Volusia County Integrated Floodplain Management Plan

2018

Prepared for

Volusia County Division of Emergency Management

by

The East Central Florida Regional Planning Council

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I. ACKNOWLEDGEMENTS

The East Central Florida Regional Planning Council would like to thank the Floodplain Management Plan Committee for their participation in the preparation of this plan. The following jurisdictions were instrumental in the completion of this plan: Volusia County, Daytona Beach, Daytona Beach Shores, Debary, DeLand, Deltona, Edgewater, Holly Hill, Lake Helen, New Smyrna Beach, Oak Hill, Orange City, Ormond Beach, Pierson, Ponce Inlet, Port Orange, and South Daytona. Thank you to the Volusia County Division of Emergency Management for assisting in the plan development and coordination necessary for its success.

II. INTRODUCTION

The National Flood Insurance Program (NFIP) provides federally supported flood insurance in communities that regulate development in floodplains. The Community Rating System (CRS) grades the various Community Floodplain Management Programs and reduces flood insurance premiums in those communities that meet certain requirements. In order to reduce the potential for personal/property losses in flood prone areas and ensure the lowest possible flood insurance premiums for our residents, Volusia County and the jurisdictions of Daytona Beach, Daytona Beach Shores, Debary, Deland, Deltona, Edgewater, Holly Hill, New Smyrna Beach, Oak Hill, Orange City, Ormond Beach, Pierson, Ponce Inlet, Port Orange and South Daytona have developed this Floodplain Management Plan which includes specific jurisdictional plans. The Plan was developed and is updated annually with input from the Volusia County Local Mitigation Strategy Steering Committee, Volusia Prepares; and the Volusia County Growth & Resource Management and Public Works Departments. On [INSERT DATE], the Volusia Prepares Steering Committee voted unanimously to incorporate the Plan into the Local Mitigation Strategy.

Activity section 510 of the CRS Coordinator's Manual requires an annual update of the Plan's implementation be made available to the local governing body (distributed electronically), the community, and the media. Copies of this plan are available for review at the Volusia County Kelly Administration Building, 123 West Indiana Avenue, DeLand, and the Daytona Beach Regional Library, 105 East Magnolia Avenue, Daytona Beach. Additionally, copies may be obtained by calling the Volusia County Emergency Management Division, 386-258-4088 or downloading a copy from https://www.volusia.org/services/public-protection/emergency-management/types-of-disasters/floods. A copy of this report has also been sent to the Daytona Beach News-Journal, the Orlando Sentinel, and the State of Florida NFIP Coordinating Official. This memorandum documents the current status of the Plan's implementation.

III. BACKGROUND

This Floodplain Management Plan was developed by the East Central Florida Regional Planning Council for Volusia County and the jurisdictions within. The plan is designed to encompass a snapshot of floodplain hazards throughout the county and also provide separate jurisdictional plans developed as the appendices of the main plan. This design promotes a unified approach to mitigation and planning efforts and consistency across the county. As part of the planning process, this plan was integrated with the Volusia County Local Mitigation Strategy document (LMS). The LMS provides in-depth analysis of hazards and mitigation strategies. Various sections of the LMS have been identified throughout this Floodplain Management Plan in order to provide additional information for projects and analysis. The Volusia County Floodplain Management Plan follows the format and outline of the Community Rating System guidance. Individual jurisdictional analysis is provided in Appendix A of this document.

IV. PLANNING PROCESS

A. Organize to Prepare the Plan

The 2018 Volusia County Floodplain Management Plan update was prepared by the East Central Florida Regional Planning Council (ECFRPC), a community planning office, in conjunction with the Volusia County Emergency Management Division, the Volusia County Growth Management Department and the jurisdictions within Volusia County. The ECFRPC project manager is a certified planner by the American Institute of Certified Planners. The planning committee consisted of the Volusia Prepares LMS Working Group, County CRS Coordinator, Floodplain Managers, and additional jurisdictional staff responsible for the implementation of floodplain management strategies, State Mitigation Officers and the Florida Division of Emergency Management.

The planning process and committee were supported by the jurisdictional commissions, and the names of the planning team members are included below and Appendix E. These individuals were from departments ranging from Planning, GIS and Emergency Management. The resolutions passed in support of this plan are located in Appendix I. A listing of the team members from the city and county levels that were involved in this plan is listed below, along with the department that they are affiliated with.

- Daytona Beach *(Kimberly Dixon, Planning)*
- Daytona B. Shores *(Stewart Cruz, Planning)*
- Holly Hill *(Tom Harowski, Planning)*
- Lake Helen *(Don Findell, Administration)*
- Ormond Beach *(Becky Weedo, Planning)*
- Ponce Inlet *(Adrian Marks, Building)*
- DeBary *(Alan Williamson, Public Works)*
- Edgewater *(Tara Lynn Hilton, Planning)*
- Port Orange *(Michael Anderson, Engineering)*
- Volusia County *(Larry LaHue, Emergency Management)*

Several planning committee meetings were held throughout the process. Due to the limited time frame to prepare the planning document, meetings focused on multiple steps of the process. The table below lists the planning team meeting dates, locations and focus areas of each meeting.

Table 1: Planning Committee Meetings

Meeting Name & Attendees	Date	Location	Focus Areas
Kick Off Meeting (ECFRPC, County EM)	3/28/18	Phone Meeting	Project Budget, Plan and CRS Overview, Planning Process, Planning Team, Public Outreach, Surveys
Planning Meeting (ECFRPC, County EM, Cities, Towns)	6/20/18	Volusia County Beach Safety Headquarters	Volusia Prepares Members, Public Survey, Final Public Meeting, Vulnerability Analysis, Goals and Objectives
Final Planning Meeting (ECFRPC, County EM)	7/XX/18	Volusia County EOC	Draft Plan, Appendices, Volusia Prepares Steering Committee (FMP to LMS), Final Updates

B. Involve the Public

As part of the planning process, numerous efforts to engage the public were implemented. The planning committee reviewed the survey and provided comments prior to public release. A public survey was created using surveymonkey.com and the link was provided to all jurisdictions for release in newsletters, utility/water bills, and through websites and social media. The link was also made available on the Volusia County Floodplain website. The survey was also made accessible at the public meetings.

The survey announcements provided contact information in order to request a hard copy of the survey, which was then provided with a return envelope. Postcards were also addressed to other facilities specifically requested by jurisdictions, which provided information and the survey link. The public survey received a total of 220 responses during its collection period from January 2, 2018 to June 30th, 2018. During the survey collection period, 17 physical copies of the survey were requested and mailed to the residents. Of these requests, 13 surveys were completed and returned, resulting in a 76% response rate.

Key findings from the public survey are as follows:

- Over 55% of respondents have lived in their current residence for over 11 years.
- Approximately 65% of respondents indicated their home was built prior to 1987.
- 43.2% responded that they are not concerned about the possibility of their home flooding, 38.6% are somewhat concerned, and 18.2% are very concerned about the possibility of their home being flooded.
- 24.5% of respondents noted that their home is located within a floodplain, 37.3% are located outside a floodplain, and 38.2% (the majority) are unsure if their home is located within a designated floodplain.
- Of the 24.5% of respondents knowing within the floodplain, 15.7% are in Zone AE, 13.7% are in Zone A, 9.8% are in Zone A1-A30. However 60.8% are unsure of their zone classification.
- Nearly 78% of respondents indicated that their home, to their knowledge, has never flooded due to natural causes.
    - Of the 12.4% of respondents indicating their home had flooded due to natural causes, 88.9% noted that the last flooding occurred between 2000 and 2009 (this would include the 2004 Hurricanes and TS Fay).
    - 70.4% of those respondents who have experienced flooding in their homes noted that the flooding was less than 1 foot in depth, 22% experienced between 1 and 2 feet of water.
    - The cost of structural damages associated with this flooding was varied; 25% noted less than $1000; 22% noted between $5000 and $10,000; and 26% indicated structural damages between $10,000 and $50,000.
    - The approximate dollar value of personal items lost was varied as well; 33.3% noted less than $1000 in loss; 22.2% indicated between $1,000 and $1,999; and 14.8% lost more than $5,000 of personal items (18.5% were unsure).
- 42% of total respondents have flood insurance.
- Of the 51% without flood insurance, the majority (40%) stated that the main reason for not having flood insurance was that they feel there is no real threat of a flood on their property; 33% indicated that cost is the main reason.
- Nearly 16% of respondents noted that flood mitigation efforts had been implemented on their property. 31% were unsure.
    - Mitigation included a variety of efforts from pouring a cement barrier at wall bases, building a flood wall, elevating house slab, control ditches, building swales, fill dirt, elevated property and home, sold property adjacent to home for retention pond, and natural vegetation to act as flood barrier.
- 81% of respondents indicated that they have never considered implementing flood management strategies on their property. The reasons for the lack of implementation include time and money.

- Only 3 respondents (1.3%) indicated that their property is currently classified as a repetitive flood loss property. 12.4% are unsure.
- 25.7% of respondents have visited the Volusia County Floodplain website.
- 13.4% of respondents are very satisfied with jurisdictional efforts of public involvement and outreach as it concerns flood hazards; 21.8% are somewhat satisfied; 8.4% are somewhat dissatisfied; 8.4% are very dissatisfied, and 48% are unaware of public involvement/outreach efforts.

Appendix B provides documentation of the various efforts used to inform the public of the survey, copy of the public survey, and the final results.

The business community was engaged in the process through a survey created specifically for business owners. The link to this survey was made available to jurisdictions to release to the various Chambers of Commerce and other business oriented agencies and groups within their community. The link was also distributed through various websites. This survey was also made available at the public meetings for any business owners in attendance. This survey received 22 responses during its collection period from February 7, 2013 – March 15, 2013. Appendix C provides a copy of the business survey.

Main findings from the business survey are as follows:

- The majority of respondents (38%) have been in business at their current locations for 11- 20 years.
- 45% of buildings were constructed between 1987 and 2001.
- 70% of respondents are not concerned about their business flooding and 63% are not concerned about the flooding possibility of streets accessing their business.
- While 25% of respondents indicated they are located within a designated flood hazard zone, 35% are unsure. Of these respondents, 50% noted that they are unsure of their flood zone.
- Being located in a flood zone was a concern in business location for 25% of respondents.
- 26% of respondents indicated that their place of business has flooded due to natural/environmental causes; 60% of these respondents noted the flooding event occurred between 2000 and 2009 while 40% occurred between 2010 and 2012.
- Flooding has caused 93% of respondents to close their business for 0-1 days and 6.7% to close between 2-4 days.

- 25% of respondents have flood insurance for their property while 25% are unsure and 50% do not have flood insurance.
- When asked why they do not have flood insurance, 55% of respondents without flood insurance indicated that they feel there is no real threat of flooding on their property while 22% noted that they rent their property.
- Approximately 19% of respondents noted that flood mitigation efforts have been implemented on their property.
- 87% of business respondents are satisfied with public involvement and outreach efforts by local jurisdictions as related to floodplain management.

In Volusia County, a number of Home Owner Associations are associated with developments within the 100 year floodplain. An analysis of the floodplain and home owner association data identified 94 associations within the floodplain. Another specialized survey was developed and due to the availability of only mailing addresses, postcards were sent to the 94 home owners association with information and the link to the survey. This survey was open for comment from February 19 – June 30th, 2018. During this time, 4 surveys were completed, resulting in a 5% response rate. A total of 19 announcements were returned to sender.

A total of two public meetings were held during the planning process. The meetings kicked off the public process by obtaining initial comments and input from the public. All public meetings were advertised in the Florida Administrative Weekly and a press release was issued to all jurisdictions and the Volusia County Public Information Officer. Appendix E provides samples of the public meeting announcements conducted throughout the county and within jurisdictions.

Due to the size of Volusia County, it was determined the best way to reach the residents was to hold one meeting on the east side of the county (City Island Library, Daytona Beach) and one on the west side (DeLand Public Library). The meetings were held on June 15th and June 18th, 2018, respectively. The meetings consisted of a presentation on the plan background and purpose, question and answer session and an open house session. Computers were provided at the meeting for attendees to access the public survey and to visit the Volusia County Flood Mapping website to determine whether a specific property is located within the floodplain. Public comments were recorded and brought back to the planning team for discussion and review.

The public was also provided the opportunity to comment on the final draft plan through an open survey period. Emails with the plan and survey links were provided to property, business and homeowners who supplied contact information in the initial surveys. A press release was provided to media outlets and all jurisdictions and partnering agencies and stakeholders were provided the link

to the survey and document for dissemination to the public and for use on social media outlets. The public comment period was open from June 30th, to July 9th, 2018. Attempts to encourage public input to the planner or Floodplain Management Plan Committee included information distributed through Utility Bills and informational notices posted on webpages. Local television, Channel 13, aired a news segment about the FMP Public Survey. Additionally, the County has built a web site and links to provide flood and other natural hazard related information.

C. Coordinate

Existing studies, reports, plans and other information were reviewed in the development of this plan. These documents include the Volusia County Local Mitigation Strategy, local Comprehensive Plans, Land Development Codes, Ordinances, and stormwater management plans. During the LMS update of 2014, individual plan updates were reviewed as well to ensure consistency and overlapping projects and priorities. Table 2 illustrates the plans, reports, codes, and other documents within each jurisdiction. The Volusia County LMS provides more information concerning each plan and its role in emergency management and floodplain management. This information can be found in Section 7: Capability Assessment of the LMS. Note that as part of the Floodplain Management Plan, this table has been updated and modified from the LMS. It is recommended that during the next update of the LMS, this table be used as a point of update. Note: All jurisdictions, through this FMP have integrated a standalone Floodplain Management Plan.

Jurisdiction	Local Mitigation Strategy	Comprehensive Land Use Plan	Floodplain Management Plan*	Open Space Management Plan	Stormwater Management Plan	Natural Resource Protection Plan/Policies/Code	Flood Response Plan	Emergency Operations Plan	Continuity of Operations Plan	Evacuation Plan	Disaster Recovery Plan	Capital Improvements Plan	Economic Development Plan	Historic Preservation Plan	Floodplain Ordinance (or Flood Damage Prevention Ordinance)	Zoning Ordinance	Subdivision Ordinance	Land Development Code	Post-disaster Redevelopment /Reconstruction Ordinance /Policy	Building Code	Building Code with FEMA Floodplain Standards (2013)	Fire Code	National Flood Insurance Program	NFIP Community Rating System
Daytona Beach	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X		X		X	X	X
Daytona Beach Shores	X	X			X			X		X		X			X	X		X		X	X	X	X	X
DeBary	X	X	X	X	X	X	X	X			X	X	X		X	X	X			X		X	X	
Deland	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X		X		X	X	
Deltona	X	X	X	X	X	X		X	X	X		X	X			X	X	X		X		X	X	X
Edgewater	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X
Holly Hill	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X			X		X	X	X
Lake Helen	X	X	X	X	X	X	X	X	X	X		X		X	X	X	X	X		X		X	X	
New Smyrna Beach	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
Oak Hill	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
Orange City	X	X	X	X	X		X	X	X	X		X		X		X	X			X	X	X	X	
Ormond Beach	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
Pierson	X	X						X		X		X				X	X			X		X	X	
Ponce Inlet	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X		X	X	X	X	X	X
Port Orange	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
South Daytona	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X			X		X	X	X
Volusia County	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X

Table 2: Jurisdictional Plans (add new plans via LMS Working Group Meeting)
Source: Volusia County LMS, 2010 and updated

The Planning Team reviewed plans from the County and all jurisdictions for information geared to assist in the data collection, analysis and overall development of this plan. While the Local Mitigation Strategy provided a great deal of information, individual Comprehensive Plans gave the planning team good insight into the policy-driven needs of these jurisdiction from a community resiliency and land use perspective. The datasets compiled from the Future Land Use element of each Comprehensive Plan within the County (city and county) were utilized to create a land-use based GIS analysis in the risk assessment portion of this report. The county Emergency Operations Plan and COOP Plans were also reviewed by the Planning team to ensure the initiative and analyses included in this plan reflect the actual response mechanisms already in place in Volusia County. Of the plans listed above, another crucial piece of information from the jurisdictional level came from building codes and standards located within Land Development Codes.

V. RISK ASSESSMENT

A. Assessing the Hazard

The County consists of approximately 1,210 square miles with 50 miles of Atlantic coastline. Approximately 982 square miles are located in unincorporated areas and 238 square miles are incorporated. On the east side of the County, the Halifax River and the Indian River North/Mosquito Lagoon make up the Intracoastal Waterway and form long, narrow estuaries which separate the mainland from the barrier island. Ponce De Leon Inlet, located near the middle of the coastline, serves as the County's only passage through which ocean tides and hurricane surges pass into the Intracoastal Waterway.

The St. Johns River is the largest river in the County and flows along the west side of the County. The Tomoka River has a tributary area of 159 square miles, which serves the northeastern and central portions of the County. The river flows from south to north and discharges through the Tomoka Basin to the Halifax River, which can be subject to storm surge.

Volusia County's primary and most often occurring hazard is from flooding caused by hurricanes, tropical storms, and subtropical events that are associated

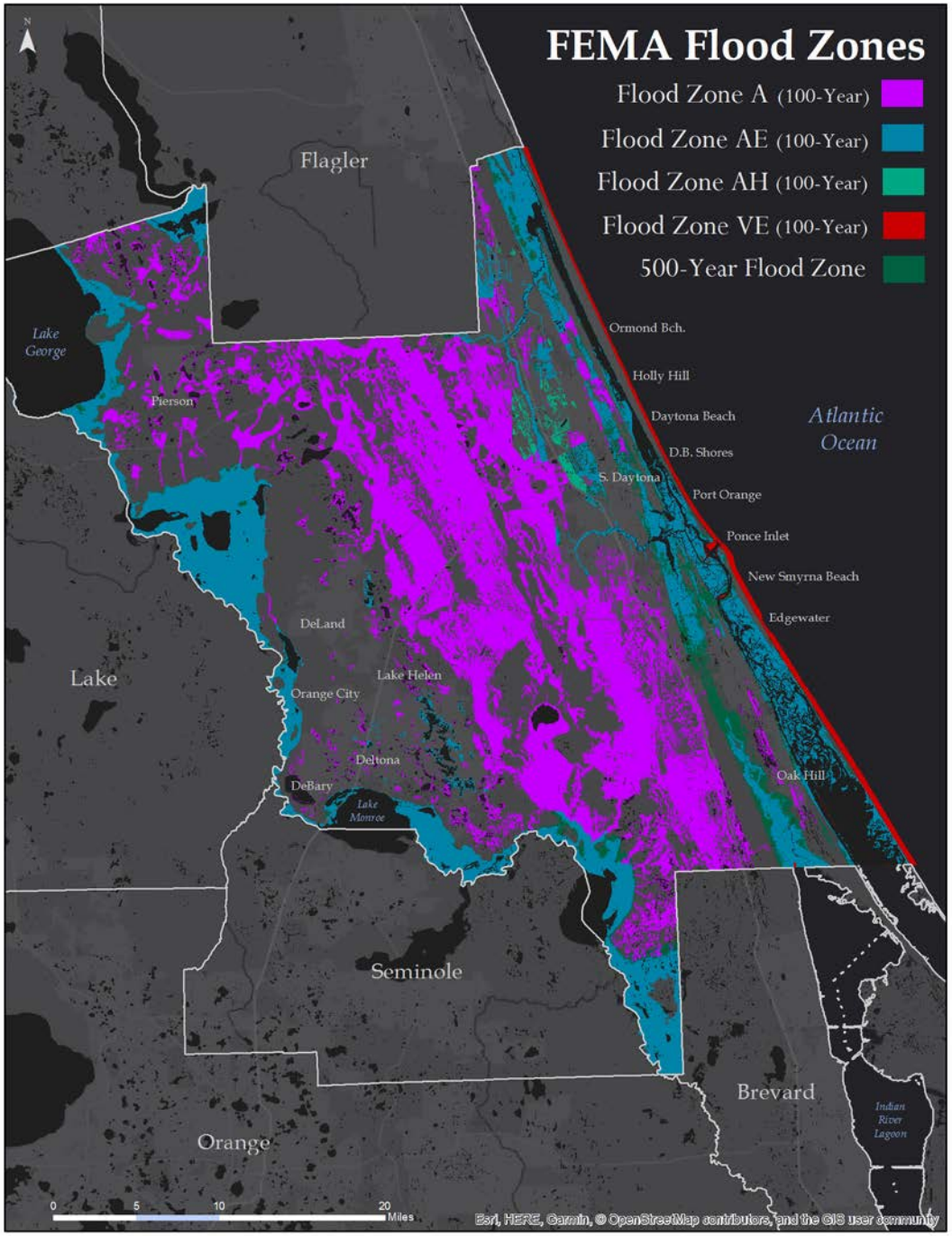

Figure 1: FEMA Flood Zones

with extremely heavy rain. Many areas of Volusia County are susceptible to riverine and urban flooding as well as by storm surge due to coastal storm events. Riverine flooding occurs from the St. Johns River, the Halifax River and the Tomoka River, in addition to associated tributaries and creeks such as Thompson Creek and Laurel Creek in the Ormond Beach area.

Additionally, certain low-lying inland areas in the northwest, north, southeast and southwest are considered flood-prone areas. Many evacuation routes traverse the floodplain and if not mitigated properly (elevated, designed, etc.), could be prone to flooding. The figure on the previous page depicts the Volusia County 2017 DFIRM flood zones throughout the County. The storm surge zone map on the following page visualizes storm surge zones (by hurricane intensity) from the Statewide Regional Evacuation Study for the East Central Florida Region.

Areas vulnerable to flooding are generally located within the floodplain. FEMA updated the Flood Insurance Rate Maps for Volusia County and published them in 2017. While the preliminary DFIRMS are not currently in effect at the time of completion of this plan, this data was used as the "Best Available Data". Base flood elevations have been calculated in the Flood Insurance Study for Volusia County.

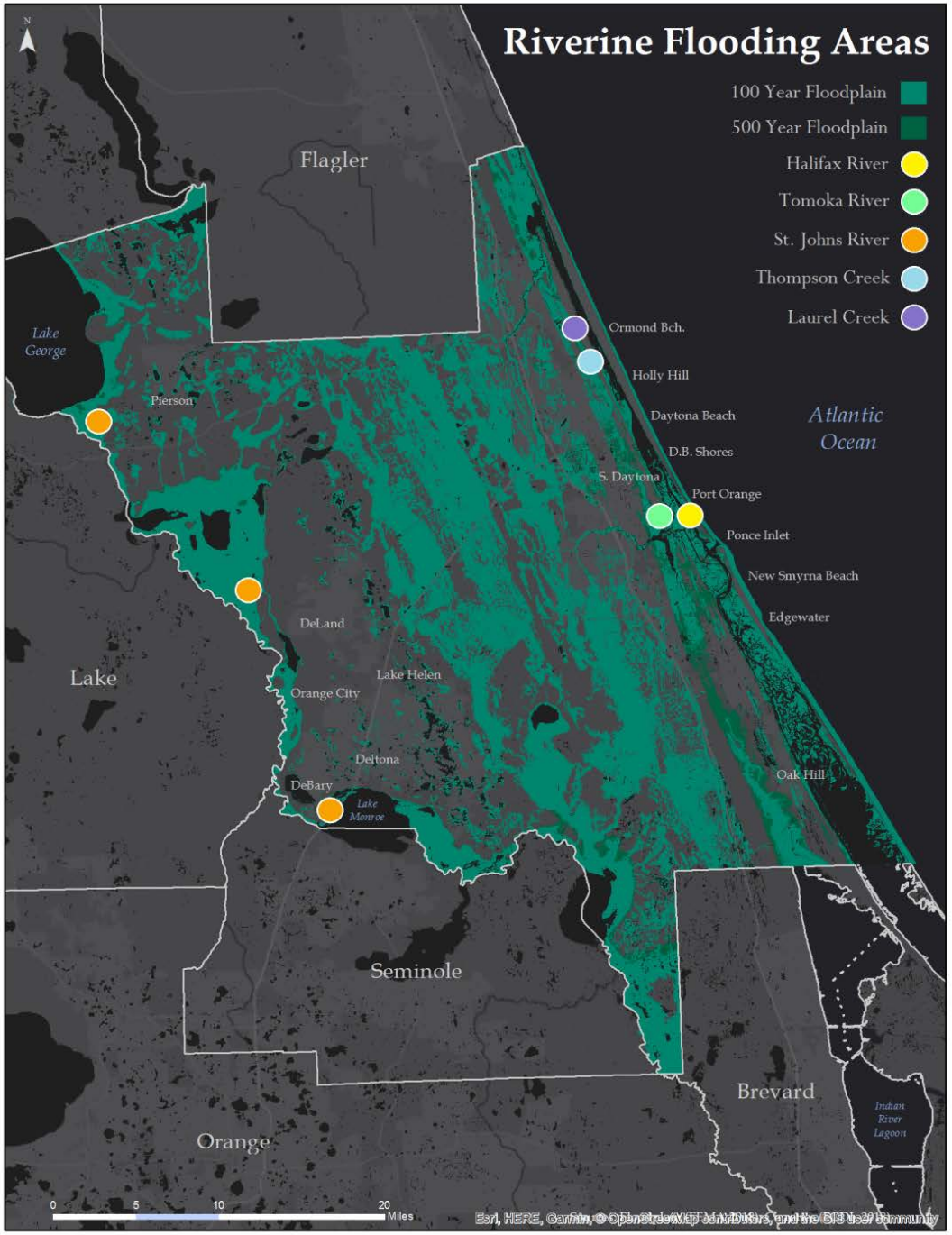

Figure 2: Riverine Flooding Areas

Storm Surge

Coastal flooding caused by tropical storms, hurricanes and unusually high tides combined with strong easterly or northeasterly winds also poses a continuing threat to the County. Storm surge produces most of the flood damage and loss of life associated with storms that make landfall or that closely approach a coastline. Storm surge is the most dangerous hurricane hazard, as 88% of hurricane related deaths are attributed to drowning (Source: National Hurricane Center).

The principal tool utilized in assessing the hazard of storm surge is the Sea, Lake and Overland Surges from Hurricane (SLOSH) model. The computerized SLOSH model predicts the tidal surge heights that result from hypothetical hurricanes with selected various combinations of pressure, size, forward speed, track and winds. The SLOSH model, which is utilized locally for hazard and vulnerability analysis, has been digitized into the County's GIS (Geographical Information System) mapping system. Estimated storm surge heights range from two to four feet in a Category 1 storm to in excess of twenty feet in a Category 5 storm. The table on the following page is from the 2010 Statewide Regional Evacuation Study Program developed for the east central Florida region by the ECFRPC. Through SLOSH Analysis, it was determined that a Category 1 storm surge will

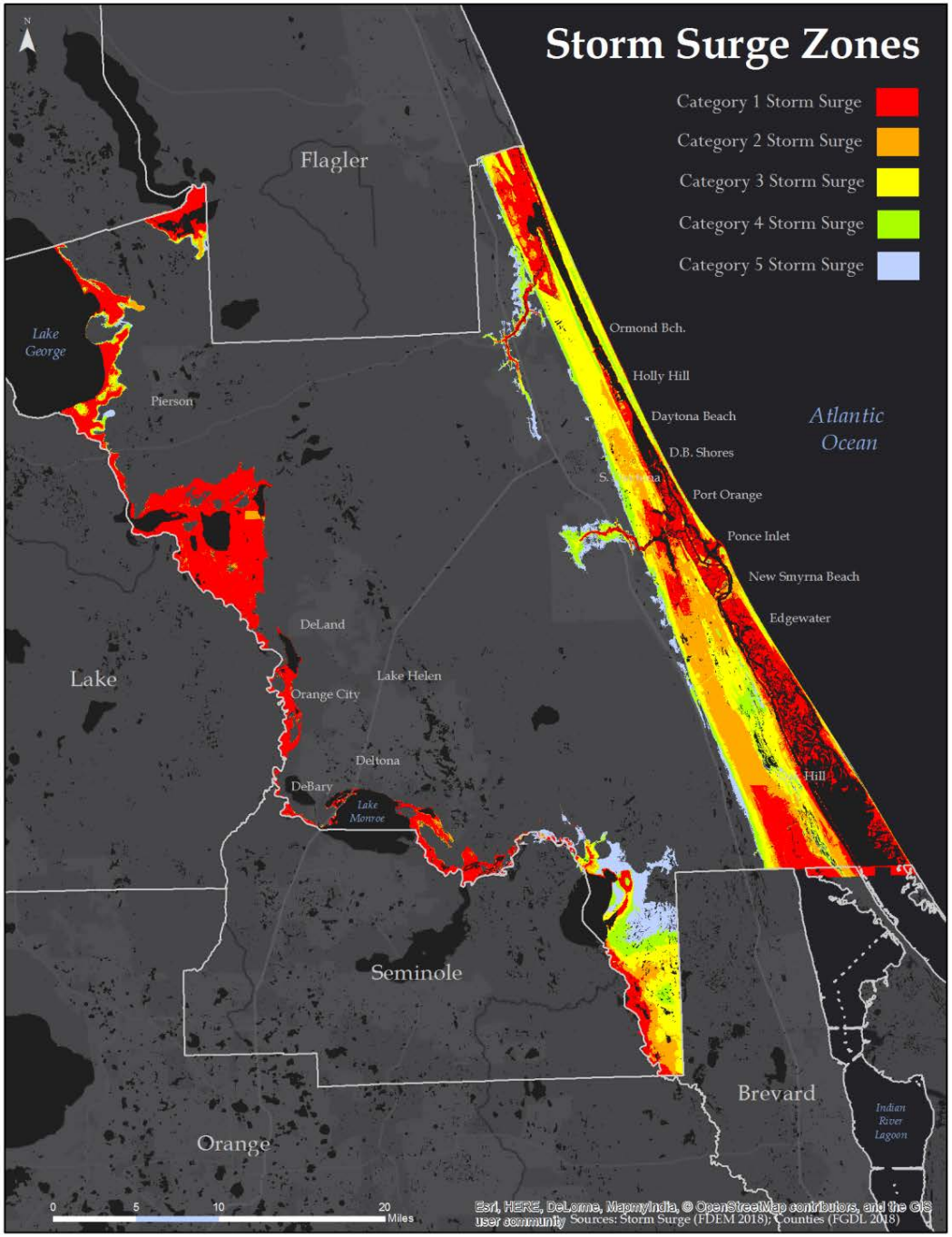

Figure 3: Storm Surge Zones

produce storm tide heights up to 6 feet. A category 5 storm will produce storm tide heights up to 25 feet. It should be noted again that these surge heights represent the maximum surge height recorded in the county from the storm tide analysis including inland and back-bay areas where the surge can be magnified dependent upon storm parameters.

Since the last FMP update in 2012, two hurricanes have impacted Volusia County. Hurricane Matthew followed a track just off shore of the County (to the east), bringing storm surge, blowing off roofs, downing trees and flooding low-laying areas of the County. Hurricane Irma also impacted the community, bringing large volumes of rain to the County. This rain caused rising waters to infringe near highly sensitive electrical equipment, flooded properties, and widespread lightning. Storm surge from this event flooded beaches, coastal roadways and businesses, and destroyed a boardwalk near Ponce Inlet.

Storm surge also occurred during the 2004 storms: Hurricanes Charley, Frances, and Jeanne. Although no official flooding depth measurements were taken during the 2004 events, it has been estimated that storm surge flooding during the storms caused tidal waters to rise three to five feet above the mean high tide. During Hurricane Frances, over 13 inches of rain fell in the County causing substantial flooding. Over $390 million worth of damages resulted from wind and flooding impacts. The most recent significant freshwater flooding was a result of the "No-Name" rain event of May 2009 which impacted numerous homes on the east side of the County. This event left some properties in the affected areas two feet under water. In 2008, Tropical Storm Fay caused severe flooding on the west side of the County. Rainfall ranged from 3 inches to over 10 inches along the east coast of Florida. Volusia County reported damages in excess of $13.5 million.

Since 1965, Volusia County has received numerous disaster declarations for such hazards as hurricanes, tornados, floods and severe freezes. Since 1993, there have been 21 reported flood events in Volusia County. The table on the following page is a list of the severe storm and flooding activation events for the Volusia County Emergency Operations Center. These events include those Presidential Disaster Declarations.

As stated above, riverine and storm-surge induced flooding events can and do occur outside of the 100-year floodplain. Areas where levees and dams are present are also at an increased risk for flooding events, as are areas along the coastline that are within coastal erosion zones. Finally, long term sources of risk such as sea level rise and tsunamis must be included as "lower probability" threats to areas that are not within the floodplain. The last known tsunami-type event occurred in Daytona Beach on July 3, 1992, injuring over 70 individuals. Solutions to these issues can include infrastructure mitigation, shoreline protection and resilient community

Table 3: Potential Storm Tide Height(s) (In Feet above NAVD88)

Hurricane Strength	Volusia Depth
Category 1	Up to 6'
Category 2	Up to 10'
Category 3	Up to 14'
Category 4	Up to 23'
Category 5	Up to 25'

Source: Statewide Regional Evacuation Study (2010)

planning techniques (including developing in areas that are not prone to flooding). Implementing the principles of smart growth and the clustering of future population centers in non-vulnerable areas will help to lower long term risk to natural hazards such as flooding, storm surge and coastal erosion.

Table 4: Disaster Declarations resulting in Flooding in Volusia County

Date of Event	Type of Event	Area of Event	Damage Estimate	Damage Estimates
			# of Parcels	Dollars
11/17/1994	T.S. Gordon	County-wide	658	$10,602,924.00
8/3/1995	Hurricane Erin	Edgewater	31	$65,052.00
7/10/1996	Hurricane Bertha	County-wide	NA	NA
9/5/1996	Hurricane Fran	County-wide	NA	NA
10/8/1996	T.S. Josephine	County-wide	193	$1,232,343.00
9/14/1999	Hurricane Floyd	East Side	433	$18,655,353.00
10/16/1999	Hurricane Irene	East Side	185	$16,809,266.00
9/16/2000	Hurricane Gordon	County-wide	NA	NA
9/14/2001	T.S. Gabrielle	County-wide	44	$474,135.00
11/15/2001	Rain Event	East Volusia	39	$561,300.00
9/4/2002	T.S. Edouard	County-wide	NA	NA
8/13/2004	Hurricane Charley	County-wide	5719	$106,900,000.00
9/4/2004	Hurricane Frances	County-wide	26964	$393,900,000.00
9/25/2004	Hurricane Jeanne	County-wide	UNK	$59,500,000.00
9/8/2005	T.S. Ophelia	County-wide	Beach	NA
10/23/2005	Hurricane Wilma	County-wide	3	$752,000.00
8/29/2006	T.S. Ernesto	County-wide	NA	NA
8/18/2008	T.S. Fay	County-wide	240	$13,580,016.00
5/17/2009	May Rain Storm	County-wide	1654	$69,516,703.00
10/7/2016	Hurricane Matthew	County-wide	X	$X
9/11/2017	Hurricane Irma	County-wide	X	$X

Known Flooding Areas (Countywide)
Figure 3 depicts areas that have been identified by county stakeholders as areas prone to flood damage. These include 1) the Sica Hall Canal; 2) the LPGA Canal; 3) the Nova Canal and 4) the Stone Island community. All of these locations are prone to flooding during relatively moderate rain events.

Less Frequent Floods
This plan focuses on four types of less-frequent floods. The following events types are included and assessed:

1. Category 3-5 Hurricanes
2. Drawn-Out Rain Events
3. 500-Year Flood Events

The four known flooding areas shown in the map on this page are susceptible to water intrusion into private property and roadways during all three of the events mentioned above. However, it is particularly during the second event, "drawn out rain events", where residents are less-prepared to deal with the effects and the damage could be higher than expected. These storm events often last days and steadily accrue a number of inches of rain.

Prep for Less Frequent Flood in Flood-Prone Areas
In best case scenarios, residents in these flood-prone areas prepare for these events using sand bags and other short term, temporary mitigation methods. These techniques are common for hurricane preparations but must be done on the fly during drawn-out rain events.

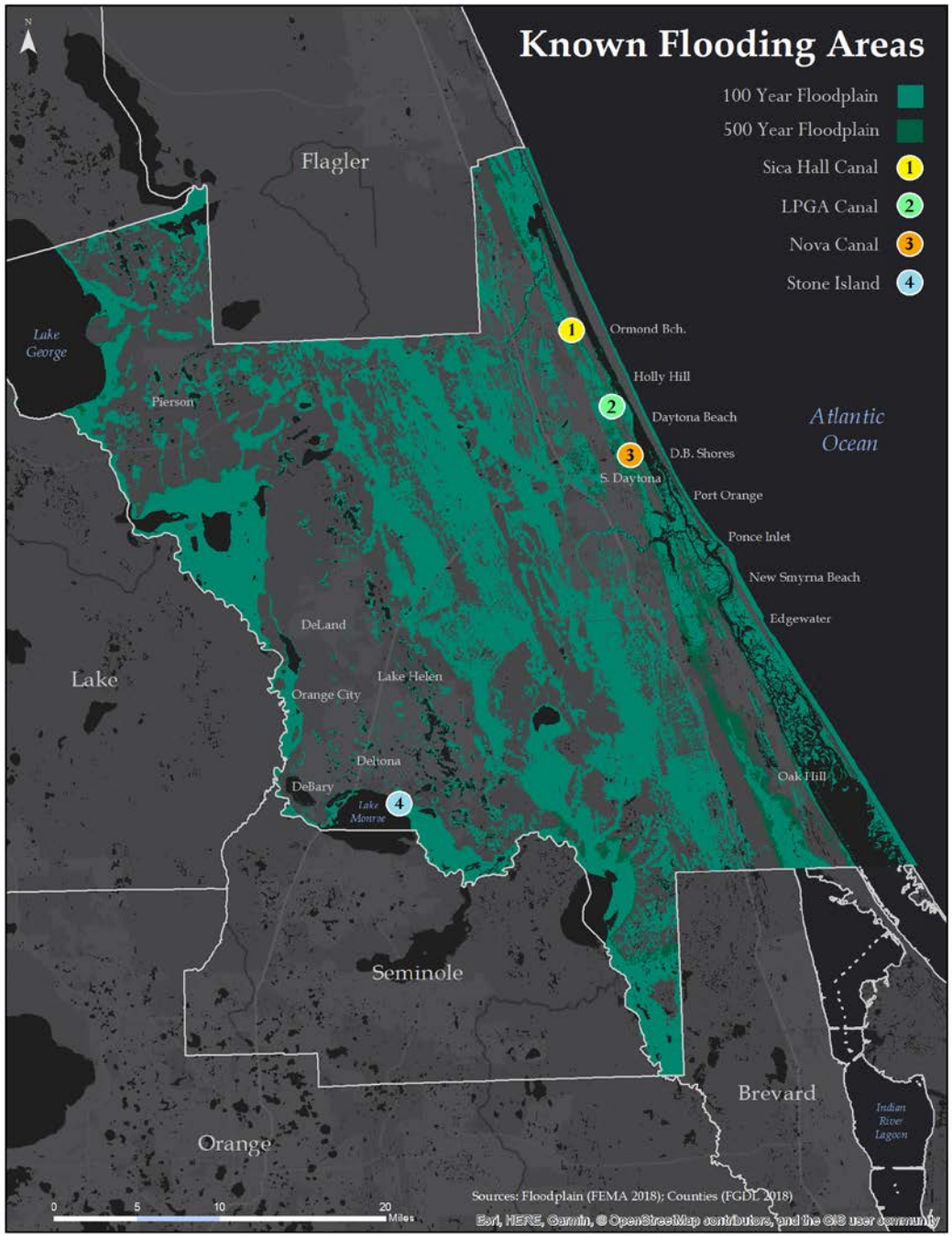

Figure 4: Known Flooding Areas

500 Year Floods

The 500-year flooding event is a third form of a "less frequent flood" that will impact Volusia County at some point in time over the long term. A map of this zone is available to the right.

Long Term Impacts of Sea Level Rise

The frequency of future floods may increase over the long term as sea levels rise along the Atlantic coast and lagoon system. The map below depicts long term hazard zones in the County as determined by NOAA's Coastal Flood Exposure Mapper. This model takes into account flood zones, sea level rise, storm surge and high tides. The table to the right depicts flooding frequency increases tied to sea level rise.

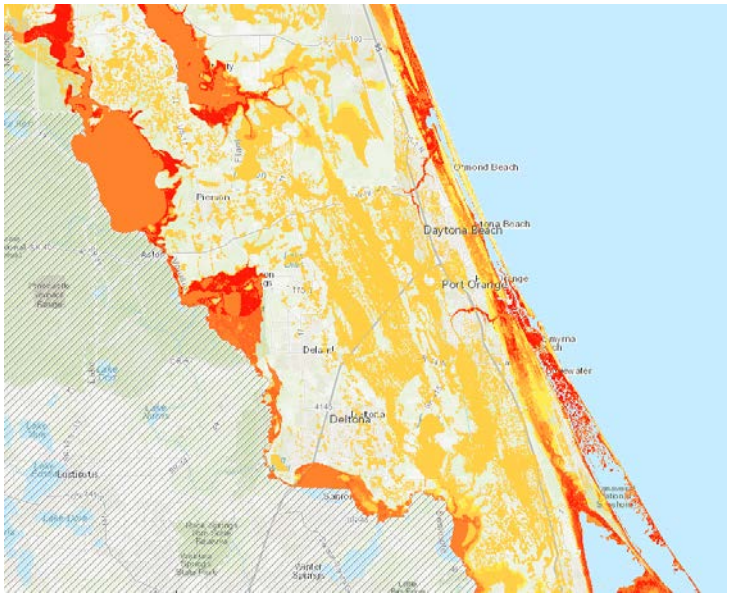

Figure 5: Combined Hazard Zone

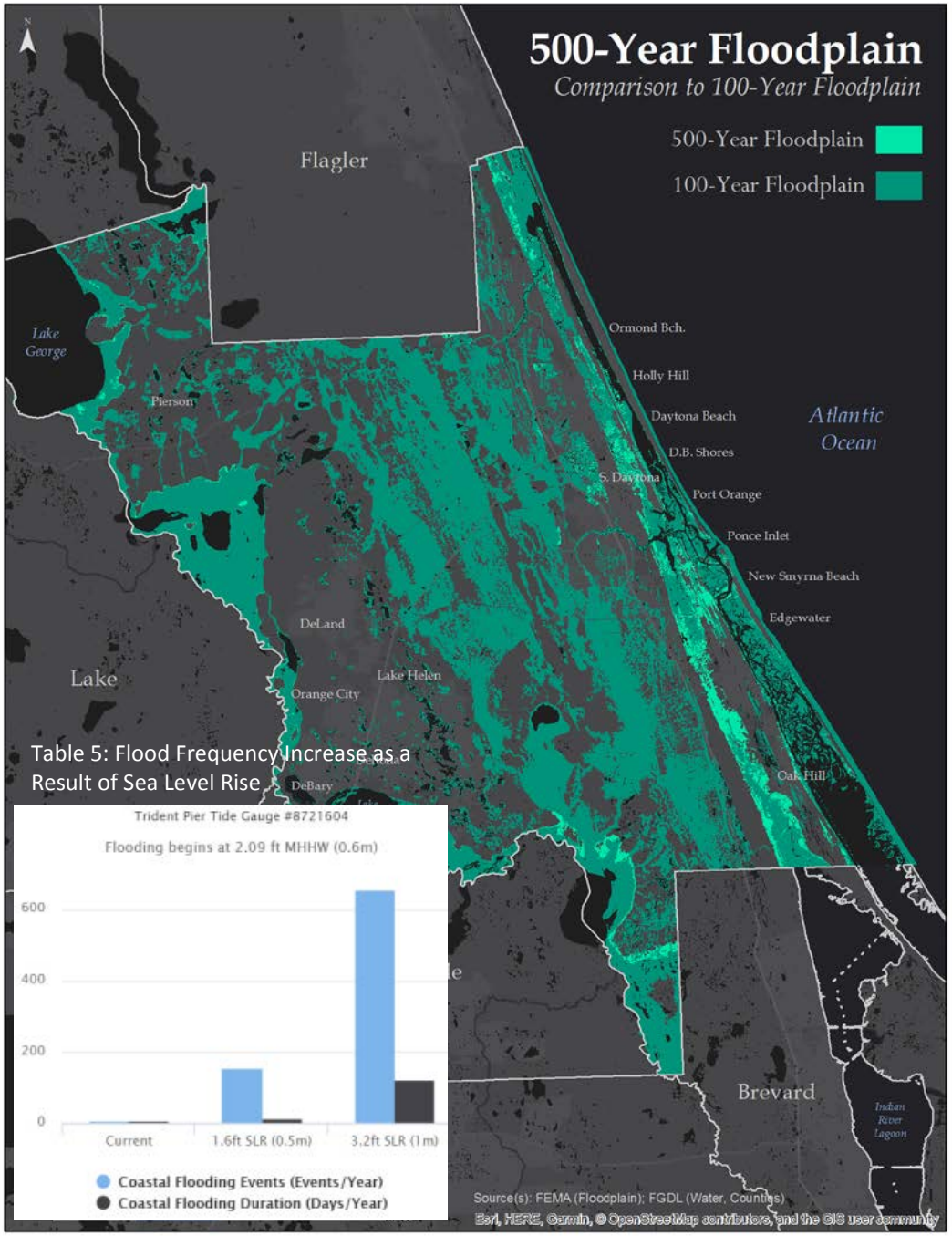

Table 5: Flood Frequency Increase as a Result of Sea Level Rise

Figure 6: 500 Year Floodplain

Regional and Local Efforts to Plan for Increasing Flood Frequency and Sea Level Rise

Flooding and storms have become more frequent across Florida's coastal communities due to changing climate and sea level rise. Mean elevation for the State of Florida is approximately 100 feet above sea level with the highest point registering at only 345 feet above sea level. In Volusia County, the highest natural point of elevation is 120 feet above sea level. Local governments and residents are starting to see the beginning impacts sea level rise combined with storms will have on their community. As sea level rise continues, it is becoming of critical importance to understand the potential vulnerability of inundation and flooding on communities and infrastructure, specifically those facilities located in low-lying coastal areas. The U.S. Army Corps of Engineers High Projection Rate Curve anticipates sea level rise along Daytona Beach Shores to be 5.15 feet by 2100. This, along with a 100-year storm, could mean devastation to coastal communities if appropriate planning and action is not taken early enough.

The Volusia County Office of Emergency Management in partnership with the East Central Florida Regional Planning Council (ECFRPC), Florida Department of Transportation, the River to Sea Transportation Planning Organization, and UF GeoPlan has taken a deep dive into the assessment of impacts of sea level rise inundation as well as impacts of sea level rise, combined with a 100-year coastal storm. By taking a risk-based approach and identifying vulnerable facilities, agencies and jurisdictions can implement adaptation practices overtime that will protect these facilities and minimize impacts on the community.

The information, data and recommendations developed through these efforts has been made available to communities and agencies throughout Volusia County to aid them in the planning for future conditions related to flooding and sea level rise inundation.

In 2016, the Space Coast Transportation Planning Organization funded a sea level rise analysis for the County to look at impacts from the US Army Corps of Engineer projection rate curves including the high projection rate curve which exceeds the CRS minimum future condition analysis of NOAA 2012 Intermediate-High projection by approximately 1 foot by 2100. The analysis included an assessment of evacuation routes and the major roadway network, evacuation support facilities, scenic byways, railroads, and also addressed impacts to stormwater storage. Numerous recommendations were provided in the report including the adoption of a base sea level rise modeling scenario. This report can be found https://www.perilofflood.net/projects.

In 2017, through a Florida Department of Environmental Protection Grant, the VCOEM and partners continued to build on the counties assessment of impacts from flooding and sea level rise. Using the FDOT Sea Level Scenario Sketch Planning Tool along with FEMA's Hazus-MH software, impacts of sea level rise, combined with a 100-year-storm were modeled, along with hypothetical alterations of a historical hurricane under sea level rise scenarios. Using these models and Volusia County data, critical assets such as shelters, airports, power plants, and other critical facilities were assessed to determine potential impacts during such a 100-year storm event with increased coastal flooding.

The frequency of coastal flooding (pictured) is projected to increase with rises in sea levels.

Assessments also included evacuation routes and property impacts. Potential economic impacts were assessed in terms of property value and damage assessments using HAZUS. The study also looked at the different approaches Volusia County can use to build resiliency including retreat, accommodate, and protect. Resources, along with recommendations for implementing new data and strategies, policies and information into existing plans throughout the county were discussed. Emphasis was placed on Emergency Preparedness, Land-Use, and Transportation. The data, resources and recommendations within this report should provide Volusia County with a solid foundation to guide conversations and coordination to determine the appropriate approach in each situation. This report can be found at https://www.perilofflood.net/projects.

B. Assessing the Problem

1. VULNERABILITY SUMMARY

Table 5 depicts the Hazard Risk Score for each jurisdiction as it concerns flooding and storm surge as per the Local Mitigation Strategy. Each hazard was scored by the jurisdictions based on a number of vulnerability factors including area impacted, health and safety of the population, property, environment, and economic vulnerability. Each hazard was given a score between one and five with five being the greatest. This number was then multiplied by the score of the hazards probability of occurrence (1-5) resulting in a risk rating for each jurisdiction. Additional hazard information can be found in the Volusia County Multi-Jurisdictional Local Mitigation Strategy (LMS), Section 5 – Hazard Profiles. Specific information for Hurricane and Tropical Storms can be found in Section 5.3; Flood can be found in Section 5.10; and Storm Surge can be found in Section 5.11. Section 7.3.4 Floodplain Management describes the Volusia County NFIP actions and the Community Rating System.

The Flood Hazard analysis includes location and spatial extent of the hazard, historical occurrences and impacts, historical summary of insured flood losses, analysis of loss properties and probability of future occurrences.

In order to update the Volusia County Multi-Jurisdictional Local Mitigation Strategy of 2014, a Vulnerability Assessment was updated using HAZUS and MEMPHIS data, as well as the most recent local parcel data for GIS analysis. Hazard maps, hazards exposure and loss estimates were also included. (See Sections 4, 5 and 6 of the LMS for further information.) In addition, each jurisdiction reviewed the hazards scores that were included in the 2005 and 2010 LMS (Comparison of Jurisdictional Relative Risk) and modified the scores for each hazard to reflect changes in the impacted area; probability of occurrence; and affects to the built and natural environment and economy.

As per the 2014 Volusia County FMP, Volusia County's probability of flood occurrences is rated as "high" (expected to occur at least every 5 years). While all 17 jurisdictions in Volusia County participate in NFIP, 10 jurisdictions currently participate in the Community Rating System (CRS): Daytona Beach, Daytona Beach Shores, Deltona, Edgewater, Holly Hill, New Smyrna Beach, Ponce Inlet, Port Orange, South Daytona, and Volusia County.

2. LIFE, SAFETY AND HEALTH

Freshwater flooding along rivers and streams causes significant property damage and has the potential of causing personal injury and deaths. Over the past 20 years, freshwater flooding had become the leading cause of death related to hurricanes. This is due in part to the successful evacuation planning efforts in the United States which had significantly reduced the number of deaths (in the U.S.) related to storm surge until 2005. However, it is also recognized that many coastal and inland residents do not recognize the risk associated with freshwater flooding, especially when driving.

In response, a national program, "Turn Around, Don't Drown" was implemented in 2002. Typically, the rainfall associated with, and in advance of, a hurricane does not in itself necessitate the emergency evacuation of residents during the passage of a hurricane. Days after a storm however, the coastal flooding and rainfall – particularly from slow moving storms - may cause the evacuation of inland residents as swollen rivers and streams breach their bank or levees. Rainfall may cause the inundation of roadways sought as evacuation routes. In addition, given Florida's climatology and the normal summer weather, flooding may occur as a disassociated event prior to the hurricane, flooding evacuation routes and saturating the ground. Contingency plans including rerouting, sandbagging and pumping will be coordinated with local and state law enforcement and the State Department of Transportation. Rainwater inundation of evacuation routes must be addressed in an evacuation plan. The planning strategy to address this problem is to plan for the passage of all vehicles over such roadways before substantial rainfall from the hurricane is expected.

The Central Florida region is among the fastest growing regions in the nation. Volusia County is located within the northeastern quadrant of this region and has seen a vast increase in population since the late 1970's. From a safety and health perspective, the locations of new populations migrating to Volusia County over the next few decades would benefit if located away from floodplains. Two strategies to counter human exposure to floodplains include urban infill and increased density near existing transit nodes.

Volusia County Population Counts (US Census, 2016)

Daytona Beach - 66,645	New Smyrna Beach - 25,796
Daytona Beach Shores - 4,481	Oak Hill - 2,029
DeBary - 20,394	Orange City - 11,403
DeLand - 31,569	Ormond Beach - 42,162
Deltona - 90,124	Pierson - 1,849
Edgewater - 22,077	Ponce Inlet - 3,220
Holly Hill - 12,142	Port Orange - 61,105
Lake Helen - 2,740	South Daytona - 12,789

Health Hazards from Flood Waters and Mold

The study at this link depicts vulnerability of countywide stormwater systems to infringing water. Volusia County Emergency Management recommends that mold exposure as a result of infringing waters be dealt with as quickly as possible.

Impact of Hazards on Warning and Evacuation Procedures

The Volusia County Emergency Management twitter account stays engaged with residents before, during and after flood hazard events. In the event of mass communication and power outages in the community, the EOC will communicate with residents via shelter staff and law enforcement as the situation requires. Strong winds can prevent certain actions.

3. CRITICAL FACILITIES

Flooding can have impacts on critical facilities and the ability to respond to emergencies. According to the Florida Division of Emergency Management, "critical facilities" are defined as those structures from which essential services and functions for victim survival, continuation of public safety actions, and disaster recovery are performed or provided. Shelters, emergency operation centers, public health, public drinking water, sewer and wastewater facilities are examples of critical facilities. Though not explicitly included in the definition, supporting life-line infrastructure essential to the mission of critical facilities must also be included in the inventory when appropriate. All but four jurisdictions in Volusia County has a critical facility within the 100-Year Floodplain or the 500-Year Floodplain. Although several western jurisdictions are low in elevation, a disproportionately high number of critical facilities that are exposed to the floodplain are within a short distance to the Atlantic Ocean or inter-coastal waterway on the east side of the county. A majority of the exposed critical facilities countywide are located east of Interstate-95.

The inundation of critical facilities can have a profound effect on the ability for coordination among county and city planning officials and mitigation activities must provide guidance to avoid 'domino effect' losses from a critical infrastructure perspective. For example, if a critical facility such as the Volusia County EOC is completely destroyed in a disaster, there are a number of other communication and logistical critical facilities that utilize the EOC as a 'home base' for their own activities. In these cases, strategies must be put in place to ensure that backup facilities can manage the loss of core critical infrastructure loss. The East Central Florida Regional Planning Council and Volusia County Emergency Management completed a Continuity of Operations Plan in 2013 for the loss of the Volusia County EOC, while other plans focused on other facilities can strengthen cooperative efforts in the future.

Specific areas of concern from a critical infrastructure and facility perspective include communication towers, water management infrastructure, facilities that double as storm shelters (including schools) and core-logistical facilities (EOC, etc.).

The table on the following page outlines the number of critical facilities exposed to the floodplain, by jurisdiction. Please reference **Appendix A** at the end of this document to view a more detailed listing of exposed critical facilities by **j**urisdiction.

Volusia County Emergency Management has updated its Critical Facility listing in time for the 2018 Floodplain Management Plan update. The map on this page depicts the flood hazard zones and the locations of vulnerable critical facilities at the countywide scale. Appendix A includes highly detailed maps of critical facility exposure by jurisdiction. The table below summarizes vulnerable facilities by jurisdiction.

Table 6: Vulnerable Critical Facilities by Jurisdiction

Jurisdiction	Vulnerable Critical Facilities	
	100-Yr Floodplain	500-Yr Floodplain
Daytona Beach	31	49
Daytona Beach Shores	0	0
DeBary	0	0
DeLand	1	1
Deltona	2	2
Edgewater	0	2
Holly Hill	9	16
Lake Helen	0	0
New Smyrna Beach	7	31
Oak Hill	8	8
Orange City	0	0
Ormond Beach	11	14
Pierson	1	1
Ponce Inlet	1	3
Port Orange	5	10
South Daytona	1	7
Unincorporated	41	48
Countywide	118	192

Source(s): Volusia County E.M (Facilities); FEMA (Floodplain)

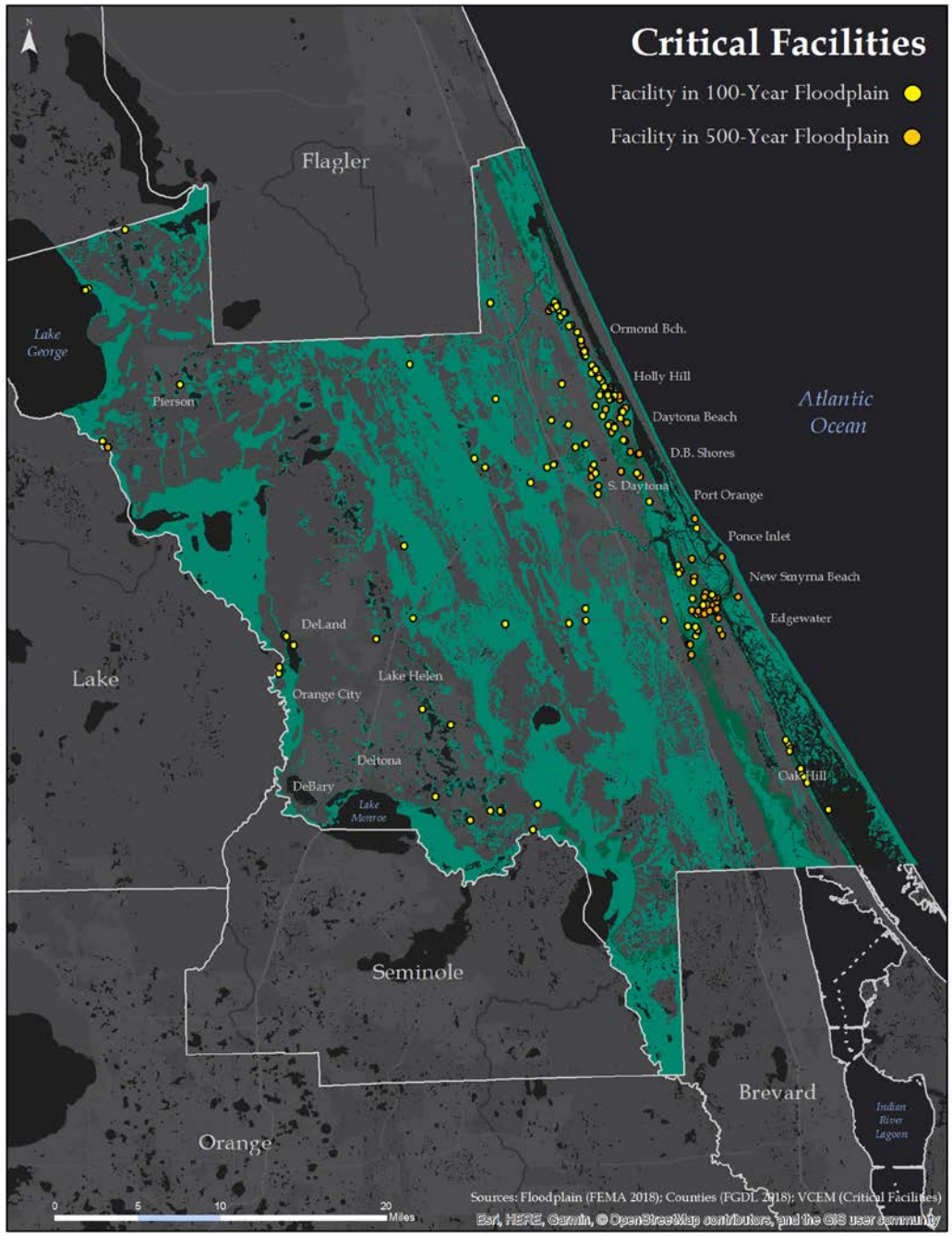

Figure 7: Critical Facilities

4. ECONOMIC ANALYSIS

Analysis of the financial values of all parcels exposed to the 100-Year Floodplain in Volusia County revealed that approximately 17 billion dollars in property value is located (partially or completely) within the 100-Year Floodplain. Of these parcels, 44.0% are considered “low value” parcels (valued under $50,000) while only 1.85% of parcels are valued over one million dollars.

The VE floodplain zone, a specific portion of the 100-year floodplain, is located along the coastal area and includes properties that are subject to flooding from velocity occurrences such as wave action.

The following data summarizes the exposure within the 100-year flood zone.

- **Land Value**: $6,457,318,636
- **Assessed Value**: $17,677,741,449
- **Taxable Value**: $12,552,049,286

While the VE zone is located near coastal areas, much of the 100-year floodplain is located within inland portions of the county. Please reference the table on the following page to view cumulative financial exposure to the entire 100-year floodplain (all zones), by jurisdiction.

As shown in the map to the right, properties in coastal areas of eastern Volusia County are among the most vulnerable on a value per square foot basis.

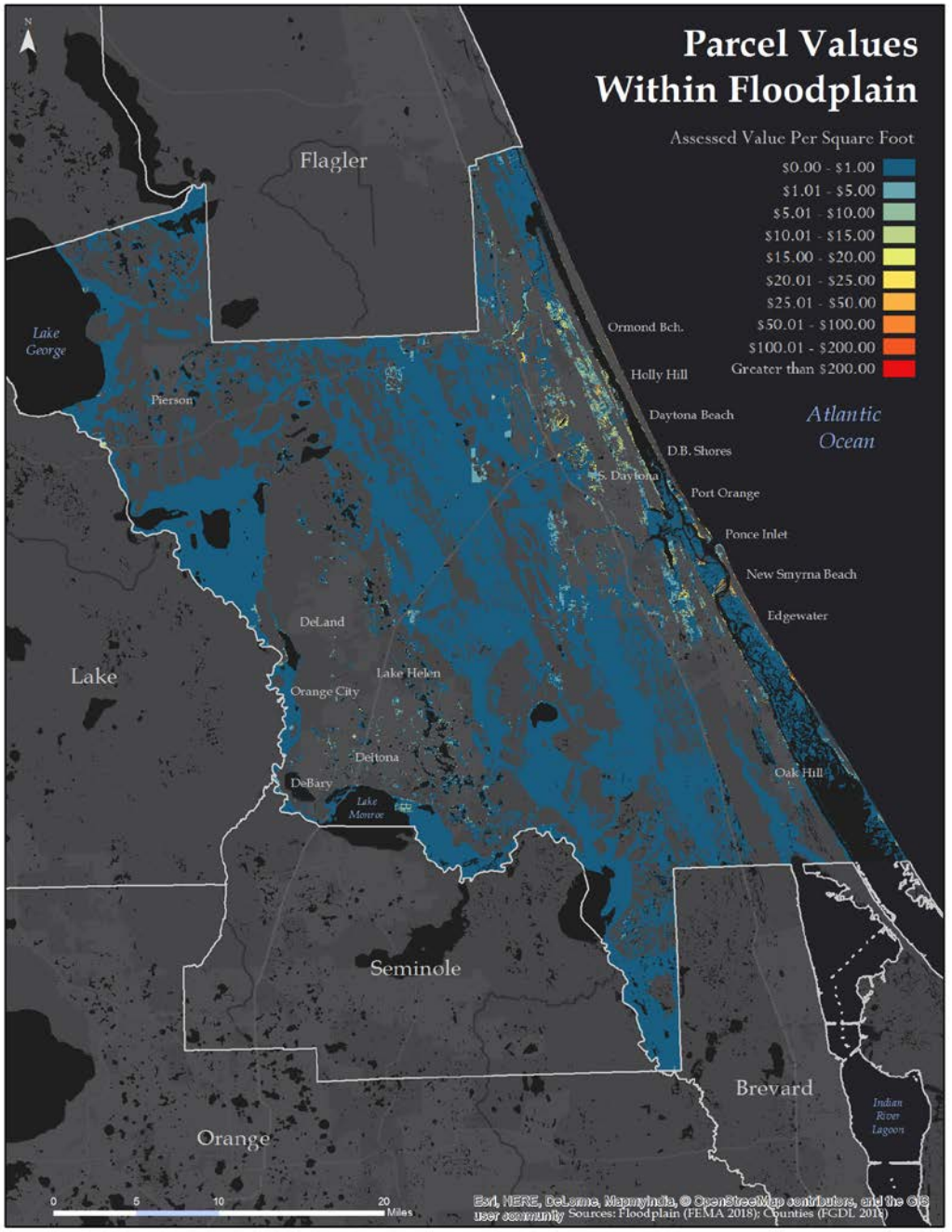

Figure 8: Parcel Values within Floodplain

Table 7: Total Financial Exposure to 100-Year Floodplain

Municipality	Parcels in Floodplain	Buildings in Floodplain	Land Value in Floodplain	Assessed Value in Floodplain	Taxable Value in Floodplain	Building Value in Floodplain
Daytona Beach	14,872	8,770	$1,031,935,148	$3,626,954,919	$2,317,906,555	$2,492,556,826
Daytona Beach Shores	4,955	132	$408,090,848	$1,442,221,431	$1,332,476,443	$995,734,555
DeBary	1,457	1,095	$93,671,202	$263,763,736	$191,512,792	$162,003,662
DeLand	215	121	$36,181,192	$112,726,316	$50,845,772	$71,983,599
Deltona	5,646	4,524	$122,580,488	$711,052,496	$398,048,314	$563,266,460
Edgewater	899	644	$131,100,527	$244,402,829	$161,654,623	$108,511,438
Holly Hill	3,007	2,102	$112,732,648	$433,456,264	$342,878,826	$315,339,218
Lake Helen	284	140	$14,937,971	$38,079,497	$23,442,299	$21,641,857
New Smyrna Beach	8,370	3,618	$926,691,147	$2,402,551,188	$1,928,001,263	$1,409,897,440
Oak Hill	607	399	$67,278,856	$106,502,626	$61,701,575	$36,099,228
Orange City	72	33	$27,650,938	$116,356,750	$80,042,861	$85,525,073
Ormond Beach	4,541	3,235	$576,874,554	$1,558,730,380	$1,243,135,285	$853,502,766
Pierson	162	70	$7,777,178	$16,874,499	$9,865,908	$8,429,260
Ponce Inlet	1,936	328	$268,287,790	$652,777,628	$538,859,301	$377,696,350
Port Orange	5,185	4,496	$323,141,861	$1,099,399,477	$808,861,362	$745,005,376
South Daytona	2,648	2,262	$135,742,067	$452,465,156	$324,926,657	$304,715,096
Unincorporated	34,172	10,229	$2,172,644,221	$4,399,426,257	$2,737,889,450	$2,111,056,027
Countywide	**89,028**	**41,928**	**$6,457,318,636**	**$17,677,741,449**	**$12,552,049,286**	**$10,662,964,231**

An analysis of previous flood zones showed considerable growth of the area located within the floodplain from 2007 to 2017. Newly exposed areas can be viewed on the map to the right (light green).

A considerable amount of expansion has occurred in northeastern Volusia County in the Ormond Beach, Holly Hill, Daytona Beach and Daytona Beach Shores areas. This floodplain growth increases financial liability within the county, as a number of the parcels in these areas are developed. A substantial amount of expansion of the floodplain also occurred in the central portions of the county to the east of Lake Helen and to the northeast of Deltona. Parcels in this area are primarily undeveloped and have future land uses that do not allow future development for the most part. Within Deltona, Orange City, DeBary, Lake Helen and portions of Southern DeLand, the floodplain has expanded primarily in areas in close proximity to lakes and other water bodies.

Volusia County is also susceptible to increases in the size of the 100-year Floodplain as a result of rising sea levels. This would primarily affect parcels in close proximity to the coast, lagoon and inland rivers.

Floodplain Size Comparison

2007 DFIRM – Volusia County: 406,303 Acres

2017 DFIRM – Volusia County: 417,939 Acres (+2.9%)

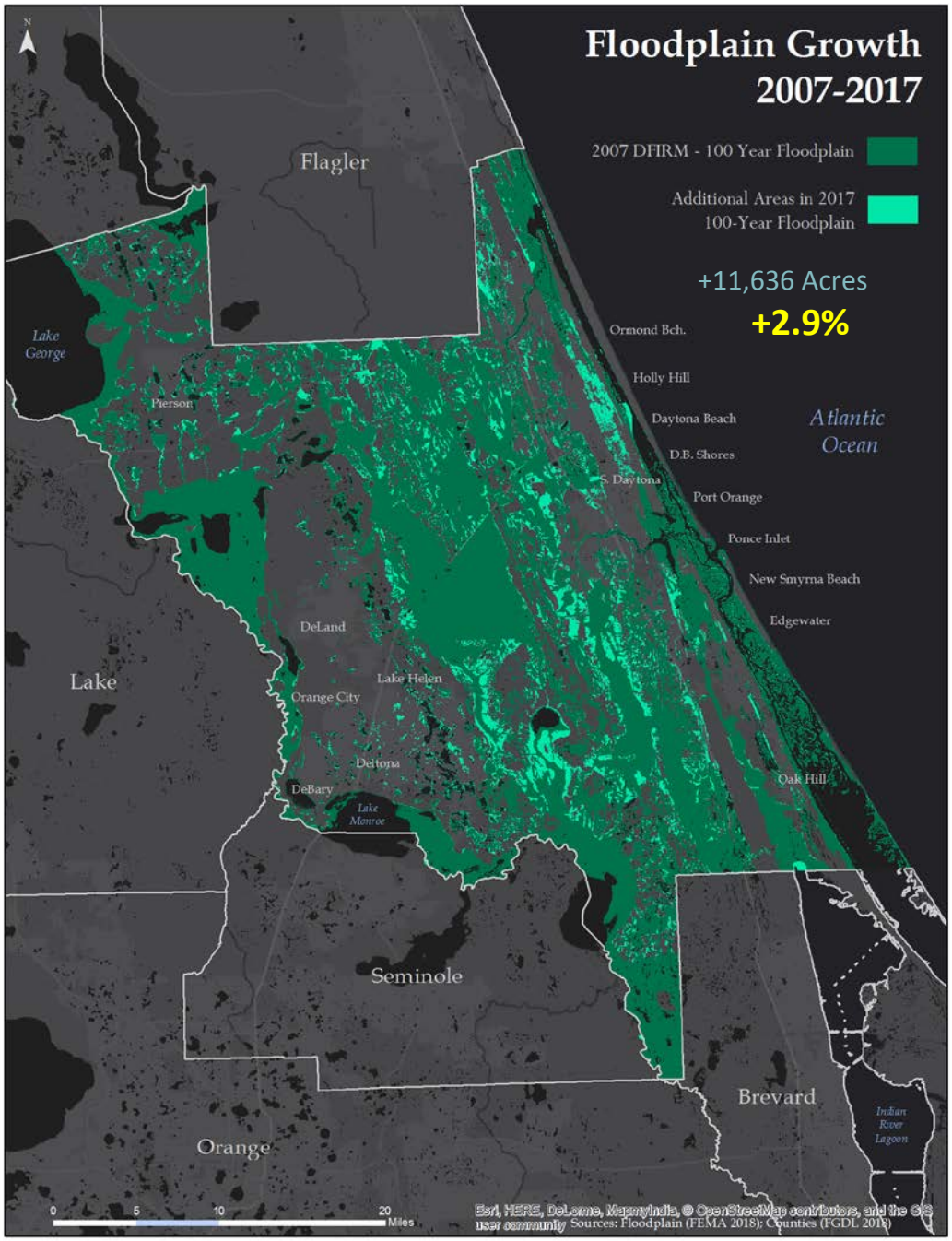

Figure 9: Floodplain Growth

5. PROPERTY ANALYSIS

An analysis of properties located totally, or in part, within the floodplain reveals that 30.9% of all parcels countywide are located in the floodplain, totaling 41,928 structures. This includes 10,229 structures within unincorporated Volusia County and 31,699 structures in all other municipalities combined. It is important to note that 52.9% of the parcels exposed to the floodplain are undeveloped, while built parcels represent a full spectrum of development from the 1940's and forward.

The table on the next page breaks down the year built of all buildings within the 100 year floodplain, by jurisdiction.

Key Dates Include:

The following dates are important from a building code perspective, as parcels built before or after these dates had different requirements at the time of construction.

1968

Federally-backed flood insurance became available to all Americans.

1986

The County Stormwater Management ordinance was amended, enacting minimum design standards.

2002

The Florida building code went into effect.

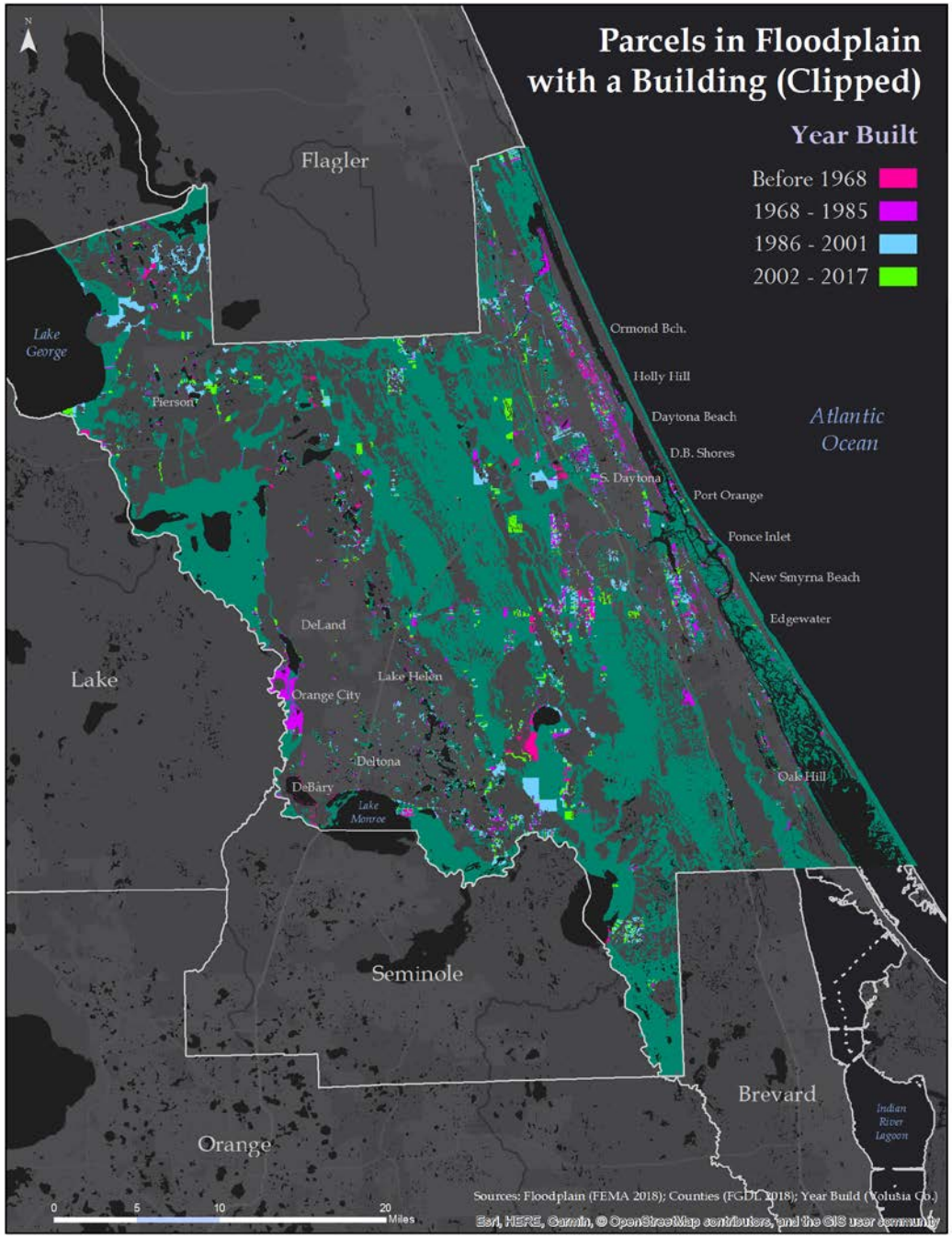

Figure 10: Buildings in the Floodplain

Table 8: Year Built of Structures in the 100-Year Floodplain

Municipality	# Parcels in Floodplain	% Parcels in Floodplain	Buildings in Floodplain		% Parcels Not Built	# Built < '68	# Built '68 - '85	# Built '86-'01	# Built '02-'13
Daytona Beach	14,872	49.6%	8,770		59.0%	3,138	2,915	1,634	1,083
Daytona Beach Shores	4,955	74.9%	132		97.3%	54	56	10	12
DeBary	1,457	14.2%	1,095		24.8%	192	234	411	258
DeLand	215	1.6%	121		43.7%	6	9	28	78
Deltona	5,646	14.5%	4,524		19.9%	146	1,200	2,137	771
Edgewater	899	8.0%	644		28.4%	115	204	202	123
Holly Hill	3,007	51.0%	2,102		30.1%	941	715	253	193
Lake Helen	284	16.9%	140		51.4%	67	32	25	16
New Smyrna Beach	8,370	41.5%	3,618		56.8%	709	1,049	1,191	669
Oak Hill	607	34.8%	399		34.3%	45	160	88	106
Orange City	72	1.8%	33		54.2%	4	4	11	14
Ormond Beach	4,541	22.9%	3,235		28.8%	468	1,173	1,121	473
Pierson	162	13.0%	70		56.8%	29	23	12	6
Ponce Inlet	1,936	53.5%	328		83.1%	34	166	70	58
Port Orange	5,185	21.4%	4,496		13.3%	548	1,739	1,403	805
South Daytona	2,648	46.5%	2,262		14.6%	653	1,128	383	98
Unincorporated	34,172	38.3%	10,229		70.1%	1,653	3,588	3,068	1,922
Countywide	**89,028**	**30.9%**	**41,928**		**52.9%**	**8,801** 21.0%	**14,395** 34.3%	**12,047** 28.7%	**6,685** 15.9%

6. REPETITIVE LOSS ANALYSIS

There are repetitive loss properties within 14 of the 16 jurisdictions within Volusia County. These 209 properties have experienced 548 total flood events, an average of 2.62 events per property. Countywide distribution of repetitive loss properties is somewhat weighted to the east, as a majority of the repetitive loss properties in the county are in the Daytona Beach, New Smyrna Beach and Ormond Beach areas. The western side of the county also has a number of repetitive loss properties, most notably the cluster within the Stone Island residential area in the southwestern portion of the county. Table 9 analyzes the Repetitive properties by jurisdiction.

Previously collected data showed that the majority of properties have not undergone mitigation efforts; however there is insufficient data to measure an actual percentage for the entire county. Preliminary findings show, with a high degree of confidence, that the percent of repetitive loss properties that have been mitigated is well-below the 50% level.

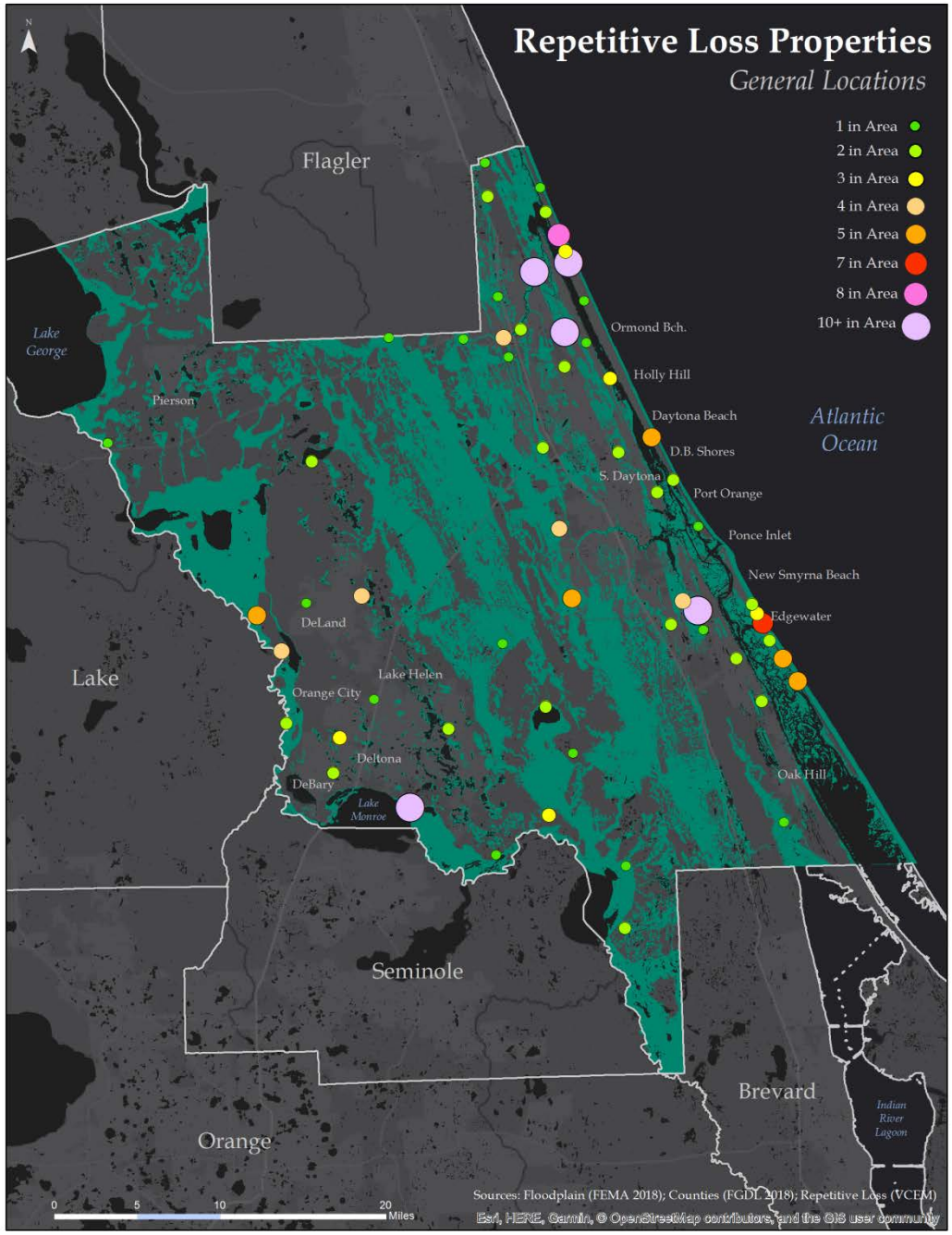

Table 9: Repetitive Loss Analysis Summary by Jurisdiction

Municipality	# RLA Properties	# RLA Losses	% Losses Paid	% Losses Not Paid	Losses Per Property	% Losses Before '81	% Losses '81-'00	% Losses '01-Present
Daytona Beach	8	25	76%	24%	3.13	4%	28%	68%
Daytona B. Shores	1	2	-	100%	2.00	-	100%	-
DeBary	4	8	63%	37%	2.00	-	50%	50%
DeLand	14	37	78%	22%	2.64	-	8%	92%
Deltona	2	8	63%	37%	4.00	-	25%	75%
Edgewater	5	12	75%	25%	2.40	-	50%	50%
Holly Hill	2	5	100%	-	2.50	-	-	100%
Lake Helen	-	-	-	-	-	-	-	-
New Smyrna Bch.	62	178	59%	41%	2.87	1%	29%	70%
Oak Hill	1	2	50%	50%	2.00	-	-	100%
Orange City	1	3	100%	-	3.00	-	-	100%
Ormond Beach	69	173	75%	25%	2.51	2%	26%	72%
Pierson	-	-	-	-	-	-	-	-
Ponce Inlet	1	3	100%	-	3.00	-	-	100%
Port Orange	7	16	81%	19%	2.29	-	19%	81%
South Daytona	1	2	100%	-	2.00	-	100%	-
Unincorporated	31	74	68%	32%	2.39	-	33%	67%
Countywide	**209**	**548**						

7. FLOOD CLAIM ANALYSIS

All jurisdictions in Volusia County participate in the National Flood Insurance Program (NFIP) and 10 participate in the Community Rating System (CRS) program as noted in Table 2. The number of flood insurance policies county-wide totals 11,914. The table below breaks down the number of flood insurance policies, claims and claims paid by jurisdiction during the year from 1978 to 2009 and from 2010 to 2017.

There have been 1,560 flood losses reported in Volusia County through the NFIP from 1970 through November 2017, totaling more than $35 million in claims payments. Since 1978, $27,726,387 has been paid back in claims. All flooding event types are included.

It is also important to note that these numbers include only those losses to structures insured through NFIP policies and for which claims were sought and received. Following the 2004 hurricanes, 1,106 claims totaling $14.3 million were paid in Volusia County. The 2016 and 2017 hurricane seasons also resulted in claims being paid to policyholders.

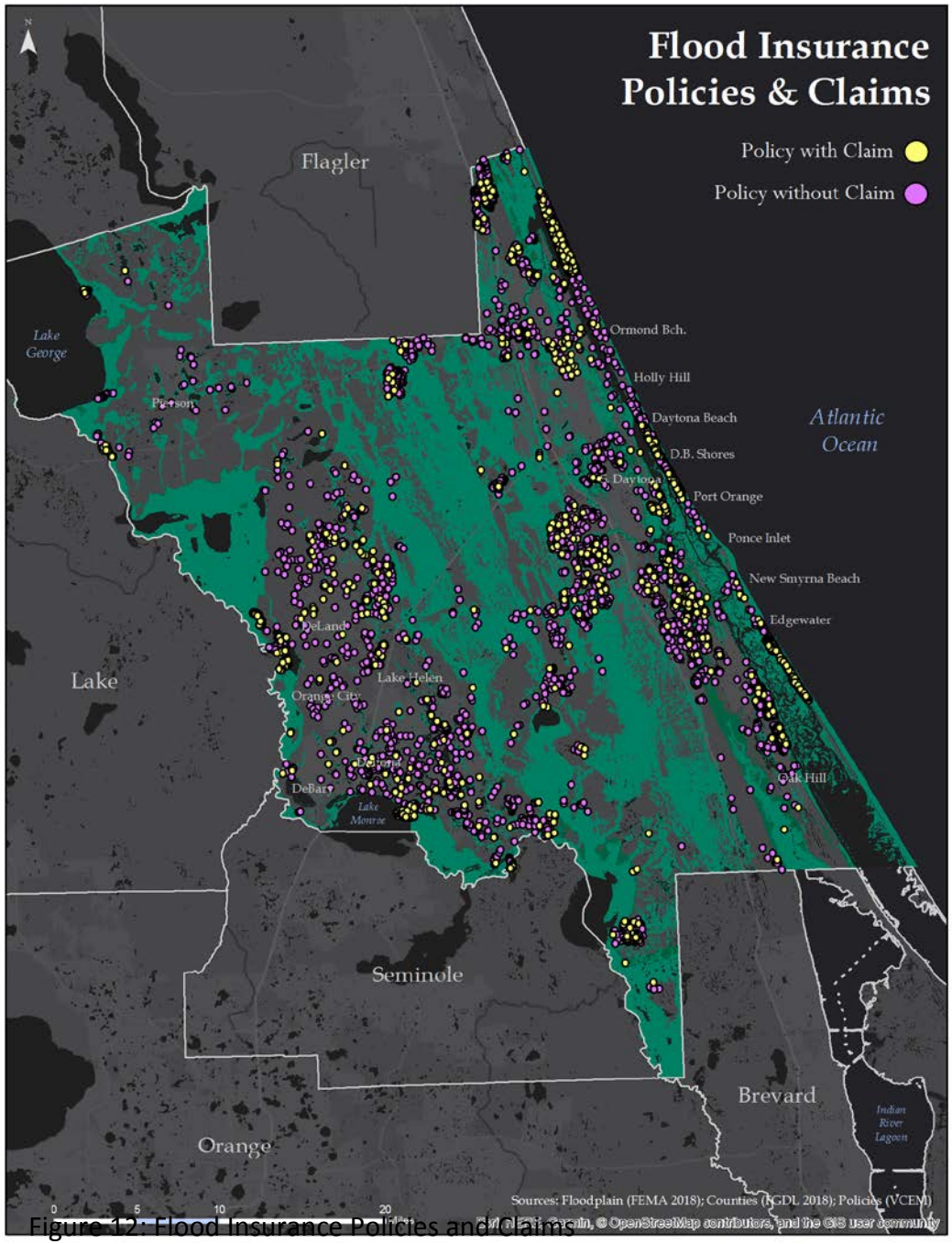

Figure 12: Flood Insurance Policies and Claims

Table 11: Flood Insurance Claim Analysis by Jurisdiction

Municipality	# Flood Ins. Policies	# Claims (1978-2009)	Claims Paid (1978-2009)	# Claims (2010-2016)	Claims Paid (2010-2016)
Daytona Beach	3910	548	$9,342,422	20	$122,481
Daytona Bch. Shores	46	1	$13,734	0	$0
DeBary	34	2	$14,323	0	$0
DeLand	72	9	$460,364	5	$1,581
Deltona	261	14	$97,903	1	$0
Edgewater	89	2	$5,514	3	$1,850
Holly Hill	23	1	$350,000	3	$19,911
Lake Helen	3	2	$103,703	0	$0
New Smyrna Beach	602	13	$252,456	59	$511,521
Oak Hill	36	0	$0	2	$0
Orange City	10	0	$0	0	$0
Ormond Beach	149	295	$3,731,617	39	$137,514
Pierson	4	0	$0	0	$0
Ponce Inlet	17	0	$0	3	$54,302
Port Orange	662	308	$7,305,633	16	$275,938
South Daytona	22	1	$72,528	1	$0
Unincorporated	5974	203	$4,765,354	9	$85,738
Countywide	**11,914**	**1,399**	**$26,515,551**	**161**	**$1,210,836**

*Note: 2017 information was not available in table format at the time that this report was compiled

8. NATURAL PROTECTION

The Volusia County Comprehensive Plan and jurisdictional comprehensive plans all include a conservation element which aims to prevent the degradation of water bodies, wetlands, rivers, estuaries and essential upland areas. Goals and policies in the conservation elements include the protection of surface water resources and the floodplains associated with the water sources, including limiting dwelling unit densities within the floodplains and flood-prone areas. The County and the jurisdictions recognize the importance wetlands and floodplains of surface water bodies play in protecting uplands.

To this effect, the protection of undisturbed segments of floodplains associated with surface water bodies shall continue through land use controls, conservation easements, public acquisition and other methods. These and other policies in the Comprehensive Plans aim to protect and utilize physical and ecological functions of natural drainage ways and patterns to protect developed areas from flood impacts. Wetland and easements maintained along water bodies not only serve as flooding buffers to development but also provide habitat for various species which may otherwise be displaced through fill and development.

According to the analysis performed using GIS, 211,943 acres of existing conservation land in Volusia County is

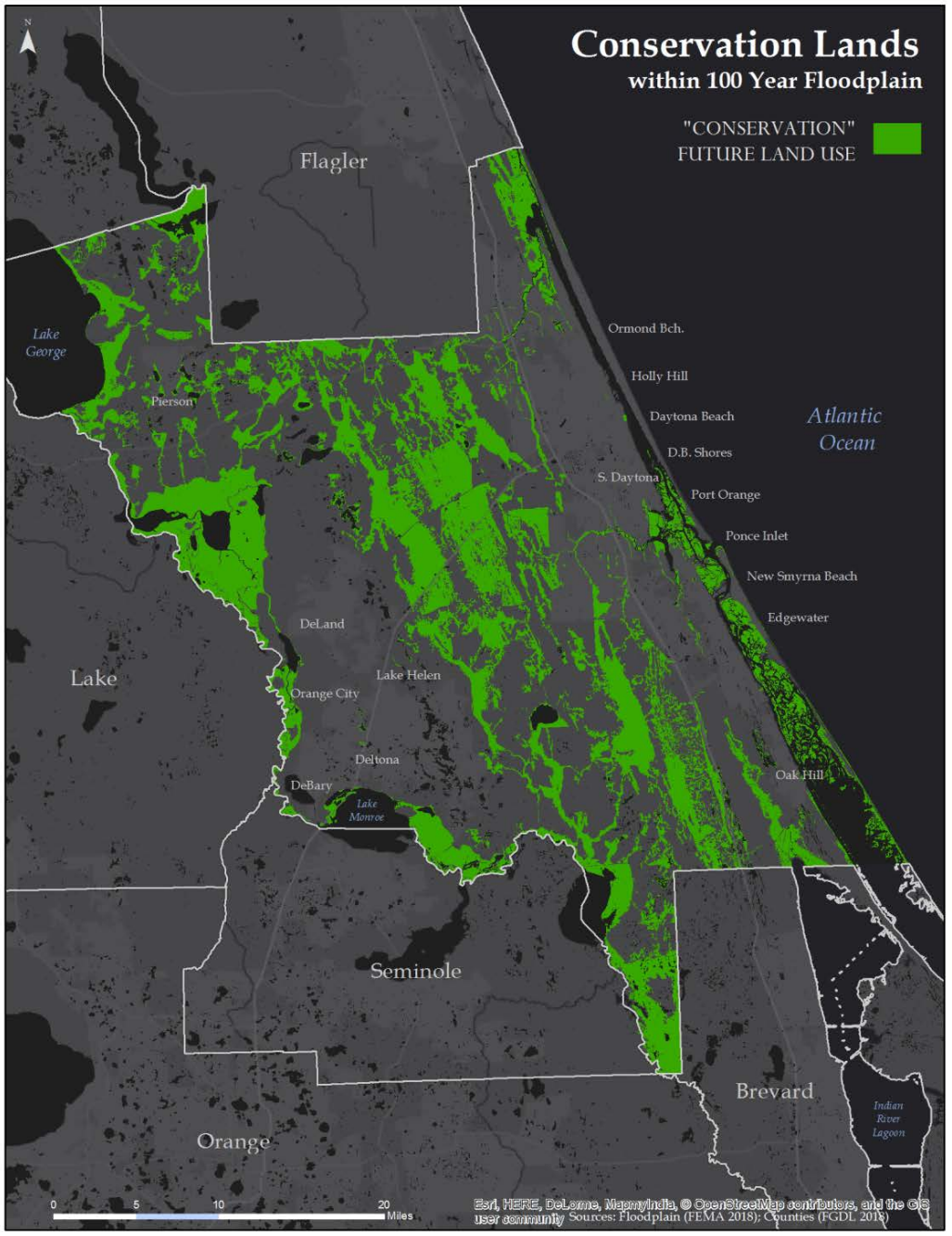

Figure 13: Conservation Lands in the Floodplain

exposed to the 100-year floodplain. Using the size of the countywide floodplain, this means that 50.7% of the 100-year floodplain has a conservation future land use within Volusia County. This would be inclusive of all types of conservation properties such as wetlands and other floodplain areas. It should be the goal of all jurisdictions within the County to maximize the amounts of undeveloped lands in the floodplain with a conservation future land use. This would ensure that development does not infringe into the floodplain.

9. LAND USE AND TREND ANALYSIS

Table 12 below summarizes the total allocation of Future Land Use Designations by acreage of all parcels exposed to the 100-Year Floodplain in Volusia County. A majority of the exposed developed parcels are categorized as "Low Density Residential" (52.9% of exposed built parcels), up slightly from 52.0% in 2012. It is important to note that conservation lands were removed from the Future Land Use analysis to provide a separate analysis. The residential numbers above also exclude agriculture and recreational lands.

Population and Development Trends

Volusia County Population, 2000: 445,060
Volusia County Population, 2010: 494,610 (+11.1%)
Volusia County Population, 2017: 538,692 (+8.9%)
**Source: US Census Bureau (2017)*

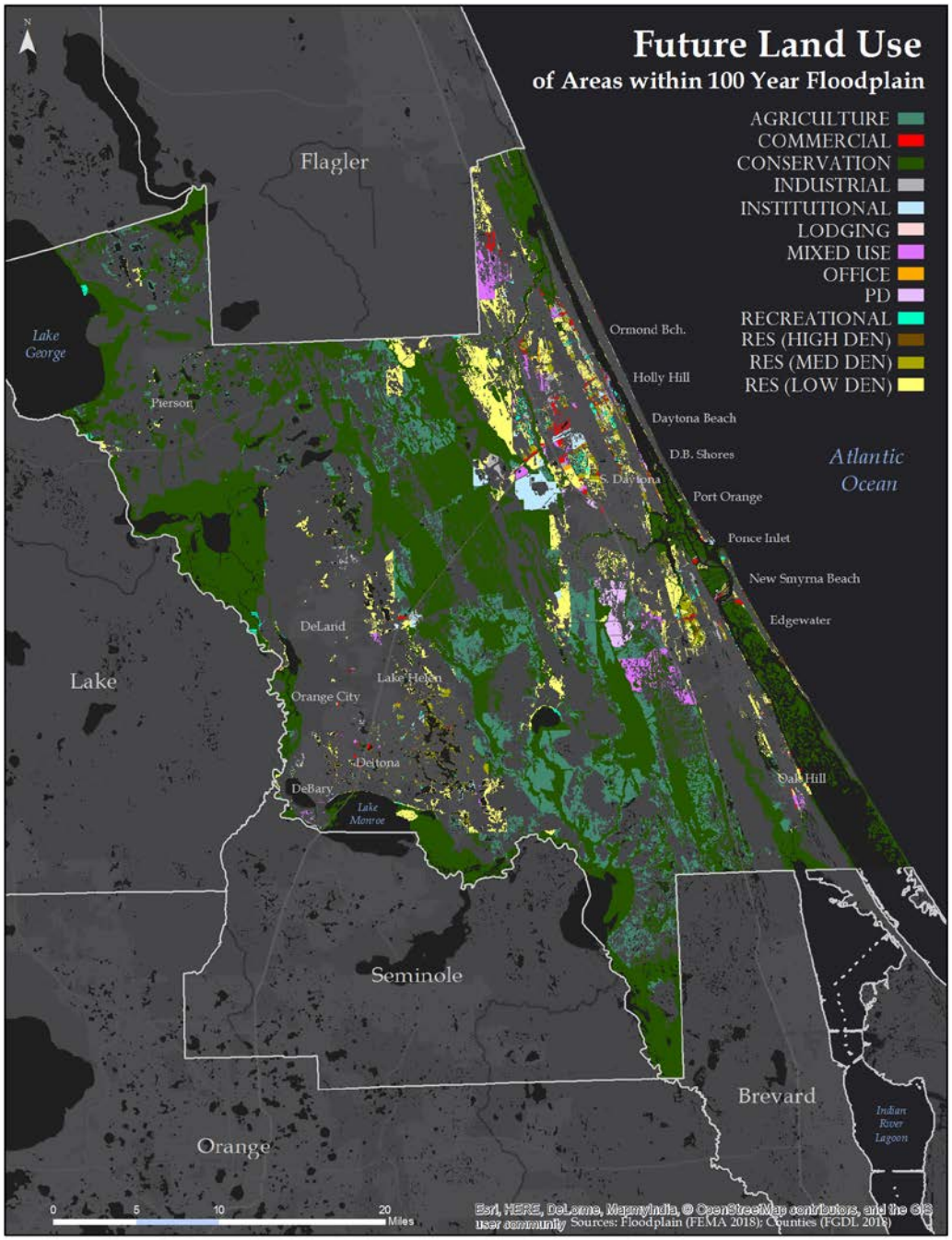

Figure 14: Future Land Uses in the Floodplain

Table 12: Analysis of Acreage of Future Land Uses Located within the 100 Year Flood Plain

*** Note: "Commercial" includes the "Office" and "Lodging" future land use designations*

Municipalities	Low Res.	M-H Res.	Commercial	Mixed Use	Institutional	Industrial	PD	Agriculture	Recreation
Daytona Beach	6951	851	1188	882	309	968	-	-	832
Daytona Beach Shores	1	26	-	-	0.1	-	-	-	-
DeBary	215	54	61	73	65	147	-	144	-
DeLand	300	2	-	111	1	212	-	-	-
Deltona	920	2627	106	67	372	-	-	154	95
Edgewater	280	166	16	1982	57	86	-	-	15
Holly Hill	414	36	24	0.3	10	142	-	-	81
Lake Helen	200	-	-	10	5	2	-	-	-
New Smyrna Beach	1075	643	220	222	23	180	1873	1844	152
Oak Hill	185	42	54	182	13	-	-	200	0.4
Orange City	6	0.2	25	49	38	0.6	-	-	-
Ormond Beach	1780	171	391	1593	71	154	-	-	63
Pierson	5	-	-	-	-	-	-	186	5
Ponce Inlet	86	26	20	-	40	-	-	-	11
Port Orange	1145	611	154	87	254	116	159	-	-
South Daytona	172	207	26	52	21	38	-	-	39
Unincorporated	11982	827	138	72	3180	227		45273	424
Countywide	**25717**	**6289**	**2423**	**5382**	**4459**	**2273**	**2032**	**47,801**	**1717**

The following map shows the evacuation routes and storm shelter locations as identified by the Statewide Regional Evacuation Study (SRES). It is important to note that shelters located within a floodplain may be inaccessible to the public during flooding events, either due to property flooding or the flooding of access roads. The analysis showed that only three shelters are located within the 100-year floodplain.

The following evacuation routes are primary movers of traffic out of Volusia County:

- Interstate 4 (to Orlando)
- Interstate 95 (to Miami, Jacksonville)
- State Road 40 (to Lake County)
- State Road 415 (to Sanford)
- U.S. 1 (coastal)

The table on the following page lists all of the designated storm shelters in Volusia County.

In the event of a mass-evacuation situation in Volusia County, the roadways utilized to reach these storm shelters could become damaged or inundated by water, thus creating the need for mitigation activities that would identify shelters that have additional capacity or those that can serve excess capacity from an inundated shelter.

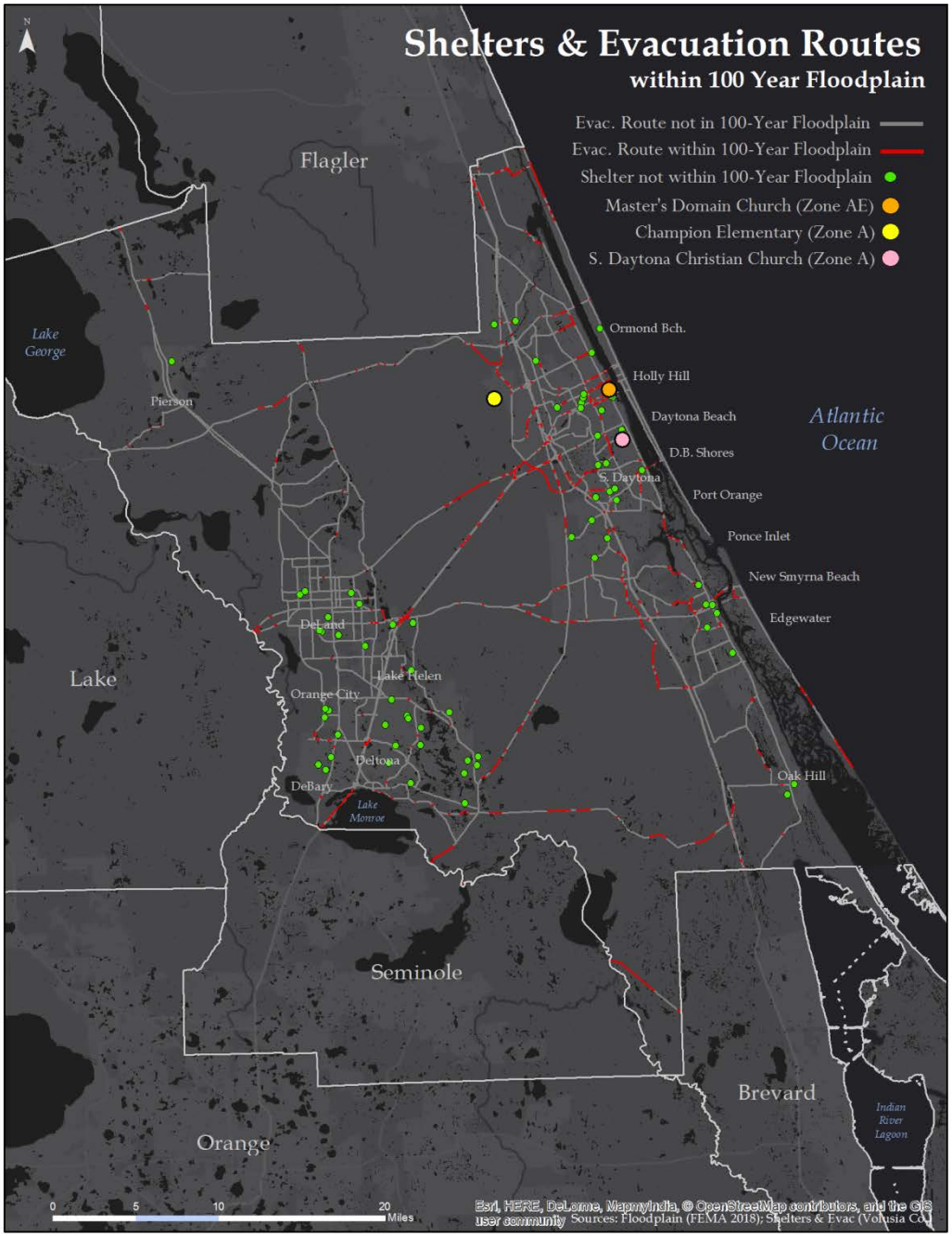

Figure 15: Shelters and Evacuation Routes in the Floodplain

Table 13: List of Storm Shelters in Volusia County (2018)

Shelter Name	City	Evac.	Flood Zone	Surge Zone
ALLEN GREEN CIVIC CENTER	Port Orange			
ATLANTIC HIGH SCHOOL	Port Orange			
BABE JAMES COMMUNITY CENTER	New Smyrna Bch.	B	500 Year	3
BIBLEWAY CHURCH OF GOD IN CHRIST	Oak Hill	C		3
BLUE LAKE ELEMENTARY SCHOOL	DeLand			
CAMPBELL MIDDLE SCHOOL	Daytona Beach	E		4
CHAMPION ELEMENTARY SCHOOL	Daytona Beach		A	
CHISHOLM COMMUNITY CENTER	DeLand			
CITRUS GROVE ELEMENTARY SCHOOL	DeLand			
COVENANT UNITED METHODIST CHURCH	Port Orange			
CREEKSIDE MIDDLE SCHOOL	Port Orange	E		
CYPRESS CREEK ELEMENTARY SCHOOL	Port Orange	E		4
DAYTONA CHRISTIAN & MISSIONARY CHURCH	Daytona Beach			
DAYTONA STATE COLLEGE - DAYTONA BEACH	Daytona Beach			
DAYTONA STATE COLLEGE - DELAND	Unincorporated			
DEBARY ELEMENTARY SCHOOL	DeBary			
DELAND HIGH SCHOOL	DeLand			
DELAND MIDDLE SCHOOL	DeLand			
DELTONA HIGH SCHOOL	Deltona			
DELTONA LAKES ELEMENTARY SCHOOL	Deltona			
DISCOVERY ELEMENTARY SCHOOL	Deltona			
EDGEWATER YMCA	Edgewater	C		3
EMMAUS LUTHERAN CHURCH	Orange City			
FIRST BAPTIST CHURCH OF DEBARY	DeBary			
FIRST BAPTIST CHURCH OF OAK HILL	Oak Hill	D		3
FIRST CHRISTIAN CHURCH	Daytona Beach	C	500 Year	3
FIRST CHURCH OF THE NAZARENE	New Smyrna Bch.	C	500 Year	3
FLORIDA COAST TO COAST RED CROSS CHAPT.	Daytona Beach	E		5
FOREST LAKE ELEMENTARY SCHOOL	Unincorporated			
FREEDOM ELEMENTARY SCHOOL	DeLand			
FRIENDSHIP ELEMENTARY SCHOOL	Deltona			
GALAXY MIDDLE SCHOOL	Deltona			
HERITAGE MIDDLE SCHOOL	Deltona			
HINSON MIDDLE SCHOOL	Daytona Beach			
HORIZON ELEMENTARY SCHOOL	Port Orange			
JAMES PARK YOUTH ACTIVITY CENTER	South Daytona	E		4
LIBERTY INDEPENDENT BAPTIST CHURCH	Unincorporated			

Shelter Name	City	Evac.	Flood Zone	Surge Zone
LIVE OAK GYM	New Smyrna Bch.	C		3
MAINLAND HIGH SCHOOL	Daytona Beach			
MANATEE COVE ELEMENTARY SCHOOL	Orange City			
MASTER'S DOMAIN CHURCH OF GOD IN CHRIST	Daytona Beach	C	AE	3
MOUNT CALVERY FREE WILL BAPTIST CHURCH	Unincorporated			
NEW SMYRNA BEACH HIGH SCHOOL	New Smyrna Bch.	C		3
OSTEEN ELEMENTARY SCHOOL	Unincorporated			
OUR SAVIOR'S EVANG. LUTHERAN CHURCH	Port Orange			
PALM TERRACE ELEMENTARY SCHOOL	Daytona Beach			
PATHWAYS ELEMENTARY SCHOOL	Ormond Beach			
PIGGOTTE COMMUNITY CENTER	South Daytona	E		4
PINE RIDGE HIGH SCHOOL	Deltona			
PINE TRAIL ELEMENTARY SCHOOL	Ormond Beach			
PORT ORANGE ELEMENTARY SCHOOL	Port Orange	C		3
PORT ORANGE YMCA	Port Orange			
PRIDE ELEMENTARY SCHOOL	Deltona			
RIVER SPRINGS MIDDLE SCHOOL	Orange City			
SAINT ANN'S CATHOLIC CHURCH	DeBary			
SEABREEZE SENIOR HIGH SCHOOL	Daytona Beach	A		4
SICA HALL COMMUNITY CENTER	Holly Hill	E		4
SOUTH DAYTONA CHRISTIAN CHURCH	South Daytona	C	A	3
SOUTHWESTERN MIDDLE SCHOOL	Unincorporated			
SPIRIT ELEMENTARY SCHOOL	Deltona			
SPRUCE CREEK BAPTIST CHURCH	Unincorporated	E		5
ST MARYS EPISCOPAL CHURCH	Daytona Beach	E		4
SUNRISE ELEMENTARY SCHOOL	Deltona			
SWEETWATER ELEMENTARY SCHOOL	Port Orange			
T. DEWITT TAYLOR MIDDLE/HIGH SCHOOL	Pierson			
TIMBERCREST ELEMENTARY SCHOOL	Deltona			
TRINITY ASSEMBLY OF GOD	Deltona			
TRINITY EVANGELICAL LUTHERAN CHURCH	New Smyrna Bch.	C		3
TUBMAN KING COMMUNITY CHURCH	Daytona Beach	E		4
UNIVERSITY HIGH SCHOOL	Orange City			
VOLUSIA COUNTY FAIRGROUNDS (PF)	Unincorporated			
VOLUSIA PINES ELEMENTARY SCHOOL	Lake Helen			
WES CRILE GYMNASIUM	Deltona			

VI. MITIGATION STRATEGY

Flood Mitigation specifically involves the managing and controlling of flood movement in an effort to prevent and control flooding. Flood mitigation is any action taken to reduce risk to people or property from flooding and its effects. The Volusia County Multi-jurisdictional Local Mitigation Strategy (LMS) has evolved over the years and not only focuses on flooding, but other natural hazards. The Volusia Prepares LMS Working Group (LMS Working Group) has developed Bylaws and Operating Procedures to formalize the LMS update process and working group. The Plan documents and represents the County's and participating local jurisdictions' sustained efforts to incorporate hazard mitigation principles and practices into the routine government activities and functions of Volusia County and its participating jurisdictions and partners. This includes documenting the goals and objectives that Volusia County deems necessary to protect people and property from hazards. At its most inner core, the Plan recommends specific actions to combat hazard vulnerability and protect its residents from losses to those hazards that pose the greatest risk.

A. Setting Goals

The Floodplain Management Plan Committee reviewed the goals of the current Volusia County FMP and the Local Mitigation Strategy. The following goals and objectives were adopted for the 2018 Volusia County Floodplain Management Plan.

GOAL 1 - Prevent new development in the floodplain from increasing runoff and resulting in increases in flood volumes in the floodplain.

Objective 1.1 Enforce the building requirements, from the National Flood Insurance Program and not allow variances that are feasibly avoidable.

Objective 1.2 Prevent new development in the floodplain.

Objective 1.3 Minimize flood hazards and protect water quality county-wide by employing watershed-based approaches that balance environmental, economic, and engineering considerations.

Objective 1.4 Protect environmentally sensitive lands and aquifers to maximize their survivability from known flood hazards where appropriate and financially feasible.

Objective 1.5 Reduce flood exposure and maximize flood protection efforts.

Goal 2 – Develop and maintain a proactive public awareness and outreach that informs and notifies property owners that they are located in a flood zone and provides assistance and information regarding flood zones, protection of property, local drainage and sewer back-up problems.

Objective 2.1 Create easily accessible information to educate residents about the hazards, loss reduction measures, and the natural and beneficial functions of floodplains.

Objective 2.2 Encourage land and water uses compatible with the protection of environmentally sensitive lands and coastal resources.

Objective 2.3 Review the adequacy and completeness of emergency procedures that address catastrophic flood events.

Objective 2.4 Minimize impacts from flooding in FEMA designated special flood hazard areas (i.e. flood zones starting with the letters "V" or "A") where financially feasible.

Objective 2.5 Build a constituency that desires to see the plan's recommendations implemented.

Objective 2.6 Provide leadership in protecting low-income properties and public housing from the impacts of floods.

Goal 3 - Continue with the Hazard Mitigation Grant Program to identify and obtain funding for both pre-and-post disaster residential mitigation projects regarding flooding.

Objective 3.1 Identify cost-beneficial residential units for various flood mitigation grants.

Objective 3.2 Utilize "Volusia Prepares" Local Mitigation Strategy to guide and assist the County and municipalities in establishing priorities for hazard mitigation projects.

Goal 4 – Reduce the number of repetitive loss properties within Volusia County.

Goal 5 - Review the locations and effects on areas that experience flooding and determine what steps, if any, the County and municipalities can take to alleviate future impacts.

Objective 5.1 Maintain a database of flood problems and hazards, mitigation and repetitive loss claim history.

Objective 5.2 Build public and political support for projects that prevent new problems, reduce losses, and protect the natural and beneficial functions of floodplains.

Objective 5.3 Prioritize capital projects that will mitigate flood impacts in those areas of the County and municipalities that have experienced significant flooding problems.

Objective 5.4 Continue and enhance existing programs that acquire wetland areas for passive recreation uses while providing significant watershed volume storage and buffer areas from the floodplain.

Goal 6 – Develop Floodplain Management Plans for participating CRS municipalities in Volusia County (and others as desired).

Objective 6.1 Ensure that the recommended activities meet the goals and objectives of the community, do not create conflicts with other activities, and are coordinated with all to reduce the costs of implementing individual activities.

VIII. MITIGATION ACTIVITIES

Flood Mitigation specifically involves the managing and controlling of flood movement in an effort to prevent and control flooding. Flood mitigation is any action taken to reduce risk to people or property from flooding and its effects. The Volusia County Multi-jurisdictional Local Mitigation Strategy (LMS) has evolved over the years and not only focuses on flooding, but other natural hazards. The Volusia Prepares LMS Working Group (LMS Working Group) has developed Bylaws and Operating Procedures to formalize the LMS update process and working group. The Plan documents and represents the County's and participating local jurisdictions' sustained efforts to incorporate hazard mitigation principles and practices into the routine government activities and functions of Volusia County and its participating jurisdictions and partners. This includes documenting the goals and objectives that Volusia County deems necessary to protect people and property from hazards. At its most inner core, the Plan recommends specific actions to combat hazard vulnerability and protect its residents from losses to those hazards that pose the greatest risk.

Table 14: Funding Sources for Property Mitigation Activities

Eligible Activities	Hazard Mitigation Grant	Pre-Disaster Mitigation	Flood Mitigation Assistance	Repetitive Flood Claim	Community Development Block Grant	Public Assistance Program	Severe Repetitive Loss
Acquisition/Demolition *(for purposes of open space)*	✓	✓	✓	✓	✓		✓
Relocation	✓	✓	✓	✓	✓		✓
Elevation	✓	✓	✓	✓	✓		✓
Dry Flood-proofing *(historic residential structures)*	✓	✓	✓	✓	✓		✓
Public Facility Mitigation					✓	✓	✓
Mitigation Reconstruction					✓		✓

A detailed description of the funding sources can be found in Section 9 of the Volusia County Local Mitigation Strategy.

A. Flooding Preventative Activities

Planning and regulatory capability is based on the implementation of plans, ordinances and programs that demonstrate a local jurisdiction's commitment to guiding and managing growth, development and redevelopment in a responsible manner while maintaining the general welfare of the community. It includes emergency management and mitigation planning, comprehensive land use planning, in addition to the enforcement of zoning and subdivision ordinances and building codes that regulate how land is developed and structures are built. Additionally, it protects environmental, historic and cultural resources in the community. Although some conflicts can arise, these planning initiatives generally present significant opportunities to integrate mitigation principles and best practices into the local decision making process in an effort to manage floodplain development. Table 2 refers to Volusia County and its jurisdictions plans, policies, codes and ordinances.

B. Property Preventative Activities

Property preventive activities are generally undertaken by property owners on a building-by-building or parcel basis. Some activities may include:

- **Buy Out/Acquisition** - The act of acquiring or gaining possession to flood damaged properties and permanently preserving the land.
- **Relocation** – Moving a structure out of the floodplain to higher ground where it will not be exposed to flooding.
- **Elevation** – Raising a structure so that the lowest floor is above the flood level.
- **Flood Insurance** – A specific insurance coverage against property loss from flooding.
- **Wet Flood-proofing** – Making uninhabited portions of the structure resistant to flood damage and allowing water to enter during flooding.
- **Dry Flood-proofing** – Sealing the structure to prevent floodwaters from entering.

C. Natural Resource Protection Activities

These activities are customarily conducted to preserve or restore natural areas or the natural functions of floodplain and watershed areas. Natural resource protection activities reduce the impact of natural hazards by preserving or restoring natural areas and their protective functions. Such areas include floodplains, wetlands, steep slopes and sand dunes. Parks, recreation or conservation agencies and organizations often implement these protective measures.

Examples of Natural Resource Protective Measures:

- Floodplain protection; watershed management
- Low impact development; bioswales; native landscaping
- Riparian buffers
- Erosion and sediment control
- Wetland preservation and restoration

D. Emergency Services Activities

Emergency services measures are taken prior to, during, and after an emergency to minimize vulnerability and impact. Volusia County Division of Emergency Management actively participates in training and exercise, as well as evacuation planning and emergency response. Currently Volusia County and 15 jurisdictions have an evacuation plan in place. In addition, Volusia County participated in the Statewide Regional Evacuation Study. Figure 15 depicts the regional evacuation routes and shelters within Volusia County. Other activities include sandbagging for flood protection and emergency response training and exercises. Volusia County and its municipalities continue to be proactive in emergency response training and exercises. Some examples include participation in the Statewide Tsunami Exercise and the Statewide Tornado Drill.

E. Structural Projects

Structural projects keep floodwaters away from an area with a levee, reservoir, or other flood control measure. Structural projects are usually designed by engineers and managed or maintained by public works staff. Examples of structural projects include:

- Reservoirs
- Channel modifications
- Levees/floodwalls/seawalls
- Beach nourishment
- Diversions
- Storm sewers; bioswales

F. Public Education and Awareness Activities

Public Education and Awareness activities are used to advise residents, elected officials, business owners, potential property buyers, and visitors about hazards, hazardous areas, and mitigation techniques they can use to protect themselves and their

property. Examples of measures to educate and inform the public include outreach projects. Through an agreement with Volusia County, WNDB 1150AM/WHOG 95.7FM radio and WDSC TV-15 are Volusia County's official emergency management information stations. WNDB has a broadcast outlet at the CEOC. WDSC enhances the County's ability to provide critical public safety information with a direct, live television connection. Volusia County's website hosts a flood map viewer which is an on-line mapping program that has searchable flood maps. The flood map viewer allows an individual to type in an address or property identification number to see the parcel on an interactive map in relation to the high-risk flood areas. Volusia County and its jurisdictions also provide real estate agents with floodplain disclosures. Information regarding floods can also be found at the County Libraries. Volusia County actively provides updates on events and public outreach through Facebook and Twitter.

It was identified through the public survey process that many residents are unsatisfied with educational and outreach efforts provided by the jurisdictions. It is recommended that throughout the year and during the yearly plan update, at least one public meeting be held to provide information to the residents concerning mitigation and associated funding options. In addition, social media, mailings, workshops, and informational booths at events are also suggested as well as public service announcements and information in the local newspaper. Providing strategies, funding resources and other education material both electronically on all the jurisdictional websites and in print in libraries and City Halls would be beneficial.

G. Action Plan

The Volusia County Multi-Jurisdictional Local Mitigation Strategy features a mitigation action plan that is maintained through the LMS Working Group as well as the FMP working group. The Mitigation Strategy is the selection and prioritization of specific mitigation actions, referred to as Hazard Mitigation Initiatives, for Volusia County and participating jurisdictions. The Mitigation Action Plan (MAP) represents an unambiguous and functional plan for action and is considered to be the most essential outcome of the mitigation planning process. This detailed Action Plan can be found in Section 8 of the Volusia County Multi-Jurisdictional Local Mitigation Strategy.

The MAP includes a prioritized listing of proposed hazard mitigation actions (policies and projects) for Volusia County and its participating jurisdictions and partners to carry out with accompanying information such as those departments or individuals assigned responsibility for their implementation, potential funding sources and an estimated target date for completion, serving as an important tool for monitoring success or progress over time. The cohesive collection of actions listed in the

MAP can also serve as an easily understood menu of mitigation policies and projects for those local decision makers who want to quickly review the recommendations and proposed actions of the Hazard Mitigation Plan. The Mitigation Action Plan can be found in Appendix G.

The LMS working group has reviewed and prioritized the initiatives and projects found in the Action Plan. The prioritization was based on the following factors: Population Benefited, Health and Safety Considerations, Environmental Impact, Consistency with other plans and programs, Reduces Risk of Future Property Damage, Supports Essential or Critical Services, Probability of Receiving Funding and ease of Implementation, Community Rating System, Repetitive Loss Mitigation, and Benefit Cost Ratio. Please refer to the table on the next page which justifies the scoring the system.

It is important to note that since this plan is to be incorporated into the Volusia County Local Mitigation Strategy (LMS), it will fall under all of the implementation, evaluation and revision criteria and schedule as outlined specifically in the LMS.

Post-Disaster Redevelopment Strategies and Procedures

Add information… Link to PDRP… 10 CRS points available

Natural Hazard Mitigation Strategies and Procedures

Add information… Link to PDRP… 10 CRS points available

Table 15: Prioritization and Scoring Worksheet (Update as needed with Federal changes)

Prioritization Criteria	***Scoring***			
Population Benefited	**4 Points:** Project will benefit a multi-jurisdictional area	**3 Points:** Project will befit a jurisdictional area	**2 Points:** Project will benefit less than 100% of a jurisdiction.	
Health and Safety Considerations	**4 Points:** Project would benefit 75% or more of the population.	**3 Points:** Project would benefit 50 -74 % of the population.	**2 Points:** Project would benefit 25-49% of the population.	**1 Point:** Project would benefit less than 25% of the population.
Environmental Impact	**1 Point:** Project improves the environment.	**0 Point:** Risk to the environment is undetermined.	**(-1) Point:** Project poses a risk to the environment.	
Consistency with other plans and programs	**4 Points:** Project is incorporated into the LMS CEMP and Comp Plan and supports the NFIP.	**3 Points:** Project is incorporated into at least two of these plans.	**2 Points:** Project is incorporated into at least one of these plans.	**1 Point:** Project is consistent with other local standards, aside from LMS, CEMP, and Comp Plan.
Reduces Risk of Future Property Damage	**4 Points:** Mitigates a hazard of high frequency or risk.	**3 Points:** Mitigates a hazard of moderate frequency or risk.	**2 Points:** Mitigates a hazard of low frequency or risk.	**1 Point:** Mitigates a hazard of very low frequency or risk.
Supports Essential or Critical Services	**5 Points:** Project will ensure continuity of operations for essential infrastructure or services.	**3 Points:** Project will support infrastructure or services with loss/damage history	**1 Point:** Project will support infrastructure or services without loss/damage history.	**0 Points:** Projects operation will have no impact on community infrastructure or services if disrupted.
Probability of Receiving Funding for Implementation	**4 Points:** Limited funding potential exists.	**3 Points**: Potential funding sources are other state or federal grants or similar funding sources.	**2 Points:** Potential funding is readily available through emergency preparedness or mitigation funding sources.	**0 Points**: Potential funding is readily available through local funding sources.
Feasibility of Implementation	**4 Points:** Project would be relatively easy to implement in one year.	**3 Points**: Project would be easy to implement in three years.	**2 points:** Project would be easy to implement in five years.	**0 Points:** Project would be difficult to implement.
Community Rating System (CRS) -public information, mapping - damage reduction -flood preparedness	**4 Points:** Project supports CRS elements	**3 Points:** Project supports three CRS elements.	**2 Points:** Project supports two CRS elements.	**1 Point:** Project supports one CRS element.
Repetitive Loss (RL) Mitigation	**4 Points:** Project protects 50% or more of the RL structures.	**2 Points**: Project protects less than 50% of the RL structures.	**4 Points:** Project does not protect a RL structures.	
Benefit Cost Ratio (BCR)	**5 Points:** Project has a BCR of "1" or higher, using FEMA approved software.	**3 Points:** Project has a BCR of less than "1" using FEMA approved software.	**O Points:** the BCR cannot be determined.	

IX. PLAN MAINTENANCE

A. Adopt the Plan

Each jurisdiction participating in the CRS program is required to adopt the Floodplain Management Plan formally through individual jurisdictional boards. Appendix I provides copies of all adopted resolutions. Please note, this section is a working section, as the adoption process may vary amongst the jurisdictions. As each jurisdiction provides a copy of the adopted resolution, it will be added to the appendix of the plan. The Volusia County Emergency Management Division is responsible for the master copy of the Floodplain Management Plan.

B. Implement, Evaluate, and Revise

As the responsible party for the FMP, the Volusia County Emergency Management Division will oversee the implementation, evaluation, and revision of the plan on a County-wide basis. Jurisdictional implementation and revision of Appendix A is the responsibility of each individual jurisdiction. Does the community have procedures for monitoring implementation, reviewing progress or recommending revisions?

The LMS Steering Committee and the FMP Planning Committee are generally comprised of the same jurisdictional staff members. However, for the purpose of updating and maintaining the FMP, the FMP Planning Committee composition will continue to encompass the jurisdictional staff responsible for the implementation of the FMP and related policies and projects as it had been during the initial planning process. See Mark's notes. 24 points available for an Annual Evaluation Report.

This Floodplain Management Plan is considered an appendix to the Volusia County LMS. To that end, the maintenance of this document will occur in conjunction with the yearly LMS updates. During the third quarter of the calendar year (July/August/September), the County and the jurisdictions will provide any updates, including data and projects, to the County for review by the LMS Steering Committee/FMP Planning Committee. The steering committee will review any updates and the County will be responsible for implementing the updates in the master plan. In addition, the evaluation report will be prepared by the FMP Planning Committee and address updates per jurisdiction. Each community will submit

its copy of the annual evaluation report with its recertification annually. The Volusia County Emergency Management Division will be responsible for the five year update process. During this update period, the public will have the opportunity to participate in the updating process. It is recommended that at least one public meeting is held during this period to provide input. In addition, it is recommended that notification be submitted via databases, utility mailings, websites, and social media, concerning the update process, public meetings, and other avenues of input. The current plan as well as the proposed changes should be made available on each jurisdictional website as well as a hard copy be provided at the City Halls and libraries. Press releases, radio and TV announcements may also be utilized to inform the public.

Once per year, elected officials will be provided a copy of the most current Floodplain Management Plan in conjunction with the LMS. At that time, hard copies of the plan will be replaced at the designated location in participating jurisdictions. The table below indicates where the jurisdictions will keep a hard copy of the plan for public use

Table 16: Plan Storage Locations

City	Hard Copy Location
Main Copy	**City Island Library - 105 East Magnolia Avenue, Daytona Beach FL 32114**
Daytona Beach	125 Basin Street (Suite 100), Daytona Beach FL 32114
Daytona Beach Shores	2990 S. Atlantic Avenue, Daytona Beach Shores FL 32118
DeBary	*Not Specified*
DeLand	*Not Specified*
Deltona	*Not Specified*
Edgewater	104 N. Riverside Drive, Edgewater FL 32132
Holly Hill	*Not Specified*
Lake Helen	*Not Specified*
New Smyrna Beach	*Not Specified*
Oak Hill	*Not Specified*
Orange City	*Not Specified*
Ormond Beach	22 South Beach Street (Room 104), Ormond Beach FL 32174
Pierson	*Not Specified*
Ponce Inlet	*Not Specified*
Port Orange	*Not Specified*
South Daytona	1672 S. Ridgewood Avenue, South Daytona FL 32119