



JEFFERSON EDGE 2020 STRATEGIC IMPLEMENTATION PLAN: **FLOOD PROTECTION**

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Introduction

Jefferson Parish was largely spared from the worst effects of Hurricane Katrina, but the moderate damage that the Parish did experience and the utter devastation that Katrina caused in neighboring parishes served as a powerful reminder of the entire region's vulnerability to tropical events. There are a variety of quality of life issues that Jefferson must address to ensure its continued prosperity, but none is as vital to the future of the community as flood protection. It is a uniquely challenging issue as well, due to the cost and inherent complexity of creating first rate flood protection and drainage infrastructure. The best estimates for the cost of improving our present network of levees, flood control structures, pumps, and canals to withstand a "100-year" storm are on the order of \$15 billion for the area, of which \$7.1 billion has already been funded. Aside from the tremendous cost, implementing these improvements in an expeditious manner is difficult because of the myriad federal, state, and local actors who must coordinate their efforts. In order for a single, major flood control project to be completed, Congress, the executive branch, the U.S. Army Corps of Engineers, the newly created regional levee boards, the relevant local levee district, and parish government must all work in concert. As a result, flood protection presents a fundamentally different kind of quality of life challenge for Jefferson Parish in that Jefferson is not and cannot be solely responsible for setting policy, financing improvements, and implementing action items. Drainage issues require considerable external policy direction, external cooperation, and—perhaps most importantly—ample external resources.

In spite of these challenges, Parish government and the levee boards have been tireless in their efforts to make significant improvements in all phases of flood protection both before and since Hurricane Katrina. Levees have been raised; permanent or interim improvements have been made to address the greatest vulnerabilities; pump stations have been upgraded; and redundant, back up systems have been installed. As a result of the plethora of projects that have been completed in the past two years, one can unequivocally say that Jefferson Parish now has a better drainage and flood protection system than it has ever had before.

In spite of these improvements, substantial gaps remain. Jefferson Parish is only now approaching the level of flood protection on the East and West Banks that had



Interim improvements to the Lake Pontchartrain levee

been statutorily authorized *prior to* Katrina. Even the most optimistic estimates for the construction of 100-year flood protection anticipate a completion date of 2011 at the earliest. More resilient protection from larger tropical events is even further away.

The purpose of this document is twofold. First, it aims to inform the community of the very real improvements that have been completed and that are underway—improvements that are making Jefferson a better and fundamentally safer place to live. Secondly, this plan hopes to focus the attention of the business community, political leadership, and the residents of Jefferson Parish on the specific public policy and funding gaps that must be addressed for the Parish to reach a more robust level of drainage and flood protection. Clearly, time is of the essence, as each successive hurricane season has the potential to put our flood protection system to the test. It is therefore imperative that the Jefferson community unite behind the initiatives outlined in this plan and advocate in particular for the authorization, funding, and implementing actions that are needed from the federal government.

Overview of the Flood Protection and Drainage System

In the aftermath of Hurricane Katrina, many residents in the hardest hit areas of the New Orleans region initially expressed surprise at the amount of flooding in their neighborhoods. According to many who were interviewed, some of the most impacted neighborhoods had not traditionally flooded, even during major rainfalls. This oft-expressed (and accurate) anecdote highlights the fact that the New Orleans area faces the threat of flooding from distinct sources: flooding from the Mississippi River, from storm surge, and from rainfall. The risk of River flooding has been minimized through the building of levees and control structures, such as the Bonnet Carre Spillway; but the threat of flooding from rainfall and surge remains very real.

Mitigating risk from both rainfall and surge is critical to the well-being of the Parish. In the event of severe rain—whether attributable to a tropical event or to a major thunderstorm—the community needs a network of drains, culverts, canals, detention ponds, and pumps that can efficiently remove water from neighborhood streets. During tropical events in which storm surge is a concern, a robust system of levees and flood control structures is needed to keep storm surge at bay and to ensure that the community avoid the kind of catastrophic flooding that Orleans and St. Bernard parishes experienced after Katrina.

The “external” flood control system of levees and surge control structures and the “internal” system of canals and pumps rely on different combinations of funding mechanisms and implementing agencies. External flood protection improvements and internal improvements funded by the Southeast Louisiana Flood Control Project (SELA) depend on a cost sharing agreement between the federal government and local government to implement capital projects. Both also rely on the Corps of Engineers for project oversight. However, the internal and external systems differ in the specific terms of the federal-local cost sharing agreement. They are also distinct in that separate local agencies are responsible for these two forms of flood protection. For Jefferson Parish, the internal network of drains, canals, pumps, and detention ponds is the responsibility of the Drainage Department. The external system of levees and flood control structures is the purview of the East and West Jefferson Levee Districts, and the newly created Southeast Louisiana Regional Flood Protection Authority – East and Southeast Louisiana Regional Flood Protection Authority – West, which oversee the local levee districts.

What all of these agencies have in common is that they have aggressively implemented a wide range of flood control improvements over the past two years that have had the cumulative effect of making Jefferson markedly more secure from flooding. The following sections describe the improvements that have been made to the external and internal flood control systems, the enhancements that are underway, and the specific policies that must be undertaken in the near future to build an even higher level of flood protection in Jefferson Parish.

External Flood Protection - Overview

A critical starting point in understanding the scope of both completed and pending improvements to external flood protection is the distinction between the pre-Katrina “authorized” level of hurricane protection and true, “100-year” flood protection.

After Hurricane Betsy struck the New Orleans area in 1965, Congress authorized the construction of a system of levees that would protect the metropolitan area from similar events. In the decades following Betsy, the regional network of levees underwent a number of revisions in design; and the construction of the flood protection system progressed. By the time Hurricane Katrina struck in 2005, however, much of the regional system had not yet been built to its originally authorized level. In the aftermath of Katrina, it was widely recognized that even the completion of the “authorized” level of hurricane protection would not offer the New Orleans region security from a true 1-in-100-year tropical event.

In recognition of this disparity, Congress directed the Corps of Engineers first to bring the levee system up to its authorized design height and strength. Congress appropriated over \$7 billion for repair and construction projects associated with this initiative. The improvements to external flood protection that have been completed in the two years since Katrina have shored up weaknesses that the Hurricane exposed and have brought the region closer to the pre-Katrina, authorized level of flood protection. There is some overlap between the projects that are underway and the 100-year design height; but for the most part, many of the 100-year flood protection projects have not yet been initiated.

Because the East Bank and West Bank consist of distinct groupings of drainage basins and because flood protection on either side of the River is the responsibility of separate levee districts, the discussion of completed and pending levee improvements has been organized accordingly.

External Flood Protection Improvements – East Bank

On the East Bank, a multitude of projects have been completed in Jefferson and in adjacent parishes to substantially reduce the risk of flooding from storm surge.

These projects include the following accomplishments:

- Levees along Lake Pontchartrain have been raised to their pre-Katrina, authorized height through either permanent lifts or the installation of “Gabion baskets” filled with sand.
- Concrete “I-walls” in various locations throughout the East Bank have been shored up by increasing the earthen base and/or by adding concrete slope paving to reduce the vertical protrusion of the walls.
- In various locations along the West Return Canal on the western edge of Jefferson Parish, pre-existing sheet piling was removed and replaced with 60' of stronger, deeper, thicker sheet piling to 53' of depth. This improvement was made in the vicinity of Louis Armstrong International Airport, among other locations.
- The section of flood wall along the West Return Canal at the terminus of Vintage Drive has been strengthened. This section of flood wall experienced some movement during Katrina. Since then, 60' of sheet piling has been driven to 53' of depth, and earthen berms in combination with concrete slope paving have been completed to provide additional support.
- A metal plate barrier has been installed underneath Interstate 10 at the West Return Canal to act as additional protection against storm surge.
- A storm surge gate has been installed at the mouth of the 17th Street Canal between Jefferson and Orleans Parishes to prevent the kind of catastrophic floodwall breach that inundated New Orleans and parts of Jefferson after Katrina.



Improvements to the West Return Canal wall



Temporary surge gates at 17th Street Canal

- All trees within 15' of the West Return Canal floodwall have been removed to prevent their roots from compromising the integrity of the levee and floodwall.
- All trees on the water-side of the Lake Pontchartrain levee have been removed.
- Trees on the land-side of the Lake Pontchartrain levee that pose a threat to the levee's integrity continue to be removed.
- Levees in St. Charles Parish have been raised, thereby mitigating the possibility that storm surge could enter the East Bank of Jefferson from the west.

In addition to the significant number of flood protection improvements that have been implemented, there are a number of imminent future improvements to external flood protection on the East Bank. “Imminent” improvements are generally those whose funding has been secured and that should be completed within the next three to five years. These improvements include the following projects:

- The reaches of the Lake Pontchartrain levee that have been improved through interim measures will be permanently lifted to their pre-Katrina authorized elevation. This project should be completed by the end of 2008.
- Subsequent lifts to the Lake Pontchartrain levee will raise it to its 100-year design height.
- Breakwaters and sluice gates will be installed in front of pump stations on the Lake to reduce wave action and harden the pump stations against storm surge. This project should be completed by 2011.
- By 2011, all concrete I-walls on the East Bank will have been replaced with stronger, sturdier “T-walls.”
- A permanent pump station and flood gates will be installed at the mouth of the 17th Street Canal by 2012.
- Permanent improvements will be made to the levee and floodwall along the West Return Canal to provide 100-year protection. Although the design of this project has not been finalized, it is scheduled to be completed by 2011.



I-walls will be replaced by T-walls by 2011

External Flood Protection Improvements – West Bank

Despite the fact that the West Bank of Jefferson did not experience storm surge related flooding during Hurricane Katrina, there were at the time of Katrina a number of vulnerabilities in external flood protection, many of which have been addressed through permanent or interim measures. Enhancements to the West Bank's hurricane protection system over the past two years have included the following measures:

- A storm surge gate has been installed on the Harvey Canal at Lapalco Boulevard, thereby limiting surge waters in the Canal to the south side of Lapalco.
- Interim flood protection to an 8' level, in the form of Gabion baskets, has been installed along the east side of the Harvey Canal, south of Lapalco Boulevard.
- At the Company Canal in Westwego, a temporary "barge gate" has been installed to prevent surge from extending northward in the Canal. The barge gate should be fully completed by the end of 2007.
- Concrete I-walls throughout the West Bank flood protection network have been systematically improved. Soils at the base of the walls have been strengthened, and concrete paving has been added in some areas for additional stability. These enhancements were made on the Cousins Canal I-walls, among other locations.



Interim flood protection along the Harvey Canal

As with the East Bank, a number of imminent improvements are scheduled for external flood protection on the West Bank. They include the following projects:

- Interim flood protection on the east side of the Harvey Canal, south of Lapalco Boulevard, will be raised to 11' from its present 8' level by June of 2008.
- Permanent improvements to raise the level of surge protection on the east side of the Harvey Canal to a 100-year level of protection have been initiated.
- An assortment of approximately 20 levee and flood wall projects will be completed between 2009 and 2011 that will bring the West Bank of Jefferson up to the pre-Katrina, authorized level of flood protection.



Construction of permanent flood protection improvements on east side of Harvey Canal

External Flood Protection Improvements – Action Agenda

In the two years since Hurricane Katrina, the community has struggled to convey the proper message to the outside world relative to the region's recovery. On the one hand, many businesses have fully recovered; the cultural touchstones of the New Orleans area have returned; and many neighborhoods are indistinguishable from their pre-Katrina condition. On the other hand, the economic future of the region is very much in doubt; many businesses, individuals, and institutions are struggling financially; and the region's population is smaller by several hundred thousand people. In fact, both perspectives are entirely accurate; and as a result, one cannot describe the post-Katrina metropolitan area in easy-to-digest sound bites.

The same duality that characterizes the overall status of the region is applicable to external flood protection in Jefferson Parish. On the one hand, both the East Bank and West Bank enjoy an unprecedented level of hurricane protection as a result of the improvements that have been completed over the past two years. On the other hand, Jefferson is still a considerable distance from where the Parish needs to be in order to provide residents and businesses with the utmost confidence in the community's security from storm surge. Consequently, a principal aim of this document is to focus the attention of residents, businesses, and community leaders on the specific initiatives that must be undertaken to make substantial further improvements in external flood protection.

Complicating matters is the fact that major external flood protection projects are inherently beyond the jurisdictional and financial reach of local governmental agencies. Their implementation requires the cooperation of the federal government at both the legislative and administrative levels. Clearly, simply waiting for the federal government to act is unacceptable. The Parish government and levee boards have already played an instrumental role in advocating for federal action; redoubled advocacy is now needed. Unlike other quality of life issues, advocacy is one of the few "levers" that Jefferson Parish can pull to address flood protection; and it can be an effective tool when a community speaks with a common message. Just as community awareness of the funding shortfall in the Road Home Program pressured Congress into action, a heightened awareness of the specific policy and funding "gaps" in flood control will likely achieve results.

The following action items have been identified as critical to achieving the robust level of flood protection that this community needs and deserves:

- 1. Advocate for additional federal funding for 100-year flood protection.**
To date, Congress has appropriated over \$7 billion to bring the region's hurricane protection system up to pre-Katrina authorized levels. According to recent, revised estimates by the Corps of Engineers though, approximately \$7.6 billion in additional funding will be needed to implement the 100-year level of protection and to complete internal drainage projects. Anything less than full funding would continue to put the metropolitan area at risk.

2. **Advocate for a reduced local share of the cost of 100-year protection.** The construction of the hurricane protection system has traditionally been financed on a cost share basis. Meeting the local funding component of flood protection projects has not typically been an onerous burden on local government, in light of the slow pace at which these projects were completed. Given the many billions of dollars that are required to reach a 100-year level of protection and given the heightened awareness of the perennial flood risk to the community, an unprecedented amount of local resources would be required over an extremely short timetable. The financial burden upon the taxpayers would be orders of magnitude greater than what the public has traditionally devoted to flood protection. While local governments throughout the region recognize that some kind of cost sharing is a necessary component of such a large endeavor, the cost allocation formulas that have traditionally been used are simply not feasible to achieve 100-year protection.
3. **Explore alternate means of financing the local cost share component of 100-year protection.** In addition to reducing the overall cost share burden, Jefferson Parish should also explore creative ways to pay for whatever final cost share is agreed upon. In December, 2006, President Bush signed into law a bill that gives Louisiana and other coastal states a share of royalties from oil drilling in the Gulf of Mexico. Louisiana stands to experience a windfall in drilling-related revenue as a result of this legislation. In conjunction with other coastal parishes, Jefferson should spearhead an effort to arrange for a delayed cost share repayment schedule to capitalize on this anticipated revenue. An alternate, and moderately less desirable option, would be to issue bonds underwritten by future revenues to pay for the local cost share requirement up front.
4. **Push for federal authorization and funding of a “polder” system of compartmentalized flood protection.** A fundamental weakness in the region’s external flood protection system that Katrina revealed is that a single engineering failure can result in profound, geographically widespread flooding. The Southeast Louisiana Flood Protection Authority – East will soon be undertaking a study to examine the feasibility of creating a system of “polders,” or internal levees, that would limit the extent of flooding even in the event of a levee failure. If the study suggests that such a system is desirable and feasible, the Parish should push for federal authorization and funding. In light of the natural vulnerability of the New Orleans region, a credible back-up system of surge protection should be explored.
5. **Advocate for expanded Corps of Engineers oversight and reform.** A number of measures have been introduced in Congress that would establish a formal mechanism for independent reviews of Corps of Engineers projects. There is ample evidence to suggest that engineering failures played a major role in the catastrophic flooding that the New Orleans region experienced after Katrina. A truly independent assessment of the design and construction of Corps projects would provide an additional, needed layer of quality assurance.

6. **Make a renewed call for 500-year flood protection.** Up to this point, the focus of this discussion has been on funding and constructing a true 100-year level of protection. While the completion of a 100-year levee system would constitute a major victory, it would still leave the region vulnerable to a larger storm. The Corps of Engineers' recently released IPET maps show that taking into account the recent improvements that have been made to the levee system, even the highest ground along the Mississippi River would be inundated in the event of a 500-year event. Terms such as "100-year" and "500-year" refer to the annual probability that a storm of a certain size will strike the area. On average over the course of millennia, a 500-year storm would strike New Orleans once every 500-years. It is entirely possible, however, that 500-year storms could strike in consecutive years or even in the same hurricane season. A 100-year level of protection should be seen as a starting point for further investments in flood protection, not as the proverbial finish line. By contrast, the Netherlands has constructed a flood protection system that is meant to withstand a 1 in 10,000 year event. In this context and in light of the New Orleans region's importance to the rest of the nation, the region must advocate strongly for 500-year surge protection.
7. **Initiate a systematic public outreach campaign to keep the public informed about external flood control projects that are completed, underway, and planned.** While there is clearly much work to be done to elevate the level of external flood protection in the region, much of the community's consternation about flood risk could be alleviated simply by keeping the public more informed. Communicating to the public the real, tangible improvements that have been made since Katrina and the resulting mitigation of risk will help individuals and businesses make more confident decisions to invest in Jefferson. Likewise, explaining in clear, non-alarmist language the flood protection needs that remain will help to generate broad based support for greater federal action. Conveying the difference between concepts like "authorized" and "funded" and "100-year" and "500-year" protection is not a simple task; but the Parish government already has an effective template in the form of the newsletters that it publishes on internal flood protection. A similar newsletter for external flood protection—perhaps paired with other media, such as a website—could address any misinformation that may exist about the Parish's vulnerability to flooding.

A major public outreach campaign has the added advantage of being within the purview of local government. In contrast to the other action items listed above, a concerted outreach effort could be funded and implemented by local government. It also would have the potential to yield relatively immediate benefits to the community. Increased commercial and residential investment could ensue as a result of increasing the public's awareness of the many flood protection improvements that are planned or completed.

Internal Flood Protection and Improvements

Protecting the Parish from storm surge is only half of the flood protection equation. Given the topography of the community, it is just as important that the internal drainage network be capable of efficiently removing rainwater from the Parish's neighborhoods. This is an acute concern not only in the context of tropical events but also on a more customary basis, as the region is frequently inundated by heavy rainfalls. One such rainfall, in May of 1995, caused widespread flooding throughout the New Orleans area and served as the impetus for a federal program to improve the internal drainage system in Jefferson and other communities. To date, the Southeast Louisiana Flood Control Program (SELA) has funded nearly \$400 million in internal drainage projects in Jefferson Parish alone. As with levee improvements, SELA projects are funded on a local-federal cost share basis, with the federal government assuming 75% of project costs and Jefferson taxpayers covering the balance.

Since Hurricane Katrina, the Parish's Drainage Department has overseen a number of projects that have been completed on an expedited timetable to address internal drainage issues that Katrina highlighted. These projects include capital improvements authorized and funded through SELA as well as urgent capital projects funded through local dollars. Internal drainage projects that have recently been completed include the following accomplishments:

- Eight "safe houses" have been constructed at pump stations throughout the Parish. While the pump stations were designed to a Category 2 hurricane standard, the safe houses are elevated above the flood plain and are built to withstand 250 mile per hour winds. The safe houses allow the pump operators to stay on-site during a major tropical event, to operate the pumps for a longer period of time, and to resume pumping more quickly after storms subside.
- Remote operating capability has been installed in pumping stations for all of the horizontal pumps which are more vulnerable to "back flow." Back flow occurs when storm surge flows into drainage canals from the Lake.
- An upgraded air suppression system has been installed in nine of the pump stations which are vulnerable to back flow in order to restrict back flow. This system is designed in such a way that it would continue to function for an extended period of time, even in the event of a loss of power.



Safe house at Bonnabel pump station

- All major pumping stations have been equipped with stand-by generators so that they can continue to function even if power from the electric grid is temporarily lost. The Mt. Kennedy generator will be installed as part of a storm proofing contract by the Corps of Engineers. The generator for the Westminster and Lafitte Lift Stations is under construction.
- Storm water detention ponds have been constructed in multiple locations, such as Pontiff Playground, the Woodland West area, Earhart Expressway at Clearview, and Earhart Expressway at Causeway. In the event of severe rains, water can be diverted to and temporarily detained within these areas to remove rainwater from neighboring streets.
- Flap gates have been installed on the outfall pipes into the 17th Street Canal so that if water in the Canal rises above the pipes, it will not back flow into the streets of the low-lying “Hoey’s Basin” area of Old Metairie.
- Additional hydraulic driven pumps have been installed throughout Hoey’s Basin to improve drainage in low lying areas and to pump storm water from the Basin into the 17th Street Canal, if high water in the Canal should require the closure of the Hoey’s flood gate.
- Pumping capacity at the temporary pumps at the mouth of the 17th Street Canal has been improved.
- Following Katrina, every drain line in the Parish was vacuumed and cleaned at a cost of \$52 million to remove obstructions and improve storm water flow.
- Back up emergency power for 60 cycle, electric driven pumps is now in place at Pump Station Number 6 on the 17th Street Canal, operated by the New Orleans Sewerage and Water Board. This major pump station, which is responsible for draining Hoey’s Basin, lost power during Hurricane Katrina.



Berms for water detention at Pontiff Playground

The cumulative effect of these improvements and prior, SELA-funded measures is that Jefferson is significantly better equipped to handle major rainfalls than it was even several years ago. On October 22, 2007, the New Orleans area experienced what was likely a 1-in-75-year rainfall. In Jefferson Parish, some areas witnessed as much as 12 inches of rain over the course of several hours. Despite the severe volume of rain in such a short period of time, no major flooding of structures was reported in Jefferson—an outcome that is largely attributable to the investments in drainage that have been made in the past eleven years.

Many enhancements still must be completed to guarantee even better drainage and pumping capacity in the face of severe rainfalls and tropical events. Imminent future internal drainage measures include the following projects:

- Permanent back flow prevention will be installed at all of the pump stations throughout the Parish.
- Five additional safe houses will be constructed at major pump stations that currently do not have safe houses. This project will be completed by the start of the 2008 hurricane season.
- Remote operating technology will be installed at additional pump stations so that every manned pumping station in the Parish will have either a safe house on-site or will have the capability of being operated remotely.
- Detention ponds are being dug in the Woodland West neighborhood on the West Bank to temporarily store rainfall. Phase I of this project will be completed in December of 2007; phase II will be completed in 2008.
- Repairs are being made by the New Orleans Sewerage and Water Board to improve the reliability of the municipal power source feeding Pump Station Number 6. This upgrade should help the pumping station to remain at full capacity during extremely inclement weather conditions.
- Further automation of Jefferson's pump stations will be funded by the Corps of Engineers so that they may operate for a longer, continuous period of time during a major storm.
- Pump stations will be further storm-proofed. Improvements are recommended to keep as many pump stations as possible operating during Category 3 or Category 4 hurricanes.
- Additional, major SELA-funded projects are underway and will be completed in the next 18 months. On the East Bank, improvements are being made to the Kawanee crossing of Elmwood Canal, to the West Esplanade crossing of Elmwood Canal, and to the Soniat Canal from Veterans Boulevard to Canal No. 3. On the West Bank, improvements are underway on the Grand Cross Canal, Cousins Canal, and Gardere Canal. These projects are scheduled to be completed during 2008 and 2009. They will improve the flow of water through the canals during rain events.



SELA projects are underway throughout Jefferson

Internal Flood Protection Improvements – Action Agenda

The future of Jefferson’s internal flood protection system revolves around a nearly identical set issues and challenges that the Parish’s external system faces. As with external drainage, the message that must be conveyed to Parish residents and to the federal government is a nuanced one: internal drainage in Jefferson is better than it has ever been before, but there is ample work still to be done. Also paralleling the external drainage system is the fact that the cost of planned improvements to the internal drainage system greatly exceeds the Parish’s financial means. Federal dollars must necessarily be part of the funding equation. As a result of this reliance on federal assistance, the third and final parallel is that many of the recommended action items for internal flood protection also amount to advocacy issues. It is therefore critical that Parish residents, businesses, and community leaders speak with a common message in outlining the critical internal drainage needs of the community.

The following action items are essential to the Parish’s achieving a stronger system of internal drainage:

- 1. Secure additional funding through the SELA program to implement additional SELA-authorized projects.** The \$375 million in SELA projects that have been funded in Jefferson since 1996 represents only the halfway mark in the initiative. Approximately \$400 million in additional federal funding is needed to construct the remaining improvements to canals, pump stations, and culverts that are essential to the Parish’s drainage system. The aforementioned \$7.6 billion gap in federal funding for 100-year flood protection includes a substantial allocation for SELA projects. The Parish must work with Congress and the Administration to ensure that this supplemental appropriation is signed into law. Funding will also be needed to construct any projects that may be approved from two ongoing “533(d)” studies: the Hoey’s Basin Post Authorization Change (PAC) and Lake Cataouatche PAC as a part of the SELA program.
- 2. Seek federal funding for automated climber screens for the pump stations.** During severe weather, pumping capacity is limited by the debris that accumulates in the drainage canals and impedes the flow of water into the pumping stations. In the absence of automated equipment to clean the pumping station screens, Parish employees must manually clean them—a task that is infeasible and unsafe in severe weather. Automated climber screens must therefore be installed to improve the pumps’ performance in these conditions. The primary impediment to their installation is a financial one, as climber screens cost approximately \$750,000 per individual pump, for a total of \$60 to \$70 million for all pumping stations. Whether this cost is embedded within SELA funding or some other federal appropriations mechanism, funding for climber screens must be a component of the overall federal funding package for internal drainage.

3. **Work with the federal government to obtain funding to improve the “local” drainage system in Jefferson.** The sole focus of the SELA program has been to enhance the capacity and performance of the Parish’s major canals and pumping stations. The success of the drainage system in managing storm water hinges just as much, however, on the performance of the “local” drainage system of minor ditches, culverts, and drains. The age of this infrastructure and the need for comprehensive upgrades impel the Parish to devise a capital improvement program for local drainage. Presently, the Parish has retained two groups of consulting engineers to prepare a comprehensive drainage master plan for each side of the River to address subsurface drainage deficiencies. Because the estimated cost of a system-wide upgrade is approximately \$500 million and because the local drainage infrastructure is just as important to flood control as levees, pumps, and major canals, the Parish should work with the federal government to craft a cost share mechanism to make the needed improvements.
4. **Work with the Army Corps of Engineers to authorize the Hoey’s Basin pump to the river project and work with Congress to secure funding.** The Hoey’s Basin area of Jefferson Parish has a long history of poor drainage. There is an emerging consensus that a pump to the Mississippi River—in lieu of continued reliance on the 17th Street Canal—would substantially improve drainage in the area. Cost is a potential impediment to this project, as preliminary cost estimates put the project cost at well over \$100 million. Before cost is even considered, the Corps must first authorize the pump station through a 533(d) study. The Parish should actively engage the Corps to advocate for the pump’s authorization and then should direct its advocacy efforts toward Congress to obtain capital funding.

Summary Matrix of Action Items

The following tables provide summaries of action items for external and internal flood protection.

External Flood Protection

Action ID#	Implementation Action	Responsible Local Agencies/Actors	Benchmarks	Local Resources/Funding	Timeline
E1	Advocate for additional federal funding for 100 year flood protection	LA congressional delegation, Parish Government, regional levee boards, local levee districts, LA CPRA, JEDCO	<ul style="list-style-type: none"> Appropriations bill passed by Congress, signed into law 	<ul style="list-style-type: none"> Staff time and travel costs related to advocacy Size of local match unknown 	Secure funding in 2008
E2	Advocate for reduced local share of the cost of 100 year protection	LA congressional delegation, Parish Government, regional levee boards, local levee districts, LA CPRA, JEDCO	<ul style="list-style-type: none"> Legislation passed by Congress, signed into law which reduces local match 	<ul style="list-style-type: none"> Staff time and travel costs related to advocacy 	Pass legislation in 2008
E3	Explore alternate means of financing local component of 100 year protection	LA congressional delegation, Parish Government, regional levee boards, local levee districts, LA CPRA, LA Department of the Treasury, JEDCO	<ul style="list-style-type: none"> Agreed-upon design for local match mechanism Legislation passed by Congress permitting payment mechanism 	<ul style="list-style-type: none"> Staff time and travel costs related to program design and advocacy 	Secure agreement and pass legislation in 2008
E4	Push for federal authorization and funding of a polder system of compartmentalized flood protection	LA congressional delegation, Parish Government, regional levee boards, local levee districts, LA CPRA, JEDCO	<ul style="list-style-type: none"> Completion of feasibility study Incorporation of polder system into Corps' long range flood protection plan Congressional authorization & funding of a polder system 	<ul style="list-style-type: none"> Staff time and travel costs related to advocacy Size of local match unknown 	Complete study in 2008; secure authorization and funding by 2011
E5	Advocate for expanded Corps of Engineers oversight and reform	LA congressional delegation, Parish Government, regional levee boards, local levee districts, LA CPRA, JEDCO	<ul style="list-style-type: none"> Legislation passed by Congress, signed into law which provides authorization and funding for an independent review board 	<ul style="list-style-type: none"> Staff time and travel costs related to advocacy 	Pass legislation in 2008
E6	Make a renewed call for 500 year flood protection	LA congressional delegation, Parish Government, regional levee boards, local levee districts, LA CPRA, JEDCO	<ul style="list-style-type: none"> Completion of Corps' 500 year flood protection study Congressional authorization and funding of 500 year protection 	<ul style="list-style-type: none"> Staff time and travel costs related to advocacy Size of local match unknown 	Complete study in 2008; secure authorization and funding by 2011
E7	Initiate a public outreach campaign to keep the public informed about external flood control projects	Parish Government, regional levee boards, local levee districts, JEDCO	<ul style="list-style-type: none"> Roll out of a web-page specific to external flood protection progress In Jefferson Roll out of a newsletter on external flood control 	<ul style="list-style-type: none"> \$20,000 for website \$110,000 for annual newsletter 	Unveil website and issue newsletter in 2008

Internal Flood Protection

Action ID#	Implementation Action	Responsible Local Agencies/Actors	Benchmarks	Local Resources/Funding	Timeline
I1	Secure additional funding through the SELA program to implement SELA-authorized projects	LA congressional delegation, Parish Government, JEDCO	<ul style="list-style-type: none"> • Appropriations bill passed by Congress, signed into law 	<ul style="list-style-type: none"> • Staff time and travel costs related to advocacy • Approximately \$100 million in local cost share 	Secure funding by 2009
I2	Seek federal funding for automated climber screens for the pump stations	LA congressional delegation, Parish Government, JEDCO	<ul style="list-style-type: none"> • Appropriations bill passed by Congress, signed into law 	<ul style="list-style-type: none"> • Staff time and travel costs related to advocacy • Size of local match unknown 	Secure funding by 2009
I3	Work with federal government to obtain funding to improve "local" drainage system in Jefferson	LA congressional delegation, Parish Government, JEDCO	<ul style="list-style-type: none"> • Legislation passed by Congress, signed into law which provides federal authorization and funding for improved local drainage in Jefferson 	<ul style="list-style-type: none"> • Staff time and travel costs related to advocacy • Size of local match unknown 	Secure authorization and funding by 2011
I4	Work with the Army Corps of Engineers to authorize Hoey's Basin pump to the river and work with Congress to secure funding	LA congressional delegation, Parish Government, JEDCO	<ul style="list-style-type: none"> • Corps approval of pump to the river Post Authorization Change (PAC) • Congressional authorization and funding for pump to the river 	<ul style="list-style-type: none"> • Staff time and travel costs related to advocacy • Size of local match unknown 	Complete study in 2008; secure authorization and funding by 2009

Conclusion

Improving flood protection in Jefferson Parish is an especially challenging task for two reasons. First, it is the single most important issue for the security and continued prosperity of the community. Second, the funding and implementation to address this most critical issue are largely beyond the purview of local government. In this context, a forceful, focused advocacy campaign is the most powerful tool that the Parish community has at its disposal.

This plan has attempted to outline Jefferson's specific needs for flood protection, with the hope that a broad array of political, business, and community leaders will be able to speak with a common message and deliver a common "ask" to the federal government. By elevating the community's awareness of flood control issues beyond mere platitudes, this implementation plan will hopefully generate the momentum to build an even stronger system of flood protection in the near future.

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