux-Chenes Tank		
Presque Isle PS		

Type of Asset		Name/Description of Structure
		Robinson Canal Pump Station
		Robinson Canal Tank
		Schriever GS1
		Schriever GS2
		Schriever Tank
		Schriever Water Plant
		Shell PS
		South Terrebonne PS
		South Terrebonne Standpipe
		Texaco Master Meter
		Theriot Tank
		West Gibson Tank
		Williams Street PS

### Attachment c2-30

#### Identification of Critical Facilities in the Hazard Areas

\* Composite list is all hurricanes (Betsy, Juan, Andrew, Lili, Katrina, Rita, Gustav, Ike, and Isaac) and the 100-year floodplain.

Type of Asset		Name/Description of Structure	100-Year Flood Plain	Composite Risk	Levee Failure
	Hospitals	Chabert Medical Center	X	X	
		Gulf States LTAC of Houma			
		Physicians Surgery Specialty Hospital			
		Terrebonne General Medical Center			
	Assisted Living	Bonne Terre Village			
		Chateau Terrebonne Health Care			
		Heritage Manor of Houma			
		Homestead Assisted Living			
		Maison De'Ville Nursing Home			
		Suites at Sugar Mill Point			
		TARC			
		Terrebonne House			
	The Oaks of Houma	X	X		
	Home Health	Anoited Care Services LLC			
		Bayou Home Care			
		Hospice of South Louisiana			
		Journey Hospice			
		Lafourche ARC - Main Office			
		Lafourche ARC			
		Synergy Home Health Care River Region			
		Terrebonne Home Care, Inc	X	X	
		The Medical Team			
		Total Pharmacy Services			
	Medical	Acadian Ambulance Service			
		Cardiovascular Institute of the South		X	
		Terrebonne Mental Health Center			
		Terrebonne Parish Health Unit	X		
	Emergency Operation Centers	911-Terrebonne Communications District			
Office of Emergency Preparedness (OEP)					
Police Stations	Houma Police Department				
	State Police				
	State Police Traffic Violation				
	Terrebonne Parish Sheriff's Office				
	Bayou Black VFD—Station 2				
	Bayou Black Volunteer Fire Department #9				

Type of Asset		Name/Description of Structure	100-Year Flood Plain	Composite Risk	Levee Failure
Essential Facilities, cont.	Fire Stations	Bayou Blue Fire Department			
		Bayou Blue VFD--Station 2			
		Bayou Blue VFD--Station 3			
		Bayou Cane Fire Protection District			
		Bayou Cane VFD--Hollywood Road Station			
		Bayou Cane VFD--Savanne Road Station			
		Bayou Cane VFD--W. Park Avenue Station			
		Bayou Dularge VFD--Station 1	X	X	X
		Bayou Dularge VFD--Station 2		X	
		Bayou Dularge VFD--Station 4		X	
		Bourg VFD			X
		Coteau Volunteer Fire Department			
		Donner-Chacahoula--Central Station			
		Dularge Volunteer Fire Department #10	X	X	X
		Grand Caillou Fire Department Fire # 4A	X	X	
		Grand Caillou Fire Department Fire # 4A	X	X	X
		Grand Caillou VFD--Bobtown Station	X	X	
		Grand Caillou VFD--Bobtown Sub Station	X	X	X
		Grand Caillou VFD--Dulac Fire Station	X	X	X
		Grand Caillou VFD--Dulac Sub Station	X	X	X
		Houma FD--Airbase Station 4		X	
		Houma FD--East Houma Station 3	X	X	
		Houma FD - East Park Station		X	
		Houma FD--North Houma Station 2			
		Houma FD--South Houma Station 1			
		Houma Fire Department			
		Little Caillou VFD--Lower Station 3	X	X	X
Little Caillou VFD--Upper Station 1	X	X			
Little Caillou/ Chauvin Fire #7	X	X	X		
Little Caillou/ Chauvin Fire #7	X	X	X		
Montegut District # 6 - Station 1	X	X			
Montegut--Station 2	X	X			
Montegut--Station 3		X	X		
Montegut--Station 4	X	X	X		
Schriever VFD--Central Schriever Station					
Schriever VFD--Elsworth Station					
	Fire Stations, cont.				

Type of Asset		Name/Description of Structure	100-Year Flood Plain	Composite Risk	Levee Failure	
Essential Facilities, cont.		Schriever VFD--Gray Station				
		Schriever Volunteer Fire Dept.				
		Village East VFD--Central Station				
		West Terrebonne F&R (Gibson East)			X	
		West Terrebonne F&R--(TPCG) Don/Ch	X		X	
		West Terrebonne Fire & Rescue (TPCG)			X	
	Schools	Acadian Elementary				
		Andrew Price				
		Bayou Black Elementary			X	
		Bayou Cane Adult Ed Center				
		Bourg Elementary	X	X		
		Broadmoor Elementary	X	X		
		Caldwell Middle				
		Coteau-Bayou Blue Elementary				
		Dularge Elementary	X	X		
		Dularge Middle			X	
		East Houma Elementary	X			
		East Street	X			
		Ellender Memorial High				
		Elysian Fields Middle	X	X		X
		Evergreen Jr. High				
		Gibson elementary				
		Grand Caillou Elementary	X	X		X
		Grand Caillou Middle		X		
		H.L. Bourgeois High				
		Honduras Elementary				
		Houma Jr. High				
Juvenile Justice Center		X	X		X	
Lacache Middle		X	X			
Legion Park Middle		X	X			
Lisa Park Elementary						
Maria Immacolata Elementary						
Montegut Elementary		X	X			
Montegut Middle		X	X		X	
Mulberry Elementary						
Oaklawn Jr. High		X				

Type of Asset		Name/Description of Structure	100-Year Flood Plain	Composite Risk	Levee Failure
Essential Facilities, cont.	Schools, cont.	Oakshire Elementary			
		Omega Institute of Cosmetology	X		
		Point-aux-Chenes Elementary	X	X	X
		School for Exceptional Children			
		Schriever Elementary			
		South Louisiana Beauty College	X	X	
		South Terrebonne High			
		Southdown Elementary			
		St. Bernadette			
		St. Francis De Sales			
		St. Gregory Barbarigo	X	X	
		St. Matthew's			
		TARC			
		Terrebonne High			
		Terrebonne Career and Technical High		X	
		Terrebonne Parish School Board			
Upper Little Caillou Elementary	X	X			
Essential Facilities, cont.	Schools, cont.	Vandebilt Catholic High			
		Village East Elementary	X	X	
		West Park Elementary			

Type of Asset		Name/Description of Structure	100-Year Flood Plain	Composite Risk	Levee Failure
Other	Parish Owned Buildings	Houma Terrebonne Housing Authority (Bayou Towers)			
		Public Works Yard		X	
		Pump Stations (Various Locations)		X	
	Child Care	Louis Infant Crisis Center			
		MacDonnell Methodist Children Services			
Civic Center	Houma-Terrebonne Civic Center				
Lifeline Utility Systems	Sewage	Eureka Heights S/D - Gray			
		Fairlane Sewerage Corp - Gray	X	X	X
		Halliburton Energy Services			
		North Sewage Treatment Plant	X	X	
		South Sewage Treatment Plant	X	X	X
		Terrebonne Parish Con Gov-Cyp	X	X	
		Terrebonne Parish Pollution Control	X	X	
		TPCG Pollution Control South Treatment Plant	X	X	X
	Power Plants	Houma Generating St.			
		Terrebonne Parish - Houma Gene			
	Water	Andrew Price Regulator			
		Bac-t Lab			
		Bayou Black RW Pump Station	X	X	X
		Bayou Black Tank			
		Bayou Dularge Tank	X	X	X
		Benoit Pump Station	X	X	X
		Blimp Base PS			
		Boudreaux Canal Pump Station	X	X	X
		Chauvin Tank	X	X	X
		Cocodrie Tank	X	X	X
		Dulac Pump Station	X	X	X
		Dulac Tank	X	X	X
		Dumas Tank	X	X	
		Elliot Jones	X	X	X
		Gibson Tank			
		Grand Caillou Tank	X	X	X
		Hanson SG	X	X	
		Houma GS 1			
Houma GS 2	X				
	Houma GS3				

Type of Asset		Name/Description of Structure	100-Year Flood Plain	Composite Risk	Levee Failure
Lifeline Utility Systems, cont.	Water, cont.	Houma Plant 3			
		Houma Plant High Service			
		Houma Water Plant			
		Intracoastal RW Pump Station			
		Klondyke Tank	X		
		Lafort Canal RW PS			
		Legion Building			
		Lower Dulac Tank	X	X	X
		Main Office			
		Minors SG	X	X	X
		Montegut Tank	X	X	X
		Munson PS			
		North Terrebonne Standpipe			
		Pointe-Aux-Chenes Pump Station	X	X	
		Pointe-Aux-Chenes Tank	X	X	X
		Presque Isle PS			
		Robinson Canal Pump Station	X	X	X
		Robinson Canal Tank	X	X	X
		Schriever GS1	X		
		Schriever GS2	X		
		Schriever Tank			
		Schriever Water Plant	X		
		Shell PS			
		South Terrebonne PS			
		South Terrebonne Standpipe			
		Texaco Master Meter	X	X	X
Theriot Tank	X	X	X		
West Gibson Tank		X	X		
Williams Street PS	X	X	X		

**Attachment c2-31**  
**Worksheet #4—Estimated Losses (Hurricane and Levee Overtopping)**

Category	Name/Description of Structure	Structure Loss			Contents Loss			Structure Use and Function Loss					Structure Loss+Content Loss+Function Loss (\$)
		Structure Replacement Value (\$)	Percent Damage (%)	Loss to Structure (\$)	Replacement of Contents Value (\$)	Percent Damage (%)	Loss to Contents (\$)	Average Daily Operating Budget (\$)	Functional Downtime	Displacement Cost Per Day	Displacement Time	Structure Use & Function Cost	
Police Stations	Office of Emergency Preparedness (OEP)	\$1,950,000 x	32% =	\$624,000	\$2,925,000 x	0.0% =	\$0	\$137 x	10 +	\$137 x	30 =	\$45,210	\$669,210
	Houma Police Department	\$1,246,000 x	32% =	\$398,720	\$1,869,000 x	0.0% =	\$0	\$274 x	10 +	\$274 x	30 =	\$90,420	\$489,140
	State Police	\$1,246,000 x	32% =	\$398,720	\$1,869,000 x	0.0% =	\$0	\$274 x	15 +	\$274 x	70 =	\$306,880	\$705,600
	State Police Traffic Violation	\$1,246,000 x	32% =	\$398,720	\$1,869,000 x	0.0% =	\$0	\$274 x	15 +	\$274 x	70 =	\$306,880	\$705,600
	Terrebonne Parish Sheriff's Office	\$1,246,000 x	32% =	\$398,720	\$1,869,000 x	0.0% =	\$0	\$342 x	0 +	\$342 x	0 =	\$0	\$398,720
Fire Stations	Bayou Black VFD--Station 2	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$274 x	0 +	\$274 x	0 =	\$0	\$170,880
	Bayou Black Volunteer Fire Department #9	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$274 x	10 +	\$274 x	30 =	\$90,420	\$261,300
	Bayou Blue Fire Department	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$274 x	0 +	\$274 x	0 =	\$0	\$170,880
	Bayou Blue VFD--Station 2	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$274 x	0 +	\$274 x	0 =	\$0	\$170,880
	Bayou Blue VFD--Station 3	\$534,000 x	32% =	\$170,880	\$801,000 x	33.0% =	\$264,330	\$274 x	30 +	\$274 x	230 =	\$1,953,620	\$2,388,830
	Bayou Cane Fire Protection District	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$274 x	0 +	\$274 x	0 =	\$0	\$170,880
	Bayou Cane VFD--Hollywood Road Station	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$2,648 x	0 +	\$2,648 x	0 =	\$0	\$170,880
	Bayou Cane VFD--Savanne Road Station	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$2,648 x	0 +	\$2,648 x	0 =	\$0	\$170,880
	Bayou Cane VFD--W. Park Avenue Station	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$2,648 x	0 +	\$2,648 x	0 =	\$0	\$170,880
	Bayou Dularge VFD--Station 1	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$274 x	30 +	\$274 x	230 =	\$1,953,620	\$2,388,830
	Bayou Dularge VFD--Station 2	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$274 x	12 +	\$274 x	46 =	\$163,852	\$334,732
	Bayou Dularge VFD--Station 4	\$534,000 x	32% =	\$170,880	\$801,000 x	21.0% =	\$168,210	\$274 x	23 +	\$274 x	134 =	\$881,184	\$1,220,274
	Bourg VFD	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$493 x	0 +	\$493 x	0 =	\$0	\$170,880
	Coteau Volunteer Fire Department	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$986 x	0 +	\$986 x	0 =	\$0	\$170,880
	Donner-Chachoula--Central Station	\$534,000 x	32% =	\$170,880	\$801,000 x	21.0% =	\$168,210	\$274 x	23 +	\$274 x	134 =	\$881,184	\$1,220,274
	Dularge Volunteer Fire Department #10	\$534,000 x	32% =	\$170,880	\$801,000 x	13.5% =	\$108,135	\$274 x	15 +	\$274 x	70 =	\$306,880	\$585,895
Gibson East VFD--Central Station	\$534,000 x	32% =	\$170,880	\$801,000 x	33.0% =	\$264,330	\$274 x	30 +	\$274 x	230 =	\$1,953,620	\$2,388,830	
Gibson/Gibson East/Donner-Chaculula	\$534,000 x	32% =	\$170,880	\$801,000 x	33.0% =	\$264,330	\$274 x	30 +	\$274 x	230 =	\$1,953,620	\$2,388,830	
Grand Caillou Fire Department Fire # 4	\$534,000 x	32% =	\$170,880	\$801,000 x	21.0% =	\$168,210	\$274 x	23 +	\$274 x	134 =	\$881,184	\$1,220,274	
Grand Caillou Fire Department Fire #4A	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$274 x	15 +	\$274 x	70 =	\$306,880	\$477,760	
Grand Caillou VFD--Bobtown Station	\$534,000 x	32% =	\$170,880	\$801,000 x	21.0% =	\$168,210	\$274 x	23 +	\$274 x	134 =	\$881,184	\$1,220,274	

Category	Structure Loss				Contents Loss				Structure Use and Function Loss				Structure Loss+Content Loss+Function Loss (\$)
	Name/Description of Structure	Structure Replacement Value (\$)	Percent Damage (%)	Loss to Structure (\$)	Replacement of Contents Value (\$)	Percent Damage (%)	Loss to Contents (\$)	Average Daily Operating Budget (\$)	Functional Downtime	Displacement Cost Per Day	Displacement Time	Structure Use & Function Cost	
Fire Stations, Cont.	Grand Caillou VFD--												
	Bobtown Sub Station	\$534,000 x	32% =	\$170,880	\$801,000 x	35.0% =	\$264,330	\$274 x	30 +	\$274 x	230 =	\$1,953,620	\$2,388,830
	Grand Caillou VFD--Dulac Fire Station	\$534,000 x	32% =	\$170,880	\$801,000 x	35.0% =	\$264,330	\$274 x	30 +	\$274 x	230 =	\$1,953,620	\$2,388,830
	Grand Caillou VFD--Dulac Sub Station	\$534,000 x	32% =	\$170,880	\$801,000 x	35.0% =	\$264,330	\$274 x	30 +	\$274 x	230 =	\$1,953,620	\$2,388,830
	Houma FD-- Airbase Station 4	\$534,000	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$274 x	15 +	\$274 x	70 =	\$306,880	\$477,760
	Houma FD--Airbase Station 5	\$504,005 x	32% =	\$161,282	\$756,008 x	0.0% =	\$0	\$274 x	0 +	\$274 x	0 =	\$0	\$161,282
	Houma FD-- East Park Station	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$274 x	15 +	\$274 x	70 =	\$306,880	\$477,760
	Houma FD--East Houma Station 3	\$333,174 x	32% =	\$106,616	\$499,761 x	40.5% =	\$202,403	\$274 x	30 +	\$274 x	365 =	\$3,100,310	\$3,409,329
	Houma FD--North Houma Station 1	\$236,794 x	32% =	\$75,774	\$355,191 x	0.0% =	\$0	\$274 x	0 +	\$274 x	0 =	\$0	\$75,774
	Houma FD--South Houma Station 1	\$422,366 x	32% =	\$135,157	\$633,549 x	0.0% =	\$0	\$274 x	12 +	\$274 x	46 =	\$163,852	\$299,009
	Houma Fire Department Little Caillou VFD--Lower Station 3	\$701,252 x	32% =	\$224,401	\$1,051,878 x	0.0% =	\$0	\$274 x	0 +	\$274 x	0 =	\$0	\$224,401
	Little Caillou VFD--Upper Station 1	\$534,000 x	32% =	\$170,880	\$801,000 x	35.0% =	\$264,330	\$274 x	30 +	\$274 x	230 =	\$1,953,620	\$2,388,830
	Little Caillou/ Chauvin Fire #7	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$274 x	12 +	\$274 x	46 =	\$163,852	\$334,732
	Monteque District # 6	\$534,000 x	32% =	\$170,880	\$801,000 x	13.5% =	\$108,135	\$274 x	15 +	\$274 x	70 =	\$306,880	\$585,895
	Monteque--Station 1	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$1,027 x	12 +	\$1,027 x	46 =	\$614,146	\$785,026
	Monteque--Station 2	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$1,027 x	12 +	\$1,027 x	46 =	\$614,146	\$785,026
	Monteque--Station 3	\$534,000 x	32% =	\$170,880	\$801,000 x	35.0% =	\$264,330	\$1,027 x	30 +	\$1,027 x	230 =	\$7,322,510	\$7,757,720
	Monteque--Station 4	\$534,000 x	32% =	\$170,880	\$801,000 x	35.0% =	\$264,330	\$1,027 x	30 +	\$1,027 x	230 =	\$7,322,510	\$7,757,720
	Schriever VFD--Central Station	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$1,027 x	10 +	\$1,027 x	30 =	\$338,910	\$509,790
	Schriever VFD--Elsworth Station	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$274 x	0 +	\$274 x	0 =	\$0	\$170,880
	Schriever VFD--Gray Station	\$534,000 x	32% =	\$170,880	\$801,000 x	35.0% =	\$264,330	\$274 x	30 +	\$274 x	230 =	\$1,953,620	\$2,388,830
	Schriever Volunteer Fire Dept.	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$274 x	0 +	\$274 x	0 =	\$0	\$170,880
	Village East VFD--Central Station	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$274 x	12 +	\$274 x	46 =	\$163,852	\$334,732
	Village East Volunteer Fire Department	\$534,000 x	32% =	\$170,880	\$801,000 x	0.0% =	\$0	\$274 x	12 +	\$274 x	46 =	\$163,852	\$334,732
	Acadian Elementary	\$6,880,830 x	32% =	\$2,201,866	\$10,321,245 x	0.0% =	\$0	\$274 x	10 +	\$274 x	30 =	\$90,420	\$261,300
	Andrew Price	\$5,229,431 x	32% =	\$1,673,418	\$7,844,147 x	0.0% =	\$0	\$275 x	0 +	\$275 x	0 =	\$0	\$2,201,866
	Bayou Black Elementary	\$1,632,418 x	32% =	\$522,374	\$2,448,627 x	0.0% =	\$0	\$277 x	0 +	\$277 x	0 =	\$0	\$1,673,418
	Bayou Cane Adult Ed Center	\$5,229,431 x	32% =	\$1,673,418	\$7,844,147 x	0.0% =	\$0	\$279 x	0 +	\$279 x	0 =	\$0	\$1,673,418
	Bourg Elementary	\$3,369,234 x	32% =	\$1,078,155	\$5,053,851 x	0.0% =	\$0	\$281 x	12 +	\$281 x	46 =	\$168,038	\$1,246,193
	Broadmoor Elementary	\$4,802,345 x	32% =	\$1,536,750	\$7,203,518 x	13.5% =	\$972,475	\$282 x	15 +	\$282 x	70 =	\$315,840	\$2,825,065
	Caldwell Middle	\$5,229,431 x	32% =	\$1,673,418	\$7,844,147 x	0.0% =	\$0	\$283 x	0 +	\$283 x	0 =	\$0	\$1,673,418
	Coteau-Bayou Blue Elementary	\$6,169,020 x	32% =	\$1,974,086	\$9,253,530 x	0.0% =	\$0	\$284 x	0 +	\$284 x	0 =	\$0	\$1,974,086
Dularge Elementary	\$2,296,774 x	32% =	\$734,968	\$3,445,161 x	21.0% =	\$723,484	\$285 x	23 +	\$285 x	134 =	\$916,560	\$2,375,011	
Dularge Middle	\$3,986,136 x	32% =	\$1,275,564	\$5,979,204 x	13.5% =	\$807,193	\$286 x	15 +	\$286 x	70 =	\$320,320	\$2,403,076	
East Houma Elementary	\$3,986,136 x	32% =	\$1,275,564	\$5,979,204 x	0.0% =	\$0	\$287 x	10 +	\$287 x	30 =	\$94,710	\$1,370,274	
East Street	\$3,986,136 x	32% =	\$1,275,564	\$5,979,204 x	0.0% =	\$0	\$288 x	0 +	\$288 x	0 =	\$0	\$1,275,564	

Category	Structure Loss			Contents Loss			Structure Use and Function Loss					Structure Loss+Content Loss+Function Loss (\$)	
	Name/Description of Structure	Structure Replacement Value (\$)	Percent Damage (%)	Loss to Structure (\$)	Replacement of Contents Value (\$)	Percent Damage (%)	Loss to Contents (\$)	Average Daily Operating Budget (\$)	Functional Downtime	Displacement Cost Per Day	Displacement Time		Structure Use & Function Cost
	Ellender Memorial High	\$10,952,383 x	32%	\$3,504,763	\$16,428,575 x	0.0%	\$0	\$289 x	0+	\$289 x	0	\$0	\$3,504,763
	Elysian Fields Middle	\$4,546,093 x	32%	\$1,454,750	\$6,819,140 x	0.0%	\$0	\$290 x	12+	\$290 x	46	\$173,420	\$1,628,170
	Evergreen Jr. High	\$9,528,763 x	32%	\$3,049,204	\$14,293,145 x	0.0%	\$0	\$291 x	0+	\$291 x	0	\$0	\$3,049,204
	Gibson Elementary	\$2,116,448 x	32%	\$677,263	\$3,174,672 x	0.0%	\$0	\$293 x	12+	\$293 x	46	\$175,214	\$852,477
	Grand Caillou Elementary	\$4,470,167 x	32%	\$1,430,453	\$6,705,251 x	40.5%	\$2,715,626	\$293 x	30+	\$293 x	365	\$3,315,295	\$7,461,375
	Grand Caillou Middle	\$5,865,314 x	32%	\$1,876,900	\$8,797,971 x	21.0%	\$1,847,574	\$293 x	23+	\$293 x	134	\$942,288	\$4,666,762
	H.L. Bourgeois High	\$10,781,549 x	32%	\$3,450,096	\$16,172,324 x	0.0%	\$0	\$293 x	0+	\$293 x	0	\$0	\$3,450,096
	Honduras Elementary	\$3,112,982 x	32%	\$996,154	\$4,669,473 x	0.0%	\$0	\$293 x	0+	\$293 x	0	\$0	\$996,154
	Houma Jr. High	\$9,661,634 x	32%	\$3,091,723	\$14,492,451 x	0.0%	\$0	\$293 x	0+	\$293 x	0	\$0	\$3,091,723
	Juvenile Justice Center	\$5,229,431 x	32%	\$1,673,418	\$7,844,147 x	0.0%	\$0	\$293 x	15+	\$293 x	70	\$328,160	\$2,001,578
	Lacache Middle	\$4,726,418 x	32%	\$1,512,454	\$7,089,627 x	33.0%	\$2,339,577	\$293 x	30+	\$293 x	230	\$2,089,090	\$5,941,121
	Legion Park Middle	\$2,173,393 x	32%	\$695,486	\$3,260,090 x	0.0%	\$0	\$293 x	10+	\$293 x	30	\$96,690	\$792,176
	Lisa Park Elementary	\$5,827,351 x	32%	\$1,864,752	\$8,741,027 x	0.0%	\$0	\$293 x	10+	\$293 x	30	\$96,690	\$1,961,442
	Maria Immacolata Elementary	\$1,860,197 x	32%	\$595,263	\$2,790,296 x	0.0%	\$0	\$293 x	0+	\$293 x	0	\$0	\$595,263
	Montegut Elementary	\$2,666,915 x	32%	\$853,413	\$4,000,373 x	40.5%	\$1,620,151	\$293 x	30+	\$293 x	365	\$3,315,295	\$5,788,859
	Montegut Middle	\$6,150,038 x	32%	\$1,968,012	\$9,225,057 x	64.5%	\$5,950,162	\$293 x	30+	\$293 x	365	\$3,315,295	\$11,233,469
	Mulberry Elementary	\$5,808,370 x	32%	\$1,838,678	\$8,712,555 x	0.0%	\$0	\$293 x	0+	\$293 x	0	\$0	\$1,838,678
	Oaklawn Jr. High	\$6,320,873 x	32%	\$2,022,679	\$9,481,310 x	0.0%	\$0	\$293 x	0+	\$293 x	0	\$0	\$2,022,679
	Oakshire Elementary	\$5,950,732 x	32%	\$1,904,234	\$8,926,098 x	0.0%	\$0	\$293 x	0+	\$293 x	0	\$0	\$1,904,234
	Omega Institute of Cosmetology	\$3,986,136 x	32%	\$1,275,564	\$5,979,204 x	0.0%	\$0	\$293 x	0+	\$293 x	0	\$0	\$1,275,564
Schools, Cont.	Point-aux-Chenes Elementary	\$1,471,074 x	32%	\$470,744	\$2,206,611 x	33.0%	\$728,182	\$293 x	30+	\$293 x	230	\$2,089,090	\$3,288,015
	School for Exceptional Children	\$5,229,431 x	32%	\$1,673,418	\$7,844,147 x	0.0%	\$0	\$293 x	15+	\$293 x	70	\$328,160	\$2,001,578
	Schriever Elementary	\$5,628,044 x	32%	\$1,800,974	\$8,442,066 x	0.0%	\$0	\$293 x	0+	\$293 x	0	\$0	\$1,800,974
	South Louisiana Beauty College	\$3,986,136 x	32%	\$1,275,564	\$5,979,204 x	0.0%	\$0	\$293 x	10+	\$293 x	30	\$96,690	\$1,372,254
	South Terrebonne High	\$11,180,162 x	32%	\$3,577,652	\$16,770,243 x	0.0%	\$0	\$293 x	0+	\$293 x	0	\$0	\$3,577,652
	Southdown Elementary	\$5,039,615 x	32%	\$1,612,677	\$7,559,423 x	0.0%	\$0	\$293 x	0+	\$293 x	0	\$0	\$1,612,677
	St. Bernadette	\$4,669,474 x	32%	\$1,494,232	\$7,004,211 x	0.0%	\$0	\$293 x	10+	\$293 x	30	\$96,690	\$1,590,922
	St. Francis De Sales	\$7,735,002 x	32%	\$2,475,201	\$11,002,503 x	0.0%	\$0	\$293 x	0+	\$293 x	0	\$0	\$2,475,201
	St. Gregory Barbarigo	\$2,306,264 x	32%	\$738,004	\$3,459,396 x	13.5%	\$467,018	\$293 x	15+	\$293 x	70	\$328,160	\$1,533,183
	St. Matthew's	\$1,565,982 x	32%	\$501,114	\$2,348,973 x	0.0%	\$0	\$293 x	0+	\$293 x	0	\$0	\$501,114
	TARC	\$3,986,316 x	32%	\$1,275,621	\$5,979,474 x	0.0%	\$0	\$293 x	0+	\$293 x	0	\$0	\$1,275,621
	Terrebonne Career and Technical High	\$5,229,431 x	32%	\$1,673,418	\$7,844,147 x	0.0%	\$0	\$293 x	15+	\$293 x	70	\$328,160	\$2,001,578
	Terrebonne High	\$9,946,358 x	32%	\$3,182,835	\$14,919,537 x	0.0%	\$0	\$293 x	0+	\$293 x	0	\$0	\$3,182,835
	Upper Little Caillou Elementary	\$4,707,437 x	32%	\$1,506,380	\$7,061,156 x	0.0%	\$0	\$327 x	10+	\$327 x	30	\$107,910	\$1,614,290
	Vandebilt Catholic High	\$9,025,751 x	32%	\$2,888,240	\$13,538,627 x	0.0%	\$0	\$328 x	0+	\$328 x	0	\$0	\$2,888,240
	Village East Elementary	\$2,799,786 x	32%	\$895,932	\$4,199,679 x	0.0%	\$0	\$329 x	12+	\$329 x	46	\$196,742	\$1,092,674
	West Park Elementary	\$3,986,316 x	32%	\$1,275,621	\$5,979,474 x	0.0%	\$0	\$330 x	0+	\$330 x	0	\$0	\$1,275,621

Category	Structure Loss				Contents Loss				Structure Use and Function Loss				Structure Loss+Content Loss+Function Loss (\$)
	Name/Description of Structure	Structure Replacement Value (\$)	Percent Damage (%)	Loss to Structure (\$)	Replacement of Contents Value (\$)	Percent Damage (%)	Loss to Contents (\$)	Average Daily Operating Budget (\$)	Functional Downtime	Displacement Cost Per Day	Displacement Time	Structure Use & Function Cost	
Home Health	Anointed Angels Homecare	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$996,800	
	Acadian Ambulance Service	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$984,340	
	Bayou Home Care	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$996,800	
	Bonne Terre Village	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$996,800	
	Cardiovascular Institute of the South	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	7.5%	\$350,438	\$274 x	15+	70=	\$306,880	\$1,654,118	
	Chabert Medical Center	\$23,496,037 x	32%	\$7,518,732	\$35,244,056 x	7.5%	\$2,643,304	\$274 x	15+	70=	\$306,880	\$10,468,916	
	Chateau Terrebonne Health Care	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$996,800	
	Gulf States LTAC of Houma	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	10+	30=	\$90,420	\$1,087,220	
	Heritage Manor of Houma	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$996,800	
	Homestead Assisted Living	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	10+	30=	\$90,420	\$1,087,220	
	Hospice of South Louisiana	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$996,800	
	Journey Hospice	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$996,800	
	Lafourche ARC	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	33.0%	\$1,541,925	\$274 x	30+	230=	\$1,953,620	\$4,492,345	
	Lafourche ARC - Main Office	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	15	70=	\$306,880	\$1,303,680	
	Louis Infant Crisis Center	\$445,000 x	32%	\$142,400	\$445,000.0 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$142,400	
	MacDonnell Methodist Children Services	\$445,000 x	32%	\$142,400	\$445,000.0 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$142,400	
	Mansion De'Ville Nursing Home	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	0	0=	\$0	\$996,800	
	Medical Team, Inc.	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	15	70=	\$306,880	\$306,880	
	Oaks of Houma	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	13.5%	\$630,788	\$274 x	15+	70=	\$306,880	\$1,934,468	
	Physicians Surgery Specialty Hospital	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	15	70=	\$306,880	\$1,303,680	
	Suites at Sugar Mill Point	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$996,800	
	Synergy Home Health Care River Region	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	15	70=	\$306,880	\$1,303,680	
	TARC	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$996,800	
Terrebonne General Medical Center	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	15	70=	\$306,880	\$1,303,680		
Terrebonne Home Care, Inc	\$31 x	32%	\$10	\$10	0.0%	\$0	\$274 x	15	70=	\$306,880	\$306,880		
Terrebonne House	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$996,800		
Terrebonne Mental Health Center	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$996,800		
Terrebonne Parish Health Unit	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$996,800		
Total Pharmacy Services	\$3,115,000 x	32%	\$996,800	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$996,800		
Houma Terrebonne Housing Authority (Bayou Towers)	\$1,040,000 x	32%	\$332,800	\$1,040,000 x	0.0%	\$0	\$274 x	0+	0=	\$0	\$332,800		
911-Terrebonne Communications District	\$1,950,000 x	32%	\$624,000	\$2,925,000 x	0.0%	\$0	\$82 x	0+	0=	\$0	\$624,000		
Houma-Terrebonne Civic Center	\$1,950,000 x	32%	\$624,000	\$2,925,000 x	0.0%	\$0	\$82 x	15+	70=	\$91,840	\$715,840		
Housing Authority City of Houma	\$1,950,000 x	32%	\$624,000	\$2,925,000 x	0.0%	\$0	\$82 x	15+	70=	\$91,840	\$715,840		
Housing Authority City of Houma	\$1,950,000 x	32%	\$624,000	\$2,925,000 x	0.0%	\$0	\$82 x	15+	70=	\$91,840	\$715,840		
Public Works Yard	\$1,040,000 x	32%	\$332,800	\$1,040,000 x	0.0%	\$0	\$55 x	0+	0=	\$0	\$332,800		
Pump Stations (Various Locations)	\$52,000 x	32%	\$16,640	\$52,000 x	0.0%	\$0	\$41 x	0+	0=	\$0	\$16,640		
North Sewage Treatment Plant	\$59,274,000 x	32%	\$18,967,680	\$59,274,000 x	21.0%	\$12,447,540	\$55 x	23+	134=	\$176,880	\$31,592,100		

Sewage	Eureka Heights S/D - Gray	\$59,274,000 x		32% =	\$18,967,680	\$59,274,000 x	0.0% =	\$0	\$55 x	15 +		\$55 x	70 =	\$61,600	\$19,029,280
	Fairlane Sewerage Corp-Gray	\$59,274,000 x		32% =	\$18,967,680	\$59,274,000 x	0.0% =	\$0	\$55 x	15 +		\$55 x	70 =	\$61,600	\$19,029,280
	Halliburton Energy Services	\$59,274,000 x		32% =	\$18,967,680	\$59,274,000 x	0.0% =	\$0	\$55 x	15 +		\$55 x	70 =	\$61,600	\$19,029,280
	Terrebonne Parish CON GOV-CYPR	\$59,274,000 x		32% =	\$18,967,680	\$59,274,000 x	0.0% =	\$0	\$55 x	15 +		\$55 x	70 =	\$61,600	\$19,029,280
	Terrebonne Parish Pollution Control	\$59,274,000 x		32% =	\$18,967,680	\$59,274,000 x	0.0% =	\$0	\$55 x	15 +		\$55 x	70 =	\$61,600	\$19,029,280
	TPCG Pollution Control	\$59,274,000 x		32% =	\$18,967,680	\$59,274,000 x	0.0% =	\$0	\$55 x	15 +		\$55 x	70 =	\$61,600	\$19,029,280
	South Treatment Plant	\$59,274,000 x		32% =	\$18,967,680	\$59,274,000 x	0.0% =	\$0	\$55 x	15 +		\$55 x	70 =	\$61,600	\$19,029,280
	South Sewage Treatment Plant	\$59,274,000 x		32% =	\$18,967,680	\$59,274,000 x	33.0% =	\$19,560,420	\$55 x	30 +		\$55 x	230 =	\$392,150	\$38,920,250
	Andrew Price Regulator	\$690,000 x		32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0 +		\$55 x	0 =	\$0	\$220,800
	Bac-I Lab	\$690,000 x		32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0 +		\$55 x	0 =	\$0	\$220,800
	Bayou Black RW Pump Station	\$690,000 x		32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0 +		\$55 x	0 =	\$0	\$220,800
	Bayou Black Tank	\$690,000 x		32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0 +		\$55 x	0 =	\$0	\$220,800
	Bayou Dularge Tank	\$690,000 x		32% =	\$220,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30 +		\$55 x	230 =	\$392,150	\$840,650
	Benoit Pump Station	\$690,000 x		32% =	\$220,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30 +		\$55 x	230 =	\$392,150	\$840,650
Blimp Base Pump Station	\$690,000 x		32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0 +		\$55 x	0 =	\$0	\$220,800	
Boudreaux Canal Pump Station	\$690,000 x		32% =	\$220,800	\$690,000 x										
Chauvin Tank	\$690,000 x		32% =	\$220,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30 +		\$55 x	230 =	\$392,150	\$840,650	
Cocodrie Tank	\$690,000 x		32% =	\$220,800	\$690,000 x	40.5% =	\$279,450	\$55 x	30 +		\$55 x	365 =	\$622,325	\$1,122,575	
Dulac Pump Station	\$690,000 x		32% =	\$220,800	\$690,000 x	13.5% =	\$93,150	\$55 x	15 +		\$55 x	70 =	\$61,600	\$375,550	
Dulac Pump Station	\$690,000 x		32% =	\$220,800	\$690,000 x	13.5% =	\$93,150	\$55 x	15 +		\$55 x	70 =	\$61,600	\$375,550	

Category	Structure Loss			Contents Loss			Replacement of Contents			Structure Use and Function Loss			Structure Loss+Content Loss+Function Loss (\$)
	Name/Description of Structure	Structure Replacement Value (\$)	Percent Damage (%)	Loss to Structure (\$)	Replacement of Contents Value (\$)	Percent Damage (%)	Loss to Contents (\$)	Average Daily Operating Budget (\$)	Functional Downtime	Displacement Cost Per Day	Displacement Time	Structure Use & Function Cost	
	Dulac Tank	\$690,000 x	32% =	\$220,800	\$690,000 x	13.5% =	\$93,150	\$55 x	15+	\$55 x	70 =	\$61,600	\$375,550
	Dumas Tank	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	12+	\$55 x	46 =	\$32,890	\$253,690
	Elliot Jones	\$690,000 x	32% =	\$220,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30+	\$55 x	230 =	\$392,150	\$840,650
	Gibson Tank	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	12+	\$55 x	46 =	\$32,890	\$253,690
	Grand Caillon Tank	\$690,000 x	32% =	\$220,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30+	\$55 x	230 =	\$392,150	\$840,650
	Hanson SG	\$690,000 x	32% =	\$220,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30+	\$55 x	230 =	\$392,150	\$840,650
	Houma GS 1	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0+	\$55 x	0 =	\$0	\$220,800
	Houma GS 2	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	10+	\$55 x	30 =	\$18,150	\$238,950
	Houma GS3	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0+	\$55 x	0 =	\$0	\$220,800
	Houma Plant 3	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0+	\$55 x	0 =	\$0	\$220,800
	Houma Plant High Service	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0+	\$55 x	0 =	\$0	\$220,800
	Houma Water Plant	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0+	\$55 x	0 =	\$0	\$220,800
	Intracoastal RW Pump Station	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0+	\$55 x	0 =	\$0	\$220,800
	Klondyke Tank	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0+	\$55 x	0 =	\$0	\$220,800
	Lafort Canal RW PS	\$690,000 x	32% =	\$220,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30+	\$55 x	230 =	\$392,150	\$840,650
	Legion Building	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	10+	\$55 x	30 =	\$18,150	\$238,950
	Lower Dulac Tank	\$690,000 x	32% =	\$220,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30	\$55 x	230		
	Main Office	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0	\$55 x	0		
	Mimors SG	\$690,000 x	32% =	\$220,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30	\$55 x	230		
	Montegut Tank	\$690,000 x	32% =	\$220,800	\$690,000 x	40.5% =	\$279,450	\$55 x	30+	\$55 x	365 =	\$622,325	\$1,122,575
	Munson PS	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0+	\$55 x	0 =	\$0	\$220,800
Water, Cont.	North Terrebonne Standpipe	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0+	\$55 x	0 =	\$0	\$220,800
	Pointe-Aux-Chenes Pump Station	\$690,000 x	32% =	\$220,800	\$690,000 x	13.5% =	\$93,150	\$55 x	15+	\$55 x	70 =	\$61,600	\$375,550
	Pointe-Aux-Chenes Tank	\$690,000 x	32% =	\$220,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30+	\$55 x	230 =	\$392,150	\$840,650
	Presque Isle PS	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0+	\$55 x	0 =	\$0	\$220,800
	Robinson Canal Pump Station	\$690,000 x	32% =	\$220,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30+	\$55 x	230 =	\$392,150	\$840,650
	Robinson Canal Tank	\$690,000 x	32% =	\$220,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30+	\$55 x	230 =	\$392,150	\$840,650
	Schriever GS1	\$690,000 x	32% =	\$220,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30+	\$55 x	230 =	\$392,150	\$840,650
	Schriever GS2	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0+	\$55 x	0 =	\$0	\$220,800
	Schriever Plant	\$690,000 x	32% =	\$220,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30+	\$55 x	230 =	\$392,150	\$840,650
	Schriever Tank	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0+	\$55 x	0 =	\$0	\$220,800
	Schriever Water Plant	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0+	\$55 x	0 =	\$0	\$220,800
	Shell PS	\$690,000 x	32% =	\$220,800	\$690,000 x	13.5% =	\$93,150	\$55 x	15+	\$55 x	70 =	\$61,600	\$375,550
	Sludge Press Building	\$690,000 x	32% =	\$220,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30+	\$55 x	230 =	\$392,150	\$840,650
	South Terrebonne PS	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0+	\$55 x	0 =	\$0	\$220,800
	South Terrebonne Standpipe	\$690,000 x	32% =	\$220,800	\$690,000 x	0.0% =	\$0	\$55 x	0+	\$55 x	0 =	\$0	\$220,800
	Texasco Master Meter	\$690,000 x	32% =	\$220,800	\$690,000 x	40.5% =	\$279,450	\$55 x	30+	\$55 x	365 =	\$622,325	\$1,122,575
	Theriot Tank	\$690,000 x	32% =	\$220,800	\$690,000 x	21.0% =	\$144,900	\$55 x	23+	\$55 x	134 =	\$176,880	\$542,580
	Waterproof RW PS	\$690,000 x	32% =	\$220,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30+	\$55 x	230 =	\$392,150	\$840,650
	West Gibson Tank	\$690,000 x	32% =	\$220,800	\$690,000 x	13.5% =	\$93,150	\$55 x	15+	\$55 x	70 =	\$61,600	\$375,550
	Williams Street PS	\$690,000 x	32% =	\$220,800	\$690,000 x	21.0% =	\$144,900	\$55 x	23+	\$55 x	134 =	\$176,880	\$542,580
	<b>Total Structure Value</b>	<b>\$902,666,747</b>	<b>Total Estimated Losses</b>	<b>\$288,190,959</b>	<b>Total Contents Loss</b>	<b>\$1,147,655,440</b>	<b>Total Structure Use and Function Loss</b>	<b>\$77,231,290</b>					<b>\$1,513,077,680</b>

Attachment c2-32

Worksheet #4—Estimated Losses (Composite Risk Area)

\* Composite list is all hurricanes (Betsy, Juan, Andrew, Lili, Katrina, Rita, Gustav, Ike, and Isaac) and the 100-year floodplain.

Category	Name/Description of Structure	Structure Loss				Structure Use and Function Loss				Contents Loss				Structure Loss+Content Loss+Function Loss (\$)
		Structure Replacement Value (\$)	# Floors	Inundation (ft)	Percent Damage (%)	Loss to Structure (\$)	Replacement of Contents Value (\$)	Percent Damage (%)	Loss to Contents (\$)	Average Daily Operating Budget (\$)	Functional Downtime	Displacement Cost Per Day	Displacement Time	
OEP	Office of Emergency Preparedness (OEP)	\$1,950,000 x	1	-2	0%	\$0	\$2,925,000 x	0.0%	\$0	\$137 x	10+	30	\$45,210	
	Houma Police Department	\$1,246,000 x	1	-2	0%	\$0	\$1,869,000 x	0.0%	\$0	\$274 x	10+	30	\$90,420	
	State Police	\$1,246,000 x	1	-1	0%	\$0	\$1,869,000 x	0.0%	\$0	\$274 x	12+	46	\$163,852	
	State Police Traffic Violation	\$1,246,000 x	1	-1	0%	\$0	\$1,869,000 x	0.0%	\$0	\$274 x	12+	46	\$163,852	
Police Stations	Terrebonne Parish Sheriff's Office	\$1,246,000 x	1	-5	0%	\$0	\$1,869,000 x	0.0%	\$0	\$342 x	0+	0	\$0	
	Bayou Black VFD--Station 2	\$534,000 x	1	-4	0%	\$0	\$801,000 x	0.0%	\$0	\$274 x	0+	0	\$0	
Fire Stations	Bayou Black Volunteer Fire Department #9	\$534,000 x	1	-2	0%	\$0	\$801,000 x	0.0%	\$0	\$274 x	10+	30	\$90,420	
	Bayou Blue Fire Department	\$534,000 x	1	-7	0%	\$0	\$801,000 x	0.0%	\$0	\$274 x	0+	0	\$0	
	Bayou Blue VFD--Station 2	\$534,000 x	1	-3	0%	\$0	\$801,000 x	0.0%	\$0	\$274 x	0+	0	\$0	
	Bayou Blue VFD--Station 3	\$534,000 x	1	2	22%	\$117,480	\$801,000 x	33.0%	\$264,330	\$274 x	30+	230	\$1,933,620	
	Bayou Cane Fire Protection District	\$534,000 x	1	-4	0%	\$0	\$801,000 x	0.0%	\$0	\$274 x	0+	0	\$0	
	Bayou Cane VFD--Hollywood Road Station	\$534,000 x	1	-6	0%	\$0	\$801,000 x	0.0%	\$0	\$2,648 x	0+	0	\$0	
	Bayou Cane VFD--Savaune Road Station	\$534,000 x	1	-6	0%	\$0	\$801,000 x	0.0%	\$0	\$2,648 x	0+	0	\$0	
	Bayou Cane VFD--W. Park Avenue Station	\$534,000 x	1	-3	0%	\$0	\$801,000 x	0.0%	\$0	\$2,648 x	0+	0	\$0	
	Bayou Dularge VFD--Station 1	\$534,000 x	1	2	22%	\$117,480	\$801,000 x	33.0%	\$264,330	\$274 x	30+	230	\$1,933,620	
	Bayou Dularge VFD--Station 2	\$534,000 x	1	1	14%	\$74,760	\$801,000 x	21.0%	\$168,210	\$274 x	23+	134	\$881,184	
	Bayou Dularge VFD--Station 4	\$534,000 x	1	1	14%	\$74,760	\$801,000 x	21.0%	\$168,210	\$274 x	23+	134	\$881,184	
	Bourg VFD	\$534,000 x	1	-3	0%	\$0	\$801,000 x	0.0%	\$0	\$493 x	0+	0	\$0	
	Coteau Volunteer Fire Department	\$534,000 x	1	-3	0%	\$0	\$801,000 x	0.0%	\$0	\$986 x	0+	0	\$0	
	Donner-Chachoula--Central Station	\$534,000 x	1	1	14%	\$74,760	\$801,000 x	21.0%	\$168,210	\$274 x	23+	134	\$881,184	
	Dularge Volunteer Fire Department #10	\$534,000 x	1	0	9%	\$48,060	\$801,000 x	13.5%	\$108,135	\$274 x	15+	70	\$306,880	
	Gibson East VFD--Central Station	\$534,000 x	1	2	22%	\$117,480	\$801,000 x	33.0%	\$264,330	\$274 x	30+	230	\$1,933,620	
Gibson/Gibson East/Donner-Chaculula	\$534,000 x	1	2	22%	\$117,480	\$801,000 x	33.0%	\$264,330	\$274 x	30+	230	\$1,933,620		
Grand Caillou Fire Department Fire # 4	\$534,000 x	1	1	14%	\$74,760	\$801,000 x	21.0%	\$168,210	\$274 x	23+	134	\$881,184		
Grand Caillou Fire Department Fire # 4A	\$534,000 x	1	1	14%	\$74,760	\$801,000 x	21.0%	\$168,210	\$274 x	23+	134	\$881,184		
Grand Caillou VFD--Bobtown Station	\$534,000 x	1	1	14%	\$74,760	\$801,000 x	21.0%	\$168,210	\$274 x	23+	134	\$881,184		

Category	Structure Loss										Contents Loss					Structure Use and Function Loss					Structure Loss-Content Loss-Function Loss (\$)
	Name-Description of Structure	Structure Replacement Value (\$)	# Floors	Inundation (ft)	Percent Damage (%)	Loss to Structure (\$)	Replacement of Contents Value (\$)	Percent Damage (%)	Loss to Contents (\$)	Average Daily Operating Budget (\$)	Functional Downtime	Displacement Cost Per Day	Displacement Time	Structure Use & Function Cost							
Fire Stations, Cont.	Grand Caillou VFD--	\$534,000 x	1	2	22%	\$117,480	\$801,000 x	33.0%	\$264,330	\$274 x	30 x	\$274 x	230 =	\$1,953,620	\$2,335,430						
	Bobrown Sub Station	\$534,000 x	1	2	22%	\$117,480	\$801,000 x	33.0%	\$264,330	\$274 x	30 x	\$274 x	230 =	\$1,953,620	\$2,335,430						
	Grand Caillou VFD--Dulac Fire Station	\$534,000 x	1	2	22%	\$117,480	\$801,000 x	33.0%	\$264,330	\$274 x	30 x	\$274 x	230 =	\$1,953,620	\$2,335,430						
	Grand Caillou VFD--Dulac Sub Station	\$534,000 x	1	2	22%	\$117,480	\$801,000 x	33.0%	\$264,330	\$274 x	30 x	\$274 x	230 =	\$1,953,620	\$2,335,430						
	Houma FD -- Airbase Station 4	\$534,000 x	1	1	14%	\$74,760	\$801,000 x	21.0%	\$168,210	\$274 x	23 x	\$274 x	134 =	\$881,184	\$1,124,154						
	Houma FD--Airbase Station 5	\$504,005 x	1	-4	0%	\$0	\$756,008 x	0.0%	\$0	\$274 x	0 x	\$274 x	0 =	\$0	\$0						
	Houma FD -- East Park Station	\$534,000 x	1	1	14%	\$74,760	\$801,000 x	21.0%	\$168,210	\$274 x	23 x	\$274 x	134 =	\$881,184	\$1,124,154						
	Houma FD--East Houma Station 3	\$333,174 x	1	1	14%	\$46,644	\$499,761 x	21.0%	\$104,950	\$274 x	23 x	\$274 x	134 =	\$881,184	\$1,032,778						
	Houma FD--North Houma	\$236,794 x	1	-3	0%	\$0	\$355,191 x	0.0%	\$0	\$274 x	0 x	\$274 x	0 =	\$0	\$0						
	Houma FD--South Houma Station 1	\$422,366 x	1	-1	0%	\$0	\$633,549 x	0.0%	\$0	\$274 x	12 x	\$274 x	46 =	\$163,852	\$163,852						
	Houma Fire Department	\$701,252 x	1	-4	0%	\$0	\$1,051,878 x	0.0%	\$0	\$274 x	0 x	\$274 x	0 =	\$0	\$0						
	Little Caillou VFD--Lower Station 3	\$534,000 x	1	2	22%	\$117,480	\$801,000 x	33.0%	\$264,330	\$274 x	30 x	\$274 x	230 =	\$1,953,620	\$2,335,430						
	Little Caillou VFD--Upper Station 1	\$534,000 x	1	-1	0%	\$0	\$801,000 x	0.0%	\$0	\$274 x	12 x	\$274 x	46 =	\$163,852	\$163,852						
	Little Caillou/ Chauvin Fire #7	\$534,000 x	1	1	14%	\$74,760	\$801,000 x	21.0%	\$168,210	\$274 x	23 x	\$274 x	134 =	\$881,184	\$1,124,154						
	Montegut District # 6	\$534,000 x	1	-1	0%	\$0	\$801,000 x	0.0%	\$0	\$1,027 x	12 x	\$1,027 x	46 =	\$614,146	\$614,146						
	Montegut--Station 1	\$534,000 x	1	-1	0%	\$0	\$801,000 x	0.0%	\$0	\$1,027 x	12 x	\$1,027 x	46 =	\$614,146	\$614,146						
	Montegut--Station 2	\$534,000 x	1	2	22%	\$117,480	\$801,000 x	33.0%	\$264,330	\$1,027 x	30 x	\$1,027 x	230 =	\$7,704,320	\$7,704,320						
	Montegut--Station 3	\$534,000 x	1	2	22%	\$117,480	\$801,000 x	33.0%	\$264,330	\$1,027 x	30 x	\$1,027 x	230 =	\$7,704,320	\$7,704,320						
	Montegut--Station 4	\$534,000 x	1	-2	0%	\$0	\$801,000 x	0.0%	\$0	\$1,027 x	10 x	\$1,027 x	30 =	\$338,910	\$338,910						
	Schriever VFD--Central Schriever Station	\$534,000 x	1	-4	0%	\$0	\$801,000 x	0.0%	\$0	\$274 x	0 x	\$274 x	0 =	\$0	\$0						
	Schriever VFD--Elsworth Station	\$534,000 x	1	2	22%	\$117,480	\$801,000 x	33.0%	\$264,330	\$274 x	30 x	\$274 x	230 =	\$1,953,620	\$2,335,430						
	Schriever VFD--Gray Station	\$534,000 x	1	-7	0%	\$0	\$801,000 x	0.0%	\$0	\$274 x	0 x	\$274 x	0 =	\$0	\$0						
	Schriever Volunteer Fire Dept.	\$534,000 x	1	-1	0%	\$0	\$801,000 x	0.0%	\$0	\$274 x	12 x	\$274 x	46 =	\$163,852	\$163,852						
	Village East VFD--Central Station	\$534,000 x	1	-1	0%	\$0	\$801,000 x	0.0%	\$0	\$274 x	12 x	\$274 x	46 =	\$163,852	\$163,852						
	Village East Volunteer Fire Department	\$534,000 x	1	-2	0%	\$0	\$801,000 x	0.0%	\$0	\$274 x	10 x	\$274 x	30 =	\$90,420	\$90,420						
	Acadian Elementary	\$6,880,830 x	1	-7	0%	\$0	\$10,321,245 x	0.0%	\$0	\$274 x	0 x	\$274 x	0 =	\$0	\$0						
	Andrew Price	\$1,632,418 x	1	-10	0%	\$0	\$2,448,627 x	0.0%	\$0	\$275 x	0 x	\$275 x	0 =	\$0	\$0						
Bayou Black Elementary	\$1,632,418 x	1	-4	0%	\$0	\$2,448,627 x	0.0%	\$0	\$277 x	0 x	\$277 x	0 =	\$0	\$0							
Bayou Cane Adult Ed Center	\$3,369,234 x	1	-7	0%	\$0	\$5,053,851 x	0.0%	\$0	\$279 x	0 x	\$279 x	0 =	\$0	\$0							
Bourg Elementary	\$4,802,345 x	1	-1	0%	\$0	\$7,203,518 x	13.5%	\$972,475	\$281 x	12 x	\$281 x	46 =	\$168,038	\$168,038							
Broadmoor Elementary	\$5,229,431 x	1	-9	0%	\$0	\$7,844,147 x	0.0%	\$0	\$282 x	15 x	\$282 x	70 =	\$315,840	\$1,720,526							
Caldwell Middle	\$6,169,020 x	1	-5	0%	\$0	\$9,253,530 x	0.0%	\$0	\$283 x	0 x	\$283 x	0 =	\$0	\$0							
Coteau-Bayou Blue Elementary	\$2,296,774 x	1	1	14%	\$321,548	\$3,445,161 x	21.0%	\$723,484	\$284 x	23 x	\$284 x	134 =	\$916,560	\$1,961,592							
Dularge Elementary	\$3,986,136 x	1	1	14%	\$558,059	\$5,979,204 x	21.0%	\$1,255,633	\$285 x	23 x	\$285 x	134 =	\$919,776	\$2,733,468							
Dularge Middle	\$3,986,136 x	1	-2	0%	\$0	\$5,979,204 x	0.0%	\$0	\$286 x	10 x	\$286 x	30 =	\$94,710	\$94,710							
East Houma Elementary	\$3,986,136 x	1	-3	0%	\$0	\$5,979,204 x	0.0%	\$0	\$287 x	0 x	\$287 x	0 =	\$0	\$0							
East Street	\$3,986,136 x	1	-3	0%	\$0	\$5,979,204 x	0.0%	\$0	\$288 x	0 x	\$288 x	0 =	\$0	\$0							

Category	Structure Loss				Contents Loss				Structure Use and Function Loss				Structure Loss-Content Loss-Function Loss (\$)		
	Name/Description of Structure	Structure Replacement Value (\$)	# Floors	Inundation (ft)	Percent Damage (%)	Loss to Structure (\$)	Replacement of Contents Value (\$)	Percent Damage (%)	Loss to Contents (\$)	Average Daily Operating Budget (\$)	Functional Downtime	Displacement Cost Per Day		Displacement Time	Structure Use & Function Cost
	Ellender Memorial High	\$10,952,383	1	1	14%	\$1,533,334	\$16,428,575	21.0%	\$3,450,001	\$289	23	\$289	134	\$929,424	\$5,912,758
	Elysian Fields Middle	\$4,546,093	1	-1	0%	\$0	\$6,819,140	0.0%	\$0	\$290	12	\$290	46	\$173,420	\$173,420
	Evergreen Jr. High	\$9,528,763	1	-9	0%	\$0	\$14,293,145	0.0%	\$0	\$291	0	\$291	0	\$0	\$0
	Gibson Elementary	\$2,116,448	1	-1	0%	\$0	\$3,174,672	0.0%	\$0	\$293	12	\$293	46	\$175,214	\$175,214
	Grand Caillou Elementary	\$4,470,167	1	3	27%	\$1,206,945	\$6,705,251	40.5%	\$3,715,626	\$294	30	\$294	365	\$3,326,610	\$7,249,182
	Grand Caillou Middle	\$5,865,314	1	1	14%	\$821,144	\$8,797,971	21.0%	\$1,847,574	\$295	23	\$295	134	\$948,720	\$3,617,438
	Greenwood Middle	\$1,983,557	1	-1	0%	\$0	\$2,975,336	0.0%	\$0	\$296	12	\$296	46	\$177,008	\$177,008
	H.L. Bourgeois High	\$10,781,549	1	-10	0%	\$0	\$16,172,324	0.0%	\$0	\$297	0	\$297	0	\$0	\$0
	Honduras Elementary	\$3,112,982	1	-4	0%	\$0	\$4,669,473	0.0%	\$0	\$299	0	\$299	0	\$0	\$0
	Houma Jr. High	\$9,661,634	1	-4	0%	\$0	\$14,492,451	0.0%	\$0	\$300	0	\$300	0	\$0	\$0
	Juvenile Justice Center	\$4,141,264	1	1	14%	\$579,777	\$6,211,896	21.0%	\$1,304,498	\$300	23	\$300	134	\$964,800	\$2,849,075
	Lacache Middle	\$4,726,418	1	2	22%	\$1,039,812	\$7,089,627	33.0%	\$2,339,577	\$302	30	\$302	230	\$2,153,260	\$5,532,649
	Legion Park Middle	\$2,173,393	1	-2	0%	\$0	\$3,260,090	0.0%	\$0	\$303	10	\$303	30	\$99,990	\$99,990
	Lisa Park Elementary	\$5,827,351	1	-2	0%	\$0	\$8,741,027	0.0%	\$0	\$304	10	\$304	30	\$100,320	\$100,320
	Maria Immacolata Elementary	\$1,860,197	1	-3	0%	\$0	\$2,790,296	0.0%	\$0	\$306	0	\$306	0	\$0	\$0
	Montegut Elementary	\$2,666,915	1	3	27%	\$720,067	\$4,000,373	40.5%	\$1,620,151	\$307	30	\$307	365	\$3,473,705	\$5,813,923
	Mountgout Middle	\$6,150,038	1	7	43%	\$2,644,516	\$9,225,057	64.5%	\$5,930,162	\$308	30	\$308	365	\$3,485,020	\$12,079,698
	Mulberry Elementary	\$5,808,370	1	-5	0%	\$0	\$8,712,555	0.0%	\$0	\$309	0	\$309	0	\$0	\$0
	Oaklawn Jr. High	\$6,320,873	1	-3	0%	\$0	\$9,481,310	0.0%	\$0	\$310	0	\$310	0	\$0	\$0
	Oakshire Elementary	\$5,950,732	1	-3	0%	\$0	\$8,926,098	0.0%	\$0	\$311	0	\$311	0	\$0	\$0
	Omega Institute of Cosmetology	\$3,986,136	1	-4	0%	\$0	\$5,979,204	0.0%	\$0	\$312	0	\$312	0	\$0	\$0
Schools, Cont.	Point-aux-Chenes Elementary	\$1,471,074	1	2	22%	\$323,636	\$2,206,611	33.0%	\$728,182	\$313	30	\$313	230	\$2,231,690	\$3,283,508
	School for Exceptional Children														
	Schriever Elementary	\$5,628,044	1	-10	0%	\$0	\$8,442,066	0.0%	\$0	\$314	0	\$314	0	\$0	\$0
	South Louisiana Beauty College	\$3,986,136	1	-2	0%	\$0	\$5,979,204	0.0%	\$0	\$315	10	\$315	30	\$103,950	\$103,950
	South Terrebonne High	\$11,180,162	1	-3	0%	\$0	\$16,770,443	0.0%	\$0	\$317	0	\$317	0	\$0	\$0
	Southdown Elementary	\$5,039,615	1	-3	0%	\$0	\$7,559,423	0.0%	\$0	\$318	0	\$318	0	\$0	\$0
	St. Bernadette	\$4,669,474	1	-2	0%	\$0	\$7,004,211	0.0%	\$0	\$319	10	\$319	30	\$105,270	\$105,270
	St. Francis De Sales	\$7,735,002	1	-5	0%	\$0	\$11,602,503	0.0%	\$0	\$320	0	\$320	0	\$0	\$0
	St. Gregory Barbarigo	\$2,306,264	1	0	9%	\$207,564	\$3,459,396	13.5%	\$467,018	\$321	15	\$321	70	\$359,520	\$1,034,102
	St. Matthew's	\$1,565,982	1	-5	0%	\$0	\$2,348,973	0.0%	\$0	\$322	0	\$322	0	\$0	\$0
	TARC	\$3,986,316	1	-4	0%	\$0	\$5,979,474	0.0%	\$0	\$323	0	\$323	0	\$0	\$0
	Terrebonne Career and Technical High	\$2,000,000	1	1	14%	\$280,000	\$3,000,000	21.0%	\$630,000	\$323	23	\$323	134	\$1,038,768	\$1,948,768
	Terrebonne High	\$9,946,358	1	-5	0%	\$0	\$14,919,537	0.0%	\$0	\$324	0	\$324	0	\$0	\$0
	Terrebonne Parish School Board	\$3,000,000	1	-1	0%	\$0	\$4,500,000	0.0%	\$0	\$324	12	\$324	46	\$193,752	\$193,752
	Upper Little Caillou Elementary	\$4,707,437	1	1	14%	\$659,041	\$7,061,156	21.0%	\$1,482,843	\$327	23	\$327	134	\$1,051,632	\$3,193,516
	Vandebilt Catholic High	\$9,025,751	1	-6	0%	\$0	\$13,538,627	0.0%	\$0	\$328	0	\$328	0	\$0	\$0
	Village East Elementary	\$2,799,786	1	-1	0%	\$0	\$4,199,679	0.0%	\$0	\$329	12	\$329	46	\$196,742	\$196,742
	West Park Elementary	\$3,986,316	1	-6	0%	\$0	\$5,979,474	0.0%	\$0	\$330	0	\$330	0	\$0	\$0

Category	Structure Loss				Contents Loss				Structure Use and Function Loss				Structure Loss+Content Loss-Function Loss (\$)	
	Name/Description of Structure	Structure Replacement Value (\$)	# Floors	Inundation (ft)	Percent Damage (%)	Loss to Structure (\$)	Replacement of Contents Value (\$)	Percent Damage (%)	Loss to Contents (\$)	Average Daily Operating Budget (\$)	Functional Downtime	Displacement Cost Per Day		Displacement Time
	Anoited Care Services LLC	\$3,115,000 x	1	-3	0%	\$0	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Acadian Ambulance Services	\$3,115,000 x	1	-5	0%	\$0	\$4,672,500 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Bayou Home Care	\$3,115,000 x	1	-6	0%	\$0	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Bayou Terre Village Cardiovascular Institute of the South	\$3,115,000 x	2	-4	0%	\$0	\$4,672,500 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Chabert Medical Center	\$23,496,037 x	2	0	5%	\$1,174,802	\$35,244,056 x	7.5%	\$2,643,304	\$274 x	15+	\$274 x	70	\$306,880
	Chateau Terrebonne Health Care	\$3,115,000 x	1	-5	0%	\$0	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Gulf States LTAC of Houma	\$3,115,000 x	2	-2	0%	\$0	\$4,672,500 x	0.0%	\$0	\$274 x	10+	\$274 x	30	\$90,420
	Heritage Manor of Houma	\$3,115,000 x	1	-5	0%	\$0	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Homestead Assisted Living	\$3,115,000 x	1	-2	0%	\$0	\$4,672,500.0 x	0.0%	\$0	\$274 x	10+	\$274 x	30	\$90,420
	Hospice of South Louisiana	\$3,115,000 x	1	-4	0%	\$0	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Journey Hospice	\$3,115,000 x	1	-4	0%	\$0	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Lafourche ARC	\$3,115,000 x	1	2	22%	\$685,500	\$4,672,500.0 x	33.0%	\$1,541,925	\$274 x	30+	\$274 x	230	\$1,953,620
	Lafourche ARC - Main Office	\$3,115,000 x	1	-5	0%	\$0	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Louis Infant Crisis Center	\$445,000 x	1	-7	0%	\$0	\$445,000.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	MacDonnell Methodist Children Services	\$445,000 x	2	-3	0%	\$0	\$445,000.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Maison De'Ville Nursing Home	\$3,115,000 x	1	-7	0%	\$0	\$4,672,500.0	0.0%	\$0	\$274	0	\$274	0	\$0
	Medical Team, Inc.	\$3,115,000 x	1	-6	0%	\$0	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Oaks of Houma	\$3,115,000 x	1	0	9%	\$280,350	\$4,672,500.0 x	13.5%	\$630,788	\$274 x	15+	\$274 x	70	\$306,880
	Physicians Surgery Speciality Hospital	\$3,115,000 x	1	-4	0%	\$0	\$4,672,500 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Suites at Sugar Mill Point	\$3,115,000 x	1	-3	0%	\$0	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Synergy Home Health Care River Region	\$3,115,000 x	1	-5	0%	\$0	\$0.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	TARC	\$3,115,000 x	1	-5	0%	\$0	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Terrebonne General Medical Center	\$320,000,000 x	2	-5	0%	\$0	\$480,000,000 x	0.0%	\$0	\$411 x	0+	\$411 x	0	\$0
	Terrebonne Home Care, Inc	\$3,115,000 x	1	-2	0%	\$0	\$4,672,500.0 x	0.0%	\$0	\$274 x	10+	\$274 x	30	\$90,420
	Terrebonne House	\$3,115,000 x	1	-3	0%	\$0	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Terrebonne Mental Health Center	\$3,115,000 x	1	-5	0%	\$0	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Terrebonne Parish Health Unit	\$3,115,000 x	1	-5	0%	\$0	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Total Pharmacy Services	\$3,115,000 x	1	-5	0%	\$0	\$4,672,500.0 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Houma Terrebonne Housing Authority (Bayou Towers)	\$1,040,000 x	2	-3	0%	\$0	\$1,040,000 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	911-Terrebonne Communications District	\$1,950,000 x	1	-5	0%	\$0	\$2,925,000 x	0.0%	\$0	\$82 x	0+	\$82 x	0	\$0
	Houma-Terrebonne Civic Center	\$3,520,000 x	1	-5	0%	\$0	\$3,520,000.0 x	0.0%	\$0	\$137 x	0+	\$137 x	0	\$0
	Housing Authority City of Houma	\$1,040,000 x	2	-3	0%	\$0	\$1,040,000 x	0.0%	\$0	\$274 x	0+	\$274 x	0	\$0
	Public Works Yard	\$1,040,000 x	1	-6	0%	\$0	\$1,040,000 x	0.0%	\$0	\$55 x	0+	\$55 x	0	\$0
	Pump Stations (Various Locations)	\$52,000 x	1	-6	0%	\$0	\$52,000 x	0.0%	\$0	\$41 x	0+	\$41 x	0	\$0
	North Sewage Treatment Plant	\$59,274,000 x	1	1	14%	\$8,298,360	\$59,274,000 x	21.0%	\$12,447,540	\$55 x	23+	\$55 x	134	\$176,880
	Eureka Heights S/D - Gray	\$59,274,000 x	1	0	9%	\$5,334,660	\$59,274,000 x	13.5%	\$8,001,990	\$55 x	15+	\$55 x	70	\$61,600
	Fairlane Sewerage Corp - Gray	\$59,274,000 x	1	0	9%	\$5,334,660	\$59,274,000 x	13.5%	\$8,001,990	\$55 x	15+	\$55 x	70	\$61,600
	Halliburton Energy Services	\$59,274,000 x	1	0	9%	\$5,334,660	\$59,274,000 x	13.5%	\$8,001,990	\$55 x	15+	\$55 x	70	\$61,600
	Terrebonne Parish CON GOV-CYPR	\$59,274,000 x	1	0	9%	\$5,334,660	\$59,274,000 x	13.5%	\$8,001,990	\$55 x	15+	\$55 x	70	\$61,600
	Terrebonne Parish Pollution Control	\$59,274,000 x	1	0	9%	\$5,334,660	\$59,274,000 x	13.5%	\$8,001,990	\$55 x	15+	\$55 x	70	\$61,600

	TPCG Pollution Control South Treatment Plant	\$59,274,000 x	1	0	9% =	\$5,334,660	\$59,274,000 x	13.5% =	\$8,001,990	\$55 x	15 +	\$55 x	70 =	\$61,600	\$13,398,250
	South Sewage Treatment Plant	\$59,274,000 x	1	2	22% =	\$13,040,280	\$59,274,000 x	33.0% =	\$19,560,420	\$55 x	30 +	\$55 x	230 =	\$392,150	\$32,992,850
	Andrew Price Regulator	\$690,000 x	1	-8	0% =	\$0	\$690,000 x	0.0% =	\$0	\$55 x	0 +	\$55 x	0 =	\$0	\$0
	Bac-t Lab	\$690,000 x	1	-3	0% =	\$0	\$690,000 x	0.0% =	\$0	\$55 x	0 +	\$55 x	0 =	\$0	\$0
	Bayou Black RW Pump Station	\$690,000 x	1	-7	0% =	\$0	\$690,000 x	0.0% =	\$0	\$55 x	0 +	\$55 x	0 =	\$0	\$0
	Bayou Black Tank	\$690,000 x	1	-3	0% =	\$0	\$690,000 x	0.0% =	\$0	\$55 x	0 +	\$55 x	0 =	\$0	\$0
	Bayou Dularge Tank	\$690,000 x	1	2	22% =	\$151,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30 +	\$55 x	230 =	\$392,150	\$771,650
	Benoit Pump Station	\$690,000 x	1	2	22% =	\$151,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30 +	\$55 x	230 =	\$392,150	\$771,650
	Blimp Base Pump Station	\$690,000 x	1	1	14% =	\$96,600	\$690,000 x	21.0% =	\$144,900	\$55 x	23 +	\$55 x	134 =	\$176,880	\$418,380
	Boudreaux Canal Pump Station	\$690,000 x	1	2	22% =	\$151,800	\$690,000 x	33.0% =	\$227,700	\$55 x	30 +	\$55 x	230 =	\$392,150	\$771,650
	Chauvin Tank	\$690,000 x	1	3	27% =	\$186,300	\$690,000 x	40.5% =	\$279,450	\$55 x	30 +	\$55 x	365 =	\$622,325	\$1,088,075
	Cocodrie Tank	\$690,000 x	1	0	9% =	\$62,100	\$690,000 x	13.5% =	\$93,150	\$55 x	15 +	\$55 x	70 =	\$61,600	\$216,850
	Dulac Pump Station	\$690,000 x	1	0	9% =	\$62,100	\$690,000 x	13.5% =	\$93,150	\$55 x	15 +	\$55 x	70 =	\$61,600	\$216,850

Category	Structure Loss										Contents Loss										Structure Use and Function Loss									
	Name/Description of Structure	Structure Replacement Value (\$)	# Floors	Inundation (ft)	Percent Damage (%)	Loss to Structure (\$)	Replacement of Contents Value (\$)	Percent Damage (%)	Loss to Contents (\$)	Average Daily Operating Budget (\$)	Functional Downtime	Displacement Cost Per Day	Displacement Time	Structure Use & Function Cost	Structure Loss+Content Loss+Function Loss (\$)															
	Dulac Tank	\$690,000	1	0	9%	\$62,100	\$690,000	13.5%	\$93,150	\$55	15	\$55	70	\$61,600	\$216,850															
	Dumas Tank	\$690,000	1	-1	0%	\$0	\$690,000	0.0%	\$0	\$55	12	\$55	46	\$32,890	\$32,890															
	Elliott Jones	\$690,000	1	2	22%	\$151,800	\$690,000	33.0%	\$227,700	\$55	30	\$55	230	\$392,150	\$771,650															
	Gibson Tank	\$690,000	1	-1	0%	\$0	\$690,000	0.0%	\$0	\$55	12	\$55	46	\$32,890	\$32,890															
	Grand Caillou Tank	\$690,000	1	2	22%	\$151,800	\$690,000	33.0%	\$227,700	\$55	30	\$55	230	\$392,150	\$771,650															
	Hanson SG	\$690,000	1	2	22%	\$151,800	\$690,000	33.0%	\$227,700	\$55	30	\$55	230	\$392,150	\$771,650															
	Houma GS 1	\$690,000	1	-5	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	Houma GS 2	\$690,000	1	-2	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	Houma GS 3	\$690,000	1	-5	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	Houma Plant 3	\$690,000	1	-8	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	Houma Plant High Service	\$690,000	1	-4	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	Houma Water Plant	\$690,000	1	-9	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	Intracoastal RW Pump Station	\$690,000	1	-7	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	Klondyke Tank	\$690,000	1	-4	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	Lafort Canal/RW PS	\$690,000	1	2	22%	\$151,800	\$690,000	33.0%	\$227,700	\$55	30	\$55	230	\$392,150	\$771,650															
	Legion Building	\$690,000	1	-2	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	Lower Dulac Tank	\$690,000	1	2	22%	\$151,800	\$690,000	33.0%	\$227,700	\$55	30	\$55	230	\$392,150	\$771,650															
	Main Office	\$690,000	1	-4	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	Minors SG	\$690,000	1	2	22%	\$151,800	\$690,000	33.0%	\$227,700	\$55	30	\$55	230	\$392,150	\$771,650															
	Montegut Tank	\$690,000	1	3	27%	\$186,300	\$690,000	40.5%	\$279,450	\$55	30	\$55	365	\$622,325	\$1,088,075															
	Munson PS	\$690,000	1	-5	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
Water, Cont	North Terrebonne Standpipe	\$690,000	1	-4	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	Pointe-Aux-Chenes Pump Station	\$690,000	1	0	9%	\$62,100	\$690,000	13.5%	\$93,150	\$55	15	\$55	70	\$61,600	\$216,850															
	Pointe-Aux-Chenes Tank	\$690,000	1	2	22%	\$151,800	\$690,000	33.0%	\$227,700	\$55	30	\$55	230	\$392,150	\$771,650															
	Presque Isle PS	\$690,000	1	-6	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	Robinson Canal Pump Station	\$690,000	1	2	22%	\$151,800	\$690,000	33.0%	\$227,700	\$55	30	\$55	230	\$392,150	\$771,650															
	Robinson Canal Tank	\$690,000	1	2	22%	\$151,800	\$690,000	33.0%	\$227,700	\$55	30	\$55	230	\$392,150	\$771,650															
	Schriever GS1	\$690,000	1	2	22%	\$151,800	\$690,000	33.0%	\$227,700	\$55	30	\$55	230	\$392,150	\$771,650															
	Schriever GS2	\$690,000	1	-5	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	Schriever Plant	\$690,000	1	2	22%	\$151,800	\$690,000	33.0%	\$227,700	\$55	30	\$55	230	\$392,150	\$771,650															
	Schriever Tank	\$690,000	1	-9	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	Schriever Water Plant	\$690,000	1	-7	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	Shell PS	\$690,000	1	0	9%	\$62,100	\$690,000	13.5%	\$93,150	\$55	15	\$55	70	\$61,600	\$216,850															
	Sludge Press Building	\$690,000	1	2	22%	\$151,800	\$690,000	33.0%	\$227,700	\$55	30	\$55	230	\$392,150	\$771,650															
	South Terrebonne PS	\$690,000	1	-3	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	South Terrebonne Standpipe	\$690,000	1	-3	0%	\$0	\$690,000	0.0%	\$0	\$55	10	\$55	30	\$18,150	\$18,150															
	Texaco Master Meter	\$690,000	1	3	27%	\$186,300	\$690,000	40.5%	\$279,450	\$55	30	\$55	365	\$622,325	\$1,088,075															
	Theriot Tank	\$690,000	1	1	14%	\$96,600	\$690,000	21.0%	\$144,900	\$55	23	\$55	134	\$176,880	\$418,380															
	Waterproof RW PS	\$690,000	1	2	22%	\$151,800	\$690,000	33.0%	\$227,700	\$55	30	\$55	230	\$392,150	\$771,650															
	West Gibson Tank	\$690,000	1	0	9%	\$62,100	\$690,000	13.5%	\$93,150	\$55	15	\$55	70	\$61,600	\$216,850															
	Williams Street PS	\$690,000	1	1	14%	\$96,600	\$690,000	21.0%	\$144,900	\$55	23	\$55	134	\$176,880	\$418,380															
	<b>Total Structure Value</b>	<b>\$1,206,354,382</b>				<b>\$72,221,031</b>		<b>Total Contents Loss</b>	<b>\$1,670,682,087</b>			<b>Total Structure Use and Function Loss</b>	<b>\$80,063,508</b>	<b>\$1,822,956,626</b>																

**Attachment c3-1  
Terrebonne Parish List of Projects**

*The Terrebonne Parish List of Projects are presented on the following pages.*

**Terrebonne Parish Hazard Mitigation Plan Update 2014 List of Projects**

Source	No.	Project	Hard/Soft	Eligible	Explanation of Eligibility	Status	Approximate Cost
<b>Terrebonne Parish Comprehensive Master Plan (10/03)</b>							
A	1	Expand Forced Drainage to Flood Prone Areas w/o System in Place (3-7)	Hard	No	New construction is not eligible for HMGP funding		
	2	Feasibility and Practicality of New Shelters (3-8)	Hard	No	Construction of new Shelters is not eligible for HMGP funding		
	3	Flood Proof Essential Community Facilities (Power Plants, Substations, Hospitals) (3-8)	Hard	Potentially	Flood Mitigation is eligible for HMGP funding		
<b>Coastal Wetlands Planning Protection &amp; Restoration Act</b>							
B	1	Whiskey Island Restoration	Hard	No	Coastal/Barrier Island Restoration not eligible for HMGP funding	Completed	
	2	Whiskey Island Back Barrier Marsh Creation	Hard	No	Marsh Creation not eligible for HMGP funding	In Process	
	3	West Lake Boudreaux Shoreline Protection and Marsh Creation	Hard	No	Marsh Creation not eligible for HMGP funding	Completed	
	4	Timbalier Island Planting Demonstration Overview	Hard	No	Planting not eligible for HMGP funding	Completed	
	5	Timbalier Island Dune and Marsh Creation	Hard	No	Marsh Creation not eligible for HMGP funding	Completed	
	6	Thin Mat Floating Marsh Enhancement	Hard	No	Marsh Creation not eligible for HMGP funding	Completed	
	7	Terrebonne Bay Shore Protection Demonstration	Hard	No	Shoreline Protection not eligible for HMGP funding	Completed	
	8	Terrebonne Bay Marsh Creation-Nourishment	Hard	No	Marsh Creation not eligible for HMGP funding	Funding Requested	
	9	South Lake De Cade Freshwater Introduction	Hard	No	Freshwater Introduction not eligible for HMGP funding	Completed	
	10	Ship Shoal: Whiskey West Flank Restoration	Hard	No	Coastal Restoration not eligible for HMGP funding	Obsolete	
	11	Raccoon Island Shoreline Protection/Marsh Creation	Hard	No	Coastal Restoration/Protection not eligible for HMGP funding	Completed	
	12	Raccoon Island Breakwater Demonstration	Hard	No	Coastal Protection not eligible for HMGP funding	Completed	
	13	Point Au Fer Canal Plugs--Saltwater Intrusion	Hard	No	Reduction/Elimination of Saltwater Intrusion is not eligible for HMGP funding	Completed	
	14	Penchant Bases Natural Resources Plan--Increment 1	Hard	No	Coastal Restoration/Protection not eligible for HMGP funding	Completed	
	15	Nutria Harvest for Wetland Restoration Demonstration	Hard	No	Nutria Harvesting not eligible for HMGP funding	Completed	
	16	North Lake Menchant Landbridge Restoration	Hard	No	Marsh Creation not eligible for HMGP funding	Completed	
	17	North Lake Boudreaux Basin Freshwater Introduction and Hydrologic Management	Hard	No	Hydrologic Restoration not eligible for HMGP funds	In Process	
	18	New Cut Dune and Marsh Creation	Hard	No	Marsh Creation not eligible for HMGP funding	Completed	
	19	Mandalay Bank Protection Demonstration	Hard	No	Coastal Protection not eligible for HMGP funding	Completed	
	20	Madison Bay Marsh Creation and Terracing	Hard	No	Marsh Creation not eligible for HMGP funding	Funding Requested	
	21	Lower Bayou LaCache Hydrologic Restoration	Hard	No	Hydrologic Restoration not eligible for HMGP funds	Obsolete	
	22	Lake Chapeau Sediment Input and Hydrologic Restoration	Hard	No	Hydrologic Restoration not eligible for HMGP funds	Completed	
	23	Isles Dernieres Restoration Trinity Island	Hard	No	Coastal Restoration not eligible for HMGP funds	Completed	
	24	Isles Dernieres Restoration East Island	Hard	No	Coastal Restoration not eligible for HMGP funding	Completed	
	25	GIWW Bank Restoration of Critical Areas in Terrebonne Parish	Hard	No	Bank Stabilization not eligible for HMGP funding	In Process	
	26	Floating Marsh Creation	Hard	No	Marsh Creation not eligible for HMGP funding	Completed	
	27	Falgout Canal Planting Demonstration	Hard	No	Planting not eligible for HMGP funding	Completed	
	28	Coastwide Reference Monitoring Systems	Hard	No	Coastal Monitoring Systems not eligible for HMGP funding	Completed	
	29	Coastwide Nutria Control Program	Hard	No	Nutria Control not eligible for HMGP funding	Completed	
	30	Central Terrebonne Freshwater Enhancement	Hard	No	Freshwater Enhancement not eligible for HMGP funding	In Process	
	31	Brady Canal Hydrologic Restoration	Hard	No	Hydrologic Restoration not eligible for HMGP funds	Completed	
<b>Coastal Impact Assistance Program</b>							
C	1	Falgout Canal Freshwater Enhancement Phase I	Hard	No	Freshwater Enhancement not eligible for HMGP funding	In Process	
	2	Beach and Back Barrier Marsh Restoration	Hard	No	Marsh Restoration not eligible for HMGP funding	Obsolete	
	3	Closure of Breaches of GIWW	Hard	No	Bank Stabilization (for conservation) not eligible for HMGP funding	Obsolete	
	4	North Lost Lake Marsh Creation/Enhancement	Hard	No	Marsh Creation/Enhancement not eligible for HMGP funding	Funding Requested	
	5	Shoreline Protection on Houma Navigational Canal	Hard	No	Shoreline Protection not eligible for HMGP funding	Funding Requested	
	6	Houma Navigational Canal Lock	Hard	No	New construction not eligible for HMGP funding	Partial	
	7	Mississippi River Long Distance Sediment Pipeline	Hard	No	Sediment Diversion not eligible for HMGP funding	Partial	
<b>Coastal Protection and Restoration Authority</b>							
D	1	Morganza to the Gulf	Hard	No	New construction not eligible for HMGP funding	Funding Requested	
	2	Gibson to Houma Hurricane Protection	Hard	No	New construction not eligible for HMGP funding	Funding Requested	
	3	Houma and Vicinity Hurricane Protection	Hard	No	New construction not eligible for HMGP funding	Funding Requested	
	4	Multipurpose Operation of the Houma Navigational Canal	Hard	No	New construction not eligible for HMGP funding	Funding Requested	
	5	Marsh Restoration Using Dredged Material in Terrebonne Basin	Hard	No	Marsh Creation not eligible for HMGP funding	Funding Requested	
	6	Chacahoula Basin Plan	Hard	No	Coastal Protection not eligible for HMGP funding	Funding Requested	
	7	Freshwater Introduction via Blue Hammock Bayou	Hard	No	Freshwater Introduction not eligible for HMGP funding	Low Priority	
	8	Ridge Habitat Restoration in Terrebonne Basin	Hard	No	Habitat Restoration not Eligible for HMGP funding	Funding Requested	
	9	Barrier Shoreline Restoration: Terrebonne Basin	Hard	No	Shoreline Restoration not eligible for HMGP funding	Funding Requested	
<b>ESF-14 (Terrebonne Parish Long Term Recovery Plan)</b>							
E	1	Implement Capital Improvement Program to Enhance Inner Ring of Tidal Protection/Forced Drainage Levees	Hard	No	New construction not eligible for HMGP funding		
	2	Identification of Donor and Placement Sites for Sediment Deposition	Soft	No	Soft Projects (Identification of sites) not eligible for HMGP funding		
	3	Review of Louisiana Coastal Zone Management Program	Soft	No	Soft Projects (review of program) not eligible for HMGP funding		
	4	Educate the Public in Disaster Awareness	Soft	No	Soft Projects (education) not eligible for HMGP funding	In Process	
	5	Construct Transportation Improvements Designed to Increase the Economic Viability of Terrebonne Parish	Hard	No	Transportation improvements not eligible for HMGP funding	In Process	
	6	Secure Congressional Authorization and Construct the Morganza to the Gulf Hurricane Protection System and Enhance and Protect Critical Waterways in the Parish.	Soft/Hard	No	New construction is not eligible for HMGP funding		
	7	Expand and Improve Parish wide Sewerage Facilities	Hard	No	New construction for Economic Development is not eligible for HMGP funding		

Source	No.	Project	Hard/Soft	Eligible	Explanation of Eligibility	Status	Approximate Cost
<i>ESF-14 (Terrebonne Parish Long Term Recovery Plan); Cont.</i>							
E	8	Develop a Detailed Business Recruitment and Retention Plan	Soft	No	Soft Projects (plans) are not eligible for HMGP funding		
	9	Reduce the Potential for Future Flood Losses through the Terrebonne Parish Flood Hazard Mitigation Program	Hard	Potentially	Removing, elevation, or flood proofing of repetitive loss structures is eligible for HMGP funding	In Process	
	10	Increase Affordable Housing throughout the Parish	Hard	No	Increasing the Number of Housing is not eligible for HMGP funding	In Process	
	11	North-South Hurricane Evacuation Route	Hard	No	Evacuation Route Construction is not eligible for HMGP funding		
	12	Plan, Implement, and Construct Parish wide Sewerage	Hard	No	Sewerage planning, implementation and construction is not eligible for HMGP funding	Redundant?	
	13	Construct Communications Infrastructure and Provide Primary Responders with Proper Equipment	Hard	Potentially	Early Warning Systems eligible for HMGP funding under 5% initiative		
	14	Update Parish Emergency Operations Plan	Soft	No	Soft Projects (plans) are not eligible for HMGP funding	In Process	
	15	Construct Emergency Operations Center	Hard	No	Construction of EOC's not eligible for HMGP funding	In Process	
<i>Terrebonne Parish Hazard Mitigation Plan (2004)</i>							
F	1	Flood Proof Terrebonne Parish EOC, Terrebonne Parish General Medical Center, Chabert Medical Center, The TPCG Generating Station and the 2 Consolidated Waterworks Treatment Plants	Hard	Potentially	Floodproofing is eligible for HMGP funding	Remove EOC from List	
	2	Develop Master Drainage Plan	Soft	No	Soft Projects (plans) are not eligible for HMGP funding		
	3	Generators--Central Fire Department Station, Montegut Middle School, Houma Police Department, Terrebonne Parish Civic Center, Terrebonne Parish Public Works building	5%	Potentially	Eligible under 5% initiative.	Remove EOC from List. Central Fire, HPD, Public Works building	
	4	Promote Purchase of Flood Insurance	Soft	No	Soft Projects (public awareness) are not eligible for HMGP funding	In Process	
	5	Increase Public Awareness of Hazards and Hazard Areas	Soft	No	Soft Projects (public awareness) are not eligible for HMGP funding	In Process	
	6	Sponsor a "Multi-Hazard Awareness" Week	Soft	No	Soft Projects (public awareness) are not eligible for HMGP funding		
	7	Pursue elevation/acquisition/flood proofing projects and structural solutions to flooding.	Hard	Potentially	Elevation/Acquisition/Flood proofing Projects are all eligible for HMGP funding	In Process	
	8	Investigate and implement localized interior drainage projects at Lower Bayou Drive, Savanne Road, Ringo Cocke to Hudson Canal, LA 311 at Hollywood Road, Parish Road 15 at Mandalay, and Susie Canal at Ashland South, which are repetitive loss areas, and reduce its flood potential.	Hard	Potentially	Drainage Projects are eligible for HMGP funding, however, project descriptions must be available to scope		
	9	Review the existing floodplain ordinance and evaluate ways to improve the Parish's "Community Rating System (CRS) rating to reduce the flood insurance premium. Choose from the variety of methods and projects available that can be implemented to improve the CRS rating.	Soft	No	Soft Projects (evaluation) are not eligible for HMGP funding	In Process	
	10	Adopt additional residential and commercial building regulations, which include stricter building standards, Land Use Regulations throughout the Parish consistent with those that exist within the Urban Services District of Houma and incorporate dry flood proofing techniques. When the International Building Codes become mandatory, they will supersede the existing codes.	Soft	No	Soft Projects (regulations) are not eligible for HMGP funding		
	11	Develop additional subdivision guidelines that would help	Soft	No	Soft Projects (guidelines) are not eligible for		
<i>Terrebonne Parish 1603 DR 2008 Letter of Intent</i>							
G	1	Automatic Bar Screen Cleaners (Pump Stations -- D-58, D-03, D-69, D-22, D-28, D-07, D-21)	Hard	Potentially	Drainage Improvements are eligible for HMGP funds	Priority Redundant (D-69, D-03, D-07 have been completed)	\$ 2,000,000
	2	Elevation -- Residential	Hard	Potentially	Elevations are eligible for HMGP funding	In Process	
	3	EOC Hardening	Hard	Potentially	Wind Hardening is eligible for HMGP funding	In Process	
	4	Forced Drainage 1-1B Channel Improvement (Maintenance and Dredging)	Hard	No	Maintenance is not eligible for HMGP funding		
<i>Terrebonne Parish Feasibility Study for Levee Enhancement Projects</i>							
H	1	Industrial Blvd Gap -- 2.1 Miles to +8'	Hard	No	Levee improvements are not eligible for HMGP funding		
	2	Ashland/Woodlawn -- 2.9 Miles to +8'	Hard	No	Levee improvements are not eligible for HMGP funding	In Process	
	3	North of Orange Street Project in Grand Caillou -- 2.5 Miles to +8'	Hard	No	Levee improvements are not eligible for HMGP funding	Priority	
	4	Brady Road Levee in Dularge -- .25 miles to Falgout Canal to +8'	Hard	No	Levee improvements are not eligible for HMGP funding	Priority	
	5	Ashland North -- 1.5 Miles to +8'	Hard	No	Levee improvements are not eligible for HMGP funding	Funded	
	6	Lower Point Aux Chene -- 3.9 Miles to +8'	Hard	No	Levee improvements are not eligible for HMGP funding	Priority	
	7	Intracoastal Canal Near Palm Street -- 2.3 Miles to +6.5'	Hard	No	Levee improvements are not eligible for HMGP funding	Completed	
	8	Barrier Plan (Big Bayou Black/Gibson) 1/3 of project -- 8.4 Miles to +6.5'	Hard	No	Levee improvements are not eligible for HMGP funding	Priority	
	9	Bayou Point Aux Chene Sluice Gate to +10'	Hard	No	Levee improvements are not eligible for HMGP funding	High Priority	
	10	Bayou Grand Caillou Water Control Structure to +10'	Hard	No	Levee improvements are not eligible for HMGP funding	High Priority	
	11	Falgout Canal Water Control Structure to +10'	Hard	No	Levee improvements are not eligible for HMGP funding	In Process/High Priority	
	12	Cane Break to Ashland Levee -- 3.4 Miles to +8'	Hard	No	Levee improvements are not eligible for HMGP funding	Priority	
	13	West Grand Caillou Levee -- 4.6 Miles to +8'	Hard	No	Levee improvements are not eligible for HMGP funding		
	14	East Theriot -- 9 Miles to +8'	Hard	No	Levee improvements are not eligible for HMGP funding		
	15	Upper Dularge East Levee -- 5.2 Miles to +8'	Hard	No	Levee improvements are not eligible for HMGP funding	Funded	
	16	Barrier Plan (Big Bayou Black/Gibson) 1/3 of project -- 8.4 Miles to +6.5'	Hard	No	Levee improvements are not eligible for HMGP funding	redundant?	
	17	Susie Canal Improvements in Grand Caillou to +10'	Hard	No	Levee improvements are not eligible for HMGP funding	In Process	
	18	North of Orange Street to +10'	Hard	No	Levee improvements are not eligible for HMGP funding		
	19	Brady Road Levee in Dularge -- 1 mile to +10'	Hard	No	Levee improvements are not eligible for HMGP funding	In Process	
	20	Cane Break to Ashland Levee to +10'	Hard	No	Levee improvements are not eligible for HMGP funding	In Process	
	21	West Grand Caillou Levee to +10'	Hard	No	Levee improvements are not eligible for HMGP funding		
	22	East Theriot to +10'	Hard	No	Levee improvements are not eligible for HMGP funding		
	23	Upper Dularge East Levee to +10'	Hard	No	Levee improvements are not eligible for HMGP funding	In Process	
	24	Lower Point Aux Chene -- .85 Miles to +10'	Hard	No	Levee improvements are not eligible for HMGP funding		
	25	Extension Orange Street Projects in Grand Caillou -- 2.0 Miles to +10'	Hard	No	Levee improvements are not eligible for HMGP funding		
	26	West Ward 7 -- 15.9 Miles to +10'	Hard	No	Levee improvements are not eligible for HMGP funding		
	27	Barrier Plan (Big Bayou Black/Gibson) 1/3 of project -- 8.4 Miles to +6.5'	Hard	No	Levee improvements are not eligible for HMGP funding	Redundant?	

Source	No.	Project	Hard/Soft	Eligible	Explanation of Eligibility	Status	Approximate Cost
<i>Projects 2010 Update</i>							
	1	Blackstart Capacity -- Houma Power Plant	5%	Potentially	Blackstart Capacity retrofitting is potentially eligible for 5% initiative HMGP funding		
	2	Communications -- Conversion of SCADA system from Phone to Radio (Airbase Jr., Applied Hydraulics, Ashland North 1, Ashland North 2, Ashland South, Bobtown, Bourg Heights, Central Heights, Clinton St. Package Plant, Dulac, Edgewood, Frank, Gmoco, Green Acres 1, Green Acres 2, Indian Ridge, Jail, James, Lafayette Woods, Mary Hughes, Moffet/Saia, Orange/Marjorie, Patriot Point, Presque Isle 1, Presque Isle 2, Riley, Rounds, Sandcastle, Sarah, Smithridge 1, Smithridge 2, Thunderbird, Village East)	5%	Potentially	Communications Upgrade is potentially eligible for 5% initiative HMGP funding		
	3	Communications -- Hazard Warning System (Gauges Strategically Placed, N-Star)	5%	Potentially	Hazard Warning Systems are eligible for HMGP 5% initiative Funding		
	4	Communications (Fire, Law Enforcement, Parish, Other) Radios 580 Portables, 372 Mobiles	5%	No	Hand held communications are not eligible for 5% initiative funding		
	5	Communications for Water Treatment -- 41 Mobiles	5%	No	Hand held communications are not eligible for 5% initiative funding		
	6	Communications Tower (Theriot, LA)	Hard	No	New construction is not eligible for HMGP funding		
	7	Connect Station to emergency generator -- Munson PS	Hard	Potentially	Connection of Generator is potentially eligible for HMGP funding		
	8	Drainage Improvement -- (Chabert Medical Center Levee/Houma Industrial Park) Build Levee from Thompson Road to Industrial Pump Station	Hard	No	New construction is not eligible for HMGP funding	High Priority	\$ 3,000,000
	9	Drainage Improvement -- Ann Carroll, Jean Street, Duet Street, and Grace Street (Upgrade Culvert size to drain water from middle of streets)	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	In Process/High Priority	\$ 2,500,000
	10	Drainage Improvement -- Ashland North D-60 Tideflex valves on discharge pipes	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Completed	
	11	Drainage Improvement -- Bayou Grand Caillou (D-9 South the Landfill Road, Widen and Deepen Channel)	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Low Priority	\$ 2,000,000
	12	Drainage Improvement -- Bayou Grand Caillou (From Oaklawn School to D-9 Pump Station, Widen and Deepen Channel)	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	High Priority	\$ 2,000,000
	13	Drainage Improvement -- Bayou Lacache Pump Canal (Widen and Deepen Canal from Lacache Estate to Pump Station)	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	In Process/Priority	\$ 5,000,000
	14	Drainage Improvement -- Bayou Lacarpe (Widen Channel from Tunnel Blvd to pump station and upgrade bar screen cleaner)	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	In Process/High Priority	\$ 3,000,000
	15	Drainage Improvement -- Bellaire Drive (Increase Culvert Sizes and Slope Ditches)	Hard	Potentially	Drainage Improvements are eligible for HMGP funding		\$ 1,000,000
	16	Drainage Improvement -- Benoit Crossing (Remove Portable Pump and place permanent pump)	Hard	No	HMGP will not buy new equipment	Low Priority	\$ 1,000,000
	17	Drainage Improvement -- Bonanza Pump Station D-27 Tideflex valves on discharge pipes	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Funded by HMGP	
	18	Drainage Improvement -- Coteau 1-1B Bar Screen Cleaner	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Completed	
	19	Drainage Improvement -- Crochetville Road Storm Water Diversion canal with flap gates	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Low Priority	\$ 1,000,000
	20	Drainage Improvement -- D-07 Smithridge Pump Station Bar Screen Cleaner	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Completed	
	21	Drainage Improvement -- D-13 Industrial Blvd. Motorized screw gates	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Low Priority	\$ 50,000
	22	Drainage Improvement -- D-20 Schriever Pump Station Bar Screen Cleaner	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Priority	\$ 750,000
	23	Drainage Improvement -- D-3 Upper Montegut Bar Screen Cleaner	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Completed	
	24	Drainage Improvement -- Evelyn Lateral Between (Subsurface drainage in lateral ditch from Frank street to Perky street)	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Low Priority	\$ 800,000
	25	Drainage Improvement -- Highway 24 in Gray	Hard	Potentially	DOTD would have jurisdiction for this drainage project	Obsolete	
	26	Drainage Improvement -- Highway 315 in Dularge	Hard	Potentially	DOTD would have jurisdiction for this drainage project	Priority	\$ 2,000,000
	27	Drainage Improvement -- Industrial Pump D-13 Trash Screen and Bar Screen Cleaner	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Priority	\$ 1,000,000
	28	Drainage Improvement -- Island Road (Stabilize roadway shoulders and embankment)	Hard	Potentially	Stabilization implies maintenance issues	Funded and Completed	
	29	Drainage Improvement -- Isle of Cuba Transfer (Off-site fuel storage -- gas and diesel)	Hard	No	New offsite storage -- HMGP will not buy equipment	Obsolete	
	30	Drainage Improvement -- LA 56 in Chauvin	Hard	Potentially	DOTD would have jurisdiction for this drainage project		
	31	Drainage Improvement -- Lower Montegut D-2 Tideflex Valves on discharge pipes	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Completed	
	32	Drainage Improvement -- Martin Luther King Blvd (Increase Culvert Size in pump canal under highway in bonanza system)	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Priority	\$ 3,000,000
	33	Drainage Improvement -- Michael Street, Buquet Street, and Daigle Street (Increase Culvert size to drain streets during heavy rain fall)	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	CDBG Funded and Completed	
	34	Drainage Improvement -- Oak Forest Street (Increase in Culvert Sizes and Pump Station)	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Low Priority	\$ 1,000,000
	35	Drainage Improvement -- Old Spanish Trail 6-1B (Place area under Force Drainage to Stop Backwater Flooding)	Hard	No	New construction not eligible for HMGP funding	Priority	
	36	Drainage Improvement -- Old Spanish Trail 6-1B (Put Screw Gates on Culvert Crossings)	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Priority	\$ 1,000,000
	37	Drainage Improvement -- Pump Station Telemetry	Hard	5%	Upgrade to Telemetry potentially eligible for 5% funding	High Priority	\$ 5,000,000
	38	Drainage Improvement -- Royce Street (Increase culvert size to stop rainfall flooding)	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Completed	
	39	Drainage Improvement -- Savanne Road to Summerfield (Create a force drainage area to stop backwater and storm events flooding)	Hard	No	New construction not eligible for HMGP funding	High Priority	\$ 6,000,000
	40	Drainage Improvement -- South Ellendale Estates Lateral (Dig and possible widen lateral from subdivision to Hanson Canal)	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Obsolete	
	41	Drainage Improvement -- Widen Jeannie Canal	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Low Priority	
	42	Drainage Improvement -- Woodlawn Ranch Pump Canal	Hard	Potentially	Drainage Improvements are eligible for HMGP funding	Completed	
	43	Drainage Study -- Airport Commission	Soft	No	Studies are not eligible for HMGP funding	Low Priority	
	44	Drainage Project -- Port Commission			Does not have enough information	Low Priority	
	45	Dry Floodproof RL Structure Next to Robinson Canal (Meeting #3)	Hard	Potentially	Floodproofing is eligible for HMGP funding		
	46	Dry Floodproofing -- Infiltration Reduction of Underground Wastewater Collection System	Hard	Potentially	Floodproofing is eligible for HMGP funding		
	47	Elevation -- Bayou Dularge Tank building and chlorination equipment	Hard	Potentially	Elevation is an eligible HMGP project		
	48	Elevation -- Fire Station (raise 2', history of flooding, 75'x75' Slab) (1466 Hwy 665)	Hard	Potentially	Elevation is an eligible HMGP project		
	49	Elevation -- Fire Station in Chauvin (6668 Highway 56)	Hard	Potentially	Elevation is an eligible HMGP project		
	50	Elevation -- Generator for Riley Drive Lift Station	Hard	Potentially	Elevation is an eligible HMGP project	Completed	
	51	Elevation -- Grand Caillou Tank building	Hard	Potentially	Elevation is an eligible HMGP project		
	52	Elevation -- Industrial Blvd from Van Ave to Pump Station	Hard	Potentially	Elevation is an eligible HMGP project		
	53	Elevation -- Leachate Removal System	Hard	Potentially	Elevation is an eligible HMGP project		

Source	No.	Project	Hard/Soft	Eligible	Explanation of Eligibility	Status	Approximate Cost
<i>Projects 2010 Update; Cont.</i>							
	54	Elevation -- Lift Stations with Self Priming Pumps (Bourg Heights, Edgewood, Ashland North, Ashland North II, Ashland South, Woodlawn Ranch, Saia, Prospect, Carriage Cove, Green Acres I, Green Acres II, Lafayette Woods, Lorraine Park, Presque Isle, Presque Isle II, Chabert Medical Center, Service Center, Smithridge I, Smithridge II, South Terrebonne Estates, Riley Drive)	Hard	Potentially	Elevation is an eligible HMGP project	Completed	
	55	Elevation -- Lift Stations with Submersible Pumps (Bobtown, Dulac, Orange Street, Airbase Jr., Patriot Point, Rounds Road, Applied Hydraulics, Gemoco, Indian Ridge, James Road, Sandcastle, Thunderbird Road)	Hard	Potentially	Elevation is an eligible HMGP project	Completed	
	56	Elevation -- Lower Dulac Tank building and chlorination equipment	Hard	Potentially	Elevation is an eligible HMGP project		
	57	Elevation -- Montegut Station (100'x75')	Hard	Potentially	Elevation is an eligible HMGP project		
	58	Orange Street Wastewater Plan Controls	Hard	Potentially			
	59	Elevation -- Orange Street Wastewater Plant Controls	Hard	Potentially	Elevation is an eligible HMGP project	Completed	
	60	Elevation -- Point Aux Chene Pump Station building and electrical pump, regulating valve and meter	Hard	Potentially	Elevation is an eligible HMGP project		
	61	Elevation -- Robinson Canal P.S. Building, electrical pump, regulating valve and meter	Hard	Potentially	Elevation is an eligible HMGP project		
	62	Elevation -- Scale	Hard	Potentially	Elevation is an eligible HMGP project		
	63	Elevation -- South Terrebonne Pump Station building and pump	Hard	Potentially	Elevation is an eligible HMGP project		
	64	Elevation -- Terrebonne General Medical Center Main Plant Electrical Switch Gear, Boilers, and Chillers (\$2,750,000)	Hard	Potentially	Elevation is an eligible HMGP project	? Completed by TGMC?	
	65	Elevation -- Texaco Master Meter Building, regulating valve and meter	Hard	Potentially	Elevation is an eligible HMGP project		
	66	Elevation -- West Gibson Tank building and chlorination equipment	Hard	Potentially	Elevation is an eligible HMGP project		
	67	Elevation of Local Evacuation Route -- 1 Mile Section of LA 56 in Chauvin, LA (Ward 7 Evacuation Routes)	Hard	Potentially	Elevation is an eligible HMGP project		
	68	Elevation of Local Evacuation Route -- 1.5 Mile Section of LA 315 near the Dularge Bridge (Evacuation Route for Bayou Dularge and Crozier, Floods in a strong south wind)	Hard	Potentially	Elevation is an eligible HMGP project		
	69	Elevation of Pump Station Roads -- D-19, D-12, and D-5 Pumps	Hard	Potentially	Elevation of locally owned roads is eligible for HMGP funding	Low Priority	
	70	Elevation to ABFE -- D-01 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	71	Elevation to ABFE -- D-02 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	72	Elevation to ABFE -- D-03 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	73	Elevation to ABFE -- D-04 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	74	Elevation to ABFE -- D-06 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	75	Elevation to ABFE -- D-15 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	76	Elevation to ABFE -- D-21 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	77	Elevation to ABFE -- D-36 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	78	Elevation to ABFE -- D-37 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	79	Elevation to ABFE -- D-40 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	80	Elevation to ABFE -- D-42 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	81	Elevation to ABFE -- D-43 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	82	Elevation to ABFE -- D-44 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	83	Elevation to ABFE -- D-46 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	84	Elevation to ABFE -- D-47 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	85	Elevation to ABFE -- D-48 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	86	Elevation to ABFE -- D-49 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	87	Elevation to ABFE -- D-50 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	88	Elevation to ABFE -- D-51 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	89	Elevation to ABFE -- D-53 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	90	Elevation to ABFE -- D-54 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	91	Elevation to ABFE -- D-56 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	92	Elevation to ABFE -- D-59 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	
	93	Elevation to ABFE -- D-60 Gear Drives, Motors, and Controls	Hard	Potentially	Elevation is an eligible HMGP project	High Priority	\$ 3,240,000
	94	Emergency Preparedness -- Creation of alternative staging area	Soft	No	Emergency Preparedness not eligible for HMGP funding	Remove	
	95	Emergency Preparedness -- Message Boards	5%	No	Emergency Preparedness not eligible for HMGP funding	In Process	
	96	Emergency Preparedness -- Military Showers	Soft	No	Emergency Preparedness not eligible for HMGP funding	Remove -- Under Contract	
	97	Emergency Preparedness -- Nursing Home Evacuation Coordination/Plan	Soft	No	Emergency Preparedness not eligible for HMGP funding	In Process (Remove as not TPCG Responsibility)	
	98	Emergency Preparedness -- Small Power Radio Station for Hazard Alert	5%	No	Emergency Preparedness not eligible for HMGP funding	Remove	
	99	Floodproof -- Terrebonne Parish General Medical Center, The TPCG Generating Station, and the 2 Consolidated Waterworks Treatment Plants	Hard	Yes	Floodproofing is eligible for HMGP funding	Redundant?	
	100	Flood Protection -- Sea wall at Public Works Yard Grand Caillou Road	Hard	No	New construction is not eligible for HMGP funding	Completed	
	101	Flood Wall and Pump Installation for Terrebonne General	Hard	No	New construction is not eligible for HMGP funding		
	102	Four P25 Motorola Communications Consoles to be located within the Terrebonne 911 Cat. 5 Hurricane resistant facility located at 110 Capital Blvd. to be used for Interoperable Communications between all 15 Terrebonne Fire Districts (13 Fire Departments), Law Enforcement Agencies, OEP, Utilities & Parish Departments (cost \$138,000)	5%	No	Communications Consoles are not eligible for 5% initiative HMGP funding		
	103	Generator -- 100KW for W. Woodlawn Station	5%	Potentially	Generators are eligible for 5% initiative funding	Priority	
	104	Generator -- 200KW for South Wastewater Treatment Plant	5%	Potentially	Generators are eligible for 5% initiative funding	Completed	
	105	Generator -- City Hall (with switching capacity)	5%	Potentially	Generators are eligible for 5% initiative funding		
	106	Generator -- Coteau Fire Station (Natural Gas, includes change over switch to ensure response to emergency calls)	5%	Potentially	Generators are eligible for 5% initiative funding		
	107	Generator -- Gov't Towers	5%	Potentially	Generators are eligible for 5% initiative funding		

Source	No.	Project	Hard/Soft	Eligible	Explanation of Eligibility	Status	Approximate Cost
<i>Projects 2010 Update Cont.</i>							
	108	Generator -- Houma Fire Department, Central Station (50KW)	5%	Potentially	Generators are eligible for 5% initiative funding		
	109	Generator -- Houma Police Department Building (Cummings model GFGA 500 KW 120/208 Volt 3 phase, 60 hertz, 1800RPM NG set)	5%	Potentially	Generators are eligible for 5% initiative funding		
	110	Generator -- Lift Stations Receiving Effluent from Hospitals, Chabert Medical Center (100 KW)	5%	Potentially	Generators are eligible for 5% initiative funding	same as 106	
	111	Generator -- Lift Stations Receiving Effluent from Hospitals, Terrebonne General Medical Center (100 KW)	5%	Potentially	Generators are eligible for 5% initiative funding	same as 107	
	112	Generator -- Major Lift Stations, Douglas (50 KW)	5%	Potentially	Generators are eligible for 5% initiative funding		
	113	Generator -- Major Lift Stations, Highland Drive (150 KW)	5%	Potentially	Generators are eligible for 5% initiative funding	Budgeted for 2014	
	114	Generator -- Major Lift Stations, Mire (75 KW)	5%	Potentially	Generators are eligible for 5% initiative funding		
	115	Generator -- Major Lift Stations, Westside (50 KW)	5%	Potentially	Generators are eligible for 5% initiative funding		
	116	Generator -- Major Lift Stations, Westview (100 KW)	5%	Potentially	Generators are eligible for 5% initiative funding		
	117	Generator -- Montegut, Point Aux Chene Fire Stations (need 40-50 KW -- \$15,000)	5%	Potentially	Generators are eligible for 5% initiative funding		
	118	Generator -- North Terrebonne Treatment Plant	5%	Potentially	Generators are eligible for 5% initiative funding	Completed	
	119	Generator -- OEP 911 (60KW)	5%	Potentially	Generators are eligible for 5% initiative funding	Completed	
	120	Generator -- Pollution Control Portable Unit Trailer Mounted for 10 treatment plants (50 KW)	5%	Potentially	Generators are eligible for 5% initiative funding	In Process - Received 6 trailer mounted 60 KW unites	
	121	Generator -- Pollution Control, S. Treatment Plant Effluent Lift Station (250 KW)	5%	Potentially	Generators are eligible for 5% initiative funding	Completed	
	122	Generator -- Pollution Control, S. Treatment Plant Perimeter Drainage Pump Station (100 KW)	5%	Potentially	Generators are eligible for 5% initiative funding		
	123	Generator -- Port Commission Forced Drainage (50 KW)	5%	Potentially	Generators are eligible for 5% initiative funding		
	124	Generator -- Public Works -- Portable Generator for Bridges (80 KW)	5%	Potentially	Generators are eligible for 5% initiative funding	Completed	
	125	Generator -- Public Works -- Portable Trailer Unit Mounted for 6 Treatment Plants (56KW)	5%	Potentially	Generators are eligible for 5% initiative funding	Completed	
	126	Generator -- Public Works North Campus	105%	Potentially	Generators are eligible for 5% initiative funding	Priority	\$ 500,000
	127	Generator -- Public Works Service Center Yard (400KW)	5%	Potentially	Generators are eligible for 5% initiative funding	Completed	
	128	Generator -- Public Works, Buquet Bridge (75 KW 120/240 Volt)	5%	Potentially	Generators are eligible for 5% initiative funding	Completed	
	129	Generator -- Public Works, Klondyke Bridge (75 KW 120/240 Volt)	5%	Potentially	Generators are eligible for 5% initiative funding	Completed	
	130	Generator -- Public Works, Service Center Yard (400 KW 208/480 Volt)	5%	Potentially	Generators are eligible for 5% initiative funding	Redundant? Yes	
	131	Generators -- Lift Stations Receiving Effluent from Hospitals, Valhi II (125 KW)	5%	Potentially	Generators are eligible for 5% initiative funding		
	132	Infiltration Reduction of Underground Wastewater System (Testing needed for Locations)	Hard	No	Maintenance is not eligible for HMGP funding	some completed, more to test	
	133	Modification to Village East Lift Station (Conversion from Dry Pit to Submersible Station)	Hard	No	HMGP will not buy new equipment	Completed	
	134	New Water Storage Tank -- Terrebonne General Medical Center (1,000,000 Gallons, \$750,000)	Hard	No	New water storage tanks are not eligible for HMGP funds		
	135	Relocation -- Deadwood	Hard	Potentially	Relocation of entire community's social impacts will not allow scoping		
	136	Relocation -- Jean Charles	Hard	Potentially	Relocation of entire community's social impacts will not allow scoping		
	137	Generators--Central Fire Department Station, Montegut Middle School, Houma Police Department, Terrebonne Parish Civic Center, Terrebonne Parish Public Works building, Terrebonne Parish EOC	Hard	Potentially	Generators are eligible for 5% initiative funding	Overlap	
	138	Generator -- Public Works - Forced Drainage Pump Station D-03, D-07, D-12 20KW	Hard	Potentially	Generators are eligible for 5% initiative funding	Priority	\$ 30,000
	139	RL and Severe RL Properties -- Elevation, Acquisition, Mitigation Reconstruction (Parish)	Hard	Potentially	Elevation/Acquisition/Mitigation Reconstruction Projects are all eligible for HMGP funding	In Process	
	140	Safe room -- Coteau Fire Station	Hard	Potentially	Safe Rooms are eligible for HMGP funding		
	141	Safe Room -- Gov't Towers Parking Structure (Pet Shelter)	Hard	Potentially	Safe Rooms are eligible for HMGP funding	New Animal Shelter Funded	
	142	Safe Room -- Houma Water Treatment Plant	Hard	Potentially	Safe Rooms are eligible for HMGP funding		
	143	Wind Retrofit -- Bac-T Lab at Schriever Water Treatment Facility (install shutters or impact resistant glass on windows, strengthen doors)	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	144	Wind Retrofit -- Bob Jones Building (Cat 4 or 5)	Hard	Potentially	Wind Hardening is eligible for HMGP funding		\$ 50,000
	145	Wind Retrofit -- Bourg Fire Station, 2 Bay Doors (22'x10', 14'x10') and 3 Windows (36'x36")	Hard	Potentially	Wind Hardening is eligible for HMGP funding	Obsolete--Remove	
	146	Wind Retrofit -- Buquet Bridge and Klondyke Bridge Tender's Buildings (Cat 3)	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	147	Wind Retrofit -- City Hall (IT Department)	Hard	Potentially	Wind Hardening is eligible for HMGP funding	In Process	
	148	Wind Retrofit -- Civic Center (Shutters or Window Film)	Hard	Potentially	Wind Hardening is eligible for HMGP funding	Funded	
	149	Wind Retrofit -- Coteau Fire Station (include main structure, apparatus room, generator room doors)	Hard	Potentially	Wind Hardening is eligible for HMGP funding	Completed	
	150	Wind Retrofit -- Courthouse Annex (Window Film)	Hard	Potentially	Wind Hardening is eligible for HMGP funding	Funded	
	151	Wind Retrofit -- Director's Building (Cat 3)	Hard	Potentially	Wind Hardening is eligible for HMGP funding		\$ 50,000
	152	Wind Retrofit -- Drainage Building (Cat 3)	Hard	Potentially	Wind Hardening is eligible for HMGP funding		\$ 50,000
	153	Wind Retrofit -- Evergreen Junior High	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	154	Wind Retrofit -- Fire Stations (#2, #3, #4) Shutters	Hard	Potentially	Wind Hardening is eligible for HMGP funding	Potentially	
	155	Wind Retrofit -- Garage Doors (407 Island)	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	156	Wind Retrofit -- Government Tower (Window Film)	Hard	Potentially	Wind Hardening is eligible for HMGP funding	In process	
	157	Wind Retrofit -- Gulf States LTAC	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	158	Wind Retrofit -- Harden Front and Back Doors of Convention Center	Hard	Potentially	Wind Hardening is eligible for HMGP funding	Funded	
	159	Wind Retrofit -- Headstart Center	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	160	Wind Retrofit -- Houma Junior High	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	161	Wind Retrofit -- Houma Municipal Auditorium	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	162	Wind Retrofit -- Houma PD	Hard	Potentially	Wind Hardening is eligible for HMGP funding	In Process	
	163	Wind Retrofit -- Juvenile Detention Center	Hard	Potentially	Wind Hardening is eligible for HMGP funding	In Process	
	164	Wind Retrofit -- Legion Park Middle	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	165	Wind Retrofit -- Mail Library	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	166	Wind Retrofit -- Main Office (Install shutters or impact resistant glass on windows, strengthen doors)	Hard	Potentially	Wind Hardening is eligible for HMGP funding		

Source	No.	Project	Hard/Soft	Eligible	Explanation of Eligibility	Status	Approximate Cost
<i>Projects 2010 Update Cont.</i>							
	167	Wind Retrofit -- Montague, Point Aux Chene Fire Stations (5 Windows at 1466 Hwy 665, 6 Windows at 407 Island Rd, 6 Windows at 1746 Hwy 55)	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	168	Wind Retrofit -- Morgue	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	169	Wind Retrofit -- New Roll-up Door at EOC -- 911	Hard	Potentially	Wind Hardening is eligible for HMGP funding	In Process	
	170	Wind Retrofit -- North Terrebonne Standpipe (strengthen door)	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	171	Wind Retrofit -- Roof of Convention Center	Hard	Potentially	Wind Hardening is eligible for HMGP funding	Funded	
	172	Wind Retrofit -- Schriever Elementary	Hard	Potentially	Wind Hardening is eligible for HMGP funding	Funded	
	173	Wind Retrofit -- Sludge Press Building (strengthen doors)	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	174	Wind Retrofit -- South Terrebonne High School	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	175	Wind Retrofit -- Southdown Elementary	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	176	Wind Retrofit -- Terrebonne High School	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	177	Wind Retrofit and Elevation -- Houma Plant 3 (Install shutters or impact resistant glass on windows, strengthen doors, raise pumps and electrical panels)	Hard	Potentially	Wind Hardening and elevations are eligible for HMGP funding		
	178	Wind Retrofit and Elevation -- Houma Plant High Service pumps and electrical panels, strengthen door	Hard	Potentially	Wind Hardening and elevations are eligible for HMGP funding		
	179	Wind Retrofit and Elevation -- Lafort Canal RW PS (elevate pumps and generator, strengthen door)	Hard	Potentially	Wind Hardening and elevations are eligible for HMGP funding		
	180	Wind Retrofit and Elevation -- Munson PS (Elevate Building, electrical pumps, regulating valves and meters, Install Shutters on windows, strengthen the doors)	Hard	Potentially	Wind Hardening and elevations are eligible for HMGP funding		
	181	Wind Retrofit and Elevation -- Schriever Plant (install shutters or impact resistant glass on windows, strengthen doors, elevate pumps)	Hard	Potentially	Wind Hardening and elevations are eligible for HMGP funding		
	182	Wind Retrofit and Elevation -- Shell PS (elevate pumps and electrical panels, strengthen door)	Hard	Potentially	Wind Hardening and elevations are eligible for HMGP funding		
	183	Wind Retrofit and Elevation -- Williams Street Pump Station (elevate pumps and electrical panels, strengthen door)	Hard	Potentially	Wind Hardening and elevations are eligible for HMGP funding		
	184	Wind Retrofit and Elevation -- Williams Street Pump Station (elevate pumps and electrical panels, strengthen door)	Hard	Potentially	Wind Hardening and elevations are eligible for HMGP funding		
<i>New Projects, 2014 Update</i>							
	1	Safe Room -- OEP (substitute)	Hard	Potentially	Safe Rooms are eligible for HMGP funding	Funded	
	2	Communications -- Community Alert System (First Call), Reverse 911, Community Hotline, Alert FM, Redundant Phone System at EOC	Hard	Potentially	Communications are eligible for 5% initiatives	Completed	
	3	Emergency Preparedness -- Gauge installation at pump stations near major roadways and at bridges/floodgates	Hard	No	Installation of new equipment is not eligible for HMGP		
	4	Communications -- Additional Communications Tower for office	Hard	No	Construction not eligible for HMGP		
	5	Emergency Preparedness -- Purchase of Drone for Damage Assessment	Hard	No	Drone purchase not eligible for HMGP		
	6	Communications Tower North Campus/Telemetry/ Forced Drainage	Hard	No		Priority	\$ 400,000
	7	Emergency Preparedness -- Evacuation Sign Purchase and Placement	Hard	No	Purchase of Signs not eligible for HMGP		
	8	100 Amp, 3-way SS Disconnects for generator ready connections (approx. 40 Lift station sites)	Hard	Potentially			
	9	Replacement of wooden lift station fence/gates with chain link to mitigate wind damage	Hard	Potentially			
	10	150 KW generators for Mire, Idlewild, and Elysian Lift Stations	Hard	5%	Generators are eligible for HMGP		
	11	20 Pump Stations/Scada/ Telemetry, The automation of Forced drainage Pump Stations to reduce response time and flooding. Monitored and controled remotley during storm events.	Hard	5%		High Priority Partially funded by TPCG	\$ 3,000,000
	12	Wind Retrofit -- Houma Water Treatment Facility	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	13	Wind Retrofit -- Schriever Water Treatment Facility	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	14	Wind Retrofit -- Waterworks Office Complex at 8814 Main Street, Houma, LA	Hard	Potentially	Wind Hardening is eligible for HMGP funding		
	15	Safe House -- Houma Fire Department 2101 East Tunnel Blvd.	Hard	Potentially	Safe Rooms are eligible for HMGP funding		
	16	Wind Retrofit -- Montegut Fire Department (1105 Hwy 55) Garage Doors	Hard	Potentially	Wind Hardening is eligible for HMGP funding		\$ 30,000
	17	Wind Retrofit -- Bourg Fire Department (4317 Highway 24) Windows with Shutters	Hard	Potentially	Wind Hardening is eligible for HMGP funding		\$ 25,000
	18	Wind Retrofit -- Coteau Fire Department (2325 Coteau Rd) Windows with Shutters	Hard	Potentially	Wind Hardening is eligible for HMGP funding		\$ 25,000
	19	Wind Retrofit -- Little Caillou Fire Department (4588 Hwy 56) Windows with Shutters	Hard	Potentially	Wind Hardening is eligible for HMGP funding		\$ 25,000
	20	Wind Retrofit -- Little Caillou Fire Department (5610 Hwy 56) Windows with Shutters	Hard	Potentially	Wind Hardening is eligible for HMGP funding		\$ 25,000
	21	Wind Retrofit -- Little Caillou Fire Department (6668 Hwy 56) Shutters	Hard	Potentially	Wind Hardening is eligible for HMGP funding		\$ 25,000
	22	Identify vulnerable historic and cultural resources, as well as opportunities to protect and/or relocate historic assets (Tribal)	Soft	No	Soft Projects (education) not eligible for HMGP funding		
	23	Protect historic and cultural resources, such as cemeteries and gathering places from all hazards (Tribal)	Soft	No	Soft Projects (education) not eligible for HMGP funding		
	24	Collaborate with communities to design, evaluate, and implement Relocation Strategies for communities located outside of the levee systems (Tribal)	Soft	No	Soft Projects (education) not eligible for HMGP funding		
	25	Ensure that current and future building elevations take the needs of those individuals with access and functional needs into account. This includes the incorporation of lifts. (Tribal)	Soft	No	Soft Projects (education) not eligible for HMGP funding		
	26	Identify mechanisms to protect the Island Road from surge and tidal impacts. This might include engineered solutions to decrease wave impacts and/or erosion control mechanisms along the edges of the road. (Tribal)	Soft	No	Soft Projects (education) not eligible for HMGP funding		
	27	Work with communities currently residing in flood prone areas, particularly outside of the levee systems, on the identification of flood mitigation and climate adapation measures to reduce flood risk. (Tribal)	Soft	No	Soft Projects (education) not eligible for HMGP funding		
	28	Work with the communities currently residing in at risk areas on the development of evacuation plans including access to shelter and transportation assistance as needed. (Tribal)	Soft	No	Soft Projects (education) not eligible for HMGP funding		
	29	Safe Harbor Stud and Education Campaign	Soft	No	LSU Ag Sea Grants - Soft Projects (education) not eligible for HMGP funding		\$ 50,000
	30	Library Storm Preparation and Recovery Flashcards	Soft	No	LSU Ag Sea Grants - Soft Projects (education) not eligible for HMGP funding		\$ 25,000
	31	Structure Inventory	Soft	No	Soft Projects are not eligible for HMGP funding		\$ 850,000

Source	No.	Project	Hard/Soft	Eligible	Explanation of Eligibility	Status	Approximate Cost
<i>New Projects, 2014 Update</i>							
J	32	Storm Recovery Phase Code Enforcement Capacity	Soft	No	Soft Projects are not eligible for HMGP funding		Variable
	33	Storm Preparedness Literacy Project	Soft	No	Soft Projects (education) not eligible for HMGP funding		\$ 5,000
	34	Levee Safety Educational Promotions	Soft	No	Soft Projects (education) not eligible for HMGP funding		\$ 30,000
	35	Develop a Program for Public Information	Soft	No	Soft Projects (education) not eligible for HMGP funding		\$ 5,000
	36	Review capacity to increase nonresidential structure mitigations			Soft Projects are not eligible for HMGP funding		Variable
	37	Education regarding flood safety and property valuation	Soft	No	Soft Projects (education) not eligible for HMGP funding		\$ 5,000
	38	Vehicle lift for HPD EOC	Hard	No			\$ 1,500
	39	Natural Gas Generator	5%	Potentially	Generators are eligible for 5% initiative funding		\$ 50,000
	40	Generator Study/Environmental Review/Provision of Generators	Soft/Hard	Potentially	Generators are eligible for 5% initiative funding		\$ 650,000
	41	Generator Study/Environmental Review/Provision of Quick Connects	Soft/Hard	Potentially	Generators are eligible for 5% initiative funding		\$ 500,000
	42	Educational video on evacuation options	Soft	No	Soft Projects (education) not eligible for HMGP funding		\$ 15,000
	43	Signage for evacuation routes	Hard	No			\$ 10,000
	44	Portable billboards to update emergency instructions or evacuation routes/changes	Hard	No			
	45	Four P25 Motorola Communications Consoles to be located within the Terrebonne 911 Cat. 5 Hurricane resistant facility located at 110 Capital Blvd. to be used for Interoperable Communications between all 15 Terrebonne Fire Districts (13 Fire Departments), Law Enforcement Agencies, OEP, Utilities & Parish Departments (cost \$138,000)	5%	No	Hand held communications are not eligible for 5% initiative funding		
	46	Safe Room - Bayou Country Road	hard	Yes		Partially Funded/Ongoing	

Completed or Funded
Not Mitigation Related
Needs More Information
Not Eligible for HMGP Funding
Potentially Eligible for HMGP Funding
Potentially Eligible and Repeated in New Projects

**Attachment c3-2  
Flood Protection Outreach (FPO) Materials**

*The Flood Protection Outreach (FPO) Materials are presented on the following twenty four pages.*

# Flood Damage Prevention Outreach Survey Results

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## Compilation of Survey Data

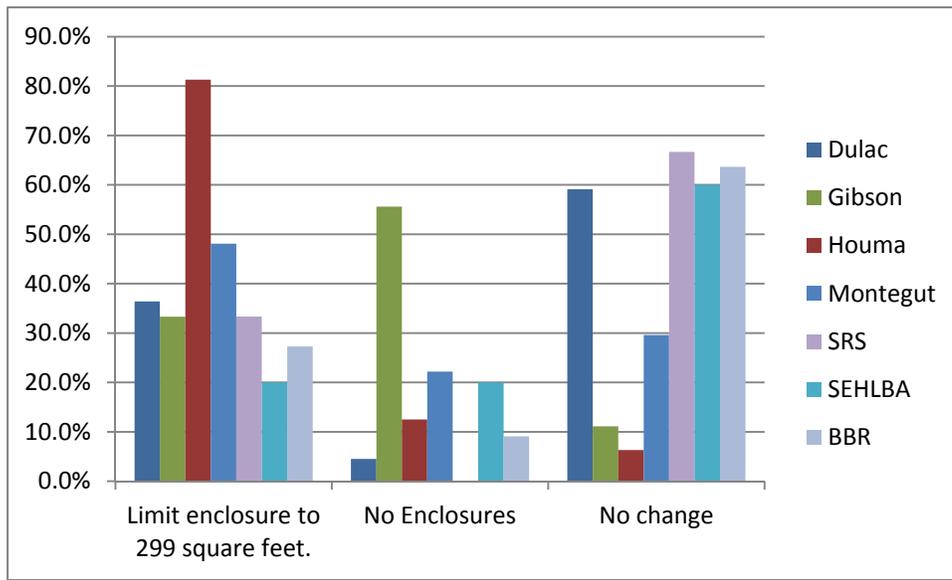
Jennifer C. Gerbasi

8/29/2013

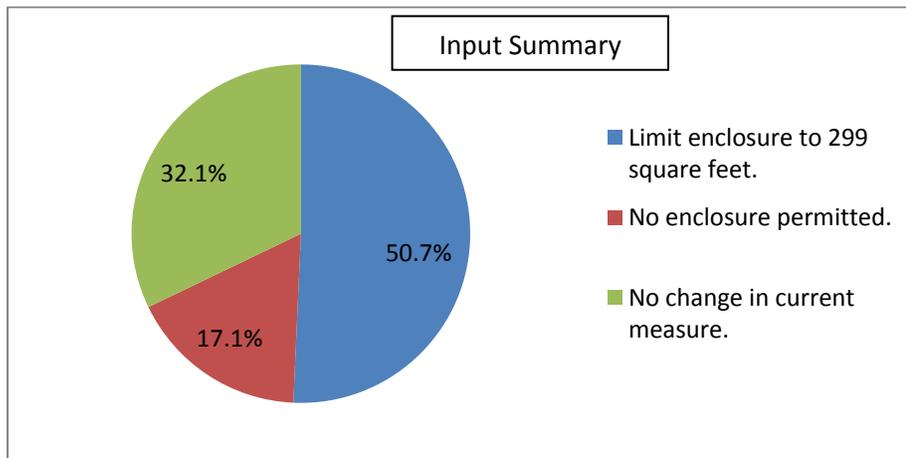
The following is the data gathered from the public and industry meetings after presentations by consultants GCR , Inc. and CSRS, Inc. in July and August of 2013. Written comments have not been included in this data but for “none” when that option was not available. Neither the focus group data nor the website input has been included. The data is provided by individual meeting and in the aggregate. Every effort has been made to have consistency between the survey results and the presentation. Some anomalies may appear due to the changes made to the presentation in response to feedback requesting further clarity or more data.

## Question No. 1- Building Below The House/Enclosure Limits

To what extent should enclosures be limited below the base flood elevation?		
Answer Options	Response Percent	Response Count
Limit enclosure to 299 square feet.	50.7%	71
No enclosure permitted.	17.1%	24
No change in current measure.	32.1%	45
<i>answered question</i>		<b>140</b>
<i>skipped question</i>		<b>5</b>

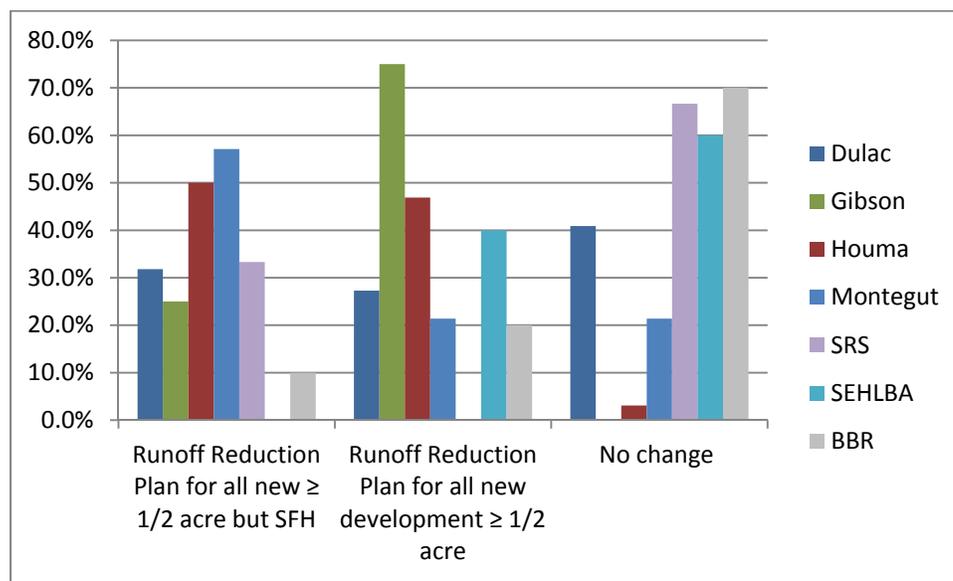


### 1. To what extent should enclosures be limited below the base flood elevation?

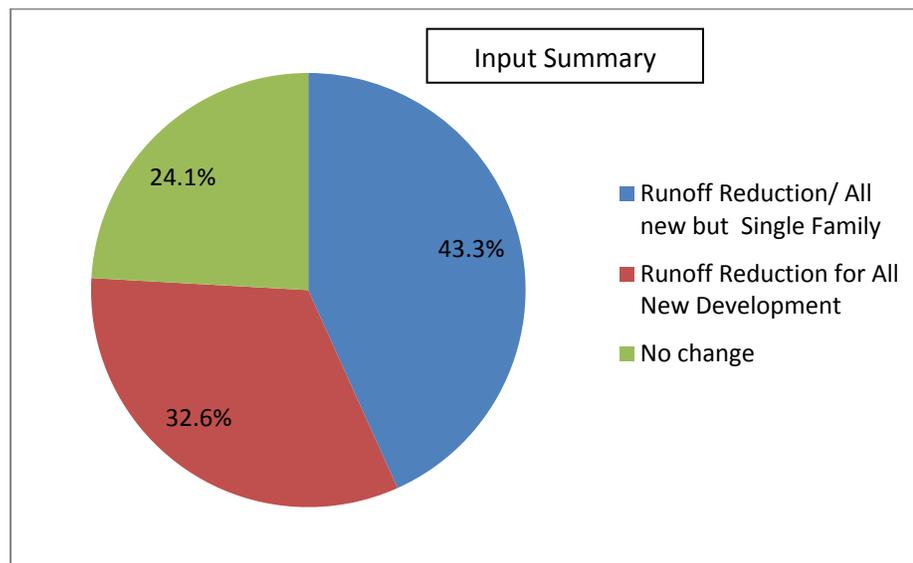


## Question No. 2- Stormwater Reduction

To what extent should new developments be required to prevent and reduce the increase in runoff to provide greater protection for existing buildings and natural space? Please select your answer from the following choices.		
Answer Options	Response Percent	Response Count
Require runoff reduction for all new development 1/2 acre or greater except for single family residences.	43.3%	61
Require runoff reduction for all new development 1/2 acre or greater.	32.6%	46
No change from current measure.	24.1%	34
<i>answered question</i>		<b>141</b>
<i>skipped question</i>		<b>4</b>



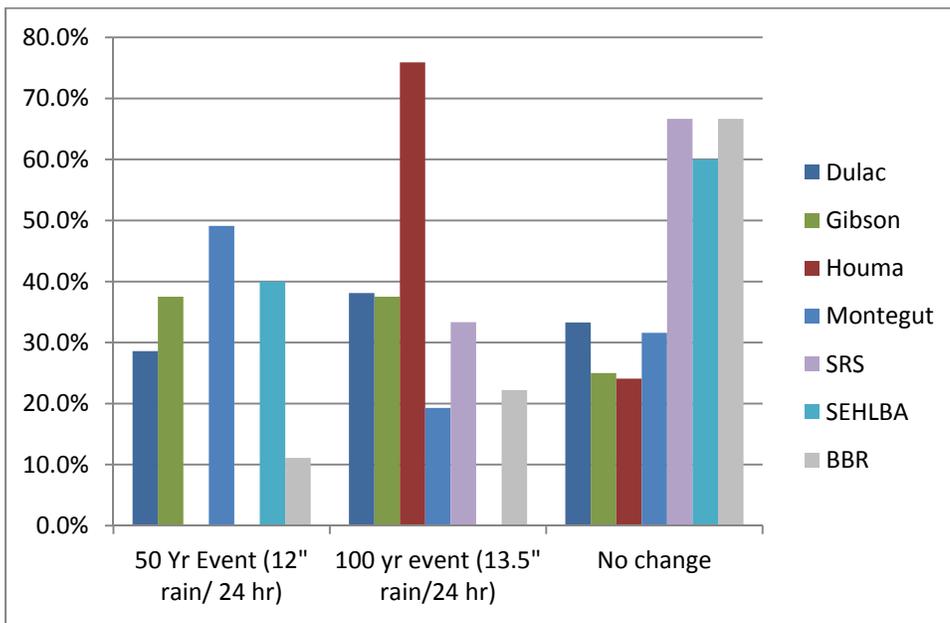
### 2. Requirement for Runoff Reduction Plan



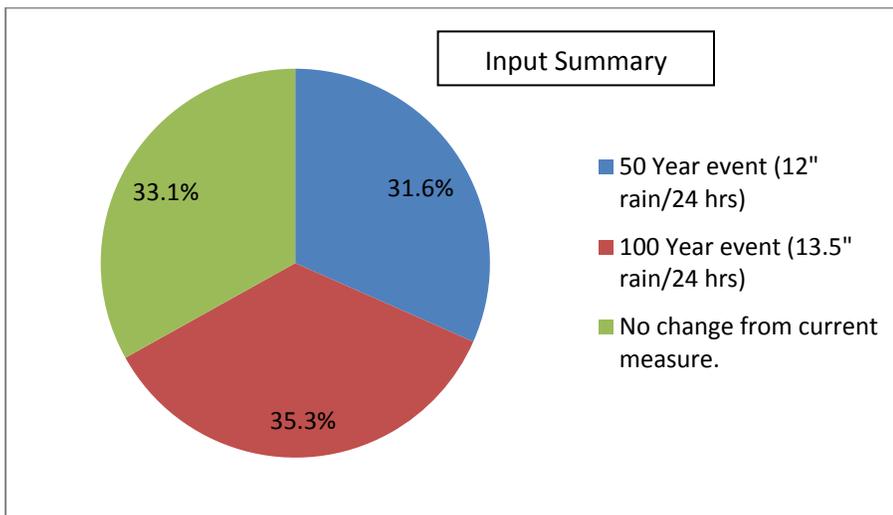
### Question No. 3- Development Design Guidelines

At what storm level should new developments be required to plan to not increase runoff?

Answer Options	Response Percent	Response Count
50 Year event (12" of rain per 24 hour period)	31.6%	43
100 Year event (13.5" of rain per 24 hour period)	35.3%	48
No change from current measure.	33.1%	45
<i>answered question</i>		<b>136</b>
<i>skipped question</i>		<b>9</b>



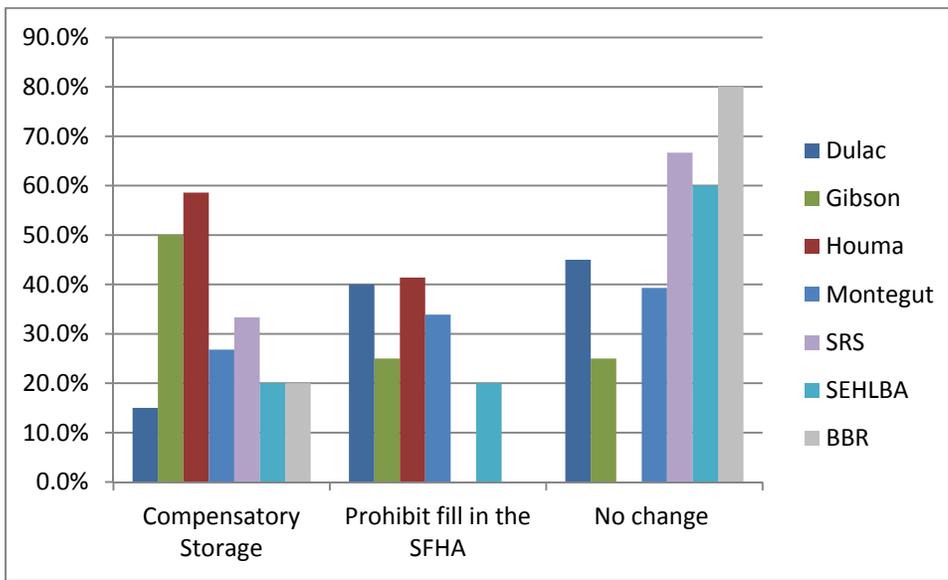
### 3. What storm level should be required for new developments to not increase runoff?



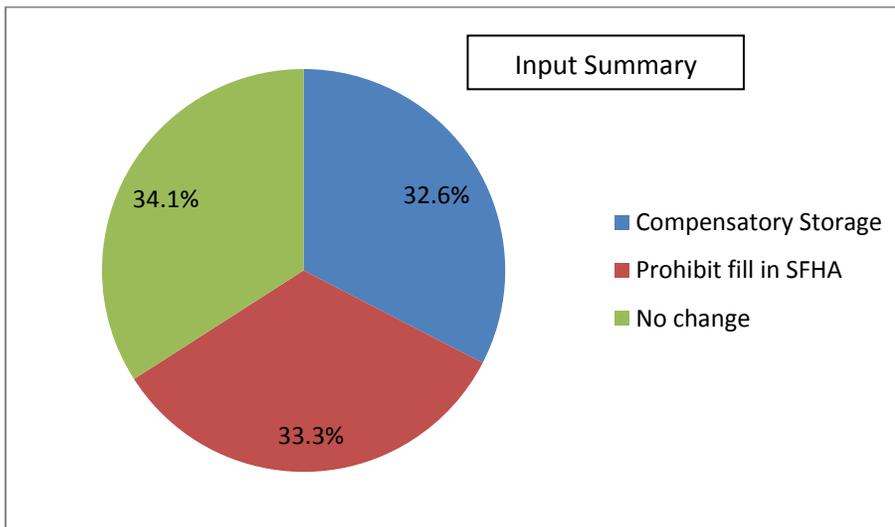
## Question No. 4- Floodplain Fill Restrictions

Which activity would you prefer?

Answer Options	Response Percent	Response Count
For new developments, make a retention pond on the property to hold the extra water that is expected to flow off the property.	32.6%	44
Prohibit fill in the Special Flood Hazard Area.	33.3%	45
No change from current measure.	34.1%	46
<i>answered question</i>		<b>135</b>
<i>skipped question</i>		<b>10</b>

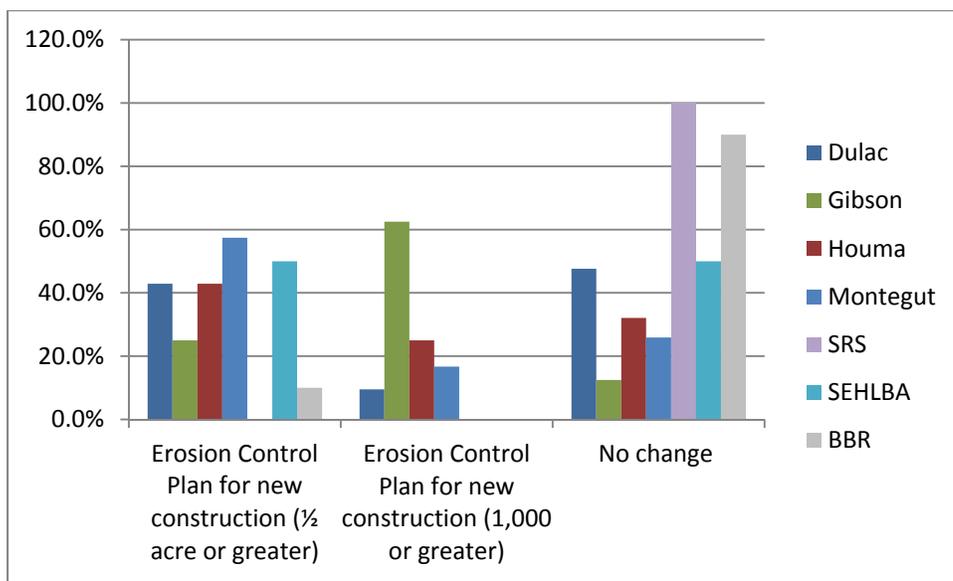


4. Which activity would you prefer to protect property from new flooding caused by fill?

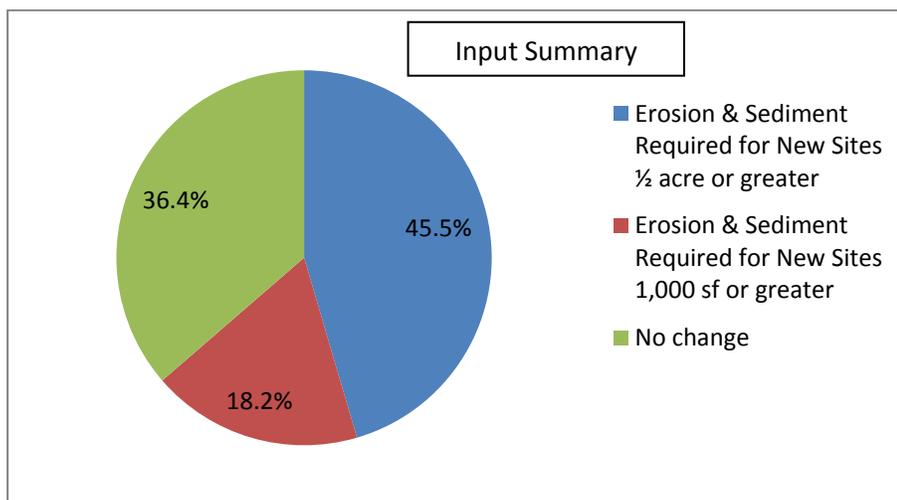


## Question No. 5- Erosion & Sediment Control

Requiring that developments have an erosion and sediment loss prevention plan inside and out of the Special Flood Hazard Area will increase soil stability and water quality. Please select your answer from the following choices.		
Answer Options	Response Percent	Response Count
Require erosion and sediment controls measures for medium construction sites (½ acre or greater).	45.5%	60
Require erosion and sediment controls measures for small construction sites (over 1,000 square feet).	18.2%	24
No change from current measure.	36.4%	48
<i>answered question</i>		<b>132</b>
<i>skipped question</i>		<b>13</b>

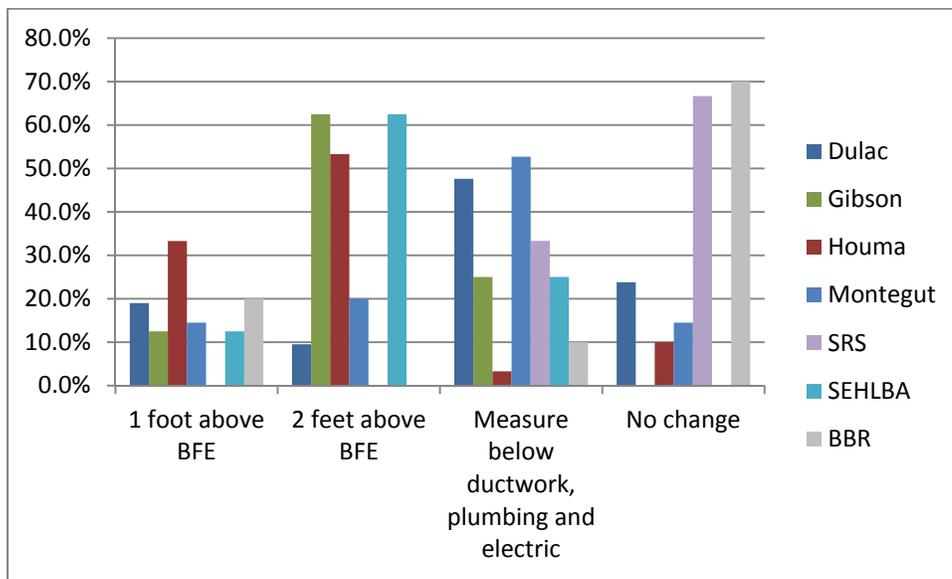


### 5. Size development to requiring an erosion and sediment loss prevention plan parishwide.

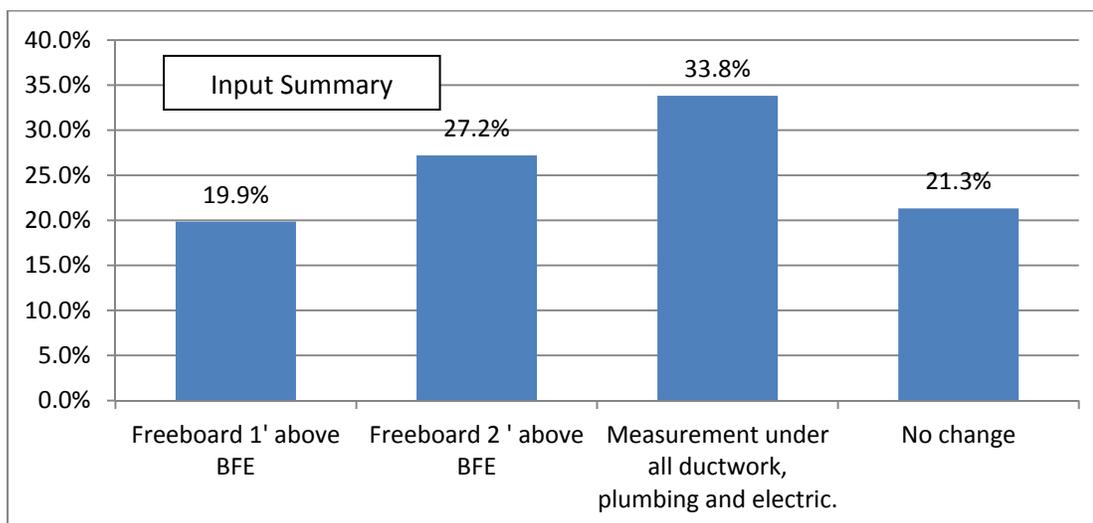


## Question No. 6- Freeboard/Elevation above BFE

Do you agree with requiring additional height above the base flood elevation to provide an extra margin of protection in the event of a flood?		
Answer Options	Response Percent	Response Count
1 foot above BFE	19.9%	27
2 feet above BFE	27.2%	37
Change measurement to require all ductwork, plumbing and electric to be above flood risk level.	33.8%	46
No change from current measure.	21.3%	29
<i>answered question</i>		<b>136</b>
<i>skipped question</i>		<b>9</b>



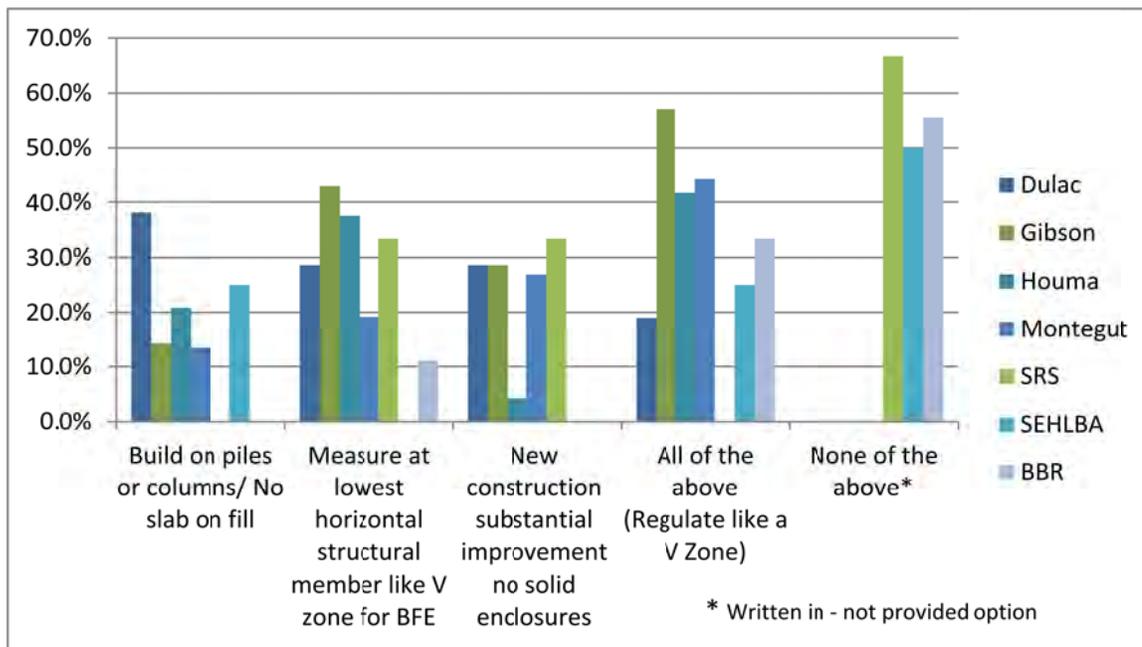
### 6. Do you agree with requiring additional height above the base flood elevation to provide an extra margin of protection in the event of a flood?



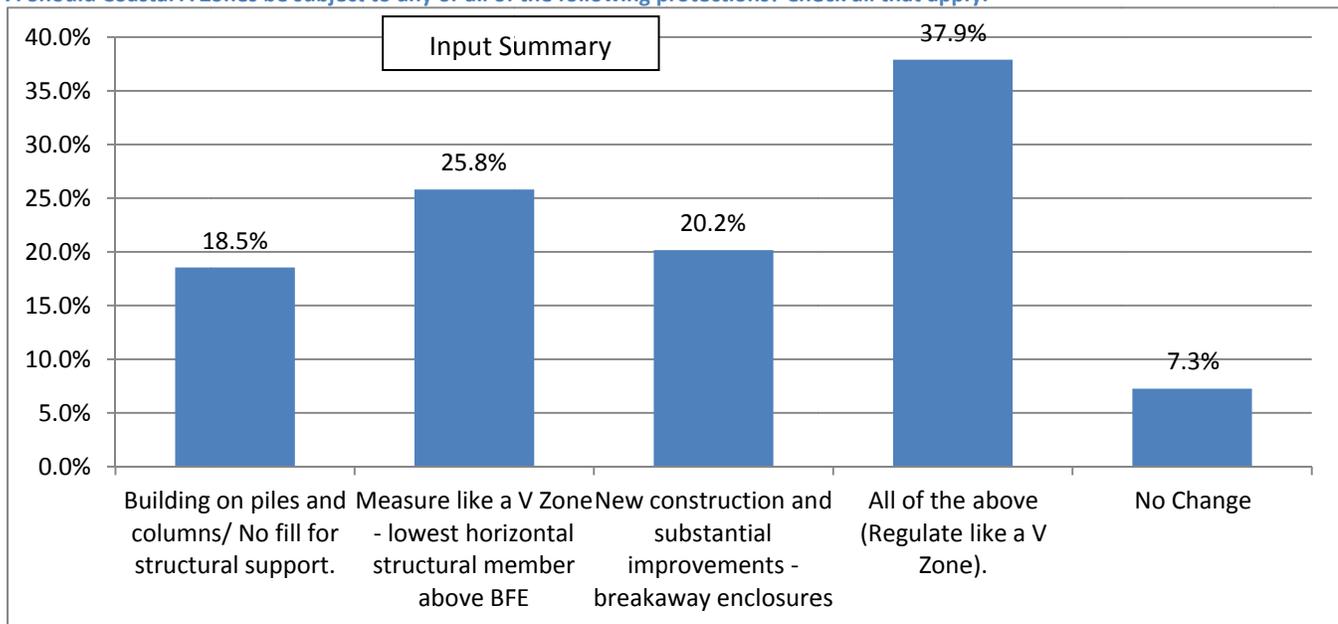
## Question No. 7- Coastal A Zone Protections

Should Coastal A Zones be subject to any or all of the following protections? Check all that apply.

Answer Options	Response Percent	Response Count
Building on piles and columns/ No fill for structural support.	18.5%	23
Measure like a V Zone - lowest horizontal structural member above BFE	25.8%	32
New & substantial improvements - breakaway enclosures	20.2%	45
All of the above (Regulate like a V Zone).	37.9%	47
No Change (written in )	7.3%	9
<i>answered question</i>		<b>124</b>
<i>skipped question</i>		<b>21</b>



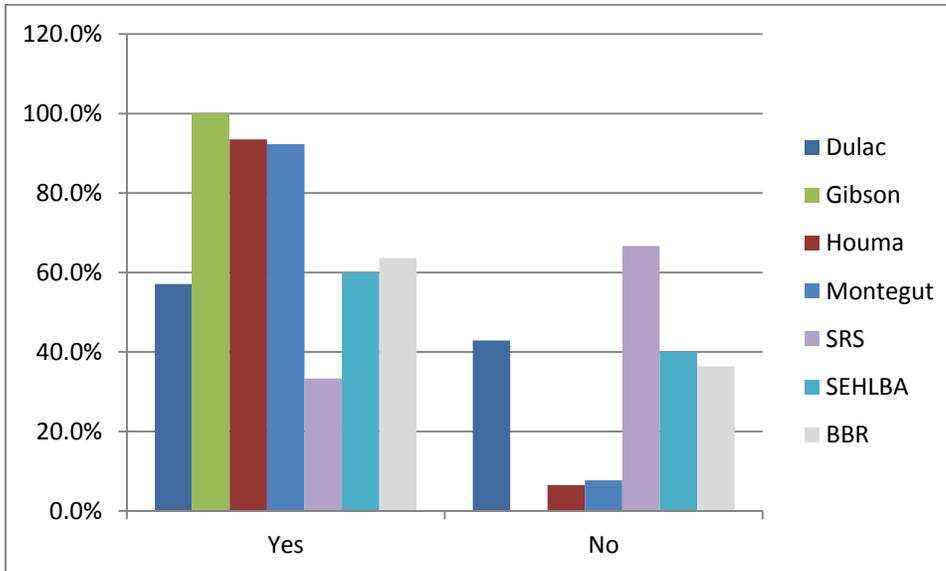
7. Should Coastal A Zones be subject to any or all of the following protections? Check all that apply.



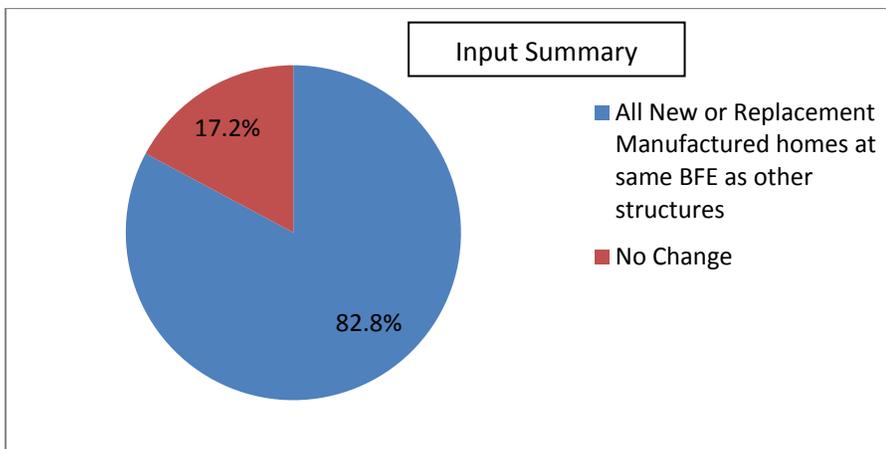
## Question No. 8- Manufactured Home Protections

Do you agree that new and replacement manufactured homes in existing home parks or subdivisions should be properly anchored and elevated above the base flood elevation, including electrical components and ductwork?

Answer Options	Response Percent	Response Count
Yes	82.8%	111
No	17.2%	23
<i>answered question</i>		<b>134</b>
<i>skipped question</i>		<b>11</b>



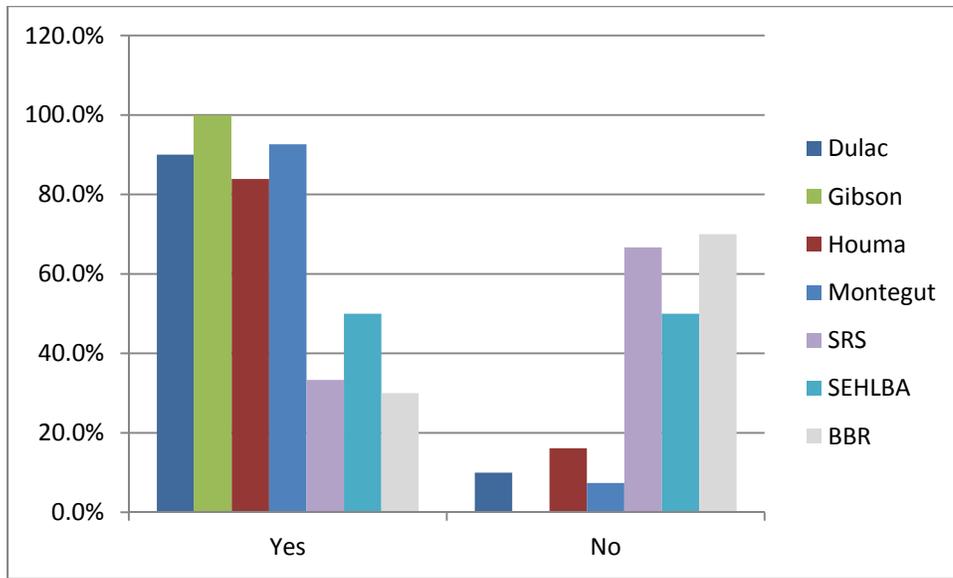
8. Should all new and replacement manufactured homes be elevated above the base flood elevation, including electrical components and ductwork?



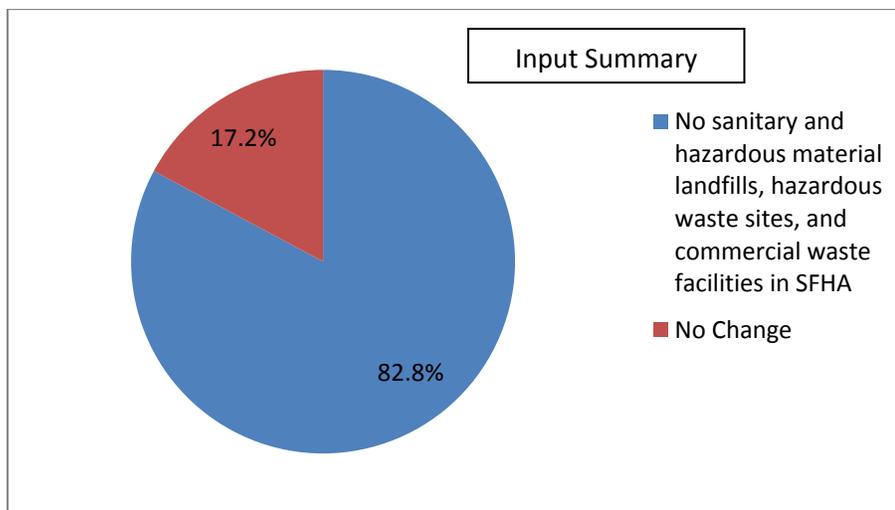
## Question No. 9- Water Quality

Do you agree that all new sanitary and hazardous material landfills, hazardous waste sites, and commercial waste facilities should be prohibited from the Special Flood Hazard Area?

Answer Options	Response Percent	Response Count
Yes	82.8%	111
No	17.2%	23
<i>answered question</i>		<b>134</b>
<i>skipped question</i>		<b>11</b>



9. Do you agree that all new sanitary and hazardous material landfills, hazardous waste sites, and commercial waste facilities should be prohibited from the Special Flood Hazard Area?

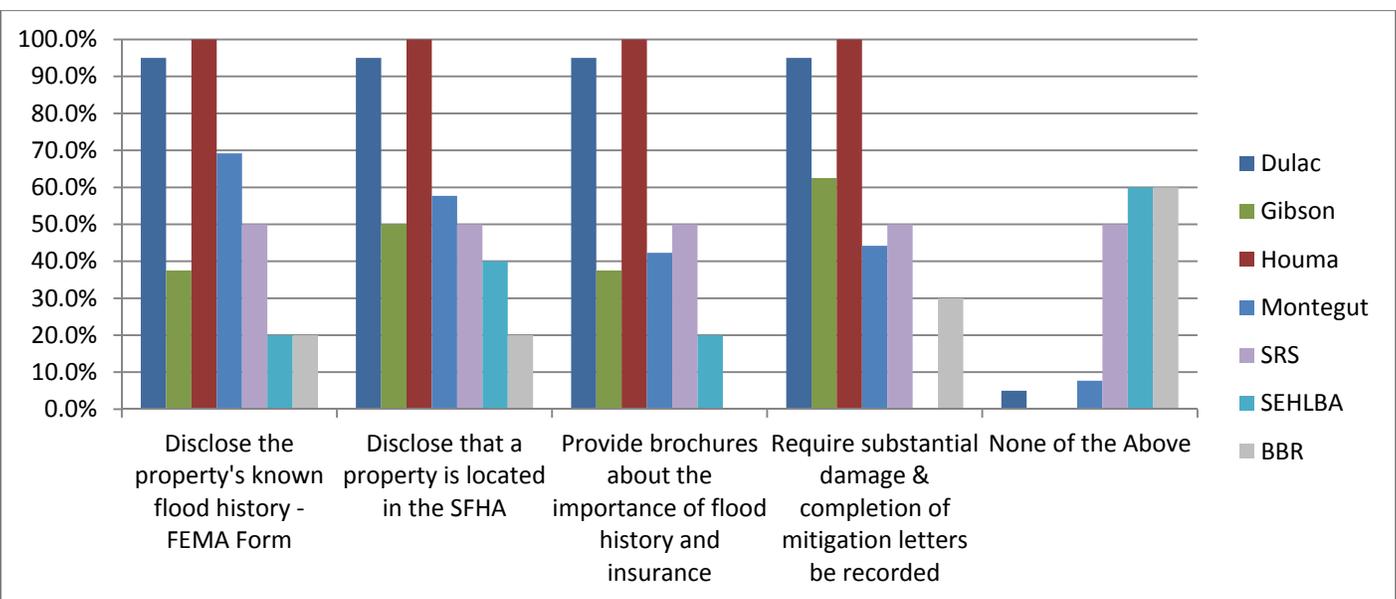


## Question No. 10- Flood History Disclosure

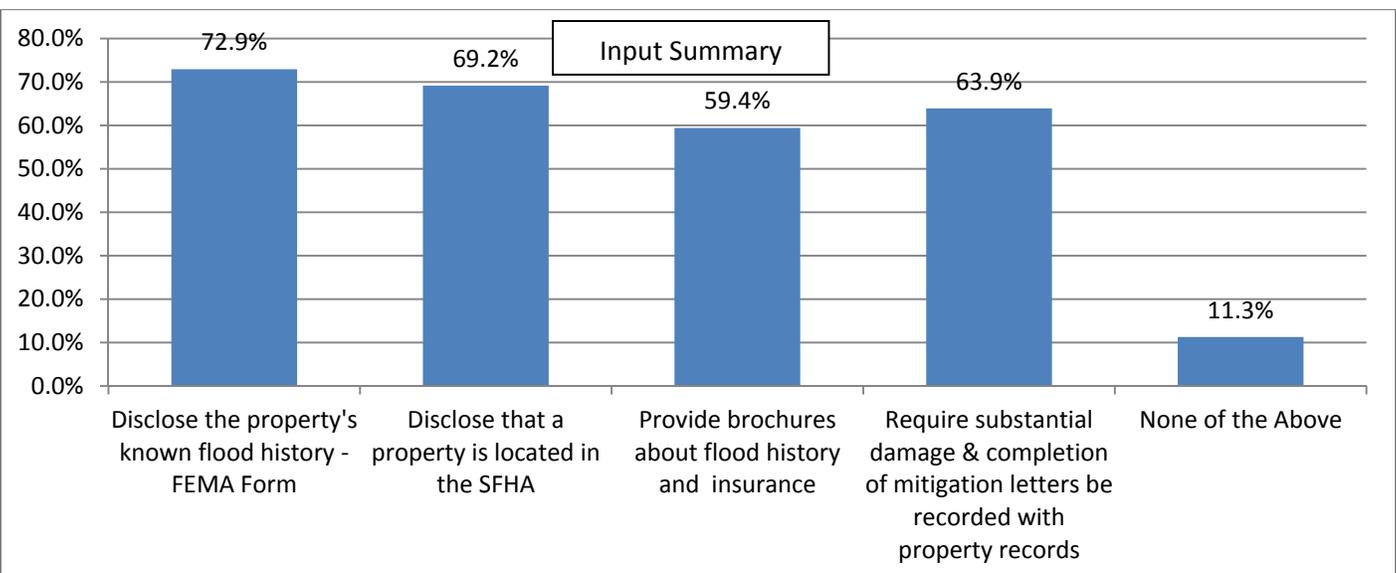
Do you agree with any of the below requirements to allow for enhanced disclosure of flood history for property sales?

Answer Options \* Respondents could make multiple selections.

Answer Options	Response Percent	Response Count
Require real estate agents/sellers to disclose the property's known flood history.	72.9%	97
Require real estate agents/sellers to notify potential buyers that a property is located in the Special Flood Hazard Area.	69.2%	92
Require real estate agents/sellers to provide brochures advising potential buyers to investigate property flood history and associated insurance requirements	59.4%	79
Require substantial damage and completion of mitigation letters be recorded with property records for the title search.	63.9%	85
None of the Above	11.3%	15
<i>answered question</i>		<b>133</b>
<i>skipped question</i>		<b>12</b>



### 10. Require real estate agents/Sellers to:



# Flood Damage Prevention Ordinance Update Proposal

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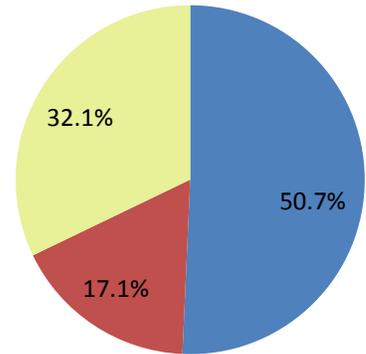
Department of Planning and Zoning

Jennifer C. Gerbasi

9/11/2013

**Question No. 1- Building Below The House/Enclosure Limits**

To what extent should enclosures be limited below the base flood elevation?		
Answer Options	Response Percent	Response Count
Limit enclosure to 299 square feet.	50.7%	71
No enclosure permitted.	17.1%	24
No change in current measure.	32.1%	45
<i>answered question</i>		<b>140</b>
<i>skipped question</i>		<b>5</b>



**At issue:** Noncompliance with current NFIP and Ordinance requirements. Lack of enforcement personnel and random inspections. Lack of understanding of the requirement and ramifications of enclosing under elevated structures.

**Ordinance Language:<sup>1</sup>**

- 1) Include nonconversion agreement with permission to inspect in the permit itself to increase education on the matter and show that someone will be watching (60 pts)
- 2) Require the nonconversion agreement to be filed at the courthouse (5 pts.)
- 3) Limit enclosures to 299 sf for raises over 4 ft from grade (HAG). (100 pts). *Breakaway walls are enclosures. Structures open on one side or lattice/screening are not enclosures.*
- 4) Clearly incorporate enforcement mechanism by reference into the ordinance (refer to building code section regarding removal of noncompliant works).
- 5) Not applicable to detached accessory structures.

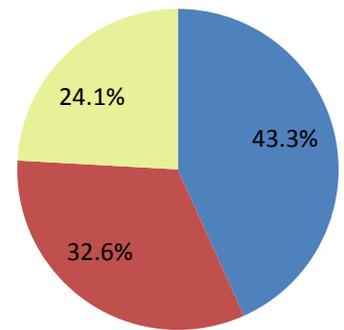
**Maximum Points<sup>2</sup> - CRS Activity. 432 g. 160 342 b6. 5 Current Projected Points: 0**

<sup>1</sup> All ordinance language is rough draft. It may be preferable to combine some of the options in the final text. Some text may be incorporated into other existing ordinances rather than the Flood Damage Prevention Ordinance.

<sup>2</sup> Points are the maximum available for the selected activities. Some are prorated based on the applicable area.

**Question No. 2- Stormwater Reduction -May be achievable with restatement of current ordinance**

To what extent should new developments be required to prevent and reduce the increase in runoff to provide greater protection for existing buildings and natural space? Please select your answer from the following choices.		
Answer Options	Response Percent	Response Count
Require runoff reduction for all new development 1/2 acre or greater except for single family residences.	43.3%	61
Require runoff reduction for all new development 1/2 acre or greater.	32.6%	46
No change from current measure.	24.1%	34
<i>answered question</i>		<b>141</b>
<i>skipped question</i>		<b>4</b>



**At issue:** Perception that new developments other than large developments are increasing flood risk on neighboring properties. In the aggregate, small property redevelopment can cause instability to properties in close proximity. Some of those lots are in areas already challenged by forced drainage issues.

**Ordinance Language:**

- 1) All development required to require the peak runoff from new developments ½ acres or greater or impervious area of 5,000 sf or more to be no greater than the pre-development condition. *Predevelopment will be measured from the condition with the original structure in cases of redevelopment.*

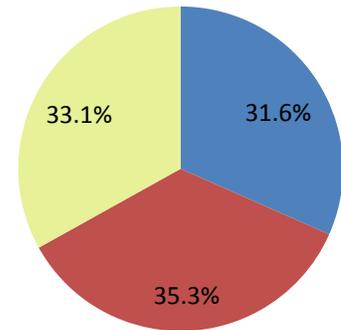
**Maximum Points - 452a1.** 90

**Current Projected Points:** 15

### Question No. 3- Development Design Guidelines

At what storm level should new developments be required to plan to not increase runoff?

Answer Options	Response Percent	Response Count
50 Year event (12" of rain per 24 hour period)	31.6%	43
100 Year event (13.5" of rain per 24 hour period)	35.3%	48
No change from current measure.	33.1%	45
<i>answered question</i>		<b>136</b>
<i>skipped question</i>		<b>9</b>



**At issue:** Increase in storm frequency and severity, rains as well as storms, is increasing the demand to build to a higher standard in SFHA and forced drainage areas. Subdivisions built since Katrina to the 25 year standard are suffering flooding.

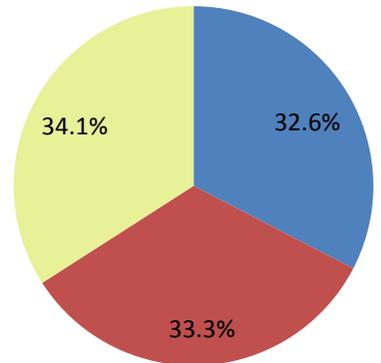
#### Ordinance Language:

- 1) All new development within the Parish shall be designed to prevent any increase in peak flow, velocity, and total runoff volume during a 50-year rainfall event. Prior to development, the developer must submit hydrologic and hydraulic studies showing the nature and extent of runoff under present conditions and with the proposed development for that rainfall event.

**Maximum Points - CRS Activity 452 a2. 54    Current Projected Points: 54 (10 in 2007 manual)**

**Question No. 4- Floodplain Fill Restrictions - Not recommended for broad application.**

Which activity would you prefer to protect property from new flooding caused by fill?		
Answer Options	Response Percent	Response Count
For new developments, make a retention pond on the property to hold the extra water that is expected to flow off the property.	32.6%	44
Prohibit fill in the Special Flood Hazard Area.	33.3%	45
No change from current measure.	34.1%	46
<i>answered question</i>		<b>135</b>
<i>skipped question</i>		<b>10</b>



**At issue:** Fill reduces floodplain storage capacity, and has an adverse impact on native vegetation, wetlands, drainage, and water quality. Also, aesthetic concerns with structures built on mounds in otherwise uniformly graded developments. Fill also encouraged slab on grade construction which is more difficult to mitigate should flood risks change or mitigation be required due to substantial damage. However - applicability to local roads, bridges, and highways and not proposed therefore.

The requirement for a stormwater management plan may dissuade building on fill and slab.

The Parish could require compensatory storage on site for building on slab to discourage the practice.

**Ordinance Language:**

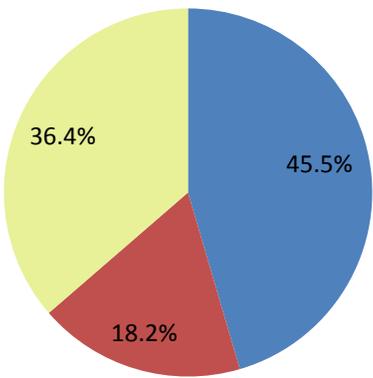
- 1) New developments to provide compensatory storage at hydrologically equivalent level in situ or another hydrologically equivalent site. (130)

**Maximum Points - 432 a1. 130 Current Projected Points: 0**

(Look @ p.430-8 for storage of hazardous materials)

**Question No. 5- Erosion & Sediment Control**

Requiring that developments have an erosion and sediment loss prevention plan inside and out of the Special Flood Hazard Area will increase soil stability and water quality. Please select your answer from the following choices.		
Answer Options	Response Percent	Response Count
Require erosion and sediment controls measures for medium construction sites (½ acre or greater).	45.5%	60
Require erosion and sediment controls measures for small construction sites (over 1,000 square feet).	18.2%	24
No change from current measure.	36.4%	48
<i>answered question</i>		<b>132</b>
<i>skipped question</i>		<b>13</b>



**At issue:** Runoff from grading or construction that removes vegetation or otherwise disturbs the soil leading to runoff on to neighboring properties, into bayous or the storm drain system causing clogging, maintenance costs, and damage to environmental and civic assets. Requiring smaller projects to submit and implement erosion control methods will decrease this issue.

**Ordinance Language:**

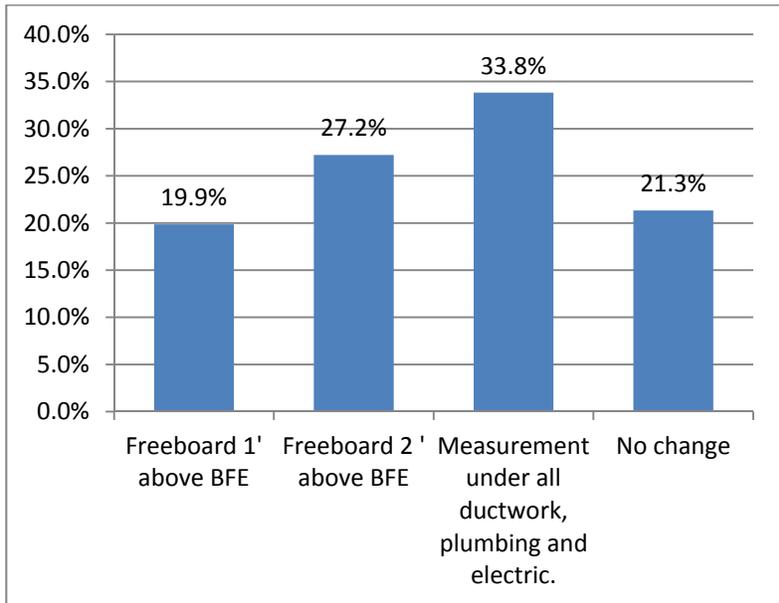
- 1) Prior to any grading or other earthwork that affects a land area ½ acre or greater, the person performing such earthwork shall submit an erosion control plan. The plan shall be designed to prevent sediment from leaving the site during storms up to and including the 100-year storm and recover the ground after construction or other work to prevent or minimize erosion.

**Maximum Points - CRS Activity 452 c1. 40**

**Current Projected Points: 30**

**Question No. 6- Freeboard/Elevation above BFE**

Do you agree with requiring additional height above the base flood elevation to provide an extra margin of protection in the event of a flood?		
Answer Options	Response Percent	Response Count
1 foot above BFE	19.9%	27
2 feet above BFE	27.2%	37
Change measurement to require all ductwork, plumbing and electric to be above flood risk level.	33.8%	46
No change from current measure.	21.3%	29
<i>answered question</i>		<b>136</b>
<i>skipped question</i>		<b>9</b>



**At issue:** Freeboard adds height above the base flood elevation to provide an extra margin of protection to account for waves, debris, miscalculations, lack of data, or the ever changing regulations that do not recognize compliance at the time of construction. In addition, individuals can benefit directly from up to 62% off flood insurance rates. Current measurement allows some plumbing, insulation, and electric to be below the base flood elevation due to measurement at the top of the bottom floor.

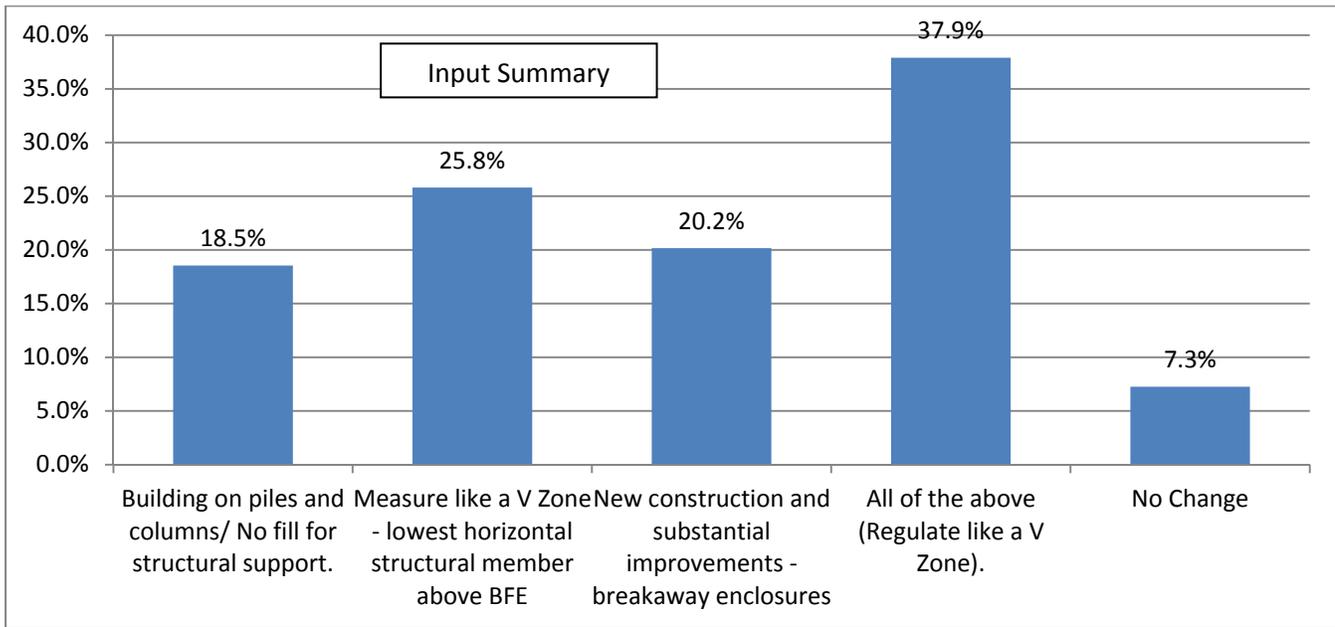
**Ordinance Language:**

- 1) New residential buildings and substantial improvements must elevate the structure ~~two~~ one ~~feet~~ foot higher than the base flood elevation and measured at the lowest horizontal cross member. (225 100) Industrial structures may floodproof rather than elevate if necessary due to the nature of the business.

**Maximum Points - CRS Activity 432 b. 100      Current Projected Points: 60**

**Question No. 7- Coastal A Zone Protections - (No change until Coastal A Zone mapped)**

Should Coastal A Zones be subject to any or all of the following protections? Check all that apply.		
Answer Options	Response Percent	Response Count
Building on piles and columns/ No fill for structural support.	18.5%	23
Measure like a V Zone - lowest horizontal structural member above BFE	25.8%	32
New & substantial improvements - breakaway enclosures	20.2%	45
All of the above (Regulate like a V Zone).	37.9%	47
No Change (written in )	7.3%	9
<i>answered question</i>		<b>124</b>
<i>skipped question</i>		<b>21</b>



**At issue:** The Coastal A Zone is the portion of the SFHA that is expected to experience wave action from 1.5-2.99 ft. The recommendation from CRS is to regulate in some fashion like the V Zone to protect infrastructure and other assets from this limited moderate wave action.

**Ordinance Language:**

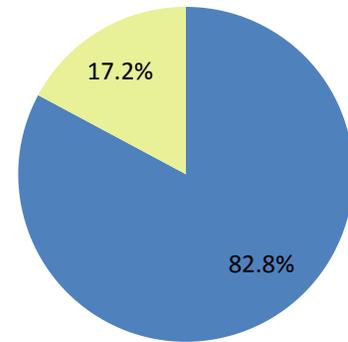
- 1) Regulate like a v zone (225 pts)
- 2) The bottom of the lowest horizontal structural member and the electrical and mechanical equipment servicing the building must be elevated above the base flood elevation. (100 pts)
- 3) A registered professional engineer or architect must develop or review the structural design, specifications, and plans and certify that the designs and methods of construction to be used meet accepted standards of practice for meeting the provisions of 44 CFR §60.3(e)(4)(iii) and breakaway walls (§60.3(e)(5)). (125 pts)
- 4) Enclosures limited to 299sf. (50)

**Maximum Points - CRS Activity 432 k. 400      Current Projected Points: 0**

## Question No. 8- Manufactured Home Protections

Do you agree that new and replacement manufactured homes in existing home parks or subdivisions should be properly anchored and elevated above the base flood elevation, including electrical components and ductwork?

Answer Options	Response Percent	Response Count
Yes	82.8%	111
No	17.2%	23
<i>answered question</i>		<b>134</b>
<i>skipped question</i>		<b>11</b>



**At issue:** Manufactured homes in parks developed prior to 1974 that haven't flooded are not required to elevate to the base flood elevation. The ordinance would be written to state that flood compliance is required for all structures including manufactured homes.

**Ordinance Language:** Manufactured homes will be required to be elevated above the base flood elevation, including electrical components, ductwork, and the bottom of the chassis.

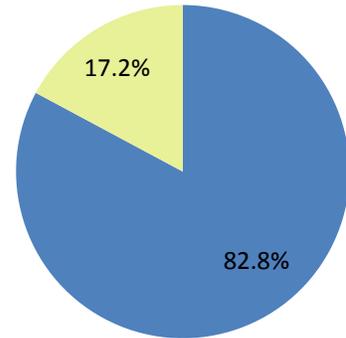
**Maximum Points - CRS Activity 432.j** 15

**Current Projected Points:** 0

**Question No. 9- Water Quality**

Do you agree that all new sanitary and hazardous material landfills, hazardous waste sites, and commercial waste facilities should be prohibited from the Special Flood Hazard Area?

Answer Options	Response Percent	Response Count
Yes	82.8%	111
No	17.2%	23
<i>answered question</i>		134
<i>skipped question</i>		11



**At issue:** Protecting waterways, drinking water, public health and the environment from hazardous waste that could be dispersed by floodwaters during an event.

**Ordinance Language:**

No new sanitary landfills or hazardous material landfills, hazardous waste sites, and commercial waste facilities will be permitted in the special flood hazard area.

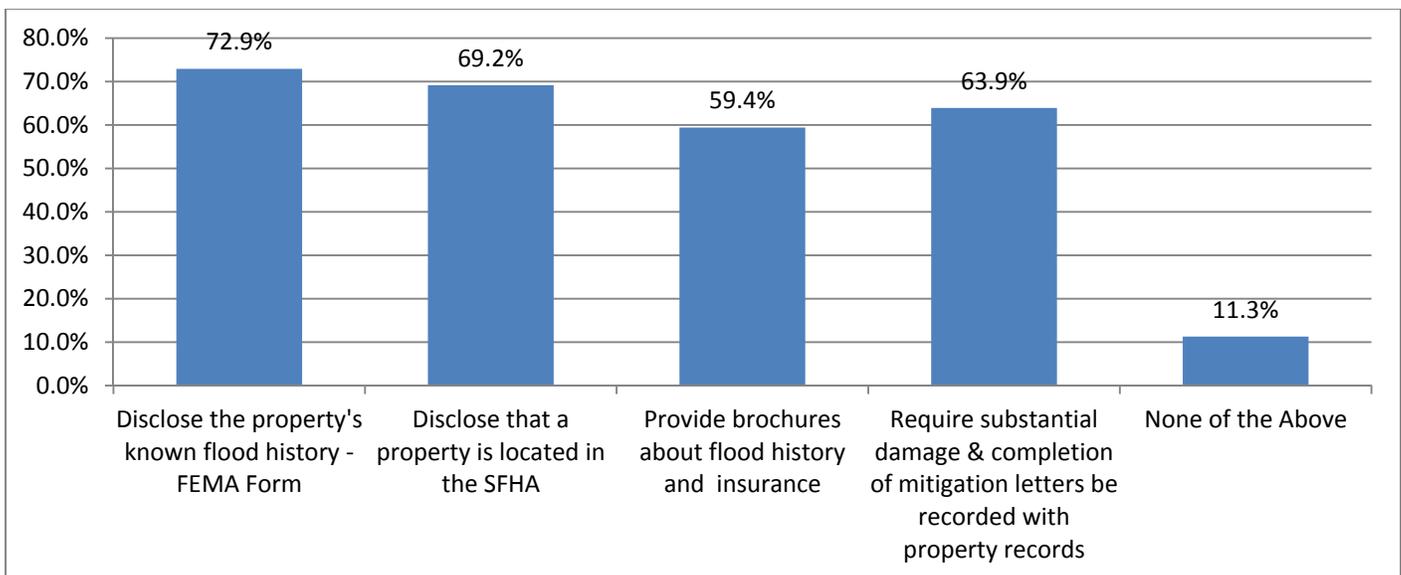
**Maximum Points - CRS Activity 452 d. 15      Current Projected Points: 0**

## Question No. 10- Flood History Disclosure

Do you agree with any of the below requirements to allow for enhanced disclosure of flood history for property sales?

Answer Options * Respondents could make multiple selections.	Response Percent	Response Count
Require real estate agents/sellers to disclose the property's known flood history.	72.9%	97
Require real estate agents/sellers to notify potential buyers that a property is located in the Special Flood Hazard Area.	69.2%	92
Require real estate agents/sellers to provide brochures advising potential buyers to investigate property flood history and associated insurance requirements	59.4%	79
Require substantial damage and completion of mitigation letters be recorded with property records for the title search.	63.9%	85
None of the Above	11.3%	15
<i>answered question</i>		<b>133</b>
<i>skipped question</i>		<b>12</b>

### 1. Require real estate agents/Sellers to:



**At issue:** To disclose the potential flood hazard of a property to prospective buyers before the lender notifies them of the need for flood insurance.

### Ordinance Language:

- 1) Require seller to provide insurance or FEMA history of property (5).
- 2) All sellers disclose if property is in the SFHA (5) & requires flood insurance for a mortgage (35)
- 3) Real estate agents will provide brochures about flood history (12)
- 4) Record flood zone on plats and permit or title restrictions in court house (5)
- 5) Record subdivision plats to display the flood hazard area (5)
- 6) Seller must advise if the structure is in the V Zone or Coastal A Zone. (8)

**Maximum Points - CRS Activity 340. 75**

**Current Projected Points: 10**

## Summary of Community Rating System Points

### CRS Review Projection Comparison of Current Manual v. 2013 Manual

	c340	c430	c450	Total
Current	13	241	144	398
Projected	10	217	83	311
Difference	3	-23	-61	-81

### CRS Recommendation Additional Points

1	432 g	Enclosures	160		
2	452 a1	Stormwater Plans		75	
3	452 a2	Design Storm		0	
4	432a	Fill Restrictions	130		
5	452 c1	Erosion Control Plans		10	
6	432 b	Freeboard	165		
7	432 k	Coastal A Zone**	400		
8	432 j	Manufactured Home BFE	15		
9	452 d	Water Quality		15	
10	340	Disclosure Requirements	70		
<b>New Points</b>			70	870	100
<b>Maximum Net Gain</b>					<b>959</b>
<b>Planning Proposal*</b>			70	740	100
					<b>829</b>

\* Eliminating numbers in gray from the totals - not proposed.

\*\* Can't be implemented until map development complete.



**Attachment c3-3**  
**Repetitive Loss Structure Study – Roberta Grove and Senator Circle**

*The Roberta Grove – Senator Circle Repetitive Loss Area Analysis is presented on the following sixty one pages.*

# Roberta Grove – Senator Circle

## Repetitive Loss Area Analysis

### Houma, LA

June 25<sup>th</sup>, 2013



The University of New Orleans

Center for Hazards Assessment, Response and Technology

(UNO-CHART)

[www.floodhelp.uno.edu](http://www.floodhelp.uno.edu)



University of New Orleans

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## Terminology

**Area Analysis:** An approach to identify repeatedly flooded areas, evaluate mitigation approaches, and determine the most appropriate alternatives to reduce future repeated flood losses.

**1% chance flood:** The flood having a 1% chance of being equaled or exceeded in any given year, is known as the “100-year” or “1% chance” flood

**100-year flood:** The flood that has one percent (1%) chance of being equaled or exceeded each year.

**Base Flood:** The base flood is a statistical concept used to ensure that all properties subject to the National Flood Insurance Program are protected to the same degree (“1% chance” or “100-year”) against flooding.

**BFE:** Base Flood Elevation: The elevation of the crest of the base flood or 100-year flood.

**FEMA:** Federal Emergency Management Agency

**FIRM:** Flood Insurance Rate Map

**Floodway:** The channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1-percent annual chance flood can be carried without substantial increases in flood heights.

**Freeboard:** A factor of safety usually expressed in feet above the Base Flood Elevation (BFE) for purposes of floodplain management.

**GIS:** Geographic Information Systems; integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information in the form of maps, globes, reports, and charts.

**Hazard Mitigation:** Any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event.

**ICC:** Increased Cost of Compliance, a \$30,000 rider on flood insurance policies for policy holders located in the special flood hazard area that can be used to bring the structure into compliance in the event that it is substantially damaged by a flood.

**NFIP:** National Flood Insurance Program

**Repetitive Loss property (RL):** An NFIP-insured property where two or more claim payments of more than \$1,000 have been paid within a 10-year period since 1978.

**Severe Repetitive Loss Property (SRL):** A 1-4 family residence that is a repetitive loss property that has had four or more claims of more than \$5,000 or two claims that cumulatively exceed the reported building’s value.

**Substantial Improvement:** The repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure either, (1) before the improvement or repair is started, or (2) if the structure has been damaged and is being restored, before the damage occurred.

**UNO-CHART:** The University of New Orleans - Center for Hazards Assessment, Response and Technology.

**Acknowledgements:**

The compilation of this report was managed by Erin P Merrick, CFM, a CHART Research Associate, and Nandini Seth, a Master's Candidate in Urban & Regional Planning at The University of New Orleans. Contributing to this report were French & Associates; FEMA Region VI; Solutient; Monica Farris, Director, UNO-CHART; Pat Gordon, Director, Planning and Zoning; Geoffrey Large MDipMS, CBO, CHCO, CCI, CSI, Assistant Director, Planning and Zoning; Lisa Ledet, CFM, Permits Specialist; Jennifer Gerbasi, CFM, Recovery Planner; Linda Henderson, Community Problem Solver; Duffy Duplantis, GIS Manager, Terrebonne Parish; Wayne Thibodeaux, Executive Director, Houma-Terrebonne Housing Authority; Jan Yakupzack, PHM, Assistant Executive Director, Houma-Terrebonne Housing Authority; Mary Aucoin, Roberta Grove Neighborhood Watch Association; LSU Sea Grant; and the residents of both Roberta Grove and Senator Circle.

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## Roberta Grove – Senator Circle Repetitive Loss Area Analysis Executive Summary

### Background

The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA) and is continually faced with the task of paying claims while trying to keep the price of flood insurance at an affordable level. It has a particular problem with repetitive and severe repetitive flood loss properties, which are estimated to have cost \$13 billion nationwide and \$3 billion in Louisiana alone<sup>1</sup> since 1978. Repetitive flood loss properties represent only 1.3% of all flood insurance policies, yet historically they have accounted for nearly one-fourth of the claim payments. Mitigating these repeatedly flooded properties will reduce the overall costs to the NFIP, the communities in which they are located, and the individual homeowners. Ultimately, mitigating repeatedly flooded properties benefits everyone.

### Study Area

The study area is comprised of two separate neighborhoods; the Senator Circle and Roberta Grove neighborhoods, both located in the city of Houma. The Roberta Grove neighborhood is bounded to the north by Bayou Terrebonne and East Main Street, to the south by Bayou Chauvin, to the southwest by Senator Circle, and to the East by North Boundary Court. There are 103 buildings located in the Roberta Grove area. Of the 103 residential buildings, 62 (60.19 %) are on FEMA's repetitive loss list, and six (5.82%) of those are considered to be a severe repetitive loss property. The Senator Circle neighborhood in Houma is a public-housing complex. There are 197 units<sup>2</sup> in the circle, of which 50 (25.38 %) are on FEMA's repetitive loss list and none are considered to be severe repetitive loss properties.

### Problem Statement

The following bullets summarize the repetitive flooding problems in the areas:

- ❖ Structures in both neighborhoods of the study area fall within a high-risk AE Special Flood Hazard Area;
- ❖ Flooding is caused by heavy rains, storm surge, and backwater flooding, and further aggravated by two problems:
  - Bayou Chauvin's limited capacity to carry water out of the areas due to being undersized, clogged with debris, and shallowness in some areas; and
  - Bayou Terrebonne overflowing into the study areas.
- ❖ The East Houma Surge Levee should add a level of protection from surge waters being funneled up from Lake Boudreaux;
- ❖ There are 300 homes and apartments subject to flooding. 112 of the insured properties have been flooded to the extent that they qualify as repetitive loss structures under the NFIP; six of which are severe repetitive loss properties.
- ❖ These 112 repetitive loss properties have made 270 flood insurance claims for a total of **\$8,770,921.35** since 1978.
- ❖ There is an additional **\$6,417,450.00** in *all flood insurance claims* (Roberta Grove- Senator Circle study area), of which, some properties meet the repetitive flood loss criteria, but are not on FEMA's repetitive loss list. This is problematic because:
  - It further clouds the true extent of the flooding issues in the areas;

---

<sup>1</sup> As of December 2012; FEMA, since 1978 when records began.

<sup>2</sup> Each building has at least one unit; most buildings are duplex units.

- Some of the repetitive loss properties in both areas may actually be severe repetitive loss (SRL) properties;
- Being designated as a SRL property triggers a certain mitigation funding mechanism only available to SRL properties.

#### **Recommendations for Terrebonne Parish**

- Adopt this Area Analysis according to the process detailed in the 2013 CRS Coordinator's Manual.
- Encourage the owner of repetitive flood loss structures to pursue mitigation measures.
- Continue to assist interested property owners in applying for mitigation grants.
- Improve the drainage out of Bayou Chauvin.
- Institute a ditch maintenance program that encourages homeowners to frequently clear their ditches of debris to ensure open flow for stormwater.
- Assist the Houma-Terrebonne Housing Authority in mitigating the Senator Circle properties.
- Continue to participate in Community Rating System (CRS) and increase the Parish's Class.
- Continue the CRS credited public information activities, such as outreach projects, website, and flood protection assistance, that help residents learn about and implement retrofitting measures.
- As the floodplain management ordinance is being revised, include provisions to provide higher flood protection levels and measures to trigger substantial improvements determinations after repetitive flooding.

#### **Recommendations for the Houma-Terrebonne Housing Authority**

- Make sure residents in Senator Circle are aware of the flood threat and what they can do to protect their belongings.
- Make sure residents in Senator Circle are aware of the availability of flood insurance for rental property.
- Review the ability of residents in Senator Circle to make structural changes to their apartments for flood protection purposes.
- Work with the Parish to identify structures eligible for mitigation.

#### **Recommendations for the residents of Roberta Grove and Senator Circle**

- Review the mitigation measures listed in this report and implement those that are appropriate.
- Stay up to date with what Terrebonne Parish is doing in regards to flood protection, available online at: [www.tpcg.org](http://www.tpcg.org).
- Purchase or maintain flood insurance policies on the home (if a homeowner) and/or on the contents (homeowner and renters).
- Read through the LSU Homeowner's Handbook to Prepare for Natural Hazards for more information on appropriate mitigation measures, available online at: [www.lsu.edu/sglegal/pubs/handbook.htm](http://www.lsu.edu/sglegal/pubs/handbook.htm).
- Keep informed about the changes being made to the NFIP by the implementation of the Biggert-Waters Flood Insurance Reform and Modernization Act of 2012, available online at: [www.fema.gov/BW12](http://www.fema.gov/BW12) or [www.floodsmart.gov](http://www.floodsmart.gov).

## Introduction

Flooding is a problem far too familiar to many people across the United States. Enduring the consequences of flooding over and over again can be quite frustrating. When the water rises, life is disrupted, belongings are ruined, and hard-earned money is spent.

This report has been created in collaboration with the Terrebonne Parish Consolidated Government and the residents in the Roberta Grove and Senator Circle neighborhoods that have repetitively flooded areas and who continually suffer the personal losses and stresses associated with living in a flood-prone house.

The goal is to help homeowners reduce their flood risk by providing a broader understanding of the flooding problems in their neighborhood, and the potential solutions to the continual suffering that results from repetitive flooding. The availability of possible funding sources for certain mitigation options is also discussed.

In this repetitive loss area analysis, flooding issues and potential mitigation measures are discussed for homes and apartments located in the Roberta Grove and Senator Circle neighborhoods. While the homes and apartments in this study are representative of other homes throughout the city of Houma, not all the mitigation measures reviewed in this report are appropriate for all homes in the study area.

There are many stresses associated with repetitive flooding including worry about how high the water may rise, the loss of personal belongings, the possibility of mold, and whether or not neighbors will return after the next event. Adding to this worry is the uncertainty related to the potential solutions:

- Should I elevate and, if so, how high?
- How much a mitigation project will cost?
- What will my neighborhood look like if I am the only one to mitigate, or the only one *not* to mitigate?
- Is there a solution that might work for the entire neighborhood?

These questions are common, and this report attempts to answer them according to the specific situation faced by residents in the Roberta Grove and Senator Circle neighborhoods. Informed residents can become even stronger advocates for policy change at the neighborhood, city, parish, state and even federal levels. Overall, it is hoped that by gaining a better understanding of the flooding issues, neighborhoods can become safer and homeowners will be better able to confront the hazard of flooding

### **Repetitive Loss Area**

**Analysis (RLAA):** An approach that identifies repetitive loss areas, evaluates mitigation approaches, and determines the most appropriate alternatives to reduce future losses.

**Mitigation:** Any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event (floods, fires, earthquakes, etc.).

### **Repetitive Loss property**

**(RL):** An NFIP-insured property where two or more claim payments of more than \$1,000 have been paid within a 10-year period since 1978.

### **Severe Repetitive Loss**

**Property (SRL):** A 1-4 family residence that is a repetitive loss property that has had four or more claims of more than \$5,000 or two claims that cumulatively exceed the reported building's value.

## Background

The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA) and is continually faced with the task of paying claims while trying to keep the price of flood insurance at an affordable level.

It has a particular problem with repetitive and severe repetitive flood loss properties, which are estimated to have cost \$13 billion nationwide and \$3 billion in Louisiana alone<sup>3</sup> since 1978.

Repetitive flood loss properties represent only 1.3% of all flood insurance policies, yet historically they have accounted for nearly one-fourth of the claim payments. Mitigating these repeatedly flooded properties will reduce the overall costs to the NFIP, the communities in which they are located, and the individual homeowners. Ultimately, mitigating repeatedly flooded properties benefits everyone.

The University of New Orleans' Center for Hazards Assessment, Response and Technology (UNO-CHART) receives funding from FEMA to collate data and analyze the repetitive flood loss areas in Louisiana in partnership with local governments, elected officials, residents, and neighborhood associations. Using a Geographic Information System (GIS) and geo-coded flood insurance claims data, repeatedly flooded areas and properties are being prioritized for attention and analysis. In selected locations, UNO-CHART works with local officials and residents to conduct in-depth analyses of the causes and possible solutions to the flooding problem. These efforts are called "Repetitive Loss Area Analyses".

UNO-CHART conducted a repetitive loss area analysis case study in Houma, La. An area analysis follows FEMA guidelines to determine why an area has repeated flood losses and what alternative flood protection measures would help break the cycle of repetitive flooding.

Repetitive Loss Area Analyses are encouraged by and credited under the Community Rating System (CRS), as explained on page 33. Terrebonne Parish participates in the CRS and can receive the credit if this document is adopted and implemented.

## The Area

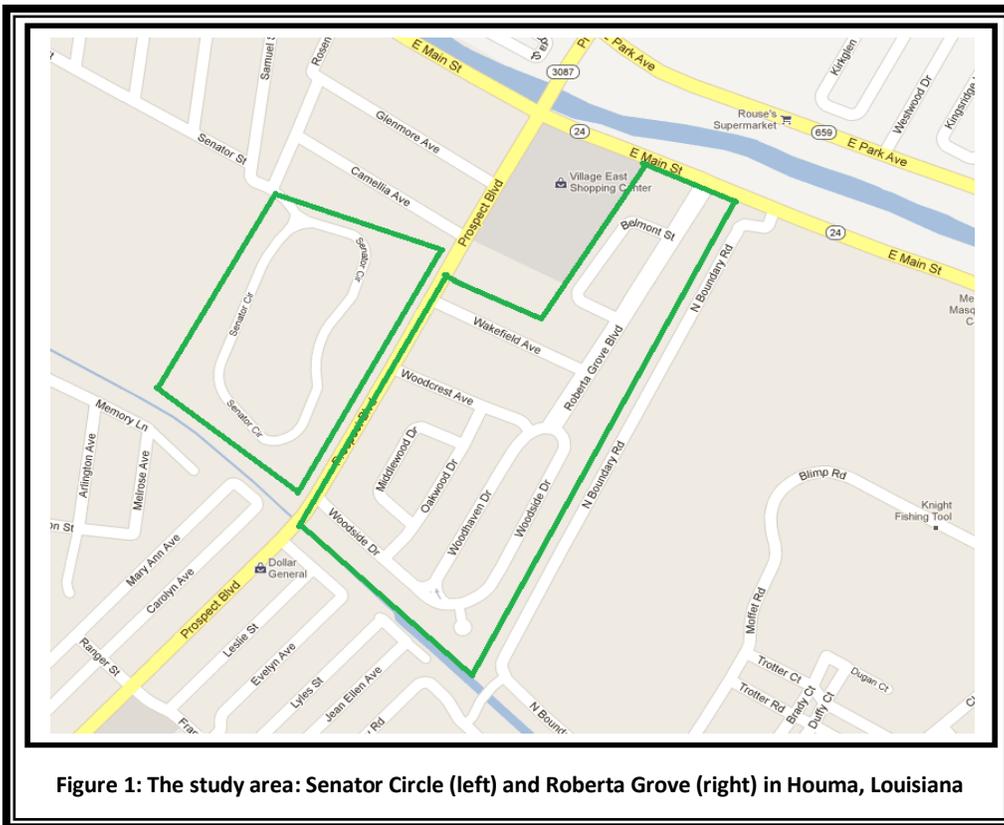
The study area is comprised of the Senator Circle and Roberta Grove neighborhoods, both located in the city of Houma. The Roberta Grove neighborhood is bounded to the north by Bayou Terrebonne and East Main Street, to the south by Bayou Chauvin, to the southwest by Senator Circle, and to the east by North Boundary Court.

There are 103 buildings located in the Roberta Grove area. The area is low lying and predominantly residential. However, there are commercial properties to the north along East Main Street. Of the 103 residential buildings, 62 (60.19 %) are on FEMA's repetitive loss list, and six (5.82%) are considered to be severe repetitive loss properties. The Senator Circle neighborhood in Houma is a public-housing complex. It is bounded to the north by Camellia Avenue, to the south by Bayou Chauvin, and to the east by Prospect Boulevard. There are 197 units<sup>4</sup> in the circle, of which 50 (25.38 %) are on FEMA's repetitive loss list and none are considered to be severe repetitive loss properties. For definitions of repetitive and severe repetitive loss properties, refer to the terminology list on page 3. See the map on the next page for the location of the study areas.

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<sup>3</sup> As of December 2012; FEMA, since 1978 when records began.

<sup>4</sup> Each building has at least one unit; most buildings are duplex units.



The area was selected for this analysis due to the clustering of repetitive loss properties in the neighborhoods which indicates a recurring flooding problem. Local officials also expressed their interest in addressing the repetitive flooding issues in the area making these two neighborhoods ideal to conduct a repetitive loss area analysis.

### The Process

In October 2012 after a careful review of repetitive flood loss properties throughout the State of Louisiana and discussions with FEMA Region VI, the UNO-CHART team and Terrebonne Parish officials conducted the repetitive loss area analysis (RLAA). Terrebonne Parish, a Community Rating System (CRS) Class 6 is one of only three Class 6 CRS Communities in the State of Louisiana. Given its obvious commitment to floodplain management excellence, Terrebonne Parish was viewed as a good community partner for this project. See page 33 for more information on the CRS program.



After meeting with Planning & Zoning officials, the Councilmen representing the proposed study areas, the Parish President, and other Parish officials, the final study area was selected. For the first time in the UNO-CHART Repetitive Loss Project, the study area consists of two separate and unique neighborhoods: Senator Circle and Roberta Grove.

This project follows a five step CRS process. UNO-CHART has always taken a social science perspective during the process, and FEMA recently offered a new approach to emergency management that melds the two methods: The Whole Community Approach.

The Whole Community Approach: FEMA has come out with a new approach to emergency management: The Whole Community Approach. This philosophical approach to emergency management seeks to leverage the social and cultural resources of a community along that of its private and non-profits. In essence, this approach brings together the *whole* community in order to generate a comprehensive view of the hazards to which that community is vulnerable too as well as to cooperatively develop solutions to mitigate those risks.<sup>5</sup> By applying the Whole Community Approach to RLAA's the hope is that the local officials and residents living in repetitively flooded communities will come to see the problem as a *shared* issue and not just one for the local government or residents to handle on their own.

The five step process in the 2013 *CRS Coordinator's manual* for conducting a RLAA is as follows:

**Step 1:** Advise all the property owners in the repetitive flood loss area that the analysis will be conducted and request their input on the hazard and recommended action through informational meeting.

**Step 2:** Contact agencies or organizations that may have plans that could affect the cause or impacts of the flooding.

**Step 3:** Collect data on the analysis area and each building in the identified study area within the neighborhood to determine the cause(s) of the repetitive damage.

**Step 4:** Review alternative mitigation approaches and determine whether any property protection measures or drainage improvements are feasible.

**Step 5:** Document the findings, including information gathered from agencies and organizations, and relevant maps of the analysis area.

### **Step 1: Neighborhood Notification**

The first step in five-step CRS process is to notify the residents in the area about the project. Considering that this study area contains two separate and unique neighborhoods; the decision was made by the UNO-CHART team to divide the study area into two in order to streamline the process.

On January 2<sup>nd</sup> and 3<sup>rd</sup> of 2013, Terrebonne Parish sent out a letter to the homeowners introducing them to UNO-CHART and the project. Accompanying the letter was a data sheet that asked residents basic questions about their building and their flooding history. The letters also invited residents to an "Informational Meeting" where the project process would be explained more in detail than it could be in the letter.

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<sup>5</sup> FEMA A *Whole Community Approach to Emergency Management: Principles, Themes, and Pathways for Action*; FDOC104-008-1, 12/2011

Informational Meetings: Residents of both neighborhoods were given the opportunity to either return the data sheets at the Informational Meetings or to drop them off with a neighborhood representative if they were unable to make the meetings.

The UNO-CHART team worked with Terrebonne Parish and the Roberta Grove Neighborhood Watch Association to schedule the Informational Meeting for January 17<sup>th</sup>, with the letters being mailed out two weeks prior on January 3<sup>rd</sup>. Of the 134 letters mailed out, 31 came back as “undeliverable” or “vacant.” Out of the remaining 103, 16 were returned at the Informational Meeting.

The UNO-CHART team scheduled the Informational Meeting for Senator Circle residents with The Houma-Terrebonne Housing Authority for January 16<sup>th</sup>. The letters were mailed to the residents on January 2<sup>nd</sup>, two weeks before the scheduled meeting. Of the 300 letters mailed out, 103 came back as “undeliverable” or “vacant.” Out of the remaining 197 letters, eight were returned at the Informational Meeting.

More detailed information on the data sheets is discussed on page 23, while the Informational Meetings are discussed on page 22 under “On-site Data Collection.” Copies of the letters and data sheets and summary statistics are found in Appendices A, B, and C.



## **Step 2: Review Plans**

The second step in the CRS process is reviewing of the plans and flood insurance data that pertain to the area. The plans, insurance maps and drainage information were collected from several agencies and departments. This report also includes a review of stakeholders who contributed to the project. Coordination with relevant agencies, offices, and organizations is an important step in the analysis process. The following agencies and organizations were contacted by the UNO-CHART team in order to complete this analysis:

- FEMA Region VI, Mitigation Division
- Terrebonne Parish President’s Office
- Terrebonne Parish Council
- Terrebonne Parish Planning & Zoning Department
- Terrebonne Parish Public Works Department
- Roberta Grove Neighborhood Watch Association
- Houma-Terrebonne Housing Authority
- LSU Sea Grant

This step helps to open lines of communication among those interested in flood protection in the Roberta Grove and Senator Circle area, and to see what other groups are doing to address the flood problems.

The UNO-CHART team collected and reviewed the following reports/data:

- A. Terrebonne Parish, Flood Damage Prevention Ordinance update, (in progress)
- B. Terrebonne Parish Hazard Mitigation Plan Update, November 2009
- C. Vision 2030: Building Sustainable Communities; Terrebonne's Plan for Its Future
- D. Flood Insurance Data
- E. Drainage Information

A. Terrebonne Parish, Flood Damage Prevention Ordinance:

In order to reduce flood losses, the Terrebonne Parish Flood Damage Prevention Ordinance requires the following in all areas of special flood hazards:

- (1) All new construction and substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;
- (2) All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;
- (3) All new construction or substantial improvements shall be constructed with materials resistant to flood damage;
- (4) All new construction or substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding;
- (5) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system;
- (6) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharge from the systems into floodwaters; and
- (7) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.<sup>6</sup>

The ordinance also states that encroachments in adopted, regulatory floodways are prohibited unless it can be demonstrated that the proposed encroachment would not result in any increase in flood levels within the city during the occurrence of the base flood discharge. This is intended to limit encroachments such as fill, new construction, substantial improvements or other development that would otherwise increase flood heights on other properties. This means there are restrictions on the construction of new buildings, additions, levees, floodwalls, or placing fill on properties in the floodway.

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<sup>6</sup> Municode, accessed online 01/22/13: <http://library.municode.com/index.aspx?clientId=10737>

Since local ordinances determine the threshold at which substantial damage and /or repetitive claims are reached, adopting language that would lower these thresholds would benefit the homeowners of repetitive loss properties.

According to the Ordinance, *substantial improvement* means any reconstruction, rehabilitation, addition, cumulative substantial improvement (CSI) or other improvement of a structure, the cost of which equals or exceeds fifty (50) percent of the market value of the structure before "start of construction" of the improvement, and shall be a cumulative cost of all previous permitted work and proposed work to the structure to determine a cumulative substantial improvement. This includes structures which have incurred "substantial damage," regardless of the actual repair work performed. The term does not, however, include either:

- Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary conditions; or
- Any alteration of a "historic structure" provided that the alteration will not preclude the structure's continued designation as a "historic structure."

Adopting alternative language allows for cumulative damage to reach the threshold for federal mitigation resources more quickly, meaning that some of the properties in both study areas that sustain minor damage regularly would qualify for mitigation assistance.

As of March 2013, Terrebonne Parish is amending its Flood Damage Prevention Ordinance. Focus groups are being organized in order to shape and guide the ordinance amendments. Residents interested in the progress of this ordinance amendment should check the Parish's website for more information<sup>7</sup> or contact the Terrebonne Parish Planning & Zoning Department at (985) 873-6569.

#### B. Terrebonne Parish Hazard Mitigation Plan, November 2009:

In 2009, Terrebonne Parish ("the Parish") updated its Parish-wide hazard mitigation plan ("the Plan"). In the Plan, it is noted that in the Parish 94.6% of the total acreage is "forested, wetlands or water," and that only 5.6% is "urbanized and/or under cultivation".<sup>8</sup> With developed land being limited to less than 6% of the land in Terrebonne Parish, officials and residents alike share the risk and the need to be proactive in protecting themselves from the surrounding waters.

In the Plan, several hazards are identified and described as having the potential to affect the Parish. A subsequent list was developed detailing the hazards that were more likely to occur and expose the Parish and its residents to the risks associated with them.

There were six (6) hazards that made the list of "prevalent hazards to the community".<sup>9</sup>

- (1) Levee Failure
- (2) Flooding
- (3) Hurricanes and Coastal/Tropical Storms

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<sup>7</sup> [www.tpcg.org](http://www.tpcg.org)

<sup>8</sup> Terrebonne Parish Hazard Mitigation Plan Update 2009; p 10

<sup>9</sup> Terrebonne Parish Hazard Mitigation Plan Update 2009; pc2-10

- (4) Saltwater Intrusion
- (5) Tornadoes
- (6) Subsidence

Of these six hazards identified, flooding has been identified as the hazard with the greatest potential to affect the Parish and its communities. Flooding in the Parish has the probability to take many forms, and it is important for residents to understand the different types of flooding they are susceptible to and the ways they can mitigate themselves against flood loss.

Flooding in the Parish can come from any of the following sources:

- Levee failure resulting from extreme flood events
- Flooding from riverine sources, stormwater, tropical storms, and hurricanes in the following forms:
  - Riverine (primarily high water related to rivers and bayous)
  - Stormwater (rain fall)
  - Surge
  - Back water flooding (as the result of riverine flooding and surge)
- Wind damage resulting from hurricanes, tropical storms, and tornadoes
- Saltwater intrusion resulting from storm surge<sup>10</sup>

The Plan has a detailed “Hazard Mitigation Strategies” section that outlines the actions the Parish will pursue to protect its citizens and resources from the various hazards which the region is prone. There is one objective and three Action Items that are relevant to this project. They are as follows:<sup>11</sup>

**Objective 3.1:** Eliminate the threat of flood damage to structures in Terrebonne Parish including storm surge and levee failure

**Action Item 3.1.1 Upgrade current drainage infrastructure**

A project is in the works to provide protection to the study area. The Bayou Chauvin Drainage Improvements are currently under design, funded for 2013, and are designed to protect the study areas from rain events internal to the system. A hydraulic study was analyzed for the system improvements. More about this project is listed under the Step 2: review Plans section E: “Drainage Information” found on page 17.

**Action Item 3.1.2 Construct new flood control structures and levees**

The East Houma Surge Levee is a levee that stretches between LA 56 and LA 57 and acts as a barrier to surge waters being funneled up from Lake Boudreaux. The East Houma Surge Levee was built to 9-9.5 feet so that settlement and consolidation could take place and provide for a final levee elevation of +8.0 feet.

**Action Item 3.1.3 Elevate or acquire all RL and SRL structures in Terrebonne Parish**

The Parish has elevated 20 properties; 13 of which were RL and 5 of which were SRL in the Roberta Grove neighborhood.<sup>12</sup> The Parish has also acquired and cleared 5 properties, all of which were RL properties in the Roberta Grove neighborhood.

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<sup>10</sup> Terrebonne Parish Hazard Mitigation Plan Update 2009, p 2c-10-11

<sup>11</sup> Only action items relevant to this report were included here; for a full list of the strategies, please see appendix E of this report located on page 43.

### C. Vision 2030: Building Sustainable Communities; Terrebonne’s Plan for Its Future:

Terrebonne’s Comprehensive Plan “Vision 2030” does specifically mention hazard mitigation, but not in the same depths as the Parish’s Hazard Mitigation Plan. “Vision 2030” does briefly discuss the Parish’s involvement in the Community Rating System (CRS). The Parish’s participation and more details about the CRS will be discussed on page 33 of this report.

### D. Flood Insurance Data

The team reviewed three sources of flood insurance data. Those sources of data are:

- A. Flood Insurance Rate Map (FIRM)
- B. Preliminary Digital Flood Insurance Rate Map (DFIRM)
  - I. DFIRM Appeal

**A. Terrebonne Parish Flood Insurance Rate Map, May 19, 1981:** A Flood Insurance Rate Map (FIRM), published by FEMA, shows identified flood risk according to zones of severity and is used in setting flood insurance rates. The regulatory floodplain used by FEMA for the floodplain management and insurance aspects of the NFIP is based on the elevation of the 1% chance flood or base flood. The base flood is a statistical concept used to ensure that all properties subject to the National Flood Insurance Program are protected to the same degree against flooding. For another frame of reference, the 100-year flood has a 26% chance of occurring over the life of a 30-year mortgage. It is becoming more common to refer to the 100-year storm as the 1% annual chance flood. It is important to note that more frequent flooding does occur in the 100-year floodplain, as witnessed by the number of repetitive loss properties. The study areas fall in the same flood zone, though they have differing base flood elevations (BFE). Roberta Grove and Senator Circle are in the AE Zone on the effective FIRM for Houma.

Roberta Grove is in an AE EL9 Zone, while Senator Circle is in an AE EL8 Zone; the numbers behind the “AE” indicate the BFE for that area which is the elevation of the 1% chance annual storm above sea level.<sup>13</sup>

It should also be noted that the BFE is above *mean sea level (MSL)*, not above *ground level*. The ground elevation in both areas varies between 4.9 feet and 5.2 feet above MSL.<sup>14</sup> The only way to have an accurate reading of the ground elevation is to have a licensed land surveyor, architect, or engineer complete an elevation certificate.

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<sup>12</sup> The remaining two properties were neither RL nor SRL properties

<sup>13</sup> FIRM & DFIRM images (Figure 4) from:

[http://www.lsuagcenter.com/en/family\\_home/home/design\\_construction/Laws+Licenses+Permits/Getting+a+Permit/Your+Flood+Zone/flood\\_maps/](http://www.lsuagcenter.com/en/family_home/home/design_construction/Laws+Licenses+Permits/Getting+a+Permit/Your+Flood+Zone/flood_maps/)

<sup>14</sup> This is not exact information and should not be used for any building or insurances purposes. The information presented here is general.

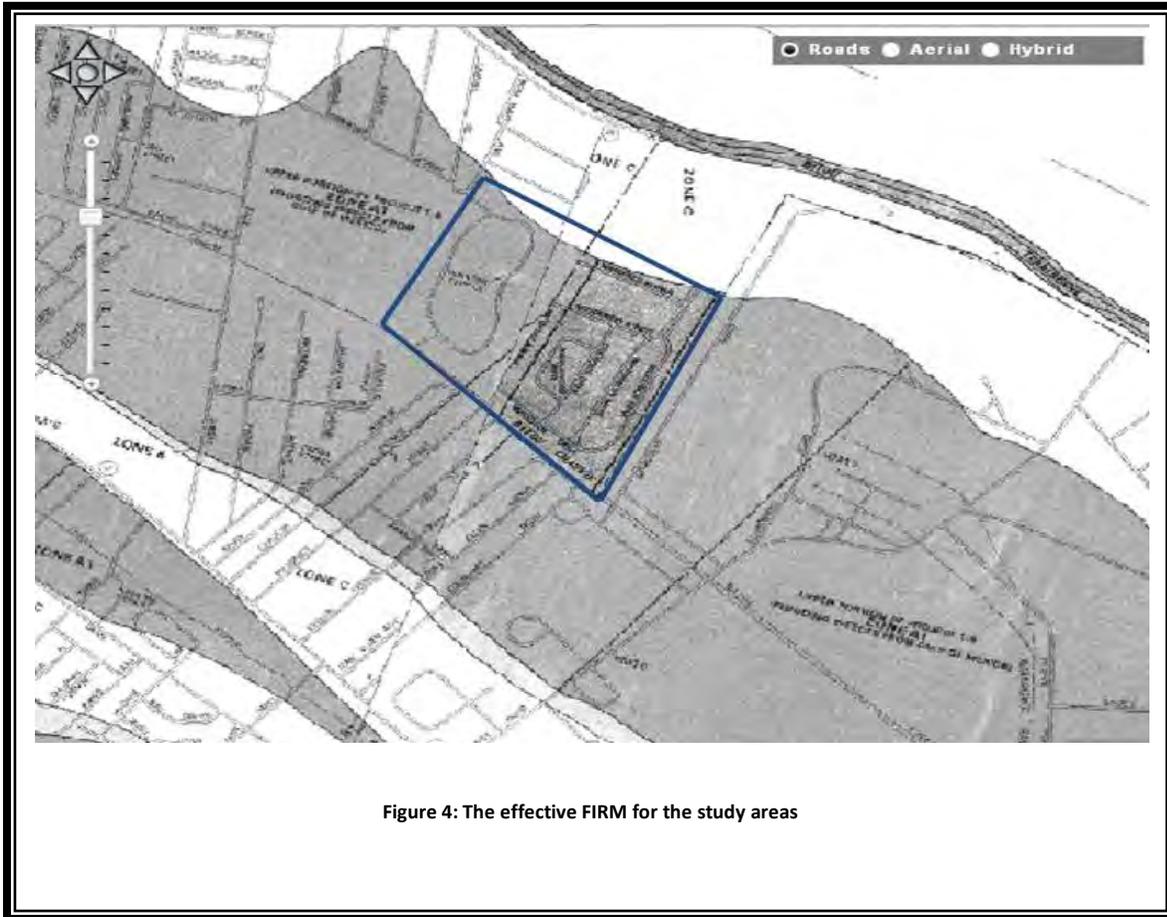


Figure 4: The effective FIRM for the study areas

**B. Preliminary Digital Flood Insurance Rate Map (DFIRM):** As part of the FEMA Map Modernization Program, FEMA has been charged with updating and developing Digital Flood Insurance Rate Maps (DFIRMs).

The first DFIRMs for Louisiana were released beginning in 2008; some parishes saw little to no change, while some of the coastal parishes saw dramatic changes. Please see DFIRM in the following page:

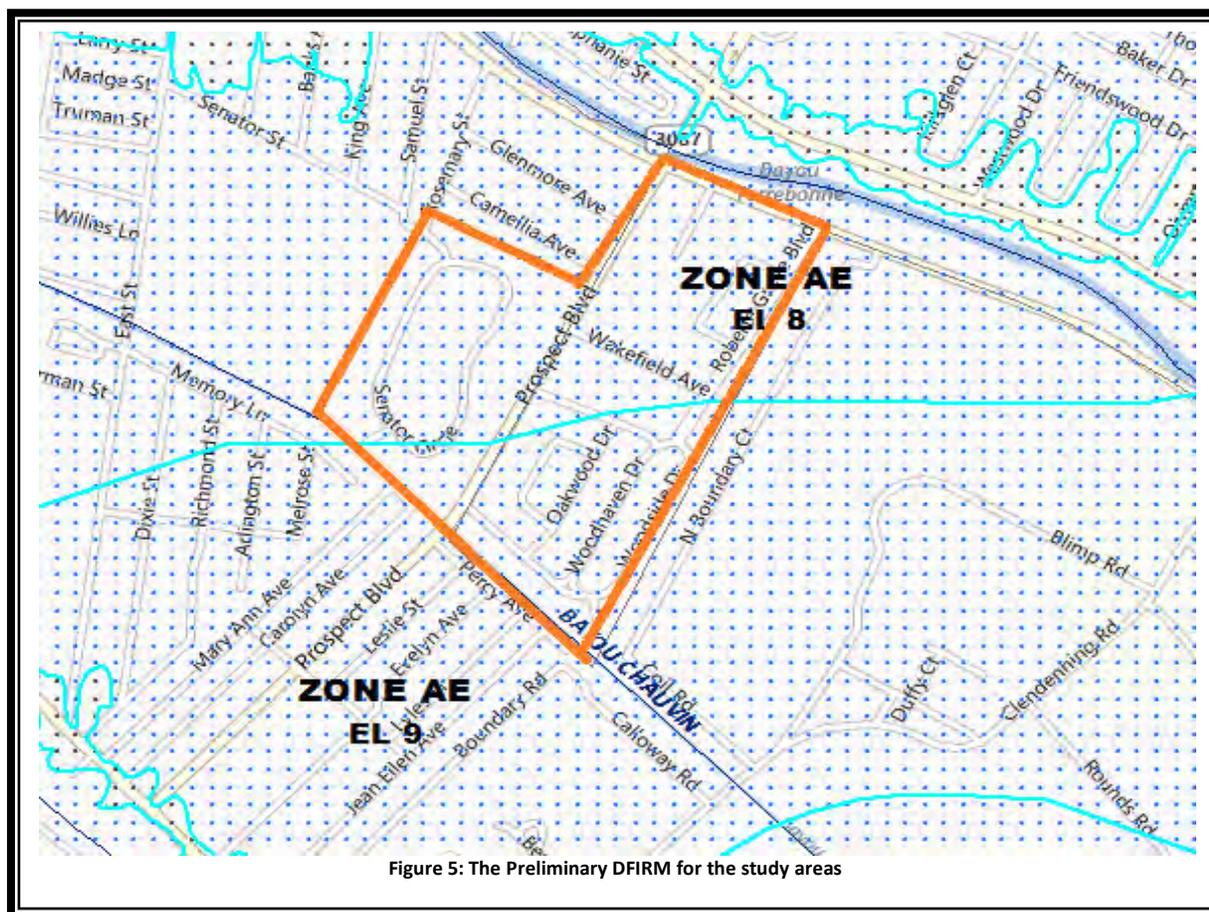


Figure 5: The Preliminary DFIRM for the study areas

**BI. DFIRM Appeal:** Terrebonne Parish appealed the release of its Preliminary DFIRMs after it was determined that a majority of the Parish would see a dramatic increase in the BFE. The Parish, along with Shaw Coastal Inc., examined the data used to develop the 2009 Preliminary DFIRMs and found deficiencies that warranted an official appeal of the new DFIRM for Terrebonne Parish.<sup>15</sup> At this time, the effective FIRM for the City of Houma is still May 1981 and May 1985 for the rest of Terrebonne Parish. Residents who are interested in reading the official appeal in its entirety can find it on Terrebonne Parish’s website under the Planning & Zoning section, or available online at <http://www.tpcg.org/view.php?f=planning>

E. Drainage Information

Terrebonne Parish relies heavily on levees for forced drainage and pumping stations throughout the parish, much like the rest of Southeast Louisiana. Given the relatively flat ground elevation, Terrebonne Parish uses levees not only to reduce storm surge, but also “to force water to drain in certain patterns”.<sup>16</sup>

<sup>15</sup> Terrebonne Parish Appeal of FEMA’s 2009 Preliminary DFIRMs, September 2009, pg. 42

<sup>16</sup> Terrebonne Parish Hazard Mitigation Plan Update 2009, pc2-22

There are 157 pump stations located in the Parish that work in conjunction with the levees to move water out of the parish during a storm or rain event. The forced drainage, levees, and the drainage pumps form 61 individual drainage systems that are managed by the Terrebonne Parish Department of Public Works.<sup>17</sup>

As previously mentioned, both study areas have two bayous near them: Bayou Chauvin and Bayou Terrebonne. Residents in both areas mentioned that Bayou Chauvin is in need of dredging, widening in parts, and clearing. Bayou Chauvin actually runs through Senator Circle, though it is shallow to the point of being considered a swale (see Figure 6).

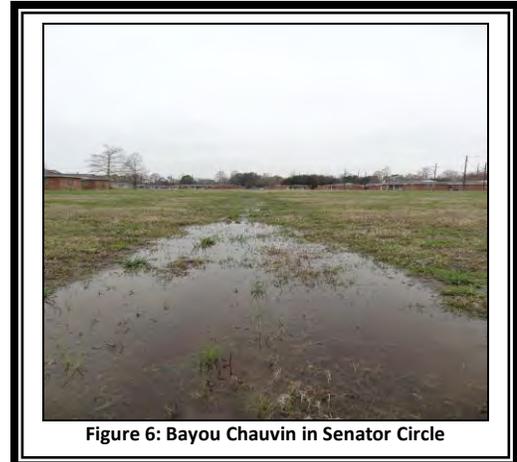


Figure 6: Bayou Chauvin in Senator Circle

UNO-CHART reviewed Terrebonne Parish’s Hazard Mitigation Plan’s Action Items where the Parish listed the projects they would pursue to reduce risk in the parish. One of those action items, “Upgrade current drainage infrastructure” included a study that addresses Bayou Chauvin. The details of this study are discussed under Step 4 - Mitigation Measures; under Drainage Improvements on page 31.

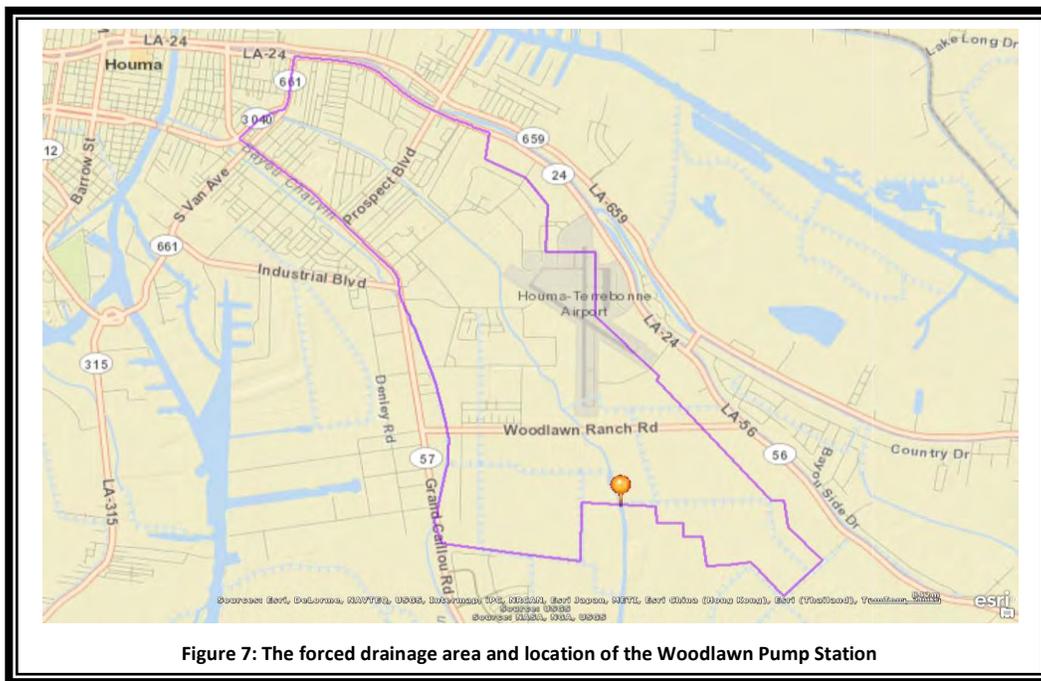


Figure 7: The forced drainage area and location of the Woodlawn Pump Station

<sup>17</sup> Terrebonne Parish Appeal of FEMA’s 2009 Preliminary DFIRMs, September 2009, pg 14

<sup>17</sup> Terrebonne Parish Hazard Mitigation Plan Update 2009

<sup>17</sup> Tropical Cyclone Report: Hurricane Lili, National Oceanic and Atmospheric Administration (NOAA)

### **Step 3: Building Data**

#### **A. Claims Data**

The Privacy Act of 1974 (5 U.S.C. 522a) restricts the release of certain types of data to the public. Flood insurance policy and claims data are included in the list of restricted information. FEMA can only release such data to state and local governments, and only if the data are used for floodplain management, mitigation, or research purposes. Therefore, this report does not identify the repetitive loss properties or include claims data for any individual property. Rather, it discusses them only in summary form. UNO-CHART obtained claims data from FEMA Region VI for all repetitive loss properties in the Roberta Grove-Senator Circle study area. The results are presented below and separated by neighborhood:

**Roberta Grove:** There are 62 (60.19%) properties within the 103 property study area that qualify as repetitive loss. Of those 62 repetitive loss properties, six are considered to be severe repetitive loss property. The homeowners for the 62 repetitive loss properties have made 170 claims, and received \$7,785,536.02 in flood insurance payments since 1978. The average repetitive flood loss claim is \$45,797.27.

**Senator Circle:** There are 50 (25.38%) units within the 197 building units of the study area that qualify as repetitive loss. Of those 50 repetitive loss properties, none of them are considered to be severe repetitive loss properties. The homeowners for the 50 repetitive loss properties have made 100 claims, and received \$ 985,385.33 in flood insurance payments since 1978. The average repetitive flood loss claim is \$19,707.70.

**Major Flood Events:** There have been five major flood events in the Roberta Grove- Senator Circle study area: Hurricane Lili in September 2002, Hurricanes Katrina and Rita in September 2005 and Hurricanes Gustav and Ike in September 2008. In September 2002, 100 properties/units out of combined total of 112 repetitive loss properties/units in the Roberta Grove-Senator Circle study area filed a claim. The total loss amount for this event is the second largest for the study area, totaling \$2,618,200.80.

Lili became a hurricane on September 30, 2002 while passing over Cayman Brac and the Little Cayman Islands. With a wind speed of approximately 80-knots, Hurricane Lili made landfall on the Louisiana coast on October 3, 2002 as a category 1 hurricane. Strong winds toppled trees onto houses and into roadways, stripped shingles from roofs, and blew out windows. A combination of storm surge and rain caused levees to fail in the southeastern part of the state. Lili also temporarily curtailed all oil production in the Gulf of Mexico. The latest insured property damage total from the American Insurance Services Group is \$415 million for Louisiana.<sup>18</sup> Terrebonne Parish was declared a major disaster area by the President because of Hurricane Lili.

The storm was responsible for damage associated with both wind (greater than 78 miles per hour) and storm surge (6 to 8 feet) in Terrebonne Parish. The strongest effects of the storm were experienced in the southern portion of the parish. Damage included widespread power outages, destruction of approximately 35% of the parish sugarcane crop, substantial damage of more than 300 homes, and breached levees.<sup>19</sup>

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<sup>18</sup> Tropical Cyclone Report: Hurricane Lili, National Oceanic and Atmospheric Administration (NOAA)

<sup>19</sup> Terrebonne Parish Hazard Mitigation Plan Update 2009

Event Date	Claims Made	Total Loss (\$)
September 1998 (Heavy Rain event)	16	\$220,947.97
September 2002 (Hurricane Lili)	50	\$1,917,145.66
September 2005 (Hurricane Katrina and Rita)	37	\$ 1,699,596.05
September 2008 (Hurricane Ike and Gustav)	55	\$ 3,829,502.43

Table 1: Major Repetitive Loss Claims for the Roberta Grove Study Area

Event Date	Claims Made	Total Loss
September 2002 (Hurricane Lili)	50	\$701,055.14
September 2005 (Hurricane Katrina and Rita)	49	\$215,693.41

Table 2: Major Repetitive Loss Claims for the Senator Circle Study Area

In August and September 2005, 86 of the 112 repetitive flood loss properties filed a claim. Hurricane Katrina made U.S. landfall for the second time on August 29, 2005, near Buras/Triumph, Louisiana. The hurricane was a Category 3 storm with wind speeds of 125 miles per hour. Much of that damage, which was limited to southeast Louisiana and Terrebonne Parish, was caused by high winds and storm surge<sup>20</sup>. Hurricane Rita made landfall on September 24, 2005, along the Louisiana-Texas border near Johnsons Bayou, Louisiana. The hurricane came ashore as a Category 3 storm with sustained winds of 120 mph. Hurricane Rita initially followed a path along the western Louisiana-Texas border and then turned northwest. It caused an estimated \$10 billion in damage.<sup>21</sup> Despite the fact that the eye of the storm made landfall approximately 190 miles west of Houma, Hurricane Rita had a significant impact on Terrebonne Parish—a greater impact than Hurricane Katrina.

The impact was largely a result of storm surge that caused extensive flooding, primarily south of Houma. Reportedly, all levees south of the Intracoastal Canal were breached and more than 10,000 homes and businesses were flooded. Interestingly, there were just two claims during Hurricane Katrina in our Roberta Grove- Senator Circle study area.

In September 2008, Hurricanes Gustav and Ike impacted the state of Louisiana. Gustav, a strong Category 2 hurricane, made landfall on September 1<sup>st</sup> in Terrebonne Parish and on September 12<sup>th</sup> and 13<sup>th</sup> Ike's storm surge battered most of the state's coastline. Hurricane Gustav emerged into the southeast Gulf of Mexico as a major category 3 Hurricane with rainfall considerably ranging from around

<sup>20</sup> Terrebonne Parish Hazard Mitigation Plan Update 2009

<sup>21</sup> National Oceanic and Atmospheric Administration

4 to 10 inches. Hurricane Ike made a landfall as a Category 2 hurricane with a surge height of 4-6 ft. affecting east Houma and flooding the Intracoastal Waterway and Houma Navigation Canal.

Louisiana Economic Development (LED) reported that Gustav: “followed a northwest path into central Louisiana, causing widespread physical damage, power outages, and/or flooding across the vast majority of parishes in Louisiana.”

Preliminary estimates of the combined total physical damage in Louisiana from Hurricanes Gustav and Ike range from roughly \$8 billion to \$20 billion. Hurricane Gustav caused severe damage to Terrebonne Parish including scattered power outages, knocking down trees, smashing roofs and burning of houses. 56 repetitive loss properties out of the combined total of 112 repetitive flood loss properties filed a claim. The total loss amount for this event is the largest at \$3,898,139.21.

**All Claims:** The NFIP tracks all flood insurance claims, not just the repetitive loss flood insurance claims. The UNO-CHART team investigated whether or not properties in the study areas were *not* considered to be repetitive loss properties, but had still made flood insurance claims. The reason for this was to show the extent to which the study areas were susceptible to flooding.

Senator Circle	# of properties	# of claims made	Total Loss
All Claims List	150	389	\$5,251,474.00
RL properties	50	100	\$985,385.33
Roberta Grove	# of properties	# of claims made	Total Loss
All Claims List	13	21	\$1,165,976.00
RL properties	62	170	\$ 7,785,536.00

**Table 3: Repetitive loss properties that had claims placed in the wrong file**

What was found, however, was that not only were there other properties in the area that had made flood insurance claims, there were also repetitive loss properties that had made claims but did *not appear* on the repetitive loss list. This means that there are properties on the repetitive loss list that have *additional* claims that are not included in the repetitive loss totals. Looking at the table above, there were 150 units<sup>22</sup> in Senator Circle that have made 389 claims. Of those 150 units, some of them seem to meet the repetitive loss criteria.

<sup>22</sup> Because of how the data was entered, it is impossible to decipher if the claims were made by one or both.

That means, for Senator Circle there is additional \$5,251,474.00 worth of flood insurance claims payments, of which some of the buildings seem to meet Repetitive flood loss criteria but do not show up on the FEMA repetitive loss list. For Roberta Grove, there is additional \$ 1,165,976 worth of repetitive loss flood insurance claims, some of the properties seems to meet the repetitive flood loss but are not included on the FEMA list.

The implications of this are that:

- a) The true extent of the flooding issue is not clear;
- b) Some of these repetitive loss properties may *actually be* severe repetitive loss properties; and
- c) Being designated as a severe repetitive loss property opens certain funding mechanisms that are not open to regular repetitive loss properties.

This is an issue that is common across the nation. It can be difficult to ensure that flood insurance claims from a single property are entered in the same manner because it is hardly ever the same person who is entering the information into the system each time a claim is filed. One person may write down an address using an abbreviation, while another person writes out the full address. This can result in multiple, but different, entries for the same address.

#### B. On-site Data Collection

On January 16<sup>th</sup> and 17<sup>th</sup>, 2013 the UNO-CHART team visited the study areas and collected data on each property. The team collected information such as the estimated elevation of each structure above the street and the grade, the type of foundation, and the type of structure.

- In Roberta Grove, 90 (82%) structures in the area are built slab-on-grade and 22 (20%) are elevated on a crawlspace. The average height above grade is actually at grade (0-1 feet) for most structures in the area (81.81%).
  - 4.5% of the structures are elevated 1-2 feet above grade.
  - 0.90% of the structures are elevated 2-4 feet above grade.
  - 10% of the structures are elevated 4-5 feet above grade.
  - 2.7% of the structures are elevated 5-6 feet above grade.

109 buildings (98.19%) in Roberta Grove are at the street level; 97% of all structures are single-story, and a good number (42.69%) are wood frame buildings. A summary of this data is found in Appendix D.

- All the structures in Senator Circle are built slab-on-grade. The average height is actually at ground level (0-1 feet) for all the structures in the area while just the security complex is elevated 1-2 feet above grade. Average elevation above street is approximately 1-2 feet for all the housing units. All of them (100%) are single-story and brick-faced buildings. A Summary of this data is found in Appendix D.

Informational Meetings: After the on-site data collection, UNO-CHART along with the Parish invited residents to Informational Meetings to explain the project and process in more detail than what was in the introductory letter.

The Roberta Grove neighborhood Informational Meeting was scheduled in conjunction with its Neighborhood Watch organization. That meeting was held on January 17<sup>th</sup> at the Gymnastics Development Center. Representatives from the Parish were in attendance as well as 27 residents.

The Senator Circle neighborhood Informational Meeting was held on January 16<sup>th</sup> at the Community Center located within the neighborhood. Representatives from the Housing Authority and the Parish were in attendance as well as Councilman John Navy and eight residents from the neighborhood.

Residents at both meetings were presented with an overview of the process and purpose of the RLAA. They were also given the opportunity to fill out and return their data sheets and ask questions. Residents at both meetings expressed concern over the flooding issues and the possibility of exacting real change to address the risk.

### C. Data Sheets

As discussed in Step 1: Neighborhood Notification, the letter that was mailed out to the residents included a data sheet. This data sheet offered residents the opportunity to provide UNO-CHART with details about their flooding experiences and to voice their concerns regarding the flooding in the area.

The UNO-CHART team mailed 134 letters and data sheets in the Roberta Grove neighborhood; 31 came back as “undeliverable” or “vacant.” Of the remaining 103, 16 were returned filled out at the Informational Meeting. The Roberta Grove neighborhood had a return rate of 15.5% for the data sheets. The residents in Roberta Grove who completed their data sheet and turned them in to the UNO-CHART team offered insight into the flooding issues in the area:

- ❖ 62.5% have reported their property being flooded or having a water problem.
- ❖ The most reported flood events were Hurricane Gustav and on September 1<sup>st</sup>, 2008.
- ❖ 31.25% of respondents cite drainage from a nearby home as the reason they have flooded.
- ❖ 43.75% of respondents cite a clogged or undersized drainage ditch as the source of their flooding.
- ❖ 75% of respondents have reported taking on a mitigation measure to protect their property.

The UNO-CHART team mailed out 300 letters and data sheets in the Senator Circle neighborhood with 103 returned as “undeliverable” or “vacant.” Out of the remaining 197 letters, eight were returned at the Informational Meeting. Senator Circle had a return rate of 4% for the data sheets. For those residents who turned in their data sheets, it was reported that:

- ❖ 37.5% have reported their property being flooded or having a water problem.
- ❖ The most reported flood events were Hurricane Ike on September 12<sup>th</sup> and 13<sup>th</sup>, 2008.
- ❖ 62.5% of respondents cite drainage from a nearby home as the reason they have flooded.
- ❖ 62.5% of respondents cite a clogged or undersized drainage ditch as the source of their flooding.
- ❖ 50% of respondents have reported taking on a mitigation measure to protect their property.

The full results of the homeowners’ data sheets are found in Appendices A and B of this report.

## **Problem Statement**

Based on the data collected from the five sources of information (community reports and plans, flood insurance data, drainage information, on-site surveying, and property owners), the following bullets summarize the repetitive flooding problems in the areas:

- ❖ Structures in both neighborhoods of the study area fall within a high-risk AE Special Flood Hazard Area;
- ❖ Flooding is caused by heavy rains, storm surge, and backwater flooding, and further aggravated by two problems:
  - Bayou Chauvin’s limited capacity to carry water out of the areas due to being undersized, clogged with debris, and shallowness in some areas;
  - Bayou Terrebonne overflowing into the areas;
- ❖ The East Houma Surge Levee should add a level of protection from surge waters being funneled up from Lake Boudreaux;
- ❖ There are 300 homes and apartments subject to flooding. 112 of the insured properties have been flooded to the extent that they qualify as repetitive loss structures under the NFIP; six of which are severe repetitive loss properties.
- ❖ These 112 repetitive loss properties have made 270 flood insurance claims for a total of **\$8,770,921.35** since 1978.
- ❖ There is an additional **\$6,417,450.00** in all flood insurance claims, some of which meet the repetitive flood loss criteria, but are not on FEMA’s repetitive loss list. This is problematic because:
  - It further clouds the true extent of the flooding issues in the areas;
  - Some of the repetitive loss properties in both areas may actually be severe repetitive loss (SRL) properties;
  - Being designated as a SRL property triggers a certain mitigation funding mechanism only available to SRL properties.

## **Step 4: Mitigation Measures**

Knowing the flooding history, and the types and condition of buildings in the area leads to the third step in the area analysis procedure – a review of alternative mitigation approaches to protect properties from flood damage.

Property owners should consider the following alternatives, but understand they are not all guaranteed to provide protection at different levels of flooding. Nine approaches were reviewed:

- I. Elevating the houses above the 100-year flood level
- II. Barriers to floodwaters
- III. Dry floodproofing
- IV. Utility protection
- V. Drainage improvements
- VI. Drainage maintenance
- VII. Maintaining flood insurance coverage on the building

It should be noted that the residents in Senator Circle are limited to what mitigation measures they can implement as they are renters. This applies to renters in Roberta Grove as well. There is also a section that covers funding following the discussion of mitigation measures.

### I. Elevation

Raising the structure above the flood level is generally viewed as the best flood protection measure, short of removing the building from the floodplain. All damageable portions of the building and its contents are high and dry during a flood, which flows under the building instead of into the house. Houses can be elevated on fill, posts/piles, or a crawlspace. A house elevated on fill requires adding a specific type of dirt to a lot and building the house on top of the added dirt. A house elevated on posts/piles is either built or raised on a foundation of piers that are driven into the earth and rise high enough above the ground to elevate the house above the flow of flood water. Terrebonne Parish has already raised a number of properties in Roberta Grove, and is currently developing a grant application on behalf of the Houma-Terrebonne Housing Authority to try and raise some units in Senator Circle.

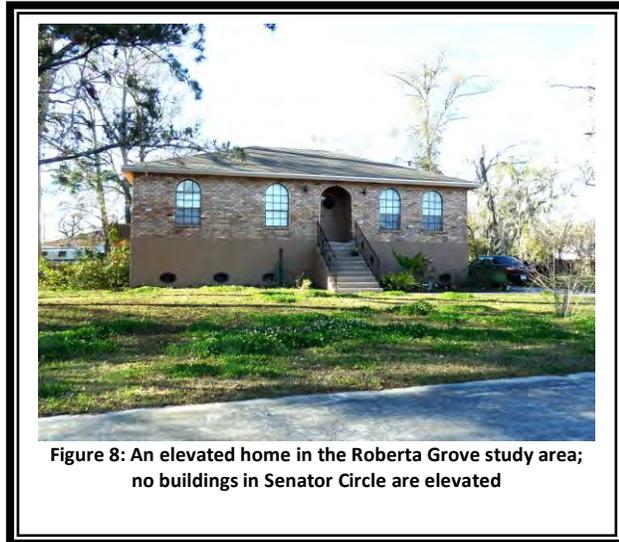


Figure 8: An elevated home in the Roberta Grove study area; no buildings in Senator Circle are elevated

A house elevated on a crawlspace is built or raised on a continuous wall-like foundation that elevates the house above the flood level. If a crawlspace is used, it is important to include vents or openings in the crawlspace that are appropriately sized: one square inch for each square foot of the building's footprint. Figure 8 shows an elevated structure in the Roberta Grove study area. No structures in Senator Circle were elevated.

**A. Cost:** Most of the cost to elevate a building is in the preparation and foundation construction. The cost to elevate six feet is little more than the cost to go up two feet. Elevation is usually cost-effective for wood frame buildings on posts/piles or crawlspace because it is easiest to get lifting equipment under the floor and disruption to the habitable part of the house is minimal.

Elevating a slab house is much more costly and disruptive. In Senator Circle, 100% of the buildings in the study area are slab-on-grade, while in Roberta Grove, 82% of the homes are slab-on-grade. The actual cost of elevating a particular building depends on factors such as its condition, whether it is masonry or brick faced, and if additions have been added on over time.

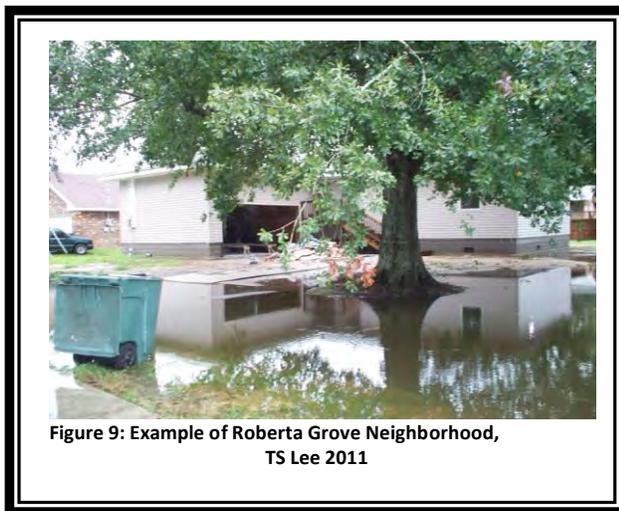


Figure 9: Example of Roberta Grove Neighborhood, TS Lee 2011

While the cost of elevating a home can be high, there are funding programs that can help. The usual arrangement is for a FEMA grant to pay 75% of the cost while the owner pays the other 25%. In the case of elevating a slab foundation, the homeowner's portion could be as high as \$25,000 or more. In some cases, assistance can be provided by the Increased Cost of Compliance (ICC) provision of a flood insurance claim payment, which is discussed on page 35, or state funds.

**B. Feasibility:** Federal funding support for an elevation project requires a study that shows that the benefits of the project exceed the cost of the elevation. Project benefits include future savings in insurance claims that would otherwise be paid on the structure. Elevating a masonry home or a slab can cost over \$100,000, which means that benefit/cost ratios may be low. Looking at each property individually could result in funding for the worst case properties, i.e., those that are lowest, subject to the most frequent flooding, and in good enough condition to elevate.

## II. Barriers to Floodwaters

Small floodwalls, levees, or berms constructed around one or more properties are more dependable if flood depths are less than 3 feet and floodwaters rise and fall quickly. Small floodwalls are appropriate for some of the homes in the Roberta Grove study area, since 60% of the respondents in Roberta Grove and 12.5% in Senator Circle said they had experienced up to 3 feet of floodwater during a flood event.

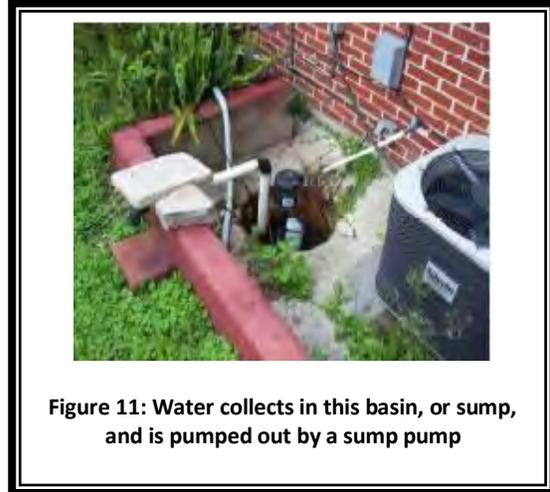
Homes that typically receive 3 feet of floodwater or less, or where the water does not stay up for a considerable amount of time, can benefit from small floodwalls, levees or berms. Levees and berms are more suitable for larger lots, and small floodwalls that are located close to the house are appropriate for suburban style neighborhoods with front and side yard space. Given the suburban setting in both study areas, floodwalls are more appropriate than levees and berms that take up space in the smaller lots. Given the flood depths reported by residents on the returned data sheets, barriers could be an appropriate mitigation measure for some homes in both areas. However, the residents in the Senator Circle study area are not allowed to make structural changes to their properties as they are renters.

In Roberta Grove, barriers could also be appropriate, although residents who experience floodwaters that remain for several hours or days should include internal drainage provisions, as seepage can occur and water will end up inside the barrier. The more permeable the soil, the more floodwaters seep under the barrier. It is important to have a soil sample checked by an engineer to determine rate of permeability. Homeowners who are interested in constructing a barrier to protect their house should consider the following requirements:

- A method to close openings, such as the door in the photo in Figure 16 on page 29. Generally, this requires "human intervention," meaning someone needs to be available and have enough time to take action.
- A system to prevent sanitary sewer backup from flowing into the building.
- Internal drainage provisions are also recommended, including:
  - A system of drain tile (perforated pipes) that collects water that falls or seeps into the protected area and sends it to a collecting basin or "sump,"
  - A sump pump to send the collected water outside the barrier (Figure 11), and
  - Power to operate the sump pump around the clock during a storm.



**Figure 10:** This home is surrounded by a floodwall that doubles as a planter. The garage door must be sandbagged during a flood event



**Figure 11:** Water collects in this basin, or sump, and is pumped out by a sump pump

**A. Cost:** The cost of a local barrier depends on the depth of flooding and the amount of engineering put into the design. Where flooding is only inches deep and of short duration, almost any barrier of concrete or earth will work. The most conservative cost estimate for a floodwall is based on a two foot high engineered cantilevered concrete floodwall. A cantilevered wall has a footing to provide stability and keep the water pressure from pushing it over. The budget shown in Table 4 is for a 40'x 40' home with a wall one foot outside the building wall. Labor accounts for about half of the price in the cost estimate.

It should be noted that smaller, non-engineered walls such as the ones in Figures 10 and 11 have been built by their owners for less than \$10,000. FEMA does not fund individual floodwalls for residential properties; therefore, the homeowner must pay 100% of the cost for a floodwall. However, each person can determine how much of its own labor they want to contribute (which reduces out-of-pocket costs) and whether the cost of the wall is worth the protection from flooding that it provides.

Two Foot high reinforced concrete cantilever wall, 168 feet @ \$200/foot	\$33,600
Internal drainage and sump pump system	\$5,000
Sewer backup valve	\$4,500
Generator for power outages	\$900
<b>TOTAL</b>	<b>\$44,000</b>

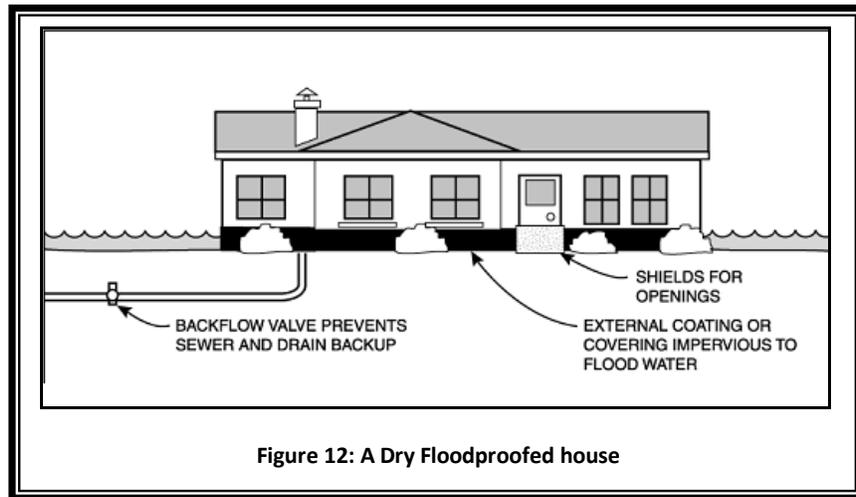
### III. Dry Floodproofing

This measure keeps floodwaters out of a building by modifying the structure. Walls are coated with waterproofing compounds or plastic sheeting. Openings (e.g., doors, windows, and vents) are closed either permanently, or temporarily with removable shields or sandbags.

A floodproofing project has three components:

- The walls are made watertight. This is easiest to do for masonry or brick faced walls. The brick or stucco walls can be covered with a waterproof sealant and bricked or stuccoes over with a veneer to camouflage the sealant. Houses with wood, vinyl, or metal siding need to be wrapped with plastic sheeting to make walls watertight, and then covered with a veneer to camouflage and protect the plastic sheeting.

- Provide closures, such as removable shields or sandbags, for the openings; including doors, windows, dryer vents, and weep holes.
- Account for sewer backup and other sources of water entering the building. For shallow flood levels, this can be done with a floor drain plug or standpipe; although a valve system is more secure.



As seen in Figure 12, dry floodproofing employs the building itself as part of the barrier to the passage of floodwaters, and therefore this technique is only recommended for buildings with slab foundations that are not cracked. The solid slab foundation prevents floodwaters from entering a building from below. Also, even if the building is in sound condition, tests by the US Army Corps of Engineers have shown that dry floodproofing should not be used for depths greater than 2 feet over the floor, because water pressure on the structure can collapse the walls and/or buckle the floor.





**Figure 14: This dry floodproofed building in Mandeville, LA had the walls waterproofed and removable shields placed in the windows.**



**Figure 15: This home in Jefferson Parish, LA has permanent shields sealing the space under the windows.**



**Figure 16: This Baton Rouge home has a steel door with gaskets that seal when closed**



**Figure 17: The same Baton Rouge home has thin facing brick placed over the waterproofing materials**

Dry floodproofing is a mitigation technique that is appropriate for some houses in the both study areas: those with slab foundations that typically receive floodwater up to three feet in the house. From the fieldwork it was found that 82% of the houses in Roberta Grove and 100% in Senator Circle are slab-on-grade foundations, and according to the data sheet responses, 60% of the respondents in Roberta Grove and 12% of respondents in Senator Circle experienced flooding.

Not all parts of the building need to be floodproofed. It is difficult to floodproof a garage door, for example, so some owners let the garage flood and floodproof the walls between the garage and the rest of the house. Appliances, electrical outlets, and other damage-prone materials located in the garage should be elevated above the expected flood levels. Examples of floodproofed houses can be seen in the above Figures 14 through 17.

Dry floodproofing has the following shortcomings as a flood protection measure:

- It usually requires human intervention, i.e., someone must be home to close the openings.
- Success of dry floodproofing depends on the building's condition, which may not be readily evident. It is very difficult to tell if there are cracks in the slab under the floor covering.

- Periodic maintenance is required to check for cracks in the walls and to ensure that the waterproofing compounds do not decompose.
- There is no government financial assistance programs available for the dry floodproofing of residential buildings, therefore the entire cost of the project must be paid by the homeowner.
- The NFIP will not offer a lower insurance rate for dry floodproofed residences.

**A. Cost:** The cost for a dry floodproofing project can vary according to the building's construction and condition. It can range from \$5,000 to \$20,000, depending on how secure the owner wants to be. Owners can do some of the work by themselves, although an experienced contractor provides greater security. Each property owner can determine how much of its own labor they can contribute and whether the cost and appearance of a project is worth the protection from flooding that it may provide.

**B. Feasibility:** As with floodwalls, floodproofing is appropriate where flood depths are shallow and are of relatively short duration. It can be an effective measure for some of the structures and flood conditions found in the analysis areas. It can also be more attractive than a floodwall around a house.

#### IV. Utility Protection

This measure applies to several different utilities that can be adversely affected by floodwaters such as:

- Heating, Ventilation, and Air Conditioning (HVAC) systems
- Fuel meters and pipes
- Electrical service boxes, wiring and fixtures
- Sewage systems
- Water systems

Damage to utilities can prevent a residence that remains structurally sound after a flood from being reoccupied. Retrofitting utilities includes things as simple as raising them above the flood level and building small walls around furnaces and water heaters to protect from shallow flooding as shown in Figure 18.

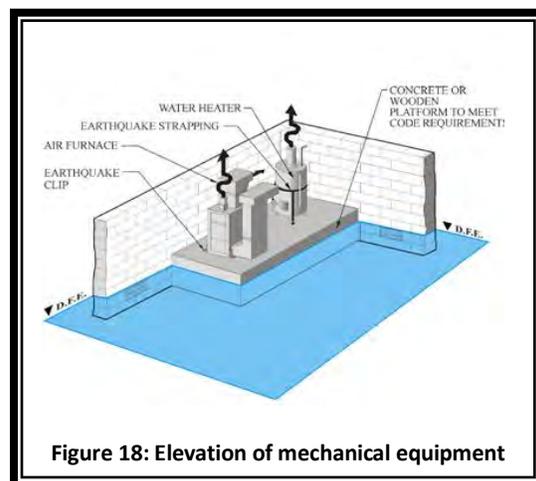


Figure 18: Elevation of mechanical equipment

According to the homeowner's data sheets, 25 (41%) of respondents in Senator Circle and 6% of respondents in Roberta Grove answered that they had moved utilities and/or contents to a higher level as a mitigation measure. There is a FEMA publication that is tailored towards protecting utilities from floodwaters. FEMA document 348: *Protecting Building Utilities from Flood Damage* covers various ways to protect utilities; whether the building is a new construction, declared substantially damaged, or simply an existing structure in need of retrofitting, this document covers different techniques used in protecting utilities.

**A. Cost:** The cost for protecting utilities varies and is dependent upon the measure itself, condition of the system, structure, and foundation. Although, methods for protecting utilities can be performed by the homeowners themselves, it is always a good idea to consult a professional contractor and/or

engineer (depending on the project). The costs can be lower when done as part of a repair or remodeling project.

Residents interested in pursuing a retrofitting measure to protect their utilities should contact the Terrebonne Parish to determine whether a permit is required.

**B. Feasibility:** Given that the flooding experienced by the residents in the study areas includes both shallow and deep flooding, utility protection is a recommended mitigation measure. It should be incorporated even if the building will be protected by a levee or dry floodproofing to provide an extra layer of protection.

## **V. Drainage Improvements**

Residents in both neighborhoods commented that a main reason they flood is due to the poor drainage in the area, namely from Bayou Chauvin. As previously mentioned on page 17 a study was recently completed and the Parish will be implementing recommendations from the study by:

- Digging a 30 acre retention pond north of the Woodlawn pump station; the 30 acres retention pond reduces the peak tail waters by 12 inches;
- Widening the earthen channel of Bayou Chauvin and removing heavy overgrowth which causes debris, build up, and restricts flow; the widening of the channel in addition to the 30 acre retention pond further reduces the peak flows by 2 additional inches.

Coupled with the East Houma Surge Levee, the Bayou Chauvin improvements should provide more protection for the residents of Roberta Grove and Senator Circle than before. While the East Houma Surge Levee is complete, work has not yet begun on the Bayou Chauvin improvements as of this report.

## **VI. Drainage Maintenance Program**

Roberta Grove - Senator Circle's drainage system covers a fairly large area and includes stream channels, backyard, swales, ditches and bayous. The system may not be able to perform to its capacity if trash and debris are allowed to clog storm sewer inlets or the sewer lines. A regular program of drainage system inspections can catch problems in the system before they turn into major obstructions. Therefore, Terrebonne Parish and City of Houma have a drainage maintenance program. They have divided the drainage system into two separate systems:

- A. Gravity drainage system
- B. Forced drainage system.

### A. Gravity Drainage system:

This system includes all the canals, roadside and lateral ditches, culverts and catch basins in the gravity drainage area within the City of Houma and the developed areas of Terrebonne Parish. Gravity Drainage staff inspect and maintain drainage system components on public property and along state highways. Drainage ditches, canals, etc. on private property are the responsibility of the property owner, however, the parish has the authority to perform required maintenance when it is not accomplished by the owner or is an emergency. Gravity drainage staff will also perform required maintenance on drainage components along state highways when it is not provided in a timely manner by the State of Louisiana Department of Transportation.

### B. Forced Drainage System:

Forced Drainage staff covers all the pumps stations, canals and laterals within the forced drainage area of the City of Houma and developed areas of Terrebonne Parish.

Most of the Roberta Grove- Senator Circle study area is in the Forced Drainage System because of the levee protection. However, certain parts of it could also be categorized under Gravity Drainage System; especially around Bayou Chauvin and the ditch near the Roberta Grove subdivision.

### *Inspection and Maintenance:*

The drainage system components within the Gravity Drainage and Forced Drainage areas are inspected at least monthly. The drainage system is also inspected within 24 hours after any storm event that could have an adverse impact on the capacity of the system. Drainage staff also responds to citizen's complaints or notifications of problems with the drainage system. These complaints are usually handled within 1-2 hours.

In addition to regular inspections, screw gates and culverts not associated with pump stations are inspected once per month due to recurring accumulation of debris. Whenever a problem is noted during a routine inspection or responding to a citizen's complaint, a work order is completed and workers are assigned to correct the problem. All trash, garbage, rubber tires or other materials, vegetative growth, and any type of minor or major obstruction are removed. The materials removed from the drainage canals, ditches, etc. are transported to a landfill or suitable repository.

A record of the inspections performed and maintenance work orders is kept to document that problems have been corrected.

## **VII. Maintaining Flood Insurance**

Although not a mitigation measure that reduces property damage from a flood, a NFIP policy has the following advantages for the homeowner or renter:

- A flood insurance policy covers surface flooding from the overflow of inland or tidal waters or from storm water runoff.
- Flood insurance may be the only source of assistance to help owners of damaged property pay for cleanup and repairs.
- Once in effect there is no need for human intervention.<sup>23</sup>
- Coverage is available for the contents of a home as well as for the structure.
- Renters can buy contents coverage, even if the building owner does not buy coverage for the structure itself.

**A. Cost:** Flood insurance rates are based on several factors including what flood zone the building falls in and the age of the structure. All the structures in both areas fall in the AE Zone. Homes constructed before May 19, 1981 in the City of Houma are "pre-FIRM" buildings, which mean that they were built before the date of the first Flood Insurance Rate Map (FIRM) for the community.

A building that is located in the Special Flood Hazard Area (SFHA) and constructed or substantially improved after the date of the most current FIRM - such as one built or substantially improved in 1982 –

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<sup>23</sup> There is a 30-day waiting period for a new flood insurance policy before it goes into effect.

is required to be built above the base flood elevation and is therefore subject to rates based on the actual risk rather than a subsidized rate. Rates on pre-FIRM buildings that are currently insured are subsidized because the flood risk was unknown at the time of construction.

**Biggert-Waters Flood Insurance Reform and Modernization Act of 2012 (“BW12”):** Congress passed, and the President subsequently signed into law, BW12 on July 6, 2012. The main purpose of the Act is to phase out subsidies paid on flood insurance policy premiums with the end goal of making the NFIP financially sound. This is a complicated and intricate act. Certain provisions are already being implemented, and more provisions that will be implemented over 2013 and 2014.

Any resident who wants to know more should go to: [www.fema.gov/BW12](http://www.fema.gov/BW12).<sup>24</sup> It is also important to talk with your flood insurance agent to make sure your policy is up-to-date and to learn more about the impending changes.

**B. Community Rating System (CRS):** The CRS is a voluntary program that incentivizes NFIP participating communities to go above and beyond the minimum requirements for floodplain management. Participating communities are rewarded with reduced insurance premiums. Communities that join the CRS complete floodplain management activities that are worth a certain amount of credit. The more credit earned, the better the class ranking of that community. The CRS has 10 classes; a Class ranking of 10 carries the lowest flood insurance premium reduction, whereas a Class 1 carries the maximum discount. Terrebonne Parish is currently a Class 6; one of only three Class 6 communities in the State of Louisiana.<sup>25</sup> Class 6 is the highest CRS Class achieved by any community in Louisiana.

**Possible Funding Sources:** There are several possible sources of funding for mitigation projects:

- A. FEMA grants
- B. Flood Insurance
- C. Rebates
- D. Small Business Administration Mitigation Loans

**A. FEMA grants:** Most of the FEMA programs provide 75% of the cost of a project. In most Gulf communities, the 25% non-FEMA share is paid by the benefitting property owner. Each program has different Congressional authorization and slightly different rules.

CRS Class	Discount on SFHA premiums	Discount on non-SFHA premiums
10	0%	0%
9	5%	5%
8	10%	5%
7	15%	5%
6	20%	10%
5	25%	10%
4	30%	10%
3	35%	10%
2	40%	10%
1	45%	10%

**Table 5: CRS Classes and their discounts**

<sup>24</sup> Also, [www.floodsmart.gov](http://www.floodsmart.gov)

<sup>25</sup> The other communities are Jefferson Parish and East Baton Rouge Parish

**1. The Hazard Mitigation Grant Program (HMGP):**<sup>26</sup> The HMGP provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. Projects must provide a long-term solution to a problem (e.g., elevation of a home to reduce the risk of flood damage as opposed to buying sandbags and pumps to fight the flood). Examples of eligible projects include acquisition and elevation, as well as local drainage projects.

**2. The Severe Repetitive Loss Program (SRL):**<sup>27</sup> The SRL grant program funds mitigation projects for properties on the severe repetitive loss list. Eligible flood mitigation projects include:

- Acquisition and demolition or relocation of structures that are listed on FEMA’s severe repetitive loss list and conversion of the property to open space.
- Elevation of existing SRL structures to at least the Base Flood Elevation (BFE).

**3. The Flood Mitigation Assistance Program (FMA):**<sup>28</sup> FMA funds assist states and communities in implementing measures that reduce or eliminate the long-term risk of flood damage to structures insured under the NFIP.

- **Project Grants** to implement measures to reduce flood losses, such as elevation, acquisition, or relocation of NFIP-insured structures. States are encouraged to prioritize FMA funds for

Types of Projects Funded	HMGP	FMA	PDM	RFC	SRL	ICC	SBA
Acquisition of the entire property by a gov't agency	✓	✓	✓	✓	✓		
Relocation of the building to a flood free site	✓	✓	✓	✓	✓	✓	✓
Demolition of the structure	✓	✓	✓	✓	✓	✓	✓
Elevation of the structure above flood levels	✓	✓	✓		✓	✓	✓
Replacing the old building with a new elevated one	✓				✓	✓	✓
Local drainage and small flood control projects	✓				✓		
Dry floodproofing (nonresidential or historic buildings)		✓	✓		✓	✓	✓
<b>Percent paid by Federal program</b>	75%	75%	75%	100%	75%	100%	0

**Table 6: Different FEMA grants and the projects covered under each**

applications that include repetitive loss properties; these include structures with 2 or more losses each with a claim of at least \$1,000 within any ten-year period since 1978.

**4. Pre-Disaster Mitigation Program (PDM):** The PDM program provides funds to states, territories, Indian tribal governments, communities, and universities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. There are several requirements that must be met in order to receive PDM funding. For more information please visit <http://www.fema.gov/government/grant/pdm/index.shtm>.

<sup>26</sup> For more information please visit <http://www.fema.gov/government/grant/hmgp/index.shtm>

<sup>27</sup> For more information please visit <http://www.fema.gov/government/grant/srl/index.shtm>

<sup>28</sup> For more information please visit: <http://www.fema.gov/government/grant/fma/index.shtm>

These FEMA grants and the mitigation projects that they cover are summarized in table 6 below summarize the different FEMA grants and the projects they cover.

The Biggert-Waters Act has provisions in it that would consolidate certain grant programs into one umbrella grant program. As previously mentioned in this report, BW12 is complex and still being sorted at this time;<sup>29</sup> and as such, FEMA has not made an official statement regarding the proposed changes to these grant programs.

**B. Flood insurance:** There is a special funding provision in the NFIP for insured buildings that have been substantially damaged by a flood, “Increased Cost of Compliance (ICC)”. ICC coverage pays for the cost to comply with floodplain management regulations after a flood if the building has been declared substantially damaged. ICC will pay up to \$30,000 to help cover elevation, relocation, demolition, and (for nonresidential buildings) floodproofing. It can also be used to help pay the 25% owner’s share of a FEMA funded mitigation project.

The building’s flood insurance policy must have been in effect during the flood. This payment is in addition to the damage claim payment that would be made under the regular policy coverage, as long as the total claim does not exceed \$250,000. Claims must be accompanied by a substantial or repetitive damage determination made by the local floodplain administrator. For more information, contact the insurance agent who wrote your flood insurance policy or visit [www.fema.gov/plan/prevent/floodplain/ICC.shtm](http://www.fema.gov/plan/prevent/floodplain/ICC.shtm).

Coverage under the ICC does have limitations:

- It covers only damage caused by a flood, as opposed to wind or fire damage,
- The building’s flood insurance policy must have been in effect during the flood,
- ICC payments are limited to \$30,000 per structure.
- Claims must be accompanied by a substantial damage determination made by the local floodplain administrator.
- Homeowners should make themselves aware of the approximate value of their homes, and in the case of incurring flood damage, be aware of the need for a substantial damage declaration in order to receive the ICC coverage.

Alternative language adopted into the local floodplain management ordinance would enable residents with shallower flooding to access ICC funding. Since local ordinances determine the threshold at which substantial damage and /or repetitive claims are reached, adopting language that would lower these thresholds would benefit the homeowners of repetitive loss properties. Adopting alternative language allows for cumulative damage to reach the threshold for federal mitigation resources more quickly, meaning that some of the properties in both study areas that sustain minor damage regularly would qualify for mitigation assistance through ICC.

**C. Rebates:** A rebate is a grant in which the costs are shared by the homeowner and another source, such as the local government, usually given to a property owner after a project has been completed. Many communities favor it because the owner handles all the design details, contracting, and payment

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<sup>29</sup> April 2013

before the community provides funding. The owner ensures that the project meets all of the program's criteria, has the project constructed, and then goes to the community for the rebate after the completed project passes inspection. Rebates are more successful where the cost of the project is relatively small, e.g., under \$5,000, because the owner is more likely to be able to afford the bulk of the cost. The rebate acts more as an incentive, rather than as needed financial support.<sup>30</sup>

**D. Small Business Administration Mitigation Loans:** The Small Business Administration (SBA) offers mitigation loans to SBA disaster loan applicants who have not yet closed on their disaster loan. Applicants who have already closed must demonstrate that the delay in application was beyond their control. Measures eligible for SBA mitigation loans may only protect real estate property, not personal items, from the same type of future declared disaster. For more information visit the website <http://www.sba.gov/home> or call 1-800-827-5722. For example, mitigation loans made following a flood can only be used for a measure to protect against future flooding, not a tornado. If the measure existed prior to the declared disaster, an SBA mitigation loan will cover the replacement cost. If the measure did not exist prior to the declared disaster the mitigation loan will only cover the cost of the measure if it is deemed absolutely necessary for repairing the property by a professional third-party, such as an engineer<sup>31</sup>.

## **Step 5: Findings and Recommendations**

### **I. Findings**

Properties in both study areas are subject to flooding due to storm surge, heavy rains, and drainage issues. Bayou Chauvin is unable to move water out of the areas quickly enough due to being undersized, clogged with debris, and shallow in some areas. There are plans in the works currently that aim to address Bayou Chauvin limited capacity. The East Houma Surge Levee has also been completed and should protect the study areas from storm surge coming from the south.

The mitigation recommendations are based on the data shown in the table (Appendices H & I) and data not included in this report (the photographs of the properties, responses on the data sheets, and insurance data subject to the Privacy Act).

### **II. Recommendations**

#### **For Terrebonne Parish**

**Implemented by:** Terrebonne Parish.

**Project duration:** As needed

**Funding sources:** FEMA, Flood Insurance and Small Business Administration Loans.

- Adopt this Area Analysis according to the process detailed in the CRS Coordinator's Manual, 2013.
- Encourage the owners of repetitive flood loss structures to pursue a mitigation measure.

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<sup>30</sup> More information on rebates can be found in the Corps of Engineers' report Local Flood Proofing Programs found at: [http://www.nwo.usace.army.mil/nfpc/NFPC\\_Publications.htm](http://www.nwo.usace.army.mil/nfpc/NFPC_Publications.htm).

<sup>31</sup> For more information visit the SBA Disaster Loans home page on the web at <http://www.sba.gov/services/disasterassistance/>

- Continue to assist interested property owners in applying for a mitigation grant.
- Improve the drainage out of Bayou Chauvin.
- Institute a ditch maintenance program that encourages homeowners to frequently clear their ditches of debris to ensure open flow for stormwater.
- The proposed drainage improvements to Bayou Chauvin will alleviate standing water from heavy rains in both neighborhoods.
- Assist the Houma-Terrebonne Housing Authority in order to mitigate Senator Circle properties.
- Continue to be a part of the CRS and improve the Parish's Class.
- Continue the CRS credited public information activities, such as outreach projects, website, and flood protection assistance, to help residents learn about and implement retrofitting measures.
- As the floodplain management ordinance is being revised, include provisions to provide higher flood protection levels and measures to trigger substantial improvements determinations after repetitive flooding. Also, building of low flood walls around several buildings, rather than addressing each building individually could be useful.

#### **For the Houma-Terrebonne Housing Authority**

**Implemented by:** Houma-Terrebonne Housing Authority

**Project duration:** As needed

**Funding sources:** FEMA, Flood Insurance, Rebates and Small Business Administration Loans

- Make sure residents in Senator Circle are aware of the flood threat and what they can do to protect their belongings.
- Make sure residents in Senator Circle are aware of the availability of renters flood insurance.
- Review the ability of residents in Senator Circle to make structural changes to their apartments for flood protection purposes.
- Work with the Parish to identify structures eligible for mitigation.

#### **For the residents of Roberta Grove and Senator Circle**

**Implemented by:** Residents of Roberta Grove and Senator Circle

**Project duration:** As needed

**Funding source:** NA

- Review the mitigation measures listed in this report and implement those that are appropriate.
- Stay up to date with what Terrebonne Parish is doing in regards to flood protection: [www.tpcg.org](http://www.tpcg.org)
- Purchase or maintain flood insurance policies on the home (if a homeowner) and/or on the contents (homeowner and renters). More information can be found at [www.floodsmart.gov](http://www.floodsmart.gov)
- Keep informed about the changes being made to the NFIP by the implementation of the Biggert-Waters Flood Insurance Reform and Modernization Act of 2012: [www.fema.gov/BW12](http://www.fema.gov/BW12) or [www.floodsmart.gov](http://www.floodsmart.gov)

## Appendix A – Data sheet responses for Senator Circle

Total Respondents = 8	%	Answer	Number out of 8
In what year did you move into the apartment/home at this address?	12.5	1971-1980	1
	12.5	1981-1990	1
	50	2001-2012	4
	25	No Response	2
What type of foundation does your home have?	62.5	Slab	5
	12.5	Post/Piles	1
	25	No Response	2
Has the property ever been flooded or have a water problem?	37.5	Yes	3
	37.5	No	3
	25	No Response	2
In what years did it flood? (multiple answers were allowed)	37.5	2008 (Gustav and Ike)	3
	12.5	2009 (Rain event)	1
	12.5	2012 (Isaac)	1
	37.5	No Response	3
What was the deepest the water ever got?	25	0-2 feet; yard only	2
	12.5	Aren't all Senator Circle properties on slab? How would this apply? 12.5	3-6 feet; In crawlspace/under first floor
	12.5	over first floor	1 (5ft. CS;5 ft. First floor)
	50	No Response	1 (3 inches)
			4

<b>Total Respondents =8</b>	<b>%</b>	<b>Answer</b>	<b>Number out of 8</b>
What was the longest time water stayed in the house?  <b>(Multiple answers were allowed)</b>	12.5	1 day	1
	12.5	3 days	1
	75	No Answer/Not sure	6
What do you feel was the cause of you flooding?  <b>(Multiple answers were allowed)</b>	62.5	Drainage from nearby properties	5
	62.5	Storm surge	5
	37.5	Clogged/undersized drainage ditch/canal	3
	62.5	Overbank flooding	5
	25	Storm sewer backup	2
	25	Other	2 (Sanitary sewer backup)
	25	No Answer/Not sure	2
Have you taken any flood mitigation protection measures on your property?  <b>(Multiple answers were allowed)</b>	25	Sandbagged when water threatened	2
	25	Moved utilities/ contents to a higher level	2
	62.5	No answer	5
Do you have flood insurance?	87.5	No	7
	12.5	No answer	1
Are you interested in learning more about mitigation?	50	Yes	4
	25	No	2
	25	Not sure/No Answer	2

## Appendix B: Data sheet responses for Roberta Grove

Total Respondents = 15	%	Answer	Number out of 15
In what year did you move into the apartment/home at this address?	40	1970-1980	6
	6.6	1981-1990	1
	20	1991-2000	3
	20	2001-2012	3
	13.33	No Response	2
What type of foundation does your home have?	100	Slab	15
	6.6	Post/Piles	1 (Originally slab)

Has the property ever been flooded or have a water problem?	60	Yes	9
	40	No	6
In what years did it flood?  (multiple answers were allowed)	26.6	2002 (Lili & Isadore)	4
	33.33	2005 (Katrina & Rita)	5
	53.33	2008 (Gustav and Ike)	8
	6.66	2009 ( Rain event)	1
	13.33	2012 (Isaac)	2
	26.66	No Response	4
What was the deepest the water ever got?  (Multiple answers were allowed)	40	0-2 feet; yard only	6
	60	over first floor	9
	26.66	No Response	4

<b>Total Respondents =15</b>	<b>%</b>	<b>Answer</b>	<b>Number out of 15</b>
What was the longest time that the water stayed in the house?  <b>(Multiple answers were allowed)</b>	13.33	2 days	2 (Ike)
	13.33	5 days	2 (Gustav, Rita)
	26.66	7 days	4 (Ike)
	6.6	weeks	1
	6.6	Never Flooded	1
	40	No Answer/Not sure	6
What do you feel was the cause of you flooding?  <b>(Multiple answers were allowed)</b>	33.33	Drainage from nearby properties	5
	73.33	Storm surge	11
	46.66	Clogged/undersized drainage ditch/canal	7
	60	Overbank flooding	9
	13.33	Storm sewer backup	2
	13.33	Standing water	2
	6.66	Other	1 (water rise in canals, sanitary back up, pumps not working)
	13.33	No Answer/Not sure	2

Have you taken any flood mitigation protection measures on your property?     <b>(Multiple answers were allowed)</b>	33.33	Sandbagged when water threatened	5
	20	elevated all parts of the building	3
	6.66	Regraded yard	1
	6.66	Installed Drains	1
	6.66	Moved utilities/ contents to a higher level	1
	6.66	other	1 (house above sea-level)
	26.66	No answer	4
	Do you have flood insurance?	0	No
100		Yes	15
Are you interested in learning more about mitigation?	73.33	Yes	11
	6.66	No	1
	20	Not sure/No Answer	3

## Appendix C: Letter to residents in Senator Circle



P. O. BOX 6097  
HOUMA, LOUISIANA 70361  
(985) 868-5050



P. O. BOX 2768  
HOUMA, LOUISIANA 70361  
(985) 868-3000

### TERREBONNE PARISH CONSOLIDATED GOVERNMENT

#### PLANNING & ZONING DEPARTMENT REGULATORY DIVISION

January 2<sup>nd</sup>, 2013

Dear Senator Circle Resident:

Terrebonne Parish has partnered with the University of New Orleans' Center for Hazards Assessment, Response and Technology (UNO-CHART) to conduct a study that looks into the repetitive flooding of your neighborhood. The purpose of this study is to get a better understanding of what the flooding issues in the neighborhood are, as well as to offer ideas about how to mitigate the flood losses.

Terrebonne Parish, The Housing Authority, and UNO-CHART would like to invite you to an informative meeting being held on **Wednesday, January 16<sup>th</sup>, 2013 at 6:00pm in the Management and Maintenance (M&M) Auditorium** located at 100 Senator Circle, Houma, LA 70363. At this meeting, there will be a short presentation explaining the study and how it will be carried out.

This work would be greatly improved with additional information that you might be able to provide. Attached is a data sheet that we hope you will complete. After you fill the form out, please bring it with you to the meeting on January 16<sup>th</sup>, 2013 – **or** – bring it to the Office in the Management and Maintenance (M&M) Building if you are unable to attend the meeting.

Before the meeting on January 16<sup>th</sup> 2013, UNO-CHART will be in the area doing "fieldwork:" taking pictures from the street of each building noting the foundation type, estimated elevation above the street, etc. If you would like to talk to the research team about your flooding experiences, this information would greatly enhance this study. The research team **will not** enter your home unless you invite them.

After the study is completed, some preliminary recommendations will be developed. You will be invited to a final meeting with the UNO-CHART team to review the findings. The meeting time and location will be announced once the analysis is near completion. If you have any questions about this project, please feel free to call Lisa Ledet with the Planning & Zoning Department at (985)873-6789 or if you want to talk to the research team call Erin Merrick from UNO-CHART at (504)280-1404. Thank you for your assistance in helping us to complete this project.

Geoffrey Large, MDipMS, CBO, CHCO, CCI, CSI.  
**Assistant Director, Planning and Zoning**  
Head of Regulatory Division & Parish Building Code Administrator  
Terrebonne Parish Consolidated Government

## Appendix D: Letter to residents in Roberta Grove



P. O. BOX 6097  
HOUMA, LOUISIANA 70361  
(985) 868-5050



P. O. BOX 2768  
HOUMA, LOUISIANA 70361  
(985) 868-3000

### TERREBONNE PARISH CONSOLIDATED GOVERNMENT

PLANNING & ZONING DEPARTMENT  
REGULATORY DIVISION

January 3, 2013

Dear Roberta Grove Resident:

Terrebonne Parish has partnered with the University of New Orleans' Center for Hazards Assessment, Response and Technology (UNO-CHART) to conduct a study that looks into the repetitive flooding in your neighborhood. The purpose of this study is to get a better understanding of what flooding issues in the neighborhood are, as well as to offer ideas about how to mitigate the flood losses.

Terrebonne Parish and UNO-CHART would like to invite you to the Roberta Grove Neighborhood Watch Meeting being held on **Thursday, January 17, 2013 at 6:00pm at The Gymnastics Development Center, 110 Rome Commercial Place, Houma, LA 70363**. At this meeting, UNO-CHART will give a short presentation explaining the study and how it will be conducted.

This work would be greatly improved with additional information that you might be able to provide. Attached is a data sheet that we hope you will complete. After you fill the form out, please bring it with you to the meeting on January 17, 2013 – **or** – bring it to Mrs. Mary Aucoin's home at 201 Garden Lane, Houma, LA, 70363 by the meeting date if you are unable to attend.

Before the meeting on January 17, 2013, UNO-CHART will be in the area doing fieldwork: taking pictures from the street of each building, noting the foundation type and estimating elevation above the street, etc. If you would like to talk to the research team about your flooding experiences, this information would greatly enhance this study. The research team **will not** enter your home unless you invite them.

After the study is completed, some preliminary recommendations will be developed. You will be invited to a final meeting with the UNO-CHART team to review the findings. The meeting time and location will be announced once the analysis is near completion. If you have any questions about this project, please feel free to call Lisa Ledet with the Planning & Zoning Department at (985)873-6789 or if you want to talk to the research team call Erin Merrick from UNO-CHART at (504)280-1404.

Thank you for your assistance in helping us to complete this project.

Geoffrey Large, MDipMS, CBO, CHCO, CCI, CSI.  
**Assistant Director, Planning and Zoning**  
Head of Regulatory Division & Parish Building Code Administrator  
Terrebonne Parish Consolidated Government

## Appendix E: Terrebonne Parish Hazard Mitigation Goals

GOAL #	Objective	Action Items	Timeframe	Funding	Staff	
<b>1</b>	1.1 Ensure existing structures are structurally sound to endure hurricane-force winds	1.1.1 wind harden structures	1-5 years as funding permits	HMGP; local, regional, federal	Existing parish administration	
	1.2 ensure all citizens and employees of Terrebonne Parish are safe from high winds	1.2.1 Construct safe rooms at critical facilities	1-5 years as funding permits	HMGP; local, regional, federal	Existing parish administration	
		1.2.2 Install a hazard early warning system	1-5 years as funding permits	HMGP; local, regional, federal	Parish administration	
	1.3 ensure all 1 <sup>st</sup> responders are adequately equipped to respond to a storm even	1.3.1 Purchase communication devices	1-5 years as funding permits	HMGP; local, regional, federal	Existing Parish administration	
		1.3.2 Purchase generators for critical facilities to ensure operation during and after a hazard event	1-5 years as funding permits	HMGP; local, regional, federal	Existing Parish administration	
	1.4. Protect citizens from saltwater intrusion	1.4.1 Maintain dual potable water intakes	Ongoing	Local	Existing Parish administration	
		1.4.2 Acquire bottled water in event of saltwater intrusion	As needed	Local, federal	Existing Parish administration	
		1.4.3 Pursue Morganza to the Gulf surge protection levee which would in turn reduce the effects of saltwater intrusion	1-5 years	Local, federal	Existing Parish administration	
	1.5 Reduce the effects of Land Subsidence	1.5.1 Pursue coastal protection projects to reduce land subsidence in coastal areas	Ongoing	Local	Existing Parish administration	
		1.5.2 Ensure accurate survey points are located throughout the parish to monitor continued subsidence	Ongoing	Local, federal	Existing Parish administration	
		1.5.3 Monitor agricultural activities and encourage smart farming practices to reduce soil compaction and acceleration of subsidence	As needed	Local, federal	Existing Parish administration	
	2	2.1 Increase public awareness of hazard areas and educate the public on mitigation	2.1.1 Continue to advertise public meetings during the hazard mitigation planning process	3-5 years	HMGP	Parish administration

<b>3</b>	3.1 Eliminate threat of flood damage to structures in Terrebonne Parish including storm surge and levee failure	3.1.1 Upgrade current drainage infrastructure	1-5 years	HMGP	Existing designated full-time personnel in public works department
		3.1.2 Construct new flood control structures and levees	1-10 years	Local, regional, federal	Existing Parish administration
		3.1.3 Elevate or acquire all RL and SRL structures in Terrebonne Parish	1-10 years, as funding permits	HMGP	Existing Parish administration
		3.1.4 Elevate equipment that is vulnerable to flood damage	1-5 years	HMGP	Existing Parish administration
		3.1.5 Flood proof all public buildings vulnerable to flood damage	1-5 years, as funding permits	HMGP	Existing Parish administration
		3.1.6 Construct Morganza to the Gulf Hurricane Protection Levee which would protect both new and current developments	1-10 years, as funding permits	Local, regional, federal	Existing Parish administration
<b>4</b>	4.1 Promote and permit commercial and industrial development, including public critical facilities, outside of hazard areas to limit business interruption, property damage, and impairment to critical facilities in strict accordance with the parish zoning, flood management, and other applicable state and federal regulations	4.1.1 Ensure that future development does not increase hazard losses by enforcing building codes	Ongoing	No additional funds required	Parish Administration
		4.1.2 guide future development away from hazard areas using zoning regulations while maintaining other parish goals such as economic development and improving the quality of life	Ongoing	No additional funds required	Parish Administration
		4.1.3 Enforce the International Building Code requirements for all new construction to strengthen buildings against high wind damage	Ongoing	No additional funds required	Parish Administration
		4.1.4 Examine current zoning regulations and determine what new regulations could be passed to reduce the effects of hazards on new buildings and infrastructure	Ongoing	No additional funds required	Parish Administration

## Appendix F: Roberta Grove- Senator Circle Invitation Postcard



University of New Orleans

### Repetitive Flood Loss Area Analysis Final Neighborhood Meeting

Thursday, May 16<sup>th</sup>, 2013 at 3:00 pm at the  
100 Senator Circle, M&M Building,  
Houma, La 70363

The University of New Orleans' Center for Hazards Assessment, Response and Technology (UNO-CHART)

2000 Lakeshore Drive  
Milneburg Hall Room 102  
New Orleans, LA 70148

Phone: 504.280.1404  
Fax: 504.280.4023  
Email: CHART@uno.edu

UNO-CHART has conducted a Repetitive Flood Loss Area Analysis for the City of Houma in the Roberta Grove- Senator Circle neighborhood.

Repetitive Flooding is a shared, community-wide problem. This Repetitive Loss Area Analysis will offer mitigation techniques appropriate for the residents of Roberta Grove & Senator Circle, as well as the City of Houma.

A draft of the report will be presented, and there will be a discussion following the presentation. A copy of the draft report can be found on our website at:  
[www.floodhelp.uno.edu](http://www.floodhelp.uno.edu)



University of New Orleans

### Repetitive Flood Loss Area Analysis Final Neighborhood Meeting

Thursday, May 16<sup>th</sup>, 2013 at 6:00 pm at the  
Gymnastic Development Center, 110 Rome  
Commercial Place; Houma, La 70363

The University of New Orleans' Center for Hazards Assessment, Response and Technology (UNO-CHART)

2000 Lakeshore Drive  
Milneburg Hall Room 102  
New Orleans, LA 70148

Phone: 504.280.1404  
Fax: 504.280.4023  
Email: CHART@uno.edu

UNO-CHART has conducted a Repetitive Flood Loss Area Analysis for the City of Houma in the Roberta Grove- Senator Circle neighborhood.

Repetitive Flooding is a shared, community-wide problem. This Repetitive Loss Area Analysis will offer mitigation techniques appropriate for the residents of Roberta Grove & Senator Circle, as well as the City of Houma.

A draft of the report will be presented, and there will be a discussion following the presentation. A copy of the draft report can be found on our website at:  
[www.floodhelp.uno.edu](http://www.floodhelp.uno.edu)

## Appendix G: Houma Terrebonne Housing Authority Newsletter about Informational meeting

<b>Houma Terrebonne Housing Authority</b>	PRESORTED STANDARD U.S. POSTAGE PAID Houma, LA Permit No. 458
7491 Park Avenue Houma, LA 70364  P.O. Box 3816 Houma, LA 70361  Your Editors,  <i>H.T.H.A. Staff</i>	
<i>H.T.H.A Board of Commissioners</i>  <i>Allan Luke- Chairman</i> <i>Pat Cazes- Vice Chairperson</i> <i>Melissa Ardoin-Commissioner</i> <i>Chester Dillard-Commissioner</i> <i>Joe Thompson-Commissioner</i>	
<p><i>Don't judge each day by the harvest you reap but by the seeds that you plant.</i> ~Robert Louis Stevenson</p>	
<p><i>Words from the Executive Director</i></p> <p>HUD's Quality Housing and Work Responsibility Act (QHWRA) of 1998 mandates that each and every Public Housing adult Head of Household and household members, with certain exceptions, are required to volunteer and contribute no less than <b>8 hours of work per month</b> within the community in which they reside, or to participate on an ongoing basis in an economic self-sufficiency or job training program. All residents should know that Annual Leases are required in public housing and Annual Compliance Reviews are required for the work requirement and your <b>Dwelling Leases Shall Not Be Renewed</b> unless the resident, <b>YOU</b>, are in compliance with the work requirement. All should know that <b>This Rule</b> will be enforced by the Housing Authority! Exceptions from community service work are provided for working families, senior citizens (62 and older), disabled families (must provide proof of the disability) persons attending school or vocational training, or physically impaired persons and tenants who believe they are covered by any of these exceptions should immediately present evidence supporting their claim to the housing manager.</p> <p>Senator Circle Residents are urged to attend a very important informational meeting on Thursday, May 16, 2013, 3:00 p.m. in the Senator Circle M &amp; M Auditorium which deals with flood Hazards faced while living in the Senator Circle Development and hazard mitigation funding and plans that may affect you. Tenants who have lived in the Development through storms such as Allison, Katrina, Rita, Gustav, Ike, etc. should attend because you may learn of available funding sources pertinent to any losses had during these events and financial assistance previously unknown to you. FEMA officials will be present as well as Terrebonne Parish personnel and elected officials including District 1 council member, the Honorable John Navy.</p> <p>Finally, tenants should read and become familiar with their dwelling lease. It and it alone represent the legal agreement between you and the PHA. It explains your obligations to the Authority and the Authority's duty to you. Issues such as your failure to report problems inside your unit to housing someone not reported by you as a member of your household, is cause for eviction. The Housing Authority is adopting a zero tolerance position for these type violations. If discovered, these violations will subject you to eviction!</p> <p>Wayne Thibodeaux 985-876-4755</p>	

## Appendix H: Senator Circle Data Collection and Findings

Building number	Street Name	APT_LOT	Occupied?	# of Stories	Elevated above grade	Elevated above street	Structure type	Foundation Type	Foundation Condition	Retrofitted	Mitigation recommendations
100	SENATOR CIRCLE	A	YES	1	1--2	2--3	BF	S	GOOD	NO	FW
100	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
101	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
101	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
102	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
102	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
103	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
103	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
104	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
104	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
105	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
105	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
106	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
106	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
107	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
107	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
108	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
108	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
109	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
109	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
110	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
110	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
111	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
111	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
112	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
112	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
113	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
113	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW

Building number	Street Name	APT_LOT	Occupied?	# of Stories	Elevated above grade	Elevated above street	Structure type	Foundation Type	Foundation Condition	Retrofitted	Mitigation recommendations
114	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
114	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
117	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
117	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
118	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
118	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
119	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
119	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
120	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
120	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
121	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
121	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
122	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
122	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
123	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
130	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
130	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
131	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
131	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
132	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
132	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
133	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
133	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
134	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
134	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
135	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
135	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
146	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
147	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
147	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
148	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
149	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW

Building number	Street Name	APT_LOT	Occupied?	# of Stories	Elevated above grade	Elevated above street	Structure type	Foundation Type	Foundation Condition	Retrofitted	Mitigation recommendations
150	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
151	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
151	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
152	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
153	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
153	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
154	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
154	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
155	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
159	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
160	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
160	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
161	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
162	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
162	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
163	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
164	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
164	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
165	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
166	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
167	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
168	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
168	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
169	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
170	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
170	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
171	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
172	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
172	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
173	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
178	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
178	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
179	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW

Building number	Street Name	APT_LOT	Occupied?	# of Stories	Elevated above grade	Elevated above street	Structure type	Foundation Type	Foundation Condition	Retrofitted	Mitigation recommendations
179	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
180	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
180	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
181	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
181	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
182	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
182	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
185	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
185	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
186	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
186	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
187	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
187	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
188	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
188	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
189	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
189	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
190	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
190	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
191	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
191	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
192	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
192	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
193	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
193	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
194	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
194	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
195	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
195	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
196	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
196	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
197	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
198	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW

Building number	Street Name	APT_LOT	Occupied?	# of Stories	Elevated above grade	Elevated above street	Structure type	Foundation Type	Foundation Condition	Retrofitted	Mitigation recommendations
198	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
200	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
200	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
201	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
201	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
202	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
202	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
203	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
203	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
204	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
204	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
209	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
210	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
210	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
213	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
214	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
214	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
217	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
217	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
218	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
218	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
219	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
219	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
220	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
221	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
221	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
222	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
222	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
225	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
225	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
226	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
226	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
229	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW

Building number	Street Name	APT_LOT	Occupied?	# of Stories	Elevated above grade	Elevated above street	Structure type	Foundation Type	Foundation Condition	Retrofitted	Mitigation recommendations
229	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
230	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
233	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
233	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
234	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
234	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
237	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
237	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
238	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
238	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
241	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
241	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
242	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
242	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
244	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
244	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
245	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
245	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
246	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
246	SENATOR CIRCLE	B	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
247	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
247	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
248	SENATOR CIRCLE	A	NO	1	0-1	1--2	BF	S	GOOD	NO	FW
250	SENATOR CIRCLE	A	YES	1	0-1	1--2	BF	S	GOOD	NO	FW
250	SENATOR CIRCLE	B	YES	1	0-1	1--2	BF	S	GOOD	NO	FW

## Appendix I: Roberta Grove Data Collection and Findings

Building number	Street Name	Occupied?	# of Stories	Elevated above grade	Elevated above street	Structure type	Foundation Type	Foundation Condition	Adeq. Vents	Retrofitted	Mitigation recommendations
2	GOODWOOD	YES	1	5--6	0-1	BF	CS	GOOD	YES	YES	MITI
3	GOODWOOD	YES	2	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
4	GOODWOOD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
5	GOODWOOD	YES	1	3--4	0-1	BF	CS	GOOD	YES	YES	MITI
100	ROBERTA GR	YES	1	0-1	3--4	BF	S	GOOD	NA	YES	DF/FW
103	ROBERTA GR	YES	1	0-1	0-1	BF	S	GOOD	NA	YES	DF/FW
200	ROBERTA GR	YES	1	0-1	0-1	BF	S	GOOD	NA	YES	DF/FW
201	ROBERTA GR	YES	1	0-1	0-1	BF	S	GOOD	NA	YES	DF/FW
201	GARDEN LN	YES	2	1--2	0-1	BF	CS	GOOD	YES	YES	ELVT
203	ROBERTA GR	NO	1	0-1	0-1	BF	S	GOOD	NA	YES	DF/FW
203	GARDEN LN	YES	1	0-1	0-1	BF	S	GOOD	NA	YES	DF/FW
204	ROBERTA GR	YES	1	0-1	0-1	BF	S	GOOD	NA	YES	DF/FW
205	ROBERTA GR	YES	1	0-1	0-1	BF	S	GOOD	NA	YES	DF/FW
205	GARDEN LN	YES	1	0-1	0-1	BF	S	GOOD	NA	YES	DF/FW
206	ROBERTA GR	YES	1	0-1	0-1	BF	S	GOOD	NA	YES	DF/FW
207	GARDEN LN	YES	1	0-1	0-1	BF	S	GOOD	NA	YES	DF/FW
209	ROBERTA GR	YES	2	0-1	0-1	BF	S	GOOD	NA	YES	DF/FW
301	ROBERTA GR	YES	2	0-1	0-1	BF	S	GOOD	NA	YES	DF/FW
302	WAKEFIELD	YES	1	0-1	0-1	BF	S	GOOD	NA	YES	DF/FW
304	ROBERTA GR	YES	1	4--5	0-1	BF	S	GOOD	YES	YES	MITI
309	ROBERTA GR	YES	2	4--5	0-1	BF	CS	GOOD	YES	YES	MITI
401	ROBERTA GR	YES	1	0-1	0-1	BF	S	GOOD	NA	YES	DF/FW
402	ROBERTA GR	YES	1	0-1	0-1	BF	S	GOOD	NA	YES	DF/FW
403	ROBERTA GR	YES	2	1--2	0-1	?	CS	GOOD	?	YES	ELEV
499	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
500	MIDDLEWOOD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW

Building number	Street Name	Occupied?	# of Stories	Elevated above grade	Elevated above street	Structure type	Foundation Type	Foundation Condition	Adeq. Vents	Retrofitted	Mitigation recommendations
501	WOODSIDE	YES	1.5	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
502	MIDDLEWOOD	YES	1	0-1	0-1	WF	S	GOOD	NA	NO	MITI
503	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
504	WOODHAVEN	YES	1	4--5	0-1	BF	CS	GOOD	YES	YES	MITI
504	WOODSIDE	NO	2	0-1	0-1	BF	S	FAIR	NA	NO	DF/FW
505	WOODHAVEN	YES	2	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
505	MIDDLEWOOD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
505	WOODSIDE	YES	1.5	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
506	WOODHAVEN	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
506	OAKWOOD	YES	1	4--5	0-1	BF	CS	GOOD	YES	YES	MITI
507	OAKWOOD	YES	2	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
507	MIDDLEWOOD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
507	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
509	OAKWOOD	YES	2	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
509	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
510	WOODHAVEN	YES	1	4--5	0-1	BF	CS	GOOD	?	YES	MITI
510	MIDDLEWOOD	YES	1	5--6	0-1	BF	CS	GOOD	YES	YES	MITI
510	WOODSIDE	NO	1	0-1	0-1	BF	S	GOOD	NA	NO	TO BE MITI
511	WOODHAVEN	YES	2	1--2	0-1	BF	S	GOOD	NA	NO	DF/FW
511	OAKWOOD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
511	WOODSIDE	YES	2	5--6	0-1	BF	CS	GOOD	YES	YES	MITI
512	WOODHAVEN	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
512	MIDDLEWOOD	YES	1	1--2	0-1	WF	CS	GOOD	NA	NO	ELEV
512	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
513	OAKWOOD	YES	2	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
514	WOODHAVEN	YES	1	4--5	0-1	BF	CS	GOOD	YES	YES	MITI
514	OAKWOOD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
515	WOODHAVEN	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
515	OAKWOOD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
515	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW

Building number	Street Name	Occupied?	# of Stories	Elevated above grade	Elevated above street	Structure type	Foundation Type	Foundation Condition	Adeq. Vents	Retrofitted	Mitigation recommendations
516	WOODHAVEN	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
516	MIDDLEWOOD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
516	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
517	WOODHAVEN	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
517	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
518	WOODHAVEN	YES	1	4--5	0-1	BF	CS	GOOD	YES	NO	MITI
518	OAKWOOD	YES	1	4--5	0-1	BF	CS	GOOD	YES	YES	MITI
518	MIDDLEWOOD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
518	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
519	OAKWOOD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
519	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
520	MIDDLEWOOD	YES	1	0-1	0-1	WF	S	GOOD	NA	NO	FW
520	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
521	OAKWOOD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
521	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
522	MIDDLEWOOD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
522	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
523	OAKWOOD	YES	1	4--2	0-1	WF	CS	GOOD	YES	YES	MITI
524	MIDDLEWOOD	YES	2	0-1	0-1	BF	S	GOOD	NA	NO	MITI
525	MIDDLEWOOD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
528	MIDDLEWOOD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
530	MIDDLEWOOD	YES	1	5--6	0-1	BF	CS	GOOD	YES	YES	MITI
601	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
605	WOODSIDE	NO	1	0-1	0-1	WF	S	GOOD	NA	NO	FW
606	WOODSIDE	NO	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
607	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
608	WOODSIDE	NO	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
609	WOODSIDE	YES	2	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
613	WOODSIDE	YES	2	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
614	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
616	WOODSIDE	YES	1	0-1	0-1	WF	S	GOOD	NA	NO	DF/FW

Building number	Street Name	Occupied?	# of Stories	Elevated above grade	Elevated above street	Structure type	Foundation Type	Foundation Condition	Adeq. Vents	Retrofitted	Mitigation recommendations
617	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
620	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
621	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
622	WOODSIDE	NO	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
3008	WOODCREST	YES	2	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
3009	WOODCREST	YES	1	1--2	0-1	WF	CS	GOOD	NO	NO	MITI
3301	WAKWFIELD	YES	2	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
3302	WAKWFIELD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
3304	WAKWFIELD	YES	1.5	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
3304	WOODCREST	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
3305	WOODCREST	YES	1	3--4	0-1	BF	CS	GOOD	YES	YES	MITI
3306	WAKEFIELD	YES	1	4--5	1--2	BF	CS	GOOD	YES	YES	MITI
3306	WOODCREST	YES	1	0-1	0-1	WF	S	GOOD	NA	NO	DF
3307	WAKEFIELD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
3308	WAKEFIELD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
3309	WOODCREST	YES	1	1--2	0-1	WF	S	GOOD	NA	NO	MITI
3311	WOODCREST	YES	1	4--5	0-1	BF	CS	GOOD	YES	YES	MITI
3313	WOODCREST	YES	2	4--5	0-1	WF	CS	GOOD	YES	YES	MITI
3400	WAKEFIELD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
3401	BELMONT	YES	2	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
3402	WOODCREST	YES	2	0-1	0-1	WF	S	GOOD	NA	NO	DF
3403	WAKEFIELD	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
3403	WOODCREST	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
3419	BANCROFT	YES	1	2--3	0-1	WF	CS	GOOD	YES	YES	MITI
3500	WOODSIDE	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW
9496	MAIN ST	YES	1	0-1	3--4	BF	S	GOOD	NA	NO	DF/FW
9470	E MAIN ST	YES	1	0-1	0-1	BF	S	GOOD	NA	NO	DF/FW

BF = Brick Faced; WF = Wood Frame; S = Slab; FW = Flood Wall; DF = Dry floodproofing; CS = Crawl Space  
 ELVT = Elevated; MITI = Mitigated

### Final Informational Meeting, May 16<sup>th</sup>, 2013

A pre-draft-submission informational meeting was held at Roberta Grove and Senator Circle neighborhoods on May 16<sup>th</sup>, 2013. Neighborhood Residents, Department of Planning and Zoning, Terrebonne Parish Council District 1 and District 8, Homeowners Association (Roberta Grove), Housing Authority (Senator Circle), LSU Sea Grant and FEMA Region VI were notified (3) three weeks prior to the meeting dates. Senator Circle Housing Authority had also sent out a notice on their newsletter to remind the residents about the meeting. Copies of the notice and the invitation post card can be found in Appendices F and G.

Erin Merrick and Nandini Seth undertook the Repetitive Flood Loss Area Analysis (RLAA) for the neighborhood and represented UNO-CHART at the meeting. The following were presented and explained:

- The intent of the informational meeting requirement in a RLAA was explained to the community,
- Copies of Repetitive Loss Area Analysis (RLAA) draft were handed out to the residents to encourage them to send feedbacks to the UNO-CHART team,
- Project findings were discussed in detail,
- Alternative mitigation measures were suggested by UNO-CHART team of experts,
- Community Rating System (CRS) was discussed in relation to earning credits by utilizing RLAA.
- Recommendations were explained for both the neighborhoods separately.

The following is the summary of attendees concern/ comments:

- Many attendees stated that cleaning, widening and deepening of Bayou Chauvin can alleviate flooding problems in the study area.
- The institution of Wal-Mart and the new subdivision was discussed. The residents suggested that building a retention pond near the new subdivision will be used to capture excess runoff that Bayou Chauvin cannot contain.



Figure 19: Final Informational meeting at Roberta Grove



Figure 20: Final Informational meeting at Senator Circle



## **Attachment c3-4 HMPU – Code Enforcement**

### **STRUCTURE INVENTORY**

In 2008/9 Terrebonne Parish funded and resourced pilot program covering 10,941 built structures within the lower bayou special flood hazard area (SFHA). In a field survey, these structures were catalogued by street address and GPS coordinates and by standard reference methods, the extent of damage, dilapidation and standing floodwater level was estimated and documented. This project was highly successful in providing a base-line for future needs assessment and, within the limited area of study; and has served data needs for a wide range of hazard mitigation planning projects within the parish

Some of the key outcomes of value from the pilot project have been:

- Reduction in future risk of injury to persons and property: and
- Reduction in future claims on public expenditure for remedial action; and
- Reduction in future claims on NFIP, with resultant reductions in premium rates: and
- Facilitation of the planning of floodplain mitigation strategies; and
- Facilitation of cost benefit analyses to support major remedial activity proposals
- Facilitation of improvements in post-event damage assessments (RDA and PDA); and
- Facilitation of timely and reliable SD and CSD determinations.

On the basis of experience with the Pilot Project, it is clear that there is a high level of potential benefit to be gained from further development and application of this proactive approach to structure inventory tracking. However, the parish does not have the resources necessary to expand this approach from pilot are to whole parish; and the development of its computerized permitting system to store and use this data as a routine hazard mitigation tool.

When fully developed and proven, this tool could be available to any jurisdiction wishing to replicate such a proactive hazard mitigation approach to its structure inventory.

**Estimated Project Cost:** \$ 850,000

### **STORM RECOVERY PHASE CODE ENFORCEMENT CAPACITY**

One of the key strategies to mitigation of future storm related losses from structural damage lies in the comprehensive enforcement of current construction code requirements during the renovation and reconstruction processes. However, no jurisdiction can afford to carry the levels of staffing to respond to post-storm demand for assistance to property owners in the proper planning and execution of their construction projects.

This surge in service demand is also concurrent with the immediate storm related damage assessment programs which have to be serviced in order to meet state and federal reporting requirements for the establishment of anticipatory cost estimates, as well as RDA/PDA and SD/CSD determination, all of which activity is generally undertaken by the very field inspection staff whose critical services are concurrently in demand for code advisory and enforcement activity.

In addition, a high proportion of post-storm construction activity is undertaken by owners who, for a variety of reasons, do not apply for construction permits. With the limited resources of building departments, this sudden and extreme increase in service demand leads to a concentration on only certain key code requirements in relation to restoration work for which permits are issued. There is certainly no spare capacity to patrol the jurisdictional area in order to identify and forestall unpermitted activity.

Moreover, these excessive service demand periods coincide with severe reductions in revenue receipts for the jurisdiction, in consequence of immediate and ongoing community disruptions caused by the same storms. External financing through grant support would be essential to the maintenance of code enforcement standards throughout the recovery period.

There is a significant hazard mitigation impact to be gained from immediate jurisdictional recourse to supplementary applicant advisory, plan review, building inspection, and preventive enforcement patrol services during the period of exaggerated demand following a major, declared, storm event. The development of a plan to meet this peak demand would, ideally be based on pre-positioned contingency contracts.

**Estimated costs** would be variable, on a storm to storm basis, dependent on the level of damage sustained by structures within the jurisdiction.

**Attachment c3-5**  
**2014 Building Content Listing with Flood Elevation**

*The 2014 Building Content Listing with Flood Elevation is presented on the following pages.*

## Drainage Pump Stations

<b>PUMP #</b>	<b>ADDRESS</b>	<b>LOCATION</b>	<b># OF ENGINES</b>		<b>PUMP SIZE</b>	<b>Building</b>		<b>APPROXIMATE COST</b>
D-01	3666 HWY. 665 MONTEGUT, LA. 70377	POINT-AUX-CHENE	1 diesel engine over electric	1	1-20"	Metal / fencing	\$550,000.00	\$550,000.00
D-57	724 HWY. 182 HOUMA, LA 70364	1-1 B	8 diesel engines	8	8-48"	Metal	\$550,000.00	\$4,400,000.00
D-58	174 LITTLE COTEAU ROAD HOUMA, LA 70364	1-1B COTEAUX	10 diesel engines	10	10-48"	Metal	\$550,000.00	\$5,500,000.00
D-47	972 ARAGON ROAD MONTEGUT, LA 70377	ARAGON ROAD	2 diesel engines	2	1-48" & 1-36"	Metal	\$550,000.00	\$1,100,000.00
D-09	2478 GRAND CAILLOU ROAD HOUMA, LA 70363	ASHLAND	2 diesel and 1 electric	3	2-36" & 1-20"	Metal	\$550,000.00	\$1,650,000.00
D-60	3653 FALLON DRIVE HOUMA, LA 70363	ASHLAND NORTH	2 Diesel engine	2	2-24"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-39	5918 HWY. 311 HOUMA, LA 70360	BARATARIA STREET	2 diesel and 1 electric	3	2-36" & 1-30"	Metal / fencing	\$550,000.00	\$1,650,000.00
D-24	1507 BARRINGER ST. HOUMA, LA 70360	BAROID	2 electric over diesel	2	2-30"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-42	250 MARINA DRIVE GIBSON, LA 70356	BAYOU BLACK MARINA	1 electric motor	1	1-20"	Metal / fencing	\$550,000.00	\$550,000.00
D-46	1773-A BAYOU DULARGE RD. THERIOT, LA 70397	BAYOU DULARGE (VOISIN)	1 diesel	1	1-12"	Wood building	\$550,000.00	\$550,000.00
D-27	237-A SHADY OAK CT. HOUMA, LA 70360	BONANZA	3 diesel and 1 electric	4	3-48" & 1-36"	Metal / fencing	\$550,000.00	\$2,200,000.00
D-06	6497 DELAMS DRIVE CHAUVIN, LA 70344	BOUDREAUX CANAL	1 diesel and 1 electric	2	1-16" & 1-24"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-36	4663 FUR STREET HOUMA, LA 70363	CANE BREAK	1 electric motor	1	1-20"	Metal	\$550,000.00	\$550,000.00
D-44	241 VEGA COURT GIBSON, LA 70356	CAVALIER TRAILER PARK	1 diesel	1	1-16"	Metal / fencing	\$550,000.00	\$550,000.00
D-40	332-A CENAC STREET HOUMA, LA 70364	CENAC STREET	1 electric over diesel & 1 electric	2	2-16"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-31	1598 BULL RUN ROAD CHACAHOUULA	CHACAHOUULA	2 diesel engine	2	1-16" & 1-24"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-65	COMPANY CANAL COMPANY CANAL ROAD	COMPANY CANAL ROAD	1 Diesel	1	1-20"	Metal / fencing	\$550,000.00	\$550,000.00
D-38	55 CONCORD RD. HOUMA, LA 70360	CONCORD ROAD	2 diesel engines	2	2-36"	Metal	\$550,000.00	\$1,100,000.00
D-37	244 CROZIER DRIVE HOUMA, LA 70363	CROZIER DRIVE	1 electric over diesel & 1 electric	2	2-12"	Metal / fencing	\$550,000.00	\$1,100,000.00

D-43	341 GULF ACCESS ROAD HOUMA, LA 70363	CROZIER ROAD	1 electric motor	1	1-24"	Metal / fencing	\$550,000.00	\$550,000.00
D-48	185 DEADWOOD ROAD GIBSON, LA 70356	DEADWOOD "C"	1 diesel engine	1	1-16"	Metal / fencing	\$550,000.00	\$550,000.00
D-49	760 DEADWOOD ROAD GIBSON, LA 70356	DEADWOOD "D"	1 electric motor	1	1-8"	Wood building	\$550,000.00	\$550,000.00
D-30	134 GIBSON GARDENS ST. GIBSON, LA 70356	DEADWOOD (IN SUBD.)	1 diesel engine	1	1-36"	Metal / fencing	\$550,000.00	\$550,000.00
D-15	840 DEADWOOD RD. GIBSON, LA 70356	DEADWOOD (UNDER TRACKS)	1 electric motor	1	1-8"	Below ground Sump with metal building	\$550,000.00	\$550,000.00
D-17	133-A AZALEA DRIVE DONNER, LA 70352	DONNER	1 electric over diesel engine	1	1-36"	Metal	\$550,000.00	\$550,000.00
D-32	133 AZALEA DRIVE DONNER, LA 70352	DONNER EXT.	1 diesel over electric	1	1-36"	Metal	\$550,000.00	\$550,000.00
D-53	399 ROSEDOWN DRIVE HOUMA, LA 70360	ELLENDALE	1 electric and 1 diesel engine	2	2-36"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-21	112 EVEST STREET DULAC, LA 70353	EVEST ST. 3-1B	2 diesel engines	2	2-36"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-55	15-A GERALDINE ROAD GIBSON, LA 70356	GERALDINE ROAD	1 electric motor	1	1-12"	No Building	\$550,000.00	\$550,000.00
D-16	209 CANDRIENCE PUMPING CT GIBSON, LA 70356	GIBSON	3 diesel engines	3	3-36"	Metal / fencing	\$550,000.00	\$1,650,000.00
D-70	GATOR CT. GIBSON LA 70356	GIBSON	2 Diesel engines	2	2- 36"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-66	6344 SOUTH BAYOU BLACK DR.	GIBSON POST OFFICE	1 Electric	1	1 -12"	Metal / fencing	\$550,000.00	\$550,000.00
D-35	6400 S. BAYOU BLACK DR. GIBSON, LA 70356	GIBSON RECREATION	1 diesel engine	1	1-20"	Metal / fencing	\$550,000.00	\$550,000.00
D-34	6308 S. BAYOU BLACK DRIVE GIBSON, LA 70356	GIBSON WATER TOWER	1 diesel engine	1	1-16"	Metal / fencing	\$550,000.00	\$550,000.00
D-20	470-F BOURG LAROSE HWY. BOURG, LA 70343	GRAND BOIS	1 electric motor	1	1-20"	Metal / fencing	\$550,000.00	\$550,000.00
D-50	134 DIANA STREET GIBSON, LA 70356	GREENWOOD	1 electric & 1 diesel	2	1-16" & 1-20"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-68	HEBERT ST. COTEAU	HEBERT ST.	2 diesel	2	2-24"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-54	498 HIGHRIDGE DRIVE HOUMA, LA 70363	HIGHRIDGE	1 electric & 1 diesel	2	1-20" & 1-24"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-61	3960 HWY. 665 MONTEGUT, LA 70377	HWY 665 POINT AUX CHENE RD	2 Diesel engines	2	2-24"	Metal	\$550,000.00	\$1,100,000.00
D-13	1892 INDUSTRIAL BLVD. HOUMA, LA 70363	INDUSTRIAL BLVD.	3 diesel and 1 electric	4	2-36,1-20,1-48	Metal	\$550,000.00	\$2,200,000.00

D-62	409 ISLAND ROAD MONTEGUT, LA 70377	ISLE DE JEAN CHARLES	2 Diesel engines	2	2- 24"	Metal	\$550,000.00	\$1,100,000.00
D-63	688 ISLE OF CUBA ROAD SCHRIEVER, LA	ISLE OF CUBA ROAD	1 Diesel engine	1	1- 48"	Metal / fencing	\$550,000.00	\$550,000.00
D-52	186 EMMET'S COURT HOUMA, LA 70364	KREMER/MAPLEWOOD	1 electric and 1 diesel engine	2	2-20"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-64	1075 SAVANNE ROAD HOUMA, LA 70364	LAKE CRESCENT	2 Hydraulic diesel	2	2 -12"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-59	223 LECOMPTE LANE HOUMA, LA 70363	LECOMPTE LANE	1 diesel engine	1	1-12"	Metal / fencing	\$550,000.00	\$550,000.00
D-51	3800-A FOXLAND DR. HOUMA, LA 70360	LIRETTE STREET	1 electric and 1 diesel engine	2	1-8" & 1-16"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-19	557 FOHS CANAL COURT THERIOT, LA	LOWER BAYOU DULARGE	3 diesel engines	3	3-36"	Metal / fencing	\$550,000.00	\$1,650,000.00
D-11	7384 SHRIMPER'S ROW DULAC, LA 70353	LOWER GRAND CAILLOU	1 diesel and 1 electric	2	2-36"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-04	759 CLINTON STREET CHAUVIN, LA 70344	LOWER LITTLE CAILLOU	3 diesel engines	3	3- 36"	Metal	\$550,000.00	\$1,650,000.00
D-02	241 PUMP STATION CT. MONTEGUT, LA 70377	LOWER MONTEGUT	3 diesel engines	3	3-36"	Metal	\$550,000.00	\$1,650,000.00
D-22	120 EAGLE NEST COURT HOUMA, LA 70360	M & L	3 diesel engines	3	3-48"	Metal / fencing	\$550,000.00	\$1,650,000.00
D-56	1901-A HWY. 55 MONTEGUT, LA 70377	MADISON	2 diesel engines	2	2-48"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-10	247 FOUR POINT ROAD DULAC, LA 70353	MAYFIELD	2-diesel	2	2-36"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-25	1113 CROSS STREET MONTEGUT, LA 70377	MONTEGUT	1 diesel engine	1	1-36"	Metal / fencing	\$550,000.00	\$550,000.00
D-69	HWY. 665?? NEAR WILDLIFE & FISHERIES	POINTE-AUX-CHENES	3 Diesel engines	3	3-36"	Metal	\$550,000.00	\$1,650,000.00
D-14	1599 W. PARK AVE. SCHRIEVER, LA 70395	SCHRIEVER (BY SCHOOL)	1 electric motor	1	1-20"	Metal / fencing	\$550,000.00	\$550,000.00
D-28	639 HWY. 20 SCHRIEVER, LA 70395	SCHRIEVER (HWY. 20)	2 diesel, 1 diesel over electric, &1 electric	4	3-48" & 1-36"	Metal / fencing	\$550,000.00	\$2,200,000.00
D-07	148 MOSSES STREET CHAUVIN, LA 70344	SMITHRIDGE	3 diesel and 1 electric	4	4-48"	Metal / fencing	\$550,000.00	\$2,200,000.00
D-33	2294 ST. LOUIS CANAL RD. HOUMA, LA 70364	ST. LOUIS CANAL	2 electric motors	2	1-12" & 1-14"	Wood building	\$550,000.00	\$1,100,000.00
D-29	268 LAGOON COURT HOUMA, LA 70360	SUMMERFIELD	3 diesel	3	3-48"	Metal	\$550,000.00	\$1,650,000.00

D-26	213 BARBARA ANN ST. HOUMA, LA 70363	SUNRISE/ Tina Street	1 diesel and 1 electric	2	2-16"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-23	201 TEXAS GULF RD. BOURG, LA 70343	TEXAS GULF ROAD	2 diesel and 1 electric	3	2-36"&1-16"	Metal / fencing	\$550,000.00	\$1,650,000.00
D-45	250 FANDAL ST. GIBSON, LA 70356	TIGER BAYOU	1 electric motor	1	1-8"	Wood building	\$550,000.00	\$550,000.00
		<b>Total:</b>		<b>160</b>				
D-18	234 GABI COURT THERIOT, LA 70397	UPPER BAYOU DULARGE	3 diesel engines	3	3-36"	Metal	\$550,000.00	\$1,650,000.00
D-08	129 ADDIE COURT DULAC, LA	UPPER GRAND CAILLOU	1 diesel and 1 electric	2	2-36"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-05	301 BAYOU NEUF CT. CHAUVIN, LA 70344	UPPER LITTLE CAILLOU	4 diesel engines	4	4-36"	Metal	\$550,000.00	\$2,200,000.00
D-03	755 HWY. 55 MONTEGUT, LA 70377	UPPER MONTEGUT	3 diesel and 1 electric	4	4-36"	Metal / fencing	\$550,000.00	\$2,200,000.00
D-41	1046 WILLIAMS AVE. HOUMA, LA 70364	WILLIAMS AVENUE	2 diesel	2	2-36"	Metal / fencing	\$550,000.00	\$1,100,000.00
D-12	466 E.WOODLAWN RANCH RD. HOUMA, LA 70363	WOODLAWN RANCH ROAD	9 diesel and 1 electric	10	10-48"	Metal	\$550,000.00	\$5,500,000.00
								\$88,000,000.00

**Pump Systems:**

ID	PROJECT NO.	PROJECT NAME	STATUS	ACREAGE	COMMENT (S)	PUMP STATION
0	0-4	Grand Bois	Existing	43	Snapped	D-20
0	1-1A	Bonanza	Existing	2856	Snapped	D-27
0	1-1A	Lake Crescent	Existing	51		D-64
0	1-1B	1-1B	Existing	17515		D-57, D-58
0	1-1B	Willaims Ave	Existing	239	Snapped	D-41
0	1-2	Ashland	Existing	641	Snapped	D-09
0	1-3	Industrial	Existing	476	Snapped	D-13
0	1-5	Woodlawn Pump Station	Existing	4598	Snapped	D-12
0	1-7	Bariod Pump Station	Existing	189	Snapped	D-24
0	1-8	M&L	Existing	502	Snapped	D-22
0	2-1A	Schriever	Existing	2113	Snapped	D-28
0	2-1B	Summerfield	Existing	751	Snapped not sure of wes	D-29

0	3-1A	Cane Break	Existing	59	Not Accurate	D-36
0	3-1A	Susie Canal	Existing	391	Snapped	D-36
0	3-1A	Susie Canal Ext	Existing	201	Snapped	D-36
0	3-1B	3-1B	Existing	266	Snapped	D-08
0	3-1B Ext	Orange Street South	Existing	204	Snapped	D-21
0	3-1C	Shrimpers Row	Existing	425	Snapped	D-11
0	3-2	Mayfield	Existing	1604	Snapped	D-10
0	3-2	Mayfield	Existing	207	Snapped	D-10
0	4-1	East of Aragon Road	Existing	2420	Snapped	D-03
0	4-1	Upper Pointe Aux Chenes	Existing	2106	Snapped	D-03, D-69
0	4-2A	Sara Road to Presque Isle	Existing	4778	Snapped	D-07, D-47
0	4-2B	Sara Road To Bush Canal	Existing	2504	Snapped	D-47 ?
0	4-3A	Middle Pointe Aux Chenes	Existing	34	Snapped	D-01
0	4-3B	Pointe Aux Chenes	Existing	91	Snapped	D-61
0	4-3C	Isle De Jean Charles	Existing	54	Snapped	D-62
0	4-6	Texas Gulf Road	Existing	894	Snapped	D-23
0	4-8	Montegut	Existing	1120	Snapped	D-02, D-25
0	5-1A	Lower Little Caillou	Existing	1887	Snapped	D-04
0	5-1B	Upper Little Caillou	Existing	2576	Snapped	D-05
0	5-2	Boudreaux Canal	Existing	26	Snapped	D-06
0	6-1A	D-16	Existing	1737	Snapped	
0	6-1B	Bayou Black Marina	Existing	201	Not Accurate	D-42
0	6-1B	Cavalier Trailer Park	Existing	61	Not Accurate	D-44
0	6-1B	Gibson Recreation	Existing	29		D-35
0	6-1B	Gibson Water Tower	Existing	40		D-34
0	6-1B	Old Spanish Trail	Existing	244	Snapped	
0	6-1C	D-16	Existing	216	Snapped	D-16
0	6-1C Ext. - O-3	Deadwood Subdivision	Existing	38	Snapped	D-30
0	6-2A & 6-2A Ext	Donner & Donner Ext	Existing	940	Snapped	
0	6-2C	Deadwood Under Railroad	Existing	0	Snapped	D-15
0	6-3	Lirette Street	Existing	38	Snapped	D-51
0	8-1	Lower DuLarge	Existing	1880	Snapped	D-19
0	8-1	Lower DuLarge	Existing	445		D-19
0	8-2A	Crozier Drive	Existing	12	Snapped	D-37
0	8-2A	Tina Street	Existing	38	Snapped	D-26
0	8-2B	Highridge	Existing	82	Snapped	D-54
0	8-2B	LeCompte Lane	Existing	10	Snapped	D-59
0	8-2B	Marmande North-East	Existing	87	Snapped	D-43
0	8-2C	Marmande North	Existing	742	Snapped	D-18
0	8-2D	Falgout Canal North	Existing	1378	Snapped	D-18
0	8-2E	Falgout North-East	Existing	13	Snapped	D-46

0	D-31	Bull Run Road	Existing	234	Snapped	D-31
0	D-33	St Louis Canal Auxillary	Existing	255	Snapped	D-33
0	D-38	Concord Road	Existing	286	Snapped	D-38
0	D-39	Barataria	Existing	237	Snapped	D-39
0	D-40	Cenac & Gum Street	Existing	54	Snapped	D-40
0	D-45	Fandal Street, Tiger Bayou	Existing	9	Snapped	D-45
0	D-48	Deadwood C	Existing	14	Snapped	D-48
0	D-49	Deadwood D	Existing	2	Snapped	D-49
0	D-50	Greenwood	Existing	145	Snapped	
0	D-52	Maplewood	Existing	271	Snapped	D-52
0	D-53	Ellendale	Existing	161	Snapped	D-53
0	D-56	Madison Canal	Existing	266	Snapped By Road	D-56
0	D-60	Ashland Portable	Existing	296	Snapped	D-60

**Total:**

**66**

TERREBONNE PARISH BRIDGE/BRIDGE HOUSE(S)

Updated 12/6/2010

<u>Bridge Name</u>	<u>Bridge Name</u>	<u>Physical Address</u>	<u>Square foot/Type of Bridge House</u>	<u>Type Bridge</u>	<u>Bridge House Value</u>	<u>Bridge/Content Value</u>
Bobtown Bridge	Bobtown Bridge	121 Bobtown Bridge Rd Houma	165 Square feet Steel roof and Fame	Swing Span	\$6,000.00	\$5,000.00
Brady Bridge	Brady Bridge	2002 Brady Rd. Theriot,	180 Square feet Tin roof and wood frame	Swing Span	\$6,000.00	\$5,000.00
Buquet Bridge	Buquet Bridge	5754 Grand Caillou Road Dulac	285 Square feet Tar roof and Steel frame	Lift Span	\$18,000.00	\$150,000.00
Chauvin Bridge	Chauvin Bridge	5700 Bayouside Drive Chauvin	165 Square feet Steel roof and Fame	Swing Span	\$6,000.00	\$5,000.00
Combon Bridge	Combon Bridge	6300 Grand Caillou Road Dulac	266 Square feet Tar roof and cement frame	Lift Span	\$18,000.00	\$150,000.00
Duplantis Bridge	Duplantis Bridge	4400 Bayouside Drive Chauvin	234 Square feet Steel roof and cement frame	Lift Span	\$18,000.00	\$150,000.00
Klondyke Bridge	Klondyke Bridge	100 Hwy 55 Bourg	216 Square feet Steel roof and Fame	Lift Span	\$18,000.00	\$150,000.00
Pontoon Bridge	Pontoon Bridge	300 Falgout Canal Road Dulac	288 Square feet Steel roof and Fame	Swing Span	\$18,000.00	\$250,000.00
Smithridge Bridge # 1	Smithridge Bridge # 1	4900 Bayouside Drive Chauvin	77 Square feet Shingle roof wood frame	Swing Span	\$6,000.00	\$5,000.00
St Ann Bridge	St Ann Bridge	4365 Country Drive Bourg	None	Swing Span	N/A	\$6,000.00
Toussant Foret Bridge (Pellegrin)	Toussant Foret Bridge (Pellegrin)	6000 Bayouside Drive Chauvin	264 Square feet Shingle roof wood frame	Swing Span	\$6,000.00	\$5,000.00
	Bayouside Drive Bridge	3967 Hwy. 56 Houma	None	Bascule	N/A	\$250,000.00
Theriot Bridge	Theriot Bridge	1824 Bayou Dularge Rd Theriot	None	Swing Span	N/A	\$16,000.00
				<b>Total</b>	<b>\$120,000.00</b>	<b>\$1,147,000.00</b>

	Sum of INSURANCE VALUE				FACILITY TYPE				
	LIFT STATION	LOT#	STREET NAME	FEATURE	1. Pumps Submersible & Control Panel	2. Pumps Above Ground	3. Pumps Above Ground w/Bldg	4. Major Facility	Grand Total
		Dickson #1	293-A Dickson Rd	LS	40,000				\$ 40,000
		Dickson #2	331-A Dickson Rd	LS	50,000				\$ 50,000
1	1412 E.Park; Houma, LA	8373	Park Ave	LS	15,000				\$ 15,000
2	2000 E.Park, Houma, LA	8592	Park Ave	LS	15,000				\$ 15,000
3	Afton; Houma, LA	400	Melrose St	LS		25,000			\$ 25,000
4	Airbase; Houma, LA	300	Moffett Rd	MLS				750,000	\$ 750,000
5	Airbase Jr. Houma, LA	218	Moffett Rd	LS	15,000				\$ 15,000
6	American Legion Houma, LA	513	Legion Ave	LS		25,000			\$ 25,000
7	Applied Hydraulics Houma, LA	202	Industrial Ave "C"	LS	15,000				\$ 15,000
	Ashland Major Houma, LA	2513	Denley Rd	MLS				1,555,896	\$ 1,555,896
8	Ashland North1 Houma, LA	2805	Anaheim Dr	LS		25,000			\$ 25,000
9	Ashland North2 Houma, LA	2921	Express Blvd	LS		25,000			\$ 25,000
10	Ashland South Houma, LA	199	David Dr	LS		25,000			\$ 25,000
11	Aviation Rd. Houma, LA	210 B	Aviation Road	LS	15,000				\$ 15,000
12	Bellaire Houma, LA	98	Bonnie St	LS			35,000		\$ 35,000
13	Bergeron Houma, LA	331	Bergeron St	LS	15,000				\$ 15,000
14	Berwood Houma, LA	121	Tony Crochet Ct	LS	15,000				\$ 15,000
15	Bobbie Lou Houma, LA	510	Bobbie Lou Ave	LS		25,000			\$ 25,000
16	Boulevard Park Houma, LA	151	Shady Arbors Cir	LS			35,000		\$ 35,000
17	Bourg Heights Houma, LA	245	Bourg Dr	LS	15,000				\$ 15,000
18	Brittany Houma, LA	240	St. Malo St	LS		25,000			\$ 25,000
19	Broad Houma, LA	401	Broad St	LS	15,000				\$ 15,000
20	Camille Houma, LA	310	Camille St	LS	15,000				\$ 15,000
21	Canal Houma, LA	1006	Canal St	LS	15,000				\$ 15,000
22	Carlos Houma, LA	294	Carlos St	LS			35,000		\$ 35,000

23	Carnival Club	Houma, LA	9182	Main St	LS		25,000			\$	25,000
24	Carriage Cove	Houma, LA	9310	Golden Gate Ct	LS		25,000			\$	25,000
25	Central Heights;	Chauvin, LA	353	South Central Blvd	LS	15,000				\$	15,000
26	Ciera	Houma, LA	5710	Vicari Dr	LS	15,000				\$	15,000
27	Clayton	Houma, LA	101	Clayton Dr	LS			35,000		\$	35,000
28	Cleveland1	Houma, LA	143	Cleveland St	LS		25,000			\$	25,000
29	Cleveland2	Houma, LA	383	Cleveland St	LS		25,000			\$	25,000
30	Complex	Houma, LA	305	Plant Rd, Lot 1	LS	15,000				\$	15,000
31	Corporate	Houma, LA	305	Corporate Dr	LS		25,000			\$	25,000
32	Coteau HB	Houma, LA	1149	Coteau Rd, Lot 2	HB				500,000	\$	500,000
33	Creole	Houma, LA	3007 A	Copasaw Dr	LS			35,000		\$	35,000
34	Crescent	Houma, LA	109	Pelto Dr	LS		25,000			\$	25,000
35	Crescent HB	Houma, LA	1075	Savanne Rd	HB				500,000	\$	500,000
36	Crockett	Houma, LA	1010	Peach St	LS		25,000			\$	25,000
37	Cypress Village	Houma, LA	405 A	Hanson Dr, Lot 1	LS		25,000			\$	25,000
38	Darlene	Houma, LA	431	Darlene St	LS	15,000				\$	15,000
39	Disposal Plant	Houma, LA	221	Plant Rd	MLS				250,000	\$	250,000
40	Douglas	Houma, LA	520	Douglas Dr	LS			35,000		\$	35,000
41	Duet	Houma, LA	327	Grace St	LS	15,000				\$	15,000
42	E.Park/Palm	Houma, LA	8228	Park Ave	LS			35,000		\$	35,000
43	East	Houma, LA	806 A	East St, Lot 1	LS		25,000			\$	25,000
44	East/E.Main	Houma, LA	8977	Main St	LS		25,000			\$	25,000
45	Edgewood	Houma, LA	423	Overton Dr	LS		25,000			\$	25,000
46	Ellendale	Houma, LA	401	Ardoyne Dr	LS			35,000		\$	35,000
47	Elysian	Houma, LA	1800	Laban Ave	LS		25,000			\$	25,000
48	Engeron	Houma, LA	109	Engeron St	LS		25,000			\$	25,000
	Evangeline	Houma, LA	314	Rue Des Affaires	LS	15,000				\$	15,000
49	Fahey	Houma, LA	124	Fahey St	LS		25,000			\$	25,000
50	Fairlane	Houma, LA	3724	End St	LS		25,000			\$	25,000
51	Fannie	Houma, LA	306	Fannie St, Lot 1	LS			35,000		\$	35,000
52	Frank	Houma, LA	2133	Frank St	LS		25,000			\$	25,000
53	Franklin	Houma, LA	1104	Franklin Ave	LS		25,000			\$	25,000

54	Gemini	Houma, LA	222	Gemini Ct	LS	15,000				\$	15,000
55	Gemoco	Houma, LA	200	Industrial Blvd, Lot 1	LS	15,000				\$	15,000
56	Glynn	Houma, LA	950	Haz-Del Ln	LS		25,000			\$	25,000
57	Gouaux	Houma, LA	425	Gouaux Ave, Lot 1	LS			35,000		\$	35,000
58	Gouaux/6th	Houma, LA	707	Gouaux Ave	LS			35,000		\$	35,000
59	Grand Caillou/Taco Bell	Houma, LA	1148	Grand Caillou Rd	LS		25,000			\$	25,000
60	Grande	Houma, LA	284	Grande St	LS		25,000			\$	25,000
61	Green Acres1;	Bourg, LA	3916 A	Benton Dr, Lot 1	LS	15,000				\$	15,000
62	Green Acres2;	Bourg, LA	3944	Benton Dr	LS	15,000				\$	15,000
63	Gum	Houma, LA	8148	Gum St	MLS				750,000	\$	750,000
64	Henderson	Houma, LA	223 A	Henderson St	LS	15,000				\$	15,000
65	Highland	Houma, LA	715	Highland Dr	LS	15,000				\$	15,000
66	Hollywood	Houma, LA	203	S. Hollywood Rd	LS	15,000				\$	15,000
67	Holy Rosary	Houma, LA	8587	Main St	LS		25,000			\$	25,000
68	Hospital/TGMC	Houma, LA	8167	Main St	LS		25,000			\$	25,000
69	Idlewild	Houma, LA	498	Idlewild Dr, Lot 1	MLS				500,000	\$	500,000
70	Imperial	Houma, LA	311	Hollywood Rd S.	LS		25,000			\$	25,000
71	Jail	Houma, LA	207	Ashland Landfill Rd	LS	15,000				\$	15,000
72	James	Houma, LA	154	James Rd	LS	15,000				\$	15,000
73	Jean	Houma, LA	6620	Daigle St	LS	15,000				\$	15,000
74	Jennings	Houma, LA	100	Jennings Ln	LS	15,000				\$	15,000
75	Keeley Ann	Houma, LA	466	Keeley Ann Dr	LS	15,000				\$	15,000
76	Kraemer/Maplewood	Houma, LA	2409	Beta St	LS	15,000				\$	15,000
77	Lafayette Woods	Houma, LA	296	Woodway Dr	LS		25,000			\$	25,000
78	Lancaster	Houma, LA	320	Lancaster Dr	LS	15,000				\$	15,000
79	Levron	Houma, LA	418 A	Levron St, Lot 1	LS	15,000				\$	15,000
80	Lola	Houma, LA	338	Lola St	LS	15,000				\$	15,000
81	Lorraine Park	Houma, LA	128	Helena Dr	LS		25,000			\$	25,000
82	Lower Coteau	Houma, LA	1827	Coteau Rd	LS		25,000			\$	25,000
83	Magnolia	Houma, LA	160	Magnolia Court Yard	LS	15,000				\$	15,000
84	Mandalay West	Houma, LA	244	Mandalay West	LS	15,000				\$	15,000
85	Martin L. King	Houma, LA	1536	Martin Luther King E	LS	15,000				\$	15,000

86	Mary Hughes	Houma, LA	2007	Mary Hughes Dr	LS		25,000			\$	25,000
87	Maxine/Leona	Houma, LA	1306	Maxine St	LS	15,000				\$	15,000
88	Maxine/Mahler	Houma, LA	1116	Maxine St	LS	15,000				\$	15,000
89	Michael	Houma, LA	228	Michael St	LS			35,000		\$	35,000
90	Mire	Houma, LA	916	Broadmoor Ave	LS			35,000		\$	35,000
91	Moffet/Saia	Houma, LA	3419	Trotter Rd	LS		25,000			\$	25,000
92	Myrtle Grove	Houma, LA	109	Halette St	LS		25,000			\$	25,000
93	Naquin	Houma, LA	215 A	Naquin St, Lot 1	LS	15,000				\$	15,000
94	Natalie	Houma, LA	210	Bayou Cane Dr	LS	15,000				\$	15,000
95	Neil	Houma, LA	6430	W Houma St	LS			35,000		\$	35,000
96	O & M Bulding	Houma, LA	2000 B	St. Louis Canal Rd	LS		25,000			\$	25,000
97	Oakshire Bridge	Houma, LA	5545	Main St	LS		25,000			\$	25,000
98	Oakshire HB	Houma, LA	499	Paulette St	HB				500,000	\$	500,000
99	Patriot Point	Houma, LA	246	Bushnell Rd	LS	15,000				\$	15,000
100	Pitre	Houma, LA	8405	Cecil St	LS		25,000			\$	25,000
101	Plantation Gardens	Houma, LA	704	Edith St	LS			35,000		\$	35,000
102	Polk	Houma, LA	102	General Bragg St	LS		25,000			\$	25,000
103	Polk Jr.	Houma, LA	1508	Polk St	LS		25,000			\$	25,000
104	Polk/Hwy311	Houma, LA	5688	Hwy 311	LS		25,000			\$	25,000
105	Pontiff	Houma, LA	304	Pontiff St	LS		25,000			\$	25,000
106	Presque Isle HB	Bourg, LA	253	Bourg Dr	HB				500,000	\$	500,000
107	Presque Isle1;	Bourg, LA	142 A	Presque Isle Dr, Lot	LS		25,000			\$	25,000
108	Presque Isle2;	Bourg, LA	224	Presque Isle Dr	LS		25,000			\$	25,000
109	Professional Plaza	Houma, LA	2	Professional Dr, Lot	LS		25,000			\$	25,000
110	Prospect	Houma, LA	1872	Prospect Blvd	LS			35,000		\$	35,000
111	Riley	Houma, LA	351	Paragon Ave	LS		25,000			\$	25,000
112	Robert/Barre	Houma, LA	263	Robert St	LS			35,000		\$	35,000
113	Rosemary	Houma, LA	214 A	Rosemary St, Lot 1	LS		25,000			\$	25,000
114	Rounds	Houma, LA	3502	Rounds Rd	LS	15,000				\$	15,000
115	Routier	Houma, LA	318	Routier St	LS		25,000			\$	25,000
116	Roy	Houma, LA	166	Roy St	LS			35,000		\$	35,000
117	S.LA Medical	Houma, LA	1989	Denley Rd	LS		25,000			\$	25,000

118	S.Terrebonne Estates	Houma, LA	4499	George St	LS		25,000			\$	25,000
119	Sandcastle	Houma, LA	3048	Sandcastle Dr	LS	15,000				\$	15,000
120	Sarah	Chauvin, LA	5501	Sarah St	LS	15,000				\$	15,000
121	Service Center	Houma, LA	1638	Denley Rd	LS			35,000		\$	35,000
122	Sherwood	Houma, LA	233	Glenwood Dr	LS		25,000			\$	25,000
123	Shirley/Gladys	Houma, LA	141	Shirley St	LS	15,000				\$	15,000
124	Smithridge HB	Chauvin, LA	373	South Central Blvd	HB				500,000	\$	500,000
125	Smithridge1;	Chauvin, LA	4758	Bayouside Dr	LS		25,000			\$	25,000
126	Smithridge2;	Chauvin, LA	4840	Bayouside Dr	LS	15,000				\$	15,000
127	South Moss	Houma, LA	501 A	South Moss Dr	LS		25,000			\$	25,000
128	Southdown No.1	Houma, LA	455	Hanson Dr	HB				500,000	\$	500,000
129	Southdown No.2	Houma, LA	288	Lagoon Ct	HB				500,000	\$	500,000
130	Southern Estates	Houma, LA	407	Sugar Land St	LS	15,000				\$	15,000
131	Southland Mall	Houma, LA	298	Southland Circle	LS		25,000			\$	25,000
132	Spanish Trails	Houma, LA	3441	Anise St	LS		25,000			\$	25,000
133	Sugar Bend	Houma, LA	4644	Sugar Bend St	LS	15,000				\$	15,000
134	Sugarwood	Houma, LA	265	Sugarwood Blvd	LS	15,000				\$	15,000
135	Suthon	Houma, LA	7900	Park Ave	LS			35,000		\$	35,000
136	Texas	Houma, LA	31 A	Texas Ave, Lot 1	LS			35,000		\$	35,000
137	Thunderbird	Houma, LA	114	Terminal Dr	LS	15,000				\$	15,000
138	Tulsa	Houma, LA	347	Tulsa Ave	LS	15,000				\$	15,000
139	Valhi No.1	Houma, LA	1223	Museum Dr	LS			35,000		\$	35,000
140	Valhi No.2	Houma, LA	129	Valhi Blvd	LS			35,000		\$	35,000
141	Vicari	Houma, LA	5530	Vicari Dr	LS			35,000		\$	35,000
142	Village East	Houma, LA	100 A	Development St	LS	15,000				\$	15,000
143	W.Park/Morrison	Houma, LA	7418	Park Ave	LS		25,000			\$	25,000
144	W.Park/St.Charles	Houma, LA	7304	Park Ave	LS			35,000		\$	35,000
145	Wallis	Houma, LA	999	Wallis St	LS			35,000		\$	35,000
146	Waterworks	Houma, LA	8839	Main St	LS		25,000			\$	25,000
147	Wayne	Houma, LA	163	Wayne Ave	LS	15,000				\$	15,000
148	Westgate	Houma, LA	404	Angelle Dr	LS	15,000				\$	15,000
149	Westgate2	Houma, LA	816	Waterford Dr	LS	15,000				\$	15,000

150	Westside	Houma, LA	297	Marie Dr	LS			35,000		\$ 35,000
151	Westview	Houma, LA	6613	Jana St	LS	15,000				\$ 15,000
152	Willow/Division	Houma, LA	1213	Division Ave	MLS				500,000	\$ 500,000
153	Winn Dixie	Houma, LA	1417	Acadian Dr	LS		25,000			\$ 25,000
154	Wolff Parkway	Houma, LA	101	Wolff Pkwy	LS	15,000				\$ 15,000
155	Wood	Houma, LA	610	Liberty St	LS	15,000				\$ 15,000
156	Woodlawn	Houma, LA	398	E Woodlawn Ranch	LS		25,000			\$ 25,000
157	Ziegler	Houma, LA	100	San Antonio Blvd	LS	15,000				\$ 15,000
	<b>Grand Total</b>					<b>\$ 975,000</b>	<b>\$ 1,500,000</b>	<b>\$ 945,000</b>	<b>\$ 7,805,896</b>	<b>\$ 11,225,896</b>

TERREBONNE PARISH CONSOLIDATED GOVERNMENT'S  
OTHER ASSET'S LISTING

(For Property Insurance and Liability Insurance Purposes)

LOCATION NO.		NAME	ADDRESS	CITY, STATE, ZIP	DATE ACQUIRED	Construction Type	COST VALUE	REPLACEMENT VALUE	PIAL CLASS (Emergency Response Rating)	DETAILS	
<i>(Fine Arts)</i>											
500	151/560	Waterlife Museum	SCULPTURE & FOUNTAIN / MOTHER OF TERREBONNE	MAIN STREET MEMORIAL PARK	Houma, LA 70360	06/01/01		\$ 60,000	\$ 60,000.00	3	Property insurance purposes for the Arts.
503	151/560	Waterlife Museum	SCULPTURE & FOUNTAIN / INDIAN	MAIN STREET BAYOU BOARDWALK	Houma, LA 70360	04/01/01		\$ 84,500	\$ 84,500.00	3	Property insurance purposes for the Arts.
504	151/560	Waterlife Museum	ACADIANA MONUMENT	7910 PARK AVENUE	Houma, LA 70360	10/05/11		\$ 40,000	\$ 40,000.00	3	Property insurance purposes for the Arts.
<i>(Docks, Wharves, &amp; Piers)</i>											
599		Roads & Bridges	BAYOU TERREBONNE BAYOUWALK & BULKHEAD	BARROW STREET TO CHURCH STREET BRIDGE	Houma, LA 70360	End of 2010	1040 Linear ft. steel sheetpile bulkhead & Brickpaver Boarkwalk	\$ 2,397,838	\$ 2,530,390.00	3	Owned by TPCG. Bayou not navigated by boats.
600		Government Buildings	BAYOU BOARDWALK MARINA	8224 PARK AVE.	Houma, LA 70360	2001	556' Timber wharf		\$ 480,000.00	3	Not on T.P.C.G. property but operated by T.P.C.G. On State right of way. Bayou only navigated for use of the marina. No through traffic. Approx. 556 ft. of wharf. Surveillance Equipment at this location.
601	856/506	Libraries	BULKHEAD/ NORTH BRANCH LIBRARY	4130 West Park Avenue	Gray, LA 70359	2010	386 Linear ft. steel sheetpile bulkhead	\$ 958,000	\$ 958,000.00	3	Bayou not navigated by boats.
603			BOAT LANDING	TEXAS GULF ROAD	Bourg, LA 70343	1982	150' Timber wharfs, 3 concrete slips		\$ 20,000.00	3	Owned by T.P.C.G.
606			BOAT LANDING / JIM BOWIE PARK / S. HOUMA FIRE STATION	879 BAYOU BLACK DRIVE	Houma, LA 70360	1982	200' Timber wharfs, 2 concrete slips		\$ 20,000.00	3	Owned by T.P.C.G.
609			BOAT LANDING / UPPER MONTEGUT (ARAGON ESTATES)	HWY. 57	Montegut, LA 70377		100' wharf & 1 slip		\$ 20,000.00	4	Leased by T.P.C.G. 100 ft. of wharf and 1 slip.
612			BOAT LANDING / UPPER CHAUVIN	HWY. 56	Chauvin, LA 70344		20' wharf & 1 concrete slip		\$ 5,000.00	3	Leased by T.P.C.G. 20 ft. of wharf and 1 slip. Posted for private use only (used by Sheriff's water patrol).
615			BOAT LANDING / LOWER CHAUVIN	HWY. 56	Chauvin, LA 70344		30' vinyl sheet wharf & 1 concrete slip		\$ 7,500.00	3	Owned & operated by Recreation District #7; however, we carry them on our liability policies. 30 ft. of wharf and 1 slip.

TERREBONNE PARISH CONSOLIDATED GOVERNMENT'S  
OTHER ASSET'S LISTING

(For Property Insurance and Liability Insurance Purposes)

622			PIER / BEHIND PEOPLE'S DRUGS	PARK AVE.	Houma, LA 70360		20' pier only, no launch		\$ 5,000.00	3	Owned by T.P.C.G. 20 ft. pier only, no launch. Bayou not navigated by motorized vehicles. Used annually for pirogue races.
625			BOAT LAUNCH ONLY / ASHLAND LANDFILL	ASHLAND LANDFILL RD.	Houma, LA 70360		Bulk head & one concrete ramp		\$ 81,023.00	3	Bulkhead & one concrete ramp.

LOCATION NO.			NAME	ADDRESS	CITY, STATE, ZIP	DATE ACQUIRED			COST VALUE	REPLACEMENT VALUE	PIAL CLASS (Emergency Response Rating)	DETAILS
628	010/504	Recreation Dist. #9	BOAT LAUNCH /Cannon's Landing	3664 SOUTHDOWN MANDALAY RD.	HOUMA, LA 70364	2003	100' wood wharf & 2 slips		\$ 20,000.00		5	Owned & operated by Recreation Dist. #9 thru Act of Donation from TPCG; however, we carry excess general liability coverage on them. They have a primary GL policy.

*(Public Cemeteries)*

700			BISLAND CEMETERY		BOURG, LA 70343	3/27/2002					3	Donated to T.P.C.G. Will be maintained by T.P.C.G.
704			HALFWAY CEMETERY		GRAY, LA 70359	3/27/2002					5	Donated to T.P.C.G. Will be maintained by T.P.C.G.
707			SOUTHDOWN CEMETERY		HOUMA, LA 70360	10/10/2001					3	Maintained by T.P.C.G.

\$ 4,331,413.00

600 \*\*\***Bayou Boardwalk Marina-Park Avenue:** State owns the Property-TPCG & State have a Joint

Use Agreement for TPCG to put improvements on property-TPCG owns all improvements even the docks and piers at the Marina-TPCG has Cooperative Endeavor Agreement with Downtown Development Corporation to operate the Marina with Parish Monies.

**TERREBONNE PARISH CONSOLIDATED GOVERNMENT  
BUILDING CONTENTS LISTING**

8/20/2014

LOCATION NO.	FUN/ DEPT.	DEPARTMENT NAME	BUILDING NAME	ADDRESS	CITY, STATE, ZIP	CONSTRUCTION CODE	YEAR BUILT	SO. FT.	EXTERIOR WALL CONSTRUCTION	ROOF CONSTRUCTION	ROOF AGE	BUILDING REAL VALUE	PERSONAL PROPERTY VALUE	LOCATION NO.	BUILDING REPLACEMENT VALUE	PIAL CLASS (Emergency Response Rating)	NO. OF FLOORS	NO. OF PEOPLE PER BLDG.	NO. OF PEOPLE PER FLOOR	NO. OF SPRINKLERS PER BLDG.	NO. OF FIRE EXTINGUISHERS	NO. OF SMOKE / FIRE ALARMS	OTHER DETAILS	MAP NUMBER	PAGE NUMBER	FLOOD ZONE	FIRM ELEVATION	
1	021/504	Recreation Dist. 2, 3	GYMNASIUM WESTSIDE	6667 Lisa Park Avenue	Houma, LA. 70360	ISO Class 2 (Joisted Masonry)	1975	14101	MASONRY	METAL		\$543,157	\$0	1	\$1,591,157	3	1	None stationed there. 2 or 3 come & go.	None stationed there. 2 or 3 come & go.	0	0	0		225206	265	C	N/A	
4	021/504	Recreation Dist. 2, 3	SOUTHLAND PARK	142 FRONT ST.	Houma, LA. 70360							\$244,569	\$0	4	\$298,255	3							CONCESSION, PRESSBOX, STORAGE & DUGOUT'S	225206	410	C	N/A	
4a	021/504	Recreation Dist. 2, 3	(Pressbox & Bleachers)	142 FRONT ST.	Houma, LA. 70360	ISO Class 2 (Joisted Masonry)		141.1	MASONRY & WOOD	WOOD ROOF		\$50,000		4a	\$50,000	3								225206	410	C	N/A	
4b	021/504	Recreation Dist. 2, 3	(Storage)	142 FRONT ST.	Houma, LA. 70360	ISO Class 3 (Light metal bldg. w/ metal roof)	1990	1200	METAL	METAL ROOF	1990	\$35,000		4b	\$40,824	3									225206	410	C	N/A
4c	021/504	Recreation Dist. 2, 3	(Concessions/Restrooms)	142 FRONT ST.	Houma, LA. 70360	ISO Class 2 (Joisted Masonry)	1990	1417.5	MASONRY & WOOD	WOOD ROOF	1990	\$35,000		4c	\$136,987	3									225206	410	C	N/A
4d	021/504	Recreation Dist. 2, 3	(2 Dugouts)	142 FRONT ST.	Houma, LA. 70360	ISO Class 2 (Joisted Masonry)		608	MASONRY & WOOD	WOOD ROOF		\$10,000		4d	\$34,139	3									225206	410	C	N/A
4e	021/504	Recreation Dist. 2, 3	(Topover Bleachers)	142 FRONT ST.	Houma, LA. 70360	ISO Class 3 (Light metal bldg. w/ metal roof)				METAL		\$15,000		4e	\$15,000													
6	021/504	Recreation Dist. 2, 3	BROADMOOR COMPLEX	2705 K Street	Houma, LA. 70360							\$247,017	\$0	6	\$327,620	3									225206	245	A2	4'
6a	021/504	Recreation Dist. 2, 3	2 (Pressbox)	2705 K Street	Houma, LA. 70360			192				\$10,000		6a	\$20,360	3									225206	245	A2	4'
6b	021/504	Recreation Dist. 2, 3	(2 Dugouts)	2705 K Street	Houma, LA. 70360			260	FENCE	METAL		\$5,000		6b	\$14,599	3									225206	245	A2	4'
6c	021/504	Recreation Dist. 2, 3	(Concessions/Restrooms)	2705 K Street	Houma, LA. 70360	ISO Class 2 (Masonry with wood roof)		1300	MASONRY	WOOD ROOF	2006	\$250,000		6c	\$125,632	3									225206	245	A2	4'
6e	021/504	Recreation Dist. 2, 3	2 (Pressbox)	2705 K Street	Houma, LA. 70360							\$10,000		6e	\$10,000										225206	245	A2	4'
6f	021/504	Recreation Dist. 2, 3	(2 Dugouts) (Batting Cage & Machine)	2705 K Street	Houma, LA. 70360			288	FENCE	METAL		\$10,000		6f	\$16,171	3									225206	245	A2	4'
6g	021/504	Recreation Dist. 2, 3	Storage Building & Restroom	2705 K Street	Houma, LA. 70360			302	MASONRY & WOOD	WOOD ROOF	2006	\$50,000		6g	\$50,000	2									225206	245	A2	4'
6h	021/504	Recreation Dist. 2, 3	Storage Batting Cage	2705 K Street	Houma, LA. 70360	ISO Class 2 (Masonry with wood roof)		20	MASONRY & WOOD	WOOD ROOF		\$10,000		6h	\$5,000	2									225206	245	A2	4'
6i	021/504	Recreation Dist. 2, 3	Storage Room	2705 K Street	Houma, LA. 70360	ISO Class 2 (Masonry with wood roof)		20	MASONRY & WOOD	METAL	2007	\$8,000		6i	\$8,000	2									225206	245	A2	4'
6j	021/504	Recreation Dist. 2, 3	Equipment Storage Building	2705 K Street	Houma, LA. 70360	ISO Class 3 (Light metal bldg. w/ metal roof)	2009	320	METAL	METAL	2009	\$10,000	\$40,000	6j	\$10,000	3												
8	021/504	Recreation Dist. 2, 3	GIRLS SOFTBALL COMPLEX	1876 MLK BLVD.	Houma, LA. 70360							\$250,000	\$0	8	\$350,000	2									22506	430	AH3	3'
8a	021/504	Recreation Dist. 2, 3	4 (Pressbox)	1877 MLK BLVD.	Houma, LA. 70360	ISO Class 2 (Joisted Masonry)		192	MASONRY & WOOD	WOOD ROOF		\$20,000		8a	\$20,360	2									22506	430	AH3	3'
8b	021/504	Recreation Dist. 2, 3	(4 Dugouts)	1878 MLK BLVD.	Houma, LA. 70360	ISO Class 3 (Light metal bldg. w/ metal roof)		200	FENCE	METAL ROOF		\$20,000		8b	\$20,000	3									22506	430	AH3	3'
8c	021/504	Recreation Dist. 2, 3	Concessions & Restroom	1879 MLK BLVD.	Houma, LA. 70360		2005	1300	MASONRY & WOOD	METAL ROOF	2005	\$180,000		8c	\$125,632	2									22506	430	AH3	3'
8d	021/504	Recreation Dist. 2, 3	Storage Building & Batting Cage	1880 MLK BLVD.	Houma, LA. 70360		2005	322	MASONRY & WOOD	WOOD ROOF	2005	\$30,000		8d	\$40,000	2									22506	430	AH3	3'
12	390/192	Information Technology	INFORMATION TECHNOLOGIES (OLD CITY HALL)	7868 MAIN ST.	Houma, LA. 70360	ISO Class 2 (Joisted Masonry)	1935	7748	MASONRY	WOOD ROOF	1998	\$768,883	\$714,760	12	\$904,568	3	2	2-1st Floor 18-2nd Floor	2-1st Floor 18-2nd Floor	None	1st-5 2nd-6			220220	5	C	3'	
14	151/194	Government Bldgs.	COURTHOUSE (Clerk of Court)	7856 MAIN ST.	Houma, LA. 70360	ISO Class 2 (Joisted Masonry)	1938	48966	MASONRY	WOOD ROOF	2000	\$3,391,476	\$32,700	14	\$6,694,142	3	5						***2 floors above ground and 1 floor is below ground**	220220	5	C	3'	
15	151/194	Government Bldgs.	COURTHOUSE ANNEX	400 SCHOOL ST.	Houma, LA. 70360	ISO Class 4 (Masonry walls with steel roof / non-combustible)	1975	104030	MASONRY / STEEL	MASONRY / STEEL	2004	\$8,099,167	\$343,147	15	\$13,802,924	3	2								220220	5	C	3'
16	151/194	Government Bldgs.	32ND JDC CHLD SUPPORT I/D (CONTENTS ONLY)	400 SCHOOL ST., STE. 100 A	Houma, LA. 70360								\$100,000	16											220220	5	C	3'
17	151/194	Government Bldgs.	GEORGE ARCENEUX, JR. FEDERAL COURTHOUSE (City Court)	8046 MAIN ST.	Houma, LA. 70360	ISO Class 4 (Masonry walls with steel roof / non-combustible)	1993	19000	MASONRY/ STEEL	STEEL		\$3,325,000	\$316,971	17	\$3,325,000	3	1	50	50	0	6	3	Security Cameras in place.	220220	5	C	3'	



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45 b	001/159	Sales & Use Tax	Sales & Use Tax (contents Only)	8026 MAIN ST.	Houma, LA 70360		Space Leased 9/1/2009	2844					\$148,313	45 b									220220	5	C	n/a						
45 c	354/155	Risk Management	(CONTENTS IN GOVERNMENT TOWERS BUILDING/ 5TH FLOOR)	8026 MAIN ST., SUITE 520	Houma, LA 70360							\$400,000	45 c		3	1	19	19	0	4	6		220220	5	C	N/A						
45 d	151/111	Parish Council	(CONTENTS IN GOVERNMENT TOWERS BUILDING/6TH FLOOR)	8026 MAIN ST.	Houma, LA 70360							\$139,924	45 d																			
45 e	151/115	Council Clerk	(CONTENTS IN GOVERNMENT TOWERS BUILDING/6TH FLOOR)	8026 MAIN ST.	Houma, LA 70360							\$141,729	45 e																			
45 f	151/131	Parish President	(CONTENTS IN GOVERNMENT TOWERS BUILDING/ 7TH FLOOR)	8026 MAIN ST.	Houma, LA 70360							\$141,325	45 f																			
45 g	151/151	Accounting	(CONTENTS IN GOVERNMENT TOWERS BUILDING 3RD FLOOR)	8026 MAIN ST.	Houma, LA 70360							\$210,152	45 g																			
45 h	151/152	Customer Service	(CONTENTS IN GOVERNMENT TOWERS BUILDING 1ST FLOOR)	8026 MAIN ST.	Houma, LA 70360							\$233,705	45 h																			
45 i	151/193	Planning & Zoning	(CONTENTS IN GOVERNMENT TOWERS BUILDING 4TH FLOOR)	8026 MAIN ST->	Houma, LA 70360							\$212,775	45 i																			
45 j	151/198	Janitorial	(CONTENTS IN GOVERNMENT TOWERS BUILDING - VARIOUS LOCATIONS)	8026 MAIN ST.	Houma, LA 70360							\$1,340	45 j																			
45k	370/156	Human Resources	(CONTENTS IN GOVERNMENT TOWERS BUILDING/ 5TH FLOOR - HUMAN RESOURCES)	8026 MAIN ST., SUITE 520	Houma, LA 70360							\$64,951	45k																			
52	151/205	Coroner	TERREBONNE PARISH MORGUE	8244 MAIN ST.	Houma, LA. 70360				ISO Class 4 (Masonry walls with steel roof / non-combustible)			1998	2600	BRICK	METAL											Brick veneer. Concrete slab foundation.	220220	5	C	n/a		
56	151/653	Housing & Human Services	RESIDENT REHABILITATION PROGRAM	614 WOODSIDE DRIVE	Houma, LA 70363				ISO Class 2 (Brick veneer with Comp Shingles)			1983	2270	Brick Veneer	COMP SHINGLES											Concrete slab foundation.	225206	255	A15	7		
57	151/653	Housing & Human Services	RESIDENT	122 FAIRLANE DR.	Gray, LA 70359				ISO Class 1 (All Wood Structure)			1978	1989	WOOD	WOOD	2001										Purchased @ Auction For \$1.00. Shingle roof.	225206	410	C	N/A		
58	202/122	Juvenile Detention	T.P. JUVENILE DETENTION CENTER	3181 GRAND CAILLOU	Houma, LA. 70360				ISO Class 4 (Masonry walls with steel roof / non-combustible)			1998	24833	MASONRY	STEEL ROOF											Brick veneer. Concrete slab foundation.	225206	260	A4	6		
58 a	202/122	Juvenile Detention	LAWN EQUIPMENT SHED	3181 GRAND CAILLOU	Houma, LA 70360				ISO Class 3 (light metal building with metal roof)			2003		STEEL	STEEL ROOF	2008																
60	151/653	Housing & Human Services	RESIDENT REHABILITATION PROGRAM	6668 WEST PARK AVENUE	Houma, LA 70364				ISO Class 1 (All Wood Structure)			1942	1808	State siding	METAL												Purchased property to use for future location of bridge.	225206	265	C	6	
61	203/201	Parish Prison	CRIMINAL JUSTICE COMPLEX	3211 GRAND CAILLOU	Houma, LA. 70363				ISO Class 4 (Masonry walls with steel roof / non-combustible)			1992	98722	MASONRY	STEEL ROOF						Jefferson Sprinklers	18	51									
64	203/201	Parish Prison	CRIMINAL JUSTICE K-9	3211 GRAND CAILLOU	Houma, LA. 70363				ISO Class 1 (All Wood Structure)			1992	1688	WOOD	WOOD ROOF																	
67	204/211	Police	PUBLIC SAFETY - POLICE	500 HONDURAS ST.	Houma, LA. 70360				ISO Class 4 (Masonry walls with steel roof / non-combustible)			1980	17358	MASONRY	METAL ROOF																	
67a	204/211	Police	HPD WASHRACK BUILDING	500 HONDURAS ST.	Houma, LA 70360				ISO Class 1 (All Wood Structure)			2002	68	WOOD	WOOD																	
68	205/196	Auditoriums	HOUMA MUNICIPAL AUDITORIUM	800 VERRET ST.	Houma, LA. 70360				ISO Class 4 (Masonry walls with steel roof / non-combustible)			1957	19612	MANSONRY	METAL ROOF																	
72	205/196	Auditoriums	DUMAS AUDITORIUM	301 TUNNEL BLVD.	Houma, LA. 70360				ISO Class 4 (Masonry walls with steel roof / non-combustible)			1958	7815	MASONRY	METAL - ROOF																	
75	205/501	Purchasing	MOBILE HOME 14 x 80 (TRAILER) ON UTILITIES COMPLEX- HPD USES AS STORAGE.	PLANT RD.	Houma, LA. 70360				ISO Class 3 (Light metal bldg. w/ metal roof)			1982	1200	METAL	METAL ROOF													Concrete column foundation.	220220	5	A1	6

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78	205/524	Grand Bois Park	GRAND BOIS PARK TRAILER 14 x 80	HWY 24 BOURG LAROSE HWY	Bourg, LA. 70343	ISO Class 3 (Light metal bldg. w/ metal roof)	1983	1120	METAL	METAL ROOF		\$10,399	\$5,000	78	\$39,200	3	1	4	4	0	1	1	Concrete column foundation. Contents consist of stove & dishwasher.	225206	120	A6	6	
70	205/524	Grand Bois Park	TRACTOR SHED 25' x 20"	HWY 24 BOURG LAROSE HWY	Bourg, LA. 70343	ISO Class 3 (Galvalume metal w/ galvalume metal roof)	2012	500	GALVALUME METAL	GALVALUME METAL	2012	\$35,000		70	\$35,000	3	1	0	0					225206	120	A6	6	
71	205/524	Grand Bois Park	HOUSE/RESIDENCE	HWY 24 BOURG LAROSE HWY	Bourg, LA. 70343									71														
73	205/524	Grand Bois Park	Pavilion (Open) 80' x 85"	HWY 24 BOURG LAROSE HWY	Bourg, LA. 70343		2013	6800		METAL ROOF	2013	\$155,000	\$156,130	73	\$156,130								Concrete Foundation	225206	120	A6	N/A	
81	234/629	Homeless Shelter	HOMELESS SHELTER / BEAUTIFUL BEGINNINGS	300 BOND ST.	Houma, LA. 70360	ISO Class 2 (Joisted Masonry)	1996	5657	MASONRY	WOOD ROOF	1996	\$322,000	\$50,000	81	\$439,379	3	2	24	6 1st floor 18 2nd floor	42	5	19	Renovated into Beautiful Beginnings in 1997.	220220	5	C		
82	234/629	Homeless Shelter	BEAUTIFUL BEGINNINGS Metal Storage Shed	300 BOND ST.	Houma, LA. 70360	ISO Class 3 (Light metal bldg. w/ metal roof)	1998	120	METAL	METAL		\$1,872		82	\$1,872													N/A
84	237/678	Transit	BUS TRANSIT DEPOT	7617 MAIN ST.	Houma, LA. 70360	ISO Class 4 (Masonry walls with steel roof / non-combustible)	1998	2376	MASONRY / STEEL	METAL ROOF		\$435,000	\$11,000	84	\$435,000	3									220220	5	C	N/A
90	237/692	Transit	GOOD EARTH TRANSIT OFFICE & MAINTENANCE FACILITY	137 INTRACOASTAL DR	Houma, LA 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	2011	7992	METAL/STEEL	METAL (STEEL)	2011	\$2,110,169	\$81,575	90	\$2,110,169	3	1	7	7	0	4		Building was just completed and Transit has just moved in - Additional equipment will be added such as automatic bus washer, Wendell will send values of new equipment once added.					
85	239/193	Head Start	SCHRIEVER HEAD START BUILDING	162 LA. Hwy. 311	Schriever, LA 70395	ISO Class 4 (Masonry walls with steel roof / non-combustible)	2008	3264	MASONRY/ STEEL	METAL ROOF	2008	\$1,300,000	\$80,000	85	\$1,300,000	3	1	88	88	0	2	22	Designed to withstand 150 mph wind speed with backup generator for Electrical Services.	225206	405	C	N/A	
83	239/193	Head Start	GIBSON HEAD START	5575 BAYOU BLACK DRIVE	Gibson, LA 70356	ISO Class 3 (Light metal bldg. w/ metal roof)	1993	1900	Light Metal	Metal	1993	\$49,940	\$80,000	83	\$195,206	3	1	25	25	0	1	2	Portable Buildings used for class rooms	225206	570	C	N/A	
89	239/193	Head Start	CHURCH ST PORTABLE BUILDING	1116 CHURCH STREET	Houma, LA	ISO Class 3 (Light metal bldg. w/ metal roof)	1994	1230	Light Metal	Metal	1994	\$43,920	\$120,000	89	\$43,920	3	1	25	25	0	1	2	Portable Buildings used for class rooms	225206	405	C		
79	239/193	Head Start	HOLY ROSARY HEAD START	121 ROSARY ST.	HOUMA, LA 70363							\$80,000		79				40	40	0	3	0	Lease Building-insure contents Only					
91	239/193	Head Start	SENATOR CIRCLE HEAD START	215 & 216 SENATOR CIRCLE	HOUMA, LA 70363							\$80,000		91				40	40	1	1	1 ALARM SYSTEM	Lease Building-insure contents Only				N/A	
87	395/303	Fleet Maintenance	FLEET MAINTENANCE MECHANIC SHOP & OFFICE	1860 GRAND CAILLOU	Houma, LA. 70360	ISO Class 3 (Light metal bldg. w/ metal roof)	1957	14617	MASONRY / STEEL	METAL - ROOF	1998	\$165,310	\$40,000	87	\$750,000	3	1 1/2	9	8 1st floor 1 in loft	0	12	4		225206	260	C	N/A	
86	251/310	R&B/ Vegetation	VEGETATION & MOSQUITO CONTROL	1860 GRAND CAILLOU	Houma, LA. 70360	ISO Class 4 (Masonry walls with steel roof / non-combustible)	1981	1280	MASONRY	METAL ROOF	2008	\$60,000	\$35,000	86	\$60,699	3	1	6	6	0	2	0	Concrete slab foundation.	225206	10	C	N/A	
88	251/310	Roads & Bridges	R&B TEMPORARY STOCK ROOM (Sign Shop)	1860 GRAND CAILLOU	Houma, LA. 70360	ISO Class 3 (Wood & Masonry Structure)	1/1/1950	9600	MASONRY & WOOD	WOOD	2008	\$75,000	\$29,377.18	88	\$960,533	3	1	10	10	0	5	0		225206	260	C	N/A	
88a	251/310	Roads & Bridges	R&B Additions Roof on Barn	1860 GRAND CAILLOU	Houma, LA 70360	ISO Class 2 (Metal & Wood)	9 Years	9600	METAL & WOOD	WOOD	2008	\$46,283		88a	\$60,698.99	2	1	0		0	9			225206	260	C	N/A	
94	251/310	Roads & Bridges	ROADS & BRIDGES RESTROOM	1860 GRAND CAILLOU	Houma, LA 70360	ISO Class 3 (Light metal bldg. w/ metal roof)	Unknown	86400	MASONRY	METAL ROOF		\$172,800	\$6,000	94	\$30,000	3	1			0	1			225206	260	C	N/A	
95	251/310	Roads & Bridges	ROADS & BRIDGES SUPERINTENDENT OFFICE	1860 GRAND CAILLOU	Houma, LA. 70360	ISO Class 1 (All Wood Structure)	9/22/2008	280	WOOD	METAL ROOF	2008	\$11,990	\$6,233.98	95	\$28,196	3	1	6	2	0	1	0		225206	260	C	N/A	
69A	251/310	Roads & Bridges	R&B/Vegetation Storage Building	1860 GRAND CAILLOU	Houma, LA 70360	ISO Class 3 (Metal & Steel)	9 Years	3852	METAL & STEEL	STEEL	2001	\$57,591.71		69A	\$75,530.10	3	1	0		0	2			225206	260	C	N/A	
93	251/310	Roads & Bridges	DRAINAGE MECHANIC SHOP	1860 GRAND CAILLOU	Houma, LA 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	1957	9750	METAL	METAL ROOF		\$185,100	\$50,332	93	\$694,953	3	1	2	2	0	4	0	Includes offices. Concrete slab foundation.	225206	260	C	N/A	

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97	251/310	Roads & Bridges	R&B OPERATION SUPERVISORS OFFICE (PORTABLE)	1860 GRAND CAILLOU	Houma, LA 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	2008	144	METAL	METAL ROOF	2008	\$5,000	\$5,000	\$5,000	97	\$5,000	3	1						Portable building					
96	252/351	Drainage	MECHANIC SHOP ADDITION	1860 GRAND CAILLOU	Houma, LA. 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	1998	5200	STEEL	METAL ROOF	1998	\$246,549	\$85,000	\$85,000	96	\$477,308	3	1	0	0	0	2	0	Ind. Canapy Of 900 Sq. Ft. Concrete slab foundation.	225206	260	C	N/A	
99	252/351	Drainage	OLD DRAINAGE WELDING SHOP	1860 GRAND CAILLOU	Houma, LA. 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	1957	1989	METAL	METAL ROOF	1957	\$38,531	\$250,000	\$250,000	99	\$182,570	3	1	2	N/A	N/A	2	0	Concrete slab foundation.	225206	260	C	N/A	
102	252/351	Drainage	DRAINAGE WAREHOUSE	1860 GRAND CAILLOU	Houma, LA. 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	1994	2500	METAL	METAL ROOF	2008	\$60,000	\$200,000	\$200,000	102	\$102,700	3	1	0	0	0	2	0	Concrete slab foundation.	225206	260	C	N/A	
105	252/351	Drainage	DRAINAGE BREAK / MEETING ROOM (30 x 40)	1860 GRAND CAILLOU	Houma, LA. 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	2000	1200	METAL	METAL ROOF	2000	\$75,000	\$20,000	\$20,000	105	\$144,000	3	1	60	60	0	2	0	Concrete slab foundation.	225206	260	C	N/A	
107	252/351	Drainage	STORAGE BUILDING	1860 GRAND CAILLOU	Houma, La. 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	2001	308	METAL	METAL ROOF	2001	\$10,000	\$10,000	\$10,000	107	\$15,000	3	1	2	N/A		1		Good condition	225206	260	C	N/A	
108	252/351	Drainage	DRAINAGE OFFICE	1860 GRAND CAILLOU	Houma, LA. 70363	ISO Class 1 (All Wood Structure)	1984	1889	WOOD	WOOD	2000	\$90,000	\$40,000	\$40,000	108	\$190,222	3	1	12	12	0	2	3	Shingle roof. Concrete slab foundation.	225206	260	C	N/A	
111	353/441	Solid Waste	LANDFILL OFFICE & WAREHOUSE	337 ASHLAND LANDFILL RD.	Houma, LA. 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	1980	2950	METAL	METAL ROOF	1980	\$152,057	\$94,595	\$94,595	111	\$270,781	3	1	4	4	0	6	0	Metal Building w/ Concrete Slab	225206	260	A4	6	
114	353/441	Solid Waste	SOLID WASTE PICK-UP STAT.	277 ASHLAND LANDFILL RD.	Houma, LA. 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	1999	14080	METAL	METAL ROOF	2011	\$160,000		INCLUDED WITH SCALE BUILDING	114	\$746,803	3	1	3	3	0	1	0	PPV Included In Scale Building. Concrete slab foundation.	225206	260	A4	6	
117	353/441	Solid Waste	SCALE BUILDING	277 ASHLAND LANDFILL RD.	Houma, LA. 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	1999	400	METAL	METAL ROOF	1999	\$20,000	\$95,000	\$95,000	117	\$26,000	3	1	1	1	0	1	0	Concrete slab foundation.	225206	260	A4		
112	353/441	Solid Waste	STORAGE	337 ASHLAND LANDFILL RD.	Houma, LA 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	1994	120	METAL	METAL ROOF	1994	\$1,930	\$1,930	\$1,930	112	\$4,200													
112A	353/441	Solid Waste	STORAGE	337 ASHLAND LANDFILL RD.	Houma, LA 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	1994	120	METAL	METAL ROOF	1994	\$1,930	\$1,930	\$1,930	112A	\$1,930													6
113	353/441	Solid Waste	GENERATOR BUILDING	337 ASHLAND LANDFILL RD.	Houma, LA. 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	2008	750	RIGID FRAME	METAL ROOF	2008	\$116,115	\$101,410	\$101,410	113	\$116,115		1	N/A	N/A	N/A	1				225206	260	A4	6
118	353/441	Solid Waste	AHSLAND LANDFILL GUARD HOUSE @ ENTRANCE TO FACILITY	263 ASHLAND LANDFILL RD.	Houma, La. 70363	Trailer Res Drop off Facility	2008	200	RIBB STEEL & GYPSUM BOARD (WOOD)	TRUSS DESIGN	2008	\$18,000	\$1,500	\$1,500	118	\$18,000		1	1	N/A	N/A	1				225206	260	A4	6
119	353/441	Solid Waste	OPEN STORAGE				2008	625	RIGID FRAME	RIGID	2008	\$54,025	\$31,025	\$31,025	119	\$23,000			1	N/A	N/A	0				225206	260	A4	6
122	353/441	Solid Waste	COVERED STORAGE				2008	750	RIGID/R PANEL	RIGID	2008	\$94,830	\$68,318	\$68,318	122	\$26,513		1	N/A	N/A	N/A					225206	260	A4	8
122a	353/441	Solid Waste	RESIDENTIAL DROP OFF SHACK	166 CROCHETVILLE RD	Montegut, LA	ISO Class 3 (Light metal bldg. w/ metal roof)	2010	80	METAL	METAL	2010	\$4,000	\$800	\$800	122a	\$4,000													
122b	353/441	Solid Waste	RESIDENTIAL DROP OFF SHACK	651 ISLE OF CUBA RD.	Schriever, LA 70395	ISO Class 3 (Light metal bldg. w/ metal roof)	2010	80	METAL	METAL	2010	\$4,000	\$800	\$800	122b	\$4,000													
120	151/442	Animal Control	ANIMAL SHELTER	131 PLANT RD.	Houma, LA. 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	1981	980	METAL	METAL ROOF		\$42,818	\$8,532	\$8,532	120	\$106,075	3		Animals	Animals	0		0			220220	5	A1	
121	151/442	Animal Control	FRONT ANIMAL SHELTER OFFICE	131 PLANT RD.	Houma, LA 70363	ISO CLASS 1 (All wood structure w/shingle roof)	2002	384	VINYL SIDING	ASPHAULT/FIBER GLASS SHINGLES		\$31,831	\$20,500	\$20,500	121	\$41,564	3	1	1	1	0	1	0			220220	5	A1	8
123	151/442	Animal Control	WCH PORTABLE BUILDING	131 PLANT RD.	Houma, LA. 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	1999	300	METAL	METAL ROOF		\$15,000	\$16,000	\$16,000	123	\$32,472	3		Animals	Animals	0	1	0			220220	5	A1	8
124	151/442	Animal Control	NEW QUARANTINE BUILDING	131 PLANT RD.	Houma, LA 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	2007	448	ALUMINUM SIDING	ALUMINUM		\$23,500	\$17,500	\$17,500	124	\$48,492	3	1	0 (ANIMALS)	0 (ANIMALS)	0	2	0			220220	5	A1	8
125	151/442	Animal Control	SHED	131 PLANT RD.	Houma, LA 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	2008	342	WOOD	SHINGLES/SKYLIGHTS		\$5,800	\$4,000	\$4,000	125	\$37,018		2	0	0	0	0	0			220220	5	A1	8

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126	151/442	Animal Control	BACK OFFICE BUILDING	131 PLANT RD.	HOUMA, LA 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	2009	704	CORRUGATED METAL	CORRUGATED METAL	2009	\$39,000	\$25,000	126	\$76,201	3	1	4	4	0	1	2	This building was built in November 2009. The building alone cost \$39,000.00	220220	5	A1	8	
127	151/442	Animal Control	CHAMBER AREA	131 PLANT RD.	Houma, LA 70363		2008	172				\$20,000		127	\$20,000		1	0	0	0	0	0		220220	5	A1		
131	151/442	Animal Control	FENCING	131 PLANT RD.	Houma, LA 70363				WOOD WIREMOTE OPERATED GATE					131													7	
132	277/401	Health Unit	HEALTH UNIT	600 POLK ST.	Houma, LA. 70360	ISO Class 4 (Masonry walls with steel roof / non-combustible)	1985	12229	MASONRY	METAL ROOF	1985	\$680,000	\$400,000	132	\$1,500,000	3	1	37	0	5	0		225206	265	AH	7		
129	280/509	Recreation Dist. #11	DUMAS POOL HOUSE	301 TUNNEL BLVD.	Houma, LA. 70360	ISO Class 2 (Joisted Masonry)	1957	2277	MASONRY	WOOD ROOF		\$60,253	\$0	129	\$218,797	3							REDONE ON 4/2/2005- USE TO HAVE LOCKERS.	220220	5	AH	7	
130	280/509	Recreation Dist. #11	MECHANICVILLE GYMNASIUM	2814 SENATOR CIRCLE	Houma, LA. 70363	ISO Class 4 (Masonry walls with steel roof / non-combustible)	1976	9997	MASONRY	METAL ROOF	1997	\$310,908	\$0	130	\$1,128,061	3								220220	5	A1		
133	280/509	Recreation Dist. #11	(Baseball Field)	2814 SENATOR CIRCLE	Houma, LA 70363									133													N/A	
135	280/509	Recreation Dist. #11	EAST HOUMA SWIMMING POOL	124 BOUNDRY RD.	Houma, LA. 70363	ISO Class 4 (Masonry walls with steel roof / non-combustible)	1985	3539	MASONRY	METAL ROOF		\$182,873	\$0	135	\$340,063	3								220220	5	C		
135 a	280/509	Recreation Dist. #11	EAST HOUMA FOOTBALL FIELD (Scoreboard only)	122 BOUNDRY RD.	Houma, LA 70363							\$40,000		135 a	\$40,000													
135 b	280/509	Recreation Dist. #11	2 GOALS	122 BOUNDRY RD.	Houma, LA 70363							\$4,000		135 b	\$4,000													
135 c	280/509	Recreation Dist. #11	4 SETS OF BLEACHERS	122 BOUNDRY RD.	Houma, LA 70363							\$16,027		135 c	\$12,000													
138	280/509	Recreation Dist. #11	LEASED GYMNASIUM HARC EAST (East Houma Gymnasium)	126 BOUNDRY RD.	Houma, LA. 70363	ISO Class 2 (Joisted Masonry)	1975	15680	MASONRY	WOOD ROOF	2010	\$473,595	\$29,954	138	\$2,112,640	3								220220	5	C	7	
142	280/509	Recreation Dist. #11	ANTHONY "TONY" CAVALLO MEMORIAL YOUTH BASEBALL COMPLEX	1367 BARRY CT.	Houma, LA. 70363									142		3								220220	5	A1		
142a	280/509	Recreation Dist. #11	(Pressboxes) A, F, K	1367 BARRY CT.	Houma, LA. 70363	ISO Class 1 (All Wood Structure)		1356	WOOD	WOOD ROOF		\$24,736	\$0	142a	\$143,790	3								220220	5	A1	7	
142b	280/509	Recreation Dist. #11	(Bleachers) A, F, K	1367 BARRY CT.	Houma, LA. 70363				IRONWOOD			\$53,471		142b	\$60,762	3							Steel Structure w/ Wood Seats	220220	5	A1	7	
142c	280/509	Recreation Dist. #11	(Dugouts) A, F, K	1367 BARRY CT.	Houma, LA. 70363				WOOD			\$8,488		142c	\$30,000	3							Chain Link Fence	220220	5	A1		
142d	280/509	Recreation Dist. #11	Equipment & Light Systems	1367 BARRY CT.	Houma, LA 70363							\$50,000		142d	\$50,000													
142e	280/509	Recreation Dist. #11	(Restroom)	1367 BARRY CT.	Houma, LA 70363							\$20,000		142e	\$20,000													
142f	280/509	Recreation Dist. #11	(Concession Stand)	1367 BARRY CT.	Houma, LA 70363							\$10,000		142f	\$10,000													
145	280/509	Recreation Dist. #11	ADULT SOFTBALL FIELDS/COMPLEX (4)	9544 EAST MAIN ST.	HOUMA, LA 70363									145														
145a	280/509	Recreation Dist. #11	(Bleachers & Covers)	9544 EAST MAIN ST.	HOUMA, LA 70363							\$30,000		145a	\$30,000													N/A
145b	280/509	Recreation Dist. #11	(Dugouts)	9544 EAST MAIN ST.	Houma, LA. 70363		0					\$20,000		145b	\$20,000	3								220220	5	C		
145c	280/509	Recreation Dist. #11	(Light Systems)	9544 EAST MAIN ST.	Houma, LA. 70363							\$50,000		145c	\$50,000													
145d	280/509	Recreation Dist. #11	(Adult Concession Building)	9544 EAST MAIN ST.	Houma, LA. 70363							\$25,000		145d	\$25,000													
145e	280/509	Recreation Dist. #11	(Restroom Building)	9544 EAST MAIN ST.	Houma, LA. 70363							\$20,000		145e	\$20,000													
145f	280/509	Recreation Dist. #11	(Pressbox/Announcers Stand)	9544 EAST MAIN ST.	Houma, LA. 70363									145f														
151	280/509	Recreation Dist. #11	WEST HOUMA GYMNASIUM	800 WILLIAMS AVE.	Houma, LA. 70360	ISO Class 2 (Joisted Masonry)	1975	15680	MASONRY	WOOD ROOF	2010	\$473,595	\$30,000	151	\$2,112,640	3								220220	5	B & A2	4	
151a	280/509	Recreation Dist. #11	(Concession / Restroom)	800 WILLIAMS AVE.	Houma, LA. 70360	ISO Class 2 (Joisted Masonry)	1975	498	MASONRY	WOOD ROOF		\$29,742	\$0	151a	\$48,127	3								220220	5	B & A2	4	
154	280/509	Recreation Dist. #11	BABE RUTH/DIXIE YOUTH	1400 WILLIAMS BLVD.	Houma, LA. 70360		1968	1056	MASONRY	METAL - ROOF		\$294,572	\$0	154	\$377,657	3								220220	5	A2	4	
154a	280/509	Recreation Dist. #11	(Pressbox)	1400 WILLIAMS BLVD.	Houma, LA. 70360	ISO Class 2 (Joisted Masonry)	1968		MASONRY	WOOD ROOF		\$20,000		154a	\$20,000	3								220220	5	A2	4	

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154b	280/509	Recreation Dist. #11	(Dugouts)	1400 WILLIAMS BLVD.	Houma, LA. 70360		1968					\$20,000			154b	\$20,000	3								220220	5	A2	4	
154c	280/509	Recreation Dist. #11	(Concession Stands)	1400 WILLIAMS BLVD.	Houma, LA. 70360	ISO Class 1 (All Wood Structure)	1968		WOOD	WOOD ROOF		\$20,000			154c	\$20,000									220220	5	A2	4	
154d	280/509	Recreation Dist. #11	(Bleachers)	1400 WILLIAMS BLVD.	Houma, LA. 70360		1968					\$30,000			154d	\$30,000	3						STEEL W/ WOOD SEATING	220220	5	A2	4		
154e	280/509	Recreation Dist. #11	(Resrooms)	1400 WILLIAMS BLVD.	Houma, LA. 70360	ISO Class 2 (Joist/Sheet Masonry)	1968		MASONRY	WOOD ROOF		\$20,000			154e	\$20,000	3						STEEL SHEETS ON TOP OF ROOF	220220	5	A2	4		
154f	280/509	Recreation Dist. #11	(Storage)	1400 WILLIAMS BLVD.	Houma, LA. 70360	metal bldg. w/ metal roof	1968		METAL	METAL		\$15,000			154f	\$15,000	3						LOCATED UNDER THE BLEACHERS.	220220	5	A2			
154g	280/509	Recreation Dist. #11	Fencing	1400 WILLIAMS BLVD.	Houma, LA. 70360										154g														
154h	280/509	Recreation Dist. #11	Drink Stand	1400 WILLIAMS BLVD.	Houma, LA. 70360										154h														
154i	280/509	Recreation Dist. #11	King Street Park	KING STREET	Houma, LA. 70360										154i														
154j	280/509	Recreation Dist. #11	Basketball Court	Robert Street	Houma, LA 70363										154j								Located next door to the East Park Recreation building's parking lot on 8533 E. Park Avenue, Houma, LA						
157	151/560	Museum	WATERLIFE MUSEUM	7910 PARK AVE.	Houma, LA. 70360	ISO Class 1 (All Wood Structure)	1999	7000	WOOD FRAME	METAL - ROOF		\$778,300	\$1,465,000		157	\$1,073,800	3	2	5	1 1st floor 4 2nd floor	70	4	34	Security monitor system and alarm trouble signal installed.	220220	5	C		
158	151/560	Museum	PUMP HOUSE	7910 PARK AVE.	Houma, LA. 70360										158														
159	151/560	Museum	AC ENCLASURE	7910 PARK AVE.	Houma, LA. 70360										159														N/A
160	301/802	Electric Generation	ELECTRIC GENERATION / DIESEL GEN. PLANT	1551 BARROW ST.	Houma, LA. 70360	(Masonry walls with steel roof) 50% of metal bldg. w/ metal roof	1920 thru 1958	19600	MASONRY	50% of Building and Wood roof		\$13,551,339	\$33,737,509.52		160	\$2,000,000	3	2	1 occasionally	1 occasionally	0	14	0	PPV Incl. In RV. Incl. 1 Cooling Tower.	220220	5	C		
163	301/802	Electric Generation	ELECTRIC GENERATION / STEAM GENERATION BLDG.	1551 BARROW ST.	Houma, LA. 70360	metal bldg. w/ metal roof	#15-1969 #16-1974	67305	COOLING TOWERS) cooling	METAL ROOF		\$69,258,853	\$79,876,612.52		163	\$5,000,000	3	4	16	1-5 per floor	0	27	0	Equipment. Also includes a fire hose on each floor. Concrete slab	220220	5	C		
163a	301/802	Electric Generation	(Cooling Tower # 14)	1551 BARROW ST.	Houma, LA. 70360		1965					\$400,000			163a	\$400,000													
163b	301/802	Electric Generation	(Cooling Tower # 15)	1551 BARROW ST.	Houma, LA. 70360		1969					\$550,000			163b	\$550,000													
163c	301/802	Electric Generation	(Cooling Tower # 16)	1551 BARROW ST.	Houma, LA. 70360		1974					\$820,000			163c	\$820,000													
163d	301/802	Electric Generation	(Water Tank)	1551 BARROW ST.	Houma, LA. 70360										163d														
163e	301/802	Electric Generation	(Water Plant)	1551 BARROW ST.	Houma, LA. 70360										163e														
163f	301/802	Electric Generation	(Perimeter Fencing)	1551 BARROW ST.	Houma, LA. 70360										163f														N/A
166	301/802	Electric Generation	E. GEN. / DEMINERALIZ. BLDG (16 x 28)	1551 BARROW ST.	Houma, LA. 70360	ISO Class 3 (Light metal bldg. w/ metal roof)	1982	448	METAL	METAL ROOF		\$113,977	\$84,091		166	\$50,000	3	1	1 occasionally	1 occasionally	0	1	0	PPV Included In RV	220220	5	C	N/A	
169	301/802	Electric Generation	E. GEN. / CHEM/FAN BREAKER BLDG (16 x 32)	1551 BARROW ST.	Houma, LA. 70360	ISO Class 3 (Light metal bldg. w/ metal roof)	1975	512	METAL	METAL ROOF		\$17,491	\$0		169	\$56,187	3	1	0	0	0	3	0	PPV Included In RV	220220	5	C	N/A	
172	301/802	Electric Generation	E. GEN. / FOAM BUILDING (16 x 16)	1551 BARROW ST.	Houma, LA. 70360	ISO Class 3 (Light metal bldg. w/ metal roof)	1975	256	METAL	METAL ROOF		\$6,691	\$0		172	\$8,709	3	1	0	0	0	1	0	PPV Included In RV. Foam System for Diesel Storage Tank.	220220	5	C	N/A	
175	301/802	Electric Generation	E. GEN. / CHEMICAL STORAGE (PCB)	1551 BARROW ST.	Houma, LA. 70360	ISO Class 1 - all wood structure	1970s?	580	WOOD FRAME	Corrugated Fiberglass Roofing Panels		\$14,190	\$0		175	\$19,732	3	1	0	0		1	0		220220	5	C	N/A	
178	301/802	Electric Generation	ELECTRIC GEN. WAREHOUSE (32 x 48)	1551 BARROW ST.	Houma, LA. 70360	ISO Class 3 (Light metal bldg. w/ metal roof)	1974	1536	METAL	METAL ROOF		\$16,514	\$0		178	\$52,255	3	1	1 occasionally	1 occasionally	0	2	0		220220	5	C	N/A	
181	301/802	Electric Generation	E. GEN. / DIESEL FUEL STORAGE TANK	1551 BARROW ST.	Houma, LA. 70360		1976	420000 gallons	METAL (10,000 BBL)	METAL ROOF		\$70,315	\$0		181	\$85,750	3							This is a tank, not a building.	220220	5	C	N/A	
184	301/802	Electric Generation	E. GEN. / NEUT. & CHEM. STORAGE TANKS	1551 BARROW ST.	Houma, LA. 70360		1994	37200 gallons	METAL (6 TANKS POLY)	ROOF - METAL PUMP AREA		\$4,521	\$0		184	\$5,319	3				0			These are tanks, not buildings.	220220	5	C		
187	301/802	Electric Generation	E. GEN/ CONDENSATE STORAGE TANKS	1551 BARROW ST.	Houma, LA 70360		1966-1976	71000 gallons	STEEL (5 TANKS)	STEEL ROOF		\$64,204	\$0		187	\$80,520	3							These are tanks, not buildings.	220220	5	C	N/A	
190	301/802	Electric Generation	E. GEN./ DIESEL OIL TANKS	1551 BARROW ST.	Houma, LA 70360		1994	5400 gallons	STEEL ROOF			\$5,110	\$0		190	\$6,348	3							These are tanks, not buildings.	220220	5	C	N/A	

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193	301/802	Electric Generation	E. GEN. / GAS STATION #10 (20 x 30)	1551 BARROW ST.	Houma, LA. 70360	ISO Class 3 (Light metal bldg. w/ metal roof)	1994	600	METAL	METAL ROOF		\$5,000	\$0	\$0	193	\$21,210	3	1	0	0	NO.	1	0		220220	5	C	N/A	
196	301/802	Electric Generation	E. GEN. / GAS STATION #11 (14 x 30)	1551 BARROW ST.	Houma, LA. 70360	ISO Class 3 (Light metal bldg. w/ metal roof)	1992	420	METAL	METAL ROOF		\$40,729	\$25,349	\$0	196	\$15,000	3	1	0	0	NO.	1	0		220220	5	C	N/A	
199	301/802	Electric Generation	E. GEN. / ELECTRIC SHOP (16 x 24)	1551 BARROW ST.	Houma, LA. 70360	ISO Class 3 (Light metal bldg. w/ metal roof)	1976	384	STEEL	METAL ROOF		\$15,000	\$80,000	\$0	199	\$35,247	3	1	3	3	0	1	0	1994 Renovated Previous "R O" Bldg.	220220	5	C	N/A	
200	301/802	Electric Generation	Diesel Plant Cooling Tower	1551 Barrow St.	Houma, LA 70360							\$200,000	\$0	\$0	200	\$200,000													
202	301/803	Electric Distributions	SUBSTATIONS / DIESEL PLANT	2201 BARROW ST.	Houma, LA 70360		1950	0	METAL			\$684,771	\$0	\$0	202	\$918,909	3							No buildings. Substation only. Approximately 50 to 60 feet tall.	220220	5	C	N/A	
205	301/803	Electric Distributions	SUBSTATIONS / UNIT #16	2201 BARROW ST.	Houma, LA 70360		1976	0	METAL			\$632,710	\$0	\$0	205	\$772,540	3							No buildings, unit only. Approximately 50 to 60 feet tall.	220220	5	C	N/A	
208	301/803	Electric Distributions	SUBSTATIONS / POWER PLNT #2	2201 BARROW ST.	Houma, LA 70360		1975	0	METAL			\$3,683,309	\$0	\$0	208	\$4,252,984	3							No buildings. Substation only. Approximately 50 to 60 feet tall.	220220	5	C		
209	301/803	Electric Distributions	SUBSTATIONS #1											\$0	209														N/A
211	301/803	Electric Distributions	SUBSTATIONS / UNIT #14 & 15	2201 BARROW ST.	Houma, LA 70360		1966 #14 1971 #15	0	METAL			\$3,669,633	\$0	\$0	211	\$4,638,426	3								No buildings, units only. Approximately 50 to 60 feet tall.	220220	5	C	N/A
214	301/803	Electric Distributions	SUBSTATIONS	EDISON ST.	Houma, LA 70360		1982	0	Galvanized Steel			\$116,590	\$0	\$0	214	\$131,000	3								No buildings. Substation only. Approximately 50 to 60 feet tall.	220220	5	C	
217	301/803	Electric Distributions	SUBSTATIONS / HOSPITAL	BELANGER ST.	Houma, LA 70360		1977	0	Galvanized Steel			\$787,529	\$0	\$0	217	\$980,070	3								No buildings. Substation only. Approximately 50 to 60 feet tall.	220220	5	C	N/A
223	301/803	Electric Distributions	SUBSTATIONS / HOUMA AIRPORT	2551 CUMMINGS RD.	Houma, LA 70360		1978	0	Galvanized Steel			\$896,310	\$0	\$0	223	\$1,054,482	3								No buildings. Substation only. Approximately 50 to 60 feet tall.	220220	10	C	7
226	301/803	Electric Distributions	SUBSTATIONS / DUMAS PARK	TUNNEL BLVD.	Houma, LA 70360		1952	0	Galvanized Steel			\$317,649	\$0	\$0	226	\$918,909	3								No buildings. Substation only. Approximately 50 to 60 feet tall.	220220	5	AH	N/A
229	301/803	Electric Distributions	SUBSTATIONS	MCKINLEY ST.	Houma, LA 70360		1960	0	Galvanized Steel			\$372,137	\$0	\$0	229	\$475,878	3								No buildings. Substation only. Approximately 50 to 60 feet tall.	220220	5	C	8
232	301/803	Electric Distributions	SUBSTATIONS / SHERWOOD	GIBB STREET	Houma, LA 70360		1965	0	Galvanized Steel			\$319,375	\$0	\$0	232	\$408,408	3								No buildings. Substation only. Approximately 50 to 60 feet tall.	220220	5	A1	N/A
235	301/803	Electric Distributions	SUBSTATIONS / SOUTHDOWN	VALHI BLVD.	Houma, LA 70360		1980	0	Galvanized Steel			\$796,842	\$0	\$0	235	\$918,909	3								No buildings. Substation only. Approximately 50 to 60 feet tall.	220220	5	C	4
238	301/803	Electric Distributions	SUBSTATIONS	SIXTH ST.	Houma, LA 70360		1982	0	Galvanized Steel			\$293,625	\$0	\$0	238	\$400,062	3								No buildings. Substation only. Approximately 50 to 60 feet tall.	220220	5	A2	
236	301/803	Electric Distributions	SUBSTATIONS	PLANT RD.	Houma, LA 70360									\$0	236	\$337,500													8
241	301/807	Utilities Administration	GAS & ELEC. OFFICE & WHSE	299 PLANT RD.	Houma, LA 70363	ISO Class 3 (Light metal bldg. w/ metal roof)	1994	7940	METAL	METAL ROOF		\$550,000	\$150,000	\$150,000	241	\$728,813	3	1	50	50	0	4	0		220220	5	A1	8	



**TERREBONNE PARISH CONSOLIDATED GOVERNMENT  
BUILDING CONTENTS LISTING**

8/20/2014

LOCATION NO.	FUN/DEPT.	DEPARTMENT NAME	BUILDING NAME	ADDRESS	CITY, STATE, ZIP	CONSTRUCTION CODE	YEAR BUILT	SO. FT.	EXTERIOR WALL CONSTRUCTION	ROOF CONSTRUCTION	ROOF AGE	BUILDING VALUE	REAL VALUE	PERSONAL PROPERTY VALUE	LOCATION NO.	BUILDING REPLACEMENT VALUE	PIAL CLASS (Emergency Response Rating)	NO. OF FLOORS	NO. OF PEOPLE PER BLDG.	NO. OF PEOPLE PER FLOOR	NO. OF SPRINKLERS PER BLDG.	NO. OF FIRE EXTINGUISHERS	NO. OF SMOKE / FIRE ALARMS	OTHER DETAILS	MAP NUMBER	PAGE NUMBER	FLOOD ZONE	FIRM ELEVATION						
286	856/506	Libraries	LIBRARY / BOURG	4405 ST. ANDREW ST.	Bourg, LA 70343	ISO Class 2 (Joisted Masonry)	1967	1456	MASONRY	WOOD ROOF	1969	\$23,000	\$407,070	\$500	286	\$167,556	3	1	2	2	0	1	0		225206	120	A3							
287	856/506	Libraries	(Storage Shed)	4405 ST. ANDREW ST.	Bourg, LA 70343	ISO 1 (All wood Structure w/Shingle Roof)	2000	144	WOOD	SHINGLE	2000	\$1,474	\$500	\$500	287	\$4,899	0											9						
291	856/506	Libraries	LIBRARY/CHAUVIN (LEASED)	5500 HWY 56	Chauvin, LA 70344	ISO Class 2	2006	2800	MASONRY	WOOD ROOF			\$355,500	\$0	291	\$0	2	1	2	2	0	2		This building is being Leased from Paf's of Chauvin and we are only insuring the contents.	225206	140	A15	9						
293	856/506	Libraries	LIBRARY / MONTEGUT	1135 HWY 55	Montegut, LA. 70377	ISO Class 2 (Joisted Masonry)	1964	1456	MASONRY	WOOD ROOF	1964	\$23,000	\$175,322	\$500	293	\$167,556	4	1	2	2	0	1	0		225206	130	A12							
288	856/506	Libraries	(Storage Shed)	1135 HWY 55	Montegut, LA. 70377	ISO 1 (All wood Structure w/Shingle Roof)	2001	144	WOOD	SHINGLE	2001	\$1,662	\$500	\$500	288	\$4,899	0											N/A						
296	856/506	Libraries	LIBRARY / GRAY	4130 W. PARK AVE.	Gray, LA 70359	ISO Class 2 (Joisted Masonry)	2010	26352	MASONRY/ New Metal Stud Framing with brick veneer.	Modified Bitumen Roof System on Metal Deck	2010	\$3,984,200	\$1,897,777	\$0	296	\$3,984,200	5	1	10	10	Supervised Automatic sprinkler system per NFPA 13 (317 Heads)	Supervised Fire Alarm with Smoke Detectors, per NFPA (2)	Renovations Complete. 6/11/2010	225206	410	C								
298	856/506	Libraries	LIBRARY/ HOUMA	151 LIBRARY DR.	Houma, LA 70360	ISO Class 4 (Masonry walls with steel roof / non-combustible)	2003	36249	MASONRY	COPPER	2003	\$13,484,938	\$4,255,594	\$0	298	\$11,591,062	3	2	38	19	382	16	47		225206	475	C	7						
299	856/506	Libraries	LIBRARY / WEST TERREBONNE	6363 S. BAYOU BLACK DR	Gibson, LA. 70356	ISO Class 4 (Masonry walls with steel roof / non-combustible)	1985	1625	MASONRY	METAL ROOF	1999	\$237,050	\$175,683	\$0	299	\$237,060	7	1	2	2	0	1	0		225206	265	AH							
302	856/506	Libraries	LIBRARY / DULAC	200 Badou Drive	Dulac, LA 70353	ISO Class 4 (Masonry walls with steel roof / non-combustible)	2009	1625	MASONRY	METAL ROOF	2009	\$677,740	\$331,740	\$0	302	\$677,740	5	1				1		This building has been rebuilt according to new mitigated specifications. It has been resupplied, etc. It has flood coverage.										
305	856/506	Libraries	LIBRARY / DULARGE	837 BAYOU DULARGE RD.	Dularge, LA 70363	ISO Class 1 (All Wood Structure)	1975	3076	MASONRY	METAL ROOF	1985	\$495,448	\$355,295	\$0	305	\$495,448	5	1	2	2	0	2	2	Brick veneer. Renovations now taking place, will be complete in Feb. 2009										
308	906/410	Council on Aging	COUNCIL ON AGING	995 WEST TUNNEL BLVD.	Houma, LA 70360	ISO Class 4 (Masonry walls with steel roof / non-combustible)	REMODELED IN 2010	15500	STEEL	STEEL ROOF		\$1,000,000	\$0	\$0	308	\$1,560,850	3	1	5 OFFICES TOTAL	FIRST FLOOR OCCUPANCY ONLY				ELEVATION 8' - Loss of Income.....\$2,472 year										
309	151/912	OEP	LEASED BUILDING (911 Lease)	112 CAPITAL BLVD.	Houma, LA 70360	ISO Class 3 (Light Metal Bulgin with Vinyl Siding)	Lease 10/27/08 Moved in 4/27/2009	3500	METAL & VINYL			\$250,000	\$800,000	\$0	309	\$451,675																		
<b>TOTALS</b>												<b>\$</b>	<b>207,232,315.39</b>	<b>\$144,382,391</b>	<b>TOTALS</b>	<b>\$179,758,290</b>																		

**\*\* CONSTRUCTION CODE DETAILS: \*\***  
 ISO Class 1 = All wood structure  
 ISO Class 2 = Masonry w/ wood roof  
 ISO Class 3 = Light metal building w/ metal roof  
 ISO Class 4 = Masonry walls w/ steel roof/non-combustible  
 ISO Class 6 = Masonry walls w/ structural steel encased in heavy concrete/AAA fire restrictive