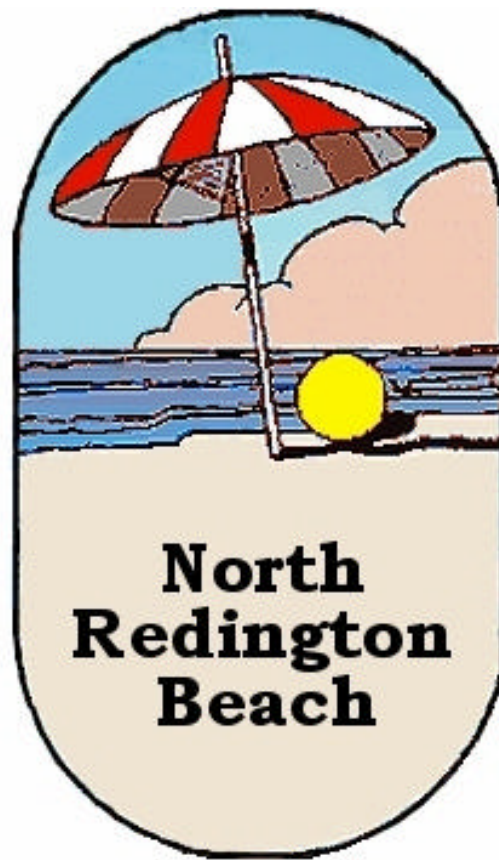


# North Redington Beach Floodplain Management Plan



Approved  
August 9, 2001

# North Redington Beach Floodplain Management Plan

A Report  
Prepared By The  
Floodplain Management Plan Committee  
And Submitted To The  
North Redington Beach Board of Commissioners

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## ***I. Introduction***

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North Redington Beach is a small coastal community located on Sand Key, a barrier island on the west coast of Pinellas County, Florida. The town is an active participant in the Community Rating System (CRS), a program encouraging communities to minimize flood loss through preventative measures. This program is administered through the Federal Emergency Management Agency (FEMA). Participating in the CRS not only reduces North Redington Beach's vulnerability to coastal flooding and educates the community on how to become more disaster resistant, it also helps residents save money. The Town of North Redington Beach is listed as a Class 8 CRS community. Because of the town's commitment to reducing flood damage through the CRS, residents and business owners in North Redington Beach are currently enjoying a flood insurance discount of 10% on insurance premiums provided through the National Flood Insurance Program (NFIP). In an effort to become a Class 7 community and lower Federal flood insurance premiums even more, the town is combining the Floodplain Management Plan (FMP) with other CRS activities.

Because of its geography, North Redington Beach is particularly vulnerable to coastal flooding. The most recent flooding episodes of the past few decades have been caused by tropical storms, winter frontal systems, and hurricanes. The town is currently classified as a Category B repetitive loss community because it has only five repetitive loss properties (a repetitive loss property is defined as a structure that has claimed damages of \$1,000 or more twice in any ten year period since 1978). While it is not required by the CRS program, the Town Commission was proactive in recommending the preparation of a Floodplain Management Plan.

### ***Statement of Purpose***

A FMP is a process-oriented activity that concentrates on flooding issues. The most important reason to prepare the FMP is to mitigate flood damage before it happens. This will reduce, or in some cases eliminate, the loss of life and property caused by flooding. It is also a means to draw citizens' attention to the flood hazard and potential damage. Another reason for preparing the FMP is to have a written plan which will serve three purposes. First, it will outline the potential flooding hazard and its causes. Second, it will describe activities that the town is engaged in or will be sponsoring to lessen the impact of flooding on buildings, infrastructure, and residents. Third, it will include a list of potential funding sources for pre-disaster and post-disaster mitigation for the town's officials and residents to reference (see Appendix E).

### ***Public Involvement***

The Town Commission supported the formation of a committee to discuss flooding problems, address potential solutions, and draft a document that could receive credit under CRS activity number 510. Commissioner Gary Curtis spearheaded the project

from the Commission side of the table with the help of Ms. Sharon Proehl, Deputy Town Clerk and CRS Coordinator for North Redington Beach. A motion to approve funding the preparation of the project as well as the project itself was passed at the June 8, 2000, Board of Commissioners meeting. At this meeting, the Board of Commissioners agreed to utilize the planning services offered by the Pinellas Planning Council (PPC) through the town's existing interlocal agreement with the PPC.

Minutes from this meeting can be found in Appendix B. Commissioner Curtis wrote a short article in the July 2000 edition of the North Redington Beach newsletter, which is distributed to each address in the community, describing the FMP process and objectives. Included in the article is a solicitation for interested residents and business owners to serve on the FMP Committee. This article can also be found in Appendix B. The committee met a total of six times from the beginning of September through December. The theme of each meeting was based on the topics recommended in the CRS Coordinators Manual:

- Setting Priorities, September 6, 2000
- Assessing the Problem, September 20, 2000
- Assessing the Hazard, October 4, 2000
- Reviewing Possible Activities, October 25, 2000
- Reviewing the Action Plan Draft, November 15, 2000
- Final Review, December 13, 2000

The core committee included six people: the town's Emergency Management Coordinator, Building Official, CRS Coordinator, a Commissioner, a business owner, and a homeowner. Because of the small town nature of North Redington Beach, some committee members provided comments and insights as both a staff person would and as a resident or business owner. The Emergency Management Coordinator, Commissioner, and business owner are also homeowners in North Redington Beach. Effectively, the committee comprised of four staff and four property owners. The Director of Pinellas County Emergency Management was able to join the committee at the third meeting to discuss hurricane preparation. Coordinating the drafting of the FMP for the town were two professional planners from the PPC. They acted as advisors and coordinators of the FMP process. This document reflects the committee's discussions regarding how to lessen the impact of flooding on town infrastructure and its residents. Their meeting agendas and minutes can be found in Appendix A.

The entire town is considered to be in the flood-prone area because of its location on a low-lying barrier island and almost every property is waterfront. The furthest distance any property in North Redington Beach is from the tidally influenced Boca Ciega Bay or the Gulf of Mexico is only 600 feet.

Because every owner of a flood-prone property could not be involved in the FMP process directly, the committee conducted a survey to obtain public input. Each address in the town was mailed a survey in the town's quarterly newsletter asking questions about the owner's experience with flooding. Approximately 500 surveys were

sent out and 93 residents responded, a response rate of 19%. Such a high rate of return is evidence of the community's sense of civic pride. A copy of the survey, as well as a compilation of responses, can be found in Appendix C. Based on the responses, most everyone is covered by flood insurance and many, despite the close proximity of water, have never been flooded. The survey also asked respondents to provide written comments describing the flooding areas, causes of flooding, and potential solutions. Many respondents reported the main problem in North Redington Beach is street flooding caused by storm surge that rises through the storm drains. These survey responses were very helpful in understanding the perceived flood threat among residents and business owners, as well as what the citizens think should be done to lessen the impact of coastal flooding.

On July 12, 2001, a public hearing was held in order to present the final draft to the Commission and to give all citizens an opportunity to comment on the plan. An advertisement was published in the *Neighborhood Times* section of the St. Petersburg Times on Sunday, July 8, 2001. Each repetitive loss property was sent a letter inviting them to attend the meeting as well. On August 9, 2001, the Commission adopted a Resolution formally adopting this document as North Redington Beach's Floodplain Management Plan (see Appendix B).

### ***Coordination With Other Agencies***

Flooding events are rarely confined to jurisdictional boundaries. Seeking information and insight from other agencies helped the committee understand what other government and regulatory agencies are doing to minimize the flood hazard in the Tampa Bay area. During the course of this process, many organizations were contacted, both formally and informally. The following agencies were sent letters requesting input at the beginning of the FMP development process:

- Army Corps of Engineers
- Florida Department of Community Affairs
- Pinellas County Emergency Management
- Southwest Florida Water Management District
- Tampa Bay Regional Planning Council

A copy of the letters that were sent as well as the responses can be found in Appendix D. The Pinellas County Planning Department was also helpful in providing demographic information for this document. Once the preliminary document was complete, drafts were sent to the National Flood Insurance Program State Coordinator, Project Impact Coordinator for the Tampa Bay area, Pinellas County Emergency Management Director, and the Pinellas County Planning Department for review and comment.

## **II. Description of North Redington Beach**

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### ***Physical Description***

#### **1. Geography**

North Redington Beach is a small town located on the west coast of Pinellas County in west central Florida. It is located on the barrier island Sand Key, bordered by Redington Shores to the north, Redington Beach to the south, the Boca Ciega Bay to the east, and the Gulf of Mexico to the west. The west side of the island is dominated by sandy Gulf of Mexico beaches. Development on the west side of town is mainly in the form of condominiums – both owner-occupied and rental. The town is divided by the island’s only continuous north-south road, Gulf Boulevard. Finger-like strips of land protrude into the Boca Ciega Bay on the east side of the town, a result of dredge and fill activities that were common in Pinellas County following World War II. Single family homes dominate this area. While the finger-like design secures a water view for almost every homeowner, it also leaves each of these homes vulnerable to coastal flooding.

#### **2. Topography**

North Redington Beach’s 1989 Comprehensive Plan describes the town as having little or no topographic undulation. The land North Redington Beach is built on rises an average of five feet above the Gulf of Mexico (mean sea level).

#### **3. Flora and Fauna**

The 1989 Comprehensive Plan identifies a variety of vegetation native to the south Florida barrier islands. They include beach morning glory (*Ipomoea pes-caprae*), sea oats (*Uniola paniculata*), saw palmetto (*Sereona reopens*), wax myrtle (*Myrica cerifera*), sea grape (*Coccoloba uvifera*), and coco plum (*Chrysobalnus icaco*). Black and red mangroves (*Avicennia germinans* and *Rhizophora mangle*, respectively) can be found on the east side of town along the waterline south of Bath Club Boulevard South and where 170<sup>th</sup> Avenue meets the waterline. Mangroves provide habitat to rare birds including roseate spoonbills, brown pelicans, snowy egrets, least terns, and little blue herons. The sandy beaches along the Gulf of Mexico provide nesting grounds for threatened and endangered sea turtles including such species as Kemp’s ridley (*Lepidochelys kempii*) and loggerhead (*Caretta caretta*). The dominant vegetation is bahia grass or sod which is found in most lawns.

### ***Population***

#### **1. Permanent**

It is unclear how many people resided in North Redington Beach when it was incorporated in 1953, but by 1960 there were 346 residents according to U.S. Census data. Table 1 displays U.S. Census population data for 1960 through

2000. The reason why the 2000 population is significantly higher than the previous two decades is because of the redevelopment that has recently taken place at the south end of town. Tourist accommodations, commercial property, and some vacant lots have recently been developed with condominiums and townhouses.

Table 1: Population Since Incorporation

	<u>1960</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>
Population	346	768	1,156	1,135	1,474

Source: U.S. Census.

## 2. Seasonal

It is important to note the seasonal nature of population in the beach communities and Florida in general. Population is greater in the winter months because of seasonal residents. The Pinellas County Planning Department defines seasonal residents as persons who reside in the area for less than six months and declare their permanent residence somewhere else. Within North Redington Beach, the Planning Department estimates 99 seasonal residents in 2000.

## 3. Tourist

Tourism is a vital component of the North Redington Beach economy. As of April 2000, there were 445 hotel units, 15 time-share units, and 150 interval ownership units within the town's limits. The Pinellas County Planning Department estimates the impact of tourism on North Redington Beach services and facilities to be equivalent to an additional 1,147 residents in 2000.

## 4. Future

With the exception of a few vacant parcels, North Redington Beach is built out. The only way the population could dramatically increase is by replacing existing structures with higher density structures. This is not likely in the near future as the town has limited density in its 1989 Comprehensive plan to a maximum of 7.5 units per acre in the majority of the town which consists of viable single family residential areas. Density in the commercial tourist zoning district is permitted to be as high as 25 units per acre, and many structures are close to that density today. Thus, it can be expected that the total population (permanent, seasonal, and tourist combined) will remain relatively constant over the years to come. The Planning Department estimates the total population in 2000 to be 3,075 people, and projects the total population in 2030 to be 3,090.

## **Infrastructure Inventory**

### **1. Flood-prone Buildings**

North Redington Beach is predominately a residential community located entirely within the 100 year floodplain. Single family homes can mainly be found on the east side of Gulf Boulevard along with multifamily complexes. The west side of Gulf Boulevard, all beach-front property, is comprised of hotels, rental units, time-share units, and condominiums. Commercial properties can be found on either side of Gulf Boulevard. See Table 2 for existing land use distribution throughout the town. The town, for all practical purposes, is built out.

Many of the buildings in North Redington Beach are pre-FIRM (before the Flood Insurance Rate Map was adopted), that is, they were built before December 31, 1974 when the maps were first adopted. Of the 93 people who responded to the survey, 75% indicated that the buildings they live in or work in were built before this date. Most of the older structures in North Redington Beach have living space below the current base flood elevation requirements. This leaves the property vulnerable to floods.

Table 2: Existing Land Use Distribution- 2000

Type	Structures
Single family	301
Multifamily	35
Tourist Accommodations	20
Commercial	9
Public/ Semi-public	2
<b>Total</b>	<b>367</b>

*Source: Pinellas County Planning Department*

### **2. Repetitive Losses**

There are currently five properties labeled repetitive losses by the NFIP in North Redington Beach: three are single family homes located on Dolphin Drive and two are condominium/motels located on the west side of Gulf Boulevard. Many of the multifamily units are owned by individuals, but are rented out when the owner is not in town and maintained by a property management organization. All five repetitive loss properties were built prior to the FIRM adoption by FEMA. The map on page seven identifies the location of each of the properties. As can be seen, they are adjacent to the Gulf of Mexico or Boca Ciega Bay, and each has living areas below the 100 year flood level.

### **3. Critical Facilities**

The term *critical facilities* applies to a variety of structure types and uses. It includes facilities containing hazardous materials that would pose health threats to the surrounding area if flooded, such as chemical storage facilities or landfills; hospitals, nursing homes, and other facilities that house persons unable to evacuate without assistance; and those facilities necessary to be in working



condition before the town can return to pre-disaster condition. Few critical facilities are found within North Redington Beach's limits. No fire stations exist within the town nor hospitals, nursing homes, or assisted living facilities. The small Pinellas County Sheriff's substation and Town Hall are significant, but not deemed *critical*. These two structures are not vital to North Redington Beach's recovery because both facilities have alternate locations. The Sheriff's main location is in Largo. Also, the town has an interlocal agreement with the City of Seminole to house important documents in the event of an emergency and to use their structure to work from until North Redington Beach's Town Hall is made operational. The only critical facilities are the three sewer lift stations. If a major flooding event were to occur, they would need to be in working order before the town could return to pre-disaster condition.

#### 4. Seawalls

The town's borders are defined by municipal boundaries on the north and south as well as a physical boundary in the form of seawalls. Seawalls run the entire length of the town on the side along Boca Ciega Bay and two-thirds the length of the Gulf of Mexico on the west side. Most were constructed during the dredge and fill boom years after World War II. This new strategy allowed larger boats water access and homes to be built on dry land with waterfront views. The finger-like design secures a waterfront view for most every property. Seawalls were positioned to keep the new land in place. On the Gulf of Mexico side, seawalls were constructed in order to protect buildings and property from coastal storms.

Some seawalls along Boca Ciega Bay have experienced stress. While none have completely failed, some residents have had to repair the seawalls behind their homes. Some of these residents have chosen to reinforce vertical seawalls with sloping seawalls made from rip-rap material. This provides good erosion protection from wave action and creates much needed habitat for sea life while still protecting the upland property. Also, they absorb wave action, minimizing refraction that affects neighboring seawalls and property.

#### 5. Future Land Use Trends

Because the town is almost entirely built out, future use of land will likely be similar to present uses. Significant change could occur if current structures were destroyed in a natural disaster or torn down and the property redeveloped. However, because the land is of such high value, it is unlikely that uses other than commercial, tourist, or residential would be found in North Redington Beach in the future. The 1989 Comprehensive Plan indicates current densities are as high as 51 units per acre in North Redington Beach. Town Code now caps the maximum density at 25 units per acre in the Commercial Tourist zoning district.

An issue the committee has struggled with is how to protect the town's character and remain compliant with flood codes. According to the survey results, 75% of the structures were built before 1974. Driving through the single family home

area, it is plain to see how the neighborhood is beginning to change. Older homes are of modest size and one story; many have the low-pitched roof that characterizes mid-twentieth century architecture in Florida. Most of these homes are less than 15 feet tall from the peak of the roof to grade, which is generally six feet above mean sea level.

According to the current FIRM, a new house's minimum base floor elevation of ten or eleven feet above mean sea level (depending on location) would result in a structure starting four or five feet higher than the neighbor's base floor. Many of the newer homes are larger, two stories high, and have pitched roofs, all of which contrasts with the older homes. However, many of the new homes have added landscaping and architectural features that have the effect of reducing the visual impact of these new, larger structures.

### ***III. Hazard Assessment***

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While flooding is the most obvious hazard associated with this low-lying coastal community, other hazards should not be overlooked. Hurricanes bring extreme wind and water conditions when they come ashore. Tornadoes can accompany hurricanes also, or they can occur by themselves under the right conditions. Another potentially devastating hazard is erosion. Fortunately, there are a few hazards that North Redington Beach does not have to worry about. Landslides, volcanoes, and earthquakes are not factors in Pinellas County.

#### ***Potential Causes of Flooding***

According to the 1983 Flood Insurance Rate Map (FIRM), every property in the town is located within the 100 year flood zone. The 100 year flood zone is defined as an area that has a 1% possibility of flooding each year. Every property in North Redington Beach is either the V-zone or A-zone. These flood zones and the corresponding base flood elevations can be found on the repetitive loss map on page seven. V-zones are expected to be the most hazardous areas during coastal flooding periods because, not only is it within the 100 year flood zone, these areas are susceptible to water velocity and wave action. Only the west edge of town along the Gulf of Mexico is currently in the V-zone. The A-zone covers the remaining area of the town. Base flood elevations are derived by the modeled crest of the 100 year flood. In North Redington Beach, base flood elevations range from ten to thirteen feet above mean sea level as can be seen on the map on page seven.

FEMA is in the process of revising the FIRM. The flood zones may change due to what the latest flooding models have predicted for North Redington Beach. A preliminary updated FIRM, as proposed by FEMA, found on the following page shows the V-zone stretching east of Gulf Boulevard as far as 1<sup>st</sup> Street East. The west sides of Rosa Lee Way and Kennedy Drive are also in the revised V-zone. In the proposed maps, the base flood elevations are increased as well, ranging from 11 to 16 feet. This new FIRM has not been approved.

#### **1. Tropical Cyclones**

Tropical cyclones, which can be hurricanes or tropical storms, are violent storms with distinct characteristics such as high winds, low pressure, counter-clockwise rotation, and heavy rain. The storm surge associated with these storms tends to be the most dangerous component, historically responsible for nine out of ten hurricane deaths. Storm surge can be defined as the abnormal rise in water level caused by wind and pressure forces of a hurricane. When the hurricane or tropical storm reaches land, the raised water inundates the coast at levels much higher than a normal high tide. Table 3 describes the expected storm surge height above the adjacent water level that can be expected from the various hurricane intensities in Pinellas County. Heavy rain is usually the first symptom



of an impending hurricane. Rain, combined with storm surge and normal high tides, intensifies the flooding problems on the barrier islands.

Tropical storms are similar in composition and structure to hurricanes but their wind speed is less – between 39 and 74 miles per hour. This does not mean tropical storms pose any less of a threat to the residents and structures in North Redington Beach. Tropical storms can also bring prolonged periods of rain, normally more than what occurs during a hurricane, and storm surges.

Table 3: Hurricane Categories

<u>Category</u>	<u>Sustained Winds</u>	<u>Storm Surge*</u>
Tropical Storm	39-74 mph	<5.9 feet
1	74-95 mph	5.9 feet
2	96-110 mph	9.2 feet
3	111-130 mph	12.5 feet
4	131-155 mph	15.7 feet
5	above 155 mph	18.5 feet

Source: Pinellas Co. Emergency Management

\*above present tidal level

## 2. Frontal Systems

Frontal systems are usually associated with cold fronts that come from the northwest direction. They can produce heavy and prolonged periods of rain, high winds, and storm surge. Frontal systems are typical for Florida in the winter. Rarely do they cause more than rain followed by a decrease in temperature. However, there have been exceptions that have caused wind damage and flooding. Local television and radio stations broadcast severe weather warnings released by the National Weather Service. The best action to take is to pay close attention to these broadcasts to determine if the front contains dangerous weather conditions.

### **Other Hazards**

#### 1. High Winds

High winds are mainly associated with tropical cyclones in this area. Even a Category 1 hurricane, the least destructive in nature, brings sustained winds of at least 74 mph. Gusts can be even greater. High winds can blow unsecured objects through windows, cause trees and power lines to fall, loosen boats from their moorings, and damage vehicles.

#### 2. Tornadoes

Tornadoes may accompany hurricanes, but can also occur during thunderstorms. March through May is the peak tornado season in southern states according to the National Oceanic and Atmospheric Administration. The National Weather Service advises residents via television and radio warnings when weather conditions are optimal for tornadoes, but this is not a foolproof system. Warnings

are sometimes issued that do not materialize into tornadoes; other times tornadoes can develop without any official warning. The best way to protect property against a tornado is to meet or exceed wind-load standards.

### 3. Erosion

The beaches and waterfront views are some of the most valued assets of the town, but erosion has taken its toll in recent years. Because so many North Redington Beach properties are located within such close proximity to the water, severe erosion could be very damaging. Erosion causes the protective sandy beach to be washed away resulting in the undermining the structural integrity of a seawall and eventually a home or business. Erosion is an ongoing concern in North Redington Beach, particularly along the Gulf of Mexico. Beaches are a vital component to tourism (and tourism is Florida's leading industry) and they protect coastal property. Beach renourishment projects replenish the beach with fresh sand and, despite the high cost of this sometimes short-term solution, recreate the size and shape of a functioning beach.

An offshore breakwater has been proposed to be installed off the coast at the north end of town. It will cause waves to break further off shore, absorbing and dissipating wave energy before it reaches the shoreline. This slows the incoming water once it passes over the breakwater causing small sand particles carried by the incoming waves to fall out of suspension. Once the breakwater is constructed, the sandy beach behind it will naturally increase in width.

## ***Damage Sustained From Storms***

### 1. Recent Storms

North Redington Beach has experienced relatively minor storms since incorporating in 1953. Beach erosion has been associated with each of these storms.

➤ *Hurricane Agnes, June 1972*

This Category 1 hurricane brushed past the coast of Florida and eventually struck the Florida panhandle. Agnes continued across the southeast U.S., exited in the Outer Banks, North Carolina area, turned northwest and struck New Jersey and New York. Even though Agnes was only a Category 1 hurricane, it is blamed for 122 deaths. Long time North Redington Beach residents say that Agnes caused the highest flooding to date.

➤ *No-name, June 1982*

This frontal storm came from the Yucatan Peninsula, intensified in the Gulf of Mexico and caused damage through heavy rains. The storm struck early in the morning with no warning. Four of the five repetitive loss properties claimed flooding from this event.

- Hurricane Elena, August/ September 1985  
A Category 3 hurricane, the closest Elena came to Pinellas County's shore was about 80 miles. This storm slammed into the Panhandle and caused considerable damage. Although not a direct hit, Pinellas County did receive a great deal of damage from wind, rain, and storm surge as the storm stalled offshore for days before it continued northward. 14 survey respondents reported flooding caused by Elena. Four of the five repetitive loss properties claimed flooding from this event.
- Severe Thunderstorms, October 1985  
Severe thunderstorms and high speed winds were reported throughout the Tampa Bay area. One repetitive loss reported damage from this event.
- Stationary Weather Front, September 1988  
Severe thunderstorms, heavy winds and flooding were reported throughout Pinellas County. The City of St. Petersburg reported 10.49 inches of rain and the City of Gulfport reported 12.24 inches of rain over a three day period. One repetitive loss property reported flooding from this event.
- Storm of the Century, March 1993  
This frontal system brought very little rain, but induced extreme winds, storm surge, and bitter cold temperatures (by Florida standards). Six survey respondents reported flooding caused by this storm. Two of the five repetitive loss properties claimed flooding from this event.
- Tropical Storm Josephine, October 1996  
Storm surge and winds caused \$24 million in damage throughout Pinellas County. Josephine made landfall north of Tampa Bay in the "Big Bend" area of Florida. Eight survey respondents reported flooding and one repetitive loss claimed damages caused by Josephine.
- Tropical Storm Gordon, September 2000  
This storm brushed past Florida's west coast and made landfall near the "Big Bend," north of Tampa Bay. Gordon brought very little rain, but caused street flooding when the storm surge coincided with high tide. Tidal water backed into the streets from the storm drains, and was reported to be one foot over the seawall on the east side of town. One survey respondent reported flooding caused by Gordon. None of the repetitive losses claimed flooding from this event.

None of these storms were considered "direct hits," meaning that North Redington Beach and the Tampa Bay area did not receive the full force of the storm. This area has been quite fortunate in that it has not received the full force of a tropical cyclone since the barrier islands have been developed. The last time Pinellas County suffered the full force of a hurricane was in 1921 when the center of a Category 2 storm made landfall near Tarpon Springs. With heavy development of the barrier islands, a direct hit from a powerful hurricane could cause great damage.

The majority of flood damage in North Redington Beach has not been caused by fresh water flooding (rain). Storm drains in the town lead directly into Boca Ciega Bay and because of the town's low elevation, even small storm surges can cause the storm drains to fill with salt water and spill into the street. A flapper valve designed to restrict tidal waters from entering has been installed on one of the outflow pipes leading from Dolphin Drive, but it has not been effective. The storm drain backflow has caused problems during each of the storm events listed previously. The problem is most severe when the storm surge coincides with the lunar high tide. Storm water drainage can be impaired if a heavy rain occurs during high tide as well.

## 2. Worst Case Scenario

The Pinellas County Unified Local Mitigation Strategy outlines the different types of storms possible in the County and their worst possible characteristics. According to this document, the worst case scenario for a tropical cyclone would be a Category 5 hurricane making landfall in the New Port Richey area (in Pasco County) during high tide. Winds in a hurricane of this magnitude are greater than 155 mph and it is modeled that a storm surge as much as 18.5 feet above mean sea level would inundate North Redington Beach. In this scenario, every structure in town would certainly take in water. It is unknown how well the structures in the town would withstand winds greater than 155 mph. Current building codes require structures to withstand wind loads up to 110 mph.

### ***Factors Leading to Increased Flooding Damage***

#### 1. Loss of Natural Barrier Island Functions

Barrier islands are part of a dynamic coastal system. It is natural for the beaches to fluctuate position, new channels to be created, and old channels to be filled in. Erecting fixed structures on barrier islands can disrupt the natural changes in the system. The changes, in the form of erosion as an example, can cause problems to beach-front structures when there is not enough beach to protect the buildings from incoming wave action. Many causes, both natural and human-related, have led to erosion along the Gulf of Mexico.

#### 2. Pre-FIRM Construction

Pre-FIRM structures are those that were built before December 31, 1974. The most recent FIRM in effect for the area is the 1983 revision. Many structures within the town's limits were built before either of these dates. Most of the town's original single family homes were built to about six feet above mean high tide. Of the 93 survey responses, 75% of the structures were built before 1974. Each of the five repetitive loss properties were built prior to the FIRM's effective date.

#### 3. Storm Drains

The committee and many of the survey respondents agreed that storm drains in North Redington Beach allow street flooding to occur during storm surges and

extreme high tides. When the bay water rises, salt water fills the drainage pipe not allowing stormwater to drain and, if the tide is high enough, allowing saltwater to spill into the streets. The seawall, however, prevents water from entering into back yards. One flapper valve, designed to only allow water to flow out of the storm drain, was installed on a trial basis. Despite routine maintenance, it has not been effective and research is being conducted to determine if the problem can be resolved. The street flooding problem is aggravated when motorists drive through the flooded streets too fast. The wake cars create pushes salt water into garages and homes. One survey respondent's garage had been flooded six times solely because of auto traffic.

### ***Evacuation***

The most prudent action to take if a tropical cyclone is approaching North Redington Beach is to evacuate. Like all other Pinellas County municipalities located on barrier islands, all of North Redington Beach is located in the Level A Evacuation Zone as described by the Tampa Bay Regional Planning Council's 2000 Hurricane Guide. This means that if a Category 1 hurricane were to threaten the Pinellas County coast, the entire Town of North Redington Beach would be required to evacuate. Pinellas County Emergency Management Department estimates it would take 13-17 hours to evacuate all 206,275 residents and visitors in the Level A zone throughout the county (many areas on the mainland are also in Evacuation Level A). The primary Emergency Operation Center for North Redington Beach is the Suncoast Fire & Rescue Department on Indian Rocks Beach. They maintain communications with the Pinellas County Emergency Operation Center in Clearwater and the U.S. Weather Service via the Civil Defense Radio Network.

Evacuation warnings are issued by Pinellas County Emergency Management via television and radio announcements. When mandatory evacuations are issued, Suncoast Fire and Rescue and the Pinellas County Sheriff's Department make announcements by using mobile address systems and sound their sirens while driving up and down every street to expedite the evacuation effort. North Redington Beach has arranged for a school bus to come to City Hall when the evacuation order is made to take residents and visitors who are without transportation to shelters. Residents needing assistance to evacuate or special needs at a shelter (such as oxygen or dialysis) must fill out a form annually, in advance of the hurricane season, requesting help. Their arrangements are taken care of by the fire department before an evacuation order is ever announced. Residents not requiring assistance are instructed to travel north on Gulf Boulevard and take the Park Street bridge (County Road 694) to safety. Once out of the evacuation zone, they are encouraged to stay with friends, family, hotels, motels, or, as a last resort, at a shelter within Pinellas County.

Some storms don't give advance warning to allow residents to evacuate. Something as simple as a stalled cold front can cause storm surge effects and prolonged periods of rain. This was the case with the "Storm of the Century" in 1993 and the "No-name

Storm” in 1982 (see pages 11-12 for complete descriptions). In cases such as this, weather forecasters cannot always predict how much rain will fall, how long it will last, and whether or not the tides will be affected, therefore, residents and business owners must prepare their property before a threat is apparent.

## ***IV. Economic Considerations***

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Flooding has the potential to be a huge disruption to the town's top industry: tourism. Depending on the severity of the event, flooding could cost the hotels, time-shares, and other commercial businesses days, weeks, and possibly months in revenue. Just as vital to tourism as dry hotel rooms and sunny weather is the beach itself. If severe erosion were to wash away the beach, occupancy would likely drop as visitors take their vacation dollars to another coastal town. While losing its reputation for beautiful beaches would be detrimental to the 20 tourist accommodation properties and other commercial uses in North Redington Beach, losing the buildings themselves could be devastating to the town. The area west of Gulf Boulevard is highly valued property, and the town relies on those properties for the majority of its property tax revenues.

The only sure way to prevent flood damage is to remove structures from vulnerable areas. This is a sensible technique in areas where the floodplain is a small section of the town's total area or where vacant land to relocate to is available. However, in North Redington Beach neither of these options exists. Another activity FEMA recommends is property acquisition. Because less than 2% of the 2.5 million insured structures throughout the United States account for 33% of all insurance claims, buying and removing repetitive loss properties from the floodplain is one of the best ways to keep flood insurance premiums as low as possible. Returning floodplains to open space also helps to protect personal property and saves lives.

Because of the high price of waterfront property, small towns like North Redington Beach cannot afford to buy all structures in harm's way. Another problem unique to small towns such as this is that if large amounts of flood prone properties were to be purchased and structures removed, the town's tax base would decrease. In North Redington Beach, the five repetitive loss properties have a combined taxable value of \$3,416,300. If the town was able to purchase repetitive loss properties, it would certainly cost more than \$3.4 million to purchase all five properties, especially since two are beach-front (all beach-front property in North Redington Beach, although only 12% of the town's land, makes up 56% of the town's taxable value). As beach-front property continues to increase in value, it can be expected that older, non-flood-compliant beach-front properties will eventually be bought, demolished and redeveloped with a structure that meets minimum flood protection requirements.

A similar scenario can be expected for the single family homes. As waterfront property continues to increase in value, those able to afford the houses on North Redington Beach may be looking for a home tailored to their needs and wants rather than making do with an existing house. It is not uncommon for buyers in desirable areas to purchase property with a house on it, remove the structure and build a new structure that meets their personal tastes as well as minimum flood elevation and wind-load requirements. This doesn't remove any structures from the floodplain, but it is a way the problem of vulnerable homes and businesses located below the base flood elevation that is being corrected.

## **V. Goals**

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The FMP Committee, after careful analysis of the flood damage potential to North Redington Beach, have developed the following six goals to help guide the town and its citizens:

- Reduce loss of life and property caused by flooding through education, planning, and prevention efforts.
- To create a plan making the town eligible for grants to elevate or purchase repetitive loss properties.
- Protect homes and businesses without infringing on the owner's property rights.
- Reduce street flooding throughout North Redington Beach, especially in the repetitive loss areas.
- Help property owners protect their homes and businesses during emergency flooding situations such as an impending tropical cyclone.
- Provide resources to current residents and potential residents regarding the flood hazard, flood insurance, retrofitting techniques, potential funding sources for flood mitigation, and the flooding history of North Redington Beach.

These goals helped the committee decide which activities would be most appropriate for North Redington Beach and were relied upon to develop the action found in the section to follow.

## ***VI. Action***

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### ***Activities Reviewed***

In preparing a Flood Management Plan, the first priority was to examine what actions the town was taking to lessen the effects of flood damage. The majority of these current activities are included in the Code of The Town of North Redington Beach which dedicates a section to flood protection including: methods of reducing flood losses, penalties for noncompliance, designation of a flood damage control administrator, and development requirements.

The second document reviewed by the committee was the Pinellas County Unified Local Mitigation Strategy. This document was developed jointly by all local governments in Pinellas County and includes mitigation activities each local government would like to implement should funding become available. The purpose of the Local Mitigation Strategy was for local governments within Pinellas County to identify potential hazards and mitigation needs within their jurisdictions. As an example, one activity North Redington Beach is interested in is placing their utility lines underground. Unfortunately, this is an expensive endeavor for which the town does not have an immediate funding source. Should funding become available to Pinellas County, this project will likely be pursued. Appendix F includes documents and excerpts from the Local Mitigation Strategy, including the Resolution formally adopting the document, goals and objectives, and potential mitigation applications. Some of the projects have been completed while others will require funding not yet recognized.

After reviewing both documents, the committee discussed where additional measures to reduce damage caused by flooding could be implemented. The following activities, both as currently employed and as proposed, are divided into six sections as outlined in the CRS Coordinator's Manual: Prevention, Property Protection, Natural Resource Protection, Emergency Services, Structural Projects, and Public Information.

#### 1. Prevention

Prevention activities are implemented to help prepare structures and infrastructure for possible flood damage before the water begins to rise. Through zoning and building regulations, preventative maintenance, and green-space preservation, potential losses can be minimized or eliminated.

Zoning – Town Code requires a minimum 18 foot setback from the coastal construction control line (CCCL) as defined by the State of Florida for structures along the Gulf of Mexico. This requirement protects the dune and other natural systems, and protects buildings from beach erosion.

#### Needed Action

- 1-1 Continue to enforce the Town Code requiring a setback for properties along the Gulf of Mexico. This code should be

reevaluated should the CCCL be adjusted by the state as proposed.

Open Space Preservation – North Redington Beach has quite a few open space areas despite it's small size. There are two parks on 173<sup>rd</sup> Avenue – one is due east of Town Hall and the other is between Kennedy Drive and 173<sup>rd</sup> Avenue. There is a park with a playground at the corner of 170<sup>th</sup> Avenue and Dolphin Drive. The largest park, Harold Radcliffe Park, can be found where Bath Club Circle meets Bath Club Boulevard South. The town has also designated the public beach as open space/preservation. Not only does it serve as a recreation site for residents and visitors, beaches help protect the coastal community from wave action which leads to erosion and damages beach-front property. The area is also critical habitat for endangered sea turtles which nest on the beaches.

Needed Action

- 1-2 The town will continue its commitment to preserving open space. The beaches should be preserved for protection of sea turtles, tourism, and protection to man-made structures. Existing green space needs protection as well.

Stormwater Drainage System Maintenance – North Redington Beach recognizes the important role drainage plays in minimizing flood damage. The community's drainage system is routinely inspected and maintained by the Public Works Department. Records are kept for inspections and required maintenance. Town Code makes it illegal to dump anything into drainage ponds and ditches (foreign matter could block drainage resulting in flooding). Also, the town currently complies with the Southwest Florida Water Management District's (SWFWMD) surface water management requirements and water quality goals.

Needed Action

- 1-3 Continue to inspect and maintain drainage areas within the town.
- 1-4 Continue to enforce the Town Code pertaining to illegal dumping.
- 1-5 Continue to enforce SWFWMD requirements and maintain dialogue with the agency to update regulations as necessary.

Dune and Beach Maintenance – The State of Florida acknowledges the importance of beaches and dunes. The Legislature has declared that it is the state's responsibility to properly maintain and protect Florida's beaches (Section 161.088, Florida Statutes). Provision for cost-effective beach restoration and nourishment projects for critically eroded beaches is also included. The Town of North Redington Beach is in full support of the Legislature in this matter.

### Needed Action

1-6 Continue to support beaches as declared in Section 161.088, Florida Statutes.

## 2. Property Protection

Property and business owners can protect their structures within the floodplain in a variety of ways. By relocating vulnerable structures outside the floodplain, damage from flooding can be almost completely avoided. Unfortunately for North Redington Beach, relocating to somewhere outside the floodplain would mean relocating out of town, off the island, and away from the coast. This is not a reasonable alternative for most property owners because they have already made the conscious choice to move into a flood-prone area. Property owners must safeguard their homes and businesses in other ways. Increasing building elevation, flood insurance, and floodproofing are just a few ways owners can protect their property and possessions.

Building Elevation – Building habitable areas above the expected flood level is one of the best ways to protect homes and businesses located in the floodplain. Town Code currently requires new or substantially improved residential buildings to locate the first habitable floor at or above the base flood elevation (the predicted 100 year flood level) as defined by the flood insurance rate map. The lowest floor in new or substantially improved non-residential structures must either be built to base flood elevation or can be floodproofed to a certain degree for areas below the required base flood elevation.

### Needed Action

2-1 Continue to enforce building elevation requirements.

Floodproofing – Floodproofing is one way of retrofitting a structure to protect it and its contents during a flooding event. In their annual *Hurricane Guide Supplement*, North Redington Beach provides information to property owners on different means of floodproofing. Town officials include the *Hurricane Guide Supplement* in the summer newsletter coinciding with hurricane season. A copy of the 2000 edition is included in Appendix B. This is done as a service to the residents and to satisfy part of the outreach component of the CRS program.

Some may be interested in retrofitting their existing home, but they might not be sure how to go about such a task. The FMP Committee recognizes that some of these activities may be quite costly. That is why a list of potential funding sources has been compiled and included in this document in Appendix E. Also included here is a list of on-line resources that anyone with internet access can explore. If a property owner is interested in retrofitting their building, they can work with town officials to determine what measures would be most appropriate and to see if funding exists for the project.

#### Needed Action

- 2-2 Continue to distribute floodproofing information in the annual *Hurricane Guide Supplement*.
- 2-3 Update funding sources annually to coincide with FMP annual report. Make the FMP and list available at Town Hall and the Gulf Beaches Public Library.
- 2-4 Work with citizens to determine what retrofitting measures would be most beneficial.

Flood Insurance – North Redington Beach is a participating community in the National Flood Insurance Program, enabling property owners to purchase federal flood insurance. It is important for North Redington Beach to continue to inform residents of the benefits of flood insurance and encourage residents to purchase it. Without flood insurance, residents must cover the cost of damages. While homeowners in flood-prone areas with federally-backed mortgages are required to purchase flood insurance, it is not required if the homeowner has no financial lien on the property. Real estate agents should notify all buyers of the benefits of flood insurance.

#### Needed Action

- 2-5 Continue to include information in the newsletter explaining the importance of flood insurance, where someone can get it, and approximate costs.
- 2-6 Encourage local real estate agents to inform all customers about the benefits of flood insurance.

### 3. Natural Resource Protection

While there is not much open space remaining in the town, a concerted effort needs to be made to protect what is left. Native vegetation such as mangroves on the bay side and sea oats on the beaches protect from erosion. Mangroves are also a very important habitat for nesting birds and juvenile fishes. The beaches are an important nesting ground for endangered and threatened sea turtles such as Kemp's ridley sea turtle.

Coastal Barrier Protection – Protect sea oats, mangroves and other native vegetation by continuing support of Sections 403.9323 and 370.041 of the Florida Statutes. The former protects mangroves throughout the state, the latter protects sea oats, sea grapes and other native vegetation that stabilizes and protects the beach.

Needed Action

- 3-1 Continue to enforce Section 403.9323, F.S., which protects mangroves.
- 3-2 Continue to enforce Section 370.041, F.S., which protects sea oats, sea grapes and other native vegetation.

Controlling Invasive Exotic Vegetation – Australian pines (*Casuarina spp.*) are non-native trees that can be found up and down the west coast of Florida. While they grow tall and provide shade on the sandy beach, the root system is very shallow making the trees susceptible to being blown over in high winds. Additionally, they are an invasive species and occupy areas where native plant species normally exist. Because of this, they are not permitted to grow over four feet tall by Town Code. Controlling these trees protects citizens, visitors and property of North Redington Beach. Brazilian pepper (*Schinus terebinthifolius*) is another invasive exotic species. Controlling Brazilian pepper will allow native vegetation to flourish. It is important to promote native plants because they, in turn, support native animals, and help control erosion. Pinellas County Code requires the removal of Brazilian pepper when a site is being developed.

Needed Action

- 3-3 Continue to enforce the Town Code controlling Australian pines.
- 3-4 Continue to encourage the removal of Brazilian pepper.
- 3-5 Continue to remove invasive exotic plant species located on public land.

4. Emergency Services

Evacuation in North Redington Beach is crucial since it is so vulnerable to coastal flooding. North Redington Beach does not have direct access to the mainland from its jurisdiction, and residents must travel through at least two other beach communities to get to a bridge leading to less vulnerable areas on the mainland. Evacuation orders must be given in enough advance of storms to allow everyone in the beach communities to evacuate safely and quickly before the weather impedes the process.

Flood Warning – North Redington Beach depends on the Pinellas County Emergency Management Department, Suncoast Fire and Rescue, and the Pinellas County Sheriff's Office to inform residents of the evacuation order. Local radio and television stations also provide evacuation notices.

Needed Action

- 4-1 Pinellas County Emergency Management Department, Suncoast Fire and Rescue, and the Pinellas County Sheriff's Office should

continue to alert residents in North Redington Beach when evacuation orders are given by radio and television as well as mobile address system while driving through the streets and door-to-door as necessary.

Flood Response – Street flooding is the most common flooding problem experienced in North Redington Beach. When automobiles drive through the flooded streets they sometimes create a wake that causes water to be pushed into garages and sometimes homes. This problem is concentrated in the finger-fill cul-de-sac streets where many pre-FIRM single family homes exist. This situation could be easily resolved if streets were off limits to non-residents during times of flooding. Also, warnings should be posted on barricades reminding drivers to slow down and that the water they are driving through is salt water and it may damage cars.

Needed Action

- 4-2 Set up roadblocks to curtail “sightseers” on cul-de-sacs (173<sup>rd</sup> Avenue, Dolphin Drive, Bath Club Boulevard North, and Bath Club Boulevard South) when the streets are flooded to slow motorists and restrict the area to residents and emergency vehicles only.
  
- 4-3 Post signs during street flooding warning drivers to slow down and that salt water may damage their cars.

Critical Facilities – As described on page 8, the only critical facilities in North Redington Beach are the three sewer lift stations. Sewer lift stations have been fitted with submersible pumps and their electrical control boxes have been raised above the 100 year flood level as well. While they are not designed to operate during hurricanes, protecting them from the 100 year flood level will allow them to come online once the storm has subsided.

Needed Action

- 4-4 No action is necessary at this time as the critical facilities have been protected to the 100 year flood level.

## 5. Structural Projects

Structural projects protect businesses and homes already located in the flood-prone area. Structural projects typically employed in beach communities include seawalls, beach nourishment, and groins. Seawalls and groins are designed to prevent erosion while nourishment replenishes the beach with new sand replacing eroded sand.

Beach Renourishment – The very first beach nourishment project in North Redington Beach took place in 1981, and it was jointly funded by the town, Pinellas County, and the State of Florida. Sand was trucked in from nearby

John's Pass and spread onto the beach in accordance with engineered specifications. The federal government began helping with the renourishment process in 1988 with the U.S. Army Corps of Engineers pumping 380,000 cubic yards of sand from John's Pass ebb shoal to a 1.2 mile stretch of North Redington Beach and neighboring Redington Shores. Renourishment projects took place in this area again in 1992 and 1999 using sand from Egmont Channel Shoal. While beach renourishment is a way of extending the beach and protecting homes and businesses along the coastline, it is not a permanent solution. Wave and wind action will continue to move sand along the barrier islands. While it can be expected that the most recent beach renourishment project will provide protection for the next few years, another project may be needed in the future to protect buildings closest to the shore.

#### Needed Action

- 5-1 The town does not need to take any immediate action on this activity as it was recently completed and the beach has maintained much of its profile since then. This issue is being included in the FMP because, like other coastal communities, beach erosion is a major concern for North Redington Beach. This issue should be assessed no less than annually even though action will not be taken at the present time.

Off-Shore Breakwater – A breakwater is planned to be constructed just off-shore from North Redington Beach. The Pinellas County Board of County Commissioners has approved the plan, and it is being coordinated with the State of Florida and the Army Corps of Engineers at this time. Funding for the project is being provided by the county, state, and federal governments. The off-shore breakwater is in the area where beach erosion is occurring and two repetitive loss properties are located. It is intended to dissipate wave energy away from the beach and allow sand to build up along the shore behind it. A wide beach offers erosion protection to those structures closest to the Gulf of Mexico while addressing the community's beach recreation needs. If the breakwater is successful, continued beach renourishment projects may not be necessary in the future.

#### Needed Action

- 5-2 Continued support and cooperation with Pinellas County, the State of Florida, and the Army Corps of Engineers in the installation of the off-shore breakwater.

Stormwater Drainage – Committee members and survey respondents agreed that the main flooding problem is not associated with rainwater, but rather with saltwater. Storm drains in North Redington Beach carry storm water from the streets and into the Boca Ciega Bay. Storm surges, especially when occurring at high tide, fill storm sewers from where they should empty out allowing saltwater to enter the streets. Unable to properly drain due to the force of the tide, water

remains in the streets. The wakes from passing cars often washes into garages, damaging personal property. The town received funding through the Pinellas County Unified Local Mitigation Strategy to install a trial “flapper valve” to keep saltwater from entering in the storm drains and flooding the streets. Unfortunately, this hasn’t been as helpful as expected.

Needed Action

- 5-3 Contact other communities with flapper valves or the manufacturer to determine why this has not been effective in North Redington Beach and what can be done to make it function properly. The town will also pursue other alternatives.

6. Public Information

One of the best and most cost effective ways to protect property and people is education. The Town of North Redington Beach is actively involved in educating the public on flood hazards, mapping information, retrofitting techniques, and environmental concerns through a variety of mediums.

Public Outreach – The Town of North Redington Beach distributes a variety of hurricane and flood related information in their quarterly newsletters mailed to its citizens and businesses. Topics include retrofitting techniques, evacuation procedures and routes, flood insurance information, property protection information, and shelter information.

Needed Action

- 6-1 Continue to provide flooding information to the community through the town’s newsletter.

Real Estate Disclosure – There are currently five real estate offices in the town and many others nearby. With the cooperation of individual offices, a pamphlet with information regarding the flood threat, other hazards, flood insurance, and contact information for specific questions should be provided to potential buyers. Potential homeowners should be aware of the risks before they purchase the property, especially if the structure was built before flood codes were in effect.

Needed Action

- 6-2 Make available and distribute the South Pinellas County Evacuation Map and annual North Redington Beach Hurricane Supplement and Flood Plain Hazard Guide (a copy of these can be found in Appendix B) for distribution to real estate offices within the town to be available to potential buyers.

Flood Protection Library – Information and materials concerning floodplain management are available in the Gulf Beaches Public Library.

Needed Action

- 6-3 Continue to support and update floodplain materials in the Gulf Beaches Public Library.

Environmental Education – The Sea Turtle Education Committee is comprised of volunteers from North Redington Beach and is sponsored by the town. They educate school groups, church groups, and any interested citizen on the sea turtle's life cycle and habits as well as the role humans play in a sea turtle's life. A permanent display is set up adjacent to the Sheriff's substation.

Needed Action

- 6-4 Continue to sponsor the Sea Turtle Education Committee.

## Action Plan Summary

A number of ideas and recommendations were listed in the previous section. This section will take those ideas a step further and describe the cost of the project, estimated date of completion and the person or entity responsible for overseeing the completion of a project.

Action		Budget	Completion Date	Contact
<b>Prevention</b>				
1-1	Continue to enforce town's coastal setback requirement.	additional funding not required	ongoing	Building Official
1-2	Continue to preserve open space.	additional funding not required	ongoing	Building Official
1-3	Continue to inspect and maintain drainage areas.	additional funding not required	ongoing	Public Works
1-4	Continue to prohibit dumping in drainage areas.	additional funding not required	ongoing	Public Works
1-5	Continue to enforce SWFWMD drainage requirements.	additional funding not required	ongoing	Building Official
1-6	Continue to support the state's stance on beaches.	additional funding not required	ongoing	Town Officials
<b>Property Protection</b>				
2-1	Continue to enforce building elevation requirements.	additional funding not required	ongoing	Building Official
2-2	Continue distribution of annual <i>Hurricane Guide Supplement</i> .	\$1050 in annual budget	annually in summer newsletter	Emergency Management Director
2-3	Update funding sources.	additional funding not required	annually with FMP report	CRS Coordinator
2-4	Help residents with retrofitting options.	additional funding not required	winter 2001-02	CRS Coordinator
2-5	Continue flood insurance information in newsletter.	additional funding not required	summer newsletter	CRS Coordinator
2-6	Encourage real estate agents to inform all customers the benefits of flood insurance.	additional funding not required	winter 2001-02	CRS Coordinator
<b>Natural Resource Protection</b>				
3-1	Continue to protect mangroves.	additional funding not required	ongoing	Public Works and Building Official
3-2	Continue to protect sea oats, sea grapes.	additional funding not required	ongoing	Public Works and Building Official
3-3	Continue to control Australian pines.	additional funding not required	ongoing	Public Works and Building Official
3-4	Continue to encourage removal of Brazilian pepper.	additional funding not required	ongoing	Public Works and Building Official
3-5	Remove invasive exotics on public land.	additional funding not required	ongoing	Public Works

Action		Budget	Completion Date	Contact
<b>Emergency Services</b>				
4-1	Continue to alert residents of evacuation orders.	additional funding not required	in times of emergency	Suncoast Fire & Rescue, Sheriff
4-2	Post barricades during street flooding events.	5 @ \$115 each	available fall 2001	Sheriff's Department
4-3	Post warning signs during street flooding events.	5 @ \$50	available fall 2001	Sheriff's Department
4-4	Continue to protect critical facilities within the town's limits from flooding.	additional funding not required	ongoing	Town Staff
<b>Structural Projects</b>				
5-1	Continue to monitor beach erosion.	additional funding not required	ongoing	Staff, Beach Advisory Committee
5-2	Support breakwater project.	additional funding not required	to be determined	Mayor
5-3	Solve flapper valve problem.	additional funding not required	winter 2001-02	Board of Commissioners
<b>Public Information</b>				
6-1	Continue to provide flooding information in newsletter.	additional funding not required	quarterly	CRS Coordinator
6-2	Develop pamphlet to be available at every real estate office in town.	\$500	available winter 2001-02	CRS Coordinator
6-3	Continue to support and update Flood Protection Library.	additional funding not required	ongoing	CRS Coordinator
6-4	Continue to support and encourage sea turtle education program.	\$400 in annual budget	ongoing	Sea Turtle Education Committee

## ***VII. Post-Disaster Recovery***

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It is important to have policies and procedures in place to ease the recovery process, should a flood occur. Following a predetermined and accepted procedure will help restore order after a flooding crisis.

John Creighton, North Redington Beach Emergency Management Coordinator and FMP Committee member, has prepared a Hurricane Evacuation Implementation Guide and Disaster Plan that describes each department's role in the preparation, evacuation, and recovery process. Following a disaster, the first priority is search and rescue operations which are conducted by the Fire and Police Departments. After completing the initial search and rescue, all departments will concentrate on restoring normal operating services to the town. A damage survey team consisting of Elected Officials, Emergency Management Coordinator, members from the Sheriff's Department and Fire Department, and the Building Official will inspect and report damage to public property first. This team is responsible for applying for state and/or federal disaster relief on behalf of private property owners. Waste Management, the sanitation company that services North Redington Beach, is contractually obligated to make additional equipment available to assist in obstruction removal and post-disaster clean-up.

If a hurricane were to directly hit Pinellas County, it can be expected that substantial damages will result from wind and water. A Category 2 hurricane could cause as much as a 9.2 foot storm surge in the North Redington Beach area (see Table 3). Most streets are only five feet above mean sea level. A nine foot storm surge would push more than four feet of salt water into the town. If this storm surge occurred at high tide, it could add approximately three feet to this maximum water level (depending on maximum height of the high tide), resulting in water reaching 12 feet above mean sea level. It is estimated that most pre-FIRM building's base floor elevation is six feet above mean sea level. According to the survey results, 75% of the buildings fit this description. While this is a simplistic example, if all these assumptions are true, 75% of the buildings in North Redington Beach could have three feet or more of salt water in them in a Category 2 hurricane. Even a mild hurricane could cause a great deal of flood damage. In this scenario, any structure built after 1983 would be out of harm's way since the lowest BFE on that (the most recent) FIRM is ten feet.

In this scenario, the entire town would be under a mandatory evacuation. The nine foot storm surge would rise and fall while the town has been evacuated. Residents would come back to the island to find the streets clear of water, but find debris throughout the roads and in people's yards, and many people would find water damage in their homes. If this scenario were to occur, the damage survey team would likely focus their efforts in the area where many pre-FIRM single family homes exist – mainly on 173<sup>rd</sup> Avenue, Kennedy Drive, Rosa Lee Way, Dolphin Drive, Bath Club Boulevard North, and Bath Club Boulevard South. The south end of town on either side of Gulf Boulevard would likely sustain little damage because this area is dominated by post-FIRM buildings. The electrical boxes of the three sewer lift stations are protected to this

hypothetical storm surge. Town Hall's elevation is right at this hypothetical storm surge level. While a Category 2 is not considered to be a major hurricane, this could certainly cause considerable damage for North Redington Beach and the entire Tampa Bay area.

## ***VIII. Monitoring and Evaluation***

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A floodplain management plan is not a static document. Needs outlined in this plan will be met and new needs will arise in the years to come. The plan should be an accurate account of the current flood hazards, repetitive losses, and actions that address these specific situations.

The FMP Committee will continue to meet no less than twice each year to discuss the implementation of flood protection measures and review the progress of recommended activities. Each September, the committee will meet to prepare the annual FMP evaluation report and make changes (if necessary) to the repetitive loss map. If any updates or revisions to this document take place, they will be adopted by the Board of Commissioners. Upon updating the FMP, the most recent version will replace the previous version located at Gulf Beaches Public Library. The FMP Committee will also work with the town's CRS Coordinator to recommend and discuss other CRS activities that could be implemented in an effort to provide additional flood education and flood protection to North Redington Beach residents and potentially lower flood insurance premiums.

For a copy of Appendix A and B, please contact:

The Pinellas Planning Council  
600 Cleveland Street, Suite 850  
Clearwater, FL 33755-4160  
(727) 464-8250

## Appendix C – Survey Results

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A total of 500 surveys were sent out with the fall edition of the *North Redington Beach News* on September 25<sup>th</sup>. The newsletter is sent to every address in North Redington Beach and additional copies are given to condominiums and apartments. In sending every property in North Redington Beach a survey, 100% of the properties in the floodplain were contacted. By November 1, 2000, 93 surveys had been returned to Town Hall. This is a 19% rate of return.

One of the committee's primary concerns was making the survey concise and easy to respond to. The committee felt that residents should be asked questions that could be answered by simply checking a box. While written comments were important, the committee felt they would get more responses if it was short and simple. The first seven questions are answered by checking a box, the last two questions gives the respondent a chance to provide the committee with written feedback. A copy of the survey that was sent can be found following these results.

Of the 93 surveys received, 77 were completed by residents of North Redington Beach who own their homes, 8 were completed by renters, 5 were completed by business owners, and 3 were completed by residents who own both a home and a business. Of the 88 residents who responded to the survey, the majority live in single family homes. (see Table C-1) Single family homes are located east of Gulf Boulevard and mainly on the "finger-fill" area. Many of these homes are located on the Boca Ciega Bay. Because the survey did not ask the address of the property, however, it is unclear exactly how many of the single family home responders live on waterfront property.

Table C-1: Where Survey Responders Live

<u>Type</u>	<u>Number</u>	<u>Percent</u>
Single family home	72	82%
Multifamily home	16	18%
TOTAL	88	100%

The first Flood Insurance Rate Map (FIRM) for North Redington Beach became effective on May 14, 1971. The CRS Coordinator's Manual defines pre-FIRM as a "building constructed or substantially improved on or before December 31, 1974, or before the effective date of the initial Flood Insurance Rate Map of the community, whichever is later." Pre-FIRM in North Redington Beach is any building constructed or substantially improved before December 31, 1974. The survey revealed the majority of structures are pre-FIRM (see Table C-2 and Chart C-1 on page C-2). Of the 93 structures reflected in this survey, 70 (or 75%) were built before 1974.

The FMP Committee was interested to find out whether or not the majority of residents in North Redington Beach were covered by federal flood insurance. Because flood insurance is only required when seeking a federally-backed mortgage, the committee wondered if some the long time residents (who have since paid their mortgage) or who paid for their property up front (and do not have a federally-backed mortgage) have not

Table C-2: Approximate Year Structures in North Redington Beach Were Built:

	Year	Number	Percent
	before 1950	4	4.3%
	1950 – 1959	34	36.6%
	1960 – 1969	27	29.0%
	1970 – 1979	7	7.5%
	1980 – 1989	6	6.5%
	1990 – 2000	8	8.6%
	don't know	7	7.5%
	TOTAL	93	100.0%

Chart C-1:

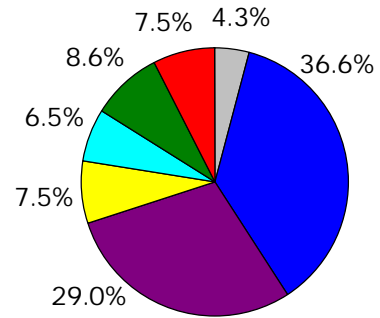
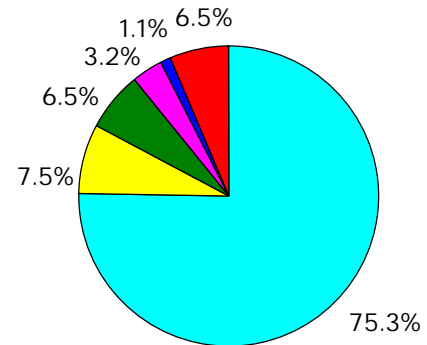


Table C-4: Number of Times Structure Has Been Flooded:

	Flooded	Number	Percent
	never	70	75.3%
	1 time	7	7.5%
	2 times	6	6.5%
	3 times	3	3.2%
	4 times	1	1.1%
	don't know	6	6.5%
	TOTAL	93	100.0%

Chart C-2:



purchased flood insurance simply because it is not required. The vast majority of the residents who responded to our survey reported that their structures and contents are covered by flood insurance. If North Redington Beach suffers a major flooding event in the future, the widespread use of flood insurance will help the town recover more quickly after a disaster. See Table C-3 for a complete list of results from questions 4 and 5 of the survey.

Table C-3: Flood Insurance Coverage

	Yes	No	Don't Know
Structure covered by flood insurance?	89	0	4
Percentage	96%	0%	4%
Possessions covered by flood insurance?	82	8	3
Percentage	88%	9%	3%

The survey also asked residents how many times their home or business has been flooded. Three-fourths of those responding had not experienced flooding in their structures. Table C-4 and Chart C-2 on page C-2 offers a breakdown of the results from survey question 6. Of the 17 property owners reporting flooding, 82% experienced flooding from Hurricane Elena, 47% experienced flooding from Tropical Storm Josephine, and 35% experienced flooding from the Storm of the Century (descriptions of these storms can be found on page 11).

Questions 8 and 9 of the survey asked the respondent for written comments. What we discovered was that the committee's initial concern of basing the survey on written comments was, indeed, a valid issue. Of the 93 people who responded to the survey, 30 people (32%) did not answer question 8, and 54 people (58%) did not answer question 9. However, the committee was very pleased by those respondents who took the time to answer the last two questions. We were able to compare the committee's concerns those described by the respondents. While the town generally agreed with the committee regarding the area that floods most often

Table C-5: Where is the Flooding?

Dolphin Drive	23	37%
173 <sup>rd</sup> Avenue	13	21%
did not specify	5	8%
171 <sup>st</sup> & Dolphin	4	6%
Gulf Blvd	4	6%
Bath Club Circle	3	5%
2 <sup>nd</sup> Street	2	3%
171 <sup>st</sup> Avenue	2	3%
South Bath Club	2	3%
North Bath Club	2	3%
beach front	1	2%
Radcliffe Park	1	2%
Madeira Beach	1	2%
Total	63	100%

(see Table C-5), some residents raised concerns and offered suggestions that did not arise during committee meetings.

Table C-6 contains a compilation of the suggestions and concerns received from residents who responded to question 9. Of the 39 responses to this question, a total of 54 suggestions and concerns were provided. From the results of this survey and the committee’s discussions, it is clear that street flooding is the issue that concerns most residents. Many residents are aware of the flawed flapper valve and think that fixing this mechanism will help prevent street flooding and help protect their property. As Table C-6 reflects, over half of the concerns that were raised are related to street flooding. The committee has suggested both the Board of Commissioners and Town Hall staff work to find a solution to this situation. Other suggestions were helpful (evacuate earlier), creative (a vacuum truck to suck up excess water), and challenging (limit growth).

Table C-6: Suggestions and Concerns

flapper valves/ drainage	24	44%
flapper valve maintenance	9	17%
raise homes	4	7%
limit speed on flooded streets	2	4%
raise the road	2	4%
concerned about docks/ seawalls	2	4%
angry about flood insurance	1	2%
limit growth	1	2%
warning to those staying during evacuation	1	2%
sand available to fill sandbags	1	2%
concerned about wind damage	1	2%
concerned about large trees	1	2%
evacuate earlier b/c street floods	1	2%
vacuum truck to suck up excess water	1	2%
fix sprinklers in park	1	2%
have city engineer come up with a solution	1	2%
concerned about overhead powerlines	1	2%
Total	54	100%

Most importantly, this survey allowed residents and business owners to provide the committee with valuable information regarding flooding in North Redington Beach. The committee is pleased with the town’s response to the survey.



# North Redington Beach Survey Results

## Question

1) Who is survey answered by?			
Resident	own	77	82.8%
	rent	8	8.6%
Business	own	5	5.4%
	rent	0	0.0%
Business and Home		3	3.2%
2) Single family 72 81.8%			
Multifamily		16	18.2%

## 3) Approximate year structure was built?

1938	1
1947	1
1948	1
1949	1
1950s	1
1950	3
1953	2
1954	1
1955	6
1956	9
1957	2
1958	5
1959	5
1960	10
1961	4
1963	2
1964	1
1965	1
1966	3
1967	1
1968	3
1969	2
1970s	1
1970	2
1974	2
1975	1
1976	1
1980	2

**Pre-FIRM**

## Totals/Summary

500 surveys sent out

93 surveys received

88 residents

8 businesses

18.6% rate of return

	% of surveyed structures		% of total structures
<u>Structures built:</u>	<u>structures</u>	<u>structures</u>	<u>structures:</u>
before 1950	4	4.3%	1.1%
1950-1959	34	36.6%	9.3%
1960-1969	27	29.0%	7.4%
1970-1979	7	7.5%	1.9%
1980-1989	6	6.5%	1.6%
1990-2000	8	8.6%	2.2%
don't know	7	7.5%	1.9%
<b>total</b>	<b>93</b>	<b>100.0%</b>	<b>25.3%</b>
Pre-FIRM	70		
Post-FIRM	16		
% Pre-FIRM	75.3%		
% Post-FIRM	17.2%		
don't know	7.5%		
<b>total</b>	<b>100.0%</b>		

# Post-FIRM

1985	1
1989	3
1994	1
1997	1
1998	2
1999	1
2000	3
don't know	7
<u>Total</u>	<u>93</u>

#### 4) Structure insured?

yes	no	don't know
89	0	4

#### 5) Contents insured?

yes	no	don't know
82	8	3

#### 6) Number of times flooded?

<u>never</u>	<u>1 time</u>	<u>2 times</u>	<u>3 times</u>	<u>4 times</u>	<u>don't know</u>	<u>Total</u>
70	7	6	3	1	6	93
75.3%	7.5%	6.5%	3.2%	1.1%	6.5%	100.0%

#### 7) Storms causing flooding?

1972	1983	1985	1993	1996	2000	
<u>Agnes</u>	<u>"no-name"</u>	<u>Elena</u>	<u>Century</u>	<u>Josephine</u>	<u>Gordon</u>	<u>Not given</u>
1	2	14	6	8	1	1
5.9%	11.8%	82.4%	35.3%	47.1%	5.9%	5.9%

#### 8) Where is flooding?

Dolphin Drive	23	36.5%
173rd Avenue	13	20.6%
did not specify*	5	7.9%
171st & Dolphin	4	6.3%
Gulf Blvd	4	6.3%
Bath Club Circle	3	4.8%
2nd Street	2	3.2%
North Bath Club	2	3.2%
171st Avenue	2	3.2%
South Bath Club	2	3.2%
beach front	1	1.6%
H. Radcliffe Park	1	1.6%
Maderia Beach	1	1.6%
<u>Total</u>	<u>63</u>	<u>100.0%</u>

#### Structure insured?

yes	no	d/k
95.7%	0.0%	4.3%
<u>Total response</u>		<u>93</u>

#### Contents insured?

yes	no	d/k
88.2%	8.6%	3.2%
<u>Total response</u>		<u>93</u>

2+floods	10
2x in 10yrs	6

#### 17 structures flooded

single family:	16
multi-family:	0
business:	1

33 events  
17 respondents

didn't respond	30	32.3%
did respond	63	67.7%
<u>Total</u>	<u>93</u>	<u>100.0%</u>

\*respondents checked "yes" box but did not indicate where they observed flooding

9) Concerns/suggestions/ideas?

			didn't respond	54	58.1%
			did respond	39	41.9%
			total	93	100.0%
flapper valves/drainage	24	44.4%			
outside contract for drain/flapper maintenance	9	16.7%			
raise homes	4	7.4%			
limit speed on flooded streets	2	3.7%			
docks/seawalls	2	3.7%			
raise the road	2	3.7%			
angry about flood insurance	1	1.9%			
limit growth	1	1.9%			
warning for those staying during mand.evac.	1	1.9%			
make sand available for sandbags	1	1.9%			
wind damage	1	1.9%			
large trees	1	1.9%			
evacuate earlier because of street flooding	1	1.9%			
vacuum truck to suck up excess water	1	1.9%			
fix sprinklers in park	1	1.9%			
have city engineer come up with a solution	1	1.9%			
overhead powerlines	1	1.9%			
<b>Total Suggestions</b>	<b>54</b>	<b>100.0%</b>			

Total number of structures in NRB 367  
 Percentage of structures surveyed 25.3%

Total number of single-family homes in NRB 301  
 Percentage of single-family surveyed 23.9%

For a copy of Appendix D, please contact:

The Pinellas Planning Council  
600 Cleveland Street, Suite 850  
Clearwater, FL 33755-4160  
(727) 464-8250

## Appendix E – Potential Funding Sources for North Redington Beach

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### **Pre-Disaster**

Beach Erosion Control Assistance Program: FL Department of Environmental Protection, Division of Beaches and Coastal Systems, for beach erosion control projects as outlined in 161.091, F.S., up to 75% paid for by State, minimum 25% by sponsoring agency;

DEP, Division of Beaches and Coastal Systems  
Beach and Coastal Ecosystem Management  
Paden Woodruff, Environmental Administrator  
850.487.1262

Beach Erosion Control Projects: Army Corps of Engineers (ACOE), to control beach and shore erosion to public shores through projects not specifically authorized by Congress; funding up to \$2 mil, if project is more, sponsoring agency (NRB) meets remaining need;

U.S. Army Corps of Engineers  
Attn: CECW-PM  
Washington, DC 20314-1000  
202.761.1975

Community Assistance Program- State Support Services Element (CAP-SSSE): FEMA, for NFIP communities, for mitigation projects, funding is 75% Federal, 25% State/ Local (this includes in-kind services), average award: \$90,000;

Federal Emergency Management Agency  
Mitigation Directorate/ Project Implementation Division  
500 C Street SW  
Washington, DC 20472  
202.646.2719

Emergency Advance Measures for Flood Prevention: Army Corps of Engineers (ACOE), assistance for mitigation or during flooding event;

US Army Corps of Engineers  
Attn: CECW-OE  
Washington, DC 20314  
202.272.0251

Emergency Management Grants-in-Aid Program: FL Department of Community Affairs (DCA), emergency management preparedness, 2 types:

- 1) Municipal Grant Program- for cities, up to \$50,000
- 2) Open Competitive Program- for cities, counties, nonprofits; up to \$300,000

Pinellas County contact is David Bilodeau, Emergency Management Director  
727.464.3800; or

Emergency Management Grants-in-Aid  
Department of Community Affairs  
2555 Shumard Oak Boulevard  
Tallahassee, FL 32399-2500  
850.413.9966

Emergency Management Performance Grants: FEMA, project grant, to improve emergency planning, preparedness, mitigation, response, and recovery capabilities, to accomplish program purposes consistent with statutory authorization; average award: \$2,000,000; Contact regional FEMA office or State (DCA);

Florida Department of Community Affairs  
Division of Emergency Management  
Bureau of Recovery and Mitigation  
2555 Shumard Oak Boulevard  
Tallahassee, FL 32399-2500

Emergency Management Preparedness and Assistance Competitive Grant Program: FL DCA, designed to implement projects that will enhance emergency management objectives, for local governments, nonprofits;

Sonya Odom  
850.413.9936

Federal Assistance for Beach Renourishment Program: ACOE in Jacksonville, up to 65% of costs to renourish beaches as well as up to 50 years of periodic maintenance;

Southeast Atlantic Division  
US Army Corps of Engineers  
Jacksonville District  
904.232.1697

Flood Control Projects: ACOE, for flood reduction projects not specifically authorized by Congress;

Commander  
US Army Corps of Engineers  
Attn: CECW-OE  
Washington, DC 20314  
202.272.0251

Flood Mitigation Assistance: FEMA allocates money to FL DCA, DCA actually approves grants, to reduce/ eliminate risks of flood damage, for states or communities;

Florida Department of Community Affairs  
Division of Emergency Management  
Bureau of Recovery and Mitigation  
2555 Shumard Oak Boulevard  
Tallahassee, FL 32399-2500

Flood Mitigation Assistance Program: FL DCA, designed to fund projects or programs that will permanently reduce the costs of response and recovery to flooding hazards;

Leroy Thompson  
850.413.9816

Floodplain Management Services: ACOE, to recognize flood hazards in planning/development phase; provides technical services, guidance;

US Army Corps of Engineers  
Attn: CECW- PF  
Washington, DC 20314-1000  
202.272.0169

Hurricane Program: FEMA, mitigation and post- disaster assistance;

Federal Emergency Management Agency  
Mitigation Directorate/ Project Implementation Division  
500 C Street SW  
Washington, DC 20472  
202.646.4621

Payment to States in Lieu of Real Estate Taxes: ACOE, for communities who have lost property tax revenue because properties have been federally acquired, local government can receive a subsidy;

Headquarters  
US Army Corps of Engineers  
Attn: CERM- FC  
20 Massachusetts Avenue NW  
Washington, DC 20314-100  
202.272.1931

Project Impact: FEMA, grants for mitigation projects, coordinated through Tampa Bay Regional Planning Council (727.570.5151), projects can be education, mitigation, assessments; funding: 75% Federal, 25% nonfederal; average award \$300,00;

Federal Emergency Management Agency  
3003 Chamblee Tucker Road  
Atlanta, GA 30341  
770.220.4260

Tampa Bay Regional Planning Council  
9455 Koger Blvd, Suite 219  
St. Petersburg, FL 33702-2491  
727.570.5151

Project Impact Prevention Loan Program: part of RCMP, Florida Alliance for Safe Homes and Fannie Mae, fixed rate loan up to \$20,000 to cover expenses of upgrading home in the event of a major storm, loan can go towards storm shutters, "safe rooms," elevating the home, strengthening the roof and more;

Florida Alliance for Safe Homes (FLASH)  
877.221.SAFE (7233)  
Florida Alliance for Safe Homes  
1430 Piedmont Drive East  
Tallahassee, FL 32312

Protection of Essential Highways, Bridges, Public Works: ACOE, to provide protection to essential public works and nonprofits (schools, churches) endangered by flood-caused erosion;

US Army Corps of Engineers  
Attn: CECW- PM  
Washington, DC 20314-1000  
202.272.1975

Residential Construction Mitigation Program (RCMP): FL DCA, provides opportunities for homeowners to have home inspected for vulnerabilities during storms, offers suggestions for homeowners to make their homes more damage resistant, loans available to homeowners to finance upgrades;

Buster Case, Residential Construction Mitigation Program  
Department of Community Affairs  
Division of Housing and Community Development  
2555 Shumard Oak Blvd.  
Tallahassee, FL 32399-2100  
850.922.5434

The Trust for Public Land Conservation Services Program: DCA (The Trust for Public Lands), to help local governments find creative solutions to buy land when there is no immediate funding or where the property owner has special requirements;

850.222.7911 x23

Watershed Protection and Flood Prevention: Natural Resource Conservation Service; to provide technical and financial assistance in carrying out works of improvement to protect, develop, and utilize the land and water resources in watersheds smaller than 250,000 acres; average award: \$650,000;

Deputy Chief for Programs  
Natural Resources Conservation Service  
Department of Agriculture  
P.O. Box 2890  
Washington, DC 20013  
202.720.4527

Watershed Surveys and Planning: Natural Resource Conservation Service; to provide planning assistance for the development of coordinated water and related land resources programs in watersheds and river basins; technical assistance provided to local government for planning activities to help solve water and related land resources problems;

Deputy Chief for Programs  
Natural Resources Conservation Service  
Department of Agriculture  
P.O. Box 2890  
Washington, DC 20013  
202.720.4527

## **Post-Disaster**

Community Disaster Loans: FEMA, loans to any local government that has suffered substantial loss of tax and other revenue in an area in which the President designates a major disaster exists; funds can only be used to maintain existing functions of a municipal operating character; local government must demonstrate a need for financial assistance;

Federal Emergency Management Agency  
Response and Recovery Directorate  
500 C Street SW  
Washington, DC 20472  
202.646.3683

Cora C. Brown Fund: specifically to cover relief of human suffering caused by disasters if no other source is available;

Federal Emergency Management Agency  
Response and Recovery Directorate/ Human Services Division  
500 C Street SW  
Washington, DC 20472  
202.646.3642

Emergency Operations Flood Response and Post Flood Response: ACOE, emergency supplemental assistance to state and local governments by the ACOE during flood/ coastal storm, usually requested by the Governor;

US Army Corps of Engineers  
Attn: CECW- OE  
Washington, DC 20314-1000  
202.272.0251

Emergency Rehabilitation of Flood Control Works or Federally Authorized Coastal Protection Works: ACOE, to assist in the repair and restoration of federally authorized hurricane flood and shore protection works damaged by extraordinary wind, wave, or water;

US Army Corps of Engineers  
Attn: CECW- OE  
Washington, DC 20314-1000  
202.272.0251

Florida Recreation Development Assistance Program (FRDAP): FL DEP, to acquire land for outdoor recreation purposes; if major storm were to destroy beach side property, town could use this grant to buy that land and pay for bathrooms, picnic area, etc.; town must match funds depending on overall cost of project, either 0%, 25% or 50%; grant application window: month of September;

Bureau of Design and Recreation Services  
Division of Recreation and Parks  
3900 Commonwealth Blvd  
Tallahassee, FL 32399-3000  
904.488.7896

Hazard Mitigation Grant Program (HMGP): FEMA through FL DCA, funding to incorporate mitigation measures into the repair of a damaged home;

Florida Department of Community Affairs  
Division of Emergency Management  
Bureau of Recovery and Mitigation  
2555 Shumard Oak Boulevard  
Tallahassee, Florida 32399-2500

Individual and Family Grants: FEMA, grants to residents but local gov't applies on their behalf; for needs not met by insurance such as real property, personal property, medical, dental, funeral, and transportation expenses; for Federal major disaster declaration areas only; funding is 75% Federal, 25% State;

Laurence Zensinger, Director  
Human Services Division/ Response and Recovery Directorate  
Federal Emergency Management Agency  
Washington, DC 20472  
202.646.3685

Public Assistance Grants: FEMA, following a Presidential declaration, grants may be made for: removal of wreckage and debris from private and public lands, performance of emergency protective measures, emergency transportation assistance, emergency communications, and permanent restoration of eligible facilities; Governor requests funds from FEMA after a disaster;

James A. Walke  
Federal Emergency Management Agency  
Response and Recovery Directorate  
Washington, DC 20472  
202.646.2751

Physical Disaster Loans (Business): provides low interest loans to businesses affected by declared physical type disasters for uninsured losses, up to \$200,000- 30 year loan;

Office of Disaster Assistance, Small Business Administration  
409 3<sup>rd</sup> Street Southwest  
Washington DC, 20472  
202.205.6734

Public Assistance Program: provides supplemental assistance to states, local governments, and certain nonprofit organizations to alleviate suffering and hardship resulting from major disasters or emergencies declared by the President;

Federal Emergency Management Agency  
Response and Recovery Directorate/ Infrastructure Support  
Division  
500 C Street SW  
Washington, DC 20472  
202.646.3026

The Trust for Public Land Conservation Services Program: DCA (The Trust for Public Lands), to help local governments find creative solutions to buy land when there is no immediate funding or where the property owner has special requirements;  
850.222.7911 x23

## **Online Resources**

<http://www.cfda.gov/>

Catalog of Federal Domestic Assistance; available Federal funding sorted by categories.

<http://www.dca.state.fl.us/ffcm/FCMP/Grants/fcmpgrts.htm>

Click on "More Grant Sources" under Table of Contents, then "Community Assistance Reference Guide, 1999", extensive list of funding sources.

<http://www.deerfield-beach.com/html/ihurrhome.htm>

Interactive hurricane home, demonstrates and explains reinforcement techniques.

<http://www.flash.org/CInfoCenter.htm>

Florida Alliance of Safe Homes, Community Information Center.

<http://www.tbrpc.org/projectimpact/programs.htm>

Tampa Bay Regional Planning Council, programs involved with Project Impact Tampa Bay.

## Appendix F – Local Mitigation Strategy

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Pinellas County's Unified Local Mitigation Strategy (LMS) began in early 1998 and was funded by the Florida Department of Community Affairs with money originating at the FEMA. Twenty-three municipalities, including North Redington Beach, and the county participated in the process along with other public and private interests who shared their expertise during the sessions. The LMS document is comprised of sections that includes goals and objectives, policies and ordinances already in place, hazard identification, vulnerability assessment, repetitive flood-loss properties, critical facilities, and priority activities to lessen hazard damages. While the FMP focuses on flooding, the LMS assesses all potential hazards including natural and human-made disasters. This document is examined and updated annually.

The LMS and FMP are complementary documents. Since flooding, especially flooding associated with hurricanes, could be considered North Redington Beach's greatest hazard, it is natural that a document be created to address this potential disaster. However, other hazards do exist, and the town is prepared with a plan (the LMS) that addresses all hazards.

Included in this appendix are excerpts of the LMS specifically pertaining to North Redington Beach. The first section (beginning on page F-2) contains the policies and ordinances identified in the LMS as having protective measures to reduce hazard vulnerability. The second section (found on page F-5) in this appendix is one page explaining North Redington Beach's department functions and responsibilities regarding disasters. The third section (page F-6) includes those activities North Redington Beach has identified as helping to lessen the impact of disasters on the town. The pilot flapper valve has been installed, although it has not been sufficient in preventing tidal backup from entering into streets. The second initiative, raising the electricals and controls on the lift stations, has been completed after full funding by the town. The fourth and final section of this appendix (page F-7) is a copy of the resolution that formally endorses the LMS.

## North Redington Beach

Ordinance 6-16	Only structures meeting the requirements of Building Code are allowed to be built within the Town. No mobile homes are permitted. Additions and structures must meet 110 MPH wind loads and floodplain regulations.
Evaluation	Reduces amount of damage from coastal flooding, storm surge and wind.
Hurricane Evaluation Implementation Guide; Disaster Plan – In General	
Evaluation	Policies and working procedures for effective coordination of property protection and life saving efforts made before, during and after a disaster. Educates residents about threats to the Town and steps needed to protect themselves and property from natural and man-made disasters.
Chapter 9	Flood prevention and control chapter; Requires all new or substantially improved construction to be above base flood elevation.
Evaluation	Limits the number of structures damages be coastal flooding and storm surge.
Policy 101.601	Require all uses requesting development authorization to submit a site plan for review with particular emphasis on drainage retention and storm water management, open space and flood protection.
Evaluation	Allows the Town to monitor and implement storm water management to reduce flooding within the Town.
Policy 101.1001	Encourage adjacent coastal communities to reduce allowed densities and protect road carrying capacity.
Evaluation	Reduces densities in coastal areas and enhances evacuation routes, evacuation times, and evacuation shelter space availability.
Policy 101.1201	Review methods and techniques for development which reduce land coverage, storm water runoff, etc.
Evaluation	Reduces flooding potential by limiting impervious surfaces.
Policy 301.203	Rigidly enforce building and safety codes.
Evaluation	Reduces amount of damage from coastal flooding, storm surge and wind.
Policy 403.103	Require pervious paving for all non-requires parking area and temporary drive areas.
Evaluation	Reduces flooding potential by limiting impervious surfaces.
Policy 403.104	Reduce paving requirement where practical.
Evaluation	Reduces flooding potential by limiting impervious surfaces.
Policy 403.105	The Town shall maintain a storm water drainage system which is capable of providing a LOS sufficient to handle a 25-year, 6-hour storm event during normal tide levels.
Evaluation	Provides for storm water retention to reduce flooding potential.
Policy 501.203	Storm water management systems shall be required of all new development and for substantial redevelopment.

Evaluation	Offsets storm water quantity and water quality impacts created by new development.
Policy 502.102	Proposed or requested increased in residential densities in evacuation areas shall document the availability of adequate public shelter spaces for the additional residents before they are approved.
Evaluation	Limits the number of persons that inhabit evacuation areas, and reduces demand for public shelter spaces.
Policy 502.103	Town shall designate an official of the Town to coordinate with the county and state in the development of emergency management plans and the dissemination of pertinent information.
Evaluation	Provides updated emergency management information to the Town to aid in its protection, and improve upon coordination during storm events.
Policy 502.201	Continue to participate in the federal flood insurance program (FEMA) including the maintenance of flood proofing development standards and by designating all areas seaward of the coastal construction line or FEMA designated V (Velocity) zones as coastal high hazard areas, limiting development in these areas through rezoning and reduction of allowed densities.
Evaluation	Reduces or eliminates potential loss of life and property caused by coastal storms.
Policy 502.202	Preserve mangrove areas as protective buffers against storm winds and waves through development of protective ordinances.
Evaluation	Provides a buffer for the Town from storm surge, coastal flooding and improves erosion control.
Policy 502.204	Expansion of public infrastructure will be permitted in the coastal high-hazard areas only for the purpose of water-dependant recreation of resources restoration, to protect the health, welfare and safety of existing residents, or where there are no alternatives for meeting infrastructure deficiencies identified in the local comprehensive plan. Where possible, infrastructure shall be replaced or relocated away from these areas.
Evaluation	Limits infrastructure subject to damage in high-hazard areas.
Policy 502.205	Since no unsafe conditions or inappropriate uses presently exist in the coastal high hazard area, the Town's Building Inspector shall conduct an inspection annually to determine if any structures within the coastal high hazard area are in need of redevelopment or the correction or elimination of unsafe conditions or inappropriate uses.
Evaluation	Reduces or eliminates potential loss of life and property caused by coastal storms.
Policy 502.207	The Town shall adopt and enforce all appropriate federal, state, and regional coastal construction codes, coastal setback requirements, and the state minimum building code as it deals with coastal areas.
Evaluation	Reduces amount of damage from coastal flooding, storm surge and wind.

Policy 502.303	Following a natural disaster, the Town shall appoint damage assessment teams who shall assess the effectiveness of current hazard mitigation measures and give a report on their findings to those making redevelopment decisions.
Evaluation	Provides an evaluation of existing hazard mitigation strategies to be used to improve upon responses to future natural disasters.
Policy 502.404	As a part of the development review process on all developments which are proposed for subdivision and transfer by deeds for sale, the Town shall require the developer to disclose by written statement to the purchaser, the property's relative probability of damage from a hurricane storm surge.
Evaluation	Provides purchaser with knowledge of potential damage in area allowing them to anticipate construction costs associated with development in these areas as well as providing them with an opportunity to reduce their exposure to coastal storms and flooding.
Policy 506.101	North Redington Beach shall continue to support and foster a county-wide program for restoring and renourishing sandy beaches and dunes.
Evaluation	Provides protection from storm surge and coastal flooding.
Policy 506.201	New development shall be prohibited in the frontal dune and beach area within North Redington Beach.
Evaluation	Limits area of construction and regulates the type of construction allowed reducing potential damage from storm surge and coastal flooding.
Policy 506.202	Vehicle and foot traffic over the frontal dune system (both natural and artificial) shall be restricted so as not to destabilize these unstable natural features.
Evaluation	Protects dune systems that provide a natural buffer from storm surge and coastal flooding.
Policy 701.301	Acquire where possible vacant land for additional public recreation/open space lands.
Evaluation	Open space limits construction and provides additional area for absorption of storm water. It also provides protection from storm surge and coastal flooding.
Policy 901.401	North Redington Beach shall discourage any future development in the high hazard coastal areas and where possible shall remove these areas from development through purchase or development transfer.
Evaluation	Limits population and development within the high-hazard coastal areas and reduces or eliminates potential loss of life and property caused by coastal storms.

## Municipal Departments and their Mitigation Functions North Redington Beach

Emergency Mgt. Loss Reduction	Comprehensive Emergency Management Planning Establishes policies and procedures for mitigation efforts and provides for structured post disaster redevelopment.
Emergency Mgt. Loss Reduction	Coordinate with Pinellas County Emergency Management to assure the safe evacuation and orderly return of residents. Reduces loss of life, prepares citizens as to proper manner of evacuation and educated them as to what to take out.
Brd of Commrs Loss Reduction	Promulgates plan for keeping citizens and property within the community safe. Town personnel know procedures for disasters before, after and during an emergency.
Building Loss Reduction	Enforces building codes and FEMA regulations. Estimates damage and ensures rebuilding done to meet proper codes. Buildings built to withstand 110 MPH wind; built to base flood elevation; roofs have proper hurricane tie-downs.
Fire Department Loss Reduction	Conducts evacuation. Coordinates with county. Moves equipment to secondary center on higher ground. Saves lives and property taken off premises. Saves fire equipment from coastal flooding.
Police Department Loss Reduction	Conducts evacuation. Patrols Town. Calls in public service and business personnel for repairs, as needed. Saves lives and property taken off premises. Saves police equipment from coastal flooding. Saves costlier repairs of infrastructure by catching early.
Public Works Loss Reduction	Prepares buildings and equipment for evacuation i.e. shutters, window covers, elevation whenever possible, removal of Town vehicles and equipment to higher ground. Regularly removes debris from storm drains. Reduces wind damage to municipal buildings; and saves equipment from coastal flooding. Allows stormwater entry in storm drains with less backup.

## **Local Mitigation Strategy Initiatives North Redington Beach**

Initiative: STORM SEWER – “flapper” valve to prevent storm water/tidal backup into streets. This is a pilot program that will eventually lead to the installation of a total of 12 valves. Estimated Cost \$45,000.

Initiative: SEWER – North Redington Beach provides sewer service for Redington Shores and NRB. Raise main lift station electrical and controls above flood plain (\$75,000). Raise emergency generator and fuel tank above flood plain (\$50,000). Raise lift station electrical and controls above flood plain – two stations (\$140,000). Lift Stations – 100 Bath Club Concourse, 300 N. Bath Club Blvd. Estimated Cost \$265,000.

Initiative: UNDERGROUND UTILITIES – begin partial funding of placing barrier island utilities underground. Phase I – Florida Power (\$1,000,000) and Telephone/Cable (\$750,000). Gulf Blvd. and town streets. Estimated Cost \$1,750,000.

[Note: under second initiative, sewer lift station electrical and controls have been raised after full funding from the Town of North Redington Beach.]