City of Melbourne
The Harbor City

Coastal Resiliency Plan

MAY 2021

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

This report was prepared by

MAY 2021

Table of Contents

City of Melbourne
The Harbor City

EXECUTIVE SUMMARY

Executive Summary

Melbourne is fortunate to sit relatively high above the Indian River Lagoon, on a bluff not typically seen along the coastline of Florida. This bluff provides significant protection against storm surge and coastal flooding events. Although there is a level of protection by way of the local elevations, this should not be a reason for complacency. Sea levels are rising. In fact, sea level is rising at an accelerated rate, with a documented rate of more than double from 0.06 inches per year throughout most of the twentieth century to 0.14 inches per year from 2006-2015. Compounding sea level rise with storm surge will only exacerbate the future conditions.

The inherent risks of living on the coast have always been a reality Floridians know too well. That is why Coastal Resiliency is extremely important, particularly for future generations. Through a partnership with the Florida Department of Environmental Protection's Resilient Coastlines Program, this plan analyzes the City's vulnerabilities, outlines Adaptation Action Areas (AAA), and provides recommendations and action items to create a more resilient future.

These recommendations were developed based upon data, analysis, and public engagement. Two virtual public workshops were conducted (March 2 and April 21, 2021), and a project website was deployed to gather feedback from residents and business owners in the City, which included a survey and an interactive map. The full summary of the public engagement is included in the Appendix.

On May 21, 2021, the Coastal Resiliency Plan was presented to the Beautification and Energy Efficiency Board (BEEB). The BEEB acknowledged receipt of the Coastal Resiliency Plan, noting it appears to be consistent with the goals and objectives of the Florida Resilient Coastlines Program. The motion to acknowledge the receipt was moved by J. Windsor and seconded by K. Smith -- the motion carried unanimously.

Four main overarching strategies were developed following the vulnerability assessment process. These strategies include Educate and Promote, Coordinate, Improve and Regulate. As the names suggest, each strategy is as simple to follow as its concise name implies. The first strategy, Educate and Promote, is possibly the most important as its purpose is to inform the public of the City's resiliency efforts and promote the plan and understanding of the impacts sea level rise will have on the community. Coordinate is a strategy that seeks partnerships with state and regional agencies to further the objectives of the action plan. Third, Improve includes specific improvements that are physical in nature. Lastly, Regulate provides recommendations for updating codes or policies in the City's regulatory documents (i.e., Land Development Code, Comprehensive Plan, etc.).

The AAAs remain the primary focus for mitigating from the future effects of sea level rise and impacts from storms. The implementation and action plan at the end of the document provides a list of actionable items that can implemented over time. These items include priority ratings that identify the relevance and need for completion.

INTRODUCTION

City of Melbourne
The Harbor City

Introduction

Climate change is a reality Floridians are all too familiar with, particularly those living on the coast. Florida is surrounded by a sea that is rising approximately one inch every decade, a statistic that will increase as the earth continues to warm. When the earth warms, glacial ice melt and thermal expansion cause sea levels to rise.[1] Heavy rainstorms are also becoming more severe, increasing storm related damages. Hurricanes affect Florida more than any other state in the United States.[2] Documentation of hurricanes impacting Florida began in the mid-1800s with approximately 500 hurricanes of varying strengths reported to have made landfall in Florida. The Environmental Protection Agency (EPA) reports that hurricanes have become more intense over the last 20 years, and this could be an increasing trend caused by warming oceans.[3] Storm surge associated with tropical storm activity will produce larger impacts to coastal communities as storms intensify and sea levels rise.

Recognizing the threat, the Florida Legislature passed Senate Bill 1094, titled “Peril of Flood.” The new law, which became effective July 1, 2015, specifies new requirements for the coastal management element of a local government’s comprehensive plan related to coastal flooding and future impacts of sea level rise. Florida communities are required to assess these hazards and their potential impacts to quantify, plan, and implement resiliency strategies. The City of Melbourne is a member of the East Central Florida Regional Planning Council (ECFRPC), and the ECFRPC published the Regional Resiliency Action Plan (RRAP) in December 2018. The RRAP incorporates collaboration from the members of the ECFRPC and other stakeholders to develop planning to mitigate sea level rise impacts. The plan identified actions that could be implemented within a five-year time frame.

Purpose

The purpose of this plan is to perform a vulnerability assessment, identify adaptation action areas and recommend implementation measures for the City of Melbourne. The assessment relies heavily on geographic information systems (GIS) data in the evaluation of the coastal vulnerabilities, including the effect of sea level rise, storm surge, and flooding on public infrastructure, historic structures, and vulnerable populations. The result of these assessments is an action plan which includes a rough timeline for application. This plan was funded through a grant agreement from the Florida Department of Environmental Protection, Agreement Number R2138, and in-kind services provided by the City of Melbourne.

Methodology

The majority of the analysis for this report was conducted through GIS analysis. Using GIS, the project team completed a comprehensive assessment of the vulnerability of land use, the roadway network, critical infrastructure, socioeconomic and cultural features, sea level rise, storm surge, and nuisance flooding, and potential financial impact due to sea level rise. This analysis was completed using GIS data from the City, the County, the State, the University of Florida GeoPlan Center, and state and

1 Understanding Sea Level. NASA. https://sealevel.nasa.gov/understanding-sea-level/global-sea-level/thermal-expansion

2 In-depth analysis of US hurricanes: Which states are hit most frequently by devastating storms? AccuWeather. https://www.accuweather.com/en/weather-news/in-depth-analysis-of-us-hurricanes-which-states-are-hit-most-frequently-by-devastating-storms/347725

3 Global Warming and Hurricanes. NOAA. https://www.gfdl.noaa.gov/global-warming-and-hurricanes/

federal agencies (FEMA, NOAA, SHPO, Census, etc.). The sea level rise data is based upon inundation models, including a bathtub model and a modified bathtub model, as calculated by the University of Florida GeoPlan Center and National Oceanic and Atmospheric Administration's (NOAA) Extreme SLR Projections for 2040, 2060, and 2080.

Regional Planning Initiative

Regional planning for Brevard County, and therefore the City of Melbourne, is implemented under the East Central Florida Regional Planning Council (ECFRPC). The ECFRPC is responsible for regional planning coordination for eight counties in east central Florida: Brevard, Lake, Marion, Orange, Osceola, Seminole, Sumter, and Volusia Counties. Within the eight counties are 78 towns and cities, including the City of Melbourne. The ECFRPC is governed by 32 council members from the representative Counties, Cities, and Towns within the geographical area of the council.

Recognizing that Florida coastlines are among the most at-risk coastlines in the United States, the ECFRPC was part of a 2018 adopted resolution recommitting to regional planning and to develop a stakeholder-driven framework for regional resilience collaboration.[4] The ECFRPC continues to be involved in the Florida Coastal Resiliency Collaborative and actively assists communities with strategies for adapting to acute shocks and long-term stressors from natural hazards such as sea level rise, storm surge, and flooding. The ECFRPC conducts vulnerability assessments, maps coastal risk scenarios, and develops strategies with input from critical stakeholders to determine long term plans for addressing climate-induced complications.

In 2017, the ECFRPC was awarded a Florida Department of Environmental Protection (FDEP) Grant to work with stakeholders in Brevard and Volusia Counties to develop the East Central Florida Regional Resiliency Action Plan (ECF RRAP) with the goal to increase the ability of local and regional agencies to implement resiliency and climate adaptation strategies.

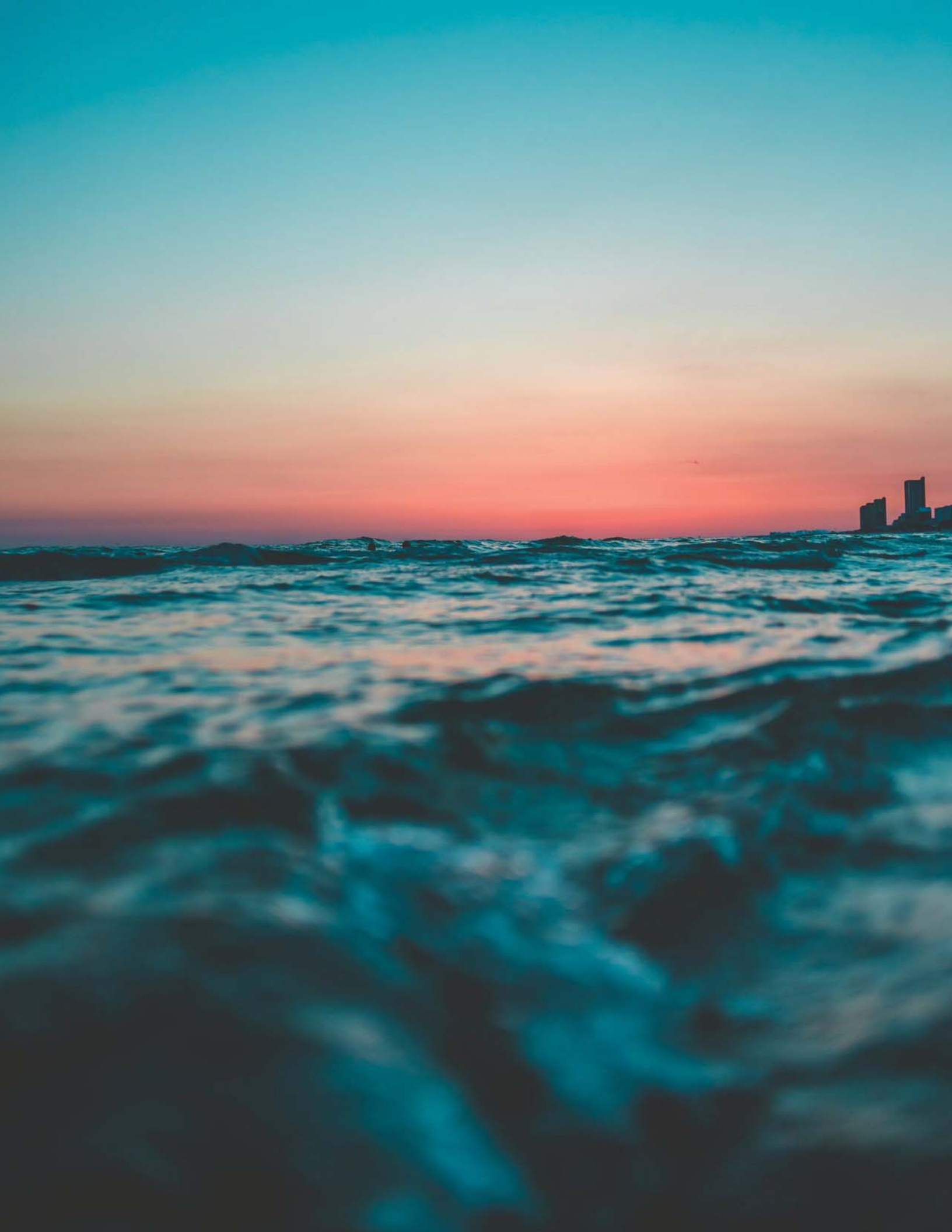
The Framework for the ECF RRAP was based on the 100 Resilient Cities program of the Rockefeller Foundation which worked with cities around the world to help them "become more resilient to the physical, social and economic challenges that are a growing part of the 21st Century."[5] The plan in its entirety can be found here: https://www.perilofflood.net/ecfresiliency.

The Action Plan not only provides a matrix of actions for various levels of government from local to federal, but also includes actions for partnerships across agencies, non-profits, the business sector and other stakeholders. The report provides an in-depth discussion of the plan development process, stakeholder engagement and efforts across the region to implement resilience and sustainability measures and policies.

4 Examining Sea Level Rise Exposure for Future Populations. NOAA. https://coast.noaa.gov/digitalcoast/stories/population-risk.html

5 100 Resilient Cities. The Rockefeller Foundation. https://www.rockefellerfoundation.org/100-resilient-cities/

BACKGROUND & DEMOGRAPHICS



Background

The City of Melbourne, within Brevard County, includes 51.51 square miles of land with eight miles of mainland coastline along the Indian River Lagoon and approximately two miles of barrier island coastline along the Atlantic Ocean and the Indian River Lagoon. Part of Florida's Space Coast, the City is just south of Satellite Beach on the barrier island and between Rockledge, West Melbourne, and Palm Bay on the mainland. Major transportation corridors include Interstate 95 to the west, US Highway 1 (Harbor City Boulevard) along the mainland coast, and SR A1A on the barrier island, all running north to south. US 192 (New Haven Avenue) and SR 518 (Eau Gallie Boulevard), running east-west, include fixed span bridges over the Indian River Lagoon. The Orlando Melbourne International Airport is located northwest of downtown Melbourne and serves mostly general aviation, with five percent of the traffic being large commercial aircraft and one percent military aircraft.

The City of Melbourne is the economic engine of Brevard County. Its location near the National Aeronautics and Space Administration (NASA) and Patrick Air Force Base has made it an attractive area for high tech industries (aerospace firms and defense contractors). The amenities, outdoor recreation opportunities, and the historic downtown provide a high quality of life for residents. The University of Florida Bureau of Business and Economic Research (BEBR) estimated the 2020 population at 84,402, with a population density of 1,638.6 persons per square mile.[1] The density is higher than Brevard County (535.0 persons per square mile) and the State (350.6 persons per square mile).

Demographics

Demographic and socioeconomic variables presented in this section are a snapshot of the current makeup of the population living in the City of Melbourne. By comparing past data to current data, trends can be identified to assist with planning for the future. US Census data reveals that the City has been growing at a rate of slightly less than one percent per year since 2010. This growth represents an average of 756 new residents a year moving to the City of Melbourne. This trend matches a statewide trend of populations continuing to move into vulnerable areas along the coastline.

The age cohorts are atypical for Florida as those under 18 years of age (17.4%) and those over 65 years of age (21.2%) are smaller portions of the population than those between the ages of 18 and 65 (61.4%).[2] The racial composition of the population is 80.0% White alone, 9.4% Black alone, 4.2% Asian alone, 4.1% Two or more races, 0.2% Native American, and 0.1% Pacific Islander.[3] The population is approximately 11% Hispanic or Latino origin.

With an estimated 33,000 households, approximately 2.4 persons make up each household. With a median household income of $45,938 (US Census projected from 2010 to 2018), 57.9% of households own their own homes, representing a lower ownership rate compared to the national rate (65.1%) and the state rate (66%). The median value of owner-occupied housing is $169,000. Vulnerable populations include disabled and impoverished residents. Almost 10% of the population has a disability and are under the age of 65. Approximately 16% of the population is below the poverty line[4].

1 BEBR
2 US Census. https://www.census.gov/quickfacts/fact/table/melbournecityflorida/AGE295219
3 US Census
4 US Census

Social Vulnerability

The Social Vulnerability Index (SVI) was created by the Centers for Disease Control (CDC), and its purpose is to help public officials identify and map the communities that will most likely need support before, during, and after a hazardous event. In Melbourne, and other coastal cities, this is an important resource so that the most vulnerable populations can be engaged and provide input regarding planning, policy, and infrastructure initiatives. As the climate changes, storms become more catastrophic, and sea levels rise, socially vulnerable communities will be the most at risk because of a confluence of factors.

The CDC's SVI accounts for 15 factors in four (4) categories, listed here:

Socioeconomic Status
- Below poverty level
- Unemployed
- Income Level
- No High School Diploma

Household Composition and Disability
- Aged 65 of Older
- Aged 17 or Younger
- Civilian with a Disability
- Single-Parent Household

Minority Status & Language
- Minority
- Speaks English "Less than Well"

Housing Type & Transportation
- Multi-Unit Structure
- Mobile Homes
- Crowding
- No Vehicle
- Group Quarters

Methodology

Data from the CDC was utilized to analyze the social vulnerability and social impacts to the City of Melbourne due to sea level rise, floodplains, and category 1-3 storm surge. Figure 1 through Figure 5 illustrate the four (4) SVI categories and the overall social vulnerability by census tract, showing trends in the City of Melbourne. Figure 6 shows the impacts due to sea level rise, flooding, and storm surge in the census tracts deemed as most vulnerable based on the CDC data. The results of the analysis in Figure 6 will be detailed in a section below.

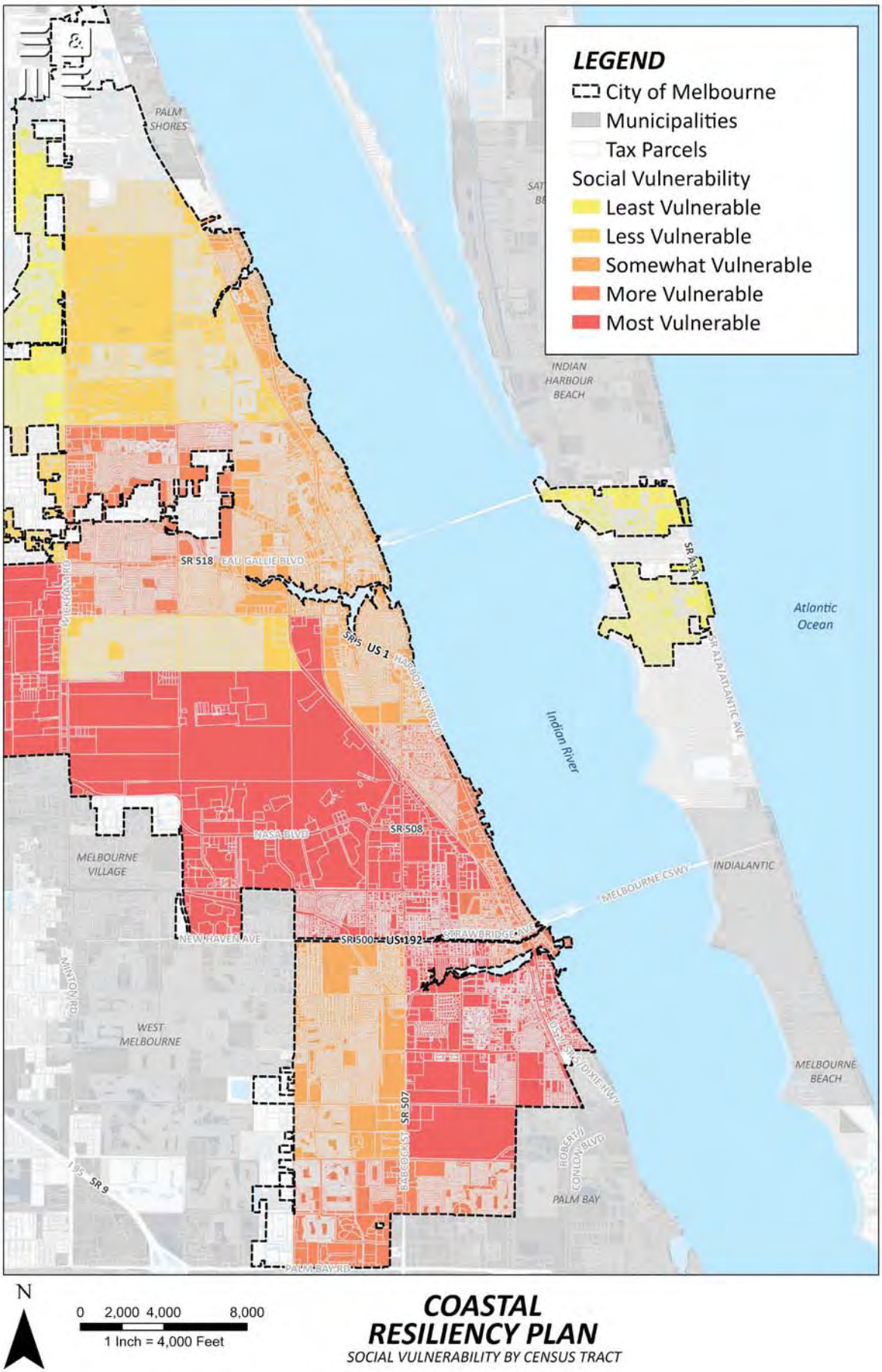
Overall, the most vulnerable population lives in the southwestern part of the city (away from the coastline) and the southeastern part of the city (along the coastline). The least vulnerable populations, according to the SVI, reside in the northwest census tracts and the census tract which extends to the barrier island and Highway A1A.

Figure 2 shows that there are three (3) especially vulnerable census tracts, two (2) on the southeastern side of the city near the coast and one (1) in the center of the city. These are the census tracts with higher percentage of people living in poverty, with higher unemployment, lower income levels, and lower educational attainment. Figure 3 shows two most vulnerable census tracts, one along the Indian River and the other on the western edge of the City. These census tracts have households with a higher percentage of people aged 65 and older, households with children, households with a disability, and single-parent homes.

Figure 4 shows the households most vulnerable due to minority status. The two most vulnerable census tracts are along the coast in the southeastern portion of the city and in the northwestern portion of the city. These are the households that are in the racial minority and speak English “less than well.” Figure 5 shows the most vulnerable populations in the City based on their housing type and transportation. The most vulnerable population lives in the census tracts in the southern half of the city, while the least vulnerable population lives in the northern half of the city. These census tracts have higher populations living in multi-unit structures, mobile homes, group quarters, crowded housing situations, and without a vehicle.

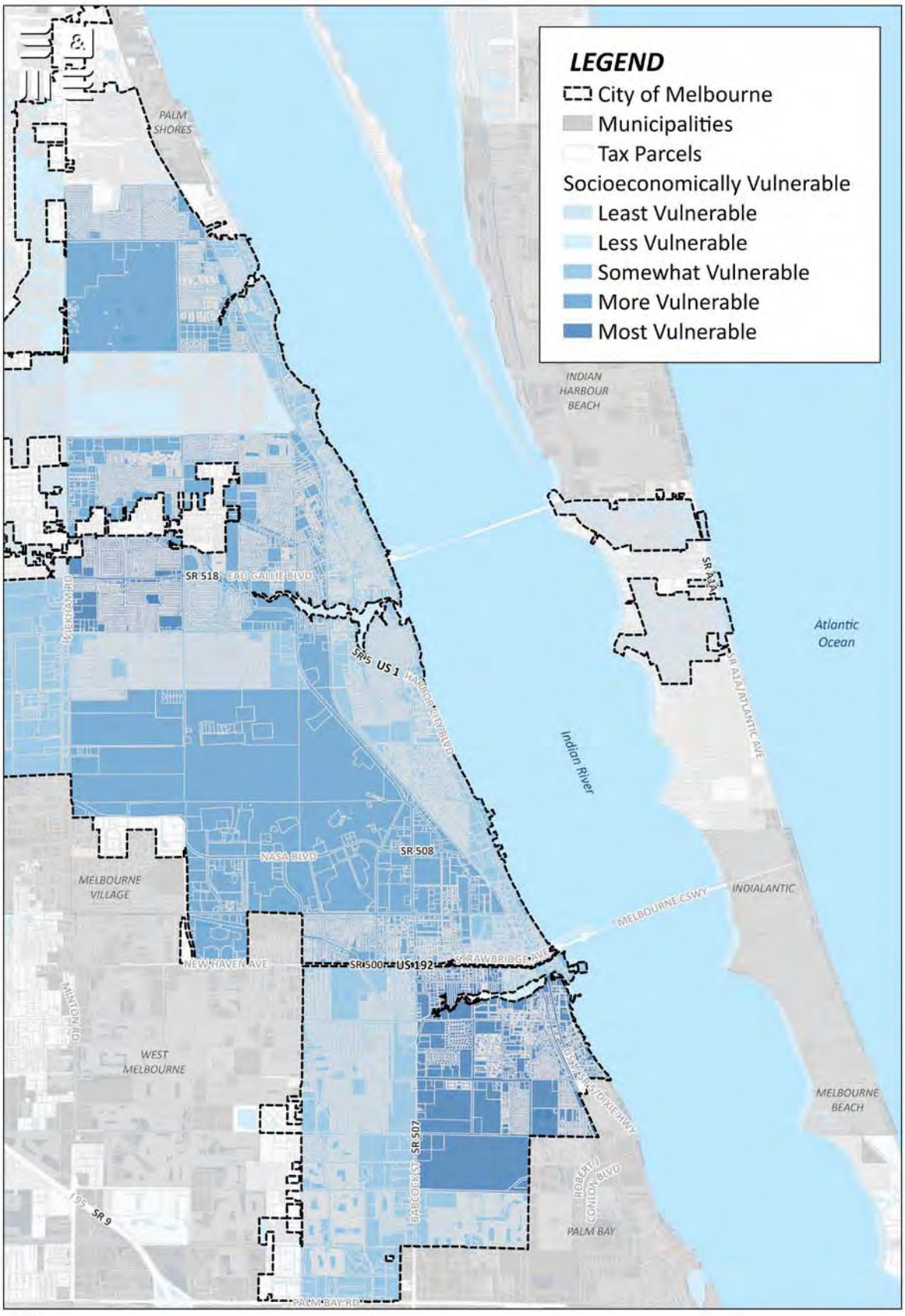
The intersection of these four categories (Figure 1) shows where the most vulnerable populations are within the City of Melbourne. When the sea level rises and storm surge risks are mapped, the vulnerable populations which will be most affected with climate change can be seen. This is important for the City to understand so that plans and programs reach those communities who may not be engaged on a normal basis (non-English speakers, those with disabilities, those with no vehicle, etc.).

Figure 1 *Social Vulnerability by Census Tract*



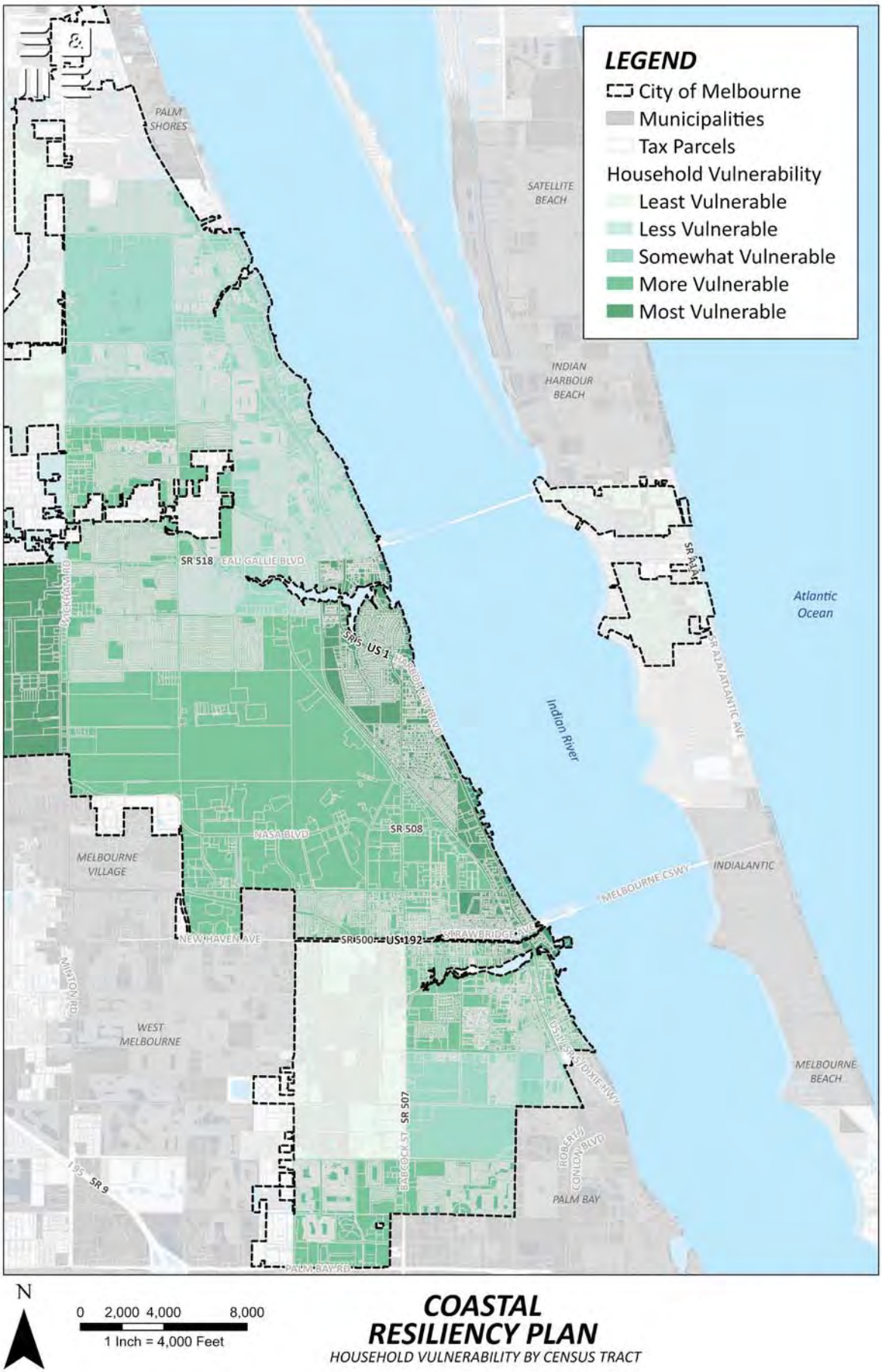
Sources: CDC, FGDL, S&ME, 2020

Figure 2 *Socioeconomic Vulnerability by Census Tract*



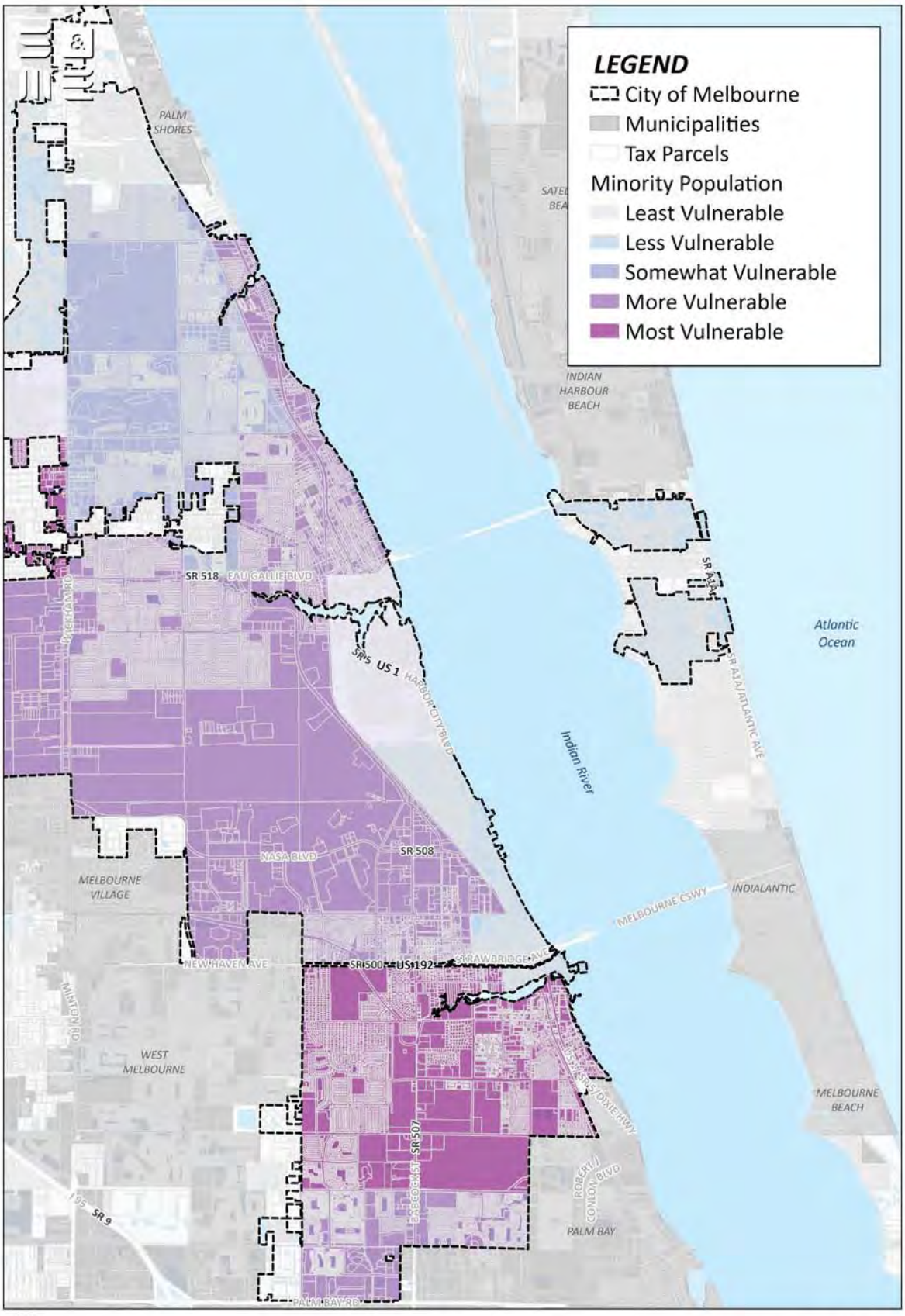
Sources: CDC, FGDL, S&ME, 2020

Figure 3 *Household Vulnerability by Census Tract*



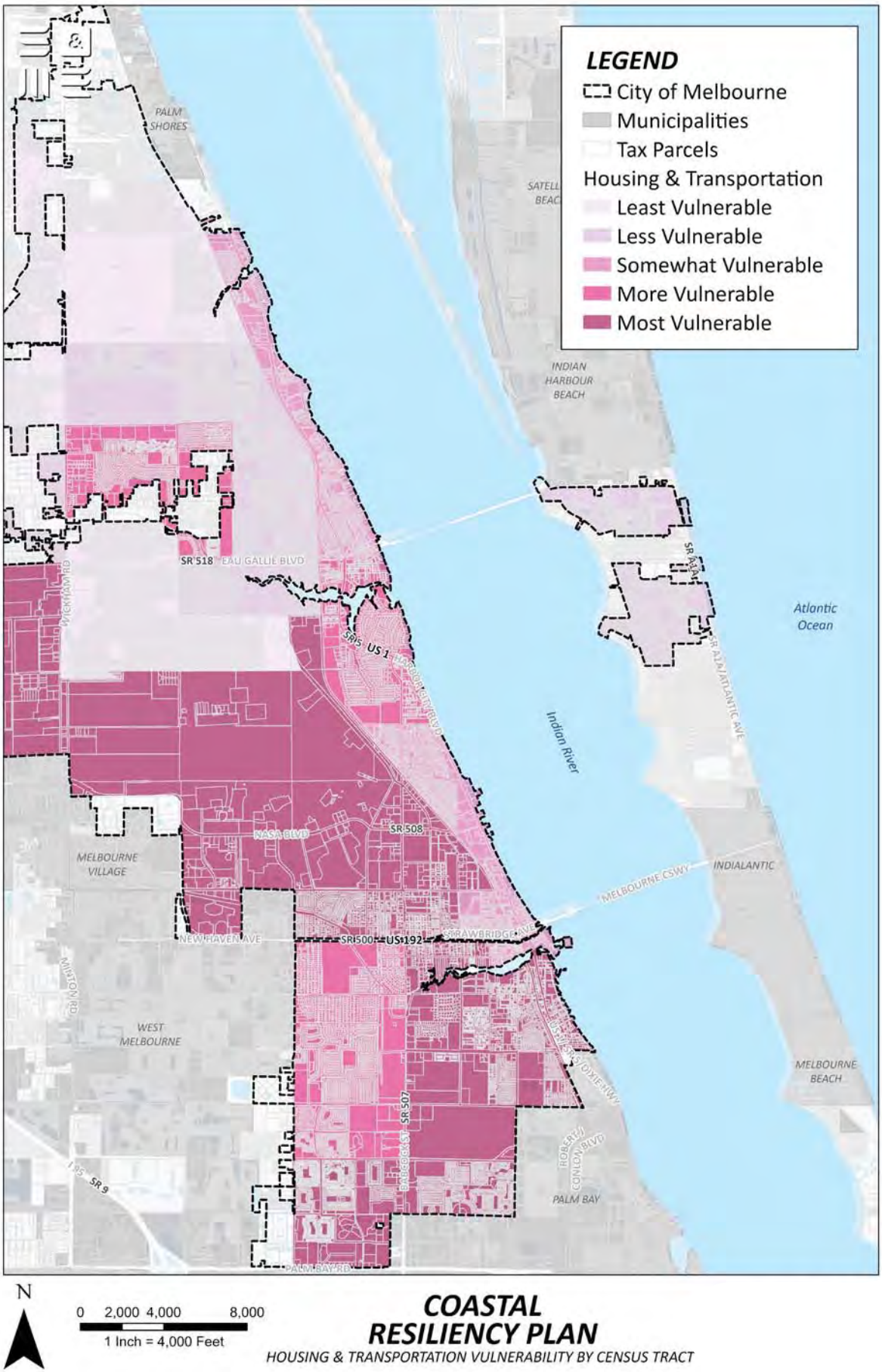
Sources: CDC, FGDL, S&ME, 2020

Figure 4 *Minority Vulnerability by Census Tract*



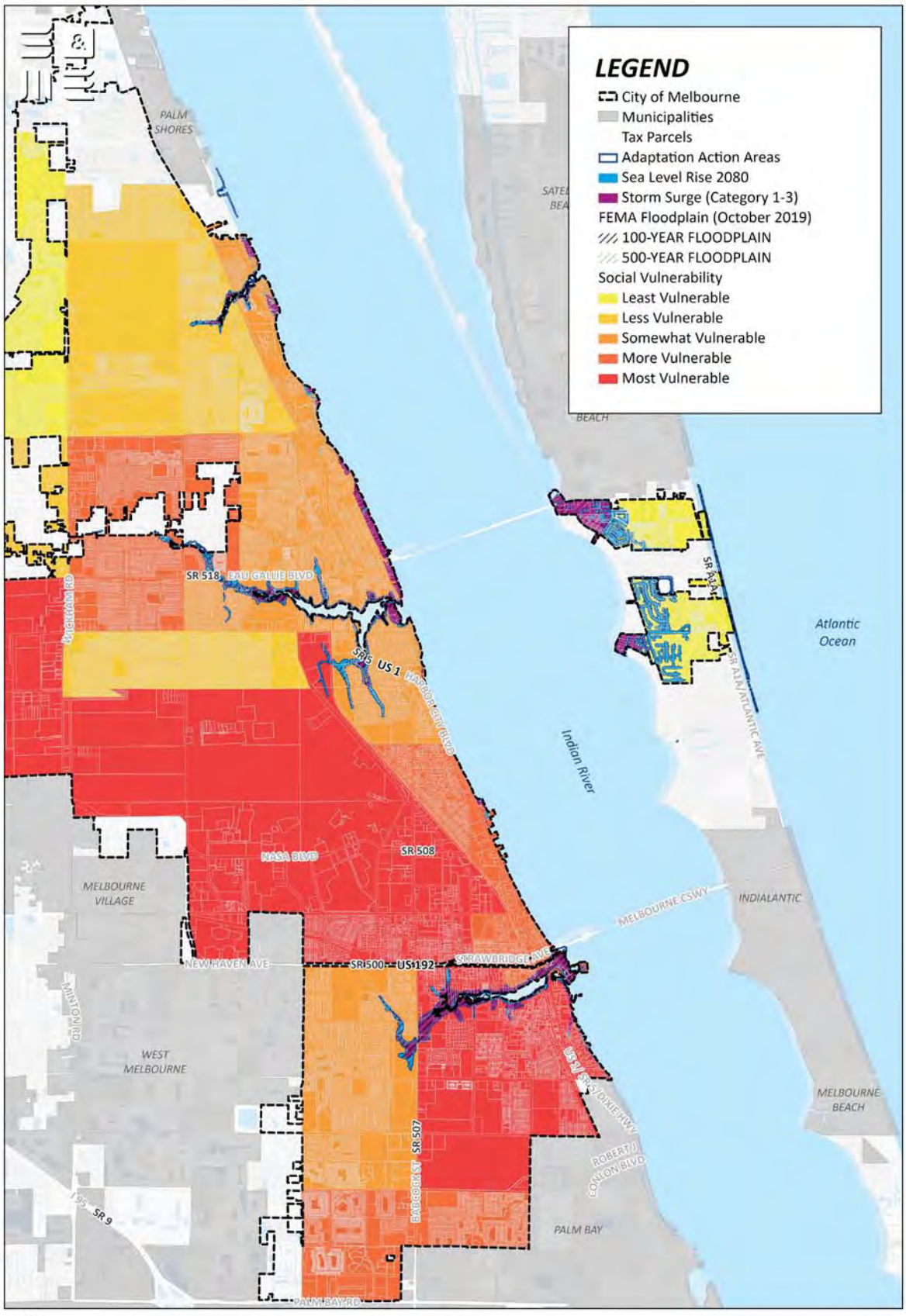
Sources: CDC, FGDL, S&ME, 2020

Figure 5 *Housing & Transportation Vulnerability by Census Tract*



Sources: CDC, FGDL, S&ME, 2020

Figure 6 *Social Vulnerability and Storm, SLR, and Flooding Impacts*



Sources: CDC, FGDL, S&ME, 2020

Social Vulnerability Analysis Results

Social impacts for the purposes of this plan have been analyzed by comparing the CDC's Social Vulnerability Index (SVI) with storm surge from category 1 through 3 hurricanes, floodplains, and 2080 sea level rise. This type of analysis narrows the focus on populations which are most vulnerable and at peril from the most likely scenarios.

Details from each of the four (4) SVI themes or categories have been discussed above. However, this section analyzes the impacts from storm surge, flooding and sea level rise on the overall SVI, which is a summary of the Socioeconomic, Household Composition and Disability, Minority and Language, and Housing and Transportation SVI categories. Based on this review, there are clear areas in the City that are socially at risk from storms, flooding, and sea level rise.

The most obvious area of the City that rates highest on the overall SVI is south of Crane Creek. This area represents a historic African American community that was settled shortly after the Civil War and at one time included a highly productive sawmill that provided the main economic center in this area of the City. Not only does this area rate high on the overall index, but it also rates near the top of each category, as shown on the previous figures.

As mentioned previously, the City is protected by a coastal ridge along the western edge of the Indian River. This ridge provides a significant barrier from rising waters. However, as shown in Figure 6, there are anticipated impacts just beyond the littoral areas of Crane Creek that have the potential of putting this vulnerable population at risk from storm surge, localized/coastal flooding, and sea level rise.

When developing outreach and educational materials, the City should target this area with information that outlines the potential risks of flooding and resources available to this population in the event of a significant storm event. Additionally, for properties currently within a flood zone, property owners should coordinate with FEMA and the City to determine viability of the structure in light of this study.

There are two other areas within the City that rate high on the overall SVI. It should be noted that the Melbourne International Airport property is shown as highly vulnerable in the overall SVI. There is very limited residential within this Census Tract and all that residential is located outside of the impact areas. However, this area should be included in the targeted education campaign as discussed for the Crane Creek area to ensure that residents are informed of the potential risks of being near the coast line.

Along the edge of the Indian River, the two Census Tracts between the Eau Gallie River and Crane Creek show as highly vulnerable based on the household composition and disability index. This is likely due to the age of the homeowners. This area rates low in the other indices, which indicates that these owners have likely lived in this location for a long time but are economically stable and have access to private transportation options. Additionally, this area is within a zone that is among some of the highest elevations in the City keeping it safe from flooding and sea level rise. Again, these property owners should be made aware of the risks of sea level rise and storm surge, particularly as it relates to impacts to evacuation routes.

The last socially vulnerable area that has the potential to be impacted by the coastal scenarios are the Census Tracts adjacent to Eau Gallie River. The most vulnerable tracts are located along the western end of the river between Apollo Boulevard and Wickham Road. This area includes a high concentration of single family residences. However, the impacts from sea level rise, coastal flooding, and storm surge (cat. 1 – 3) are minimal. Over the years, the City has been astute to convert several of the littoral areas to conservation to allow for flood storage and to prevent future development. This area should also be a focus of the public outreach and education of potential impacts from storms and rising sea levels.

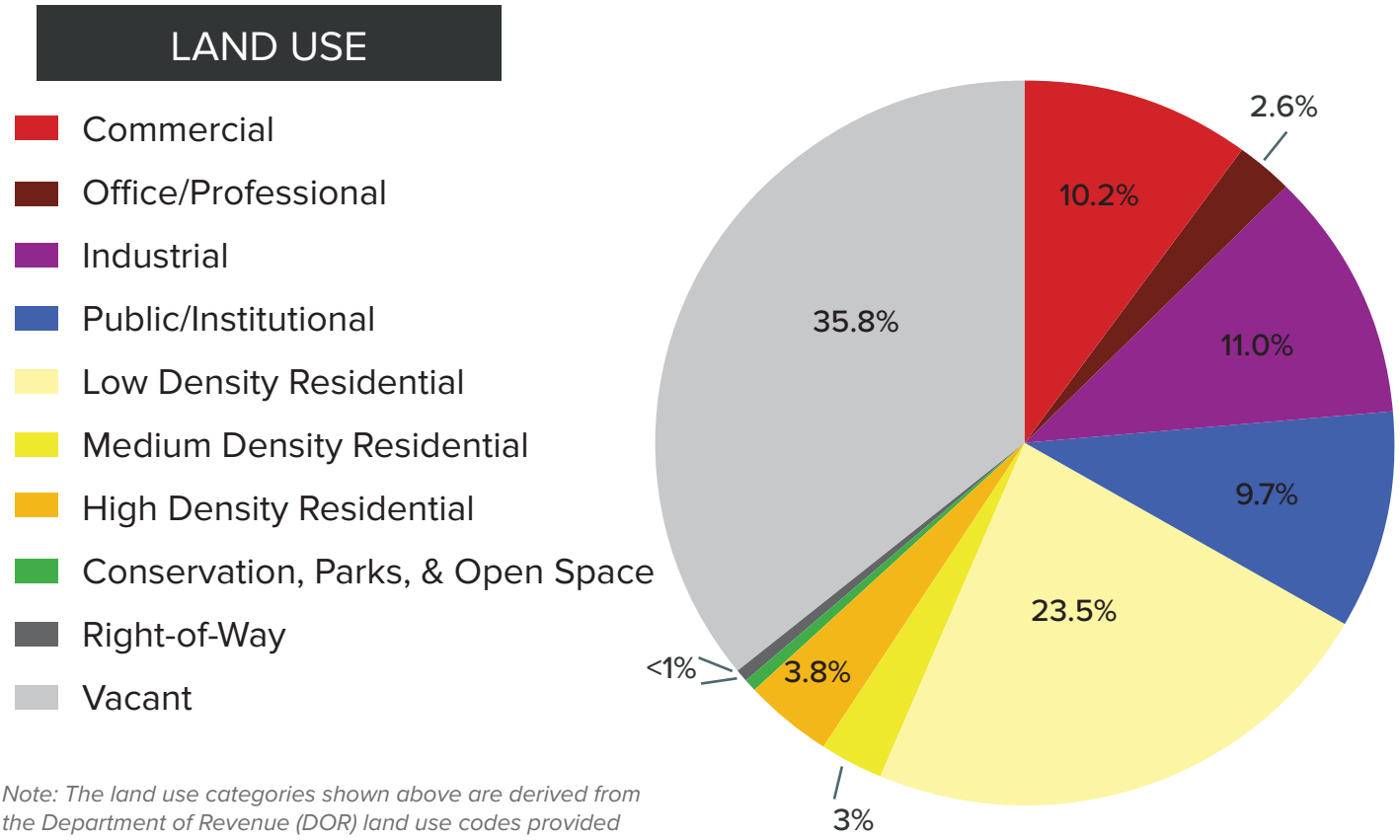
VULNERABILITY ASSESSMENT


Trinity Towers East

Existing Land Use

To understand the potential financial risks and general vulnerability of the City of Melbourne, it is necessary to better understand present land use patterns, especially the land uses that will be most affected by flooding, sea level rise, and storm surge events. Figure 7 depicts the existing land use and development patterns by parcel in the City, as of 2020. The existing land use (ELU) inventory was derived from the property appraiser's parcel data and has been generalized by S&ME for ease of use.

Figure 7 *Existing Land Uses, 2020*

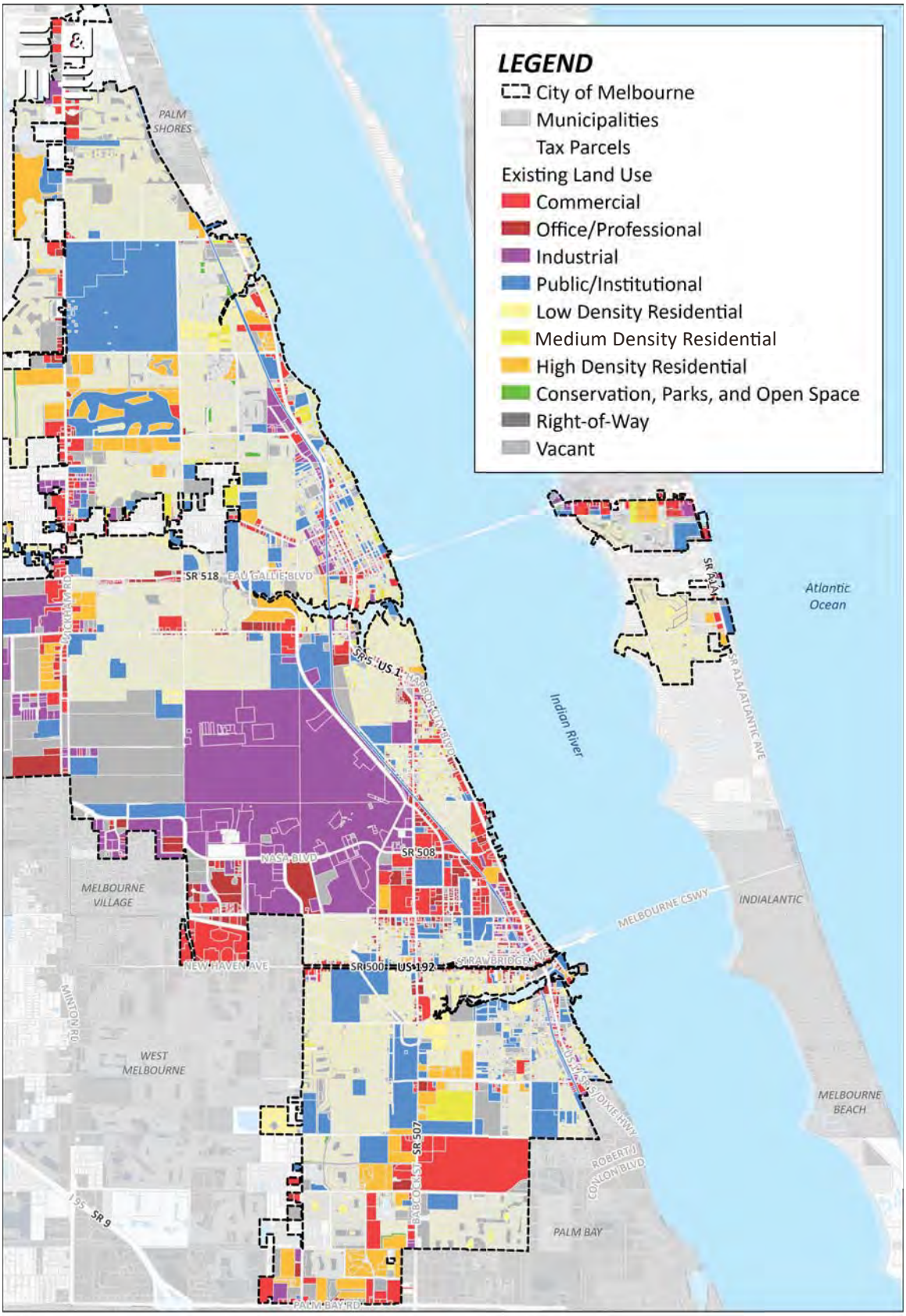


Note: The land use categories shown above are derived from the Department of Revenue (DOR) land use codes provided within the most recent version of the Brevard County Property Appraiser's parcel shapefile.

Sources: Brevard County Property Appraiser, City of Melbourne, S&ME, 2020

Figure 7 and Figure 8 show land use by category within the City. The predominant use of land within the County is Low Density Residential, which currently comprises 23.5% of the City's or a total land area of 5,905 acres. The second largest land area within the County is Industrial at 11% (or 2,771 acres). Approximately 36% of the City's land area is classified as vacant, meaning that these properties are either undeveloped, unimproved, or abandoned properties. This includes lots in subdivisions that have already been platted, but are not developed, as well as lands that currently have no active uses. The vacant land is generally located in subdivisions which have yet to be developed and along the western side of the city, adjacent to the industrial land use.

Figure 8 *Existing Land Use, 2020*



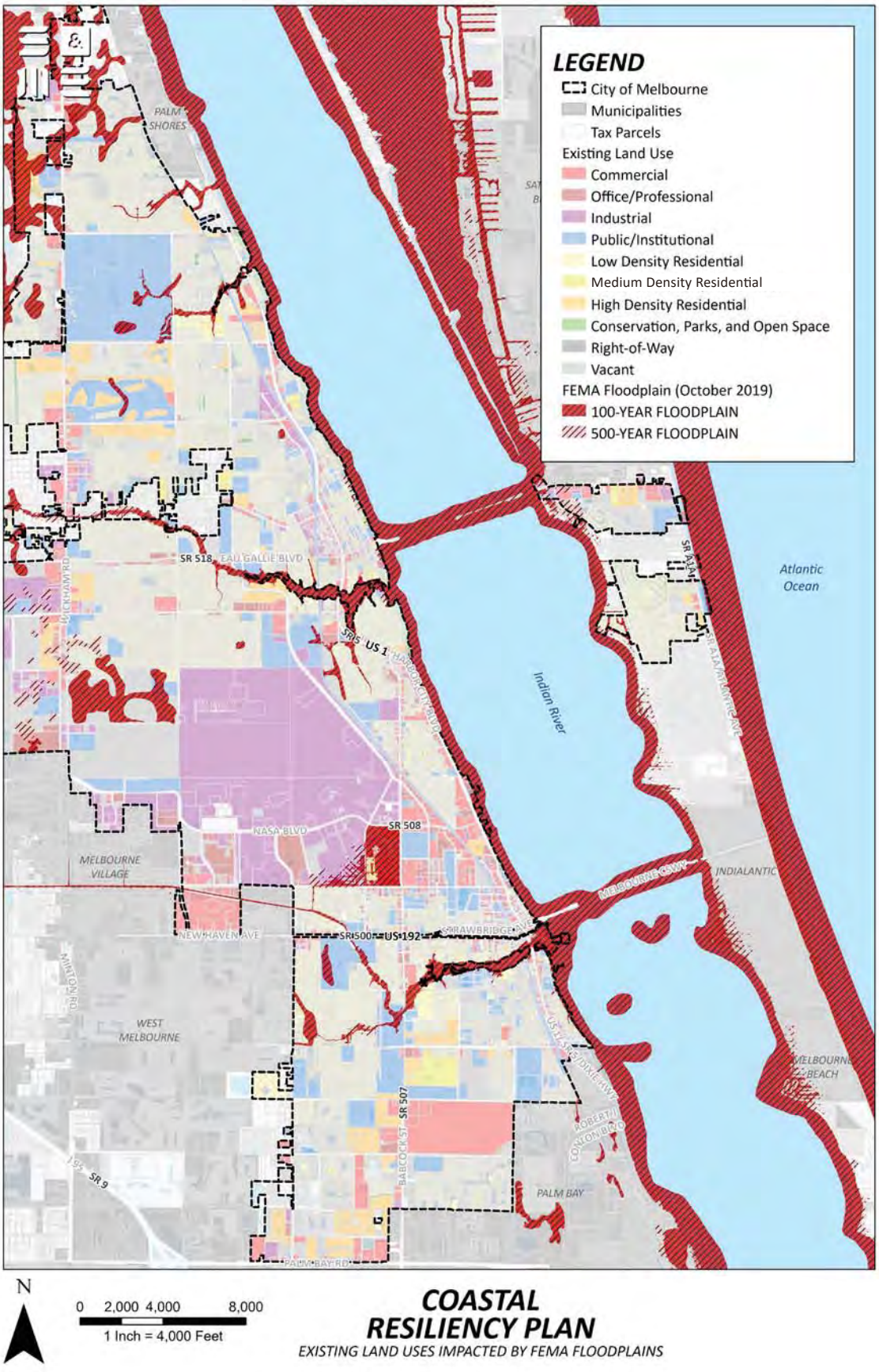
Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020

FEMA Floodplains

Figure 9 shows the FEMA designated floodplains, both the 100-year floodplain and the 500-year floodplain, as the floodplains affect the land use in the City. The 100-year floodplain indicates areas that have a 1% annual chance of flooding, while the 500-year floodplain areas have a 0.2% annual chance of flooding. The 100-year floodplain affects all coastal portions of the City, as well as parcels abutting the creeks and rivers which run into the Indian River Lagoon. Most of these parcels are low density residential or commercial uses. The northwestern portion of the City has many parcels, mostly low density residential, which are part of the 100-year floodplain. Directly west of the Melbourne International Airport, there is a large vacant parcel which is almost covered by the 100-year floodplain.

The 500-year floodplain is less prevalent in the City. Some of the parcels abutting the Indian River Lagoon (specifically those parcels on the barrier island) are affected by the 500-year floodplain with many of these parcels being low density residential. The west side of the City, south of SR 518, there are many parcels which are affected by the 500-year floodplain, including industrial, commercial, public/institutional, residential, and vacant uses.

Figure 9 *Existing Land Use Impacted by FEMA Floodplains, 2020*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020

Storm Surge

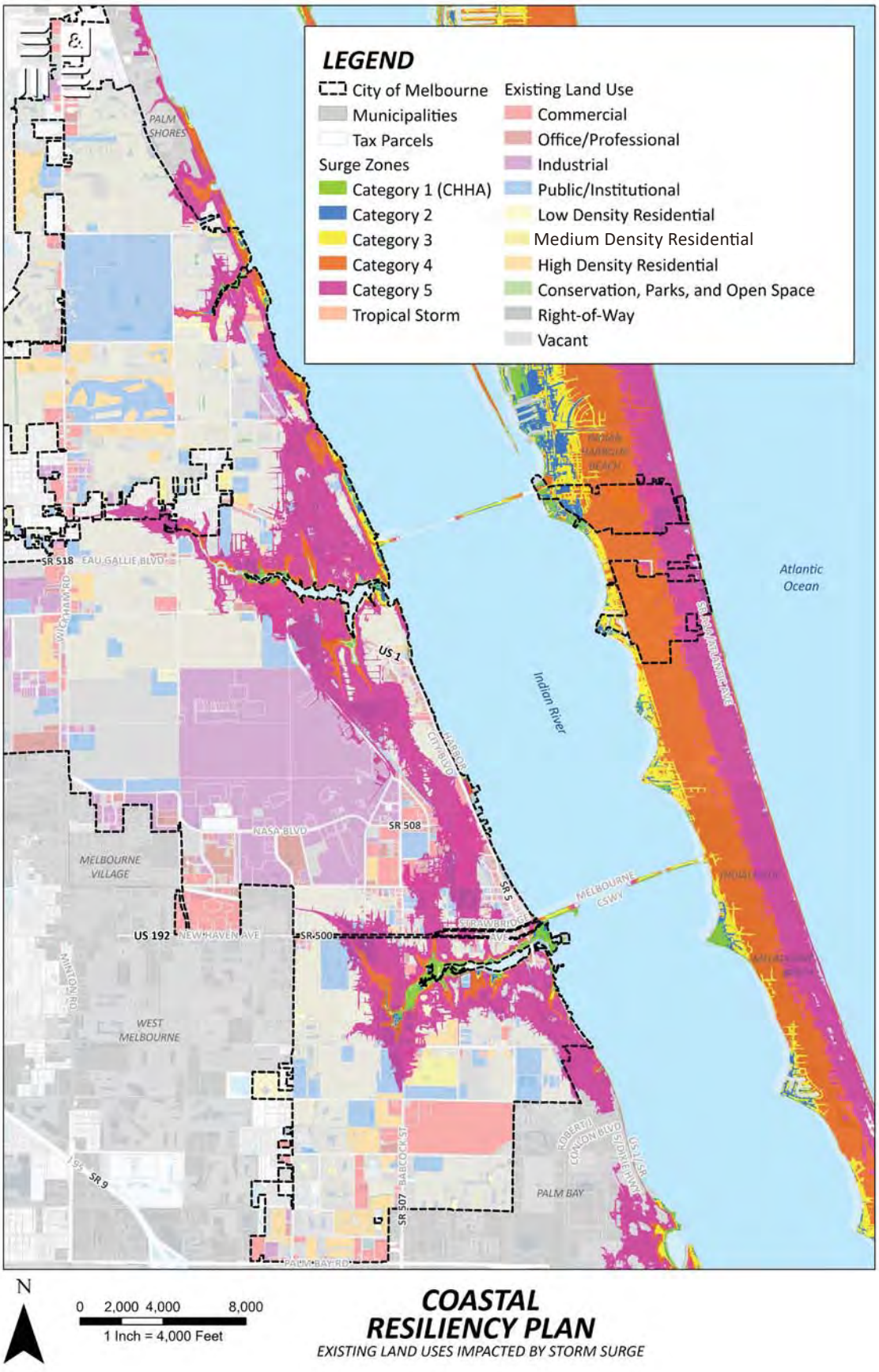
By mapping the impact of storm surge, the City can assess how residents and property will be affected by Tropical Storms and Hurricanes, depending upon the category or severity of the event. One category is the Coastal High Hazard Areas (CHHA), which is defined as the area below the elevation of the Category 1 storm surge line as established by a Sea, Lake and Overland Surges from Hurricanes ("SLOSH") computerized storm surge model.[1]

Figure 10 shows the impacts of the CHHA on the existing land use. There are no parcels in Melbourne which are impacted by the Tropical Storm surge. The areas of the City within the Category 1 surge zone are immediately abutting bodies of water, including the Indian River Lagoon and the rivers and creeks which run through the City, eventually emptying into the Indian River Lagoon. The parcels impacted by the Category 1 surge zone vary in use, but most are low density residential with some high density residential, public/institutional, and industrial uses.

The parcels impacted by the Category 2 storm surge occur in similar areas to those impacted by the Category 1 storm surge, though continuing further in-land there are three main areas: residential parcels along the Indian River Lagoon, just north of the Eau Gallie Causeway; vacant and light manufacturing parcels on the northwest boundary of the City on the barrier island; and residential, commercial, and public institutional parcels south of the Eau Gallie Causeway. Parcels impacted by the Category 3 storm surge are along the Indian River Lagoon mainland and barrier island coasts. Most of these parcels are low density residential and commercial. Category 4 and 5 surge zones dominate the barrier island as well as a large portion of the eastern part of the mainland. The land uses impacted by these two surge zones vary widely, with the majority being low density residential since this is the most prolific land use in the city (almost 25% of acreage).

1 Committee of the Whole: Coast High Hazard Area (CHHA). City of St. Petersburg. 2019. https://www.stpete.org/planning_zoning/docs/COW%20CHHA%20Staff%20Report.pdf

Figure 10 *Existing Land Use Impacted by Storm Surge, 2020*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020

Sea Level Rise

Sea Level Rise (SLR) projections show the parcels which are at risk of being under water in the future. As projections go further in the future, both the effects of the SLR are more extreme and the certainty decreases due to future alterations in climate policy and change in conditions through time. Data from NOAA shows that along the U.S. coastline, high-tide flooding is 300% to 900% more frequent than it was 50 years ago.[1]

Figure 13 shows the impacts of the projected SLR in 2040. This data is based upon inundation models from NOAA's Extreme SLR Projections (N6). The inundation is projected to be up to 74 inches in some areas of the State (not necessarily in the vicinity of Melbourne). The SLR by 2040 will impact relatively few parcels in the City. The most affected parcels are just south of US 192 along the banks of Crane Creek which are low density residential, commercial, public/institutional, or vacant parcels. Other impacted parcels are almost exclusively low density residential. There are also some parcels along the Eau Gallie River which are minimally affected by SLR inundation. As can be seen in Figure 13, there is a range of impact upon the parcels which is marked by the gradation of tone. In Figure 11 and Figure 12, the affected parcels along Crane Creek and the Eau Gallie River can be viewed more closely.

Figure 11 *Eau Gallie River SLR Impacts (2040)*

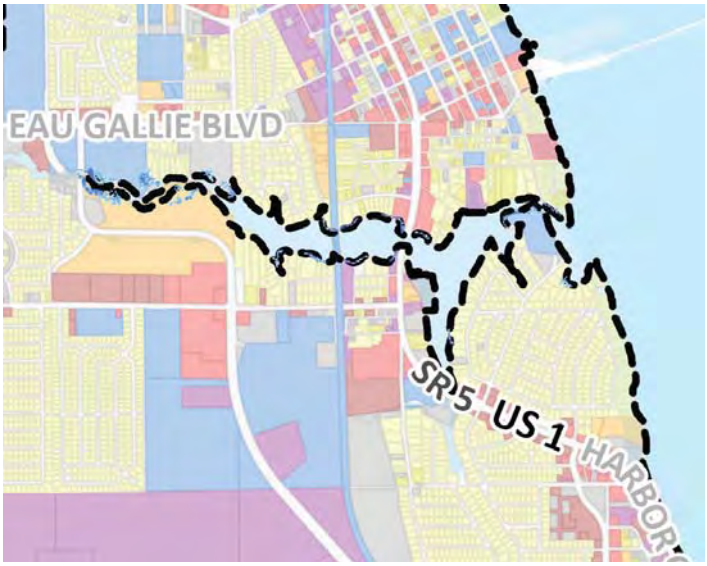
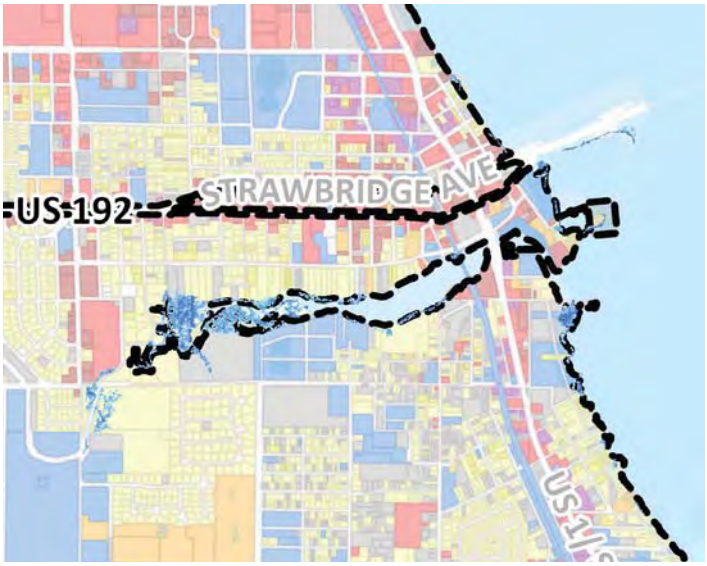


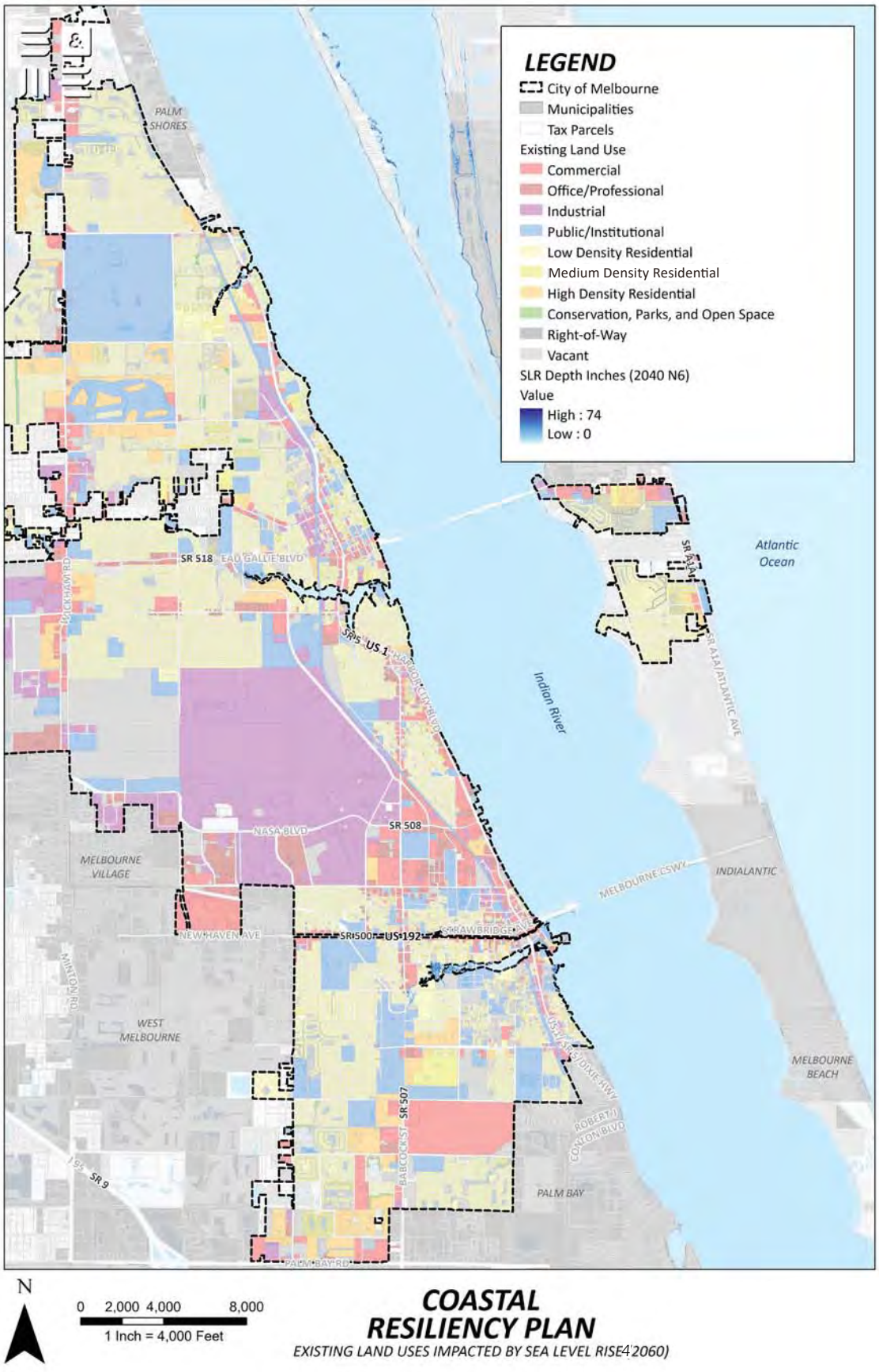
Figure 12 *Crane Creek SLR Impacts (2040)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

1 NOAA. 2021. https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level

Figure 13 *Existing Land Use Impacted by Sea Level Rise (2040)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 16 shows the impacts of the projected SLR in 2060, based upon NOAA's Extreme SLR Projections (N6). The inundation is projected to be up to 98 inches in some areas of the State (not necessarily in the vicinity of Melbourne). The projected SLR in 2060 will impact more parcels, including parcels along Crane Creek and Eau Gallie River. Along Crane Creek, low density residential, commercial, public/institutional, and vacant parcels will be impacted. Along the Eau Gallie River, the affected parcels are high density residential, low density residential, public/institutional, and vacant parcels.

Parcels along the west side of the barrier island will also be impacted, including public/institutional and low density residential. As can be seen in Figure 16, there is a range of impact upon the parcels which is marked by the gradation of tone. As expected, the 2060 SLR projections show an increase in impacted parcels compared to the 2040 SLR projections. In Figure 14 and Figure 15, the affected parcels along Crane Creek and the Eau Gallie River can be viewed more closely.

Figure 14 *Eau Gallie River SLR Impacts (2060)*

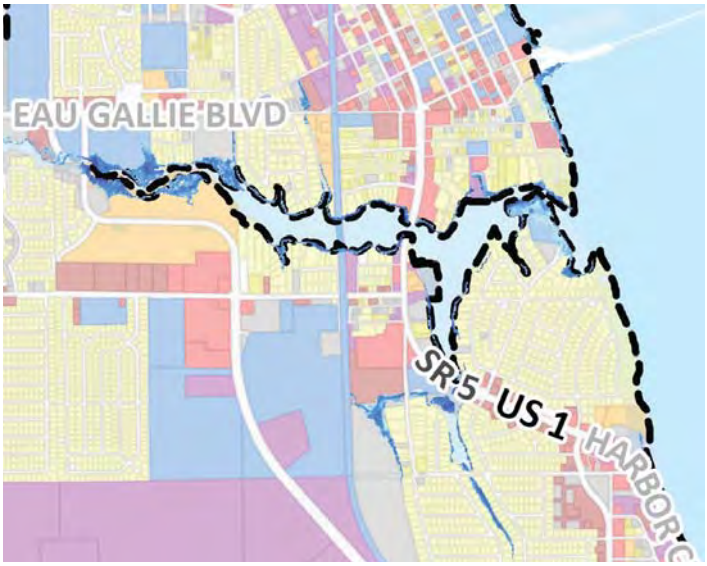
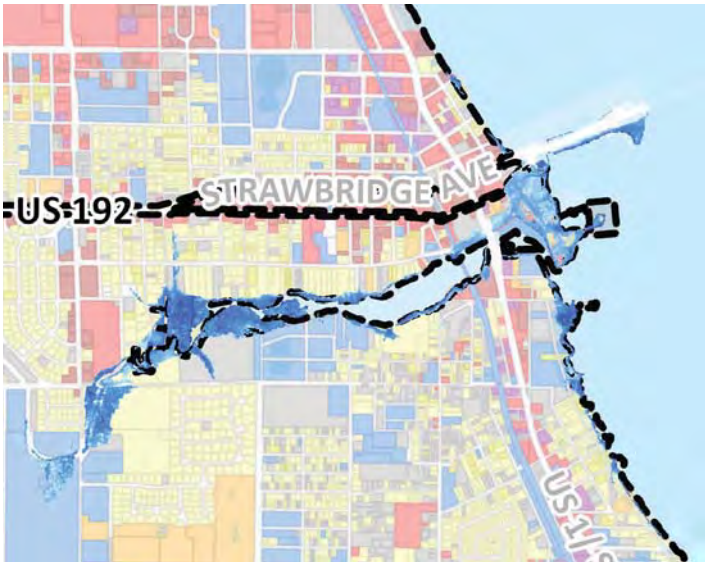
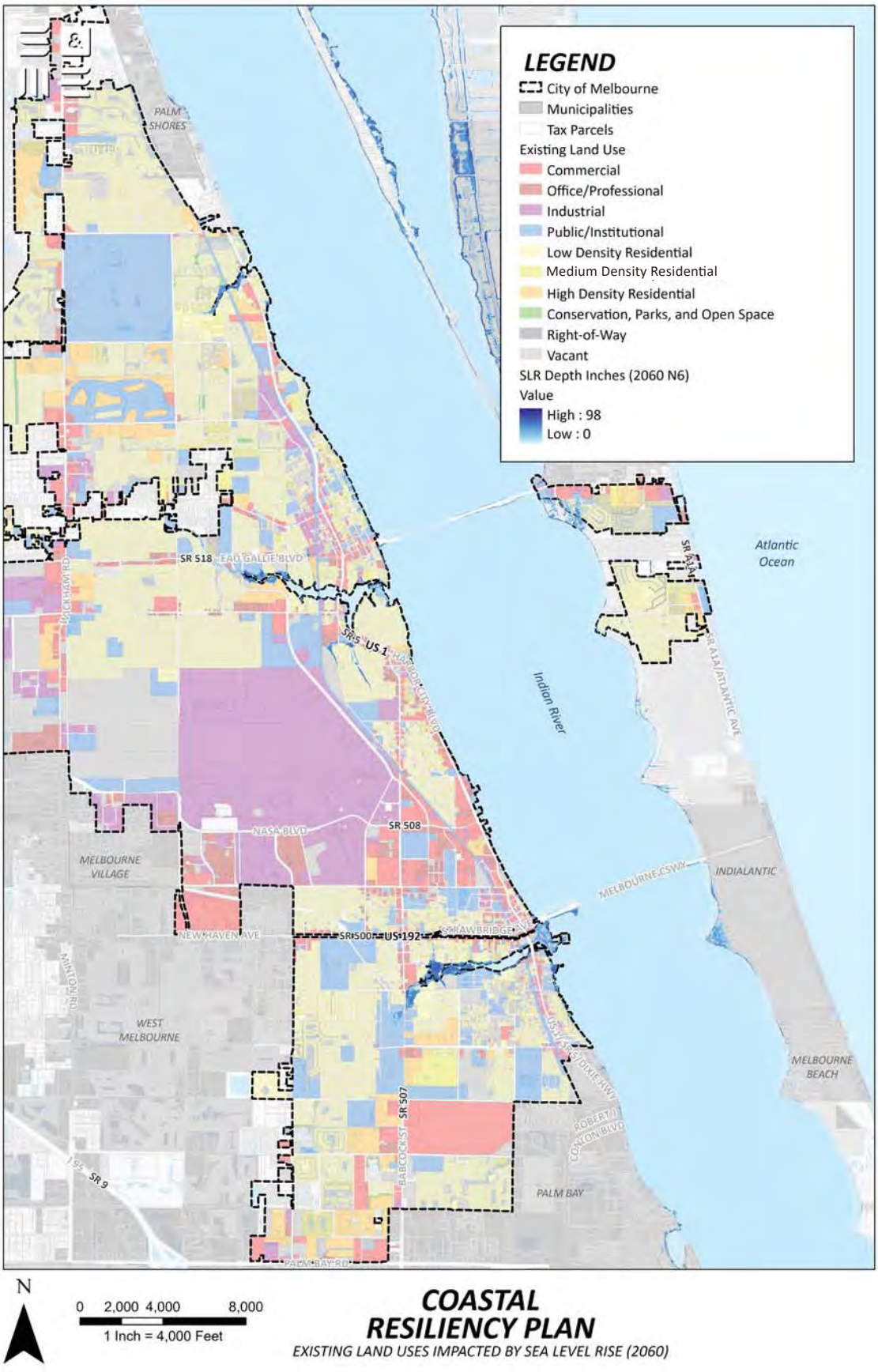


Figure 15 *Crane Creek SLR Impacts (2060)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 16 *Existing Land Use Impacted by Sea Level Rise (2060)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 19 shows the impacts of the projected SLR in 2080, based upon NOAA's Extreme SLR Projections (N6). The inundation is projected to be up to 131 inches in some areas of the State (not necessarily in the vicinity of Melbourne). The projected SLR in 2080 will impact significantly more parcels than previous projections. Similar to the 2060 SLR projection, parcels along Crane Creek, Eau Gallie River, and on the east side of the barrier island are the most impacted. Along Crane Creek, low density residential, medium density residential, commercial, public/institutional, and vacant parcels will be impacted. Along the Eau Gallie River, the affected parcels are high density residential, low density residential, office/professional, public/institutional, and vacant parcels.

Parcels along the west side of the barrier island will be intensely impacted, including public/institutional, mixed use, high density residential, low density residential, and vacant parcels. As can be seen in the Figure 19, there is a range of impact upon the parcels which is marked by the gradation of tone. In Figure 17 and Figure 18, the affected parcels along Crane Creek and the Eau Gallie River can be viewed more closely.

Figure 17 *Eau Gallie River SLR Impacts (2080)*

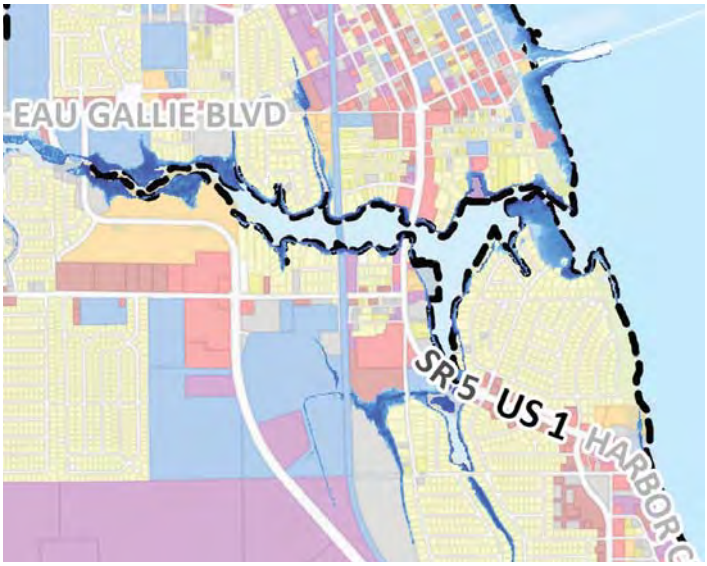
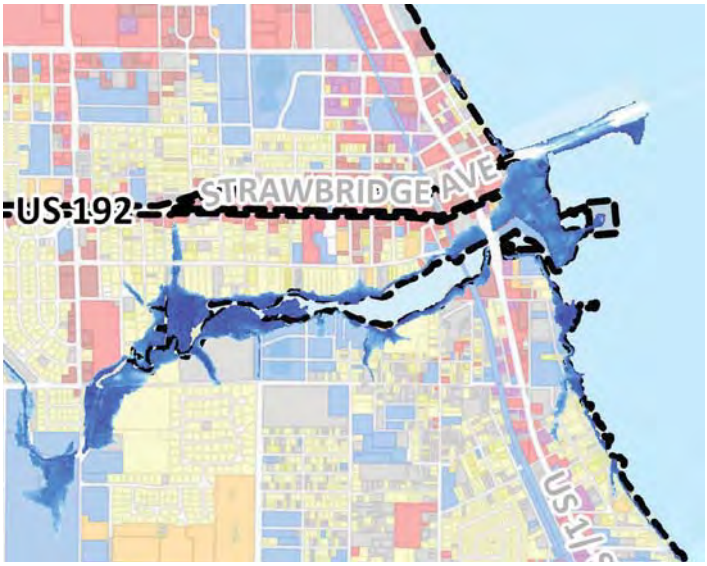
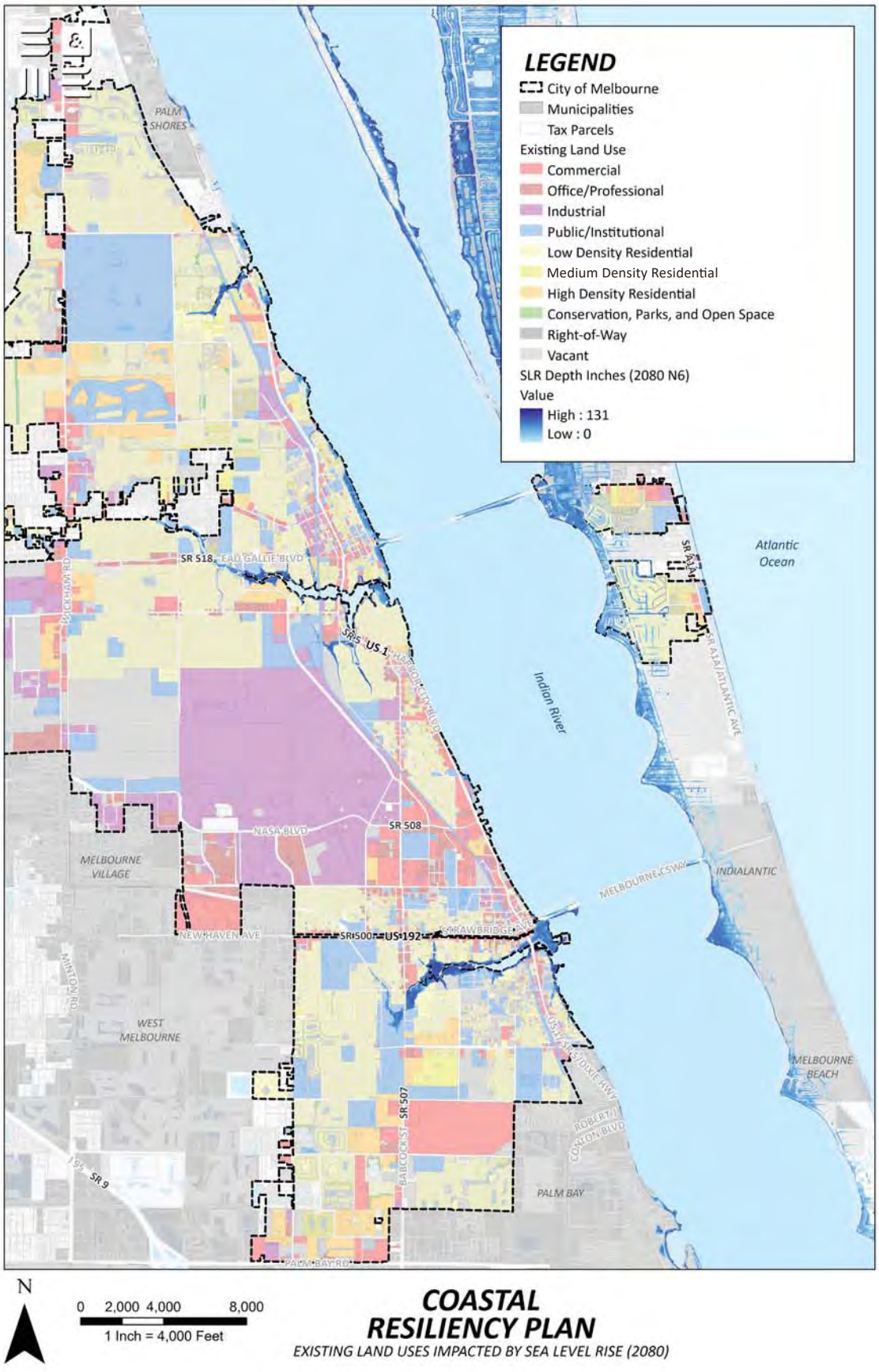


Figure 18 *Crane Creek SLR Impacts (2080)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 19 *Existing Land Use Impacted by Sea Level Rise (2080)*



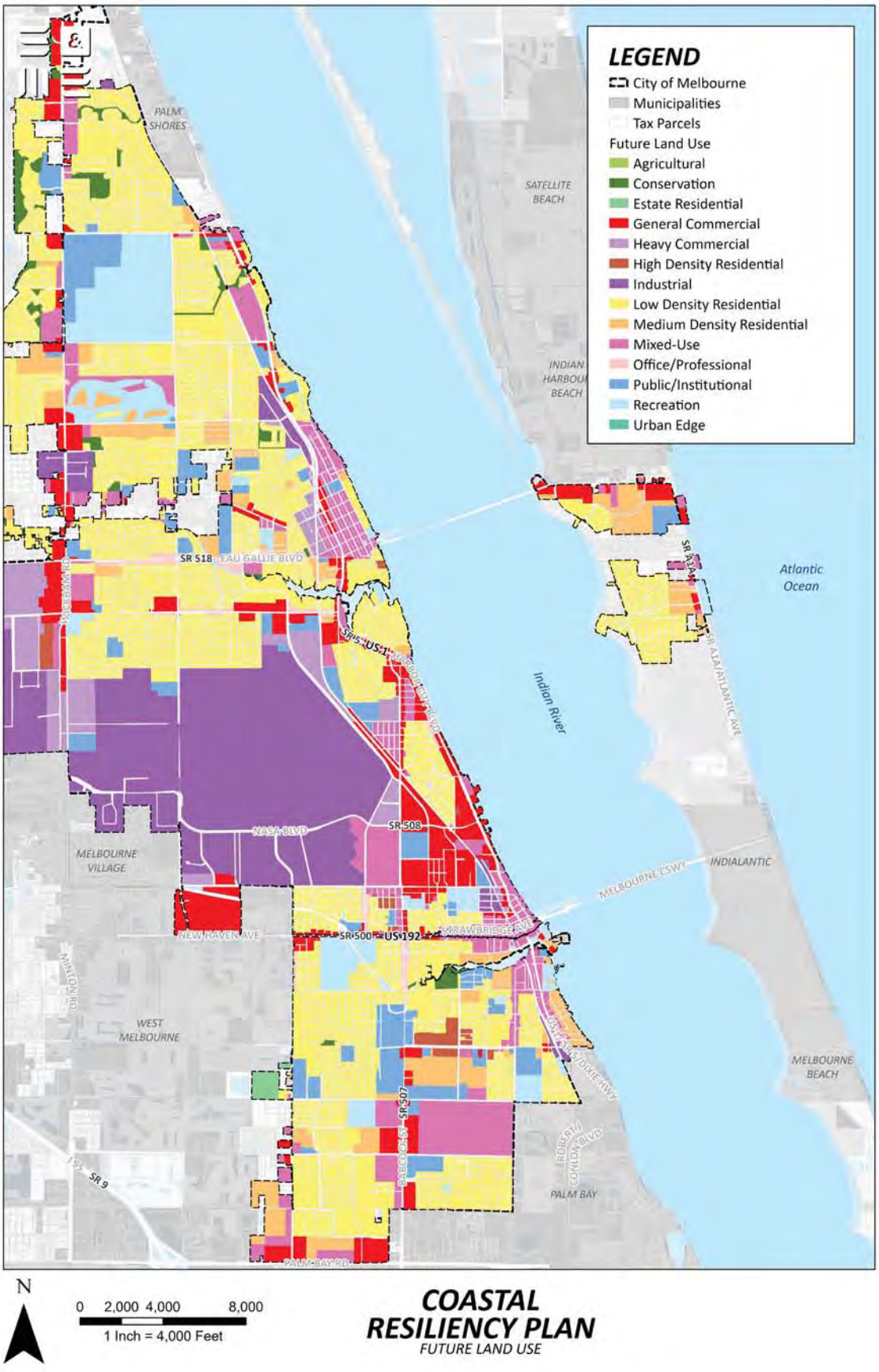
Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Future Land Use

As discussed in the previous section, the most prominent land use in the City is residential. This also applies to future land use, where the majority of City parcels are designated for Low Density Residential uses. Figure 20 shows there are pockets of land designated as Commercial along major road corridors, and in the middle of the City, the vast majority of Industrial and Heavy Commercial parcels are found.

Source: Aral Tasher, Railroad Bridge over Crane Creek

Figure 20 *Future Land Use*



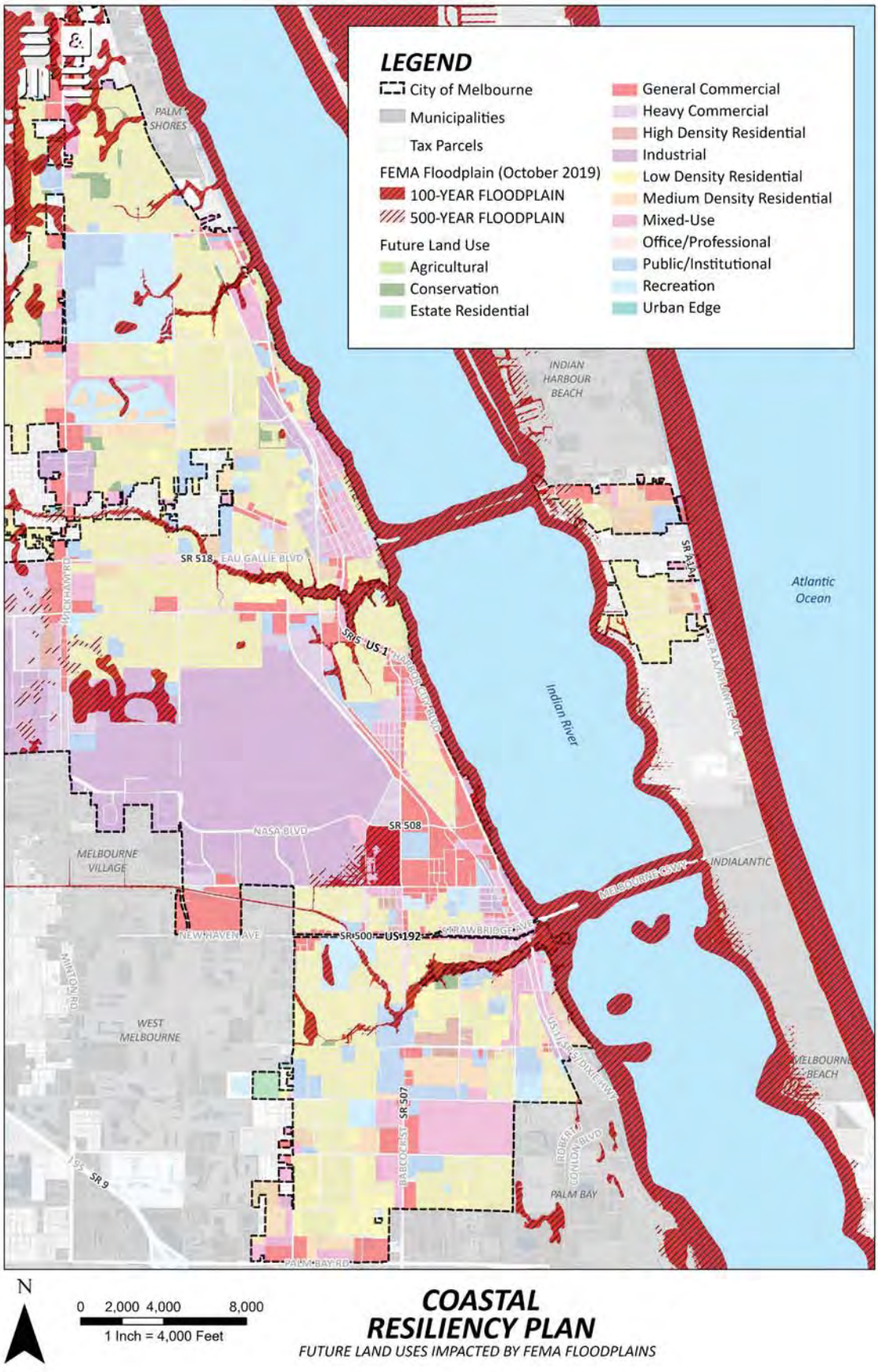
Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020

FEMA Floodplains

Figure 21 shows the FEMA designated floodplains and how the floodplains affect the designated land use in the City. The 100-year floodplain affects all coastal portions of the City, as well as parcels abutting the creeks and rivers which drain into the Indian River Lagoon. Many of the parcels abutting the rivers and creeks are Low Density Residential, while the parcels abutting the Indian River Lagoon are more varied, including General Commercial, Heavy Commercial, Recreational, and Low Density Residential. The northwestern portion of the City has many parcels, with designations of Low Density Residential, General Commercial, Public/Institutional, Recreational, and Conservation, which are included in the 100-year floodplain. In the western part of the City, the 100-year floodplain covers several parcels designated as Heavy Commercial, Industrial, Recreation, and Low Density Residential.

The 500-year floodplain is less prevalent in the City of Melbourne, and in some areas of the City, it directly abuts the 100-year floodplain. Some of the parcels abutting the Indian River Lagoon (specifically those parcels on the barrier island) are affected by the 500-year floodplain with many of these parcels being designated as Low Density Residential or General Commercial. On the western edge of the City, south of SR 518, there are several parcels which are affected by the 500-year floodplain, including Industrial, General Commercial, Heavy Commercial, Mixed-Use, Public/Institutional, Low Density Residential, and High Density Residential properties.

Figure 21 *Future Land Use Impacted by FEMA Floodplains*



Sources: Brevard County Property Appraiser, City of Melbourne, FEMA, FGDL, S&ME, 2020

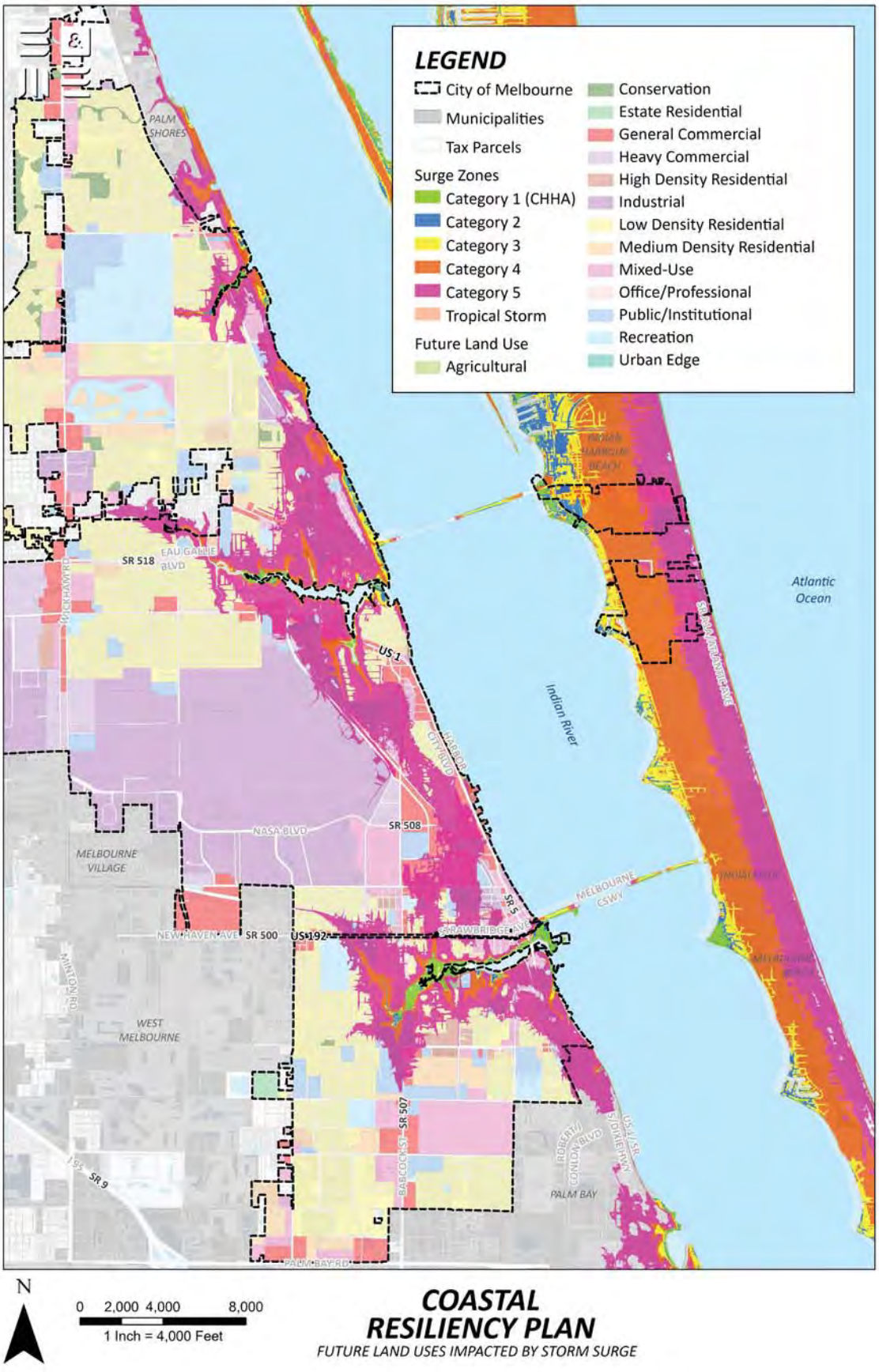
Storm Surge

Figure 22 shows the impacts of the storm surge on designated future land use within the City. There are no parcels in Melbourne which are impacted by Tropical Storm surge. The areas of the City within the Category 1 surge zone are immediately abutting bodies of water, including Indian River Lagoon and the rivers and creeks which run through the city emptying into the Indian River Lagoon. The parcels impacted by the Category 1 storm surge vary in use, but many are designated for Low Density Residential and General Commercial uses, specifically those along the Indian River Lagoon coast. Other parcels are designated for Mixed-Use, Medium Density Residential, and Public Right-of-Way. The parcels impacted by the Category 2 storm surge occur in similar areas to those impacted by the Category 1 surge zone, though continuing further in-land. There are several main areas which are impacted: parcels south of Strawbridge Avenue, including Medium Density Residential and Public/ Institutional uses; General Commercial and Low Density Residential parcels along Indian River Lagoon; and residential and General Commercial parcels along the western edge of the barrier island.

Parcels impacted by the Category 3 storm surge are along the Indian River Lagoon mainland and barrier island coasts. Most of these parcels are shown on the Future Land Use Map as Low Density Residential, General Commercial, and Mixed-Use designations. Category 4 and 5 surge zones dominate the barrier island as well as a large portion of the eastern part of the mainland. The future land uses impacted by these two surge zones vary widely, with the majority being Low Density Residential and Mixed-Use future land use designations. Some impacted parcels are also designated as Heavy Commercial and Medium Density Residential.

Source: Florida Today

Figure 22 *Future Land Use Impacted by Storm Surge*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020

Sea Level Rise

Figure 25 shows the inundation of the projected SLR in 2040. The SLR by 2040 will impact relatively few parcels. The most affected parcels are just south of US 192 along the banks of Crane Creek which are mostly designated as Low Density Residential, Conservation, Public/Institutional, or Recreational. Parcels bordering the Eau Gallie River are also projected to be impacted. Many of the parcels in this area are designated as Low Density Residential, Mixed-Use, and Conservation. In Figure 23 and Figure 24, the affected parcels along Crane Creek and the Eau Gallie River can be viewed more closely.

Figure 23 *Eau Gallie River SLR Impacts (2040)*

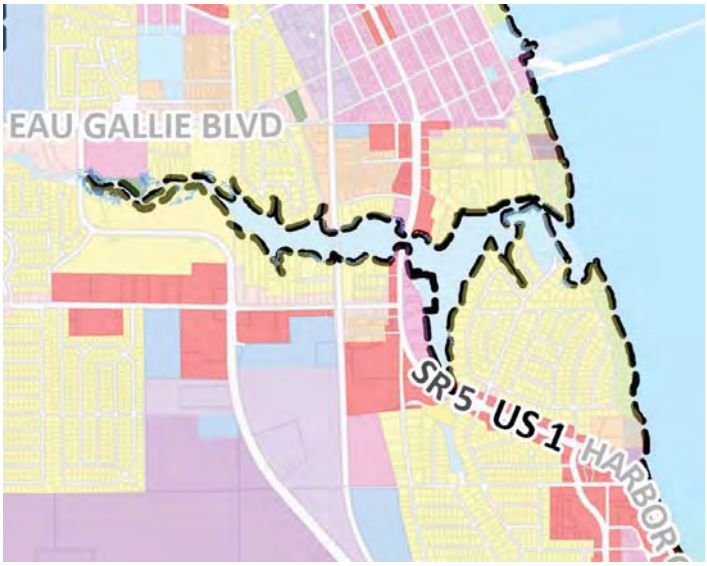
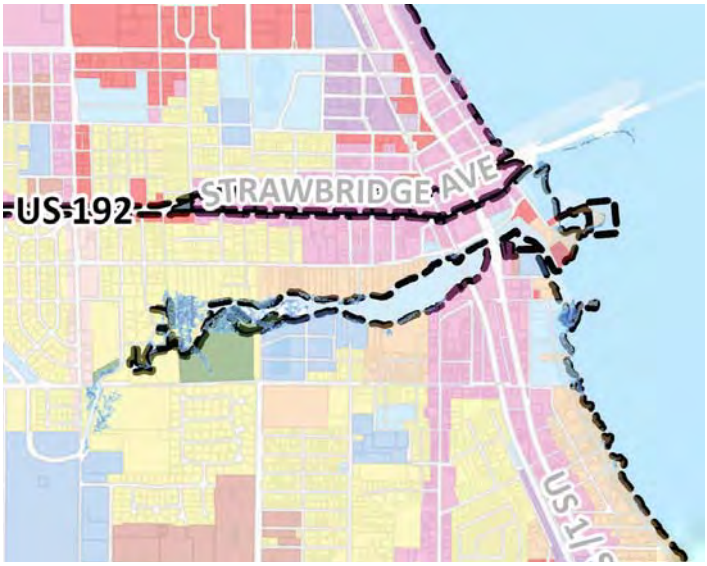
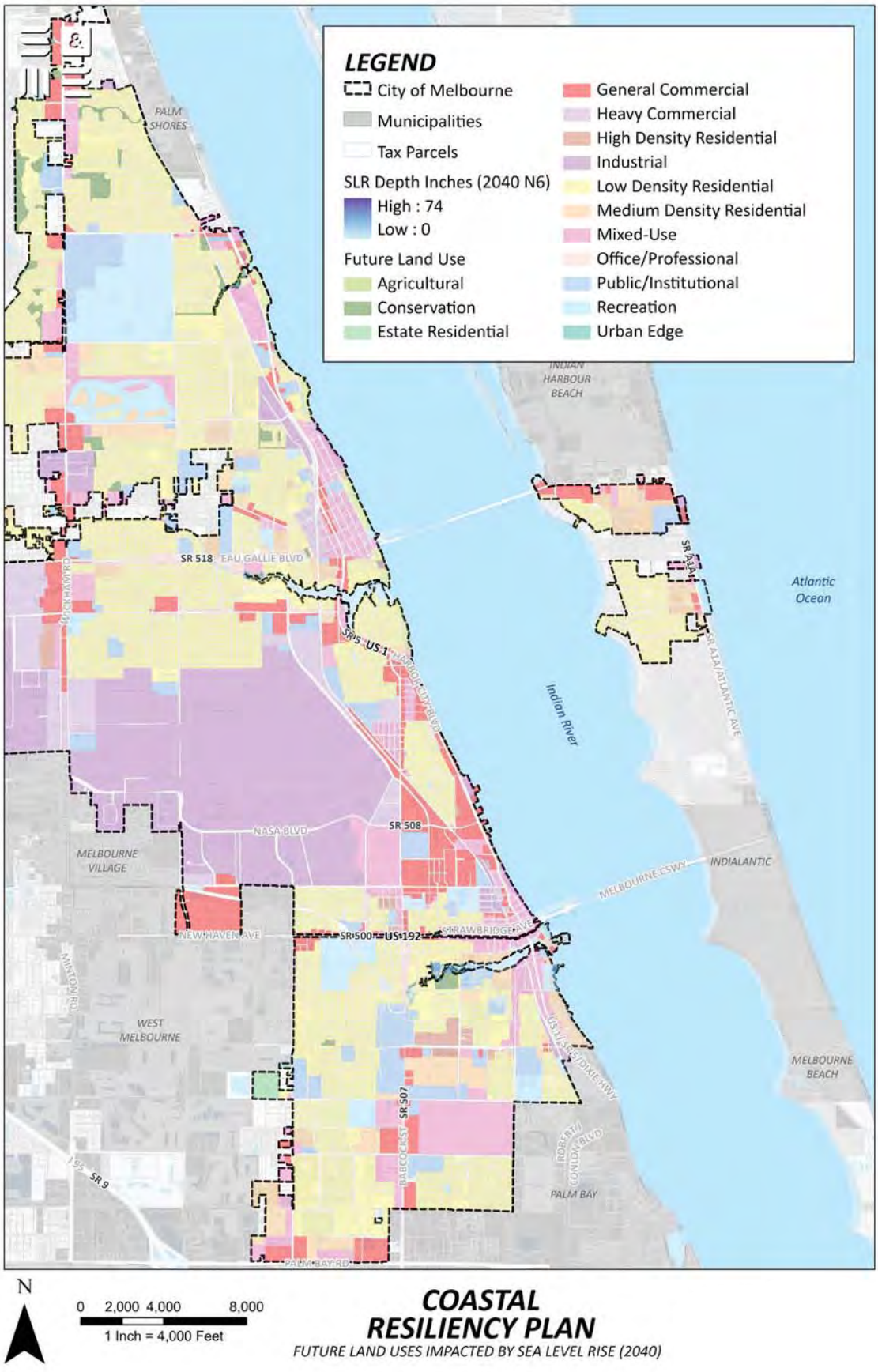


Figure 24 *Crane Creek SLR Impacts (2040)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 25 *Future Land Use Impacted by Sea Level Rise (2040)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 28 shows the impacts of the projected SLR in 2060. The projected SLR in 2060 will impact more parcels, including properties along Crane Creek and the Eau Gallie River. The impacted parcels along Crane Creek are designated as Mixed-Use, Medium Density Residential, Conservation, Recreation, Public/Institutional, and General Commercial. The impacted parcels along Eau Gallie River are designated as Low Density Residential, Medium Density Residential, Mixed-Use, and General Commercial. Along the western side of the barrier island, there are impacted parcels designated as General Commercial, Low Density Residential, and Medium Density Residential. Other impacted parcels throughout the City are designated as Mixed-Use, Low Density Residential, Conservation, or General Commercial.

Again, the gradation of impact shows that some parcels are expected to be inundated with water by 2060. In Figure 26 and Figure 27, the affected parcels along Crane Creek and the Eau Gallie River can be viewed more closely.

Figure 26 *Eau Gallie River SLR Impacts (2060)*

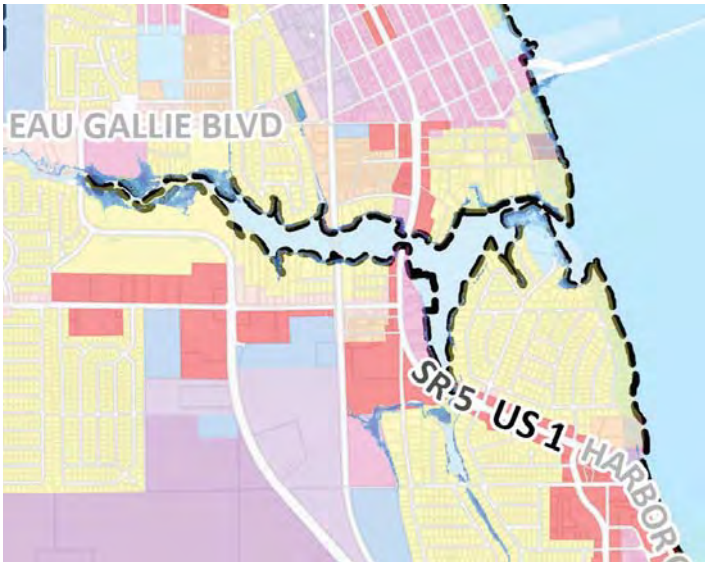
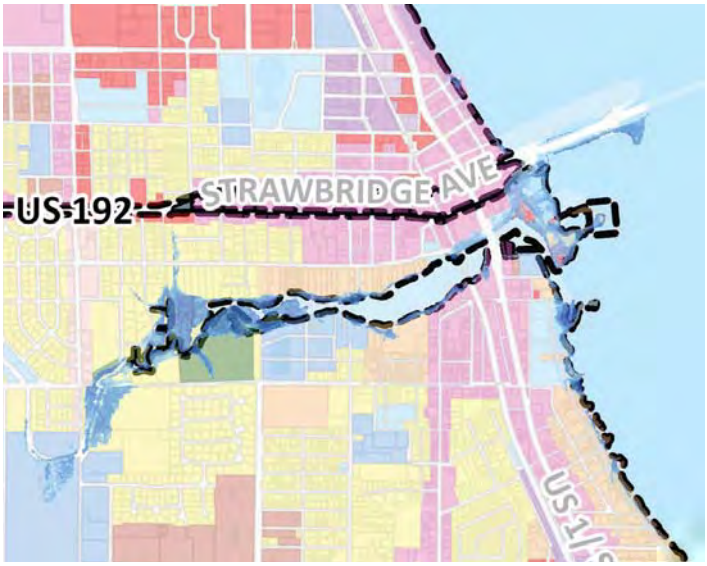
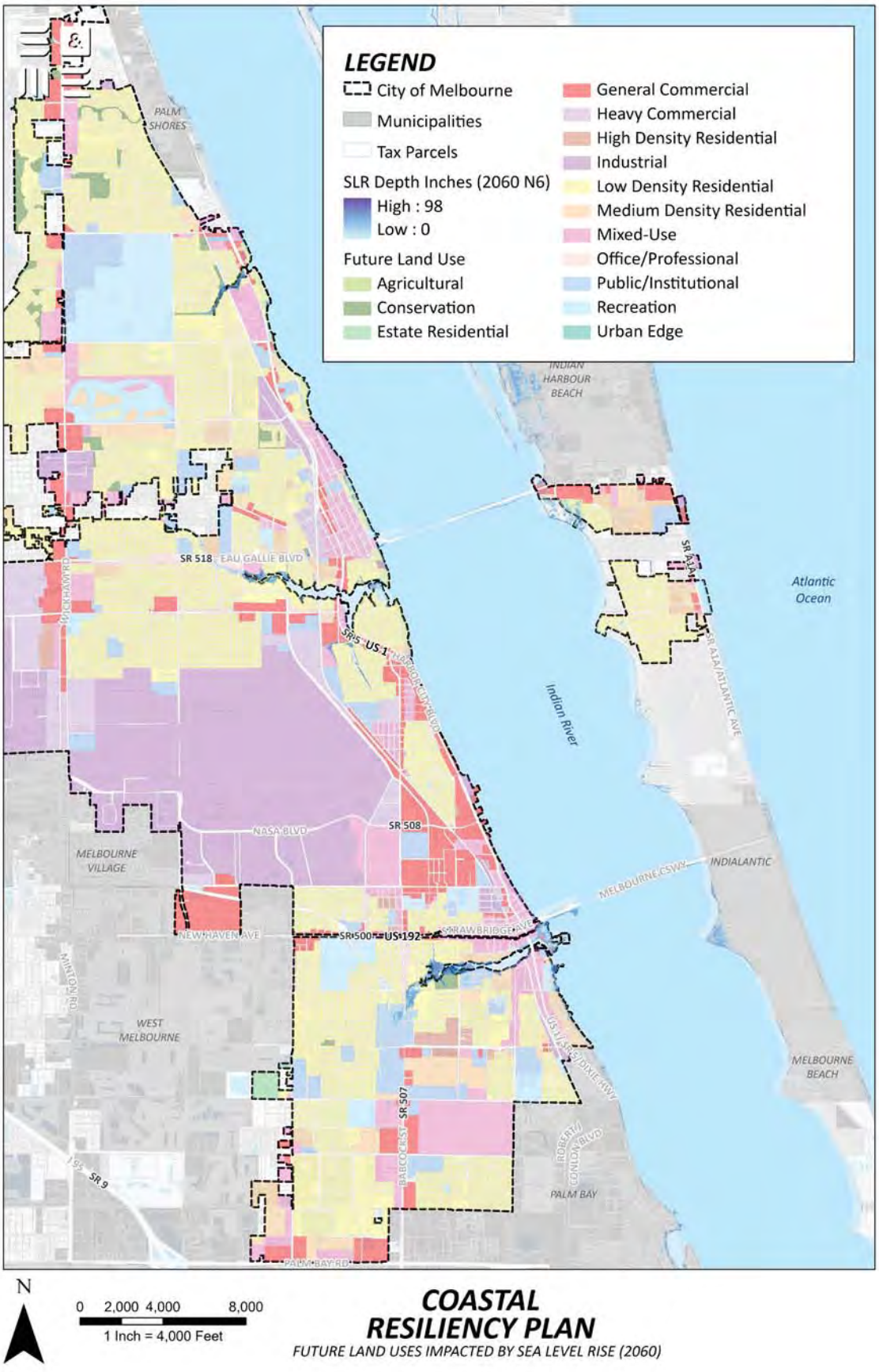


Figure 27 *Crane Creek SLR Impacts (2060)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 28 *Future Land Use Impacted by Sea Level Rise (2060)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 31 shows the impacts of the projected SLR in 2080. The projected SLR in 2080 will impact significantly more parcels than previous projections. Similar to the 2060 SLR projection, parcels along Crane Creek, Eau Gallie River, and on the western side of the barrier island are the most impacted. A new area of the City is projected to be drastically impacted: north of the Eau Gallie Causeway along the Indian River. The first block of parcels is projected to be inundated by SLR. Many of these parcels are designated as Low Density Residential, Medium Density Residential, and Mixed-Use. The parcels along Crane Creek and the Eau Gallie River are also projected to be more inundated with SLR. Many of the parcels on the western side of the barrier island are projected to be inundated with SLR as well as many of the streets on the barrier island. Most of these parcels are designated as General Commercial, Medium Density Residential, and Low Density Residential.

In some areas of the City, specifically along the Indian River south of the Melbourne Causeway and the western side of the barrier island, parcels are projected to be completely inundated by sea level rise with many of these parcels designated as residential. In Figure 29 and Figure 30, the affected parcels along Crane Creek and the Eau Gallie River can be viewed more closely.

Figure 29 *Eau Gallie River SLR Impacts (2080)*

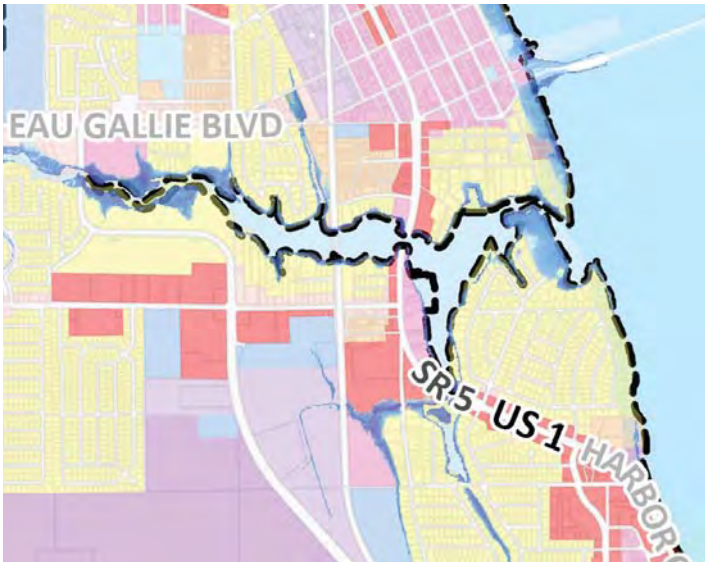
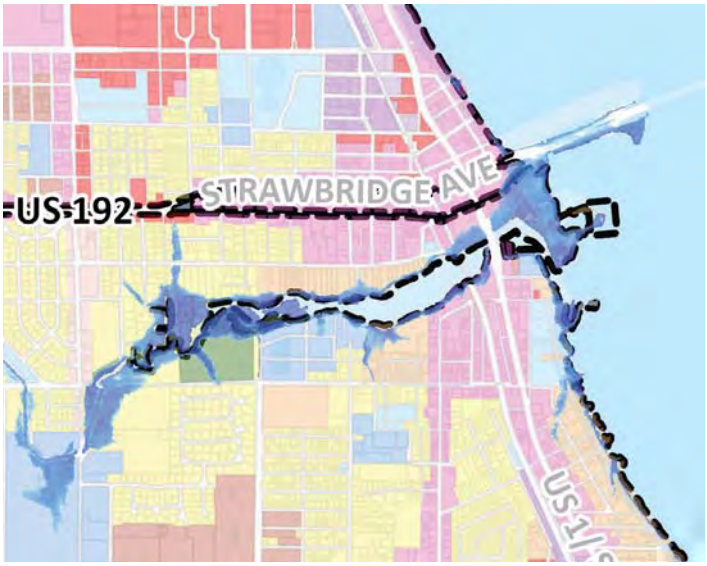
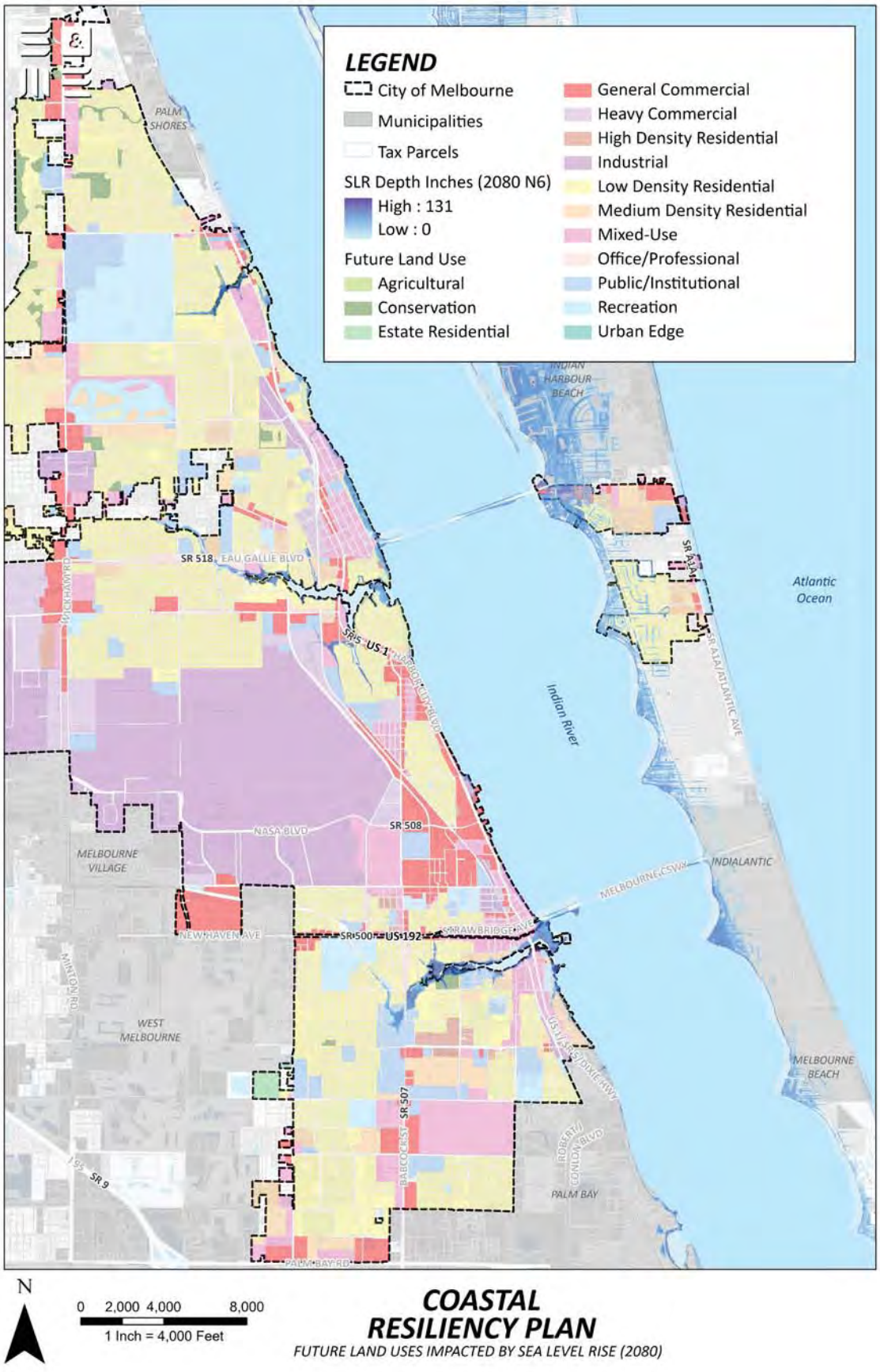


Figure 30 *Crane Creek SLR Impacts (2080)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 31 *Future Land Use Impacted by Sea Level Rise (2080)*

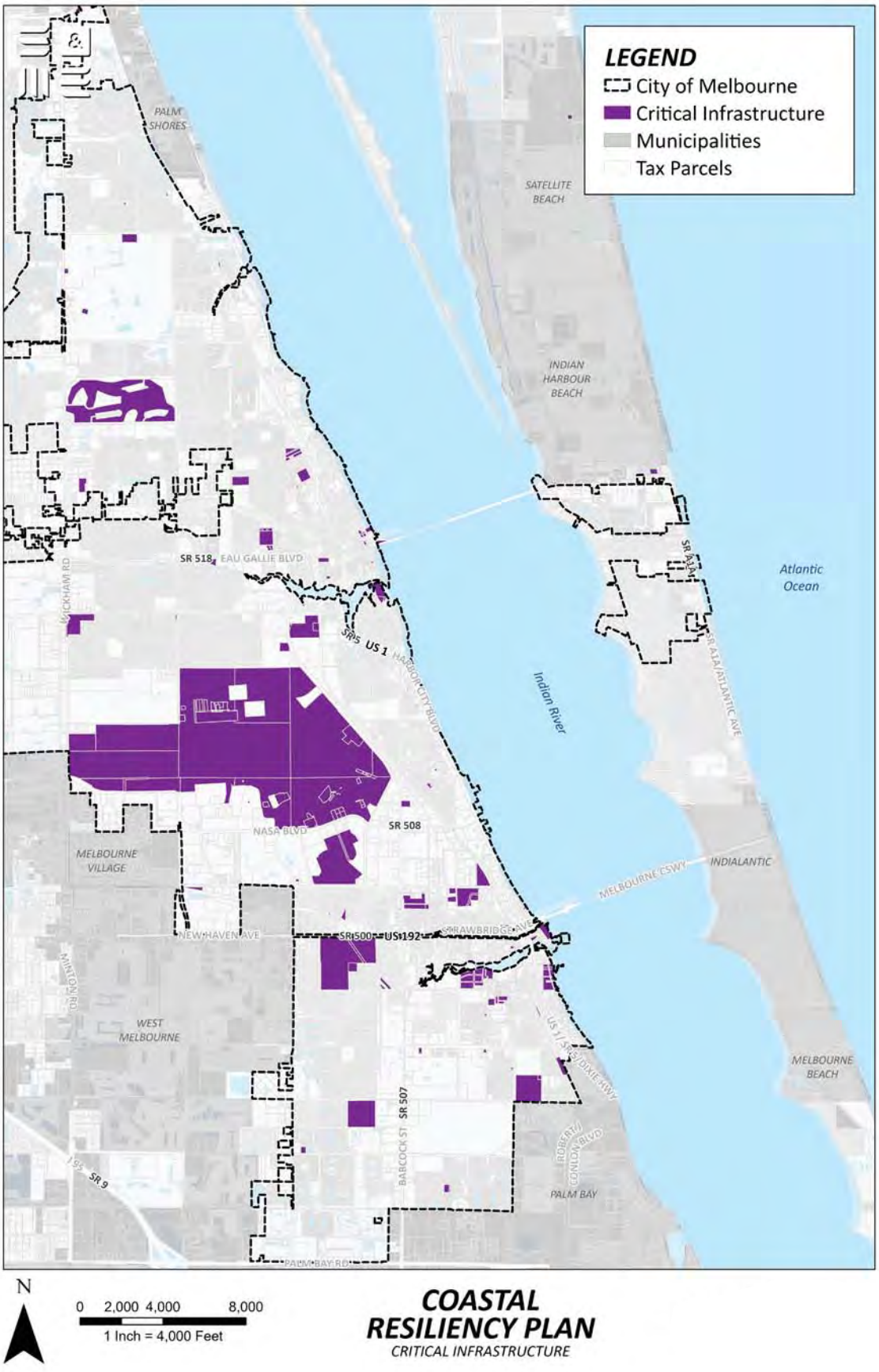


Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Critical Infrastructure

Critical infrastructure is the life blood of a community. It not only provides the health, safety, and welfare necessities, but it also provides transportation options and quality of life components. For the purposes of this analysis, critical infrastructure includes city operated utilities (water and sewer plants, lift stations, and water towers), parks, city owned lands/facilities (Open Space, golf courses, etc.), and the Melbourne International Airport. When utilities go offline or are significantly impacted by a natural disaster, it can make inhabiting those portions of the City without utilities nearly impossible. There are also environmental ramifications if the impacts from a natural disaster cause pollution due to collapsed tanks or failing pumps. This section includes an analysis of the impacts of SLR, storm surge, and flood events on the City's critical infrastructure within the coastal planning area. Figure 32 shows the Critical Infrastructure within the coastal area of the City.

Figure 32 *Critical Infrastructure*



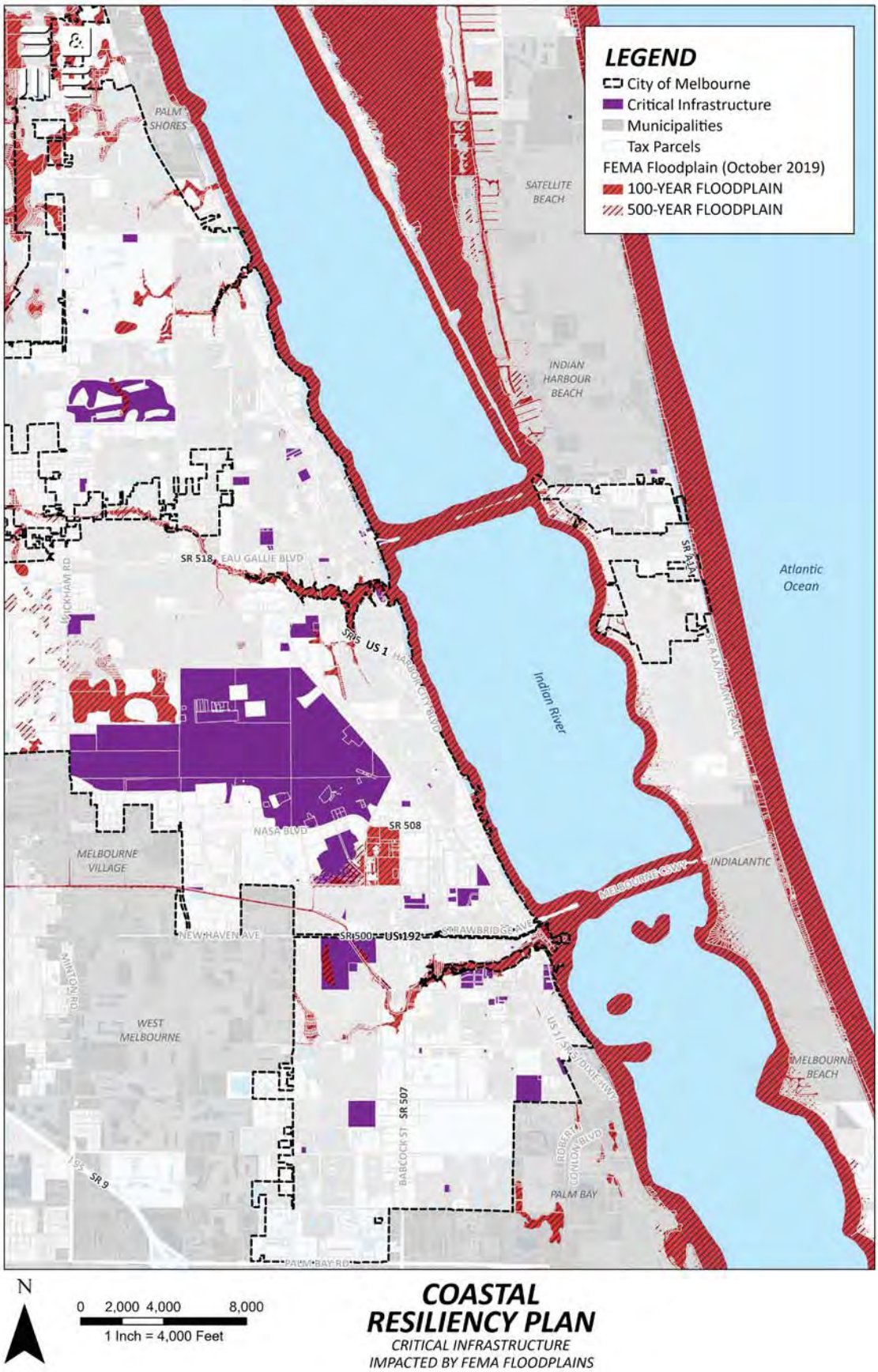
Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020

FEMA Floodplains

Figure 33 shows the FEMA designated floodplains and how the floodplains affect the critical infrastructure in the City. The 100- and 500-year floodplains affect certain critical infrastructure in the coastal area of the City. The David B. Lee Water Reclamation Facility, which is located a couple of blocks south of the Eau Gallie River, is shown to be minimally impacted by floodplains, though the flooding is caused by flooding in the canal system nearby. Ballard Park, a recreational area at the mouth of the Eau Gallie River is also impacted by the floodplains. The Grant Street Water Reclamation Facility is projected to be minimally impacted by flooding as it is located immediately south of Crane Creek. The City should consider conducting a thorough analysis of the impacts of flooding on critical infrastructure. This will be discussed in more detail in the recommendations section.

Other infrastructure owned by the City is impacted by flood zones, though two of these locations are golf courses, serving a recreational purpose. The large piece of critical infrastructure near the middle of the City's coastal area is the Melbourne International Airport, and Figure 33 shows it is not currently impacted by the floodplains.

Figure 33 *Critical Infrastructure Impacted by FEMA Floodplains*



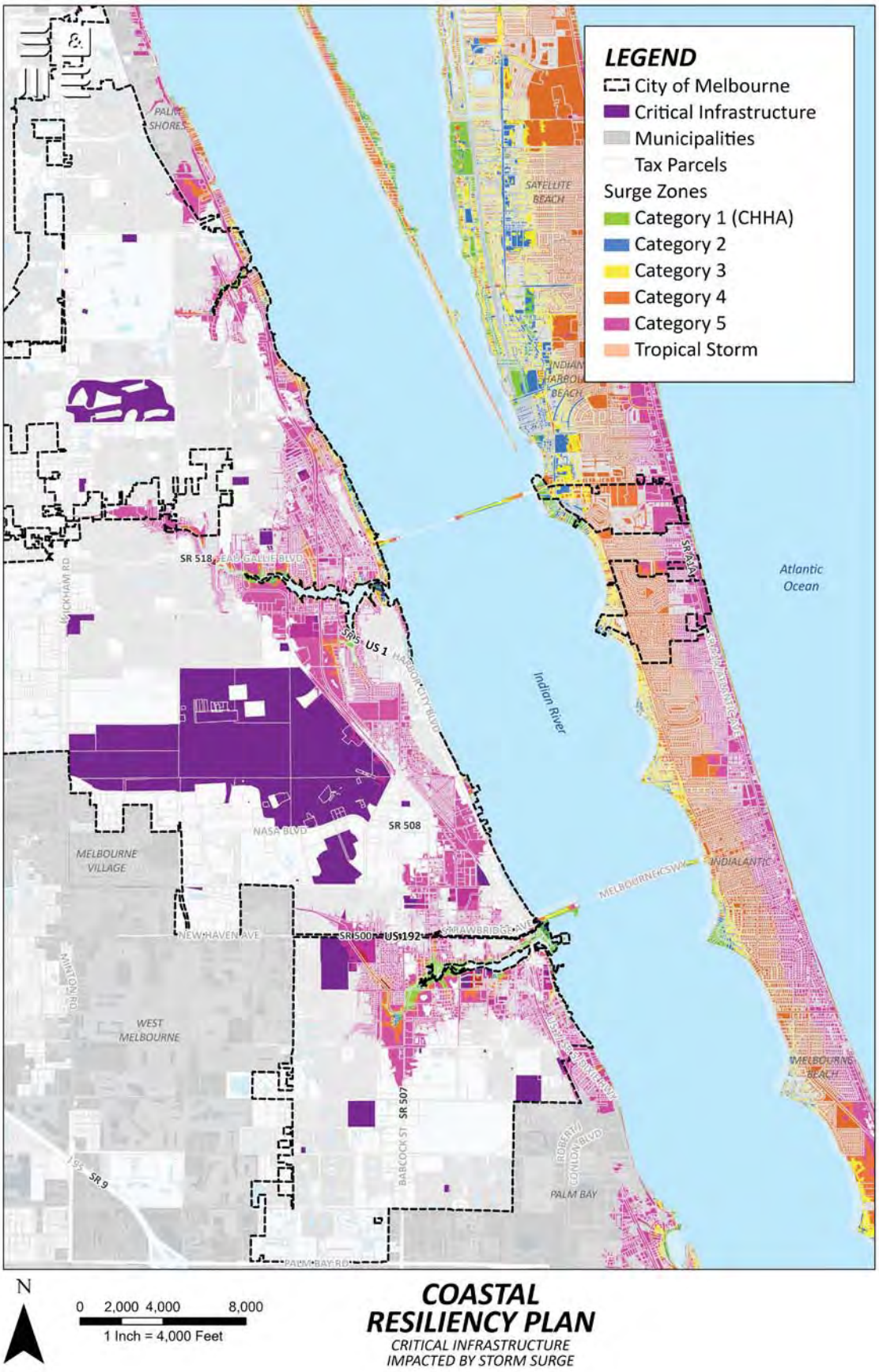
Sources: Brevard County Property Appraiser, City of Melbourne, FEMA, FGDL, S&ME, 2020

Storm Surge

Figure 34 shows the impacts of storm surge on the critical infrastructure within the coastal area of the City. Critical infrastructure within the Category 1 surge zone are immediately abutting bodies of water, including Indian River Lagoon and the rivers and creeks which run through the city emptying into the Indian River Lagoon. The infrastructure impacted by the Category 1 storm surge include the Claude Edge Front St. Park (just north of the Crane Creek junction with the Indian River) and Ballard Park (just south of the Eau Gallie River junction with the Indian River).

The critical infrastructure impacted by the Category 2 storm surge occur in similar areas to those impacted by the Category 1 surge zone, though continuing further in-land, including the Grant Street Water Reclamation Facility and various recreational areas (i.e., Crane Creek Reserve). Infrastructure impacted by the Category 3 storm surge include facilities which are projected to be impacted by Category 1 and 2 storms. Critical infrastructure impacted by Category 5 storm surge includes: park space (i.e., Carver Community Center, Wells Park) and institutional space north of the Eau Gallie River and the David B. Lee Water Reclamation Facility.

Figure 34 *Critical Infrastructure Impacted by Storm Surge*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020

Sea Level Rise

Figure 37 shows the inundation of the projected SLR in 2040. The SLR by 2040 will impact very little critical infrastructure within the City. Based on these projections, Ballard Park, at the mouth of the Eau Gallie River, and Riverview Park, just south of the mouth of Crane Creek, are likely to be inundated by 2040. These locations are shown in more detail in Figure 35 and Figure 36 below.

Figure 35 *Eau Gallie River SLR Impacts (2040)*

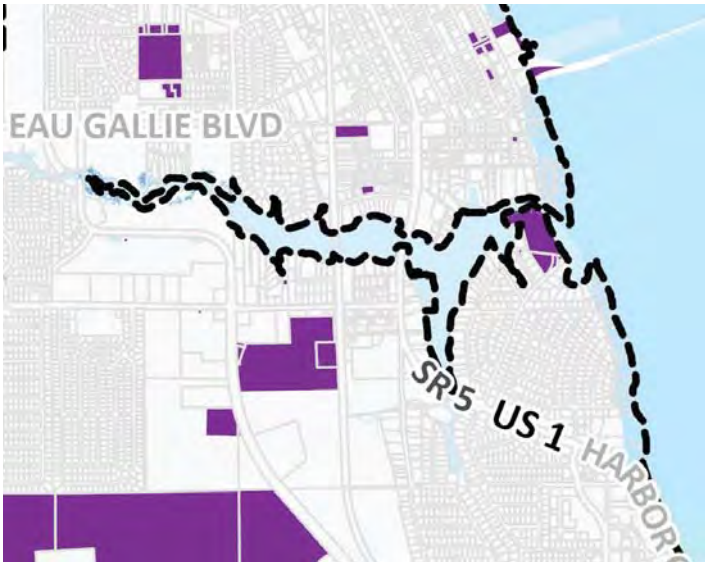
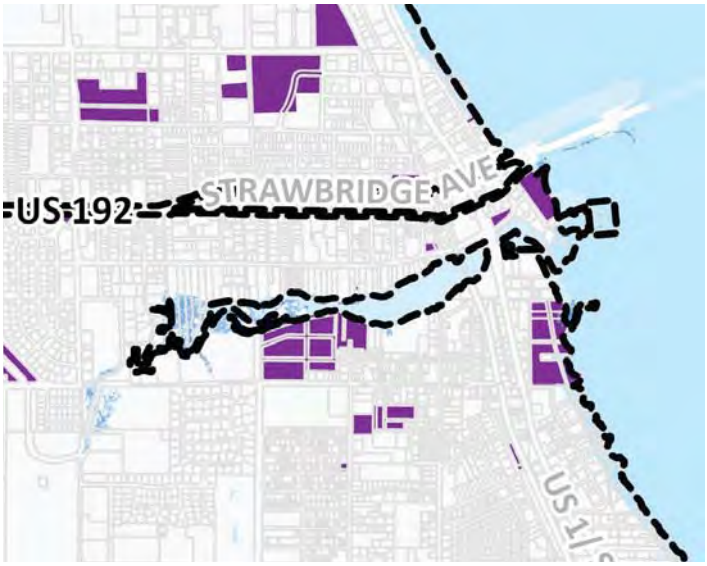
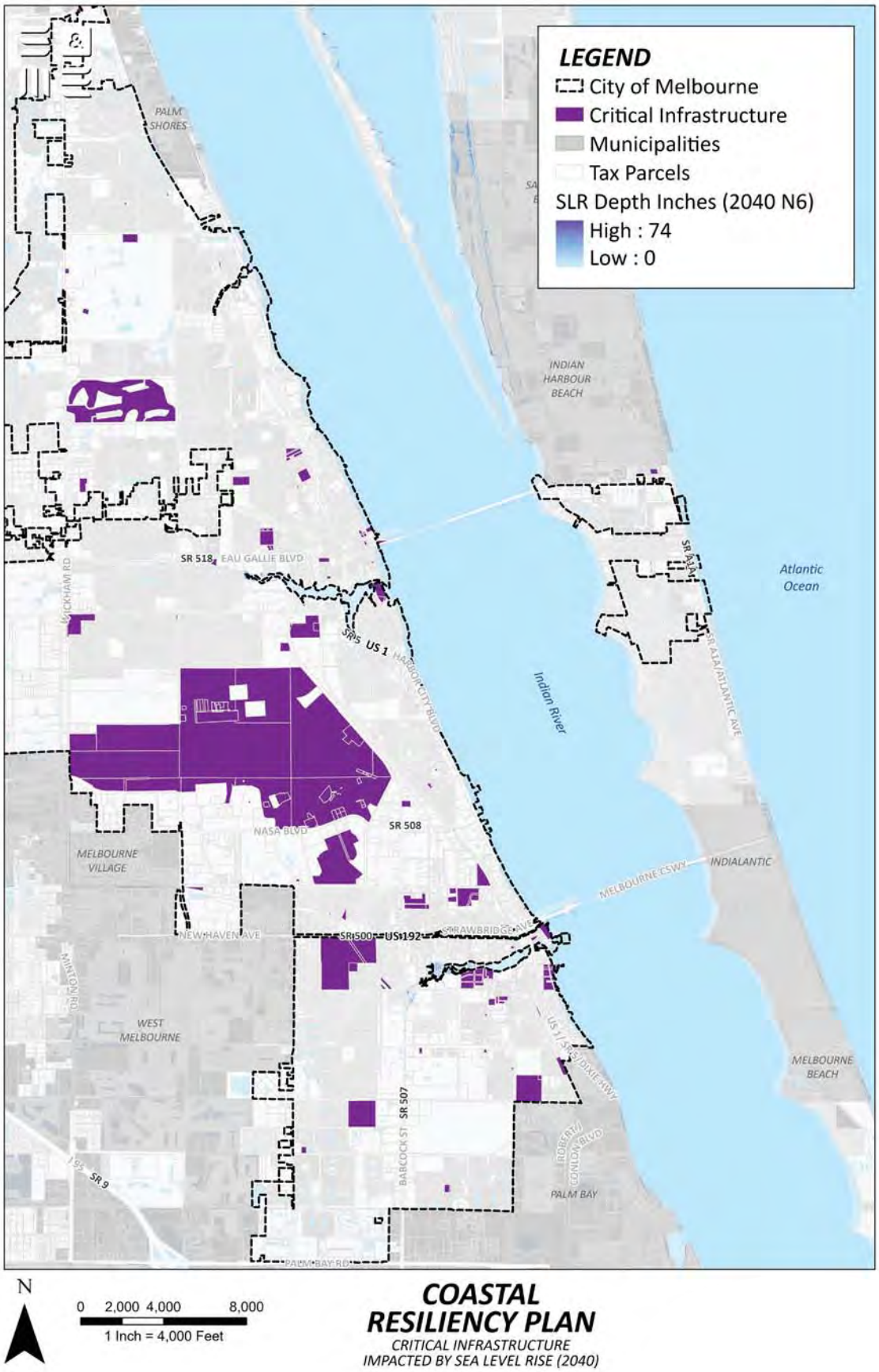


Figure 36 *Crane Creek SLR Impacts (2040)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 37 *Critical Infrastructure Impacted by Sea Level Rise (2040)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 40 shows the impacts of the projected SLR in 2060, and as can be expected, the critical infrastructure impacted by the projected SLR in 2040 will also be impacted by the 2060 sea level rise. However, Ballard Park and Riverview Park will both experience deeper inundation, on average, compared to the 2040 sea level rise projections.

Other critical infrastructure which is projected to be impacted includes: Claude Edge Front St. Park (a community park just north of the Crane Creek mouth) and the Grant Street Water Reclamation Facility (on the southern banks of Crane Creek). In Figure 38 and Figure 39, the affected parcels along Crane Creek and the Eau Gallie River can be viewed more closely.

Figure 38 *Eau Gallie River SLR Impacts (2060)*

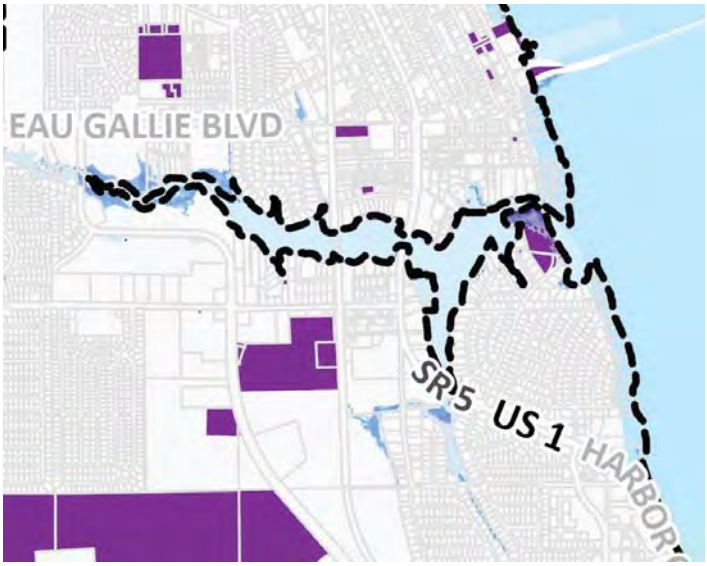
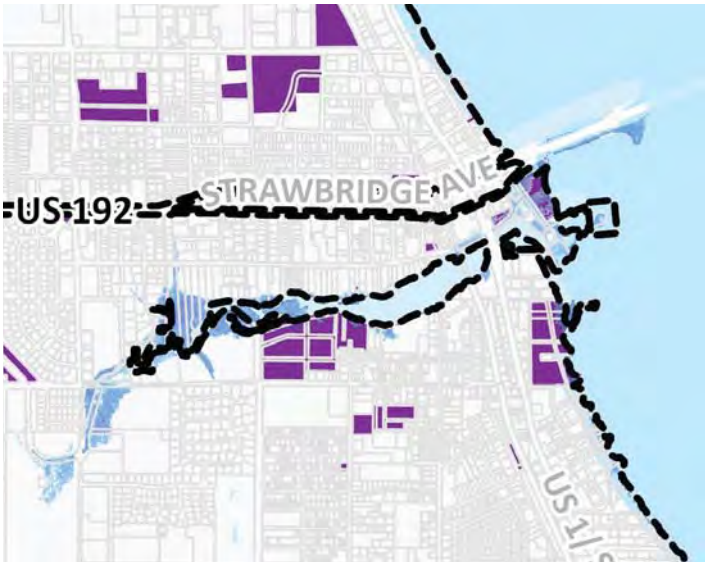
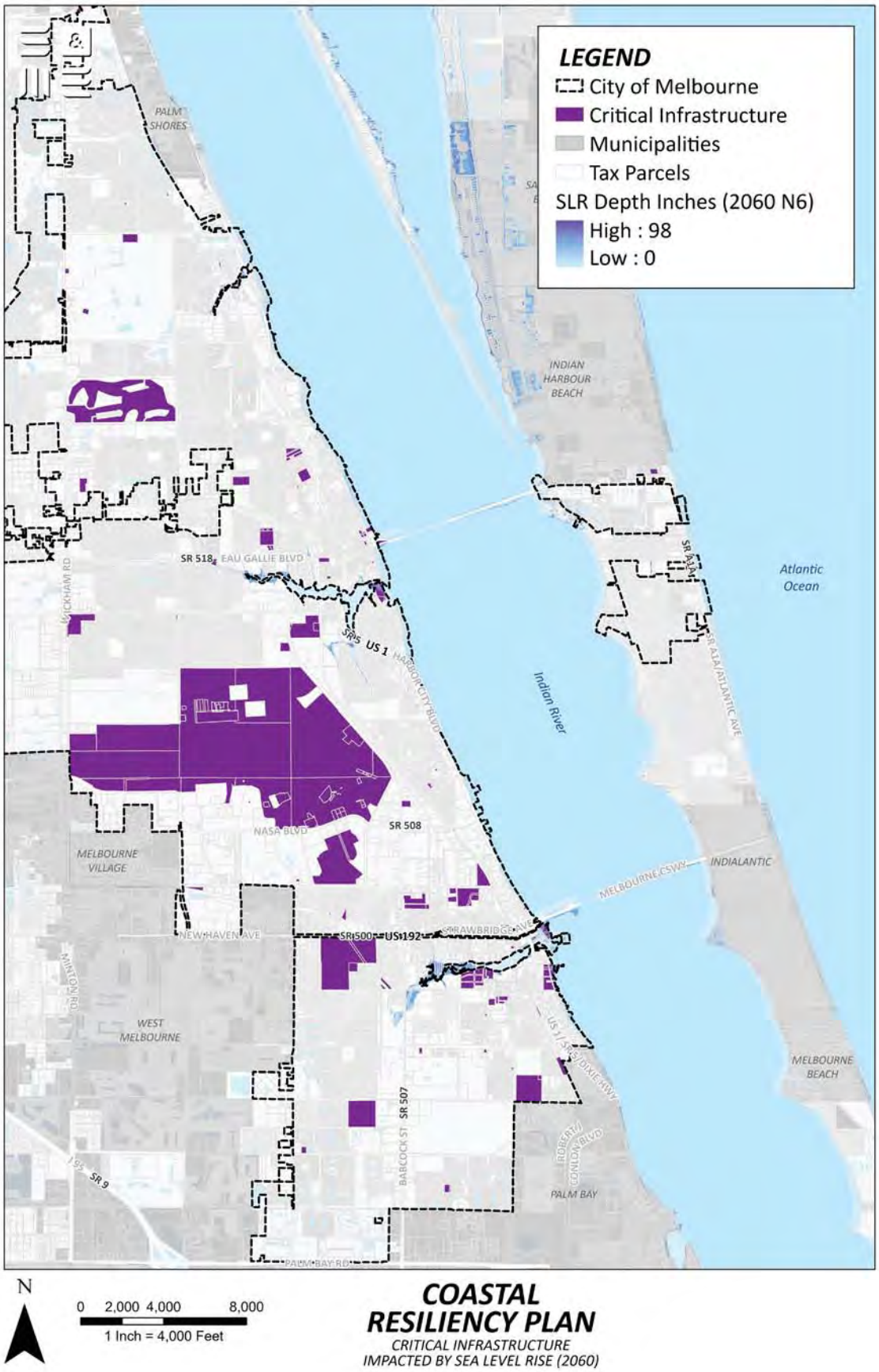


Figure 39 *Crane Creek SLR Impacts (2060)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 40 *Critical Infrastructure Impacted by Sea Level Rise (2060)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 43 shows the impacts of the projected SLR in 2080, and as discussed in the previous section, the critical infrastructure impacted by the projected SLR in 2060 will also be impacted by the 2080 sea level rise, though this infrastructure will be impacted more extremely. In 2080, the projections show that several parks will be impacted by sea level inundation, including Triangle Park, Ruffner Park, and the Eau Gallie Pier.

The Eau Gallie Public Library will also be impacted, located near the Eau Gallie Pier. Portions of the Grant Street Water Reclamation Facility are projected to be heavily impacted by sea level rise in 2080. In Figure 41 and Figure 42, the affected parcels along Crane Creek and the Eau Gallie River can be viewed more closely.

Figure 41 *Eau Gallie River SLR Impacts (2080)*

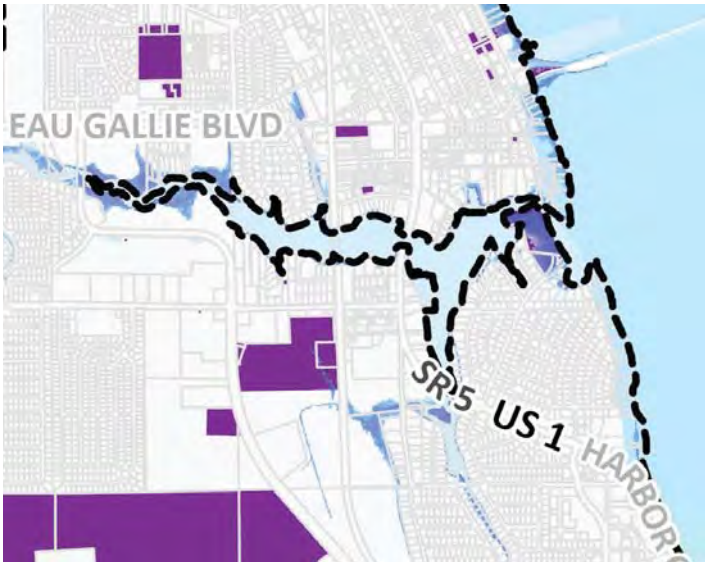
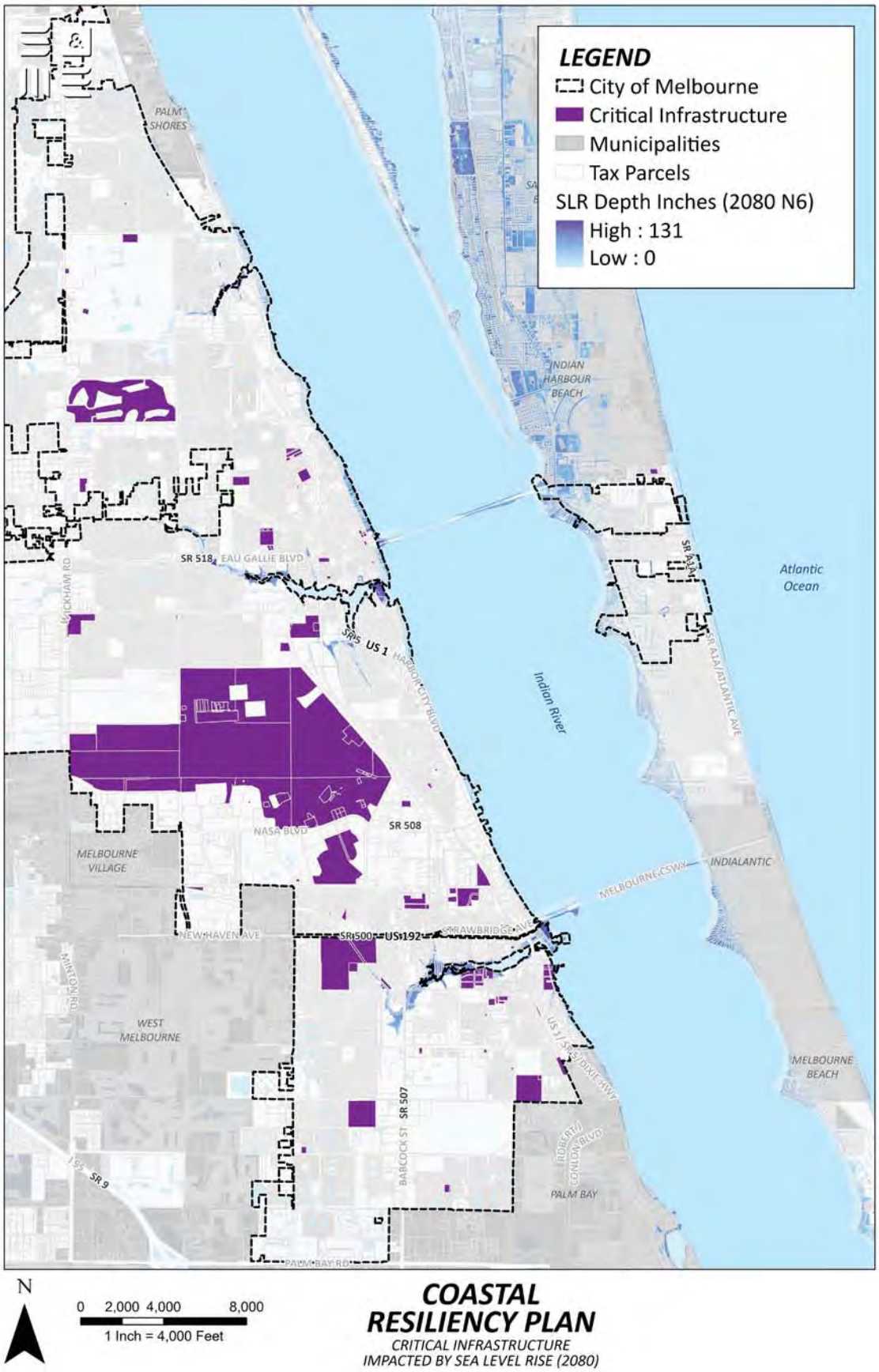


Figure 42 *Crane Creek SLR Impacts (2080)*

Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 43 *Critical Infrastructure Impacted by Sea Level Rise (2080)*



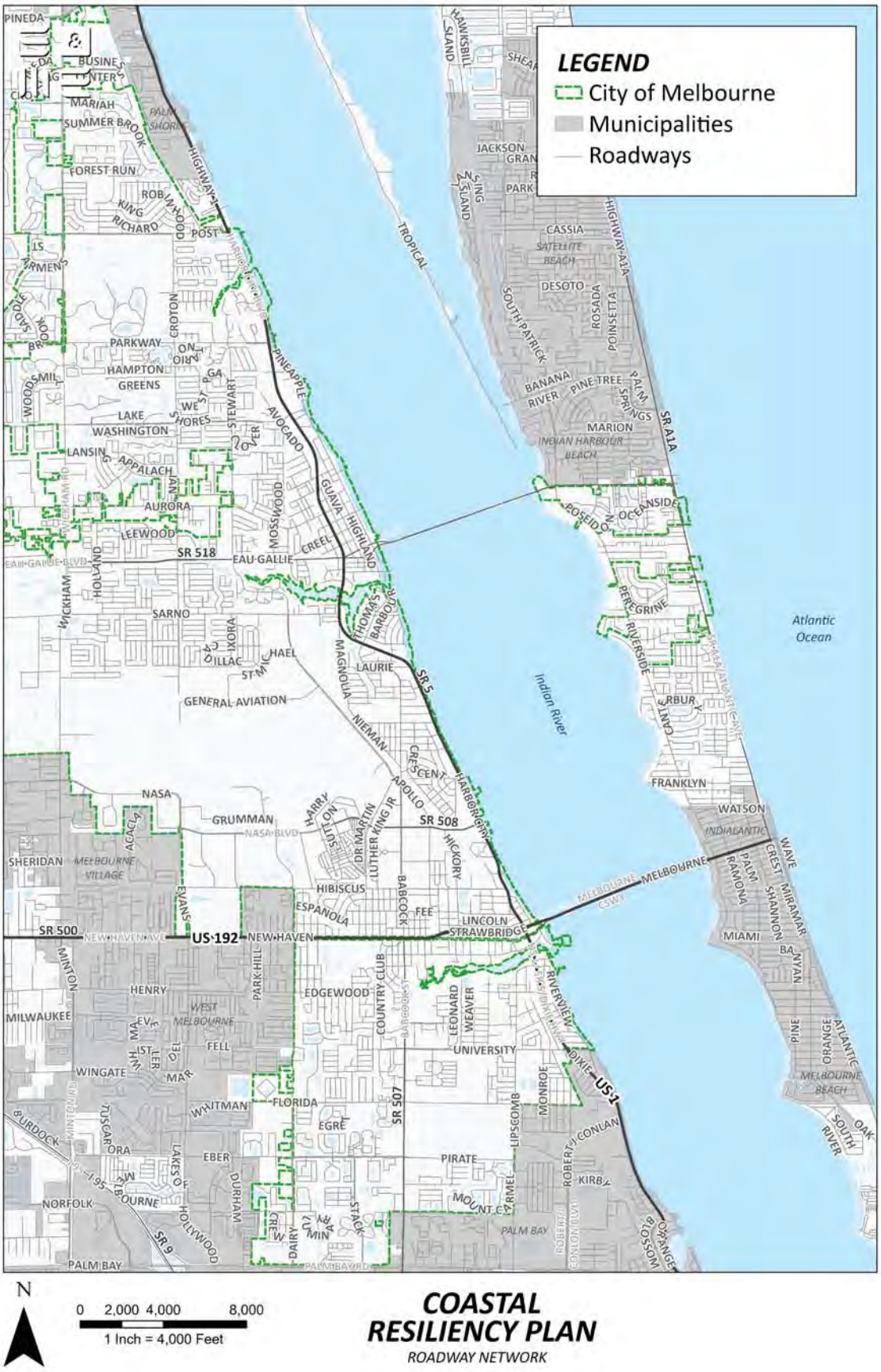
Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Transportation Infrastructure

Part of the vulnerability assessment is assessing the roadway network and its potential for impact from flooding, sea level rise, and storm surge. There are several U.S. highways which run through the City, including US 192 and US 1. State highways which run through the City include SR A1A, SR 518, SR 507, and SR 508.

Figure 44 shows the roadway network in Melbourne. This section also includes an analysis of the impacts of SLR, storm surge and flood events on the City's transportation infrastructure within the coastal planning area.

Figure 44 *Transportation Infrastructure*

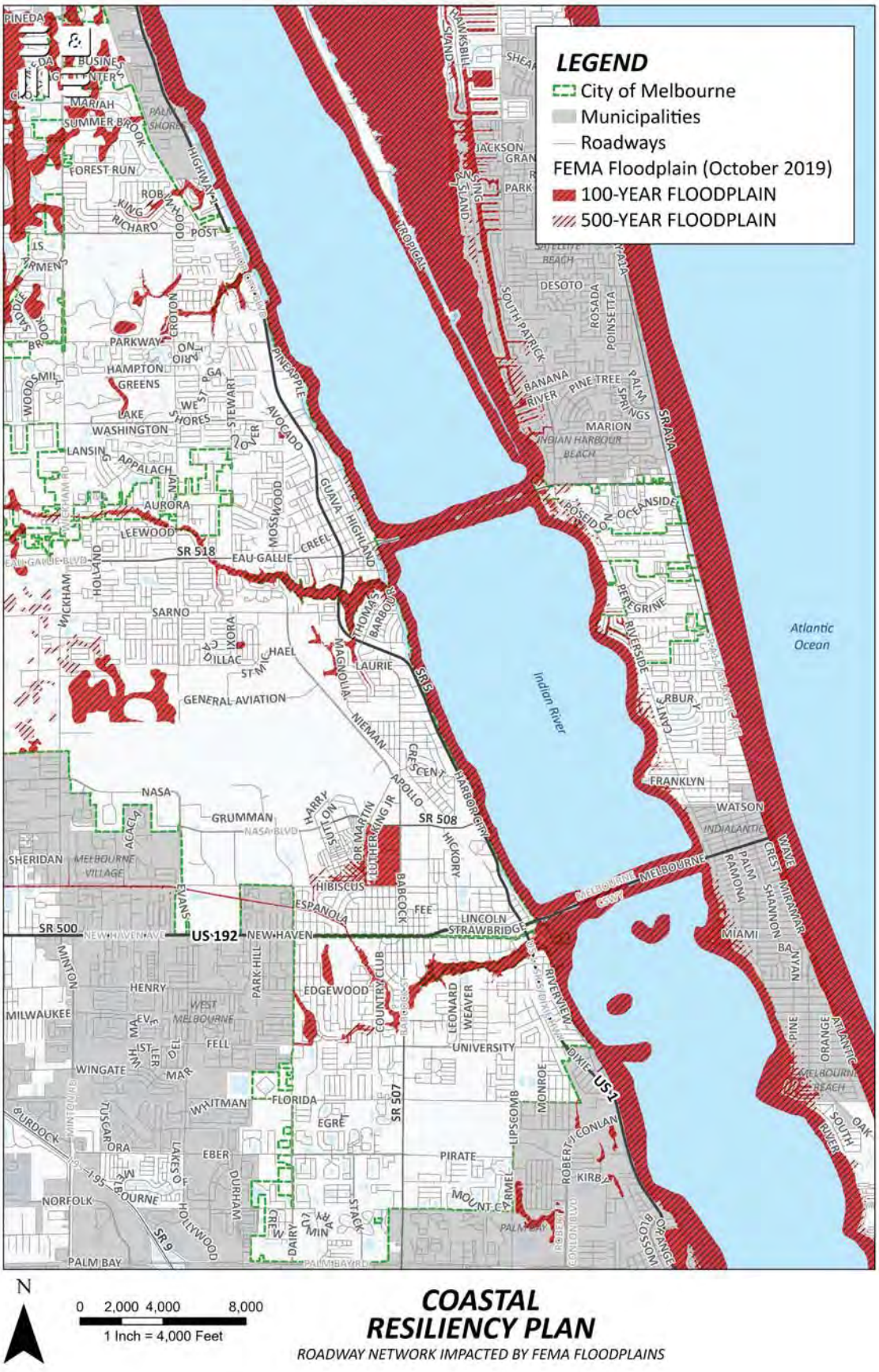


Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020

FEMA Floodplains

Figure 45 shows the impact of floodplains on the City's roadway network. SR A1A on the east side of the barrier island also represents a flooding risk during a 100-year storm. The most dangerous encroachment of the 100-year floodplain is along the causeways from the mainland to the barrier islands, along both US 192 and SR 518. The 500-year floodplain affects less roadways and infrastructure. The Eau Gallie Causeway between the mainland and the barrier islands is affected by the 500-year floodplain.

Figure 45 *Transportation Infrastructure Impacted by FEMA Floodplains*

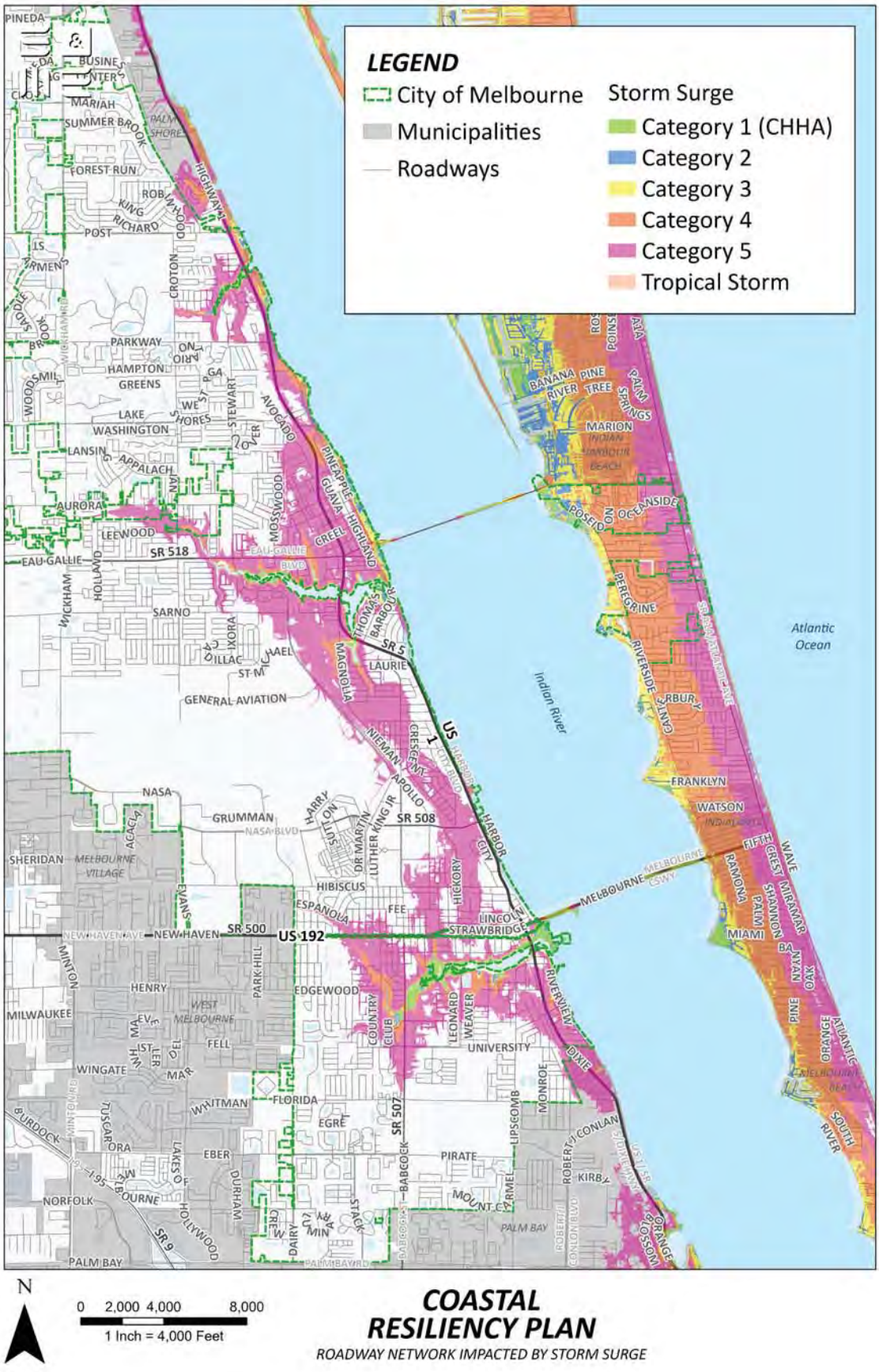


Sources: Brevard County Property Appraiser, City of Melbourne, FEMA, FGDL, S&ME, 2020

Storm Surge

Figure 46 shows the impact of storm surge on the roadway network. The Category 1 storm surge impacts the major roadway network minimally. US 1 near Eau Gallie Boulevard is projected to be impacted in a Category 1 storm, and the causeways from the mainland to the barrier islands would both be impacted by Category 1 storm surge. The Category 2 storm surge impacts the major roads very minimally. The main impacts are along the causeways and the minor streets. The Category 3 storm surge impacts minor roads and the causeways. The Category 4 storm surge will impact portions of US 1 in northern Melbourne as well as the causeways. The Category 4 storm surge will also impact some of the minor roadways and a large portion of the barrier island roadway network. The Category 5 storm surge will impact a large portion of US 1, US 192, SR 518, the causeways, as well as the minor roadway network.

Figure 46 *Transportation Infrastructure Impacted by Storm Surge*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020

Sea Level Rise

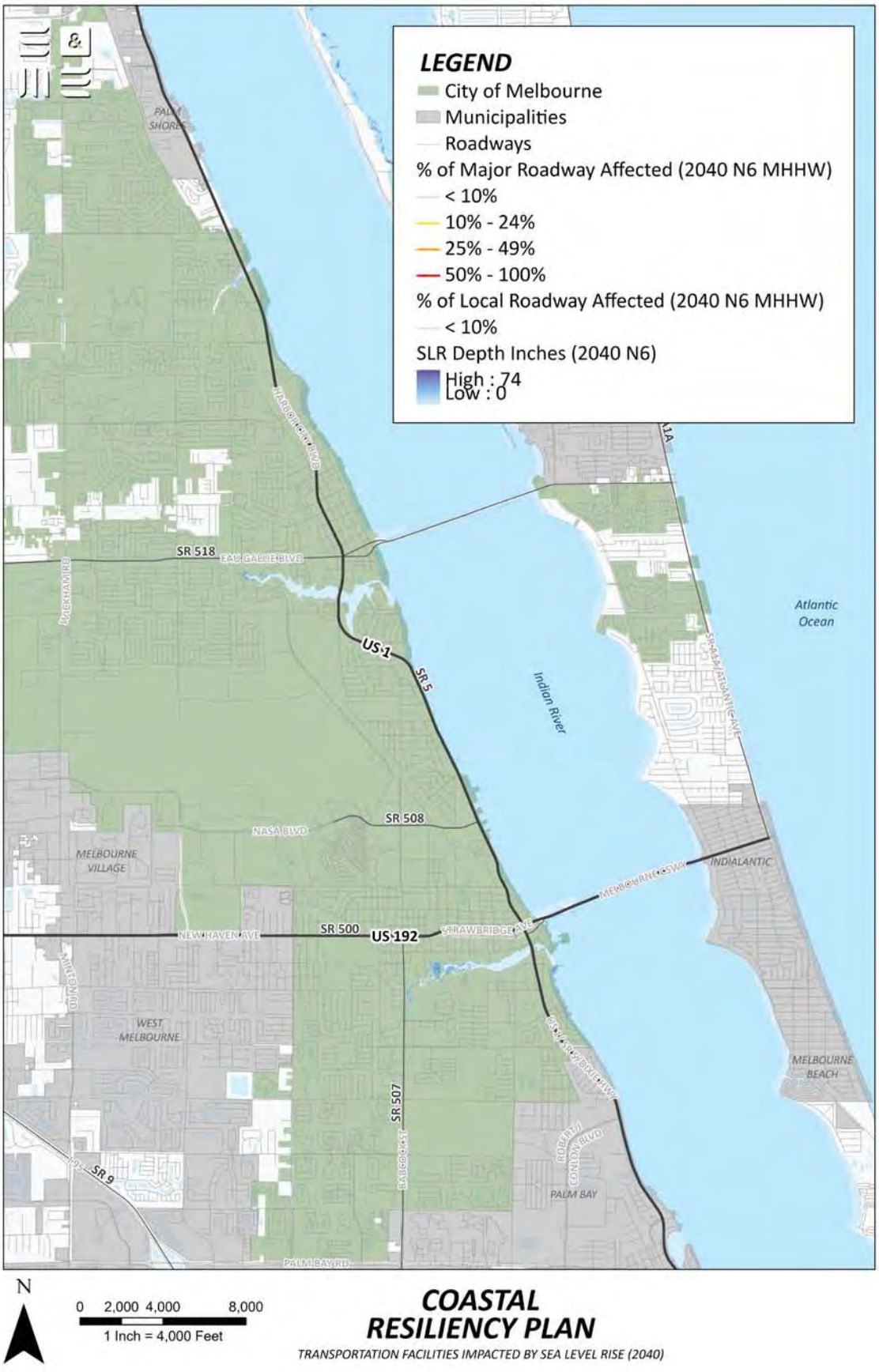
For sea level rise impacts on the roadway network, the data is illustrated in a different way. Instead of showing where the sea level rise is projected to be, the data shows the percentage of impact on the major and local roads. Figure 49 shows SLR projections for 2040 where there is inundation up to 74 inches. However, there is limited projected impact on major or local roads within the City for the year 2040. Figure 47 and Figure 48 show the areas surrounding Crane Creek and the Eau Gallie River in more detail, showing little impact to the road infrastructure around the major causeways across the Indian River.

Figure 47 *Eau Gallie River SLR Impacts (2040)*

Figure 48 *Crane Creek SLR Impacts (2040)*

Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 49 *Transportation Infrastructure Impacted by Sea Level Rise (2040)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 52 shows the projected impacts of sea level rise inundation in 2060. For major roadway segments within the City, Apollo Boulevard, Riverside Drive, and SR A1A/Atlantic Avenue will have less than 10% of their segments affected. Approximately 10-24% of Melbourne Avenue road segments, just south of the Melbourne Causeway Bridge, will be impacted by the SLR inundation. A road segment of New Haven Avenue, near the Melbourne Causeway Bridge, will be approximately 25-49% inundated by sea level rise. There are some local roadway segments which will be impacted by SLR inundation. These impacts are found on the barrier island and on roadway segments on the mainland near the Indian River.

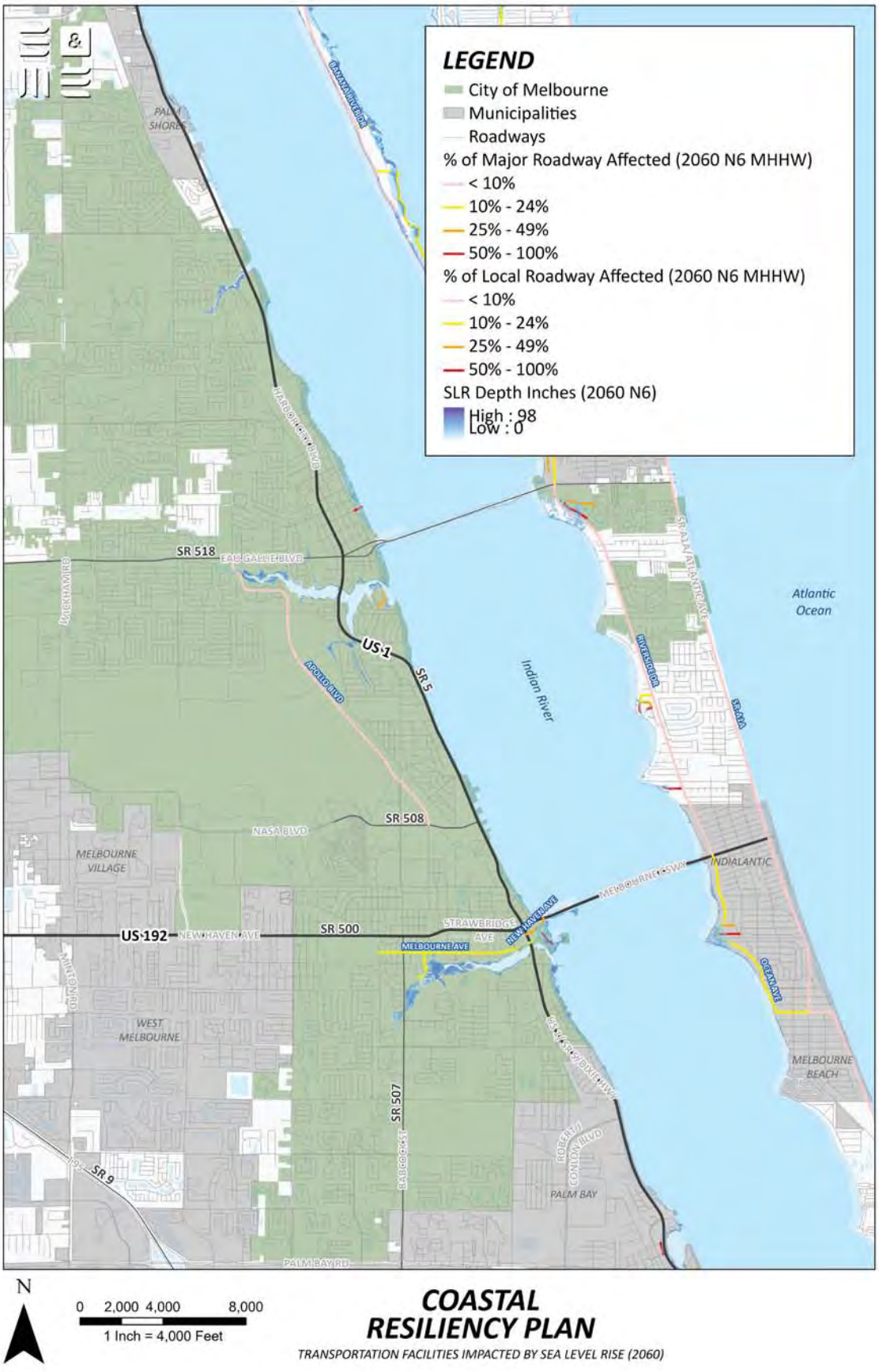
Figure 50 and Figure 51 show the areas surrounding Crane Creek and the Eau Gallie River in more detail, showing moderate impact to the road infrastructure around these bodies of water.

Figure 50 *Eau Gallie River SLR Impacts (2060)*

Figure 51 *Crane Creek SLR Impacts (2060)*

Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 52 *Transportation Infrastructure Impacted by Sea Level Rise (2060)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 55 shows the projected impacts of SLR inundation on transportation facilities, including roadway segments and railways, in 2080. Many major roadway segments are projected to be impacted by SLR inundation in 2080. US 1, Apollo Boulevard, Strawbridge Avenue, and Melbourne Causeway are all projected to have up to 10% of their segments be impacted by SLR inundation. Approximately 10-24% of Melbourne Avenue, near Crane Creek, and SR A1A road segments, along the eastern side of the barrier island, will be impacted by the SLR inundation. Eau Gallie Boulevard, Montreal Avenue, US 1/ SR 5, and Riverside Drive are projected to see approximately 25-49% of their roadway segments inundated by SLR. The roadway segment on the Melbourne Causeway (US 192) is projected to be impacted by 50-100%. Figure 53 and Figure 54 show the impacts along Crane Creek and the Eau Gallie River.

Many local roadway segments will also be impacted by SLR inundation, including segments on the mainland and barrier island. Some of these roadway segments will be impacted up to 100%. The projections also show the impacts on the railways within the City. The FEC Mainline (running north to south along the eastern side of the City) is projected to be impacted by approximately 33%. However, these impacts appear to occur outside of the City limits, as the railroad runs elevated over the rivers and creeks throughout the City.

Figure 53 *Eau Gallie River SLR Impacts (2080)*

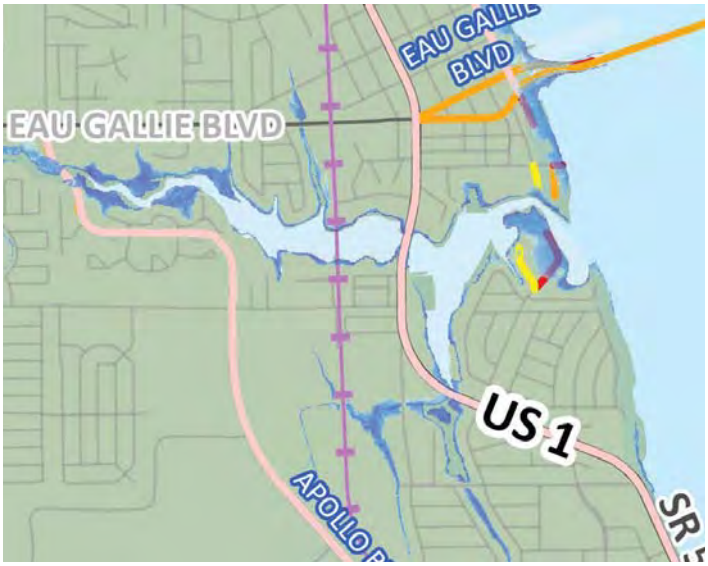
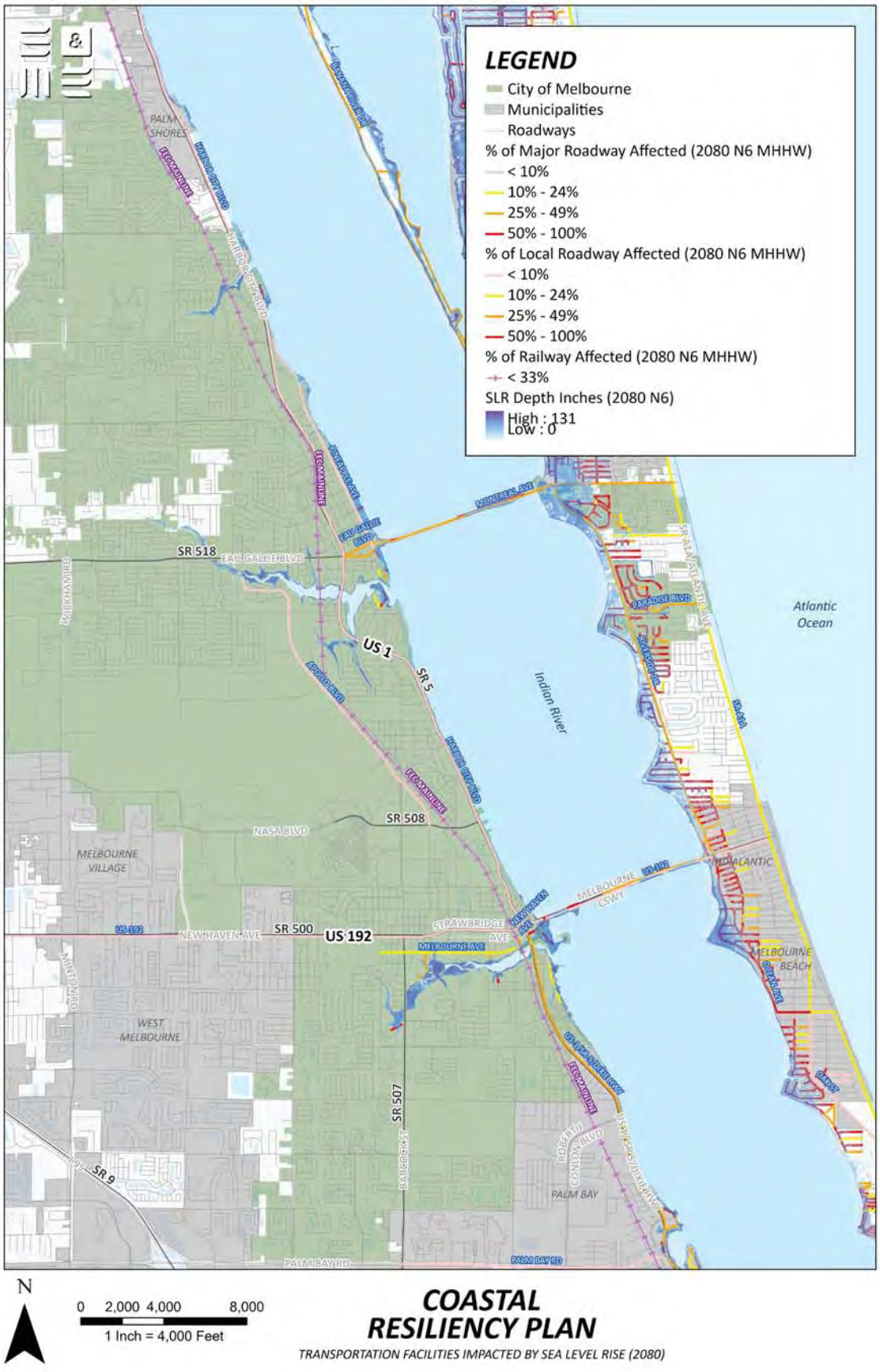


Figure 54 *Crane Creek SLR Impacts (2080)*

Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 55 *Transportation Infrastructure Impacted by Sea Level Rise (2080)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Historic Structures

The Florida Master Site File (FMSF) and the State Historic Preservation Office (SHPO) (both under the Florida Division of Historical Resources) collect an inventory of historical datasets, including structures, cemeteries, bridges, archaeological sites, and other non-structures which have potential historic and cultural value. By evaluating how flooding, storm surge, and projected sea level rise will impact these historic and cultural resources, the City can discern which sites are most vulnerable and plan accordingly. This section includes an analysis of the impacts of SLR, storm surge, and flood events on the City's historic structures within the coastal planning area.

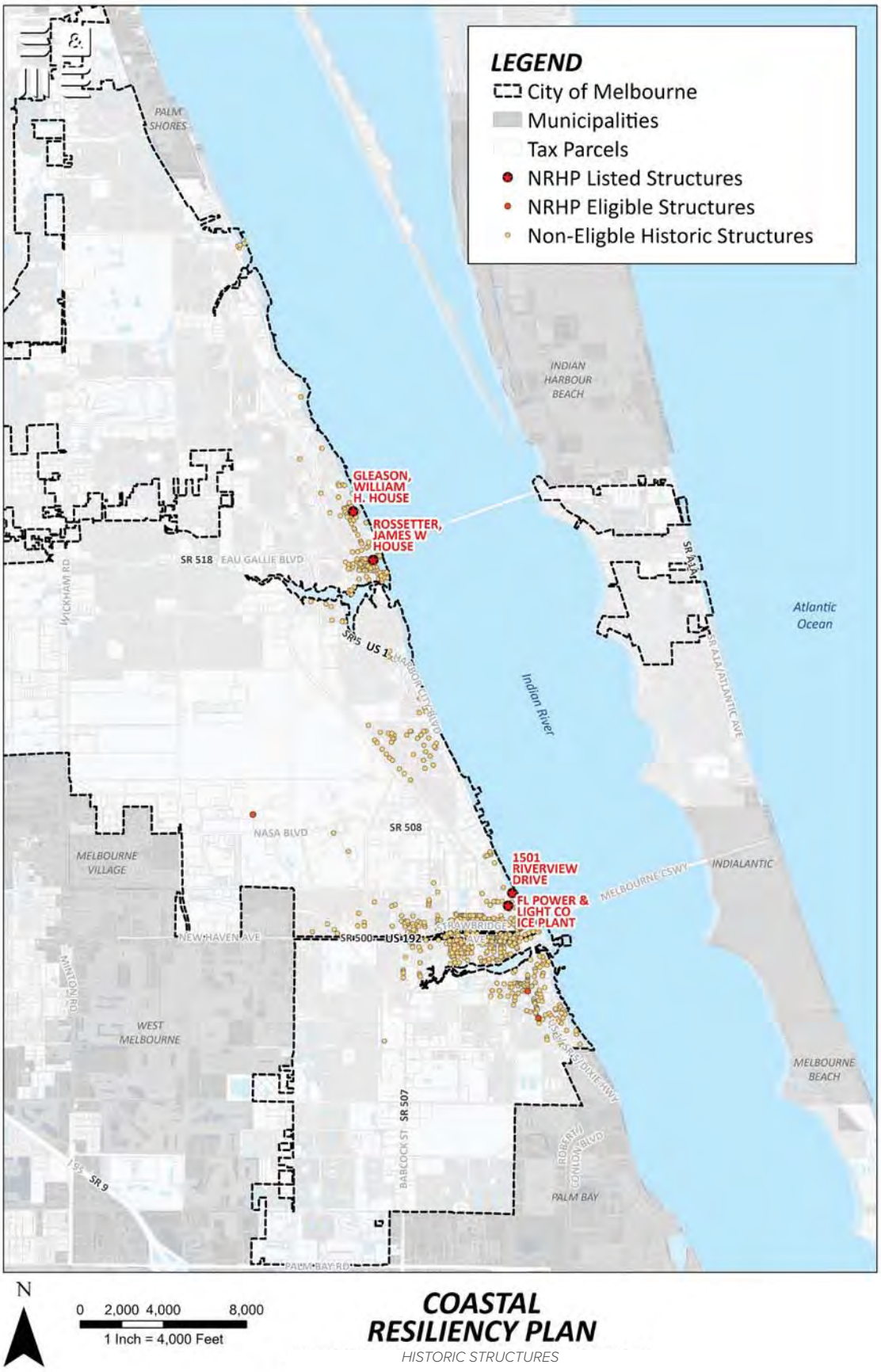
Figure 56 shows the various structures which have been evaluated by SHPO ("SHPO Structures"), those which are considered eligible for historic status ("SHPO Eligible Structures"), and those which are listed on the National Register of Historic Places ("SHPO Listed Structures"). There are numerous structures which have been evaluated by SHPO, fewer of which are eligible for historic status, and four structures which are listed on the National Register.

The four listed structures are: William H. Gleason House, James W. Rossetter House, 1501 Riverview Drive (the Green Gables house), and the Florida Power & Light Company Ice Plant. The Gleason House is a historic home, built in 1884 by William Henry Gleason, an American politician, and was listed in 1997.[1] The property is currently run as an inn. The Rossetter House was built in 1908 and listed on the National Register in 2005. The property is currently a museum and event space.[2] The Green Gables house is located at the end of Riverview Drive and overlooks the Indian River. It was listed in 2016 because of its architectural significance and its original owner, W. T. Wells, who was a highly influential resident of the City.[3] The Florida Power & Light Company Ice Plant is a two-story Industrial Vernacular building built in 1927, and the building was listed on the National Register in 1982.[4]

The Rossetter House
Source: Leonard J. DeFrancisci, CC BY-SA 3.0

1 Daly Preservation. http://www.dalypreservation.com/InventoryBrevard/0020_WilliamGleasonHouse.php
2 The Rossetter House Museum and Gardens. https://the rossetterhousemuseum.org/
3 United States Department of the Interior, National Park Service. https://www.nps.gov/nr/feature/places/pdfs/16000269.pdf
4 Daly Preservation. http://www.dalypreservation.com/InventoryBrevard/0002_IcePlant.php

Figure 56 *Historic Structures*



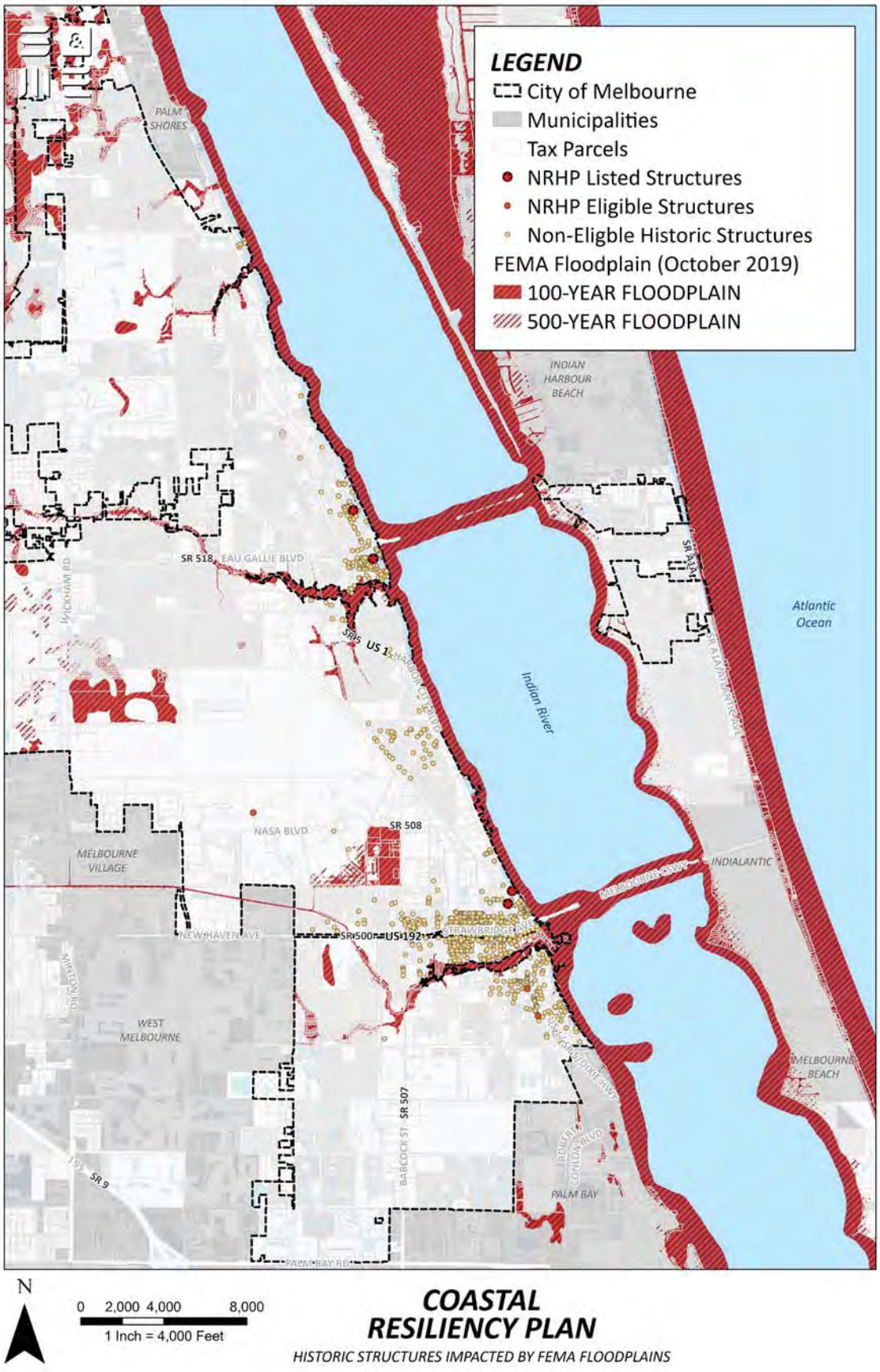
Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, SHPO, S&ME, 2020

FEMA Floodplains

Figure 57 shows the effect of the floodplains on the historic structures in the City. Several of the evaluated structures are impacted by the 100-year and 500-year floodplains, while none of the eligible or listed structures are impacted.

The Gleason House
Source: Public Domain

Figure 57 *Historic Structures Impacted by FEMA Floodplains*



Sources: Brevard County Property Appraiser, City of Melbourne, FEMA, FGDL, SHPO, S&ME, 2020

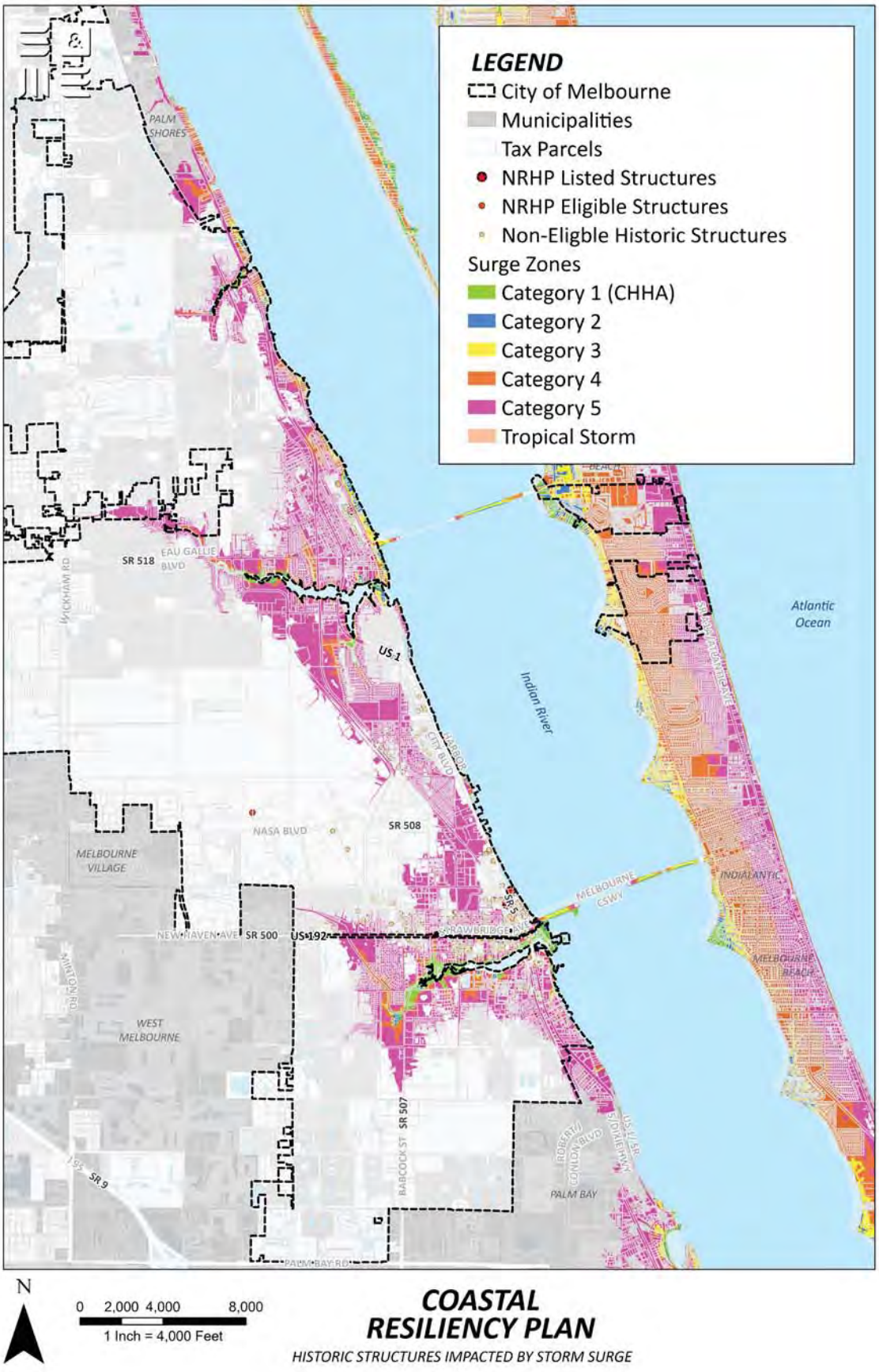
Storm Surge

Figure 58 shows the impact of the storm surge on historic structures in the City. Due to the location of many of the City's historical assets being near the coastline and the extensive nature of the surge zones, most of the listed and eligible structures will be impacted by Category 3 surge and higher. One eligible structure (immediately north of NASA Boulevard) will not be impacted by storm surge. However, two eligible structures (south of US 192) are projected to be impacted by Category 5 storm surge.

Two of the listed structures, the Green Gables house and the Florida Power & Light Company Ice Plant, are not projected to be impacted by storm surge. The Gleason House is projected to be impacted by the Category 3 storm surge and higher, while the Rossetter House is projected to be impacted by Category 5 storm surge.

The Green Gables House
Source: By Leonard J. DeFrancisci, CC BY-SA 3.0

Figure 58 *Historic Structures Impacted by Storm Surge*



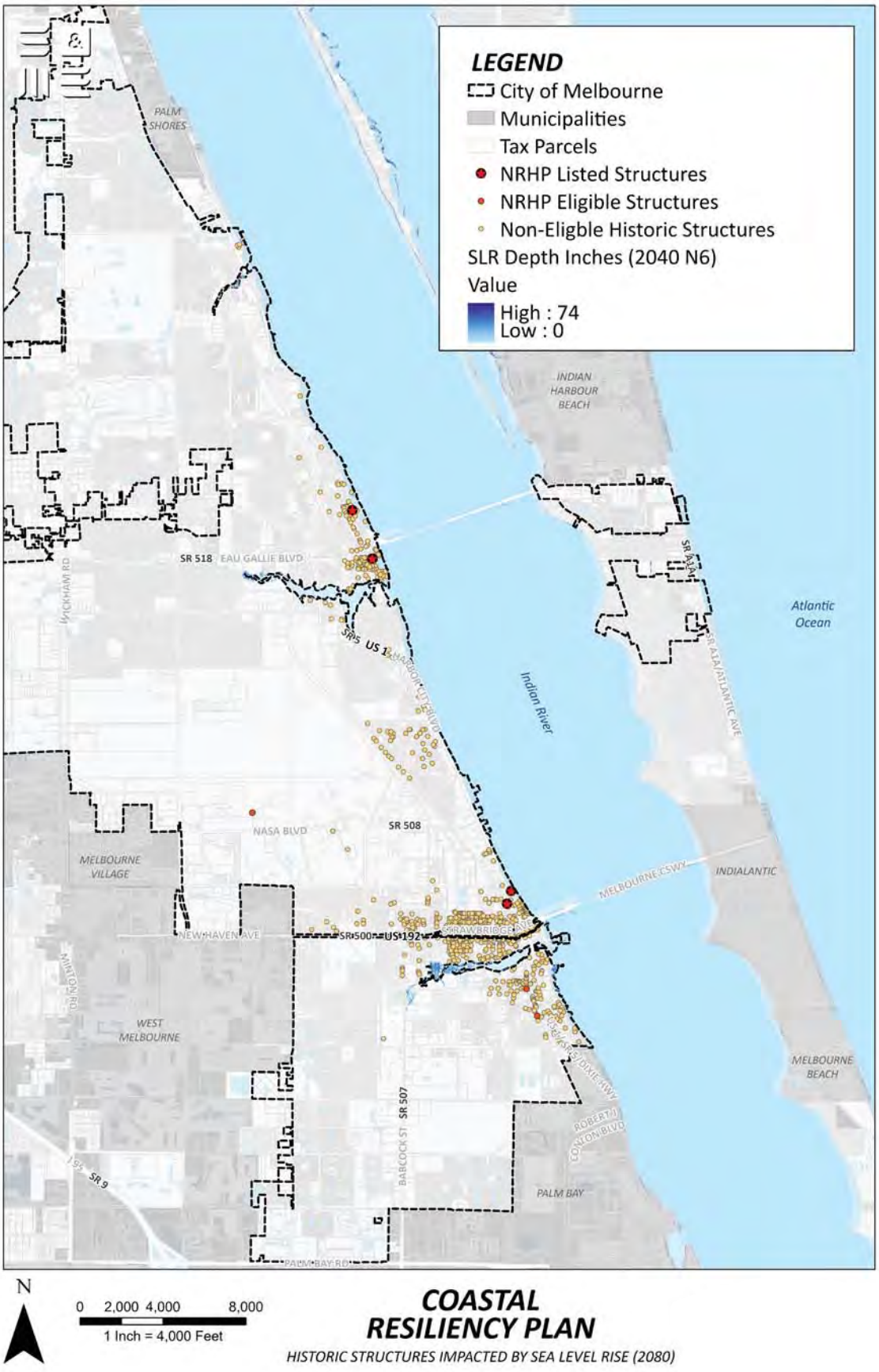
Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, SHPO, S&ME, 2020

Sea Level Rise

Figure 59, Figure 60, and Figure 61 show the impacts of projected sea level rise by 2040, 2060, and 2080 on historic structures in the City. Fortunately, the sea level rise projected will not affect any eligible or listed structures.

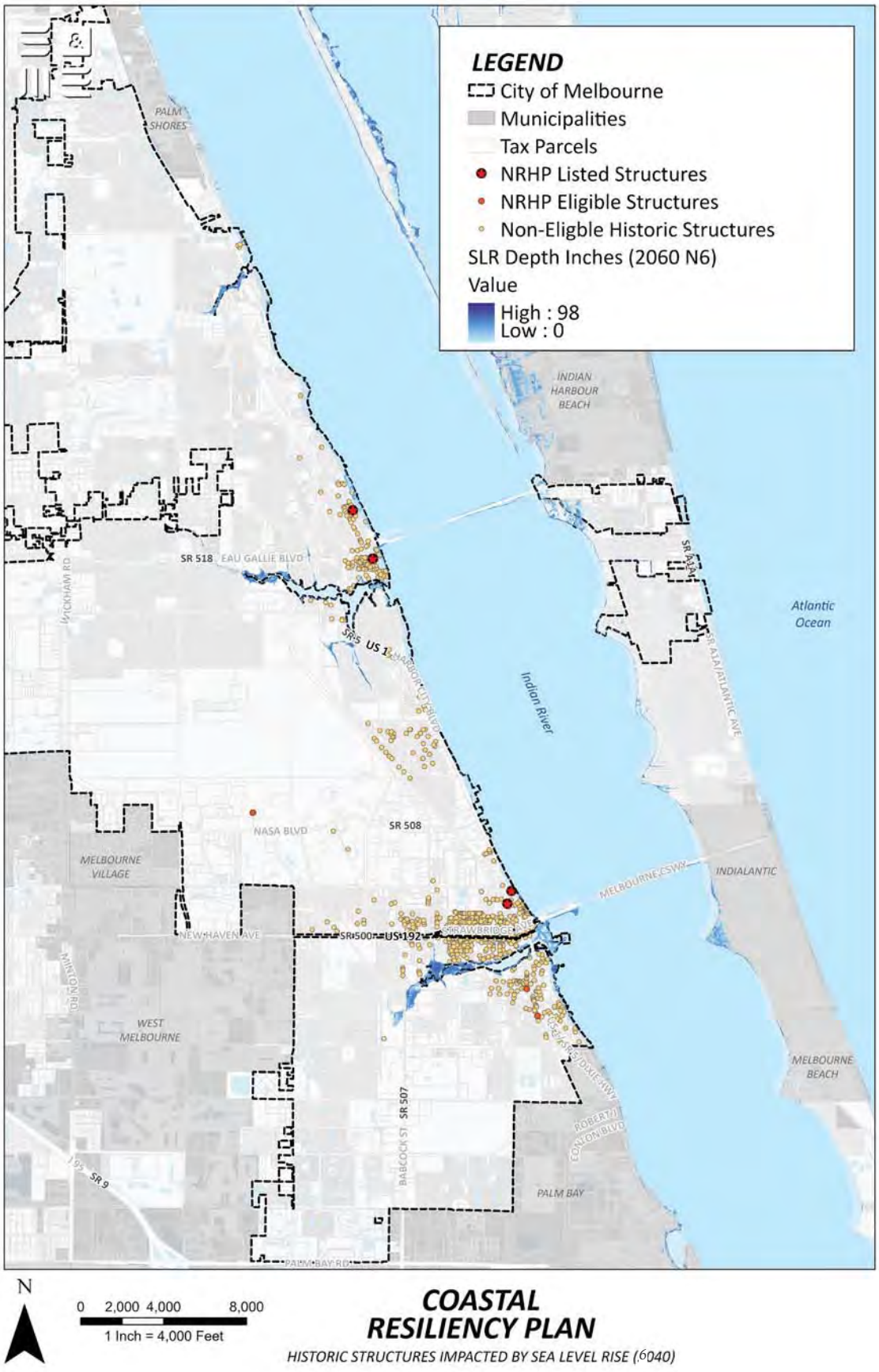
The Florida Power & Light Company Ice Plant
Source: Public Domain

Figure 59 *Historic Structures Impacted by Sea Level Rise (2040)*



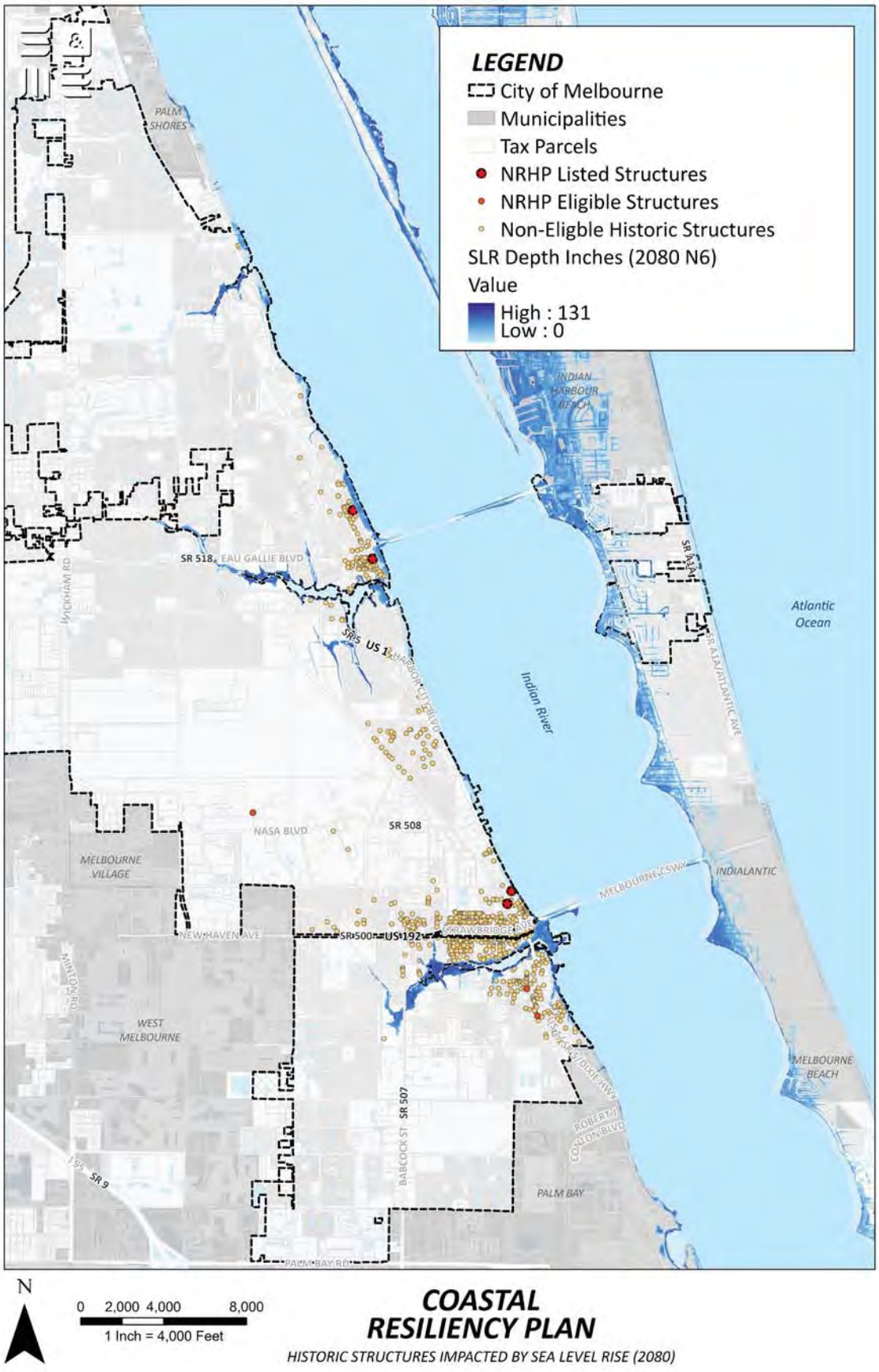
Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, SHPO, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 60 *Historic Structures Impacted by Sea Level Rise (2060)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, SHPO, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 61 *Historic Structures Impacted by Sea Level Rise (2080)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, SHPO, S&ME, 2020; University of Florida GeoPlan Center, 2017

Historic Resources

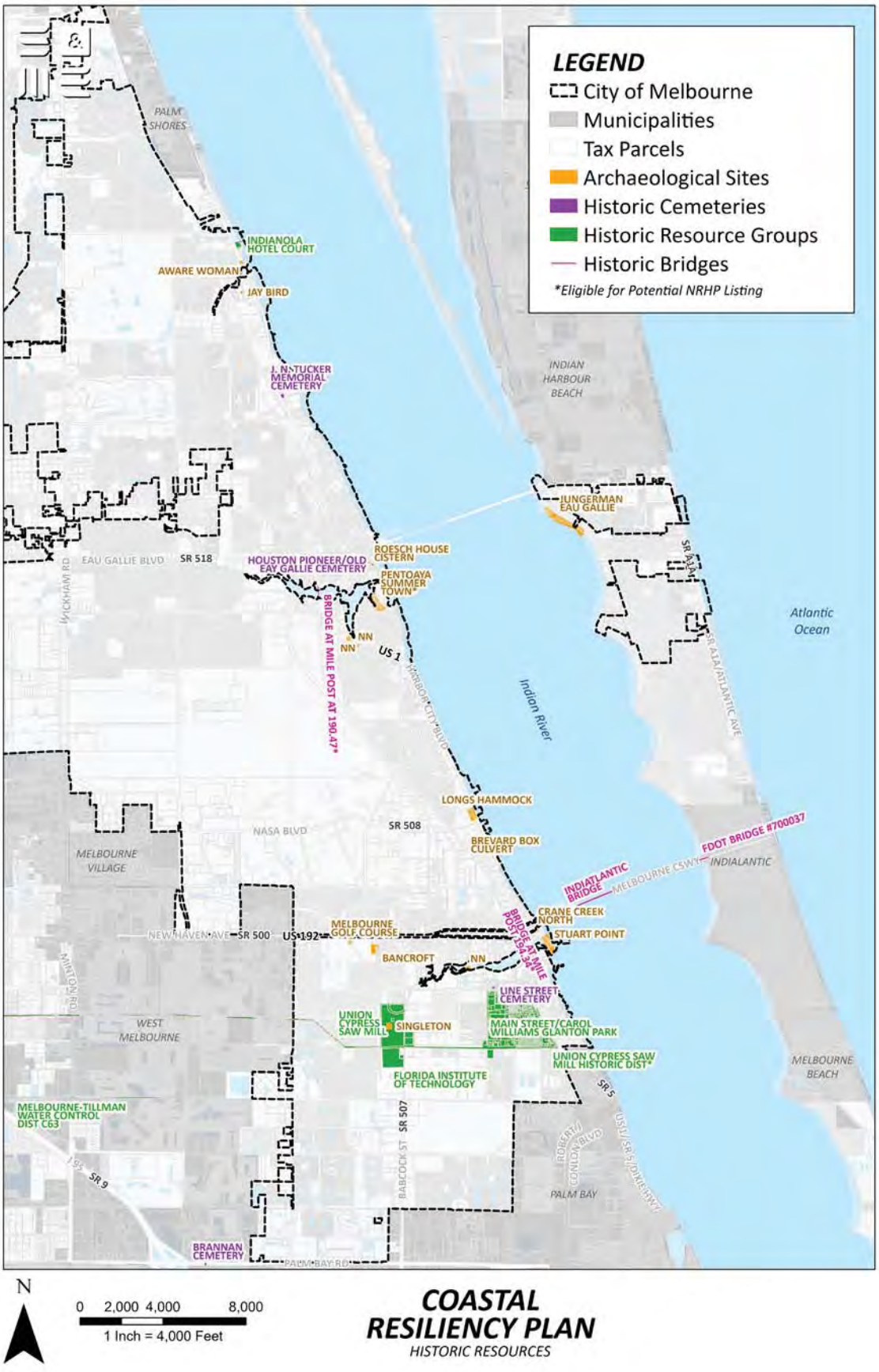
The Florida Master Site File (FMSF) provides the data for the following section. The FMSF is the State of Florida's official inventory of historical and cultural resources, though the FMSF has no active role in local governmental matters like zoning or permitting decisions, meaning that some resources can be disturbed if it is permitted by the local authorities. The records of the FMSF can reflect resources which have been altered or demolished.

Figure 62 shows the City's historic resources evaluated by SHPO, including bridges, cemeteries, archaeological sites, and resource groups, which include historic open spaces and historic districts. The City has three (3) historic cemeteries evaluated by SHPO, and there are sixteen archaeological sites included in the evaluation. There is also one historic bridge and seven resource groups which were evaluated.

This section includes an analysis of the impacts of SLR, storm surge and flood events on the City's historic resources (non-structures) within the coastal planning area, including cemeteries, archaeological sites, resource groups, and bridges.

Source: Florida Today

Figure 62 *Historic Resources: Non-Structures*

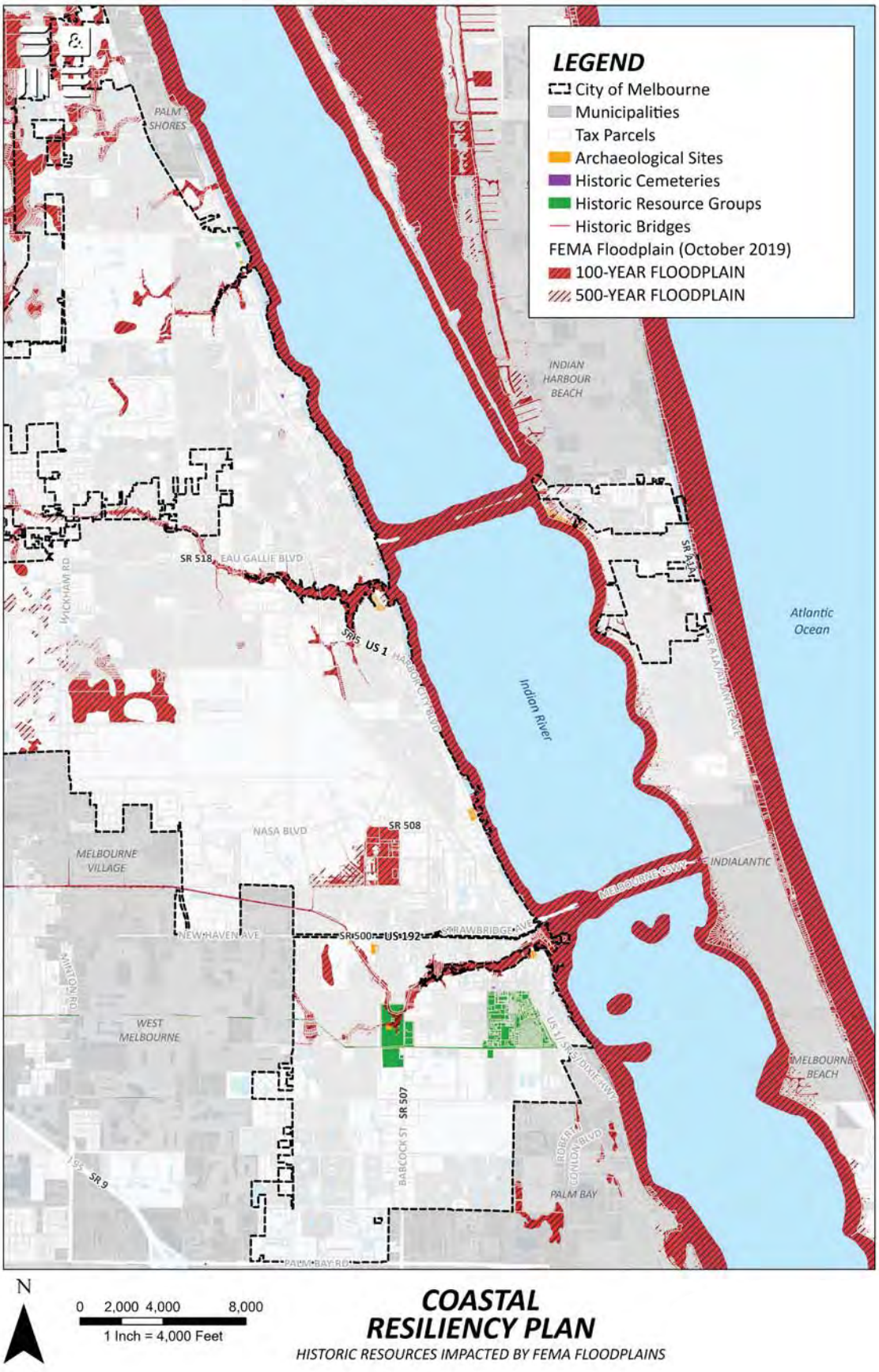


Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, SHPO, S&ME, 2020

FEMA Floodplains

Figure 63 shows how the 100-year and 500-year floodplains impact the non-structure historic resources in the City. The 100-year floodplain impacts several archaeological sites along US 192 and the coast of the Indian River Lagoon, and the 100-year floodplain will also affect archaeological sites along Eau Gallie River and the barrier islands. The 500-year floodplain will impact an archaeological site on the western side of the barrier island, near SR 518.

Figure 63 *Historic Resources Impacted by FEMA Floodplains*



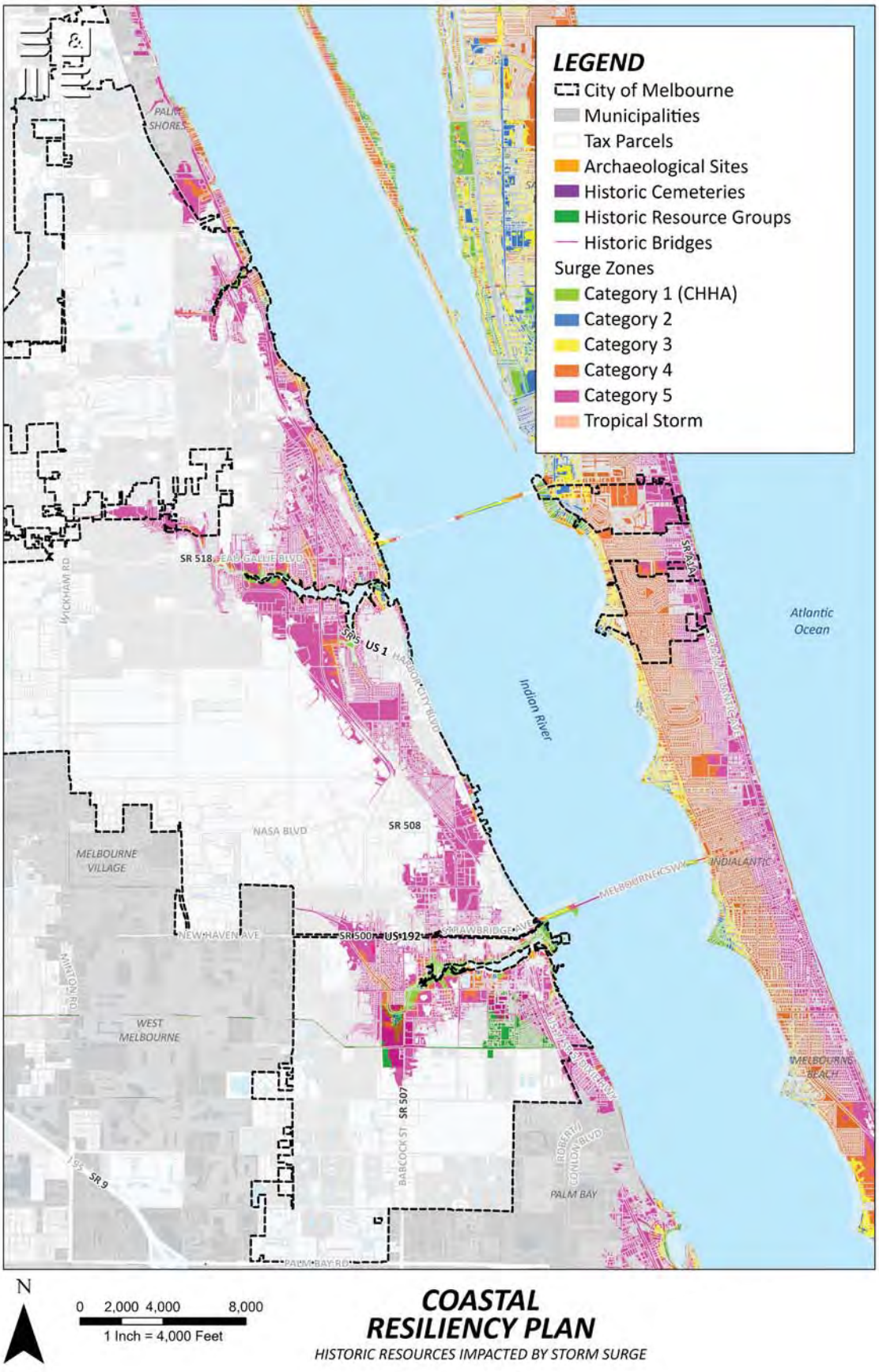
Sources: Brevard County Property Appraiser, City of Melbourne, FEMA, FGDL, SHPO, S&ME, 2020

Storm Surge

Figure 64 shows the impacts of projected storm surge on the historic sites in the City. The Category 1 storm surge is projected to impact some of the archaeological sites (Crane Creek North) near the Melbourne Causeway. The Category 2 storm surge, similarly, impacts archaeological sites along the Indian River. The Category 3 storm surge is projected to impact the Indianola Hotel Court (a resource group on the northern side of the City), the Pentoaya Summer Town (an archaeological site near the Eau Gallie Causeway), and the Jungerman Eau Gallie (an archaeological site on the west side of the barrier island).

The Category 4 storm surge impacts a few archaeological sites near the Eau Gallie Causeway, the western portion of the Indianola Hotel Court, and a cemetery near the Melbourne Causeway (Line Street Cemetery). The Category 5 storm surge will impact a large portion of the City, including many historical sites along the Indian River. This includes several resource groups: Main Street / Carol Williams Glanton Park, Union Cypress Saw Mill Historic Site, Florida Institute of Technology; several archaeological sites: Singleton, Melbourne Golf Course, Bancroft, Crane Creek South, Longs Hammock, Roesh House Cistern, Aware Woman, and Jay Bird; and, includes historic cemeteries: J.N. Tucker Memorial Cemetery and Houston Pioneer / Old Eau Gallie Cemetery. Only one historic site is not projected to be impacted: Brevard Box Culvert.

Figure 64 *Historic Resources Impacted by Storm Surge*



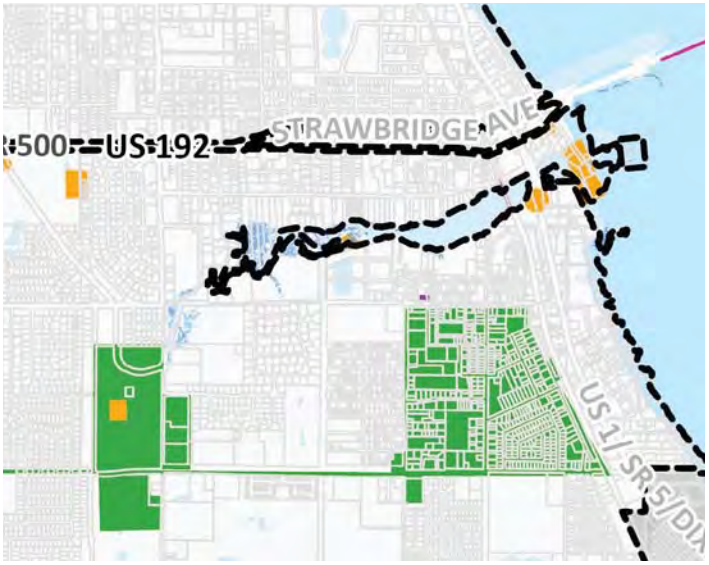
Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, SHPO, S&ME, 2020

Sea Level Rise

Figure 67 shows the impacts of the 2040 projected sea level rise on the City's historic sites. In 2040, the anticipated sea level rise will impact one archaeological site along Crane Creek (not named) and a historic bridge (Bridge at mile post 194.34). There was a historic bridge across the Indian River, but the Melbourne Causeway has since replaced it. Figure 65 and Figure 66 show the areas around the Eau Gallie River and Crane Creek and the historic resources in the area.

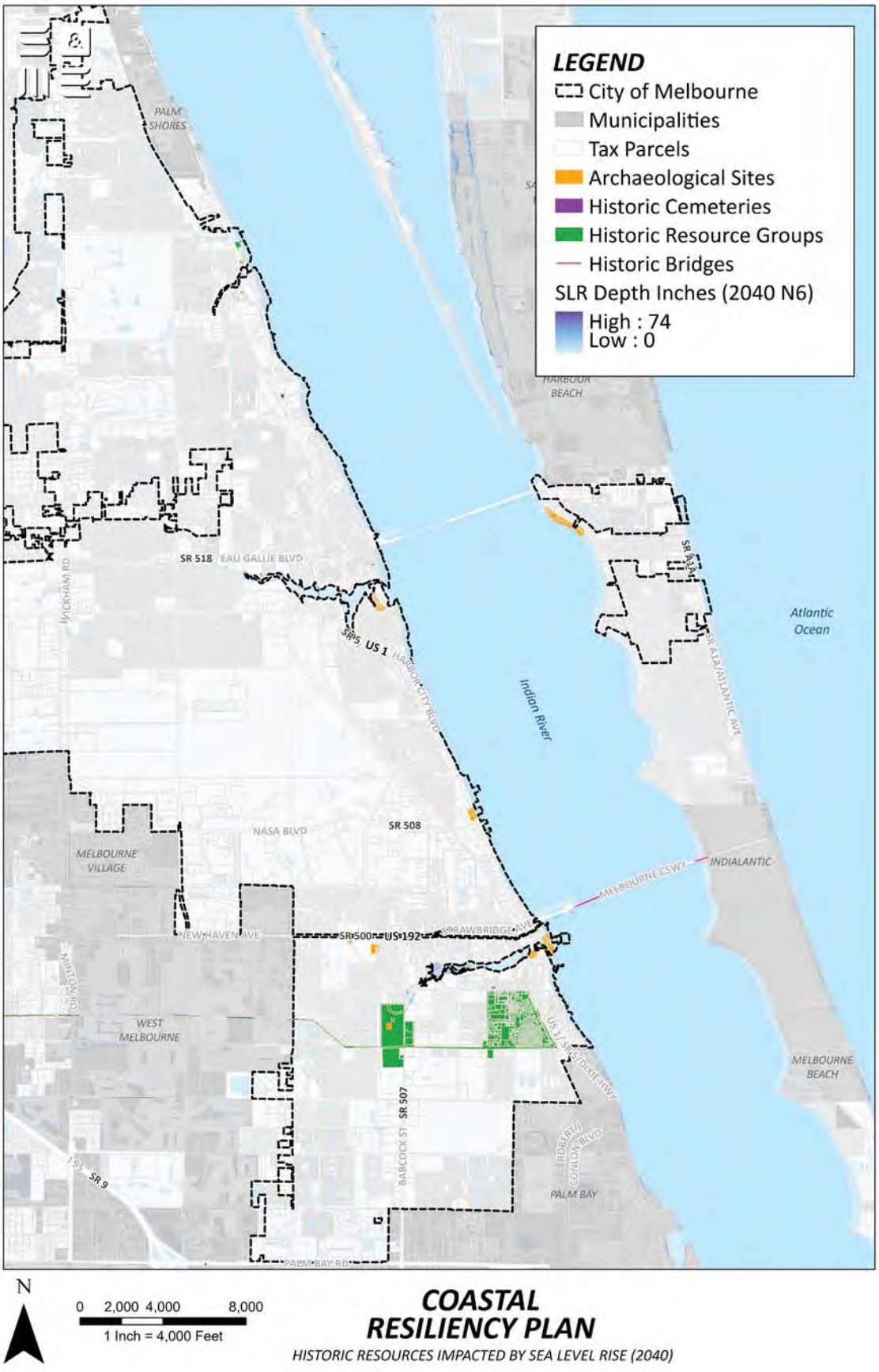
Figure 65 *Eau Gallie River SLR Impacts (2040)*

Figure 66 *Crane Creek SLR Impacts (2040)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 67 *Historic Resources Impacted by Sea Level Rise (2040)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, SHPO, S&ME, 2020; University of Florida GeoPlan Center, 2017

Sea Level Rise

Figure 70 shows the impacts of the 2060 projected sea level rise on the historic sites. In 2060, the anticipated sea level rise will impact multiple archaeological sites along Crane Creek (Stuart Point, Crane Creek North, Crane Creek South, and the unnamed archaeological site projected to be impacted in 2040). One resource group (Florida Institute of Technology) just south of the creek is also projected to be impacted by sea level rise inundation. One archaeological site along the Eau Gallie River is projected to be impacted (Pentoaya Summer Town), and there are projected impacts to an archaeological site on the western side of the barrier island, the Jungerman Eau Gallie.

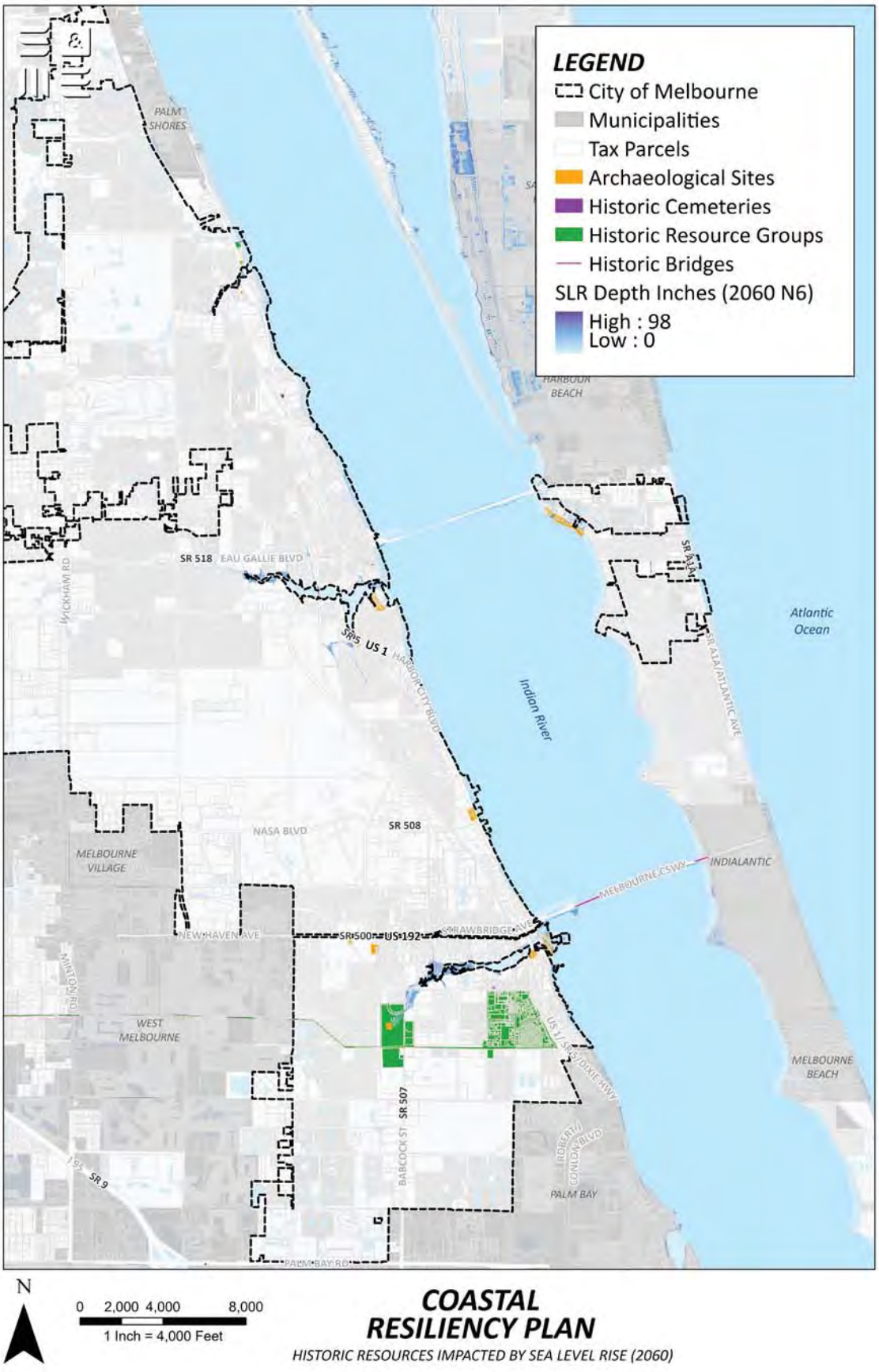
Figure 68 and Figure 69 show the areas along Crane Creek and the Eau Gallie River and the historic resources around them.

Figure 68 *Eau Gallie River SLR Impacts (2060)*

Figure 69 *Crane Creek SLR Impacts (2060)*

Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 70 *Historic Resources Impacted by Sea Level Rise (2060)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, SHPO, S&ME, 2020; University of Florida GeoPlan Center, 2017

Sea Level Rise

Figure 73 shows the impacts of the 2080 sea level rise, and as to be expected, more historic sites are projected to be impacted in 2080 as in previous projections. The same historic sites will be impacted, though some are projected to experience further inundation (the Jungerman Eau Gallie, Pentoaya Summer Town, Stuart Point, Crane Creek North, Crane Creek South, and Union Cypress Saw Mill). The 2080 SLR Projections show that the Indialantic Bridge will be impacted by sea level rise, and the Indianola Hotel Court (a resource group on the northside of the City) will be impacted by the 2080 sea level rise. At least one unnamed archaeological site along the Eau Gallie River is also projected to be impacted by sea level rise.

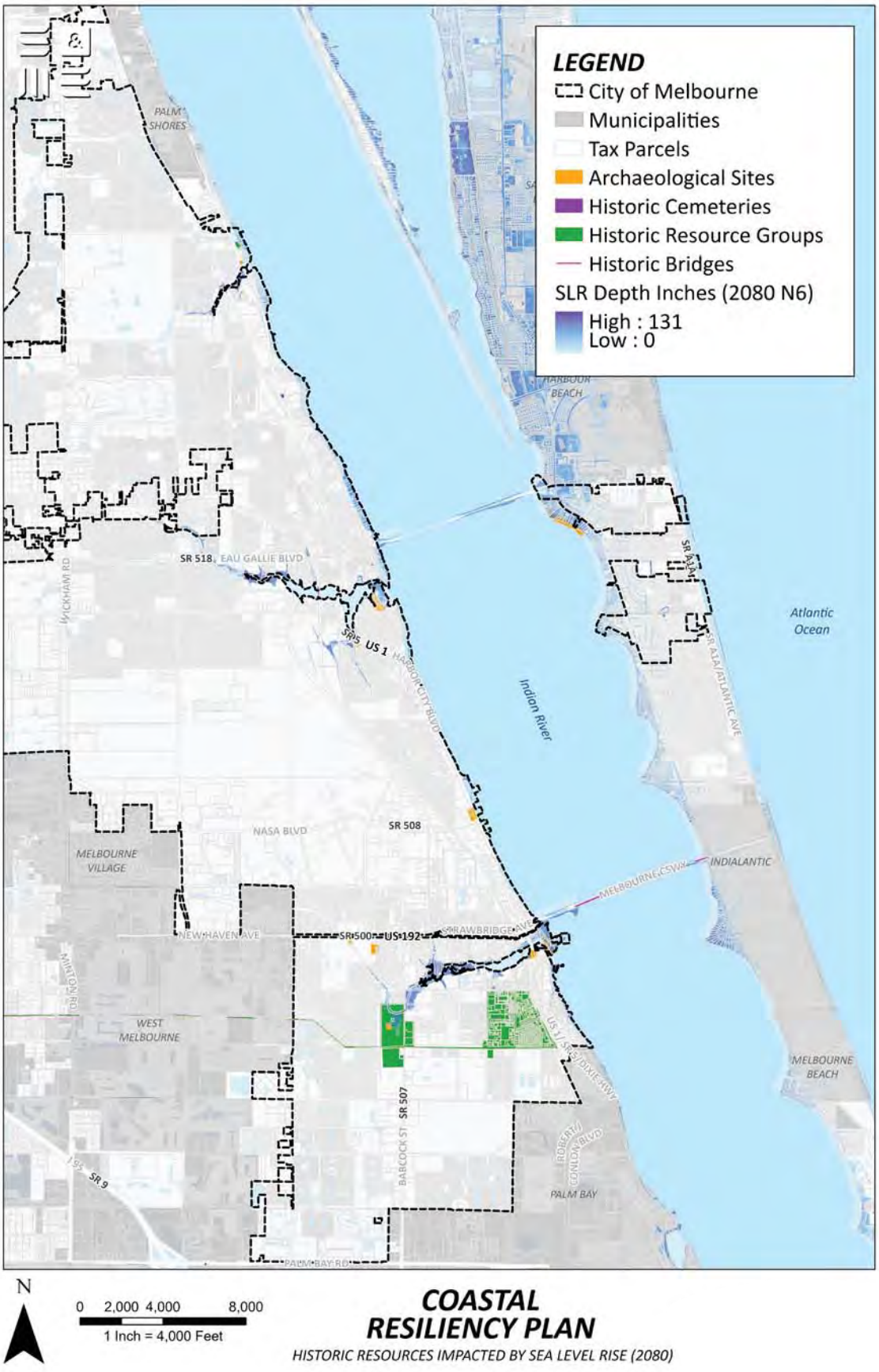
Figure 71 and Figure 72 show the areas along Crane Creek and the Eau Gallie River and the historic resources around them.

Figure 71 *Eau Gallie River SLR Impacts (2080)*

Figure 72 *Crane Creek SLR Impacts (2080)*

Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 73 *Historic Resources Impacted by Sea Level Rise (2080)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, SHPO, S&ME, 2020; University of Florida GeoPlan Center, 2017

Social Vulnerability & Historic Resources Summary of Assessment

Impacts from sea level rise and coastal flooding on vulnerable populations were evaluated through the CDC's Social Vulnerability Index (SVI), which is graphically represented in the Census Tracts that make up the City. The analysis showed several areas of concern that will need to be addressed by the strategies and action items. The most significant area noted in the analysis is adjacent to and south of Crane Creek. This area rated high on the overall vulnerability index and close to the top of each of the categories.

Adjacent to the Eau Gallie River, a similar scenario exists near this water body. This area rates close to the top of the overall vulnerability index. However, impacts from sea level rise and coastal flooding is anticipated to minimal in the future. Although the risks remain low, the potential for impacts associated with hurricanes or significant storm events necessitates added coordination with property owners in these tracts.

Strategies to increase outreach, promote coastal resiliency and generate materials that identify resources in the event of significant storm event or natural disaster should be prioritized in these areas. Due to the likelihood that many of these areas could be impacted by flooded or impassable roadways in the event of a storm, measures to ensure safe evacuation of vulnerable populations prior to storms should continue to be prioritized.

Utilizing the Florida Master Site File data, the City's historic resources were analyzed in relationship to the coastal impact scenarios (sea level rise, storm surge and flooding). Fortunately, the City's historic resources are generally protected by the coastal ridge. However, both the Eau Gallie River and Crane Creek areas have surveyed historic structures along the littoral edges of both waterways. These structures should be evaluated to determine if they can be moved to higher elevations or raised above the flood elevations (similar to the historic structures raised in New Orleans post Katrina). No national register properties are anticipated to significantly impacted by sea level rise, flooding or category 1-3 storm surge.

The greatest risk to the City's historical resources are the impacts from significant storm events. Not only are these structures at risk from storm surge from hurricanes, these historic structures were not built to today's building codes and are especially vulnerable to hurricane force winds. Property owners of historic structures should be targeted with outreach and educational materials on resiliency efforts. Archeological resources are located in areas of lower risk and consist of mostly shell middens along the coastal ridge. Should items of historical or archeological significance be found within particularly vulnerable areas, the SHPO should be contacted immediately to determine the best course of action.

Financial Impacts of Sea Level Rise

To determine the financial impact of sea level rise within the City, the County's Property Appraiser data was added to the City's geospatial data. Parcels which would be impacted in any amount were compiled to show the total financial impacts based on their assessed values in today's dollars (2021). The financial impacts assessment assumes a total loss of the property, instead of the portion of the site impacted, which means the dollar amounts are somewhat inflated. More refined site-by-site analysis would be needed to accurately reflect the true financial impacts of sea level rise on properties within the City.

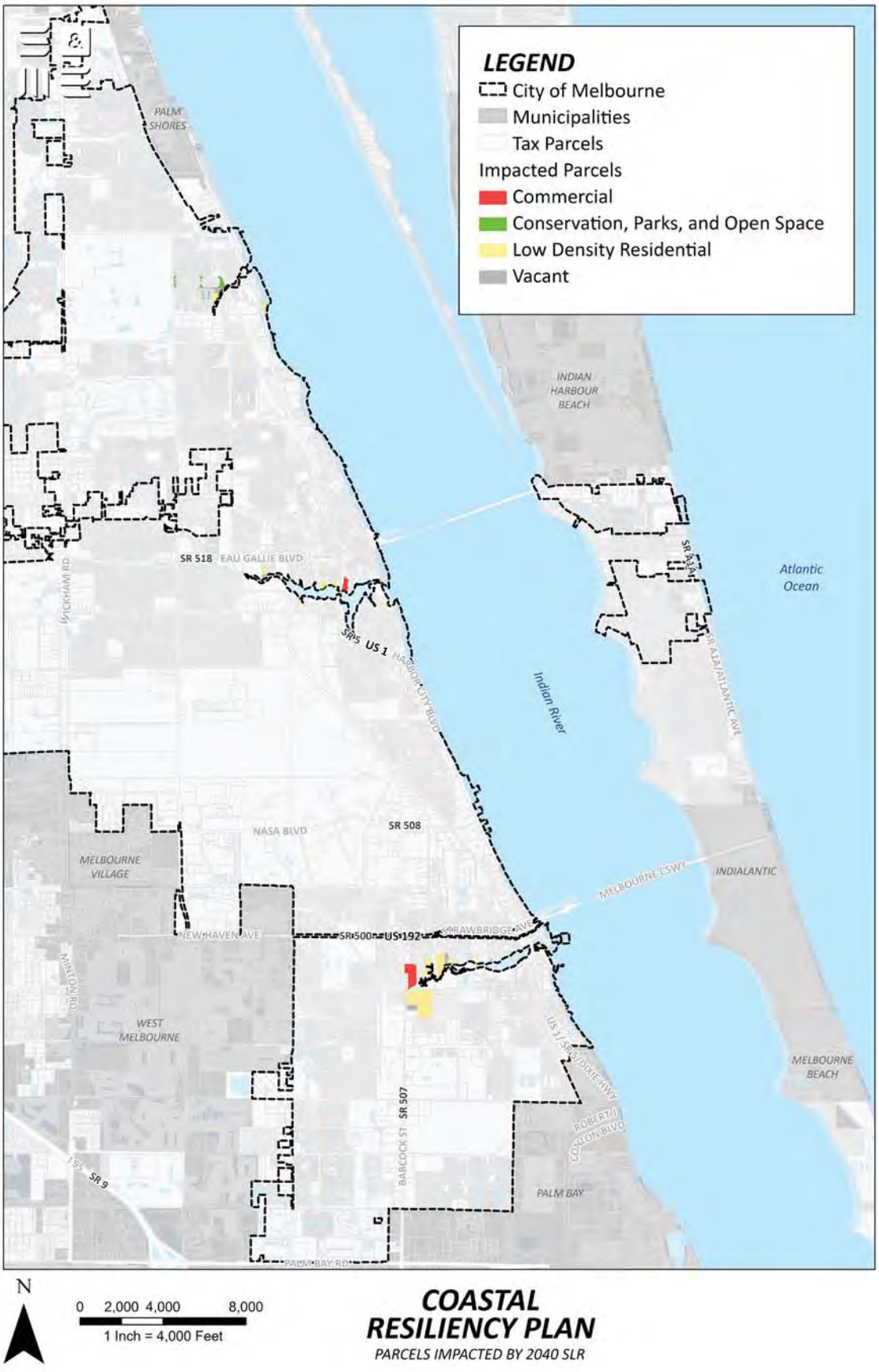
The impacted parcels are shown in the Figure 74, Figure 75, and Figure 76 according to their current land use, as determined by the Brevard County Property Appraiser DOR data. The financial impacts in 2040, 2060, and 2080 are listed in the table below.

The analysis indicates that by 2040 financial impacts could be over $26 million, and by 2060, these impacts could be over $230 million. The financial impacts of sea level rise will amount to almost $390 million by 2080. In 2040, most of the impacts will be on residential and commercial parcels, as indicated by the County's DOR codes, and in 2060, there will be impacts on public and institutional parcels, as well. By 2080 the parcels impacted will include commercial, residential (low density, medium density, and high density), industrial, public/institutional, and vacant uses.

Sea Level Rise	*Financial Impact (In 2021 Dollars)**
2040	***$26,007,900***
2060	***$233,348,820***
2080	***$389,622,475***

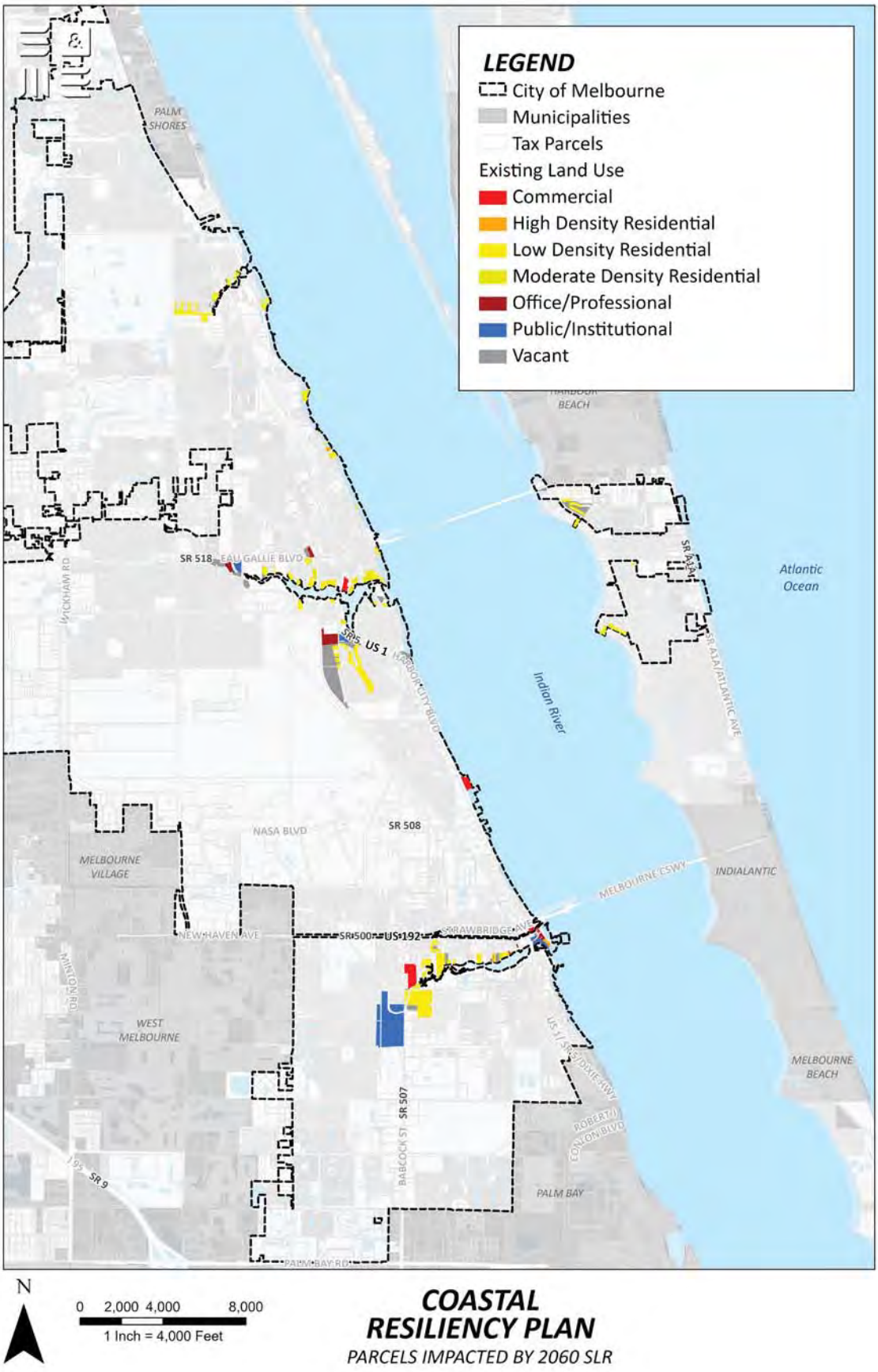
Sources: Brevard County Property Appraiser, S&ME, 2020; University of Florida GeoPlan Center, 2017
**Note: Financial Impact is calculated based upon a total property loss*

Figure 74 *Parcels Impacted by Sea Level Rise (2040)*



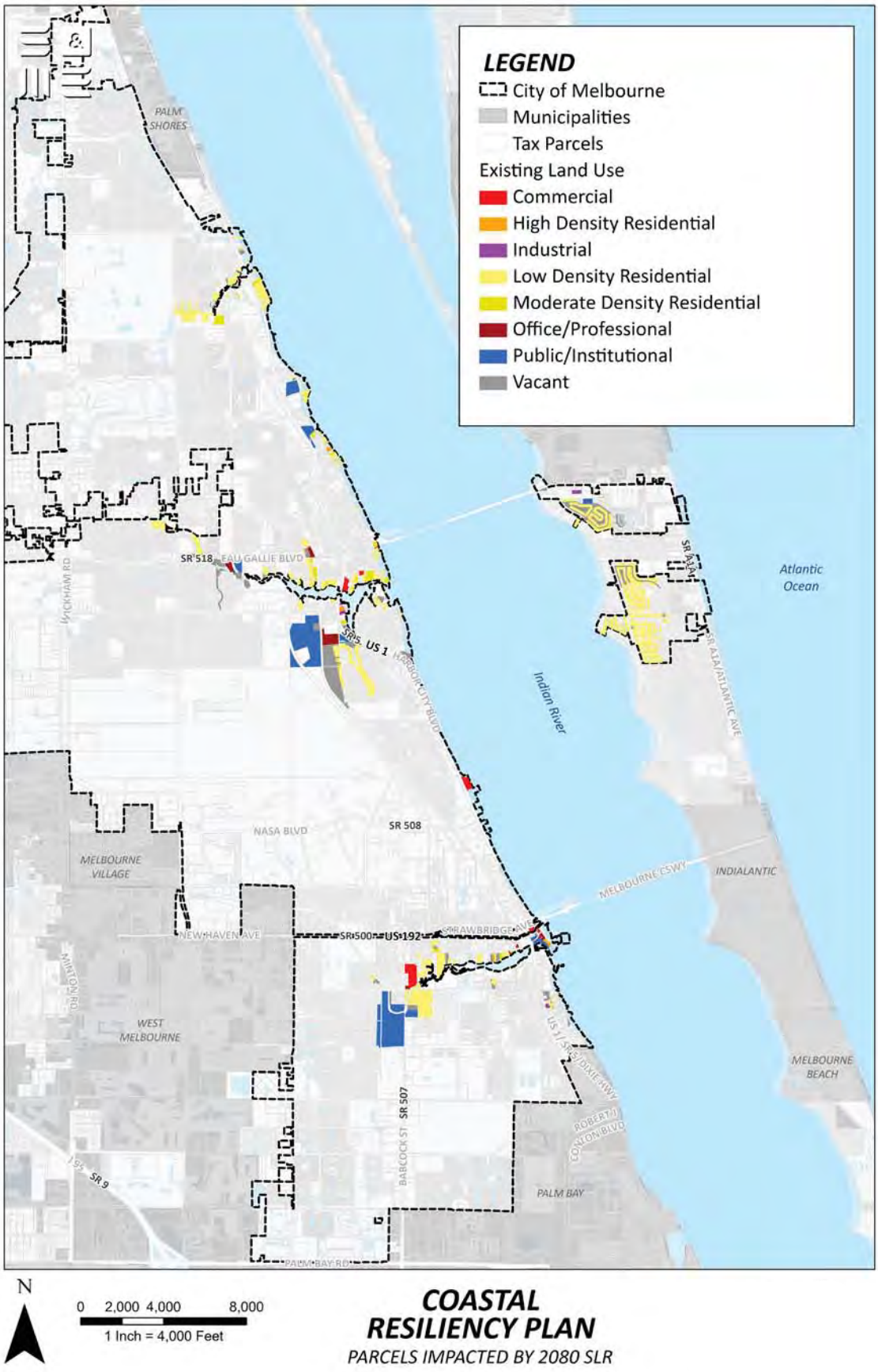
Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 75 *Parcels Impacted by Sea Level Rise (2060)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Figure 76 *Parcels Impacted by Sea Level Rise (2080)*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, S&ME, 2020; University of Florida GeoPlan Center, 2017

Vulnerability Assessment Matrix

The vulnerability assessment matrix includes a summary of each vulnerability variable based on the severity of the analyzed impacts from category 3 storm surge, sea level rise, 100-year flooding and coastal flooding. Severity is based on a scale from low, medium and high. Low includes minimal anticipated impacts. Medium indicates low to moderate impacts. High are areas that are anticipated to experience significant impacts. As discussed in previous sections, the City is protected from a coastal ridge along the western edge of the Indian River. This reduces many of the impacts associated with sea level rise and storm surge. Most of the impacts on critical facilities, roadway network, and historical resources occur in the 2080 sea level rise scenario.

Assessment Variable	*Category 3 SLOSH*	*SLR 2040*	*SLR 2060*	*SLR 2080*	*Floodplains*	*Nuisance*
Socio-Economic	Low	Low	Low	Low	Low	Low
Critical Facilities	Moderate	Moderate	Moderate	High	Moderate	Low
Cultural/ Historical	Moderate	Low	Low	Moderate	Low	Low
Financial Loss	Low	Low	Moderate	High	Low	Low
Roadway Network	Low	Low	Moderate	High	Low	Low

ADAPTATION ACTION AREAS

Introduction

The coastal areas designated Adaptation Action Areas on Figure 77 were carefully evaluated and analyzed according to several criteria analyzed in the vulnerability assessment. These criteria include the prevalence of sea level rise (SLR) by 2080, social vulnerability, projected surge from hurricanes up to a category 3 storm, impacts on infrastructure and municipal functions, economic impacts, and cultural impacts. Each of the criteria was weighed and a determination was made to designate areas with the highest risk of inundation by storms and SLR in the immediate future.

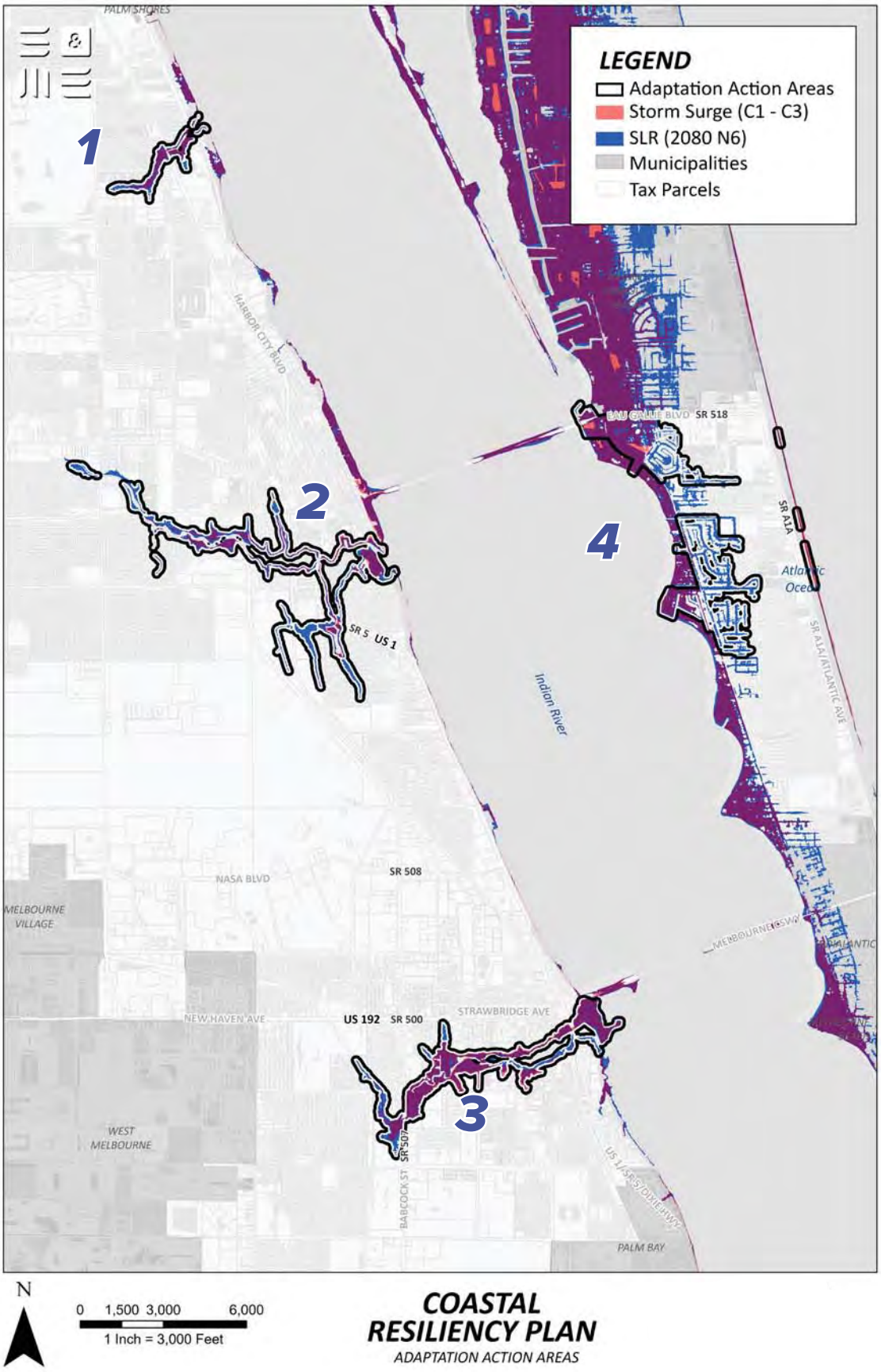
Florida Statutes define Adaptation Action Areas "as optional comprehensive plan designations for areas that experience coastal flooding and are vulnerable to the related impacts of rising sea levels for the purpose of prioritizing funding for infrastructure needs and adaptation planning. Local governments that adopt an Adaptation Action Area may consider policies within the coastal management element to improve resilience to coastal flooding."

Four (4) Adaptation Action Areas (AAA) were designated. The following areas were identified using the above methodology:

1. Horse Creek
2. Eau Gallie River
3. Crane Creek
4. Barrier Island

Each of the designated AAAs have their own set of challenges and opportunities which are described in detail in the following section.

Figure 77 *Adaptation Action Areas*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, SHPO, S&ME, 2020

Horse Creek

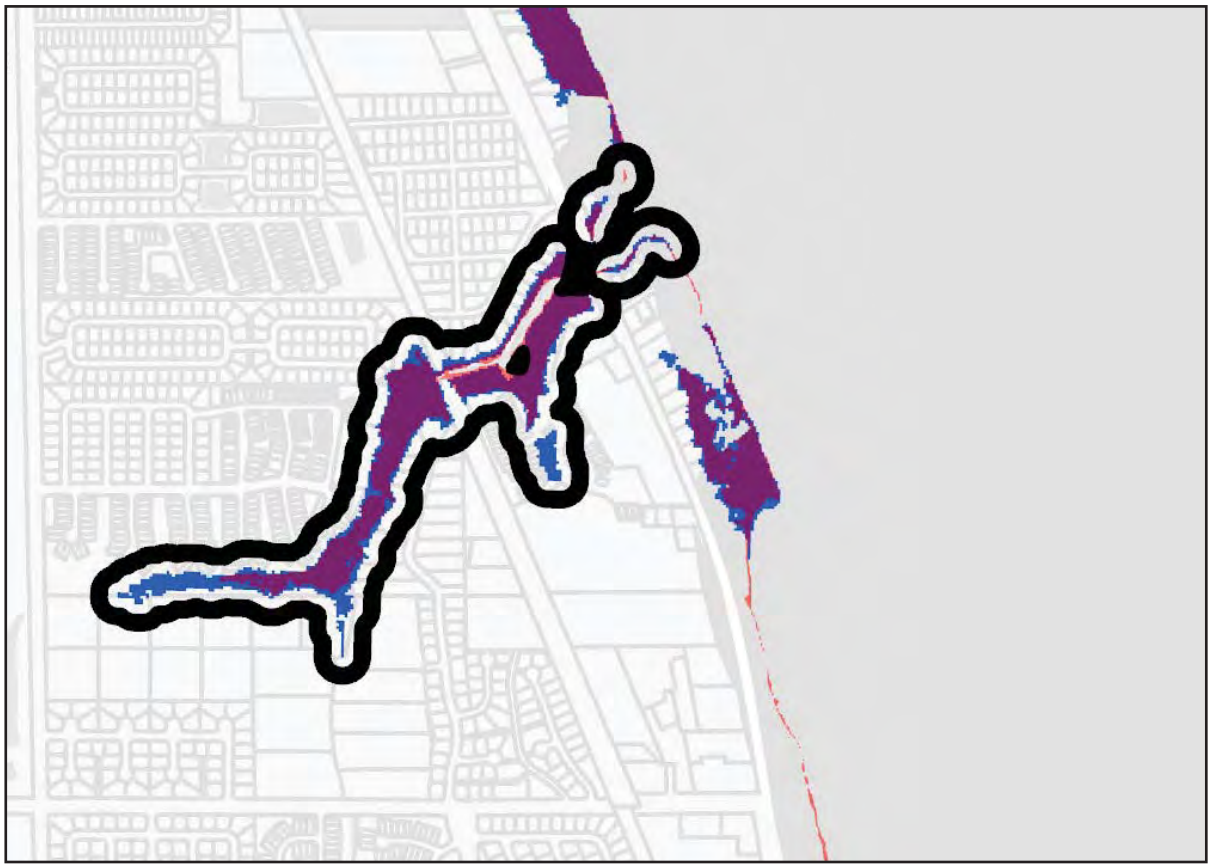
Location Description: Horse Creek is the northern most stream off of the Indian River Lagoon in the City that connects directly with Wickham Park where it terminates in a floodplain area near trails, a natural preserve, an archery range and a dog park. The stream is positioned squarely between Post Road and Parkway Drive, with most of the waterbody being east of Croton Road.

The creek is surrounded predominantly by single family residential structures with a single commercial establishment due south of the creek's edge where it passes under US 1. At its terminus, there is flood storage that is utilized for passive recreational purposes.

Adaption Needs: Although not the most dire of the designated AAAs, there are significant impacts that are anticipated to occur in the 2080 SLR scenario and coupled with future storm surge, the homes along the creek may be impacted by future flooding events (shown in Figure 78). Today, these homeowners are already faced with potential flooding in their rear yards from category 3 storms and above. Many of these homes likely have flood insurance. This area rates low in the social vulnerability index and has no issues related to critical infrastructure. However, some of the area roads will experience inundation by 2080 and potentially be washed out or significantly damaged by a category 3 storm or stronger.

Recommendations: Flooding in this area is a reality that many homeowners may be already dealing with under current conditions. As sea levels rise, over time, this situation is going to get worse. Roadways in this area are at risk as well. As a designated evacuation route, US 1 is a critical thoroughfare in the City and could suffer significant damage during a category 3 storm or stronger. Strategies for a more resilient transportation network in this area should be a priority.

Figure 78 *Horse Creek Adaptation Action Area*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, SHPO, S&ME, 2020

Source: Florida State Parks

Eau Gallie River

Location Description: The Eau Gallie River runs southeastward through the center of the City of Melbourne, emptying into the Indian River Lagoon just south of the Eau Gallie Causeway Bridge. As the river widens near its connection with the Indian River, marinas and boat slips dot the shore, as well as residential homes, commercial areas, and public parks.

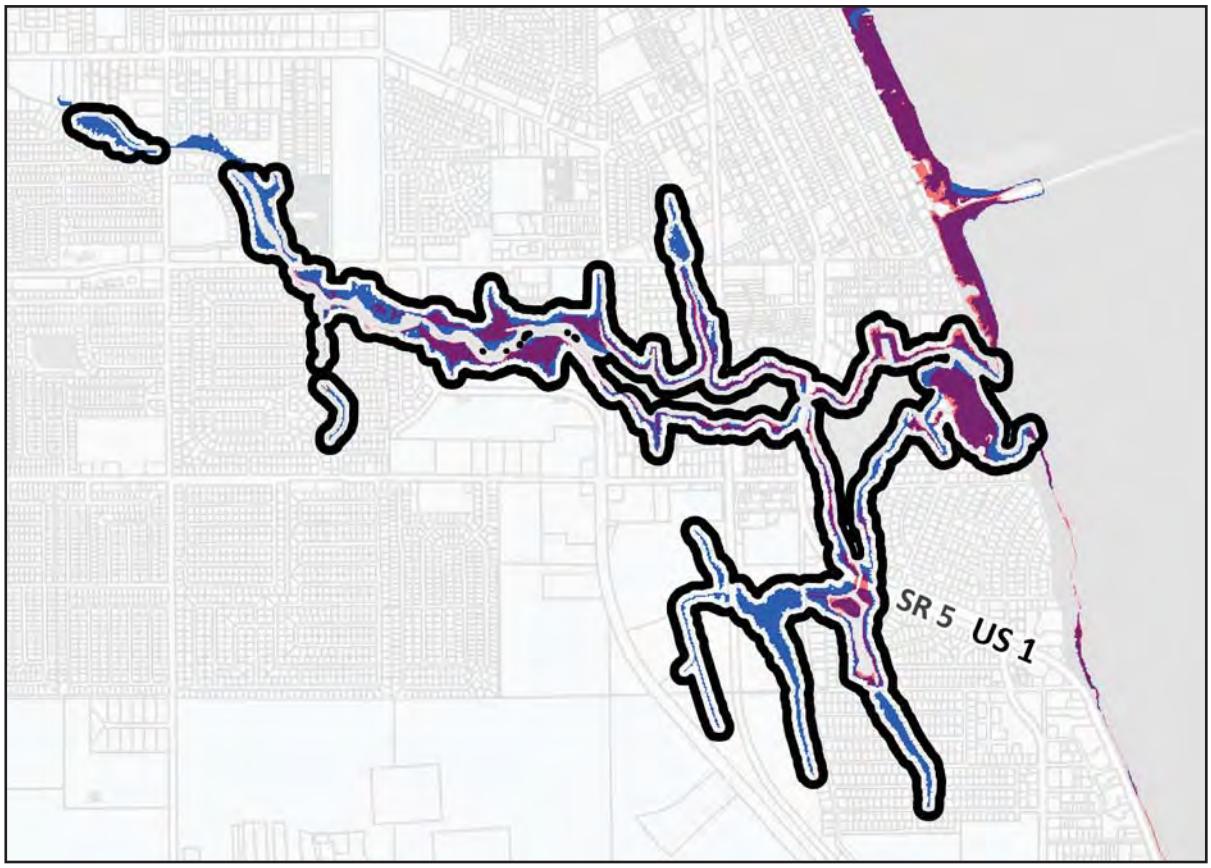
The river is surrounded predominantly by single family residential structures with commercial, industrial, and public/institutional parcels interspersed throughout the Adaptation Action Area. Ballard Park, a public park with tennis courts, a basketball court, playground equipment, and boat slips, sits on the shores of the Eau Gallie River mouth.

Adaption Needs: The Adaptation Action Area around the Eau Gallie River, seen in Figure 79, can expect significant impacts from the 2080 sea level rise scenario and category 1-3 storm surge. The parcels within the Adaptation Action Area, which include commercial parcels, conservation, parks, and open space, industrial, office/professional, public/institutional, and residential (at all levels of density), are expected to experience damage in the face of sea level rise and storm events. Without considering the expected sea level rise by 2080, these parcels already face potential flooding from category 1-3 hurricanes. Many of these parcels likely have flood insurance. This area rates moderately in the social vulnerability index and has a few issues related to road infrastructure, specifically near the mouth of the river. Some of the area roads will experience inundation by 2080 and could potentially be washed out or significantly damaged by a category 3 storm or stronger.

Recommendations: Flooding is already prevalent in this area, and as sea levels rise and storms become more catastrophic, flooding will increase. If not already being examined, the City should conduct a thorough review of the current extent of flooding of City infrastructure, and based upon the extent of flooding, develop mitigation strategies for the area. A water reclamation facility (David B. Lee Water Reclamation Facility) is located to the south of the Eau Gallie River and could experience damage with combined sea level rise and storm surge conditions.

Roadways in this area are at risk as well, including a major east-west connector, SR 518 (Eau Gallie Boulevard) which connects to the barrier island across the Indian River. US 1 also crosses the Eau Gallie River near its mouth and is a critical thoroughfare in the City, and this bridge could suffer damage during a category 3 storm or stronger. Strategies for a more resilient transportation network in this area should be a priority.

Figure 79 *Eau Gallie River Adaptation Action Area*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, SHPO, S&ME, 2020

Source: City of Melbourne

Crane Creek

Location Description: Crane Creek runs somewhat parallel to the Eau Gallie River, approximately southeastward through the southern section of the City, emptying into the Indian River Lagoon just south of the Melbourne Causeway. The creek runs through the Florida Institute of Technology campus as well as through residential and low intensity commercial areas. As the river widens near its connection with the Indian River, marinas and boat slips dot the shore, as well as residential homes, commercial areas, and public parks.

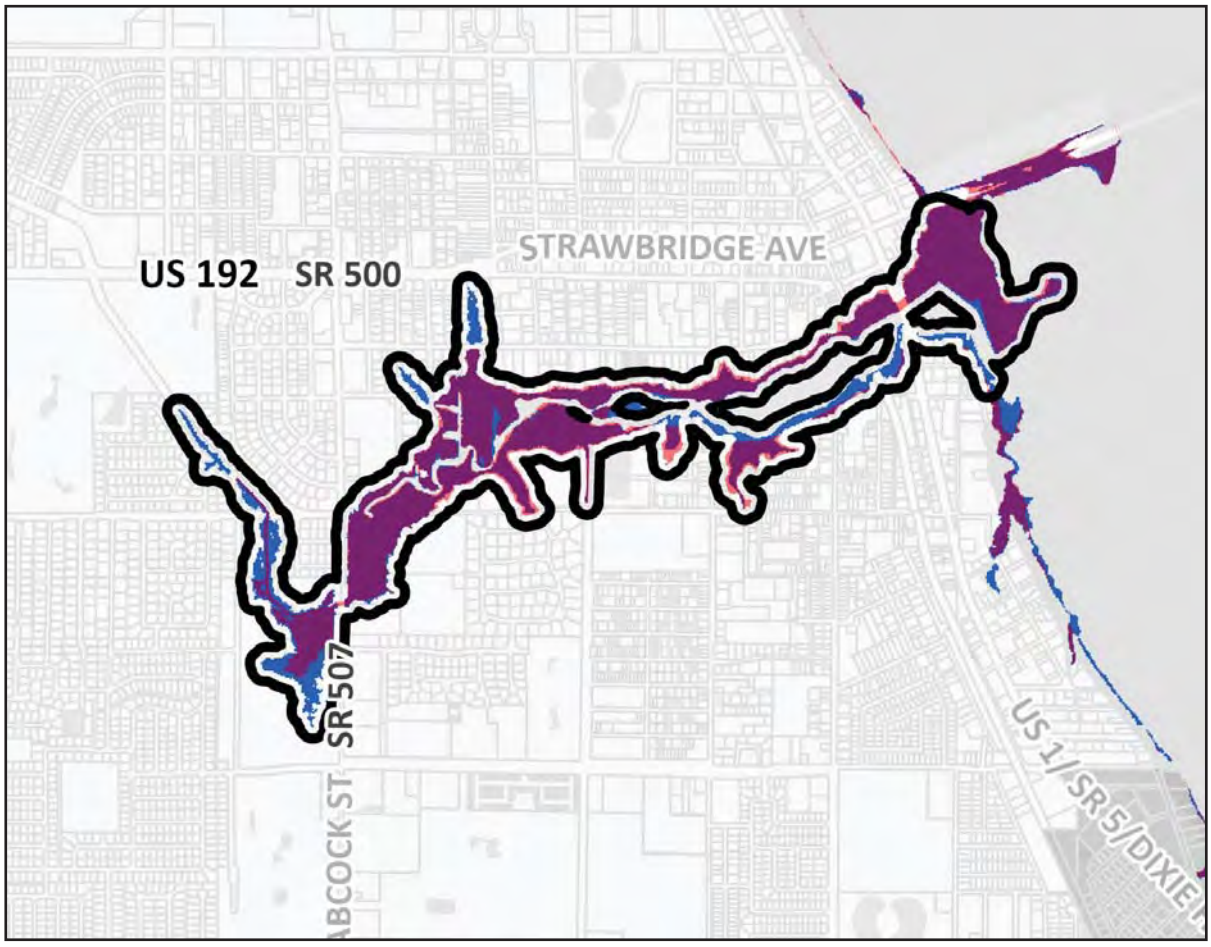
The creek is surrounded by single family residential and public/institutional parcels to the west side of the creek, while there are more office/professional, commercial, industrial, and high density residential parcels closer to the creek's mouth. Manatee Park and Crane Creek Promenade, two public recreation areas, line the shores of the Crane Creek near its mouth.

Adaption Needs: The Adaptation Action Area around Crane Creek, seen in Figure 80, can expect significant impacts from the 2080 sea level rise scenario and category 1-3 storm surge. The parcels within the Adaptation Action Area, which include commercial parcels, industrial, office/professional, public/institutional, and residential (at all levels of density), are expected to experience damage in the face of sea level rise and storm events. There will be significant impacts to the parcels within the Adaptation Action Area based upon the impacts from sea level rise and from category 1-3 storm surge. Many of these parcels likely have flood insurance. The adaptation area ranks very highly in the social vulnerability index, overall. The area is specifically vulnerable based on housing and transportation, minority population, and socioeconomic factors. This index indicates that households in this area are more likely to speak languages other than English and may not have access to a vehicle, making them especially vulnerable to the impacts of storm surge in the case of a catastrophic storm. The area also has significant impacts to the road infrastructure, including Melbourne Avenue, US 192, US 1, and the Melbourne Causeway. Some of the area roads (US 1) will experience inundation by 2080 and potentially be washed out or significantly damaged by a category 3 storm or stronger.

Recommendations: Flooding is already prevalent in this area, and as sea levels rise and storms become more catastrophic, flooding will increase. If not already being examined, the City should conduct a thorough review of the current extent of flooding on City infrastructure, and based upon the extent of flooding, develop mitigation strategies for the area. Grant Street Water Reclamation Facility is located immediately south of Crane Creek and is at high risk of damage from projected sea level rise and storm surge from category 1-3 storms. There is a need for specific mitigation using green (i.e., a living shoreline) or gray solutions (i.e., a seawall) to prevent inundation of the Water Reclamation Facility.

Roadways near the Melbourne Causeway are at risk as well, including a major east-west connector, US 192 (Strawbridge Avenue) which connects to the barrier islands across the Indian River via the Causeway. US 1 also crosses Crane Creek near its mouth and is a critical thoroughfare in the City, and this bridge could suffer damage during a category 3 storm or greater. Strategies for a more resilient transportation network in this area should be a priority.

Figure 80 *Crane Creek Adaptation Action Area*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, SHPO, S&ME, 2020

Barrier Island

Location Description: The Barrier Island Adaptation Action Area, seen in Figure 81, includes the portion of the City along the barrier island just east of the Indian River. The adaptation area includes a large portion of the City limits that extend to the island. The Barrier Island Adaptation Area is connected to the mainland by the Eau Gallie Causeway (SR 518).

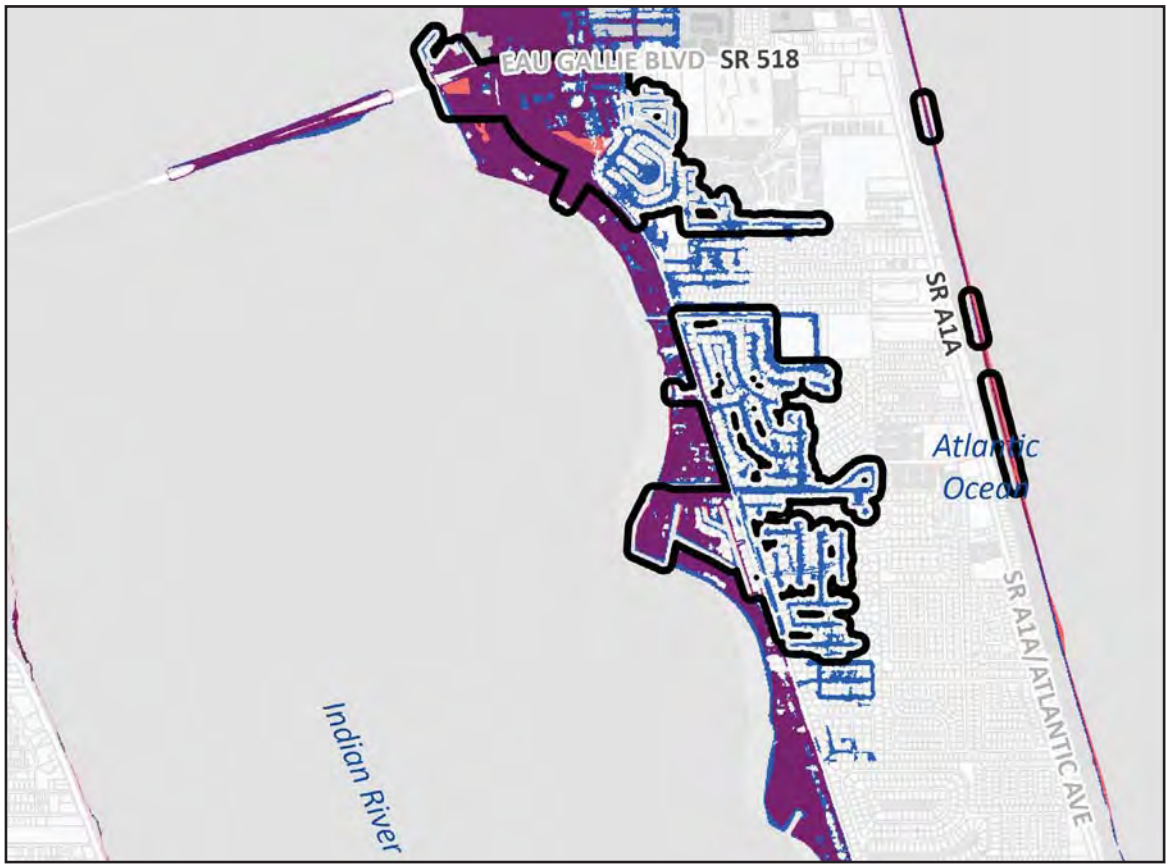
The adaptation action area has parcels of all land uses, yet the action area is dominated by single family residential. The areas of most concern are along the west side of the barrier island, bordering the Indian River. These areas have light manufacturing, public/institutional, commercial, office/professional, and low density residential uses.

Adaption Needs: The Adaptation Action Area on the barrier island can expect significant impacts from the 2080 sea level rise scenario and category 1-3 storm surge. The parcels along the western side of the barrier island are especially vulnerable to sea level rise and storm surge due to the proximity to the Indian River. These parcels within the Adaptation Action Area include light manufacturing, public/institutional, commercial, office/professional, and low density residential uses. Much of the area is low density residential subdivisions. Many of these parcels likely have flood insurance. The adaptation area ranks least vulnerable in the overall index and the individual categories.

The area will experience significant impacts to the road infrastructure, including Eau Gallie Boulevard, SR A1A, and the Eau Gallie Causeway. Some of the area roads will experience inundation by 2080 and potentially be washed out or significantly damaged by a category 3 storm or stronger, and the barrier island residents will need to act quickly to be able to evacuate in the case of a catastrophic storm due to flooding of the Eau Gallie Causeway.

Recommendations: Flooding is already prevalent on the western side of the barrier island, and as sea levels rise and storms become more catastrophic, flooding will increase. If not already being examined, the City should conduct a thorough review of the current extent of flooding of City infrastructure, and based upon the extent of flooding, develop mitigation strategies for the area. Roadways in this area are at risk as well, and as mentioned above, residents would be cut off from the mainland due to flooding of the Eau Gallie Causeway. Providing up to date information during hurricane season and alternate routes would allow residents of the area to remain safe throughout the year. Strategies for a more resilient transportation network in this area should be a priority. Efforts to distribute evacuation and risk information to tourists coming to the area should also be made.

Figure 81 *Barrier Island Adaptation Action Area*



Sources: Brevard County Property Appraiser, City of Melbourne, FGDL, SHPO, S&ME, 2020

Source: Florida State Parks

RESILIENCY STRATEGIES

City of Melbourne
The Harbor City

Overarching Strategies

There are four (4) overarching strategies for the resiliency implementation and action plan. These strategies are to educate, to coordinate, to improve, and to regulate. Brief descriptions of these overarching strategies will be provided here. These strategies will guide the implementation and action plan which will be outlined in the following section.

- Engage, Educate, and Promote Coastal Resiliency
- Protect Vulnerable Populations through Continued Outreach

educate

coordinate

- As Appropriate, Work with FEMA to Protect Structures in Flood Zones
- Engage Community Partners to Champion Coastal Resiliency
  - Brevard County, ECFRPC, FDEP, FDOT
  - Florida Tech
  - Defense Contractors

improve

- Assess Specific Engineering Methods to Shore Up the Long-Term Viability of Critical Infrastructure
- Protect Evacuation Routes from Inundation

regulate

- Consider adding SLR as a Criteria When Reviewing Proposed Development
- Protect Historic Resources from Storm Surge and Sea Level Rise

Horse Creek

Specific strategies for the Horse Creek Adaptation Action Area are:

- Evaluate current Flood Storage in this area and understand elevations and future flooding considerations.
- In the future, as the sea level continues to rise, participate in FEMA programs to protect structures within Flood Zones (elevate, buyouts or relocate).
- Assess the feasibility of engineering solutions to SLR.

Eau Gallie River

Specific strategies for the Eau Gallie River Adaptation Action Area are:

- Evaluate opportunities for dual purpose park system facilities (stormwater/recreation).
- Develop interpretive signage to promote and educate SLR/coastal flooding at Houston Street and Ballard parks.
- Educate owners of historic resources along the river about SLR impacts.
- Evaluate opportunities for existing and/or new conservation lands to be utilized for flood storage.

Source: City of Melbourne

Crane Creek

Specific strategies for the Crane Creek Adaptation Action Area are:

- Develop engineering solutions to ensure long-term viability of Grant Street Water Reclamation Facility (GSWRF).
- Explore purchasing additional lands to serve as flood storage near GSWRF.
- Coordinate with Florida Tech regarding existing and future flooding on northern portion of Campus.
- Evaluate opportunities for dual purpose park system facilities (stormwater/recreation).
- Develop interpretive signage to promote and educate SLR/coastal flooding at Riverview Park.

Source: Florida Today

Barrier Island

Specific strategies for the Barrier Island Adaptation Action Area are:

- Evaluate current Flood Storage in this area and understand elevations and future flooding considerations.
- Participate in FEMA programs to move structures out of Flood Zones (elevate, buyouts or relocate).
- Assess the feasibility of engineering solutions to SLR.

IMPLEMENTATION & ACTION PLAN

Implementation & Action Plan

The purpose of this section of the Coastal Resiliency Plan is to identify specific implementation and action items for both the AAAs and the coastal area within the City. Action items were developed based on analysis synthesized during the vulnerability assessment, input received via public workshops and the social pinpoint site (community engagement website), and review of the regional resiliency planning documents.

The recommended actions outlined in the following table are organized by the four overarching categories; Educate and Promote, Coordinate, Improve, and Regulate. These four easy to follow categories assist the reader or implementing department in understanding the priorities for each. It is important to note that not all of these recommended action items will be implemented immediately, some may be partially implemented or not implemented at all depending on funding and/or staffing.

Each item has been designated a priority rating: high, medium, and low. The high priority is meant for items that need immediate attention. Medium priorities have longer lead times and are meant to be acted on in the next five years. Lastly, the low priorities are meant to be acted on in five years and beyond. Although these ratings have been designated in the action plan, there is no reason an item cannot be completed ahead of its suggested priority rating.

Source: Google Maps, 2021

Sea level monitoring in the South Pacific
Source: Austrlia Bureau of Meterology

EDUCATE & PROMOTE

ITEM NUMBER	ACTION ITEM / RECOMMENDATIONS	PRIORITY
1	Continue to utilize social media accounts to relay all disaster-related information	High
2	Educate the public through mailouts or social media that inform the public about the economic and environmental benefits of preparing for sea level rise and coastal resiliency (in multiple languages as necessary).	Medium
3	Explore developing a community outreach program, outside of the storm season and following an event, to identify needs and barriers associated with resource accessibility and disaster response.	Medium
4	Educate newly-elected officials about the City's primary vulnerabilities and hazard mitigation strategies.	Medium
5	Continue education with community leaders regarding continuity of operations plans and other emergency operations topics.	Medium
6	Continue social media opportunities to encourage resiliency efforts.	Medium
7	Encourage hands-on community education and volunteer activities to educate residents about resiliency.	Low
8	Evaluate existing programs in other jurisdictions and agencies aimed at educating residents and business owners about imminent natural hazards.	Low
9	Consider preparing a Return on Investment (ROI) document to be shared with homeowners and business owners that details the benefits of adopting a variety of resilient practices.	Low

COORDINATE

ITEM NUMBER	ACTION ITEM / RECOMMENDATIONS	PRIORITY
1	Coordinate with the Space Coast TPO and FDOT regarding at-risk evacuation routes (bridges and roadways) within and outside the AAAs.	High
2	Coordinate with Brevard County Natural Resources to determine where living shorelines are appropriate. AAAs should be evaluated first.	High
3	Coordinate with the County and community to identify local businesses such as gas stations, food suppliers or others that provide specific services or resources vital for recovery.	High
4	Identify elected and non-elected resiliency advocates to participate in regional initiatives such as the East Central Florida Regional Resilience Collaborative.	High
5	Continue coordinating with FEMA to determine strategies for removing structures (and Historic Structures) from flood zones and future flood zones according to the vulnerability assessment.	Medium
6	Coordinate with Florida Institute of Technology regarding resiliency and the effects of future SLR.	Medium
7	Coordinate with other agencies/organizations (i.e., Beautification and Energy Efficiency Board (BEEB)) to educate property owners about best management practices (BMP's) for reducing nutrient loads flowing into surface waters via residential, commercial, industrial and agricultural lands.	Medium

IMPROVE

ITEM NUMBER	ACTION ITEM / RECOMMENDATIONS	PRIORITY
1	Develop prioritization process and funding mechanisms for infrastructure projects in the AAA. Incorporate into CIP, the Stormwater master plan, long range transportation plan, and other appropriate plans and procedures as projects are determined.	High
2	Within AAAs, prioritize annual maintenance of critical stormwater facilities (e.g., outfalls, detention ponds, swales, pipes, etc.) to ensure retention and water quality functions are in working order prior to storm season.	High
3	Evaluate appropriate strategies for at-risk public infrastructure identified as part of the vulnerability assessment and AAAs.	High
4	Continue to design City facilities in a manner that limits salt water intrustion.	High
5	Continue to monitor sea level rise projections over time, particularly at parks or other City owned sites along the river.	High
6	Assess plans and policies to ensure the development of future affordable housing choices are outside of vulnerable areas.	Medium
7	Evaluate natural buffers along the Indian River Lagoon to determine if they could be enhanced with native vegetation that could assist with water quality and provide additional shoreline protection.	Medium
8	Consider opportunities for incentives for developers to build outside vulnerable areas or build in a resilient/sustainable way in vulnerable areas, using methods consistent with Low Impact Development (LID) standards, Florida Green Building Coalition, and others.	Low
9	Identify publicly-owned parking lots that could be retrofitted using green infrastructure and permeable surfaces.	Low
10	Identify areas where bicycle and pedestrian improvements (including use of green strategies) can be included in transportation projects that mitigate roadways vulnerable to natural hazards (green streets).	Low

REGULATE

ITEM NUMBER	ACTION ITEM / RECOMMENDATIONS	PRIORITY
1	Establish AAAs in the Coastal Management Element as priority areas for SLR adaption and future mitigation efforts.	High
2	Explore revising LDC to allow low impact design storm water management infrastructure such as rain gardens, native vegetation, living shorelines on private property.	High
3	Assess and update future land use and zoning codes to limit or mitigate the placement of government and healthcare buildings in vulnerable areas.	High
4	Amend the comprehensive plan to add policies to promote Low Impact Development practices for government owned facilities.	Medium
5	Identify resilience strategies and policies related to resilient rebuilding, relocation, fortification, mitigation or adaptation for critical facilities in identified vulnerable areas.	Medium
6	Evaluate Comprehensive plan to ensure compatibility with addressing resiliency and future development based on future conditions.	Medium
7	Explore establishing Design Guidelines that could protect and buffer structures from the impact of vulnerability hazard such as sea level rise, storm surge, flooding, wind damage, and the urban heat island effect.	Low
8	Revise LDC with best practices for reducing heat island effect and increasing stormwater function in parking lots.	Low

APPENDIX

Coastal Resiliency Resources

Resilience Resources Florida Department of Environmental Protection
https://floridadep.gov/rcp/florida-resilient-coastlines-program/content/resilience-resources

US Climate Resilience Toolkit
https://toolkit.climate.gov/

NOAA Sea Level Rise
NOAA Sea Level Rise link

Georgetown Adaptation Tool Kit
https://www.georgetownclimate.org/files/report/Adaptation_Tool_Kit_SLR.pdf

University of Florida Sketch Planning Tool for Sea Level Rise
University of Florida Sketch Planning Tool for Sea Level Rise link

Broward Groundwater Elevation Maps
https://www.broward.org/Climate/Documents/Climate_Toolbox/Sea_Level_Rise/FutureGW_withaddedtext.pdf

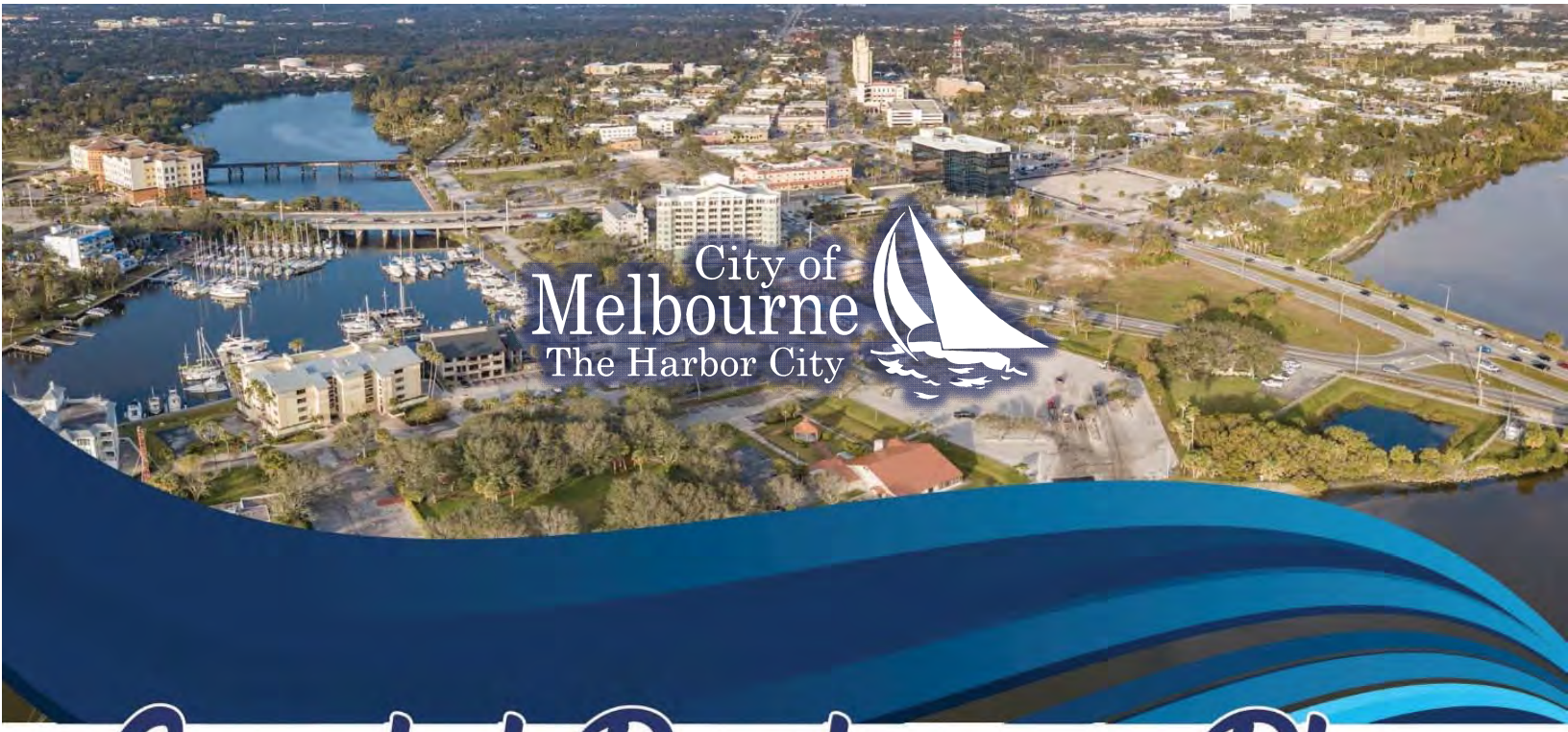
Georgetown Climate Center
https://www.georgetownclimate.org/

Resilient Planning Integration and Legal Considerations Webinar
https://www.youtube.com/watch?v=HXwXcNs2Jks

CDC Social Vulnerability Index (SVI)
https://svi.cdc.gov/map.html

Florida Adaptation Planning Clearinghouse
Florida Adaptation Planning Clearinghouse link

PUBLIC ENGAGEMENT SUMMARY



Coastal Resiliency Plan

EXECUTIVE SUMMARY

The *Melbourne Coastal Resiliency Plan* is a document designed to guide the City's efforts to successfully prepare, protect, and adapt to changes in sea level rise, storm surge, and coastal flooding. Over the course of several months, the City implemented a comprehensive public engagement process designed to encourage community input regarding the strategies they would like to see implemented within the plan to address these issues. Two (2) forums were used to channel public input: a virtual public workshop series and an online community engagement portal using the Social Pinpoint platform. This memorandum summarizes the feedback provided on each of these forums.

PUBLIC WORKSHOP SERIES

The public workshops for the Coastal Resiliency Plan project were held virtually via Zoom on Tuesday, March 2, 2021 and Wednesday, April 21, 2021 between 6:00 p.m. and 8:00 p.m. The following is a summary of each workshop presentation and the discussions held therein (note: both workshop presentations and public notices are included within this document in the **Appendix**).

Public Workshop One - Tuesday, March 2, 2021 (Public Notice Shown Below)

Virtual Sign-In: Attendance and Introductions

The first public workshop was attended by eight (8) people, as listed below:

1. Todd Corwin, Community Development Department Planner
2. Chris Dougherty, S&ME Project Manager
3. Nickolas Hill, S&ME Project Planner
4. Katie Martin, S&ME Project Planner
5. Cindy Dittmer
6. Mark LaRusso
7. Megan Selva
8. Tara McCue

Todd welcomed workshop attendees and introduced Chris Dougherty as the consultant who would be hosting the meeting that evening. Chris presented a PowerPoint slideshow discussing various aspects of the Coastal Resiliency Plan project—beginning with an introduction to the remainder of the project team. Afterwards, Chris requested workshop attendees to participate in a brief ice-breaker where attendees were asked to anonymously answer trivia questions about planning for coastal resiliency. This activity was followed up by several slides which highlighted the destructive impacts of sea level rise, storm surge, and coastal flooding across the nation.

Project Background

After, Chris stated that the purpose of the project was to identify vulnerabilities, designate Adaption Action Areas (AAAs) (areas in which future adaption efforts will be focused) and to implement strategies that address the growing perils of flood-related events within the City via the adoption of a Coastal Resiliency Plan. Chris also noted that this effort is grant-funded through the Florida Department of Environmental Protection's (FDEP's) Florida Resilient Coastline Program (FRCP) and via the Office of Resilience and Coastal Protection (RCP).

Vulnerability Assessment

Chris informed workshop attendees that this effort required a comprehensive 'vulnerability assessment' which measures the impacts of sea level rise, storm surge, and coastal flooding and identifies communities, infrastructure, and historic resources in the City that will most likely need support before, during, and after each of these events. Some of the indicators assessed for potential vulnerabilities included:

- Population growth
- Age distribution
- Income levels
- Employment status
- Language barriers
- Transportation access
- Education level
- Average home value
- Home ownership rates
- Race and ethnicity
- Roadways
- Railways
- Historic resources
- Property values

After incorporating the input received during the first public workshop into the vulnerability assessment, the project team will begin identifying the AAAs and corresponding strategies needed to ensure that Melbourne's vulnerable communities, infrastructure, and historic resources are appropriately addressed within the plan.

Public Input

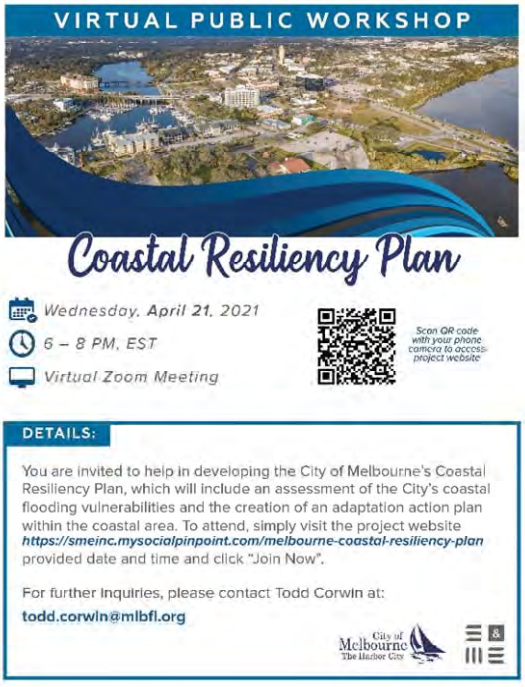
At this point in the presentation, Chris displayed the project website and demonstrated how to navigate and interact with the Social Pinpoint platform. Chris then invited workshop attendees at this time to share their coastal resiliency planning ideas and concerns for the project. Another member of the project team summarized their feedback and inputted the information on the website in real time. The comments received during this workshop are identified in the ***Social Pinpoint*** section of this document.

Next Steps

After the public input portion of the presentation concluded, Chris discussed the project timeline—highlighting that another public workshop will be held in April. During the upcoming meeting, Chris would discuss the results of the vulnerability assessment and identify the project team's potential strategies for addressing sea level rise, storm surge, and coastal flooding within vulnerable areas of the City. The meeting concluded when Chris thanked the audience for their attendance and requested workshop attendees continue checking the website for further project-related updates.

Public Workshop Two – Wednesday, April 21, 2021 (Public Notice Shown Below)

Virtual Sign-In: Attendance and Introductions



The second public workshop was attended by six (6) people, as listed below:

1. Todd Corwin, Community Development Department Planner
2. Chris Dougherty, S&ME Project Manager
3. Nickolas Hill, S&ME Project Planner
4. Holly Abeels
5. David Lafontant
6. David Wilkinson

The introduction to the second public workshop largely followed the same format as the first. After Todd introduced the project, Chris identified the project team and allowed meeting attendees to take part in a brief ice-breaker by answering trivia questions regarding sea level rise, storm surge, and coastal flooding. Once the ice-breaker was completed, Chris reminded the virtual audience of the importance of this planning effort by highlighting the financial and physical issues often faced by communities that failed to adequately prepare for these natural hazards.

Scope and Purpose

Chris stated the overall purpose of the Coastal Resiliency Plan was to anticipate the effects of future sea level rise and coastal flooding within the City, then create an action plan to minimize damage to public facilities, infrastructure, community amenities, and human life. These plans could include recommendations to update the comprehensive plan, land development standards, and/or mitigation strategies which can help the City better prepare for likely shocks and stresses in the face of climate change.

Vulnerability Assessment & AAAs

Next, Chris discussed the results of the vulnerability assessment by identifying four (4) areas of the City that were at the highest risk of significant damage or injury from current and projected sea level rise, storm surge, and coastal flood events. As a result, these four areas were selected to be the AAAs identified and targeted within the Coastal Resiliency Plan. These AAAs are titled:

1. Horse Creek,
2. Eau Gallie River
3. Barrier Island
4. Crane Creek

Potential Strategies

Next, Chris noted a draft of the Coastal Resiliency Plan's overarching strategies (derived from the results of the vulnerability assessment and prior public input) that would be used to address these current and projected threats to the community. The strategies presented during the workshop included:

1. Educate
    a. Engage, educate and promote coastal resiliency
    b. Protect vulnerable populations through continued outreach
2. Coordinate
    a. Continue to work with FEMA to remove structures from flood zones
    b. Engage community partners to champion coastal resiliency
3. Improve
    a. Assess specific engineering methods to shore up the long-term viability of critical infrastructure
    b. Protect evacuation routes from inundation
4. Regulate
    a. Add sea level rise as a criteria when reviewing proposed development
    b. Protect historic resources from storm surge and sea level rise

During this time, Chris also presented more focused strategies tailored to the challenges and opportunities facing each AAA within the City.

Public Input

At this point in the presentation, Chris recapped the public input received thus far on the project website and at the previous workshop on March 2, 2021. Mr. Dougherty then demonstrated how to navigate and interact with the project website on the Social Pinpoint platform so attendees could continue providing their input on the project after the workshop concludes. Then, Chris invited workshop attendees to comment or ask questions about anything they heard during the workshop or related to coastal resiliency and the project team would type it into the interactive map on the project website in real time. The resulting input received during this time is shown in the Social Pinpoint section of this document.

Next Steps

In the final slides of the presentation, Chris identified the remaining steps for the project. First, the project team would need to finalize the report by incorporating the comments received from the project website and public workshops. After this step, the report would be reviewed by City Staff and sent back to the project team for further revisions. Lastly, the project team would fulfill the requirements of the grant by submitting the final plan to FDEP by the end of May 2021.

After asking the audience again if they had any additional comments or questions about the project, Chris thanked attendees for joining the workshop and asked them to continue providing their comments on the project website.

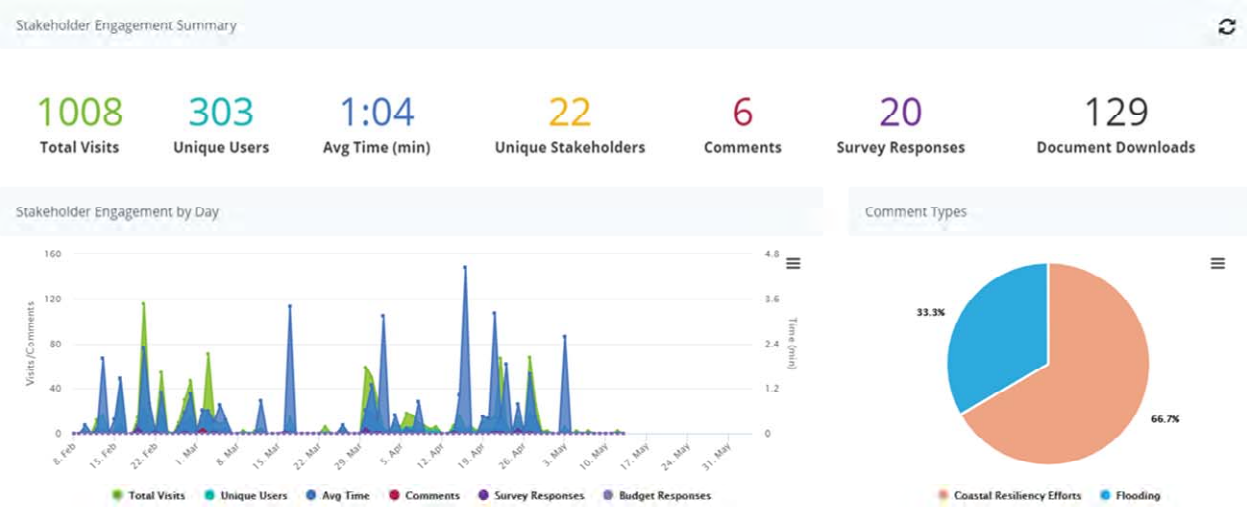
SOCIAL PINPOINT

Online community engagement was conducted via the project website through the Social Pinpoint platform, where it was customized with multiple widgets (or components) to solicit input. An interactive map was developed showing the limits of the coastal study area and local landmarks with categories for comments (i.e., Coastal Resiliency Efforts, Community Amenities, Historic Resources, and Flooding). More information on the categories and map comments from the public is provided in the next subsection of the report. A web survey was also developed as part of the website and is summarized later within this report.

To limit the amount of meeting links circulating through notices, a virtual town hall widget was added to the website which allowed participants to use Social Pinpoint as the portal to access the virtual public workshops. Static maps were also prepared for the site, which included data regarding floodplains, storm surge, and three (3) sea level rise scenarios. Lastly, a video of the first public workshop was made available for the public to view after it was recorded and uploaded to the site.

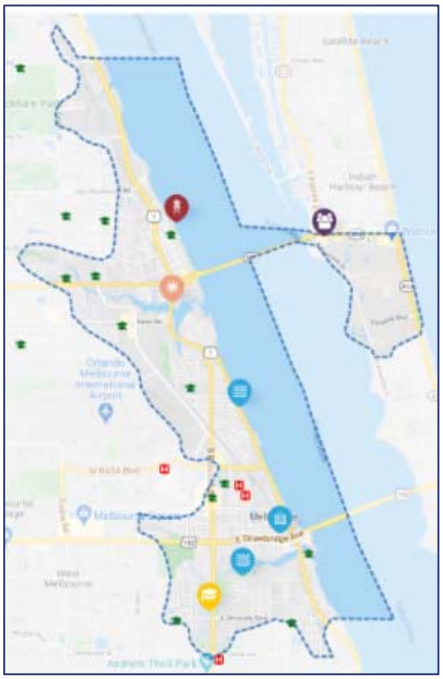
Summary of Engagement

The following dashboard graphic from Social Pinpoint includes a summary of the activity on the site. The site has generated 1,008 total visits, 303 unique uses, 22 unique stakeholders, six (6) comments, 20 survey responses and 129 document downloads. The infographic also shows the days that received the most engagement, which was between April 12th and 19th. This is likely due to the notices and social media posts sent out for the second public workshop which was conducted on April 21, 2021.



Interactive Map Comments

The graphic to the right shows the comments as pins that were made on the interactive map. There were four (4) categories to choose from; Coastal Resiliency Efforts, Community Amenities, Historic Resources, and Flooding. *Coastal resiliency efforts* asked the participant to provide comments on the types of resiliency efforts (e.g. living shorelines, sea wall construction, jetties, etc.) they would like the City to focus on. *Community amenities* asked if they knew of any public spaces or community amenities (such as community centers or parks) that are often partially or entirely unusable due to local flooding issues. *Flooding* asked if participants have observed any locations within their community that experience frequent flooding due to storms or changes in sea-level. To date, six (6) comments were logged on the interactive map. They are shown in the following table.



Type	Comment
Coastal Resiliency Efforts[1]	Make resilience a part of everyday conversations and planning efforts so people can get used to it.
Flooding[1]	Excessive flooding during storm events.
Flooding[1]	Ballard Park flooding consistently, City should seek to implement LID strategies, and best practices.
Coastal Resiliency Efforts[1]	Protect wetlands throughout the City.
Coastal Resiliency Efforts	Red White and Black Mangroves. Remove residential retainer walls. Restore the lagoons. Raise taxes on new residents and part-time residents. Tax

Type	Comment
	vacationers. Raise property tax on all residences on the lagoons, Ocean, estuaries and other waterways. Protect and conserve land that are attached to the lagoons, Ocean, estuaries and other waterways.
Coastal Resiliency Efforts[2]	Be consistent with the efforts of the regional planning council.
[1]indicates that the comment was made by an attendee of the March 2, 2021 workshop. [2]indicates that the comment was made by an attendee of the April 21, 2021 workshop.	

It should be noted that five (5) of the six (6) comments were provided during the public workshops, which was utilized by the facilitators of the workshop to engage the participants in the virtual setting. As the table suggests, the comments focused predominantly on Coastal Resiliency Efforts.

Summary of Web Survey

As part of the multiple engagement options available to the public, a web survey was developed through Social Pinpoint. The survey included 11 questions and has received 20 responses. The following charts and graphs provide a graphical summary of the responses for each question. Highlights of the responses to the survey are summarized below.

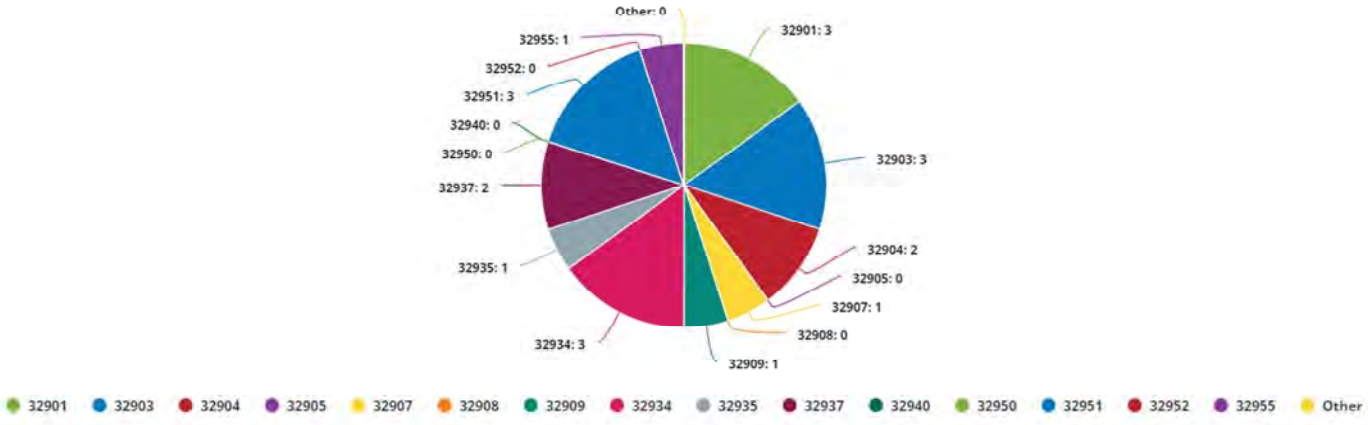
Highlights of the survey:

- 8 respondents have a college degree and 7 have a masters or PhD.
- Over half of the respondents are over the age of 55.
- 3 out of 20 speak a language other than English.
- 14 of the respondents live or own property within the Coastal Area shown on the interactive map.
- 12 respondents have observed some flooding.
- 11 respondents would like the City to utilize living shorelines as a resiliency effort.
- 17 respondents prefer the strategy to preserve sandy beaches and coastal property (including along the Indian River) even if it means that there may be restrictions to further development
- 17 respondents are either somewhat, very or extremely concerned with rising sea levels.

Q1. 1. What is your 5-digit zip code?

20 answers

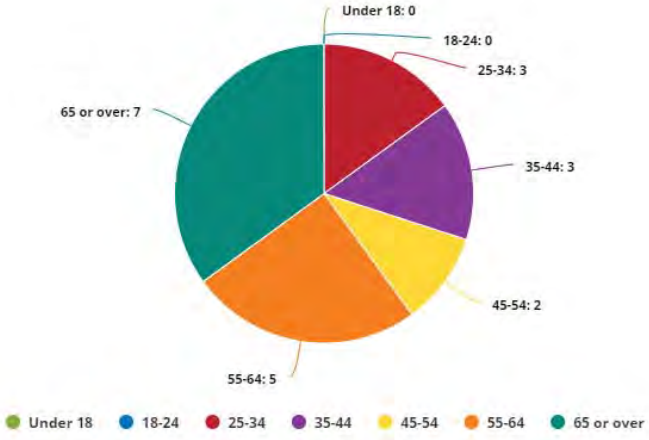
Pie Bar



Q3. 2. What is your age?

20 answers

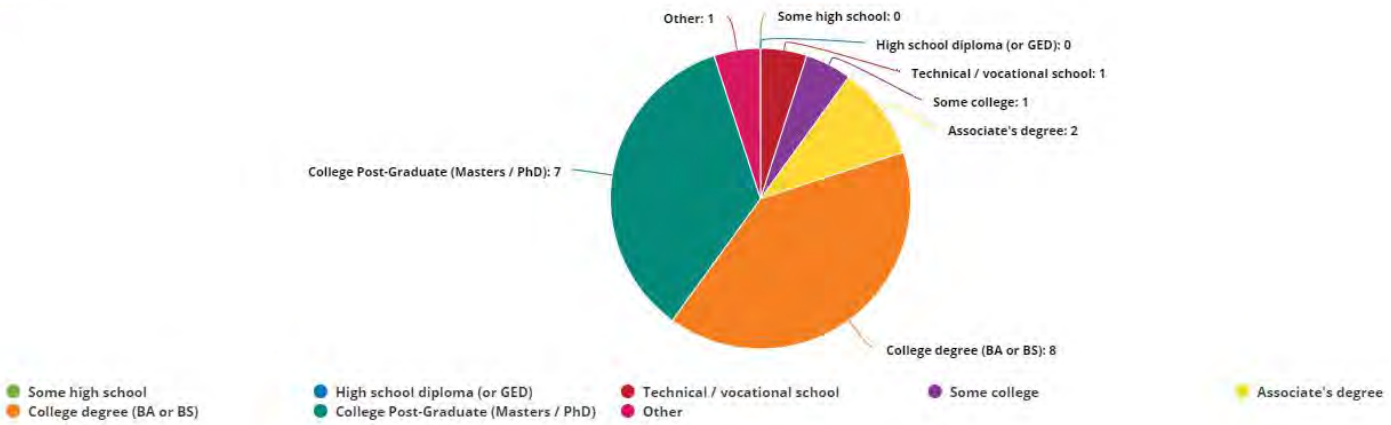
Pie Bar



Q4. 3. What is the highest level of formal education that you have completed?

20 answers

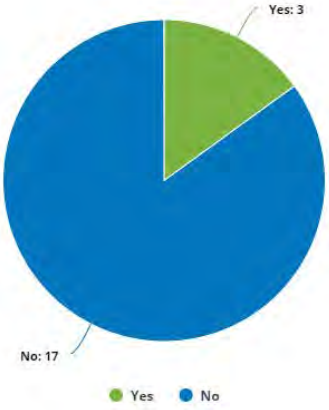
Pie Bar



Q6. 4. Do you or does your household speak a language other than English at home?

20 answers

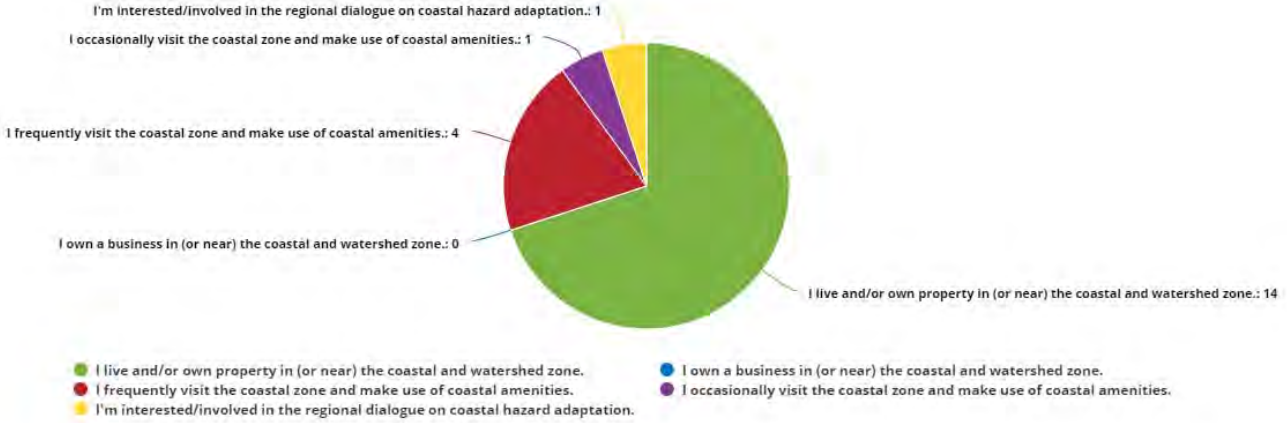
Pie Bar



Q8. 5. Choose the option which describes you best:

20 answers

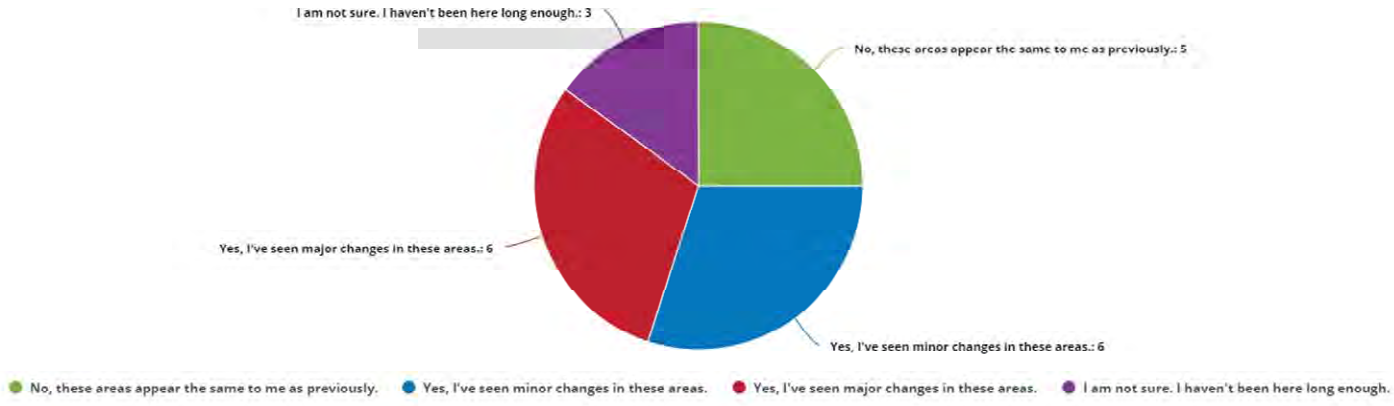
Pie Bar



Q9. 6. Have you seen or experienced flooding, tides, storm surge, and/or changes on the beachfront, coastal zone, or along the rivers in the City?

20 answers

Pie Bar



Q11. 8. Please provide any important issues which are not represented in the previous question:

14 answers

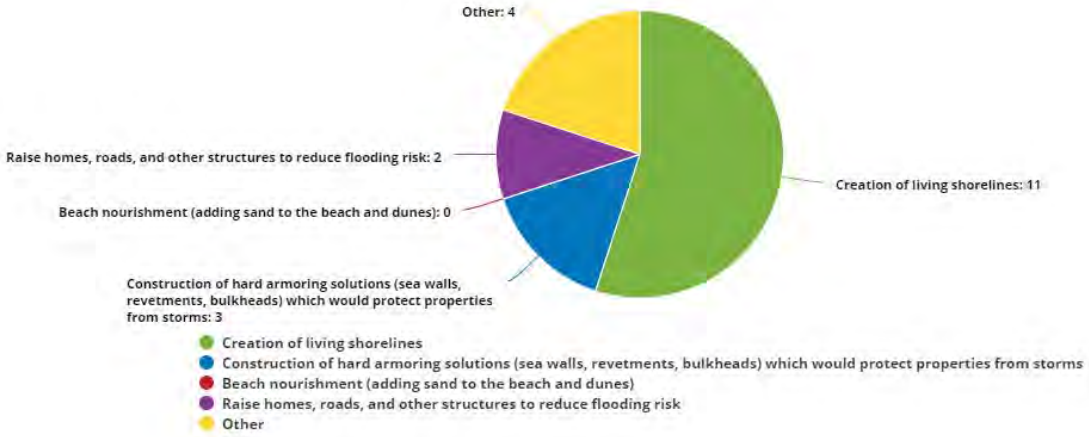
Word Cloud | Response List

Q11. 8. Please provide any important issues which are not represented in the previous question:

Q12. 9. What types of coastal resiliency efforts would you like the City to implement within the next 20 years?

20 answers

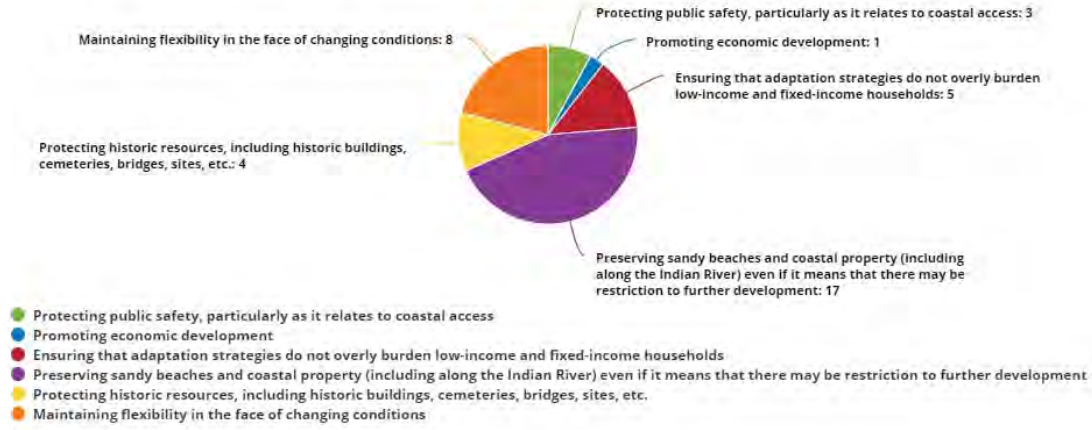
Pie | Bar



Q14. 10. Select two of the following adaptation strategies that you think the City should focus on:

20 answers

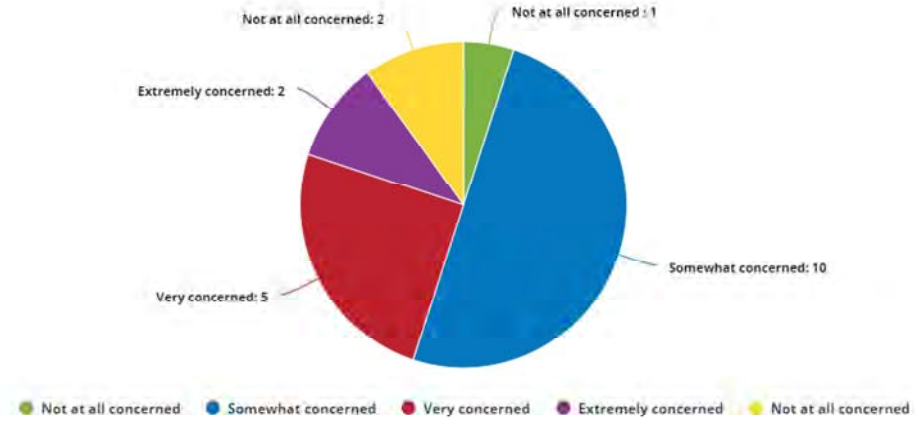
Pie | Bar



Q15. 11. How concerned are you with the impacts of sea level rise on the City?

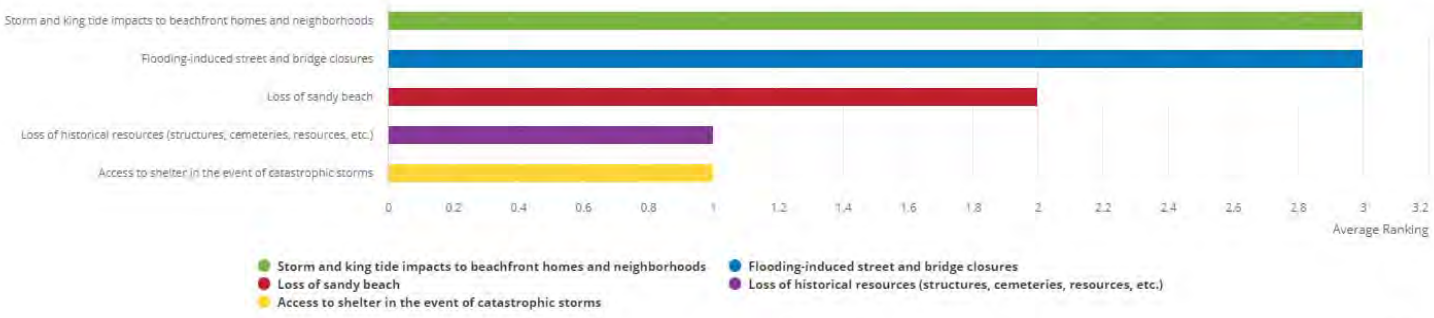
20 answers

Pie | Bar

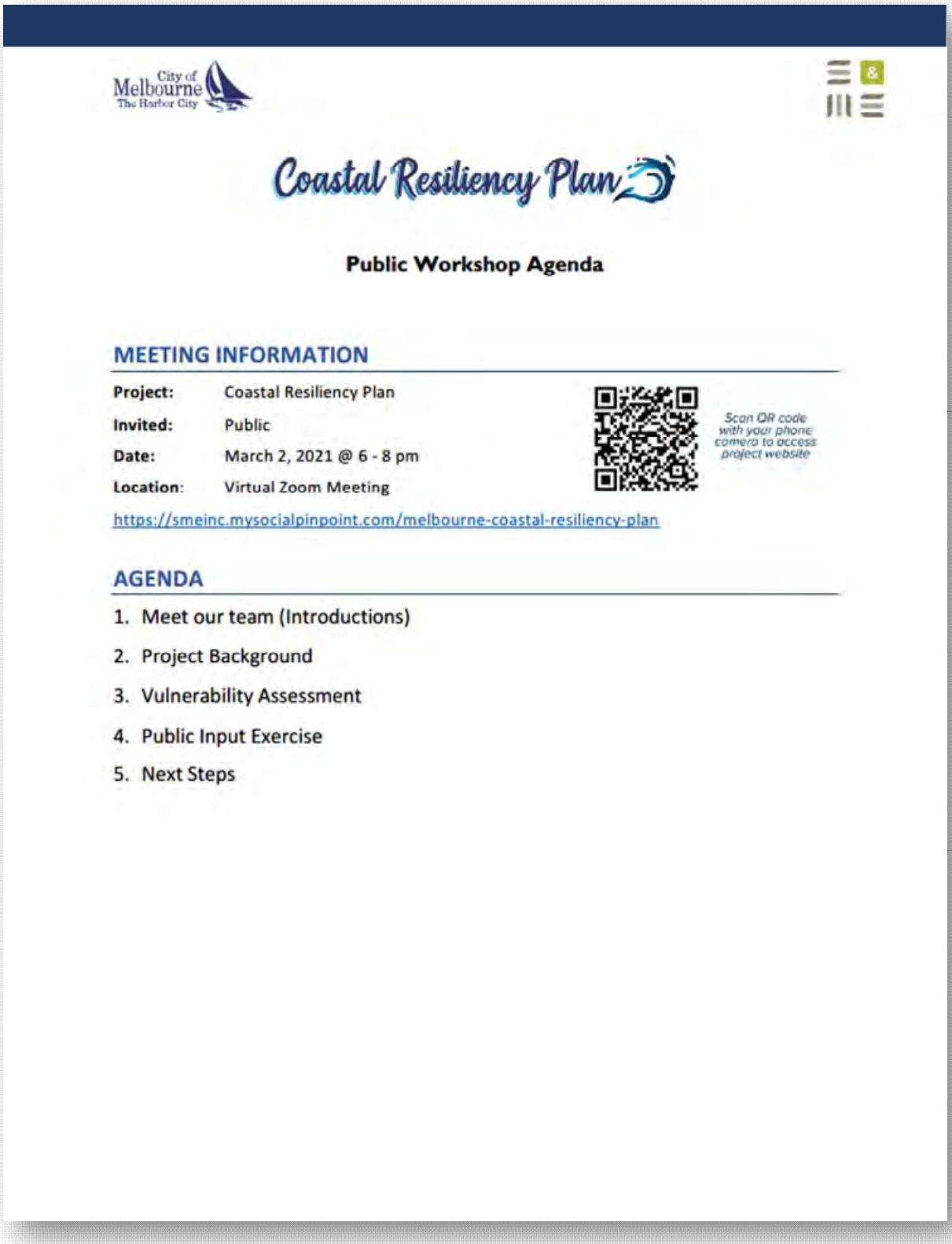


Q10. 7. Sea level rise will increase the frequency and severity of flood events and beach erosion in the City. Rank the following issues in importance, with the most important issue at the top.

20 answers



APPENDIX: *MARCH 2, 2021 WORKSHOP AGENDA & PRESENTATION*



City of Melbourne
The Harbor City

Coastal Resiliency Plan

Public Workshop Agenda

MEETING INFORMATION

Project: Coastal Resiliency Plan
Invited: Public
Date: March 2, 2021 @ 6 - 8 pm
Location: Virtual Zoom Meeting

Scan QR code with your phone camera to access project website

https://smeinc.mysocialpinpoint.com/melbourne-coastal-resiliency-plan

AGENDA

1. Meet our team (Introductions)
2. Project Background
3. Vulnerability Assessment
4. Public Input Exercise
5. Next Steps


Coastal Resiliency Plan
City of Melbourne
The Harbor City
VIRTUAL PUBLIC WORKSHOP | MARCH 2, 2021


MEET OUR TEAM 1
PROJECT BACKGROUND 2
VULNERABILITY ASSESSMENT 3
PUBLIC INPUT 4
NEXT STEPS 5
City of Melbourne
The Harbor City

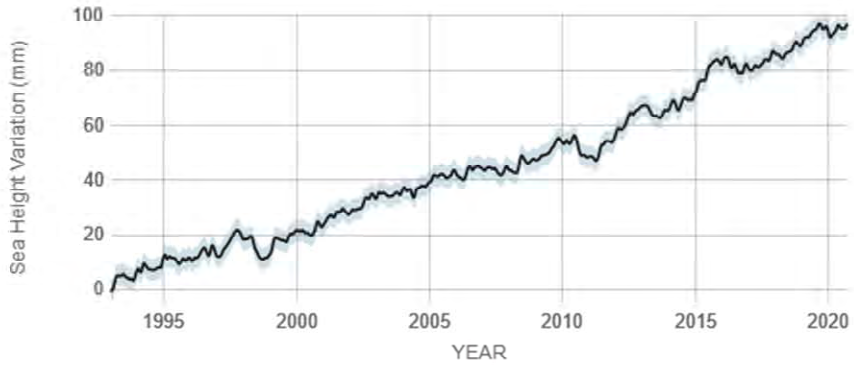
City of Melbourne
The Harbor City

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Florida Resilient Coastlines Program

How much do you know about planning for coastal resiliency?

Sea Level Rise Since 1990



Source: climate.nasa.gov

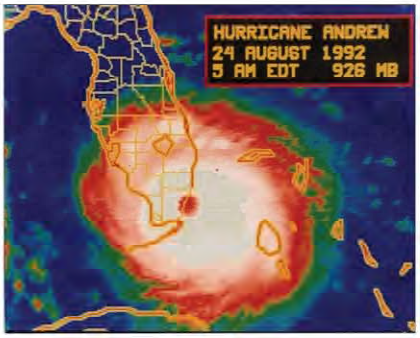
Additional Facts...

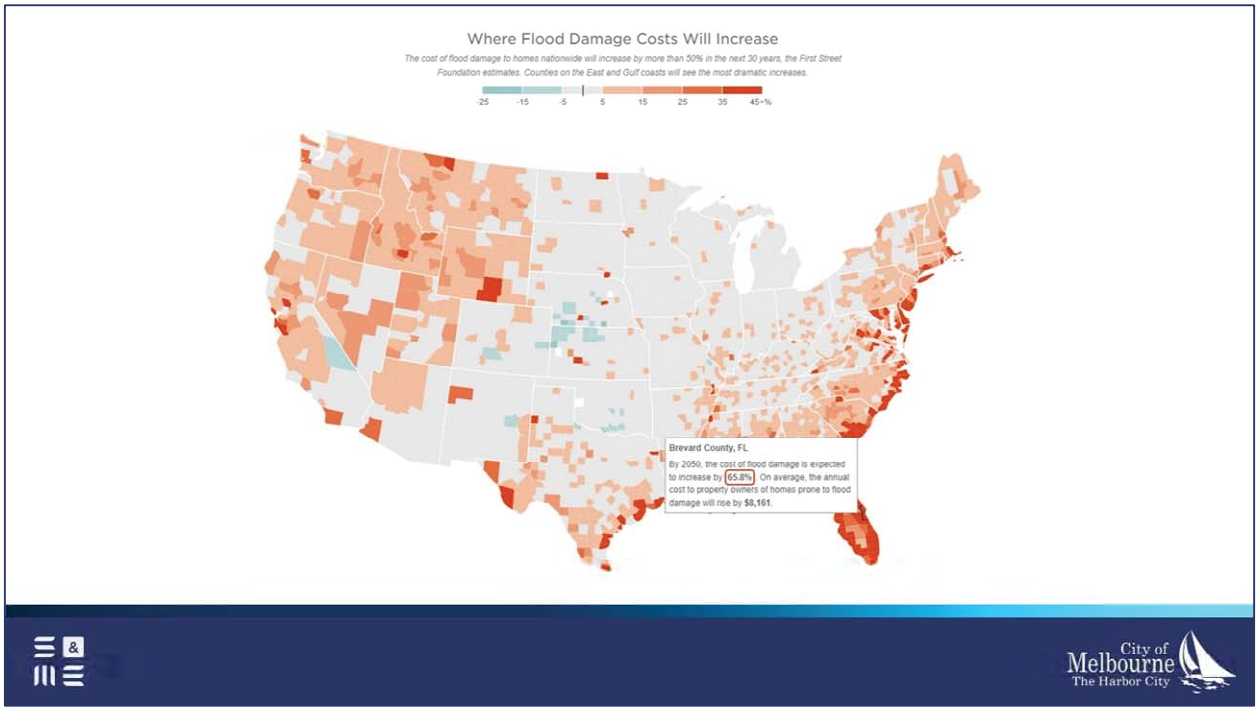
Hurricane Andrew (1992): **44 fatalities** and **$25 billion** in damages

2004 Hurricanes: the storms were directly responsible for at least **47 deaths** and caused approximately **$45 billion** in total damages

Irma and Maria (2017) impacts to Florida:

- Damage estimates range from **$58 to $83 billion**, vessel owners and businesses estimated to exceed $95 million and revenue losses of nearly $98 million. It's estimated that **1,677 jobs** were lost in the short term.
- In Florida, commercial fishing vessels accounted for 45 percent of damages and 54 percent of lost revenue.




Where Flood Damage Costs Will Increase
The cost of flood damage to homes nationwide will increase by more than 50% in the next 30 years, the First Street Foundation estimates. Counties on the East and Gulf coasts will see the most dramatic increases.
-25 -15 -5 5 15 25 35 45+%
Brevard County, FL
By 2050, the cost of flood damage is expected to increase by 65.8%. On average, the annual cost to property owners of homes prone to flood damage will rise by $8,161.
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Identify Vulnerabilities, AAAs, and Strategies to address...
Sea Level Rise (SLR)
Storm Surge
Coastal Flooding
...within your community!
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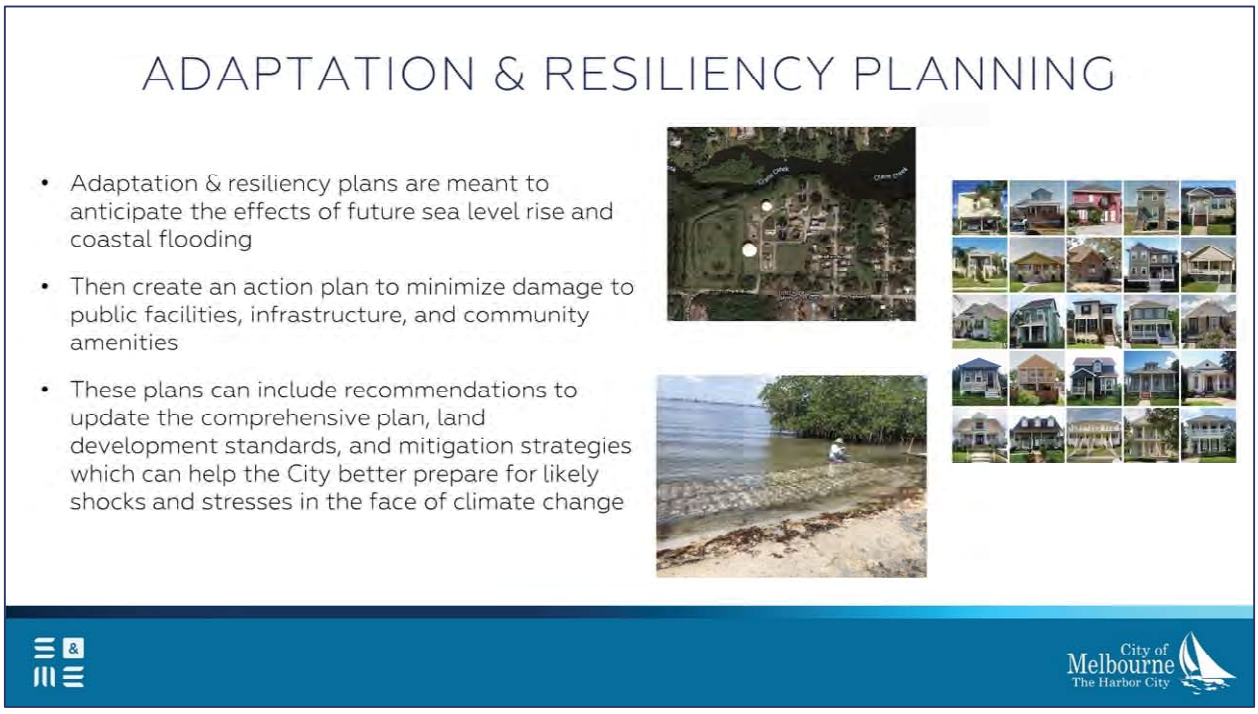
Flooding
Storm Surge
King Tides
City of Melbourne
The Harbor City


ADAPTATION & RESILIENCY PLANNING
• Adaptation & resiliency plans are meant to anticipate the effects of future sea level rise and coastal flooding
• Then create an action plan to minimize damage to public facilities, infrastructure, and community amenities
• These plans can include recommendations to update the comprehensive plan, land development standards, and mitigation strategies which can help the City better prepare for likely shocks and stresses in the face of climate change
City of Melbourne
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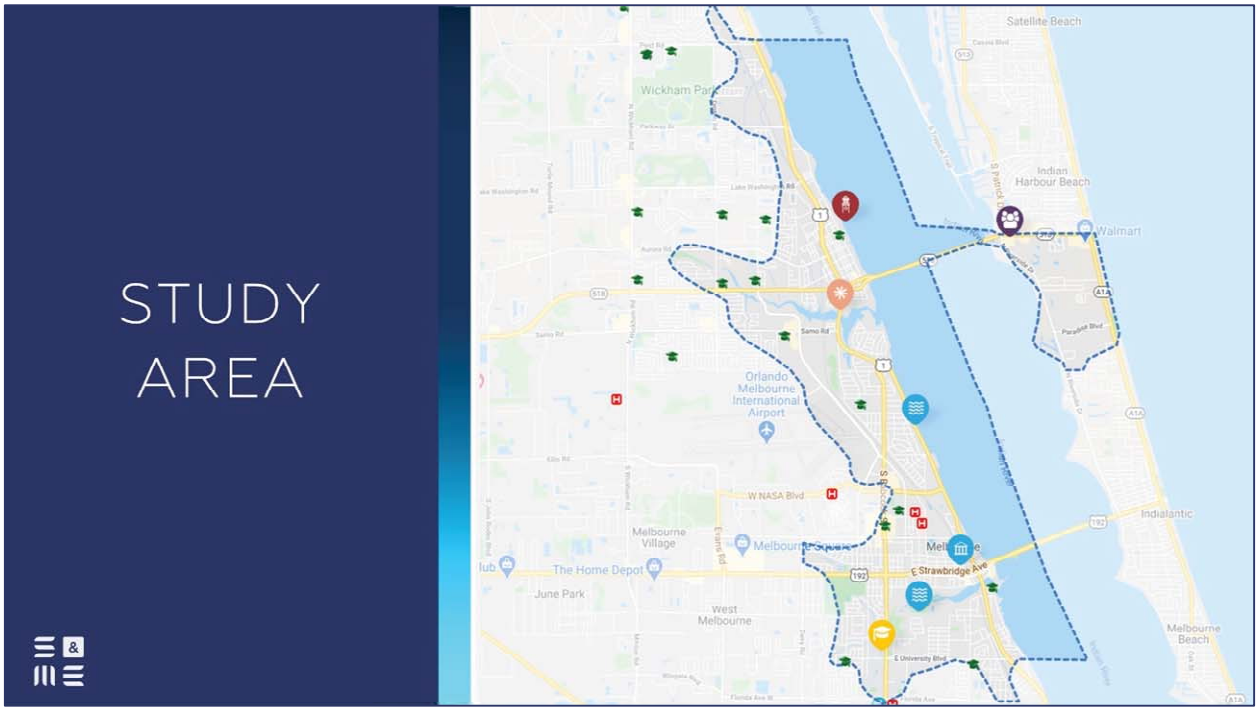
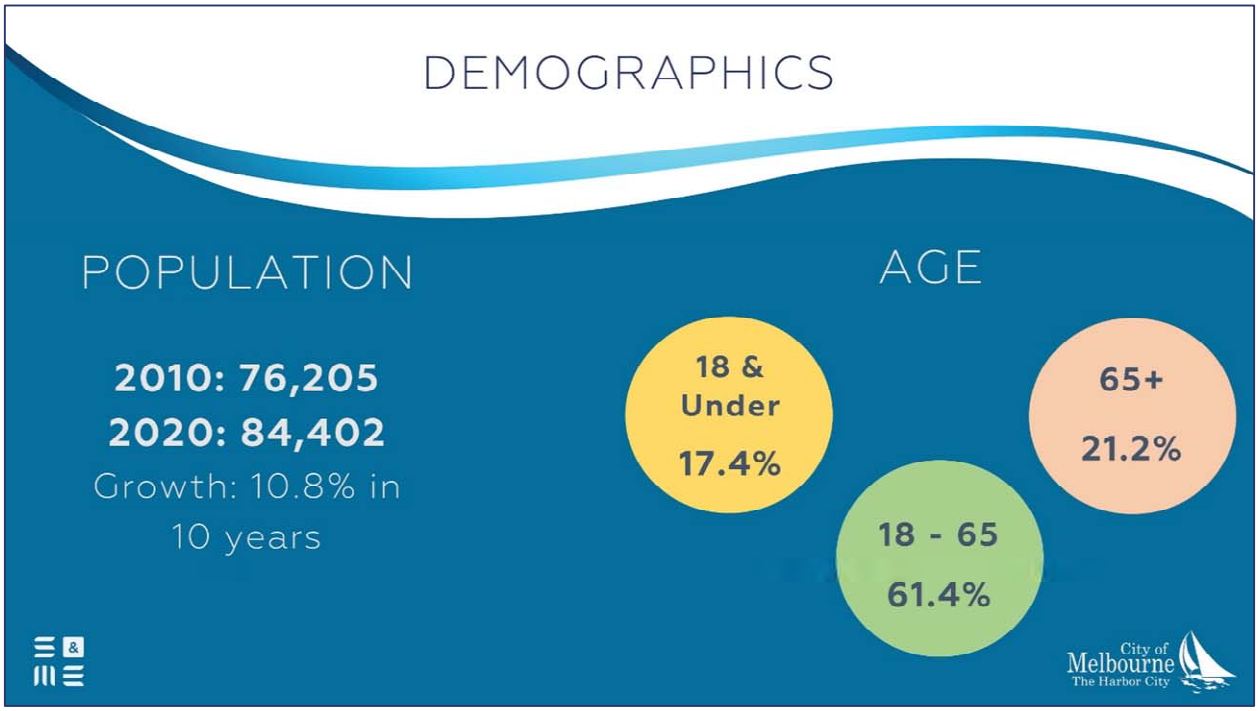

STUDY AREA
Satellite Beach
Wickham Park
Indian Harbour Beach
Walmart
Orlando Melbourne International Airport
W NASA Blvd
Melbourne Village
The Home Depot
June Park
West Melbourne
E Strawbridge Ave
Indialantic
Melbourne Beach


DEMOGRAPHICS
POPULATION
2010: 76,205
2020: 84,402
Growth: 10.8% in 10 years
AGE
18 & Under 17.4%
18 - 65 61.4%
65+ 21.2%
City of Melbourne The Harbor City

INCOME

$ 48,673

$169,000

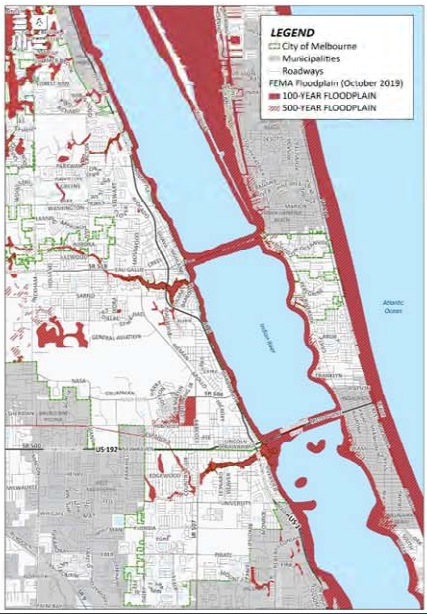
58% OWN

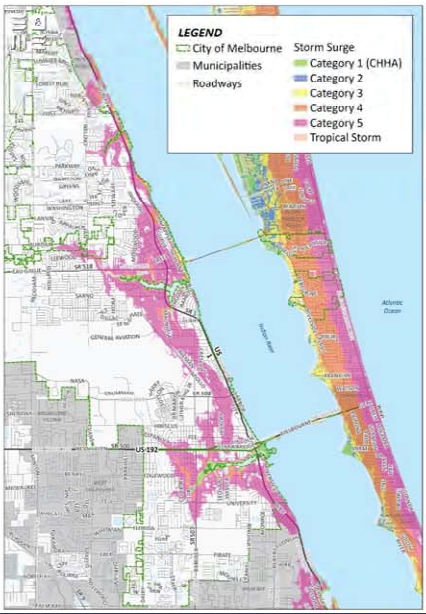
42% RENT

RACE / ETHNICITY

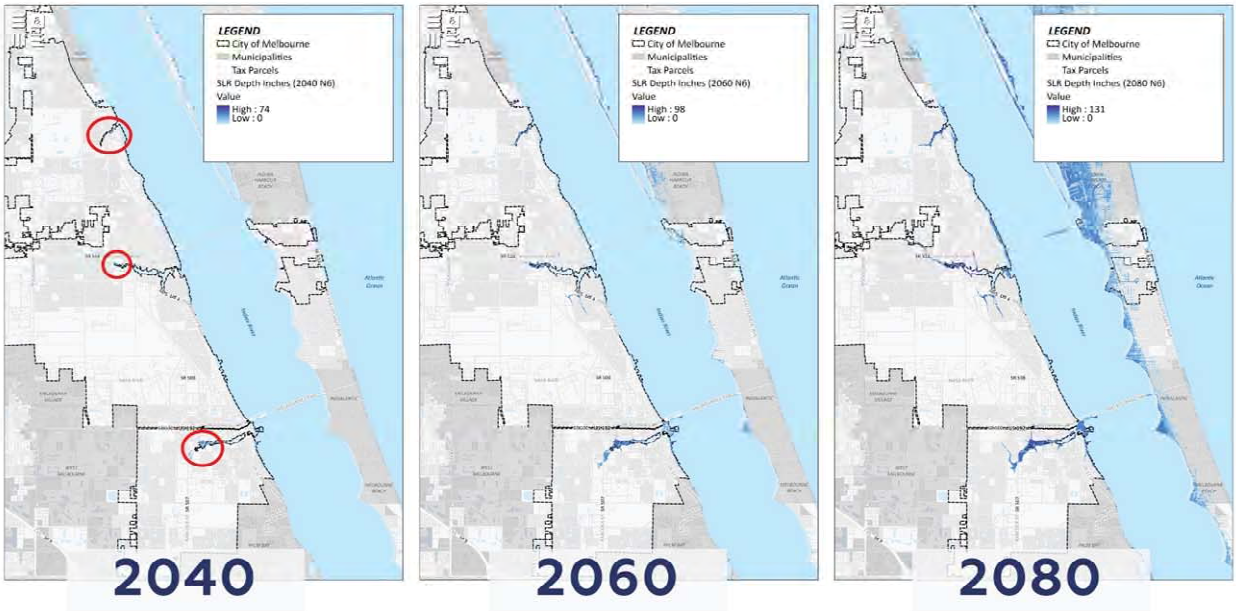
City of Melbourne The Harbor City

FEMA & SLOSH MAPPING





SLR MAPPING

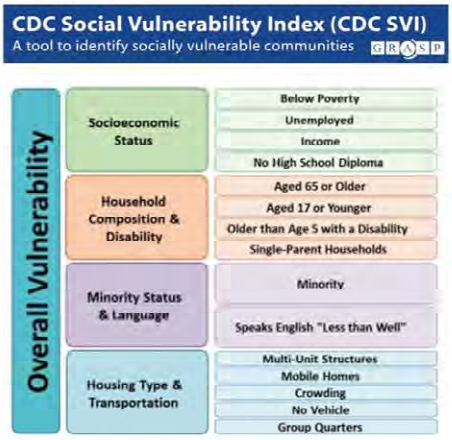


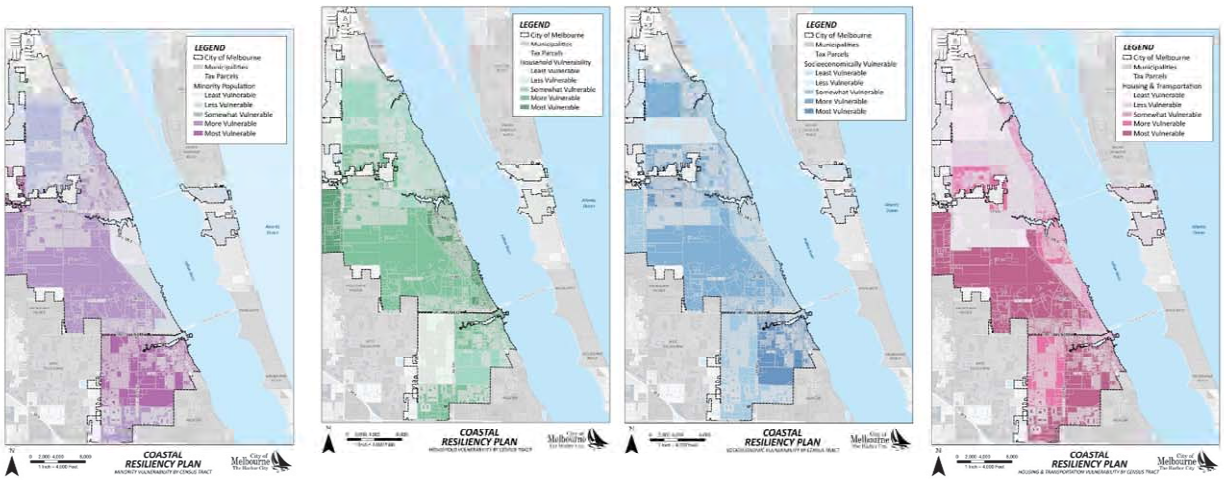
SOCIAL VULNERABILITY

SOCIAL VULNERABILITY shows communities in the City that will most likely need support before, during, and after a hazardous event.

SOCIAL VULNERABILITY measures:

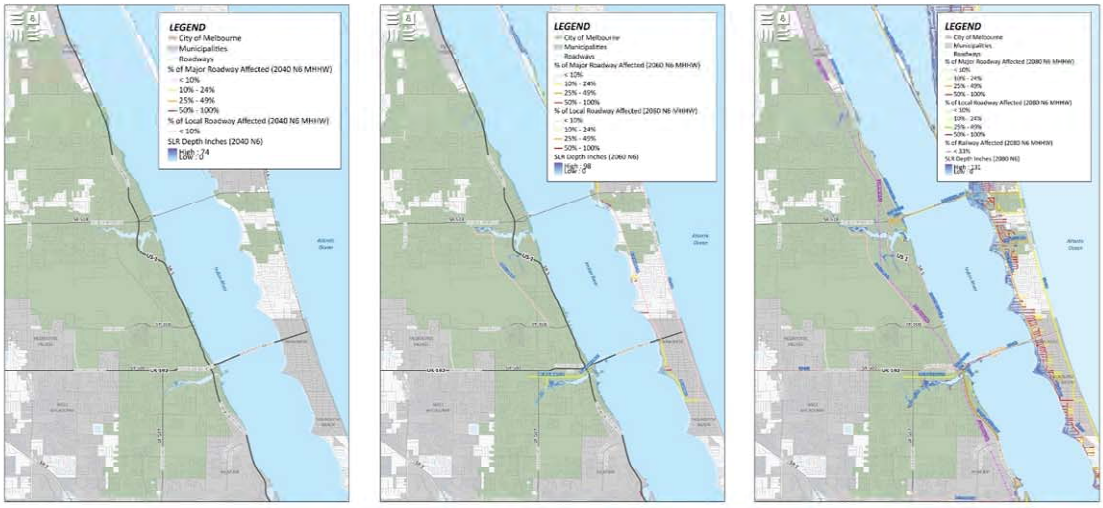
- SOCIOECONOMIC STATUS
- HOUSEHOLD COMPOSITION & DISABILITY
- MINORITY STATUS & LANGUAGE
- HOUSING TYPE & TRANSPORTATION



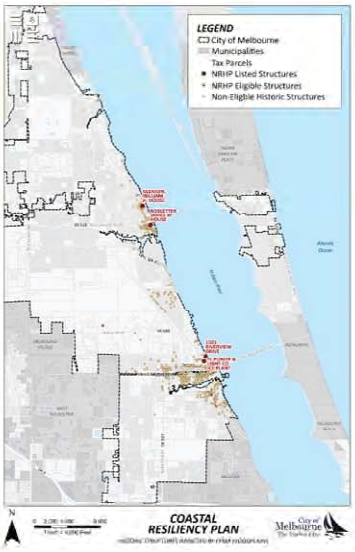


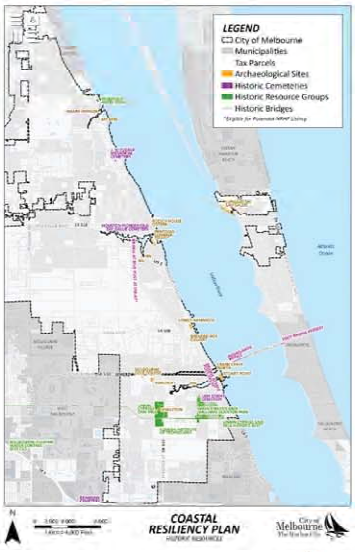
SOCIAL VULNERABILITY

INFRASTRUCTURE



HISTORIC RESOURCES

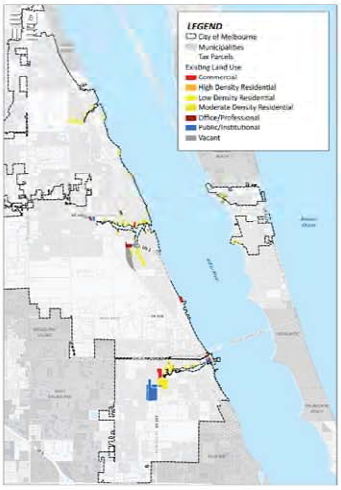




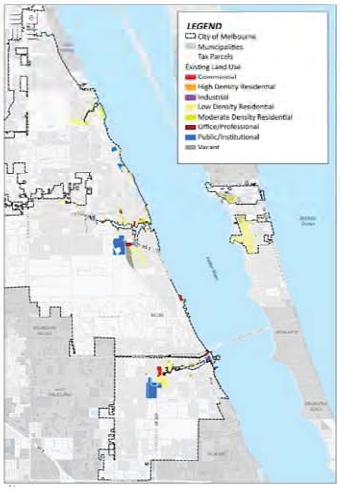
City of Melbourne
The Harbor City

FINANCIAL IMPACTS

2040: $26,007,900



2060: $233,348,820



2080: $389,622,475

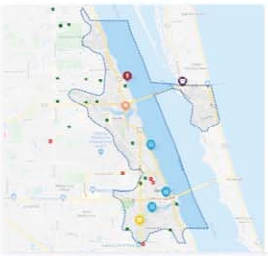
City of Melbourne
The Harbor City

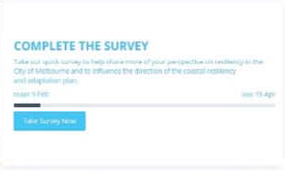
ENGAGING ON SOCIAL PINPOINT

Ways to Share Your Input:

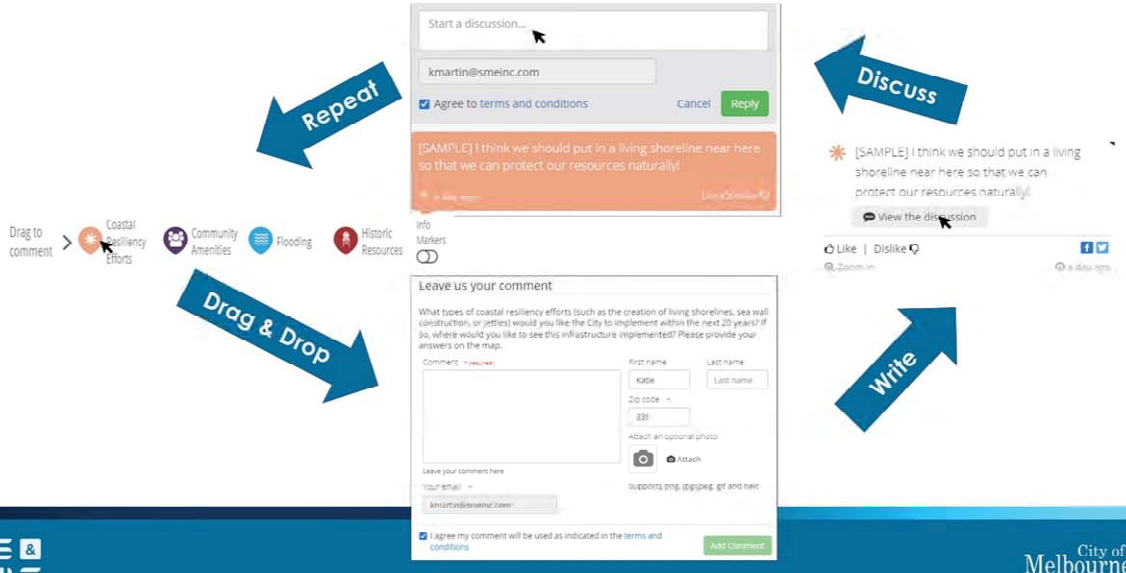
- Take the Quick Survey
- Share your ideas on the Interactive Map

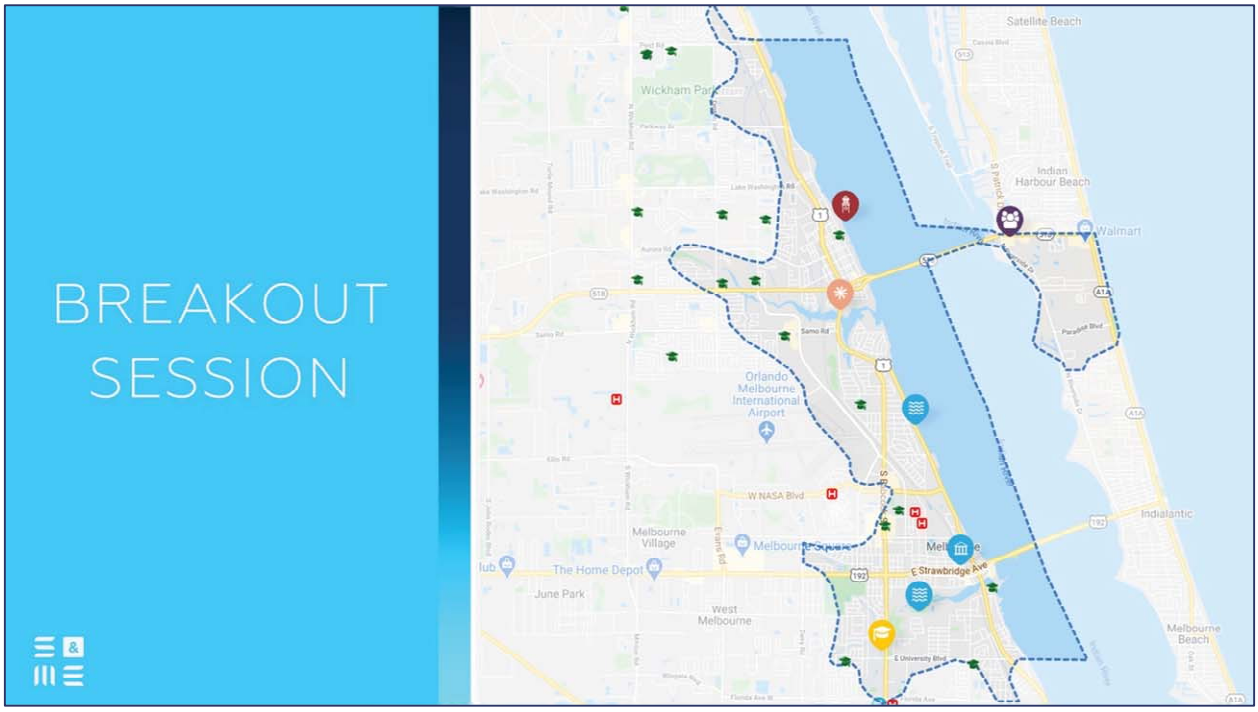
Sharing your input will help create a more resilient Melbourne



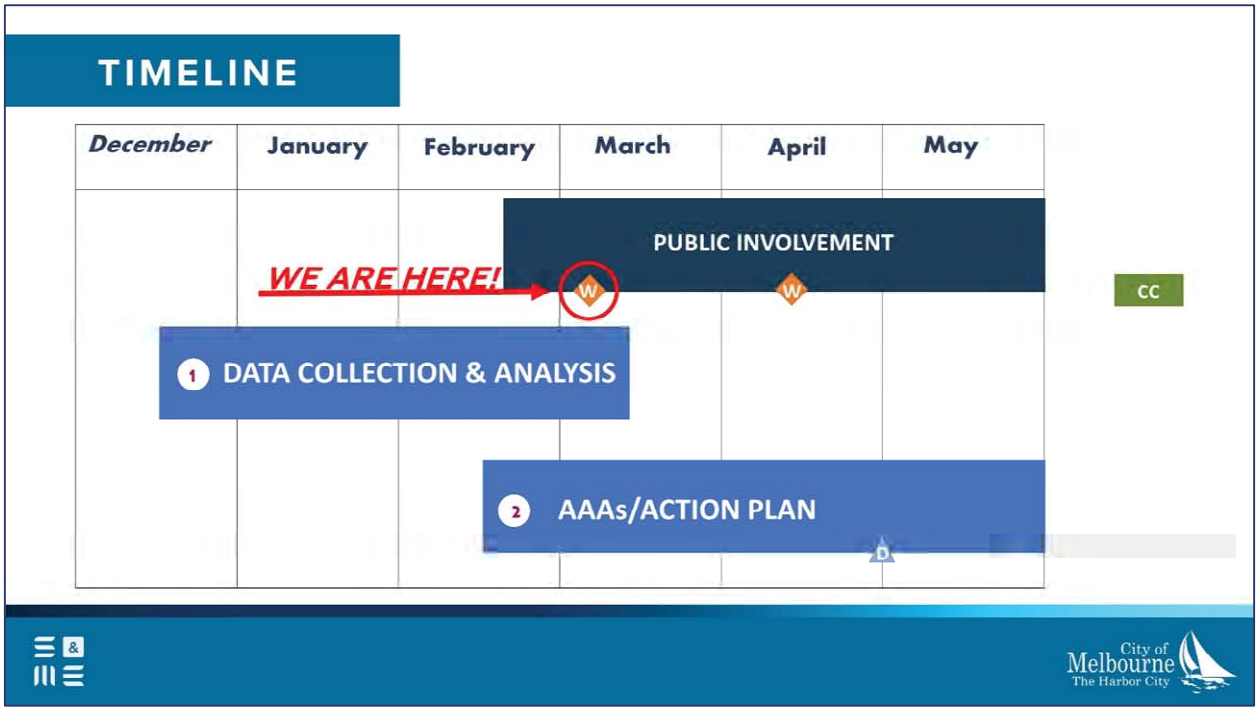


THE INTERACTIVE MAP




BREAKOUT
SESSION
Satellite Beach
Wickham Park
Indian Harbour Beach
Walmart
Orlando Melbourne International Airport
W NASA Blvd
Melbourne Village
The Home Depot
June Park
West Melbourne
Melbourne Beach
Indialantic
E Strawbridge Ave
E University Blvd

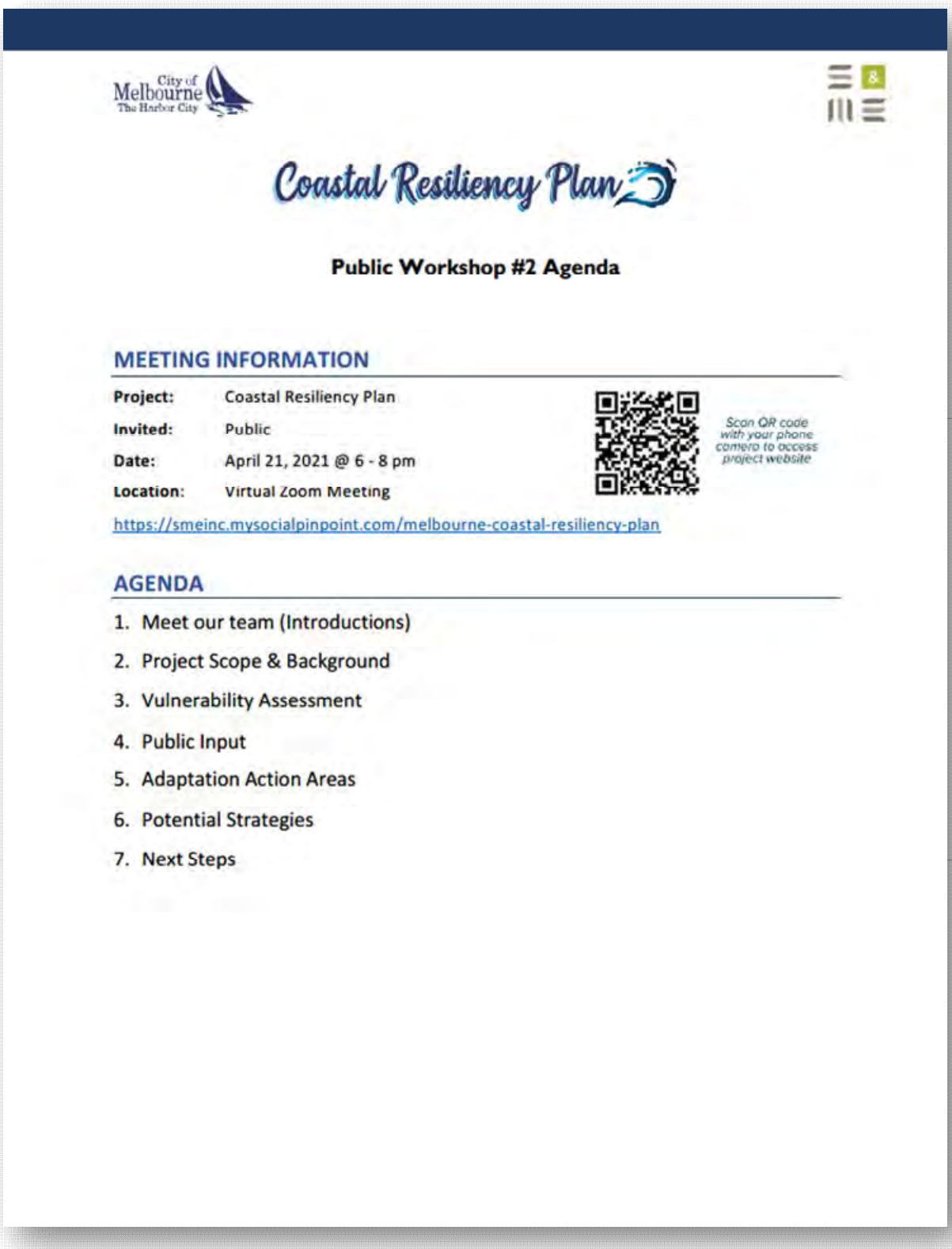

BREAKOUT SESSION – INTERACTIVE MAP
City of Melbourne
The Harbor City
Coastal Resiliency Plan
WELCOME!
ADD YOUR COMMENTS
Let's Discuss!


TIMELINE
December
January
February
March
April
May
WE ARE HERE!
PUBLIC INVOLVEMENT
CC
1 DATA COLLECTION & ANALYSIS
2 AAAs/ACTION PLAN
City of Melbourne
The Harbor City


PUBLIC ENGAGEMENT
• Using Social Pinpoint, we will engage with the community
• We will create a summary of the public workshop engagement
• The Public Engagement will influence the Adaptation Action Plan
ADAPTATION ACTION PLAN
• Focus areas based on Public Engagement & our data & analysis
• Create the action plan and Recommendations
FINALIZE THE STUDY
• Revisions from City Staff
• Finalize the Study for City Council Review and Approval
City of Melbourne
The Harbor City


CONTACT US
Chris Dougherty, AICP
cdougherty@smeinc.com
Todd Corwin, AICP
todd.corwin@mlbfl.org
City of Melbourne The Harbor City

APRIL 21, 2021 WORKSHOP AGENDA & PRESENTATION



City of Melbourne
The Harbor City

Coastal Resiliency Plan

Public Workshop #2 Agenda

MEETING INFORMATION

Project: Coastal Resiliency Plan
Invited: Public
Date: April 21, 2021 @ 6 - 8 pm
Location: Virtual Zoom Meeting

Scan QR code with your phone camera to access project website

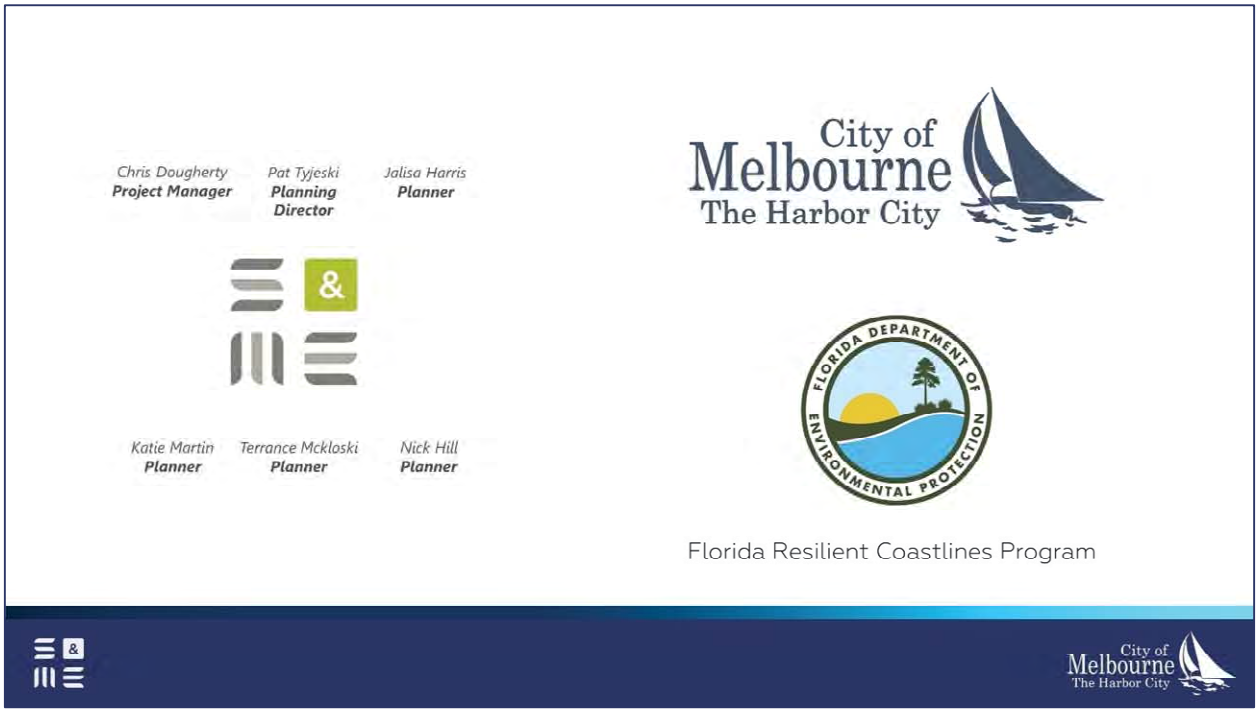
https://smeinc.mysocialpinpoint.com/melbourne-coastal-resiliency-plan

AGENDA

1. Meet our team (Introductions)
2. Project Scope & Background
3. Vulnerability Assessment
4. Public Input
5. Adaptation Action Areas
6. Potential Strategies
7. Next Steps


Coastal Resiliency Plan
City of Melbourne
The Harbor City
VIRTUAL PUBLIC WORKSHOP | APRIL 21, 2021

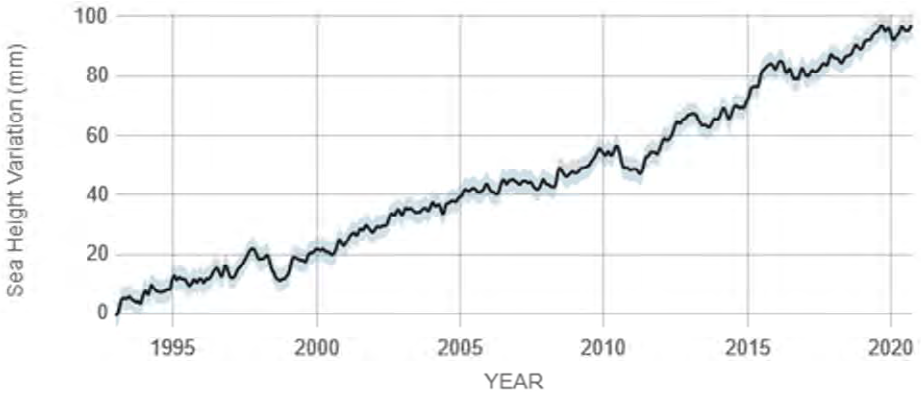

INTRODUCTION 1
SCOPE & PURPOSE 2
VULNERABILITY ASSESSMENT 3
PUBLIC INPUT 4
ADAPTATION ACTION AREAS 5
POTENTIAL STRATEGIES 6
AGENDA
City of Melbourne
The Harbor City


Chris Dougherty
Project Manager
Pat Tyjeski
Planning Director
Jalisa Harris
Planner
Katie Martin
Planner
Terrance Mckloski
Planner
Nick Hill
Planner
City of Melbourne
The Harbor City
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
Florida Resilient Coastlines Program
City of Melbourne
The Harbor City


SCOPE &
PURPOSE


Identify Vulnerabilities, AAAs, and Strategies to address...
Sea Level Rise (SLR)
Storm Surge
Coastal Flooding
...within your community!
City of Melbourne The Harbor City


How much do you know about sea level rise?
City of Melbourne The Harbor City



Source: climate.nasa.gov

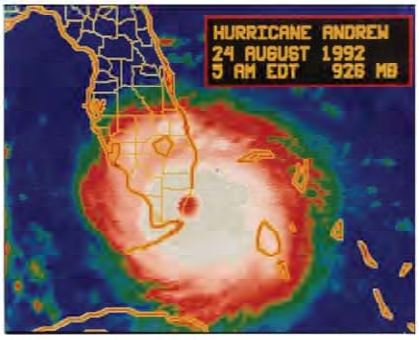
SEA LEVEL RISE SINCE 1990

Hurricane Andrew (1992): **44 fatalities** and **$25 billion** in damages

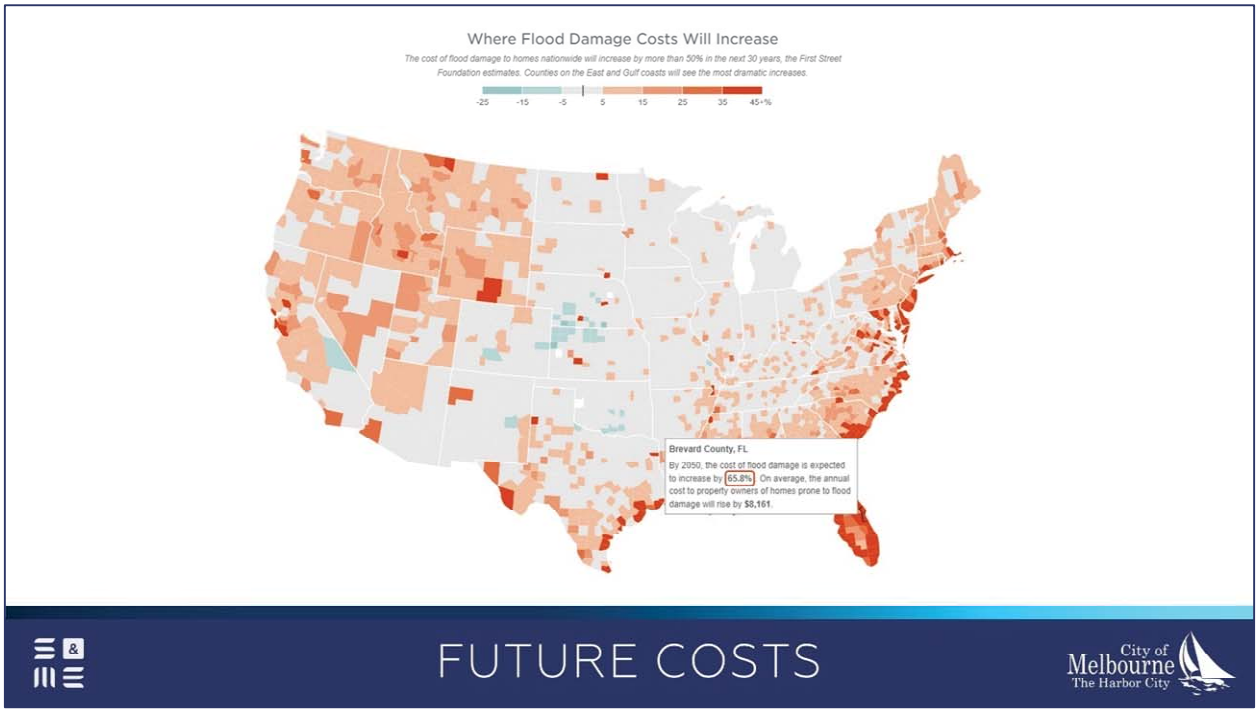
2004 Hurricanes: the storms were directly responsible for at least **47 deaths** and caused approximately **$45 billion** in total damages

Irma and Maria (2017) impacts to Florida:

- Damage estimates range from **$58 to $83 billion**, vessel owners and businesses estimated to exceed $95 million and revenue losses of nearly $98 million. It's estimated that **1,677 jobs** were lost in the short term.
- In Florida, commercial fishing vessels accounted for 45 percent of damages and 54 percent of lost revenue.



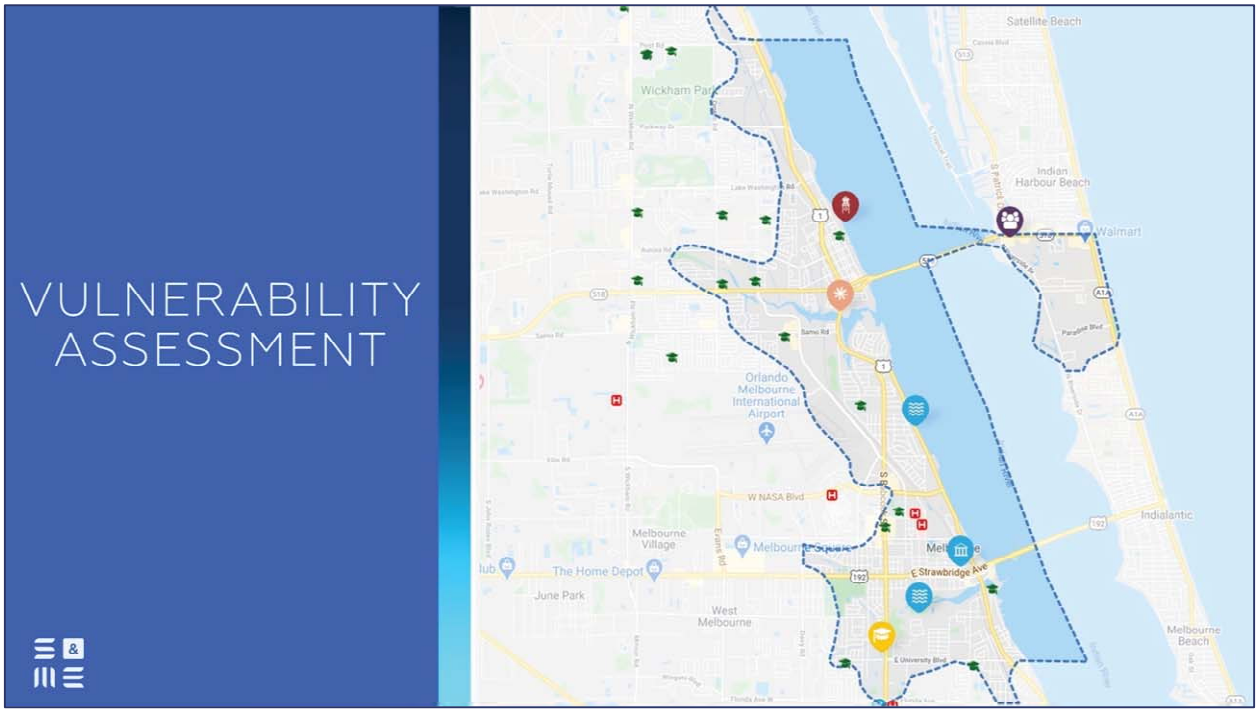
ADDITIONAL FACTS

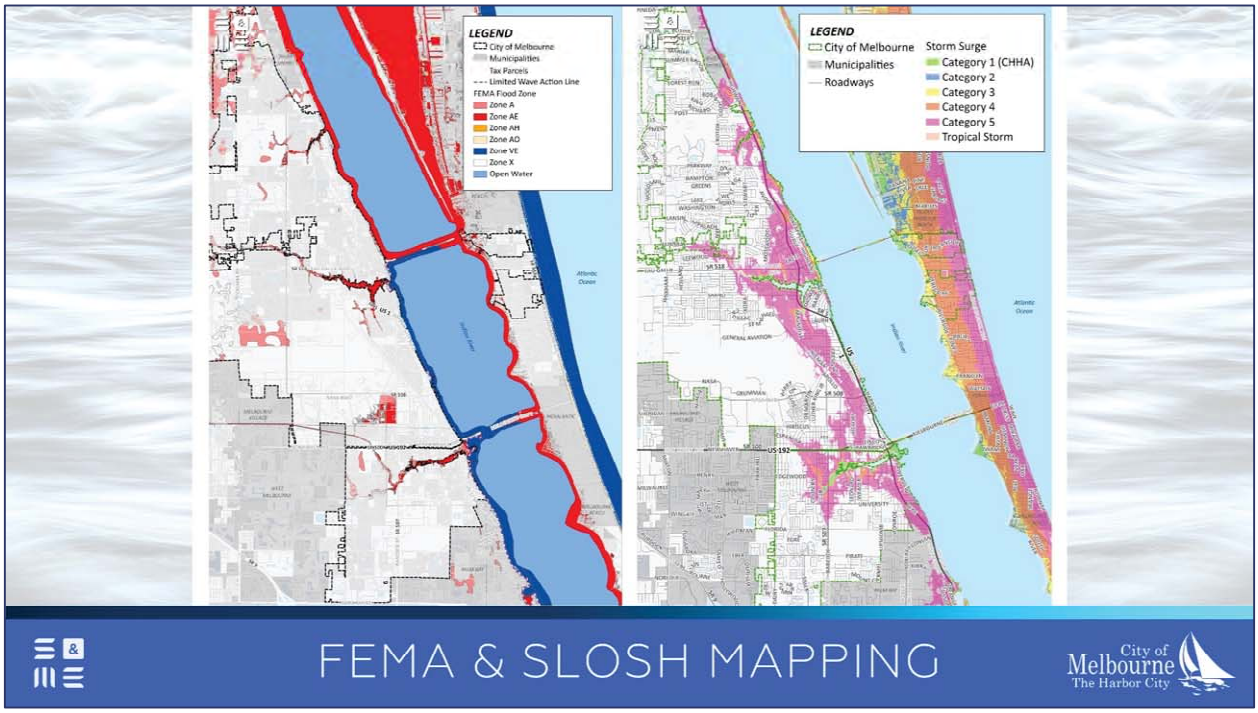


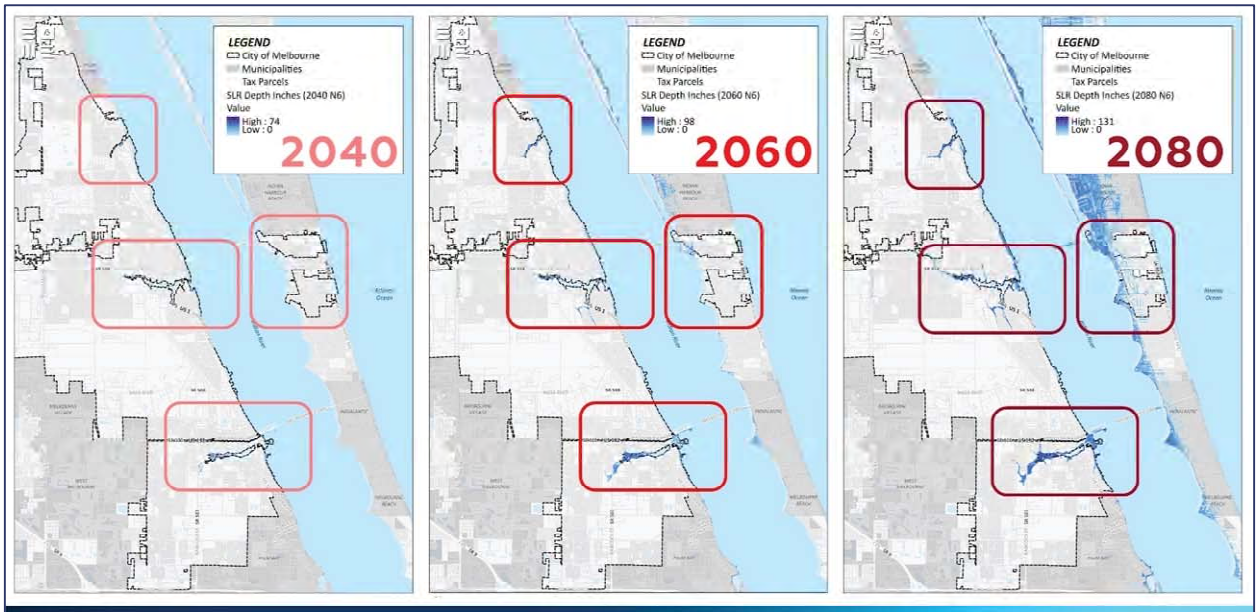
FUTURE COSTS

- Adaptation & resiliency plans are meant to anticipate the effects of future sea level rise and coastal flooding
- Then create an action plan to minimize damage to public facilities, infrastructure, and community amenities
- These plans can include recommendations to update the comprehensive plan, land development standards, and mitigation strategies which can help the City better prepare for likely shocks and stresses in the face of climate change

ADAPTATION & RESILIENCY PLANNING


VULNERABILITY
ASSESSMENT
Satellite Beach
Wickham Park
Indian Harbour Beach
Walmart
Orlando Melbourne International Airport
W NASA Blvd
Melbourne Village
The Home Depot
June Park
West Melbourne
E Strawbridge Ave
Indialantic
Melbourne Beach


LEGEND
City of Melbourne
Municipalities
Tax Parcels
Limited Wave Action Line
FEMA Flood Zone
Zone A
Zone AE
Zone AH
Zone AO
Zone VE
Zone X
Open Water
LEGEND
City of Melbourne
Municipalities
Roadways
Storm Surge
Category 1 (CHHA)
Category 2
Category 3
Category 4
Category 5
Tropical Storm
FEMA & SLOSH MAPPING
City of Melbourne
The Harbor City

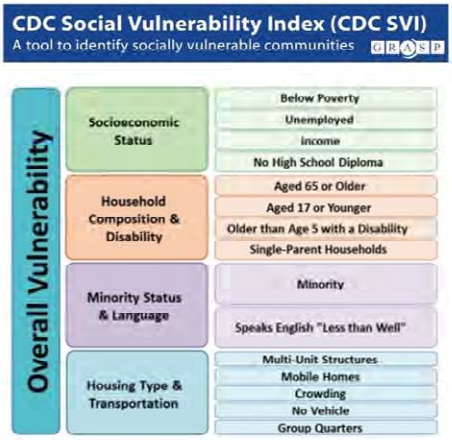


SEA LEVEL RISE MAPPING

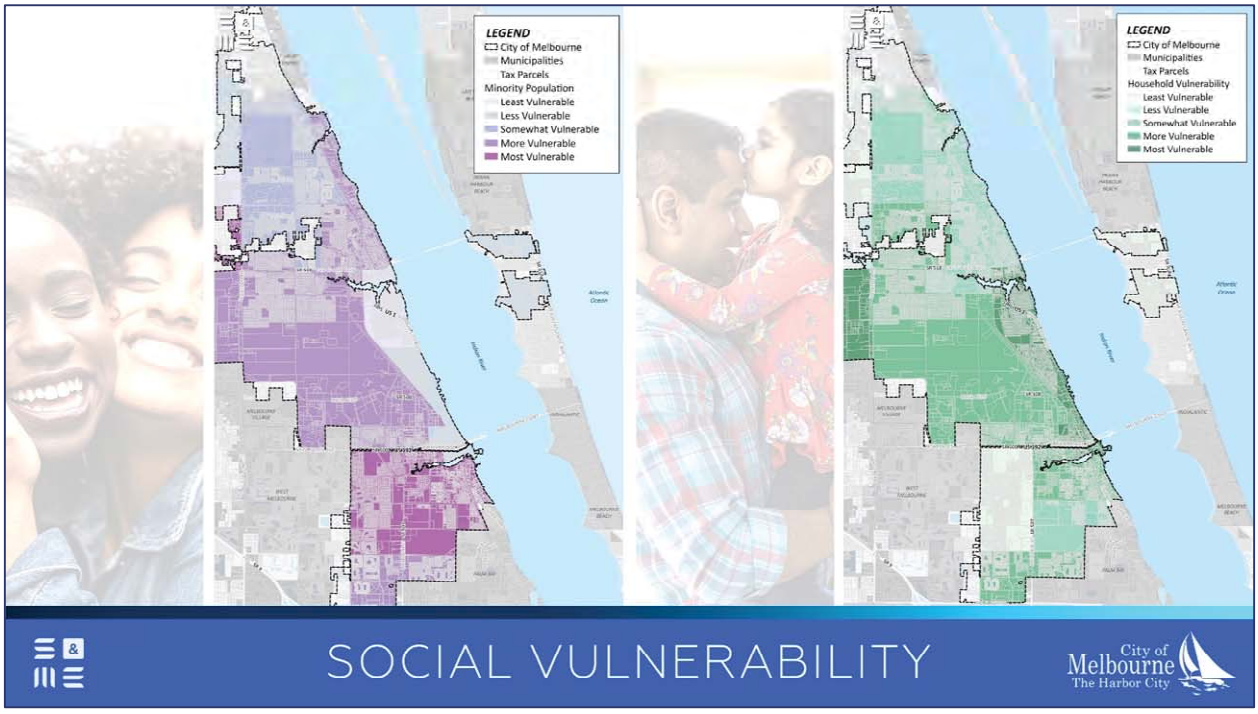
SOCIAL VULNERABILITY shows communities in the City that will most likely need support before, during, and after a hazardous event.

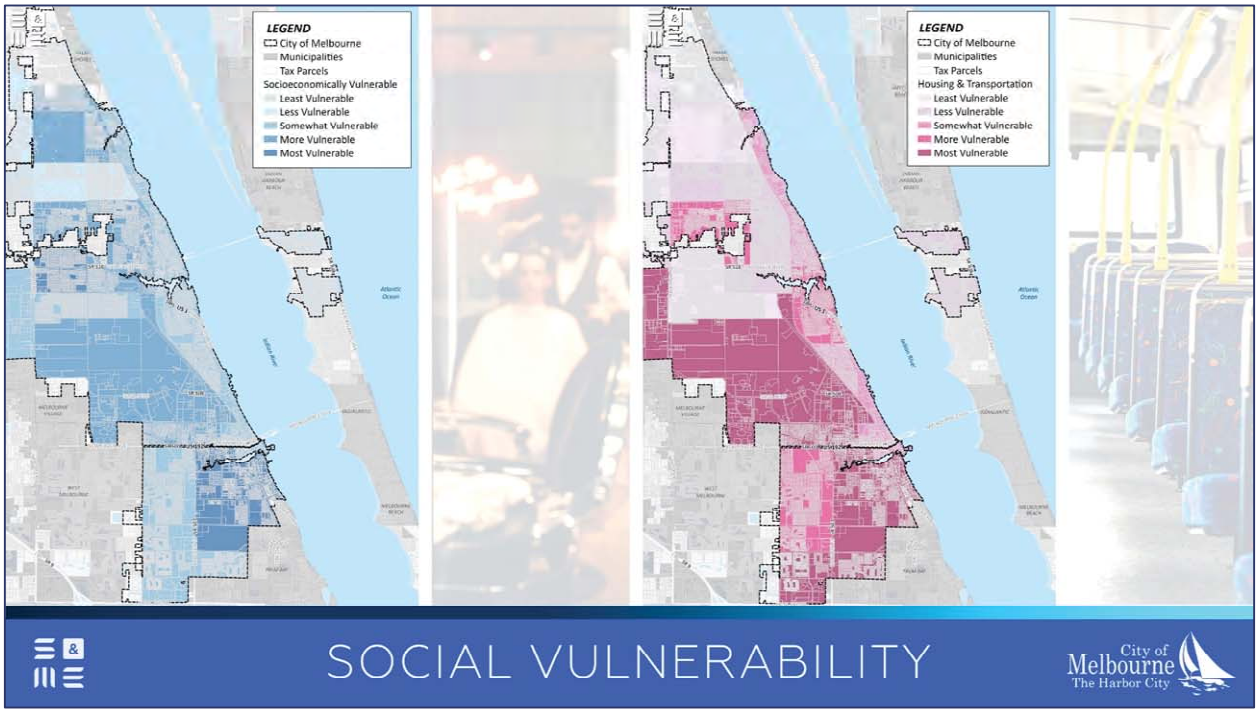
SOCIAL VULNERABILITY measures:

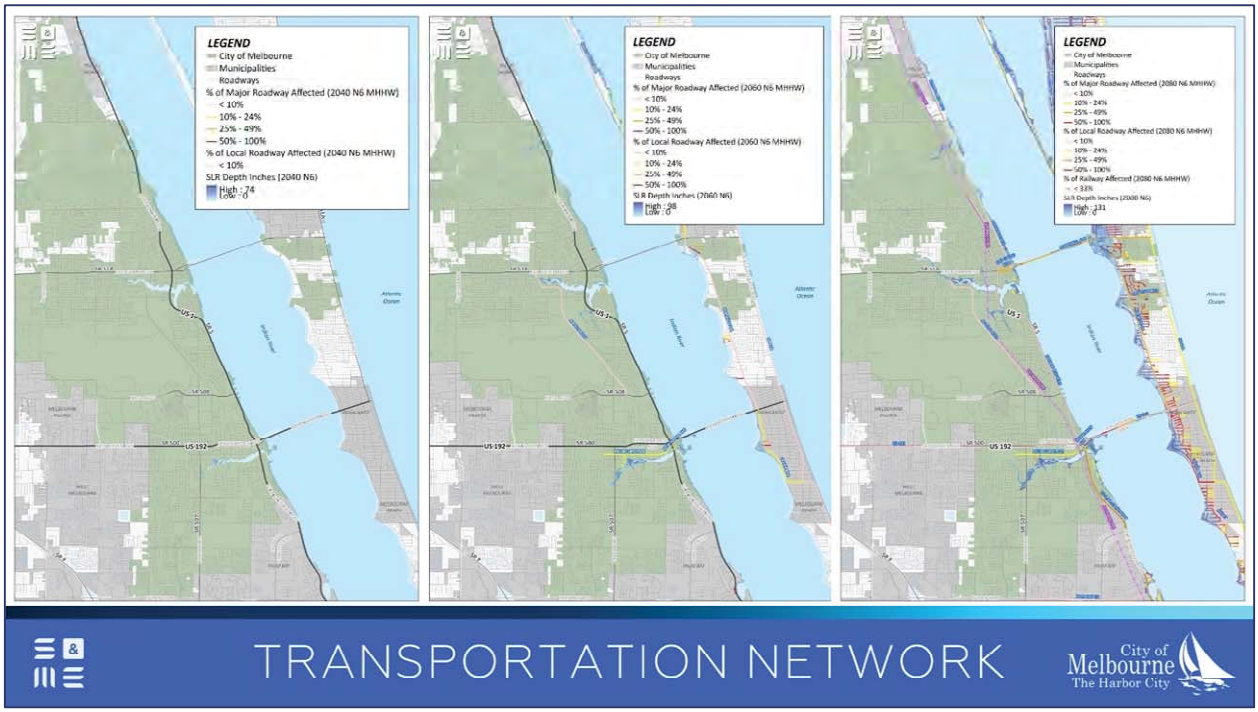
- SOCIOECONOMIC STATUS
- HOUSEHOLD COMPOSITION & DISABILITY
- MINORITY STATUS & LANGUAGE
- HOUSING TYPE & TRANSPORTATION

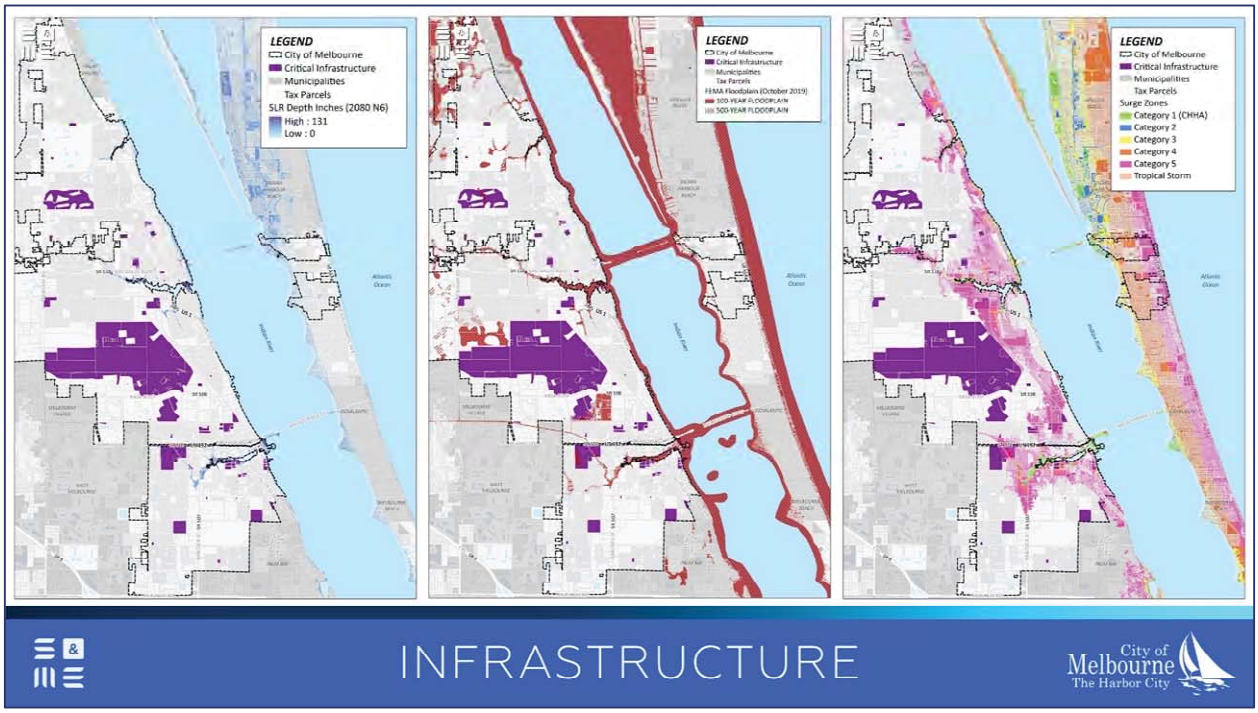


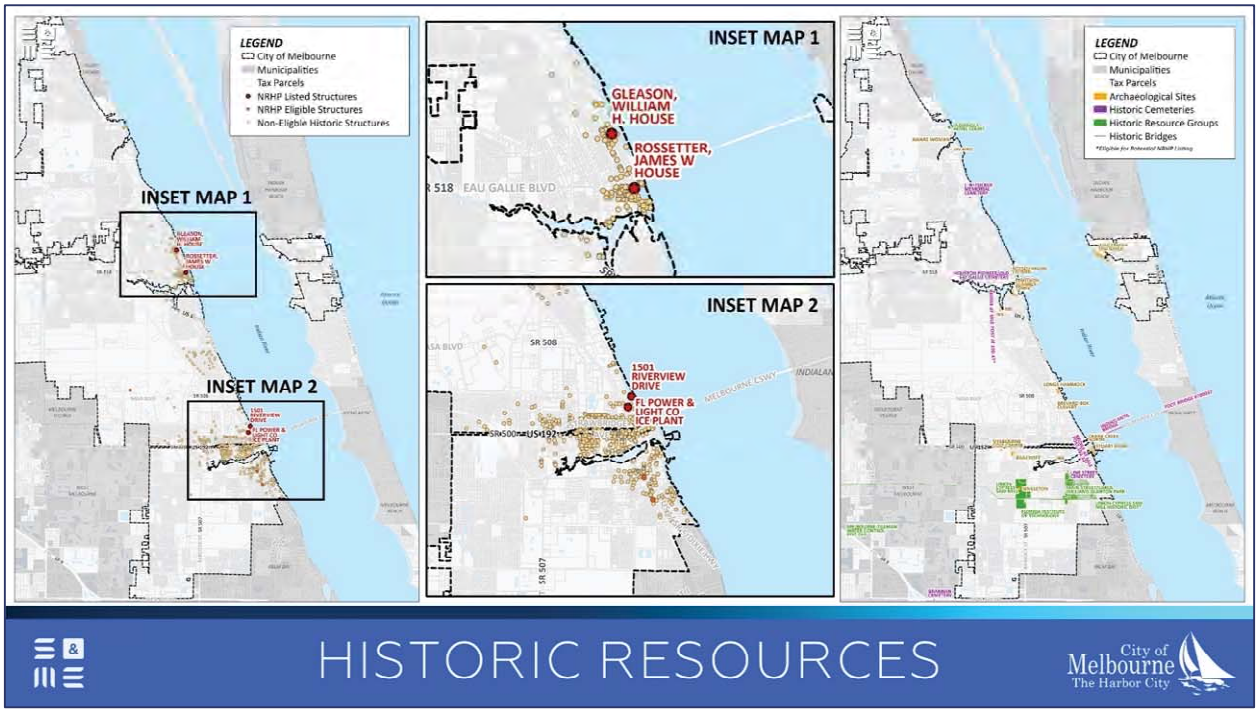
SOCIAL VULNERABILITY

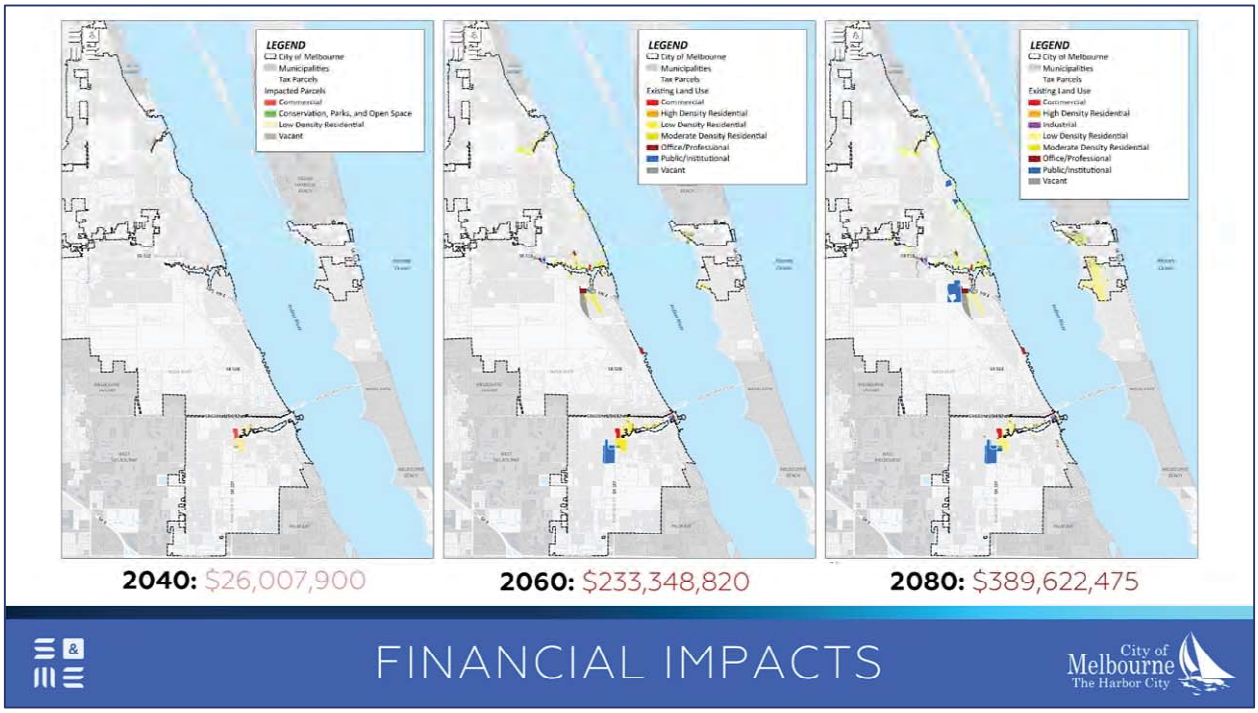

LEGEND
City of Melbourne
Municipalities
Tax Parcels
Minority Population
Least Vulnerable
Less Vulnerable
Somewhat Vulnerable
More Vulnerable
Most Vulnerable
LEGEND
City of Melbourne
Municipalities
Tax Parcels
Household Vulnerability
Least Vulnerable
Less Vulnerable
Somewhat Vulnerable
More Vulnerable
Most Vulnerable
SOCIAL VULNERABILITY
City of Melbourne
The Harbor City

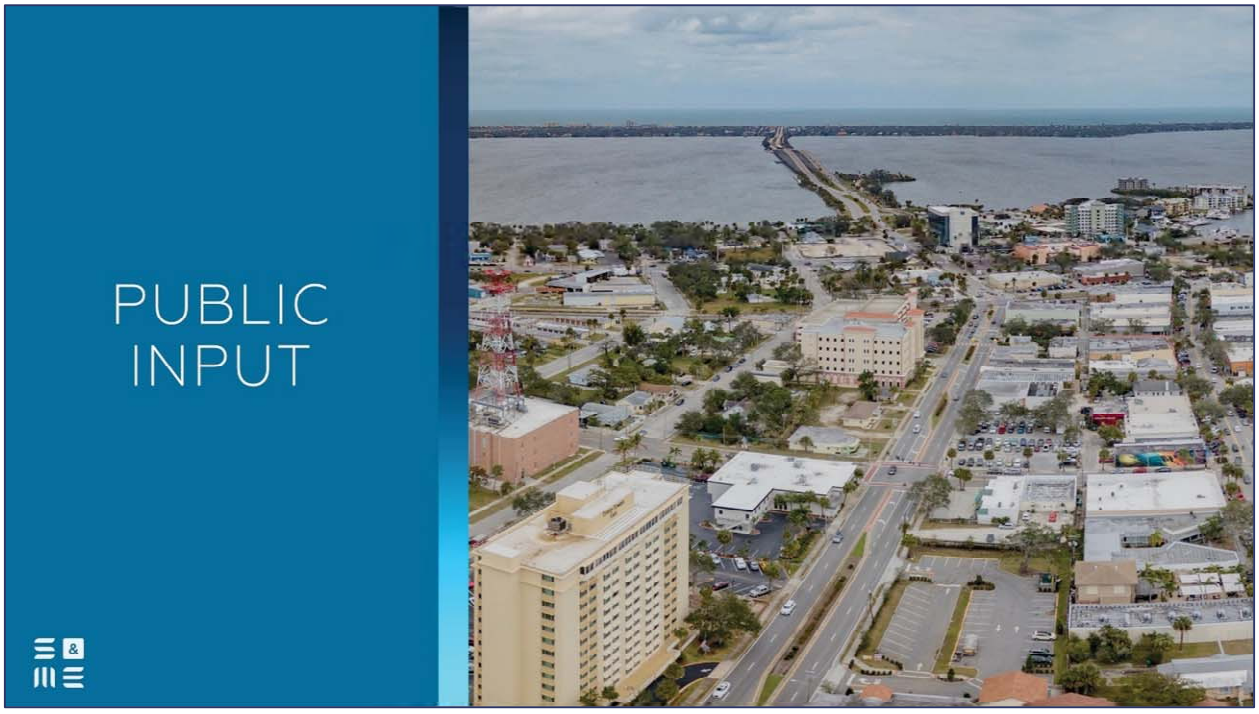

LEGEND
City of Melbourne
Municipalities
Tax Parcels
Socioeconomically Vulnerable
Least Vulnerable
Less Vulnerable
Somewhat Vulnerable
More Vulnerable
Most Vulnerable
LEGEND
City of Melbourne
Municipalities
Tax Parcels
Housing & Transportation
Least Vulnerable
Less Vulnerable
Somewhat Vulnerable
More Vulnerable
Most Vulnerable
SOCIAL VULNERABILITY
City of Melbourne
The Harbor City


LEGEND
City of Melbourne
Municipalities
Roadways
% of Major Roadway Affected (2040 N6 MHHW)
< 10%
10% - 24%
25% - 49%
50% - 100%
% of Local Roadway Affected (2040 N6 MHHW)
< 10%
SLR Depth Inches (2040 N6)
High : 74
Low : 0
LEGEND
City of Melbourne
Municipalities
Roadways
% of Major Roadway Affected (2060 N6 MHHW)
< 10%
10% - 24%
25% - 49%
50% - 100%
% of Local Roadway Affected (2060 N6 MHHW)
< 10%
10% - 24%
25% - 49%
50% - 100%
SLR Depth Inches (2060 N6)
High : 98
Low : 0
LEGEND
City of Melbourne
Municipalities
Roadways
% of Major Roadway Affected (2080 N6 MHHW)
< 10%
10% - 24%
25% - 49%
50% - 100%
% of Local Roadway Affected (2080 N6 MHHW)
< 10%
10% - 24%
25% - 49%
50% - 100%
% of Railway Affected (2080 N6 MHHW)
< 33%
SLR Depth Inches (2080 N6)
High : 131
Low : 0
TRANSPORTATION NETWORK
City of Melbourne
The Harbor City


LEGEND
City of Melbourne
Critical Infrastructure
Municipalities
Tax Parcels
SLR Depth Inches (2080 N6)
High : 131
Low : 0
LEGEND
City of Melbourne
Critical Infrastructure
Municipalities
Tax Parcels
FEMA Floodplain (October 2019)
100-YEAR FLOODPLAIN
500-YEAR FLOODPLAIN
LEGEND
City of Melbourne
Critical Infrastructure
Municipalities
Tax Parcels
Surge Zones
Category 1 (CHHA)
Category 2
Category 3
Category 4
Category 5
Tropical Storm
INFRASTRUCTURE
City of Melbourne
The Harbor City


LEGEND
City of Melbourne
Municipalities
Tax Parcels
NRHP Listed Structures
NRHP Eligible Structures
Non-Eligible Historic Structures
INSET MAP 1
INSET MAP 2
GLEASON, WILLIAM H. HOUSE
ROSSETTER, JAMES W HOUSE
EAU GALLIE BLVD
1501 RIVERVIEW DRIVE
FL POWER & LIGHT CO ICE PLANT
SR 508
SR 507
MELBOURNE CSWY
LEGEND
City of Melbourne
Municipalities
Tax Parcels
Archaeological Sites
Historic Cemeteries
Historic Resource Groups
Historic Bridges
HISTORIC RESOURCES
City of Melbourne
The Harbor City

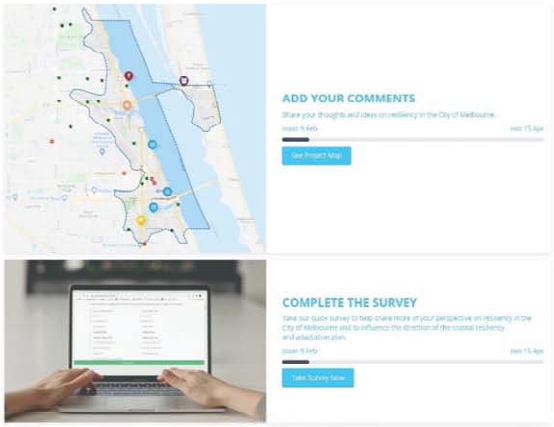

LEGEND
City of Melbourne
Municipalities
Tax Parcels
Impacted Parcels
Commercial
Conservation, Parks, and Open Space
Low Density Residential
Vacant
Existing Land Use
Commercial
High Density Residential
Low Density Residential
Moderate Density Residential
Office/Professional
Public/Institutional
Vacant
Industrial
2040: $26,007,900
2060: $233,348,820
2080: $389,622,475
FINANCIAL IMPACTS
City of Melbourne
The Harbor City



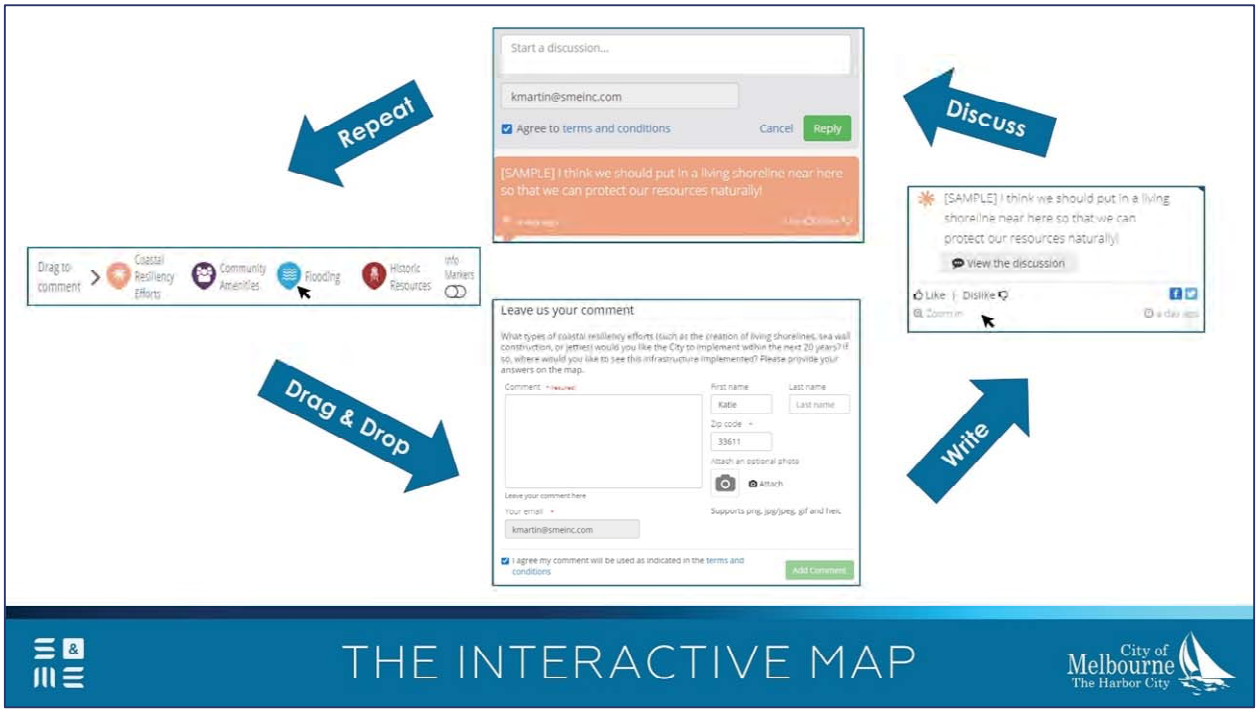
Ways to Share Your Input:

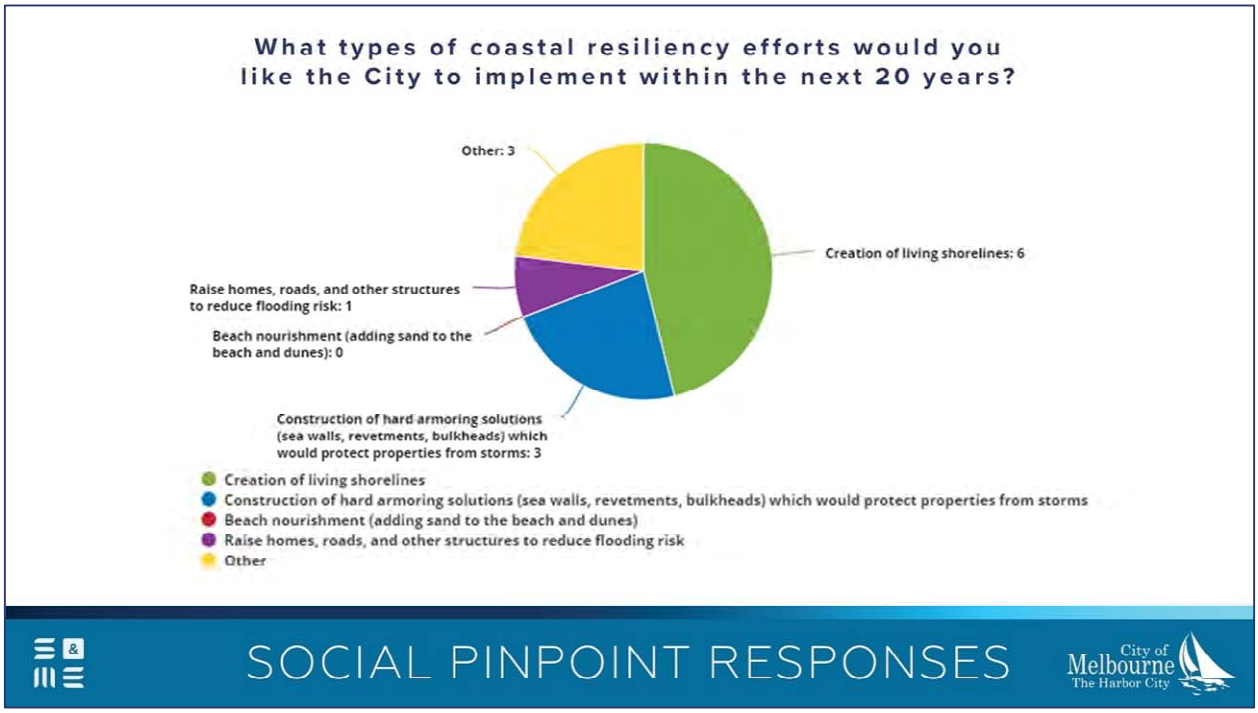
- Take the Quick Survey
- Share your ideas on the Interactive Map

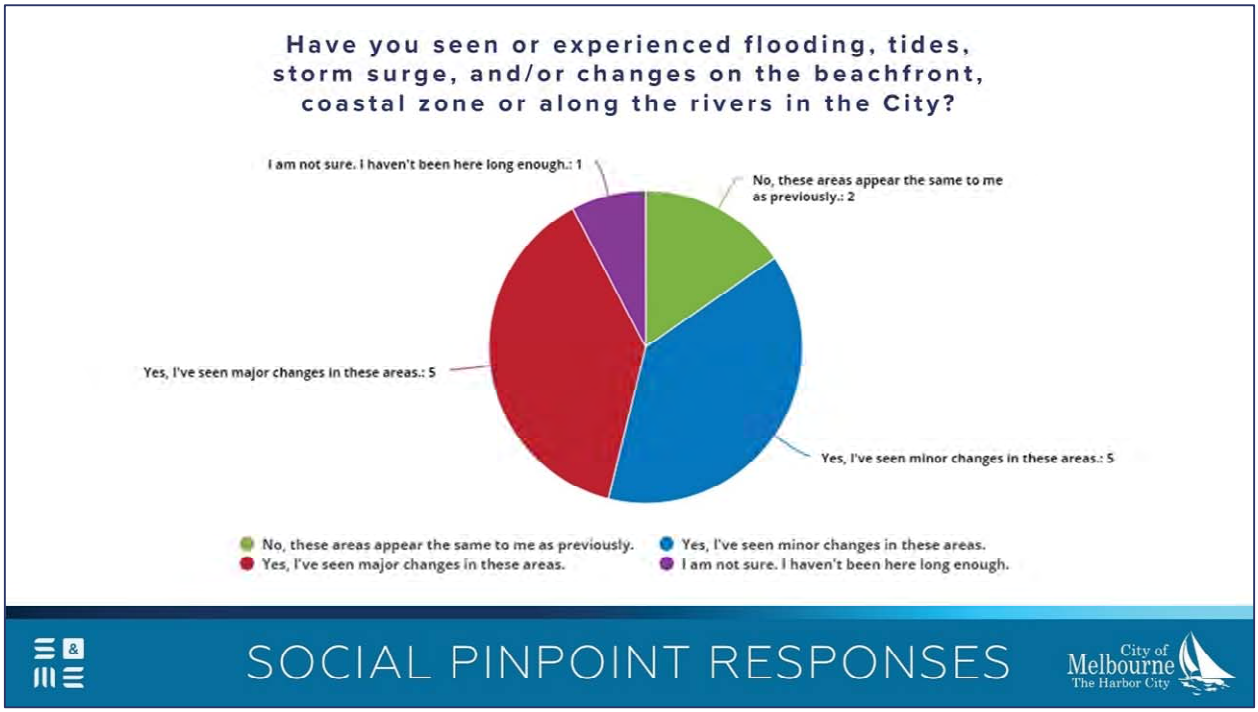
Sharing your input will help create a more resilient Melbourne

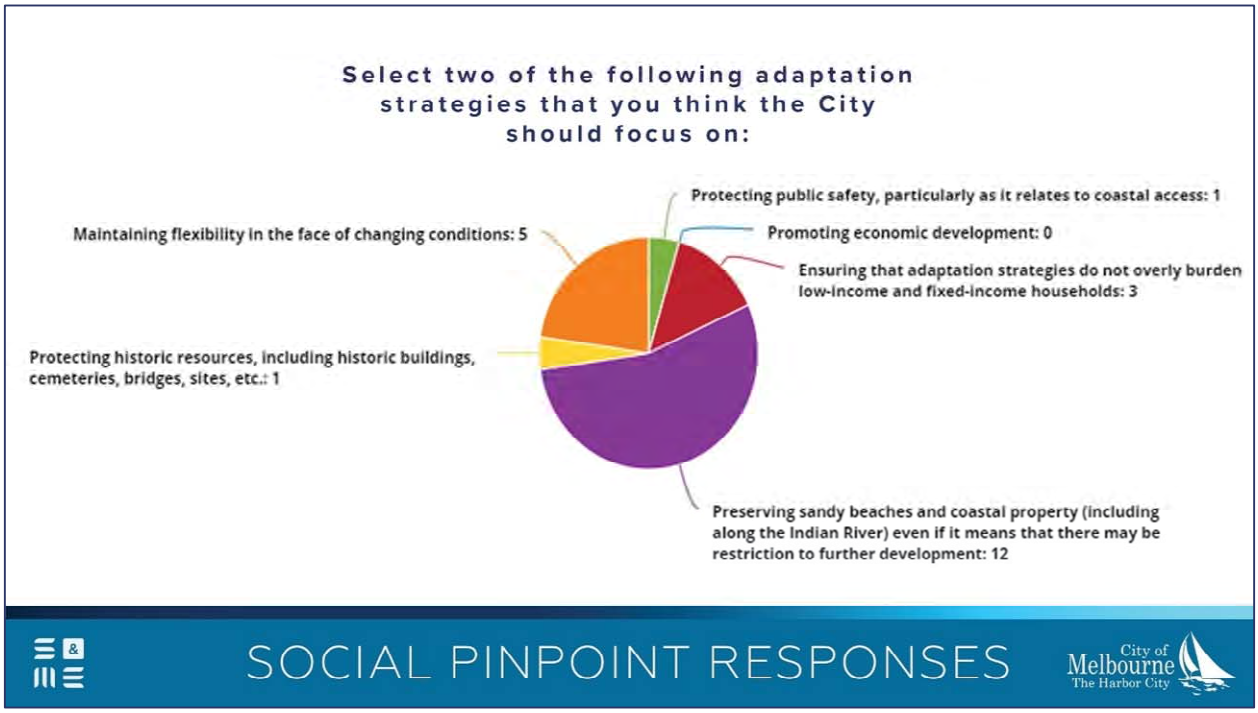


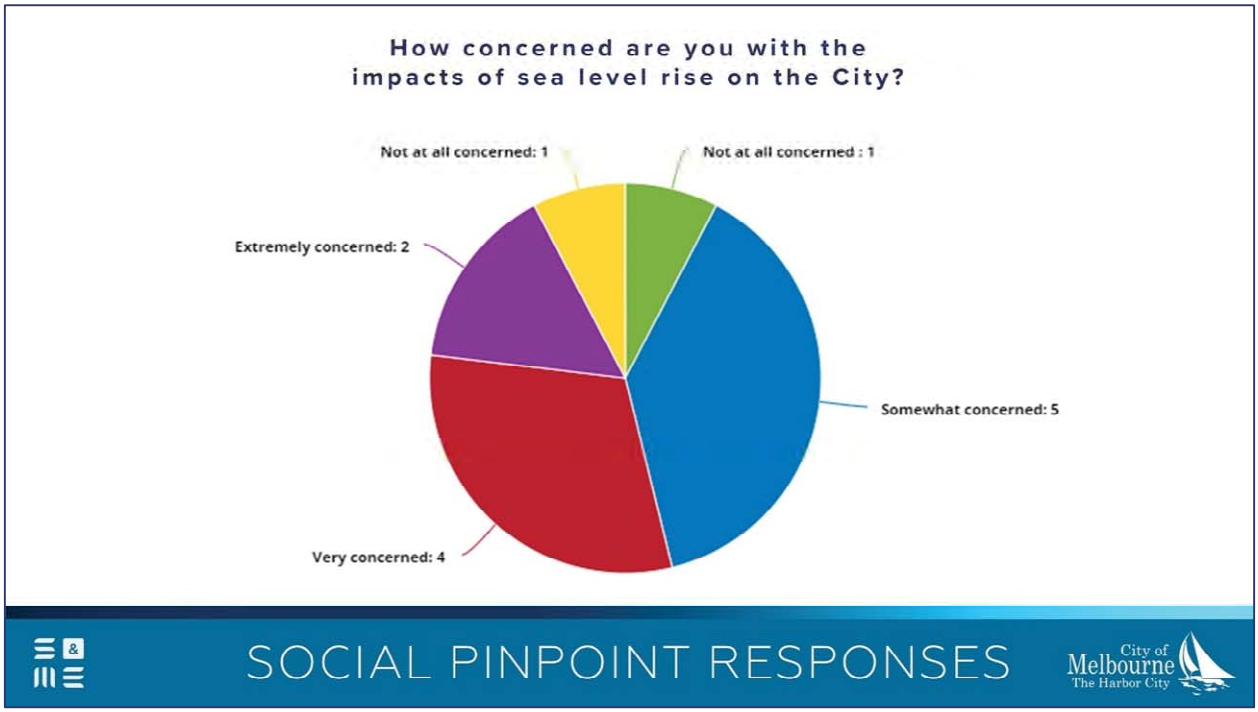
ENGAGING ON SOCIAL PINPOINT


Repeat
Start a discussion...
kmartin@smeinc.com
Agree to terms and conditions
Cancel
Reply
[SAMPLE] I think we should put in a living shoreline near here so that we can protect our resources naturally!
Discuss
[SAMPLE] I think we should put in a living shoreline near here so that we can protect our resources naturally!
View the discussion
Like | Dislike
Drag to comment
Coastal Resiliency Efforts
Community Amenities
Flooding
Historic Resources
Info Markers
Leave us your comment
What types of coastal resiliency efforts (such as the creation of living shorelines, sea wall construction, or jetties) would you like the City to implement within the next 20 years? If so, where would you like to see this infrastructure implemented? Please provide your answers on the map.
Comment
First name
Katie
Last name
Zip code
33611
Attach an optional photo
Attach
Supports png, jpg/jpeg, gif and heic
Leave your comment here
Your email
kmartin@smeinc.com
I agree my comment will be used as indicated in the terms and conditions
Add Comment
Drag & Drop
Write
THE INTERACTIVE MAP
City of Melbourne
The Harbor City


What types of coastal resiliency efforts would you like the City to implement within the next 20 years?
Other: 3
Creation of living shorelines: 6
Raise homes, roads, and other structures to reduce flooding risk: 1
Beach nourishment (adding sand to the beach and dunes): 0
Construction of hard armoring solutions (sea walls, revetments, bulkheads) which would protect properties from storms: 3
Creation of living shorelines
Construction of hard armoring solutions (sea walls, revetments, bulkheads) which would protect properties from storms
Beach nourishment (adding sand to the beach and dunes)
Raise homes, roads, and other structures to reduce flooding risk
Other
SOCIAL PINPOINT RESPONSES
City of Melbourne
The Harbor City

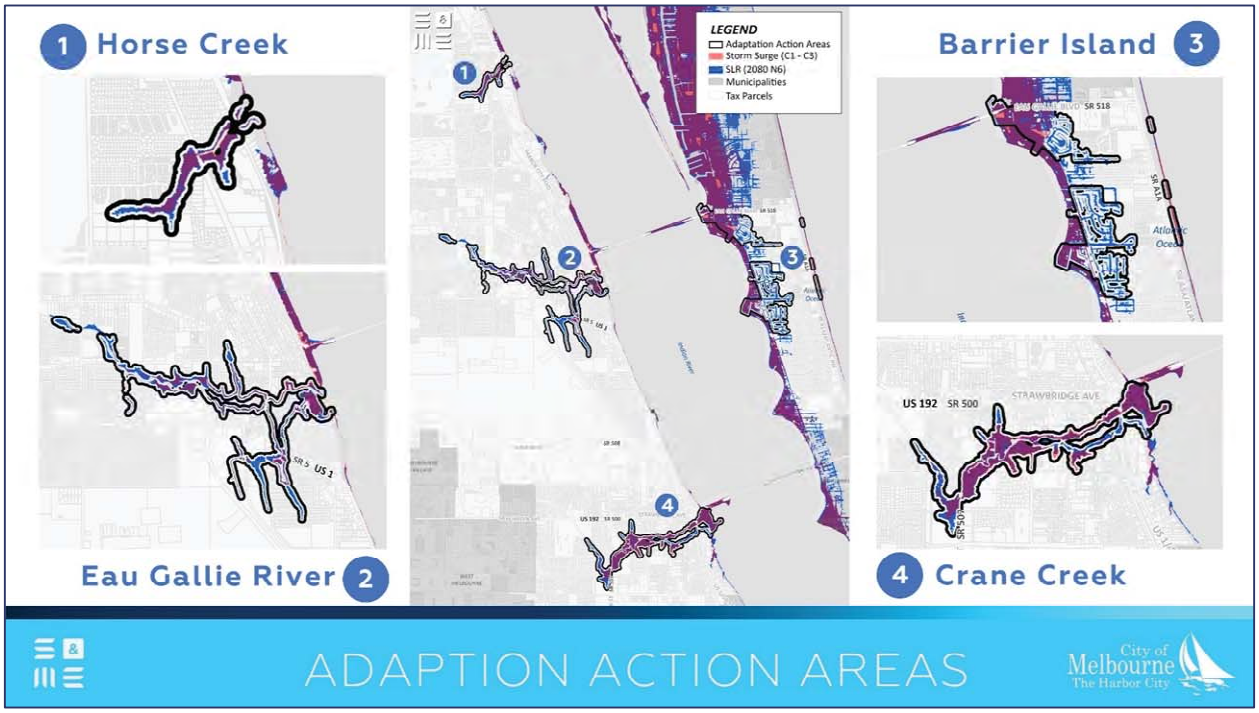

Have you seen or experienced flooding, tides, storm surge, and/or changes on the beachfront, coastal zone or along the rivers in the City?
I am not sure. I haven't been here long enough.: 1
No, these areas appear the same to me as previously.: 2
Yes, I've seen major changes in these areas.: 5
Yes, I've seen minor changes in these areas.: 5
No, these areas appear the same to me as previously.
Yes, I've seen minor changes in these areas.
Yes, I've seen major changes in these areas.
I am not sure. I haven't been here long enough.
SOCIAL PINPOINT RESPONSES
City of Melbourne The Harbor City


Select two of the following adaptation strategies that you think the City should focus on:
Protecting public safety, particularly as it relates to coastal access: 1
Promoting economic development: 0
Ensuring that adaptation strategies do not overly burden low-income and fixed-income households: 3
Maintaining flexibility in the face of changing conditions: 5
Protecting historic resources, including historic buildings, cemeteries, bridges, sites, etc.: 1
Preserving sandy beaches and coastal property (including along the Indian River) even if it means that there may be restriction to further development: 12
SOCIAL PINPOINT RESPONSES
City of Melbourne The Harbor City


How concerned are you with the impacts of sea level rise on the City?
Not at all concerned: 1
Not at all concerned : 1
Extremely concerned: 2
Somewhat concerned: 5
Very concerned: 4
SOCIAL PINPOINT RESPONSES
City of Melbourne
The Harbor City

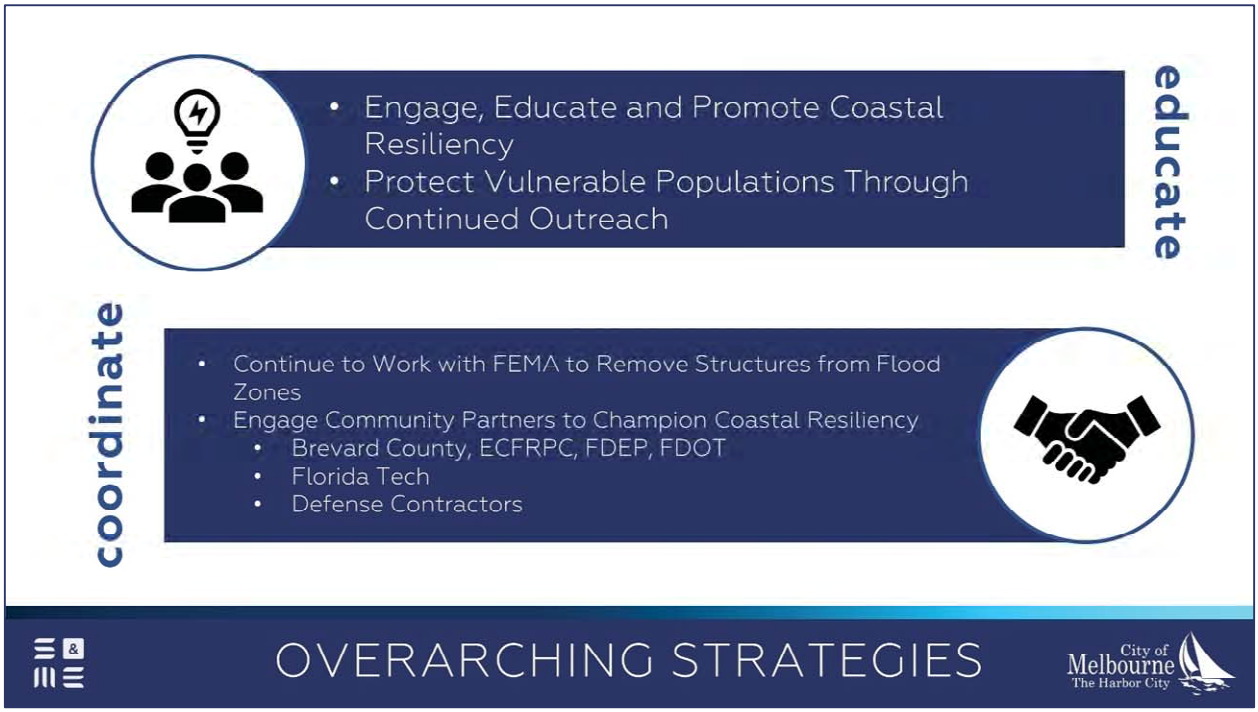

ADAPTATION ACTION AREAS (AAA)

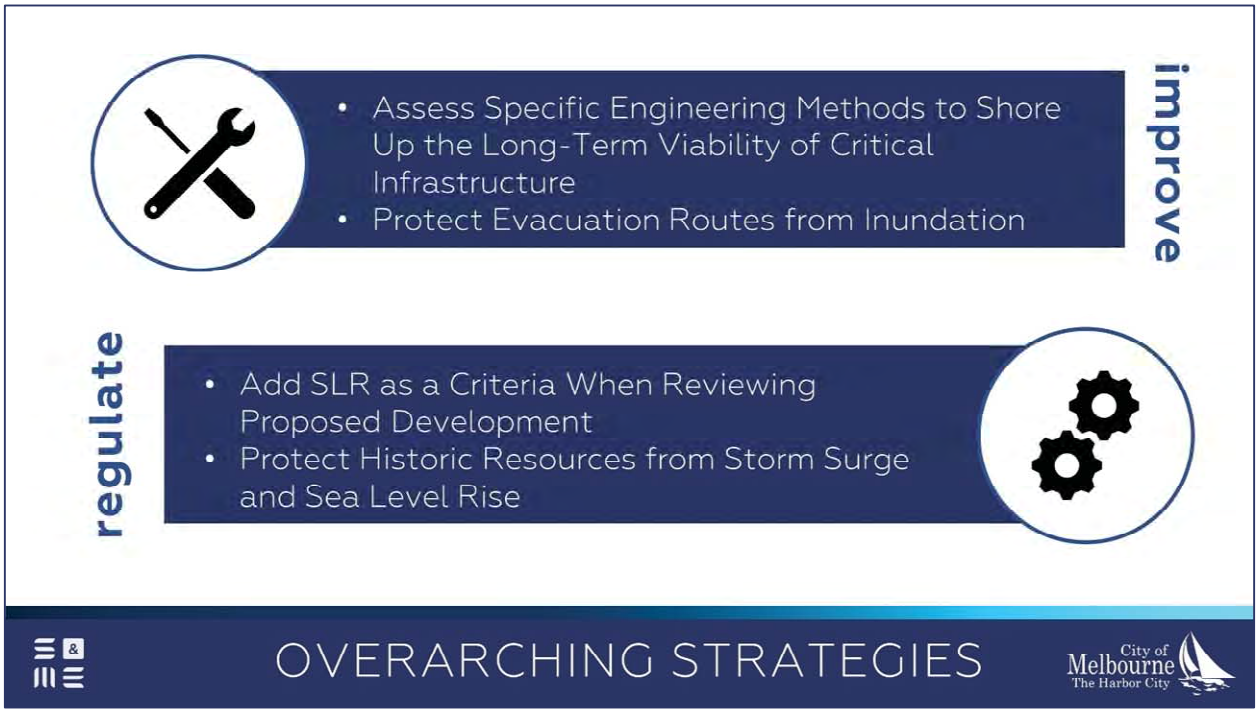

SLR, STORM SURGE, & FLOOD PROJECTIONS
EXISTING FLOODING
SOCIAL VULNERABILITIES
FINANCIAL IMPACTS
ROADWAY IMPACTS
METHODOLOGY FOR SELECTION
City of Melbourne
The Harbor City


1 Horse Creek
LEGEND
Adaptation Action Areas
Storm Surge (C1 - C3)
SLR (2080 N6)
Municipalities
Tax Parcels
Barrier Island 3
SR 518
US 192
SR 500
STRAWBRIDGE AVE
Eau Gallie River 2
4 Crane Creek
ADAPTION ACTION AREAS
City of Melbourne
The Harbor City


POTENTIAL
STRATEGIES
FOR AAAs


coordinate
regulate
educate
improve
OVERARCHING STRATEGIES
City of
Melbourne
The Harbor City


educate
• Engage, Educate and Promote Coastal Resiliency
• Protect Vulnerable Populations Through Continued Outreach
coordinate
• Continue to Work with FEMA to Remove Structures from Flood Zones
• Engage Community Partners to Champion Coastal Resiliency
• Brevard County, ECFRPC, FDEP, FDOT
• Florida Tech
• Defense Contractors
OVERARCHING STRATEGIES
City of Melbourne The Harbor City


improve
• Assess Specific Engineering Methods to Shore Up the Long-Term Viability of Critical Infrastructure
• Protect Evacuation Routes from Inundation
regulate
• Add SLR as a Criteria When Reviewing Proposed Development
• Protect Historic Resources from Storm Surge and Sea Level Rise
OVERARCHING STRATEGIES
City of Melbourne The Harbor City

HORSE CREEK AAA

- Evaluate current Flood Storage in this area and understand elevations and future flooding considerations.
- Participate in FEMA programs to move structures out of Flood Zones (elevate, buyouts or relocate).
- Assess the feasibility of engineering solutions to SLR adjacent to buildings.

AAA ACTION ITEMS

City of Melbourne The Harbor City

- Evaluate opportunities for dual purpose park system facilities (stormwater/recreation).
- Develop interpretive signage to promote and educate SLR/coastal flooding at Houston Street and Ballard parks.
- Protect historic resources along the river (elevate or relocate).
- Evaluate opportunities for existing and/or new conservation lands to be utilized for flood storage.

EAU GALLIE RIVER AAA

AAA ACTION ITEMS

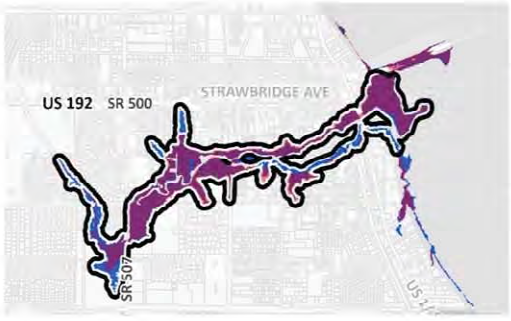
City of Melbourne The Harbor City

BARRIER ISLANDS AAA

- Coordinate with FDOT and TPO regarding inundation of evacuation routes.
- Participate in FEMA programs to move structures out of Flood Zones (elevate, buyouts or relocate).
- Assess engineering opportunities to enhance stormwater capacity.
- Assess engineering solutions for flood events.

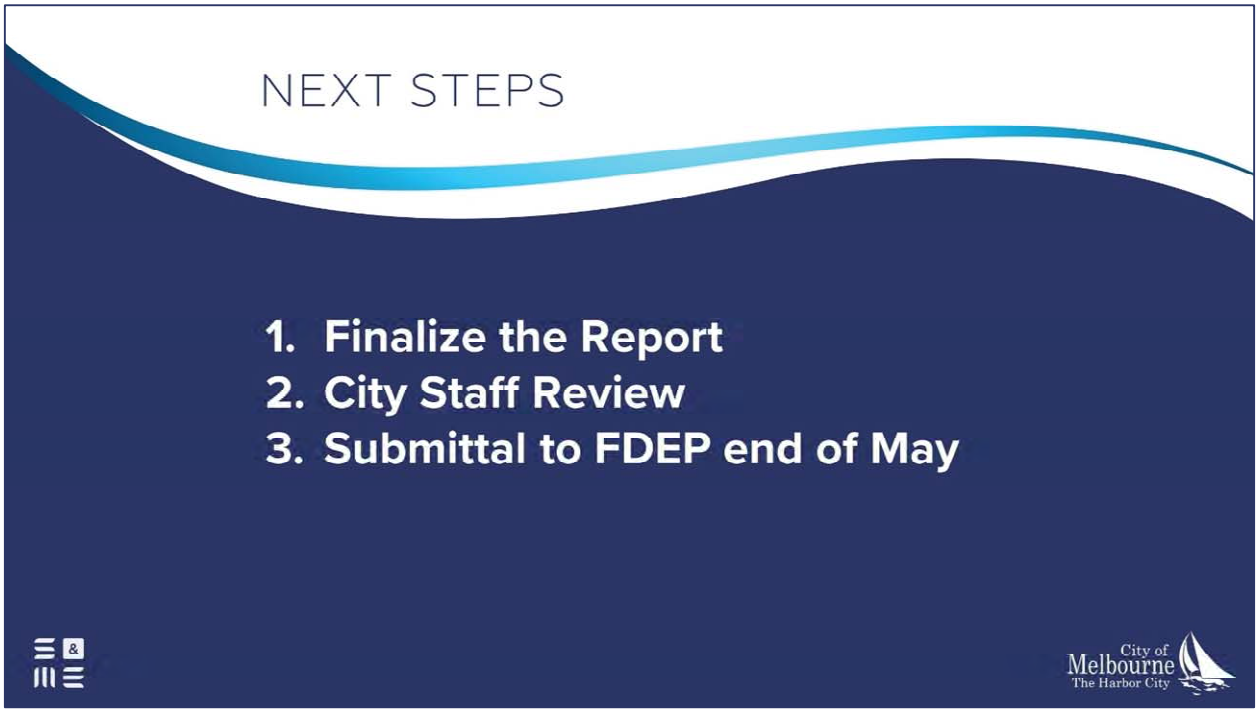
AAA ACTION ITEMS

CRANE CREEK AAA



- Develop engineering solutions to ensure long-term viability of Grant Street Water Reclamation Facility (GSWRF).
- Explore purchasing additional lands to serve as flood storage near GSWRF.
- Coordinate with Florida Tech regarding existing and future flooding on northern portion of Campus.
- Evaluate opportunities for dual purpose park system facilities (stormwater/recreation).
- Develop interpretive signage to promote and educate SLR/coastal flooding at Riverview Park.

AAA ACTION ITEMS


NEXT STEPS
1. Finalize the Report
2. City Staff Review
3. Submittal to FDEP end of May
City of Melbourne The Harbor City


CONTACT US
Chris Dougherty, AICP
cdougherty@smeinc.com
Todd Corwin, AICP
todd.corwin@mlbfl.org
City of Melbourne The Harbor City

City of Melbourne Public Notices

The following is a list of public notices and press releases issued by the City of Melbourne during the course of the Coastal Resiliency Plan development.

2/19/2021 City Seeking Public Input on Coastal Resiliency Plan
https://www.melbourneflorida.org/Home/Components/News/News/7788/381

2/26/2021 You can comment on our online map and/or attend a virtual workshop on March 2. See https://smeinc.mysocialpinpoint.com/melbourne-coastal-resiliency-plan + REPOST City Seeking Public Input on Coastal Resiliency Plan
https://www.melbourneflorida.org/Home/Components/News/News/7788/381

3/2/2021 Reminder: Our Coastal Resiliency Virtual Workshop is tonight at 6 p.m.
https://www.melbourneflorida.org/Home/Components/Calendar/Event/24106/1452

3/30/2021 The City of Melbourne is seeking public input in the development of a Coastal Resiliency Plan that will help prepare for impacts to our coastal areas out to the year 2080. https://www.melbourneflorida.org/Home/Components/News/News/7876/381

4/8/2021 The City of Melbourne is seeking public input in the development of a Coastal Resiliency Plan that will help prepare for impacts to our coastal areas out to the year 2080. Submit comments online or attend a virtual workshop on April 21. For details see:
https://www.melbourneflorida.org/Home/Components/News/News/7876/381

4/15/2021 Share your thoughts on current and future coastal flooding at the Coastal Resiliency Plan Virtual Workshop, April 21, 6 p.m. Your insights will help us develop the Coastal Resiliency Plan to prepare for impacts to our coastal areas out to the year 2080.
https://www.melbourneflorida.org/Home/Components/Calendar/Event/24130/1452

4/21/2021 The Coastal Resiliency Plan Virtual Workshop is tonight at 6 p.m. Share your input and contribute to our planning efforts to prepare for impacts to our coastal areas. To participate in the online survey and/or the workshop, go to:
https://smeinc.mysocialpinpoint.com/melbourne-coastal-resiliency-plan + REPOST 4/15/2021 POST

4/26/2021 The City of Melbourne is still seeking public input in the development of a Coastal Resiliency Plan that will help prepare for impacts to our coastal areas out to the year 2080. To provide your feedback, please use this online survey tool by Saturday, May 1:
https://smeinc.mysocialpinpoint.com/melbourne-coastal-resiliency-plan

City News

City Seeking Public Input on Coastal Resiliency Plan

Post Date: 02/19/2021 10:44 AM

The City of Melbourne is seeking public input in the development of a Coastal Resiliency Plan.

The plan will include an assessment of the City's coastal flooding vulnerabilities and recommended adaptations, including measures to protect and prioritize infrastructure improvements in areas that are susceptible to coastal flooding events.

The City's consultant has developed an online tool that the public can use to submit comments and observations through a survey and an interactive map.

A virtual workshop meeting will be held on March 2 (6 p.m. — 8 p.m.) to give residents an additional opportunity to share their concerns regarding current and future coastal flooding.

To access the online survey, map tool, and Zoom login information for the March 2 workshop, go to https://smeinc.mysocialpinpoint.com/melbourne-coastal-resiliency-plan.

Return to full list »

City Calendar

Coastal Resiliency Plan Virtual Workshop

Date: 03/02/2021 6:oo PM - 8:00 PM

The City of Melbourne is seeking public input in the development of a Coastal Resiliency Plan. A virtual workshop meeting will be held on March 2 (6 p.m. — 8 p.m.) to give residents an additional opportunity to share their concerns regarding current and future coastal flooding.

The plan will include an assessment of the City's coastal flooding vulnerabilities and recommended adaptations, including measures to protect and prioritize infrastructure improvements in areas that are susceptible to coastal flooding events.

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To access the online survey, map tool, and Zoom login information for the March 2 workshop, go to https://smeinc.mysocialpinpoint.com/melbourne-coastal-resiliency-plan.

Return to full list > >

City News

City Seeking Public Input on Coastal Resiliency Plan

Post Date: 03/29/20213:45 PM

The City of Melbourne is seeking public input in the development of a Coastal Resiliency Plan that will help prepare for impacts to our coastal areas out to the year 2080.

The plan will include an assessment of the City's coastal flooding vulnerabilities and recommended adaptations, including measures to protect and prioritize infrastructure improvements in areas that are susceptible to coastal flooding events.

Public input is crucial to the planning process. If you would like to participate in the gathering of information on current coastal flooding impacts in the City of Melbourne and take a short survey about coastal resiliency, please visit the City's Coastal Resiliency Plan website.

The city will also be hosting a second virtual workshop meeting on April 21 (6 p.m. — 8 p.m.) to give residents an additional opportunity to share their thoughts regarding current and future coastal flooding.

Return to full list »

City Calendar

Coastal Resiliency Plan Virtual Workshop

Date: 04/21/2021 6:oo PM - 8:0o PM

The City of Melbourne is seeking public input in the development of a Coastal Resiliency Plan that will help prepare for impacts to our coastal areas out to the year 2080. The plan will include an assessment of the City's coastal flooding vulnerabilities and recommended adaptations, including measures to protect and prioritize infrastructure improvements in areas that are susceptible to coastal flooding events.

The city will be hosting a second virtual workshop meeting on April 21 (6 p.m. — 8 p.m.) to give residents an additional opportunity to share their thoughts regarding current and future coastal flooding.

To access the online survey, map tool, and Zoom login information for the April 21 workshop, go to https://smeinc.mysocialpinpoint.comjmelbourne-coastal-resiliency-plan.

For more information, contact the Community Development Department: community.development@mlbflorg or (321) 608-7500

Return to full list »

Coastal Resiliency Plan

VISIT OUR PROJECT WEBSITE

DETAILS:

Share your input on Melbourne's Coastal Resiliency Plan. Access the project website below and take a quick survey or provide location-specific comments on an interactive map. Thank you for making Melbourne's future more resilient today!Visit the project website today!
https://smeinc.mysocialpinpoint.com/melbourne-coastal-resiliency-plan

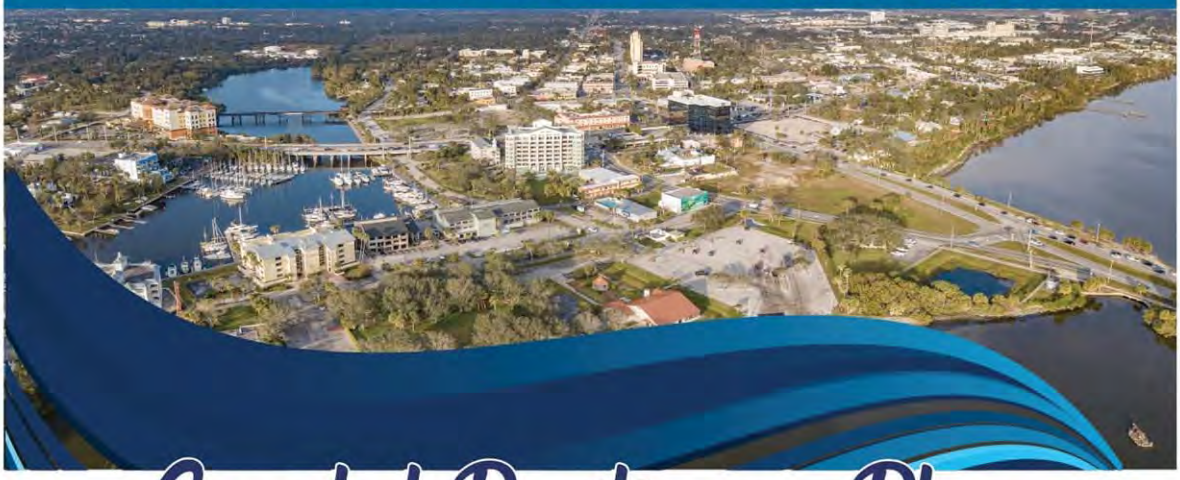
For further inquiries, please contact Todd Corwin at:

todd.corwin@mlbfl.org

Scan QR code with your phone camera to access project website

City of Melbourne
The Harbor City

VIRTUAL PUBLIC WORKSHOP



Coastal Resiliency Plan

*Tuesday, **March 2**, 2021*

6 – 8 PM, EST

Virtual Zoom Meeting

Scan QR code with your phone camera to access project website

DETAILS:

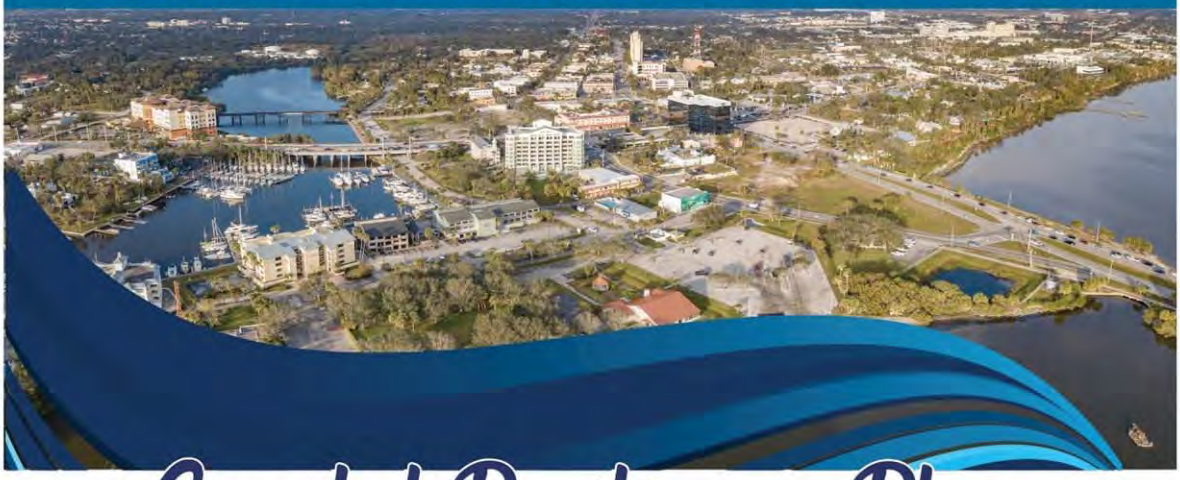
You are invited to help in developing the City of Melbourne's Coastal Resiliency Plan, which will include an assessment of the City's coastal flooding vulnerabilities and the creation of an adaptation action plan within the coastal area. To attend, simply visit the project website ***https://smeinc.mysocialpinpoint.com/melbourne-coastal-resiliency-plan*** provided date and time and click "Join Now".

For further inquiries, please contact Todd Corwin at:

todd.corwin@mlbfl.org

City of Melbourne The Harbor City

VIRTUAL PUBLIC WORKSHOP



Coastal Resiliency Plan

*Tuesday, **April 21**, 2021*

6 – 8 PM, EST

Virtual Zoom Meeting

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DETAILS:

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City of Melbourne The Harbor City