



# Hillsborough County City-County Planning Commission

## Executive Summary

Meeting Date: January 23, 2017  
Agenda Item: Public Hearing: TA/CPA 16-15 Peril of Flood Act Compliance  
Presenter: Shawn College, AICP ext. 367  
Action Necessary: Yes

## Summary:

The Florida State Legislature passed the Peril of Flood Act in 2015. This legislation placed new requirements for local governments to address flooding, including flooding from sea level rise. These requirements are incorporated in section 163.3178(2)(f), Florida Statutes.

The Florida Department of Economic Opportunity requires each local government to complete a vulnerability assessment to determine specifically how they should comply with the new requirements of Florida Statutes. In 2015, the Tampa Bay Climate Science Advisory Panel completed their recommended sea level rise projections for our area. Planning Commission staff, working closely with City of Tampa staff and with the assistance of the Tampa Bay Regional Planning Council, completed a vulnerability assessment for the City of Tampa based on these projections.

The horizon for this vulnerability assessment is the year 2040. Pursuant to this vulnerability assessment, Planning Commission staff worked with City of Tampa staff to develop new comprehensive plan policies, informed by the vulnerability assessment, that will bring the City of Tampa into compliance with this new state law. Failure for the City of Tampa to address these requirements could result in the state applying sanctions to the City of Tampa including a prohibition on new plan amendments.

## Recommendation:

It is recommended that the Planning Commission find amendment TA/CPA 16-15 **CONSISTENT** with the *Imagine 2040: Tampa Comprehensive Plan* and forward this recommendation to the Tampa City Council.

## Attachments:

Resolution, Staff Report, Vulnerability Assessment



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**Hillsborough County  
City-County  
Planning Commission**

**Resolution**

Item: Tampa Comprehensive Plan Amendment: TA/CPA 16-15 Peril of Flood Act Compliance

| AYE                                   | NAY | ABSENT | DATE: January 23, 2017                          |
|---------------------------------------|-----|--------|---|
|                                       |     |        |   |
|                                       |     |        |   |
|                                       |     |        |   |
|                                       |     |        |   |
|                                       |     |        | Mitch Thrower<br>Chair                          |
|                                       |     |        |   |
|                                       |     |        |   |
|                                       |     |        |   |
|                                       |     |        |   |
|                                       |     |        | Melissa E. Zornitta, AICP<br>Executive Director |
|                                       |     |        |   |
| On motion of _____                    |     |        | Seconded by _____                               |
| The following resolution was adopted: |     |        |   |

WHEREAS, the Hillsborough County City-County Planning Commission developed a Comprehensive Plan for the City of Tampa, pursuant to the provisions of Chapter 163, Florida Statutes; and

WHEREAS, the Hillsborough County City-County Planning Commission initiated a text amendment to the *Imagine 2040: Tampa Comprehensive Plan*; and

WHEREAS, the Peril of Flood Act was passed by the 2015 Florida Legislature; and

WHEREAS, the requirements are incorporated as 163.3178(2)(f), Florida Statutes; and

WHEREAS, failure of a local government to comply with these provisions of state law can result in sanctions including the inability of the local government to process plan amendments; and

WHEREAS, the Peril of Flood Act requires coastal cities and counties to include additional policy language in their comprehensive plan addressing the risk of flooding, including flooding from sea level rise; and



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**Resolution**

Tampa Comprehensive Plan Amendment:  
TA/CPA 16-15 Peril of Flood Act Compliance  
January 23, 2017

WHEREAS, the Florida Department of Economic Opportunity's (DEO's) guidance on this new state law includes the need for a local flood vulnerability assessment; and

WHEREAS, in 2015, the Tampa Bay Climate Science Advisory Panel completed their recommended sea level rise projections for use in our area; and

WHEREAS, the completed vulnerability assessment identified property, road segments, and storm water facilities potentially at risk in the future from flooding as consequence of sea level rise; and

WHEREAS, TA/CPA 16-15 proposes to add additional state required policy to the *Imagine 2040: Tampa Comprehensive Plan*, pursuant to the flood vulnerability assessment, regarding the risk of flooding; and

WHEREAS, the adopted goals, objectives, and policies of the *Imagine 2040: Tampa Comprehensive Plan* provide guidance as follows:

**SM Objective 1.2:** *Implement a capital improvement plan to improve flood control and water quality.*

**SM Policy 1.2.2:** *Identify remaining critical storm flooding problems and develop plans for addressing them.*

**CM Policy 1.3.7:** *Develop strategies to identify and address issues related to climate adaptation in cooperation with the EPC, the Planning Commission, and other agencies.*

WHEREAS, Planning Commission staff determined that TA/CPA 16-15 is consistent with the goals, objectives and policies of the *Imagine 2040: Tampa Comprehensive Plan*.

NOW, THEREFORE, BE IT RESOLVED, that the Hillsborough County City-County Planning Commission recommends City of Tampa Comprehensive Plan Amendment 16-15 be found **CONSISTENT** with the *Imagine 2040: Tampa Comprehensive Plan* and forwards this recommendation to the City of Tampa.

## Coastal Management Section Text Amendment Summary Information

| Application Type       | Publicly Initiated  |
|------------------------|---|
| Agency Review Comments | All Agency Comments are provided in Attachment A  |
| Staff Planner          | Shawn College, AICP   |
| Staff Recommendation   | <b>CONSISTENT</b>   |
| Purpose                | The Florida State Legislature passed the Peril of Flood Act in 2015. This legislation placed new requirements for local governments to address flooding, including flooding from sea level rise. These requirements are incorporated in 163.3178(2)(f), Florida Statutes. This plan amendment is proposed to bring the City of Tampa into compliance with this new state law. |

## Proposed Change

**CM Policy 1.3.1:** *Through implementation of all Land Development Regulations, continue to ensure that Aall new buildings or structures shall meet, or exceed, the flood-resistant construction requirements of the Florida Building Code and federal flood plain management regulations including ~~for wind~~, flood proofing and storm surge protection.*

**CM Policy 1.3.8:** *In order to reduce flood risk from, or associated with, high-tide events, storm surge, flash floods, stormwater runoff and the impacts related to sea-level rise, continue to promote the use of the development and redevelopment principles, strategies and engineering solutions contained in the Florida Building Code and the Land Development Regulations.*

**CM Policy 1.3.9:** *Continue to evaluate and implement measures where feasible to flood proof coastal pumping stations and electrical facilities in vulnerable areas.*

**CM Policy 1.3.10:** *Continue to line waste water pipes to mitigate infiltration and inflow, particularly in vulnerable areas.*

**CM Policy 1.3.11:** *Mitigate increased inflow into the storm water system in vulnerable areas by installing flap gates, sleeve valves, and/or duckbill valves as appropriate.*

**CM Policy 1.3.12:** *Continue to evaluate the need for new pumping stations in vulnerable areas.*

**CM Policy 1.3.13:** *Monitor and mitigate increase in chlorides in wastewater effluent consistent with the City's wastewater discharge permit as necessary.*

**CM Policy 1.3.14:** Continue to ensure development and redevelopment utilize the best available data on minimum floor elevation, including FEMA flood zones.

**CM Policy 1.3.15:** Utilize parks for episodic flood water attenuation in vulnerable areas.

**CM Policy 1.3.16:** Plan for the retrofitting and/or relocation of public uses in vulnerable areas.

**CM Policy 1.3.17:** Continue to inventory road segments at risk in vulnerable areas and develop mitigation plans as appropriate.

**CM Policy 1.3.18:** New development, redevelopment, and infrastructure in vulnerable areas shall use best practices to address sea level rise.

**CM Policy 1.3.19:** Maintain and periodically update emergency management plans for critical water and wastewater facilities to address best available data.

## Staff Analysis

The Peril of Flood Act of 2015 created new requirements for local governments to address flooding, including flooding from sea level rise. These requirements are incorporated in section 163.3178(2)(f), Florida Statutes.

The Florida Department of Economic Opportunity requires each local government to complete a vulnerability assessment to determine specifically how they should comply with the new requirements of Florida Statutes. In 2015, the Tampa Bay Climate Science Advisory Panel completed their recommended sea level rise projections for our area. Planning Commission staff, working closely with City of Tampa staff and with the assistance of the Tampa Bay Regional Planning Council, completed a vulnerability assessment for the City of Tampa based on these projections. The horizon for this vulnerability assessment is the year 2040. Some of the more notable findings in the assessment are:

- At least 80% of affected properties are publicly owned;
- Tampa General Hospital and several parks are at risk;
- Critical facilities are not located within at-risk areas; however, the area surrounding the McKay Bay Refuse-To-Energy Facility should be monitored;
- Segments of 31 local roads are at-risk;
- Several stormwater basins and some stormwater facilities are within the at-risk areas.

Pursuant to this vulnerability assessment, Planning Commission staff worked with City of Tampa staff to develop new comprehensive plan policies, informed by the vulnerability assessment, that will bring the City of Tampa into compliance with this new state law. Failure of the City of Tampa to address these requirements could result in the state applying sanctions to the City of Tampa including a prohibition on new plan amendments.

## Recommendation

Staff recommend the Planning Commission issue a resolution recommending to Tampa City Council that TA/CPA 16-15 be found **CONSISTENT** with the Imagine 2040: Tampa Comprehensive Plan and forward this recommendation to the City of Tampa.

# Attachment A

Review Agency Comments



**MEMORANDUM**

To: Shawn College, AICP

From: Amber K. Dickerson, AICP  
Department Manager, Planning & Siting

Date: December 14, 2016

**Re: City of Tampa TA/CPA 16-15: Peril of Flood Act Compliance**

**The District has no comment**

**The District has no objections.**

**The District has no objections, subject to listed or attached conditions**

**The District objects, based on the listed or attached issues.**

The proposed amendment does not appear to have any additional impact on potential school enrollment.



## Shawn College

---

**From:** Tony LaColla  
**Sent:** Wednesday, January 4, 2017 10:02 AM  
**To:** Shawn College  
**Subject:** FW: Agency Comments Attached - CPA 16-12 - 16-15  
**Attachments:** TA CPA 16-12 Combined Planning Comments\_R20 to CC35.docx; TA CPA 16-14 Combined Planning Comments\_LI to CMU35.docx

**Expires:** Tuesday, April 4, 2017 12:00 AM

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**From:** LaChone Dock [mailto:LaChone.Dock@tampagov.net]  
**Sent:** Wednesday, January 4, 2017 9:49 AM  
**To:** Tony LaColla <LaCollaA@plancom.org>  
**Cc:** Tony Garcia <garciat@plancom.org>; Catherine Coyle <Catherine.Coyle@tampagov.net>; David Hey <heyd@plancom.org>; Jennifer Malone <malonej@plancom.org>  
**Subject:** Agency Comments Attached - CPA 16-12 - 16-15

Tony,

Please find attached comments from Planning and Development for CPA 16-12 and 16-14.

CPA 16-15:

Planning and Development has no comment for CPA 16-15.

Transportation has the following comment: This may require additional analysis from the transportation Division on how it impacts future transportation improvement projects.

Wastewater: CM Policy 1.3.10 – The wastewater department will determine the total linear footage of lining of a year by year basis based on current evaluated needs. CM Policy 1.3.13: It is currently department policy to maintain compliance with the City's wastewater discharge permit.

I will send CPA 16-13 comments shortly.

Let me know if you have any questions.

Thanks,

**LaChone Dock**

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# Sea Level Rise Vulnerability Assessment for the City of Tampa



**Hillsborough County  
City-County  
Planning Commission**

In support of compliance with the 2015 Peril of Flood Act (SB 1094)

Fla. Statute 163.3178(2)(f)

## Contents

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## Introduction

The National Oceanic and Atmospheric Administration (NOAA) estimates that sea level rise will impact the Tampa Bay region in the next 25 years. NOAA provides four global mean sea level rise (SLR) scenarios to help gauge potential impacts to an area. The Tampa Bay Climate Science Advisory Panel (CSAP), convened in 2015, studied these scenarios and concluded that the Tampa Bay region might experience sea level rise between 0.5 to 2.5 feet by 2050. Tampa has already experienced an estimated 7 inches of sea level rise over the last 67 years of records, with the highest observed area flood of 4 feet occurring in 1985 (Climate Central 2014)<sup>1</sup>. The purpose of this assessment is to identify how sea-level rise will impact the City of Tampa by utilizing the NOAA projections to pinpoint potential areas at risk, as well as population, facilities, and infrastructure that might be affected by sea level rise.

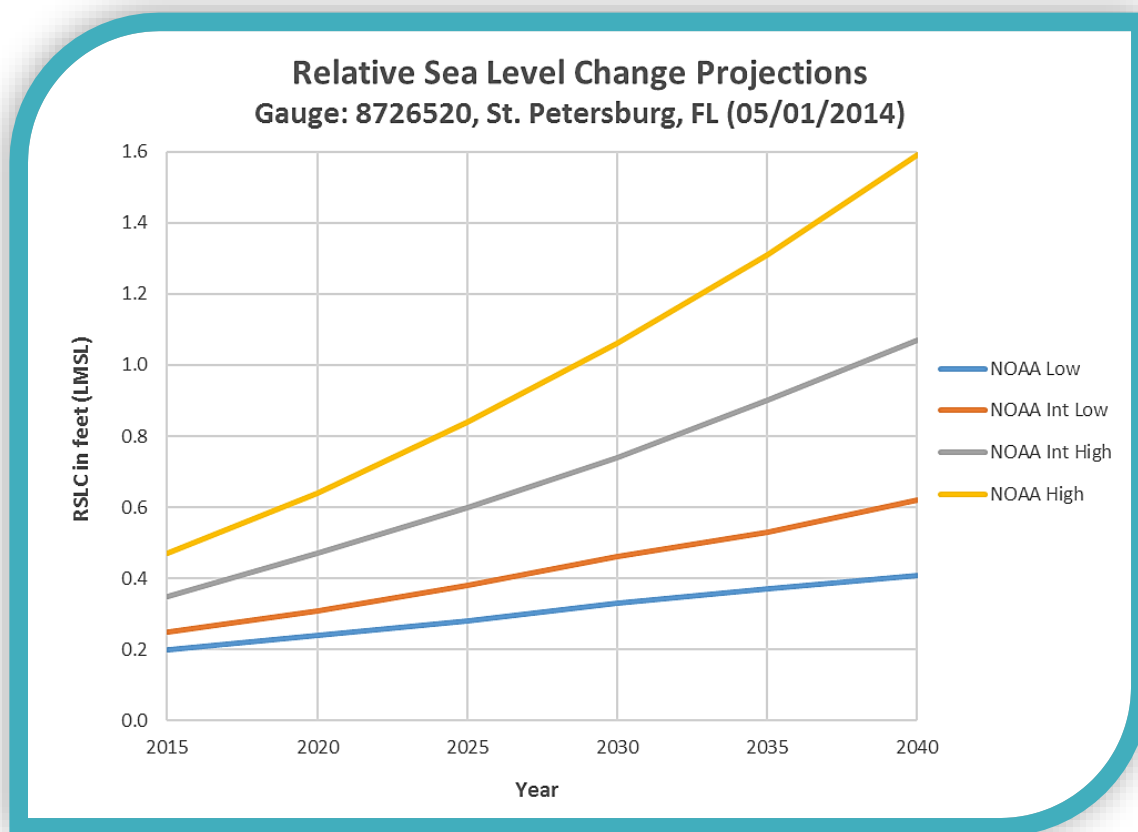


## Methodology

Planning Commission staff, with the help of the Tampa Bay Regional Planning Council (TBRPC) staff, utilized the U.S. Army Corps of Engineers' (USACE) Sea Level Change Curve Calculator, which includes NOAA's projections, to generate sea level change projections at the local level through the year 2040. This year was chosen due to the planning horizon of the *Imagine 2040: Tampa Comprehensive Plan*. Per the CSAP's recommendation, staff used the NOAA curves and the St. Petersburg tidal gauge to adjust the NOAA projections to a local context. The calculator results showed the sea level in the Tampa Bay area is projected to rise an additional 0.4 to 1.6 feet, or 5 to 19 inches, above current levels by the year 2040. This projection is based on NOAA's Regional Rate of 0.00860 feet per year. The calculator uses the start date of 1992 as the baseline for sea level rise as it corresponds to the midpoint of the current National Tidal Datum Epoch of 1983-2001. The regionally adjusted NOAA SLR projections through 2040 can be summarized as follows (all values are expressed in feet relative to Local Mean Sea Level (LMSL)):

| Year | Low  | Intermediate Low | Intermediate High | High |
|------|------|------------------|-------------------|------|
| 1992 | 0.00 | 0.00             | 0.00              | 0.00 |
| 2015 | 0.20 | 0.25             | 0.35              | 0.47 |
| 2020 | 0.24 | 0.31             | 0.47              | 0.64 |
| 2025 | 0.28 | 0.38             | 0.60              | 0.84 |
| 2030 | 0.33 | 0.46             | 0.74              | 1.06 |
| 2035 | 0.37 | 0.53             | 0.90              | 1.31 |
| 2040 | 0.41 | 0.62             | 1.07              | 1.59 |

<sup>1</sup> Coastal Risks for Tampa, FL, Climate Central, 9/14/2016



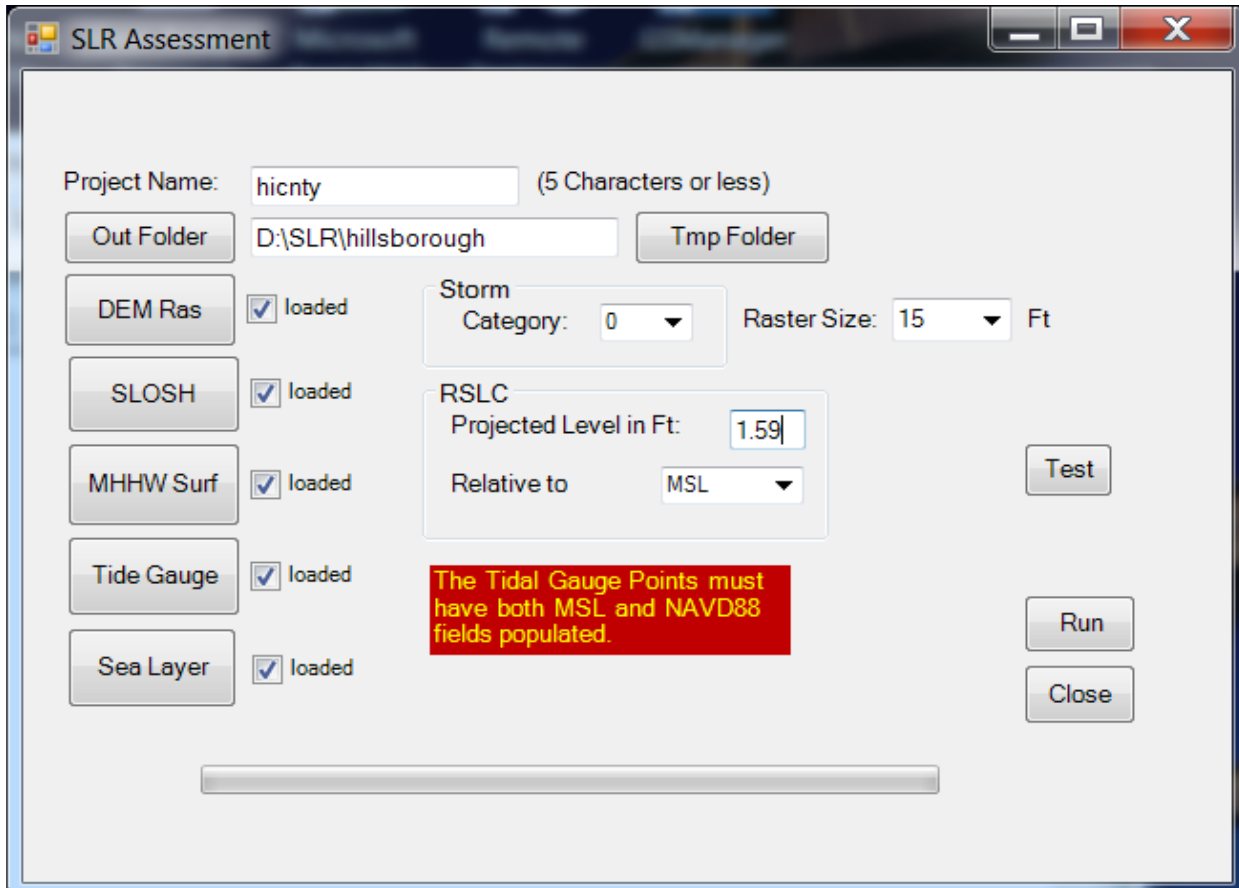
**Figure 1 Relative Sea Level Change Projections**

Source: USACE Sea Level Change Curve Calculator (Version 2015.46)  
<http://www.corpsclimate.us/ccaceslcurves.cfm>

The projections were provided to the TBRPC to use in their scenario modeler to create a model of the sea level rise surface to show inundation.

The TBRPC’s model is built using the same methodology employed in the Statewide Regional Evacuation Studies program. The model uses elevation surface from high-resolution laser-based elevation data, and the Sea, Lake and Overland Surges from Hurricanes (SLOSH) basin layer. The SLOSH layer is used to select the area in question, and in case further analysis with storm surge is needed. It uses Mean Higher High Water (MHHW) from NOAA as a base calculation, as well as local tidal gauges for datum calculations. The NOAA MHHW data uses tidal gauges to determine how the level of the sea is distributed throughout an area. At any given point in time, sea level over a large area is entirely different. These differences are incorporated into this model.

It is important to note that the TBRPC model is not a bathtub model. A bathtub model uses near-flat water surfaces in an area to compare exposure. According to the TBRPC, just applying an elevation value to create additive height to the shoreline would not work as actual storms create uneven flooding in specific areas.



**Figure 2 TBRPC SLR Assessment Tool**

The NOAA projections created by the TBRPC tool were then used by Planning Commission staff to create a series of maps using Esri's ArcMap GIS software. The four NOAA projections were overlaid on the City of Tampa jurisdiction boundary to analyze potential impacts of sea level rise in different areas of the city.

Once the areas of risk were identified, staff examined the Hillsborough County Property Appraiser's parcel data to identify affected properties and the U.S. Census Bureau's block data to determine the population numbers and demographic groups affected. Finally, the City of Tampa's public facilities, roads, and stormwater infrastructure were evaluated.

All analyses exclude the MacDill Air Force Base jurisdictional area; however, the site appears on all maps for clarity as pictured below in Figure 3.

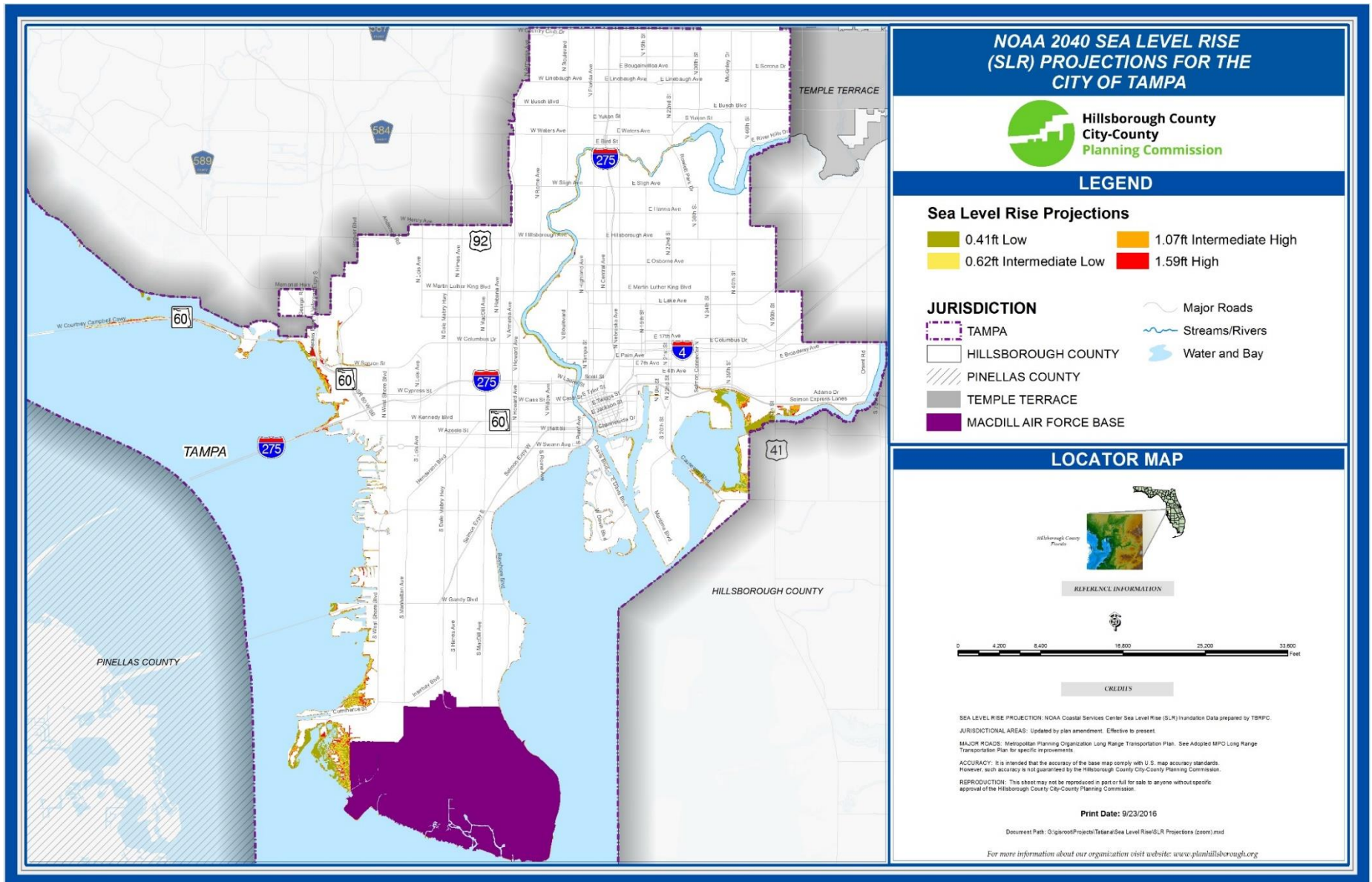


Figure 3 NOAA 2040 Sea Level Rise Projections



## Vulnerability Assessment

Areas designated as 100-year flood zones in the city of Tampa were the first areas to be compared to the SLR projections as SLR may exacerbate existing flood risks. In fact, the SLR projections were found to lie within the AE and VE flood zones. Flood zones classified as AE and VE by the Federal Emergency Management Agency (FEMA) are areas with a 1% chance of flooding in any given year, commonly known as the “100-year flood”. VE zones also experience wind and wave action velocity hazards which can intensify damage caused by flooding. In the map below, the AE and VE flood zones are located along coastal and river floodplain areas and are represented by the green and blue hatch marks respectively.

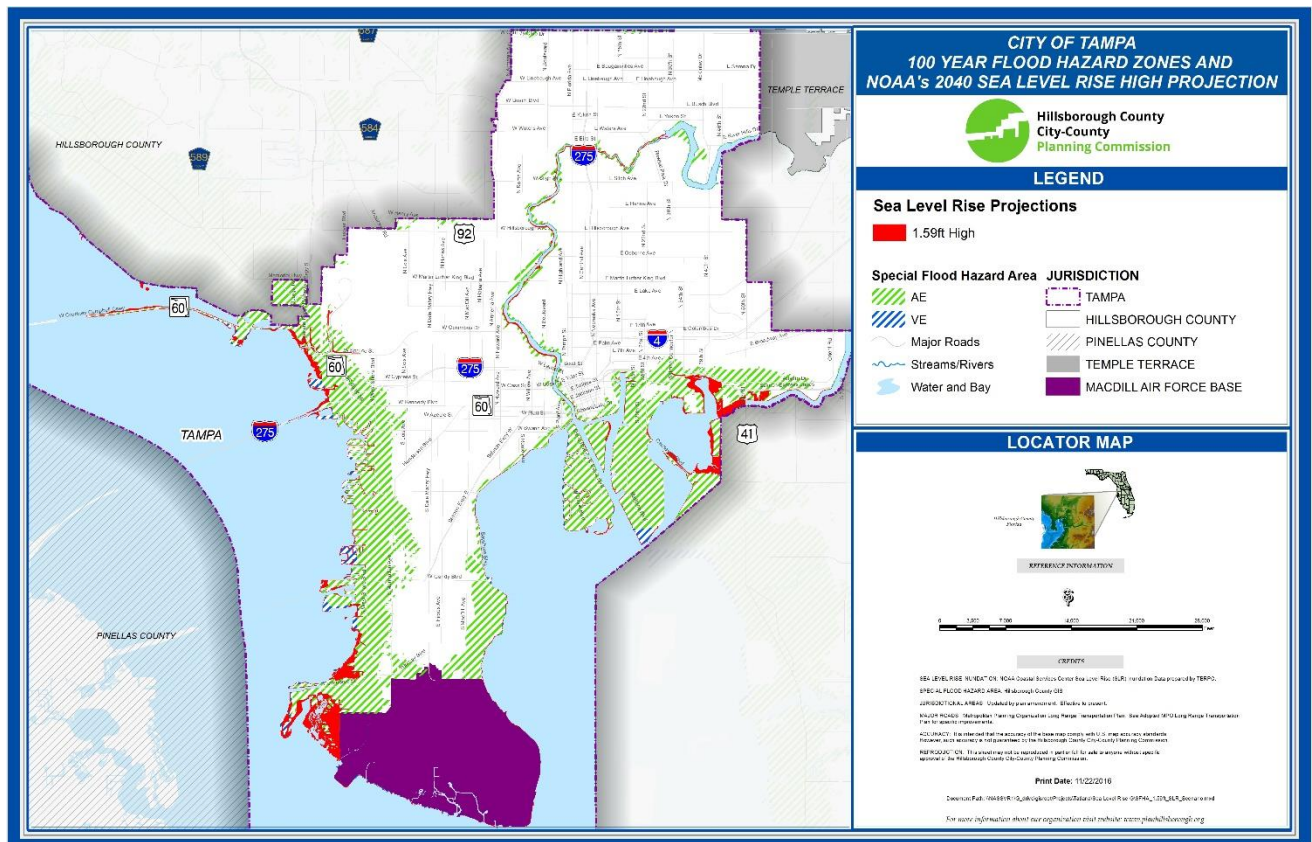
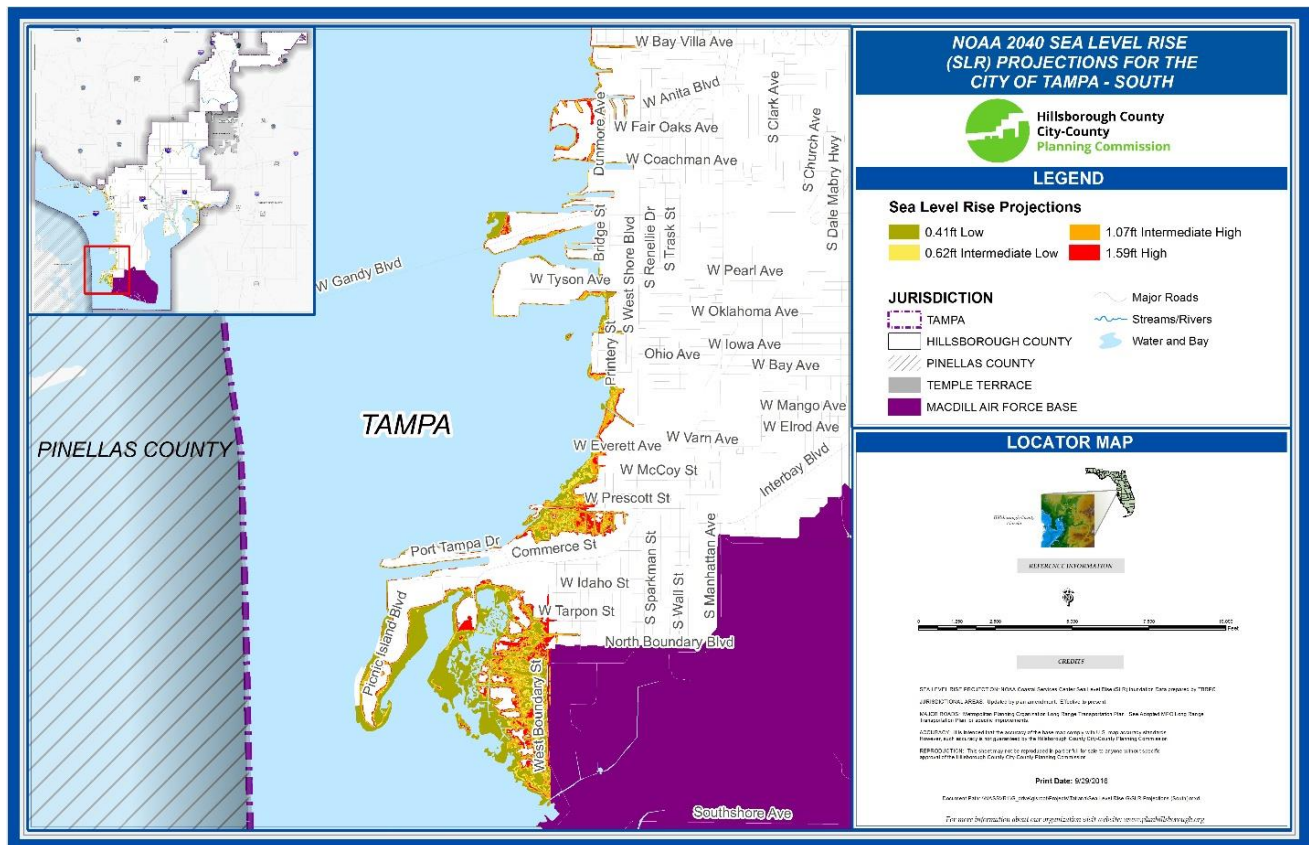


Figure 4 100-Year Flood Hazard Zones (AE & VE) and SLR High Projection Comparison

Tampa’s flood vulnerability, with a focus on SLR, can be seen in three specific areas of the city:

1. Tampa Bay,
2. McKay Bay and the Tampa Bypass Canal, and
3. The Hillsborough River.

Properties fronting these three areas may experience impacts of sea level rise. The following maps focus on these specific areas individually.



**Figure 5 Sea Level Rise Projections - South Tampa**

As shown in the map above, the areas in southwest Tampa near MacDill Air Force Base may be impacted.

Areas fronting Old Tampa Bay in West Tampa may also experience impacts, especially properties at the corner of South Westshore Blvd and Commerce Street; and areas to the north and south of Cypress Point Park near SR 60 (see Figure 6). This includes beaches along the Courtney Campbell Causeway.

Areas to the east of McKay Bay Nature Park following the Palm River and areas south along McKay Bay Trail to Business US41 are also at risk as shown in Figure 7 on the following page.

Certain areas along the Hillsborough River may experience impacts on the east and/or west side of the river, beginning at Channelside and continuing past Rowlett Park Drive to the dam (see Figure 8). The area beyond the dam will not experience any impacts from sea level rise within this assessment's time horizon.

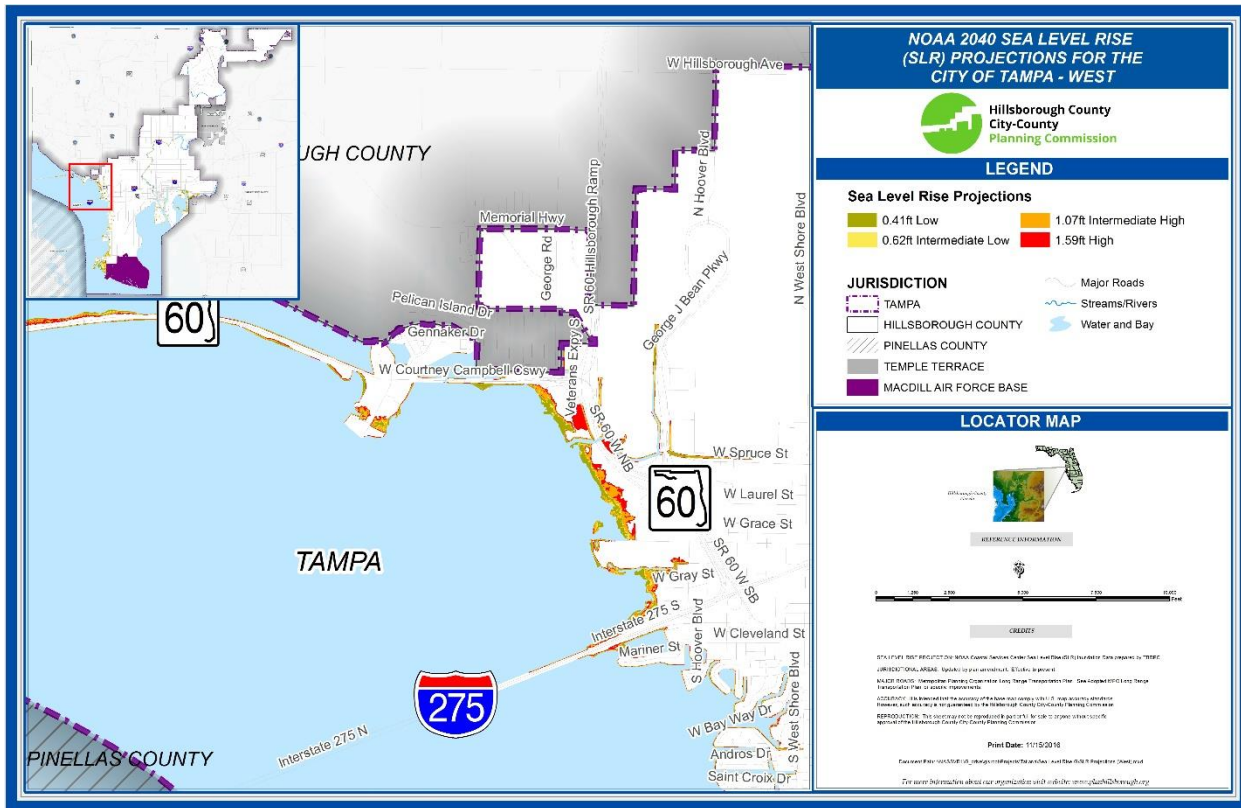


Figure 6 Sea Level Rise Projections - West Tampa

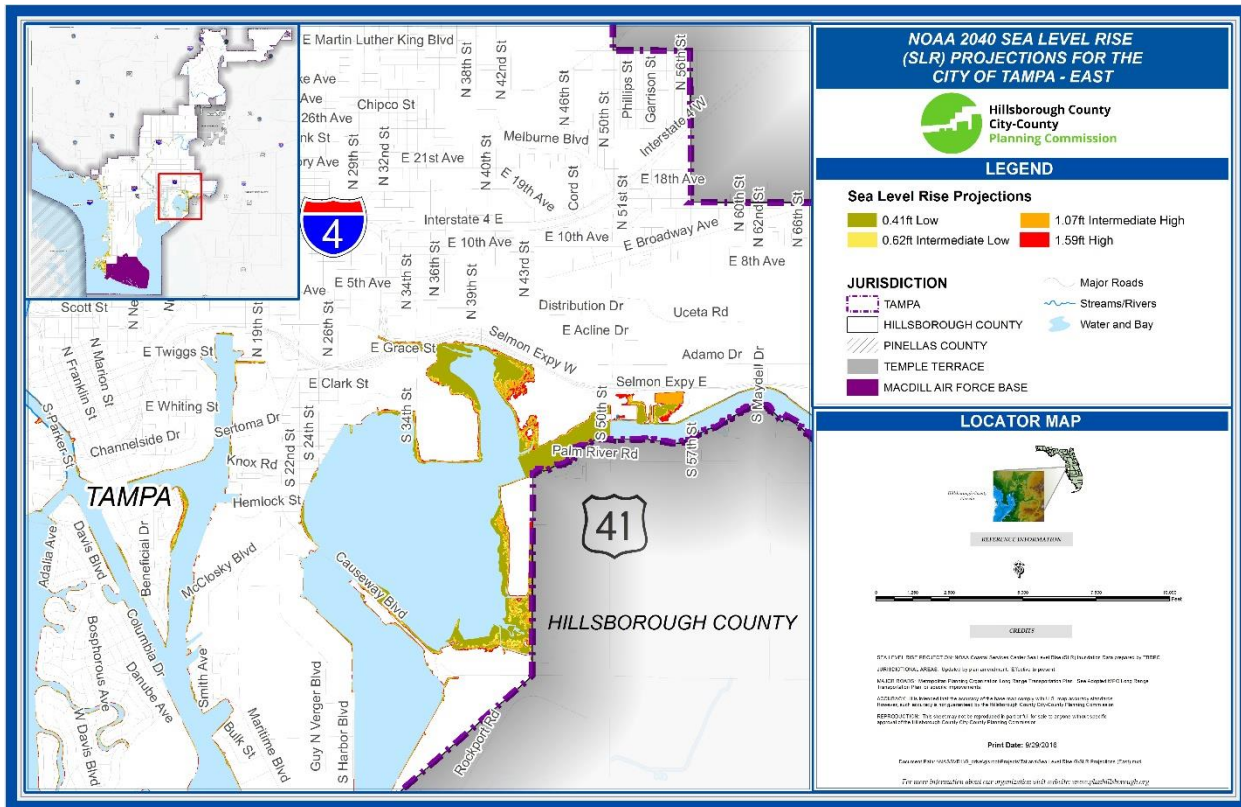


Figure 7 Sea Level Rise Projections - East Tampa

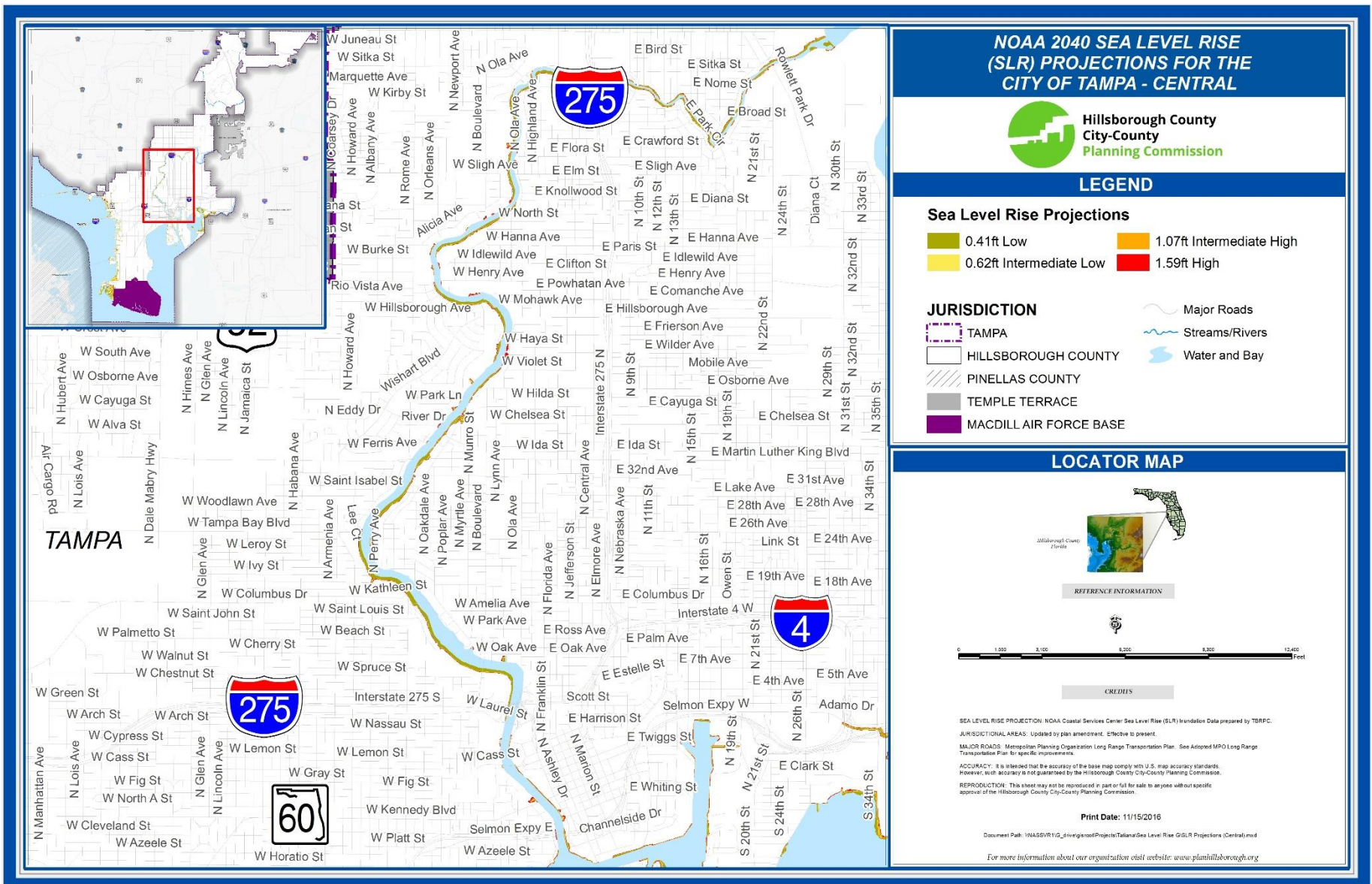


Figure 8 Sea Level Rise Projections – Hillsborough River

## Properties

Planning Commission staff conducted a parcel analysis using the Hillsborough County Property Appraiser's Parcel information to identify the number of properties and the types of uses that could be affected by the four sea level rise scenarios. The Property Appraiser's existing land use (ELU) classifications were summarized into eight ELU categories for this study:

- The Residential category includes single family homes, condominiums, townhouses/villas and apartments.
- The Commercial category includes uses such as office, strip centers, restaurants, hotels, mini warehouses, boat slips, and other light and heavy commercial uses.
- The Industrial category includes light and heavy manufacturing uses. These are located primarily along Commerce Street, West Tyson Avenue, and the Port area.
- The Public/Institutional category includes all federal, state, municipal, aviation and port authority properties.
- The Public Utility category includes marinas, utilities, and wetlands/lowlands.
- The Right-of-Way category includes parcels belonging to CSX.
- The Schools category includes public and private schools.
- The Vacant category includes undeveloped residential, commercial, and industrial parcels.

Staff also calculated the taxable valuation of these parcels, the total amount of affected acreage and the percentage of the acreage affected. Below are the summary tables of the parcel analysis undertaken for properties located within each sea level rise scenario for the 2040 planning horizon.

### 0.41ft Low – Impact of 4 to 5-inch rise in sea level

| Existing Land Use    | Number of Parcels | Taxable Valuation          | Parcels Acreage  | Affected Acreage | Percent Affected |
|----------------------|-------------------|----------------------------|------------------|------------------|------------------|
| Residential          | 864               | \$ 928,174,865.00          | 688.79           | 20.07            | 4.64%            |
| Commercial           | 49                | \$ 284,242,697.00          | 253.32           | 13.27            | 3.07%            |
| Industrial           | 27                | \$ 106,310,291.00          | 442.56           | 4.09             | 0.95%            |
| Public Institutional | 166               | \$ 54,404,030.00           | 10,470.57        | 351.27           | 81.24%           |
| Public Utilities     | 16                | \$ 12,042,990.00           | 230.20           | 8.90             | 2.06%            |
| Right-of-Way         | 6                 | \$ -                       | 127.00           | 0.97             | 0.22%            |
| Schools              | 4                 | \$ -                       | 133.76           | 1.71             | 0.40%            |
| Vacant               | 118               | \$ 78,057,531.00           | 476.60           | 32.12            | 7.43%            |
| <b>TOTAL</b>         | <b>1,250</b>      | <b>\$ 1,463,232,404.00</b> | <b>12,822.80</b> | <b>432.40</b>    | <b>100.00%</b>   |

Although the vast majority of parcels affected by the Low scenario are in the residential category, the actual acreage affected shows properties in the Public Institutional category experiencing 81% of the impact from a sea level rise scenario of 0.41 feet, or an estimated 5 inches, when compared to the other categories. Following that category is the Vacant category with 7.43% of the acreage affected, and Residential properties comprise only 4.64% of affected properties. Properties in the Schools and Right-of-Way categories, such as Stewart Middle School and CSX properties respectively, show minimal impacts. The Public Utility Category includes 5.38 acres of impacted wetlands. Although wetlands were present on other parcels, that level of analysis was not examined as part of this study.

### 0.62ft Intermediate Low – Impact of 7-inch rise in sea level

| Existing Land Use    | Number of Parcels | Taxable Valuation          | Parcels Acreage  | Affected Acreage | Percent Affected |
|----------------------|-------------------|----------------------------|------------------|------------------|------------------|
| Residential          | 900               | \$ 953,775,734.00          | 681.12           | 24.05            | 4.68%            |
| Commercial           | 53                | \$ 319,977,207.00          | 275.29           | 15.39            | 3.00%            |
| Industrial           | 27                | \$ 106,310,291.00          | 442.56           | 5.18             | 1.01%            |
| Public Institutional | 163               | \$ 57,559,189.00           | 10,452.65        | 417.13           | 81.22%           |
| Public Utilities     | 15                | \$ 12,039,239.00           | 230.15           | 10.55            | 2.05%            |
| Right-of-Way         | 6                 | \$ -                       | 127.00           | 1.13             | 0.22%            |
| Schools              | 4                 | \$ -                       | 133.76           | 1.71             | 0.33%            |
| Vacant               | 128               | \$ 86,246,637.00           | 480.97           | 38.41            | 7.48%            |
| <b>TOTAL</b>         | <b>1,296</b>      | <b>\$ 1,535,908,297.00</b> | <b>12,823.50</b> | <b>513.55</b>    | <b>100.00%</b>   |

In the second scenario, the trend continues with the Public Institutional category experiencing the majority of the impacts from a 7-inch rise in sea level, once again followed by the Vacant and the Residential category. The Public Utility Category includes 6.41 acres of impacted wetlands.

### 1.07ft Intermediate High – Impact of 12 to 13-inch rise in sea level

| Existing Land Use    | Number of Parcels | Taxable Valuation          | Parcels Acreage  | Affected Acreage | Percent Affected |
|----------------------|-------------------|----------------------------|------------------|------------------|------------------|
| Residential          | 968               | \$ 1,040,301,927.00        | 737.33           | 35.74            | 5.40%            |
| Commercial           | 56                | \$ 372,439,225.00          | 291.16           | 19.83            | 3.00%            |
| Industrial           | 27                | \$ 106,310,291.00          | 442.56           | 7.14             | 1.08%            |
| Public Institutional | 173               | \$ 57,559,189.00           | 10,478.13        | 531.81           | 80.42%           |
| Public Utilities     | 15                | \$ 12,039,239.00           | 230.15           | 14.55            | 2.20%            |
| Right-of-Way         | 6                 | \$ -                       | 127.00           | 1.33             | 0.20%            |
| Schools              | 4                 | \$ -                       | 133.76           | 1.90             | 0.29%            |
| Vacant               | 137               | \$ 87,633,722.00           | 495.59           | 48.99            | 7.41%            |
| <b>TOTAL</b>         | <b>1,386</b>      | <b>\$ 1,676,283,593.00</b> | <b>12,935.68</b> | <b>661.29</b>    | <b>100.00%</b>   |

In the third scenario, the Residential category's affected acreage increases faster than the Public Institutional and Vacant categories. However, the primarily impacted land continues to be properties within the Public Institutional and Vacant categories. The Public Utility Category includes 9.14 acres of impacted wetlands.

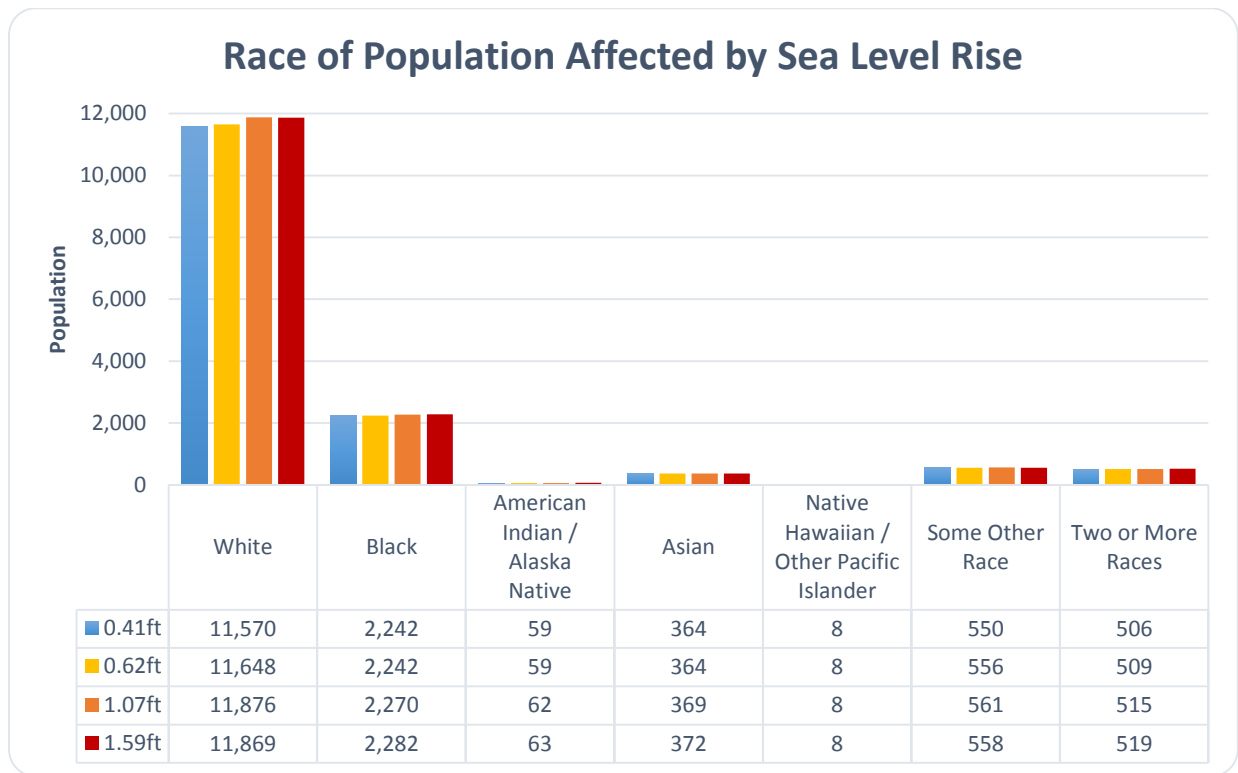
### 1.59ft High – Impact of 19-inch rise in sea level

| Existing Land Use    | Number of Parcels | Taxable Valuation          | Parcels Acreage  | Affected Acreage | Percent Affected |
|----------------------|-------------------|----------------------------|------------------|------------------|------------------|
| Residential          | 1057              | \$ 1,159,291,000.00        | 790.76           | 44.67            | 5.75%            |
| Commercial           | 60                | \$ 375,356,663.00          | 296.68           | 25.91            | 3.33%            |
| Industrial           | 28                | \$ 106,677,278.00          | 444.45           | 12.47            | 1.60%            |
| Public Institutional | 180               | \$ 54,661,901.00           | 10,507.59        | 613.06           | 78.85%           |
| Public Utilities     | 16                | \$ 12,042,990.00           | 230.20           | 17.48            | 2.25%            |
| Right-of-Way         | 6                 | \$ -                       | 127.00           | 1.51             | 0.19%            |
| Schools              | 4                 | \$ -                       | 133.76           | 2.14             | 0.28%            |
| Vacant               | 135               | \$ 89,258,308.00           | 486.70           | 60.28            | 7.75%            |
| <b>TOTAL</b>         | <b>1,486</b>      | <b>\$ 1,797,288,140.00</b> | <b>13,017.14</b> | <b>777.52</b>    | <b>100.00%</b>   |

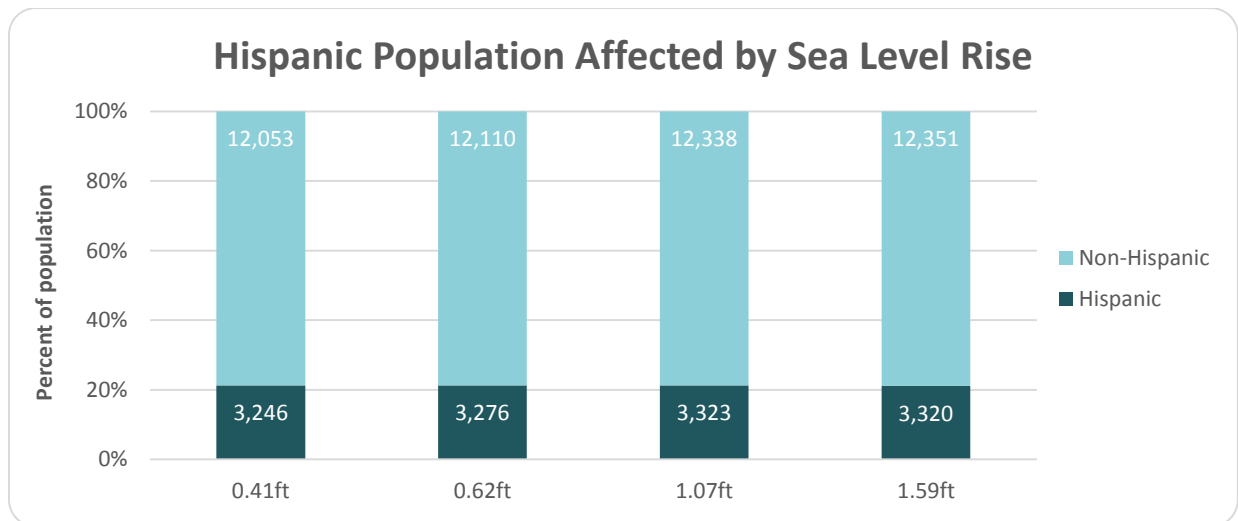
In the last scenario, a 19-inch rise in sea level continues to affect properties primarily in the Public Institutional and Vacant categories. The Public Utility Category includes 10.86 acres of impacted wetlands.

## Population

Based on Tampa's 2010 census blocks population count, an estimated 15,300-15,700 people live in one of the 118 census blocks that may be potentially affected by one, if not all, the sea level rise scenarios. This population range accounted for 4.68% of the total city of Tampa population of 335,709 as of the last decennial census in 2010. A demographic breakdown of the census blocks reveals that over 75% of the at-risk population is white, and over 14% is black. Additionally, 21% of the affected population within the at-risk census blocks is of Hispanic descent.



Source: U.S. Census Bureau; Census 2010, Summary File 1

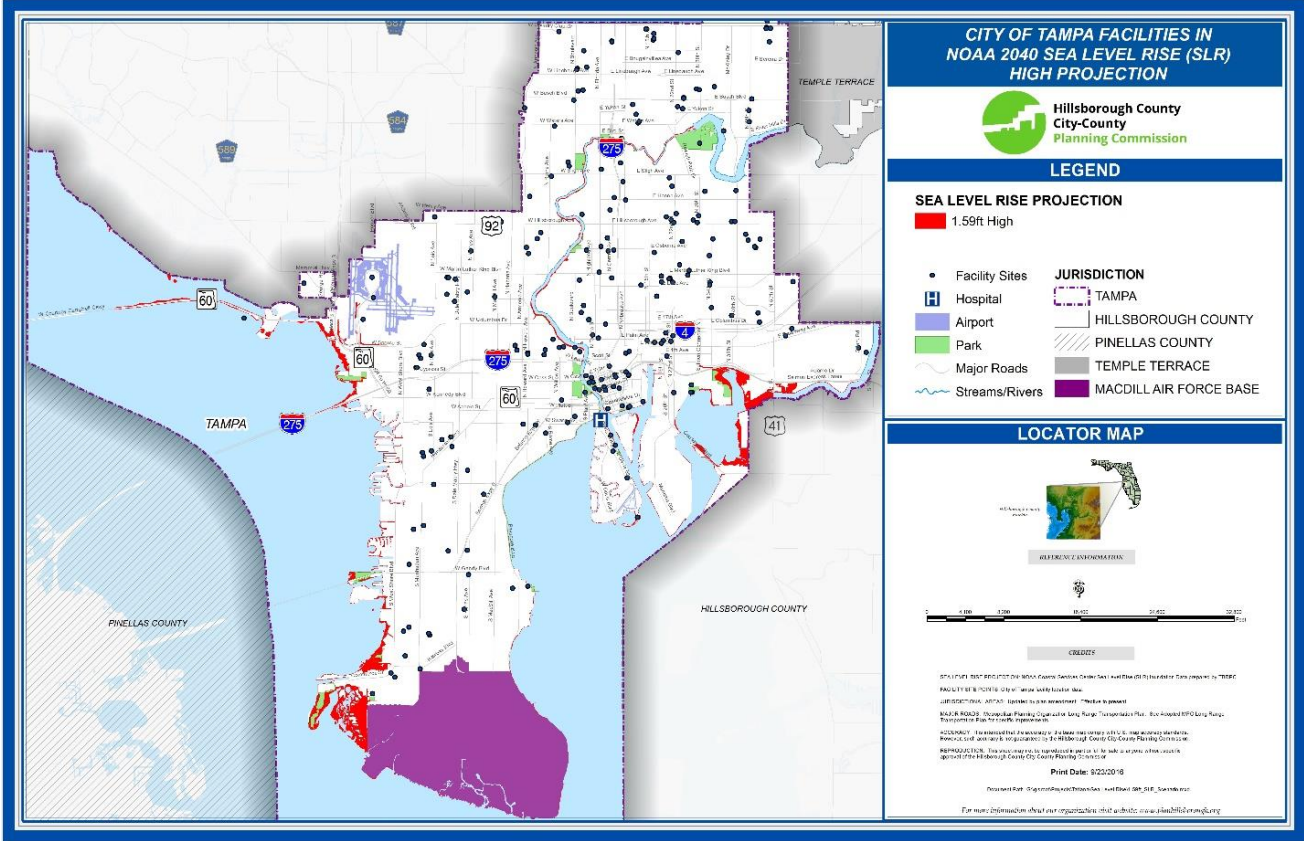


Source: U.S. Census Bureau; Census 2010, Summary File 1

**Facilities**

Per the City of Tampa’s public and private facility location data, it was determined that none of the city’s facilities lie within the boundaries of the NOAA sea level rise projections. The facility data points shown in the map below include municipal, county, federal and privately-owned sites. The facility types include public schools and universities, libraries, fire stations, post offices, museums, golf courses, law enforcement stations, correctional facilities, and judicial centers to name a few.

Public utilities are not included in this data segment; however, they are evaluated in the infrastructure section of this assessment. Facilities such as hospitals and parks are displayed separately from the facility sites on the map below.



**Figure 9 City of Tampa Facility Sites Affected by SLR High Projection**

The data shows that Tampa General Hospital, and parks near water bodies, may be affected by a maximum sea level rise increase of 1.59ft. Below is a list of the city’s 30 at-risk parks:



- Al Palonis Park
- Alan Wright Park
- Ballast Point Park
- Cotanchobee Fort Brooke Park
- Curtis Hixon Waterfront Park
- Cypress Point Park
- Davis Islands Park
- Desoto Park
- Epps Park
- Gandy Park South
- Ignacio Haya Linear Park
- Julian B Lane Riverfront Park
- Lowry Park
- MacDill Park on the Riverwalk
- McKay Bay Nature Park
- Bayshore Boulevard Linear Park
- Blackwater Hammock Park
- Columbus Statue Park
- Patterson Street Park
- Picnic Island Park
- Plant Park
- River Cove Park
- River Tower Park
- Rivercrest Park
- Riverside Garden Park
- Southwest Port Tampa Park
- Sulphur Springs Park
- Tappan Tract Park
- Tony Jannus Park
- USF Park



Figure 10 Curtis Hixon Waterfront Park

## Infrastructure

There are also impacts to particular types of infrastructure, such as roads and utilities.

### Roads

Portions of 83 different roadways (segments) may potentially be impacted by a high sea level rise of 1.59ft. Of those roads, 31 are classified as local roads:

- Airport Access
- Bayport Drive
- Bowen Daniel Drive
- Campbell Causeway Access Rd N
- Campbell Causeway Access Rd S
- Culbreath Key Way

- E Washington Street
- N 34th Street
- N Riverdale Ave
- N Taliaferro Ave
- Riviera Drive
- S Bayside Drive
- S Sherrill Street
- Severn Ave
- W Everett Ave
- W Juno Street
- W Prescott Street
- W Shell Point Rd
- W Thomas Street
- W Whiting Street
- West Boundary Street
- Woodmere Rd
- Yeats Manor Drive

### Utilities

#### Critical Facilities

The David L. Tippin Water Treatment Facility and the Howard F. Curren Advanced Wastewater Treatment Plant will not be impacted by NOAA's sea level rise projections. Although the McKay Bay Refuse-To-Energy Facility will not be directly impacted by sea level rise, the McKay Bay Preserve adjacent to the facility is located within an at-risk area. The McKay Bay facility may need to be reevaluated in the future for potential impacts beyond the time horizon of 2040.

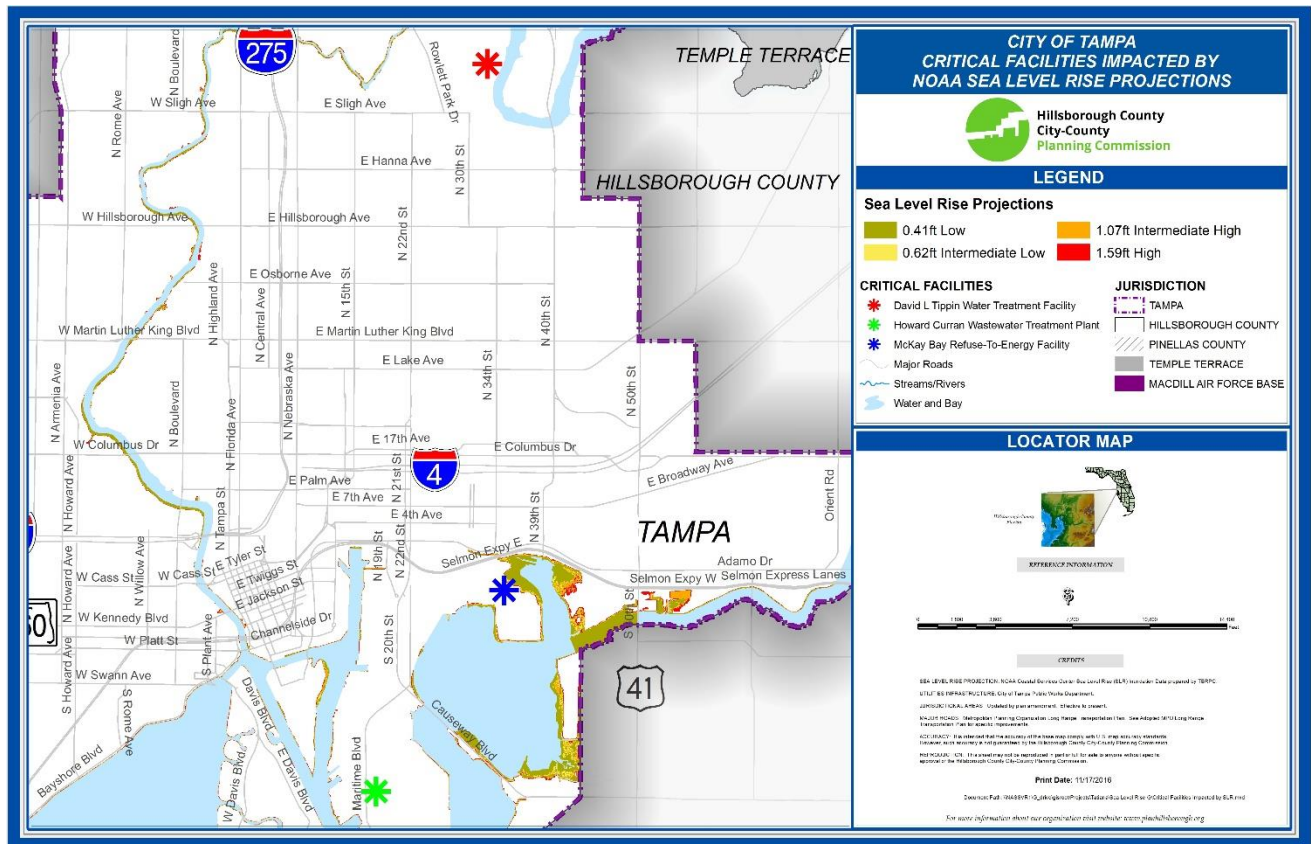


Figure 11 Critical Facilities Impacted by SLR Projections

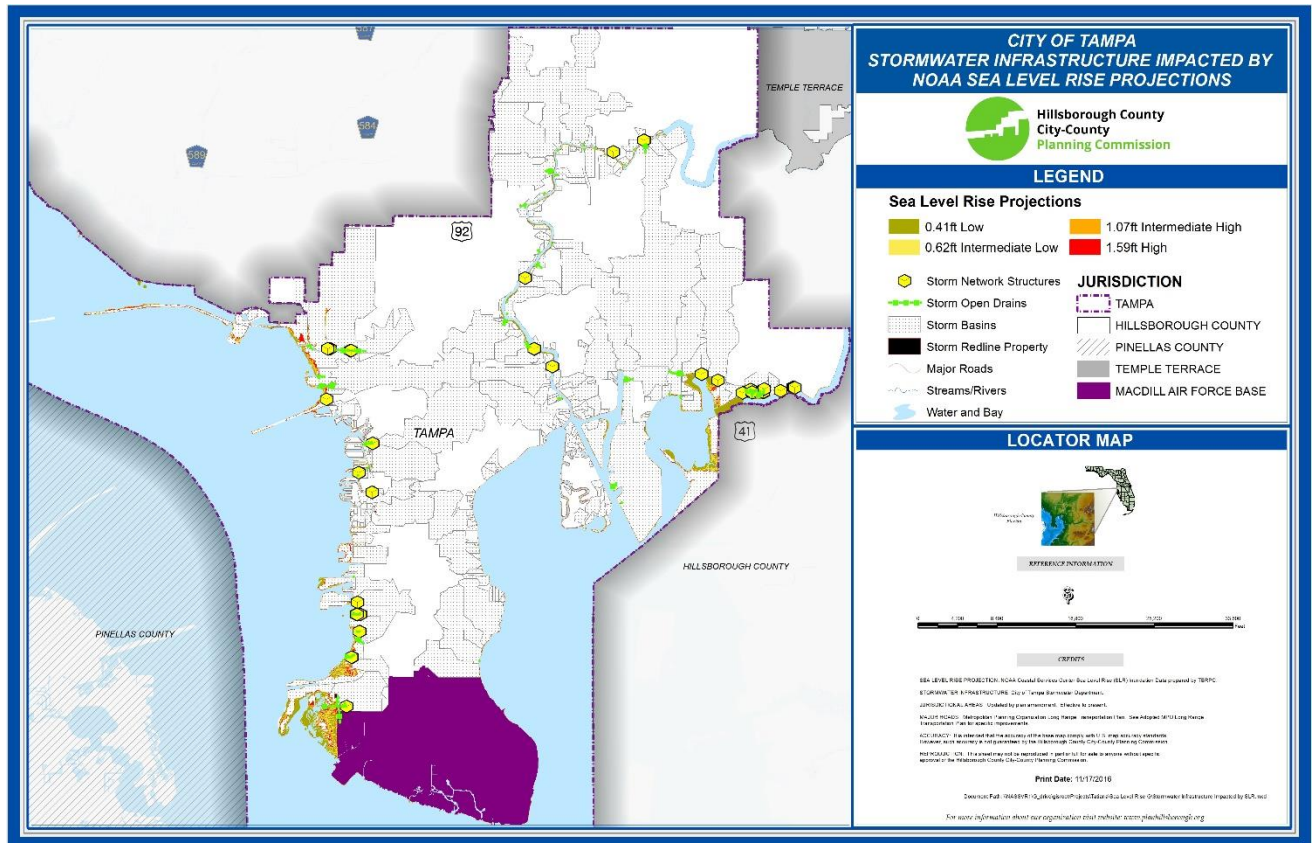


Figure 12 Stormwater Infrastructure Impacted by SLR

The map above shows potential impacts of sea level rise to stormwater infrastructure in the City of Tampa. This includes:

### Basins

The potential impacts to the at-risk storm basins are largely expected to be along the coastal bay and riverbank areas of the basins, rather than affecting the entirety of each basin. None of the following counts include the MacDill Air Force Base basin due to the jurisdictional boundary overlap with the City of Tampa:

- 287 basins (Low)
- 278 basins (Intermediate Low)
- 289 basins (Intermediate High)
- 310 basins (High)

### Culverts

25 culverts are located within the SLR scenario boundaries.

### Network Structures

21 to 29 of the Headwall and Mitered End type network structures off Old Tampa Bay, McKay Bay, the Tampa Bypass Canal, and along the Hillsborough River are at-risk.

### *Open Drains*

80 drains are located within the SLR scenarios. The drainage ditch on the corner of Adamo Drive and N 34<sup>th</sup> Street, Bayport Drive may experience minimal impact but is worth monitoring.

### *Redline Properties*

According to a list of parcels flagged for drainage issues by the City of Tampa Stormwater Department, four redline properties that are prone to flooding lie within the SLR scenarios near MacDill Air Force Base.

## **Conclusion**

The analysis identified and focused on three areas that may be impacted by the NOAA 2040 sea level rise projections: Old Tampa Bay near Tampa International Airport, the Tampa Bay area west of MacDill Air Force Base, and McKay Bay and the Tampa Bypass Canal. Properties along the Hillsborough River may also see a distributed rise in water level. Some of the most notable findings in the analysis are:

- At least 80% of affected properties are publicly owned;
- Tampa General Hospital and a number of parks are at risk;
- Critical facilities are not located within at-risk areas; however, the area surrounding the McKay Bay Refuse-To-Energy Facility should be monitored;
- Segments of 31 local roads are at-risk;
- Several stormwater basins and some stormwater facilities are within the at-risk areas.