

SEA LEVEL RISE IN TAMPA

fccd+r
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sacd
usf school of architecture
+ community design

USF UNIVERSITY OF
SOUTH FLORIDA

THE FLORIDA CENTER FOR COMMUNITY DESIGN + RESEARCH

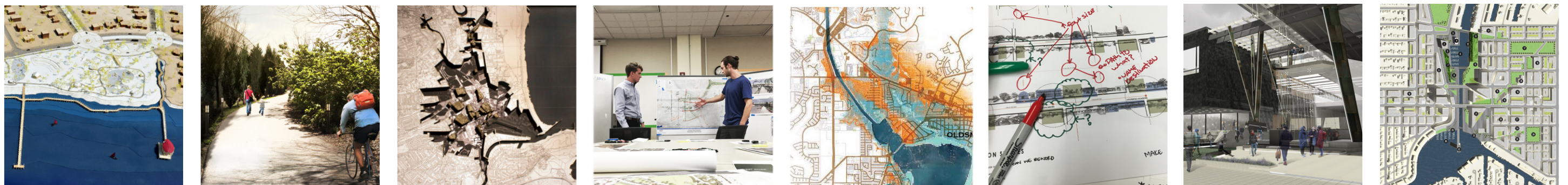
The Florida Center's mission is to assist the citizens of Florida in the creation of more livable and sustainable communities.

History

The Florida Center has worked with over 100 communities on more than 150 projects.

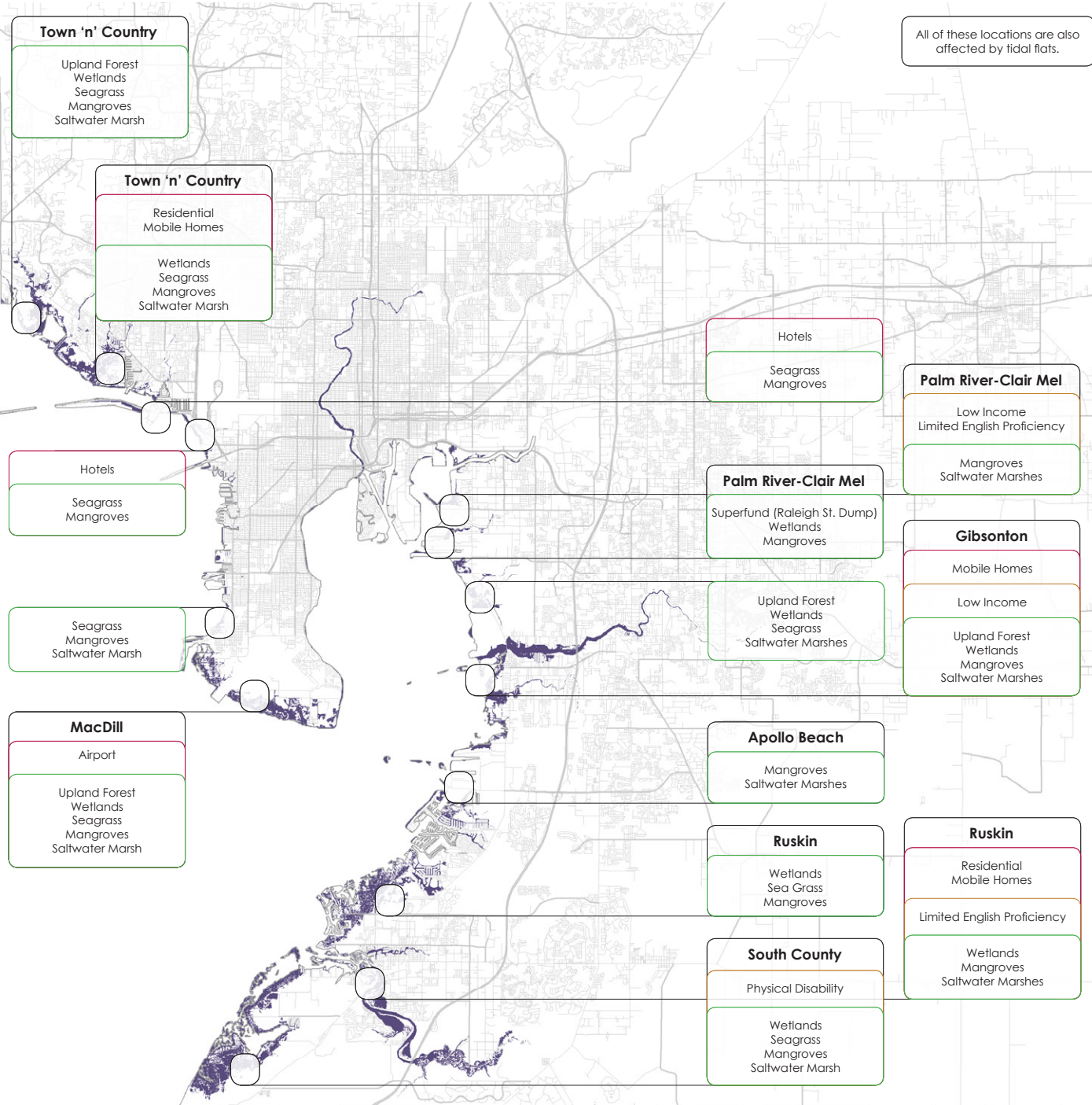
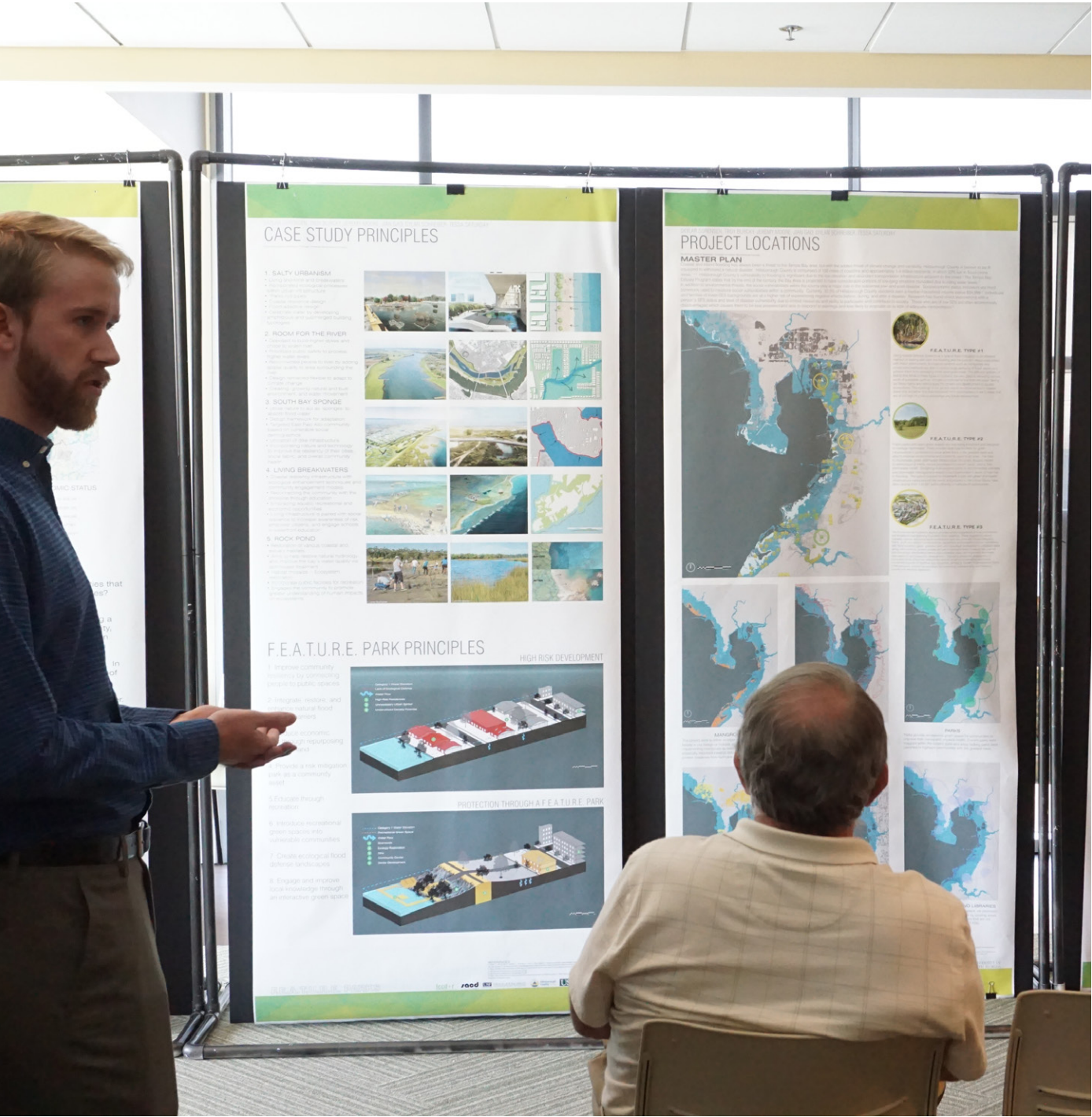


Brian Cook, MLA, PLA
Assist. Research Professor



BACKGROUND

THE HILLSBOROUGH COUNTY COMMUNITY VULNERABILITY STUDY (2020)



DRAWING BY THE FLORIDA CENTER FOR COMMUNITY DESIGN AND RESEARCH (2020)

BACKGROUND

THE HILLSBOROUGH COUNTY COMMUNITY VULNERABILITY STUDY (2020)

THE COST OF DOING NOTHING: ECONOMIC IMPACTS OF SEA LEVEL RISE IN THE TAMPA BAY REGION (2017)

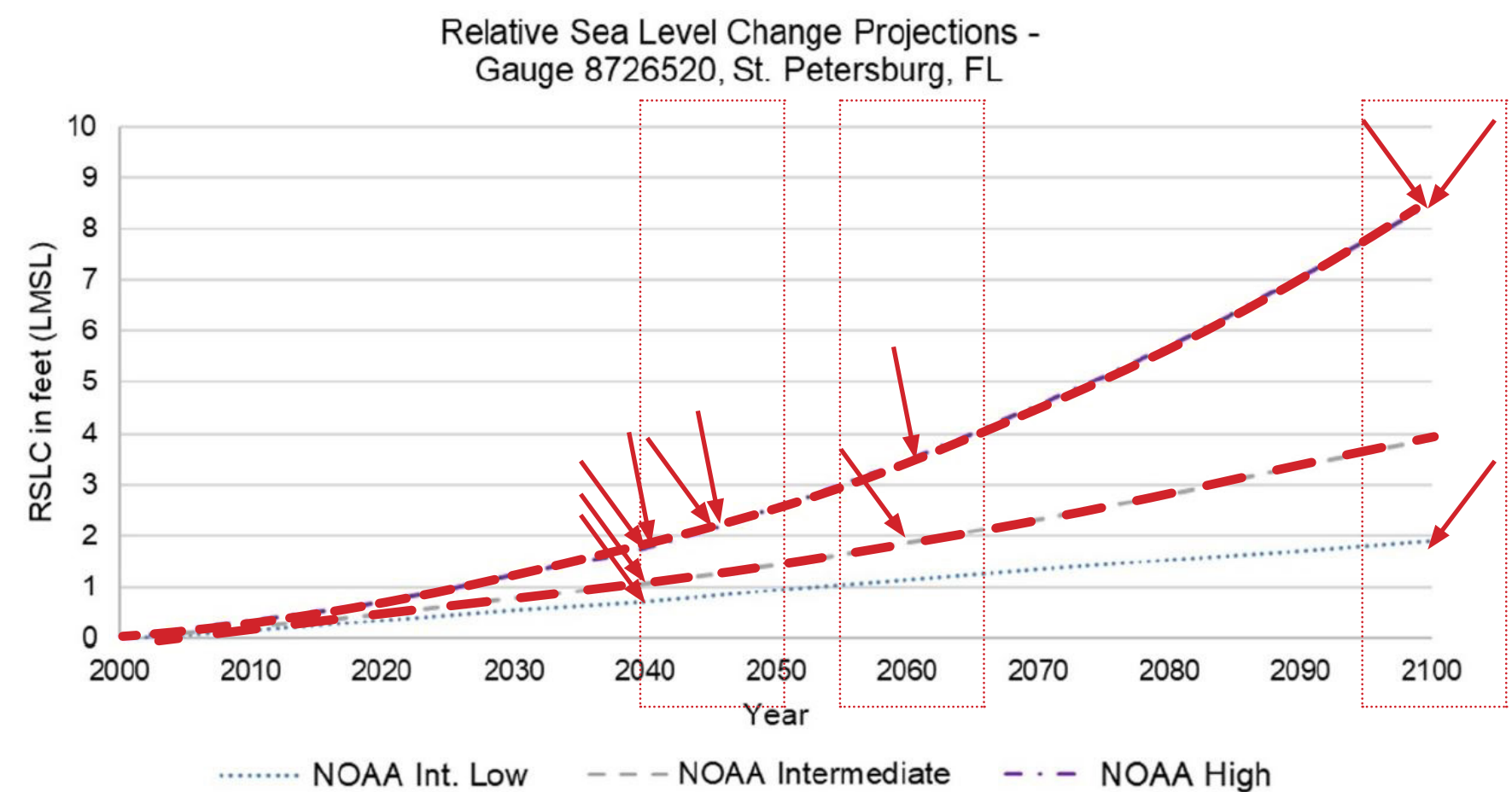
SEA LEVEL RISE VULNERABILITY ASSESSMENT FOR THE CITY OF TAMPA (2017)

TAMPA BAY ESTUARY PROGRAM BLUE CARBON REPORT (2016)

HILLSBOROUGH MPO TRANSPORTATION VULNERABILITY ASSESSMENT PILOT PROJECT (2014)

SEA LEVEL RISE IN THE TAMPA BAY REGION (2006)

BACKGROUND



2045

Year	NOAA Int-Low (feet)	NOAA Intermediate (feet)	NOAA High (feet)
2000 ³	0	0	0
2030	0.56	0.79	1.25
2040	0.72	1.08	1.77
2050	0.95	1.44	2.56
2060	1.15	1.87	3.48
2070	1.35	2.33	4.56
2080	1.54	2.82	5.71
2090	1.71	3.38	7.05
2100	1.90	3.90	8.50

Figure 3. Graphic Relative Sea Level Change (RSLC) Scenarios for St. Petersburg, Florida, as calculated using the regionally corrected NOAA 2017 curves. (USACE 2019)

BACKGROUND

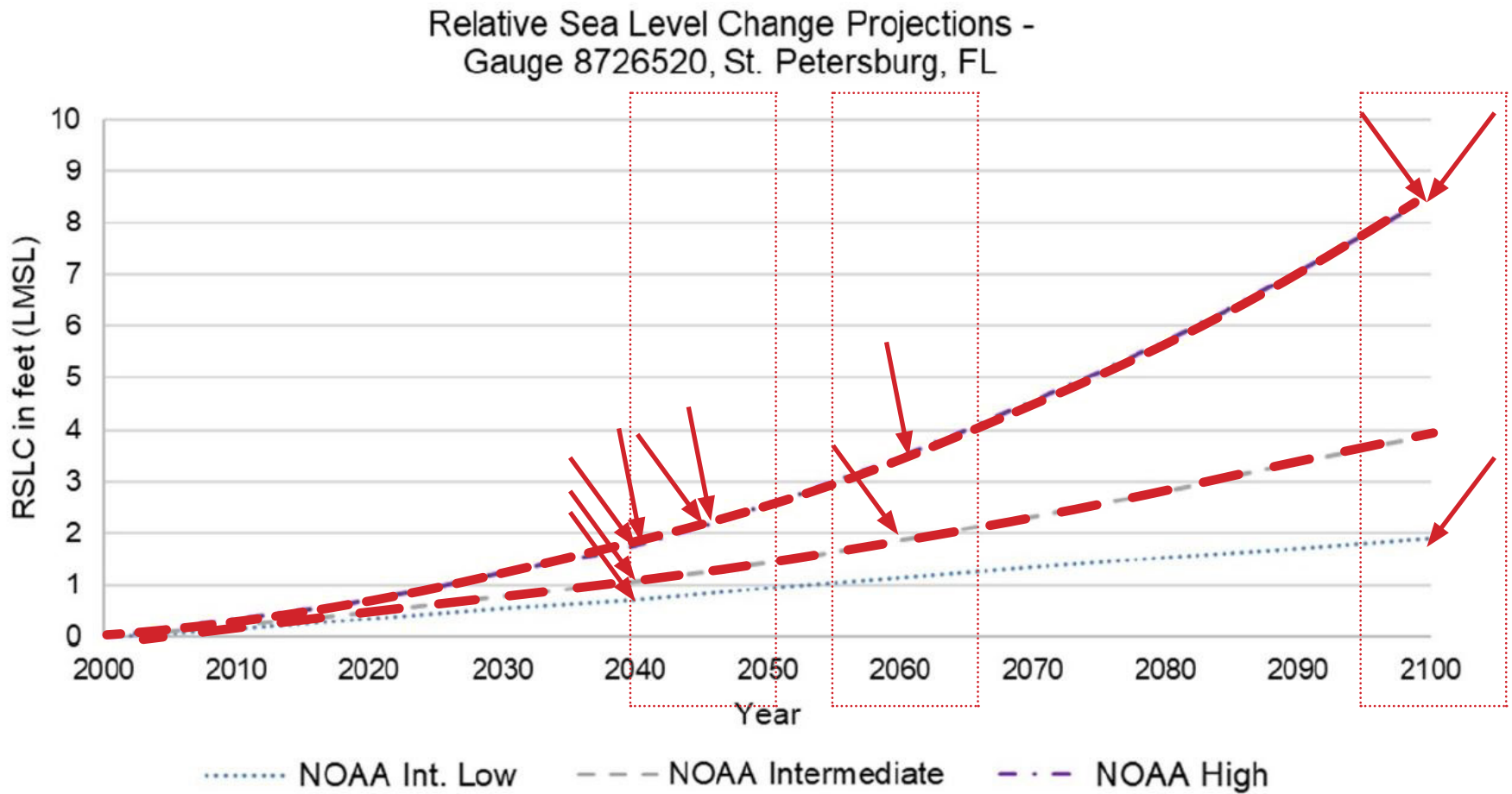


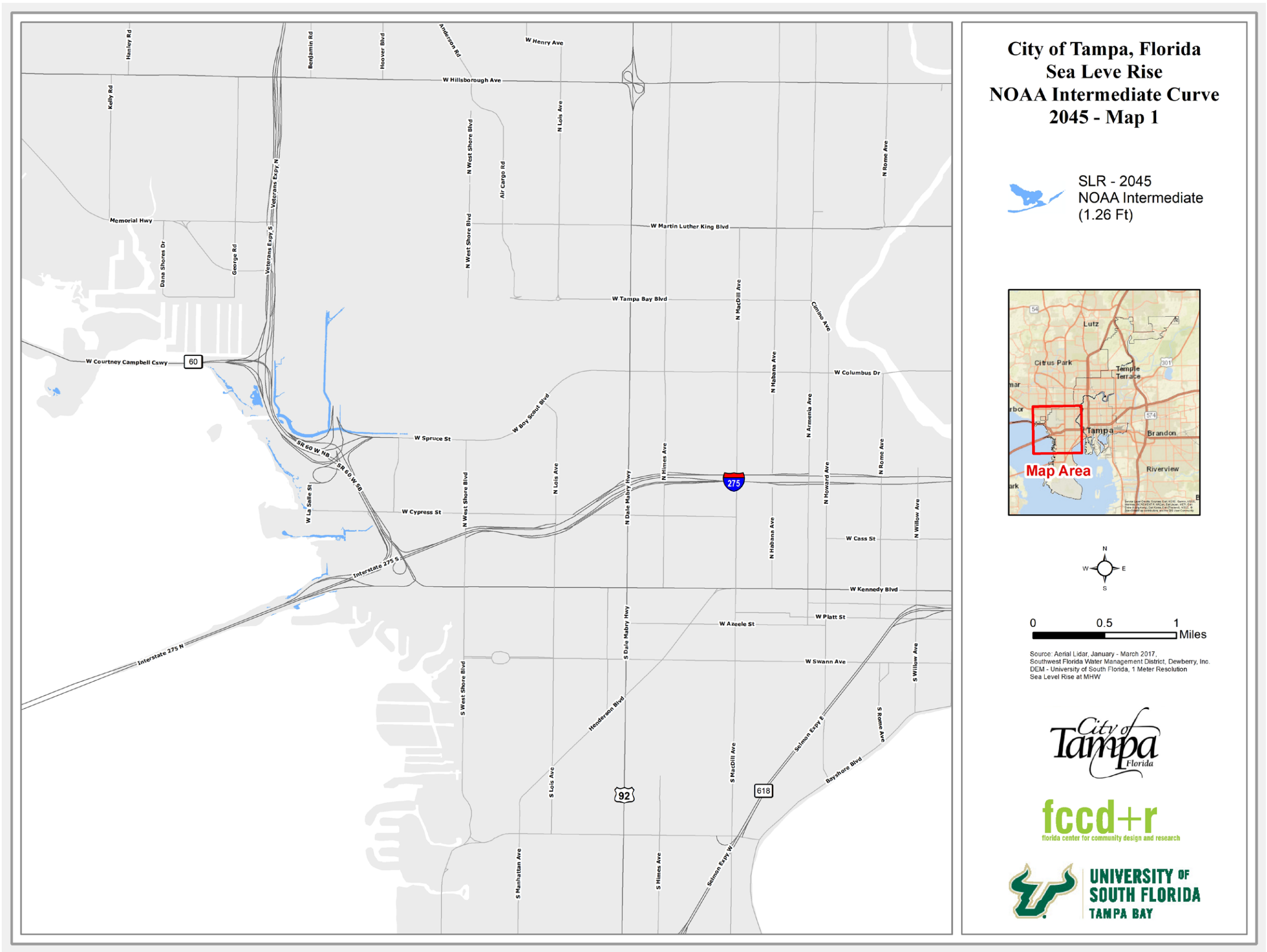
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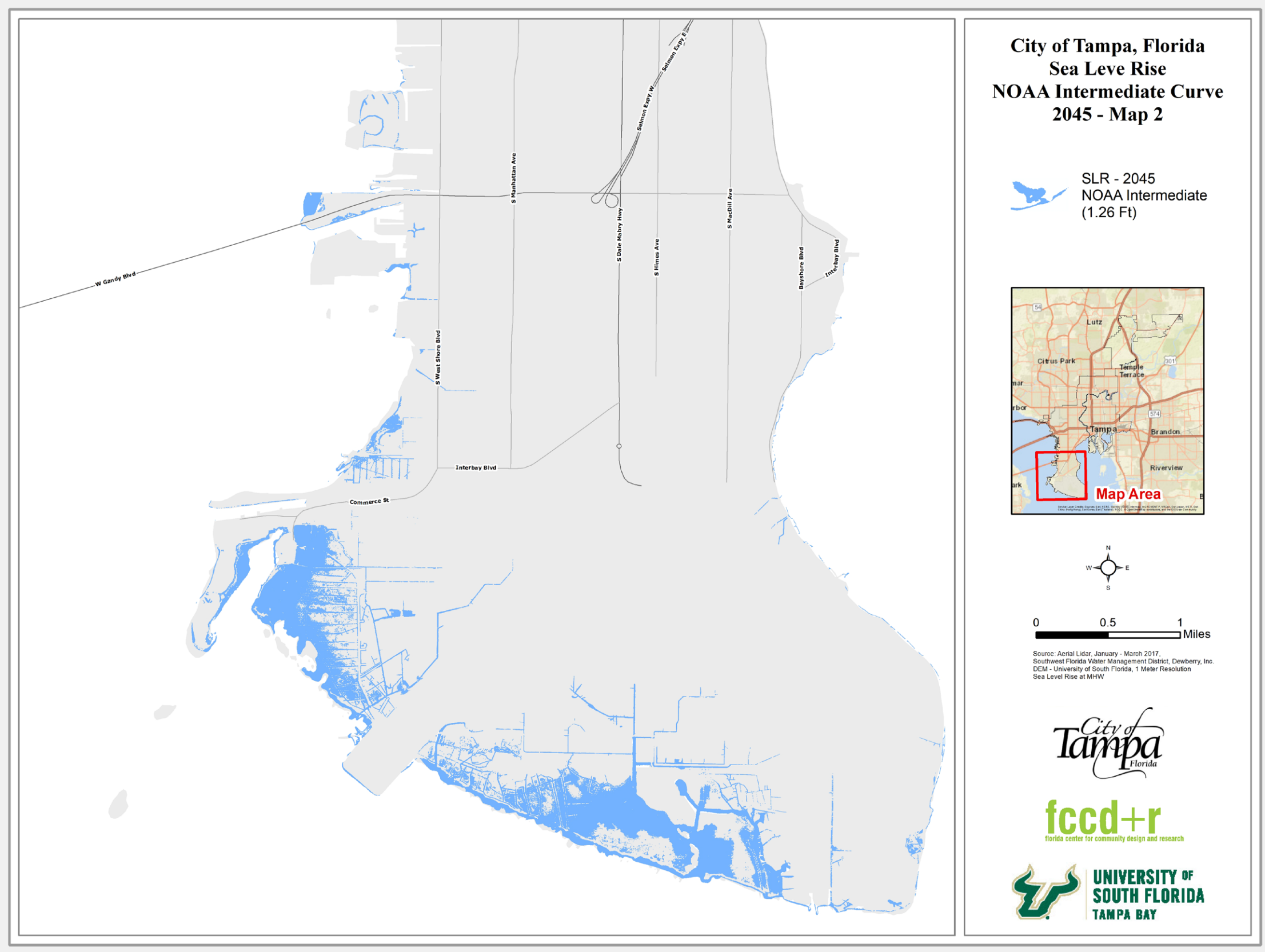
2045 Intermediate: +1.26'
2045 High/2060 Intermediate: +1.87'
2060 High/2100 Intermediate: +3.90'
2100 High: +8.50'

SEA LEVEL RISE SCENARIOS IN TAMPA

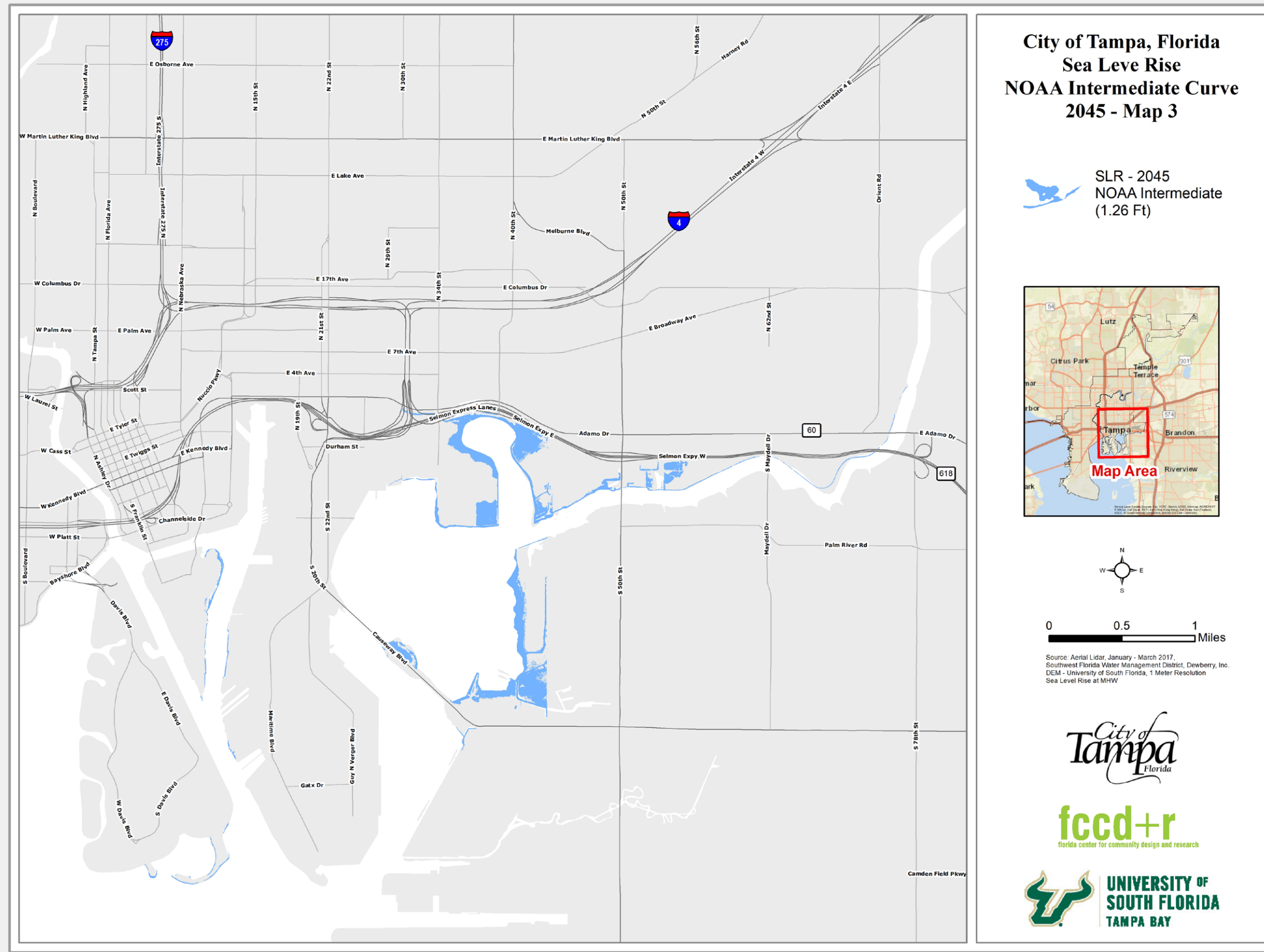
SEA LEVEL RISE IN TAMPA



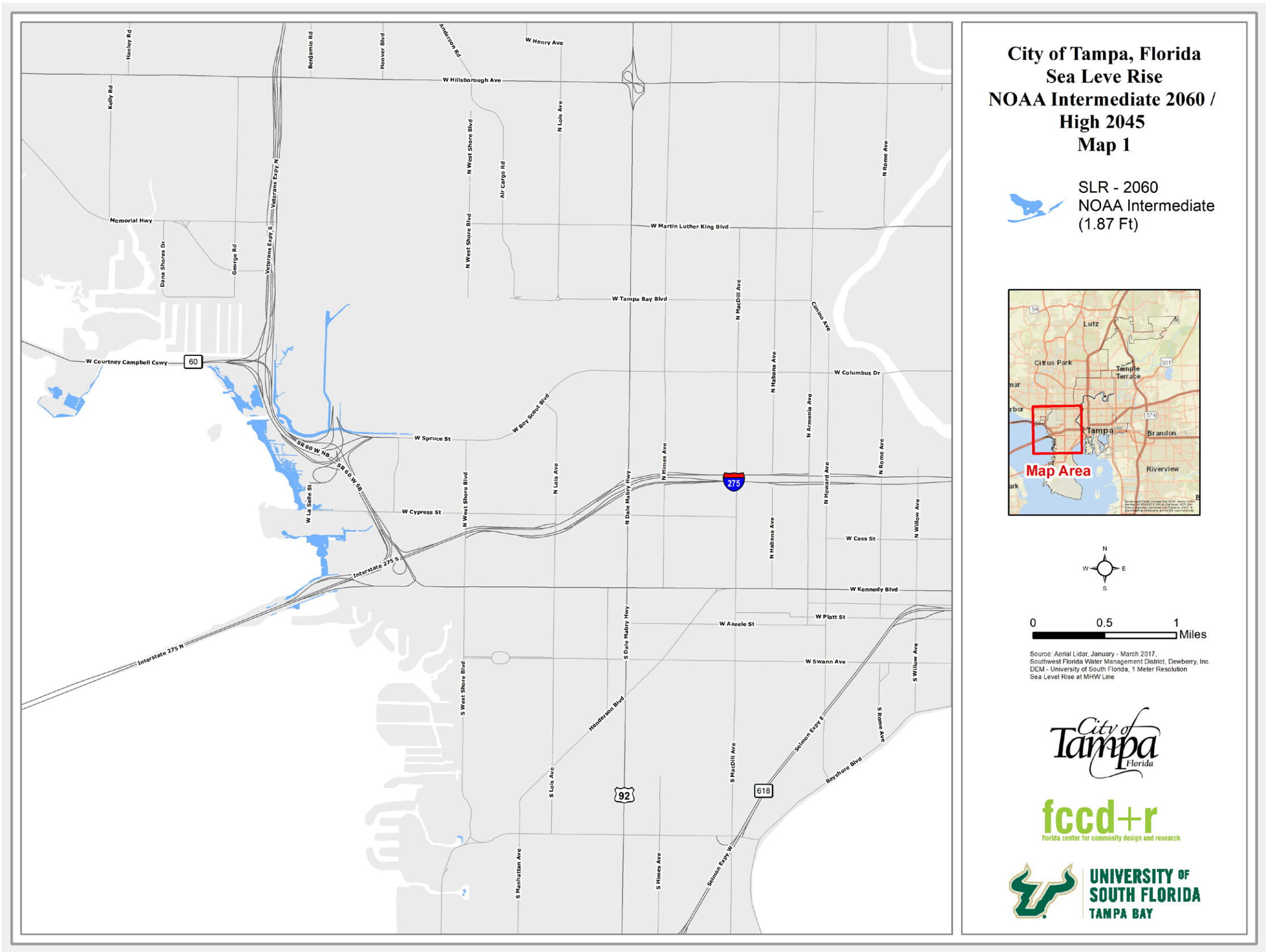
SEA LEVEL RISE IN TAMPA



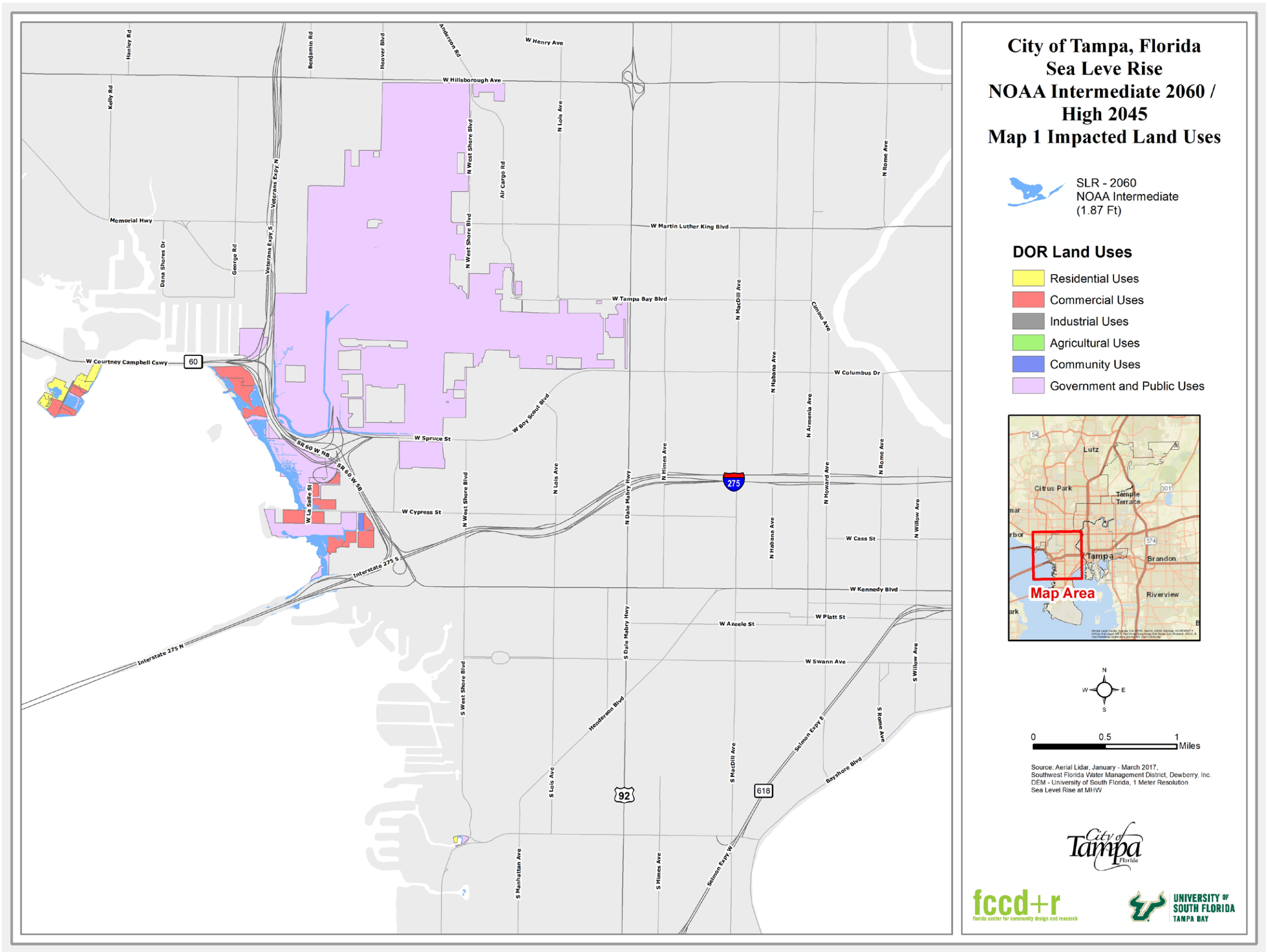
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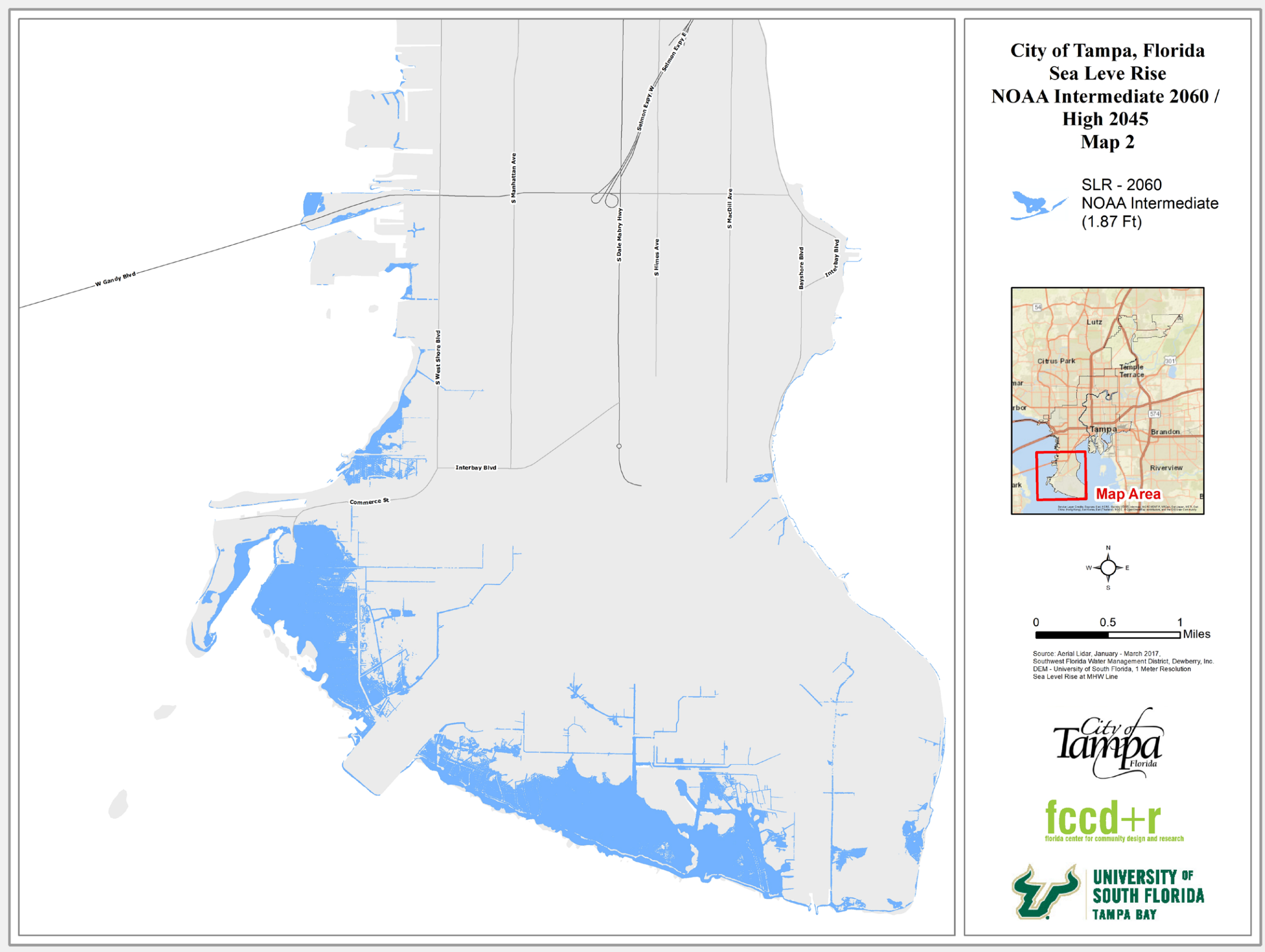
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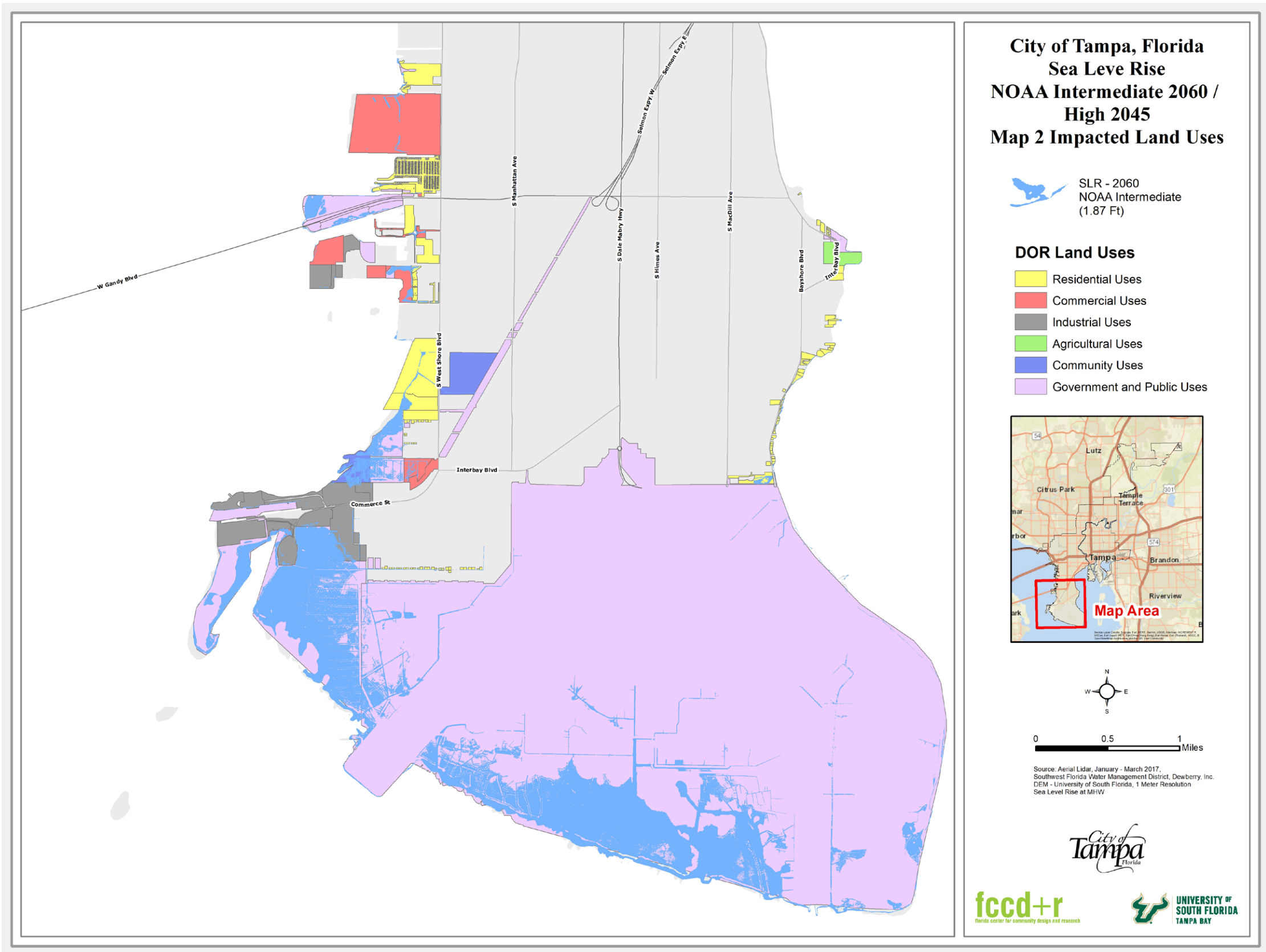
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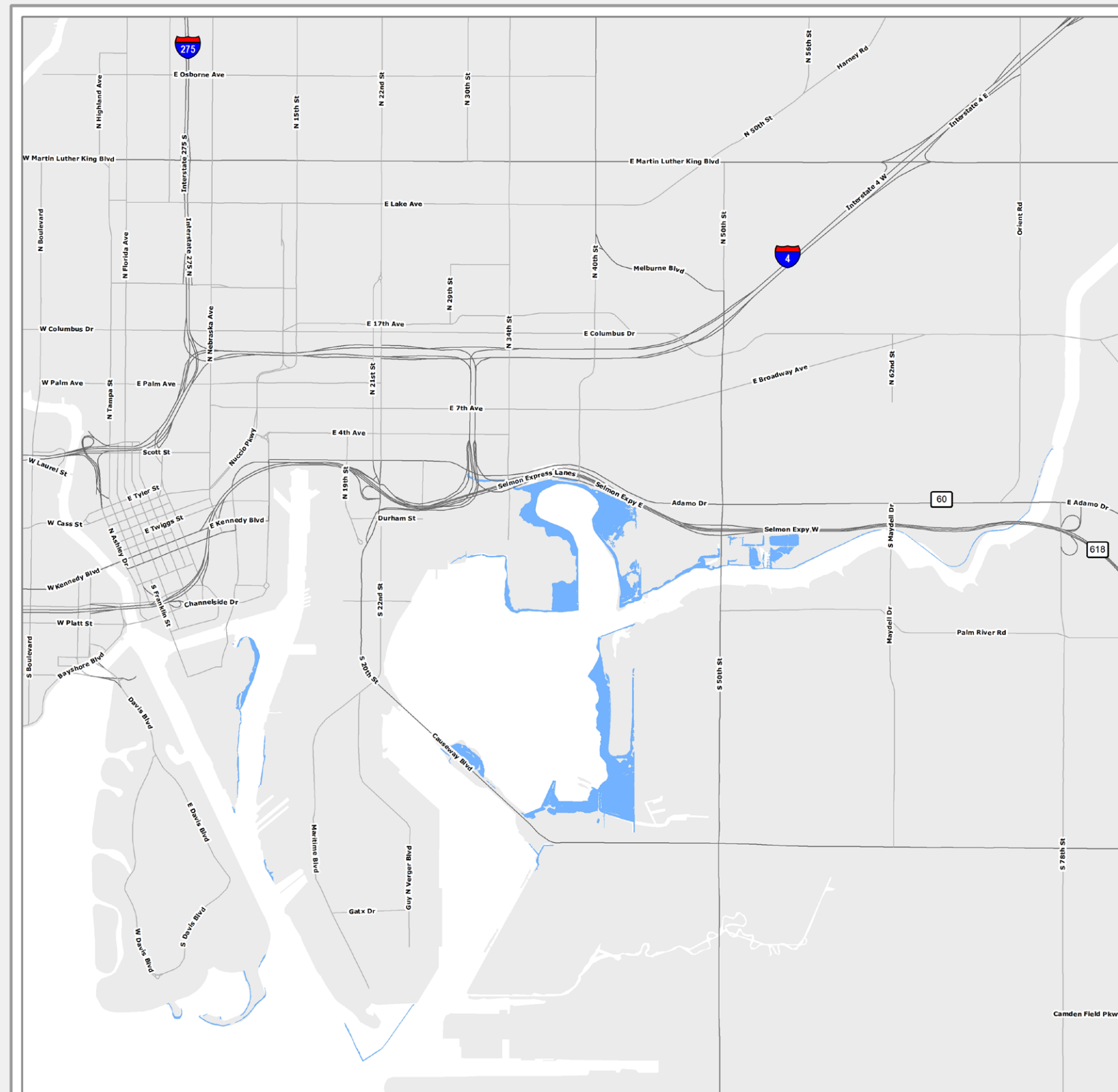
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SEA LEVEL RISE IN TAMPA

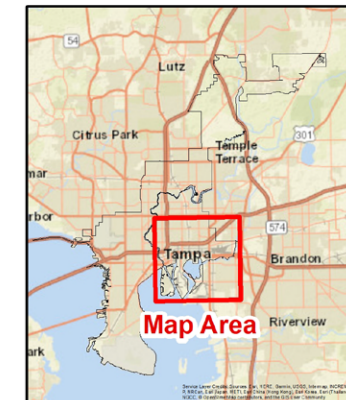


SEA LEVEL RISE IN TAMPA



**City of Tampa, Florida
Sea Leve Rise
NOAA Intermediate 2060 /
High 2045
Map 3**

SLR - 2060
NOAA Intermediate
(1.87 Ft)



A horizontal scale bar with a black segment from 0 to 0.5 miles and a white segment from 0.5 to 1 mile. The word "Miles" is at the right end.

Source: Aerial Lidar, January - March 2017,
Southwest Florida Water Management District, Dewberry, Inc.
DEM - University of South Florida, 1 Meter Resolution
Sea Level Rise at MHW

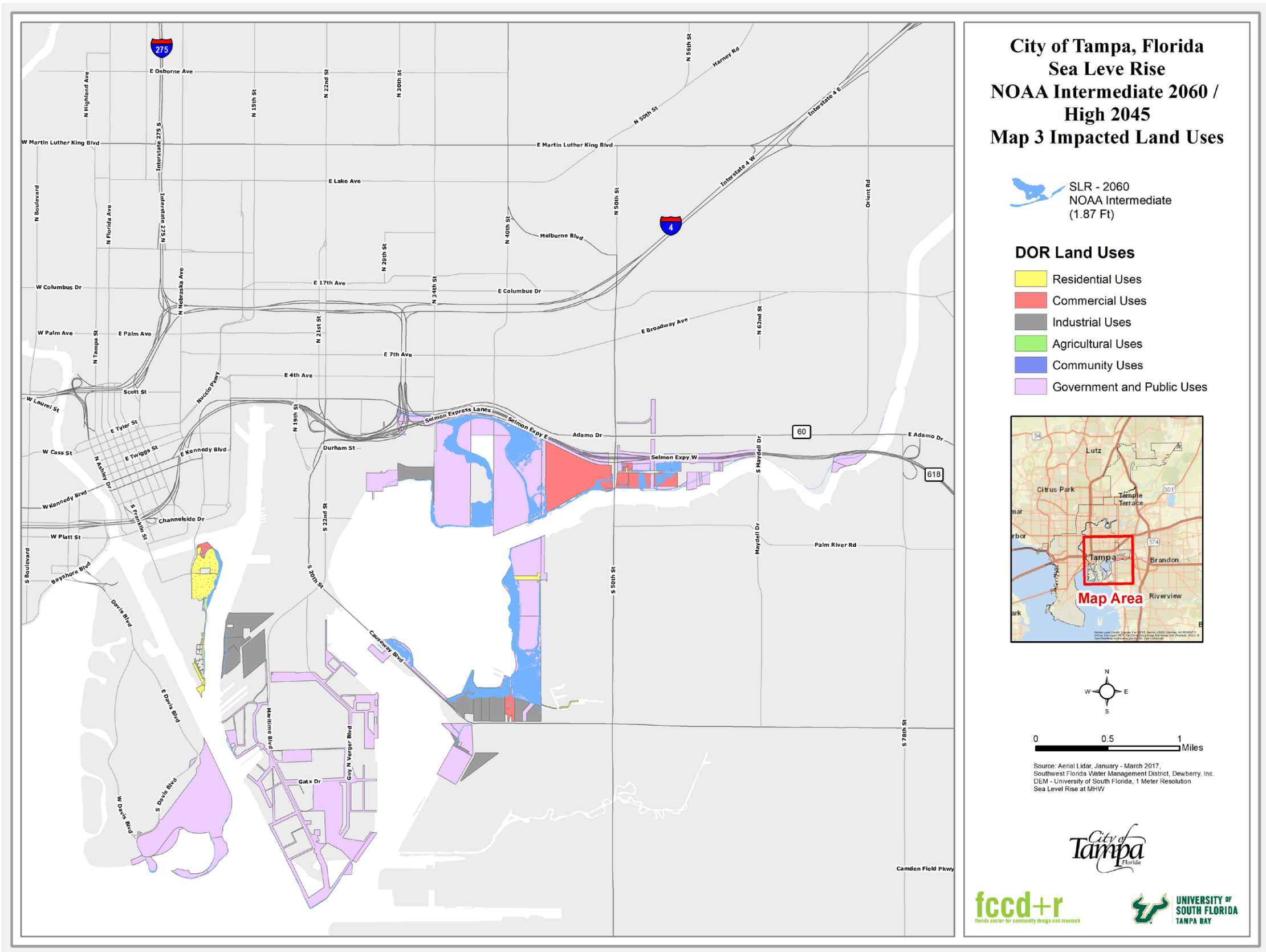
City of
Tampa
Florida

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florida center for community design and research

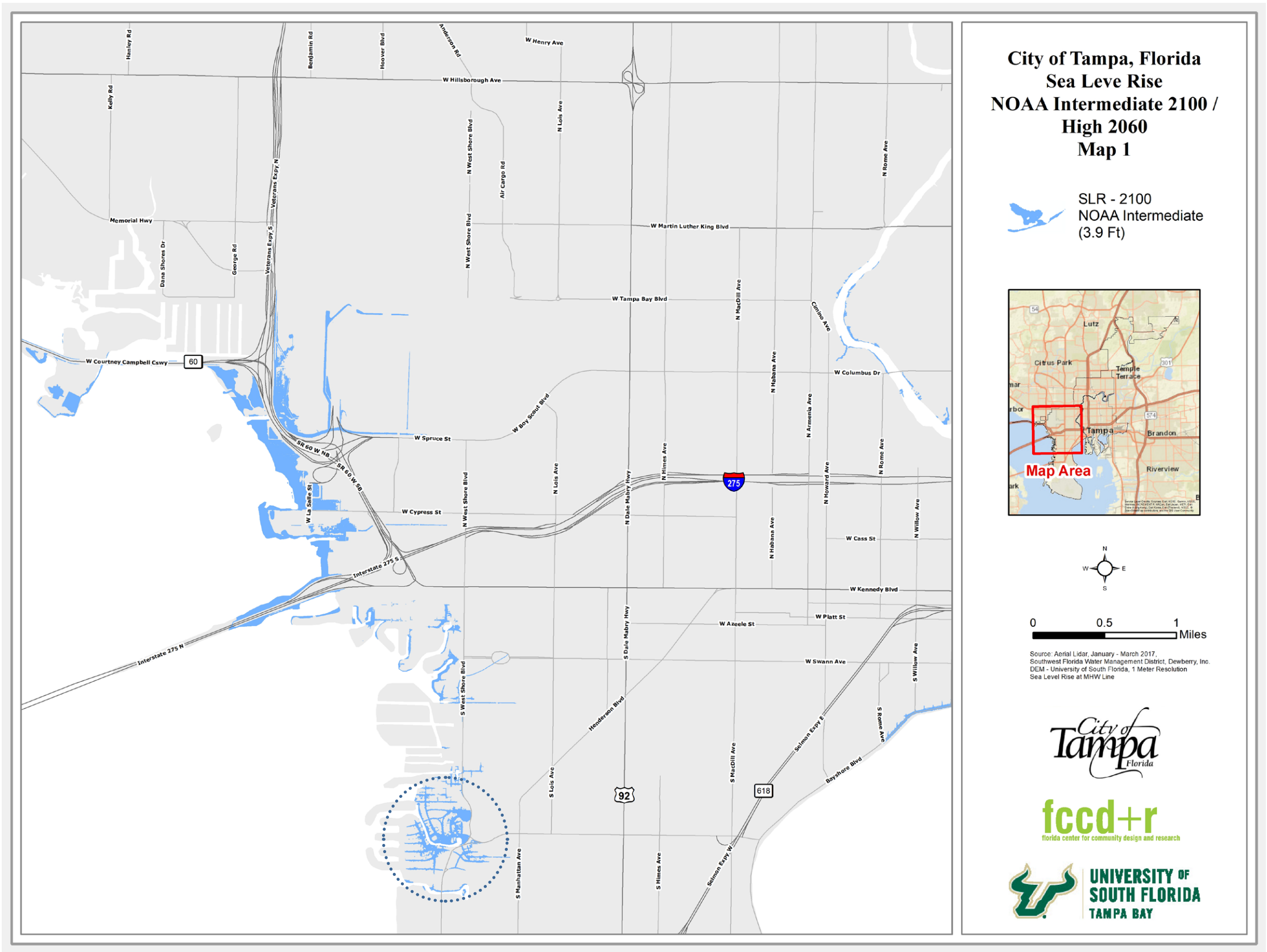


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SOUTH FLORIDA
TAMPA BAY**

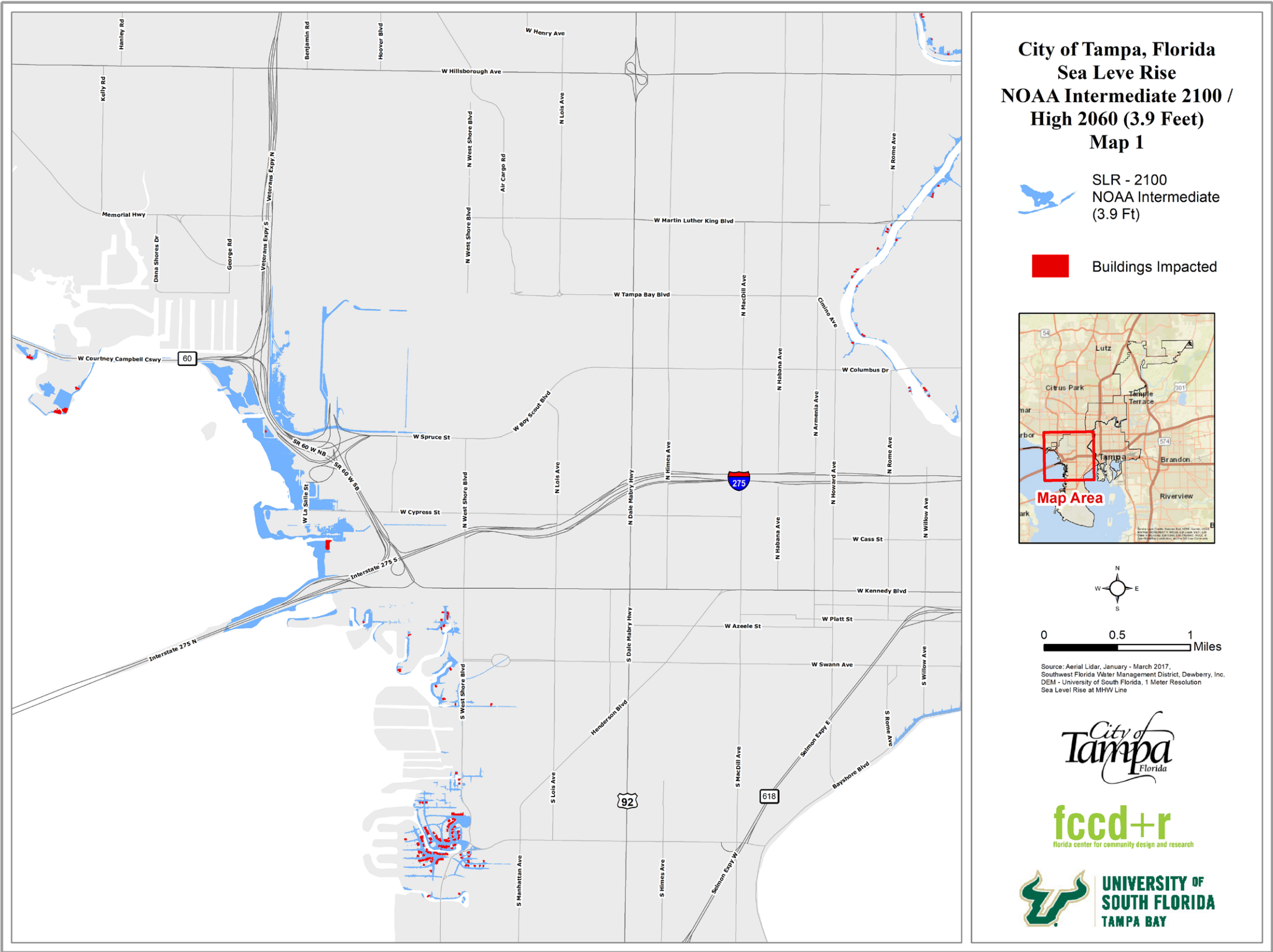
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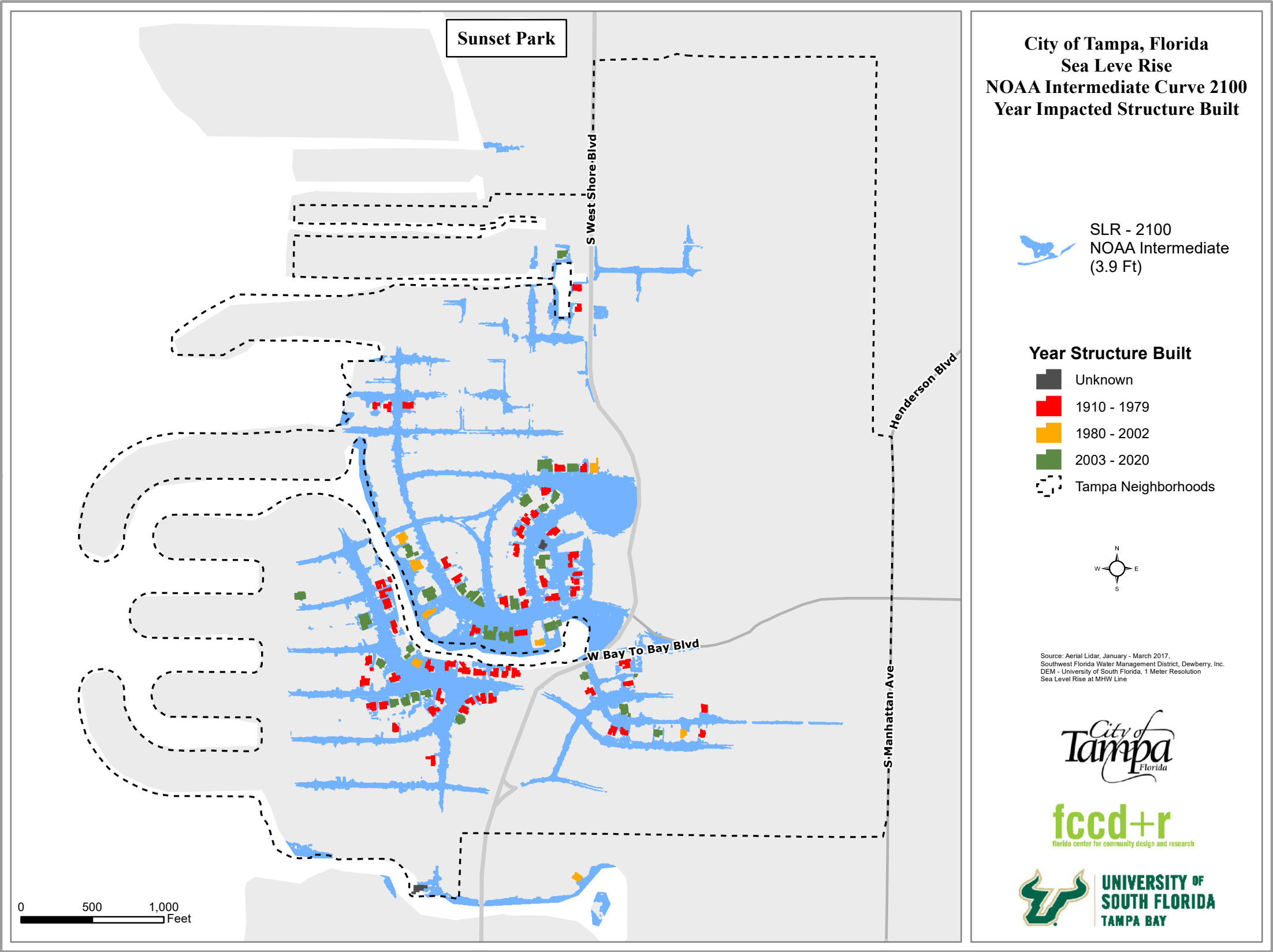


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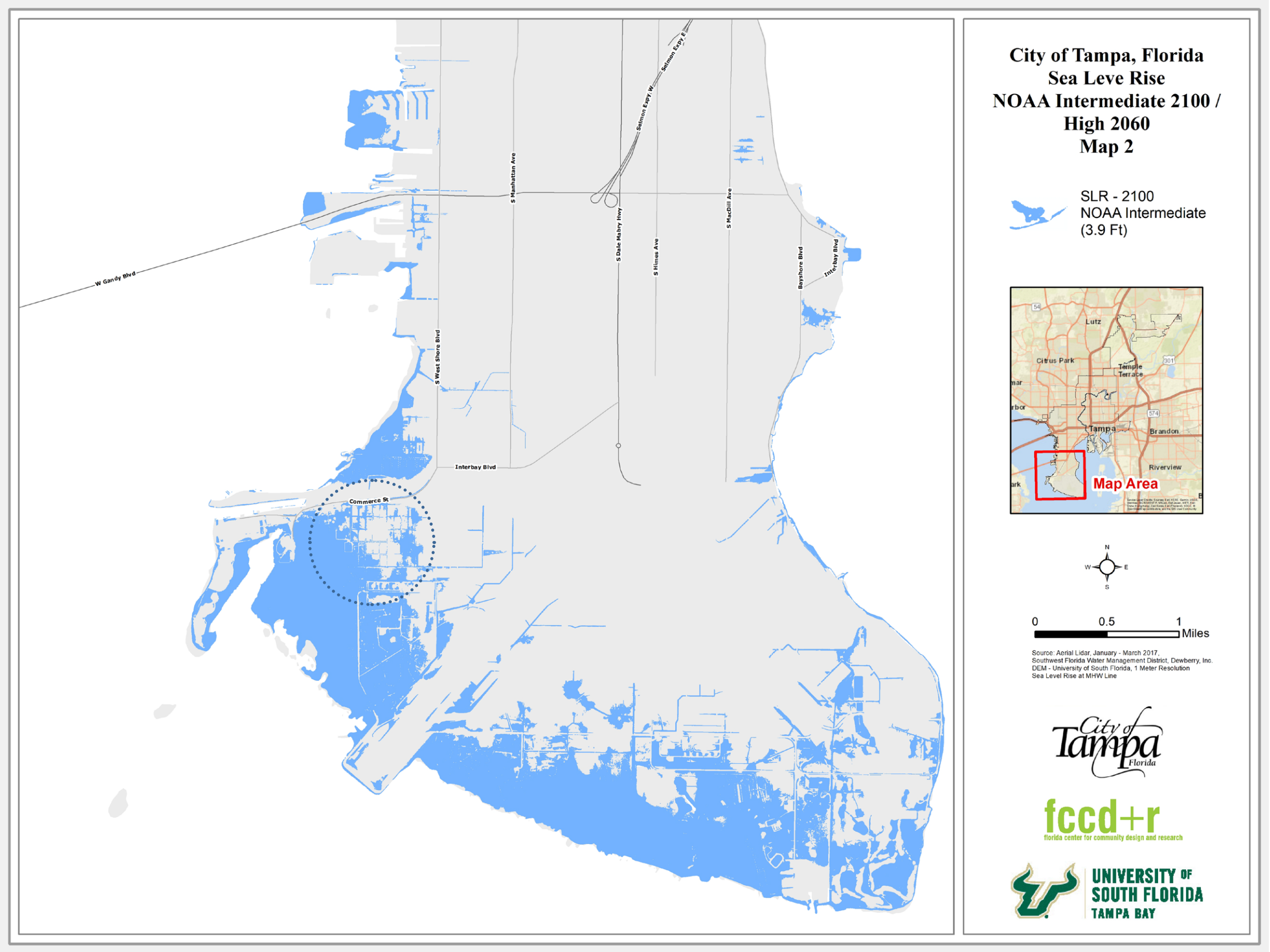


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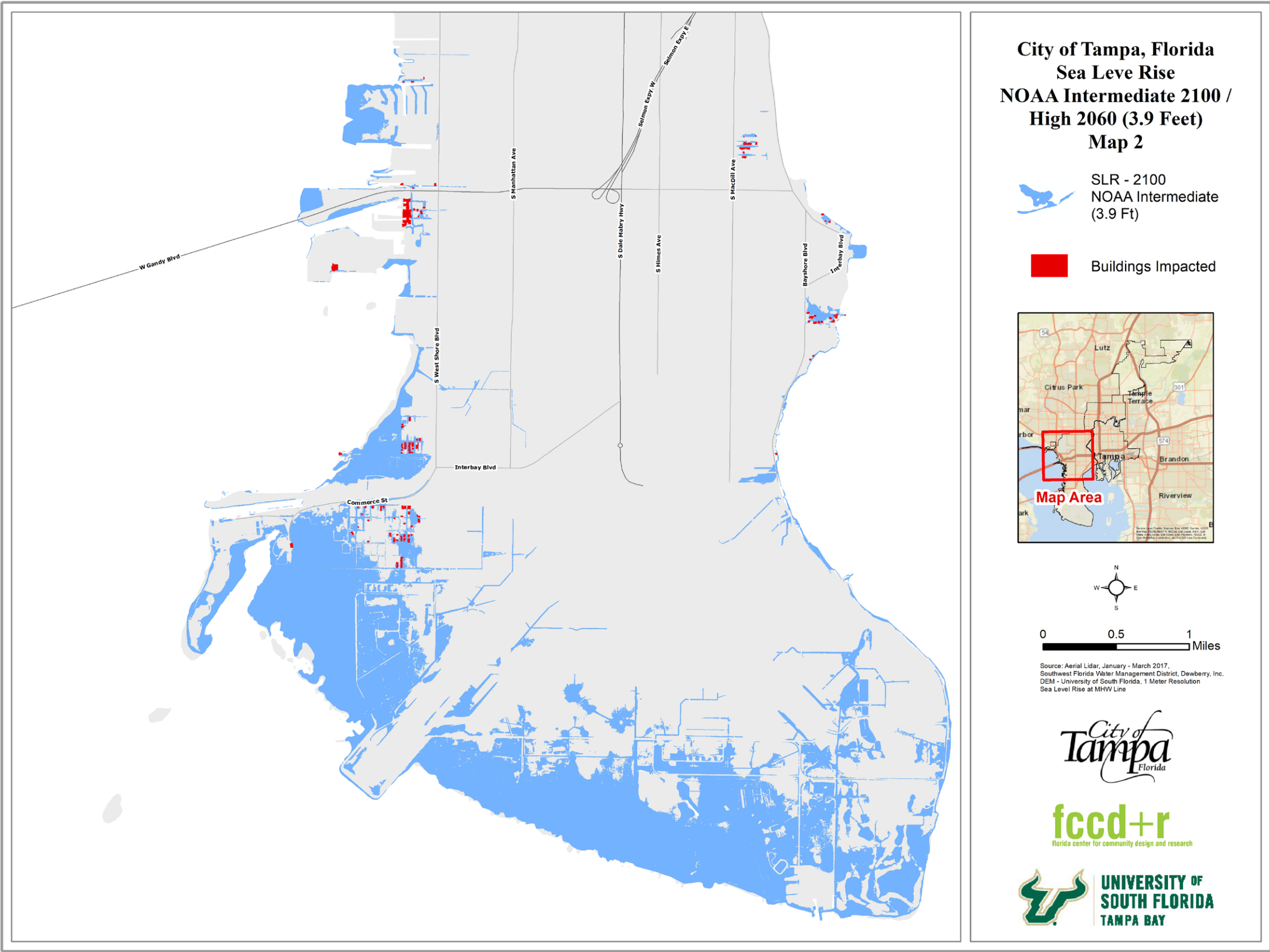
For study purposes only.
Building elevations are
not verified.



SEA LEVEL RISE IN TAMPA

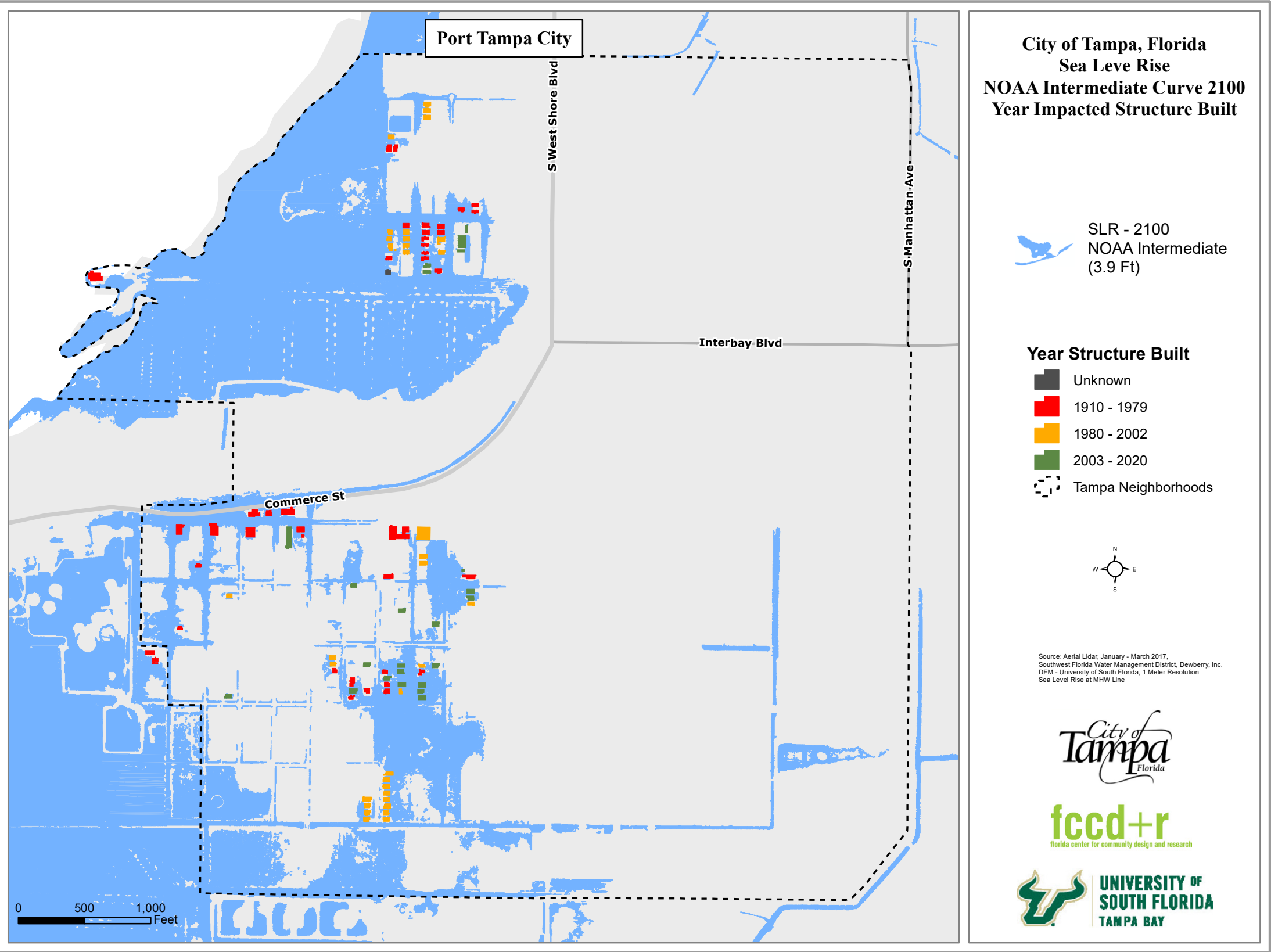


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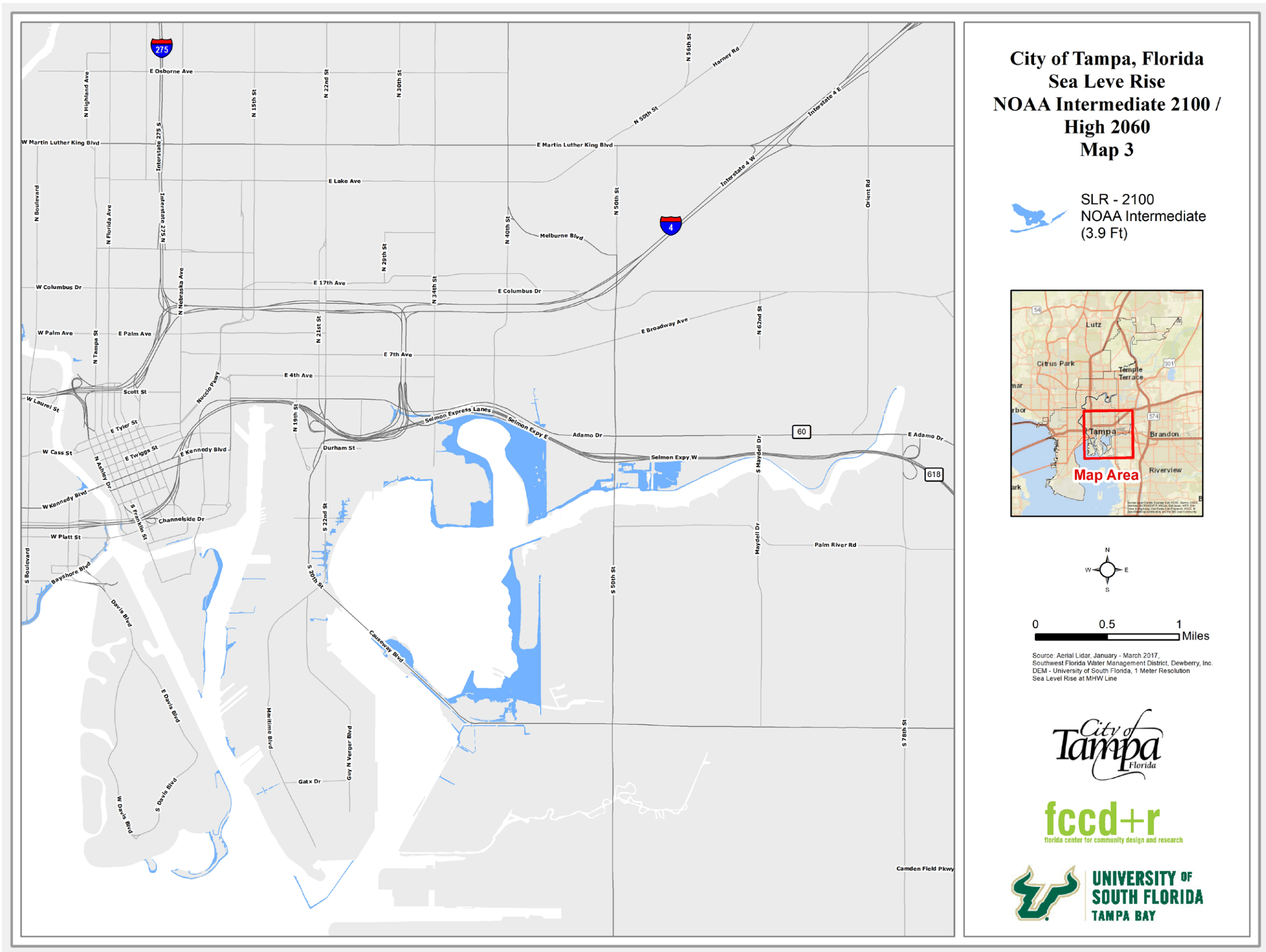


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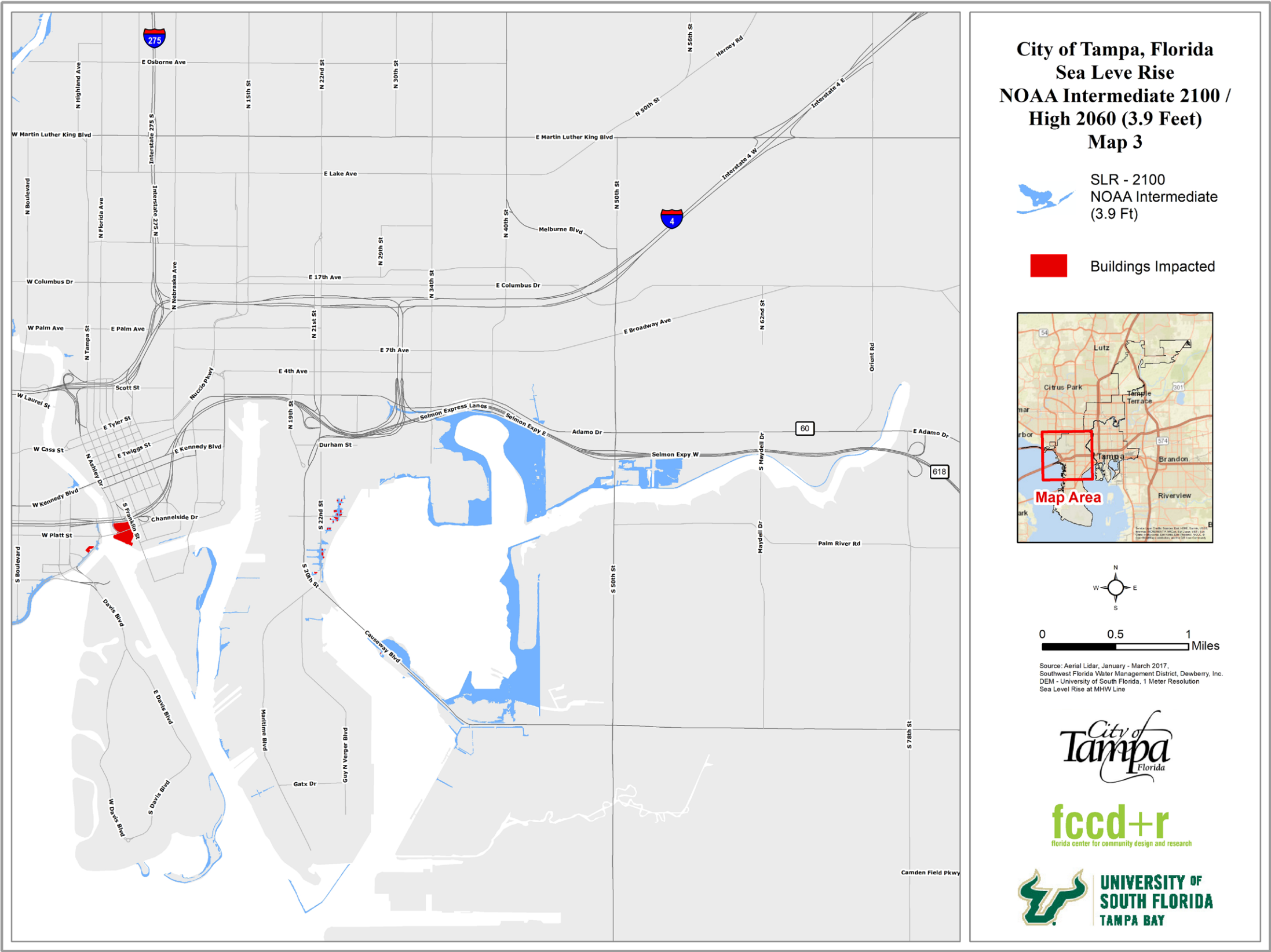
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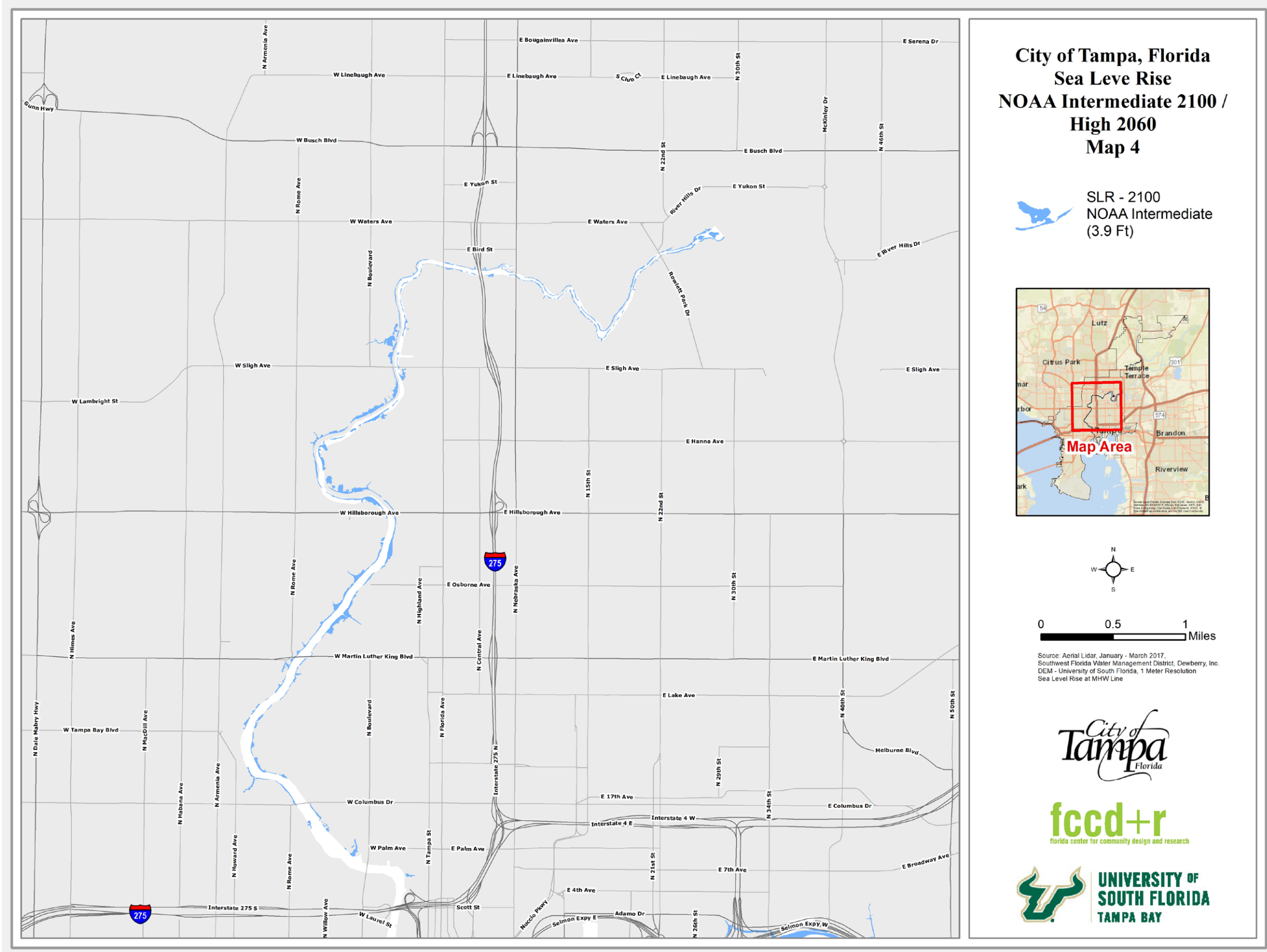
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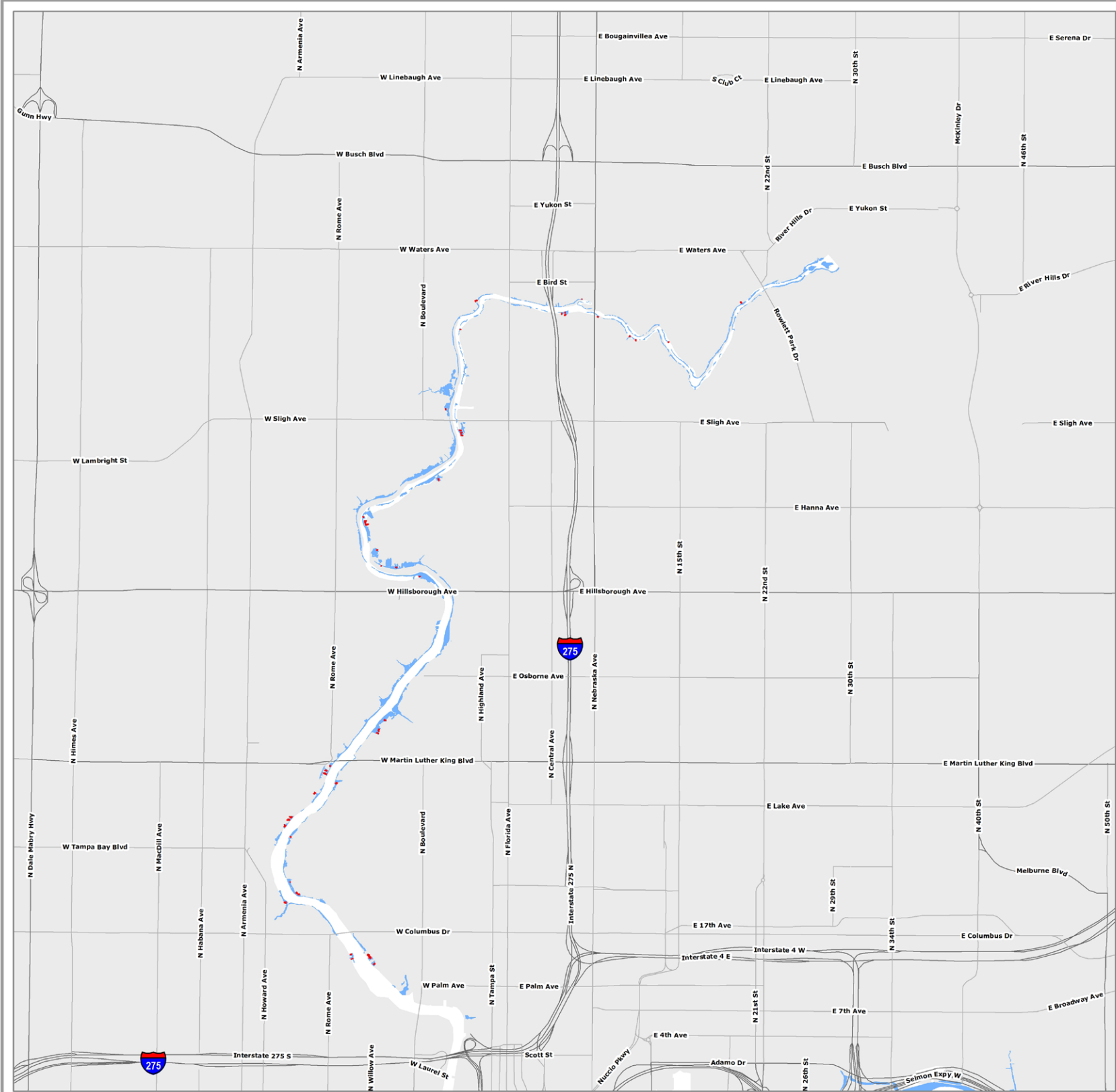
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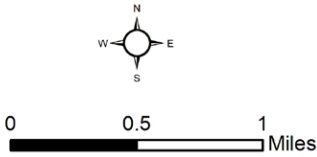
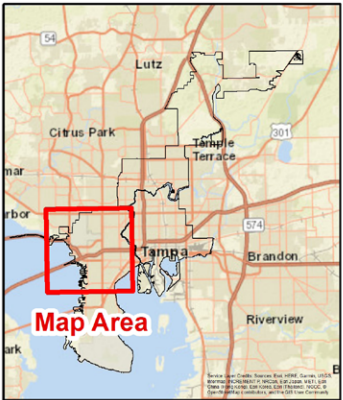
**City of Tampa, Florida
Sea Leve Rise
NOAA Intermediate 2100 /
High 2060 (3.9 Feet)
Map 3**



SLR - 2100
NOAA Intermediate
(3.9 Ft)



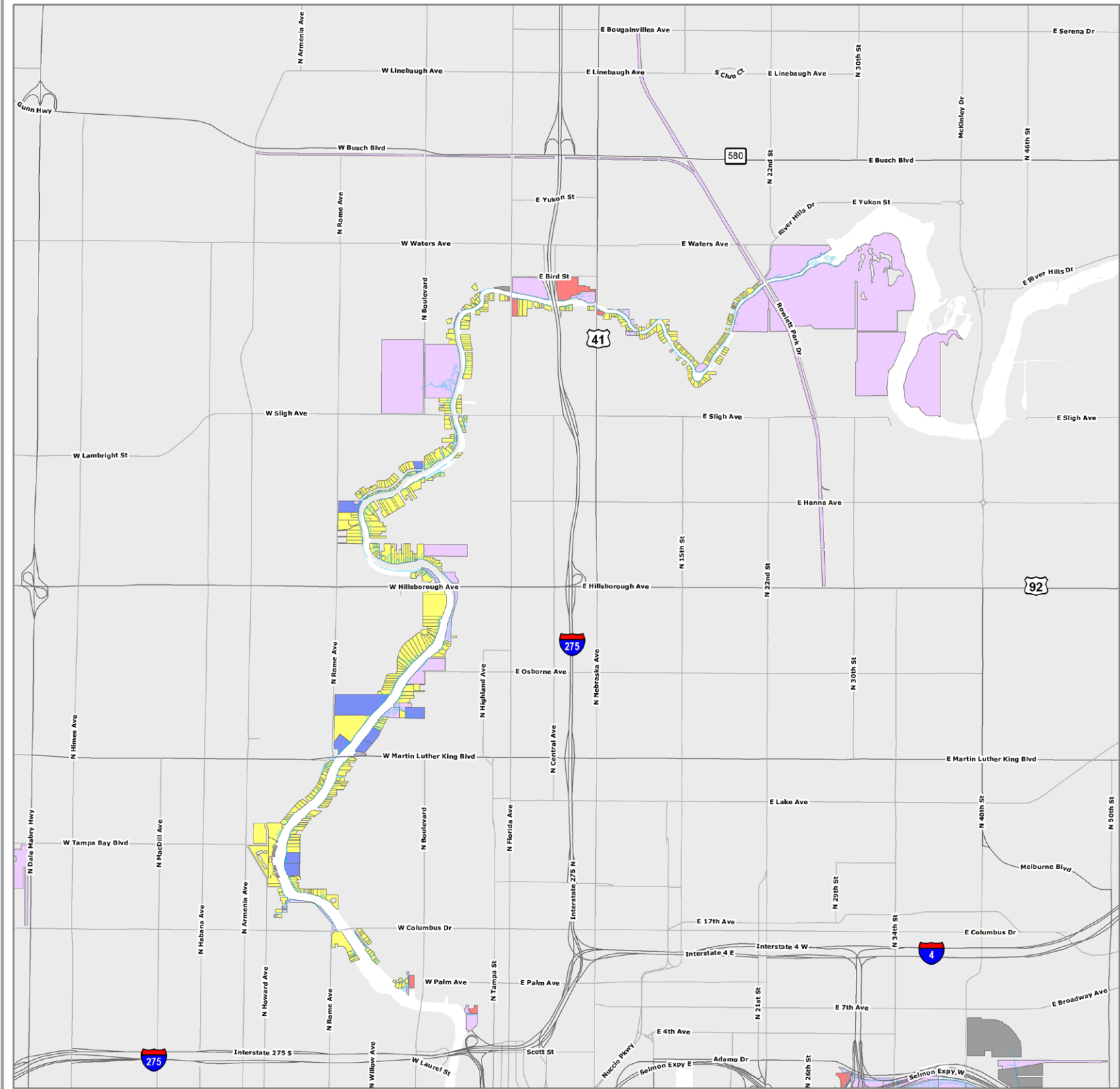
Buildings Impacted




Source: Aerial Lidar, January - March 2017,
Southwest Florida Water Management District, Dewberry, Inc.
DEM - University of South Florida, 1 Meter Resolution
Sea Level Rise at MHW Line









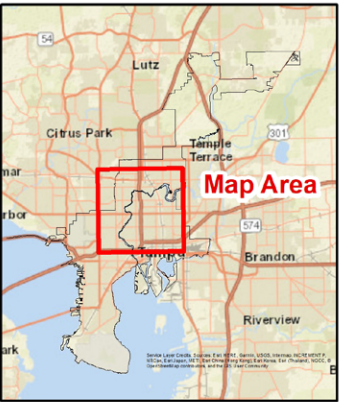
SEA LEVEL RISE IN TAMPA



**City of Tampa, Florida
Sea Leve Rise
NOAA Intermediate 2100 /
High 2060 Map 4
Impacted Land Uses**

 SLR - 2100
NOAA Intermediate
(3.9 Ft)

- DOR Land Uses**
-  Residential Uses
 -  Commercial Uses
 -  Industrial Uses
 -  Agricultural Uses
 -  Community Uses
 -  Government and Public Uses

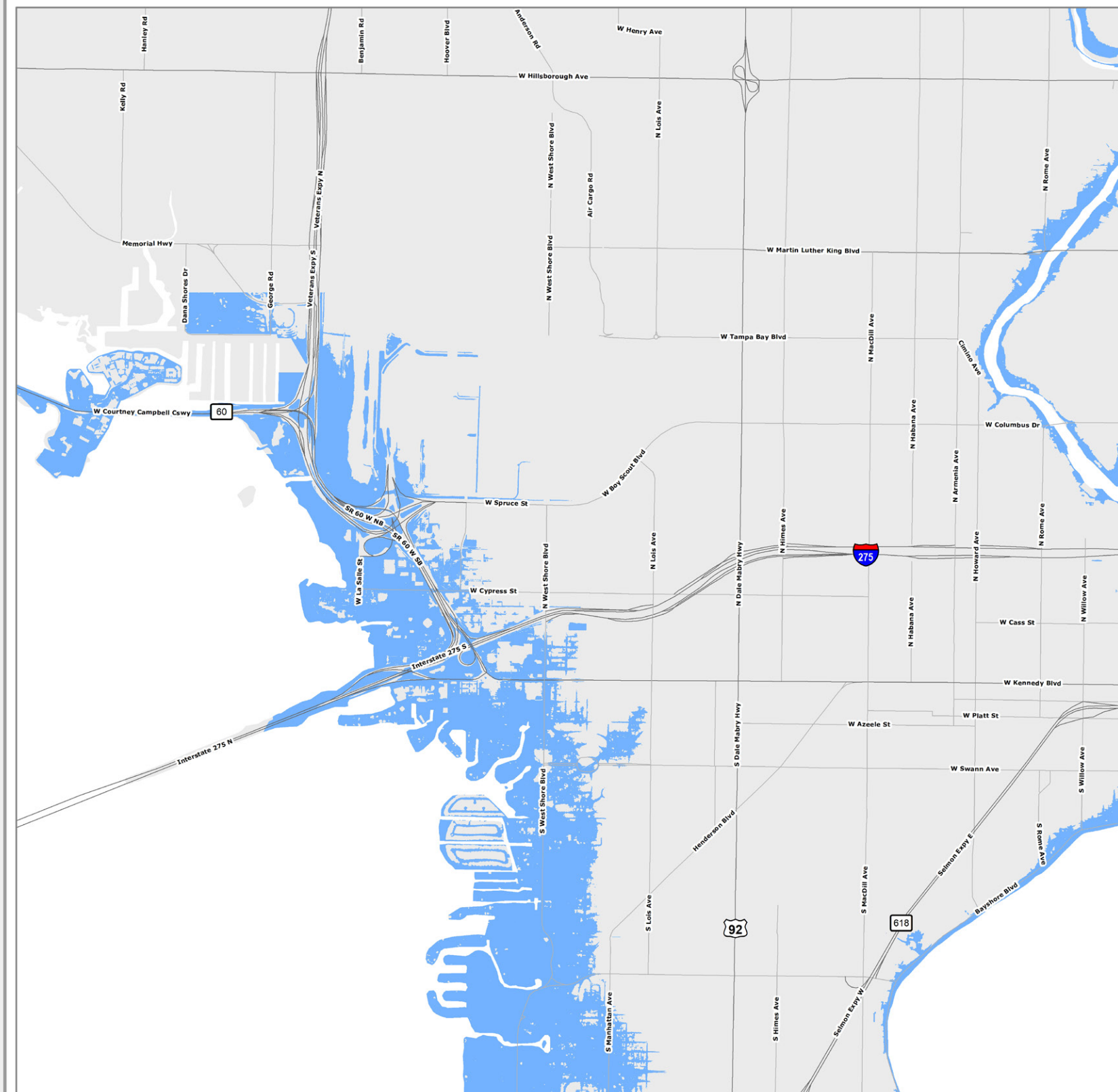


0 0.5 1
Miles


Source: Aerial Lidar, January - March 2017,
Southwest Florida Water Management District, Dewberry, Inc.
DEM - University of South Florida, 1 Meter Resolution
Sea Level Rise at MHW



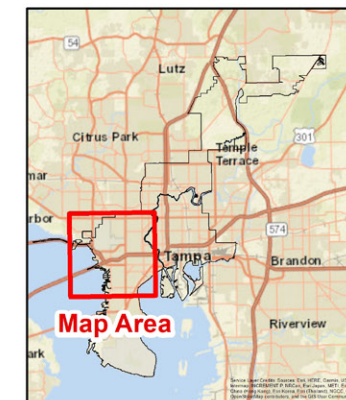
SEA LEVEL RISE IN TAMPA



**City of Tampa, Florida
Sea Leve Rise
NOAA High 2100
Map 1**



SLR - 2100
NOAA High
(7.78 Ft)



A horizontal scale bar with a black background. It has white tick marks at 0, 0.5, and 1. The word "Miles" is written in white at the right end of the bar.

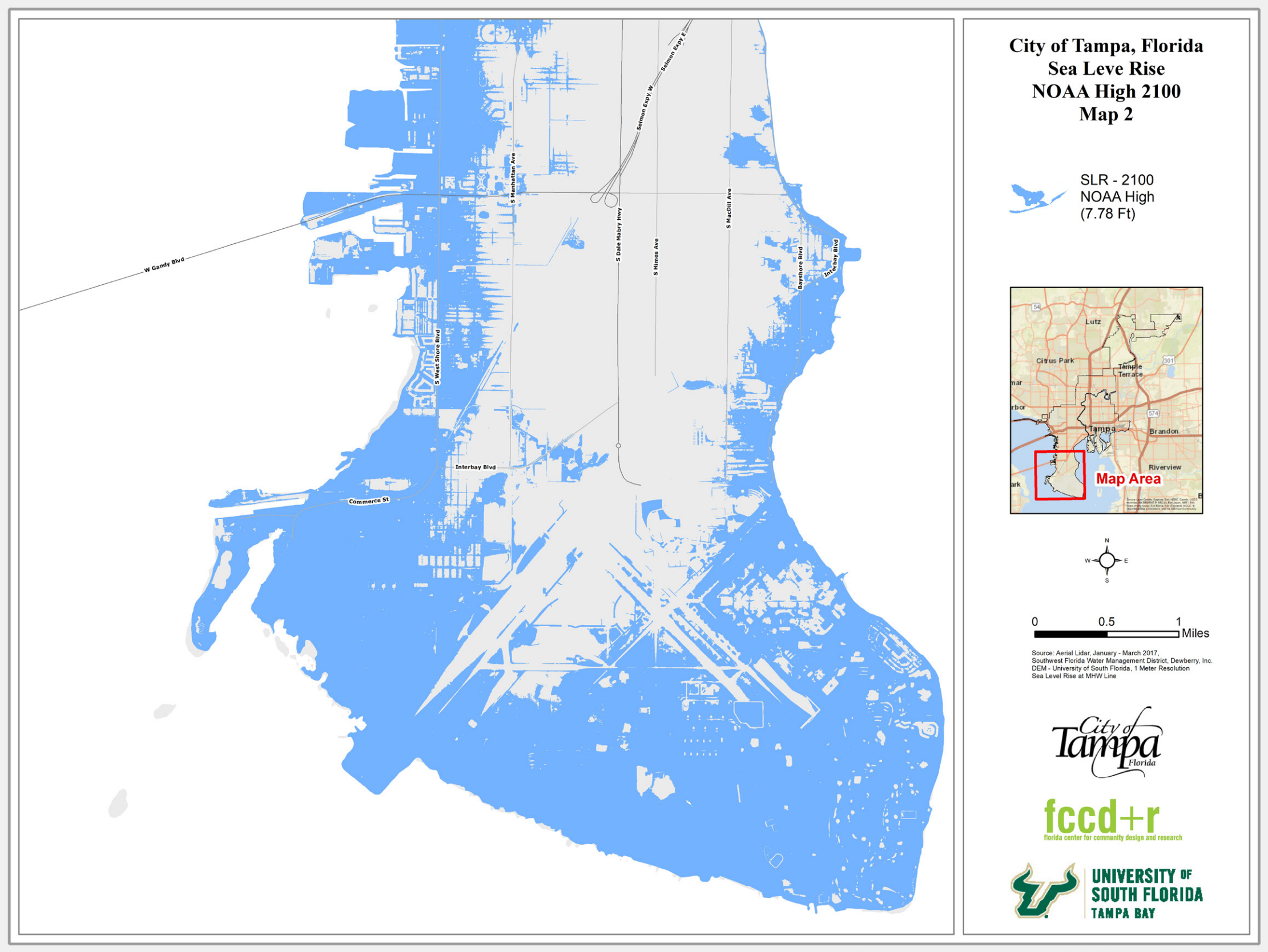
Source: Aerial Lidar, January - March 2017,
Southwest Florida Water Management District, Dewberry, Inc.
DEM - University of South Florida, 1 Meter Resolution
Sea Level Rise at MHW Line



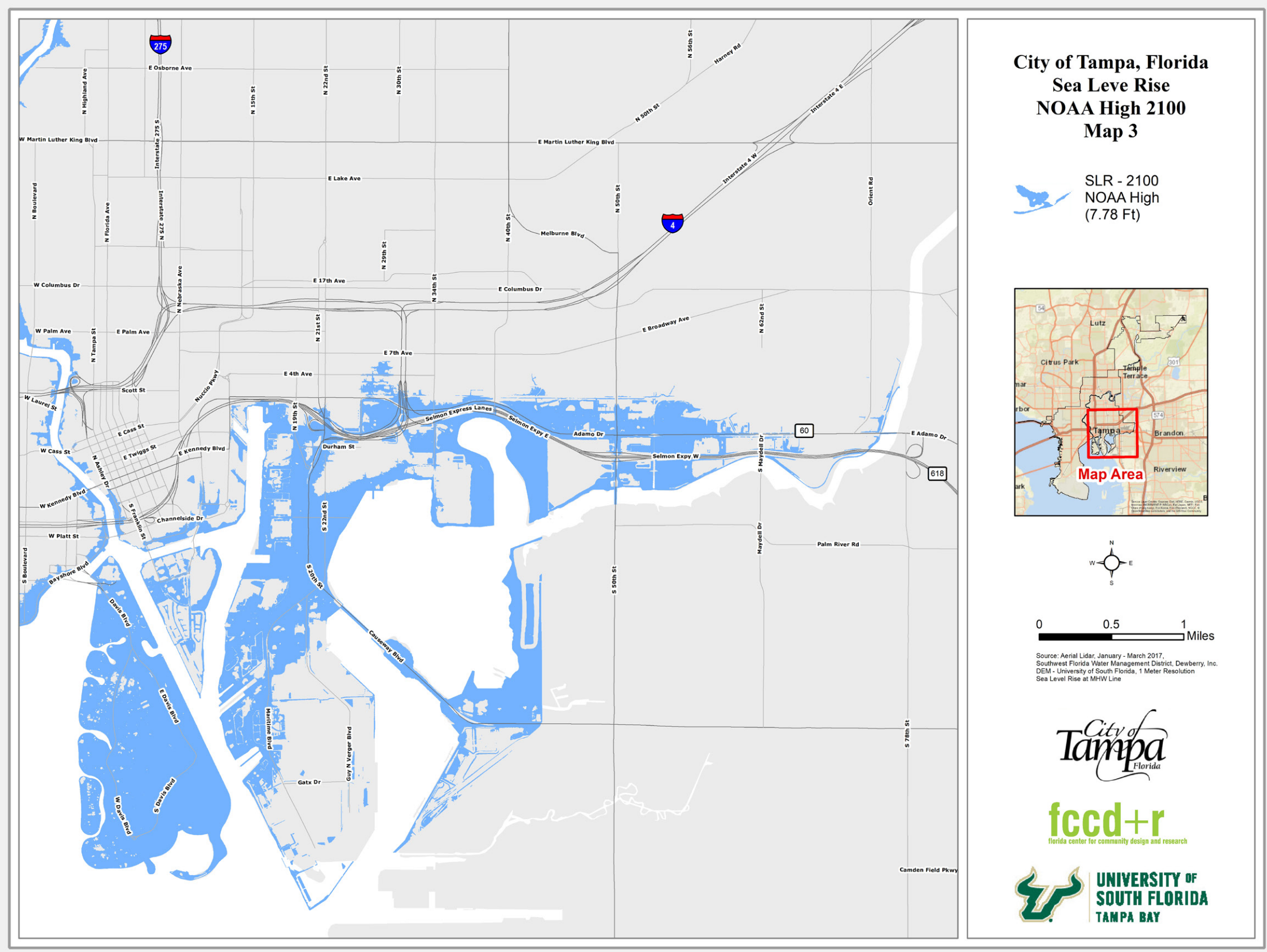
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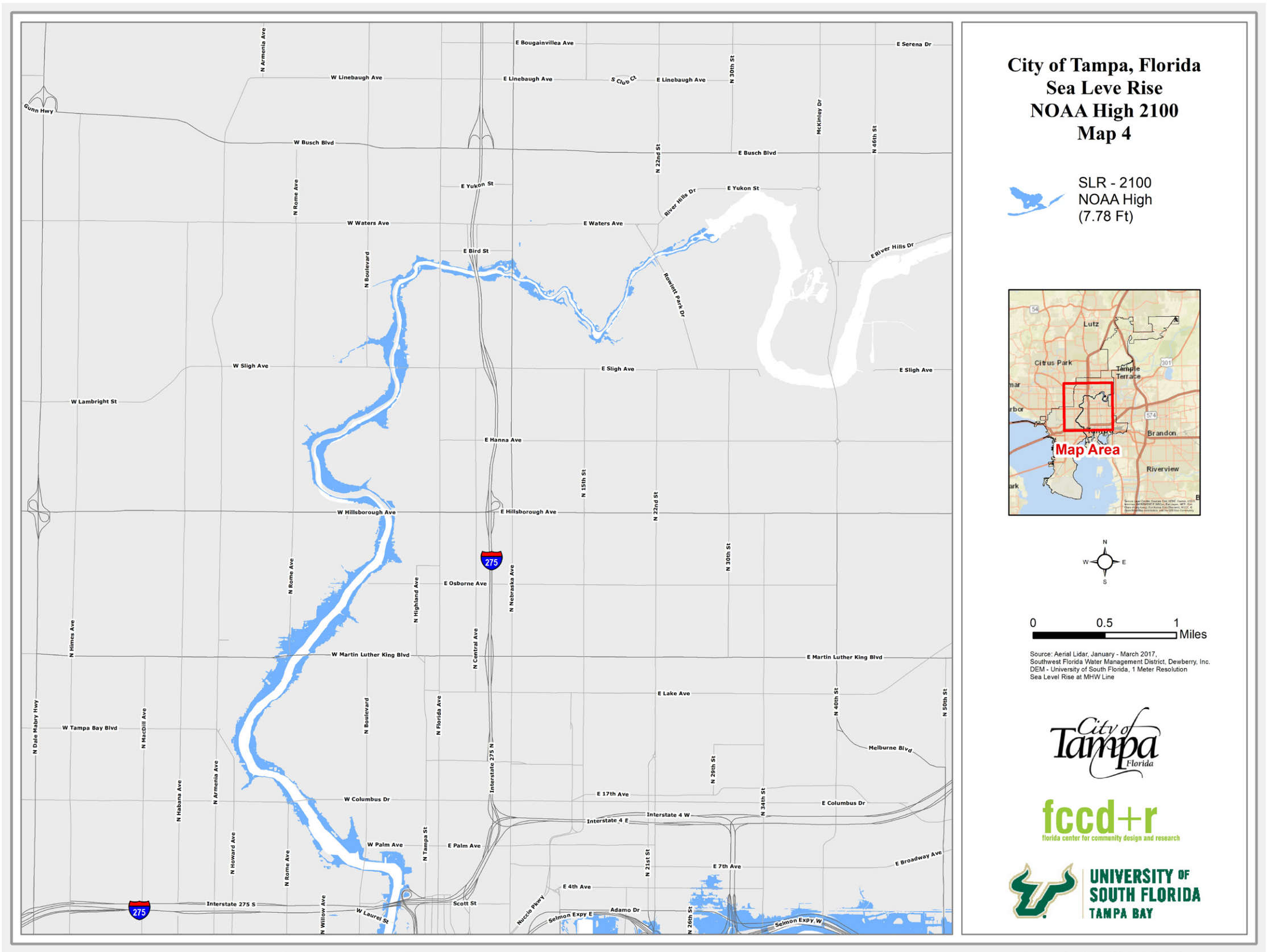
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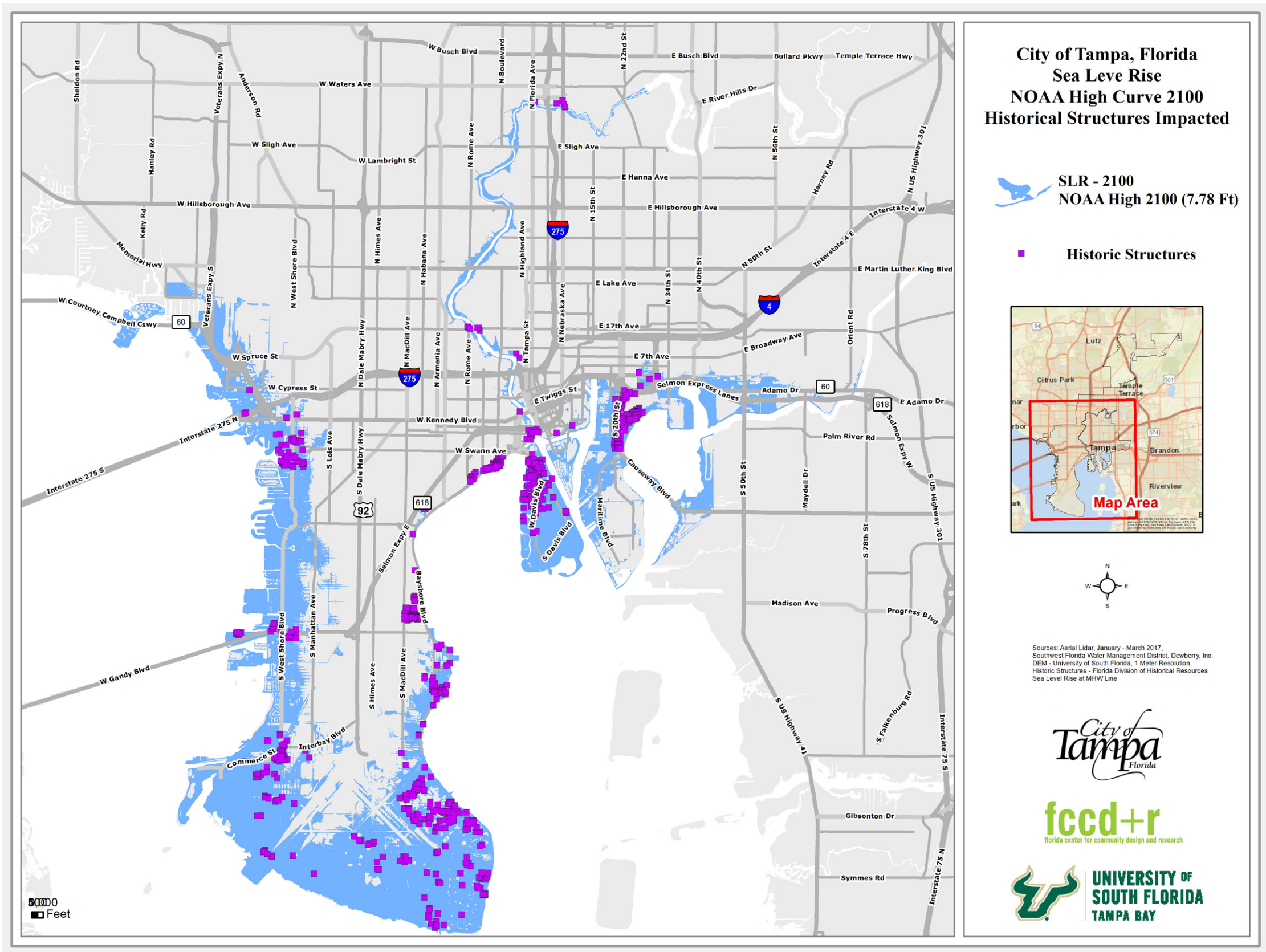
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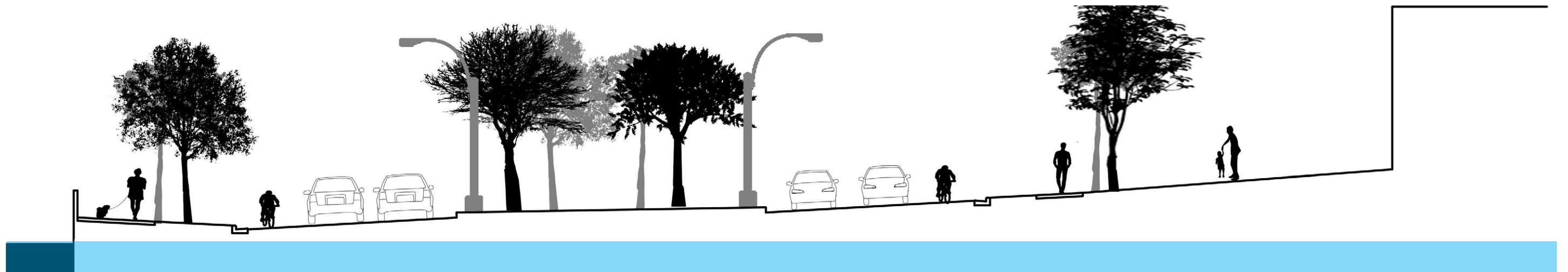
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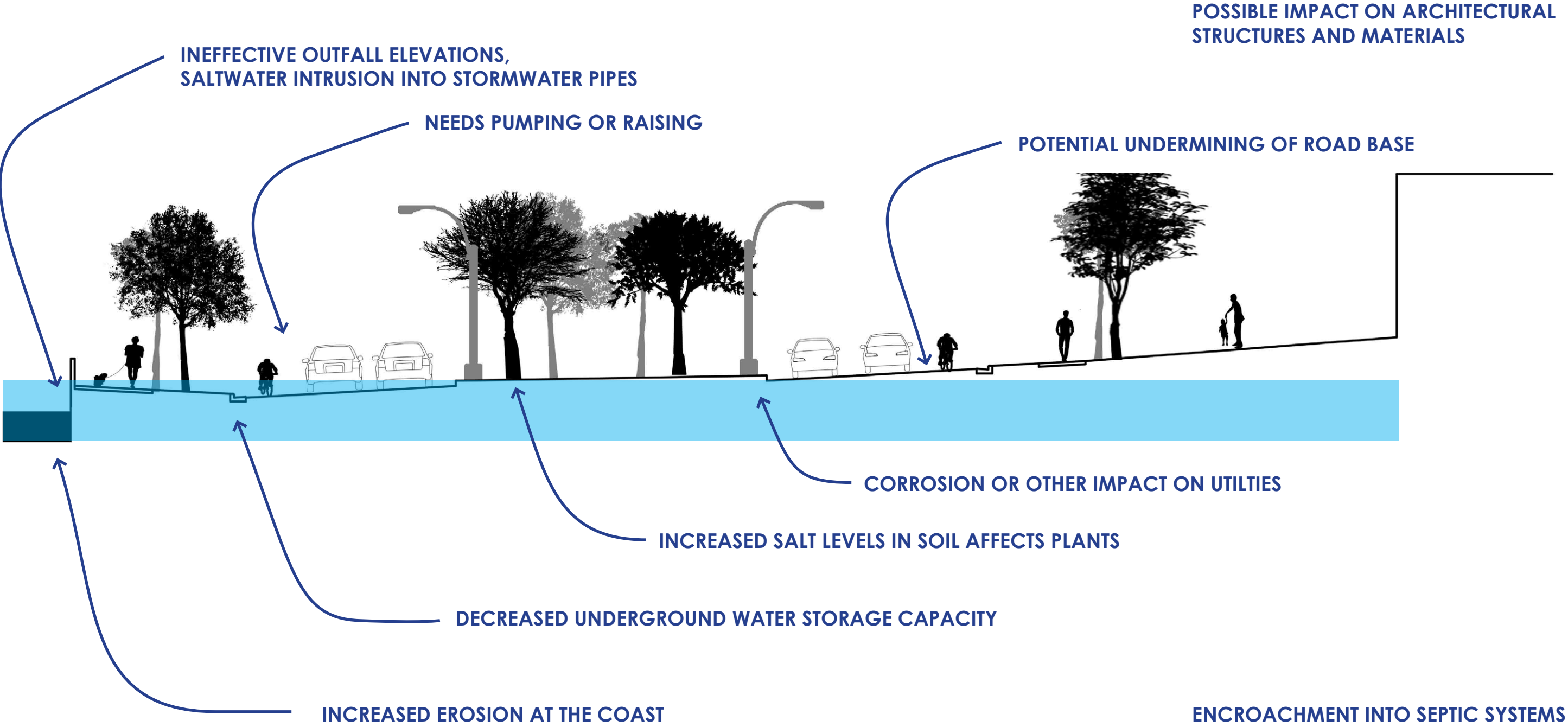
OTHER BUILT ENVIRONMENT IMPACTS

SEA LEVEL RISE IN TAMPA



SEA LEVEL RISE IN TAMPA

INCREASED GROUNDWATER LEVELS



SEA LEVEL RISE IN TAMPA

ENVIRONMENTAL IMPACTS IN TAMPA BAY

ENVIRONMENTAL

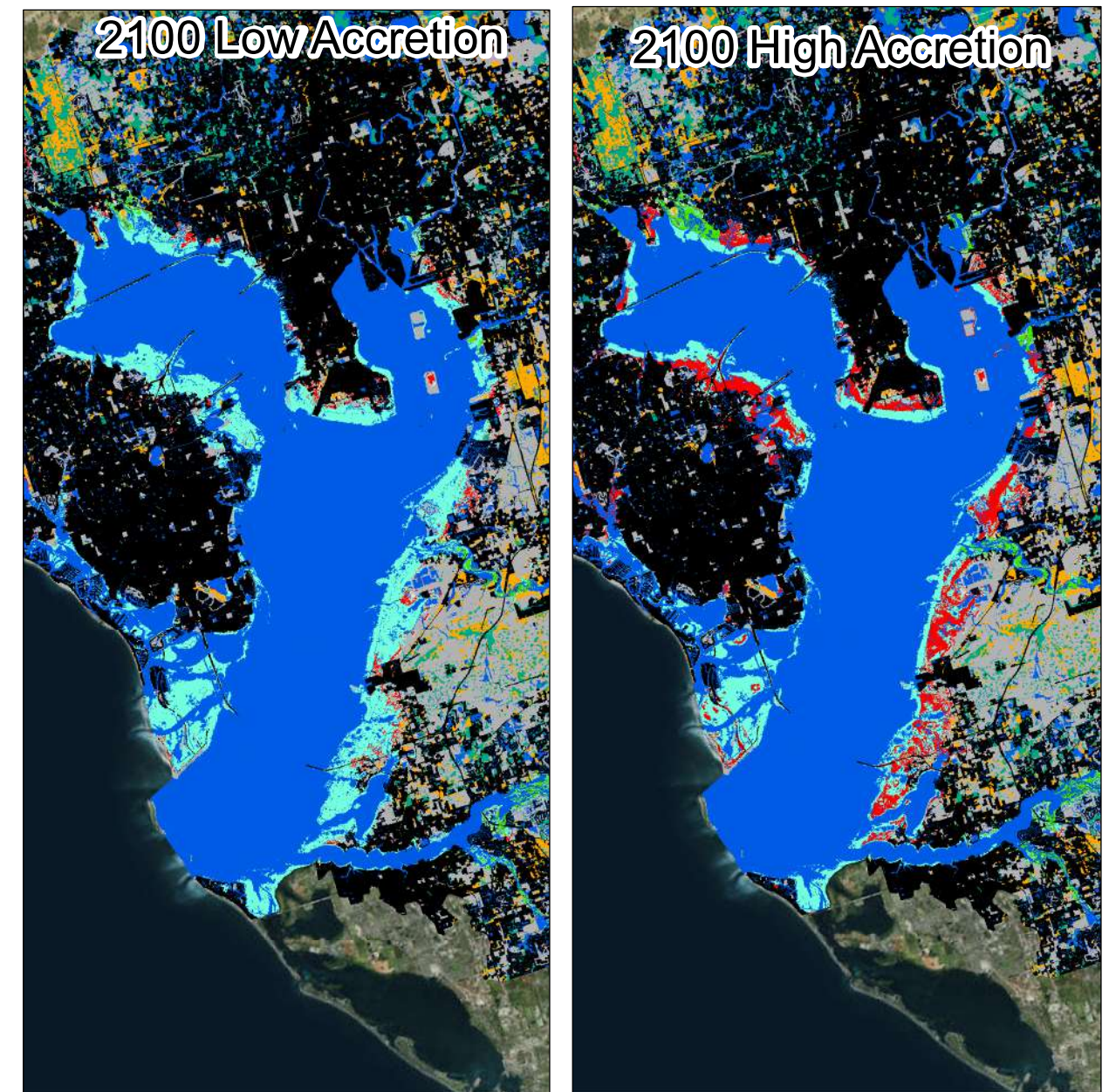
FROM THE TAMPA BAY BLUE CARBON ASSESSMENT (2016)

Structure will limit **habitat migration**

Coastal wetland, tidal flats, salt marsh and salt barrens are expected to experience the greatest loss

Mangrove habitat acreage is expected to increase, or could possibly be eliminated with other coastal wetlands

Seagrasses are extremely important to the overall ecology of Tampa Bay and understanding their response to sea-level rise is critical to developing future habitat management strategies

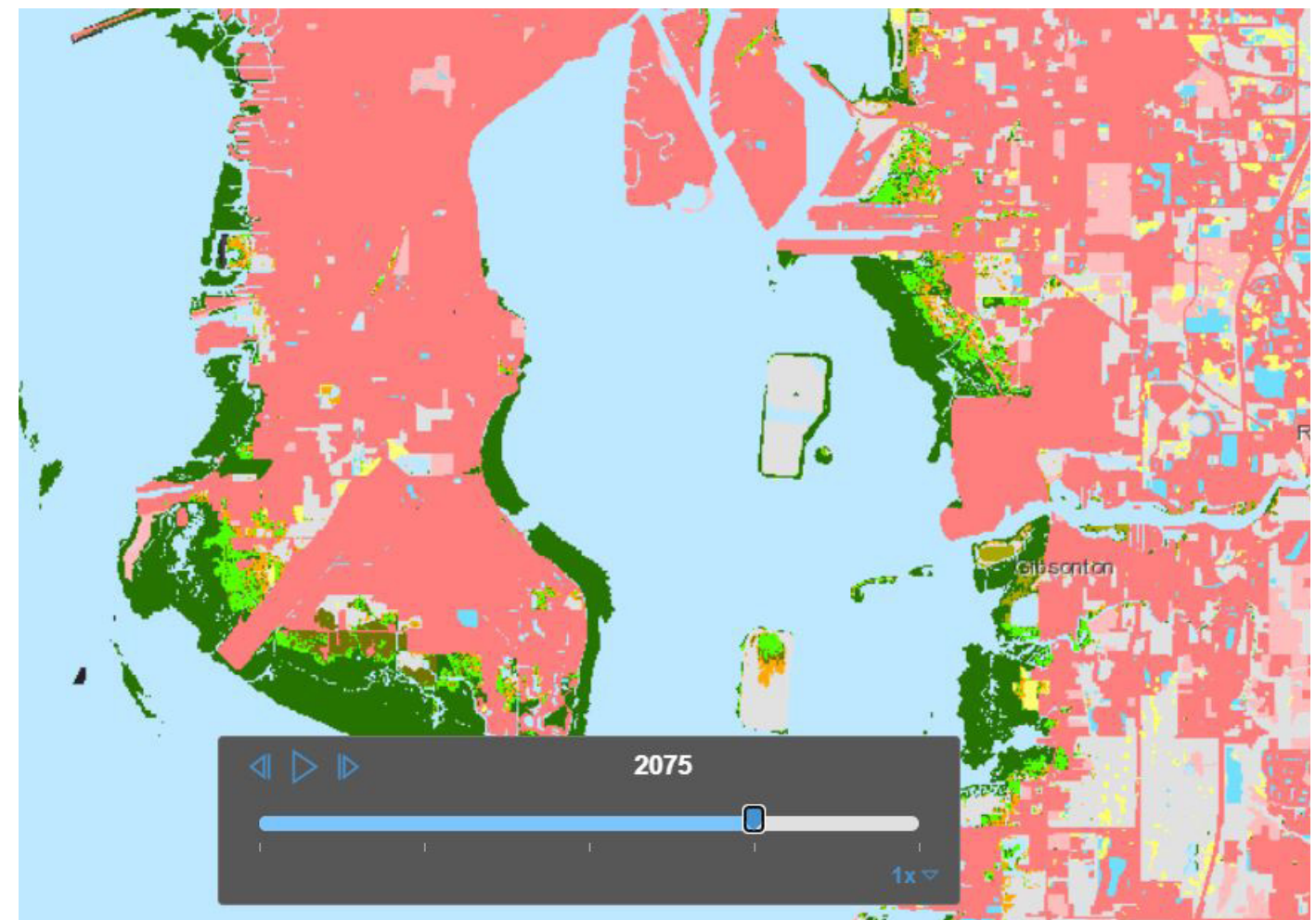
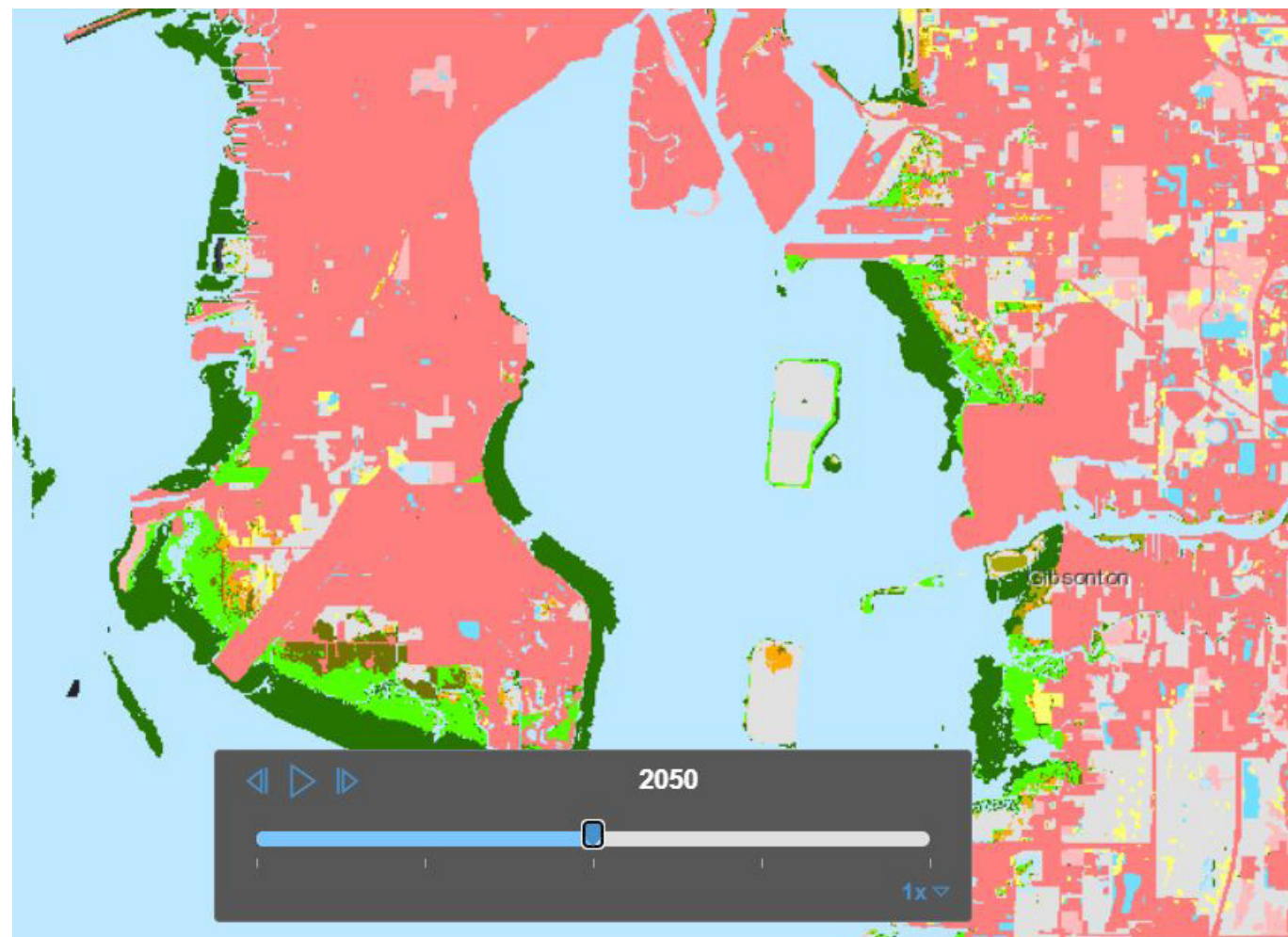


■ Developed- hard	■ Open Freshwater	■ Salt Marsh	■ Beach Dune
■ Developed- soft	■ Freshwater Marsh	■ Juncus Marsh	■ Seagrass
■ Undeveloped Upland	■ Mangroves	■ Salt Barren	

Tampa Bay Blue Carbon Assessment. D140671
Figure 15
Modeled Tampa Bay Habitat Changes
Under Two Different Accretion Rates

ENVIRONMENTAL

FROM THE TAMPA BAY SEA LEVEL RISE AND HABITAT PROJECTIONS VIEWER (TAMPA BAY ESTUARY PROGRAM)



SEA LEVEL RISE IN TAMPA

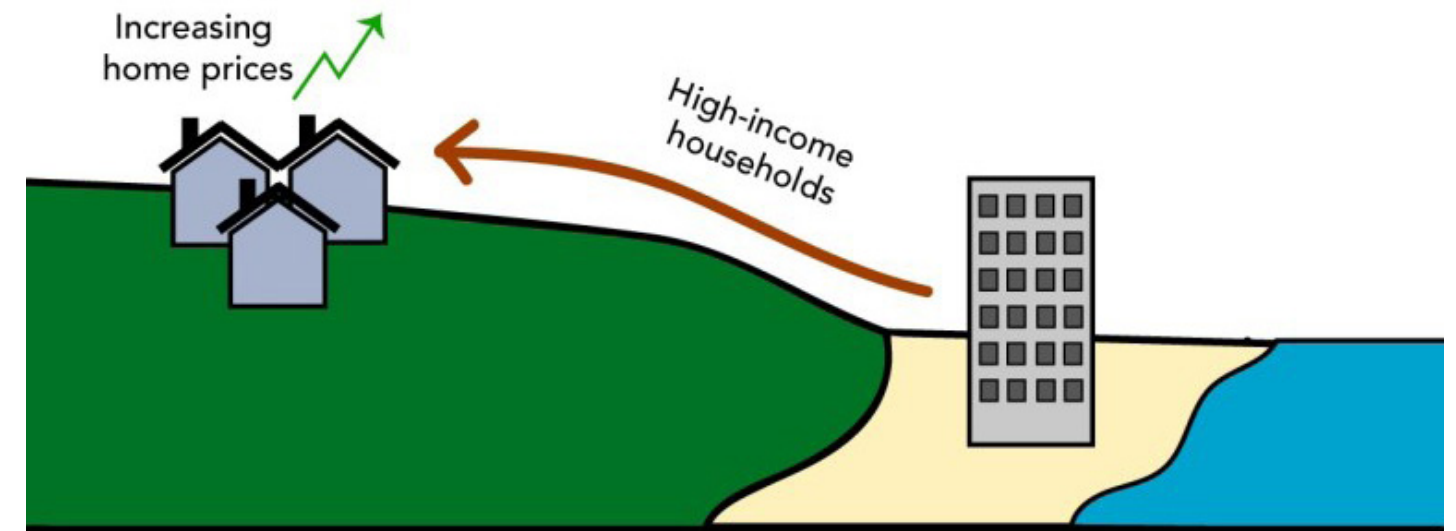
SOCIAL IMPACTS

SOCIAL

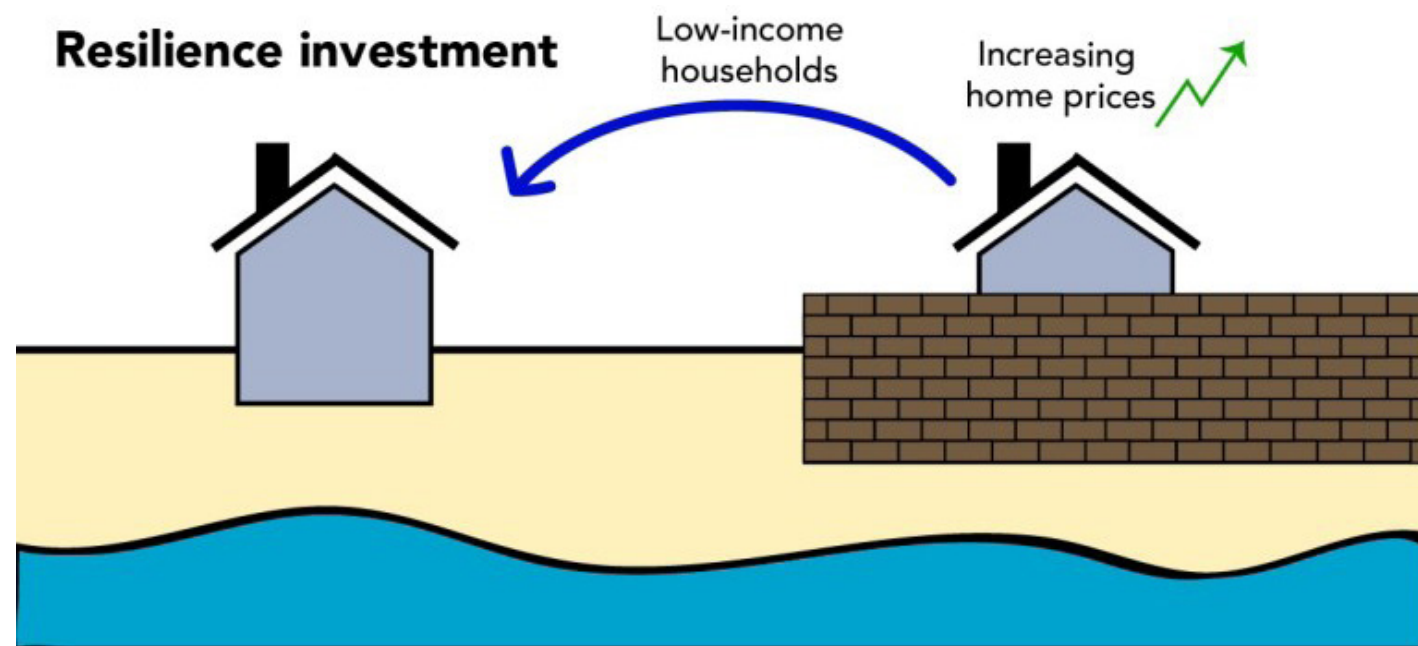
3 EXAMPLES OF CLIMATE GENTRIFICATION FROM RISING SEAS

<http://sitn.hms.harvard.edu/flash/2019/climate-newest-gentrifying-force-effects-already-re-shaping-cities/>

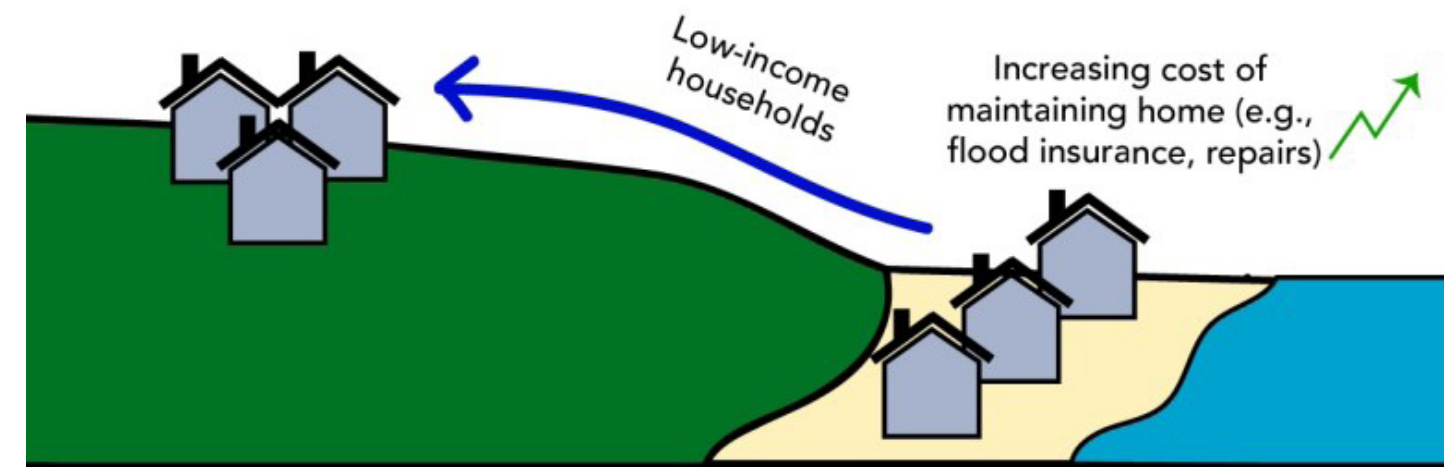
Superior investment



Resilience investment



Cost-burden



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