Repetitive Loss Area Analysis

Jefferson Parish – Walter Road Area

Background

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.

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 have been constructed or are planned that will stop the repetitive flooding.

Where there are no 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 Walter Road target repetitive loss area.

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 sub-categories 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 two to three 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 area: The Walter Road repetitive loss area is in the unincorporated area of Jefferson Parish on the east bank of the Mississippi River. The area is north of the City of Harahan in an area also known as River Ridge. It is a three block stretch of Walter Road, between Bocage Place and Soniat Canal #3. It’s location is shown on the map on the next page.

The area has 38 single family homes. At the time of the field survey in July 2005, one of the homes was a new building under construction. There are also two vacant lots. One is the result of a FEMA funded acquisition project and the other has a foundation, but it does not appear to have been worked on for quite a while.
The entire area is in the 100-year floodplain mapped by FEMA and designated as an “AE Zone,” as shown on the excerpt from the Parish’s Flood Insurance Rate Map (FIRM), to the right. The 100-year (base) flood elevation is 1.5 feet above sea level.

**Flood insurance data:** Of the 38 homes in the designated area, 18 are listed as a FEMA repetitive loss property (see terminology on previous page). Ten are expected to qualify as Severe repetitive loss properties.

The Privacy Act of 1974 (5 U.S.C. 552a) restricts the release of certain types of data to the public. Flood insurance policy and claim 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 information for any property.
Problem Statement

The first step in the analysis process is to determine the cause and extent of the problem. Three sources of information were used for this: flood insurance claims data, existing studies, and a windshield survey of the area.

**Flood studies:** The UNO-CHART team obtained and reviewed the following studies:

- The Flood Insurance Rate Map for Jefferson Parish, March 23, 1995
- The FEMA Flood Insurance Study for Jefferson Parish
- *Hazard Mitigation Plan*, Jefferson Parish, 2005 (draft)
- US Army Corps of Engineers SELA studies

**Surveys:** Over the last several years, FEMA staff and consultants have collected data, including building elevations, on the Target properties. On July 5, 2005, members of the CHART team looked at every property in the area. Basic information was recorded for each property, but building elevations were not collected from non-Target properties.
The information was recorded in a spreadsheet file for analysis. It was later transferred to new software prepared by FEMA, the National Flood Mitigation Data Collection Tool. The Tool provides a database for easy access and review of the data. It is also a standard format to facilitate sending data packages to FEMA. A summary portfolio can be produced for each property. One is being provided to each owner. A sample of the format is on the next page.

**Summary of findings:** The data from the various sources provide a picture of both the general flood problem and details on each property’s exposure. Here are the key facts:

1. Stormwater is collected by the storm sewer that runs along Walter Road and the two ditches on each side of the neighborhood—Orchard Road Ditch to the north and Cain’s Ditch to the south. All three conduits convey their stormwater to the Soniat Canal to the east. This drainage system is shown in the map on page 3.

2. The area is subject to repetitive flooding from local drainage problems, i.e., the drainage system cannot collect and convey the water from locally heavy storms fast enough. This is partly due to the flat terrain and partly due to the fact that the collection canals depend on pumps and do not drain quickly.

3. The entire area is in the Special Flood Hazard Area and is shown on the FIRM as a Zone AE. The base flood elevation is 1.5 feet above sea level.

4. Properties in the area have received flood insurance claims for floods following 11 different events (see box).

5. The 18 repetitive loss properties have received a total of 79 flood insurance claims.

6. Ten of the 18 repetitive loss properties are likely to qualify as Severe repetitive losses.

7. Losses have been more severe for the properties closer to Rosedown Place, which also shows as a lower area on a topographic map.

8. The first floors of the 10 Severe repetitive loss properties range from 1.2 feet below the base flood elevation to 4.9 feet above the BFE.

9. Four of these properties have been demolished and rebuilt above the flood level since their last flood insurance claim. A fifth repetitive loss property (but not a Severe repetitive loss) was elevated with FEMA funding support.

10. 16 homes are on slab on grade foundations, 21 are on crawlspaces, and one is a split level house.

11. Houses on slab foundations are generally lower, averaging 1 – 2 feet above street level, while the houses on crawlspaces, average over 2 feet above street level. However, there appears to be no difference in the number of claims based on foundation type.
<table>
<thead>
<tr>
<th><strong>Repetitive Loss Area Analysis: Property Portfolio</strong></th>
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<tbody>
<tr>
<td><strong>399 Walter Road, Harahan</strong></td>
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</table>

Community: Jefferson Parish  
Community NFIP Number: 225199  
Building use: Single-family residential  
Neighborhood: Residential - low density (single family)

**Structural Information**

Foundation: Slab-on-grade  
Condition of foundation: Good  
Structure/wall type: Masonry  
Condition of structure: Good  
Number of stories (without basement): 2

**Flood Hazard**

Source of flooding: Local drainage  
FIRM zone: AE  
Floodway? No  
Base flood elevation: 1.5 feet above sea level

**Elevation Data**

Elevation of top of first floor: not available  
Depth of 100-year flood over first floor: not available  
(if negative, the floor is above the flood level)  
Height of first floor above grade: 0-1 foot  
Height of grade above the street: 2-3 feet

**Tax Assessment Records**

| Square footage: 3642 | Assessed value: $213500 |
Alternative Mitigation Measures

Knowing the problem, the drainage system, and the types and condition of the buildings in the area allows a review of alternative approaches to protect the properties from future flood damage. Five approaches were analyzed:

- Drainage improvements
- Buying out and clearing properties
- Elevating the houses above the 100-year flood level
- Constructing small levees or floodwalls around one or more houses
- Floodproofing the houses to two feet above the first floor

Each approach has its pros and cons. The last four are considered “nonstructural” approaches. More detailed discussion of nonstructural approaches can be found in the references listed at the end of this report.

Drainage improvements: Local drainage is collected by storm sewers which flow to Soniat Canal or one of the feeder ditches to the north and south of Walter Road (Orchard Street Ditch and Cain’s Ditch). This drainage system works for most rains, but cannot collect and remove the runoff from very heavy storms.

SELA, the Corps of Engineer’s SouthEast Louisiana drainage improvement program, has made improvements to Soniat Canal north, i.e., downstream, of Walter Road. These projects increased the ability of the canal and pumping station to convey water to Lake Pontchartrain. However, because the improvements focused on the worst problem areas of the Parish, this work has been found to not greatly benefit the Walter Road area, at the upper end of the drainage system.

Therefore, the Corps studied an approach called “pump to the river.” Instead of draining the area through the long canal system north to the Lake, the Corps looked at the possibility of new pumping stations to convey water to the Mississippi River to the south. This is the equivalent of pumping water uphill, an approach that can be very expensive.

The Corps’ study looked at different alternatives and found different problems with each. These included lack of right-of-way, lack of a local sponsor, increased flooding on some properties, and low benefit-to-cost ratios. The best alternative was called the Harahan Pumping Station Alternative (HPS). This would involve constructing a pump station on the Soniat Canal near Hickory Avenue, across from the Harahan Playground. The water would be pumped approximately 1 ½ miles through pipes along Crochet Ditch, parallel to Hickory Avenue, and over the levee into the river.

In 2001, the construction cost for HPS was estimated at $46,500,000. The project would cost $150,000 each year to operate and maintain. While expensive, a large area and over 10,000 structures would benefit. The benefits exceed the costs – the benefit/cost ratio is 1.54. Funding for the pump to the river project is not secure, but made more likely by the increased Federal funding to the area following Hurricane Katrina.
Buyout: This measure involves buying one or more properties and clearing the site. The Corps’ pump to the river study looked at buyouts as an alternative to drainage improvements. The study estimated the costs and benefits of removing structures with a first floor lower than the 100-year flood elevation. Overall, the benefit/cost ratio was 0.24, meaning the costs were four times greater than the benefits.

Buying out individual, “worst case,” structures could be cost-beneficial. This would involve purchasing and clearing the lowest or the most severe repetitive loss homes. These homes are not concentrated in one area, so the result would be a checkerboard pattern of empty lots, something the Parish does not support.

Purchase and clearing of individual structures can be funded under several FEMA mitigation programs. If FEMA funds would be used, three requirements would apply:

- The applicant for FEMA funds must demonstrate that the benefits exceed the costs, using FEMA’s benefit/cost software,
- The owner must be a willing seller, and
- The parcel must be deeded to a public agency that agrees to keep it forever in open space.

One property has been purchased with FEMA funds. The house formerly at 367 Walter Road was purchased and cleared. However, the Parish does not support projects that leave useable areas vacant with no additional public benefit, such as providing parkland.

Because many communities are concerned with having vacant lots in their neighborhoods, FEMA has recently experimented with a different approach. Formerly called “demo/rebuild,” it involves demolishing a floodprone house and replacing it on site with a hazard resistant one that meets all current wind and flood code requirements. There are several restrictions on this pilot program that are needed to ensure that Federal funds are properly used.

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. It is usually cost-effective for buildings on crawlspaces because it is easiest to get lifting equipment under the floor and disruption of the habitable part of the house is minimal.

There are 21 homes in the area on crawl-space foundations. One of them has been elevated with funding support from FEMA. Five of them are new homes, built since 1987 in accordance with the current flood protection regulations.
Most of the cost to elevate a building is in the setting up and foundation construction. The average size of a Walter Road home on a crawlspace is 2,400 square feet. The cost estimate to raise a brick faced homes of this size can run up to $100,000. Smaller, wood frame homes on crawlspaces can be elevated for less. While this cost is high, there are funding programs that can help (see box).

**Barriers:** Small levees, berms or floodwalls could be constructed around one or more properties. These could provide different levels of protection, depending on how high they were. Barriers require:

- Adequate room on the lot. An earthen barrier needs 6 feet for each foot in height. Less room is needed for a concrete barrier, but they are more expensive.
- A system that collects water that falls or seeps into the protected area and pumps it outside the barrier.
- Relatively impervious soils to minimize underseepage.
- A system to prevent sewer backup from flowing into the building.
- A method to close openings, such as the garage door in the example on the next page. Generally, this requires “human intervention,” meaning someone needs to be available and have enough time to take action.

Local barriers are not recommended for flood depths greater than 3 feet. That should not be a problem for the shallow repetitive flooding that has been experienced in the area.

Such barriers have several problems, including:

- They need power to operate the sump pump around the clock during a storm
- Someone must be present when the flood comes to close any openings and ensure that the pump works
- The soils in the area are not appropriate for barriers. The Natural Resources Conservation Service’s Web Soil Survey identifies the prevailing soils in the area as Harahan Clay and Schrieve Clay. These are rated as “very limited” for embankment fill, “unfavorable for the specified use” because they are pervious.

The cost for a typical, less expensive, earthen barrier is estimated on the next page. In this design, the largest cost item is delivering the fill and vibrating it in place in layers. It would be cheaper to use soil from the site, but it could be too permeable and there may not be sufficient quantities on site. The vibrating ensures proper compaction.

The barriers proposed here are not recognized by FEMA for a flood insurance premium reduction or for funding support.

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**FEMA Funds**

There are several programs administered by FEMA that can provide grants to cost share on a buyout or elevation project. These include the Hazard Mitigation Grant Program (HMGP), the Flood Mitigation Assistance program (FMA) and the Pre-Disaster Mitigation grant (PDM). The rules for each program is slightly different, but all of them favor mitigating repetitive loss properties.

For more information, 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.
Barrier Cost Estimate

- Earthen berm, 3 feet high, 3:1 slope, 240 feet long = 400 cubic yards
  400 cubic yards @ $62/yard, vibrated in place $24,800
- Grass cover (for erosion protection) 4,450
- Internal drainage and sump pump system 5,050
- Sewer backup valve 4,500
- Generator for power outages 800
Total $39,600

The cost for a two foot high concrete floodwall is estimated at $200 per linear foot. At 240 feet long, one would cost $48,000. The cost for internal drainage, sewer backup, and generator would be the same as for a berm. The total project cost would be around $58,350.

Floodproofing: This measure keeps floodwaters out of a building. It employs 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, and dryer vents.
- 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 Baton Rouge home has thin facing brick placed over the waterproofing materials. The same Baton Rouge home has a steel door with gaskets that seal when closed.

This dry floodproofed commercial building in Mandeville had the walls waterproofed and removable shields placed in the windows. 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 for 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 no regulatory requirement to protect to the base flood elevation because the projects are less than substantial improvements. Further, the NFIP insurance rate tables do not recognize dry floodproofing for residences.

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.
- Floodproofing a residential structure is not eligible for FEMA mitigation funding.

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.

**Flood Insurance**

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 (only half of the flood events listed on page 4 resulted 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.
- A policy will cover damage caused by any flood. It is an excellent “backup” for a floodwall or elevation project 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:**

The table to the right shows the rates for a policy with $150,000 coverage on the building. If a house was constructed before 1974, it is considered a “pre-FIRM” building and is eligible for the “subsidized” flood insurance premium rates. If a pre-FIRM building is elevated to or above the 100-year or base flood elevation (“BFE”), it can qualify for the lower post-FIRM or actuarial rates. The post-FIRM rates are used for all houses built after 1974.

If a pre-FIRM building is elevated to two or more feet above the BFE, the flood insurance premium rate will be cut to 30% of the “subsidized” rate – a clear indication of how an elevation project reduces exposure to flood damage.

<table>
<thead>
<tr>
<th>Example NFIP Flood Insurance Premiums</th>
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<tbody>
<tr>
<td><strong>Policy/Building Exposure</strong></td>
</tr>
<tr>
<td>Pre-FIRM (“subsidized”) rate</td>
</tr>
<tr>
<td>Post-FIRM (actuarial) rates</td>
</tr>
<tr>
<td>2 feet above BFE</td>
</tr>
<tr>
<td>1 foot above BFE</td>
</tr>
<tr>
<td>At BFE</td>
</tr>
<tr>
<td>1 foot below BFE</td>
</tr>
</tbody>
</table>

Annual premium is for $150,000 in building coverage and $60,000 in contents coverage for a one-story house with no basement and a $500 deductible.

*October 2005, Flood Insurance Agent’s Manual*
Mitigation funding: 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.

ICC will pay up to $30,000 to help cover elevation, relocation, demolition, and (for nonresidential buildings) floodproofing. ICC is available for any flood insurance claim and, therefore, is not dependent on the community receiving a disaster declaration.

Although a building subject to shallow flooding may be unlikely to be substantially damaged, it could become repetitively damaged by floods. In certain cases, an ICC claim can be paid if the building is repetitively flooded and has had two or more claims averaging 25 percent or more of the building’s value within a 10-year period. However, the Parish’s ordinance would have to be amended to require that such repetitively flooded properties comply.

Coverage under the ICC does have limitations:

- It covers only damage caused by a flood;
- The building’s flood insurance policy must have been in effect during the flood;
- ICC payments are limited to $30,000 per structure; and
- Claims must be accompanied by a substantial or repetitive damage determination made by the local floodplain administrator.

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 consulting team:

- The project and other mitigation experiences were discussed with staff of the Jefferson Parish Department of Emergency Management.
- 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.

Neighborhood Notification

Parish tax records were checked to identify the name and address of the owner of each property. On April 24, 2006, the Jefferson Parish Department of Emergency Management sent a letter to the owners. The letter included a copy of this report and the portfolio for the recipient’s property (see example, page 5). Residents were asked to comment on the report.
Conclusions

- A flood control or drainage improvement project that would stop all flooding is not expected for this area, but the Corps’ “pump to the river” alternative would reduce flood levels.
- Acquisition is not a desired option for many property owners or the Parish.
- Barriers can be effective, but need space and can be expensive.
- Elevation is the most appropriate protection measure for buildings on crawlsaces.
- Dry floodproofing is the most appropriate protection measure for buildings on slab foundations.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drainage project</td>
<td>Protects yards and streets in addition to buildings “Pump to the river” may reduce flood levels</td>
<td>High cost Funding of “pump to the river” is dependent on obtaining Federal funding and state/local cost share</td>
</tr>
<tr>
<td>Buyout</td>
<td>100% flood protection</td>
<td>High cost Leaves empty spaces in the neighborhood</td>
</tr>
<tr>
<td>Barriers</td>
<td>Effective for shallow flooding</td>
<td>Cost of up to $58,000 if properly constructed Subject to seepage if water stays up for a long time May be dependent on human intervention</td>
</tr>
<tr>
<td>Elevation</td>
<td>More secure flood protection Flood insurance rate reduction</td>
<td>High cost Higher cost for houses on slab foundations</td>
</tr>
<tr>
<td>Floodproofing</td>
<td>Low cost</td>
<td>Not effective for houses on crawlsaces More maintenance needed than for other measures</td>
</tr>
<tr>
<td>Flood insurance</td>
<td>Always in effect Works for all flood levels Under ICC, can be a source of funds for buyout or elevation</td>
<td>Does not prevent flood damage</td>
</tr>
</tbody>
</table>

Recommendations

1. The Parish should determine whether the Corps’ “pump to the river” project will be funded before investing funds in drainage improvements.

2. Property owners are welcome to construct their own barrier, elevation, or floodproofing projects at their own expense, provided they comply with all building code and floodplain management permit requirements.
3. Owners of homes interested in pursuing financial assistance for a mitigation project should contact the Parish Department of Emergency Management to determine the likelihood of receiving a FEMA mitigation grant that can help pay for 75% of the cost of the project.

4. Everyone should buy and keep flood insurance for the advantages listed on page 11 and the possible benefit of ICC payment.

References

- *Jefferson Parish Natural Hazards Mitigation Plan*, 2005 (draft)
- *Protecting Building Utilities From Flood Damage*, FEMA-348, 2000