

**ST PETERSBURG CITY COUNCIL  
ENERGY, NATURAL RESOURCES & SUSTAINABILITY COMMITTEE**

**AGENDA**

**Meeting of November 21, 2016  
10:30 a.m. – 11:30 a.m. – City Hall Room 100**

**Members & Alternate:**      **Chair, Darden Rice; Vice- Chair Karl Nurse;  
Steve Kornell, Ed Montanari, Lisa Wheeler-Bowman (Alternate)**

**Support Staff:**              **Sharon Wright**

**A. Call to Order**

**B. Approval of Agenda**

**C. Approval of Minutes (attached)**

**1. October 20, 2016**

**D. New/Deferred Business**

- 1. ULI Workshop Update: resiliency, economy & social Equity - Dec 5 - 6**
- 2. Tree Removal – review penalties for removing protected trees/grand trees**
- 3. Chiller Plant Analysis Status**
- 4. CRS update & Repetitive Loss Area Analysis (reports attached)**

**E. Continued Business**

**F. Upcoming Meeting Agenda Tentative Issues**

**1. December 15, 2016; 1 p.m.**

**G. New Business Item Referrals (attached)**

**H. Adjournment**

**CITY OF ST. PETERSBURG**

**ENERGY, NATURAL RESOURCES AND SUSTAINABILITY COMMITTEE MEETING**

October 20, 2016

**PRESENT:** Committee Chair Darden Rice; Vice-Chair Karl Nurse; Ed Montanari, Lisa Wheeler-Bowman (Alternate)

**ALSO PRESENT:** Assistant City Attorney Michael Dema, Sustainability Manager Sharon Wright, Senior Energy Efficiency Engineer Lisa Glover-Henderson, Professional Engineer Carlos Frey, Sr. and Office Systems Specialist Paul Traci

**ABSENT:** Committee member Steve Kornell

Committee Chair Rice called the meeting to order at 9:00 a.m. and then undertook a roll call to establish the presence of a quorum. The meeting commenced with the following members present: Ed Montanari, Lisa Wheeler-Bowman and Darden Rice. Chair Rice moved for approval of the agenda. All were in favor of the motion. Chair Rice moved for approval of the September 15, 2016 Committee minutes. All were in favor of the motion.

Sustainability Manager Sharon Wright provided an update on Resiliency Planning. A brief review of funding sources related to Deepwater Horizon and BP Settlement funds was presented to the Committee. The Deepwater Horizon settlement was given to the City by the Federal Government under the RESTORE Act. The City received \$6,477,796 from the BP Settlement Fund. A graph was shown to the Committee regarding the appropriations of these funds. Included in this graph are the following appropriation amounts: \$3 million for sewer upgrades, \$250,000 for the USF Marine Bellows Research Vessel, \$250,000 for the Bike Share Program, \$25,00 for the Tree Planting Program, \$426,250 for the Seagrass Mitigation Bank, \$75,000 for the Tampa Bay Environmental Restoration Fund and \$350,000 for the Pilot Ferry Project. Also included in the graph was amounts reserved for the Tree Planting Program (\$475,000) and Climate Action and Resiliency Planning including early implementation projects (\$1,000,000).

Ideas for better resiliency planning were explored by studying the resiliency planning from other cities including New York, New Jersey and New Orleans. Ms. Wright recommended earmarking \$1,000,000 for modeling and resiliency planning. Ms. Wright also recommended allocating \$300,000 in matching funds. These matching funds would be for modeling projects in partnership with Pinellas County.

Committee member Montanari raised questions relating to modeling. Committee member Montanari inquired about the procedures involved with modeling and the results of modeling that was completed by other cities.

Committee Chair Rice discussed lessons learned for projects that occurred in cities like New Orleans and New Jersey after natural disasters. Those projects did not necessarily come from plans, and the city wants to be sure to have relevant, usable plans that lead to projects for adaptation and recovery. Committee Chair Rice suggested setting aside time for explaining modeling procedures and uses. The Committee was in agreement that such explaining would be helpful. Ms. Wright was designated to schedule the workshop.

Ms. Wright gave the committee an update regarding the Urban Land Institute Resiliency Workshop. It was reported that the Urban Land Institute (ULI) is planning a two-day workshop with the City. The workshop is scheduled for Monday, December 5 and Tuesday, December 6, 2016. ULI will be bringing a technical advisory panel to answer questions concerning resiliency planning and equitable investments. Committee Vice-Chair Nurse entered the meeting at 9:21 a.m.

Committee Vice-Chair Nurse made a motion to recommend that \$250,000 of the \$1 million funding be allocated for an integrated sustainability action plan. The motion passed 3-1. Committee member Montanari dissented from the majority vote.

The Energy efficiency analysis and projects scope portion of the agenda was presented by Ms. Wright. Ms. Wright explained that the purpose for this scope of work is the early implementation of needed energy efficiency and retrofit projects. Ms. Glover-Henderson, Senior Energy Efficiency Engineer was introduced as being part of these projects.

Committee Vice-Chair Nurse made a motion to recommend that \$250,000 be allocated for the energy analysis and retrofit work. Of the \$250,000, \$50,000 would be for 25-30% of Lisa's time, and a contribution of \$10,000 - \$15,000 is anticipated to go toward paying a teaching assistant to manage the group of USF students. The balance would be reserved to move forward with projects understanding that status reports and options will be brought back to the committee before moving forward. The motion passed 4-0.

The Committee was unable to complete the tree removal penalties discussion, so the topic will be continued to the Monday, November 21, 2016 meeting (10:30 a.m.).

The recommendation for the \$300,000 allocation toward resiliency planning will be discussed at the October 27, 2016 BFT Committee meeting before going to City Council, if approved.

As requested by City Council members, an overview of the three scopes of work (resiliency planning, integrated sustainability action plan, and energy efficiency analysis) will also be discussed at BFT to provide the whole picture to date on how the proposed allocations of the earmarked \$1 million would be used if approved and moved forward.

There being no further business, Committee Chair Rice adjourned the meeting at 9:56 a.m.

The next ENRS Committee meeting is scheduled for Monday, November 21, 2016 at 10:30 a.m.

Resolution No. 2016-\_\_\_\_\_

A RESOLUTION APPROVING THE REPETITIVE LOSS AREA ANALYSIS DOCUMENTS THAT EVALUATE THE FLOODING HAZARDS WITHIN THE MOST SEVERELY FLOODED AREAS OF ST PETERSBURG; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of St. Petersburg ("City") is dedicated to protecting the health and property of citizens; and

WHEREAS, the City conducted an analysis of the repetitive loss areas according to FEMA and the Community Rating System (CRS) guidelines; and

WHEREAS, as a result of this analysis two documents were developed, which must be approved by the St. Petersburg City Council; and

WHEREAS, approval of the Repetitive Loss Area Analysis documents will increase the Community Rating System Points and lead to an improved discount on flood insurance premiums within St. Petersburg; and

WHEREAS, Administration recommends approval of the Repetitive Loss Area Analysis documents.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of St. Petersburg, Florida, that the Repetitive Loss Area Analysis documents that evaluate the flooding hazards within the most severely flooded areas of the City of St. Petersburg is hereby approved.

This resolution shall become effective immediately upon its adoption.

Approvals:

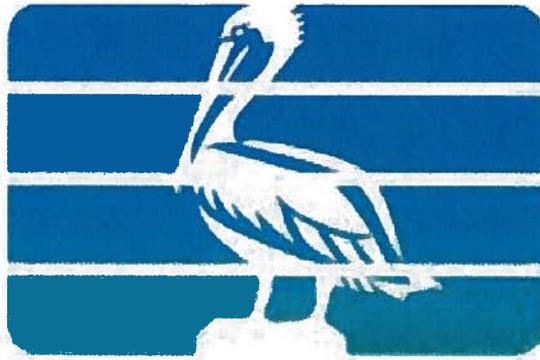
Legal:



Administration:



CITY OF ST PETERSBURG



**st.petersburg**  
**www.stpete.org**

RIVIERA BAY  
REPETITIVE LOSS AREA  
ANALYSIS

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DRAFT

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## **TERMINOLOGY**

**1% Annual Flood Chance:** The flood that has a one percent (1%) chance of being equaled or exceeded each year. Also known as the base flood or regulatory floodplain.

**Area Analysis:** An approach to identify repeatedly flooded areas, evaluate mitigation approaches, and determine the most appropriate alternatives to reduce future repeated flood losses.

**BFE:** Base Flood Elevation - The elevation of the crest of the base flood or one percent (1%) annual chance.

**CRS:** Community Rating System

**FEMA:** Federal Emergency Management Agency

**FIRM:** Flood Insurance Rate Map

**Floodway:** The channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

**Freeboard:** A factor of safety usually expressed in feet above the Base Flood Elevation (BFE) for purposes of floodplain management. Also known as the design flood elevation.

**GIS:** Geographic Information Systems

**Hazard Mitigation:** Any sustained action taken to reduce or eliminate long-term risk to life and property from a hazardous event.

**ICC:** Increased Cost of Compliance, a \$30,000 rider on flood insurance policies for policy holders located in the special flood hazard area that can be used to bring the structure into compliance in the event that it is substantially damaged by a flood.

**NFIP:** National Flood Insurance Program

**Repetitive Loss property (RL):** An NFIP-insured property where two or more claim payments of more than \$1,000 have been paid within a 10-year period since 1978.

**Severe Repetitive Loss Property (SRL):** A 1-4 family residence that is a repetitive loss property that has had four or more claims of more than \$5,000 or two claims that cumulatively exceed the reported building's value.

**Substantial Improvement:** The repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure either, (1) before the improvement or repair is started, or (2) if the structure has been damaged and is being restored, before the damage occurred.

## **EXECUTIVE SUMMARY**

### **Background**

The National Flood Insurance Program (NFIP) is continually faced with the task of paying claims while trying to keep the price of flood insurance at an affordable level. It has a particular problem with repetitive flood loss properties, which are estimated to cost \$3.5 million per year in flood insurance claim payments throughout the United States. Repetitive flood loss properties represent only 1.4% of all flood insurance policies, yet historically they have accounted for nearly one-fourth of the claim payments (over \$9 billion to date). Mitigating these repeatedly flooded properties will reduce the overall costs to the NFIP, the communities in which they are located, and the individual homeowners. The City of St. Petersburg conducted an area analysis based on the Repetitive Loss Area Analysis, as described on page 5 of this report and in accordance to the Community Rating System. This area analysis follows FEMA guidelines to determine why an area has repeated flood losses and what alternative flood protection measures would help break the cycle of repetitive flooding.

### **Study Area**

The study area for this report is located in the Riviera Bay area, on two sides of Sun-lit Cove, stretching from approximately 90<sup>th</sup> Avenue North East, to 80<sup>th</sup> Avenue North and in-between 4<sup>th</sup> Avenue North, to Orient Way North East. There are 372 structures in the study area. All of them are residential. Of those 372 structures, 41 are on FEMA's repetitive loss list, while 3 of those 41 properties are severe repetitive loss (SRL) properties.

### **Problem Statement**

Flooding is caused by high tides and heavy rain, but aggravated by three problems:

- This area is low lying and close to the bay. Tidal flooding is a main cause of flooding within this area, especially when a major rain event coincides with a high tide.
- The street drainage ditches are sometimes overgrown or otherwise unable to convey water correctly. Therefore water tends to drain slowly into the bay.
- Some canals are clogged up with debris from pines and mangroves.

There have been some drainage improvements, but these improvements have not stopped all flooding.

### **Recommendations**

- Encourage everyone to pursue a mitigation measure.
- Address the issues with the clogged and/or undersized street drainage ditches.
- Install more backflow preventers.
- More frequent cleaning of backflow devices.
- Clean/dredge canal to remove debris on a more frequent basis.
- Seek out and secure funding for the drainage improvements outlined in this report.
- Improve the City's CRS classification.

### **For residents of the study area**

- Contact the City for more information about possible funding opportunities
- Review the alternative mitigation measures discussed in this analysis and implement those that are most appropriate for their situation.
- Purchase and maintain a flood insurance policy on the home and its contents.
- Report flooding hazards via See Click Fix or Mayor's Action line.

## INTRODUCTION

St. Petersburg is exposed to flooding from hurricanes, tropical storms, storm water runoff, and storm surges from Tampa Bay, Boca Ciega Bay, and the Gulf of Mexico, as well as flooding from St. Joes Creek and many small lakes within the area.

St. Petersburg is mostly flat with some rise towards the center of the peninsula, creating areas where water runs very quickly to the bay and other areas where it drains away slowly. There are several communities built over bayous and along the coastline. Flooding of streets, yards, and buildings often occur from heavy rains in some areas.

In sum, areas of the City can be flooded from overwhelmed bayous, creeks, coastal sources, sheet flow, and local drainage ways. The official FEMA Flood Insurance Rate Map designates the Special Flood Hazard Areas (SFHA), the deeper riverine and coastal floodprone areas as A, AE, or VE zones and the entire City may be subject to flooding

In most areas, especially outside the AE and VE Zones, flooding is relatively shallow. Residents have several days of warning before a coastal storm occurs and can take steps to protect themselves from flooding if they have necessary information.

There have been some drainage improvements, but they have not stopped all flooding. There are 372 properties subject to flooding. Of these properties 41 are considered repetitive or severe repetitive loss and have made 118 flood insurance claims for a total of \$1,709,751 since 1978. Within the 41 repetitive loss properties there are 3 severe repetitive loss properties with 13 claims for a total of \$337,629 since 1978.

Since flooding typically occurs over an area that may affect several buildings, determining a repetitive loss area may include homes not previously flooded, but are instead surrounded by those structures that have been repetitively flooded. This allows determination of drainage and may indicate where future homes may sustain flood damage. Additionally because repetitive loss structures are privacy protected by the federal government, it is necessary to include surrounding homes, so as to maintain the privacy of those repetitive loss structures as per the Privacy Act of 1974.

The RLAA is part of the Community Rating System, which is a “voluntary incentive program that recognizes and encourages community floodplain activities that exceed the minimum National Flood Insurance Program (NFIP) requirements” (www.FEMA.gov). Participating communities are rewarded with reduced insurance premiums.

Repetitive Loss Area Analysis (RLAA): An Approach that identifies repetitive loss areas, evaluates mitigation approaches, and determines the most appropriate alternatives to reduce future losses.

Hazard Mitigation: Any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event.

Repetitive Loss Property (RL): An NFIP-insured property where two or more claim payments of more than \$1,000 have been paid within a 10-year period since 1978.

Severe Repetitive Loss Property (SRL): A 1-4 family residence that is repetitive loss property that has had four or more claims of \$5,000 or two claims that cumulatively exceed the reported buildings value.

## **THE PROCESS**

The repetitive loss area analysis is a detailed mitigation plan for a repetitive loss area. It provides more specific guidance on how to reduce damage from repetitive flooding than a community-wide floodplain management or hazard mitigation plan. Riviera Bay was one of the two areas identified as a repetitive loss area. In order to better understand the issues in the area a process must be followed according to the NFIP CRS program.

The Community Rating System is a “voluntary incentive program that recognizes and encourages community floodplain activities that exceed the minimum National Flood Insurance Program (NFIP) requirements” ([www.FEMA.gov](http://www.FEMA.gov)). Participating communities are rewarded with reduced insurance premiums.

The FEMA-prescribed five step process for conducting an area analyses is as follows:

Step 1: Advise all the property owners in the repetitive flood loss area that the repetitive loss area analysis will be conducted to determine the problems associated with flooding.

Step 2: Contact agencies or organizations that may have plans that could affect the cause or impacts of the flooding.

Step 3: Collect data on the analysis area and each building in the identified study area within the neighborhood to determine the cause(s) of the repetitive damage.

Step 4: Review alternative mitigation approaches and determine whether any property protection measures or drainage improvements are feasible.

Step 5: Document the findings, including information gathered from agencies and organizations, and relevant maps of the analysis area.

## **STEP 1: NEIGHBORHOOD NOTIFICATION**

The first step in FEMA's five-step process is to notify the residents in the area about the project. On January 1, 2016 the City of St. Petersburg Community Rating System Coordinator sent out a letter to the homeowners introducing them to the project.

The letter asked homeowners to submit any flooding concerns to the CRS Coordinator via email, or phone, and to include address and pertinent information. Three hundred and seventy-two (372) letters were mailed out, of which twenty-two were returned as undeliverable or wrong address.

Copies of the letter and homeowner comments can be found in Appendices A & B of this report.

## **STEP 2: COLLABORATION**

Coordination with relevant agencies, offices, and organizations is an important step in the analysis process. This step helps to open lines of communication among those interested in flood protection in the St. Petersburg area. The City collected information and data in order to complete this analysis from the Stormwater and Engineering Division, Construction Services and Permitting, and the Geographic Information System data provided from FEMA and Pinellas County.

## **STEP 3: DATA COLLECTION**

The third step in the process is the collection of data that pertains to the area; both as a whole and specifically about the causes of the repetitive flooding. The data was collected through coordination with several agencies and departments.

Although the entire city is flood prone, certain areas have been harder hit than others. Using repetitive flood insurance claims, the City has identified two repetitive loss areas, Shore Acres and Riviera Bay.

Of the 82,840 buildings in the City, 405 have been paid at least 2 claims of \$1000 over a 10 year period (FEMA's definition of a repetitive loss property). There are 37 structures on FEMA's repetitive loss list that have been relocated, elevated, or otherwise improved and are no longer subject to repetitive flood damage.

This report focuses on Riviera Bay and the houses identified in the mapped repetitive loss area as depicted on the page 9 Map.

## FLOOD INSURANCE DATA

There are two sources of flood insurance data that the City of St. Petersburg has reviewed. Those sources of data are:

- A. The Digital Flood Insurance Rate Map (DFIRM)
- B. Claims data

A. The Digital Flood Insurance Rate Map: The City of St. Petersburg Flood Insurance Rate Map, September 2003: A Flood Insurance Rate Map (FIRM), published by FEMA, shows potential flood risk according to zones of severity and is used in setting flood insurance rates. The regulatory floodplain used by FEMA for the floodplain management and insurance aspects of the National Flood Insurance Program (NFIP) is based on the elevation of the 1% annual flood chance or base flood. This type of flood has a 1% chance of occurring in any given year. For another frame of reference, the 1% annual flood has a 26% chance of occurring over the life of a 30-year mortgage. It is important to note that more frequent flooding does occur in the regulatory floodplain, as witnessed by the number of repetitive loss properties. The study area falls in only one flood zone: the more risky AE Zone.

The Base Flood Elevation (BFE) is the elevation of the 1% chance annual flood above mean sea level. In October 2015 St. Petersburg now requires two feet of freeboard. This means that all new or substantially improved residential construction must be at least two feet above the BFE. The BFE for the area is nine feet above sea level.

B. Claims Data: The Privacy Act of 1974 (5 U.S.C. 522a) restricts the release of certain types of data to the public. Flood insurance policy and claims data are included in the list of restricted information. FEMA can only release such data to state and local governments, and only if the data are used for floodplain management, mitigation, or research purposes. Therefore, this report does not identify the repetitive loss properties or include claims data for any individual property. Rather, it discusses them only in summary form.

The City of St. Petersburg obtained claims data from FEMA Region VI for all repetitive loss properties in the area. There are thirty-eight (10.21%) properties within the 372 property study area that qualify as repetitive loss. Of those thirty-eight repetitive loss properties, three are considered to be severe repetitive loss properties. Homeowners for the thirty-eight repetitive loss properties have made one hundred-eighteen claims and received \$1,709,751 in flood insurance payments since 1978. The average repetitive flood loss claim is \$44,993.46.

It is likely that the data in this section understates the flooding problem for the following reasons:

1. NFIP records do not include claims data prior to 1978, so there could have been additional losses not shown here.
2. Policy holders may not have submitted claims for smaller floods for fear of it affecting their coverage or premium rates.
3. Only data for listed repetitive loss properties were reviewed. There could be other properties that have been repeatedly flooded, but did not have insurance at the time of the flood or did not submit claims.

The losses only account for items covered by the insurance policy. Things not covered include living expenses during evacuation, swimming pools, and automobiles.

## DRAINAGE INFORMATION

The City of St. Petersburg examined three areas of related information on the area's drainage. Those three areas are:

- A. Sun-lit Cove
- B. Riviera Bay Watershed
- C. Riverside Canal

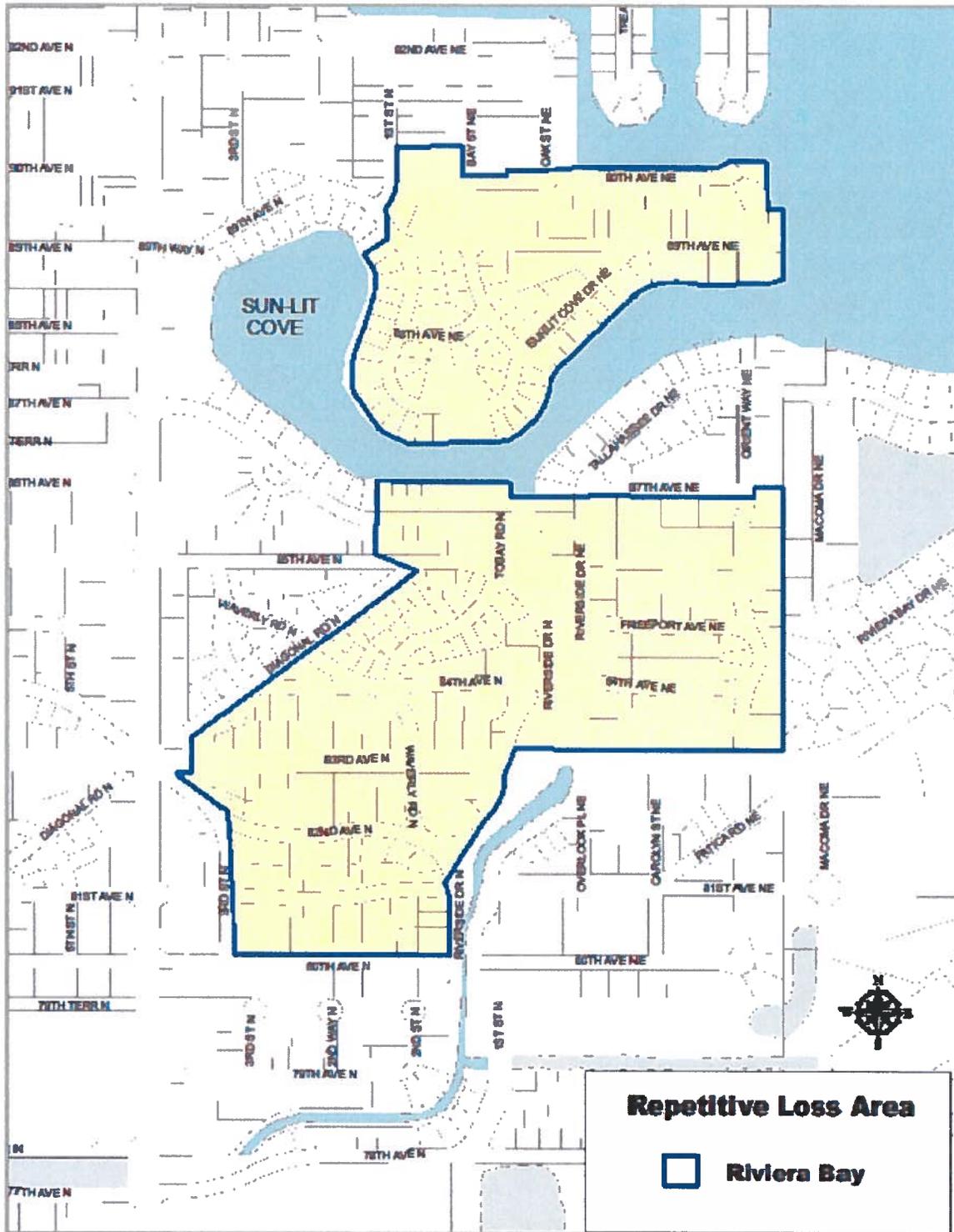
A. Sun-lit Cove: The City of St. Petersburg relies on a number of canals to drain stormwater from the streets. The study area is directly south of Sun-lit Cove which has a drainage area of roughly 99 square miles. There is one major tributary to Sun-lit Cove, Ditch D-27, which runs west to east towards the Bay and Sun-lit Cove. Petersburg that outfalls into Sun-lit Cove and provides drainage for the southwestern part of St. Petersburg. Sun-lit Cove floodway covers parts of the study area.

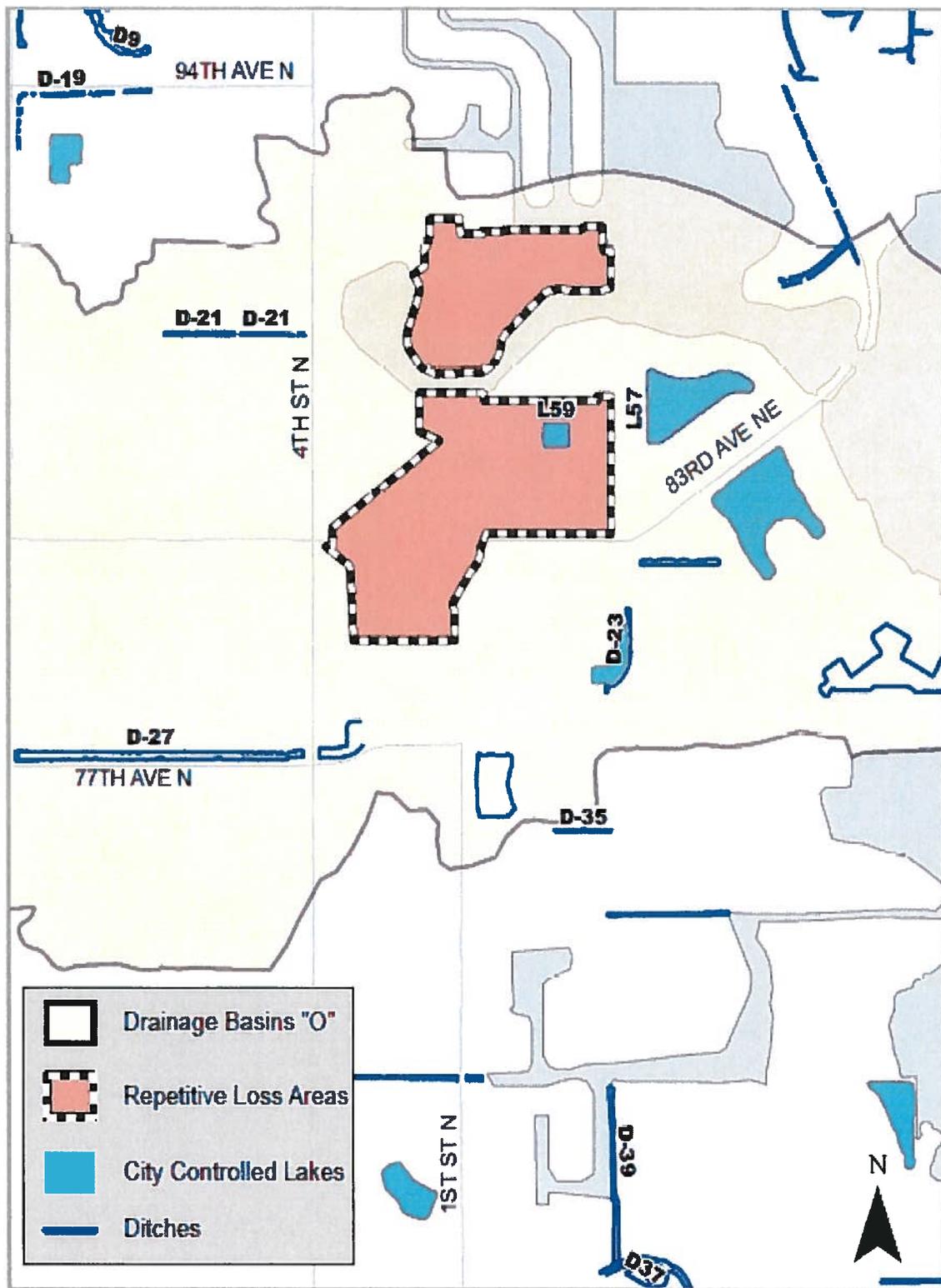
Sun-lit Cove canal is unable to convey tidal flooding events during major rain events; the most serious of which occurs west of Riverside Drive North. When this floods, it makes it difficult for residents in the study area to evacuate the area and to get to their residence. Sun-lit Cove is known to flood at Riverside Drive North; most likely due to high tide events and simultaneous heavy rainfall.

B. Riviera Bay Watershed: This large watershed is over 99 square miles and drains in several areas to the bay. The drainage from the Riviera Bay Watershed is not a major factor for flooding within this area. There are several drainage ditches, small lakes, and canals within the area, D-27, D-21, D-23, L59, and L57, that may absorb some of the watershed runoff, but not all. Additionally when these ditches, small lakes, and canals fill they could cause additional flooding throughout the area surrounding them.

C. Riverside Canal: Residents have expressed concern about the Riverside canal and water back-flowing into the streets during a high tide and major rain event. Concern is that the pipes leading to the canal can no longer close correctly, to prevent water from entering the pipes, because of barnacle and sediment buildup. Reports from residents indicate that even on sunny days and high tides that water can sometime be seen in the road and other low lying areas. During times of heavy rain the water has come close to steps of homes and some houses have even been flooded.

MAPS





## BUILDING INFORMATION

As discussed in Step 1: A neighborhood notification letter was mailed out to the residents, informing them that an analysis was going to be conducted with reference to flooding. Of the 372 properties to which letters were sent, twenty-two were returned to the City as vacant or otherwise undeliverable.

The residents who commented on the letter offered insight into the flooding issues in the area:

- Nine people reported some kind of street flooding and that their residence was inaccessible.
- Most flooding occurred during heavy rains and high tides.
- Residents have conflicting reports, some say that the drainage projects in the area have helped, while others seem to think they have caused more problems and moved the flooding to different roads.
- Residents report clogging of storm drains by pine needles and other tree debris.
- None of the residents have reported taking measures to mitigate the flooding on their own.

The complete list of comments from homeowner's can be found in Appendix B of this report.

From January 1<sup>st</sup> till January 20<sup>th</sup> the City visited the study area and collected data on each property. The City collected information such as the type of structure, construction, condition, the number of stories, drainage patters, and a photo.

Two hundred fifty-seven structures in the area are built on a slab (69%), thirty-three are on a crawlspace (9%), forty-one on a stem-wall (11%), two were split level (0.5%), twenty-two were on posts/piers (6%), four are walkout levels (1%), and the remaining thirteen either being vacant or unable to observe base (3.5%).

The majority of structures, three hundred twenty-four (87%) are single-story, and two hundred and seventy (72.58%) are masonry or brick. The rest are vinyl/wood and two manufactured homes.

Based on the data collected the following bullets summarize the repetitive flooding problems in the area:

- Structures fall in the more risky AE Zone.
- Flooding is caused by heavy rains, but aggravated by two problems:
  - High tides
  - Poor street drainage
- There have been some drainage improvements made to the area, but they have not stopped all flooding.

There are 372 properties subject to flooding. Thirty-eight of the insured properties have been flooded to the extent that they qualify as repetitive loss structures under the NFIP in the study area, three of which are severe repetitive loss properties.

## **STEP 4: MITIGATION MEASURES**

Knowing the flooding history, and types and condition of the buildings in the area leads to the fourth step in the area analysis procedure – a review of alternative mitigation approaches to protect properties from, or reduce, future flood damage. Property owners should look at these alternatives but understand they are not all guaranteed to provide protection at different levels of flooding. Six approaches were reviewed:

- I. Acquisition
- II. Elevating the houses above the 1% annual flood level
- III. Dry floodproofing
- IV. Utility protection
- V. Drainage improvements
- VI. Maintaining flood insurance coverage on the building

### **I. ACQUISITION**

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. Acquisitions are usually recommended where the flood hazard is so great or so frequent that it is not safe to leave the structure on the site.

An alternative to buying and clearing the whole subdivision is buying out individual, “worst case,” structures with FEMA funds.

- A. Cost: This approach would involve purchasing and clearing the lowest or the most severe repeatedly flooded homes. If FEMA funds are to be used, three requirements will apply:
  1. The applicant for FEMA must demonstrate that the benefits exceed the costs, using FEMA’s benefit/cost software.
  2. The owner must be a willing seller.
  3. The parcel must be deeded to a public agency that agrees to maintain the lot and keep it forever as open space.

B. Feasibility: Due to the high cost and difficulty to obtain a favorable benefit-cost ratio in shallow flooding areas, acquisitions are reserved for the worst case buildings. 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. There is no reduction in expenses to maintain the neighborhood’s infrastructure for the City, although the tax base is reduced. The vacant lots must be maintained by the new owner agency, and additional expense is added to the community. If the lot is only minimally maintained, its presence may reduce the property values of the remaining houses. The City of ST. Petersburg is not considering acquisitions at this time for the above reasons.

## II. ELEVATION

Raising the structure above the flood level is generally viewed as the best flood protection measure, short of removing the building from the floodplain. All damageable portions of the building and its contents are high and dry during a flood, which flows under the building instead of into the house. Houses can be elevated on fill, posts/piles, or a crawlspace.

A house elevated on fill requires adding a specific type of dirt to a lot and building the house on top of the added dirt. It should be noted that St. Petersburg does not allow fill to be brought into the floodplain to elevate the house.

A house elevated on posts/piles is either built or raised on a foundation of piers that are driven into the earth and rise high enough above the ground to elevate the house above the flow of flood water.

A house elevated on a crawlspace is built or raised on a continuous wall-like foundation that elevates the house above the flood level. If a crawlspace is used, it is important to include vents or openings in the crawlspace that are appropriately sized: one square inch for each square foot of the building's footprint. Additionally all materials below the design flood level must be flood resistance and all machinery, equipment, and plumbing must be above the design flood level.

- A. Cost: Most of the cost to elevate a building is in the preparation and foundation construction. The cost to elevate six feet is little more than the cost to go up two feet. Elevation is usually cost-effective for wood frame buildings on posts/piles or crawlspace because it is easiest to get lifting equipment under the floor and disruption to the habitable part of the house is minimal. Elevating a slab house is much more costly and disruptive. In St. Petersburg, 69% percent of the houses in the study area are on a slab. The actual cost of elevating a particular building depends on factors such as its condition, whether it is masonry or brick faced, and if additions have been added on over time. While the cost of elevating a home can be high, there are funding programs that can help. The usual arrangement is for a FEMA grant to pay 75% of the cost while the owner pays the other 25%. In the case of elevating a slab foundation, the homeowner's portion could be as high as \$25,000 or more. In some cases, assistance can be provided by Increased Cost of Compliance (ICC) funds, which is discussed on page 30, or state funds.
- B. Feasibility: Federal funding support for an elevation project requires a study that shows that the benefits of the project exceed the cost of the elevation. Project benefits include savings in insurance claims paid on the structure. Elevating a masonry home or a slab can cost up to \$100,000, which means that benefit/cost ratios may be low. Looking at each property individually could result in funding for the worst case properties, i.e., those that are lowest, subject to the most frequent flooding, and in good enough condition to elevate.

### III. DRY FLOODPROOFING

This measure keeps floodwaters out of a building by modifying the structure. Walls are coated with waterproofing compounds or plastic sheeting. Openings (i.e. doors, windows, and vents) are closed either permanently, or temporarily with removable shields or sandbags.

Make the walls watertight. This is easiest to do for masonry or brick faced walls. The brick or stucco walls can be covered with a waterproof sealant and bricked or stuccoed over with a veneer to camouflage the sealant. Houses with wood, vinyl, or metal siding need to be wrapped with plastic sheeting to make walls watertight, and then covered with a veneer to camouflage and protect the plastic sheeting. Provide closures, such as removable shields or sandbags, for the openings; including doors, windows, dryer vents and weep holes. There must also be an account for sewer backup and other sources of water entering the building. For shallow flood levels, this can be done with a floor drain plug or standpipe; although a check valve system is more secure.

Dry floodproofing employs the building itself as part of the barrier to the passage of floodwaters, and therefore this technique is only recommended for buildings with slab foundations that are not cracked. The solid slab foundation prevents floodwaters from entering a building from below. Also, even if the building is in sound condition, tests by the Corps of Engineers have shown that dry floodproofing should not be used for depths greater than three feet over the floor, because water pressure on the structure can collapse the walls and/or buckle the floor.

Dry floodproofing is a mitigation technique that is appropriate for some houses in the Riviera Bay study area: those with slab foundations that typically receive floodwater up to three feet in the house. From the fieldwork it was found that eighty-nine percent of the houses in the analysis area are on slab foundations, and according to the data sheet responses seventy-six percent of the respondents experienced three feet of flooding.

Not all parts of the building need to be floodproofed. It is difficult to floodproof a garage door, for example, so some owners let the garage flood and floodproof the walls between the garage and the rest of the house. Appliances, electrical outlets, and other damage-prone materials located in the garage should be elevated above the expected flood levels.

Dry floodproofing has the following shortcomings as a flood protection measure:

- It usually requires human intervention, i.e., someone must be home to close the openings.
- Its success depends on the building's condition, which may not be readily evident. It is very difficult to tell if there are cracks in the slab under the floor covering.
- Periodic maintenance is required to check for cracks in the walls and to ensure that the waterproofing compounds do not decompose.
- There is no government financial assistance programs available for dry floodproofing, therefore the entire cost of the project must be paid by the homeowner.
- The NFIP will not offer a lower insurance rate for dry floodproofed residences. However, this may be a viable option if homeowners want to protect their structure and contents.

- A. 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 from flooding. Owners can do some of the work by themselves, although an experienced contractor provides greater security. Each property owner can determine how much of their own labor they can contribute and whether the cost and appearance of a project is worth the protection from flooding that it may provide.
- B. Feasibility: As with floodwalls, floodproofing is appropriate where flood depths are shallow and are of relatively short duration. It can be an effective measure for some of the structures and flood conditions found in the study analysis area. It can also be more attractive than a floodwall around a house. However, floodproofing requires the homeowner to install or place door and window shields or sandbags and to ensure maintenance on a yearly basis. This may be difficult for the elderly or disabled. Finally ample warning of flooding must be available, so the homeowner can determine when to place the door or window shields and sandbags.

#### IV. UTILITY PROTECTION

This measure applies to several different utilities that can be adversely affected by floodwaters such as:

- Heating, Ventilation, and Air Conditioning (HVAC) systems
- Fuel meters and pipes
- Electrical service boxes, wiring and fixtures
- Sewage systems
- Water systems

Damage to utilities can prevent a residence that remains structurally sound after a flood from being reoccupied. Retrofitting utilities includes things as simple as raising them above the flood level and building small walls around furnaces and water heaters to protect from shallow flooding. According to the homeowner's data sheets, forty-one percent (41%) of respondents answered that they had moved utilities and/or contents to a higher level as a mitigation measure.

A. Cost: The cost for protecting utilities varies and is dependent upon the measure itself, condition of the system, structure, and foundation. A lot of the measures can be performed by the homeowners themselves, although it is always a good idea to consult a professional contractor and/or engineer (depending on the project). The costs can be lower when done as part of a repair or remodeling project. Residents interested in pursuing a retrofitting measure to protect their utilities should contact the City of St. Petersburg to determine whether a permit is required.

B. Feasibility: Given that the flooding experienced by the homeowners in the Riviera Bay study area includes both shallow and deep flooding, utility protection is an acceptable mitigation measure. Interested homeowners should examine their flooding history and decide if utility protection is an appropriate measure for their building.

## V. DRAINAGE IMPROVEMENTS

The Engineering and Stormwater Department prepared a Master Drainage plan for the entire City of St. Petersburg. The Plan has a list of recommendations that were created after reviewing previous studies and reports. There are several different drainage improvements called for in the Plan.

<b>Date</b>	<b>Project Name/Description</b>
05/24/11	Riverside Dr Stormwater Vaults

This project helped to reduce some of the flooding within the Riviera Bay Repetitive Loss area. No other projects are currently proposed for this area.

## VI. MAINTAINING INSURANCE

Although insurance is not a mitigation measure that reduces property damage from a flood, a National Flood Insurance Program policy has the following advantages for the homeowner or renter:

1. A flood insurance policy covers surface flooding from the overflow of inland or tidal waters or from storm water runoff.
2. Flood insurance may be the only source of assistance to help owners of damaged property quickly pay for cleanup and repairs after a disaster. This ensures that people can get back into their homes faster than if they had to wait for disaster assistance funding, which often is in the form of a loan and may take months to pay.
3. Once in effect there is no need for human intervention. Coverage is available for the contents of a home as well as for the structure. Renters can buy contents coverage, even if the building owner does not buy coverage for the structure itself.

Cost: Flood insurance rates are based on several factors including what flood zone the building falls in and the age of the structure. All the homes in the study area fall in the AE zone. Homes constructed before December 31st, 1974 are “pre-FIRM” buildings, which means that they were built before the date of the first FIRM for the community, and are thus eligible for the “subsidized” flood insurance premium rates.

A building that is located in the AE flood zone and constructed or substantially improved after the date of the most current FIRM - such as one built or substantially improved – is required to be built above the base flood elevation and is therefore subject to rates based on the actual risk rather than a subsidized rate. Rates on pre-FIRM buildings are subsidized because the flood risk was unknown at the time of construction. If a pre-FIRM house in the SFHA is elevated to the design flood elevation, the owner will be able to take advantage of the much lower post-FIRM rates.

Communities that join the CRS complete floodplain management activities that are worth a certain amount of credit. The more credit earned, the better the class ranking of that community. The CRS has 10 classes; a Class ranking of 10 carries the lowest flood insurance premium reduction, whereas a Class 1 carries the maximum discount. The City of St Petersburg has a CRS Class of 6, which gives an effective discount of 20 percent to all flood insurance premiums for those within the SFHA.

## **STEP 5: FINDINGS & RECOMMENDATIONS**

### **A. Findings**

Properties in the Riviera Bay study area are subject to flooding due to heavy rains, high tide, and drainage problems. When Sunlit-cove and the connecting canals are inundated by heavy rains, especially during high tides, it does not have the capacity to convey the water out of the area quickly enough. This is mainly due to backflow and pipes which are either under water or do not close due to barnacles. There is also concern over the drains being clogged from debris and unable to convey water from the street in a timely fashion.

### **B. Recommendations**

1. The City of St. Petersburg should continue to encourage everyone to pursue a mitigation measure. Assist interested property owners in applying for a mitigation grant. Address the issues with the street drainage in order to improve the drainage in the study area. Institute a maintenance program that encourages homeowners to frequently clear their ditches of debris to ensure open flow for stormwater. Seek out and secure funding for the drainage improvements outlined in this report. Improve the City's CRS classification and adopt this Repetitive Loss Area Analysis according to the process detailed in the CRS Coordinator's Manual.
2. For the residents of the study area, they should contact the City of St. Petersburg for more information about possible funding opportunities and site visits to determine remedial measures. Review the alternative mitigation measures discussed in this analysis and implement those that are most appropriate for their situation. Purchase and maintain a flood insurance policy on the home and its contents.

## **POSSIBLE FUNDING SOURCES**

There are several possible sources of funding for mitigation projects:

- A. FEMA grants: Most of the FEMA programs provide 75% of the cost of a project. In most Gulf communities, the 25% non-FEMA share is paid by the benefitting property owner. Each program has different Congressional authorization and slightly different rules.
1. The Hazard Mitigation Grant Program (HMGP): The HMGP provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. Projects must provide a long-term solution to a problem (e.g., elevation of a home to reduce the risk of flood damages as opposed to buying sandbags and pumps to fight the flood). Examples of eligible projects include acquisition and elevation, as well as local drainage projects.
  2. The Severe Repetitive Loss Program (SRL): The Severe Repetitive Loss (SRL) grant program funds mitigation projects for properties on the severe repetitive loss list. Eligible flood mitigation projects include: Acquisition and demolition or relocation of structures that are listed on FEMA's severe repetitive loss list and conversion of the property to open space Elevation of existing SRL structures to at least the Base Flood Elevation (BFE). There is a new SRL ICC Program that can be used to cover the non-FEMA share of the cost. That program is discussed further in bullet C below.
- B. The Flood Mitigation Assistance Program (FMA): FMA funds assist States and communities in implementing measures that reduce or eliminate the long-term risk of flood damage to structures insured under the NFIP. Project Grants to implement measures to reduce flood losses, such as elevation, acquisition, or relocation of NFIP-insured structures. States are encouraged to prioritize FMA funds for applications that include repetitive loss properties; these include structures with 2 or more losses each with a claim of at least \$1,000 within any ten-year period since 1978.
1. Pre-Disaster Mitigation Program (PDM): The Pre-Disaster Mitigation (PDM) program provides funds to states, territories, Indian tribal governments, communities, and universities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. For more information visit <http://www.fema.gov/government/grant/pdm/index.shtm>.
- C. Flood insurance: There is a special funding provision in the National Flood Insurance Program (NFIP) for insured buildings that have been substantially 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. ICC will pay up to \$30,000 to help cover elevation, relocation, demolition, and (for nonresidential buildings) floodproofing. It can also be used to help pay the 25% owner's share of a FEMA funded mitigation project.

The building's flood insurance policy must have been in effect during the flood. This payment is in addition to the damage claim payment that would be made under the regular policy coverage, as long as the total claim does not exceed \$250,000. Claims must be accompanied by a substantial or repetitive damage determination made by the local floodplain administrator. For more information, contact your insurance agent or visit: [www.fema.gov/plan/prevent/floodplain/ICC.shtm](http://www.fema.gov/plan/prevent/floodplain/ICC.shtm).

Coverage under the ICC does have limitations: It covers only damage caused by a flood, as opposed to wind or fire damage. The building's flood insurance policy must have been in effect during the flood. ICC payments are limited to \$30,000 per structure. Claims must be accompanied by a substantial or repetitive damage determination made by the local floodplain administrator and the structure must be in an A zone.

The average claims payment in the study area is \$16,511.58. With an average claim of that amount, it is not likely that many homes in the study area would sustain substantial damage from a flood event. Homeowners should make themselves aware of the approximate value of their homes, and in the case of incurring flood damage, be aware of the need for a substantial damage declaration in order to receive the ICC coverage.

**Severe Repetitive Loss ICC Pilot Program:** While the conventional ICC only covers buildings that are located in the Special Flood Hazard Areas (SFHA), there is a new pilot program that is aiming to target buildings not in the SFHA. Focusing specifically on Severe Repetitive Loss (SRL) buildings, this pilot program will offer ICC benefits to those SRL properties that are located in X zones and will include those SRL buildings that have grandfathered X zone rates. Under this new pilot program, the ICC benefits could be used to cover the homeowner's 10% match in a SRL grant.

Alternative language adopted into the local floodplain management ordinance would enable residents with shallower flooding to access ICC funding. Since local ordinances determine the threshold at which substantial damage and/or repetitive claims are reached, adopting language that would lower these thresholds would benefit the homeowners of repetitive loss properties. Adopting alternative language allows for cumulative damages to reach the threshold for federal mitigation resources more quickly, meaning that some of the properties in St. Petersburg that sustain minor damage regularly would qualify for mitigation assistance through ICC.

- D. **Rebates:** A rebate is a grant in which the costs are shared by the homeowner and another source, such as the local government, usually given to a property owner after a project has been completed. Many communities favor it because the owner handles all the design details, contracting, and payment before the community makes a final commitment. The owner ensures that the project meets all of the program's criteria, has the project constructed, and then goes to the community for the rebate after the completed project passes inspection.

Rebates are more successful where the cost of the project is relatively small, e.g., under \$5,000, because the owner is more likely to be able to afford the bulk of the cost. The rebate acts more as an incentive, rather than as needed financial support.

- E. **Small Business Administration Mitigation Loans:** The Small Business Administration (SBA) offers mitigation loans to SBA disaster loan applicants who have not yet closed on their disaster loan. Applicants who have already closed must demonstrate that the delay in application was beyond their control.

For example mitigation loans made following a flood can only be used for a measure to protect against future flooding, not a tornado. If the measure existed prior to the declared disaster, an SBA mitigation loan will cover the replacement cost. If the measure did not exist prior to the declared disaster the mitigation loan will only cover the cost of the measure if it is deemed absolutely necessary for repairing the property by a professional third-party, such as an engineer.

## APPENDIX A: LETTER TO RESIDENTS



City of St. Petersburg  
Planning & Economic Development Department  
Construction Services & Permitting  
January 2016

### IMPORTANT FLOOD HAZARD INFORMATION

Dear Resident:

You have received this letter because your property is in an area that is subject to repetitive flooding. The City is concerned about repetitive flooding in our community and has an active program to help you protect yourself and your property from future flooding. Here are some things you can do:

1. Check with the Building Department.
  - Department staff can tell you about causes of repetitive flooding, what the City is doing about it, and what would be an appropriate flood protection level.
  - City staff can visit your property to discuss flood protection alternatives.
  - There are Federal grants available through the City for repetitively flooded structures.
  - Note that some flood protection measures may need a building permit and others may not be safe for your type of building, so be sure to talk to the building department before implementation.
2. Prepare for flooding by doing the following:
  - Know how to shut off the electricity and gas to your house before a flood comes.
  - Make a list of emergency numbers and identify a safe place to go.
  - Make a household inventory, especially of the lowest floor contents.
  - Develop a disaster response plan. See the Red Cross' website at [www.redcross.org](http://www.redcross.org) for information about preparing your home and family for a disaster.
  - Get a copy of *Repairing Your Flooded Home*. A copy is available for review at your public library and can be found on the Red Cross website.
3. Protect yourself from flooding.
  - Purchase a flood insurance policy.
  - Homeowner's insurance policies do not cover damage from rising water, however, you can purchase a separate flood insurance policy for coverage. You may qualify to receive a reduction in your flood insurance premium because your community participates in the National Flood Insurance Program's Community Rating System.
  - More flood protection information can be found at FEMA's website, [www.floodsmart.gov](http://www.floodsmart.gov).

What the City is doing for you:

The City has a flood hotline and website for all your flood related questions, call 727-893-SAVE (7283) or visit [www.stpete.org/flood](http://www.stpete.org/flood) for pertinent information regarding the City of St. Petersburg and flood insurance.

During the first quarter of 2016, City staff will be visiting your neighborhood in order to collect basic preliminary data, review the potential cause of repetitive flooding, and determine possible mitigation measures available. The findings of this report will be presented to the City Council during 2016 and published in the media.

Your input is greatly appreciated, please send flooding concerns to:  
[noah.taylor@stpete.org](mailto:noah.taylor@stpete.org) or call 727-893-SAVE (7283)  
Be sure to include your address and contact information!

## **APPENDIX B: HOMEOWNER'S COMMENTS\***

- A Homeowner reported that their street must be roped off at the end because of deep water with every storm, many times deep enough to paddle a canoe. They also mentioned that an elevated house on fill that may be causing more flooding issues.
- A Homeowner reported that the flooding is worse since they put in the sea wall.
- A neighbor mentioned that barnacles keep the back flow preventers from doing their job.
- Homeowner reported water has come up near neighbor's house, excessive heavy rains,
- Homeowner reported flooding at 89th Avenue after you come off of Sunlit Cove.
- One homeowner mentioned that prior to storm vaults the street didn't flood as much. Now the area is hard to access roads, both in and out. Often the street is blocked off area to flooding so vehicles can drive through.
- Another homeowner commented about where the seawall ends and how they made it higher but it doesn't help the problem.
- A homeowner mentioned that the pine trees plug up the storm drain and the city doesn't come out and clean enough.
- A homeowner reports that the drain at the end of Diagonal Road North, near the stop sign, often overflows and water comes in from the bay.

\*These comments were collected while in the field and from phone calls or emails.

CITY OF ST PETERSBURG



**st.petersburg**  
**www.stpete.org**

SHORE ACRES  
REPETITIVE LOSS AREA  
ANALYSIS

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DRAFT

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## **TERMINOLOGY**

**1% Annual Flood Chance:** The flood that has a one percent (1%) chance of being equaled or exceeded each year. Also known as the base flood or regulatory floodplane.

**Area Analysis:** An approach to identify repeatedly flooded areas, evaluate mitigation approaches, and determine the most appropriate alternatives to reduce future repeated flood losses.

**BFE:** Base Flood Elevation - The elevation of the crest of the base flood or one percent (1%) annual chance.

**CRS:** Community Rating System

**FEMA:** Federal Emergency Management Agency

**FIRM:** Flood Insurance Rate Map

**Floodway:** The channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

**Freeboard:** A factor of safety usually expressed in feet above the Base Flood Elevation (BFE) for purposes of floodplain management. Also known as the design flood elevation.

**GIS:** Geographic Information Systems

**Hazard Mitigation:** Any sustained action taken to reduce or eliminate long-term risk to life and property from a hazardous event.

**ICC:** Increased Cost of Compliance, a \$30,000 rider on flood insurance policies for policy holders located in the special flood hazard area that can be used to bring the structure into compliance in the event that it is substantially damaged by a flood.

**NFIP:** National Flood Insurance Program

**Repetitive Loss property (RL):** An NFIP-insured property where two or more claim payments of more than \$1,000 have been paid within a 10-year period since 1978.

**Severe Repetitive Loss Property (SRL):** A 1-4 family residence that is a repetitive loss property that has had four or more claims of more than \$5,000 or two claims that cumulatively exceed the reported building's value.

**Substantial Improvement:** The repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure either, (1) before the improvement or repair is started, or (2) if the structure has been damaged and is being restored, before the damage occurred.

## **EXECUTIVE SUMMARY**

### **Background**

The National Flood Insurance Program (NFIP) is continually faced with the task of paying claims while trying to keep the price of flood insurance at an affordable level. It has a particular problem with repetitive flood loss properties, which are estimated to cost \$3.5 million per year in flood insurance claim payments throughout the United States. Repetitive flood loss properties represent only 1.4% of all flood insurance policies, yet historically they have accounted for nearly one-fourth of the claim payments (over \$9 billion to date). Mitigating these repeatedly flooded properties will reduce the overall costs to the NFIP, the communities in which they are located, and the individual homeowners. The City of St. Petersburg conducted an area analysis based on the Repetitive Loss Area Analysis, as described on page 5 of this report and in accordance to the Community Rating System. This area analysis follows FEMA guidelines to determine why an area has repeated flood losses and what alternative flood protection measures would help break the cycle of repetitive flooding.

### **Study Area**

The repetitive loss area analysis is a detailed mitigation plan for a repetitive loss area. The study area for this report is located in the Shore Acres area, stretching from approximately 62<sup>nd</sup> Avenue North East, to Bayou Placido Boulevard North East, and in-between Shore Acres Boulevard North East, to Jersey Street North East. There are 1539 structures in the study area. The majority of them are residential, with a fire station, school, church, care facility, and grocery store rounding out the rest. More information on these properties can be found on page 4 within the introduction.

### **Problem Statement**

Flooding is caused by high tides and heavy rains and is aggravated by two problems:

- The study area is low lying and close to the bay. Tidal flooding is a main cause of flooding within this area, especially when a major rain event coincides with a high tide.
- The storm drains are sometimes overgrown or otherwise unable to convey water correctly. Therefore water tends to drain slowly into the bay.

There have been some drainage improvements, but they have not stopped all flooding.

### **Recommendations**

- Encourage everyone to pursue a mitigation measure.
- Assist interested property owners in applying for a mitigation grant.
- Street cleaning or sweeping program to remove debris from street and drainage culverts.
- Seek out and secure funding for the drainage improvements outlined in this report.
- Improve the City's CRS classification.
- Installing individual backflow preventers at the street catch basin structure.
- Education campaign about keeping streets and drainage culverts clean.

### **For residents of the study area**

- Contact the City for more information about possible funding opportunities
- Review the alternative mitigation measures discussed in this analysis and implement those that are most appropriate for their situation.
- Purchase and maintain a flood insurance policy on the home and its contents.
- Report flooding hazards via See Click Fix or Mayor's Action line.

## INTRODUCTION

St. Petersburg is exposed to flooding from hurricanes, tropical storms, storm water runoff, and storm surges from Tampa Bay, Boca Ciega Bay, and the Gulf of Mexico, as well as flooding from St. Joes Creek and many small lakes within the area.

St. Petersburg is mostly flat with some rise towards the center of the peninsula, creating areas where water runs very quickly to the bay and other areas where it drains away slowly. There are several communities built over bayous and along the coastline. Flooding of streets, yards, and buildings often occur from heavy rains in some areas.

In sum, areas of the City can be flooded from overwhelmed bayous, creeks, coastal sources, sheet flow, and local drainage ways. The official FEMA Flood Insurance Rate Map designates the Special Flood Hazard Areas (SFHA), the deeper riverine and coastal floodprone areas as A, AE, or VE zones and the entire City may be subject to flooding.

In most areas, especially outside the SFHA, flooding is relatively shallow. Residents have several days of warning before a coastal storm occurs and can take steps to protect themselves from flooding if they have necessary information.

There have been some drainage improvements, but they have not stopped all flooding. There are 1539 properties subject to flooding. Of these properties 243 are considered repetitive loss and have made 367 flood insurance claims for a total of \$13,513,902.68 since 1978. Within the 243 repetitive loss properties there are 29 severe repetitive loss properties with 129 claims for a total of \$2,968,922 since 1978.

Since flooding typically occurs over an area that may affect several buildings, determining a repetitive loss area may include homes not previously flooded, but are instead surrounded by those structures that have been repetitively flooded. This allows determination of drainage and may indicate where future homes may sustain flood damage. Additionally because repetitive loss structures are privacy protected by the federal government it is necessary to include surrounding homes, so as to maintain the privacy of those repetitive loss structures as per the Privacy Act of 1974.

The RLAA is part of the Community Rating System, which is a “voluntary incentive program that recognizes and encourages community floodplain activities that exceed the minimum National Flood Insurance Program (NFIP) requirements” (www.FEMA.gov). Participating communities are rewarded with reduced insurance premiums.

Repetitive Loss Area Analysis (RLAA): An Approach that identifies repetitive loss areas, evaluates mitigation approaches, and determines the most appropriate alternatives to reduce future losses.

Hazard Mitigation: Any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event.

Repetitive Loss Property (RL): An NFIP-insured property where two or more claim payments of more than \$1,000 have been paid within a 10-year period since 1978.

Severe Repetitive Loss Property (SRL): A 1-4 family residence that is repetitive loss property that has had four or more claims of \$5,000 or two claims that cumulatively exceed the reported buildings value.

## **THE PROCESS**

The repetitive loss area analysis is a detailed mitigation plan for a repetitive loss area. It provides more specific guidance on how to reduce damage from repetitive flooding than a community-wide floodplain management or hazard mitigation plan. Shore Acres was one of the two areas identified as a repetitive loss area. In order to better understand the issues in the area a process must be followed according to the NFIP CRS program.

The Community Rating System is a “voluntary incentive program that recognizes and encourages community floodplain activities that exceed the minimum National Flood Insurance Program (NFIP) requirements” ([www.FEMA.gov](http://www.FEMA.gov)). Participating communities are rewarded with reduced insurance premiums.

The FEMA-prescribed five step process for conducting an area analyses is as follows:

Step 1: Advise all the property owners in the repetitive flood loss area that the repetitive loss area analysis will be conducted to determine the problems associated with flooding.

Step 2: Contact agencies or organizations that may have plans that could affect the cause or impacts of the flooding.

Step 3: Collect data on the analysis area and each building in the identified study area within the neighborhood to determine the cause(s) of the repetitive damage.

Step 4: Review alternative mitigation approaches and determine whether any property protection measures or drainage improvements are feasible.

Step 5: Document the findings, including information gathered from agencies and organizations, and relevant maps of the analysis area.

## **STEP 1: NEIGHBORHOOD NOTIFICATION**

The first step in FEMA's five-step process is to notify the residents in the area about the project. On January 1, 2016 the City of St. Petersburg Community Rating System Coordinator sent out a letter to the homeowners introducing them to the project.

The letter asked homeowners to submit any flooding concerns to the CRS Coordinator via mail, email, or phone, and to include address and pertinent information. One thousand five hundred and thirty nine (1539) letters were mailed out, of which sixty-six were returned as undeliverable or wrong address.

Copies of the letter and homeowner comments can be found in Appendices A & B of this report.

## **STEP 2: COLLABORATION**

Coordination with relevant agencies, offices, and organizations is an important step in the analysis process. This step helps to open lines of communication among those interested in flood protection in the St. Petersburg area. The City collected information and data in order to complete this analysis from the Stormwater and Engineering Division, Construction Services and Permitting, and the Geographic Information System data provided from FEMA and Pinellas County.

## **STEP 3: DATA COLLECTION**

The third step in the process is the collection of data that pertains to the area; both as a whole and specifically about the causes of the repetitive flooding. The data was collected through coordination with several agencies and departments.

Although the entire city is flood prone, certain areas have been harder hit than others. Using repetitive flood insurance claims, the City has identified two repetitive loss areas, Shore Acres and Riviera Bay.

Of the 82,840 buildings in the City, 405 have been paid at least 2 claims of \$1000 over a 10 year period (FEMA's definition of a repetitive loss property). There are 37 structures on FEMA's repetitive loss list that have been relocated, elevated, or otherwise improved and are no longer subject to repetitive flood damage.

This report focuses on Shore Acres and the houses identified in the mapped repetitive loss area as depicted on the page 9 map.

## FLOOD INSURANCE DATA

There are two sources of flood insurance data that the City of St. Petersburg has reviewed. Those sources of data are:

- A. The Digital Flood Insurance Rate Map (DFIRM)
- B. Claims data

A. The Digital Flood Insurance Rate Map: The City of St. Petersburg Flood Insurance Rate Map, September 2003: A Flood Insurance Rate Map (FIRM), published by FEMA, shows potential flood risk according to zones of severity and is used in setting flood insurance rates. The regulatory floodplain used by FEMA for the floodplain management and insurance aspects of the National Flood Insurance Program (NFIP) is based on the elevation of the 1% annual flood chance or base flood. This type of flood has a 1% chance of occurring in any given year. For another frame of reference, the 1% annual flood has a 26% chance of occurring over the life of a 30-year mortgage. It is important to note that more frequent flooding does occur in the regulatory floodplain, as witnessed by the number of repetitive loss properties. The study area falls in only one flood zone: the more risky AE Zone.

The Base Flood Elevation (BFE) is the elevation of the 1% chance annual flood above mean sea level. In October 2015 St. Petersburg now requires two feet of freeboard. This means that all new or substantially improved residential construction must be at least two feet above the BFE. The BFE for the area is nine feet above sea level.

B. Claims Data: The Privacy Act of 1974 (5 U.S.C. 522a) restricts the release of certain types of data to the public. Flood insurance policy and claims data are included in the list of restricted information. FEMA can only release such data to state and local governments, and only if the data are used for floodplain management, mitigation, or research purposes. Therefore, this report does not identify the repetitive loss properties or include claims data for any individual property. Rather, it discusses them only in summary form.

The City of St. Petersburg obtained claims data from FEMA Region IV for all repetitive loss properties in the area. There are two hundred and forty-three (15.79%) properties within the 1539 property study area that qualify as repetitive loss. Of those two hundred and forty-three repetitive loss properties, twenty-nine are considered to be severe repetitive loss properties. Homeowners for the two hundred and forty-three repetitive loss properties have made one hundred and twenty-nine claims and received \$2,968,922 in flood insurance payments since 1978. The average repetitive flood loss claim is \$709,529.74.

It is likely that the data in this section understates the flooding problem for the following reasons:

1. NFIP records do not include claims data prior to 1978, so there could have been additional losses not shown here.
2. Policy holders may not have submitted claims for smaller floods for fear of it affecting their coverage or premium rates.
3. Only data for listed repetitive loss properties were reviewed. There could be other properties that have been repeatedly flooded, but did not have insurance at the time of the flood or did not submit claims.

The losses only account for items covered by the insurance policy. Things not covered include living expenses during evacuation, swimming pools, and automobiles.

## DRAINAGE INFORMATION

The City of St. Petersburg examined two areas of related information on the area's drainage. Those two areas are:

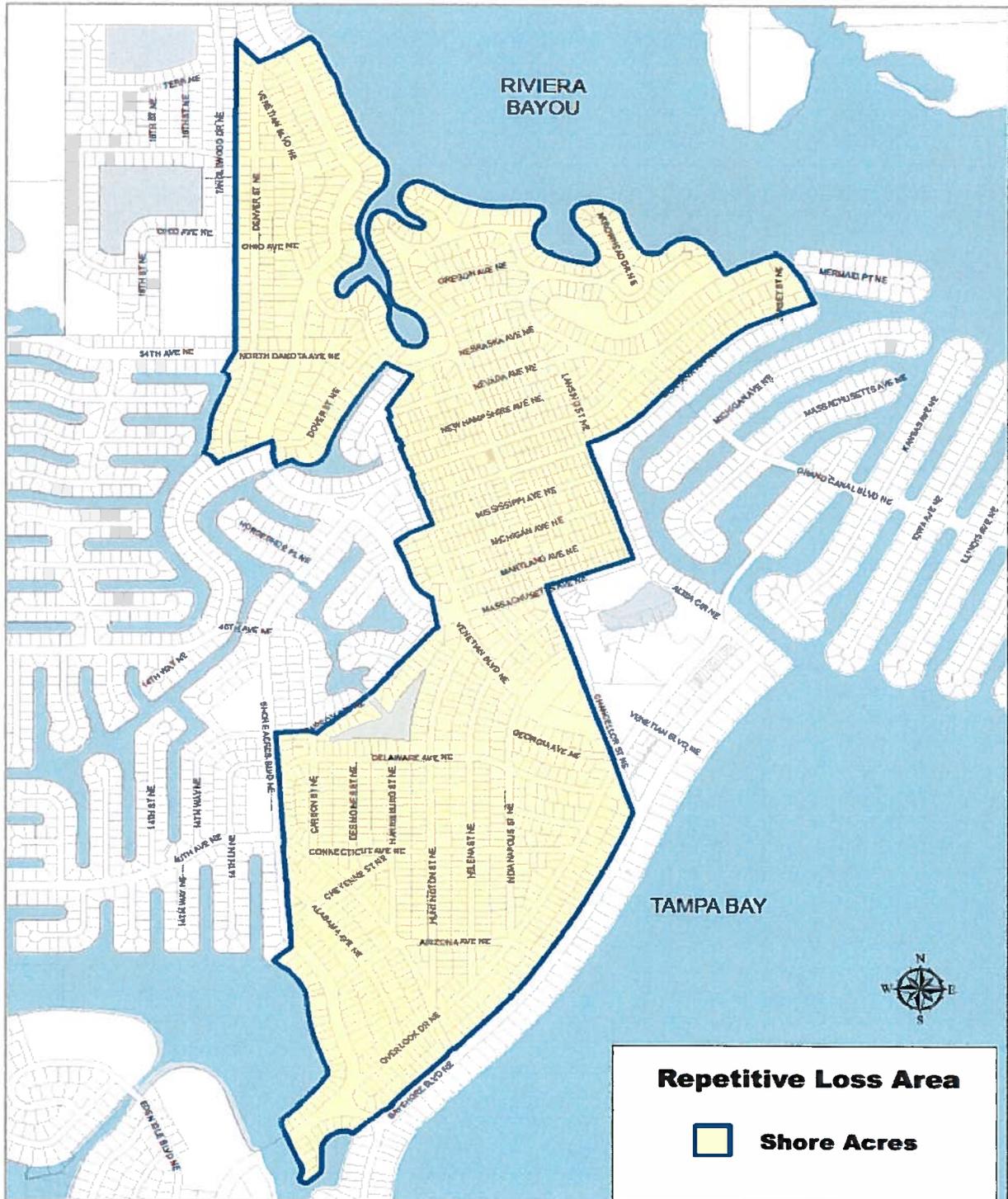
- A. Canals and Culverts
- B. Shore Acres Watershed

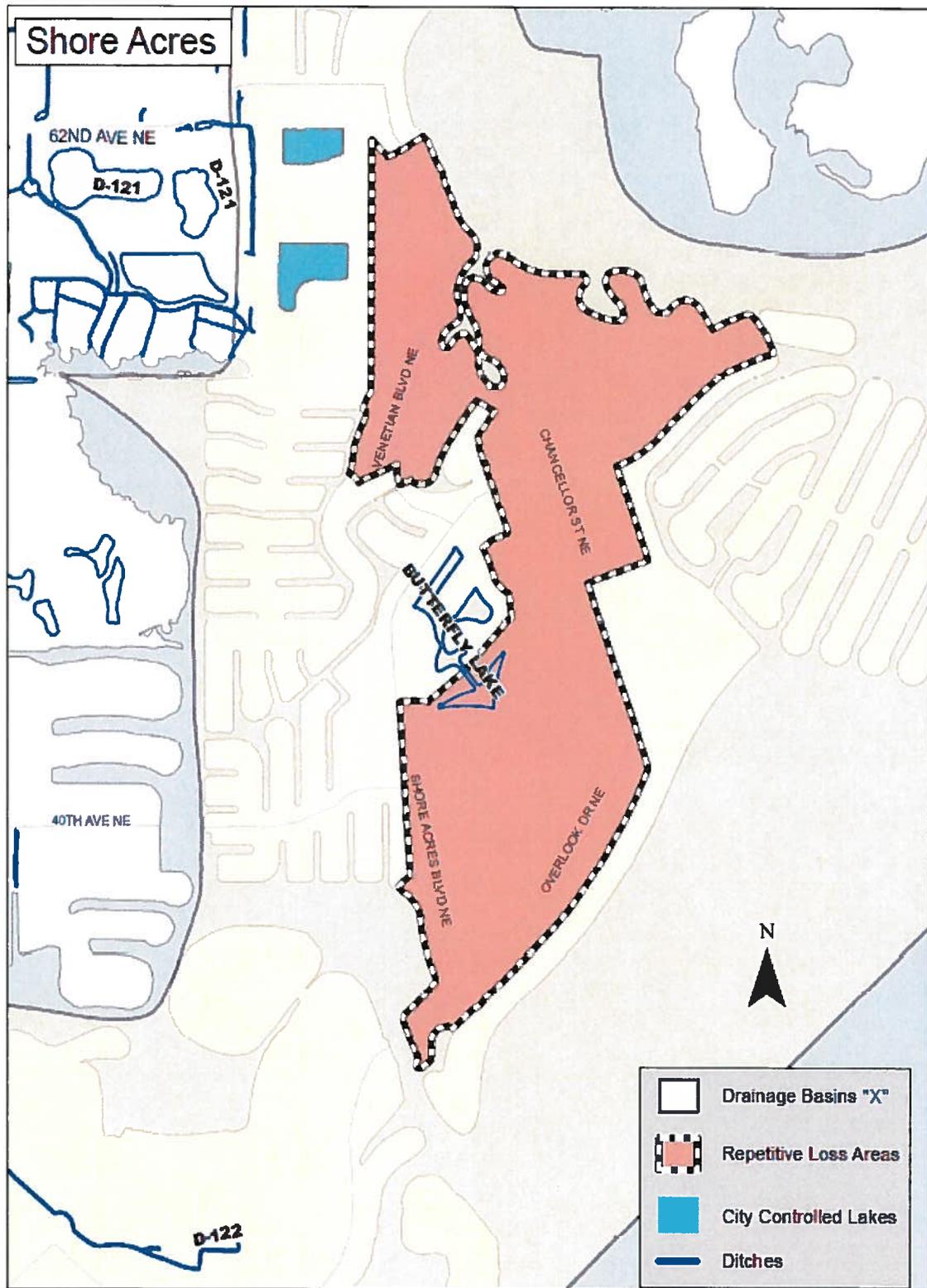
A. Canals and Culverts: The City of St. Petersburg relies on a number of canals and culverts to drain stormwater from the streets. The study area is directly south of Riviera Bayou which has a drainage area of roughly 416.48 square miles. There is Butterfly Lake and many canals that provide drainage to the area listed on the page 10 map.

Butterfly Lake and the canals are unable at this time to properly drain water during high tide events coupled with heavy rainfall. When it floods, this makes it difficult for residents in the study area to evacuate the area and to get to their residence. Additional flooding is caused from vehicles driving through the high water that then pushes the water into adjacent houses.

B. Shore Acres Watershed: This large watershed is over 416.48 square miles and drains in several areas to the bay. The drainage from the Shore Acres Watershed is not a major factor for flooding within this area. There are several drainage ditches, small lakes, and canals within the area that may absorb some of the watershed runoff, but not all. Additionally when these ditches, small lakes, and canals fill they could cause additional flooding throughout the area surrounding them.

MAPS





## BUILDING INFORMATION

As discussed in Step 1: A neighborhood notification letter was mailed out to the residents, informing them that an analysis was going to be conducted with reference to flooding. Of the 1539 properties to which letters were sent, sixty-six were returned to the City as vacant or otherwise undeliverable.

The residents who commented on the letter offered insight into the flooding issues in the area:

- Fourteen people reported some kind of street flooding and that their residence was inaccessible.
- Most flooding occurred during heavy rains and high tides.
- Residents have conflicting reports, some say that the drainage projects in the area have helped, while others seem to think they have caused more problems and moved the flooding to different roads.
- Residents report clogging of storm drains by grass clippings, sod, and other tree debris.
- None of the residents have reported taking measures to mitigate the cause of flooding on their own.

The complete list of comments from homeowner's can be found in Appendix B of this report.

From January 20<sup>th</sup> till March 30<sup>th</sup> the City visited the study area and collected data on each property. The City collected information such as the type of structure, construction, condition, the number of stories, drainage patters, and a photo.

One thousand two-hundred and nine structures in the area are built on a slab (79%), thirty-seven are on a crawlspace (2.4%), one hundred on a stem-wall (6.5%), nine were split level (0.6%), thirty-two were on posts/piers (2%), one hundred and nineteen are walkout levels (8%), and the remaining twenty-four either being vacant or unable to observe base (1.5%).

The majority of structures, one thousand two hundred and fifty-one (81%) are single-story, with one thousand one hundred and sixty-three built from masonry or brick (76%). The rest are vinyl/wood and seven manufactured homes.

Based on the data collected the following bullets summarize the repetitive flooding problems in the area:

- All the structures fall in the more risky AE Zone.
- Flooding is caused by heavy rains, but aggravated by two problems:
  - High tides
  - Poor street drainage
- There have been some drainage improvements made to the area, but they have not stopped all flooding.

There are 1539 properties subject to flooding. Two hundred and forty-three of the insured properties have been flooded to the extent that they qualify as repetitive loss structures under the NFIP. In the study area, twenty-nine of which are severe repetitive loss properties. These twenty-nine repetitive loss properties have made one hundred and twenty-nine flood insurance claims for a total of \$2,968,922 since 1978.

## **STEP 4: MITIGATION MEASURES**

Knowing the flooding history, type, and condition of the buildings in the area, leads to the fourth step in the area analysis procedure – a review of alternative mitigation approaches to protect properties from, or reduce, future flood damage. Property owners should look at these alternatives but understand they are not all guaranteed to provide protection at different levels of flooding. Six approaches were reviewed:

- I. Acquisition
- II. Elevating the houses above the 1% annual flood level
- III. Dry floodproofing
- IV. Utility protection
- V. Drainage improvements
- VI. Maintaining flood insurance coverage on the building

### **I. ACQUISITION**

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. Acquisitions are usually recommended where the flood hazard is so great or so frequent that it is not safe to leave the structure on the site.

An alternative to buying and clearing the whole subdivision is buying out individual, “worst case,” structures with FEMA funds.

A. Cost: This approach would involve purchasing and clearing the lowest or the most severe repeatedly flooded homes. If FEMA funds are to be used, three requirements will apply:

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

B. Feasibility: Due to the high cost and difficulty to obtain a favorable benefit-cost ratio in shallow flooding areas, acquisitions are reserved for the worst case buildings. 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. There is no reduction in expenses to maintain the neighborhood’s infrastructure for the City, although the tax base is reduced. The vacant lots must be maintained by the new owner agency, and additional expense is added to the community. If the lot is only minimally maintained, its presence may reduce the property values of the remaining houses. The City of ST. Petersburg is not considering acquisitions at this time for the above reasons.

## II. ELEVATION

Raising the structure above the flood level is generally viewed as the best flood protection measure, short of removing the building from the floodplain. All damageable portions of the building and its contents are high and dry during a flood, which flows under the building instead of into the house. Houses can be elevated on fill, posts/piles, or a crawlspace.

A house elevated on fill requires adding a specific type of dirt to a lot and building the house on top of the added dirt. It should be noted that St. Petersburg does not allow fill to be brought into the floodplain to elevate the house. Unless that fill is part of a stem-wall foundation.

A house elevated on posts/piles is either built or raised on a foundation of piers that are driven into the earth and rise high enough above the ground to elevate the house above the flow of flood water or the design flood elevation.

A house elevated on a crawlspace or enclosure is built or raised on a continuous wall-like foundation that elevates the house above the design flood level. It is important to include vents or openings in the walls below the design flood level that are appropriately sized: one square inch for each square foot of the crawlspace or enclosures footprint. Additionally all materials below the design flood level must be flood resistance and all machinery, equipment, and plumbing must be above the design flood level.

- A. Cost: A majority of the cost to elevate a building is in the preparation and foundation construction. The cost to elevate six feet is little more than the cost to go up two feet. Elevation is usually cost-effective for wood frame buildings on posts/piles or crawlspace because it is easiest for lifting equipment to be used under the floor and disruption to the habitable part of the house is minimal. Elevating a slab house is much more costly and disruptive. In St. Petersburg, 79% percent of the houses in the study area are on a slab. The actual cost of elevating a particular building depends on factors such as its condition, whether it is masonry or brick faced, and if additions have been added on over time. While the cost of elevating a home can be high, there are funding programs that can help. The usual arrangement is for a FEMA grant to pay 75% of the cost while the owner pays the other 25%. In the case of elevating a slab foundation, the homeowner's portion could be as high as \$25,000 or more. In some cases, assistance can be provided by Increased Cost of Compliance (ICC) funds, which is discussed on page 19 under Possible Funding Sources, or the use of state funds.
- B. Feasibility: Federal funding support for an elevation project requires a study that shows that the benefits of the project exceed the cost of the elevation. Project benefits include savings in insurance claims paid on the structure. Elevating a masonry or a slab home can cost up to \$100,000, which means that benefit/cost ratios may be low. Looking at each property individually could result in funding for the worst case properties, i.e., those that are the lowest below the base flood elevation, subject to the most frequent flooding, and in good enough condition to elevate.

### III. DRY FLOODPROOFING

This measure keeps floodwaters out of a building by modifying the structure. Walls are coated with waterproofing compounds or plastic sheeting. Openings (i.e. doors, windows, and vents) are closed either permanently, or temporarily with removable shields or sandbags.

Make the walls watertight. This is easiest to do for masonry or brick faced walls. The brick or stucco walls can be covered with a waterproof sealant and bricked or stuccoed over with a veneer to camouflage the sealant. Houses with wood, vinyl, or metal siding need to be wrapped with plastic sheeting to make walls watertight, and then covered with a veneer to camouflage and protect the plastic sheeting. Provide closures, such as removable shields or sandbags, for the openings; including doors, windows, dryer vents and weep holes. There must also be an account for sewer backup and other sources of water entering the building. For shallow flood levels, this can be done with a floor drain plug or standpipe; although a check valve system is more secure.

Dry floodproofing employs the building itself as part of the barrier to the passage of floodwaters, and therefore this technique is only recommended for buildings with slab foundations that are not cracked. The solid slab foundation prevents floodwaters from entering a building from below. Also, even if the building is in sound condition, tests by the Corps of Engineers have shown that dry floodproofing should not be used for depths greater than three feet over the floor, because water pressure on the structure can collapse the walls and/or buckle the floor.

Dry floodproofing is a mitigation technique that is appropriate for some houses in the Shore Acres study area: those with slab foundations that typically receive floodwater up to three feet in the house. From the fieldwork it was found that eighty-nine percent of the houses in the analysis area are on slab foundations, and according to the data sheet responses seventy-six percent of the respondents experienced three feet of flooding.

Not all parts of the building need to be floodproofed. It is difficult to floodproof a garage door, for example, so some owners let the garage flood and floodproof the walls between the garage and the rest of the house. Appliances, electrical outlets, and other damage-prone materials located in the garage should be elevated above the expected flood levels.

Dry floodproofing has the following shortcomings as a flood protection measure:

- It usually requires human intervention, i.e., someone must be home to close the openings.
- Its success depends on the building's condition, which may not be readily evident. It is very difficult to tell if there are cracks in the slab under the floor covering.
- Periodic maintenance is required to check for cracks in the walls and to ensure that the waterproofing compounds do not decompose.
- There is no government financial assistance programs available for dry floodproofing, therefore the entire cost of the project must be paid by the homeowner.
- The NFIP will typically not offer a lower insurance rate for dry floodproofed residences. However, this may be a viable option if homeowners want to protect their structure and contents.

- A. 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 from flooding. Owners can do some of the work by themselves, although an experienced contractor provides greater security. Each property owner can determine how much of their own labor they can contribute and whether the cost and appearance of a project is worth the protection from flooding that it may provide.
- B. Feasibility: As with floodwalls, floodproofing is appropriate where flood depths are shallow and are of relatively short duration. It can be an effective measure for some of the structures and flood conditions found in the study analysis area. It can also be more attractive than a floodwall around a house. However, floodproofing requires the homeowner to install or place door and window shields or sandbags and to ensure maintenance on a yearly basis. This may be difficult for the elderly or disabled. Finally ample warning of flooding must be available, so the homeowner can determine when to place the door or window shields and sandbags.

#### IV. UTILITY PROTECTION

This measure applies to several different utilities that can be adversely affected by floodwaters such as:

- Heating, Ventilation, and Air Conditioning (HVAC) systems
- Fuel meters and pipes
- Electrical service boxes, wiring and fixtures
- Sewage systems
- Drinking Water systems

Damage to utilities can prevent a residence that remains structurally sound after a flood from being reoccupied. Retrofitting utilities includes things as simple as raising them above the flood level and building small walls around furnaces and water heaters to protect from shallow flooding. According to the homeowner's data sheets, forty-one percent (41%) of respondents answered that they had moved utilities and/or contents to a higher level as a mitigation measure.

A. Cost: The cost for protecting utilities varies and is dependent upon the measure itself, condition of the system, structure, and foundation. A lot of the measures can be performed by the homeowners themselves, although it is always a good idea to consult a professional contractor and/or engineer (depending on the project). The costs can be lower when done as part of a repair or remodeling project. Residents interested in pursuing a retrofitting measure to protect their utilities should contact the City of St. Petersburg to determine whether a permit is required.

B. Feasibility: Given that the flooding experienced by the homeowners in the Shore Acres study area includes both shallow and deep flooding, utility protection is an acceptable mitigation measure. Interested homeowners should examine their flooding history and decide if utility protection is an appropriate measure for their building.

## V. DRAINAGE IMPROVEMENTS

The Engineering and Stormwater Department prepared a Master Drainage plan for the entire City of St. Petersburg. The Plan has a list of recommendations that were created after reviewing previous studies and reports. There are several different drainage improvements called for in the Plan.

<b>Date</b>	<b>Project Name/Description</b>
10/03/07	Shore Acres Water Quality & Flood Prevention Vaults
12/09/09	Shore Acres Stormwater Vaults Phase 2
12/09/09	Shore Acres Stormwater Vaults Phase 3
12/30/09	Shore Acres Stormwater Vaults Phase 4

These projects helped to reduce some of the flooding within the Shore Acres Repetitive Loss area. No other projects are currently proposed for this area.

## VI. MAINTAINING INSURANCE

Although insurance is not a mitigation measure that reduces property damage from a flood, a National Flood Insurance Program policy has the following advantages for the homeowner or renter:

1. A flood insurance policy covers surface flooding from the overflow of inland or tidal waters or from storm water runoff.
2. Flood insurance may be the only source of assistance to help owners of damaged property quickly pay for cleanup and repairs after a disaster. This ensures that people can get back into their homes faster than if they had to wait for disaster assistance funding, which often is in the form of a loan and may take months to pay.
3. Once in effect there is no need for human intervention. Coverage is available for the contents of a home as well as for the structure. Renters can buy contents coverage, even if the building owner does not buy coverage for the structure itself.

Cost: Flood insurance rates are based on several factors including what flood zone the building falls in and the age of the structure. All the homes in the study area fall in the AE zone. Homes constructed before December 31st, 1974 are “pre-FIRM” buildings, which means that they were built before the date of the first FIRM for the community, and are thus eligible for the “subsidized” flood insurance premium rates.

A building that is located in the AE flood zone and constructed or substantially improved after the date of the most current FIRM - such as one built or substantially improved – is required to be built above the base flood elevation and is therefore subject to rates based on the actual risk rather than a subsidized rate. Rates on pre-FIRM buildings are subsidized because the flood risk was unknown at the time of construction. If a pre-FIRM house in the SFHA is elevated to the design flood elevation, the owner will be able to take advantage of the much lower post-FIRM rates.

Communities that join the CRS complete floodplain management activities that are worth a certain amount of credit. The more credit earned, the better the class ranking of that community. The CRS has 10 classes; a Class ranking of 10 carries the lowest flood insurance premium reduction, whereas a Class 1 carries the maximum discount. The City of St Petersburg has a CRS Class of 6, which gives an effective discount of 20 percent to all flood insurance premiums for those within the SFHA. As of October 1, 2016, the City will be moving to a CRS Class 5 community with an effective premium discount of 25%.

## **STEP 5: FINDINGS & RECOMMENDATIONS**

### **A. Findings**

Properties in the Shore Acres study area are subject to flooding due to heavy rains, high tide, and drainage problems. When Sunlit-cove and the connecting canals are inundated by heavy rains, especially during high tides, it does not have the capacity to convey the water out of the area quickly enough. This is mainly due to backflow and that pipes are either under water or do not close due to barnacles. There is also concern over the drains being clogged from debris and unable to convey water from the street in a timely fashion.

### **B. Recommendations**

1. The City of St. Petersburg should continue to encourage everyone to pursue a mitigation measure. Assist interested property owners in applying for a mitigation grant. Address the issues with the street drainage in order to improve the drainage in the study area. Institute a maintenance program that encourages homeowners to frequently clear their ditches of debris to ensure open flow for stormwater. Seek out and secure funding for the drainage improvements outlined in this report. Improve the City's CRS classification and adopt this Repetitive Loss Area Analysis according to the process detailed in the CRS Coordinator's Manual.
2. For the residents of the study area, they should contact the City of St. Petersburg for more information about possible funding opportunities and site visits to determine remedial measures. Review the alternative mitigation measures discussed in this analysis and implement those that are most appropriate for their situation. Purchase and maintain a flood insurance policy on the home and its contents.

## **POSSIBLE FUNDING SOURCES**

There are several possible sources of funding for mitigation projects:

- A. FEMA grants: Most of the FEMA programs provide 75% of the cost of a project. In most Gulf communities, the 25% non-FEMA share is paid by the benefitting property owner. Each program has different Congressional authorization and slightly different rules.
  - 1. The Hazard Mitigation Grant Program (HMGP): The HMGP provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. Projects must provide a long-term solution to a problem (e.g., elevation of a home to reduce the risk of flood damages as opposed to buying sandbags and pumps to fight the flood). Examples of eligible projects include acquisition and elevation, as well as local drainage projects.
  - 2. The Severe Repetitive Loss Program (SRL): The Severe Repetitive Loss (SRL) grant program funds mitigation projects for properties on the severe repetitive loss list. Eligible flood mitigation projects include: Acquisition and demolition or relocation of structures that are listed on FEMA's severe repetitive loss list and conversion of the property to open space Elevation of existing SRL structures to at least the Base Flood Elevation (BFE). There is a new SRL ICC Program that can be used to cover the non-FEMA share of the cost. That program is discussed further in bullet C below.
- B. The Flood Mitigation Assistance Program (FMA): FMA funds assist States and communities in implementing measures that reduce or eliminate the long-term risk of flood damage to structures insured under the NFIP. Project Grants to implement measures to reduce flood losses, such as elevation, acquisition, or relocation of NFIP-insured structures. States are encouraged to prioritize FMA funds for applications that include repetitive loss properties; these include structures with 2 or more losses each with a claim of at least \$1,000 within any ten-year period since 1978.
  - 1. Pre-Disaster Mitigation Program (PDM): The Pre-Disaster Mitigation (PDM) program provides funds to states, territories, Indian tribal governments, communities, and universities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. For more information visit <http://www.fema.gov/government/grant/pdm/index.shtm>.
- C. Flood insurance: There is a special funding provision in the National Flood Insurance Program (NFIP) for insured buildings that have been substantially 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. ICC will pay up to \$30,000 to help cover elevation, relocation, demolition, and (for nonresidential buildings) floodproofing. It can also be used to help pay the 25% owner's share of a FEMA funded mitigation project.

The building's flood insurance policy must have been in effect during the flood. This payment is in addition to the damage claim payment that would be made under the regular policy coverage, as long as the total claim does not exceed \$250,000. Claims must be accompanied by a substantial or repetitive damage determination made by the local floodplain administrator. For more information, contact your insurance agent or visit: [www.fema.gov/plan/prevent/floodplain/ICC.shtm](http://www.fema.gov/plan/prevent/floodplain/ICC.shtm).

Coverage under the ICC does have limitations: It covers only damage caused by a flood, as opposed to wind or fire damage. The building's flood insurance policy must have been in effect during the flood

ICC payments are limited to \$30,000 per structure. Claims must be accompanied by a substantial or repetitive damage determination made by the local floodplain administrator and the structure must be in an A zone.

The average claims payment in the study area is \$16,511.58. With an average claim of that amount, it is not likely that many homes in the study area would sustain substantial damage from a flood event. Homeowners should make themselves aware of the approximate value of their homes, and in the case of incurring flood damage, be aware of the need for a substantial damage declaration in order to receive the ICC coverage.

**Severe Repetitive Loss ICC Pilot Program:** While the conventional ICC only covers buildings that are located in the Special Flood Hazard Areas (SFHA), there is a new pilot program that is aiming to target buildings not in the SFHA. Focusing specifically on Severe Repetitive Loss (SRL) buildings, this pilot program will offer ICC benefits to those SRL properties that are located in X zones and will include those SRL buildings that have grandfathered X zone rates. Under this new pilot program, the ICC benefits could be used to cover the homeowner's 10% match in a SRL grant.

Alternative language adopted into the local floodplain management ordinance would enable residents with shallower flooding to access ICC funding. Since local ordinances determine the threshold at which substantial damage and/or repetitive claims are reached, adopting language that would lower these thresholds would benefit the homeowners of repetitive loss properties. Adopting alternative language allows for cumulative damages to reach the threshold for federal mitigation resources more quickly, meaning that some of the properties in St. Petersburg that sustain minor damage regularly would qualify for mitigation assistance through ICC.

- D. **Rebates:** A rebate is a grant in which the costs are shared by the homeowner and another source, such as the local government, usually given to a property owner after a project has been completed. Many communities favor it because the owner handles all the design details, contracting, and payment before the community makes a final commitment. The owner ensures that the project meets all of the program's criteria, has the project constructed, and then goes to the community for the rebate after the completed project passes inspection.

Rebates are more successful where the cost of the project is relatively small, e.g., under \$5,000, because the owner is more likely to be able to afford the bulk of the cost. The rebate acts more as an incentive, rather than as needed financial support.

- E. **Small Business Administration Mitigation Loans:** The Small Business Administration (SBA) offers mitigation loans to SBA disaster loan applicants who have not yet closed on their disaster loan. Applicants who have already closed must demonstrate that the delay in application was beyond their control.

For example mitigation loans made following a flood can only be used for a measure to protect against future flooding, not a tornado. If the measure existed prior to the declared disaster, an SBA mitigation loan will cover the replacement cost. If the measure did not exist prior to the declared disaster the mitigation loan will only cover the cost of the measure if it is deemed absolutely necessary for repairing the property by a professional third-party, such as an engineer.

## APPENDIX A: LETTER TO RESIDENTS



City of St. Petersburg  
Planning & Economic Development Department  
Construction Services & Permitting  
January 2016

### IMPORTANT FLOOD HAZARD INFORMATION

Dear Resident:

You have received this letter because your property is in an area that is subject to repetitive flooding. The City is concerned about repetitive flooding in our community and has an active program to help you protect yourself and your property from future flooding. Here are some things you can do:

1. Check with the Building Department.
  - Department staff can tell you about causes of repetitive flooding, what the City is doing about it, and what would be an appropriate flood protection level.
  - City staff can visit your property to discuss flood protection alternatives.
  - There are Federal grants available through the City for repetitively flooded structures.
  - Note that some flood protection measures may need a building permit and others may not be safe for your type of building, so be sure to talk to the building department before implementation.
2. Prepare for flooding by doing the following:
  - Know how to shut off the electricity and gas to your house before a flood comes.
  - Make a list of emergency numbers and identify a safe place to go.
  - Make a household inventory, especially of the lowest floor contents.
  - Develop a disaster response plan. See the Red Cross' website at [www.redcross.org](http://www.redcross.org) for information about preparing your home and family for a disaster.
  - Get a copy of *Repairing Your Flooded Home*. A copy is available for review at your public library and can be found on the Red Cross website.
3. Protect yourself from flooding.
  - Purchase a flood insurance policy.
  - Homeowner's insurance policies do not cover damage from rising water, however, you can purchase a separate flood insurance policy for coverage. You may qualify to receive a reduction in your flood insurance premium because your community participates in the National Flood Insurance Program's Community Rating System.
  - More flood protection information can be found at FEMA's website, [www.floodsmart.gov](http://www.floodsmart.gov).

What the City is doing for you:

The City has a flood hotline and website for all your flood related questions, call 727-893-SAVE (7283) or visit [www.stpete.org/flood](http://www.stpete.org/flood) for pertinent information regarding the City of St. Petersburg and flood insurance.

During the first quarter of 2016, City staff will be visiting your neighborhood in order to collect basic preliminary data, review the potential cause of repetitive flooding, and determine possible mitigation measures available. The findings of this report will be presented to the City Council during 2016 and published in the media.

Your input is greatly appreciated, please send flooding concerns to:  
noah.taylor@stpete.org or call 727-893-SAVE (7283)  
Be sure to include your address and contact information!

## **APPENDIX B: HOMEOWNER'S COMMENTS\***

- According to homeowner they are the first ones to flood and last to drain. Many neighbors are fed up with the flooding and are selling their homes after 25 plus years of living there.
- Homeowner claims that a house that was built some years ago has caused more flooding. Needs some kind of trench on the side of the house as per other homeowner.
- Reported by homeowner that there has been flooding near the carport "den" area, water pooling in street is further spread from people driving in the street and causing the water to splash against the house. Only time it floods is from big storms in gulf
- Homeowner reported ponding in some areas of front yard and left side of house there is a lot of water that ponds in that area near foundation.
- According to homeowner when there is a full moon or high tide the street will flood.
- Homeowner wanted to know why new improvements were not working in Shore Acres.

\*These comments were collected while in the field and from phone calls or emails.

**ENERGY, NATURAL RESOURCES & SUSTAINABILITY  
PENDING / CONTINUING REFERRALS**

11-21-2016

<b>TOPIC</b>	<b>DATE REFERRED</b>	<b>REFERRED BY</b>	<b>RETURN DATE</b>	<b>STAFF RESPONSIBLE</b>	<b>SPECIAL NOTES</b>
Evaluation of the merits and budget considerations of utilizing an ICLEI Membership	5/7/15	Rice	11/17/2016	Sharon Wright	ICLEI pending Integrated Sustainability Action Plan (ISAP) moving forward; will determine at time of scoping or data gathering as it makes sense.
City-wide Green Fleets Initiative & Ordinance or Policy	4/7/2016	Rice	12/15/2016	Sharon Wright & Joe Krizen	Preliminary discussion to date while working with Police purchase.
Change city purchasing policy to require the use of renewable/recyclable products at city facilities and events.	3/17/2016	Nurse	12/15/2016	Sharon Wright & Louis Moore	Administrative policy revised; additional related policies will be reviewed/revised as part of comprehensive ongoing review.
Resiliency planning partnership & ISAP – scope, schedule, budget	7/14/2016	Kennedy/BFT	10/20/2016	Sharon Wright	On 11/21/2016 City Council Agenda for review/approval
Report on Central Chiller	7/14/2016	Kennedy/BFT	11/21/2016	Sharon Wright Lisa Glover-Henderson	Final Griner report deliverable: 11/22/2016

(No motion, but request). Receive briefing(s) for the recent emergency management plan.	7/21/2016	Montanari	11/17/2016	Sharon Wright & Chief Dean Adamides	2016 version with instructions for City Council Members have been delivered to Cindy. Full plan currently at print shop. Expect delivery end of Nov 2016. What is best format for presentation?
Staff set up a mechanism to capture energy savings to be re-invested in additional energy efficiency projects. Review Green Bond option.	9/15/2016 – updated 11/3/2016	Nurse	12/15/2016	Sharon Wright Claude Tankersly	Mechanisms will be researched, partly through energy analysis, if approved.
Staff to set up a presentation by local scientists for update on climate change information and efforts	9/4/2016	Kornell	1/19/2016	Sharon Wright	Initiated – contacts and coordination  Part of ULI Report Out 2017; Part of Earth Day outreach (April)
Discussion to increase tougher penalties on illegal grand/protected tree removal	8/25/2016	Rice	10/20/2016	Sharon Wright Liz Abernathy	
Approving the Repetitive Loss Area Analysis documents that evaluate the flooding hazards within the most severely flooded areas of the City of St. Petersburg; and providing an effective date.	10/13/2016		12/15/2016	Rick Dunn Noah Taylor	Staying on consent agenda, but looking for recommendation from ENRS – confirm in committee

<p>Consider what action the City can take to limit the use of vaping in public buildings and space.</p>	<p>11/2/2016</p>	<p>Nurse</p>	<p>2/2016</p>	<p>Sharon Wright Planning/Legal staff</p>	<p>Most FL bans ban all enclosed workplaces, including restaurants, exempting bars; brief internet research show that states that do not allow smoking in bars also do not allow vaping</p>
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