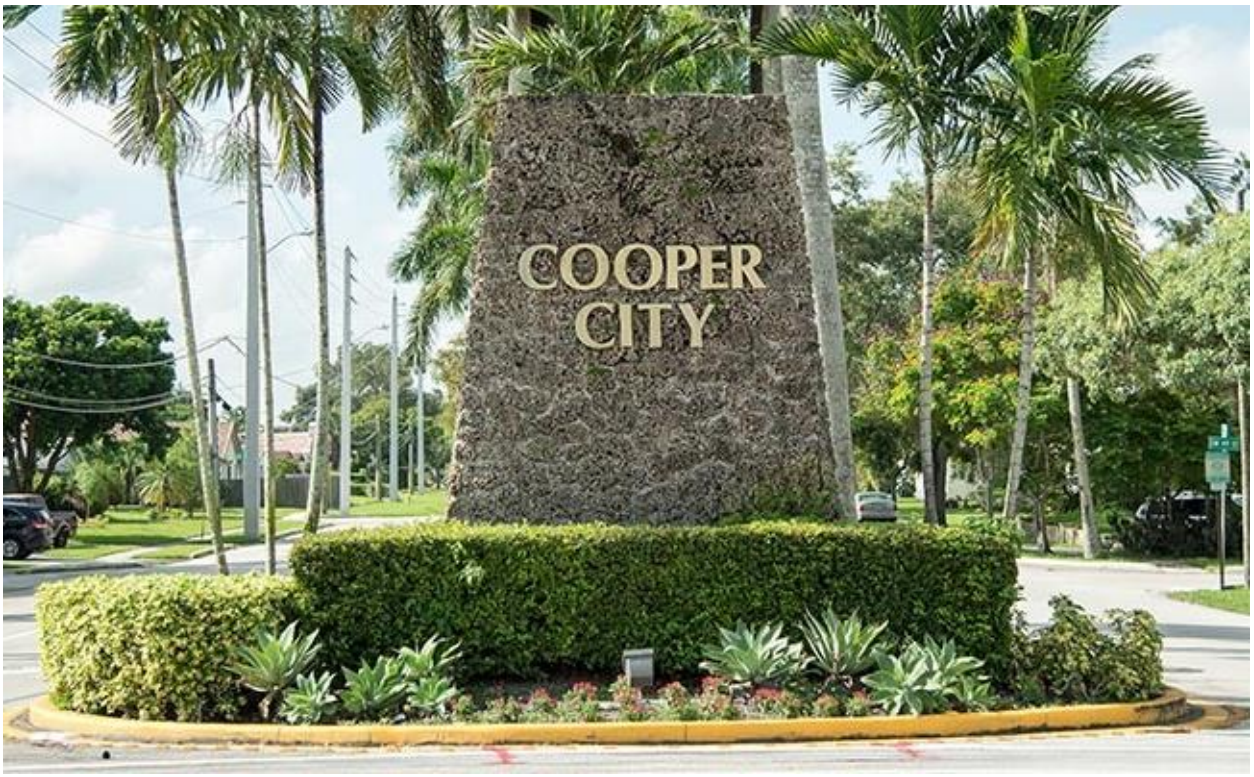
City of Cooper City Vulnerability Assessment



Adopted by the City of Cooper City Commission on June 10, 2025.

This City of Cooper City Vulnerability Assessment was prepared in partnership with
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Table of Contents

List of Tables

List of Figures

List of Appendices

List of Acronyms

Abbreviation	Definition
CFE	Critical Flood Elevation
City	City of Cooper City
DEM	Digital Elevation Model
DHI	Danish Hydraulic Institute
ERP	Environmental Resources Permit
FFE	Finished Floor Elevation
FS	Florida Statutes
GIS	Geographic Information System
Hazen	Hazen and Sawyer
LS	Lift Station
MG	Million Gallons
MIKE HYDRO	MIKE Hydrological Model
MIKE SHE	MIKE Système Hydrologique Européen Model
Model	Broward County MIKE SHE/MIKE HYDRO Model
MSL	Mean Sea Level
NAVD88	North American Vertical Datum of 1988
NOAA	National Oceanic and Atmospheric
SFWMD	South Florida Water Management District

Abbreviation	Definition
SLOSH	Sea, Lake, and Overland Surges from Hurricanes
SLR	Sea Level Rise
VA	Vulnerability Assessment
WWTP	Wastewater Treatment Plant

Executive Summary

The City of Cooper City (City) Vulnerability Assessment (VA) identifies flood vulnerabilities within the City through exposure and sensitivity analyses. This assessment, prepared by Hazen and Sawyer (Hazen), is designed to increase the protection of critical infrastructure throughout the City. This Vulnerability Assessment was performed according to the requirements of Florida Statute 380.093 at the time the project scope was written in 2022. The City intends to use the findings from the assessment to support grant applications, including those from the Resilient Florida Grant Program.

The City is an inland community in Broward County with a population of approximately 34,000 people according to the 2020 Census and has a total of about 8.5 square miles. The scope of the assessment includes collecting and organizing background data, topographic data, and flood-scenario related data to develop an exposure analysis. This analysis assesses the vulnerability of 175 critical and regionally significant assets that include critical community and emergency facilities, critical infrastructure, transportation assets, and natural, cultural, and historical resources to various flood scenarios.

The exposure analysis was conducted using the available Broward County MIKE SHE - MIKE HYDRO model that was created in 2002 and has been refined recently for the Broward County Risk Assessment and Resilience Plan. The model has since been utilized by multiple County, State and Federal agencies. The exposure analysis used the MIKE SHE – MIKE HYDRO model to simulate flood elevations and capture the flood depth at each of the City's critical assets. Ten flooding scenarios were modeled and analyzed as part of this assessment, considering factors such as rainfall, sea level rise projections, storm surge, and tidal flooding. The results of this analysis will help the City develop strategies to mitigate flood risks and enhance the resilience of its critical infrastructure.

A sensitivity analysis was conducted to evaluate the impact of flood severity on each asset type for each flooding scenario. A final sensitivity score based on the criticality of the asset and overall exposure score was then calculated to prioritize the assets most vulnerable to flooding. It was found that the City has a vulnerability to flooding driven primarily by rainfall driven storm events. The top five to six most vulnerable assets by category, as determined by this assessment are:

<u>Facilities (Structures and Parcels)</u>

- BSO Law Cooper City District 16
- BSO Station 28
- Cooper City WWTP Utilities Building
- George A. Haughney Water Treatment Plant
- Cooper City Elementary School
- Cooper City Wastewater Treatment Plant

Lift Stations and Raw Water Wells

- LS-44
- LS-83
- LS-17
- LS-24
- LS-31

Roadways

- SW 97th Terrace (From SW 97th Ter to SW 59th St)
- SW 99th Lane (From SW 57th St to SW 59th St)
- SW 59th Street (From SW 99th Ln to SW 59th St)
- SW 90th Avenue/Cooper Blvd (From Griffin Road to Stirling Rd/SW 60th St)
- N Hiatus Road (From Stirling Rd/SW 60th St to Sheridan St)

A majority of the most vulnerable critical assets are located within two identified focus areas in the northwest and central areas of the City. These focus areas can be used to guide the planning for implementing adaptation projects. Additionally, the critical assets that pose an immediate health or safety threat to the City should be prioritized to begin exploring possible adaptation strategies.

1. Introduction

The City of Cooper City (City) has requested the services of Hazen and Sawyer (Hazen) to prepare a Vulnerability Assessment (VA) in accordance with section (s.) 380.093 Florida Statutes (FS) to identify flood vulnerabilities by conducting exposure and sensitivity analyses in relation to City critical and regionally significant assets. The Statute classifies critical assets as either transportation assets and evacuation routes, critical infrastructure, critical community and emergency facilities, or natural, cultural, and historical resources. **Table 1–1** summarizes the critical asset types associated with each asset class as defined by s. 380.093 FS.

Table 1–1: Critical Asset Types

Critical Asset Class	Critical Asset Type
Transportation Assets and Evacuation Routes	Airports
Transportation Assets and Evacuation Routes	Bridges
Transportation Assets and Evacuation Routes	Bus terminals
Transportation Assets and Evacuation Routes	Ports
Transportation Assets and Evacuation Routes	Major Roadways
Transportation Assets and Evacuation Routes	Marinas
Transportation Assets and Evacuation Routes	Rail Facilities
Transportation Assets and Evacuation Routes	Railroad Bridges
Critical Infrastructure	Wastewater Treatment Facilities and Lift Stations
Critical Infrastructure	Stormwater Treatment Facilities and Pump Stations
Critical Infrastructure	Drinking Water Facilities
Critical Infrastructure	Water Utility Conveyance Systems
Critical Infrastructure	Electric Production and Supply Facilities
Critical Infrastructure	Solid and Hazardous Waste Facilities
Critical Infrastructure	Military Installations
Critical Infrastructure	Communication Facilities
Critical Infrastructure	Disaster Debris Management Sites
Critical Community and Emergency Facilities	Schools
Critical Community and Emergency Facilities	Colleges
Critical Community and Emergency Facilities	Universities
Critical Community and Emergency Facilities	Community Centers
Critical Community and Emergency Facilities	Correctional Facilities
Critical Community and Emergency Facilities	Disaster Recovery Centers
Critical Community and Emergency Facilities	Emergency Medical Service Facilities
Critical Community and Emergency Facilities	Emergency Operation Centers
Critical Community and Emergency Facilities	Fire Stations
Critical Community and Emergency Facilities	Health Care Facilities
Critical Community and Emergency Facilities	Hospitals
Critical Community and Emergency Facilities	Law Enforcement Facilities
Critical Community and Emergency Facilities	Local Government Facilities
Critical Community and Emergency Facilities	Logistical Staging Areas
Critical Community and Emergency Facilities	Affordable Public Housing

Critical Asset Class	Critical Asset Type
Critical Community and Emergency Facilities	Risk Shelter Inventory
Critical Community and Emergency Facilities	State Government Facilities
Natural, Cultural, and Historical Resources	Conservation Lands
Natural, Cultural, and Historical Resources	Parks
Natural, Cultural, and Historical Resources	Shorelines
Natural, Cultural, and Historical Resources	Surface Waters
Natural, Cultural, and Historical Resources	Wetlands
Natural, Cultural, and Historical Resources	Historical and Cultural Assets

Regionally significant assets are further defined by the Statute as critical assets that support the needs of communities spanning multiple geopolitical jurisdictions, including, but not limited to, water resource facilities, regional medical centers, emergency operation centers, regional utilities, major transportation hubs and corridors, airports, and seaports.

Hazen researched and compiled data needed to conduct the VA, based on the requirements as defined in s. 380.093, F.S., including critical and regionally significant assets, topographic characteristics, and flood-scenario related data.

2. Background

The City is an inland community in Broward County with a population of approximately 34,000 people according to the 2020 Census. The City is bordered by Town of Davie to the North, Hollywood to the East, Pembroke Pines to the South, and Southwest Ranches to the West. **Figure 2-1** depicts the location of the City's municipal limits, 8.5 square miles.

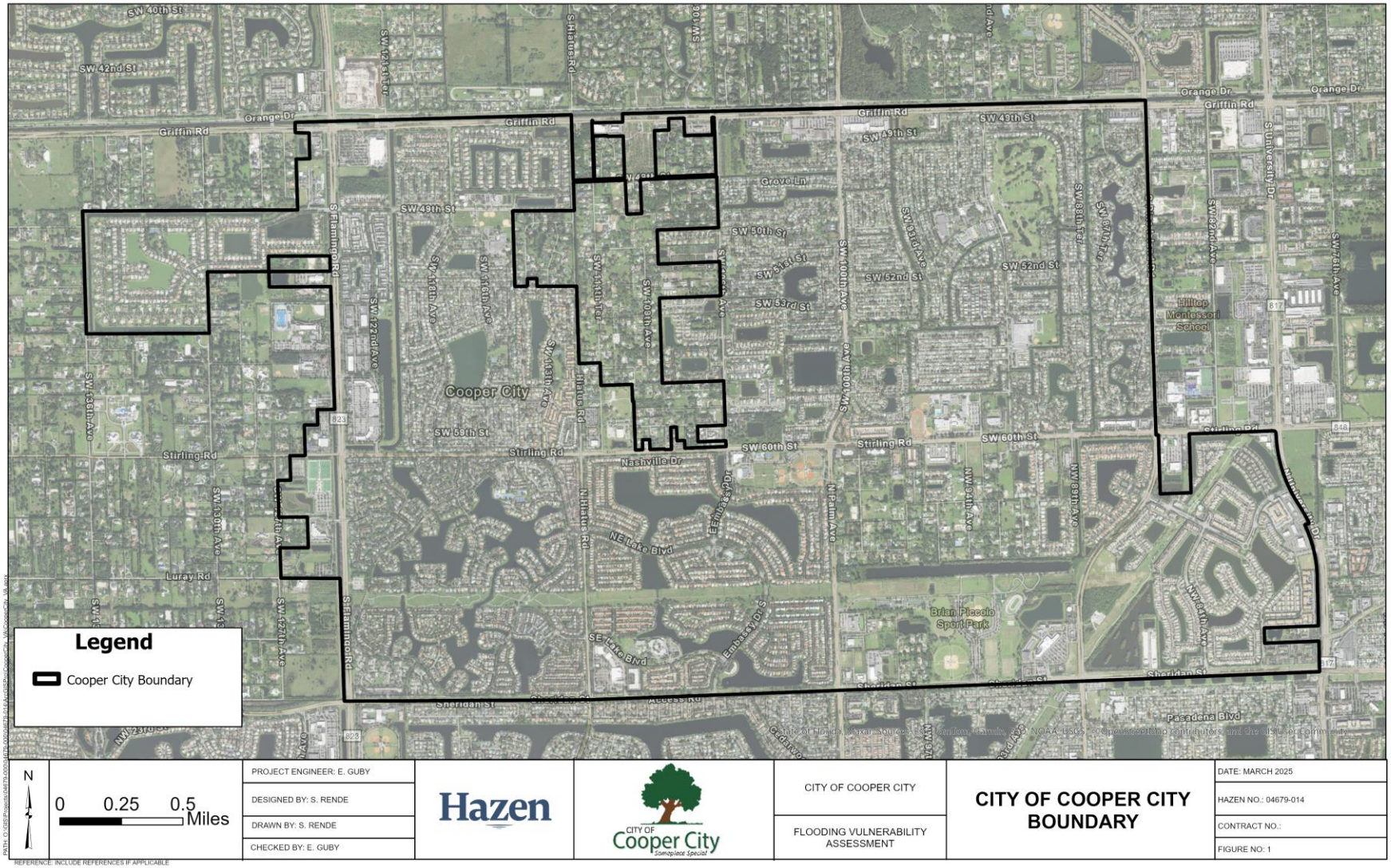


Figure 2-1: Cooper City Location Map

3. Data Collection

3.1 Critical Assets

A desktop review of the City's critical assets was performed by Hazen and supplemented with input from the City. Critical assets were identified through data obtained from various sources, including the City's Geographic Information System (GIS) database and the Broward County Geohub. This data included geographic and infrastructural information on key assets such as public buildings, roads, parks, and utilities as seen in **Table 3–1**. The information was received through a combination of GIS data and high-risk asset inventories. The vulnerability assessment primarily focused on city-owned assets. A limited number of privately owned schools were included in the analysis at the request of the City. However, other privately owned assets were excluded, as they fall outside the City's scope of responsibility and vulnerability evaluation. A full copy of the data collection log is available in **Appendix A**.

Table 3–1: Critical Asset Data Collection

Data Type	Data Name	Source File Type	Source	Notes
Transportation Assets and Evacuation Routes	Bridges	Screen Capture	COCC	Culverts provided - not to be included in analysis
Transportation Assets and Evacuation Routes	Major Roadways	Shapefile	COCC	Initial roadway layer retrieved from City GIS and discussed major roadways to include
Critical Infrastructure	Wastewater Treatment Facilities	Screen Capture	COCC	From City
Critical Infrastructure	Wastewater Lift Stations	Shapefile	COCC	From City GIS
Critical Infrastructure	Drinking Water Facilities	Screen Capture	COCC	From City
Critical Infrastructure	Water Utility Conveyance Systems	Shapefile/ List	COCC	Raw water wells obtained from City GIS. Storage Tanks and accompanying pump stations obtained from High-Risk Asset list
Critical Infrastructure	Communications Facilities	Screen Capture	COCC	AMI Base Station from City
Critical Infrastructure	Disaster Debris Management Sites	Shapefile	Broward County Geohub	
Critical Community and Emergency Facilities	Schools	Shapefile/ Screen Capture	Broward County Geohub and COCC	Included public and private schools. Preschools not to be included in the analysis
Critical Community and Emergency Facilities	Community Centers	Screen Capture	COCC	From City
Critical Community and Emergency Facilities	Disaster Recovery Centers	List	COCC	Discussed during data collection review meeting to include reunification centers
Critical Community and Emergency Facilities	Emergency Operation Centers	List	COCC	Discussed EOC locations during data collection review meeting

Data Type	Data Name	Source File Type	Source	Notes
Critical Community and Emergency Facilities	Fire Stations	Screen Capture	COCC	From City
Critical Community and Emergency Facilities	Health Care Facilities	Screen Capture	COCC	Private kidney center not to be included in analysis
Critical Community and Emergency Facilities	Law Enforcement Facilities	Screen Capture	COCC	From City
Critical Community and Emergency Facilities	Local Government Facilities	Screen Capture	COCC	From City
Critical Community and Emergency Facilities	Risk Shelter Inventory	List	COCC	From City
Natural, Cultural, and Historical resources	Conservation Lands	Shapefile	Broward County Geohub	Private conservation lands not to be included in the analysis
Natural, Cultural, and Historical resources	Parks	Shapefile/ Screen Capture	Broward County Geohub and COCC	Parks downloaded from Broward County and compared to list provided by the City

The relevant assets from the data collection review were then extracted and reformatted per the Florida Department of Environmental Protection's (FDEP) GIS data standards. The City has a total of 175 assets that fit into the four main critical asset classes as shown in **Table 3–2**. A full list of all the critical assets analyzed is included in **Appendix B**.

Table 3–2: Cooper City Critical Asset Types

Critical Asset Class	Critical Asset Type	Number of Critical Assets
Transportation Assets and Evacuation Routes	Major Roadways	29
Critical Infrastructure	Wastewater Lift Stations	83
Critical Infrastructure	Communications Facility	1
Critical Infrastructure	Wastewater Treatment Facility	1
Critical Infrastructure	Drinking Water Facility	1
Critical Infrastructure	Water Utility Conveyance Systems	10
Critical Community and Emergency Facilities	Schools	17
Critical Community and Emergency Facilities	Schools, Disaster Recovery Centers	1
Critical Community and Emergency Facilities	Disaster Recovery Centers	1
Critical Community and Emergency Facilities	Community Centers	2
Critical Community and Emergency Facilities	Emergency Operation Centers	1
Critical Community and Emergency Facilities	Emergency Operation Centers, Law Enforcement Facilities	1
Critical Community and Emergency Facilities	Fire Stations	1
Critical Community and Emergency Facilities	Local Government Facilities	1

Critical Asset Class	Critical Asset Type	Number of Critical Assets
Critical Community and Emergency Facilities	Local Government Facilities, Risk Shelter Inventory	1
Natural, Cultural, and Historical Resources	Parks	23
Natural, Cultural, and Historical Resources	Disaster Debris Management Site, Parks	1
Total		**175**

3.2 Digital Elevation Model

The Digital Elevation Model (DEM) for Broward County was constructed from lidar data collected in 2018 by the U.S. Geological Survey. Ground lidar points were used with hydro breaklines to create the raster dataset. The horizontal projection was NAD83 (2011), Contiguous U.S. Albers Equal Area and the vertical datum was NAVD88. The lidar data was collected in June, November, and December 2018 when rivers were at or below normal levels. Twenty ground control points with known locations and elevations were established to calibrate the lidar data.

Raster math was used to convert the DEM from meters to feet and the DEM was reprojected to a resolution of 125 feet. The DEM was then extracted to the extent of Broward County to create the final 125-foot resolution DEM with depths in feet. The DEM horizontal coordinates were reprojected to the Florida State Plane Coordinate Reference System, East, in U.S. feet. The DEM was visually inspected for logic and contiguous coverage. The DEM values representing water bodies were left as part of the dataset. The cell size for this DEM is two feet and the projection is Florida State Plane U.S. Feet NAD83/HARN.

Figure 3-1 shows the DEM for Cooper City.

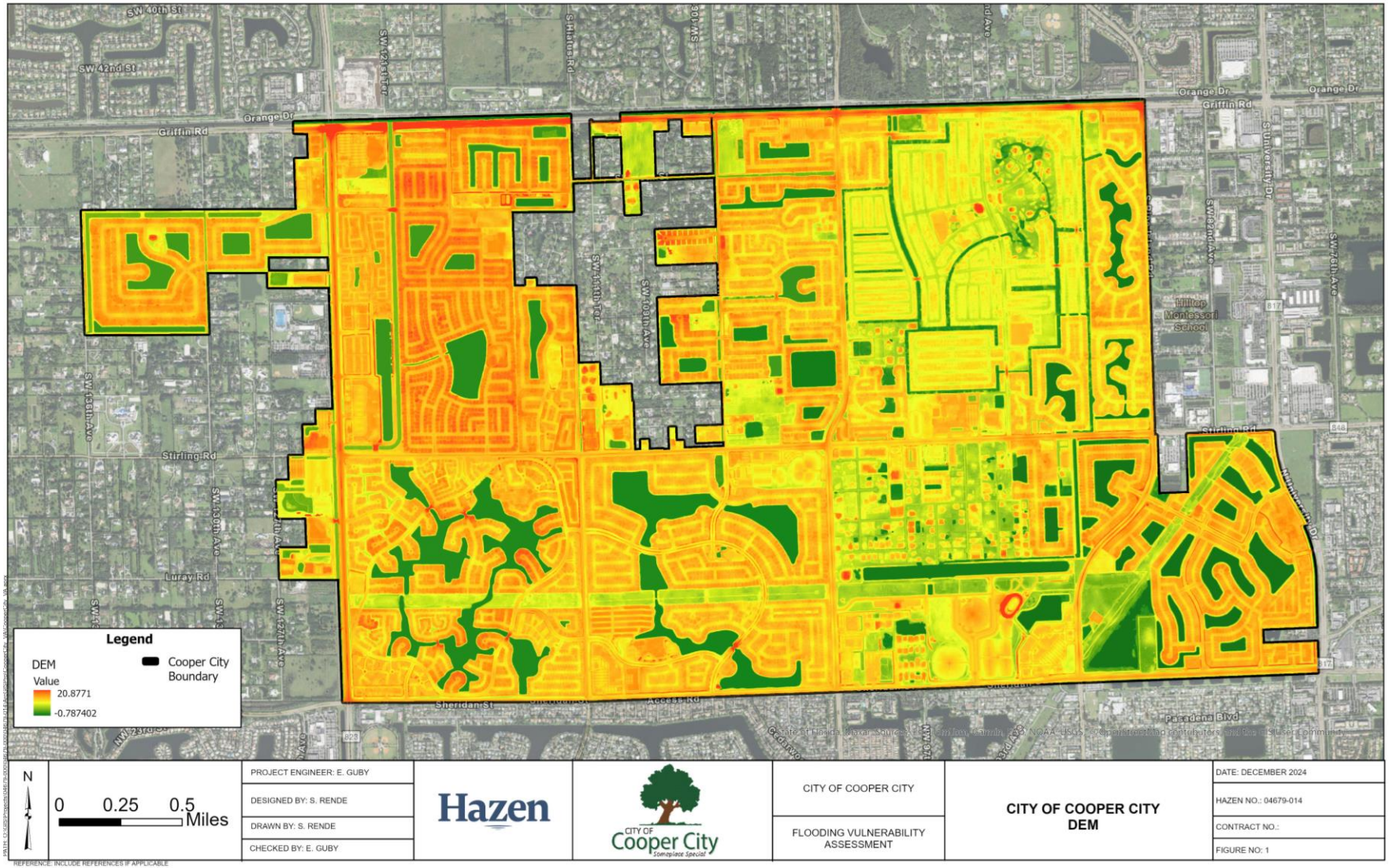


Figure 3-1 - Cooper City DEM

3.3 Sea Level Rise Projection Data

Florida Statutes require an evaluation of flood risks associated with future sea level rise scenarios associated with the NOAA Intermediate-Low and Intermediate-High curves, published in the 2017 NOAA Technical Report NOS CO-OPS 083- Global and Regional Sea Level Rise Scenarios for the U.S. Within the Technical Report, NOAA provides future sea level rise values for active tidal stations. The NOAA tide station located at South Port Everglades (ID: 8722956) was selected as the closest active tide station for the Broward County model updates. The 2017 NOAA Intermediate-High and Intermediate-Low sea level rise projection curves were evaluated for two (2) planning horizons: years 2040 and 2070. The NOAA projections were converted from the Mean Sea Level (MSL) values to delta values for the model area. The conversion was completed with the South Port Everglades station MSL to NAVD Datum Conversion Factor, generated by a correlation between the measured 2020 sea level rise values and the sea level rise projection curve. The depths shown in **Table 3–3** were added to the tidal boundaries in the model datum (NGVD).

Table 3–3: NOAA 2017 Sea Level Rise Depths Relative to MSL

Scenario/Year	2040	2070
Intermediate-Low	0.43 ft	1.12 ft
Intermediate-High	0.82 ft	2.75 ft

3.4 Storm Surge

Two tidal conditions were used during modeling: a high tide and storm surge. The high tide condition was assumed to be the same as the Mean High Water (MHW) value at the Everglades tidal station (0.44 ft-NAVD88). The Storm Surge condition used was the Category 5 Storm Surge value. The Category 5 Storm Surge value was determined by examining mapped results extracted from the NOAA SLOSH model for a Category 5 event (Sea, Lake, and Overland Surges from Hurricanes (SLOSH) (noaa.gov)). The data surrounding a 1-mile radius around Port Everglades was examined to determine that the surge for a Category 5 event can be estimated at 8.4 ft-NGVD. The surge factor was applied on top of the Normal High Tide.

3.5 Tidal Flooding

High tide flooding is a flood condition near the coastline that occurs due to sea level rise (SLR), sinking land and the loss of natural barriers. Factors like wind, ocean currents, and tidal forces can cause tidal flooding. The City of Cooper City is not likely to experience tidal flooding due to its distance from the coast and the topographic borders between the City and the coast.

3.6 Design Storm Data

The initial design event rainfall for the 100-year frequency originated from the NOAA Atlas 14 database. The NOAA total rainfall depths for the various frequencies are spatially distributed (gridded), and the time distribution was applied based on the South Florida Water Management District (SFWMD) 3-day rainfall distribution as described in the Environmental Resources Permit (ERP) Applicant's Handbook.

4. Modeling

4.1 Broward County MIKE SHE/MIKE HYDRO Model

The Broward County MIKE SHE - MIKE HYDRO model was available to use for the City Vulnerability Assessment. The MIKE SHE – MIKE HYDRO model was refined as part of the Broward County Risk Assessment and Resilience Plan. The model software utilized was developed and is maintained by the Danish Hydraulic Institute (DHI) and couples two very powerful simulation engines: MIKE SHE and MIKE HYDRO. MIKE SHE is an advanced hydrological model that simulates most of the processes within the hydrologic cycle, including rainfall, evapotranspiration, infiltration, overland flow, unsaturated flow groundwater flow. Two important characteristics of this simulation tool are the ability to model the interactions between the overland, unsaturated and the groundwater zones, and the ability to be coupled with other simulation engines that simulate the flow through canals, estuaries, and other water bodies. In this application MIKE SHE is coupled with MIKE HYDRO. MIKE HYDRO is the successor of MIKE 11, it simulates the flow through canal systems, including complex structure operating rules and extreme boundary conditions. By fully coupling the MIKE SHE and MIKE HYDRO models, this offers an integrated approach to hydrological and water resources modeling. As shown in **Figure 4-1**, this means there is full interaction between every module of the MIKE SHE component (e.g., Overland flow, Groundwater flow, etc.) and the canal system represented in MIKE HYDRO.

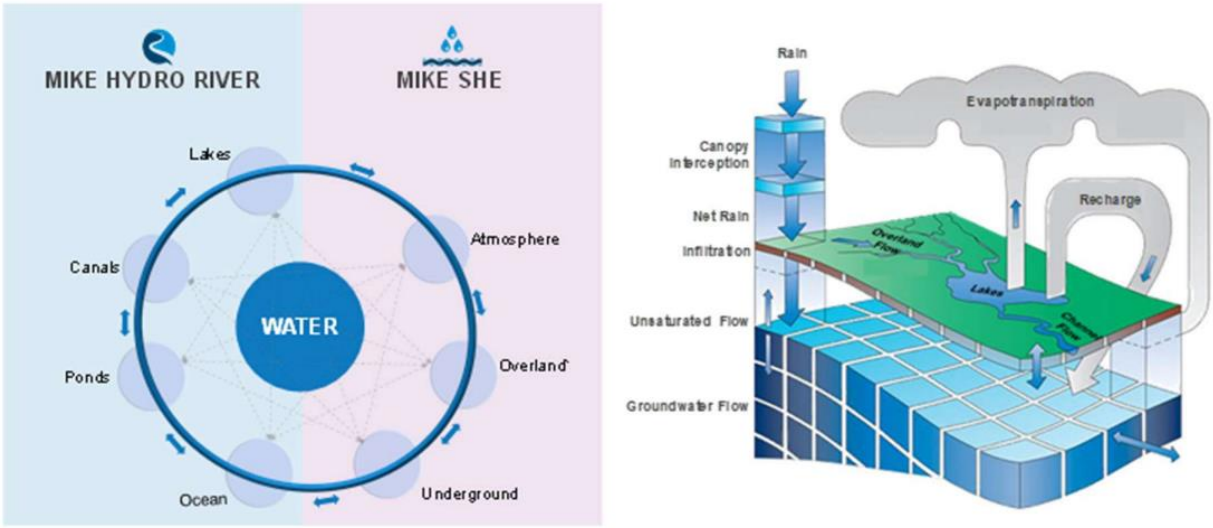


Figure 4-1 - Hydrologic Cycle Modeled with Coupled MIKE SHE - MIKE HYDRO Model

The Broward County MIKE SHE - MIKE HYDRO model has been in the making since 2002, it is a trusted model that has been refined over decades and has been widely utilized by multiple County, State and Federal agencies. (See **Figure 4-2**).

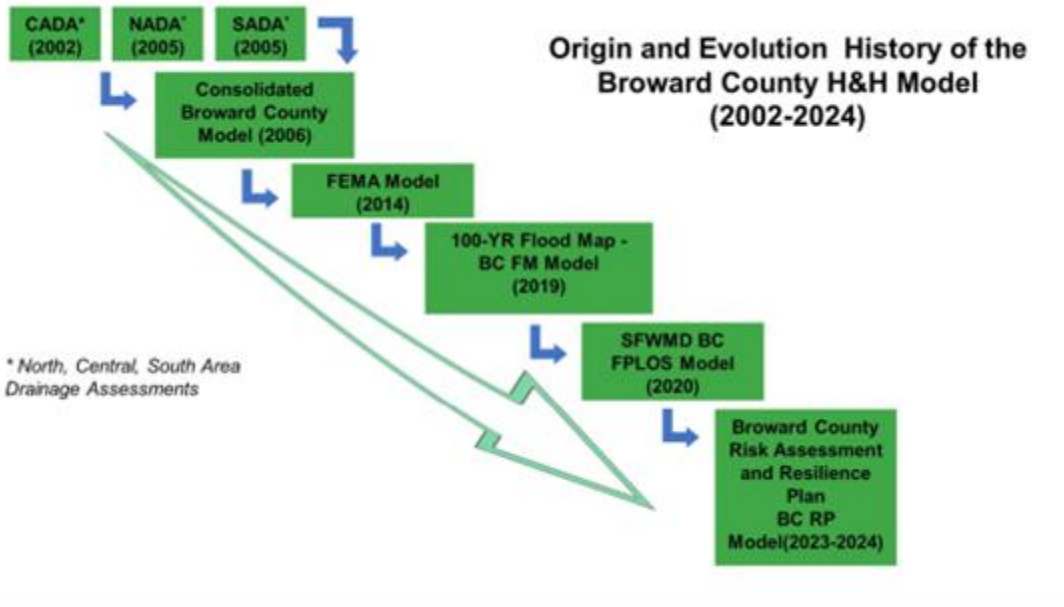


Figure 4-2 - Broward County MIKE SHE - MIKE HYDRO Model Development

4.2 Flooding Scenarios

To understand the varying levels of flood events within the City, the flooding vulnerability assessment includes consideration of storm surge, rainfall, sea level rise, and existing conditions. The flood scenarios selected for the exposure analysis portion of the vulnerability assessment are shown in **Table 4–1** below. These scenarios were modeled using the MIKE SHE – MIKE HYDRO software and used as a raster matric to calculate the flood depth of each critical asset in ArcGIS Pro. Flood depth maps showing each of these flooding scenarios are provided in **Appendix C**. The areas in Cooper City that experience flooding depths greater than 3 feet are primarily waterbodies.

Table 4–1: Model Flooding Scenarios to be Utilized

Scenario No.	Rainfall	Sea Level Rise Projection	Planning Horizon	Tidal Condition
VA-3	100-yr	N/A	2021 - Current	Normal High Tide
VA-6	100-yr	Int-Low	2040	Normal High Tide
VA-9	100-yr	Int-High	2040	Normal High Tide
VA-12	100-yr	Int-Low	2070	Normal High Tide
VA-15	100-yr	Int-High	2070	Normal High Tide
VA-18	100-yr	N/A	2021 - Current	Storm Surge (100-yr)
VA-21	100-yr	Int-Low	2040	Storm Surge (100-yr)
VA-24	100-yr	Int-High	2040	Storm Surge (100-yr)
VA-27	100-yr	Int-Low	2070	Storm Surge (100-yr)
VA-30	100-yr	Int-High	2070	Storm Surge (100-yr)

4.2.1 500-yr Rainfall Event

A 500-year storm event refers to an extreme weather occurrence with a 0.2% chance of happening in any given year, typically associated with severe flooding, hurricanes, or heavy rainfall. In vulnerability assessments, such events are considered to evaluate the potential long-term impacts of catastrophic weather on critical assets. However, it was omitted from the exposure and sensitivity analysis because it is highly unlikely to occur within the planning timeframe and would skew the results towards extreme flooding. This vulnerability analysis focuses on more probable, frequent events that present a higher likelihood of affecting the City. **Figure 4-3** shows the 500-year flood depth results map and supports that a majority of the City would experience extreme flooding under these conditions.

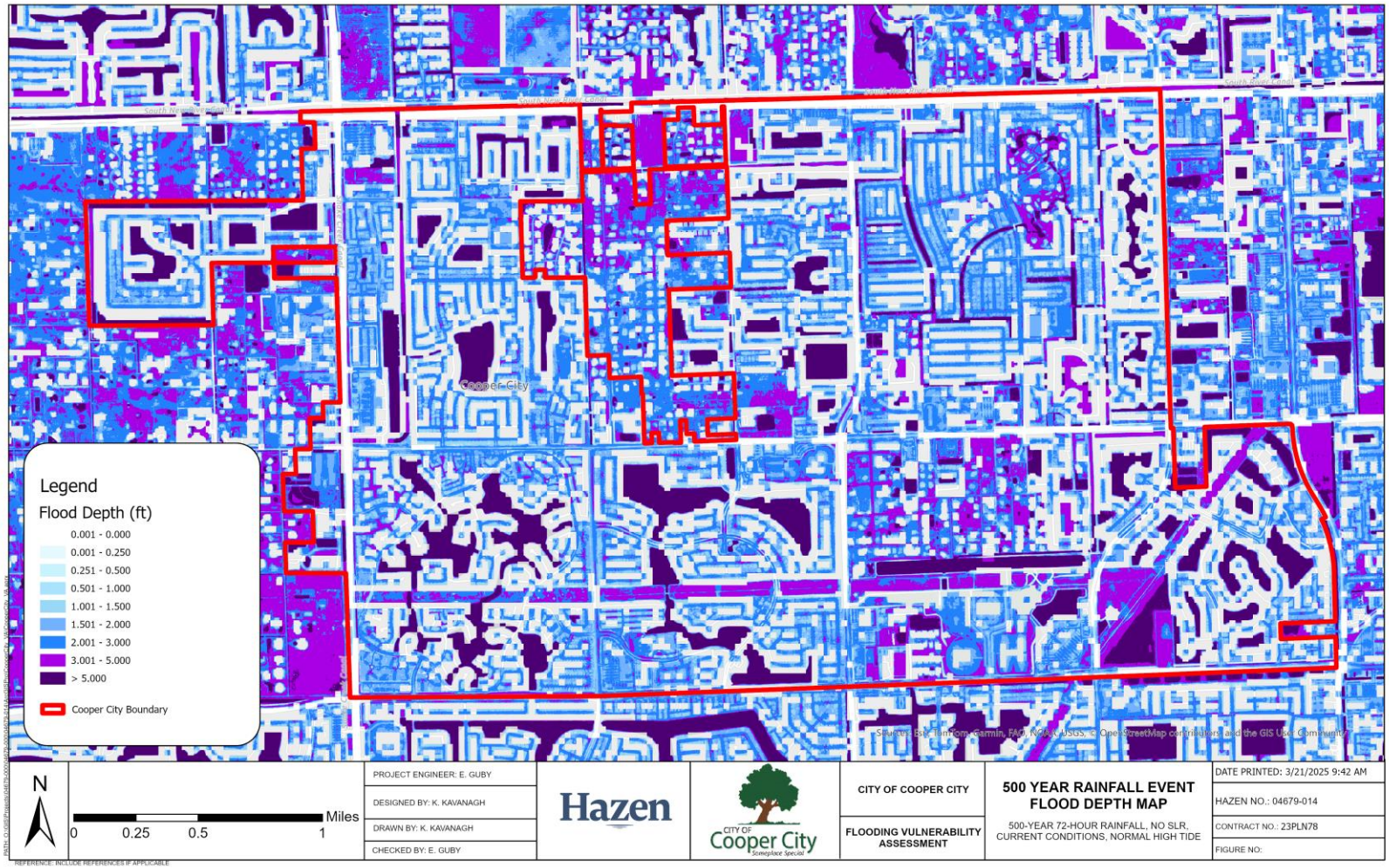
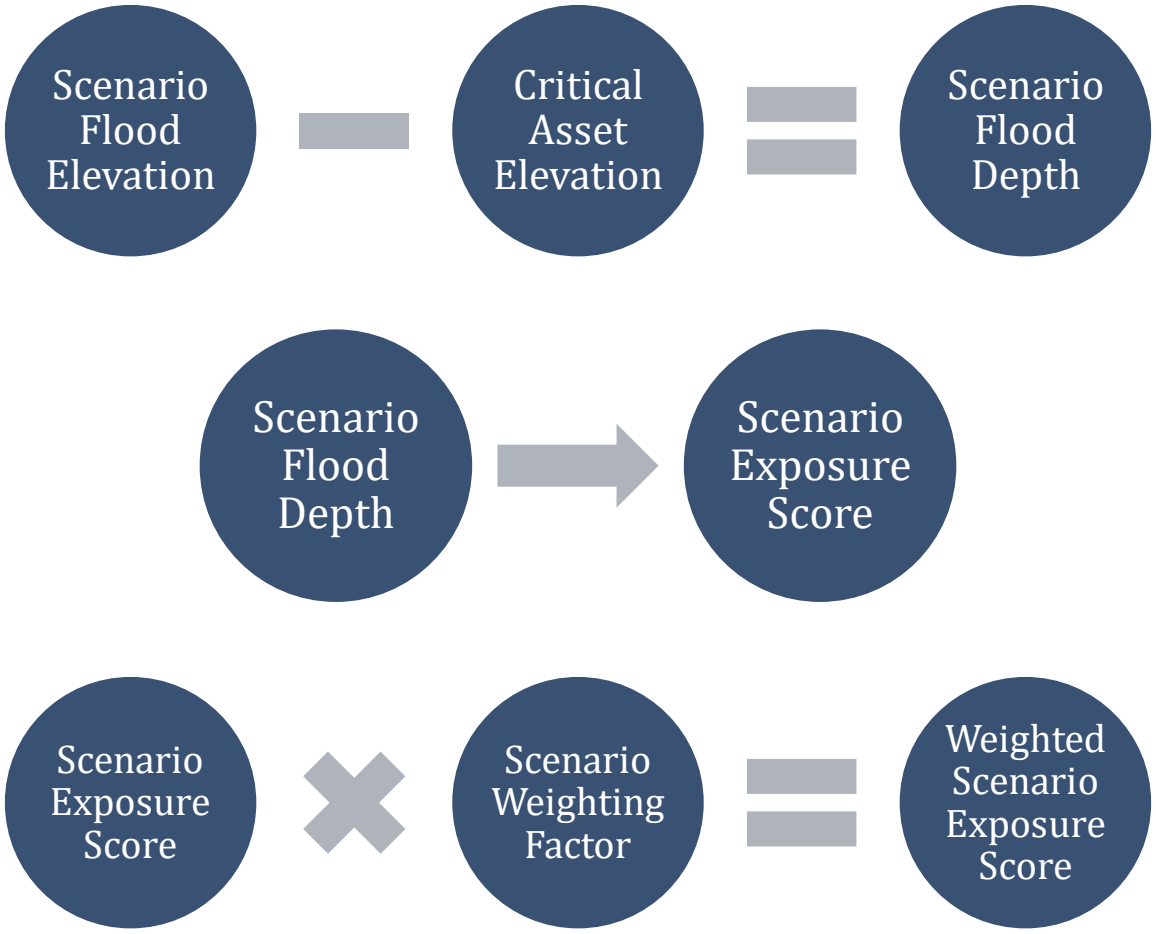


Figure 4-3: 500-Year Rainfall Event Flood Depth Map

5. Exposure Analysis

5.1 Exposure Methodology

The purpose of the exposure analysis is to analyze the flood depth at each critical asset for the flood scenarios shown in **Table 4-1**. A flood depth is calculated for each critical asset for all ten (10) flood scenarios. Each flood depth is then converted into a numeric exposure score based on the flood depth value and the type of critical asset. These exposure scores are then multiplied by the corresponding scenario weighting factor. The overall exposure score is the summation of the weighted exposure scores for each scenario. **Figure 5-1** depicts this methodology. The overall exposure score serves as the basis of comparison between different critical assets.



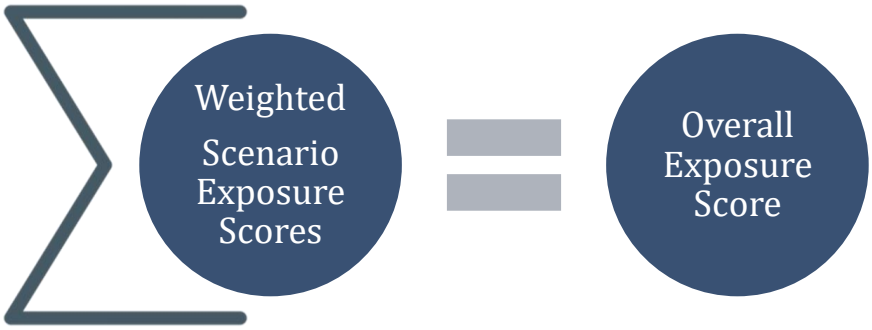


Figure 5-1: Exposure Analysis Methodology per Critical Asset

The purpose of the scenario weighting factor is to minimize the exposure scores resulting from less likely modeled scenarios and emphasize the exposure scores resulting from the more relevant flood scenarios to present-day City operations. **Table 5–1** summarizes the weighting factors assigned to each flood scenario. The scenario weighting factor was consistent for all critical assets.

Table 5–1: Flood Scenario Weighting Factors

Scenario No.	Rainfall	Sea Level Rise Projection	Planning Horizon	Tidal Condition	Overall Scenario Weight
VA-3	100-yr	N/A	2021 - Current	Normal High Tide	30.0%
VA-6	100-yr	2017 NOAA Intermediate Low	2040	Normal High Tide	13.5%
VA-9	100-yr	2017 NOAA Intermediate High	2040	Normal High Tide	13.5%
VA-12	100-yr	2017 NOAA Intermediate Low	2070	Normal High Tide	9.0%
VA-15	100-yr	2017 NOAA Intermediate High	2070	Normal High Tide	9.0%
VA-18	100-yr	N/A	2021 - Current	Storm Surge (Cat 5)	10.0%
VA-21	100-yr	2017 NOAA Intermediate Low	2040	Storm Surge (Cat 5)	4.5%
VA-24	100-yr	2017 NOAA Intermediate High	2040	Storm Surge (Cat 5)	4.5%
VA-27	100-yr	2017 NOAA Intermediate Low	2070	Storm Surge (Cat 5)	3.0%
VA-30	100-yr	2017 NOAA Intermediate High	2070	Storm Surge (Cat 5)	3.0%

The derivation of asset elevations, scenario flood depths, and exposure scores for each critical asset type are further described below. Critical assets were evaluated as either structures, parcels, roadways, or lift stations and raw water wells.

5.1.1 Structures

The critical asset types that were evaluated as structures include communications facilities, community centers, disaster recovery centers, emergency operations centers, fire stations, law enforcement facilities, local government facilities, schools, and water utility conveyance systems.

5.1.1.1 Structures Flood Depths

The Finished Floor Elevation (FFE) was assumed to be the maximum DEM elevation within the building footprint for all structures. The flood elevation at each structure was calculated using the maximum value from the flood elevation raster within the building footprint for each flooding scenario. The flood depth for each structure was calculated using the flood elevation minus the FFE for each flood scenario.

5.1.1.2 Structures Exposure Scoring

Once the flood depth for each scenario was calculated, a corresponding exposure score was assigned using the flood depth ranges shown in **Table 5–2**. An exposure level of "Minimal" was assigned to flood depths up to half a foot lower than the structures FFE. The "Minimal" exposure level considered flooding that does surmount the FFE but can impact accessibility of the structure. If a structure was found to have a flood depth less than half a foot lower than the FFE, the flooding exposure level was assigned to be "None."

Table 5–2: Structure Exposure Score Ranges

Exposure Level	Exposure Score	Flood Depth (feet)
Severe	5	> 2.00
High	4	1.01 - 2.00
Medium	3	0.51 - 1.00
Low	2	0.01 - 0.50
Minimal	1	-0.50 - 0.00
None	0	< -0.50

5.1.1.3 Water Intrusion Factor

The water intrusion factor was added to the overall exposure score of some critical asset structures that have experienced historical flooding or water penetration from heavy rain events. The City provided photographs of the flooding and damage from inside the City's Police Department from severe rainfall events. The water intrusion factor range was determined based on the structure exposure scores related to water entering the building. **Table 5–3** shows the criteria used to assign water intrusion factor scores. A water intrusion factor of 3 was applied to the City's Police Department which is also an Emergency Operations Center (EOC) for the City. A factor of 2 was applied to both the City's Wastewater Treatment Plant (WWTP) Utilities Building, as it also functions as an EOC, and the City's fire station as they have also been adversely impacted from severe rainfall events.

Table 5–3: Water Intrusion Factor Scoring

Water Intrusion Factor Score	Description
2	Structure is prone to experiencing minimal water intrusion during previous rainfall event
3	Structure has experienced significant water intrusion during previous rainfall event

5.1.2 Parcels

Critical asset types that were evaluated as parcels include wastewater treatment facilities, drinking water facilities, disaster debris management sites, and parks.

5.1.2.1 Parcel Flood Depths

The Critical Flood Elevation (CFE) for critical assets evaluated as parcels was calculated using the average DEM elevation throughout the parcel boundary, excluding bodies of water. However, to accurately capture the ground elevation variation and therefore flooding throughout a parcel, more than one asset elevation value should be considered for the exposure analysis. The parcels were represented by polygons in GIS, and points were generated at 25-foot intervals throughout the polygon boundary. The DEM elevation and flood elevation were extracted at each point to determine the flood depth and the percent flooded throughout the parcel.

5.1.2.2 Parcel Exposure Scoring

The number of points were counted in each parcel based on the flood depth ranges shown in **Table 5–4**. The percentage of points that fell into each exposure level was then calculated for each parcel. The percentage of points was then multiplied by the corresponding exposure score and summed up to get a scenario exposure score for each parcel.

Table 5–4: Parcel Exposure Score Ranges

Exposure Level	Exposure Score	Flood Depth (feet)
Severe	5	> 2.00
High	4	1.51 - 2.00
Medium	3	1.01 – 1.50
Low	2	0.51 – 1.00
Minimal	1	0.01 - 0.50
None	0	≤ 0.00

5.1.3 Lift Stations and Raw Water Wells

5.1.3.1 Lift Station and Raw Water Well Flood Depths

The lift stations and raw water wells were represented by points in GIS, and their corresponding flood elevation and CFE values were extracted at each point. The CFE for lift stations and raw water wells was assumed to be equal to the DEM elevation at the point. The CFE was then subtracted from the flood elevation to yield a single flood depth value for each flood scenario.

5.1.3.2 Lift Station and Raw Water Well Exposure Scoring

The varying flood depth ranges for the lift stations and raw water wells are found in **Table 5–5**. The exposure level is assigned a corresponding score that reflects the severity of the flood's potential impact on the critical assets.

Table 5–5: Lift Station and Raw Water Well Exposure Scoring Ranges

Exposure Level	Exposure Score	Flood Depth (feet)
Severe	5	> 3.00
High	4	2.01 - 3.00
Medium	3	1.01 – 2.00
Low	2	0.51 – 1.00
Minimal	1	0.01 - 0.50
None	0	≤ 0.00

5.1.4 Roadways

5.1.4.1 Roadways Flood Depths

For roadways, the ground elevation varies along the roadway, and analysis considering only one asset elevation value would fail to capture the varied flooding that occurs along a roadway. The exposure analysis therefore expanded to consider the flood depths along a given roadway segment. The roadways were represented as polylines at the centerline of the roadway in GIS, and points were generated along the polylines at 50-foot intervals. The corresponding flood elevation and DEM ground elevation value were then extracted at each point to generate flood depths along the roadway. The overall asset elevation was calculated using the average of the points DEM elevations.

5.1.4.2 Roadways Exposure Scoring

Exposure scoring for roadways assumes that a flood depth greater than six inches of flooding is impassable by vehicle. The number of points were totaled for each roadway based on the flood depth ranges shown in **Table 5–6**. The percentage of points that fell into each exposure level was then calculated for each roadway. The percentage of points was multiplied by the corresponding exposure score and summed up to get a scenario exposure score for each roadway.

Table 5–6: Roadway Exposure Scoring Ranges

Exposure Level	Exposure Score	Flood Depth (inches)
High	5	> 6.00
Medium	3	3.01 – 6.00
Low	1	0.01 – 3.00
None	0	≤ 0.00

5.2 Exposure Results

5.2.1 Structures

A total of 31 structures were analyzed, and 27 experienced no flooding across all 10 scenarios. The overall exposure scores for all structures are presented in **Table 5–7**. Two of the assets that show as flooded under each of the 10 scenarios are the water storage tanks that are located at the City's water treatment plant. The 0.5 MG water storage tank experienced over 1 foot of flooding corresponding to an exposure score of a 4, and the 1.0 MG water storage tank experienced less than a foot of flooding under each scenario corresponding to an exposure score of 3. The City maintains a protective swale that runs from SW 118th Ave around SW 49th St around both water storage tanks and Raw Water Well No. 8 (discussed in Section 5.2.3) that has historically prevented flooding of these assets. Also, as water bearing structures, the condition of flooding is not of particular concern.

The other two structures that experienced flooding of the asset are the Cooper City Elementary School and Cooper City City Hall. The Cooper City Elementary School showed minimal flooding with a having a flood depth of -0.4 feet for every flooding scenario corresponding to an exposure score of 1. The City Hall experienced minimal flooding with an exposure score of 1 under flooding scenario VA-30 which included 2070 Intermediate-High sea level rise and Category 5 storm surge.

Table 5–7: Overall Exposure Scores - Structures

Asset Unique ID	Asset Name	Overall Exposure Scores	Water Intrusion Factor
192	0.5 MG Water Storage Tank	4.00	0
193	1.0 MG Water Storage Tank	3.00	0
203	Cooper City Elementary School	1.00	0
223	Cooper City City Hall	0.03	0
191	2.0 MG Pine Island Water Storage Tank	0.00	0
194	Pine Island Road Pump Station	0.00	0
195	AMI Base Station	0.00	0
200	Archbishop Edward A. McCarthy High School	0.00	0
201	Chabad of Southwest Broward	0.00	0
202	Cooper City Christian Academy	0.00	0
204	Cooper City High School	0.00	0
205	Embassy Creek Elementary School	0.00	0
206	Franklin Academy	0.00	0
207	Griffin Elementary School	0.00	0
208	Lycee Franco Americain	0.00	0
209	New Horizon United Methodist Church	0.00	0
210	Nur Ul Islam Academy	0.00	0
211	Pioneer Middle School	0.00	0
212	Potential Christian Academy	0.00	0
213	Renaissance Charter School at Cooper City	0.00	0

Asset Unique ID	Asset Name	Overall Exposure Scores	Water Intrusion Factor
214	Schott Communities Group Home	0.00	0
215	St Mark Youth Ministry	0.00	0
216	Temple Beth Emet	0.00	0
217	Zucker Hebrew Academy of Hollywood	0.00	0
218	Cooper City Community Center	0.00	0
219	Cooper City Church of God	0.00	0
220	Cooper City WWTP Utilities Building	0.00	2
221	BSO Law Cooper City District 16	0.00	3
222	BSO Station 28	0.00	2
224	Cooper City Public Works Department	0.00	0
225	Cooper City Tennis and Pool Center	0.00	0

5.2.2 Parcels

Twenty-six (26) parcels were included in the analysis, and all were found to experience some areas of flooding for all flood scenarios. Five (5) to six (6) of the 26 parcels experienced less than 30% of the parcel area flooded under all scenarios. An additional six (6) to seven (7) parcels were 31-50% flooded for all scenarios, and four (4) to five (5) parcels were 51-70% flooded for all scenarios. The remaining eight (8) to ten (10) parcels experienced some level of flooding for 71-100% of the entire parcel. For these ten parcels, the flood depths were predominately less than 1.5', which is equivalent to exposure scores of 1, 2, or 3. An exposure score of 5 was attained by seven (7) parcels for all flood scenarios, but the percent area experiencing flooding equating to a score 5 never exceeded more than 14 percent.

The points representing parcel area flood depths were tallied, weighted, and totaled into an overall exposure score as shown in **Table 5–8**.

Table 5–8: Overall Exposure Score - Parcels

Asset Unique ID	Asset Name	Overall Exposure Scores
313	Homes Of Forest Lakes Park	2.43
317	Pine Lake Park	2.30
301	Chase Park	2.29
307	Dawn Park	2.28
184	George A. Haughney Water Treatment Plant	2.03
319	Stirling Palm Park	1.80
312	Forest Lake Park	1.66
302	Christie Schafale Park	1.48
306	Coopers Point Park	1.48

Asset Unique ID	Asset Name	Overall Exposure Scores
196	Brian Piccolo Park	1.31
311	Flamingo West Park	1.25
318	Poinciana Park	1.22
100	Cooper City Wastewater Treatment Plant	0.87
300	Bill Lips Sports Complex	0.87
303	Colony Park	0.85
322	Ted Ferone Park	0.84
320	Suellen H. Fardelmann Sports Complex	0.83
316	Natalie's Cove Park	0.80
323	Pioneer Middle School Park	0.79
309	Ellie Kozak Park	0.63
304	Cooper City Memorial Park/Tot Lot	0.56
314	Jerry Morgan Park	0.40
315	Michael "City Mike" Riordan Park	0.17
321	Tamarind Park	0.09
308	Diamond Head Park	0.08
310	Encore Park	0.05

5.2.3 Lift Stations and Raw Water Wells

The model included 83 lift stations and six (6) raw water wells for a total of 89 critical infrastructure assets analyzed for flooding for the scenarios modeled. **Table 5–9** shows 33 of the 83 lift stations experienced flooding while four (4) of the 6 raw water wells showed flooding in the model analysis. The model analysis depicted that Raw Water Well No. 8 experienced greater than one (1) foot of flooding under all ten flooding scenarios, which is likely below the top of well slab. However, the City maintains a swale that surrounds the raw water well, that has historically prevented flooding of this asset despite what the model suggests (discussed in Section 5.2.1). The other three (3) Raw Water Wells experienced less than one (1) foot of flooding. A total of 37 assets were found to experience flooding or about 42%.

Table 5–9: Overall Exposure Score - Lift Stations and Raw Water Wells

Asset Unique ID	Asset Name	Overall Exposure Scores
144	LS-44	4.00
183	LS-83	3.73
117	LS-17	3.00

Asset Unique ID	Asset Name	Overall Exposure Scores
124	LS-24	3.00
131	LS-31	3.00
189	Raw Water Well No. 8	3.00
101	LS-01	2.03
103	LS-03	2.03
115	LS-15	2.00
116	LS-16	2.00
119	LS-19	2.00
125	LS-25	2.00
126	LS-26	2.00
132	LS-32	2.00
139	LS-39	2.00
140	LS-40	2.00
148	LS-48	2.00
186	Raw Water Well No. 5	2.00
155	LS-55	1.37
104	LS-04	1.00
109	LS-09	1.00
121	LS-21	1.00
123	LS-23	1.00
129	LS-29	1.00
136	LS-36	1.00
146	LS-46	1.00
160	LS-60	1.00
179	LS-79	1.00
187	Raw Water Well No. 6	1.00
188	Raw Water Well No. 7	1.00
150	LS-50	0.09
149	LS-49	0.06
156	LS-56	0.06
182	LS-82	0.06
102	LS-02	0.03
151	LS-51	0.03
164	LS-64	0.03
105	LS-05	0.00

Asset Unique ID	Asset Name	Overall Exposure Scores
106	LS-06	0.00
107	LS-07	0.00
108	LS-08	0.00
110	LS-10	0.00
111	LS-11	0.00
112	LS-12	0.00
113	LS-13	0.00
114	LS-14	0.00
118	LS-18	0.00
120	LS-20	0.00
122	LS-22	0.00
127	LS-27	0.00
128	LS-28	0.00
130	LS-30	0.00
133	LS-33	0.00
134	LS-34	0.00
135	LS-35	0.00
137	LS-37	0.00
138	LS-38	0.00
141	LS-41	0.00
142	LS-42	0.00
143	LS-43	0.00
145	LS-45	0.00
147	LS-47	0.00
152	LS-52	0.00
153	LS-53	0.00
154	LS-54	0.00
157	LS-57	0.00
158	LS-58	0.00
159	LS-59	0.00
161	LS-61	0.00
162	LS-62	0.00
163	LS-63	0.00
165	LS-65	0.00
166	LS-66	0.00

Asset Unique ID	Asset Name	Overall Exposure Scores
167	LS-67	0.00
168	LS-68	0.00
169	LS-69	0.00
170	LS-70	0.00
171	LS-71	0.00
172	LS-72	0.00
173	LS-73	0.00
174	LS-74	0.00
175	LS-75	0.00
176	LS-76	0.00
177	LS-77	0.00
178	LS-78	0.00
180	LS-80	0.00
181	LS-81	0.00
185	Raw Water Well No. 4	0.00
190	Raw Water Well No. 9	0.00

5.2.4 Roadways

The 18 roadways were divided into 29 segments, based on major intersections, to better understand the flooding tendencies along some of the longer roadways. Most of the roadway segments analyzed were approximately one mile of roadway length. Of the 29 roadway segments, nine (9) segments experienced no flooding for all ten (10) flood scenarios corresponding to an overall exposure score of 0.13 roadway segments experienced some level of flooding for 3% to 50% of the overall segment under all flooding scenarios. The other seven (7) roadway segments experienced some level of flooding for more than 51% of the overall roadway segment. One (1) roadway from SW 97th Ter to SW 59th St experienced greater than three (3) inches of flooding at every point under all flooding scenarios.

Multiple roadway segments were found to have a high percentage of exposure corresponding to a score of 5, or greater than six (6) inches of flooding, which is assumed to be impassable by a vehicle. Thirteen (13) roadway segments experienced at least some flooding associated with a score of 5 for all ten scenarios. Of these 13 segments, five (5) segments had an exposure score of 5 for at least forty percent of the total roadway under all flooding scenarios:

- SW 59th St (From SW 99th Ln to SW 59th St)
- SW 90th Ave/Cooper Blvd (From Griffin Rd to Stirling Rd/SW 60th St)
- SW 97th Ter (From SW 97th Ter to SW 59th St)

- SW 99th Ln (From SW 57th St to SW 59th St)
- W Lake Blvd (From S Flamingo Rd/SW 124th Ave to Stonebridge Pkwy).

It is important to note that all five of these roads are local roadways.

The percent flooding for all roadways was tallied, weighted, and then totaled into an overall exposure score, as summarized in **Table 5–10**.

Table 5–10: Overall Exposure Scores - Roadways

Asset Unique ID	Asset Name	Roadway To	Roadway From	Overall Exposure Score
415	SW 97th Ter	SW 97th Ter	SW 59th St	4.71
416	SW 99th Ln	SW 57th St	SW 59th St	4.58
413	SW 59th St	SW 99th Ln	SW 59th St	3.69
414	SW 90th Ave/Cooper Blvd	Griffin Rd	Stirling Rd/SW 60th St	3.14
417	W Lake Blvd	S Flamingo Rd/SW 124th Ave	Stonebridge Pkwy	2.72
410	SW 118th Ave	Griffin Rd	Stirling Rd/SW 60th St	2.04
402B	S Hiatus Rd	Stirling Rd/SW 60th St	Sheridan St	1.41
411	SW 49th St	S Flamingo Rd/SW 124th Ave	SW 49th St	1.33
412	SW 57th St	SW 100th Ave	SW 99th Ln	1.00
402A	S Hiatus Rd	SW 55th St	Stirling Rd/SW 60th St	0.81
408A	Stirling Rd/SW 60th St	S Flamingo Rd/SW 124th Ave	N Hiatus Rd	0.35
404	NW 101st Ave/N Palm Ave	Stirling Rd/SW 60th St	Sheridan St	0.32
408B	Stirling Rd/SW 60th St	N Hiatus Rd	NW 101st Ave/N Palm Ave	0.20
406B	S Pine Island Rd	Stirling Rd/SW 60th St	Sheridan St	0.18
407B	Sheridan St	N Hiatus Rd	NW 101st Ave/N Palm Ave	0.11
409	SW 100th Ave	Griffin Rd	Stirling Rd/SW 60th St	0.06
400	Cherry Rd/SW 106th Ave	Griffin Rd	Stirling Rd/SW 60th St	0.02
406A	S Pine Island Rd	Griffin Rd	Stirling Rd/SW 60th St	0.01
407D	Sheridan St	S Pine Island Rd	N University Dr	0.01
408C	Stirling Rd/SW 60th St	NW 101st Ave/N Palm Ave	S Pine Island Rd	0.01
401A	Griffin Rd	S Flamingo Rd/SW 124th Ave	SW 118th Ave	0.00
401B	Griffin Rd	SW 118th Ave	SW 100th Ave	0.00
401C	Griffin Rd	SW 100th Ave	S Pine Island Rd	0.00
403	N University Dr	Stirling Rd/SW 60th St	Sheridan St	0.00
405A	S Flamingo Rd/SW 124th Ave	Griffin Rd	Stirling Rd/SW 60th St	0.00

Asset Unique ID	Asset Name	Roadway To	Roadway From	Overall Exposure Score
405B	S Flamingo Rd/SW 124th Ave	Stirling Rd/SW 60th St	Sheridan St	0.00
407A	Sheridan St	S Flamingo Rd/SW 124th Ave	N Hiatus Rd	0.00
407C	Sheridan St	NW 101st Ave/N Palm Ave	S Pine Island Rd	0.00
408D	Stirling Rd/SW 60th St	S Pine Island Rd	N University Dr	0.00

6. Sensitivity Analysis

6.1 Sensitivity Analysis Methodology

The purpose of the Sensitivity Analysis is to quantify the impact of flooding on the identified critical assets based on the type of asset and its vulnerability to flooding. This is done by multiplying asset type-specific Criticality Factors to the Overall Exposure Scores. The general methodology is depicted in **Figure 6-1**. Note that for structures the water intrusion factor is added to the overall exposure score before multiplying by the asset specific criticality factor.

Figure 6-1: Sensitivity Analysis Methodology per Asset

6.2 Criticality Factors

The Criticality Factors assigned to an asset varied based on asset type. A full list of each asset's factor assignments can be found in **Appendix E**.

6.2.1 Structures and Parcels Criticality Factors

Three critical facility factors were developed to weigh the structures and parcels asset types based on their Criticality of Services for City Operations (Critical Services Factor), their Likelihood of Personnel Occupying during Emergencies (Occupancy Factor), and their Likelihood of Structural Damage (Structural Damage Factor). Each of these factors had a respective weight of 40%, 30%, and 30%, as depicted in **Figure 6-2**.

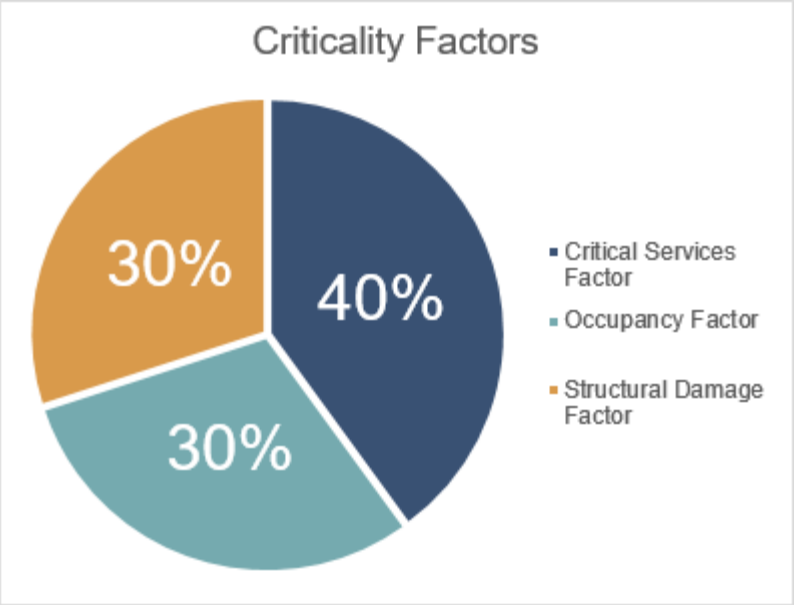


Figure 6-2: Facility Criticality Factor Weights

6.2.1.1 Critical Services Factor

The Critical Services Factor assigns a value from 1-5 based on the asset's importance to City operations based on type of asset, with 5 being most critical. This assigns a higher sensitivity to the asset types whose loss of function due to a flooding event would impact operations (such as emergency operation centers, fire stations, water and wastewater facilities) compared to assets whose temporary loss of function does not result in a direct decrease in quality of City operations (such as parks). **Table 6–1** summarizes the Critical Services Factor scoring.

Table 6–1: Critical Services Factor Scoring

Criticality Factor	Value
Most Critical	5
Very Critical	4
Moderately Critical	3
Slightly Critical	2
Least Critical	1

6.2.1.2 Occupancy Factor

The Occupancy Factor assigns a value from 1-5 based on the likelihood of the asset type to house personnel during emergencies, with 5 being most likely. This assigns a higher sensitivity to the asset types assumed to house personnel even during emergencies (such as risk shelters) compared to assets that are assumed to evacuate and not house any personnel during the emergency (such as community centers and parks). **Table 6–2** summarizes the Occupancy Factor scoring.

Table 6–2: Occupancy Factor Scoring

Occupancy Factor	Value
Most Likely to House Personnel during Emergency	5
Very Likely to House Personnel during Emergency	4
Moderately Likely to House Personnel during Emergency	3
Slightly Likely to House Personnel during Emergency	2
Least Likely to House Personnel during Emergency	1

6.2.1.3 Structural Damage Factor

The Structural Damage Factor assigns a value of either 1 or 5 based on the asset type's susceptibility to structural damage because of flooding, with 5 being susceptible. This assigns a higher sensitivity to the asset types that are susceptible to building structural integrity compromise during a flood event (like local government facilities and water treatment plants) compared to assets with limited structures that can be compromised during a flood event (such as parks and disaster debris management sites). **Table 6–3** summarizes the Structural Damage Factor scoring.

Table 6–3: Structural Damage Factor Scoring

Structural Damage Factor	Value
Susceptible to Structural Damage	5
Unsusceptible to Structural Damage	1

6.2.2 Roadway Criticality Factors

Two critical roadway factors were developed to weigh roadways against each other based on their Roadway Class and Roadway Importance. The two factors had a weight of 50% each, as depicted in **Figure 6-3**.

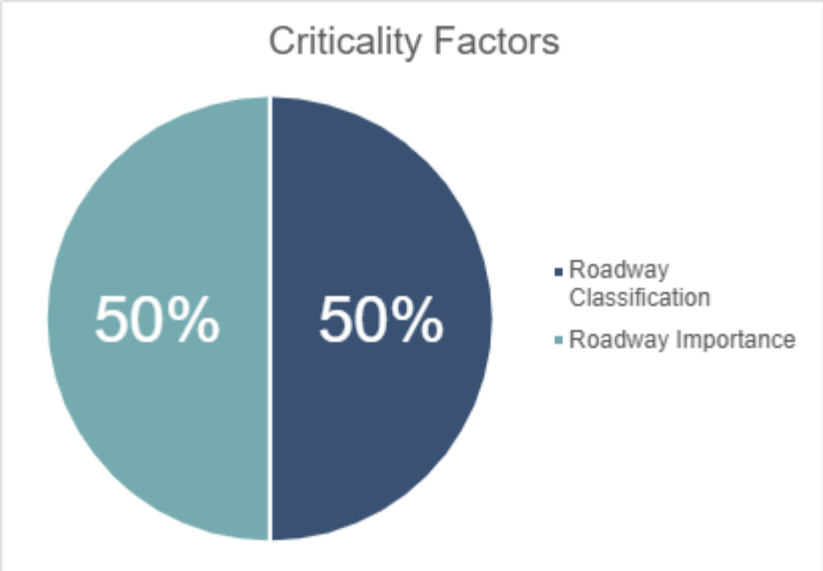


Figure 6-3: Roadway Criticality Factor Weights

6.2.2.1 Roadway Classification

The Roadway Classification Factor assigns a value from 1-5 based on the roadway's functional classification, with 5 being for roadways of higher volume and trip distance. Assets with a high Roadway Classification Factor transport more vehicles, span longer distances, and connect major urban centers compared to assets that transport fewer vehicles, span shorter distances, and connect local areas. **Table 6–4** summarizes the Roadway Classification Factor scoring.

Table 6–4: Roadway Classification Factor Scoring

Roadway Classification Factor	Value
Principal Arterial	5
Minor Arterial	4
Major Collector	3
Minor Collector	2
Local	1

6.2.2.2 Roadway Importance

The Roadway Importance Factor assigns either a 1 or 5 based on the roadway's importance, with 5 being most important. Assets with a value of 5 are evacuation routes according to County-level designations. Assets with a value of 1 do not have any additional designations. **Table 6–5** summarizes the Roadway Importance Factor scoring used for the City's roadways. Cooper City does not have specified evacuation

routes therefore all roadways were given a roadway importance factor of 1 to be calculated into the overall roadway criticality factor.

Table 6–5: Roadway Importance Factor Scoring

Roadway Importance Factor	Value
Evacuation Route	5
All Other Roads	1

6.2.3 Lift Station and Raw Water Well Criticality Factors

The City designates between typical and master lift stations within their system. It is recommended for lift stations to be weighted higher if they are designated as a master lift station as they serve a greater population than those not with the designation. All raw water wells were given the same criticality factor of 3. **Table 6–6** summarizes the Lift Station and Raw Water Well Factor scoring.

Table 6–6: Lift Station Criticality Factor Scoring

Lift Station/Raw Water Well Classification Factor	Value
Master Lift Station	5
All Other Lift Stations	3
Raw Water Wells	3

6.3 Sensitivity Analysis Results

The complete tabulated results of the Sensitivity Analysis are presented in **Appendix F**. Exhibits presenting the location of the assets summarized in the following tables are in **Appendix G**. These tables summarize the assigned Criticality Factor, the derived Overall Exposure Score, and the calculated Sensitivity Score for all assets analyzed.

6.3.1 Structures

The ranked Sensitivity Analysis Results for all thirty-one (31) structures analyzed are summarized in **Table 6–7**.

Table 6–7: Sensitivity Analysis Results –Structures

Asset Unique ID	Asset Name	Criticality Factors	Overall Exposure Score	Water Intrusion Factor	Sensitivity Score
192	0.5 MG Water Storage Tank	3.80	4.00	0.00	15.20
221	BSO Law Cooper City District 16	4.70	0.00	3.00	14.10
193	1.0 MG Water Storage Tank	3.80	3.00	0.00	11.40
222	BSO Station 28	5.00	0.00	2.00	10.00
220	Cooper City WWTP Utilities Building	4.70	0.00	2.00	9.40
203	Cooper City Elementary School	4.00	1.00	0.00	4.00
223	Cooper City City Hall	4.70	0.03	0.00	0.14
191	2.0 MG Pine Island Water Storage Tank	3.80	0.00	0.00	0.00

Asset Unique ID	Asset Name	Criticality Factors	Overall Exposure Score	Water Intrusion Factor	Sensitivity Score
194	Pine Island Road Pump Station	3.80	0.00	0.00	0.00
195	AMI Base Station	2.20	0.00	0.00	0.00
200	Archbishop Edward A. McCarthy High School	4.00	0.00	0.00	0.00
201	Chabad of Southwest Broward	4.00	0.00	0.00	0.00
202	Cooper City Christian Academy	4.00	0.00	0.00	0.00
204	Cooper City High School	4.00	0.00	0.00	0.00
205	Embassy Creek Elementary School	4.00	0.00	0.00	0.00
206	Franklin Academy	4.00	0.00	0.00	0.00
207	Griffin Elementary School	4.00	0.00	0.00	0.00
208	Lycee Franco Americain	4.00	0.00	0.00	0.00
209	New Horizon United Methodist Church	4.00	0.00	0.00	0.00
210	Nur Ul Islam Academy	4.00	0.00	0.00	0.00
211	Pioneer Middle School	4.00	0.00	0.00	0.00
212	Potential Christian Academy	4.00	0.00	0.00	0.00
213	Renaissance Charter School at Cooper City	4.00	0.00	0.00	0.00
214	Schott Communities Group Home	4.00	0.00	0.00	0.00
215	St Mark Youth Ministry	4.00	0.00	0.00	0.00
216	Temple Beth Emet	4.70	0.00	0.00	0.00
217	Zucker Hebrew Academy of Hollywood	4.00	0.00	0.00	0.00
218	Cooper City Community Center	2.90	0.00	0.00	0.00
219	Cooper City Church of God	4.70	0.00	0.00	0.00
224	Cooper City Public Works Department	3.00	0.00	0.00	0.00
225	Cooper City Tennis and Pool Center	2.90	0.00	0.00	0.00

6.3.2 Parcels

The ranked Sensitivity Analysis Results for all twenty-six parcels analyzed are summarized in **Table 6–8**.

Table 6–8: Sensitivity Analysis Results - Parcels

Asset Unique ID	Asset Name	Criticality Factors	Overall Exposure Score	Sensitivity Score
184	George A. Haughney Water Treatment Plant	4.40	2.03	8.93
100	Cooper City Wastewater Treatment Plant	4.40	0.87	3.85
313	Homes Of Forest Lakes Park	1.00	2.43	2.43
196	Brian Piccolo Park	1.80	1.31	2.36
317	Pine Lake Park	1.00	2.30	2.30
301	Chase Park	1.00	2.29	2.29
307	Dawn Park	1.00	2.28	2.28
319	Stirling Palm Park	1.00	1.80	1.80
312	Forest Lake Park	1.00	1.66	1.66
302	Christie Schafale Park	1.00	1.48	1.48
306	Coopers Point Park	1.00	1.48	1.48
311	Flamingo West Park	1.00	1.25	1.25
318	Poinciana Park	1.00	1.22	1.22
300	Bill Lips Sports Complex	1.00	0.87	0.87
303	Colony Park	1.00	0.85	0.85
322	Ted Ferone Park	1.00	0.84	0.84
320	Suellen H. Fardelmann Sports Complex	1.00	0.83	0.83

Asset Unique ID	Asset Name	Criticality Factors	Overall Exposure Score	Sensitivity Score
316	Natalie's Cove Park	1.00	0.80	0.80
323	Pioneer Middle School Park	1.00	0.79	0.79
309	Ellie Kozak Park	1.00	0.63	0.63
304	Cooper City Memorial Park/Tot Lot	1.00	0.56	0.56
314	Jerry Morgan Park	1.00	0.40	0.40
315	Michael "City Mike" Riordan Park	1.00	0.17	0.17
321	Tamarind Park	1.00	0.09	0.09
308	Diamond Head Park	1.00	0.08	0.08
310	Encore Park	1.00	0.05	0.05

6.3.3 Roadways

The ranked Sensitivity Analysis Results for all twenty-nine roadway segments are summarized in **Table 6–9**.

Table 6–9: Sensitivity Analysis Results - Roadways

Asset Unique ID	Asset Name	Roadway To	Roadway From	Criticality Factors	Overall Exposure Score	Sensitivity Score
415	SW 97th Ter	SW 97th Ter	SW 59th St	1.00	4.71	4.71
416	SW 99th Ln	SW 57th St	SW 59th St	1.00	4.58	4.58
413	SW 59th St	SW 99th Ln	SW 59th St	1.00	3.69	3.69
414	SW 90th Ave/Cooper Blvd	Griffin Rd	Stirling Rd/SW 60th St	1.00	3.14	3.14
402B	N Hiatus Rd	Stirling Rd/SW 60th St	Sheridan St	2.00	1.41	2.82
417	W Lake Blvd	S Flamingo Rd/SW 124th Ave	Stonebridge Pkwy	1.00	2.72	2.72
410	SW 118th Ave	Griffin Rd	Stirling Rd/SW 60th St	1.00	2.04	2.04
411	SW 49th St	S Flamingo Rd/SW 124th Ave	SW 49th St	1.00	1.33	1.33
412	SW 57th St	SW 100th Ave	SW 99th Ln	1.00	1.00	1.00
408A	Stirling Rd/SW 60th St	S Flamingo Rd/SW 124th Ave	N Hiatus Rd	2.50	0.35	0.88
402A	S Hiatus Rd	SW 55th St	Stirling Rd/SW 60th St	1.00	0.81	0.81
404	NW 101st Ave/N Palm AVe	Stirling Rd/SW 60th St	Sheridan St	2.50	0.32	0.79
408B	Stirling Rd/SW 60th St	N Hiatus Rd	NW 101st Ave/N Palm Ave	2.50	0.20	0.50
406B	S Pine Island Rd	Stirling Rd/SW 60th St	Sheridan St	2.50	0.18	0.45
407B	Sheridan St	N Hiatus Rd	NW 101st Ave/N Palm Ave	3.00	0.11	0.34
409	SW 100th Ave	Griffin Rd	Stirling Rd/SW 60th St	2.50	0.06	0.15
408C	Stirling Rd/SW 60th St	NW 101st Ave/N Palm Ave	S Pine Island Rd	2.50	0.01	0.04

Asset Unique ID	Asset Name	Roadway To	Roadway From	Criticality Factors	Overall Exposure Score	Sensitivity Score
407D	Sheridan St	S Pine Island Rd	N University Dr	3.00	0.01	0.03
400	Cherry Rd/SW 106th Ave	Griffin Rd	Stirling Rd/SW 60th St	1.00	0.02	0.02
406A	S Pine Island Rd	Griffin Rd	Stirling Rd/SW 60th St	2.50	0.01	0.02
401A	Griffin Rd	S Flamingo Rd/SW 124th Ave	SW 118th Ave	3.00	0.00	0.00
401B	Griffin Rd	SW 118th Ave	SW 100th Ave	3.00	0.00	0.00
401C	Griffin Rd	SW 100th Ave	S Pine Island Rd	3.00	0.00	0.00
403	N University Dr	Stirling Rd/SW 60th St	Sheridan St	3.00	0.00	0.00
405A	S Flamingo Rd/SW 124th Ave	Griffin Rd	Stirling Rd/SW 60th St	3.00	0.00	0.00
405B	S Flamingo Rd/SW 124th Ave	Stirling Rd/SW 60th St	Sheridan St	3.00	0.00	0.00
407A	Sheridan St	S Flamingo Rd/SW 124th Ave	N Hiatus Rd	3.00	0.00	0.00
407C	Sheridan St	NW 101st Ave/N Palm Ave	S Pine Island Rd	3.00	0.00	0.00
408D	Stirling Rd/SW 60th St	S Pine Island Rd	N University Dr	2.50	0.00	0.00

6.3.4 Lift Stations and Raw Water Wells

The ranked sensitivity score for the eighty-three lift stations and six raw water wells are summarized in **Table 6–10**.

Table 6–10: Sensitivity Analysis Results - Lift Stations and Raw Water Wells

Asset Unique ID	Asset Name	Criticality Factors	Overall Exposure Score	Sensitivity Score
144	LS-44	3.00	4.00	12.00
183	LS-83	3.00	3.73	11.19
117	LS-17	3.00	3.00	9.00
124	LS-24	3.00	3.00	9.00
131	LS-31	3.00	3.00	9.00
189	Raw Water Well No. 8	3.00	3.00	9.00
155	LS-55	5.00	1.37	6.85
101	LS-01	3.00	2.03	6.09
103	LS-03	3.00	2.03	6.09
115	LS-15	3.00	2.00	6.00
116	LS-16	3.00	2.00	6.00
119	LS-19	3.00	2.00	6.00
125	LS-25	3.00	2.00	6.00
126	LS-26	3.00	2.00	6.00
132	LS-32	3.00	2.00	6.00
139	LS-39	3.00	2.00	6.00
140	LS-40	3.00	2.00	6.00
148	LS-48	3.00	2.00	6.00

Asset Unique ID	Asset Name	Criticality Factors	Overall Exposure Score	Sensitivity Score
186	Raw Water Well No. 5	3.00	2.00	6.00
104	LS-04	3.00	1.00	3.00
109	LS-09	3.00	1.00	3.00
121	LS-21	3.00	1.00	3.00
123	LS-23	3.00	1.00	3.00
129	LS-29	3.00	1.00	3.00
136	LS-36	3.00	1.00	3.00
146	LS-46	3.00	1.00	3.00
160	LS-60	3.00	1.00	3.00
179	LS-79	3.00	1.00	3.00
187	Raw Water Well No. 6	3.00	1.00	3.00
188	Raw Water Well No. 7	3.00	1.00	3.00
150	LS-50	3.00	0.09	0.27
149	LS-49	3.00	0.06	0.18
156	LS-56	3.00	0.06	0.18
182	LS-82	3.00	0.06	0.18
102	LS-02	3.00	0.03	0.09
151	LS-51	3.00	0.03	0.09
164	LS-64	3.00	0.03	0.09
105	LS-05	3.00	0.00	0.00
106	LS-06	3.00	0.00	0.00
107	LS-07	3.00	0.00	0.00
108	LS-08	3.00	0.00	0.00
110	LS-10	3.00	0.00	0.00
111	LS-11	3.00	0.00	0.00
112	LS-12	3.00	0.00	0.00
113	LS-13	3.00	0.00	0.00
114	LS-14	3.00	0.00	0.00
118	LS-18	3.00	0.00	0.00
120	LS-20	3.00	0.00	0.00
122	LS-22	3.00	0.00	0.00
127	LS-27	3.00	0.00	0.00
128	LS-28	3.00	0.00	0.00
130	LS-30	3.00	0.00	0.00
133	LS-33	3.00	0.00	0.00
134	LS-34	3.00	0.00	0.00
135	LS-35	3.00	0.00	0.00
137	LS-37	3.00	0.00	0.00
138	LS-38	3.00	0.00	0.00
141	LS-41	3.00	0.00	0.00
142	LS-42	3.00	0.00	0.00
143	LS-43	3.00	0.00	0.00
145	LS-45	3.00	0.00	0.00
147	LS-47	3.00	0.00	0.00
152	LS-52	3.00	0.00	0.00
153	LS-53	3.00	0.00	0.00
154	LS-54	3.00	0.00	0.00
157	LS-57	3.00	0.00	0.00
158	LS-58	3.00	0.00	0.00
159	LS-59	3.00	0.00	0.00
161	LS-61	3.00	0.00	0.00
162	LS-62	3.00	0.00	0.00

Asset Unique ID	Asset Name	Criticality Factors	Overall Exposure Score	Sensitivity Score
163	LS-63	3.00	0.00	0.00
165	LS-65	3.00	0.00	0.00
166	LS-66	3.00	0.00	0.00
167	LS-67	3.00	0.00	0.00
168	LS-68	3.00	0.00	0.00
169	LS-69	3.00	0.00	0.00
170	LS-70	3.00	0.00	0.00
171	LS-71	3.00	0.00	0.00
172	LS-72	3.00	0.00	0.00
173	LS-73	3.00	0.00	0.00
174	LS-74	3.00	0.00	0.00
175	LS-75	3.00	0.00	0.00
176	LS-76	3.00	0.00	0.00
177	LS-77	3.00	0.00	0.00
178	LS-78	3.00	0.00	0.00
180	LS-80	3.00	0.00	0.00
181	LS-81	3.00	0.00	0.00
185	Raw Water Well No. 4	3.00	0.00	0.00
190	Raw Water Well No. 9	3.00	0.00	0.00

7. Focus Areas

The exposure and sensitivity analysis identified a concentration of critical assets within the City particularly vulnerable to flooding. It is recommended that these areas are prioritized for the development of adaptation strategies.

Figure 7-1 depicts the extent of the two identified focus areas. The first focus area includes an area primarily south of Griffin Rd, east of S Flamingo Rd, west of S Hiatus Rd and north of SW 49th Street. This focus area includes 12 critical assets that experience vulnerability to flooding including:

- George A. Haughney Water Treatment Plant
- Cooper City Wastewater Treatment Plant
- Cooper City WWTP Utilities Building
- LS-15
- LS-79
- Raw Water Well No. 5
- Raw Water Well No. 6
- Raw Water Well No. 7
- Raw Water Well No. 8
- 0.5 MG Water Storage Tank
- 1.0 MG Water Storage Tank
- Natalie's Cove Park

The second focus area identified includes an area south of Stirling Rd, west of Norh Palm Ave, east of Embassy Dr, and north of Bermuda Drive. This focus area includes three (3) critical assets that experience vulnerability to flooding including:

- BSO Fire Station 28
- BSO Law Cooper City District 16,
- Suellen H. Fardelmann Sports Complex

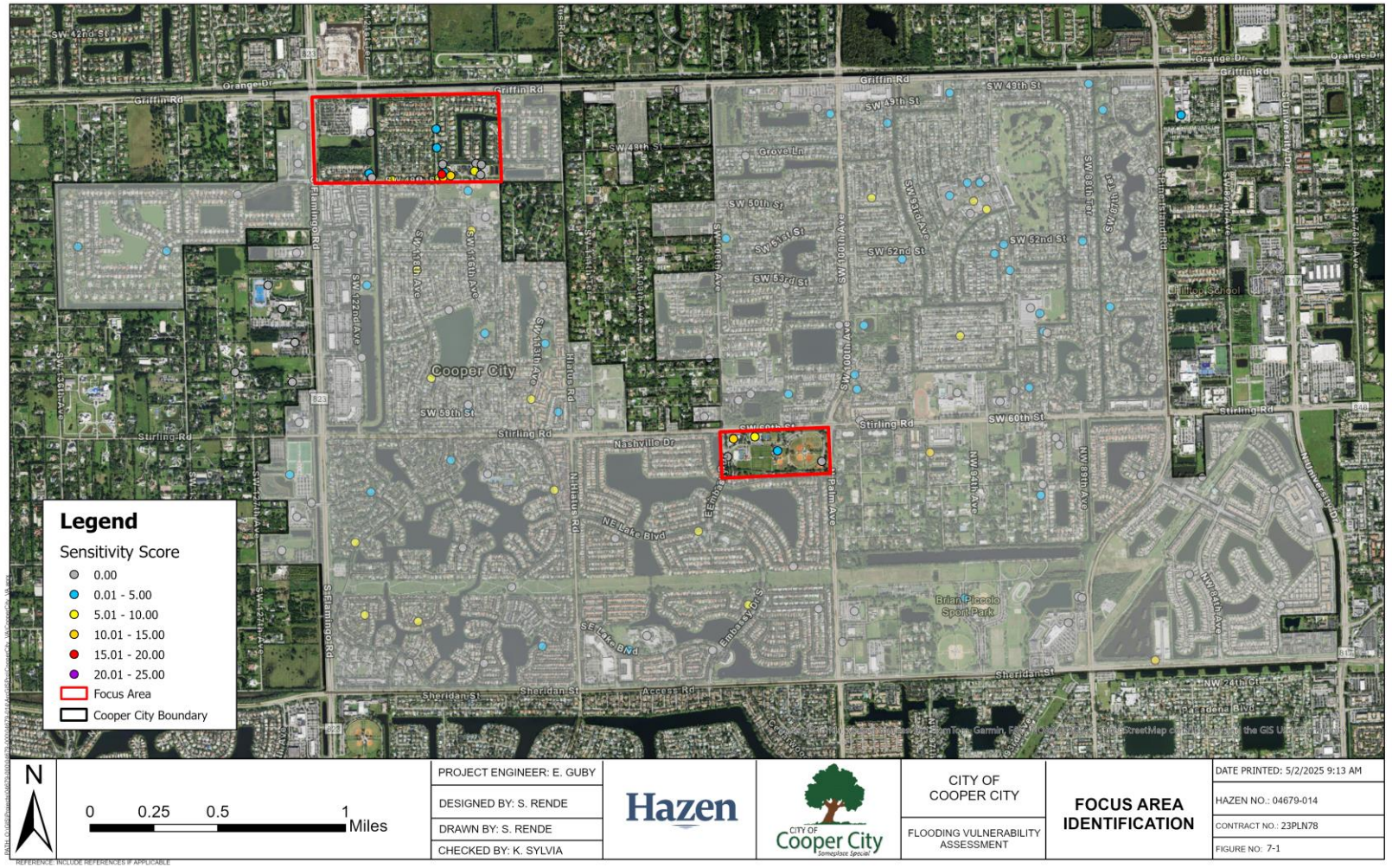


Figure 7-1: Cooper City Focus Areas

8. Summary

The results of this VA show that the City has a vulnerability to flooding driven primarily by rainfall driven events. Critical assets with high vulnerability are located in the northwest and central parts of the City, notable when determining where to first implement solutions. It is recommended the City utilizes this analysis to prioritize assets and explore adaptation strategies to prepare for future conditions.

The results also determined which critical assets are most vulnerable to flooding within the City based on sensitivity scores. The top six (6) structures and parcels evaluated, not including parks, that scored most vulnerable based on sensitivity scores include:

- BSO Law Cooper City District 16
- BSO Station 28
- Cooper City WWTP Utilities Building
- George A. Haughney Water Treatment Plant
- Cooper City Elementary School
- Cooper City Wastewater Treatment Plant

This is not an exhaustive list of facilities that are prone to flooding, but these are the assets that were found to be the most vulnerable to flooding and have the most impact on the health and safety of the community. Note, that the 0.5 MG Water Storage Tank and 1.0 MG Water Storage Tank ranked high in the sensitivity scores but are not recommended to prioritize adaptation strategies. This is because the risk of flooding near the water storage tanks is significantly mitigated by the presence of a swale surrounding the tanks and Raw Water Well No. 8. These Water Storage Tanks and Raw Water Well are located on the George A. Haughney Water Treatment Plant parcel; it is recommended that adaptation strategies be focused on the other buildings and assets on the parcel.

Minimal flooding occurred for lift stations and raw water wells under this analysis. There were thirty lift stations and four (4) raw water wells that were found to flood in at least one flooding scenario. The top two lift stations that show vulnerability to flooding, LS-44 and LS-83, are in low lying areas next to bodies of water. Raw Water Well No. 8 was found to experience some vulnerability to flooding but as discussed previously the flood risk is mitigated by the swale that surrounds the water storage tank and raw water well. The five (5) lift stations and raw water wells that were found to be the most sensitive include:

- LS-44
- LS-83
- LS-17
- LS-24
- LS-31

Parks were separated from the structures and parcels as they are not critical to access during a storm event. However, they can be utilized for adaptation measures that could decrease flooding in their surrounding areas. Brian Piccolo Park was found to be the second most vulnerable park but is also utilized as a disaster debris management site which is important to access soon after a storm event. The top five (5) parks that were found to be the most vulnerable to flooding are as follows:

- Homes Of Forest Lakes Park
- Brian Piccolo Park
- Pine Lake Park
- Chase Park
- Dawn Park

This analysis also determined which roadways within the City were the most vulnerable to flooding. The top four roadway segments that were found to be the most vulnerable to flooding based on sensitivity scores are local roadways. As discussed previously, there are no evacuation routes located within the City. The top five (5) roadway segments that scored most vulnerable most include:

- SW 97th Terrace (From SW 97th Ter to SW 59th St)
- SW 99th Lane (From SW 57th St to SW 59th St)
- SW 59th Street (From SW 99th Ln to SW 59th St)
- SW 90th Avenue/Cooper Blvd (From Griffin Road to Stirling Rd/SW 60th St)
- N Hiatus Road (From Stirling Rd/SW 60th St to Sheridan St)

A majority of the most vulnerable critical assets are located within the two identified focus areas in the northwest and central areas of the City. These focus areas can be used to guide the planning for implementing adaptation projects. Additionally, the critical assets that pose an immediate health or safety threat to the City should be prioritized to begin exploring possible adaptation strategies.

Appendix A: Data Collection Log

Appendix A
Critical Asset Data Collection Log

Asset Class	Asset Type	Received?	Source File Type	Source	Notes
Transportation and Evacuation Routes	Airports	No	-	-	-
Transportation and Evacuation Routes	Bridges	Yes	Screen Capture	City of Cooper City	Culverts provided - not to be included in analysis
Transportation and Evacuation Routes	Bus Terminals	No	-	-	-
Transportation and Evacuation Routes	Ports	No	-	-	-
Transportation and Evacuation Routes	Major Roadways	Yes	Shapefile	City of Cooper City	Initial roadway layer retrieved from the City's GIS. Major roadways were discussed with City on what to include
Transportation and Evacuation Routes	Marinas	No	-	-	-
Transportation and Evacuation Routes	Rail Facilities	No	-	-	-
Transportation and Evacuation Routes	Railroad Bridges	No	-	-	-
Critical Infrastructure	Wastewater Treatment Facilities	Yes	Screen Capture	City of Cooper City	From City
Critical Infrastructure	Wastewater Lift Stations	Yes	Shapefile	City of Cooper City	From City GIS
Critical Infrastructure	Stormwater Treatment Facilities	No	-	-	-
Critical Infrastructure	Stormwater Pump Stations	No	-	-	-
Critical Infrastructure	Drinking Water Facilities	Yes	Screen Capture	City of Cooper City	From City
Critical Infrastructure	Water Utility Conveyance Systems	Yes	Shapefile/List	City of Cooper City	Raw water wells were obtained from the City's GIS. Water storage tanks and accompanying pump stations were obtained from the City's high-risk asset list
Critical Infrastructure	Electric Production and Supply Facilities	No	-	-	-
Critical Infrastructure	Solid and Hazardous Waste Facilities	No	-	-	-
Critical Infrastructure	Military Installations	No	-	-	-
Critical Infrastructure	Communications Facilities	Yes	Screen Capture	City of Cooper City	AMI Base Station received from City
Critical Infrastructure	Disaster Debris Management Sites	Yes	Shapefile	Broward County Geohub	
Critical Community and Emergency Facilities	Schools	Yes	Shapefile/Screen Capture	City of Cooper City	Included public and private schools at the request of the City. Preschools not to be included in the analysis
Critical Community and Emergency Facilities	Colleges and Universities	No	-	-	-
Critical Community and Emergency Facilities	Community Centers	Yes	Screen Capture	City of Cooper City	From City
Critical Community and Emergency Facilities	Correctional Facilities	No	-	-	-
Critical Community and Emergency Facilities	Disaster Recovery Centers	Yes	List	City of Cooper City	It was discussed with the City to include reunification centers in the analysis
Critical Community and Emergency Facilities	Emergency Medical Service Facilities	No	-	-	-
Critical Community and Emergency Facilities	Emergency Operation Centers	Yes	List	City of Cooper City	-
Critical Community and Emergency Facilities	Fire Stations	Yes	Screen Capture	City of Cooper City	From City
Critical Community and Emergency Facilities	Health Care Facilities	No	-	-	-
Critical Community and Emergency Facilities	Hospitals	No	-	-	-
Critical Community and Emergency Facilities	Law Enforcement Facilities	Yes	Screen Capture	City of Cooper City	From City
Critical Community and Emergency Facilities	Local Government Facilities	Yes	Screen Capture	City of Cooper City	From City
Critical Community and Emergency Facilities	Logistical Staging Areas	No	-	-	-
Critical Community and Emergency Facilities	Affordable Public Housing	No	-	-	-
Critical Community and Emergency Facilities	Risk Shelter Inventory	Yes	Screen Capture	City of Cooper City	From City
Critical Community and Emergency Facilities	State Government Facilities	No	-	-	-
Natural, Cultural, and Historical Resources	Conversation Lands	Yes	Shapefile	Broward County Geohub	Private conversation lands not to be included in the analysis
Natural, Cultural, and Historical Resources	Parks	Yes	Shapefile/Screen Capture	Broward County Geohub and City of Cooper City	Parks downloaded from Broward County and compared to list provided by the City
Natural, Cultural, and Historical Resources	Shorelines	No	-	-	-
Natural, Cultural, and Historical Resources	Surface Waters	No	-	-	-
Natural, Cultural, and Historical Resources	Wetlands	No	-	-	-
Natural, Cultural, and Historical Resources	Historical and Cultural Assets	No	-	-	-

Appendix B: Full Critical Asset List

Asset Name	Asset Unique ID	Entity Name	Asset Type	Asset Class	Asset Owner or Operator	Asset Elevation (ft-NAVD)	CFE/FFE Source	Asset Size or Capacity	Parcel/ Structure/ Point
Cooper City Wastewater Treatment Plant	100	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.38	DEM	4.27 MGD	Parcel
LS-01	101	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	3.80	DEM	N/A	Point
LS-02	102	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	4.55	DEM	N/A	Point
LS-03	103	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	3.72	DEM	N/A	Point
LS-04	104	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.52	DEM	N/A	Point
LS-05	105	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.12	DEM	N/A	Point
LS-06	106	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.42	DEM	N/A	Point
LS-07	107	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.33	DEM	N/A	Point
LS-08	108	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.34	DEM	N/A	Point
LS-09	109	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.37	DEM	N/A	Point
LS-10	110	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.04	DEM	N/A	Point
LS-11	111	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.51	DEM	N/A	Point
LS-12	112	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.38	DEM	N/A	Point
LS-13	113	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.13	DEM	N/A	Point
LS-14	114	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.73	DEM	N/A	Point
LS-15	115	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.38	DEM	N/A	Point
LS-16	116	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.99	DEM	N/A	Point
LS-17	117	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.27	DEM	N/A	Point
LS-18	118	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	7.79	DEM	N/A	Point
LS-19	119	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.42	DEM	N/A	Point
LS-20	120	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.78	DEM	N/A	Point
LS-21	121	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.90	DEM	N/A	Point
LS-22	122	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.23	DEM	N/A	Point
LS-23	123	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.31	DEM	N/A	Point
LS-24	124	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	4.33	DEM	N/A	Point
LS-25	125	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.23	DEM	N/A	Point
LS-26	126	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.12	DEM	N/A	Point
LS-27	127	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.80	DEM	N/A	Point
LS-28	128	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.75	DEM	N/A	Point
LS-29	129	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.47	DEM	N/A	Point
LS-30	130	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.17	DEM	N/A	Point

Asset Name	Asset Unique ID	Entity Name	Asset Type	Asset Class	Asset Owner or Operator	Asset Elevation (ft-NAVD)	CFE/FFE Source	Asset Size or Capacity	Parcel/ Structure/ Point
LS-31	131	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.86	DEM	N/A	Point
LS-32	132	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.96	DEM	N/A	Point
LS-33	133	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	7.15	DEM	N/A	Point
LS-34	134	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.02	DEM	N/A	Point
LS-35	135	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.22	DEM	N/A	Point
LS-36	136	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.43	DEM	N/A	Point
LS-37	137	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.78	DEM	N/A	Point
LS-38	138	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.70	DEM	N/A	Point
LS-39	139	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.79	DEM	N/A	Point
LS-40	140	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.04	DEM	N/A	Point
LS-41	141	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.57	DEM	N/A	Point
LS-42	142	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.86	DEM	N/A	Point
LS-43	143	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.20	DEM	N/A	Point
LS-44	144	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	2.67	DEM	N/A	Point
LS-45	145	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	4.93	DEM	N/A	Point
LS-46	146	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	4.83	DEM	N/A	Point
LS-47	147	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.50	DEM	N/A	Point
LS-48	148	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	4.27	DEM	N/A	Point
LS-49	149	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	4.30	DEM	N/A	Point
LS-50	150	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	3.44	DEM	N/A	Point
LS-51	151	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	4.64	DEM	N/A	Point
LS-52	152	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.47	DEM	N/A	Point
LS-53	153	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.83	DEM	N/A	Point
LS-54	154	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.72	DEM	N/A	Point
LS-55	155	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	3.89	DEM	N/A	Point
LS-56	156	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	4.40	DEM	N/A	Point
LS-57	157	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.63	DEM	N/A	Point
LS-58	158	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.88	DEM	N/A	Point
LS-59	159	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.47	DEM	N/A	Point
LS-60	160	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.29	DEM	N/A	Point
LS-61	161	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.30	DEM	N/A	Point

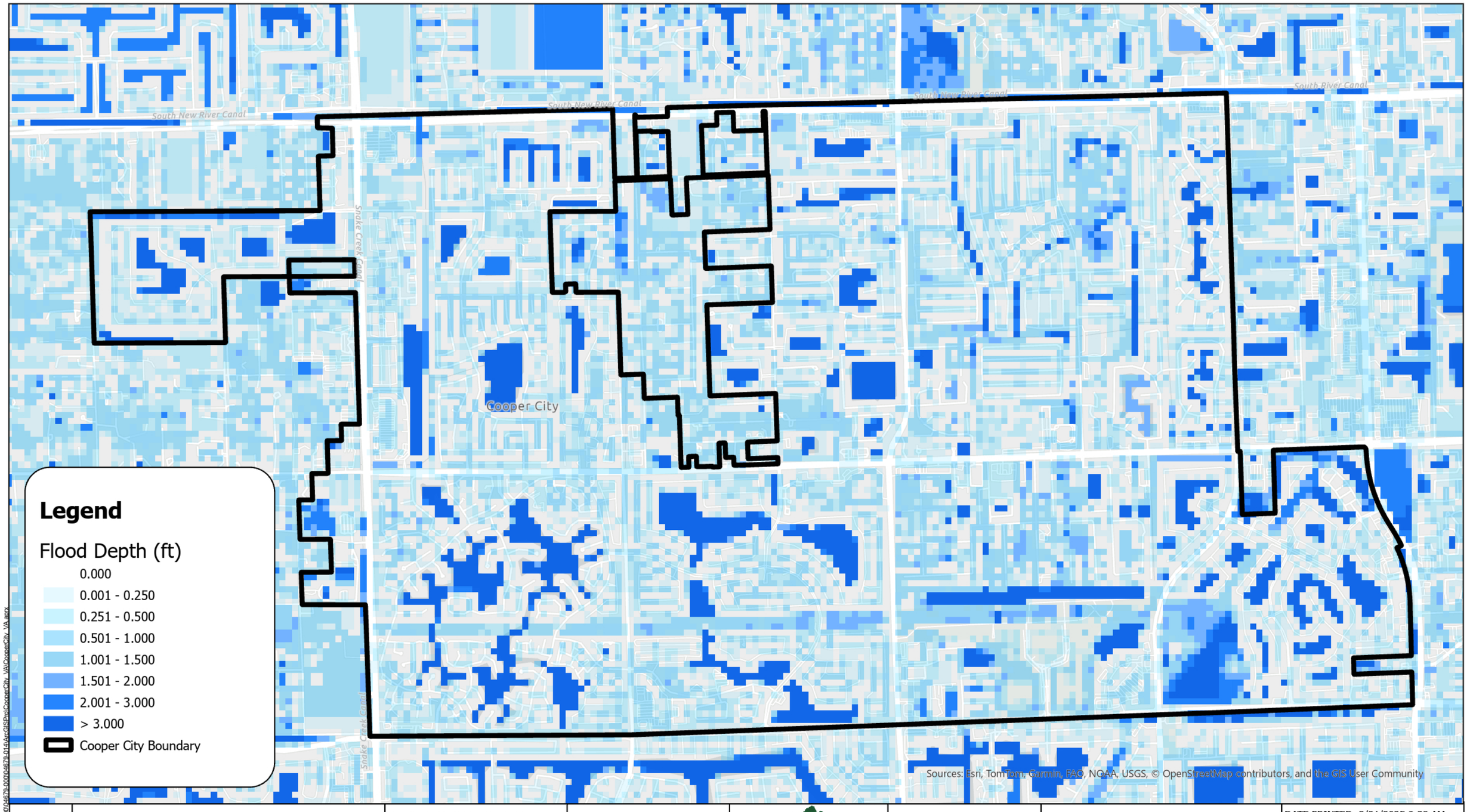
Asset Name	Asset Unique ID	Entity Name	Asset Type	Asset Class	Asset Owner or Operator	Asset Elevation (ft-NAVD)	CFE/FFE Source	Asset Size or Capacity	Parcel/ Structure/ Point
LS-62	162	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.76	DEM	N/A	Point
LS-63	163	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.71	DEM	N/A	Point
LS-64	164	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.24	DEM	N/A	Point
LS-65	165	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	7.01	DEM	N/A	Point
LS-66	166	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	5.90	DEM	N/A	Point
LS-67	167	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.32	DEM	N/A	Point
LS-68	168	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.98	DEM	N/A	Point
LS-69	169	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.47	DEM	N/A	Point
LS-70	170	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.38	DEM	N/A	Point
LS-71	171	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	7.31	DEM	N/A	Point
LS-72	172	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.33	DEM	N/A	Point
LS-73	173	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.81	DEM	N/A	Point
LS-74	174	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.38	DEM	N/A	Point
LS-75	175	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.66	DEM	N/A	Point
LS-76	176	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.94	DEM	N/A	Point
LS-77	177	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.74	DEM	N/A	Point
LS-78	178	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.80	DEM	N/A	Point
LS-79	179	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.70	DEM	N/A	Point
LS-80	180	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.57	DEM	N/A	Point
LS-81	181	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	6.36	DEM	N/A	Point
LS-82	182	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	4.17	DEM	N/A	Point
LS-83	183	City of Cooper City	Wastewater Treatment Facilities and Lift Stations	Critical Infrastructure	City of Cooper City	1.80	DEM	N/A	Point
George A. Haughney Water Treatment Plant	184	City of Cooper City	Drinking Water Facilities	Critical Infrastructure	City of Cooper City	6.00	DEM	7.00 MGD	Parcel
Raw Water Well No. 4	185	City of Cooper City	Water Utility Conveyance Systems	Critical Infrastructure	City of Cooper City	7.59	DEM	N/A	Point
Raw Water Well No. 5	186	City of Cooper City	Water Utility Conveyance Systems	Critical Infrastructure	City of Cooper City	6.63	DEM	N/A	Point
Raw Water Well No. 6	187	City of Cooper City	Water Utility Conveyance Systems	Critical Infrastructure	City of Cooper City	6.96	DEM	N/A	Point
Raw Water Well No. 7	188	City of Cooper City	Water Utility Conveyance Systems	Critical Infrastructure	City of Cooper City	6.78	DEM	N/A	Point
Raw Water Well No. 8	189	City of Cooper City	Water Utility Conveyance Systems	Critical Infrastructure	City of Cooper City	5.66	DEM	N/A	Point
Raw Water Well No. 9	190	City of Cooper City	Water Utility Conveyance Systems	Critical Infrastructure	City of Cooper City	6.52	DEM	N/A	Point
2.0 MG Pine Island Water Storage Tank	191	City of Cooper City	Water Utility Conveyance Systems	Critical Infrastructure	City of Cooper City	5.42	Master Plan	2.00 MG	Structure
0.5 MG Water Storage Tank	192	City of Cooper City	Water Utility Conveyance Systems	Critical Infrastructure	City of Cooper City	5.67	Master Plan	0.50 MG	Structure

Asset Name	Asset Unique ID	Entity Name	Asset Type	Asset Class	Asset Owner or Operator	Asset Elevation (ft-NAVD)	CFE/FFE Source	Asset Size or Capacity	Parcel/ Structure/ Point
1.0 MG Water Storage Tank	193	City of Cooper City	Water Utility Conveyance Systems	Critical Infrastructure	City of Cooper City	6.00	Master Plan	1.00 MG	Structure
Pine Island Road Pump Station	194	City of Cooper City	Water Utility Conveyance Systems	Critical Infrastructure	City of Cooper City	7.42	DEM	5.00 MGD	Structure
AMI Base Station	195	City of Cooper City	Communications Facilities	Critical Infrastructure	City of Cooper City	6.53	Cooper City	N/A	Point
Brian Piccolo Park	196	Broward County	Disaster Debris Management Sites, Parks	Natural, Cultural, and Historical Resource	Broward County	4.64	DEM	175.19 acres	Parcel
Archbishop Edward A. McCarthy High School	200	Private	Schools	Critical Community and Emergency Facilities	Archdiocese of Miami	7.88	DEM	135158.70 sq ft	Structure
Chabad of Southwest Broward	201	Private	Schools	Critical Community and Emergency Facilities	Chabad Lubavitch of Southwest Broward INC	7.87	DEM	42026.60 sq ft	Structure
Cooper City Christian Academy	202	Private	Schools	Critical Community and Emergency Facilities	Pentecostal Church of Cooper City	7.53	DEM	32947.80 sq ft	Structure
Cooper City Elementary School	203	Broward County	Schools	Critical Community and Emergency Facilities	School Board of Broward County	6.68	DEM	114775.60 sq ft	Structure
Cooper City High School	204	Broward County	Schools	Critical Community and Emergency Facilities	School Board of Broward County	7.33	DEM	187471.20 sq ft	Structure
Embassy Creek Elementary School	205	Broward County	Schools	Critical Community and Emergency Facilities	School Board of Broward County	7.66	DEM	91083.50 sq ft	Structure
Franklin Academy	206	Private	Schools	Critical Community and Emergency Facilities	Franklin Academy Foundation INC	7.82	DEM	48533.50 sq ft	Structure
Griffin Elementary School	207	Broward County	Schools	Critical Community and Emergency Facilities	School Board of Broward County	7.78	DEM	96604.60 sq ft	Structure
Lycee Franco Americain	208	Private	Schools	Critical Community and Emergency Facilities	First Baptist Church of Davie/Cooper City INC	7.43	DEM	11361.50 sq ft	Structure
New Horizon United Methodist Church	209	Private	Schools	Critical Community and Emergency Facilities	New Horizon United Methodist Church INC	10.02	DEM	19801.90 sq ft	Structure
Nur Ul Islam Academy	210	Private	Schools	Critical Community and Emergency Facilities	Nur Ul Islam of South Florida INC	6.57	DEM	33675.40 sq ft	Structure
Pioneer Middle School	211	Broward County	Schools	Critical Community and Emergency Facilities	School Board of Broward County	6.74	DEM	172630.40 sq ft	Structure
Potential Christian Academy	212	Private	Schools	Critical Community and Emergency Facilities	Potential Church INC	8.91	DEM	71513.50 sq ft	Structure
Renaissance Charter School at Cooper City	213	Private	Schools	Critical Community and Emergency Facilities	Red Apple at Cooper City INC	6.87	DEM	43914.60 sq ft	Structure
Schott Communities Group Home	214	Private	Schools	Critical Community and Emergency Facilities	Archdiocese of Miami Schott Memorial Ctr For the Deaf	9.31	DEM	34661.10 sq ft	Structure
St Mark Youth Ministry	215	Private	Schools	Critical Community and Emergency Facilities	Archdiocese of Miami St Mark Church	8.45	DEM	103350.40 sq ft	Structure
Temple Beth Emet	216	Private	Schools, Disaster Recovery Centers	Critical Community and Emergency Facilities	Temple Beth Emet INC	7.83	DEM	66346.70 sq ft	Structure
Zucker Hebrew Academy of Hollywood	217	Private	Schools	Critical Community and Emergency Facilities	First Baptist Church of Davie/ Cooper City INC	7.45	DEM	10652.50 sq ft	Structure
Cooper City Community Center	218	City of Cooper City	Community Centers	Critical Community and Emergency Facilties	City of Cooper City	10.20	DEM	14148.70 sq ft	Structure
Cooper City Church of God	219	Broward County	Disaster Recovery Centers	Critical Community and Emergency Facilities	Cooper City Church of God	7.04	DEM	39149.40 sq ft	Structure
Cooper City WWTP Utilities Building	220	City of Cooper City	Emergency Operations Center	Critical Community and Emergency Facilities	City of Cooper City	8.13	DEM	5134.60 sq ft	Structure
BSO Law Cooper City District 16	221	Broward County	Emergency Operations Center, Law Enforcement Facilities	Critical Community and Emergency Facilities	Broward County Sheriff's Office	7.39	DEM	30086.90 sq ft	Structure
BSO Station 28	222	Broward County	Fire Stations	Critical Community and Emergency Facilities	Broward County Sheriff's Office	6.79	DEM	11985.00 sq ft	Structure
Cooper City City Hall	223	City of Cooper City	Local Government Facilities, Risk Shelter Inventory	Critical Community and Emergency Facilties	City of Cooper City	5.38	DEM	15644.80 sq ft	Structure
Cooper City Public Works Department	224	City of Cooper City	Local Government Facilities	Critical Community and Emergency Facilties	City of Cooper City	6.36	DEM	21531.90 sq ft	Structure
Cooper City Pool & Tennis Center	225	City of Cooper City	Community Centers	Critical Community and Emergency Facilities	City of Cooper City	7.08	DEM	17628.10 acres	Structure
Bill Lips Sports Complex	300	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	6.50	DEM	20.23 acres	Parcel

Asset Name	Asset Unique ID	Entity Name	Asset Type	Asset Class	Asset Owner or Operator	Asset Elevation (ft-NAVD)	CFE/FFE Source	Asset Size or Capacity	Parcel/ Structure/ Point
Chase Park	301	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	3.38	DEM	0.39 acres	Parcel
Christie Schafale Park	302	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	3.71	DEM	5.54 acres	Parcel
Colony Park	303	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	4.35	DEM	0.23 acres	Parcel
Cooper City Memorial Park/Tot Lot	304	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	5.35	DEM	4.60 acres	Parcel
Coopers Point Park	306	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	4.33	DEM	0.37 acres	Parcel
Dawn Park	307	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	4.96	DEM	1.28 acres	Parcel
Diamond Head Park	308	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	5.70	DEM	2.23 acres	Parcel
Ellie Kozak Park	309	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	5.15	DEM	1.00 acres	Parcel
Encore Park	310	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	5.21	DEM	0.49 acres	Parcel
Flamingo West Park	311	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	4.14	DEM	26.26 acres	Parcel
Forest Lake Park	312	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	5.35	DEM	7.49 acres	Parcel
Homes Of Forest Lakes Park	313	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	5.80	DEM	0.48 acres	Parcel
Jerry Morgan Park	314	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	4.32	DEM	5.99 acres	Parcel
Michael "City Mike" Riordan Park	315	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	6.55	DEM	3.48 acres	Parcel
Natalie's Cove Park	316	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	6.17	DEM	0.59 acres	Parcel
Pine Lake Park	317	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	5.16	DEM	1.04 acres	Parcel
Poinciana Park	318	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	6.68	DEM	0.77acres	Parcel
Stirling Palm Park	319	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	3.78	DEM	2.87 acres	Parcel
Suellen H. Fardelmann Sports Complex	320	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	5.22	DEM	40.00 acres	Parcel
Tamarind Park	321	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	7.29	DEM	5.23 acres	Parcel
Ted Ferone Park	322	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	6.21	DEM	4.41 acres	Parcel
Pioneer Middle School Park	323	City of Cooper City	Parks	Natural, Cultural, and Historical Resource	City of Cooper City	4.57	DEM	24.96 acres	Parcel

Asset Name	Asset Unique ID	Entity Name	Asset Type	Asset Class	Asset Owner or Operator	Asset Elevation (ft-NAVD)	Asset Size (miles)	Roadway From	Roadway To
Cherry Rd/SW 106th Ave	400	City of Cooper City	Major Roadways	Transportation and Evacuation Routes	City of Cooper City	6.72	1.35	Griffin Rd	Stirling Rd/SW 60th St
Griffin Rd	401A	State of Florida	Major Roadways	Transportation and Evacuation Routes	State of Florida	10.12	0.48	S Flamingo Rd/SW 124th Ave	SW 118th Ave
Griffin Rd	401B	State of Florida	Major Roadways	Transportation and Evacuation Routes	State of Florida	8.83	1.58	SW 118th Ave	SW 100th Ave
Griffin Rd	401C	State of Florida	Major Roadways	Transportation and Evacuation Routes	State of Florida	8.40	1.25	SW 100th Ave	S Pine Island Rd
S Hiatus Rd	402A	City of Cooper City	Major Roadways	Transportation and Evacuation Routes	City of Cooper City	6.06	0.66	SW 55th St	Stirling Rd/SW 60th St
N Hiatus Rd	402B	City of Cooper City	Major Roadways	Transportation and Evacuation Routes	City of Cooper City	6.17	1.00	Stirling Rd/SW 60th St	Sheridan St
N University Dr	403	State of Florida	Major Roadways	Transportation and Evacuation Routes	State of Florida	6.77	1.02	Stirling Rd/SW 60th St	Sheridan St
NW 101st Ave/N Palm AVe	404	Broward County	Major Roadways	Transportation and Evacuation Routes	Broward County	6.50	1.00	Stirling Rd/SW 60th St	Sheridan St
S Flamingo Rd/SW 124th Ave	405A	State of Florida	Major Roadways	Transportation and Evacuation Routes	State of Florida	8.34	1.32	Griffin Rd	Stirling Rd/SW 60th St
S Flamingo Rd/SW 124th Ave	405B	State of Florida	Major Roadways	Transportation and Evacuation Routes	State of Florida	8.19	1.01	Stirling Rd/SW 60th St	Sheridan St
S Pine Island Rd	406A	Broward County	Major Roadways	Transportation and Evacuation Routes	Broward County	6.55	1.33	Griffin Rd	Stirling Rd/SW 60th St
S Pine Island Rd	406B	Broward County	Major Roadways	Transportation and Evacuation Routes	Broward County	7.40	1.10	Stirling Rd/SW 60th St	Sheridan St
Sheridan St	407A	Broward County/City of Cooper City	Major Roadways	Transportation and Evacuation Routes	City of Cooper City	7.20	0.98	S Flamingo Rd/SW 124th Ave	N Hiatus Rd
Sheridan St	407B	Broward County/City of Cooper City	Major Roadways	Transportation and Evacuation Routes	City of Cooper City	6.98	1.01	N Hiatus Rd	NW 101st Ave/N Palm Ave
Sheridan St	407C	Broward County/City of Cooper City	Major Roadways	Transportation and Evacuation Routes	Broward County	6.55	0.99	NW 101st Ave/N Palm Ave	S Pine Island Rd
Sheridan St	407D	Broward County/City of Cooper City	Major Roadways	Transportation and Evacuation Routes	City of Cooper City	6.88	0.99	S Pine Island Rd	N University Dr
Stirling Rd/SW 60th St	408A	Broward County/City of Cooper City	Major Roadways	Transportation and Evacuation Routes	City of Cooper City	6.65	0.97	S Flamingo Rd/SW 124th Ave	N Hiatus Rd
Stirling Rd/SW 60th St	408B	Broward County/City of Cooper City	Major Roadways	Transportation and Evacuation Routes	City of Cooper City	6.90	1.01	N Hiatus Rd	NW 101st Ave/N Palm Ave
Stirling Rd/SW 60th St	408C	Broward County/City of Cooper City	Major Roadways	Transportation and Evacuation Routes	Broward County	6.56	1.33	NW 101st Ave/N Palm Ave	S Pine Island Rd
Stirling Rd/SW 60th St	408D	Broward County/City of Cooper City	Major Roadways	Transportation and Evacuation Routes	Broward County	7.15	0.50	S Pine Island Rd	N University Dr
SW 100th Ave	409	Broward County	Major Roadways	Transportation and Evacuation Routes	Broward County	6.55	1.37	Griffin Rd	Stirling Rd/SW 60th St
SW 118th Ave	410	City of Cooper City	Major Roadways	Transportation and Evacuation Routes	City of Cooper City	6.82	1.39	Griffin Rd	Stirling Rd/SW 60th St
SW 49th St	411	City of Cooper City	Major Roadways	Transportation and Evacuation Routes	City of Cooper City	6.94	0.95	S Flamingo Rd/SW 124th Ave	SW 49th St
SW 57th St	412	City of Cooper City	Major Roadways	Transportation and Evacuation Routes	City of Cooper City	6.48	0.03	SW 100th Ave	SW 99th Ln
SW 59th St	413	City of Cooper City	Major Roadways	Transportation and Evacuation Routes	City of Cooper City	4.71	0.16	SW 99th Ln	SW 59th St
SW 90th Ave/Cooper Blvd	414	City of Cooper City	Major Roadways	Transportation and Evacuation Routes	City of Cooper City	4.19	1.35	Griffin Rd	Stirling Rd/SW 60th St
SW 97th Ter	415	City of Cooper City	Major Roadways	Transportation and Evacuation Routes	City of Cooper City	4.75	0.08	SW 97th Ter	SW 59th St
SW 99th Ln	416	City of Cooper City	Major Roadways	Transportation and Evacuation Routes	City of Cooper City	4.66	0.13	SW 57th St	SW 59th St
W Lake Blvd	417	City of Cooper City	Major Roadways	Transportation and Evacuation Routes	City of Cooper City	5.56	0.31	S Flamingo Rd/SW 124th Ave	Stonebridge Pkwy

Appendix C: Flood Depth Maps



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REFERENCE: INCLUDE REFERENCES IF APPLICABLE

PROJECT ENGINEER: E. GUBY	
DESIGNED BY: K. KAVANAGH	
DRAWN BY: K. KAVANAGH	
CHECKED BY: E. GUBY	

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FLOODING VULNERABILITY ASSESSMENT

VA SCENARIO 3 FLOOD DEPTH MAP

100-YEAR 24-HOUR RAINFALL, NO SLR, CURRENT CONDITIONS, NORMAL HIGH TIDE

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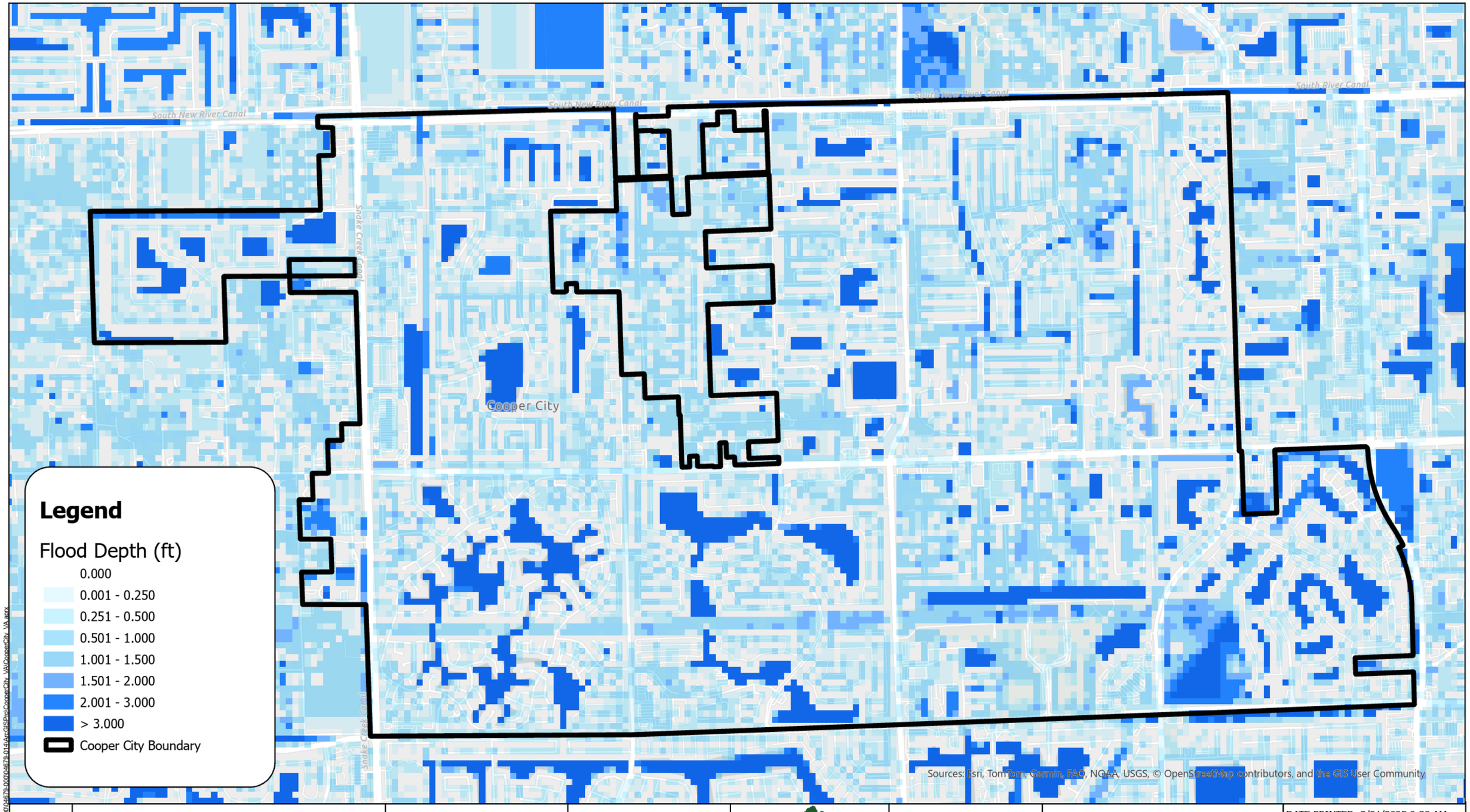
HAZEN NO.: 04679-014	
CONTRACT NO.: 23PLN78	
FIGURE NO: 1	



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VA SCENARIO 6 FLOOD DEPTH MAP

100-YEAR 24-HOUR RAINFALL, 2017 NOAA INTERMEDIATE LOW, 2040, NORMAL HIGH TIDE

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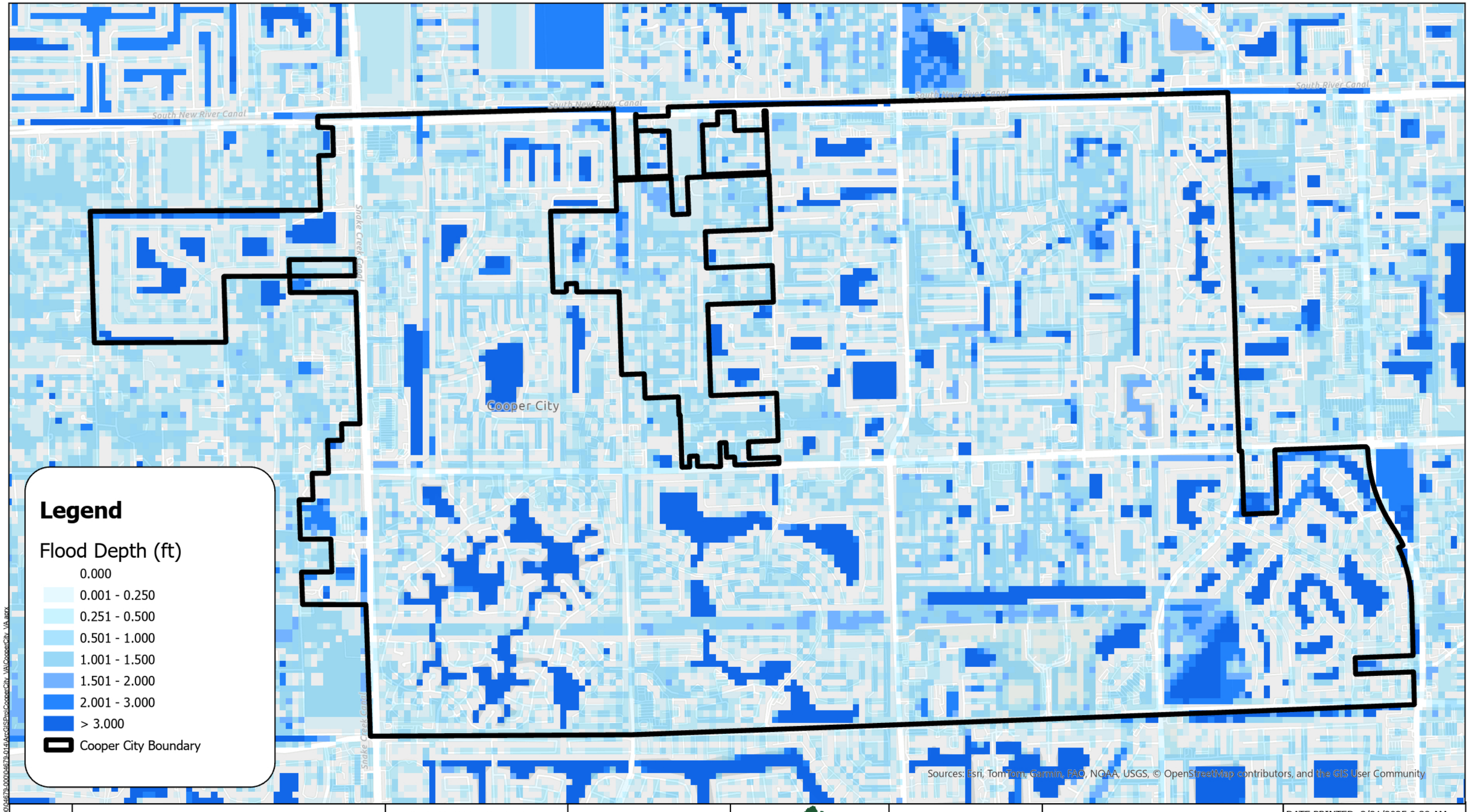
HAZEN NO.:	04679-014
CONTRACT NO.:	23PLN78
FIGURE NO:	2



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VA SCENARIO 9 FLOOD DEPTH MAP

100-YEAR 24-HOUR RAINFALL, 2017 NOAA INTERMEDIATE HIGH, 2040, NORMAL HIGH TIDE

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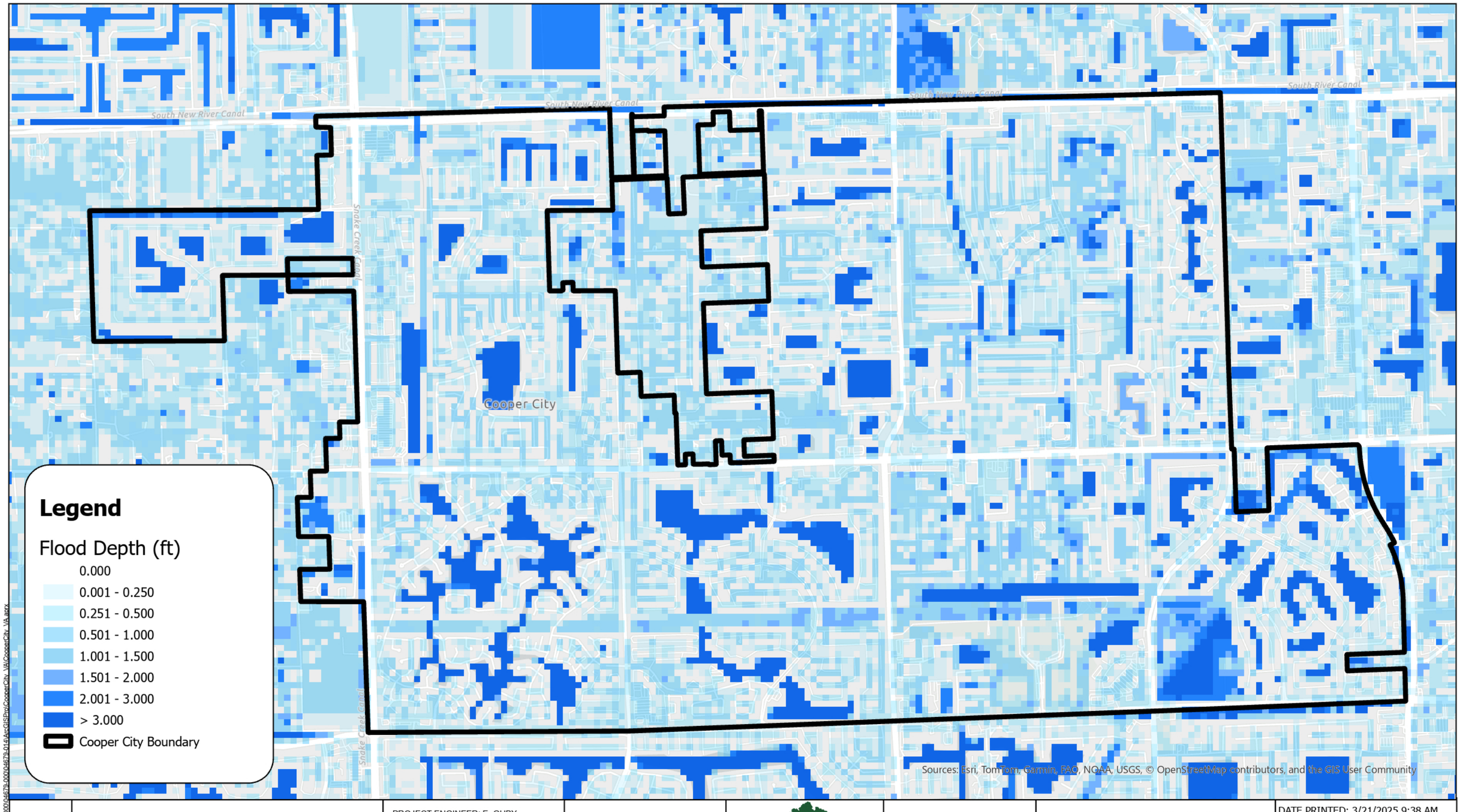
CONTRACT NO.:	23PLN78
FIGURE NO:	3



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CITY OF COOPER CITY	VA SCENARIO 12 FLOOD DEPTH MAP 100-YEAR 24-HOUR RAINFALL, 2017 NOAA INTERMEDIATE LOW, 2070, NORMAL HIGH TIDE
FLOODING VULNERABILITY ASSESSMENT	

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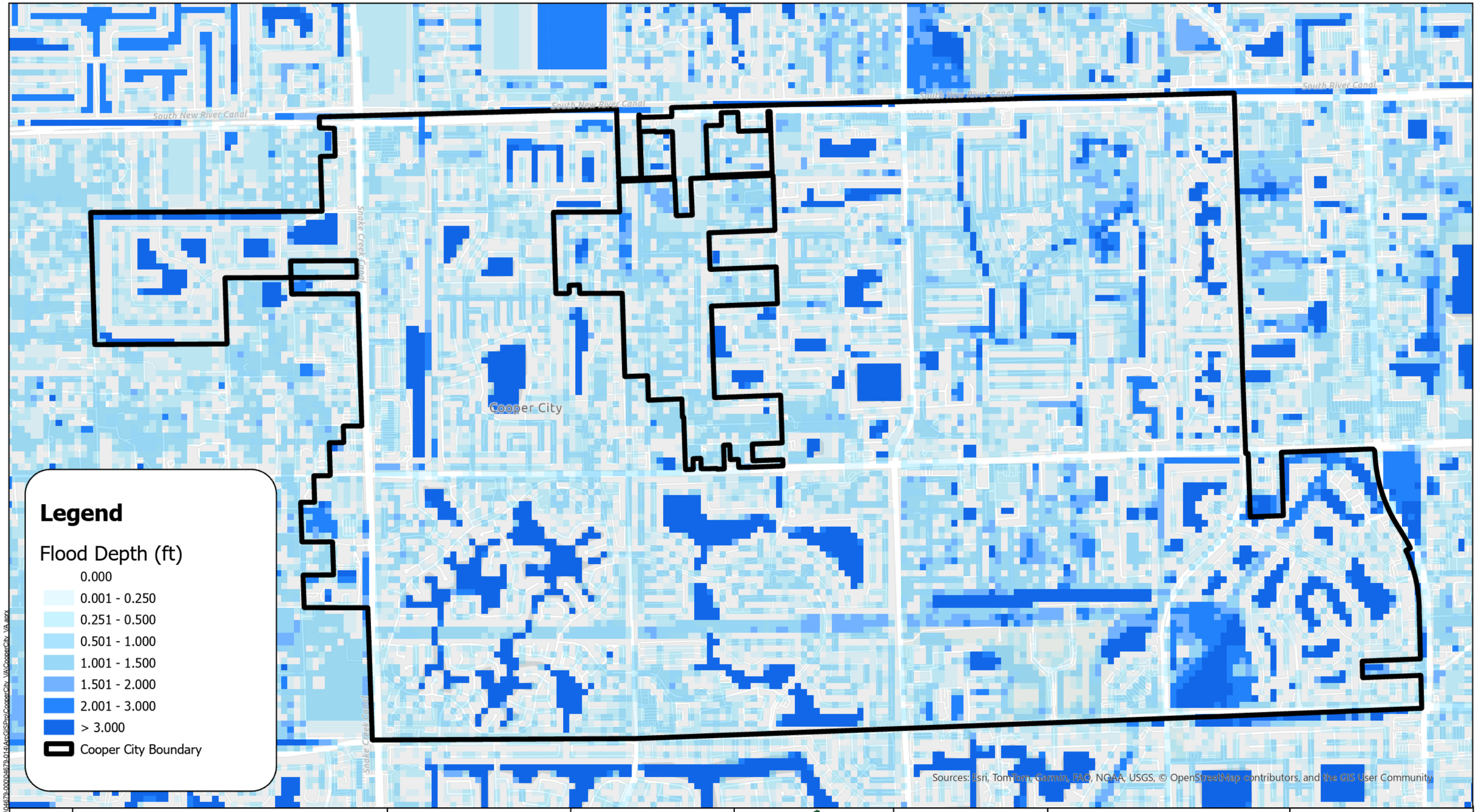
HAZEN NO.: 04679-014	
CONTRACT NO.: 23PLN78	
FIGURE NO: 4	



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FLOODING VULNERABILITY ASSESSMENT	

VA SCENARIO 15
FLOOD DEPTH MAP

100-YEAR 24-HOUR RAINFALL, 2017 NOAA INTERMEDIATE HIGH, 2070, NORMAL HIGH TIDE

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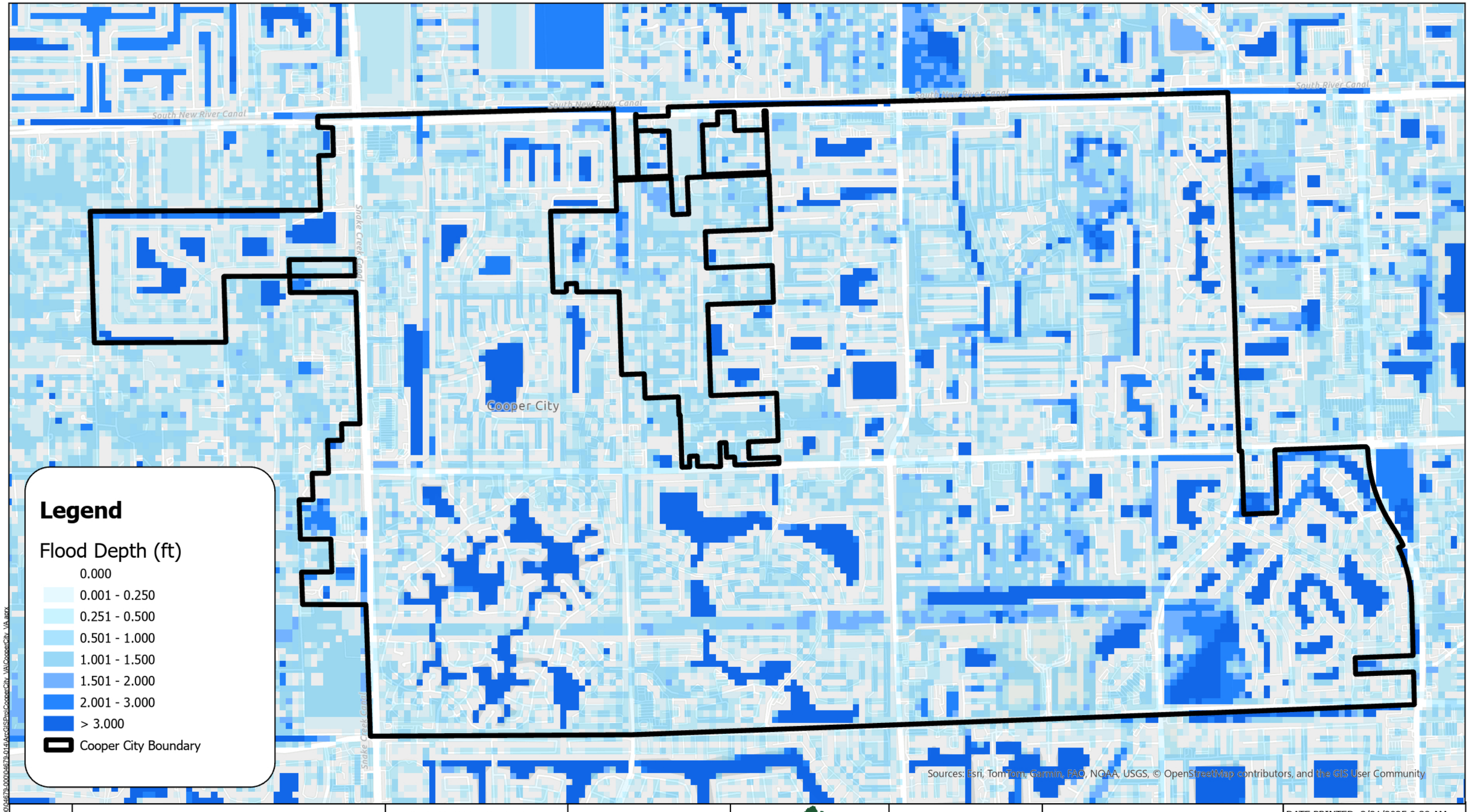

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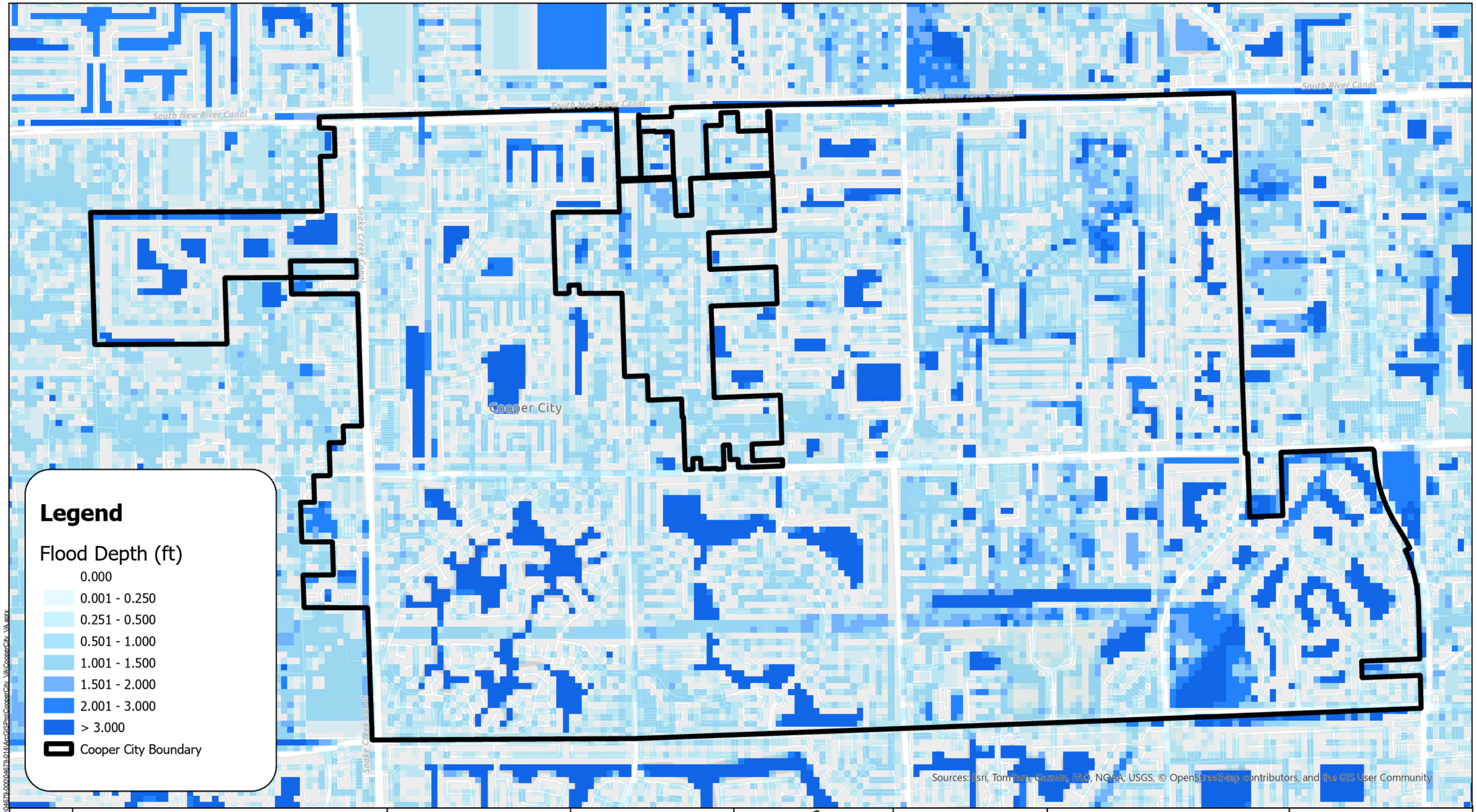
FLOODING VULNERABILITY ASSESSMENT

VA SCENARIO 18 FLOOD DEPTH MAP

100-YEAR 24-HOUR RAINFALL, NO SLR, CURRENT CONDITIONS, STORM SURGE

DATE PRINTED:	3/21/2025 9:38 AM
HAZEN NO.:	04679-014
CONTRACT NO.:	23PLN78
FIGURE NO:	6



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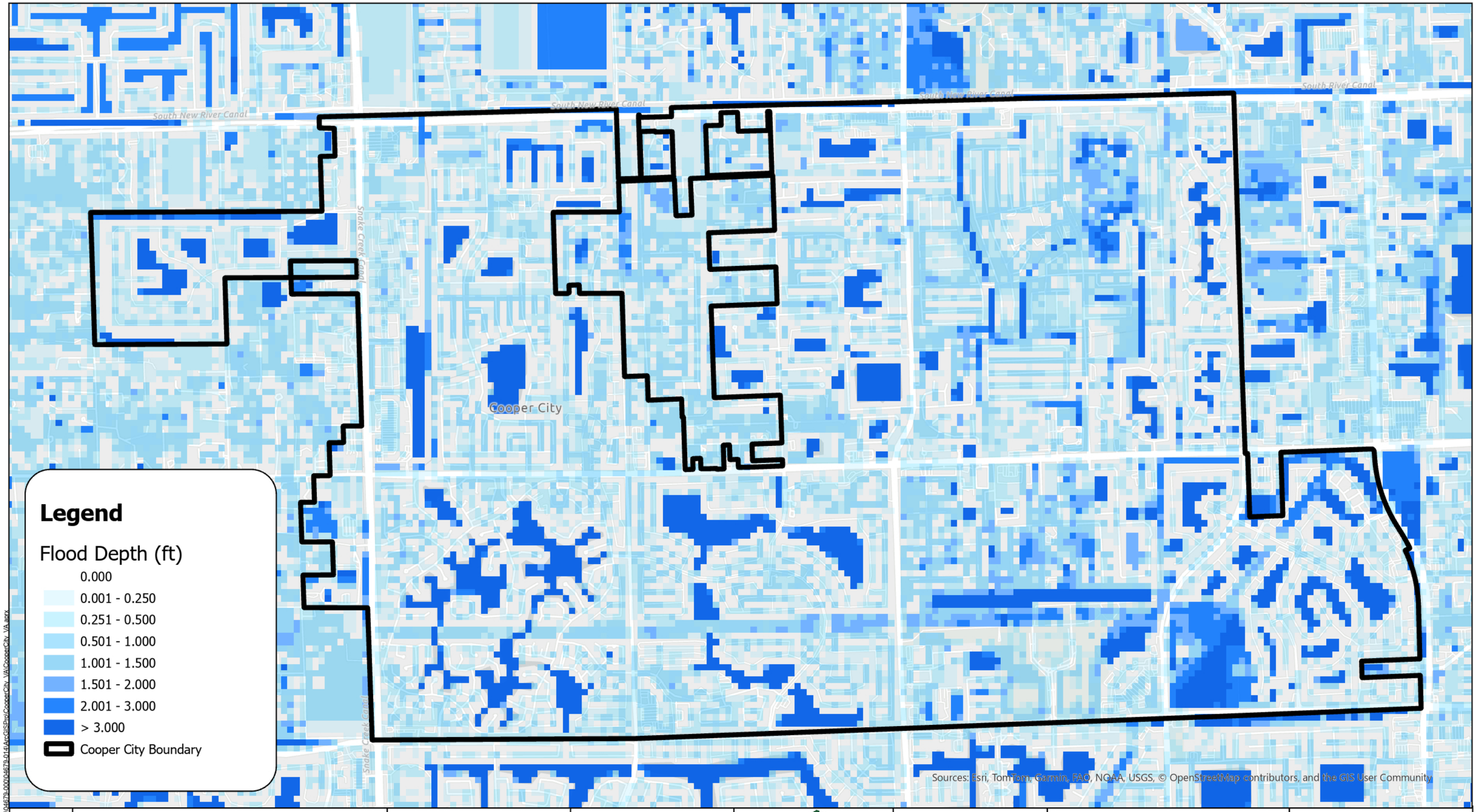
FLOODING VULNERABILITY ASSESSMENT

VA SCENARIO 21 FLOOD DEPTH MAP

100-YEAR 24-HOUR RAINFALL, 2017 NOAA INTERMEDIATE LOW, 2040, STORM SURGE

DATE PRINTED:	3/21/2025 9:38 AM
HAZEN NO.:	04679-014
CONTRACT NO.:	23PLN78
FIGURE NO:	7



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REFERENCE: INCLUDE REFERENCES IF APPLICABLE

PROJECT ENGINEER: E. GUBY	
DESIGNED BY: K. KAVANAGH	
DRAWN BY: K. KAVANAGH	
CHECKED BY: E. GUBY	

Hazen

CITY OF Cooper City Someplace Special

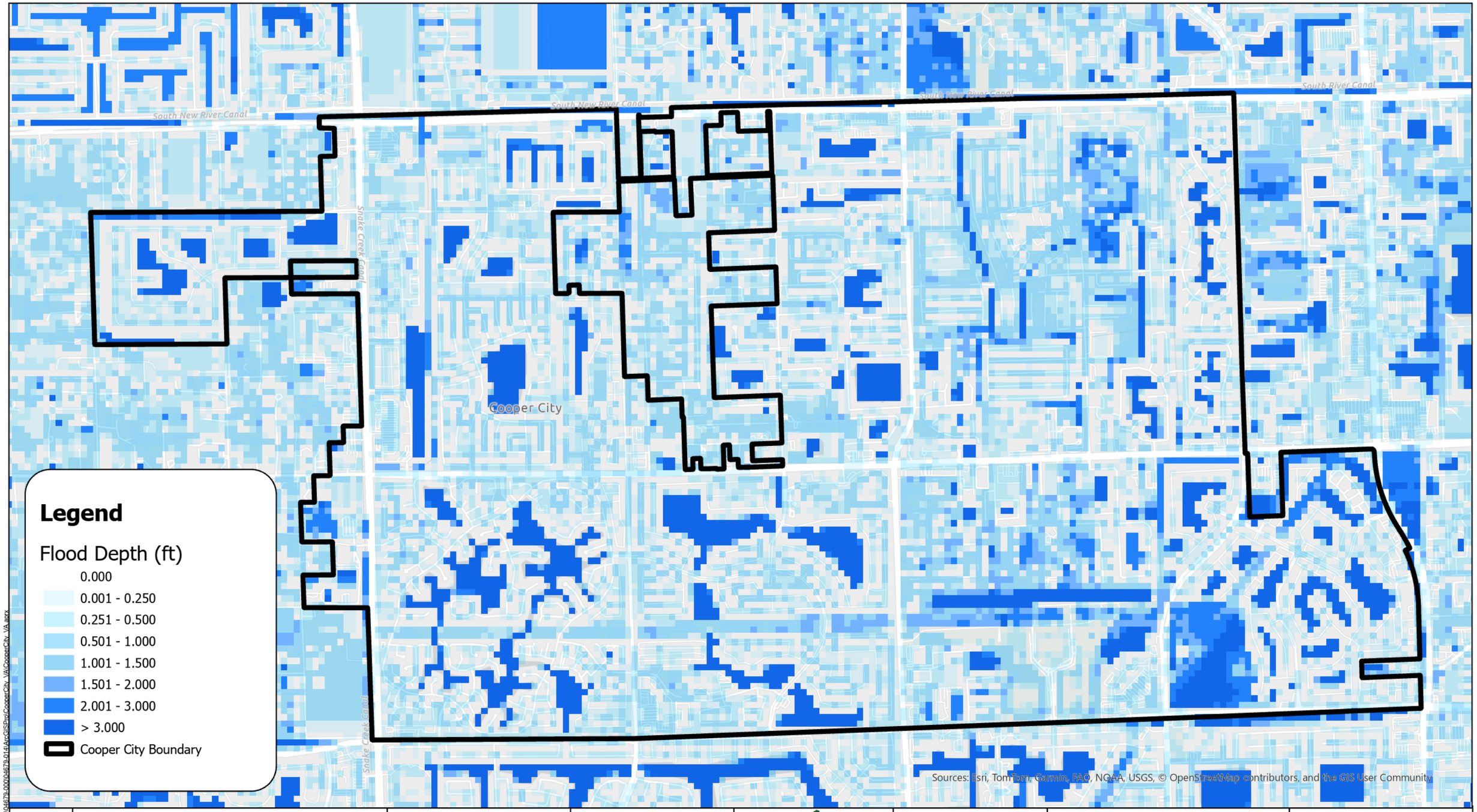
CITY OF COOPER CITY

FLOODING VULNERABILITY ASSESSMENT

VA SCENARIO 24 FLOOD DEPTH MAP

100-YEAR 24-HOUR RAINFALL, 2017 NOAA INTERMEDIATE HIGH, 2040, STORM SURGE

DATE PRINTED:	3/21/2025 9:38 AM
HAZEN NO.:	04679-014
CONTRACT NO.:	23PLN78
FIGURE NO:	8



PATH: O:\GIS\Projects\04679-000\04679-000\04679-014\ArcGISPro\CooperCity_VA\CooperCity_VA.aprx

N

0 0.25 0.5 1 Miles

REFERENCE: INCLUDE REFERENCES IF APPLICABLE

PROJECT ENGINEER: E. GUBY	
DESIGNED BY: K. KAVANAGH	
DRAWN BY: K. KAVANAGH	
CHECKED BY: E. GUBY	

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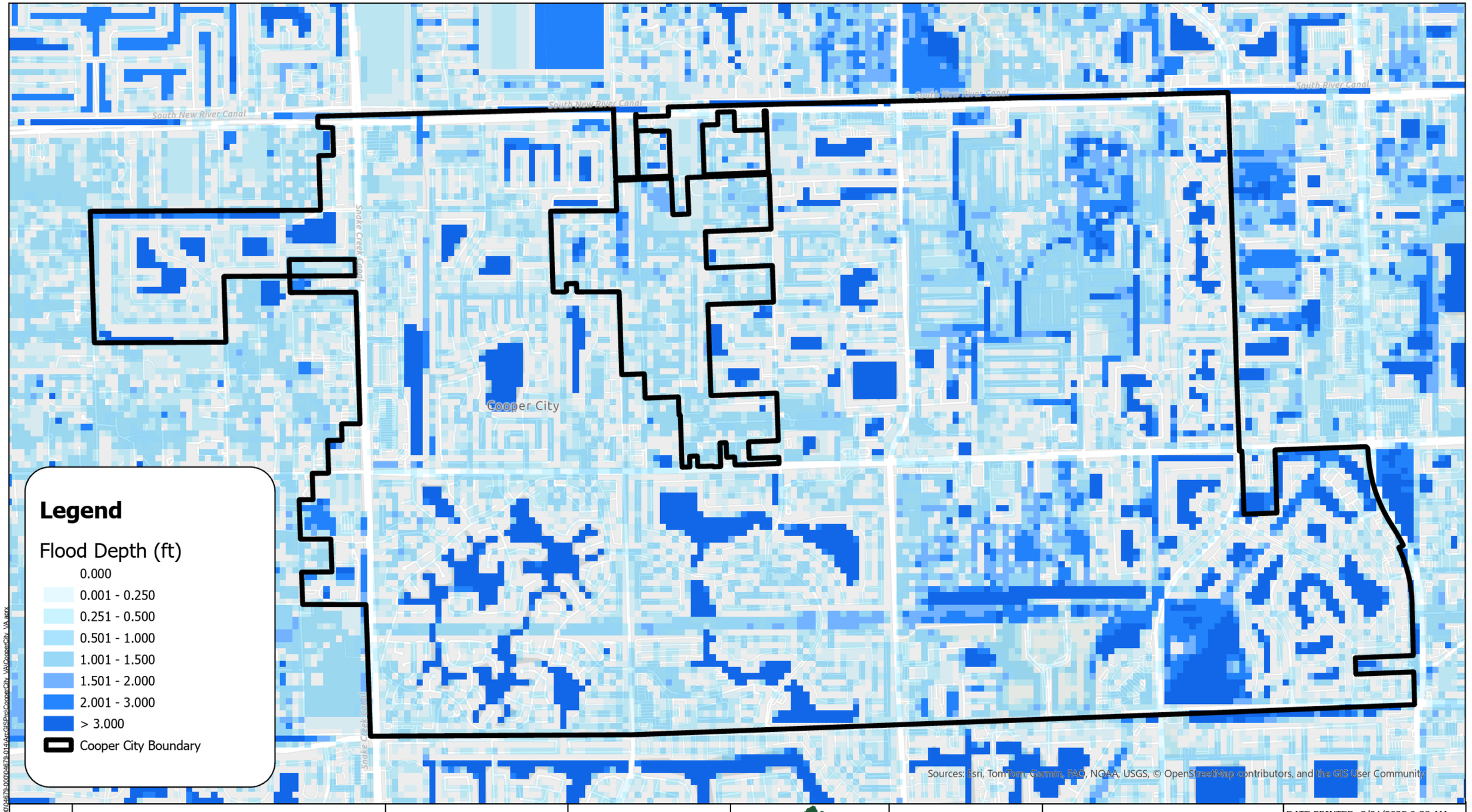
FLOODING VULNERABILITY ASSESSMENT

VA SCENARIO 27 FLOOD DEPTH MAP

100-YEAR 24-HOUR RAINFALL, 2017 NOAA INTERMEDIATE LOW, 2070, STORM SURGE

DATE PRINTED:	3/21/2025 9:38 AM
HAZEN NO.:	04679-014
CONTRACT NO.:	23PLN78
FIGURE NO:	9



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N

0 0.25 0.5 1 Miles

REFERENCE: INCLUDE REFERENCES IF APPLICABLE

PROJECT ENGINEER: E. GUBY	
DESIGNED BY: K. KAVANAGH	
DRAWN BY: K. KAVANAGH	
CHECKED BY: E. GUBY	

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FLOODING VULNERABILITY ASSESSMENT

VA SCENARIO 30 FLOOD DEPTH MAP

100-YEAR 24-HOUR RAINFALL, 2017 NOAA INTERMEDIATE HIGH, 2070, STORM SURGE

DATE PRINTED:	3/21/2025 9:38 AM
HAZEN NO.:	04679-014
CONTRACT NO.:	23PLN78
FIGURE NO:	10

Appendix D: Exposure Analysis Results

Appendix D
Exposure Analysis Results
Structure Flood Depths (ft-NAVD)

Critical Facilities - Structures Flood Depths (ft-NAVD)											
Asset Unique ID	Asset Name	Scenario 3	Scenario 6	Scenario 9	Scenario 12	Scenario 15	Scenario 18	Scenario 21	Scenario 24	Scenario 27	Scenario 30
191	2.0 MG Pine Island Water Storage Tank	-	-	-	-	-	-	-	-	-	-
192	0.5 MG Water Storage Tank	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26
193	1.0 MG Water Storage Tank	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
194	Pine Island Road Pump Station	-	-	-	-	-	-	-	-	-	-
195	AMI Base Station	-	-	-	-	-	-	-	-	-	-
200	Archbishop Edward A. McCarthy High School	-	-	-	-	-	-	-	-	-	-
201	Chabad of Southwest Broward	-	-	-	-	-	-	-	-	-	-
202	Cooper City Christian Academy	-	-	-	-	-	-	-	-	-	-
203	Cooper City Elementary School	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40
204	Cooper City High School	-	-	-	-	-	-	-	-	-	-
205	Embassy Creek Elementary School	-	-	-	-	-	-	-	-	-	-
206	Franklin Academy	-	-	-	-	-	-	-	-	-	-
207	Griffin Elementary School	-	-	-	-	-	-	-	-	-	-
208	Lycee Franco Americain	-	-	-	-	-	-	-	-	-	-
209	New Horizon United Methodist Church	-	-	-	-	-	-	-	-	-	-
210	Nur Ul Islam Academy	-	-	-	-	-	-	-	-	-	-
211	Pioneer Middle School	-	-	-	-	-	-	-	-	-	-
212	Potential Christian Academy	-	-	-	-	-	-	-	-	-	-
213	Renaissance Charter School at Cooper City	-	-	-	-	-	-	-	-	-	-
214	Schott Communities Group Home	-	-	-	-	-	-	-	-	-	-
215	St Mark Youth Ministry	-	-	-	-	-	-	-	-	-	-
216	Temple Beth Emet	-	-	-	-	-	-	-	-	-	-
217	Zucker Hebrew Academy of Hollywood	-	-	-	-	-	-	-	-	-	-
218	Cooper City Community Center	-	-	-	-	-	-	-	-	-	-
219	Cooper City Church of God	-	-	-	-	-	-	-	-	-	-
220	Cooper City WWTP Utilities Building	-	-	-	-	-	-	-	-	-	-
221	BSO Law Cooper City District 16	-	-	-	-	-	-	-	-	-	-
222	BSO Station 28	-	-	-	-	-	-	-	-	-	-
223	Cooper City City Hall	-	-	-	-	-	-	-	-	-	-0.42
224	Cooper City Public Works Department	-	-	-	-	-	-	-	-	-	-
225	Cooper City Tennis and Pool Center	-	-	-	-	-	-	-	-	-	-

Critical Facilities - Buildings		
Exposure Level	Exposure Score	Flood Depth (feet)
Severe	5	> 2.00
High	4	1.01 - 2.00
Medium	3	0.51 - 1.00
Low	2	0.01 - 0.50
Minimal	1	-0.50 - 0.00
None	0	< -0.50

Appendix D
Exposure Analysis Results
Parcels Flood Depth (Percentages)

Critical Facilities - Parcels Flood Depth (Percentages)																													
Asset Unique ID	Asset Name	Scenario 3						Scenario 6						Scenario 9						Scenario 12						Scenario 15					
		0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
		≤ 0'	0' - 0.5'	0.5' - 1'	1' - 1.5'	1.5' - 2'	> 2'	≤ 0'	0' - 0.5'	0.5' - 1'	1' - 1.5'	1.5' - 2'	> 2'	≤ 0'	0' - 0.5'	0.5' - 1'	1' - 1.5'	1.5' - 2'	> 2'	≤ 0'	0' - 0.5'	0.5' - 1'	1' - 1.5'	1.5' - 2'	> 2'	≤ 0'	0' - 0.5'	0.5' - 1'	1' - 1.5'	1.5' - 2'	> 2'
100	Cooper City Wastewater Treatment Plant	59%	13%	17%	6%	4%	2%	59%	13%	17%	6%	4%	2%	59%	13%	17%	6%	4%	2%	59%	13%	17%	6%	4%	2%	59%	13%	17%	6%	4%	2%
184	George A. Haughney Water Treatment Plant	9%	27%	35%	17%	3%	8%	9%	27%	35%	17%	3%	8%	9%	27%	35%	17%	3%	8%	9%	27%	35%	17%	3%	8%	9%	27%	35%	17%	3%	8%
196	Brian Piccolo Park	51%	12%	12%	13%	9%	3%	51%	12%	12%	13%	9%	3%	51%	12%	11%	12%	10%	4%	51%	12%	11%	12%	10%	4%	50%	12%	11%	11%	11%	6%
300	Bill Lips Sports Complex	40%	35%	24%	2%	-	-	40%	35%	24%	2%	-	-	40%	35%	24%	2%	-	-	40%	35%	24%	2%	-	-	40%	35%	24%	2%	-	-
301	Chase Park	-	10%	57%	29%	5%	-	-	10%	57%	29%	5%	-	-	10%	57%	29%	5%	-	-	10%	57%	29%	5%	-	-	10%	57%	29%	5%	-
302	Christie Schafale Park	46%	8%	18%	22%	5%	2%	45%	9%	17%	22%	5%	2%	45%	9%	16%	23%	5%	2%	45%	9%	16%	24%	5%	2%	39%	12%	17%	24%	5%	2%
303	Colony Park	37%	47%	16%	-	-	-	37%	47%	16%	-	-	-	37%	47%	16%	-	-	-	37%	47%	16%	-	-	-	32%	53%	16%	-	-	-
304	Cooper City Memorial Park/Tot Lot	74%	12%	7%	3%	2%	1%	74%	12%	7%	3%	2%	1%	74%	12%	7%	3%	2%	2%	74%	11%	8%	3%	2%	2%	71%	11%	10%	3%	2%	2%
306	Coopers Point Park	52%	4%	8%	16%	20%	-	52%	4%	8%	16%	20%	-	52%	4%	8%	16%	20%	-	52%	4%	8%	16%	20%	-	52%	4%	8%	16%	20%	-
307	Dawn Park	-	4%	63%	32%	-	-	-	4%	63%	32%	-	-	-	4%	63%	32%	-	-	-	4%	63%	32%	-	-	-	4%	63%	32%	-	-
308	Diamond Head Park	96%	2%	2%	1%	-	-	96%	2%	2%	1%	-	-	96%	2%	2%	1%	-	-	96%	2%	2%	1%	-	-	96%	2%	2%	1%	-	-
309	Ellie Kozak Park	55%	29%	12%	3%	-	-	55%	29%	12%	3%	-	-	55%	29%	12%	3%	-	-	55%	29%	12%	3%	-	-	55%	29%	12%	3%	-	-
310	Encore Park	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	94%	6%	-	-	-	-
311	Flamingo West Park	47%	25%	12%	1%	2%	13%	47%	25%	12%	1%	2%	13%	47%	25%	12%	1%	2%	13%	47%	25%	12%	1%	2%	13%	45%	25%	13%	1%	2%	13%
312	Forest Lake Park	24%	12%	38%	24%	1%	-	24%	12%	38%	24%	1%	-	24%	12%	38%	24%	1%	-	24%	12%	38%	24%	1%	-	24%	12%	38%	25%	1%	-
313	Homes Of Forest Lakes Park	17%	3%	33%	13%	33%	-	17%	3%	33%	13%	33%	-	17%	3%	33%	13%	33%	-	17%	3%	33%	13%	33%	-	17%	3%	33%	13%	33%	-
314	Jerry Morgan Park	83%	6%	8%	4%	-	-	81%	6%	8%	6%	-	-	81%	5%	8%	6%	-	-	80%	6%	8%	7%	-	-	80%	6%	7%	7%	-	-
315	Michael "City Mike" Riordan Park	88%	7%	5%	-	-	-	88%	7%	5%	-	-	-	88%	7%	5%	-	-	-	88%	7%	5%	-	-	-	88%	7%	5%	-	-	-
316	Natalie's Cove Park	35%	53%	10%	3%	-	-	35%	53%	10%	3%	-	-	35%	53%	10%	3%	-	-	35%	53%	10%	3%	-	-	35%	53%	10%	3%	-	-
317	Pine Lake Park	8%	22%	19%	32%	18%	-	8%	22%	19%	32%	18%	-	8%	21%	21%	32%	18%	-	8%	21%	21%	32%	18%	-	8%	19%	22%	32%	18%	-
318	Poinciana Park	29%	35%	22%	14%	-	-	29%	35%	22%	14%	-	-	29%	35%	22%	14%	-	-	29%	35%	22%	14%	-	-	29%	35%	22%	14%	-	-
319	Stirling Palm Park	28%	6%	29%	33%	2%	1%	28%	7%	31%	31%	2%	1%	28%	6%	30%	32%	2%	1%	28%	6%	30%	32%	2%	1%	21%	7%	33%	35%	2%	1%
320	Suellen H. Fardelmann Sports Complex	56%	16%	18%	9%	1%	-	56%	16%	19%	9%	1%	-	56%	16%	19%	8%	1%	-	56%	16%	19%	8%	1%	-	56%	16%	18%	9%	1%	-
321	Tamarind Park	93%	4%	2%	-	-	-	93%	4%	2%	-	-	-	93%	4%	2%	-	-	-	93%	4%	2%	-	-	-	93%	4%	2%	-	-	-
322	Ted Ferone Park	61%	4%	25%	9%	-	-	61%	4%	25%	9%	-	-	61%	4%	25%	9%	-	-	61%	4%	25%	9%	-	-	61%	4%	25%	9%	-	-
323	Pioneer Middle School Park	65%	11%	21%	3%	-	-	63%	10%	23%	3%	-	-	60%	11%	25%	3%	-	-	60%	11%	25%	4%	-	-	56%	8%	26%	9%	1%	-

Critical Facilities - Parcels		
Exposure Value	Exposure Score	Flood Depth (feet)
Severe	5	> 2.00
High	4	1.51 - 2.00
Medium	3	1.01 – 1.50
Low	2	0.51 – 1.00
Minimal	1	0.01 - 0.50
None	0	≤ 0.00

Appendix D
Exposure Analysis Results
Parcels Flood Depth (Percentages)

Critical Facilities - Parcels Flood Depth (Percentages)																													
Asset Unique ID	Asset Name	Scenario 18						Scenario 21						Scenario 24						Scenario 27						Scenario 30					
		0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
		≤ 0'	0' - 0.5'	0.5' - 1'	1' - 1.5'	1.5' - 2'	> 2'	≤ 0'	0' - 0.5'	0.5' - 1'	1' - 1.5'	1.5' - 2'	> 2'	≤ 0'	0' - 0.5'	0.5' - 1'	1' - 1.5'	1.5' - 2'	> 2'	≤ 0'	0' - 0.5'	0.5' - 1'	1' - 1.5'	1.5' - 2'	> 2'	≤ 0'	0' - 0.5'	0.5' - 1'	1' - 1.5'	1.5' - 2'	> 2'
100	Cooper City Wastewater Treatment Plant	59%	13%	17%	6%	4%	2%	59%	13%	17%	6%	4%	2%	59%	13%	17%	6%	4%	2%	59%	13%	17%	6%	4%	2%	59%	13%	17%	6%	4%	2%
184	George A. Haughney Water Treatment Plant	9%	27%	35%	17%	3%	8%	9%	27%	35%	17%	3%	8%	9%	27%	35%	17%	3%	8%	9%	27%	35%	17%	3%	8%	9%	27%	35%	17%	3%	8%
196	Brian Piccolo Park	50%	12%	11%	11%	11%	6%	50%	12%	11%	11%	10%	7%	50%	12%	10%	10%	10%	8%	49%	12%	10%	10%	10%	8%	45%	12%	12%	8%	9%	14%
300	Bill Lips Sports Complex	40%	35%	24%	2%	-	-	40%	35%	24%	2%	-	-	40%	35%	24%	2%	-	-	40%	35%	24%	2%	-	-	40%	35%	24%	2%	-	-
301	Chase Park	-	10%	57%	29%	5%	-	-	10%	57%	29%	5%	-	-	10%	57%	29%	5%	-	-	10%	57%	29%	5%	-	-	10%	52%	33%	5%	-
302	Christie Schafale Park	39%	11%	18%	24%	6%	2%	38%	11%	19%	24%	6%	2%	30%	15%	21%	25%	7%	2%	22%	20%	21%	26%	9%	2%	9%	8%	20%	25%	29%	9%
303	Colony Park	37%	47%	16%	-	-	-	32%	53%	16%	-	-	-	26%	42%	32%	-	-	-	26%	37%	37%	-	-	-	-	32%	53%	16%	-	-
304	Cooper City Memorial Park/Tot Lot	71%	11%	10%	3%	2%	2%	71%	11%	10%	3%	2%	3%	71%	10%	11%	4%	2%	3%	70%	11%	10%	3%	2%	3%	61%	9%	14%	7%	4%	4%
306	Coopers Point Park	52%	4%	8%	16%	20%	-	52%	4%	8%	16%	20%	-	52%	4%	8%	16%	20%	-	52%	4%	8%	16%	20%	-	52%	4%	8%	16%	20%	-
307	Dawn Park	-	4%	63%	32%	-	-	-	4%	63%	32%	-	-	-	4%	63%	32%	-	-	-	4%	63%	32%	-	-	-	4%	63%	32%	-	-
308	Diamond Head Park	96%	2%	2%	1%	-	-	96%	2%	2%	1%	-	-	96%	2%	2%	1%	-	-	96%	2%	2%	1%	-	-	96%	2%	2%	1%	-	-
309	Ellie Kozak Park	55%	29%	12%	3%	-	-	55%	29%	12%	3%	-	-	55%	29%	12%	3%	-	-	55%	29%	12%	3%	-	-	55%	29%	12%	3%	-	-
310	Encore Park	91%	9%	-	-	-	-	88%	12%	-	-	-	-	82%	15%	3%	-	-	-	79%	15%	6%	-	-	-	76%	6%	18%	-	-	-
311	Flamingo West Park	47%	25%	12%	1%	2%	13%	47%	25%	12%	1%	2%	13%	46%	25%	12%	1%	2%	14%	47%	25%	12%	1%	2%	13%	46%	25%	13%	1%	2%	13%
312	Forest Lake Park	24%	12%	38%	24%	1%	-	24%	12%	38%	24%	1%	-	24%	12%	38%	24%	1%	-	24%	12%	38%	24%	1%	-	24%	12%	38%	25%	1%	-
313	Homes Of Forest Lakes Park	17%	3%	33%	13%	33%	-	17%	3%	33%	13%	33%	-	17%	3%	33%	13%	33%	-	17%	3%	33%	13%	33%	-	17%	3%	33%	13%	33%	-
314	Jerry Morgan Park	80%	6%	7%	7%	-	-	77%	6%	8%	8%	1%	-	77%	7%	8%	7%	2%	-	77%	6%	8%	8%	2%	-	75%	6%	9%	6%	4%	-
315	Michael "City Mike" Riordan Park	88%	7%	5%	-	-	-	88%	7%	5%	-	-	-	88%	7%	5%	-	-	-	88%	7%	5%	-	-	-	88%	7%	5%	-	-	-
316	Natalie's Cove Park	35%	53%	10%	3%	-	-	35%	53%	10%	3%	-	-	35%	53%	10%	3%	-	-	35%	53%	10%	3%	-	-	35%	53%	10%	3%	-	-
317	Pine Lake Park	8%	22%	19%	32%	18%	-	8%	21%	21%	32%	18%	-	8%	21%	21%	32%	18%	-	8%	21%	21%	32%	18%	-	8%	21%	21%	32%	18%	-
318	Poinciana Park	29%	35%	22%	14%	-	-	29%	35%	22%	14%	-	-	29%	35%	22%	14%	-	-	29%	35%	22%	14%	-	-	29%	35%	22%	14%	-	-
319	Stirling Palm Park	28%	7%	31%	31%	2%	1%	28%	7%	29%	32%	2%	1%	28%	6%	29%	33%	2%	1%	28%	6%	29%	33%	2%	1%	14%	8%	31%	43%	2%	1%
320	Suellen H. Fardelmann Sports Complex	56%	16%	18%	9%	1%	-	56%	16%	19%	8%	1%	-	56%	16%	19%	8%	1%	-	56%	16%	19%	8%	1%	-	56%	16%	19%	9%	1%	-
321	Tamarind Park	93%	4%	2%	-	-	-	93%	4%	2%	-	-	-	93%	4%	2%	-	-	-	93%	4%	2%	-	-	-	93%	4%	2%	-	-	-
322	Ted Ferone Park	61%	4%	25%	9%	-	-	61%	4%	25%	9%	-	-	61%	4%	25%	9%	-	-	61%	4%	25%	9%	-	-	61%	4%	25%	9%	-	-
323	Pioneer Middle School Park	54%	8%	26%	11%	1%	-	54%	8%	23%	14%	1%	-	53%	7%	21%	18%	2%	-	51%	7%	18%	21%	2%	-	48%	4%	12%	25%	10%	1%

Critical Facilities - Parcels		
Exposure Value	Exposure Score	Flood Depth (feet)
Severe	5	> 2.00
High	4	1.51 - 2.00
Medium	3	1.01 – 1.50
Low	2	0.51 – 1.00
Minimal	1	0.01 - 0.50
None	0	≤ 0.00

Appendix D
Exposure Analysis Results
Lift Stations and Raw Water Wells Flood Depths (ft-NAVD)

Lift Stations and Raw Water Wells Flood Depths (ft-NAVD)											
Asset Unique ID	Asset Name	Scenario 3	Scenario 6	Scenario 9	Scenario 12	Scenario 15	Scenario 18	Scenario 21	Scenario 24	Scenario 27	Scenario 30
101	LS-01	0.60	0.27	0.27	0.18	0.18	0.20	0.09	0.09	0.06	0.09
102	LS-02	-	-	-	-	-	-	-	-	-	0.03
103	LS-03	0.60	0.27	0.27	0.18	0.18	0.20	0.09	0.09	0.06	0.09
104	LS-04	0.30	0.14	0.14	0.09	0.09	0.10	0.05	0.05	0.03	0.03
105	LS-05	-	-	-	-	-	-	-	-	-	-
106	LS-06	-	-	-	-	-	-	-	-	-	-
107	LS-07	-	-	-	-	-	-	-	-	-	-
108	LS-08	-	-	-	-	-	-	-	-	-	-
109	LS-09	0.30	0.14	0.14	0.09	0.09	0.10	0.05	0.05	0.03	0.03
110	LS-10	-	-	-	-	-	-	-	-	-	-
111	LS-11	-	-	-	-	-	-	-	-	-	-
112	LS-12	-	-	-	-	-	-	-	-	-	-
113	LS-13	-	-	-	-	-	-	-	-	-	-
114	LS-14	-	-	-	-	-	-	-	-	-	-
115	LS-15	0.60	0.27	0.27	0.18	0.18	0.20	0.09	0.09	0.06	0.06
116	LS-16	0.60	0.27	0.27	0.18	0.18	0.20	0.09	0.09	0.06	0.06
117	LS-17	0.90	0.41	0.41	0.27	0.27	0.30	0.14	0.14	0.09	0.09
118	LS-18	-	-	-	-	-	-	-	-	-	-
119	LS-19	0.60	0.27	0.27	0.18	0.18	0.20	0.09	0.09	0.06	0.06
120	LS-20	-	-	-	-	-	-	-	-	-	-
121	LS-21	0.30	0.14	0.14	0.09	0.09	0.10	0.05	0.05	0.03	0.03
122	LS-22	-	-	-	-	-	-	-	-	-	-
123	LS-23	0.30	0.14	0.14	0.09	0.09	0.10	0.05	0.05	0.03	0.03
124	LS-24	0.90	0.41	0.41	0.27	0.27	0.30	0.14	0.14	0.09	0.09
125	LS-25	0.60	0.27	0.27	0.18	0.18	0.20	0.09	0.09	0.06	0.06
126	LS-26	0.60	0.27	0.27	0.18	0.18	0.20	0.09	0.09	0.06	0.06
127	LS-27	-	-	-	-	-	-	-	-	-	-
128	LS-28	-	-	-	-	-	-	-	-	-	-
129	LS-29	0.30	0.14	0.14	0.09	0.09	0.10	0.05	0.05	0.03	0.03
130	LS-30	-	-	-	-	-	-	-	-	-	-
131	LS-31	0.90	0.41	0.41	0.27	0.27	0.30	0.14	0.14	0.09	0.09
132	LS-32	0.60	0.27	0.27	0.18	0.18	0.20	0.09	0.09	0.06	0.06
133	LS-33	-	-	-	-	-	-	-	-	-	-
134	LS-34	-	-	-	-	-	-	-	-	-	-
135	LS-35	-	-	-	-	-	-	-	-	-	-
136	LS-36	0.30	0.14	0.14	0.09	0.09	0.10	0.05	0.05	0.03	0.03
137	LS-37	-	-	-	-	-	-	-	-	-	-
138	LS-38	-	-	-	-	-	-	-	-	-	-
139	LS-39	0.60	0.27	0.27	0.18	0.18	0.20	0.09	0.09	0.06	0.06
140	LS-40	0.60	0.27	0.27	0.18	0.18	0.20	0.09	0.09	0.06	0.06
141	LS-41	-	-	-	-	-	-	-	-	-	-
142	LS-42	-	-	-	-	-	-	-	-	-	-
143	LS-43	-	-	-	-	-	-	-	-	-	-
144	LS-44	1.20	0.54	0.54	0.36	0.36	0.40	0.18	0.18	0.12	0.12
145	LS-45	-	-	-	-	-	-	-	-	-	-
146	LS-46	0.30	0.14	0.14	0.09	0.09	0.10	0.05	0.05	0.03	0.03
147	LS-47	-	-	-	-	-	-	-	-	-	-
148	LS-48	0.60	0.27	0.27	0.18	0.18	0.20	0.09	0.09	0.06	0.06
149	LS-49	-	-	-	-	-	-	-	-	-	0.06
150	LS-50	-	-	-	-	-	-	-	-	-	0.09
151	LS-51	-	-	-	-	-	-	-	-	-	0.03
152	LS-52	-	-	-	-	-	-	-	-	-	-
153	LS-53	-	-	-	-	-	-	-	-	-	-
154	LS-54	-	-	-	-	-	-	-	-	-	-
155	LS-55	0.30	0.14	0.14	0.09	0.18	0.20	0.09	0.09	0.06	0.09
156	LS-56	-	-	-	-	-	-	-	-	-	0.06
157	LS-57	-	-	-	-	-	-	-	-	-	-
158	LS-58	-	-	-	-	-	-	-	-	-	-
159	LS-59	-	-	-	-	-	-	-	-	-	-
160	LS-60	0.30	0.14	0.14	0.09	0.09	0.10	0.05	0.05	0.03	0.03
161	LS-61	-	-	-	-	-	-	-	-	-	-
162	LS-62	-	-	-	-	-	-	-	-	-	-
163	LS-63	-	-	-	-	-	-	-	-	-	-
164	LS-64	-	-	-	-	-	-	-	-	-	0.03
165	LS-65	-	-	-	-	-	-	-	-	-	-
166	LS-66	-	-	-	-	-	-	-	-	-	-
167	LS-67	-	-	-	-	-	-	-	-	-	-
168	LS-68	-	-	-	-	-	-	-	-	-	-
169	LS-69	-	-	-	-	-	-	-	-	-	-
170	LS-70	-	-	-	-	-	-	-	-	-	-
171	LS-71	-	-	-	-	-	-	-	-	-	-
172	LS-72	-	-	-	-	-	-	-	-	-	-
173	LS-73	-	-	-	-	-	-	-	-	-	-
174	LS-74	-	-	-	-	-	-	-	-	-	-
175	LS-75	-	-	-	-	-	-	-	-	-	-
176	LS-76	-	-	-	-	-	-	-	-	-	-
177	LS-77	-	-	-	-	-	-	-	-	-	-
178	LS-78	-	-	-	-	-	-	-	-	-	-
179	LS-79	0.30	0.14	0.14	0.09	0.09	0.10	0.05	0.05	0.03	0.03
180	LS-80	-	-	-	-	-	-	-	-	-	-
181	LS-81	-	-	-	-	-	-	-	-	-	-
182	LS-82	-	-	-	-	-	-	-	-	-	0.06
183	LS-83	0.90	0.54	0.54	0.36	0.36	0.40	0.18	0.18	0.12	0.15
185	Raw Water Well No. 4	-	-	-	-	-	-	-	-	-	-
186	Raw Water Well No. 5	0.60	0.27	0.27	0.18	0.18	0.20	0.09	0.09	0.06	0.06
187	Raw Water Well No. 6	0.30	0.14	0.14	0.09	0.09	0.10	0.05	0.05	0.03	0.03
188	Raw Water Well No. 7	0.30	0.14	0.14	0.09	0.09	0.10	0.05	0.05	0.03	0.03
189	Raw Water Well No. 8	0.90	0.41	0.41	0.27	0.27	0.30	0.14	0.14	0.09	0.09
190	Raw Water Well No. 9	-	-	-	-	-	-	-	-	-	-

Lift Stations		
Exposure Value	Exposure Score	Flood Depth (feet)
Severe	5	> 3.00
High	4	2.01 - 3.00
Medium	3	1.01 - 2.00
Low	2	0.51 - 1.00
Minimal	1	0.01 - 0.50
None	0	≤ 0.00

Appendix D
Exposure Analysis Results
Roadways Flood Depth (Percentages)

Roadways Flood Depth (Percentages)																							
Asset Unique ID	Asset Name	Roadway To	Roadway From	Scenario 3				Scenario 6				Scenario 9				Scenario 12				Scenario 15			
				0	1	3	5	0	1	3	5	0	1	3	5	0	1	3	5	0	1	3	5
				≤ 0"	0" - 3"	3" - 6"	>6"	≤ 0"	0" - 3"	3" - 6"	>6"	≤ 0"	0" - 3"	3" - 6"	>6"	≤ 0"	0" - 3"	3" - 6"	>6"	≤ 0"	0" - 3"	3" - 6"	>6"
400	Cherry Rd/SW 106th Ave	Griffin Rd	Stirling Rd/SW 60th St	98%	2%	-	-	98%	2%	-	-	98%	2%	-	-	98%	2%	-	-	97%	3%	-	-
401A	Griffin Rd	S Flamingo Rd/SW 124th Ave	SW 118th Ave	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
401B	Griffin Rd	SW 118th Ave	SW 100th Ave	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
401C	Griffin Rd	SW 100th Ave	S Pine Island Rd	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
402A	S Hiatus Rd	SW 55th St	Stirling Rd/SW 60th St	77%	3%	10%	10%	77%	3%	10%	10%	77%	3%	10%	10%	77%	3%	10%	10%	77%	3%	10%	10%
402B	N Hiatus Rd	Stirling Rd/SW 60th St	Sheridan St	49%	11%	35%	5%	49%	11%	35%	5%	49%	11%	35%	5%	49%	11%	35%	5%	49%	11%	35%	5%
403	N University Dr	Stirling Rd/SW 60th St	Sheridan St	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
404	NW 101st Ave/N Palm Ave	Stirling Rd/SW 60th St	Sheridan St	87%	5%	5%	2%	87%	5%	5%	2%	87%	5%	5%	2%	87%	5%	5%	2%	87%	5%	5%	2%
405A	S Flamingo Rd/SW 124th Ave	Griffin Rd	Stirling Rd/SW 60th St	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
405B	S Flamingo Rd/SW 124th Ave	Stirling Rd/SW 60th St	Sheridan St	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
406A	S Pine Island Rd	Griffin Rd	Stirling Rd/SW 60th St	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-
406B	S Pine Island Rd	Stirling Rd/SW 60th St	Sheridan St	93%	4%	-	3%	93%	4%	-	3%	93%	4%	-	3%	93%	4%	-	3%	93%	4%	-	3%
407A	Sheridan St	S Flamingo Rd/SW 124th Ave	N Hiatus Rd	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
407B	Sheridan St	N Hiatus Rd	NW 101st Ave/N Palm Ave	94%	4%	1%	1%	94%	4%	1%	1%	94%	4%	1%	1%	94%	4%	1%	1%	94%	4%	1%	1%
407C	Sheridan St	NW 101st Ave/N Palm Ave	S Pine Island Rd	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
407D	Sheridan St	S Pine Island Rd	N University Dr	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-
408A	Stirling Rd/SW 60th St	S Flamingo Rd/SW 124th Ave	N Hiatus Rd	73%	24%	4%	-	73%	24%	4%	-	73%	24%	4%	-	73%	24%	4%	-	73%	24%	4%	-
408B	Stirling Rd/SW 60th St	N Hiatus Rd	NW 101st Ave/N Palm Ave	92%	4%	4%	1%	92%	4%	4%	1%	92%	4%	4%	1%	92%	4%	4%	1%	92%	4%	4%	1%
408C	Stirling Rd/SW 60th St	NW 101st Ave/N Palm Ave	S Pine Island Rd	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-
408D	Stirling Rd/SW 60th St	S Pine Island Rd	N University Dr	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
409	SW 100th Ave	Griffin Rd	Stirling Rd/SW 60th St	97%	2%	2%	-	97%	2%	2%	-	97%	2%	2%	-	97%	2%	2%	-	97%	2%	2%	-
410	SW 118th Ave	Griffin Rd	Stirling Rd/SW 60th St	50%	4%	17%	30%	50%	4%	17%	30%	50%	4%	17%	30%	50%	4%	17%	30%	50%	4%	17%	30%
411	SW 49th St	S Flamingo Rd/SW 124th Ave	SW 49th St	49%	17%	25%	8%	49%	17%	25%	8%	49%	17%	25%	8%	49%	17%	25%	8%	49%	17%	25%	8%
412	SW 57th St	SW 100th Ave	SW 99th Ln	67%	-	33%	-	67%	-	33%	-	67%	-	33%	-	67%	-	33%	-	67%	-	33%	-
413	SW 59th St	SW 99th Ln	SW 59th St	19%	6%	6%	69%	19%	6%	6%	69%	19%	6%	6%	69%	19%	6%	6%	69%	19%	6%	6%	69%
414	SW 90th Ave/Cooper Blvd	Griffin Rd	Stirling Rd/SW 60th St	26%	5%	25%	44%	26%	5%	24%	45%	26%	5%	24%	45%	25%	5%	24%	46%	23%	4%	17%	56%
415	SW 97th Ter	SW 97th Ter	SW 59th St	-	-	14%	86%	-	-	14%	86%	-	-	14%	86%	-	-	14%	86%	-	-	14%	86%
416	SW 99th Ln	SW 57th St	SW 59th St	8%	-	-	92%	8%	-	-	92%	8%	-	-	92%	8%	-	-	92%	8%	-	-	92%
417	W Lake Blvd	S Flamingo Rd/SW 124th Ave	Stonebridge Pkwy	34%	6%	16%	44%	34%	6%	16%	44%	34%	6%	16%	44%	34%	6%	16%	44%	34%	6%	16%	44%

Roadways		
Exposure Level	Exposure Score	Flood Depth (inches)
High	5	> 6.00
Medium	3	3.01 - 6.00
Low	1	0.01 - 3.00
None	0	≤ 0.00

Appendix D
Exposure Analysis Results
Roadways Flood Depth (Percentages)

Roadways Flood Depth (Percentages)																							
Asset Unique ID	Asset Name	Roadway To	Roadway From	Scenario 18				Scenario 21				Scenario 24				Scenario 27				Scenario 30			
				0	1	3	5	0	1	3	5	0	1	3	5	0	1	3	5	0	1	3	5
				≤ 0"	0" - 3"	3" - 6"	>6"	≤ 0"	0" - 3"	3" - 6"	>6"	≤ 0"	0" - 3"	3" - 6"	>6"	≤ 0"	0" - 3"	3" - 6"	>6"	≤ 0"	0" - 3"	3" - 6"	>6"
400	Cherry Rd/SW 106th Ave	Griffin Rd	Stirling Rd/SW 60th St	98%	2%	-	-	98%	2%	-	-	98%	2%	-	-	98%	2%	-	-	97%	3%	-	-
401A	Griffin Rd	S Flamingo Rd/SW 124th Ave	SW 118th Ave	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
401B	Griffin Rd	SW 118th Ave	SW 100th Ave	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
401C	Griffin Rd	SW 100th Ave	S Pine Island Rd	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
402A	S Hiatus Rd	SW 55th St	Stirling Rd/SW 60th St	77%	3%	10%	10%	77%	3%	10%	10%	77%	3%	10%	10%	77%	3%	10%	10%	74%	5%	10%	11%
402B	N Hiatus Rd	Stirling Rd/SW 60th St	Sheridan St	49%	11%	35%	5%	49%	11%	35%	5%	49%	11%	35%	5%	49%	11%	35%	5%	49%	11%	35%	5%
403	N University Dr	Stirling Rd/SW 60th St	Sheridan St	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
404	NW 101st Ave/N Palm Ave	Stirling Rd/SW 60th St	Sheridan St	87%	5%	5%	2%	87%	5%	5%	2%	87%	5%	5%	2%	87%	5%	5%	2%	87%	5%	5%	2%
405A	S Flamingo Rd/SW 124th Ave	Griffin Rd	Stirling Rd/SW 60th St	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
405B	S Flamingo Rd/SW 124th Ave	Stirling Rd/SW 60th St	Sheridan St	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
406A	S Pine Island Rd	Griffin Rd	Stirling Rd/SW 60th St	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-
406B	S Pine Island Rd	Stirling Rd/SW 60th St	Sheridan St	93%	4%	-	3%	93%	4%	-	3%	93%	4%	-	3%	93%	4%	-	3%	93%	4%	-	3%
407A	Sheridan St	S Flamingo Rd/SW 124th Ave	N Hiatus Rd	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
407B	Sheridan St	N Hiatus Rd	NW 101st Ave/N Palm Ave	94%	4%	1%	1%	94%	4%	1%	1%	94%	4%	1%	1%	94%	4%	1%	1%	94%	4%	1%	1%
407C	Sheridan St	NW 101st Ave/N Palm Ave	S Pine Island Rd	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
407D	Sheridan St	S Pine Island Rd	N University Dr	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-
408A	Stirling Rd/SW 60th St	S Flamingo Rd/SW 124th Ave	N Hiatus Rd	73%	24%	4%	-	73%	24%	4%	-	73%	24%	4%	-	73%	24%	4%	-	73%	24%	4%	-
408B	Stirling Rd/SW 60th St	N Hiatus Rd	NW 101st Ave/N Palm Ave	92%	4%	4%	1%	92%	4%	4%	1%	92%	4%	4%	1%	92%	4%	4%	1%	92%	4%	4%	1%
408C	Stirling Rd/SW 60th St	NW 101st Ave/N Palm Ave	S Pine Island Rd	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-	99%	1%	-	-
408D	Stirling Rd/SW 60th St	S Pine Island Rd	N University Dr	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-	100%	-	-	-
409	SW 100th Ave	Griffin Rd	Stirling Rd/SW 60th St	97%	2%	2%	-	97%	2%	2%	-	97%	2%	2%	-	97%	2%	2%	-	97%	2%	2%	-
410	SW 118th Ave	Griffin Rd	Stirling Rd/SW 60th St	50%	4%	17%	30%	50%	4%	17%	30%	50%	4%	17%	30%	50%	4%	17%	30%	50%	4%	17%	30%
411	SW 49th St	S Flamingo Rd/SW 124th Ave	SW 49th St	49%	17%	25%	8%	49%	17%	25%	8%	49%	17%	25%	8%	49%	17%	25%	8%	49%	17%	25%	8%
412	SW 57th St	SW 100th Ave	SW 99th Ln	67%	-	33%	-	67%	-	33%	-	67%	-	33%	-	67%	-	33%	-	67%	-	33%	-
413	SW 59th St	SW 99th Ln	SW 59th St	19%	6%	6%	69%	19%	6%	6%	69%	19%	6%	6%	69%	19%	6%	6%	69%	19%	6%	6%	69%
414	SW 90th Ave/Cooper Blvd	Griffin Rd	Stirling Rd/SW 60th St	23%	4%	18%	55%	23%	4%	17%	56%	23%	3%	16%	58%	23%	3%	13%	60%	23%	3%	2%	71%
415	SW 97th Ter	SW 97th Ter	SW 59th St	-	-	14%	86%	-	-	14%	86%	-	-	14%	86%	-	-	14%	86%	-	-	14%	86%
416	SW 99th Ln	SW 57th St	SW 59th St	8%	-	-	92%	8%	-	-	92%	8%	-	-	92%	8%	-	-	92%	8%	-	-	92%
417	W Lake Blvd	S Flamingo Rd/SW 124th Ave	Stonebridge Pkwy	34%	6%	16%	44%	34%	6%	16%	44%	34%	6%	16%	44%	34%	6%	16%	44%	34%	6%	16%	44%

Roadways		
Exposure Level	Exposure Score	Flood Depth (inches)
High	5	> 6.00
Medium	3	3.01 - 6.00
Low	1	0.01 - 3.00
None	0	≤ 0.00

Appendix E: Criticality Factor Assignment

Appendix E
Criticality Factors
Roadways

Roadways						
AssetUniqueID	AssetName	Roadway Classification	Roadway Classification Factor (50%)	Roadway Importance	Roadway Importance Factor (50%)	Total
400	Cherry Rd/SW 106th Ave	Local	1.00	None	1.00	1.00
401A	Griffin Rd	Principal Arterial	5.00	None	1.00	3.00
401B	Griffin Rd	Principal Arterial	5.00	None	1.00	3.00
401C	Griffin Rd	Principal Arterial	5.00	None	1.00	3.00
402A	S Hiatus Rd	Local	1.00	None	1.00	1.00
402B	N Hiatus Rd	Major Collector	3.00	None	1.00	2.00
403	N University Dr	Principal Arterial	5.00	None	1.00	3.00
404	NW 101st Ave/N Palm Ave	Minor Arterial	4.00	None	1.00	2.50
405A	S Flamingo Rd/SW 124th Ave	Principal Arterial	5.00	None	1.00	3.00
405B	S Flamingo Rd/SW 124th Ave	Principal Arterial	5.00	None	1.00	3.00
406A	S Pine Island Rd	Minor Arterial	4.00	None	1.00	2.50
406B	S Pine Island Rd	Minor Arterial	4.00	None	1.00	2.50
407A	Sheridan St	Principal Arterial	5.00	None	1.00	3.00
407B	Sheridan St	Principal Arterial	5.00	None	1.00	3.00
407C	Sheridan St	Principal Arterial	5.00	None	1.00	3.00
407D	Sheridan St	Principal Arterial	5.00	None	1.00	3.00
408A	Stirling Rd/SW 60th St	Minor Arterial	4.00	None	1.00	2.50
408B	Stirling Rd/SW 60th St	Minor Arterial	4.00	None	1.00	2.50
408C	Stirling Rd/SW 60th St	Minor Arterial	4.00	None	1.00	2.50
408D	Stirling Rd/SW 60th St	Minor Arterial	4.00	None	1.00	2.50
409	SW 100th Ave	Minor Arterial	4.00	None	1.00	2.50
410	SW 118th Ave	Local	1.00	None	1.00	1.00
411	SW 49th St	Local	1.00	None	1.00	1.00
412	SW 57th St	Local	1.00	None	1.00	1.00
413	SW 59th St	Local	1.00	None	1.00	1.00
414	SW 90th Ave/Cooper Blvd	Local	1.00	None	1.00	1.00
415	SW 97th Ter	Local	1.00	None	1.00	1.00
416	SW 99th Ln	Local	1.00	None	1.00	1.00
417	W Lake Blvd	Local	1.00	None	1.00	1.00

Appendix E
Criticality Factor
Structures, Parcels, Lift Stations, and Raw Water Wells

Structures and Parcels					
Structure/Parcel	**Asset Type**	**Critical Services Factor (40%)**	**Occupancy Factor (30%)**	**Structural Damage Factor (30%)**	**TOTAL**
Structure	Water Utility Conveyance Systems	5.00	1.00	5.00	3.80
Structure	Emergency Operations Center	5.00	4.00	5.00	4.70
Structure	Fire Stations	5.00	5.00	5.00	5.00
Structure	Local Government Facilities	3.00	1.00	5.00	3.00
Structure	Local Government Facilities, Risk Shelter Inventory	5.00	4.00	5.00	4.70
Structure	Disaster Recovery Centers	5.00	4.00	5.00	4.70
Structure	Community Centers	2.00	2.00	5.00	2.90
Structure	Schools	4.00	3.00	5.00	4.00
Structure	Schools, Disaster Recovery Centers	5.00	4.00	5.00	4.70
Structure	Emergency Operations Center, Law Enforcement Facilities	5.00	4.00	5.00	4.70
Structure	Communications Facilities	4.00	1.00	1.00	2.20
Parcel	Wastewater Treatment Facilities and Lift Stations	5.00	3.00	5.00	4.40
Parcel	Drinking Water Facilities	5.00	3.00	5.00	4.40
Parcel	Disaster Debris Management Sites, Parks	3.00	1.00	1.00	1.80
Parcel	Parks	1.00	1.00	1.00	1.00

Lift Stations and Raw Water Wells		
Classification	**Asset Type**	**Criticality Factor**
Master Lift Station	Wastewater Treatment Facilities and Lift Stations	5
Other Lift Station	Wastewater Treatment Facilities and Lift Stations	3
Raw Water Wells	Water Utility Conveyance Systems	3

Appendix F: Sensitivity Analysis Results

Appendix F
Sensitivity Analysis Results
Roadways

Roadways						
Asset Unique ID	**Asset Name**	**Roadway To**	**Roadway From**	**Criticality Factor**	**Overall Exposure Score**	**Sensitivity Score**
415	SW 97th Ter	SW 97th Ter	SW 59th St	1.00	4.71	4.71
416	SW 99th Ln	SW 57th St	SW 59th St	1.00	4.58	4.58
413	SW 59th St	SW 99th Ln	SW 59th St	1.00	3.69	3.69
414	SW 90th Ave/Cooper Blvd	Griffin Rd	Stirling Rd/SW 60th St	1.00	3.14	3.14
402B	N Hiatus Rd	Stirling Rd/SW 60th St	Sheridan St	2.00	1.41	2.82
417	W Lake Blvd	S Flamingo Rd/SW 124th Ave	Stonebridge Pkwy	1.00	2.72	2.72
410	SW 118th Ave	Griffin Rd	Stirling Rd/SW 60th St	1.00	2.04	2.04
411	SW 49th St	S Flamingo Rd/SW 124th Ave	SW 49th St	1.00	1.33	1.33
412	SW 57th St	SW 100th Ave	SW 99th Ln	1.00	1.00	1.00
408A	Stirling Rd/SW 60th St	S Flamingo Rd/SW 124th Ave	N Hiatus Rd	2.50	0.35	0.88
402A	S Hiatus Rd	SW 55th St	Stirling Rd/SW 60th St	1.00	0.81	0.81
404	NW 101st Ave/N Palm Ave	Stirling Rd/SW 60th St	Sheridan St	2.50	0.32	0.79
408B	Stirling Rd/SW 60th St	N Hiatus Rd	NW 101st Ave/N Palm Ave	2.50	0.20	0.50
406B	S Pine Island Rd	Stirling Rd/SW 60th St	Sheridan St	2.50	0.18	0.45
407B	Sheridan St	N Hiatus Rd	NW 101st Ave/N Palm Ave	3.00	0.11	0.34
409	SW 100th Ave	Griffin Rd	Stirling Rd/SW 60th St	2.50	0.06	0.15
408C	Stirling Rd/SW 60th St	NW 101st Ave/N Palm Ave	S Pine Island Rd	2.50	0.01	0.04
407D	Sheridan St	S Pine Island Rd	N University Dr	3.00	0.01	0.03
400	Cherry Rd/SW 106th Ave	Griffin Rd	Stirling Rd/SW 60th St	1.00	0.02	0.02
406A	S Pine Island Rd	Griffin Rd	Stirling Rd/SW 60th St	2.50	0.01	0.02
401A	Griffin Rd	S Flamingo Rd/SW 124th Ave	SW 118th Ave	3.00	0.00	0.00
401B	Griffin Rd	SW 118th Ave	SW 100th Ave	3.00	0.00	0.00
401C	Griffin Rd	SW 100th Ave	S Pine Island Rd	3.00	0.00	0.00
403	N University Dr	Stirling Rd/SW 60th St	Sheridan St	3.00	0.00	0.00
405A	S Flamingo Rd/SW 124th Ave	Griffin Rd	Stirling Rd/SW 60th St	3.00	0.00	0.00
405B	S Flamingo Rd/SW 124th Ave	Stirling Rd/SW 60th St	Sheridan St	3.00	0.00	0.00
407A	Sheridan St	S Flamingo Rd/SW 124th Ave	N Hiatus Rd	3.00	0.00	0.00
407C	Sheridan St	NW 101st Ave/N Palm Ave	S Pine Island Rd	3.00	0.00	0.00
408D	Stirling Rd/SW 60th St	S Pine Island Rd	N University Dr	2.50	0.00	0.00

Appendix F
Sensitivity Analysis Results
Parcels

Parcels				
Asset Unique ID	**Asset Name**	**Criticality Factors**	**Overall Exposure Score**	**Sensitivity Score**
184	George A. Haughney Water Treatment Plant	4.40	2.03	8.93
100	Cooper City Wastewater Treatment Plant	4.40	0.87	3.85
313	Homes Of Forest Lakes Park	1.00	2.43	2.43
196	Brian Piccolo Park	1.80	1.31	2.36
317	Pine Lake Park	1.00	2.30	2.30
301	Chase Park	1.00	2.29	2.29
307	Dawn Park	1.00	2.28	2.28
319	Stirling Palm Park	1.00	1.80	1.80
312	Forest Lake Park	1.00	1.66	1.66
306	Coopers Point Park	1.00	1.48	1.48
302	Christie Schafale Park	1.00	1.48	1.48
311	Flamingo West Park	1.00	1.25	1.25
318	Poinciana Park	1.00	1.22	1.22
300	Bill Lips Sports Complex	1.00	0.87	0.87
303	Colony Park	1.00	0.85	0.85
322	Ted Ferone Park	1.00	0.84	0.84
320	Suellen H. Fardelmann Sports Complex	1.00	0.83	0.83
316	Natalie's Cove Park	1.00	0.80	0.80
323	Pioneer Middle School Park	1.00	0.79	0.79
309	Ellie Kozak Park	1.00	0.63	0.63
304	Cooper City Memorial Park/Tot Lot	1.00	0.56	0.56
314	Jerry Morgan Park	1.00	0.40	0.40
315	Michael "City Mike" Riordan Park	1.00	0.17	0.17
321	Tamarind Park	1.00	0.09	0.09
308	Diamond Head Park	1.00	0.08	0.08
310	Encore Park	1.00	0.05	0.05

Appendix F
Sensitivity Analysis Results
Structures

Structures					
Asset Unique ID	Asset Name	Criticality Factors	Overall Exposure Score	Water Intrusion Factor	Sensitivity Score
192	0.5 MG Water Storage Tank	3.80	4.00	0.00	15.20
221	BSO Law Cooper City District 16	4.70	0.00	3.00	14.10
193	1.0 MG Water Storage Tank	3.80	3.00	0.00	11.40
222	BSO Station 28	5.00	0.00	2.00	10.00
220	Cooper City WWTP Utilities Building	4.70	0.00	2.00	9.40
203	Cooper City Elementary School	4.00	1.00	0.00	4.00
223	Cooper City City Hall	4.70	0.03	0.00	0.14
191	2.0 MG Pine Island Water Storage Tank	3.80	0.00	0.00	0.00
194	Pine Island Road Pump Station	3.80	0.00	0.00	0.00
195	AMI Base Station	2.20	0.00	0.00	0.00
200	Archbishop Edward A. McCarthy High School	4.00	0.00	0.00	0.00
201	Chabad of Southwest Broward	4.00	0.00	0.00	0.00
202	Cooper City Christian Academy	4.00	0.00	0.00	0.00
204	Cooper City High School	4.00	0.00	0.00	0.00
205	Embassy Creek Elementary School	4.00	0.00	0.00	0.00
206	Franklin Academy	4.00	0.00	0.00	0.00
207	Griffin Elementary School	4.00	0.00	0.00	0.00
208	Lycee Franco Americain	4.00	0.00	0.00	0.00
209	New Horizon United Methodist Church	4.00	0.00	0.00	0.00
210	Nur Ul Islam Academy	4.00	0.00	0.00	0.00
211	Pioneer Middle School	4.00	0.00	0.00	0.00
212	Potential Christian Academy	4.00	0.00	0.00	0.00
213	Renaissance Charter School at Cooper City	4.00	0.00	0.00	0.00
214	Schott Communities Group Home	4.00	0.00	0.00	0.00
215	St Mark Youth Ministry	4.00	0.00	0.00	0.00
216	Temple Beth Emet	4.70	0.00	0.00	0.00
217	Zucker Hebrew Academy of Hollywood	4.00	0.00	0.00	0.00
218	Cooper City Community Center	2.90	0.00	0.00	0.00
219	Cooper City Church of God	4.70	0.00	0.00	0.00
224	Cooper City Public Works Department	3.00	0.00	0.00	0.00
225	Cooper City Tennis and Pool Center	2.90	0.00	0.00	0.00

Appendix F
Sensitivity Analysis Results
Lift Stations and Raw Water Wells

Lift Stations and Raw Water Wells				
Asset Unique ID	**Asset Name**	**Criticality Factors**	**Overall Exposure Score**	**Sensitivity Score**
144	LS-44	3.00	4.00	12.00
183	LS-83	3.00	3.73	11.19
117	LS-17	3.00	3.00	9.00
124	LS-24	3.00	3.00	9.00
131	LS-31	3.00	3.00	9.00
189	Raw Water Well No. 8	3.00	3.00	9.00
155	LS-55	5.00	1.37	6.85
101	LS-01	3.00	2.03	6.09
103	LS-03	3.00	2.03	6.09
115	LS-15	3.00	2.00	6.00
116	LS-16	3.00	2.00	6.00
119	LS-19	3.00	2.00	6.00
125	LS-25	3.00	2.00	6.00
126	LS-26	3.00	2.00	6.00
132	LS-32	3.00	2.00	6.00
139	LS-39	3.00	2.00	6.00
140	LS-40	3.00	2.00	6.00
148	LS-48	3.00	2.00	6.00
186	Raw Water Well No. 5	3.00	2.00	6.00
104	LS-04	3.00	1.00	3.00
109	LS-09	3.00	1.00	3.00
121	LS-21	3.00	1.00	3.00
123	LS-23	3.00	1.00	3.00
129	LS-29	3.00	1.00	3.00
136	LS-36	3.00	1.00	3.00
146	LS-46	3.00	1.00	3.00
160	LS-60	3.00	1.00	3.00
179	LS-79	3.00	1.00	3.00
187	Raw Water Well No. 6	3.00	1.00	3.00
188	Raw Water Well No. 7	3.00	1.00	3.00
150	LS-50	3.00	0.09	0.27
149	LS-49	3.00	0.06	0.18
156	LS-56	3.00	0.06	0.18

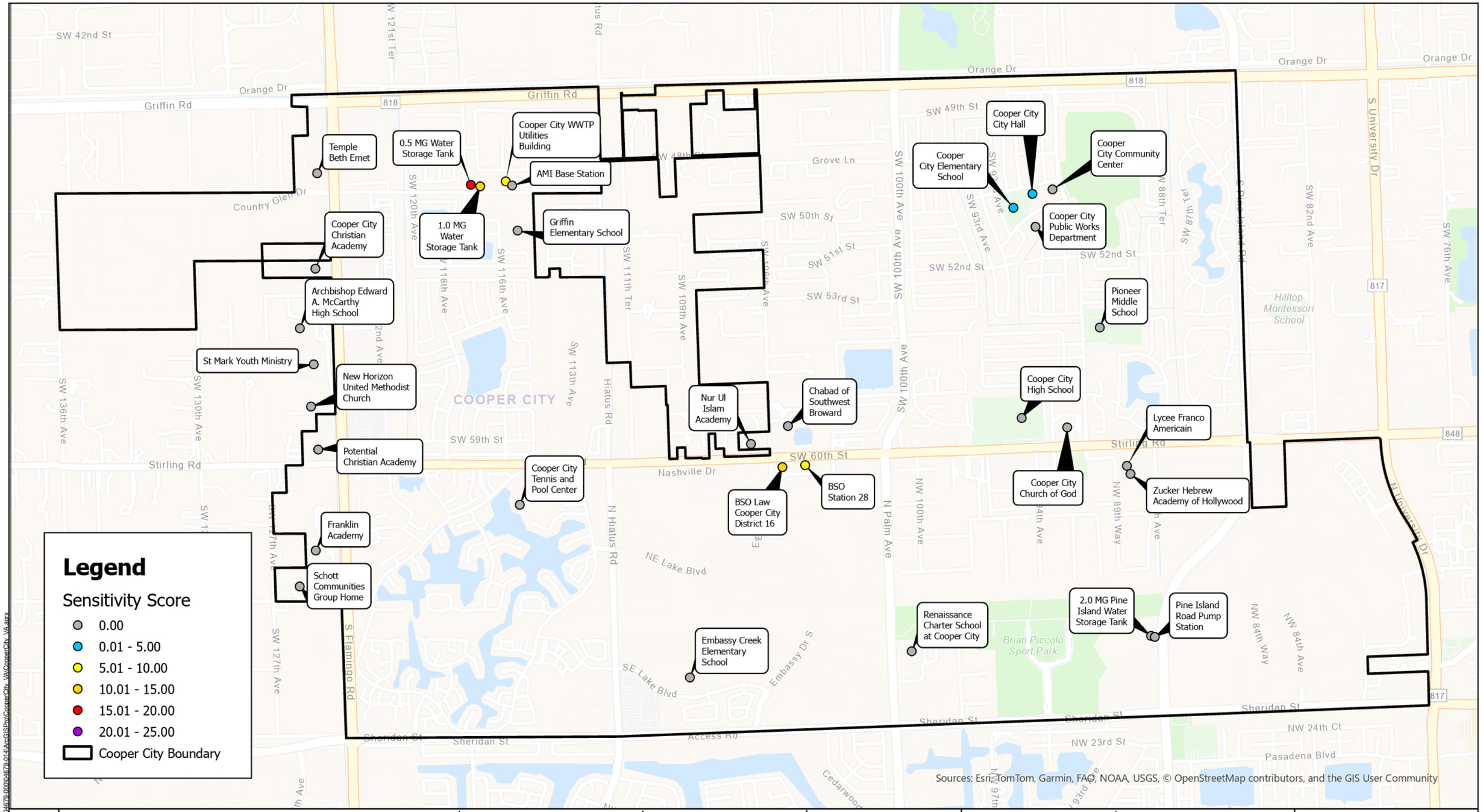
Appendix F
Sensitivity Analysis Results
Lift Stations and Raw Water Wells

Lift Stations and Raw Water Wells				
Asset Unique ID	**Asset Name**	**Criticality Factors**	**Overall Exposure Score**	**Sensitivity Score**
182	LS-82	3.00	0.06	0.18
102	LS-02	3.00	0.03	0.09
151	LS-51	3.00	0.03	0.09
164	LS-64	3.00	0.03	0.09
105	LS-05	3.00	0.00	0.00
106	LS-06	3.00	0.00	0.00
107	LS-07	3.00	0.00	0.00
108	LS-08	3.00	0.00	0.00
110	LS-10	3.00	0.00	0.00
111	LS-11	3.00	0.00	0.00
112	LS-12	3.00	0.00	0.00
113	LS-13	3.00	0.00	0.00
114	LS-14	3.00	0.00	0.00
118	LS-18	3.00	0.00	0.00
120	LS-20	3.00	0.00	0.00
122	LS-22	3.00	0.00	0.00
127	LS-27	3.00	0.00	0.00
128	LS-28	3.00	0.00	0.00
130	LS-30	3.00	0.00	0.00
133	LS-33	3.00	0.00	0.00
134	LS-34	3.00	0.00	0.00
135	LS-35	3.00	0.00	0.00
137	LS-37	3.00	0.00	0.00
138	LS-38	3.00	0.00	0.00
141	LS-41	3.00	0.00	0.00
142	LS-42	3.00	0.00	0.00
143	LS-43	3.00	0.00	0.00
145	LS-45	3.00	0.00	0.00
147	LS-47	3.00	0.00	0.00
152	LS-52	3.00	0.00	0.00
153	LS-53	3.00	0.00	0.00
154	LS-54	3.00	0.00	0.00
157	LS-57	3.00	0.00	0.00

Appendix F
Sensitivity Analysis Results
Lift Stations and Raw Water Wells

Lift Stations and Raw Water Wells				
Asset Unique ID	**Asset Name**	**Criticality Factors**	**Overall Exposure Score**	**Sensitivity Score**
158	LS-58	3.00	0.00	0.00
159	LS-59	3.00	0.00	0.00
161	LS-61	3.00	0.00	0.00
162	LS-62	3.00	0.00	0.00
163	LS-63	3.00	0.00	0.00
165	LS-65	3.00	0.00	0.00
166	LS-66	3.00	0.00	0.00
167	LS-67	3.00	0.00	0.00
168	LS-68	3.00	0.00	0.00
169	LS-69	3.00	0.00	0.00
170	LS-70	3.00	0.00	0.00
171	LS-71	3.00	0.00	0.00
172	LS-72	3.00	0.00	0.00
173	LS-73	3.00	0.00	0.00
174	LS-74	3.00	0.00	0.00
175	LS-75	3.00	0.00	0.00
176	LS-76	3.00	0.00	0.00
177	LS-77	3.00	0.00	0.00
178	LS-78	3.00	0.00	0.00
180	LS-80	3.00	0.00	0.00
181	LS-81	3.00	0.00	0.00
185	Raw Water Well No. 4	3.00	0.00	0.00
190	Raw Water Well No. 9	3.00	0.00	0.00

Appendix G: Sensitivity Analysis Exhibits



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DESIGNED BY: S. RENDE	
DRAWN BY: S. RENDE	
CHECKED BY: K. SYLVIA	

Hazen

CITY OF Cooper City Someplace Special

CITY OF COOPER CITY

FLOODING VULNERABILITY ASSESSMENT

STRUCTURES

SENSITIVITY EXHIBIT

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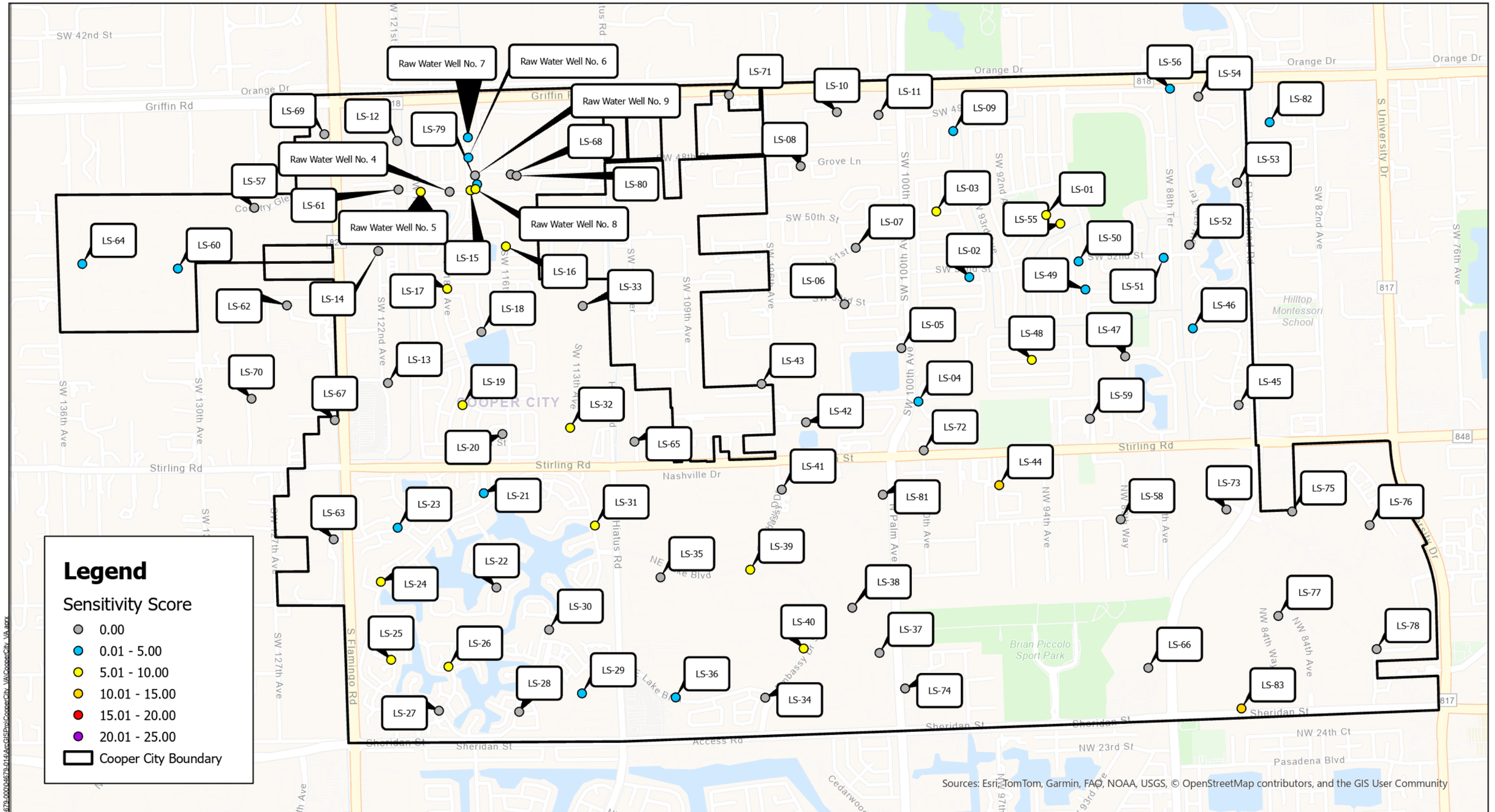
CONTRACT NO.:	23PLN78
FIGURE NO:	1



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PROJECT ENGINEER: E. GUBY	
DESIGNED BY: S. RENDE	
DRAWN BY: S. RENDE	
CHECKED BY: K. SYLVIA	

Hazen

CITY OF Cooper City Someplace Special

CITY OF COOPER CITY

FLOODING VULNERABILITY ASSESSMENT

LIFT STATIONS AND RAW WATER WELLS SENSITIVITY EXHIBIT

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CONTRACT NO.:	23PLN78
FIGURE NO:	2

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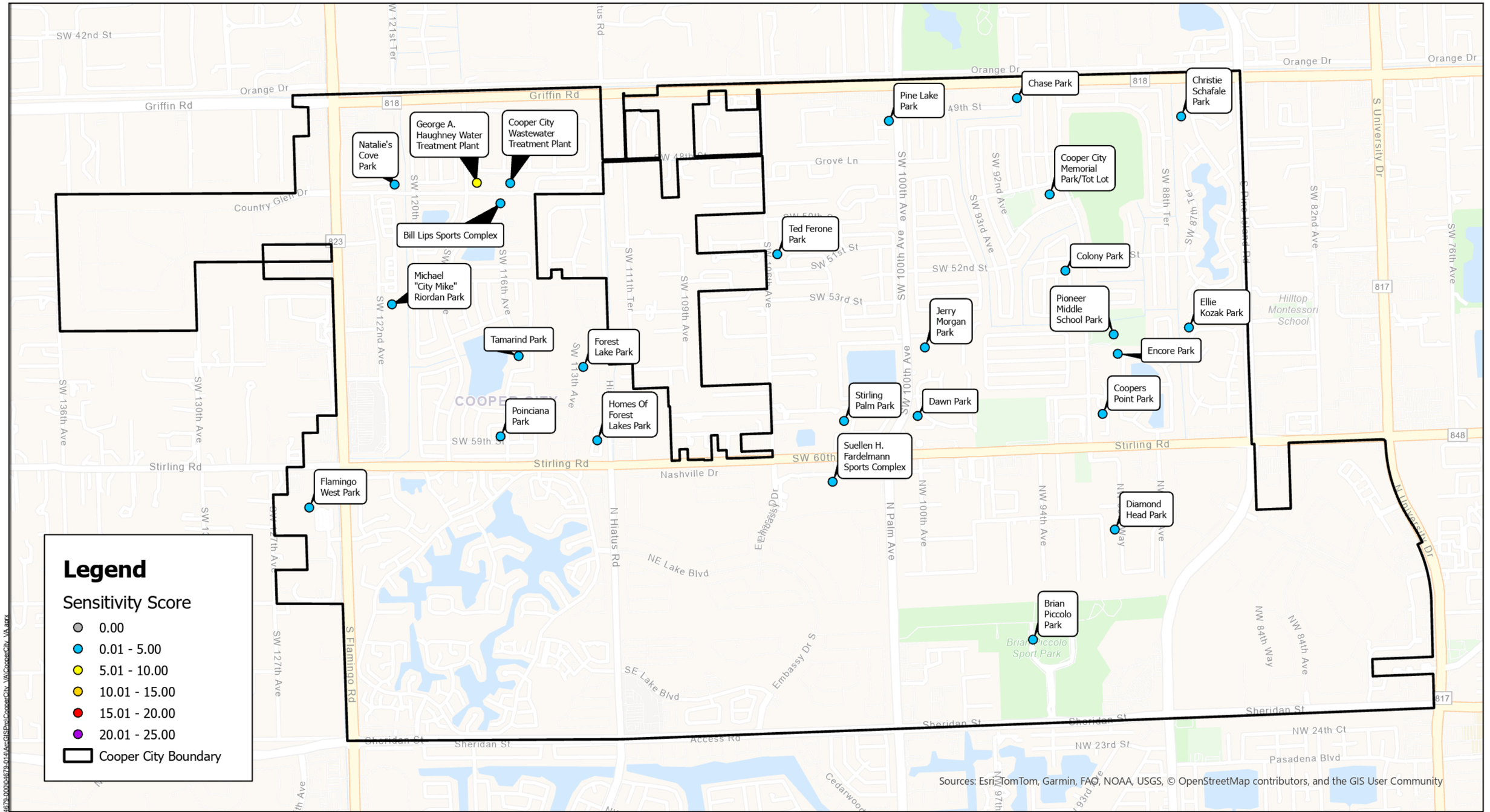

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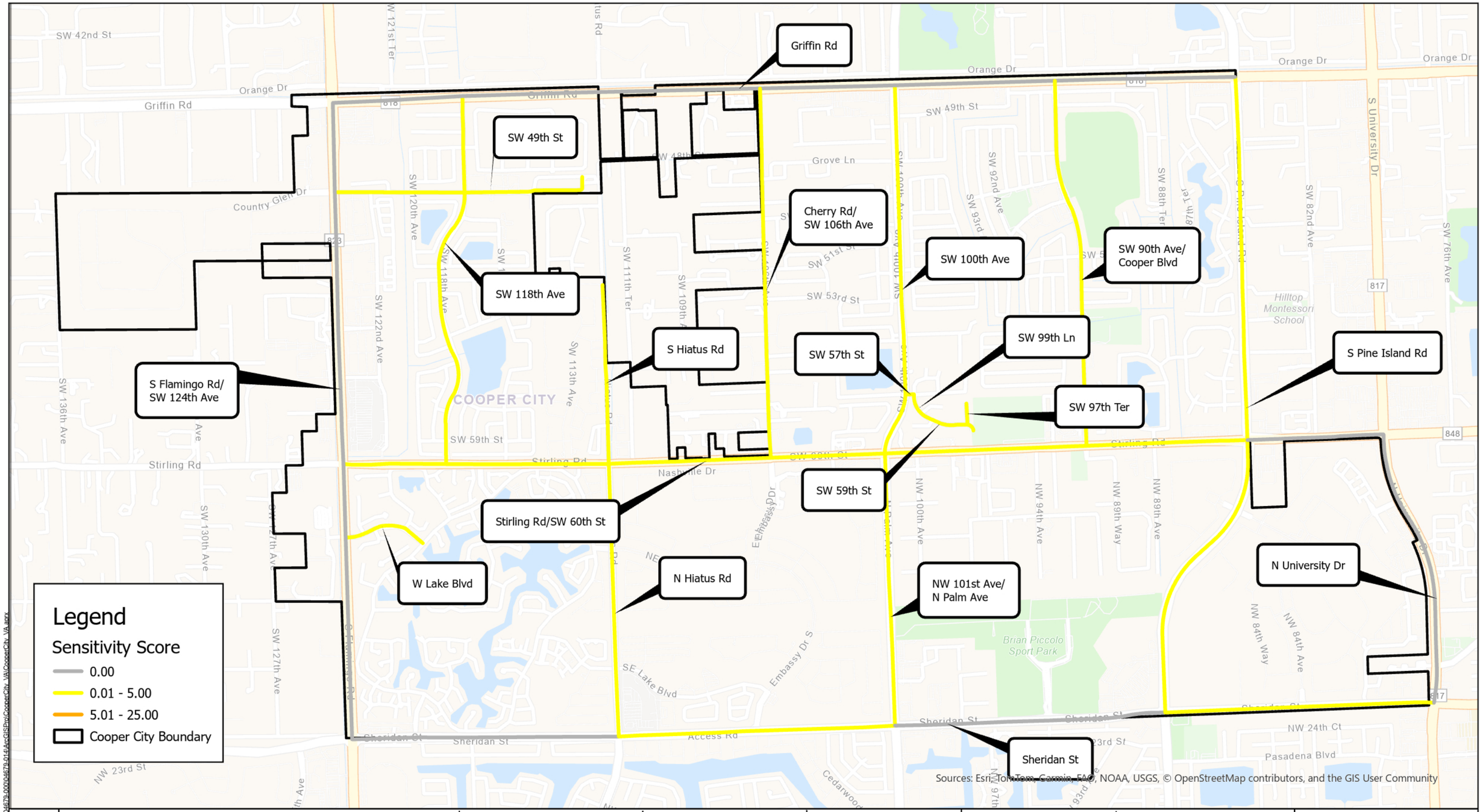
DESIGNED BY: S. RENDE				HAZEN NO.: 04679-014	
DRAWN BY: S. RENDE		FLOODING VULNERABILITY ASSESSMENT	SENSITIVITY EXHIBIT	CONTRACT NO.: 23PLN78	
CHECKED BY: K. SYLVIA				FIGURE NO: 3	



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REFERENCE: INCLUDE REFERENCES IF APPLICABLE

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DESIGNED BY: S. RENDE		FLOODING VULNERABILITY ASSESSMENT	HAZEN NO.: 04679-014
DRAWN BY: S. RENDE		**MAJOR ROADWAYS SENSITIVITY EXHIBIT**	CONTRACT NO.: 23PLN78
CHECKED BY: K. SYLVIA			FIGURE NO: 4

Appendix H: VA Compliance Checklist

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
RESILIENT FLORIDA GRANT PROGRAM
VULNERABILITY ASSESSMENT COMPLIANCE CHECKLIST CERTIFICATION

Vulnerability Assessments using Statutory Requirements Effective through June 30, 2024

Exhibit I

Required for all planning grant agreements that include a Comprehensive Vulnerability

Assessment. DEP Agreement Number: 23PLN78

Project Title: City of Cooper City Vulnerability Assessment (Project)

Grantee: City of Cooper City

In accordance with subsection 380.093(3), F.S., for a Vulnerability Assessment initiated through June 30, 2024, the following components, scenarios, data, and information are required for a comprehensive Vulnerability Assessment (VA). The checklist must be completed and submitted with the final VA Report deliverable, pursuant to Attachment 3, Grant Work Plan. When filling out the checklist, please provide the corresponding page number in the VA or, if the item is not applicable, an explanation as to why it is not applicable. The Grantee must abide by the Resilient Florida Program's GIS Data Standards found on the Resilient Florida Program webpage:
https://floridadep.gov/rcp/resilient-florida-program/documents/resilient-florida-program-gis-data-standards

Resilient Florida – Program Requirements

Item ID	Check if Included	Item Description	Page Reference in VA Report (if applicable)
A	☑	The Final VA Report includes the Department's logo and funding source language, pursuant to Attachment 6 of the grant agreement.	Cover

Part 1 – Subparagraph 380.093(3)(c)2., F.S.

Item ID	Check if Included	Item Description	Page Reference in VA Report (if applicable)
B	☑	Final VA Report that provides details on the results and conclusions, including illustrations via maps and tables.	
All electronic mapping data used to illustrate flooding and sea level rise impacts that are identified in the VA must be provided in the format consistent with the Department's GIS Data Standards and include the following three (3) items:			
C	☑	Geospatial data in an electronic file format.	
D	☑	GIS metadata.	
E	☑	An inventory of critical assets for each jurisdiction, including regionally significant assets, that are, impacted by flooding and sea level rise. The list must be prioritized by area or immediate need and must identify which flood scenario(s) impacts each asset. Critical assets and regionally significant assets are as defined in subsection 380.093(2), F.S.	

Part 2 – Subparagraphs 380.093(3)(d)1. and 380.093(3)(d)2., F.S.

Item ID	Check if Included	Item Description	Page Reference in VA Report (if applicable)
F	☑	Peril of Flood Comprehensive Plan amendments developed that address paragraph 163.3178(2)(f), F.S. *(as applicable)* ☑ Noncoastal community/Peril of Flood not required ☐ Already in compliance	PDF Page 11
G	☐	Depth of tidal flooding, including future high tide flooding. The threshold for tidal flooding is 2 feet above mean higher high water. *(as applicable)*	
	G.1	☐Analysis geographically displays the number of tidal flood days expected for each scenario and planning horizon. *(to the extent practicable)*	
H	☑	Depth of current and future storm surge flooding using publicly available NOAA or FEMA storm surge data. *(check one, as applicable*) ☑ NOAA data ☐ FEMA data	PDF Page 17
	H.1	☑ Initial storm surge event equals or exceeds current 100-year flood event. *(as applicable)*	PDF Page 17
	H.2	☐ Higher frequency storm analyzed for exposure of a critical asset. *(optional, but must provide additional detail if included)*	
I	☑	Rainfall-induced flooding was considered using spatiotemporal analysis or existing hydrologic and hydraulic modeling results. *(to the extent practicable but **required if Item F is noncoastal**)*	PDF Page 17
	I.1	☑ Future boundary conditions have been modified to consider sea level rise and high tide conditions. For rainfall-induced flood modeling, the model inputs for the 2040/2070 rainfall scenarios should use projected sea level rise/high tide conditions. *(as applicable)*	PDF Page 17 and 19
	I.2	☑ Depth of rainfall-induced flooding for 100-year storm and 500-year storm event. ***(required if Item F is noncoastal)***	PDF Page 17, 19 and 20
	I.3	☐ If Water Management District data is not available, data from an appropriate federal agency was used. Agency used:	
J	☑	Compound flooding or the combination of tidal, storm surge, and rainfall-induced flooding. *(to the extent practicable)*	PDF Pages 17-19

Part 3 – Subparagraph 380.093(3)(d)3., F.S.

Item ID	Check if Included	Item Description	Page Reference in VA Report (if applicable)
K	☑	All analyses in North American Vertical Datum of 1988.	PDF Page 15
L	☑	Includes at least two local sea level rise scenarios, which must include the 2017 NOAA intermediate-low and intermediate-high sea level rise projections.	PDF Pages 17 and 19
M	☑	Includes at least two planning horizons, which must include years 2040 and 2070.	PDF Pages 17 and 19
N	☑	Uses local sea level data that has been interpolated between the two closest NOAA tide gauges.	PDF Page 17
	N.1	☐ Local, publicly available, sea level data was taken from one of the two closest NOAA tide gauges. Data may be taken from one such gauge if the gauge has a higher mean sea level.	
	N.2	☐ An alternate tide gauge with appropriate rationale and Department approval. *(if checked, provide Department approval)*	

Identify all counties and municipalities that are included in this Vulnerability Assessment:

City of Cooper City	
Broward County	

I certify that, to the Grantee's knowledge, all information contained in this completed Vulnerability Assessment Compliance Checklist is true and accurate as of the date of the signature below.

Grantee's Grant Manager Signature

Print Name

Date