Repetitive Loss Area Analysis
Jefferson Parish
Maplewood Subdivision Area

May 31, 2006
University of New Orleans
Center for Hazard Assessment Response and Technology
Repetitive Loss Area Analysis

Jefferson Parish – Maplewood Subdivision Area

Contents

1. Background ........................................................................................................................... 1
2. Problem Statement .............................................................................................................. 3
   2.1. Existing Studies ........................................................................................................ 3
   2.2. Flood Insurance Data ............................................................................................. 5
   2.3. Property owners ....................................................................................................... 7
   2.4. On-site survey ......................................................................................................... 9
   2.5. Problem Statement ................................................................................................. 9
3. Alternative Mitigation Measures ...................................................................................... 10
4. Drainage Improvements .................................................................................................. 10
   4.1. Queen Ditch .......................................................................................................... 11
   4.2. SELA ...................................................................................................................... 11
   4.3. BCG Study ............................................................................................................ 11
   4.4. SELA – PAC ......................................................................................................... 12
   4.5. Yard Drainage Improvements ................................................................................ 14
   4.6. Drainage Maintenance ........................................................................................... 14
   4.7. Summary ............................................................................................................... 15
5. Nonstructural Alternatives .............................................................................................. 15
   5.1. Buyouts ................................................................................................................. 15
   5.2. Pilot Reconstruction .............................................................................................. 17
   5.3. Elevation ................................................................................................................. 17
   5.4. Floodwalls ............................................................................................................. 18
   5.5. Floodproofing ........................................................................................................ 21
6. Flood Insurance ............................................................................................................... 23
7. Funding ............................................................................................................................ 24
   7.1. Corps of Engineers ............................................................................................... 24
   7.2. FEMA Programs .................................................................................................... 25
   7.3. Parish Funds ......................................................................................................... 25
   7.4. Rebates ................................................................................................................ 25
8. Conclusions ..................................................................................................................... 26
9. Recommendations .......................................................................................................... 27
10. Coordination .................................................................................................................. 27
11. References ..................................................................................................................... 28
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1. Background

Repetitive losses: The National Flood Insurance Program (NFIP) is continually faced with the job of paying claims while trying to keep the price of flood insurance at an affordable level. It has a particular problem with repetitive loss properties, which are estimated to cost $200 million per year in flood insurance claim payments. Repetitive loss properties represent only 1 percent of all flood insurance policies, but historically they account for nearly one-third of the claim payments (over $4.5 billion to date). There is constant pressure on the Department of Homeland Security’s Federal Emergency Management Agency (FEMA) to increase flood insurance premium rates in order to keep the NFIP in its current self-supporting mode and to minimize the burden of flood damage on the general taxpayer.

UNO – CHART: The University of New Orleans’ Center for Hazards Assessment, Response and Technology (UNO – CHART) received a special grant from FEMA to collate data and analyze the repetitive loss areas in Louisiana. Using geographic information system (GIS) and flood insurance claims data, repetitive loss areas and properties are being prioritized for attention. In selected parishes, UNO is determining whether flood control projects that will stop the repetitive flooding have been constructed or are planned.

When there are no recent or planned projects to stop the flooding, UNO is conducting a sample “area analysis.” An area analysis follows new FEMA guidelines to determine the suitability of the buildings for acquisition, elevation, or other retrofitting flood protection measure. This report summarizes the area analysis conducted for the Maplewood Subdivision target repetitive loss area.

The Area: The Maplewood Subdivision repetitive loss area is located in unincorporated Jefferson Parish, between the Harvey Canal and the City of Gretna, on the west bank of the Mississippi River. Its location is shown on the map on the next page. This analysis only looked at the southern part of the Maplewood Subdivision: Maplewood, Redwood, and Dogwood Streets between 1st and 9th Streets.

Terminology

Repetitive loss: 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. To focus resources on those properties that represent the best opportunities for mitigation, two subcategories have been defined: the Target Group and Severe Repetitive loss Properties.

Target Group: Repetitive loss properties that have had four or more claims of more than $1,000 since 1978, or two or three claims that equal or exceed the building’s value.

Severe Repetitive Loss Properties: As defined by the Flood Insurance Reform Act of 2004, 1-4 family residences that have had four or more claims of more than $5,000 or at least two claims that cumulatively exceed the reported building’s value. The Act creates new funding mechanisms to help mitigate flood damage for these properties.

Area Analysis: An approach to identify repetitive loss areas, evaluate mitigation approaches, and determine the most appropriate alternatives to reduce future repetitive losses.
The Maplewood target area was selected for analysis because of the high concentration of target repetitive flood insurance claims. Of the 567 homes in the designated area, 236 (42%) are repetitive loss properties and 107 of the 236 are target repetitive loss properties (see terminology on page 1). The area north of 1st Street, the newer part of Maplewood Subdivision, was not analyzed because it does not have any target repetitive loss properties.

2. Problem Statement

The first step in the analysis process was to collect relevant data on the problem, i.e., the properties exposed to flooding and the cause(s) of the repetitive damage. Four sources of information were used for this: existing studies, flood insurance data, the property owners, and on-site surveying.

2.1. Existing Studies

The UNO – CHART team contacted the Parish, FEMA, and the US Army Corps of Engineers and collected the following reports:

- The Flood Insurance Rate Map for Jefferson Parish, March 23, 1995
- The FEMA Flood Insurance Study for Jefferson Parish
- Geographic information system (GIS) maps and layers provided by Jefferson Parish
- Hazard Mitigation Plan, Jefferson Parish, 2005
- Interim Report of Findings, Maplewood/Pailet Community, Brown Cunningham Gannuch for the Jefferson Parish Department of Public Works, 2001
- US Army Corps of Engineers SELA studies

“SELA” is the Southeast Louisiana Urban Flood Control Project undertaken by the Corps of Engineers. It is designed to reduce flooding due to rainfall within the levee protected areas of Orleans and Jefferson Parishes.

The studies confirmed that the repetitive flooding in the Maplewood area has been caused by heavy rains from tropical storms, hurricanes, and local storms, not overbank flooding or levee failure. The area was not affected by the levee failures that flooded the east bank area of the Mississippi in Jefferson Parish during and following Hurricane Katrina.

The drainage system: The Maplewood area is part of the very flat Mississippi River delta. As seen in the map on the next page, the ground elevations vary from sea level to 4 feet below sea level. In addition to the rainfall that lands on the subdivision, runoff flows into Maplewood from the higher ground to the east. Because the terrain is so flat, stormwater runoff moves relatively slowly, and it takes quite a while to drain.
Rainfall runoff flows to the streets, which were intentionally built lower than the building lots. The street water then flows to storm sewer inlets along Redwood, Maplewood, and Dogwood Drives. The storm sewers are connected to sewers under the cross streets (1st, 3rd, Gretna, 6th, 7th, and 9th) which convey the water to the canal that forms the western boundary of the study area. North of Gretna Boulevard, the canal is called the Gardere Canal. At Gretna Boulevard, the Gardere Canal is joined by the Brown Canal to form the Murphy Canal. In some reports, the Murphy Canal is also called the Gardere Canal.

Street flooding occurs when the drainage system is not able to collect and convey the runoff from heavy rainfall fast enough. The system was designed when the subdivision was constructed in the 1960's. At that time, the standard for storm sewers and drainage conveyance was smaller than what would be accepted today. Currently, the Jefferson Parish subdivision regulations require residential developments of five acres or more to account for storing and conveying the 10- and 100-year storms (Section 14-14 of the Parish Code of Ordinances).

**Pumps:** A second complication is that the canals require pumps to convey the water to the rivers outside the levees. Drainage of the area is therefore dependent on the capacity of the pumping stations and a continuous source of electricity to run the pumps. When the canals cannot drain, the storm sewers cannot drain, and water backs up in the streets. If the rain continues, water will back up onto the lots and into the lowest lying houses.

**Regulations:** The Maplewood study area is outside the 100-year floodplain mapped by FEMA. It is designated as an “X Zone,” which means that there are no floodplain management regulations that would require new construction or substantial improvements to buildings to be protected from the 100-year, or base, flood.
Most homes were constructed 1 – 2 feet higher than street level, but if the streets flood to a
deeper level, the homes will be flooded.

It should be noted that after Hurricane Katrina, FEMA issued advisory base flood elevations for
Jefferson Parish. FEMA recommends that, in the future, new construction and substantial
improvements in X Zones be elevated at least 3 feet above the highest existing adjacent grade.

2.2. Flood Insurance Data

Flood insurance is not required by law in X Zones, but because of the repetitive flooding, many
residents have purchased policies. UNO – CHART obtained claims data for the 236 repetitive
loss properties and analyzed them for this report.

**Privacy Act:** 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.

**Claims data:** Summary data on the repetitive loss properties are displayed below. Six properties
had been paid claims nine times, but the average property has had 3 to 5 claim payments. Based
on pre-Katrina claims data, 40 of the target properties will qualify as Severe repetitive loss
properties. This number will likely be larger when Katrina claims are factored in.

<table>
<thead>
<tr>
<th>Repetitive Loss Claims Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number</strong></td>
</tr>
<tr>
<td>Properties</td>
</tr>
<tr>
<td>Non-target</td>
</tr>
<tr>
<td>Target</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

*Note: these figures do not include claims from and following Hurricane Katrina*

The flood insurance claims data show that before Hurricane Katrina, FEMA had paid nearly $9
million in repetitive flood insurance claims to 42% of the homes in the Maplewood subdivision.
The average claim payment has been $10,000.

It is likely that the data in this section underestimate the flooding problem for three reasons.

- Additional, non-repetitive, flood insurance claims were not looked at.
- NFIP records do not include claims data from before 1978, so there could have been
  additional losses not shown here.
- Some property owners reported to members of the UNO – CHART team that they had
  not submitted claims on recent, small floods because they were afraid it would result in
  an increase in their premiums, a loss of their coverage, or a mandatory buyout. It should
  be noted that such actions would not be allowed under current laws and regulations.
It is important to note that the average claim has been under $10,000. Only one property has been paid more than $200,000 (building and contents) since 1978. That property had 7 claims and an average building claim payment of $16,000. This claims information means that the amount of damage has been relatively low compared to the value of the buildings.

Therefore, the Parish’s substantial damage regulations, which affect buildings that have been damaged to an amount greater than 50% of the building’s value, are not likely to have any effect on repetitive flood insurance claims in Maplewood.

The table to the left shows the dates of the claims. The worst floods were in 1978, 1980, 1988, and 1989. Residents reported that few people had insurance in 1978, the year of the worst flood in memory, but after that storm, many purchased it voluntarily.

The most claims were paid before 1990. It appears that repetitive flooding has been reduced over the last 15 years. It is suspected that the major reason for this is the drainage improvements that the Parish has been implementing. These are discussed in section 4.

The distribution of the 236 repetitive loss properties is shown by block in the map to the right. It can be seen that the properties are concentrated in the southern part of the subdivision, with over 1/3 of them in the four blocks between 6th and 7th Streets. The worst hit area is in the blocks between 6th and 7th Streets. This corresponds to the lowest land, as shown by the darker shading.
2.3. Property owners

The first step in the analysis process was to advise the neighborhood about the project. On January 5, 2006, UNO – CHART project team members met with the Board of Directors of the Maplewood Civic Association to review the project’s objectives, approach, and timetable. The Board provided a great deal of support, especially in publicizing the project and its findings.

On January 14, 2006, the Jefferson Parish Department of Emergency Management sent a notice to the owners. The letter included a data sheet. A copy of the notice and data sheet are in Appendix A. The back side of the data sheet included UNO – CHART’s address and a stamp. After completing the form, the respondent could fold the form up and mail it.

Of the 567 properties that received a letter, 201 people responded, many with detailed notes about their flooding history. This 35% return rate is considered excellent for this type of survey, indicating a high degree of interest in flooding and flood protection in the neighborhood. The results are summarized in the table on the next page.

On March 28, 2006, members of the UNO – CHART team visited several properties in the subdivision. They toured the homes and discussed past flooding and steps area homeowners had taken to reduce damage from flooding.

On May 24, 2006, a public meeting was held in the area. The project and the report were reviewed and comments were solicited from the participants. As a result of these comments, changes were made to the report and the recommendations.

The following general conclusions can be made based on the data sheets, the comments submitted by respondents, and the home visits:

Experiences:

– A large number of residents have never flooded.
– Most flooded houses had floodwaters less than one foot deep.
– Most flooded houses were flooded for less than 24 hours.

Causes:

– Drainage system failures, including overbank flooding from canals, sewer backups, and pumping stations, have been the major causes of flooding.
– Homes that have escaped flooding from the streets have been flooded from water in the back yard or coming from a neighbor’s yard.
– Some causes appear preventable: pine tree roots clogging sewer lines and vehicles creating waves, for example.
– It is felt that problems have been aggravated by construction in the area over the years, especially development along Manhattan Boulevard to the east.
There is a concern that subsidence is making things worse.
There is a concern that the area is not well enough protected from overbank flooding from the Harvey Canal.

<table>
<thead>
<tr>
<th>Question</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In what year did you move into the home at this address?</td>
<td>1950s – 1 1960s – 74 1970s – 42 1980s – 26</td>
</tr>
<tr>
<td></td>
<td>1990s – 31 2000s – 17</td>
</tr>
<tr>
<td>2. What type of foundation does your house have?</td>
<td>Slab – 196 Crawlspace – 2 Post/Piles – 1</td>
</tr>
<tr>
<td>3. Has the property ever been flooded or had a water problem?</td>
<td>Yes – 112 No – 84</td>
</tr>
<tr>
<td>5. What was the deepest that the water got?</td>
<td>Over first floor: &lt; 6 inches: 53; 6 inches – 1 foot: 34</td>
</tr>
<tr>
<td></td>
<td>2 feet – 3; 3 feet – 2</td>
</tr>
<tr>
<td></td>
<td>In yard only: &lt; 6 inches: 26; 6 inches – 1 foot: 6</td>
</tr>
<tr>
<td></td>
<td>&gt; 1 foot – 4</td>
</tr>
<tr>
<td></td>
<td>Water kept out by sandbagging – 5</td>
</tr>
<tr>
<td>6. What was the longest time that the water stayed up in the house?</td>
<td>&lt; 3 hours – 31 3 – 6 hours – 27 7 – 12 hours – 20</td>
</tr>
<tr>
<td></td>
<td>12 – 24 hours – 10 &gt; 1 day – 7</td>
</tr>
<tr>
<td>7. What do you feel was the cause of your flooding?</td>
<td>Overbank flooding – 54 Storm sewer backup – 40</td>
</tr>
<tr>
<td></td>
<td>Drainage from neighbors – 32 Pumping Station – 18</td>
</tr>
<tr>
<td></td>
<td>Rainwater – 18 Standing water by house – 10</td>
</tr>
<tr>
<td></td>
<td>Sanitary sewer backup – 8 Passig Vehicles – 7</td>
</tr>
<tr>
<td></td>
<td>Clogged Ditch – 2 Hurricanes – 3</td>
</tr>
<tr>
<td></td>
<td>Poor Construction – 2 Elevation – 1</td>
</tr>
<tr>
<td>8. Have you taken any flood protection measures on your property?</td>
<td>Moved things higher – 51 Regraded yard – 39</td>
</tr>
<tr>
<td></td>
<td>Sandbagged – 23 Install drains/trenches – 22</td>
</tr>
<tr>
<td></td>
<td>Waterproofed outside walls – 9 Built wall – 7</td>
</tr>
<tr>
<td></td>
<td>Plugged weepholes – 4</td>
</tr>
<tr>
<td>9. Did any of the measures in #8 work?</td>
<td>Yes – 46 No – 16</td>
</tr>
<tr>
<td>10. Do you have FEMA Flood Insurance?</td>
<td>Yes – 144 No – 46</td>
</tr>
<tr>
<td>11. Are you interested in pursuing measures to protect the property from flooding?</td>
<td>Yes – 154 No – 21</td>
</tr>
</tbody>
</table>
Solutions:

- Residents want to see improvements to the drainage system, especially to the canals and pumping station.
- Drainage improvements done to date (see discussion in section 4) seem to have reduced the frequency of flooding.
- Pumping stations should be continuously operated during storms and power outages.
- Many people have implemented their own flood protection measures.
- Most (but not all) of the time, these measures worked.
- People are interested in learning more about how they can protect their homes from flood damage.

2.4. On-site survey

As part of its effort to refine its repetitive loss data, FEMA conducted an on-site survey of all Target properties in 2002. Because the area is in an X Zone, the work did not include shooting building elevations.

During the week of January 15, 2006, a survey crew from UNO – CHART visited every property in the subdivision. The following information was recorded for each property:

- Type of foundation
- Type of siding (wood or masonry)
- Estimate of the relative height of the house above the street
- A photograph was taken of each house

Here is a summary of the data collected by the surveying:

- All but nine of the 567 homes are single story on a slab foundation. This means that elevation is expensive and wet floodproofing is not feasible.
- All but nine homes have masonry siding. This also increases the cost of elevation, but facilitates dry floodproofing.
- 505 of the 567 homes are less than two feet above the level of the street (some are even below street level).

2.5. Problem Statement

Based on the data collected from the four sources of information (existing studies, flood insurance data, the property owners, and on-site surveying), the following bullets summarize the repetitive loss problem in the Maplewood neighborhood:
— Of 567 homes in the Maplewood target area between 1st and 9th Streets, 236 are “repetitive loss properties” as defined by FEMA. 107 of these are “Target repetitive loss properties,” which put an even greater strain on the National Flood Insurance Program.

— The Maplewood target repetitive loss area is subject to local drainage problems that have resulted in 961 flood insurance claims, at a cost of nearly $9 million, since 1978.

— Claims were filed after 22 floods in the last 27 years, an average of almost once a year.

— While repetitive and damaging, the cost of most floods has been relatively low.

— Most of the drainage problems were caused by heavy rains overloading the drainage system – the water could not be removed fast enough.

— Some flooding has been caused by drainage from back yards and neighboring yards.

— Most of the affected homes are on slab foundations, so the first floors are relatively low and easily subject to getting wet from shallow street or yard flooding.

— Repetitive flooding has declined in recent years, most likely due to drainage improvements.

3. Alternative Mitigation Measures

Knowing the drainage system, the flooding problem, and the types and condition of the buildings in the area leads to the next step in the analysis process – a review of alternative mitigation approaches to protect the properties from future flood damage. Two types of approaches were analyzed – drainage improvements to control flood waters and “nonstructural” approaches that modify a building, or its lot, to prevent damage by flood waters. Each approach has its pros and cons.

4. Drainage Improvements

Stormwater runoff flows to the lowest areas, which in the Maplewood subdivision are the streets. The water drains into storm sewers through inlets in the streets, which carry the water to the canals. The water will back up in the streets:

— If runoff from outside the area is directed to the subdivision’s streets and sewers,

— If there are not enough storm sewer inlets,

— If the storm sewers or the inlets are clogged with debris or trash,

— If the sewers are overloaded by very heavy rains, or

— If the canals are full and the water has nowhere else to go.

If the water in the streets backs up far enough, it will reach the walls of the homes. The drainage system can be improved by addressing one or more of these five problems. The Parish, with support from the US Army Corps of Engineers, has worked on all five of them.
4.1. Queen Ditch

As seen in the contour map on page 4, the area to the east of Maplewood is higher than Redwood Drive. Water naturally flows from the east to the canals west of Maplewood. A few years ago, the Parish constructed a ditch east of the houses along Redwood and a berm to ensure that the overland flow stays in the ditch. The ditch is located on the same alignment as Queen Boulevard, if it was extended, so it is known as Queen Ditch. Residents report that it has made a difference by reducing the amount of stormwater that flows to the Maplewood Subdivision. They also report that the berm may block drainage from their lots to the ditch.

Water flowing from the east is stopped by this berm and diverted south along Queen Ditch.

4.2. SELA

The Southeast Louisiana Urban Flood Control Project, or SELA, was authorized by Congress after the May 1995 flood in Orleans, Jefferson and St. Tammany Parishes. It is specifically charged with dealing with rainfall flooding, such as the type of flooding faced in Maplewood.

In the area east of the Harvey Canal, the SELA Project included improvements to the Gardere, Brown Avenue, Whitney, Heebe, and Terry Parkway Canals and the construction of a new Whitney-Barataria Pumping Station, with a capacity of 2,000 cubic feet per second (cfs). Most, but not all, of the projects have been completed.

4.3. BCG Study

While the SELA Project lowered flood stages in some areas, it did not lower them in other areas. In 2001, The engineering firm of Brown Cunningham Gannuch conducted a “Phase II” study for the Parish’s Department of Public Works. That study focused on four repetitively flooded areas, three of them within the same study area as this report (between 3rd and 9th Streets) and the fourth to the west. The study assumed that SELA projects were completed and operational.

The study report noted that the current system with the SELA projects in place is already taking full advantage of all the canal carrying capacity available. To convey more water away from the area, the capacity of the pump stations would need to be increased. If the capacity were not increased, enlarging the canals would simply dump more water on the properties to the south, in the neighborhoods between Maplewood and the pump stations.

Therefore, the report focused on getting water in the area to the collecting canals. The engineers recommended more storm sewer inlets on Dogwood, Maplewood, and Redwood and new, larger, collector pipes along 6th, 7th and 9th Streets to carry the stormwater to the Murphy Canal. The pipes were also sized large enough to handle additional flows, should the area to the east of the subdivision become developed.
These recommended projects were completed over the next several years. Residents report that street flooding has been reduced since the new inlets and larger pipes were built.

4.4. SELA – PAC

While the SELA Project lowered flood stages in some areas, it did not lower them everywhere. Therefore, Congress authorized what is called Post Authorization Changes or PAC. In its *East of Harvey* report, the Corps looked at three levels of project design: minimum, middle, and maximum. There were nine project alternatives which are spelled out below.

**Alternatives Reviewed in the East of Harvey SELA Report**

1A: Minimum (*see below for definition of “minimum”*) design improvements to Murphy/Gardere, Trapp, and Industry canals, and increase the capacity of Whitney- Barataria Pumping Station by an additional 1,000 cfs.

1B: Same as 1A, except middle design improvements to the Industry Canal.

1C: Same as 1A, but with minimum design improvements to the Verret Canal.

1D: Same as 1A, with minimum design improvements for the Oakwood and Terry Parkway Canals, and middle design improvements for the Industry Canal.

2A: Middle design improvements to the Murphy/Gardere, Trapp and Industry Canals and increase the capacity of Whitney- Barataria pumping Station by an additional 1,000 cfs.

2B: Same as 2A, except construct an 850 cfs pump station off the Murphy Canal instead of increasing the capacity of Whitney-Barataria Pumping Station.

2C: Same as 2A, and construct an 850 cfs pump station off the Murphy Canal.

2D: Same as 2A, plus include improvements for the Oakwood and Terry Parkway Canals, but no pumping improvements.

3: Maximum design improvements to the Murphy/Gardere, Trapp, and Industry Canals, construction of an 850 cfs pump station and increasing the capacity of Whitney-Barataria Pump Station by additional 1,000 cfs.

**Design levels:**
- **Minimum:** lining the upper bank of the canal with concrete
- **Middle:** lining the sides and the bottom of each canal with concrete.
- **Maximum:** concrete V-shaped flume structure
The costs of the nine projects were calculated using 1998 dollars. The benefits of the projects included reduction in:

- Damage to buildings
- Damage to vehicles
- Emergency costs to the local government
- Evacuation and sheltering costs
- Reoccupation costs
- Costs to the National Flood Insurance Program

As seen in the table below, only the four “minimum” design level projects had favorable benefit/cost (B/C) ratios (i.e., greater than 1.0). Therefore, the Corps only looked at these in detail. The Corps then conducted a second, more detailed, analysis of these plans using the “risk based” approach. The Corps selected plan 1B as the one to pursue because it had the highest “risk based” B/C ratio, 1.85.

<table>
<thead>
<tr>
<th>Plan</th>
<th>Construction Cost</th>
<th>Average Annual Costs</th>
<th>Average Annual Benefits</th>
<th>Benefit/Cost Ratio</th>
<th>Net Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Plans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan 1A</td>
<td>$29,130,000</td>
<td>$2,123,000</td>
<td>$2,313,000</td>
<td>1.09</td>
<td>$190,000</td>
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<tr>
<td>Plan 1B</td>
<td>$30,510,000</td>
<td>$2,220,000</td>
<td>$2,820,000</td>
<td>1.27</td>
<td>$600,000</td>
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<tr>
<td>Plan 1C</td>
<td>$34,250,000</td>
<td>$2,482,000</td>
<td>$2,993,000</td>
<td>1.21</td>
<td>$511,000</td>
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<tr>
<td>Plan 1D</td>
<td>$65,310,000</td>
<td>$4,650,000</td>
<td>$4,002,000</td>
<td>0.86</td>
<td>$648,000</td>
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<tr>
<td>Middle Plans</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Plan 2A</td>
<td>$80,990,000</td>
<td>$5,753,000</td>
<td>$3,029,000</td>
<td>0.53</td>
<td>$2,724,000</td>
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<tr>
<td>Plan 2B</td>
<td>$88,110,000</td>
<td>$6,742,000</td>
<td>$3,038,000</td>
<td>0.45</td>
<td>$3,704,000</td>
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<tr>
<td>Plan 2C</td>
<td>$94,110,000</td>
<td>$6,258,000</td>
<td>$3,143,000</td>
<td>0.50</td>
<td>$3,115,000</td>
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<td>Plan 2D</td>
<td>$98,260,000</td>
<td>$7,458,000</td>
<td>$4,633,000</td>
<td>0.62</td>
<td>$2,825,000</td>
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<tr>
<td>Maximum Plan</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Plan 3</td>
<td>$149,520,000</td>
<td>$12,953,000</td>
<td>$3,264,000</td>
<td>0.25</td>
<td>$9,689,000</td>
</tr>
</tbody>
</table>

Plan 1B incorporates:

- Lining the upper bank of the Murphy/Gardere and Trapp Canals with concrete,
- Lining the sides and the bottoms of the Industry Canal with concrete, and
- Increasing the capacity of the Whitney- Barataria Pumping Station by an additional 1,000 cfs.

It is important to note that plan 1B would not eliminate flooding – based on the risk based analysis, it would only reduce the cost of flooding by 20%.
4.5. Yard Drainage Improvements

Many residents reported that during a storm they get flooded from the back yard or the neighbor’s yard, not from the street. Water flows to, or collects next to, the house’s walls and does not drain to the street quickly enough. The result is very shallow water, usually less than 1 or 2 inches, sometimes only in one or two rooms.

Improvements to yard drainage can remedy this problem. Inlets and underground pipes can be installed, similar to the street drainage improvements discussed in the previous section. Several property owners have constructed such projects on their own. One is illustrated below. A variation on this approach is shown on page 19.

This project was constructed after yard flooding got into this Maplewood house in May 1996. The owner ran perforated plastic drainage pipe around his patio in the back yard. Inlets collect water in the yard and from the downsputs. The drain pipes run to a solid plastic pipe that goes around the house and collects water from a similar pipe installed by the neighbor.

Water is then carried by the common pipe to the street. The owner reports that since it was built, the project has kept his yard and patio drier and has kept back yard runoff from flooding the house. It is not designed to protect from street flooding (the house received two inches of water from the street in the May 1978 storm).

4.6. Drainage Maintenance

Even if the drainage system was large enough to collect and convey storm flows, it will not perform to its capacity if trash and debris are allowed to clog storm sewer inlets or the sewer lines. The Parish has a drainage maintenance program that has been held up as a national example in a FEMA Community Rating System publication.

The Parish’s program can identify and remove obstructions in the sewers and canals. However, it would be more effective if it is supported by more frequent inspections by residents.
An “adopt an inlet” type of program can make an inspector of every resident adjacent to a storm sewer inlet. If they find leaves, grass clippings, trash or similar debris, they can remove the problem to ensure that the inlet will work during the next storm. If they find bigger problems, such as broken pipes, they can report them to the Parish’s Department of Drainage.

4.7. Summary

As noted at the beginning of this section on drainage improvements, there are five causes of drainage problems in Maplewood. The Parish and the Corps have conducted several investigations and have programs, projects, or planned projects that address all five of them:

- Runoff from outside the area is diverted by Queens Ditch and the berm on its west side. The new pipes that drain water from the east to the canals have been enlarged so that they can handle extra runoff.
- Additional storm sewer inlets have been added to improve street drainage.
- The storm sewers have been enlarged to better handle heavy rains.
- The canals and the pump station that drains them have been improved and an additional increase in pumping capacity is planned.
- The system is well-maintained, although additional help from residents would make it more effective.

5. Nonstructural Alternatives

“Nonstructural” approaches to mitigation involve modifying the building or lot so that flood waters will not cause damage. They are implemented by the property owner and can be done on an individual property basis. In fact, several homes in Maplewood have already been protected by some of the approaches discussed here. More detailed discussion of nonstructural approaches can be found in the references listed at the end of this report.

Five nonstructural approaches were analyzed:

- Buying out and clearing properties
- “Pilot reconstruction,” i.e., replacing a house with a new one protected from flooding
- Elevating the houses above the 100-year flood level
- Constructing small floodwalls around one or more houses
- Floodproofing the houses to two feet above the first floor

5.1. Buyouts

This measure involves buying one or more properties and clearing the site. If there is no building subject to flooding, there is no flood damage. Buyouts are usually recommended where the flood hazard is so great or so frequent that it is not safe to leave the structure on site.
**Cost:** The cost of a buyout is the market value of a property (the lot and all buildings and improvements). Unlike the other nonstructural approaches, buyouts require government funding because someone has to buy the property and turn it into open space. Two government programs were looked at: the Corps’ SELA program and FEMA mitigation funds.

**Funding feasibility:** The Corps’ *East of Harvey* SELA report looked at purchasing and clearing the 3,686 residential structures. The data were not broken down by area, so it is not reported if any of these homes are in Maplewood. The study estimated the costs and benefits of removing all structures with a first floor lower than the 100-year flood elevation. Overall, the benefit/cost ratio was 0.41, meaning the cost was 2.5 four times greater than the benefits. Without a B/C ratio of greater than 1.0, the Corps cannot provide funding support.

An alternative to buying and clearing the whole subdivision is buying out individual, “worst case,” structures with FEMA funds. This approach would involve purchasing and clearing the lowest or the most severe repetitive loss homes. If FEMA funds would be used, three requirements would apply:

- It must be demonstrated that the benefits exceed the costs, something that is not assured because of the very shallow flooding that occurs in Maplewood,
- The owner must be a willing seller, and
- The parcel must be deeded to a public agency that agrees to maintain the lot and keep it forever as open space.

**Problems:** In addition to the high cost and the difficulty in obtaining a favorable benefit/cost ratio in shallow flooding areas, buyouts disrupt communities and neighborhoods. Some of the problems include:

- The FEMA share is 75% of the market value of the property before it was flooded. The property owner makes up the difference. In effect, the owner only receives 75% of the value of the property.
- Not everyone wants to sell their home, so a checkerboard pattern of vacant and occupied lots often remains after a buyout project, leaving “holes” in the neighborhood.
- The community must still pay for maintaining the streets, water lines and other infrastructure to serve those who remain.
- The vacant lots must be maintained by the new owner agency, even though taxes are not paid on them. There currently are no public agencies in Jefferson Parish interested in converting improved property into vacant lands and being responsible for maintaining the various empty lots.

Because of these problems, Jefferson Parish has not supported the use of mitigation funds for acquiring and clearing properties for the last five years. There are other, less disruptive, approaches to mitigate repetitive, shallow, flooding.
5.2. Pilot Reconstruction

Because many communities share Jefferson Parish’s concerns with buyouts, FEMA has recently experimented with a different approach. Formerly called “demo/rebuild,” “Pilot Reconstruction Grants” can be used to demolish a flood-prone house and replace it on site with a hazard-resistant one that meets all current wind and flood code requirements.

Restrictions apply to this pilot program in order to ensure that Federal funds are properly used:

- Pursuing this option is only possible after a structural engineer concludes that it is not feasible to elevate the existing building.
- Funds are only available to people who owned the property before Hurricane Katrina.
- The new building must be elevated at least three feet above the highest existing adjacent grade, in accordance with the advisory base flood elevation.
- The new building must not exceed the old building’s square footage.
- The new building must meet all flood and wind protection codes.
- There must be a deed restriction that states the owner will buy and keep a flood insurance policy.
- It must be demonstrated that the benefits exceed the costs.
- The maximum Federal grant is 75% of the cost up to $150,000. FEMA is developing a detailed list of eligible costs to ensure that disaster funds are not used to upgrade homes.

5.3. 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 floor instead of into the house.
**Cost:** Elevation is usually cost-effective for wood frame buildings on crawspaces because it is easiest to get lifting equipment under the floor and disruption to the habitable part of the house is minimal. The cost estimate to raise a brick faced home on a slab can run up to $100,000 or more.

As with buyouts, elevation can be done on an individual basis. While the cost of elevating a home on a slab can be high, there are funding programs that can help. These are discussed in section 7. The usual arrangement is for the FEMA grant to pay 75% of the cost while the owner pays the other 25%. In the case of elevation, this could be as high as $25,000 or more.

**Feasibility:** Federal funding support for an elevation project requires a study that shows that the benefits of the project exceed the cost. Elevating a masonry home on a slab can cost up to $100,000, which means that benefit/cost ratios may be low.

The Corps’ *East of Harvey* SELA report looked at the elevation alternative. The costs and benefits varied among the 30 areas (also called “reaches” and “storage areas”) in the study area. The Maplewood area is in reaches 12.2, 12.4, and 12.5. These areas included streets and buildings outside of Maplewood, too.

Two elevation options were looked at. The first was to elevate all 1,943 homes (232 in the three Maplewood reaches) that are below the 10-year flood elevation to above the 10-year flood elevation. The benefit/cost ratios for the three areas were 0.28, 0.12, and .029.

The second elevation option was to elevate all 3,686 homes that are below the 100-year flood elevation to above the 100-year flood elevation. This would include 396 homes in the three Maplewood reaches. The benefit/cost ratios for the three areas was 0.17, 0.15, and .016.

These figures show that a project to elevate all homes in Maplewood would not receive Federal funding support. 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.

**5.4. Floodwalls**

Small levees, berms or floodwalls can be constructed around one or more properties. These can provide different levels of protection, depending on how high they are. Such barriers are not recommended for flood depths greater than 3 feet. However, that should not be a problem for the shallow repetitive flooding that has been experienced in the Maplewood area.

An earthen barrier needs 6 feet of ground space for each foot in height. These are not explored in this section because of the limited space between homes in Maplewood. However, there is room on most lots for a floodwall.
This Maplewood home has a concrete wall around it which has worked several times. There are no openings that need to be closed when the water rises.

Water collects in the basin, or sump, and is pumped over the wall by a sump pump. The pump stopped when power was lost during Hurricane Katrina and the home was flooded.

This Maplewood property is subject to flooding from the back yard. In 1989, the owner built a wall around his patio. One has to step over the wall to get in from the back yard.

Runoff from the back yard drains into these inlets. From there it flows to underground pipes. The pipes carry water to a sump near the front of the house.

Water from the downspout also flows into the sump. A pump sends the water to the street. The house has not flooded since the project was built. The project cost $6,000.

Floodwalls require:

- A method to close openings, such as the garage door in the example to the right. Generally, this requires “human intervention,” meaning someone needs to be available and have enough time to take action.

- Relatively impervious soils to minimize underseepage. The Natural Resources Conservation Service’s Web Soil Survey identifies the prevailing soil in the area as Westwego Clay. Westwego Clay allows limited water movement and would, therefore, be appropriate for floodwalls.
— A system to prevent sanitary sewer backup from flowing into the building.
— 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.” This would be similar to the pipes discussed on page 14 under yard drainage improvements.
— A sump pump to send the collected water outside the barrier.
— Power to operate the sump pump around the clock during a storm.

**Cost:** The cost of a local floodwall depends on the depth of flooding and the amount of engineering put into the design. Projects like those shown on the previous page were designed and constructed by the owners. Where flooding is only inches deep, almost any barrier of concrete or earth will work, provided the drainage is properly sloped.

The longer the water stays up, the more likely it will seep through or under the wall, so the design must account for seepage and for rain water that falls inside the floodwall. Drain tile to collect this water and a sump and sump pump to discharge it are necessary. Because power is likely to be lost during a storm, a generator is needed for a continuous supply of electricity.

The most conservative cost estimate for this report is based on a two feet high engineered cantilevered concrete floodwall. A cantilevered wall has a footing to provide stability and keep the water pressure from pushing it over. However, as illustrated on page 19, shorter walls have worked during shallow floods in Maplewood.

The budget shown below is for a 25’ x 40’ home with a wall one foot outside the building wall, similar to the one illustrated on page 18. About half the price in the cost estimate is labor. As shown on page 19, floodwalls have been built by the owners for much less than this official cost estimate. The cheapest approach is illustrated to the right — installing a board or regrading the yard to redirect water from the lowest entry point.

![Image](maplewood_homeowner.jpg)

This Maplewood homeowner puts a board across his carport to keep waves from cars driving in the street from splashing against his door. This is a very inexpensive variation on a floodwall.

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two foot high reinforced concrete cantilever wall, 138 feet @ $200/foot</td>
<td>$27,600</td>
</tr>
<tr>
<td>Internal drainage and sump pump system</td>
<td>5,000</td>
</tr>
<tr>
<td>Sewer backup valve</td>
<td>4,500</td>
</tr>
<tr>
<td>Generator for power outages</td>
<td>900</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$38,000</strong></td>
</tr>
</tbody>
</table>
Feasibility: Floodwalls, such as those shown here, are appropriate where flood depths are shallow and of relatively short duration. According to the information collected from Maplewood residents, most had less than six inches of water in their homes and the water stayed up for less than six hours. These conditions are ideal for small floodwalls.

Because neither FEMA or the Corps of Engineers fund individual floodwalls for residential properties, no formal benefit/cost analysis is required. However, each property owner can determine how much of their own labor they want to contribute and whether the cost of a wall is worth the protection from flooding that it provides.

5.5. Floodproofing

This measure keeps floodwaters out of a building. It uses the building itself as part of the barrier to the passage of floodwaters, so it is only recommended for buildings with slab foundations. A floodproofing project has three components:

- Make the walls watertight. This is easiest to do for masonry or brick faced walls, which can be covered with a sealant. Wood, vinyl, or metal siding need plastic sheeting to make them watertight. The most effective approach is to apply a sealant and plastic sheeting and then cover the job with brick facing to protect the waterproofing from punctures.
- Provide closures for the openings, including doors, windows, dryer vents and weepholes.
- 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, although a valve system is more secure.
This dry floodproofed commercial building in Mandeville had the walls waterproofed and removable shields placed in the windows. While the measure worked for shallow flooding, the building was damaged by storm surge during Hurricane Katrina.

This Westbank home has permanent shields sealing the lower parts of the windows.

The walls of the structure are used to withstand the pressures of floodwaters. Because residential walls are not constructed to resist the lateral pressures of deep floodwaters, dry floodproofing is not recommended for depths greater than 2 – 3 feet. Therefore, it is proposed that floodproofing be installed to a level of no more than two feet above the slab. There is usually no regulatory requirement to protect buildings up to the base flood elevation because the projects are less than substantial improvements.

Not all of the building needs to be floodproofed. It is difficult to floodproof a garage door, for example, so many owners let the water in and waterproof the walls between the garage and the rest of the house. Appliances, electrical outlets, and other damage-prone materials can be elevated above the expected flood levels (see photo).

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.
- Its success depends on the building’s condition. 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.
- The NFIP insurance rate tables do not recognize dry floodproofing for residences.

**Cost:** The cost for a 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.
Feasibility: As with floodwalls, floodproofing is appropriate where flood depths are shallow and of relatively short duration. It can be an effective measure for the type of structures and flood conditions found in Maplewood. It can also be more attractive than a floodwall around a house.

Because neither FEMA nor the Corps of Engineers fund floodproofing projects for residential properties, there is no requirement for a formal benefit/cost analysis. However, each property owner can determine how much of their own labor they want to contribute and whether the cost and appearance of a project is worth the protection from flooding that it provides.

6. Flood Insurance

A flood insurance policy will cover damage caused by any flood – i.e., “a general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is the policyholder’s property) from … unusual and rapid accumulation or runoff of surface waters from any source.” The type of flooding that has occurred in Maplewood, including runoff from back yards and neighboring yards, qualifies for coverage under a policy.

Although not a mitigation measure that reduces property damage from a flood, an insurance policy has the following advantages:

- The smaller, shallow floods like the area has repetitively experienced are unlikely to reach conditions severe enough for Federal disaster assistance (most of the flood events listed on page 6 did not result in Presidential disaster declarations). Therefore, flood insurance will often be the only source of assistance to help owners of damaged property pay for cleanup and repairs.
- A policy is always in effect – there is no need for human intervention.
- It is an excellent “backup” for a floodwall or floodproofing project that may leak or where the flood is higher than the protection level.
- Coverage is available for the contents of a home or business as well as for the structure.
- Renters can buy contents coverage, even if the building owner does not buy coverage for the structure itself.

Cost: Because Maplewood is outside the mapped floodplain, the cost of flood insurance is relatively low. The annual premium for $150,000 in building coverage and $60,000 in contents coverage for a one-story house and a $500 deductible is $794 (October 2005, Flood Insurance Agent’s Manual). A comparable policy for a building in the mapped floodplain would be $1,372.

PRP: There is a special flood insurance policy called a preferred risk policy (PRP). It is limited to buildings outside the mapped floodplain (like Maplewood) that do not have a history of large or repetitive flood insurance claim or disaster assistance payments. Specifically, “If one of the following conditions exists, regardless of any change(s) in ownership of the building, then the building is not eligible for the PRP:

- “2 flood insurance claim payments, each more than $1,000; or
— “3 or more flood insurance claim payments, regardless of amount; or
— “2 Federal flood disaster relief payments (including loans and grants), each more than $1,000; or
— “3 Federal flood disaster relief payments (including loans and grants), regardless of amount; or
— “1 flood insurance claim payment and 1 Federal flood disaster relief payment (including loans and grants), each more than $1,000.” (October 2005, Flood Insurance Agent’s Manual)

The annual premium for $150,000 in building coverage and $60,000 in contents coverage is $264. A preferred risk policy is known as “peace of mind” insurance and is recommended for properties in low risk areas, where the owners are concerned about the possibility of future flooding.

**ICC:** There is a special funding provision in the NFIP for insured buildings that have been substantially or repetitively damaged by a flood, “Increased Cost of Compliance.” ICC coverage pays for the cost to comply with floodplain management regulations after a flood if the building has been declared substantially damaged or repetitively damaged. This payment is in addition to the damage claim payment that would be made under the regular policy coverage.

An ICC payment for a property in Maplewood is not likely for two reasons. First, the area’s shallow flooding makes it unlikely that a house will be substantially damaged (i.e., damaged so much by a flood that the cost to repair it equals or exceeds 50% of the value of the building).

Second, Jefferson Parish does not enforce floodplain management regulations in the Maplewood subdivision because it is outside of the mapped floodplain. However, the recently released advisory base flood elevations may result in Parish regulations that would require new construction, substantial improvements, and substantially damaged buildings to be elevated at least 3 feet above the highest existing adjacent grade.

**7. Funding**

**7.1. Corps of Engineers**

The US Army Corps of Engineers funds flood control projects that are shown to have a favorable benefit/cost ratio and where a local sponsor agrees to participate. The SELA projects described in sections 4.2 and 4.4 are funded by the Corps, pending annual Congressional appropriations. The Parish is the local sponsor and has agreed to contribute its share.

Corps funds are not used on an individual property basis. The SELA studies concluded that large scale buyout or elevation projects do not have the needed benefit/cost ratio.
7.2. FEMA Programs

There are several programs administered by FEMA that can provide grants to cost share on a buyout, pilot reconstruction, or elevation project. They are made available to the Parish under different situations:

- The Hazard Mitigation Grant Program (HMGP) provides grants following Presidential disaster declarations.
- Flood Mitigation Assistance program (FMA) funds come from fees paid by NFIP policyholders and are used to reduce flood damage and repetitive losses to buildings insured under the NFIP. Each year a certain amount is provided to the State which individual communities can apply for.
- The Pre-Disaster Mitigation grant (PDM) is supported by annual Congressional appropriations and is available on a national competitive basis. Projects with the greatest impact on reducing future losses are the most likely to receive funds.

All three programs provide up to 75 percent of the eligible costs for mitigation grants. The 25% non-Federal share can be from a variety of other local, State, or private funding sources. Property owners may contribute their own money or their insurance claim payment as part or all of the 25% match. A portion of the non-Federal match may be covered by in-kind or donated services.

In all three programs, the applicant is the local government, i.e., Jefferson Parish. In all three programs, the Parish must show that the benefits of the project exceed the costs, using FEMA’s benefit/cost analysis software. Further, under the current regulations, these programs only fund buyouts, elevation, and minor drainage projects. Floodproofing is funded only for nonresidential properties.

It should be noted that these programs are revised periodically. For more information and the latest details, see FEMA’s website at www.fema.gov/government/grant/government.shtm or call the Parish’s Department of Emergency Management at 504/349-5360.

7.3. Parish Funds

Jefferson Parish has funds for drainage improvements and has expended millions on such projects throughout the Parish. The Parish does not have a budget for nonstructural projects. To date, all FEMA funded elevation projects have been funded 75% by FEMA and 25% by the property owner.

7.4. Rebates

A rebate is a cost shared grant, usually given to a property owner after a project has been completed. It has the advantages of a low public cost share and simplicity. Many communities favor it because the owner handles all the design details, contracting, and payments before the community makes a full commitment.
Community cost shares for mitigation project rebates have been as low as 20% and as high as 50%. Rebates leverage public funds. For example, for every public dollar spent in a program with a 25% rebate, the property owner pays three dollars toward the flood proofing project.

The administrative simplicity is due to the typical operation: the owner ensures in advance that the project meets all the program’s criteria, has the project constructed, and then goes to the community for the rebate after the completed project passes inspection.

Rebates have been most successful where the cost of the project is relatively small, e.g., under $5,000. The owner can afford to finance the bulk of the cost and the rebate acts more as an incentive than as needed financial support.

Rebates have been tried in other parts of the country. Lexington-Fayette Urban County, Kentucky, for example, has had a rebate program since 1992. It funds up to 50% of the cost of a project. It has distributed nearly $1,250,000 to protect 340 homes from surface flooding.

The Village of South Holland, Illinois, has had a program since 1995. To date, the Village has spent $250,000 to support 569 projects at a total cost of $1,000,000. The cost of the projects ranged from $133 to $10,000, with the average cost at $1,750. Here’s a breakdown by type of project:

- 227 Drain tile system
- 21 Sump pumps or power backup
- 15 Dry flood proofing
- 195 Waterproofing/foundation crack repair
- 100 Sewer backup prevention
- 11 Other

8. Conclusions

1. The Maplewood area has been subject to repetitive flooding that has resulted in 961 repetitive loss flood insurance claims paid on 236 of the 561 properties in the study area. This presents both a cost to the government, especially FEMA, and the property owners.

2. The flooding has been caused by heavy storms that drop a lot of rain on the relatively flat area. The lack of relief to provide natural drainage has resulted in flooded streets that back up into houses and runoff from back and neighboring yards flowing into houses.

3. Recent storm sewer and other drainage improvements have apparently reduced the amount of street flooding. More improvements are planned.

4. The most effective approaches to protect individual buildings are buyouts, pilot reconstruction, and elevation. However, these have significant shortcomings, particularly high cost and disruption to the area.

5. The less expensive approaches, yard drainage improvements, drainage system maintenance, floodwalls and floodproofing, can protect homes, especially from yard drainage problems. However, they are not as reliable as buyouts and elevation and they are not eligible for Federal funding support.
6. Flood insurance is the most reliable approach to pay for repairs after a flood.

9. **Recommendations**

1. The Parish and the Corps of Engineers should complete the planned drainage improvements proposed by SELA and the BCG study.

2. Property owners should obtain and keep a flood insurance policy on their homes. If eligible, they should obtain a preferred risk policy.

3. Property owners should review the yard drainage improvements and non structural alternatives that can protect their own properties from flood damage and implement those that are most appropriate for their situations.

4. The Parish should establish an office to provide technical assistance to property owners interested in pursuing a flood protection project on their own.

5. The Parish should promote an “adopt an inlet” type of program to instill a sense of responsibility for maintaining storm sewer inlets and reporting drainage obstructions.

6. The Parish should explore with FEMA the possibility of establishing a rebate program. While not eligible under current FEMA policies, a rebate of 25% that encourages inexpensive measures such as yard drainage improvements, floodwalls, and floodproofing would be much more cost effective than the traditional FEMA funded approaches of buyouts and elevation.

   For example, at a cost of $100,000 to “pilot reconstruct” a building and a 75% FEMA share, $500,000 will protect 6 – 7 repetitive loss properties. However, at $10,000 per project and a 25% rebate, the same $500,000 in government funds will protect 200 homes.

   Although not every one of the less expensive projects can be guaranteed to prevent flood damage, the result will still be a lot more repetitive flood protection for the money. As the number one repetitive loss community in the country, Jefferson Parish should explore alternative financing methods to support alternative flood mitigation projects. FEMA funding programs should be flexible enough to assist the Parish do this.

10. **Coordination**

There could be many different agencies and organizations that can participate in a flood mitigation project for the area. The following were contacted by the UNO – CHART team:

   - The staff of the Jefferson Parish Department of Emergency Management were contacted to discuss the project and their mitigation experiences.
   - Jefferson Parish Drainage Department
   - Jefferson Parish Department of Capital Improvements
   - The US Army Corps of Engineers, New Orleans District, was contacted to discern the status of SELA projects in the area
FEMA was contacted about its latest grant program rules.

11. References

- CRS Coordinator's Manual, FEMA, 2006
- Flood Insurance Study, Jefferson Parish, FEMA, 1995
- Jefferson Parish Natural Hazards Mitigation Plan, 2005
- Local Flood Proofing Programs, US Army Corps of Engineers, 2005
- Protecting Building Utilities From Flood Damage, FEMA-348, 2000
Appendix A. January Mailing to Residents

Jefferson Parish
Louisiana

January 10, 2006

Maplewood Resident
<<Address>> <<street>>
Harvey, LA 70058

RE: Jefferson Parish Repetitive Flooding Project

Dear Maplewood Resident

The Jefferson Parish Department of Emergency Management is reviewing ways to reduce some of our repetitive flooding problems. Your property at <<Address>> <<Street>> is located in the southern part of the Maplewood subdivision, an area that has tentatively been designated a target repetitive flood area.

As part of this project, a team from the University of New Orleans’ Center for Hazards Assessment, Response and Technology (CHART) is preparing an “area analysis” for the target area. Information specific to your property needs to be collected in order to determine what, if anything, can be done to protect homes in the area from flooding. UNO/CHART staff will be in the area during the day later in January, collecting general information from the street, such as the type of foundation and walls for each home. They will not need to go into the house, but they may need to walk around it.

This work would be greatly improved with additional data that you might be able to provide. Attached is a yellow data sheet that we hope you will complete and return by February 3rd. After you fill the form out, please fold it up, tape it, and mail it to the address on the flip side. A stamp has been provided.

After the analysis is completed, some preliminary recommendations will be developed. We will invite you to a meeting with us and the UNO/CHART team to review the findings. This should be sometime in the Spring.

If you have any questions about this project, please feel free to call the Jefferson Parish Department of Emergency Management at 504/349-5360 or Alessandra Gazzo at UNO/CHART, at 504/304-2000, ext. 20212.

Thank you for your assistance in helping us to complete this project.

Sincerely,

Walter S. Maestri, Ph.D.
Director

Emerson Operating Center - 1867 Ames Boulevard, Marrero, Louisiana 70072
Office - (504) 349-5360 Fax - (504) 349-5366
Jefferson Parish Repetitive Flooding Analysis
Flood Protection Data Sheet

Name: ____________________________________________

Property address: <<Address>> <<Street>>, Harvey

1. In what year did you move into the home at this address? ___________

2. What type of foundation does your house have? □ Slab □ Crawlspace □ Posts/piles

3. Has the property ever been flooded or had a water problem? □ Yes □ No (if “no,” please complete items 8 – 11)

4. In what year(s) did it flood? _______________________________________

5. What was the deepest that the water got?
□ Over first floor: ___________ deep
□ In yard only: _______________ deep
□ Water kept out of house or building by sandbagging or other protective measure

6. What was the longest time that the water stayed up in the house? ___ hours or ___ days

7. What do you feel was the cause of your flooding? Check all that affect your building.
□ Storm sewer backup
□ Drainage from nearby properties
□ Overbank flooding from canal or ditch
□ Sanitary sewer backup
□ Standing water next to house
□ Other: ____________________________

8. Have you taken any flood protection measures on your property?
□ Waterproofed the outside walls
□ Regraded yard to keep water away from building
□ Sandbagged when water threatened
□ Moved things to a higher level
□ Built a wall to keep water away
□ Other: ____________________________

9. Did any of the measures checked in item 8 work? If so, which ones? If not, do you know why they didn’t work?

10. Do you have FEMA Flood Insurance? □ Yes □ No

11. Are you interested in pursuing measures to protect the property from flooding? □ Yes □ No If yes, please include your full mailing address.

~ Please return this data sheet by February 3. ~