

CITY OF ST. PETERSBURG



REPETITIVE LOSS AREA ANALYSIS ANNUAL REPORT

2023

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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.

Special Flood Hazard Area: The land area covered by the floodwaters of the base flood is the Special Flood Hazard Area (SFHA) on NFIP maps. The SFHA is the area where the National Flood Insurance Program's (NFIP's) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies.

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 challenge with repetitive flood loss properties, which cost millions per year in flood insurance claim payments throughout the United States. Repetitive flood loss properties represent a very small percentage of all flood insurance policies, yet historically they have accounted for nearly one-fourth of the claim payments. Mitigating these repeatedly flooded properties will reduce the overall costs to the NFIP, the communities in which they are located, and the individual homeowners.

The City of St. Petersburg conducts a yearly analysis based on the Repetitive Loss Area Analysis (RLAA) data, as described in this report and in accordance with the Community Rating System (CRS). This annual 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. This annual report provides information citywide for all areas with repetitive losses, in accordance with recommendations from FEMA and the CRS program.

Study Areas

Four Repetitive Loss Areas were identified within the City of St. Petersburg in accordance with the principals outlined in the CRS guidance titled *Mapping Repetitive Loss Areas* dated August 15, 2008. A total of 969 structures were included within the RLAA. The majority, classified as residential.

Problem Statement

The identified Repetitive Loss Areas in the City of St. Petersburg are primarily vulnerable to tidally influenced or storm surge flooding. Secondly, flooding occurs due to structures being built below the base flood elevation and/or stormwater infrastructure capacity challenges.

Recommendations:

- Inform homeowners and businesses on the benefits of purchasing flood insurance.
- Encourage everyone to pursue a mitigation measure.
- Assist interested property owners who qualify in applying for a mitigation grant.
- Continue 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 and the forthcoming Stormwater Master Plan.
- Improve the City's CRS classification.
- Continue installing individual backflow preventers at outfalls.
- Education campaign about keeping streets and drainage culverts clean.

For residents of the study subareas:

- Contact the City for more information about possible funding opportunities or mitigation 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.
- Report flooding hazards via SeeClickFix or call 727-893-7111.

INTRODUCTION

St. Petersburg is exposed to elevated flood risk due to its geographic location and development history. An urbanized coastal city, resting on a peninsula, St. Petersburg experiences hurricanes, storm surge, and increased stormwater runoff. This runoff recedes into the surrounding waters of Tampa Bay, Boca Ciega Bay, and the Gulf of Mexico, as well as the City's network of small lakes and natural streams such as St. Joes Creek and Booker Creek.

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 areas built over bayous and along the coastline. Flooding of streets, yards, and buildings often occur from heavy rains and high tides 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); and coastal flood prone areas as A, AE, AO or VE zones and the entire City may be subject to flooding.

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

There have been some drainage improvements at specific locations, however, there are other locations which experience flooding. A more in-depth analysis regarding improvements is included in the Drainage Improvements section starting on page 17. Since flooding typically occurs over an area that may affect several buildings, establishing the boundary of a repetitive loss area may include homes which have-not been previously flooded but are adjacent to structures that have been repetitively flooded. This allows for an analysis of the area's natural drainage and man-made drainage systems and may indicate where homes are at risk for sustaining flood damage in the future. This system provides for an areawide boundary which includes both repetitive loss structures and non-repetitive loss structures intended to assist in maintaining the privacy for those property owners with repetitive loss structures under the Privacy Act of 1974.

The RLAA is part of the Community Rating System (CRS), 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. St. Petersburg is currently a Class 5 community with a 25% discount on flood 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. In order to better understand the issues in the area a process must be followed according to the NFIP CRS program. The analysis is updated annually with a detailed visual inspection of the area.

The FEMA-prescribed five step process for conducting an area analysis 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 areas and each building in the identified study areas 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. Each year the City of St. Petersburg sends out a notification to homeowners introducing them to the project.

The notification asked homeowners to submit any flooding concerns to the City via mail, email, or phone, and to include address and pertinent information.

Two-thousand, three hundred and forty-six (2,346) letters were mailed out.

A copy of the letter can be found in Appendix A. There were no immediate homeowner comments from the letter sent in early August. However, after Hurricane Idalia, staff has been receiving numerous e-mails and calls.

STEP 2: COLLABORATION

Collaboration and 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 City Engineering and Capital Improvements Department, City Construction Services and Permitting Division, FEMA (Geographic Information System data) 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 about a third of the city is flood prone, certain areas have been harder hit than others. Using repetitive flood insurance claims, the City has identified 4 repetitive loss subareas within the City, where 969 buildings have been the subject of at least two (2) claims of \$1,000 over a 10-year period (FEMA's definition of a repetitive loss property). There are 145 structures that have been the subject of four (4) claims or more of at least \$5,000.

This annual report focuses on the structures within the Repetitive Loss subareas as depicted on page 11 of this report. There are no detailed maps of each repetitive loss subarea, as per the Privacy Act of 1974.

FLOOD INSURANCE DATA

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

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

A. The Digital Flood Insurance Rate Map: A Flood Insurance Rate Map (FIRM) for the City of St. Petersburg, dated August 24, 2021, was published by FEMA and shows potential flood risks according to zones of severity. 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 majority of the subareas fall in only one flood zone: the riskier AE Zone. As of August 24, 2021, the new Coastal A zone has been added to the FIRM maps, this is a higher regulatory zone that can be found along the coastal areas.

The Base Flood Elevation (BFE) is the elevation of the 1% chance annual flood above mean sea level. Through a local technical amendment to the building code, St. Petersburg requires two feet of freeboard for all new or substantial improved structures, and 4-feet of freeboard for some multi-family buildings containing 3 or more units. This provides an added level of flood protection for all structures within St. Petersburg.

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

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management, mitigation, or research purposes. Therefore, this report does not specifically identify the repetitive loss properties or include claims data for any individual property and all data is provided in summary form.

The City of St. Petersburg obtained claims data from FEMA Region IV for all repetitive loss properties in the area. The following data is derived from the FEMA Repetitive Loss List (2023):

- Total Properties in a Special Flood Hazard Area (SFHA): 26,439
- Total Repetitive Loss Properties: 969 (982 total adjusted for 13 locations outside of City limits or PO Boxes)

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 was 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 dollar value of the losses only account for those items covered by the flood insurance policy. Items not covered, include living expenses during evacuation, swimming pools, and automobiles.

DRAINAGE INFORMATION

The City of St. Petersburg examined area drainage in the four subareas, North, East, South, West, where 100% of the affected structures are located.

Repetitive Loss Subareas with Repetitive Loss structure count within City of St. Petersburg:

SECTION	COUNT
NORTH	147
SOUTH	44
EAST	756
WEST	22
TOTAL	969

East Subarea: The analysis of the East subarea, which contains 756 repetitive loss structures, was split into three sections.

- A. Canals and Culverts
- B. Shore Acres Watershed
- C. Snell Isle

A. Canals and Culverts: The East subarea relies on several canals and culverts to drain storm water from the streets. The study area is directly south of Riviera Bayou and has a drainage area of roughly 3,920 acres. Butterfly Lake and many canals provide drainage to the area.

When heavy rainfall coincides with high tide events, Butterfly Lake and the canals cannot provide adequate drainage for the area. When there is street flooding, residents may be unable to evacuate or return to their residence. During more extreme wet weather events, structural flooding is exacerbated by vehicles driving through the high water, pushing the water into the adjacent houses.

B. Shore Acres Watershed: This watershed drains in several areas to Tampa Bay and is predominately low-lying. Drainage from the Shore Acres Watershed is not a major factor for flooding within the study area, but tidal conditions and storm surge are the primary cause of excessive periods of flooding. Surge conditions continue to be a threat during tropical events. There are several drainage ditches, small lakes, and canals within the area that absorb some of the watershed runoff. When these ditches, small lakes, and canals fill, or are inundated with higher tides, additional flooding is experienced throughout the area surrounding them. This watershed has many of its outfalls installed with back-flow preventers.

C. Snell Isle Watershed: Directly south of the Shore Acres neighborhood, Snell Isle is approximately 700 acres in area and is dependent on its stormwater system and one natural ditch near Appian Way NE for stormwater conveyance. While the elevation of Snell Isle is higher than neighboring Shore Acres, flooding does occur when high tides coincide with heavy rains along Snell Isle Blvd NE and Appian Way due to the open ditch overtopping its bank. With this intersection flooded residents must find alternative routes to exit and enter the community.

North Subarea: The analysis of the North subarea, with 147 repetitive loss structures, was split into three sections.

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

A. Sun-lit Cove: The Riviera Bay area relies on several canals and culverts to drain storm water from the streets. The study area is directly south of Sun-lit Cove which has a drainage area of roughly 2,240 acres. There is one major tributary to Sun-lit Cove, Ditch D-27, which runs west to east.

Sun-lit Cove canal is unable to convey tidal flooding and storm surge during major rain events the most serious of which occurs west of Riverside Drive North. When these areas flood, 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 watershed has a contributing area of over 6,540 acres and drains in several areas to the bay. Drainage from the Riviera Bay Watershed is not a major factor for flooding within the study area. There are several drainage ditches, small lakes, and canals within the area, D-27, D-21, D-23, L59, and L57, that absorb some of the watershed runoff. When these ditches and canals fill, they can cause additional flooding throughout the area surrounding them.

C. Riverside Canal: Residents have expressed concern about the Riverside canal and water backflowing into the streets during a high tide, storm surge and major rain events. Drainage pipes leading to the canal may no longer close correctly, preventing water from entering the pipes, due to barnacle and sediment buildup. Reports from residents indicate that even on sunny days during high tide there can be water on roads and other low-lying areas. During times of heavy rain, water often approaches the entrances of many homes, and some have flooded.

South Subarea: The analysis of the South subarea, which contains 44 repetitive loss structures, was split into five sections.

- A. Lake Maggiore Watershed
- B. Big Bayou Watershed
- C. Little Bayou Watershed
- D. Pinellas Point Watershed
- E. Maximo Watershed

A. Lake Maggiore has the largest watershed and encompasses over 3,380 acres. Most of this area drains direction into Lake Maggiore, which then discharges through a sluice gate to Salt Creek. The creek is brackish in nature and tidally influenced; therefore, the lake discharge capacity is reduced during high and king tide conditions. As such, surrounding neighborhoods are at risk of flooding and changing climatic conditions. The topography of the study area varies from high ground elevations to the northeast of around +/-17.60 FT NAVD88, to lower elevations of around 2.00 FT to 3.0 FT NAVD88 around 27th Avenue South, Pallanza Drive South, MLK Street South, Sunrise Drive South, and along the Lake Maggiore shore and surrounding neighborhood roads such as Miramar Way South, 42nd Avenue South, and 39th Avenue South.

B. Big Bayou Watershed to the east and is separated from Lake Maggiore's watershed through a ridgeline that runs in a north and south direction. Even though the neighborhoods along the ridgeline are at lower risk of flooding, the ground elevation drops close to the shoreline where existing roads are built low. Making them susceptible to coastal flooding from high tides or surges. This watershed also includes the Coquina Key neighborhood which has outfalls that discharge directly to tidal outfalls. While flooding from rain events is not a concern, this neighborhood has the same susceptibility to high tides and surge events.

C. Little Bayou Watershed is one of the smallest watersheds in this study area of only 536 acres. Its watershed is dominated by two lakes and a large open cut ditch that discharges to Tampa Bay. Due to the elevation change and high capacity of the channel, this watershed does not currently experience many flood events from rain or surges.

D. Pinellas Point Watershed is moderate in size and is 1,270 acres in size. Drainage in the area is mostly provided from the stormwater system with very few natural systems. Drainage is not a major factor for flooding, while the coastal portion of this watershed is influenced by tidal conditions.

E. Maximo Watershed includes highly urbanized and commercial land use sections with artificially created fill-island communities and large sections along US-19. This drainage in this neighborhood is provided by large pipe systems under US-19, Frenchman's Creek, and section of Clam Bayou nature preserve. When heavy rainfall coincides with high tide events, coastal communities in this watershed may experience some street flooding. The City has not received any regional flooding issues in this watershed.

West Subarea: This subarea contains the least amount of repetitive loss structures, with a total of 22, while having the largest watershed area, totaling approximately 7,950 acres of contributing area. In the analysis of this subarea, the City recognizes three sections that contribute to the repetitive flooding issues.

A. Natural Channels

B. Lake Systems

C. Roadway and Stormwater Capacity

A. Natural Channels: The west subarea has relatively few drainage issues that cause flooding. However, it's natural channels, Bear Creek to the south, and Joes Creek to the north, are primary conveyance channels for several watersheds in the subarea. There are a total of 5 watersheds in the west subarea, the largest being the Bear Creek watershed of over 3,000 acres. When heavy rains occur, the creek can be inundated and reach capacity in the upstream sections. Due to some engineered restrictions along the Creek, flood waters are attenuated in the lower elevations of the creek which flows into Boca Ciega Bay.

Joes Creek does not suffer from the same capacity issues as it is predominately located outside of St. Petersburg municipal boundaries having most of its capacity downstream of St. Petersburg. Most of its watershed is part of Pinellas County.

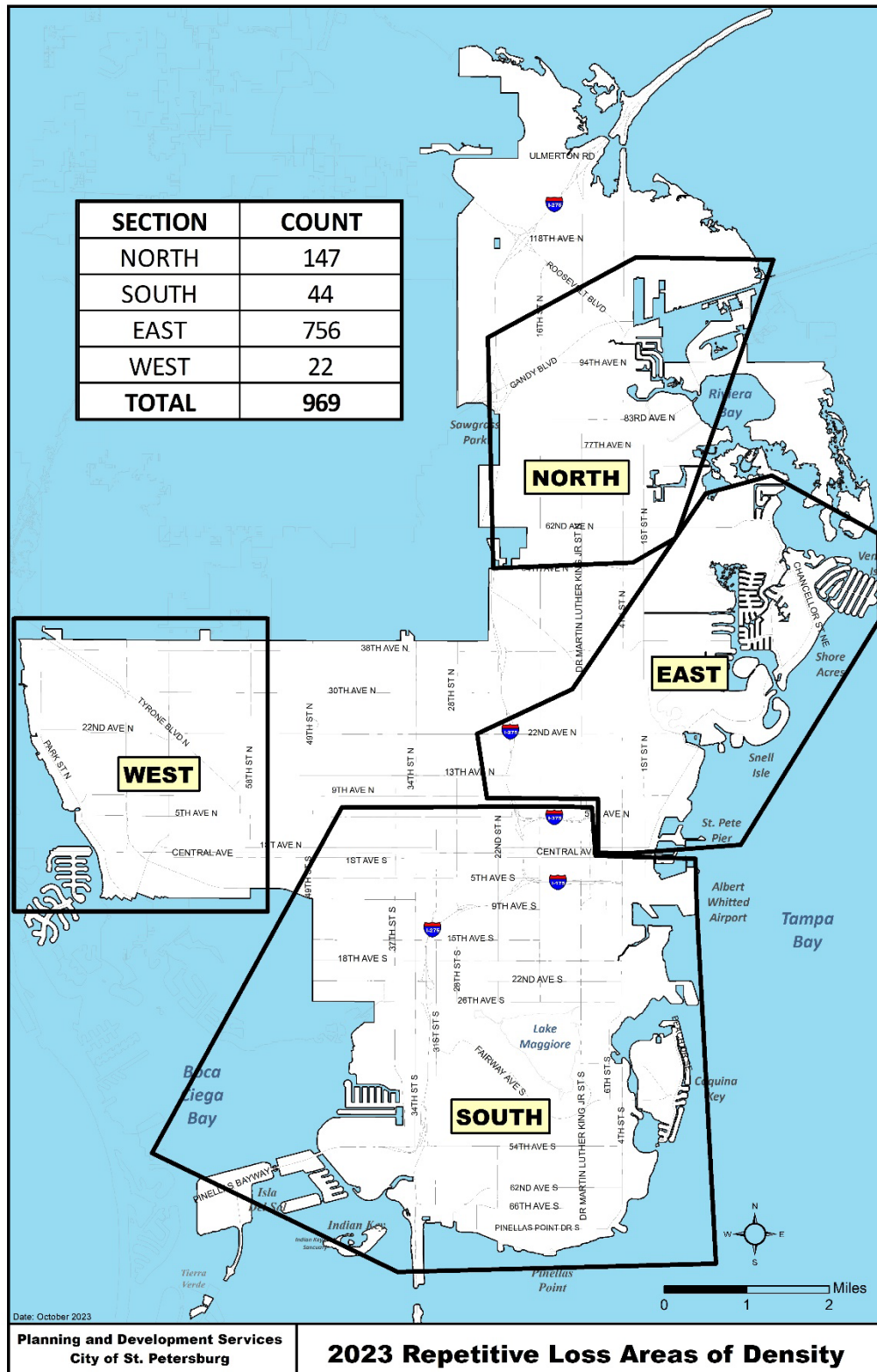
Finally, there are some coastal areas of this subarea that are impacted by rising tidal waters and storm surge of Boca Ciega Bay. Mostly confined to the areas along Park Street and the Jungle Prada and Terrace Neighborhoods. Drainage is reliant on adequate fall and when tidal waters are high, flooding can persist. Some small natural channels with low seawall heights exist in these areas which are impacted in the same way.

B. Lake Systems: Over a dozen small lakes with several large lakes are part of the drainage system in the west subarea. Large lakes include Jungle Lake, Eagle Manor Lake, Eagle Crest Lake, Bear Creek Lake, and Pasadena Lake. Many of the lakes contain control structures which can be inundated or partially blocked when heavy rains occur. This can cause flooding upstream of the lakes or subbasins and backflow into nearby neighborhoods. Some lakes have discharge capacities limited by the downstream stormwater system being undersized for the current level of development.

C. Roadway and Stormwater Capacity: the final aspect of the west subarea analysis is rooted in the high-density residential land use that dominates all watersheds in this subarea. Because of the previously mentioned natural channels and lake systems, inadequate capacity and physical space limitations exist in this subarea that limits increases in drainage capacity. Many localized flooding issues are exacerbated by conditions many miles downstream which can cause street flooding. Aging roadways also contribute to flooding conditions where there is settling or inadequate elevation to move the water into nearby lakes or systems.

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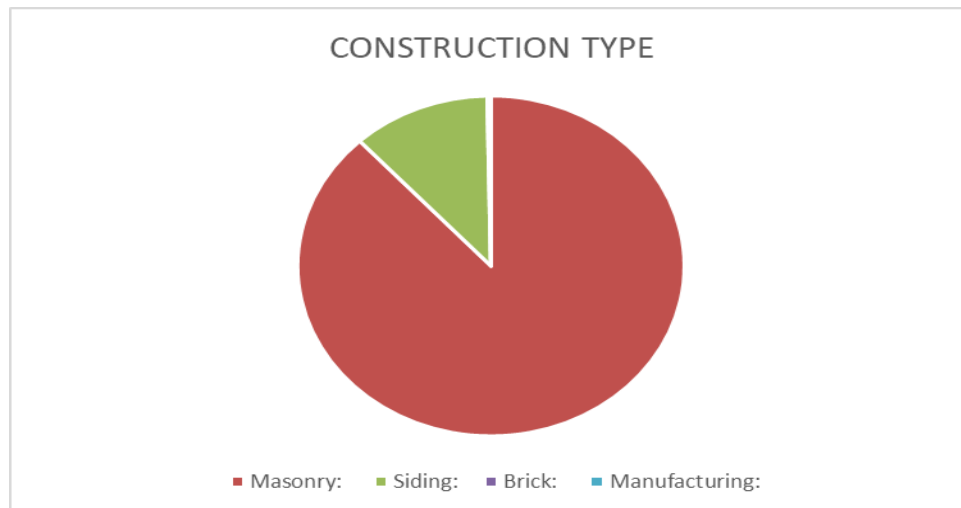
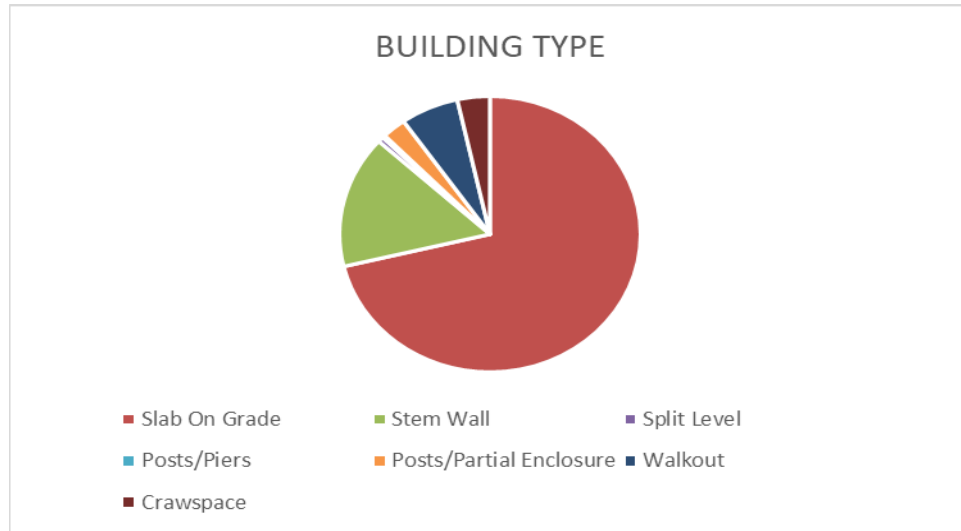
REPETITIVE LOSS CITYWIDE SUBAREA MAP



BUILDING INFORMATION

In September 2021, the City visited the subareas and collected data on each property including building type, construction type, condition, the number of stories, and drainage patterns.

The following charts depict the building classifications within the study areas. Most of structures are single-story, slab on grade, constructed from masonry. These slab on grade structures are more prone to flooding.



CONCLUSION OF DATA COLLECTION:

Based on the data collected, structural flooding occurred in the Four Repetitive Loss Areas due to the following factors:

- Heavy Rain
- Tidal Influence
- Storm surge.
- Topographic challenges.
- Stormwater system conveyance restrictions

The majority of structures that experienced repetitive loss are slab on grade construction, built prior to the Floodplain management regulations adopted in 1972.

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 and demolition.
- II. Elevating the structure at least 2 feet above Base Flood Elevation (BFE)
- III. Dry floodproofing, including the use of a barrier system.
- IV. Utility protection
- V. Drainage improvements
- VI. Maintaining flood insurance coverage on the structure

I. ACQUISITION

This measure involves buying one or more properties and clearing the site. If there is no structure subject to flooding, there is no flood damage. Acquisitions and demolition are usually recommended where the flood hazard is so great or so frequent that it is not safe to leave any structure on the site.

An alternative to buying and clearing the whole study area is buying out individual, “worst case,” structures with FEMA funds. Both cost and feasibility need to be considered in this mitigation option.

- 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 then be maintained by the City, 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 buildings.

Based on the cost and feasibility considerations noted above, the City of St. Petersburg is not currently considering mitigation via acquisition at this time.

II. ELEVATION

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

A structure elevated on fill requires adding a specific type of soil to a lot and elevating the structure on top of the added fill. It should be noted that St. Petersburg does not allow fill to be brought into the floodplain to elevate residential structures unless that fill is contained inside the perimeter of a stem-wall foundation.

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

A structure elevated on a crawlspace or enclosure is built or raised on a continuous wall-like foundation that elevates the structure 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. Cost and feasibility of this mitigation approach are as follows.

- C. Cost: Most of the cost associated with elevating a building is in the preparation of the structure and construction of the foundation. Elevation is usually cost-effective for wood frame buildings on posts/piles or crawlspace where lifting equipment can be used under the floor and disruption to the habitable part of the building is minimal. Elevating a slab on grade structure is more costly and disruptive. The actual cost of elevating a building also depends on factors such as its condition, whether it is masonry or brick faced, and if there have been additions to the original structure. While the cost of elevating can be expensive, FEMA grants can be used to pay for up to 100% of the cost, with the property owner responsible for the remaining 0% in some cases. In the case of elevating a slab foundation, in some cases, assistance can also be provided by Increased Cost of Compliance (ICC) funds, which are discussed on page 20 under “Possible Funding Sources”, or through state funds.
- D. 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 well over \$100,000, which means that benefit/cost ratios may be lower in some instances. 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 suitable 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.

Making walls watertight 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 with a veneer to camouflage the sealant. Buildings 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. Another method is to provide closures, such as removable shields, for the openings, including doors, windows, dryer vents and weep holes. There must also be a provision 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, or through a more secure check valve system.

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. Tests by the Army 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 may be appropriate, but is not approved by the Construction Services Division, for some residential structures in the study areas. Commercial structures are allowed to dry floodproof with an engineering analysis. It should be noted that not all parts of the building need to be floodproofed. It is difficult to floodproof a garage door, so some owners let the garage flood and floodproof the walls between the garage and the rest of the structure. Appliances, electrical outlets, and other damage-prone materials located in the garage should be elevated above the expected flood levels.

It should also be noted that, floodproofing of residential structures does not allow a homeowner to circumvent the FEMA 49% rule or the building code. They must still follow all applicable regulations and the Floodplain Ordinance for the City.

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

- It usually requires human intervention, i.e., someone must be available 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 program available for dry floodproofing, therefore the entire cost of the project must be paid by the building owner.
 - The NFIP will typically not offer a lower insurance rate for dry floodproofed residential structures. However, this may be a viable option if homeowners want to protect their structure and contents.
 - This mitigation method may not be effective in limiting damage during surge/wave impact events.
- A. Cost: The cost for a floodproofing project can vary according to the building's construction and condition. Costs depend on how secure the owner wants to be from flooding. In some cases, such as sandbags or protective barriers owners can do parts of the work 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 or 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 for the areas. It can also be more attractive than a floodwall around a house. However, floodproofing requires the owner to install or place door and window shields 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 owner can determine when to deploy the floodproofing measures.

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 building, that remains structurally sound after a flood, from being reoccupied. Retrofitting utilities includes things as simple as raising them above the flood level or building small walls around furnaces and water heaters to protect from shallow flooding.

- A. Cost: The cost for protecting utilities varies and is dependent upon the measure itself, condition of the system, structure, and foundation. Several measures can be performed by owners, although it is always a good idea to consult a professional contractor and/or engineer (depending on the project). Costs can often be lower when done as part of a repair or remodeling project. Those 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 owners in the study areas includes both shallow and deep flooding, utility protection is an acceptable mitigation measure. Interested owners should examine their flooding history and decide if utility protection is an appropriate measure for their building.

V. DRAINAGE IMPROVEMENTS

The Engineering and Capital Improvements Department currently has a Master Drainage plan for the City of St. Petersburg. This Plan is currently being updated to include current and proposed Sea Level Rise (SLR) projections. The current Plan has a list of recommendations that are implemented based on current site conditions. There are several different drainage improvements called for in the plan and Engineering continues to implement projects to eliminate or reduce the impacts from flooding.

CITY OF ST. PETERSBURG REPETITIVE LOSS AREA ANALYSIS

In the North subarea, one drainage improvement project has been completed and other improvements are ongoing.

Date	Project Name/Description
05/24/11	Riverside Dr Storm Water Vaults
8/2022	Pump Stations Backup Generators
5/2023	Pump Stations Upgrades
Ongoing	Backflow Preventers

In the East subarea, the City completed a Tidal Resiliency Project assessment in December 2018 which serves as a basis for future design work. Currently, the City is installing additional backflow preventers and is initiating design phases on projects for this subarea.

Date	Project Name/Description
10/03/07	Shore Acres Water Quality & Flood Prevention Vaults
12/09/09	Shore Acres Storm Water Vaults Phase 2
12/09/09	Shore Acres Storm Water Vaults Phase 3
12/30/09	Shore Acres Storm Water Vaults Phase 4
12/2018	Shore Acres Tidal Resiliency Project Assessment
Ongoing	Backflow preventers for stormwater culverts
11/2020	Basis of Design Report for Tide Gate at Butterfly Lake
2022	Locations for backflow preventers identified and Contractor selected. Installation is expected in Winter 2023
2023	Connecticut Avenue NE Resiliency Improvements – federal grant applications submitted, feasibility complete, and funded in FY 2023 for design phase

These completed and planned projects help to reduce flooding within the Repetitive Loss Areas. Maintenance for all projects and ongoing street sweeping continues for all areas.

In the South subarea, the City completed a Resiliency Study as well as a fast-track section of the Stormwater Master Plan. Planned projects include stream restoration and enhancement in Little Bayou, Bartlett Lake and Lake Maggiore outfall improvements, as well as road raising and resiliency measures such as backflow prevention and living shoreline initiatives.

In the West subarea, the City has analyzed improvement to Bear Creek conveyance and an on-going project along 1st Ave N and 58th Street N, along with a completed stormwater project at Jungle Lake which both increases capacity and water quality treatment. Future projects will be identified in the updated Stormwater Master Plan, which will focus on channel widening and conveyance improvements.

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 owner 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 or open businesses faster than if they had to wait for disaster assistance funding, which often is in the form of a loan and may take months or years to pay.
3. Once in effect there is no need for human intervention. Coverage is available for the contents, 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 structures in the study areas fall in the AE zone. Buildings 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 Community Rating System (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 currently has a CRS Class of 5, which gives a 25% discount to insurance premiums for structures within the SFHA.

STEP 5: FINDINGS & RECOMMENDATIONS

A. Findings

Properties in the study subareas are subject to flooding due to heavy rains, high tide, windstorm events and drainage challenges. The flooding of the subareas happens when inundated by heavy rains, especially during high tides, the stormwater system does not have the capacity to convey the water out of the area quickly enough. This is mainly due to reduced capacity to store and convey stormwater based on tidal impacts, low lying topography and/or poor drainage. There is also concern over the storm 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, and address the issues with the street drainage, institute a maintenance program that encourages owners to frequently clear their ditches of debris to ensure open flow for storm water, seek out and secure funding for the drainage improvements outlined in this report, improve the City's CRS classification and conduct the Repetitive Loss Area Analysis annually according to the process detailed in the CRS Coordinator's Manual.
2. Owners within the study subareas 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 discussed in this analysis and implement those that are most appropriate for their situation, and purchase and maintain a flood insurance policy on the structure and its contents.
3. The City of S. Petersburg, Engineering & Capital Improvements Department is proceeding with operational upgrades to the stormwater conveyance system to increase stormwater capacity and mitigate tidal impacts. While these measures will provide benefit during rain events, they will not be effective during surge events over seawalls.

POSSIBLE FUNDING SOURCES

There are several possible sources of funding for mitigation projects:

1. FEMA grants: Most of the FEMA programs provide 75% to 100% 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.
 - A. Hazard Mitigation Assistance Grant Program (HMGP): FEMA's Hazard Mitigation Grant Program provides funding to state, local, tribal and territorial governments so they can rebuild in a way that reduces, or mitigates, future disaster losses in their communities. This grant funding is available after a presidentially declared disaster.
 - B. Building Resilient Infrastructure and Communities (BRIC): The BRIC provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. Projects aim to categorically shift the federal focus away from reactive disaster spending and toward research-supported, proactive investment in community resilience. Examples of BRIC projects are ones that demonstrate innovative approaches to partnerships, such as shared funding mechanisms, and/or project design. For example, an innovative project may bring multiple funding sources or in-kind resources from a range of private and public sector partners. Or an innovative project may offer multiple benefits to a community in addition to the benefit of risk reduction. Through BRIC, FEMA continues to invest in a variety of mitigation activities with an added focus on infrastructure projects and Community Lifelines
 - C. The Flood Mitigation Assistance Program (FMA): The Flood Mitigation Assistance Program is a competitive grant program that provides funding to states, local communities, federally recognized tribes and territories. Funds can be used for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program. FEMA chooses recipients based on the applicant's ranking of the project and the eligibility and cost-effectiveness of the project. 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.
2. 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.

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.

Owners should make themselves aware of the approximate value of their structure, 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.

3. 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.

4. Rebates: A rebate is a program 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.

5. 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 necessary for repairing the property by a professional third-party, such as an engineer.

APPENDIX A: LETTER TO RESIDENTS

Dear St. Petersburg Property Owner/Resident:

You have received this letter because your property is in an area that has flooded several times. Storms and heavy rainfall can occur at any time in St. Petersburg, potentially subjecting your property to flooding from rivers and creeks overflowing their banks, stormwater runoff, king tides or storm surge. The City of St. Petersburg is concerned about repetitive flooding and is actively working to help you protect yourself and your property from future flooding.

As such, you may see City of St. Petersburg staff in your neighborhood inspecting conveyance systems and collecting data as part of our Floodplain Management and Stormwater Maintenance Programs. This information is evaluated and included in the Pinellas County Local Mitigation Strategy (LMS). The LMS is a community-wide plan that assesses local vulnerabilities and determines priorities for actions that will reduce consequences from both natural and man-made hazards. For more information or to view the plan, visit www.pinellaslms.org. In addition, the City of St. Petersburg has information and resources available to you. We recommend the following actions to prepare for and mitigate the impacts of flooding to your property.

Know your risk for flooding.

Everyone lives in a flood zone, the question is whether the risk is high, moderate or low. Determine if your property is in a high, moderate or low risk flood zone by visiting the City of St. Petersburg Flood Zones Application at www.gis.stpete.org/portal/home/ or the Pinellas County Flood Map Service at floodmaps.pinellascounty.org to view a collection of flood map apps. You can also find out if your property is susceptible to flooding from storm surge and how deep it could get, or whether you live near areas that have natural floodplain functions, like swamps or mangrove stands. These areas store floodwaters, buffer wave action and provide habitat for wildlife and other ecosystem functions.

Know your hurricane evacuation zone.

Remember, flood zones and hurricane evacuation zones are different. FEMA flood zones are used for assessing a property's flood risk, which can be caused by heavy rains as well as by tropical storms and hurricanes. Evacuation zones are based on a property's vulnerability to storm surge from a hurricane. To know when to evacuate for hurricane surge flooding, you must know your zone. Find your evacuation zone, routes and shelters at www.pinellas.gov/evacuation-zone.

Purchase flood insurance for your home, business or rental.

Did you know that most homeowners and renters' insurance policies do not cover damage from flooding or storm surge? This type of damage is usually covered by flood insurance from the National Flood Insurance Program (NFIP). It can flood anywhere it rains, so flood insurance is recommended even when not required by your lender. As a result of St. Petersburg's participation in the National Flood Insurance Program (NFIP) Community Rating System (CRS), you may be eligible for up to a 25% discount on your flood insurance premium. Look for your CRS discount on your flood insurance bill or ask your flood insurance agent. If you are not in a Special Flood Hazard Area, you may qualify for a lower-cost Preferred Risk Policy, often referred to as a PRP. Further information on flood insurance or to locate your nearest agent, visit the official site of the NFIP at www.floodsmart.gov.

Understand what is covered.

Did you know that there are separate flood coverages for the building and the building's contents, and that it usually takes 30 days for a policy to go into effect? Did you also know that an NFIP policy does not cover loss of use – the additional, temporary living expenses such as a hotel stay and meals after your home is flooded? It is important to understand what may be covered under your flood insurance policy. Pinellas County offers free flood insurance technical assistance from flood insurance specialists who provide reliable information about your flood risk, flood insurance options based on that risk and how to purchase a policy. Visit www.pinellas.gov/flood-insurance-technical-assistance for more information.

Protect your property.

Staff are available for one-on-one consultations about how to protect your property from flooding. You can schedule a consultation by contacting St. Petersburg's Floodplain Management Program at floodplain@stpete.org. Examples of property protection measures include:

- *Elevating electrical and mechanical equipment, such as water heaters and AC units above the design flood elevation.*
- *Checking and marking your fuse or breaker box to show the circuits to the floodable areas.*
- *Installing a sewer line check valve to prevent sewer backup flooding.*
- *Considering elevating your house above forecasted flood level. Financial assistance may be available through a FEMA Hazard Mitigation Assistance grant. Visit www.stpete.org/flood or contact floodplain@stpete.org for more information.*

Find out what building permits you may need and hire a licensed contractor.

Building permits protect our residents, the community and buildings by ensuring all proposed work complies with current codes, standards, ordinances and construction techniques. The City of St. Petersburg requires a permit for any new building or addition, alteration, remodel, demolition or scope of work valued at more than \$500.00, or that would otherwise require an inspection to ensure that all construction is safely completed.

Be aware of the substantial improvement rule (49% Rule).

Improvements to a structure where the work equals or exceeds 49% of the structure's value will require elevation or other mitigation to bring the structure to or above the design flood elevation. Houses substantially damaged by fire, flood or any other cause must be elevated above that level when they are repaired. For more information regarding substantial improvement and substantial damage, see Section 16.40.050 of the City of St. Petersburg Land Development Regulations available at www.municode.com. For general information on substantial improvement and substantial damage, FEMA Publication 758 is available for download from www.fema.gov.

Help prevent flooding by keeping storm drains clean.

Keep leaves, grass clippings and other debris out of storm drains and waterways to reduce pollution that can lead to algae blooms and fish kills. When storm drains get clogged with debris they can back up with water and flood yards and homes, too. Do your part. Remember, only rain down the drain. See Section 27-431 of the City of St. Petersburg Code of Ordinances available at www.municode.com for more information on prohibited discharges. To report illegal dumping, visit www.seeclickfix.com/st-petersburg or call (727) 893-7111.

Stay connected and prepare ahead.

Tune in to local news stations, NOAA weather radio stations 162.450 or 162.550 and follow the City of St. Petersburg on social media. For more information on the various platforms to connect, visit <http://www.stpete.org/connect-with-us>. Emergency alerts and notifications are also available by cell phone, landline, text and/or email through Alert Pinellas, a service from Pinellas County Emergency Management. Visit www.pinellas.gov/alert-pinellas for more information and to sign up.

Prepare ahead and get a plan.

Having a plan in place before a flood or hurricane occurs can help avoid confusion and prevent injuries and property damage. Prepare ahead and get a plan with the Ready Pinellas app, which has built-in readiness checklists and allows you to create a plan for yourself, your family and your pets. For more information, visit www.pinellas.gov/ready-pinellas, www.pinellas.gov/flood-information/flood-warning-system-notifications, www.ready.gov/flood or www.redcross.org.

More information on the City of St. Petersburg's Floodplain Management Program is available at www.stpete.org/flood, or by contacting us at floodplain@stpete.org or (727) 551-3562.

Sincerely,

Richard Benton, CFM

Floodplain Manager

APPENDIX B: COMMENTS*

Owner Comments from 2016

- 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.

Owner Comments from 2017

- Reported flooding in street New Hampshire and chancellor.
- Some flooding on Dover Street and Venetian with rain and high tides.
- Issues with flooding on Harrisburg & Connecticut.
- Flooding issues in the Bayou Grande Blvd Street, between Denver and Pennsylvania. Floods from 62nd towards Bayou Grande. Happens during high tide and heavy rain or combination.
- Denver Park has flooding from drainage ditch into homeowner's yard; ditch and drains seem to be clogged.
- Reported issue with standing water near Helena St Northeast, after high tides fill gutters.
- Flooding reported at the intersections of Venetian Blvd Northeast, during even the slightest rainstorm.
- Major concern about flooding that happens in Ponderosa Shores and on Dakota Ave Northeast.
- Reported that Helena and Delaware continuing east flood, where vehicles sometimes drive in yards to avoid flooded roads.
- Comment about worst section being 40th and Shore Acres Blvd by the pool and Shore Acres Blvd from the pool to 46th Ave Northeast. Also, Venetian Blvd/Bayou Grande and Chancellor/Grand Canal.
- Repetitive flooding at corner of Overlook Dr Northeast and Shore Acres Blvd Northeast.
- Significant change to flooding on Helena St Northeast after City put in new storm drains. Homeowner reports they are very happy with the improvements.
- After raising parts of home and floodproofing doors with barriers, homeowner reports that they have had little to no damage from flooding to their home. They have however, seen waves come under the doors from people creating wakes in the roads, when they drive past.
- Major flooding reported at Delaware and Carson Street. Homeowner would like to see people restricted in speed when streets are flooded to minimize wakes created. They also encourage the City to continue to upgrade backflow preventers and give incentives for people to build with sea level rise taken into consideration.
- Comment from homeowner as to why the southern section of Helena St Northeast has been mitigated, but the northern section hasn't seen any stormwater construction. They have flooding issues and would

like to see their taxes going to pay for flood mitigation to improve the storm drains along the northern section of Helena.

- Concerns over the sewer manhole covers and better seals was mentioned concerning Bayou Grande Blvd Northeast. Reported bubbling saltwater could be seen over the manhole covers.

Owner Comments from 2018

- Area is constantly flooded after small rainstorms and would like to see improved drainage in the area.
- Expressed interest about storm drainage systems with no back flow from residential areas to bay.
- City road drainage pipe is blocked open due to heavy amounts of debris and results in increased vehicle corrosion damage. The faulty drainage pipe also increases property degradation by killing grass and eroding soil due to vehicle traffic.
- During periods of flooding on Dover Street, Residents are forced to wade through unsanitary waters or risk of possible vehicle damage.
- Some properties on Venetian Blvd. have noticed perpetual standing waters under power lines.
- Homeowner that wanted to know if the city could put up “no-wake” signs in Shore Acres.
- Residents that live on Massachusetts Ave NE have expressed interest for the city to address the high tide problem areas, explicit concerns for Helena Street.
- Residents of Alabama Street have commented on the severity of flooding with average amounts of rainfall and are interested in city actions to correct this.
- Severe flooding by residents was reported at Arizona & Overlook Dr.
- Residents on Bayshore Blvd NE experience flooding in the streets during heavy rain fall and believes that this may be the result of a blocked or faulty drainage pipe.
- Some residents along Shore Acres Blvd NE have expressed interest in being involved at a community level in aiding the future planning of repetitive flood areas. There are also concerns about many of the surrounding drainage pipes being blocked or faulty.
- Residents have expressed concern about the condition of drainage systems on Chancellor and Massachusetts all the way up to Lansing and would like to see the roads repaired as well.

Owner Comments from 2019

- One comment from a homeowner about Arkansas Ave and Overlook Dr., with flooding concerns from 3 inches of rain. Storm drains in the street don’t seem to be effective.
- A resident on Alabama Ave NE, suffers from pretty bad flooding when it rains along with high tide and water has breached their garage pretty far up from the street during Tropical Storm Hermine a few summers back.
- Homeowner reports flooding issues in their neighborhood and especially on the corner of Arkansas and Cheyenne.
- Concerned homeowner on Shore Acres Blvd. reports: In the summer months and especially when a storm sits off the coast, the higher tides flood the street with salt water. That salt water corrodes the undercarriage of vehicles which causes premature and costly repairs. Additionally, because some local residents do not understand to drive slowly, the wave action caused by speeding cars cause erosion on property. City repairmen have attempted to replace the one-way valve in the drainpipes but to date, those repairs/replacement systems do not work, and they still report having salt water in the streets during high-high tides.

- There is constant flooding on the corner of Dover and N Dakota. The homeowners continually experience flooding with anything more than a rain shower. They claim that storm drains directly in front of their home in the last four years have never been cleaned or inspected once. The homeowners have made a request via phone to the city early in 2018 and that went without response. They are concerned the flooding is much broader than storm drain cleanings, but it's not a bad place to start. They notice debris from trees and surrounding yards have clearly found their way into the drains and certainly are not helping in the matter. Standing water has eventually even started to damage the asphalt road on the corner and expected to get worse especially as the summer rain season approaches.
- Homeowners on Connecticut Ave NE, who have been in their home for over 20 years report. We live on Connecticut Ave. NE, which is one of the main exit routes. Their concerns: Excessive speed of drivers who decide to drive through the flooded streets thus pushing water into their homes!!! Excessive speed in general...not just during flooding. Drivers detouring through yards and neighbors' yards to avoid high water at intersections causing property damage. Non-residents driving into the neighborhood to "SEE" the flooded streets thus pushing water into homes!!! The lack of barricades during these flood events to prevent drivers from going through high water. Two years ago, during a non-hurricane event...just an unusual high tide, a driver decided to go through the flooded intersection of Indianapolis and Connecticut...his car stalled. His stalled vehicle was pushed out of the intersection and into my yard. Instead of calling a tow truck, the driver continued to try and start his car over and over and over for the next 2 hours. It eventually caught on fire and burned up within minutes. Luckily no one was injured, and our home didn't catch on fire! Limiting incoming traffic to residents and emergency response vehicles would be helpful.
- Another homeowner commented that the Storm drains need to be cleaned, they are full of debris causing the flapper valves to be blocked so that the rain/wind push an enormous amount of water out into the streets. The worst of the flooding occurs at the intersection of Bayou Grande and Venetian Blvd.
- Homeowners living on Venetian Blvd NE mention they have gone through several tropical storms. It has been their experience that flooding occurs mainly in the spring and fall in the neighborhood due to a poorly designed run off system that overflows at high tide. For example, the street where Denver runs into Venetian Blvd and then runs to Bayou Grand always floods at high tide. The same thing happens with almost every intersection in the neighborhood. Often, the drains are plugged with foreign matter. The city seems to be slow to clean these drains on a regular basis. The same thing occurs on 62nd Avenue next to the golf course.
- Because one homeowners house sits on an incline the only water, we saw was Venetian flooded in front of our driveway. But Irma had two very interesting things happen. The first one is that the city closed off Shore Acres at an inopportune time. We got stuck in our house because we could not go back and forth to get supplies without the threat of being blocked from reentry. This is concerning because in a medical emergency, how in the world could we have gotten home or even to the grocery store? The city needs to rethink the access plan. Second in light of the hurricane and subsequent street flooding the city posted signs warning kids not to play in the water down around the Vinoy hotel and north towards Snell Island. No such warning was ever posted in Shore Acres. You are all lucky that a child did not get sick up here.
- After receiving the letter from the city a homeowner responded: We haven't experienced flooding up to the house since we moved here in October, but when the tide is high and it is raining, the street floods from the sewers (sometimes about 4 feet deep). It has flooded all the way up the driveway. We on Huntington St NE and near the corner of Connecticut Street.

- A homeowner had two suggestions the City take: Step1: stop bay water from backing into streets via sewer system. If there are drainpipes leading to the bay, cap them. If there are broken pipes, fix them. Step 2: install a 3” pipe a foot below street level with a pump that will shoot the water over the nearest sea wall. Attach it to a float switch so it automatically turns on when water rises just below street level. Most streets that flood here are within 200 feet of a sea wall.
- Severe flooding was reported on Massachusetts Avenue, between Chancellor and Huntington. Water seems to especially accumulate on the west side of the Massachusetts-Chancellor intersection proportionately to the east side of the same intersection, or any other area of the block for that matter. I believe there are a couple of correctable issues that are ancillary to the main issue of a low flood plain:
- The gutter on the west side of the Massachusetts – Chancellor intersection is constantly filled with debris. There is a very large Australian Pine tree, that has been cut back several times over that dumps a tremendous amount of organic debris on that gutter. This has caused backups when other low-lying areas of shore acres drain properly.
- There is always water in the gutter on the West Side of the Massachusetts – Chancellor intersection due to the buildup from chancellor street. The standing water is forced to evaporate because the gutter and street on that section of Massachusetts is lower than the gutter. The resident has personally shoveled the gutter along a neighbor’s side yard to allow that side of the street to drain. What I found was that the water will not drain even with the gutter completely cleared of debris, grass, etc., because it slopes up to the sewer. Thus, forcing the water to remain static on the side of the street.
- A current homeowner on Connecticut Ave NE states: I’ve noticed every time I run my sprinklers, or it’s rained, I will have standing water in the dip to my driveway. It dries up in the areas next to it but for some reason it’s deeper there than anywhere else. I was hoping with the recent letter about the city evaluating the flooding issues in my area that this could be fixed. I would like to get pavers in my driveway, but I’ve decided not to do so until this problem is fixed because of the tracks in the driveway my tires make as I pull in and run through the water. Connecticut Avenue also floods quite often even when it hasn’t rained, most likely due to high tide.
- Homeowner that lives on Shore Acres Blvd NE and Overlook Dr. explains: We have lived here for over 3 years and witnessed a lot of flooding along Shore Acres Blvd between Overlook and 40th Ave. We have had to use sick days from work on rainy days that correlate with a high tide. I ended up having to get a new car and my decision factored around one that was high enough off the ground that I could drive up my street in the rain. The flooding right at the stop sign directly in front of our driveway gets deep fast and people who did not realize the water depth have been stranded. We had someone park their car in our driveway overnight during a rainstorm and walk the rest of the way home because they had nowhere else to safely go in their car. We did get to experience paddling up and down our street in a tandem kayak during a tropical storm shortly after we moved in. Of course, that’s a tropical storm but I have seen flooding that resembles that with only a super high tide and barely any rain. When the sun is shining and the streets are flooded from solely a high tide is also concerning, and that happens frequently.
- A resident reported that the corner of Arkansas and Cheyenne ALWAYS floods after rain – and takes a very long time to drain out.

Owner Comments from 2020

- Last year, there were several days in which I was unable to get to (work) on time due to the tidal flooding on my street. My neighbors asked me to put together an initiative to illustrate to the city the specific problems we are having in the Southern Butterfly Lake Region of Shore Acres. In doing so, I have identified issues with the current strategy and am presenting a recommended course of action, specific to Shore Acres. We want to make sure that the "Storm Water Master Plan" is not a one size fits all solution and includes engineering efforts specific to our needs i.e., backflow preventers. I was going to wait until after we got through the Covid-19 Pandemic to drive this initiative but after watching one of my neighbors struggling to push her newborn through the muddy grass last week, I knew I had to act. Additionally, due to the reduced traffic, it makes sense to conduct urgent storm water and street maintenance now, prior to the summer floods. Understand that our neighborhood wants to work with the city to develop a solution and are not merely trying to complain.

Owner Comments from 2021

- I recently received your letter dated August 27, 2021, concerning flooding risk in my neighborhood. My wife and I have lived here for 20 plus years and until recently, experienced street flooding. In the past I noticed erosion and depressions in the soil in the areas between my south neighbor and my house. This is where a drainage line runs east/west from the street to my backyard where a north/south line drains to the canal to the north. The city finally came out and discovered the line had cracked and was allowing sand to occlude the line causing the street flooding. The City relined the pipe and we have no flooding or depressions anymore happily. Your letter states that we may see City staff looking at conveyance systems in my neighborhood. Please ask that they pay special attention to Miles Pine drainage canal which drains from 58th Street to Joe's Creek running east to west. this canal lies three blocks north of my house and as I said earlier, the drain in my backyard empties into this canal. My concern with this canal is the random growth of mature trees within the depth of the canal. I am worried that when the canal fills and is flowing, these trees pose a debris trap and potentially could contribute to slowing or stopping drainage flow. I have spoken with personnel with Pinellas County and St Petersburg about this and they basically feel that the trees provide stability to prevent erosion of the canal bank. My reply is, if this is so why is it random growth and not a planned planting of trees along the entire length of the canal?
- Dear Mr. Taylor, this letter is written in response to your August 27, 2021, letter. I have attached photos are the four storm drains located on Weedon Drive NE, west of San Martin Blvd. They were taken July 28, 2021, at 12:15 p.m. Beginning this spring, I twice reported these clogged storm drains on seeclickfix.com, but I do not believe that they have been cleaned. I thank you for your prompt attention to this matter. (Photos are not included in RLAA report but were sent to Stormwater and engineering.)

Owner Comments from 2022

- I am sure you know all about Shore Acres, but I wanted to remind the City that my corner (Arkansas and Cheyenne) is always terrible for water retention. I got flooded out about three years ago but not from a storm. It was a high wind event during a massive high tide, and I ended up with a half foot of water in my living room and library. The rest of the house is several steps higher so that was spared. After making repairs I did install a sump pump under the house which I hope will help in future. At any rate, I know the City will do its best to improve the infrastructure to keep us as safe as possible

- Per your letter dated August 25th, we have had flooding in the front of our home, in the road, up to 2' high at the curb. We live on Coffee Pot Bayou, on the water, and the front of the property floods ½ way up our driveway. Thank you.
- I received the letter from the City and am very happy to see something being done to help us. I have lived in my home at XXXX Cypress Way S since 2001 and have had flooding quite a few times over the years. Most of the time it's contained to the area surrounding my house, front yard and driveway. One time during that period it came just inside the garage. So far, the Fall of 2019 was the worst where during high tide the water came inside the garage and inside the house lower level. The street floods all the time at the storm drain located in front of my neighbors' house at XXXX Sunrise Drive S. I always thought if the sea wall was higher it could help. There is also a lot of damage around the sea wall directly at XXXX Sunrise Drive S. I attached a few pictures. Please contact me for more information.
- At my location during Eta (11/11/20) the water peaked at 4" inside my storage on the ground floor. My elevation Certificate states my low point at 4' 6" at garage entrance and my storage area is 6" above that point. Therefore, the peak reached 5'6" at my location. At that time the NOAA station at Old Port Tampa peaked at 6.34 feet. My flood insurance begins at 14 feet as it is a 3-story house. I had minor issues with a few wet boxes, a couple of pre-lit Christmas trees with light issues and the daughter's car needing a clean out and drying. Previous storms since 2012 never got into the garage. Hope this helps your data collection. if you have any questions reply or you may call. Unfortunately, we are flooding again today.
- I took these pictures about an hour ago and things have gotten worse. Coming over the seawall.

Owner Comments from 2023

- We were flooded in tropical storm Eta and then again, more severely, in Hurricane Idalia. My wife, Vanessa, and I have 3 kids, a 7-year old, a 6-year old and a 10-month old. The trauma to my family through the first and now the second flood has been significant. We love St. Pete and Shore Acres, specifically, and do not want to move but never want to go through this situation again. I wanted to contact you to ensure that we were not passed over for the grant and to make sure I know everything and do everything I need to best position my family to receive the grant. I want to fix our house to prevent any future flood insecurity.
- I live in Shore Acres at XXX Des Moines St NE. My current home has flooded twice in the past three years that I have owned it. I am trying to find a solution that I can afford on a teacher's salary. I went through SBA and tried to get a loan to build up or to build new entirely but was denied because my house is not 50% damaged. I recently heard there is a grant through FEMA to build upon our current structure. I would really appreciate some more information.
- Please help us, as we need some serious solutions in our neighborhood. We deal with flooding all the time here. When it rains hard or sometimes even just at high tide it will flood our streets. It starts most of the time at the corner of Sunrise Drive and 46th Ave South (4601 Sunrise Drive S). The drainage gets backed up and floods the streets past 2-3 houses. We deal with this at least once a week.

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