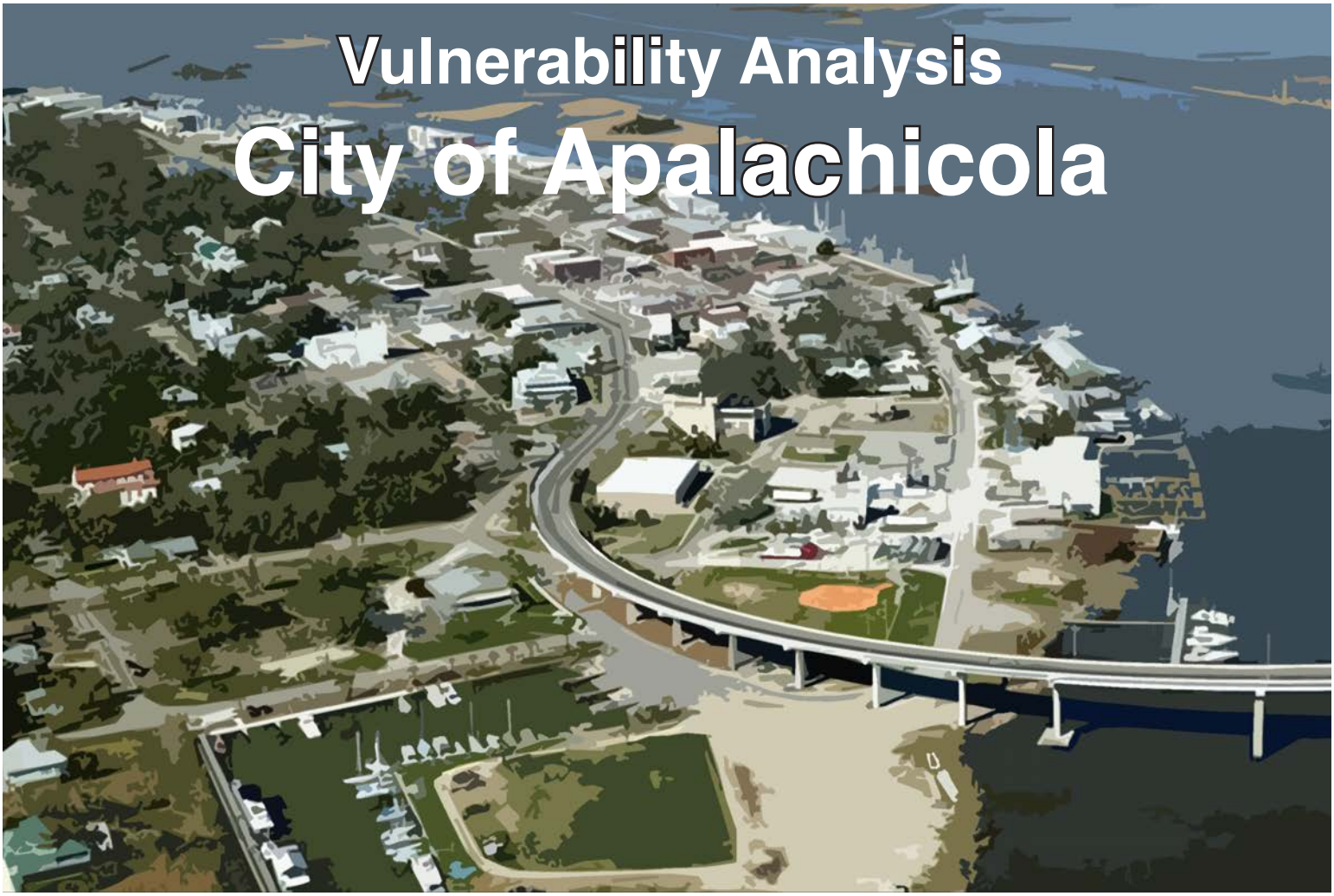
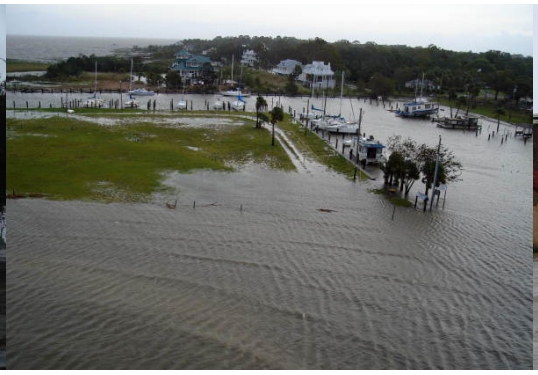
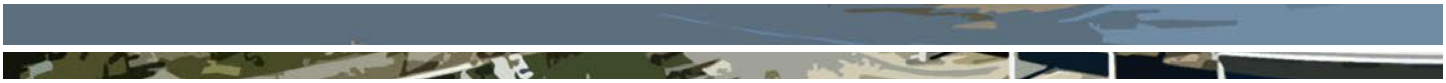
Vulnerability Analysis
City of Apalachicola





This publication was funded in part, through a grant agreement from the Florida Department of Environmental Protection, Florida Coastal Management Program, by a grant provided by the Office for Coastal Management under the Coastal Zone Management Act of 1972, as amended, National Oceanic and Atmospheric Administration Award No. NA15NOS4190096. The views, statements, findings, conclusions and recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of the State of Florida, NOAA or any of their sub-agencies. August 2017.



This page is left intentionally blank

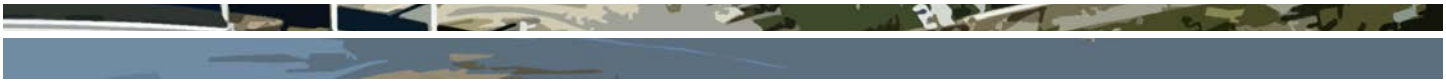


Table of Contents

Vulnerability Analysis Map Disclaimer

The City of Apalachicola Vulnerability Analysis data and maps are for planning, education and awareness purposes only. The information contained herein should not be used for site-specific analysis, navigation and flood rates or permitting. The City of Apalachicola makes no warranty explicit or implied, regarding the accuracy or use of this information. The purpose of this data is to provide a preliminary look at Sea Level Rise (SLR), erosion and coastal flooding impacts. The data and maps in this report illustrate the scale of potential flooding, not the exact location. The inundation areas depicted in the SLR analysis are not as precise as they may appear. The data, maps and information provided should be used only as a screening-level tool for management decisions.

About this Collection

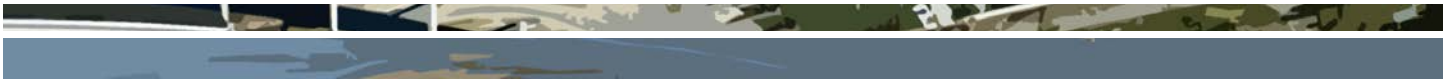
These data illustrate potential flooding from future sea level rise—from current mean higher high water to a six-foot rise. Mapping confidence layers highlight errors related to elevation and water height data. All data are based on the best available elevation data at the time of their creation. These data are used in NOAA's Sea Level Rise and Coastal Flooding Impacts Viewer, a screening-level tool that uses nationally consistent data sets and analyses. The viewer can be accessed at https://coast.noaa.gov/digitalcoast/tools/slr

Limitations and Notes

Working with Elevation Data. There are different methods of modeling and mapping coastal inundation. The NOAA models used as part of this study are considered still water (or "bathtub") models are coarse approaches that use water level and topographical data and apply sea level rise scenarios at constant elevations but do not include other factors such as erosion, tide, storm surge, wave dynamics, landform responses, or interaction with stormwater management systems. Maps generated from these models provide the basis for applying the sea level rise scenarios to assess potential extent and severity of flooding. While they have many limitations and should not be used for site-specific analysis, bathtub models are useful for visualizing potential extents of future high water levels for initial consideration of vulnerabilities.

These data illustrate the scale of potential flooding, not the exact location, and do not account for erosion, subsidence, or future construction. Inundation is shown as it would appear during the highest high tides (excludes wind driven tides) with the sea level rise amount. These data should be used only as a screening-level tool for management decisions. As with all remotely sensed data, all features should be verified with a site visit. The data are provided "as is," without warranty to their performance, merchantable state, or fitness for any particular purpose. The entire risk associated with the results and performance of these data is assumed by the user. These data should be used strictly as a planning reference and not for navigation, permitting, or other legal purposes.

The mapping does not incorporate future changes in coastal geomorphology and the digital elevation model used to map sea level rise does not incorporate a detailed pipe network analysis. However, applied at the appropriate scale, the use of the data contained herein provides a useful indicator of potentially vulnerable infrastructure under various SLR and tidal scenarios.



About The City

Vulnerability Analysis

The City of Apalachicola is located in Northwest Florida west of the junction of the Apalachicola River and Apalachicola Bay. The influx of freshwater from the Apalachicola River forms the Apalachicola National Estuary and is considered to be one of the most resource rich ecological systems in the United States. The Apalachicola Bay estuarine system constitutes the most environmentally sensitive area within Franklin County. Apalachicola is located approximately 60 miles east of Panama City and approximately 80 miles southwest of Tallahassee. Access to Apalachicola can only be achieved via State Highway 98 which runs east to west through the City. State Highway 98 is the only means of evacuation from the City.

The City covers approximately 2.0 square miles, approximately 1050 acres. It is bound on the east by the Apalachicola River, on the south by Apalachicola Bay, on the north by Scipio Creek, and the west by rural development and undeveloped forest land.

Elevations within the City generally range between 0 and 16 feet. The City is generally low relief in terms of elevation. Some areas are located in lower elevations close to sea level and some areas are on broad, low hills. The higher elevations coincide with sandy, well drained hills. The lower elevations are generally poorly drained. The lower elevations are also more prone to flooding. The lower elevations are along the shoreline and inland for two blocks, generally. The City has approximately 20,000 linear feet of shoreline.

City of Apalachicola Vulnerability Analysis

Overview of Vulnerability and Methodology

The vulnerability analysis portion of this report utilizes hazard-specific data to determine the short and long-term vulnerabilities of Sea Level Rise facing critical infrastructure, coastal properties and historic resources within the City Apalachicola. Much of this analysis focuses on the C-1, C-4 and RF zoning districts of the City's downtown historic district. For the purposes of this analysis, these districts represent a Focus Area where, upon review of the vulnerabilities, the City may wish to consider it a designated Adaptation Action Area to implement adaptation strategies for mitigating coastal flooding impacts.

Using Geographic Information System (GIS) data provided by the City of Apalachicola Planning Department, the Franklin County Property Appraiser's Office, SLR Model data from the National Oceanic and Atmospheric Administration (NOAA), and the Federal Emergency Management Agency (FEMA), the City was able to determine vulnerabilities from five perspectives.

1. Citywide Anticipated Impact. This series of GIS-based SLR modeling maps show the anticipated impacts of SLR on the City as evidenced by the low, medium and high inundation areas.

2. Critical Facility Exposure. This map details the critical facilities within the City that will be impacted by low, medium and high inundation levels.

3. City-owned and Publicly-owned Property Exposure. This map and data details those City and publicly-owned properties that will be impacted by low, medium and high inundations levels.

4. Financial Exposure. The financial exposure hazard analysis determines the property value of those parcels within the City's C-1, C-4 and RF district that will be impacted by low, medium and high inundation levels.

5. Historic Resource Exposure. This analysis identifies the impact to the City's historic resources as identified on the Florida State Master Site File within the low, medium and high inundation areas.

Using the Model

Six NOAA SLR inundation model datasets (1-6 foot increments) were imported into the City's GIS map to illustrate the potential inundation of floodwaters to the City. The results illustrate the vulnerability of the town's critical facilities, infrastructure, property and historic resources. For the purpose of this study, the zero to two (0-2) foot model datasets represent low inundation, the zero to four (0-4) foot model data sets represent medium inundation and the zero to six (0-6) foot model datasets represents high inundation. Isolated pockets of SLR are found inland of the coastal inundation areas and are represented separately on the map as ALFL_MOB_TLH2 layers. These areas represent low-lying elevations of the City and are not a model anomaly.

The tables and maps within this analysis reflect the acreage affected by low, medium and high inundation.

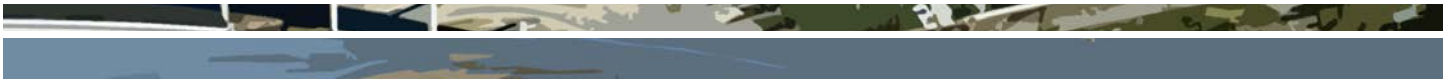


Table 1. Apalachicola Parcel Exposure to Sea Level Rise Projections

SLR Inundation	Parcel Acreage
Low	21.57 acres
Medium	47.71 acres
High	58.95 acres

Low Level Inundation - 38.51 acres

The total area of low level inundation was calculated around the City, not including marshes, to be 38.51 acres. This area includes roads, alleys, and unconstructed, platted roads. The total impact area to platted lots was calculated at 21.57 acres.

The projected low level of inundation would primarily affect parcels located along the extreme north (Wharf Lot I, Lots 38-49) and south end of the riverfront along Water Street (Wharf Lots 4-11 and a portion of Battery Park) and along the bayfront marsh along Bay Avenue (portions of blocks 192-198).

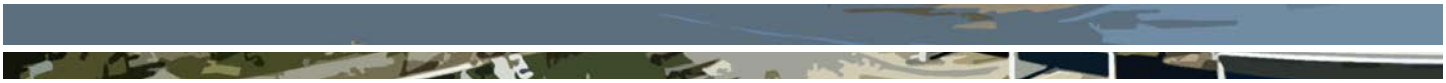
Many of the riverfront parcels affected between Avenue H north to Scipio Creek are already either wetlands or submerged and not suitable for development. There is a two block area between Market Street and Water street and Avenue I and J (Blocks K-1 and K-2) that also show inundation effects. The GIS wetlands parcel indicate wetlands on these parcels but a windshield survey disputes that. Block K-1 parcel is where the Water Street Hotel is located and K-2 parcel contains vacant cleared commercial property and the City parking lot. The FEMA flood zones for the riverfront lots range from AE12 at the north end to VE15 at the south end of Water Street.

Riverfront businesses along the northern and southern riverfront would be potentially inundated. A significant percentage of the commercial development within the impacted area have been built since the City adopted its initial floodplain management regulations in the early 80s' and are elevated to the required BFE levels in place at that time. Those older businesses in the impact area are primarily water-dependent businesses such as commercial seafood businesses which are designed to handle a certain amount of flow-through water. It is conceivable that ground-level equipment for all businesses along the riverfront inundation area may be impacted.

Along the Bay Avenue blocks, the projected inundation area primarily encompasses a thick fringe of existing wetlands. The FEMA flood zones for those areas fluctuates between VE14 and VE15. Without exception, all of the development along the bay inundation area is residential in nature and all have been built in compliance with floodplain management regulations in effect since the early 80s.

Medium Level Inundation - 94.20 acres

The total area of medium level inundation was calculated around the City, not including marshes, to be 94.20 acres. This area includes roads, alleys, and unconstructed, platted roads. The total impact area to platted lots was calculated at 47.71 acres.



The projected medium level of inundation would affect more than twice the low level projection area, basically expanding a wider band along the City's Riverfront and bayfront. Along the riverfront, the inundation area expands south to Avenue E (Highway 98) east from the River to Market Street. The broader band includes Wharf lots 23 through 49 as well as entire blocks G1, G2, H1, H2, J1, J2, K1, K2k, L, M, N, O, P & Q up through the City's Scipio Creek area. Interestingly, the expansion is not as pronounced at the southern end of the river, expanding only halfway into blocks A-1 and B-1and including most of the Battery Park area. The FEMA flood zones for the expanded commercial areas ranges from AE12 to the V zone classifications.

The projected medium level inundation area encompasses a greater number of downtown commercial buildings and critical infrastructure. There are a number of historic resources located within this inundation zone. Many of the commercial buildings are pre-firm construction and do not meet current FEMA required base flood elevations.

Along the bayfront, the inundation absorbs more of the same blocks (blocks 192-198) noted in the low level projection. The FEMA Flood Zones for those areas fluctuates between VE14 and VE15. All of the residential homes located in this exclusively residential area are elevated and are probably compliant with current FEMA base flood elevation requirements.

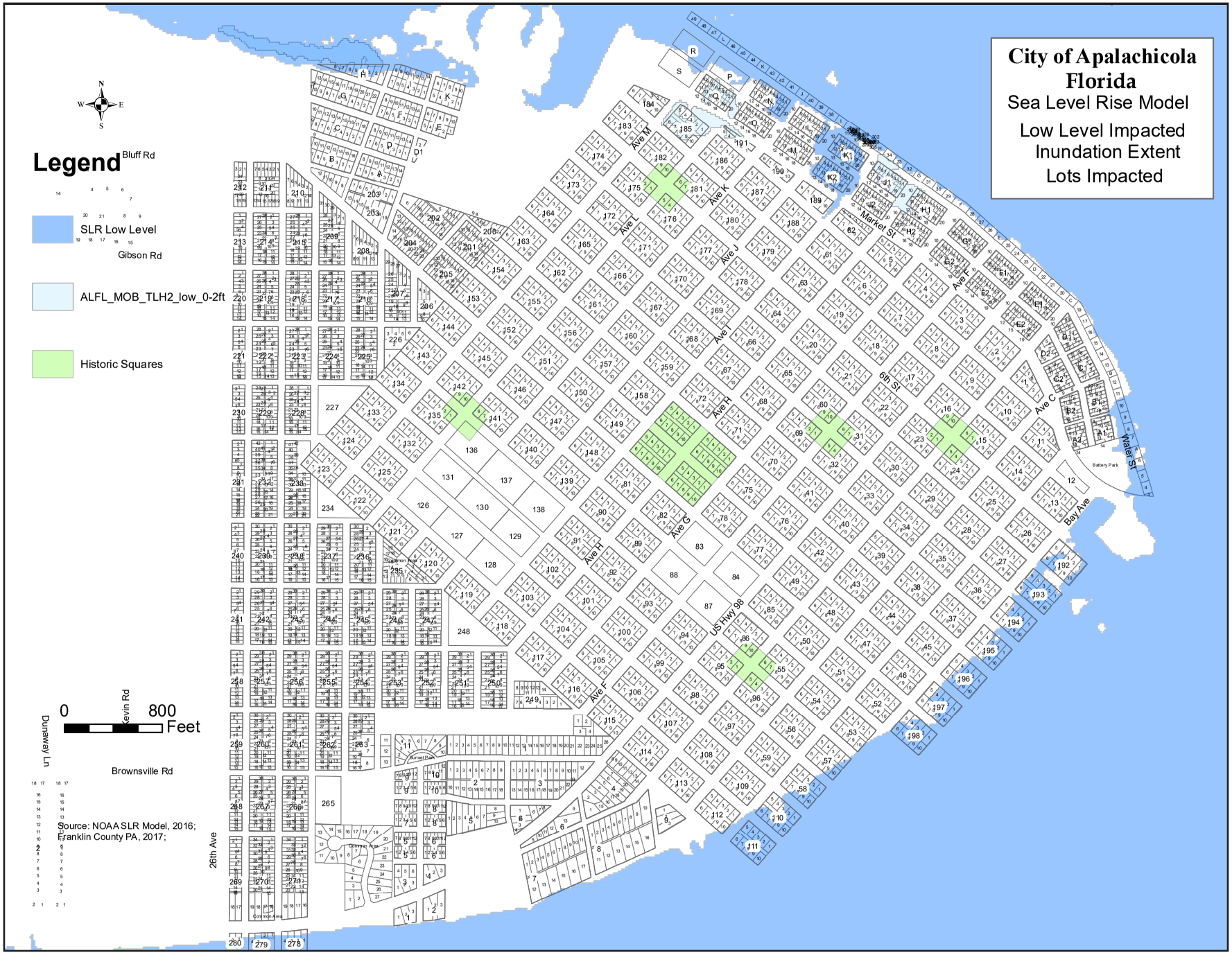
High Level Inundation - 119.85 acres

The total area of low level inundation was calculated around the City, not including marshes, to be 116.22 acres. This area includes roads, alleys, and unconstructed, platted roads. The total impact area to platted lots was calculated at 62.58 acres. This area includes two isolated areas of inundation.

The projected high level of inundation - defined as the six (6) foot inundation model - would expand the impact area within the City to over 1169 acres. Surprisingly, the expansion would not grow significantly in terms of area but the inundation level would be higher in those areas already impacted by the low and medium inundation model projections. Along the downtown commercial district, inundation levels would no doubt impact pre-firm construction, historic resources would be compromised and even post FIRM structures may possibly be impacted from the inundation. The model projects an area of inundation would expand from the river upland to 5th street at the north end of the City impacting blocks 183 through 185 - an area with a FEMA flood zone rating of AE11.

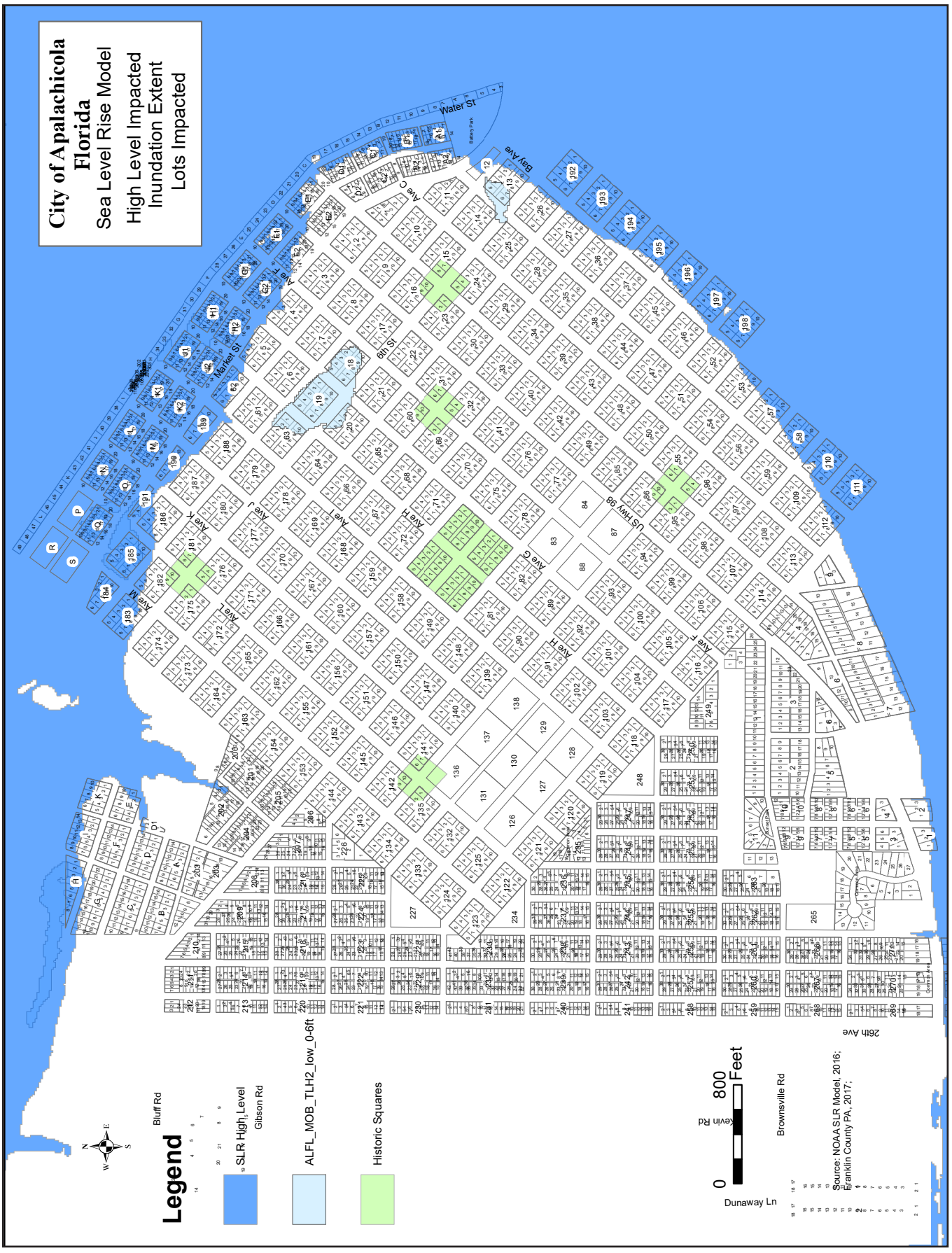
Along the bayfront, the impact area spreads into more of the FEMA zone VE15 area affecting Blocks 53, 57, 58, 110 and 111. It is possible some of the pre-firm residential development in this area could be affected.

Map 1. Low Projected Inundation



Map 2. Medium Projected Inundation

Map 3. High Projected Inundation



Critical Facility Vulnerability Analysis

Analysis of the effects of low, medium and high inundation on the critical facilities within the City

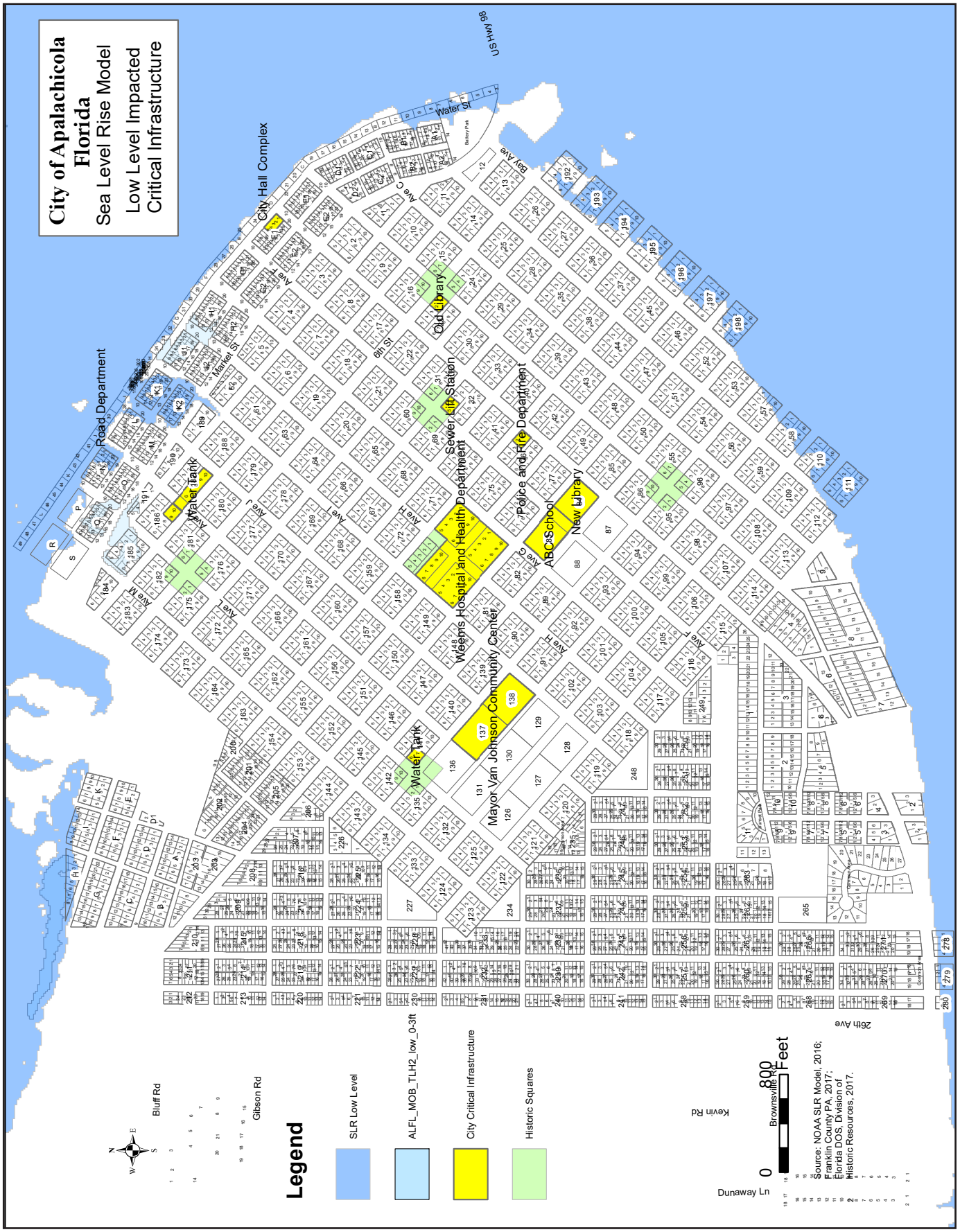
Table 2. Critical Facility Exposure to SLR Inundation

Facility Name	Type	Low SLR Inundation	Med SLR Inundation	High SLR Inundation
City Hall	Admin			x
Public Works	Admin			
Fire Dept.	Fire			
Public Library	Library			
Police Dept.	Police			
WW Trt. Plant	Infrastructure			
Water Plant	Infrastructure			
City Complex	Admin			
Hospital	Hospital			
ABC School	School			
Roadways				
US Highway 98			x	x
Water Street			x	x
Commerce Street			x	x
Market Street			x	x
Bay Avenue			x	x
Forbes Street			x	x
Leslie Street			x	x
Panton Street			x	x
Avenue D				
Avenue E				
Avenue F				
Avenue G				
Avenue H				
Avenue I				
Avenue J				
Avenue K				
Avenue L				
Avenue M				

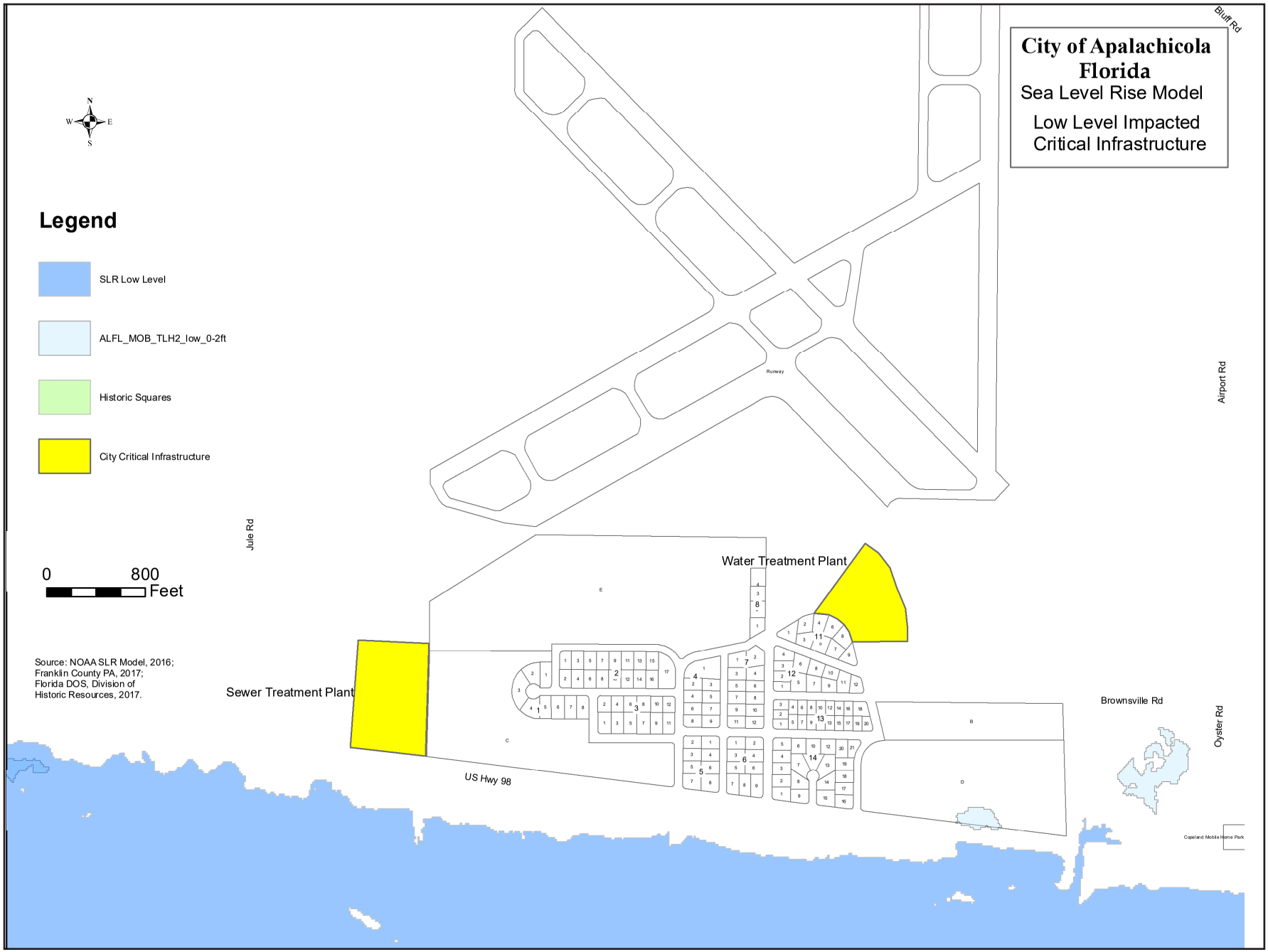
Analysis of Facilities

Based on the models, City Hall (1 Avenue E) is located in the high inundation area. Other critical infrastructure facilities are not shown to be affected by any of the proposed inundation levels. See maps 4-6.

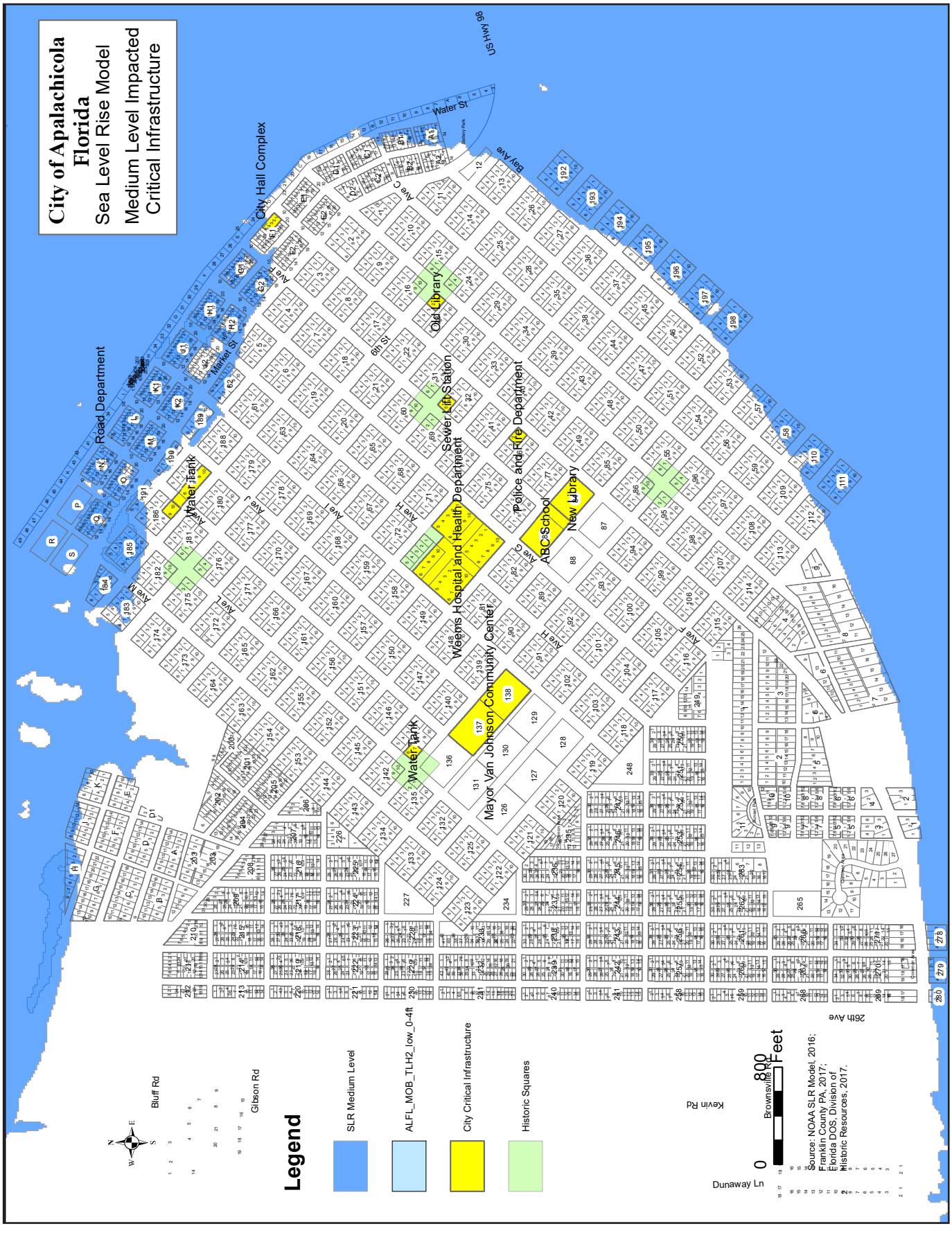
Map 4. Low Projected Inundation - Critical Infrastructure



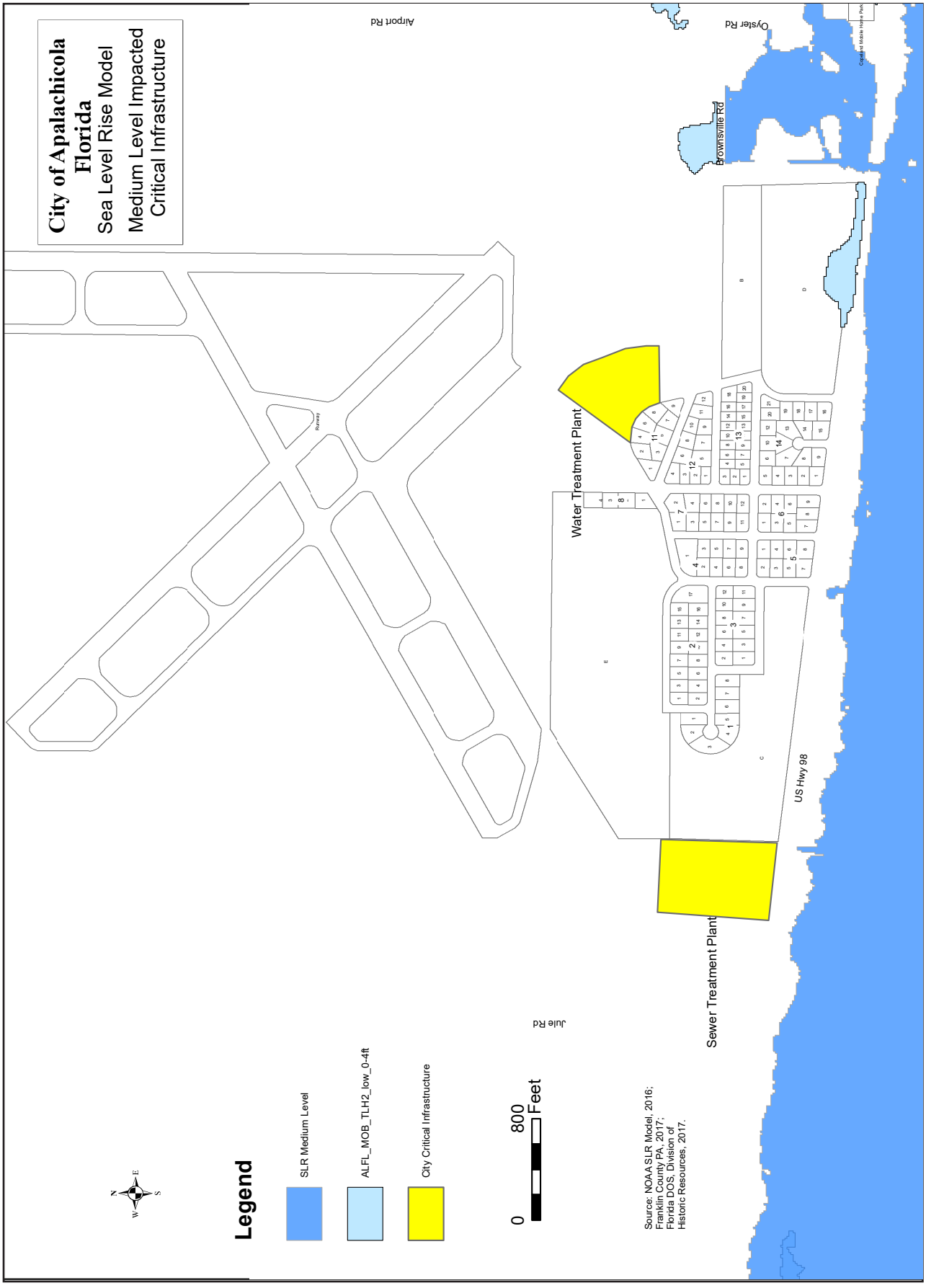
Map 4a. Low Projected Inundation - Critical Infrastructure - Detail



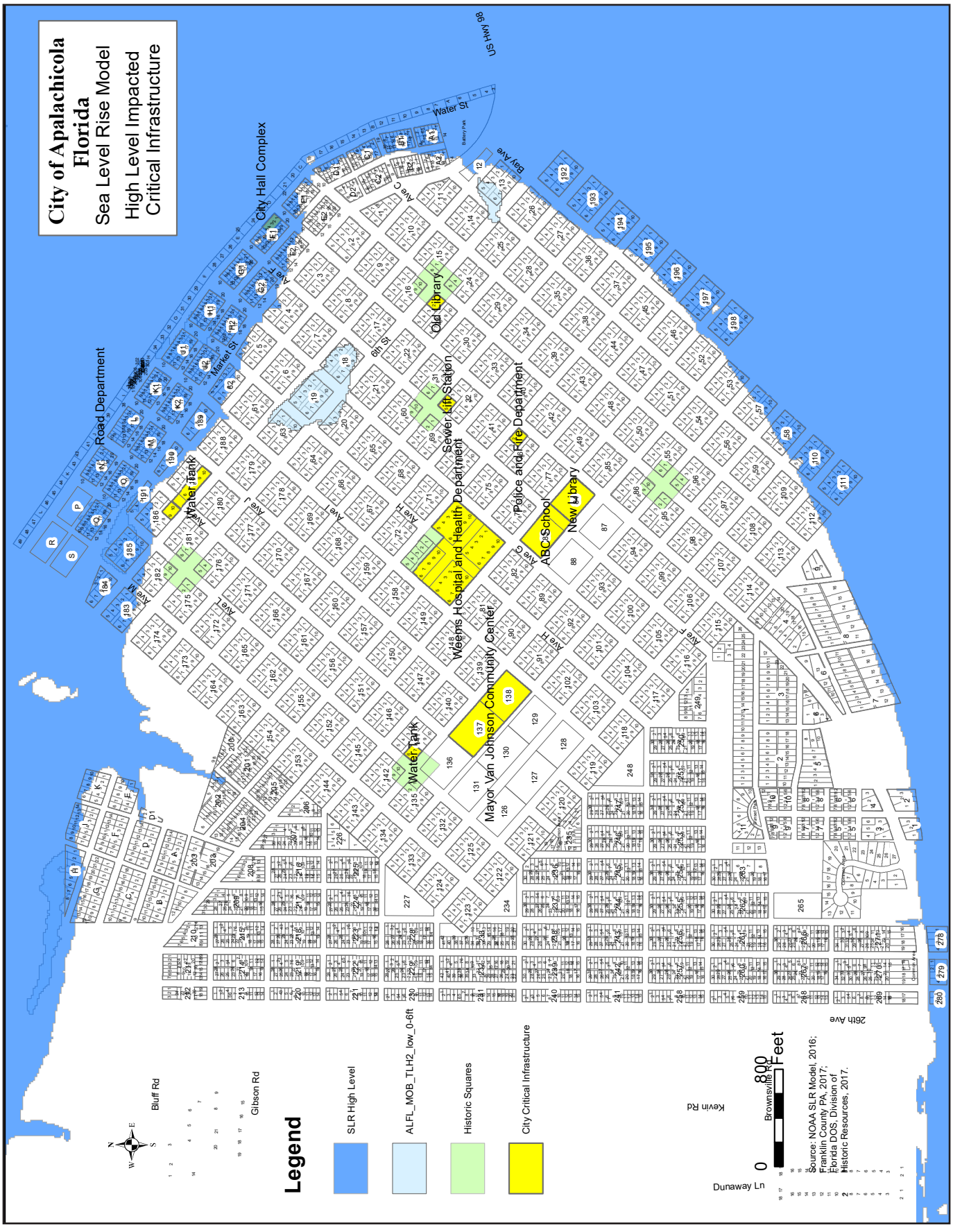
Map 5. Medium Projected Inundation - Critical Infrastructure



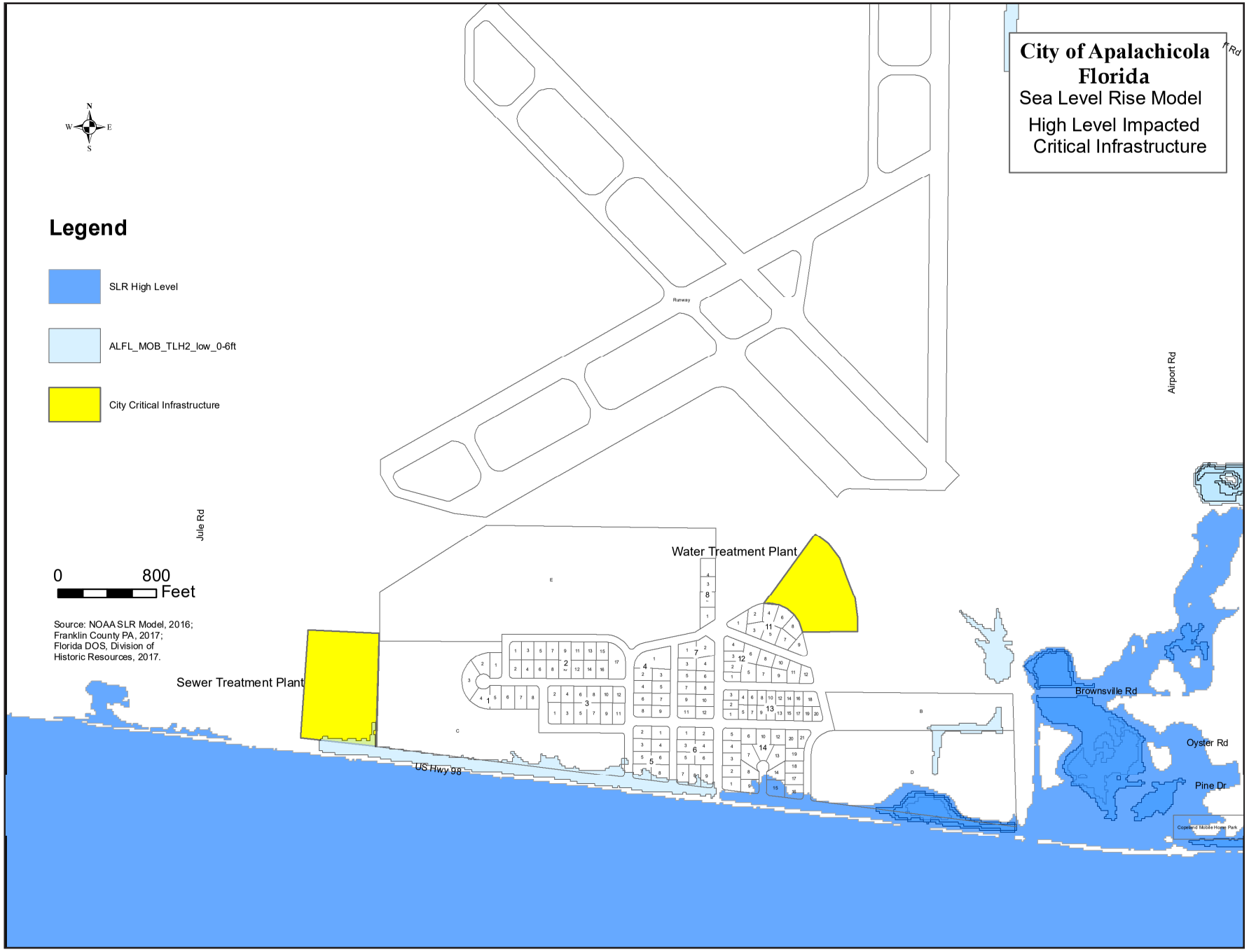
Map 5a. Medium Projected Inundation - Critical Infrastructure - Detail



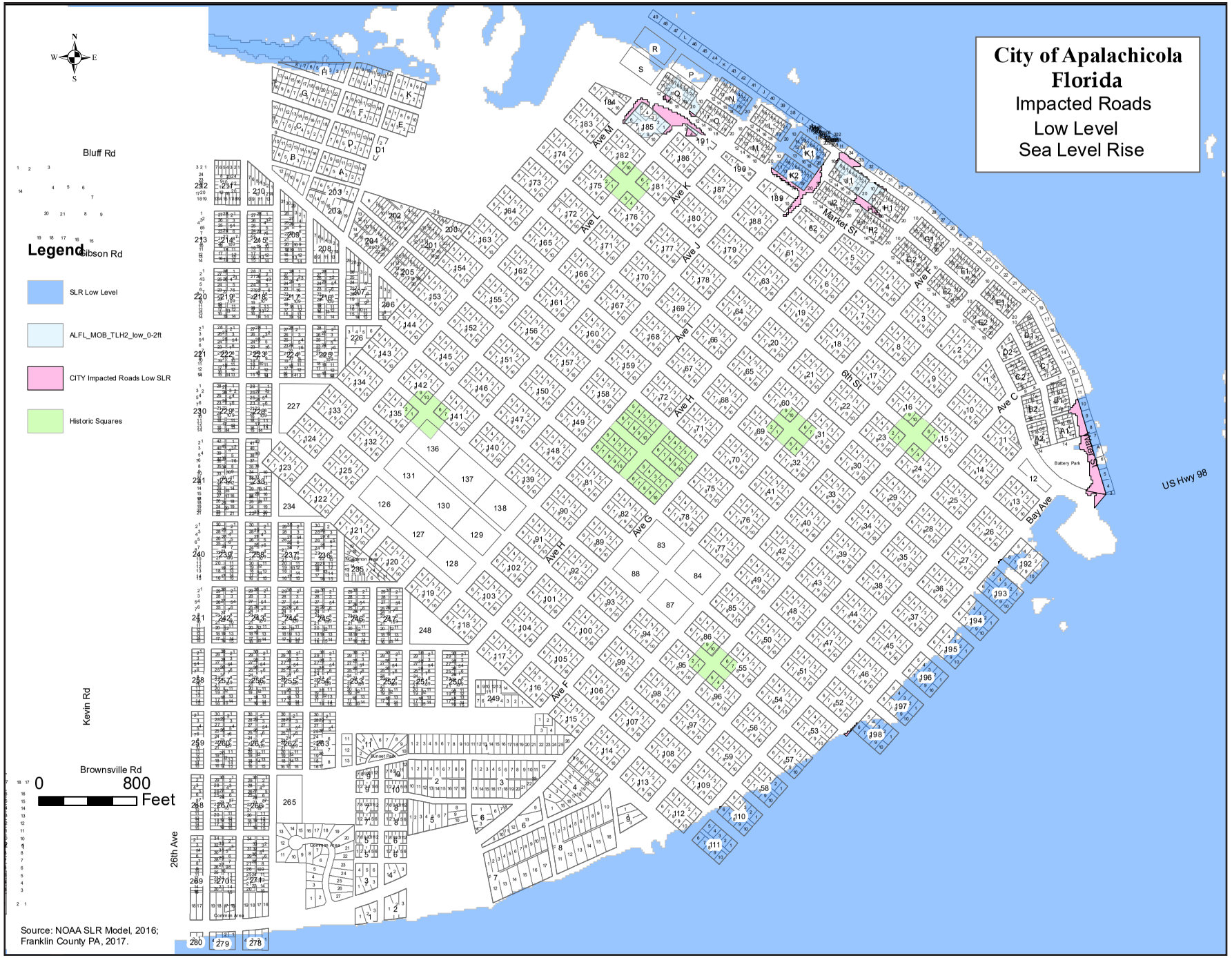
Map 6. High Projected Inundation - Critical Infrastructure



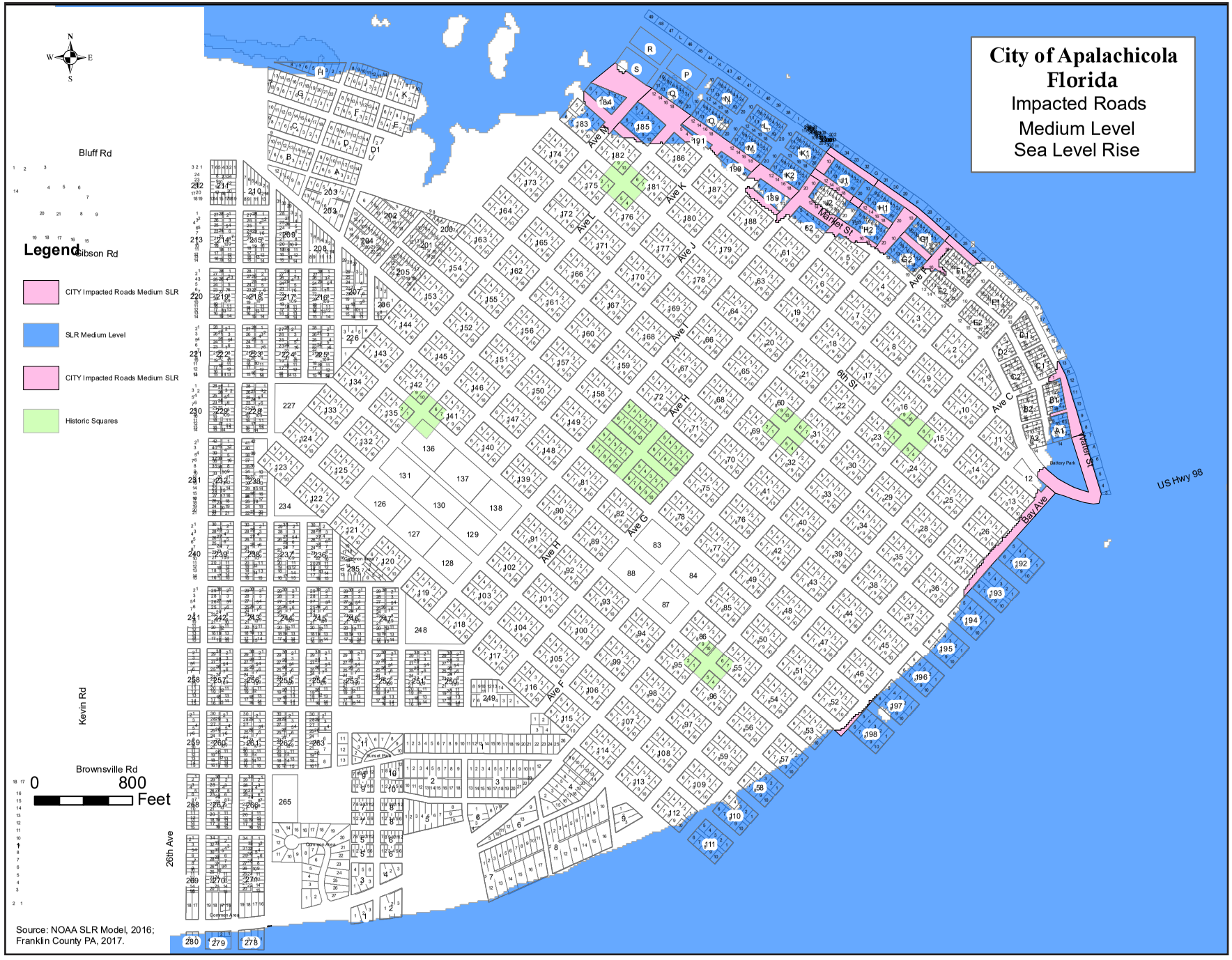
Map 6a. High Projected Inundation - Critical Infrastructure



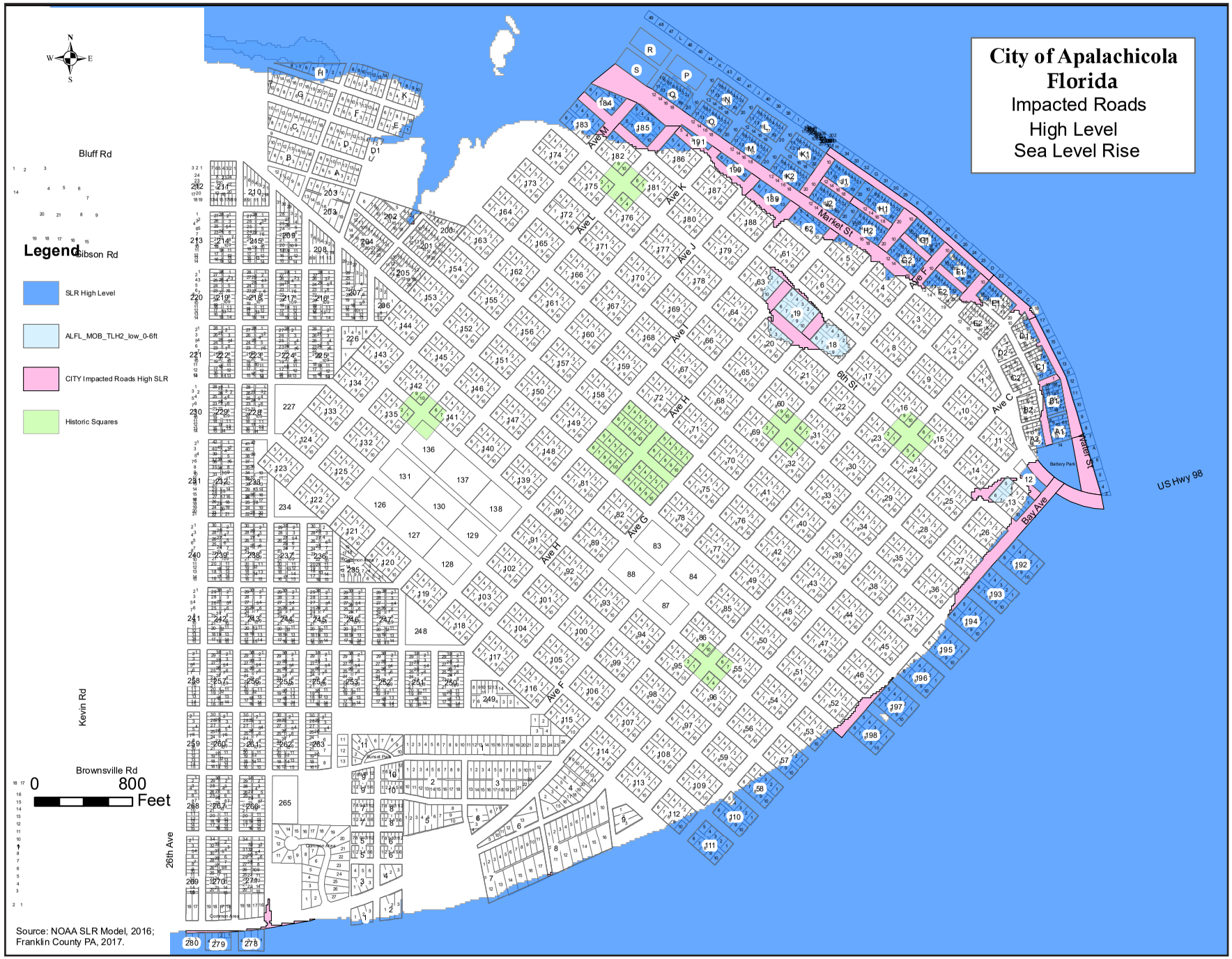
Map 7. Low Projected Inundation - Roadways



Map 8. Medium Projected Inundation - Roadways



Map 9. High Projected Inundation - Roadways



Roadway Vulnerability Analysis

Analysis of the effects of low, medium and high inundation on the roads within the City

Analysis of Roadways

The low inundation area will impact 3.79 acres of roadway.
The medium inundation are will impact 21.79 acres of roadway.
The high inundation area will impact 33.19 acres of roadway.

The impacts of low level inundation on the City's roads consist of the area at the far eastern point along water Street and patchy areas northwesterly along Water Street and Commerce Street. Medium level inundation affects additional areas of the Water Street and Commerce Street area, as well as portions of Market Street, 4th Street and 5th Street in the northwestern part of the City. Bay Avenue is inundated close to Battery Park in the medium inundation scenario.

In the low and medium inundations, U.S. Highway 98 is not affected. Under the high level inundation, U.S. Highway 98 has a small area of impact in the far western part of town. Water Street is completely impacted and bay Avenue is more impacted than in low and medium inundations. An isolated area at the confluence of 5th and 6th Streets and Avenue G and Avenue H is also impacted at a low area of elevation. Under both the medium and high level inundations, the U.S. Highway 98 bridge is flooded under the bridge, but does not affect the roadway. Water Street, Commerce Street and Market Street are the primary commercial downtown roadways that serve the commercial district. All three streets have impacts under the medium and high impacts. Smaller side streets Leslie, Panton and Forbes are affected nominally by the medium and high inundation areas, mostly where they intersect Water Street. All the Avenues from D through I are shown to be impacted, again mostly where they intersect with Water Street in the high inundation areas. Avenues E through I are impacted by medium level inundations.

It is important to note that the City layout contains many roads that, though platted, have never been developed. For the purposes of this report, if a platted road has not been built, it is not counted in the roadway impact acreage. Areas in the northwestern part of Water Street and Commerce Street especially have roads that are shown on the City plat that have not been constructed.

City & Publically-Owned Property Exposure

Analysis of the effects of low, medium and high inundation on the City and Publically-ownedProperties within the City

This matrix details those City and publically-owned properties potentially impacted by low, medium and high inundation levels as evidenced by the NOAA SLR modeling.

There are more than 80 publically-owned properties in the City. Fifty four parcels belong to the City of Apalachicola, 11 belong to the County and 18 are owned by either state or other public organizations. All publically-owned parcels and the inundation levels are identified on Maps 8-10.

Table 3. Publically-owned Properties

Block	Lot	Owned By
A	LOT 3	DOT
A	LOT 4	CITY
A	5 & SE 1/2 LOT 6	CITY
A	NW 1/2 LOT 6	CITY
A	LOT A	CITY
A	LOT 7	CITY
A1	LOT 10	COUNTY
A1	LOT11-13	COUNTY
A1	LOT 14	COUNTY
A2	LOT 1-7 8 9 10 11-14	COUNTY
B1	NE 60 FT LOT 1 & ALL LOTS 2 THRU 14	COUNTY
B1	LOTS 15-16-17	COUNTY
B1	SW 30 FT LOT 1 & ALL LOT 18	COUNTY
B2	LOT 1-16	DOT
C	LOT C	CITY
C	SE 60 FT WHARF LOT 20	CITY
C	WHARF LOT 20 & WHARF LOT 21 & 22	CITY
C	NW 60 FT WHARF LOT 22	CITY
D	LOT D	CITY
D2	LOTS 1-5 & 6-9	DOT
E	WHARF LOT E	US COAST GUARD
E	NW 1/2 WHARF LOT E	CITY
E1	LOT 12	CITY
F1	LOT 1-5 & 16-17	CITY
G	LOT G	CITY
H2	LOT 5	COUNTY
J2	LOT 2-19	CITY
K2	LOT 1-20	CITY
L & I	Partial 1, 2, 3, 4, 17	CITY
M	18-19-20	CITY
L	1-5, partial 6, 7, 16, 17 -20	CITY
L	9, 12 partial, 10-11	CITY
K-1	37 partial, 38, 39 Wharf lot 1	CITY
191	LOT 1-5	CITY
190	LOT 6-10	CITY
189	LOT 6-10	CITY
62	LOT 1	DOT
5	NW 1/2 LOT 3 & SE 1/2 LOT 4	CITY
3	NW 40 FT LOT 4 & ALL LOT 5	CITY
9	LOT 1 & SE 1/2 LOT 2	TIITF/DEPT OF MILITARY AFFAIRS APALACH ARMORY
9	LOT 2 3 & SE 1/2 LOT 4	TIITF/DEPT OF MILITARY AFFAIRS APALACH ARMORY
9	LOT 6-8	FIRST METHODIST CHURCH

Table 3. Publically-owned Properties

16	LOT 6-8	PROTESTANT EPISCOPAL CH DIOCESE CENT GULF COAST
30	LOT 6 & 7	MOUNT ZION BAPTIST CHURCH C/O CARL BAILEY
76	LOT 1 &2	CITY
99	LOT 9 & 10	EPISCOPAL CHURCH
184	LOTS 6 7 8 & LOT 9	CITY
182	LOT 9 & 10	CITY
181	LOT 6 & 7	CITY
175	LOT 1 & 2	CITY
176	LOT 4-10	CITY
15	LOT 6 & 7	TIITF/REC & PARKS JOHN GORRIE MUSEUM ST PARK
24	LOT 3-5	TIITF/DEP-REC & PARKS JOHN GORRIE MUSEUM ST PARK
23	LOT 1 & 2	CITY
22	LOT 6-10	CITY
31	LOT 1 - 10	CITY

Block	**Lot**	**Owned By**
60	LOT 9 & 10	CITY
69	LOT 1 & 2	CITY
32	LOT 4-7	CITY
55	LOT 6 & 7	CITY
96	LOT 4 & 5	CITY
86	LOT 9 & 10	CITY
95	LOT 1 & 2	CITY
84	Partial	CITY
84	Partial	BOARD OF PUBLIC INSTRUCTION
83	ALL OF BLOCK ORB	BOARD OF PUBLIC INSTRUCTION
88	ALL OF BLOCK	BOARD OF PUBLIC INSTRUCTION
87	LOTS 1 - 10	BOARD OF PUBLIC INSTRUCTION
WEEMS	LOT 4 & LOTS 1-3 LOT8-9-10 LOT 7	COUNTY
73	Partial	COUNTY
79 & 80	1-5 & 1/28 ALL 9 & 10 LESS	COUNTY
80	LOTS 6-7 AND 1/2 LOT 8 LOTS 3-4-5	APALACHEE COMMENTAL HEALTH
141	LOT 6 & 7	CITY
142	LOT 9 & 10	CITY
135	LOT 1 & 2	CITY
E	LOT 1 - 5	CITY
I	ALL LESS RR/RW COTTAGE HILL	CITY
F	ALL COTTAGE HILL	CITY
G	ALL COTTAGE HILL	CITY
C	COTTAGE HILL	CITY
B	COTTAGE HILL	CITY
203	LOT 8-12	CITY
1 9S	8W 8 ACRES IN NW 1/4	CITY

Map 11. Low Projected Inundation - Public Properties

Map 12. Medium Projected Inundation - Public Properties

Map 13. High Projected Inundation - Public Properties

C-1, C-4 & RF Financial Exposure Analysis

Analysis of the economic impacts of inundation and coastal flooding within C-1, C-4 & RF districts

The financial exposure hazard analysis determines the total land value, building value, assessed property value and taxable property valued located within the C-1, C-4 and RF zoning district. The matrix further analyzes the percentage of property located within Areas of Special Flood Hazard (Rated AE and V zones).

The C-1, C-4 and RF zoning districts represent the heart of Apalachicola's downtown commercial area. The lot sizes within most of these three districts (except the RF wharf lots) are smaller than most of the platted residential lots adjacent to the district. C-1 and C-4 lots are generally 30x 80 and the development standards within these districts allows for a more dense and intense use of land. Proximity to the town's scenic riverfront, congregation of tourism-related businesses and wealth of historic resources within these districts results in higher property values than other commercial areas throughout the City. And, because of the downtown district's proximity to the Apalachicola River and Apalachicola Bay, much of the downtown commercial area is located within FEMA's Area of Special Flood Hazard - rated AE & V zones. The area is economically valuable and vulnerable at the same time. Development interests are challenged to find the economic sweet spot for developing this vulnerable, protected and historically significant area of the City.

Value of Property

There are 314 lots located within the City's C-1 district representing 22.99 acres. There are 258 lots with structural improvements and 56 vacant lots. 3 of the vacant lots are owned by the City. The total assessed value of property in this district is $21,859,047 (A parcel value breakdown is identified in Table 4)

There are 240 lots located within the City's C-4 district representing13.63 acres. There are 138 lots with structural improvements and 102 vacant lots. 40 of the vacant lots are owned by the City. The total assessed value of property in this district is $5,678,843 (A parcel value breakdown is identified in Table 4)

There are 58 lots located within the City's RF district representing 9.07 acres. There are 50 lots with structural improvements and 8 vacant lots. The 8 vacant lots are owned by the City and County. The total assessed value of property in this district is $11,1076,898 (A parcel value breakdown is identified in Table 4)

Table 4. Property Value C-1, C-4, R-F

C-1 - Block A1	JUST VALUE	LAND VALUE	BUILDING VALUE	ASSESSED VALUE	TAXABLE VALUE
Lots 1-4	$171,314	$96,000	$71,035	$122,093	$122,093
Lots 5-7	$72,000	$72,000	$0	$12,579	$12,579
Lots 8-9	$66,408	$48,000	$18,408	$30,785	$30,785
Lot 10	$24,000	$24,000	$0	$2,795	$0
Lots 11-13	$72,000	$72,000	$0	$12,038	$0
Lot 14	$24,000	$24,000	$0	$24,000	$0
C-1 Block A2					
1-10 Parcel	$354,495	$354,495	$0	$39,729	$0
11-14 County					
C-1 B1					
1-14 Parcels	$420,000	$420,000	$0	$420,000	$0
15-17 Parcels	$119,753	$90,000	$29,753	$119,753	$0
18	$30,000	$30,000	$0	$30,000	$0
C-1 B2					
1-8 Parcel	$480,010	$480,000	$0	$480,000	$0
9-16 Parcel	$210,000	$210,000	$0	$210,000	$0
C-1 C1					
1-4 Parcel	$223,552	$144,000	$68,739	$193,107	$193,107
5-7 Parcel	$135,000	$135,000	$0	$58,897	$58,897
8-9 Parcel	$108,000	$108,000	$0	$47,117	$47,117
10-11 Parcel	$179,046	$108,000	$67,769	$151,738	$151,738
12-13 Parcel	$134,650	$90,000	$43,077	$134,650	$134,650
14-15 Parcel	$111,336	$90,000	$18,273	$36,120	$11,120
Lot 16	**$229,725**	**$144,000**	**$82,404**	**$201,904**	**$201,904**
C-1 C2					
1-2 Parcel	$195,685	$108,000	$87,331	$176,326	$176,326
Lot 3	$69,323	$54,000	$15,168	$54,841	$54,841
4-7 Parcel	$216,000	$216,000	$0	$145,200	$145,200
Lot 8	$54,000	$54,000	$0	$54,000	$54,000
9-12 Parcel	$256,182	$216,000	$38,472	$193,820	$193,820
Lot 13	$216,256	$54,000	$161,716	$204,054	$204,054
14-16 Parcel	$249,919	$144,000	$104,500	$207,393	$228,132
C-1 D1					
LOTS 1-2 16 -17	$108,000	$108,000	$0	$87,120	$87,120
Lot 3	$54,000	$54,000	$0	$43,560	$43,560
4-5 Parcel	$108,000	$108,000	$0	$87,120	$87,120
6-9 Parcel	$213,933	$162,000	$39,987	$194,326	$194,326
10-12 Parcel	$213,819	$129,600	$83,861	$206,449	$206,449
13-14 Parcel	$86,000	$86,400	$0	$58,080	$58,080
Lot 15	$54,000	$54,000	$0	$36,300	$36,300
LOT 1,2,16,17	$115,958	$108,000	$7,958	$55,574	$55,574
C-1 D2					
LOTS 1 -5 & 6 -9	$360, 010	$360,000	$0	$242,012	$0
LOTS 6 - 9	$439,240	$118,800	$316,532	$277,786	$277,786
Lot 1	$122,324	$54,000	$68,324	$122,324	$122,324
Lot 2	$54,000	$54,000	$0	$43,560	$43,560
LOT 3	$167,801	$51,300	$116,501	$167,801	$167,801
LOTS 3-4-5-16	$541,820	$214,200	$321,553	$541,820	$541,820
LOTS 6 & 15	$149,490	$115,200	$0	$134,419	$134,419
LOTS 7, 13, 14	$168,480	$162,000	$0	$138,521	$138,521
Lot 8	$103,679	$54,000	$47,761	$98,207	$98,207
Lot 9	$54,000	$54,000	$0	$43,560	$0
Lot 10	$54,000	$54,000	$0	$43,560	$43,560
Lot 11	$111,453	$54,000	$57,165	$106,632	$106,632
Lot 12	$54,000	$54,000	$0	$36,300	$0
Lot 19	$247,260	$54,000	$180,910	$247,260	$247,260
Lot 20	$231,248	$54,000	$176,575	$231,248	$231,248

Table 4. Property Value C-1, C-4, RF

	JUST VALUE	LAND VALUE	BUILDING VALUE	ASSESSED VALUE	TAXABLE VALUE
C-1 E2					
LOTS 1-2 LOT 3	$337,853	$72,000	$264,701	$158,442	$158,442
LOTS 1-2-3	$67,881	$43,200	$24,681	$59,554	$59,554
LOTS 1-2-3	$61,735	$43,200	$18,535	$51,955	$51,955
LOT 3 -4	$223,636	$74,700	$148,936	$223,636	$223,636
LOT 5 -6	$156,471	$74,700	$81,771	$154,105	$154,105
LOTS 8 9 10	$889,772	$329,400	$546,084	$889,772	$889,772
LOT 13 14	$112,364	$52,200	$60,164	$109,854	$109,854
LOT 16 17 18	$128,519	$79,200	$49,319	$114,337	$114,337
LOT 18 19	$114,919	$50,400	$62,856	$113,760	$113,760
LOT 19 & 20	$284,330	$90,000	$194,330	$284,330	$284,330
LOTS 1 - 5&20	$604,820	$271,800	$333,020	$604,820	$0
LOT 6	$140,001	$1	$140,000	$140,001	$140,001
1/2 LOT 6	$190,001	$1	$190,000	$190,001	$190,001
1/2 LOT 7	$140,001	$1	$140,000	$140,001	$140,001
1/2 LOT 7	$190,001	$1	$190,000	$190,001	$190,001
1/2 LOT 8	$140,001	$1	$140,000	$140,001	$140,001
1/2 LOT 8	$190,001	$1	$190,000	$190,001	$190,001
1/2 LOT 9	$140,001	$1	$140,000	$140,001	$140,001
1/2 LOT 9	$190,001	$1	$190,000	$190,001	$190,001
1/2 LOT 10	$140,001	$1	$140,000	$140,001	$140,001
1/2 LOT 10	$190,001	$1	$190,000	$180,300	$130,300
LOT 11 AND 20	$140,001	$1	$140,000	$140,001	$140,001
LOT 13 14	$140,001	$1	$140,000	$140,001	$140,001
LOT 15	$140,001	$1	$140,000	$140,001	$140,001
LOTS 16-17	$108,000	$108,000	$0	$72,600	$0
Lot 18	$54,000	$54,000	$0	$36,300	$36,300
LOT 19	$245,826	$84,000	$160,326	$244,041	$244,041
C-1 F2					
LOTS 1 2 3 4	$208,671	$111,600	$97,071	$163,110	$163,110
LOTS 1-4	$406,210	$88,200	$316,595	$406,210	$0
LOT 5	$152,922	$108,000	$44,922	$119,208	$119,208
LOTS 6, 7	$108,000	$108,000	$0	$108,000	$0
Lot 8	$54,000	$54,000	$0	$54,000	$0
9-12 Parcel	$287,000	$216,000	$0	$216,000	$216,000
LOT 15	$27,000	$27,000	$0	$27,000	$27,000
LOT 16 & LOT 5	$268,794	$54,000	$213,894	$268,794	$268,794
Lot 17	$105,516	$54,000	$51,375	$98,635	$98,635
18-20 Parcel	$331,826	$216,000	$115,198	$158,632	$158,632
C-1 G1					
Lot 1	$99,377	$54,000	$45,377	$70,601	$70,601
2-4 Parcel	$181,874	$162,000	$18,074	$154,727	$154,727
LOT 5 & 16	$91,464	$54,000	$37,446	$88,891	$88,891
Lot 6	$100,104	$54,000	$46,081	$99,345	$99,345
Lot 7	$54,000	$54,000	$0	$43,560	$43,560
8-9 Parcel	$75,612	$73,440	$0	$75,612	$75,612
LOT 10	$58,690	$54,000	$4,550	$49,235	$49,235
LOT 10	$34,632	$32,400	$2,232	$18,208	$18,208
Lot 11	$173,339	$54,000	$119,339	$167,729	$167,729
12-13 Parcel	$115,218	$108,000	$7,218	$81,334	$81,334
Lot 14	$65,082	$54,000	$10,159	$49,709	$49,709
Lot 15	$54,000	$54,000	$0	$36,300	$36,300
LOT 16 &17	$83,192	$75,600	$7,430	$60,006	$60,006
LOT 17-20	$311,611	$221,400	$80,521	$259,896	$259,896
C-1 G2					
1-18	$486,000	$486,000	$0	$110,276	$110,276
Lot 19	$54,000	$54,000	$0	$36,300	$36,300
Lot 20	$273,818	$54,000	$219,818	$273,818	$273,818

Table 4. Property Value C-1, C-4, RF

	JUST VALUE	LAND VALUE	BUILDING VALUE	ASSESSED VALUE	TAXABLE VALUE
C-1 1					
1-2 Parcel	$3,000	$3,000	$0	$3,000	$3,000
Lot 3	$59,529	$36,000	$47,874	$84,539	$84,539
4-5 Parcel	$167,993	$57,600	$71,444	$129,593	$129,593
LOTS 1-3	$790,782	$161,500	$622,757	$790,782	$790,782
LOTS 4-7	$150,102	$110,500	$15,952	$150,102	$150,102
LOT 4&5	$310,353	$76,500	$225,058	$310,353	$310,353
Lot 1	$109,527	$51,000	$56,367	$109,527	$109,527
Lot 2	$51,000	$51,000	$0	$48,315	$48,315
3-5 Parcel	$385,908	$153,000	$213,803	$385,908	$385,908
C-1 2					
LOT 1	$644,179	$97,750	$543,722	$644,179	$644,179
LOT 1&2	$115,602	$31,875	$83,727	$115,602	$115,602
LOT 2	$303,553	$31,875	$264,580	$303,553	$303,553
Lot 3	$119,933	$51,000	$68,933	$119,933	$119,933
LOT 4	$24,526	$22,100	$190	$18,305	$18,305
LOT 4	$157,386	$25,500	$131,886	$157,386	$157,386
LOTS 4 & 5	$113,816	$54,400	$59,416	$113,816	$113,816
LOT 5	$253,860	$38,250	$215,167	$196,669	$196,669
LOT 5-7	$154,016	$85,000	$58,637	$154,016	$154,016
LOT 7	$25,500	$25,500	$0	$17,848	$17,848
LOT 8-10	$318,703	$89,250	$228,406	$318,703	$318,703
LOT 1&2	$54,010	$54,000	$0	$54,010	$54,010
LOT 2-4	$75,600	$72,000	$0	$75,600	$75,600
LOT 4&5	$87,974	$42,500	$42,151	$87,974	$87,974
C-1 3					
LOT 1&2	$72,248	$68,000	$0	$72,248	$72,248
LOT 2-4	$102,655	$102,000	$0	$102,655	$102,655
LOT 4&5	$189,829	$85,000	$102,591	$189,829	$189,829
LOT 6	$48,695	$15,750	$32,191	$47,790	$47,790
LOT 6 & 7	$226,224	$42,000	$182,954	$202,947	$152,447
LOT 7 & 8	$159,328	$36,750	$118,609	$159,328	$109,328
9-10 Parcel	$310,638	$82,500	$212,634	$310,638	$310,638
1-2 Parcel	$221,966	$82,500	$130,446	$221,966	$221,966
Lot 3	$98,744	$31,500	$62,772	$97,068	$97,068
4-5 Parcel	$195,250	$63,000	$126,167	$191,675	$191,675
C-1 4					
1-3 Parcel	$250,738	$180,000	$64,198	$250,738	$250,738
4-5 Parcel	$80,023	$63,000	$12,761	$59,436	$25,000
LOT 6	$31,500	$31,500	$0	$23,100	$23,100
LOT 6	$55,651	$15,750	$38,369	$50,754	$25,000
Lot 7	$69,290	$31,500	$32,201	$64,669	$64,669
Lot 8	$65,082	$31,500	$29,232	$48,822	$23,822
9-10 Parcel	$140,140	$63,000	$62,552	$131,054	$131,054
C-1 5					
Lot 10	$40,415	$5,220	$35,195	$40,415	$40,415
8-9 Parcel	$10,440	$10,440	$0	$10,440	$10,440
Lot 7	$5,220	$5,220	$0	$5,220	$5,220
Lot 6	$5,220	$5,220	$0	$5,220	$5,220
Lot 10	$5,220	$5,220	$0	$5,220	$5,220
Lot 9	$18,856	$5,220	$13,636	$18,856	$0
LOT 3&8	$24,709	$7,412	$17,115	$24,257	$0
Lot 6-7	$17,344	$10,544	$6,800	$17,344	$17,344
6-10 Parcel	$105,000	$105,000	$0	$38,213	$0
1-6 & 15-20	$144,000	$144,000	$0	$51,654	$51,654

Table 4. Property Value C-1, C-4, RF

C-4 H1	JUST VALUE	LAND VALUE	BUILDING VALUE	ASSESSED VALUE	TAXABLE VALUE
LOT 1-6 & 15-20	$144,000	$144,000	$0	$51,654	$51,654
LOT 7-15	$96,000	$96,000	$0	$34,436	$34,436
C-4 H2					
LOT 1-4	$84,000	$84,000	$0	$17,218	$17,218
Lot 5	$21,000	$21,000	$0	$4,304	$0
6-8	$68,290	$63,000	$4,510	$21,128	$21,128
9-10	$42,000	$42,000	$0	$8,610	$8,610
11-20	$210,000	$210,000	$0	$43,044	$43,044
C-4 H5					
LOT 1& 2	$55,755	$47,250	$24,255	$45,933	$45,933
LOT 3 & 4	$6,920	$5,220	$0	$6,920	$0
NW 1/2 LOT 4	$5,913	$2,610	$3,303	$5,913	$5,913
NW 1/2 LOT 4	$5,913	$2,610	$3,303	$5,913	$5,913
Lot 5 $34,308	$34,308	$5,220	$26,887	$34,308	$9,308
C-4 J1					
LOT 1-20	$204,000	$204,000	$0	$62,414	$62,414
C-4 J2					
1 & 20	$42,000	$42,000	$0	$12,210	$12,210
LOT 2-19	$378,000	$378,000	$0	$271,990	$0
C-4 62					
Lot 1	$5,220	$5,220	$0	$5,220	$0
Lot 2	$2,766	$2,766	$0	$2,766	$2,766
Lot 3 & 8	$24,709	$7,412	$17,115	$24,257	$0
LOT 4-7	$17,344	$10,544	$6,800	$17,344	$17,344
C-4 K1					
LOT 1-4 &17-20	$883,200	$883,200	$0	$883,200	$0
C-4 K2					
LOT 1-20	$420,000	$420,000	$0	$420,000	$0
C-4 L1					
WHARF LOTS I-J	$890,334	$391,680	$446,841	$890,334	$890,334
C-4 M1					
WHARF LOTS L-O	$890,334	$391,680	$446,841	$890,334	$890,334
C-4 190					
LOT 6-10	$105,000	$105,000	$0	$33,246	$0
C-4 O					
WHARF LOTS I-J-	$890,334	$391,680	$446,841	$890,334	$890,334
C-4 191					
LOT 1-5	$105,000	$105,000	$0	$13,375	$0
C-4 Q					
LOT 20	$454,374	$264,000	$155,248	$454,374	$454,374
C-4 S					
LOTS 3-5 4-7	$528,064	$240,000	$265,779	$528,064	$528,064

Table 4. Property Value C-1, C-4, RF

RF - N	JUST VALUE	LAND VALUE	BUILDING VALUE	ASSESSED VALUE	TAXABLE VALUE
LOT 20	$454,374	$264,000	$155,248	$454,374	$454,374
RF - P					
LOT 1.32 AC	$273,602	$210,000	$54,783	$179,961	$179,961
RF - R					
LOTS 3 4 5	$1,779,000	$1,779,000	$0	$646,840	$0
RF 1-49					
LOT 1-2	$320,000	$320,000	$0	$320,000	$0
Lot 3	$160,000	$160,000	$0	$160,000	$0
Lot 4	$174,208	$160,000	$0	$174,208	$0
LOTS 5 & 6	$240,000	$240,000	$0	$240,000	$0
NW 1/2 LOT 6	$80,000	$80,000	$0	$80,000	$0
WHARF LOT A	$80,000	$80,000	$0	$80,000	$0
Lot 7	$206,253	$160,000	$35,417	$206,253	$0
Lot 8	$225,047	$160,000	$26,498	$225,047	$225,047
WHARF LOT 9	$72,000	$72,000	$0	$72,000	$72,000
WHARF LOT 9	$124,525	$88,000	$31,517	$124,525	$124,525
Lot 10	$120,197	$80,000	$17,798	$120,197	$120,197
WHARF LOT 11	$280,203	$128,000	$152,188	$280,203	$280,203
WHARF LOT 12	$289,665	$192,000	$63,512	$289,665	$289,665
WHARF LOT B	$80,000	$80,000	$0	$80,000	$0
LOT 13-14	$654,008	$256,000	$370,093	$654,008	$654,008
Lot 15	$280,003	$160,000	$100,142	$280,003	$280,003
Lot 16	$446,762	$160,000	$285,027	$446,762	$446,762
WHARF 17&19	$172,701	$156,160	$11,080	$172,701	$172,701
WHARF 19	$341,812	$124,800	$185,014	$341,812	$291,812
WHARF LOT C	$162,880	$160,000	$0	$162,880	$0
WHARF LOT 20	$104,248	$96,000	$8,242	$104,248	$0
WHARF 21&22	$288,000	$288,000	$0	$288,000	$0
WHARF LOT 22	$96,587	$96,000	$0	$96,587	$0
WHARF LOT D	$162,880	$160,000	$0	$162,880	$0
LOT 23-25	$355,086	$288,000	$33,864	$355,086	$355,086
1/2 WHARF E	$94,458	$80,000	$5,090	$94,458	$0
1/2 WHARF E	$80,000	$80,000	$0	$57,685	$0
WHARF 26 & 27	$326,841	$240,000	$77,262	$326,841	$326,841
WHARF 27 &28	$337,279	$240,000	$90,991	$337,279	$237,279
WHARF F & 29	$252,172	$236,800	$0	$252,172	$252,172
WHARF 29-31	$732,836	$403,200	$279,748	$686,157	$686,157
WHARF G	$160,000	$160,000	$0	$160,000	$0
Lot 32	$223,986	$160,000	$25,830	$223,986	$223,986
WHARF 33&34	$179,200	$179,200	$0	$179,200	$179,200
WHARF 34	$171,346	$140,800	$14,360	$171,346	$171,346
LOTS 1-4 &18-20	$883,200	$883,200	$0	$883,200	$0
WHARF LOTS I-J	$890,334	$391,680	$446,841	$890,334	$890,334
WHARF 41 & 49	$16,000	$16,000	$0	$16,000	$0

Historic Resource Exposure Analysis

Analysis of the impacts to historic resources within C-1, C-4 & RF districts

The historic resource exposure analysis determines the number of historic resources that are located in the low, medium or high inundation areas iwthin the C-1, C-4 and RF districts which may be threatened by coastal flooding. The historic resources listed in the Table 5 below are those sites that as listed on the Master Site File of historic sources with the Florida Division of Historic Resources. The historic resources are mapped on maps 10-16.

Table 5. Historic Resource Inventory

Site Number	Lot & Block	Name	Address	SLR L	SLR M	SLR H
8FR163	Lots 3-5 ,16-18 - Blk E-1	J. E. Grady & Co.	200-204 Water St			X
8FR174	Lots 1-3 Blk G-1	Wefing's Marine	Ave F & Water St		X	X
8FR176	Lot 6 BLOCK 18	Stevens House	76 Ave G			X
8FR266		Hutchinson House	121 6th St			X
8FR275		Block H-2	162 Commerce St (Vacant)			X
8FR282	NW 1/2 Wharf Lot E	Power Plant	265 N Water St		X	X
FR283	Lot 20 Blk G-1	Willis Warehouse	F & Commerce		X	X
FR285	Lot 29 Blk 122 FT Wharf Lot F	Wharf		X	X	X
8FR286	Wharf Lot 16	Marine Ways	Water St		X	X
8FR288	Oyster Packing House	Water Street & Gorrie Bridge		X	X	X
8FR303	Lot 12-13 Blk G-1	Demo George & Co.	155 Commerce St		X	X
8FR304	Block H-2	160 Commerce St (Vacant)			X	X
8FR305	Lot 6-9 Block G-2	Vacant		X	X	X
8FR307	Lot 11 Blk G-1	Economy Cash Store	159 Commerce St		X	X
8FR308	Lot 10 Blk G-1	The Peoples Ice Co.	280 Water St		X	X
8FR309	Lot 1 & SE 20 Ft Lot 2	Block G-2	132 Commerce St (Vacant)		X	X
8FR310	Lot 9-20 Blk H-2	Blok H-2 (Vacant)			X	X
8FR312	City of Apalachicola	near Wharf lots 1-2	Battery Park (Vacant)	X	X	X
8FR326	City of Apalachicola	Blocks A1 & A2	Battery Park (Vacant)	X	X	X
8FR329	Lot 11 Blk E-1	Sponge Exchange	Commerce Street			X
8FR339	Lot 9 Blk E-1	Structure	218 Water Street			X
8FR344	Lot 1-5, 16&17 & partial Lot 20	City Hall	222 Water Street			X
8FR378	Lot 5-7 Blk G-1	Marine Supply	Water Street		X	X
8FR385	Lot 18 & 19 Blk F-1	Commercial	Commerce Street			X
8FR405	Lot 1 Blk 18	Residential	102 5th Street			X
8FR406	Partial lot 3 Blk 18	Residential	5th Street			X
8FR407	Lot 4 Blk 18	Residential	5th Street			X
8FR414	Lot 2 Blk 19	Residential	124 5th St			X
8FR425	Lot 8 Blk 18	Residential	111 6th St			X
8FR427	Lot 7 Partial, Blk 18	Residential	113 6th St			X
8FR642	Lot 5-7 Blk A-1	Vacant	16 Forbes St		X	X
8FR643	Lot 1 Partial, Lots 2-14 Blk B-1	Franklin Co. Jail	Leslie St			X
8FR687	Lots 11-12 Parcial, Blk G-2	Riverside Cafe	280 Water St		X	X
8FR690	Blk 18 Partial	Residential	Ave. G			X
8FR691	Lot 6 Blk 18	Residential	72 Ave. G			X
8FR700	Lots 6-8 Partial, Blk 19	Residential	Ave H			X
8FR00992		Sea Dream	Penton and Water St			X
FR01262		Baltimore Building	131 Market Street			X
8FR306	Lots 6-9 Blk G-2	Ruin	Structure on Lot 9			X

Analysis of Historic Resource Impact

There are 51 properties located within the City's C-1, C-4 and RF Area of Special Flood Hazard (Rated A&V zones). See Map 14. However, not all historic resources in the rated A & V zones may be impacted by rising coastal waters associated with the model projections. Of the 51 properties identified in the City's areas of special flood hazard, 38 are projected for potential impact. (See maps 15-17). Note that map 14A indicates 11 historic structures in the impact area that are not within the C-1, C-4 or RF project areas. It is also important to note that a significant number of the historic sites referenced by the Master Site numbers do not feature any structures on the parcels any longer. A lot by lot ground truthing of the parcels identified is necessary to identify and document such vacant historic sites.

Low Level Inundation

There are four historic resources located within the low inundation area. All four of the historic sites are located directly adjacent to the Apalachicola River. Three of the sites (FR285, 8FR326 & 8FR312) on Water Street are no longer in existence. The fourth site 8FR288 is the site of a City-owned structure once slated as the future home of the Apalachicola Maritime Museum. The metal building on pilings is already mostly over water - not much of the building's footprint remains on uplands. It is not clear that the low inundation will significantly impact more than one historic resource which is already a water-dependent structure.

Level of Impact:

It is not clear that the low inundation will significantly impact more than one historic resource which is already a water-dependent structure.

Medium Level Inundation

According to the medium level inundation models, there will be 18 historic sites and structures impacted by rising coastal waters. With the exception of a parcel currently occupied by the Leavins Seafood Processing company, all of the impacted sites are located north of Avenue F between Water Street and Market Street. Included in the list of impacted structures are several wood frame and brick commercial structures currently used for various commercial retail purposes. Among the structures potentially impacted by a medium level inundation are the following historic buildings (as referenced by their historic use): Wefing's Marine Bldg, Intra-coastal Marine Supply, power plant, Willis Warehouse, Marine Ways, People's Ice Company (Riverside Cafe), Economy Cash Store and the Demo George & Co. building.

Level of Impact:

The individual topography of the parcel on which the historic resource is located will determine the impact. Much of the City's downtown commercial lots range in elevation from 5 to 12 feet. A medium inundation level flood of 3-4 feet may not impact those parcels with existing elevations of five feet or more. For those sites located in particularly low elevations, flood-proofing commercial structures is an option.

High Level Inundation

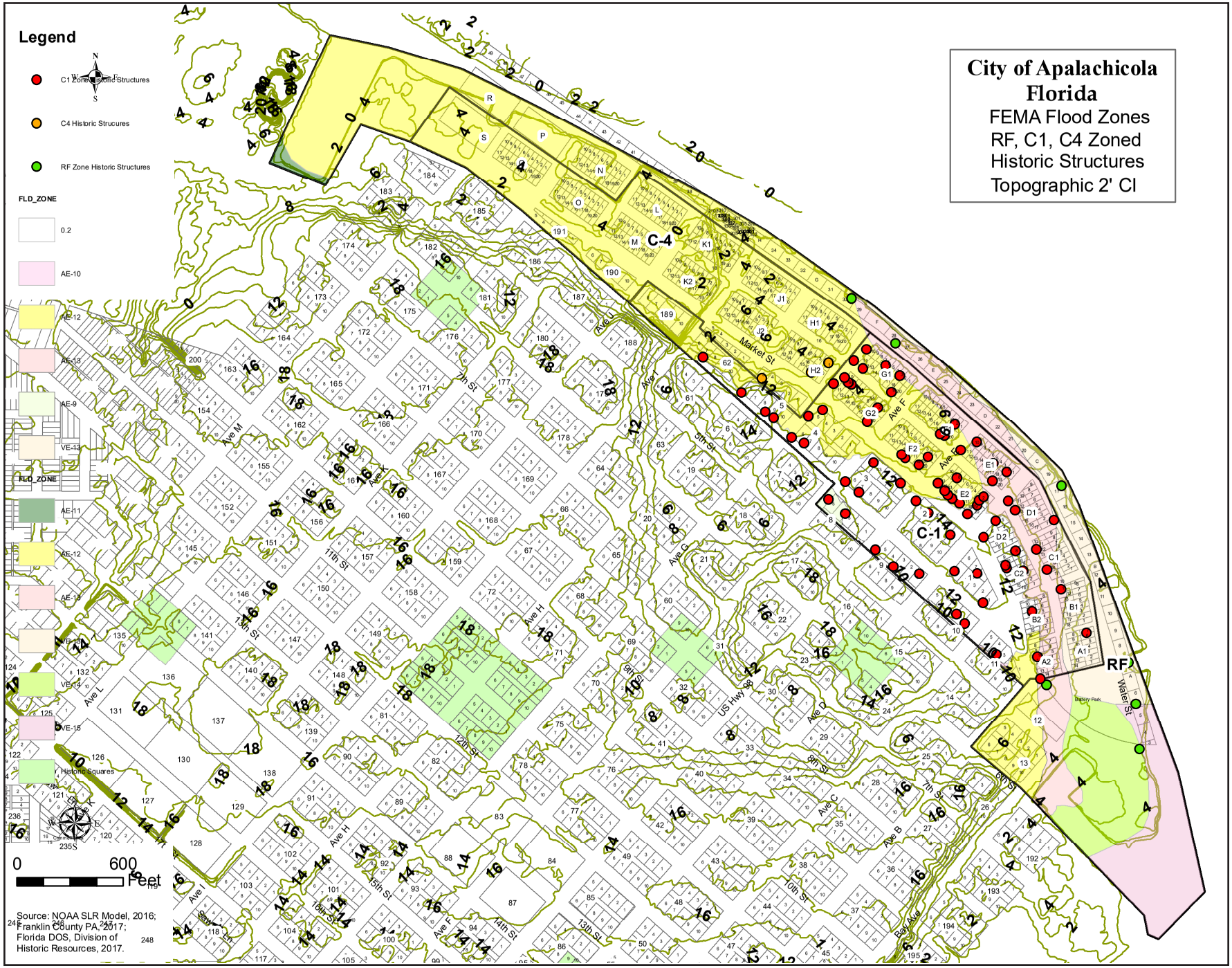
There are 39 historic properties projected to be impacted within the high inundation area. There is an interesting anomaly within the high inundation area. In addition to the water adjacent properties projected for impact, there is also a cluster of inland property (and 11 historic resources) up 5th Avenue between Avenues F and H that show up as an inundation area when the high (5-6 foot model) is activated. It is possible that this cluster is located within what was originally a creek bed that once flowed through town from up near Scipio Creek down through the 8-9th Street area south to the Battery Park. The low elevations are referenced on FEMA flood maps and all development within these areas are part of the special flood hazard district that require elevation. The 11 inland

historic properties are identified in Table 5 but not analyzed here because they do not fall within the C-1, C-4 or R-F study area.

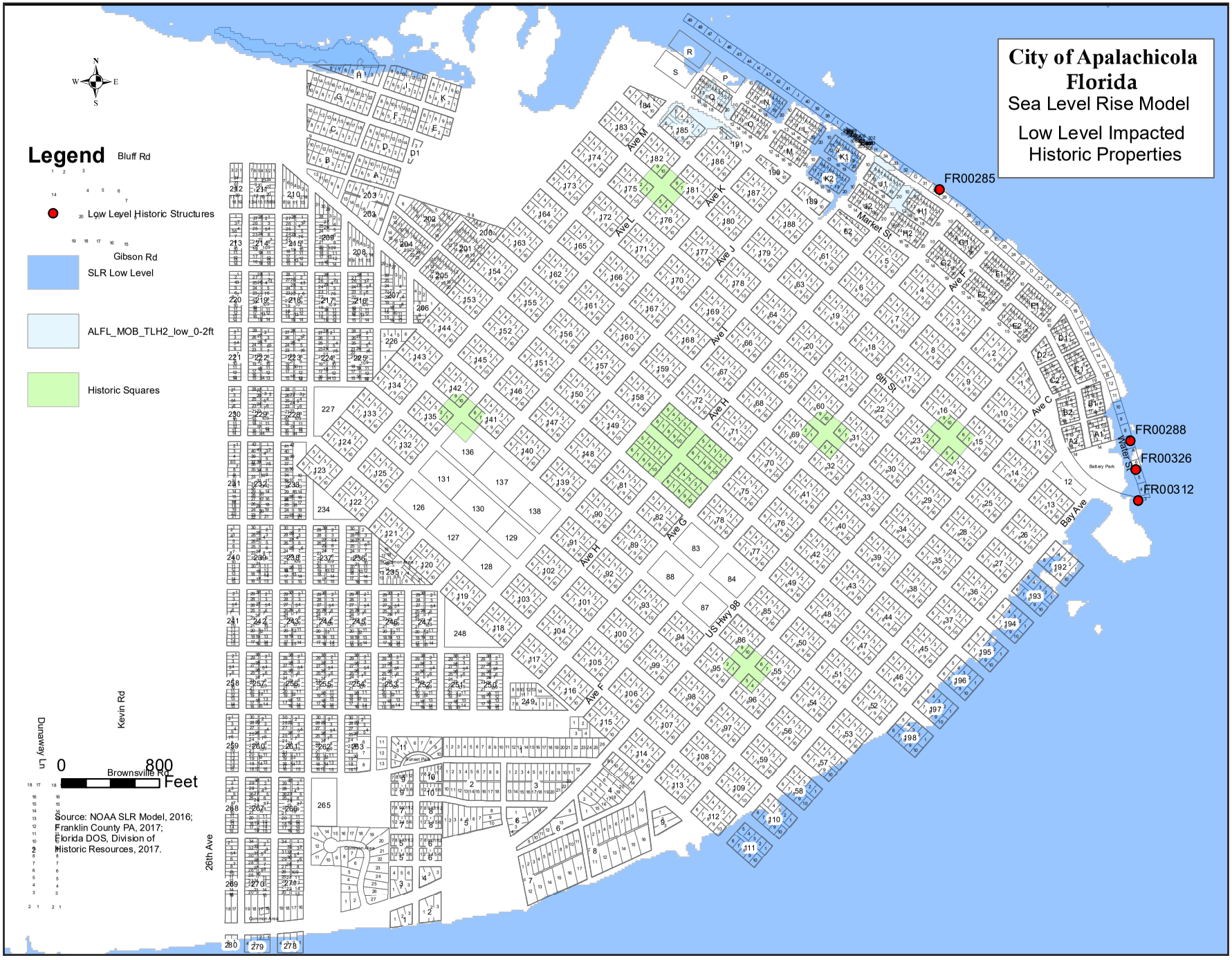
The 10 additional commercial properties proposed to be impacted are in the same general area as the medium inundation area with similar characteristics. Included in the inundation zone for this category include some City-owned public buildings including City Hall, the City's Center for History, Culture and Art as well as privately-owned historic buildings including the Baltimore Building, the Sponge Exchange and the Bowery Inn building.

Level of Impact:
The individual topography of the parcel on which the historic resource is located will determine the impact. Much of the City's downtown commercial lots range in elevation from 5 to 12 feet. A high inundation level flood of 5-6 may impact parcels with existing elevations of five feet or less. For those sites located in particularly low elevations, flood-proofing commercial structures is an option.

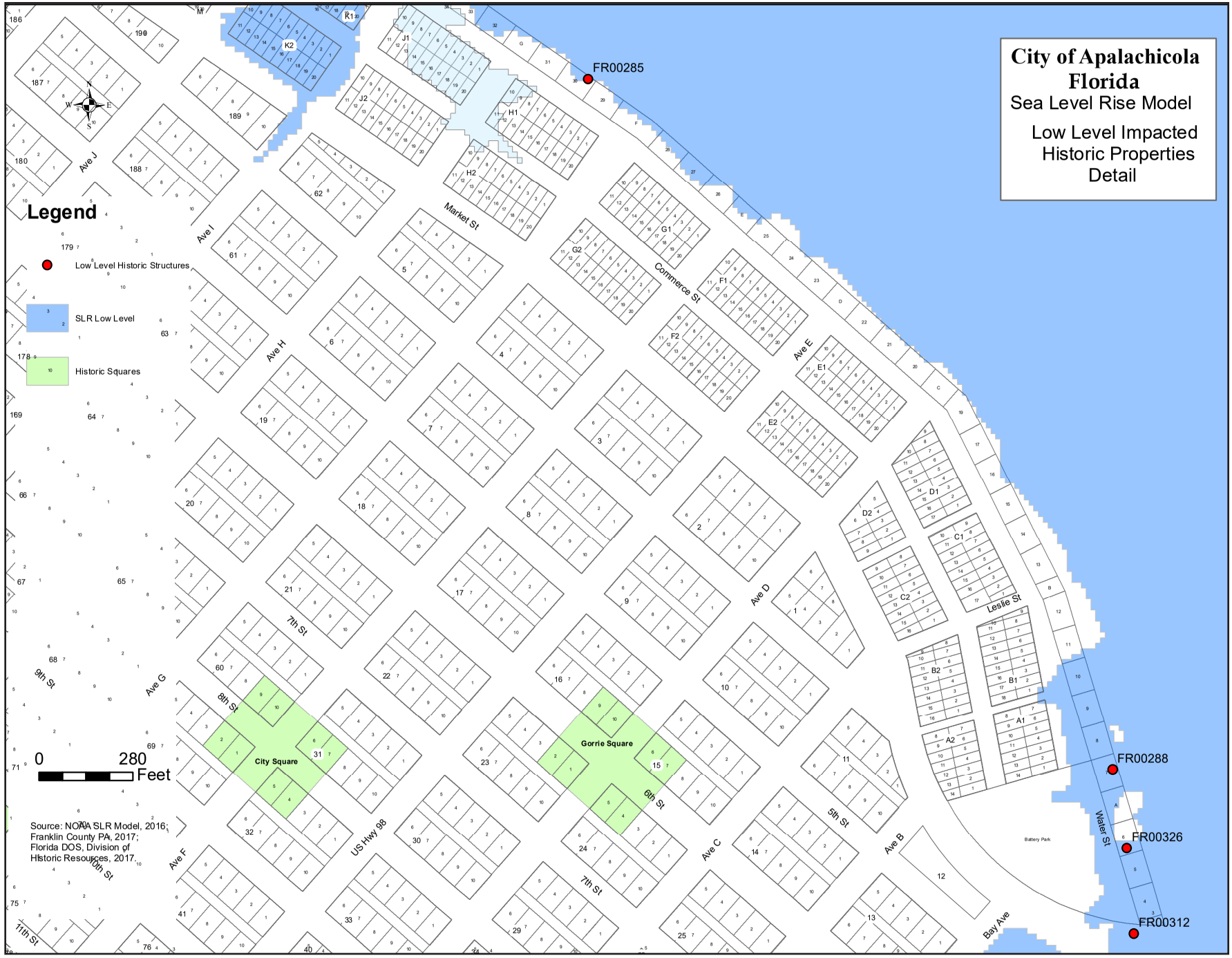
Map 14. Historic Resources in the City's Area of Special Flood Hazard (Rated A & V zones)



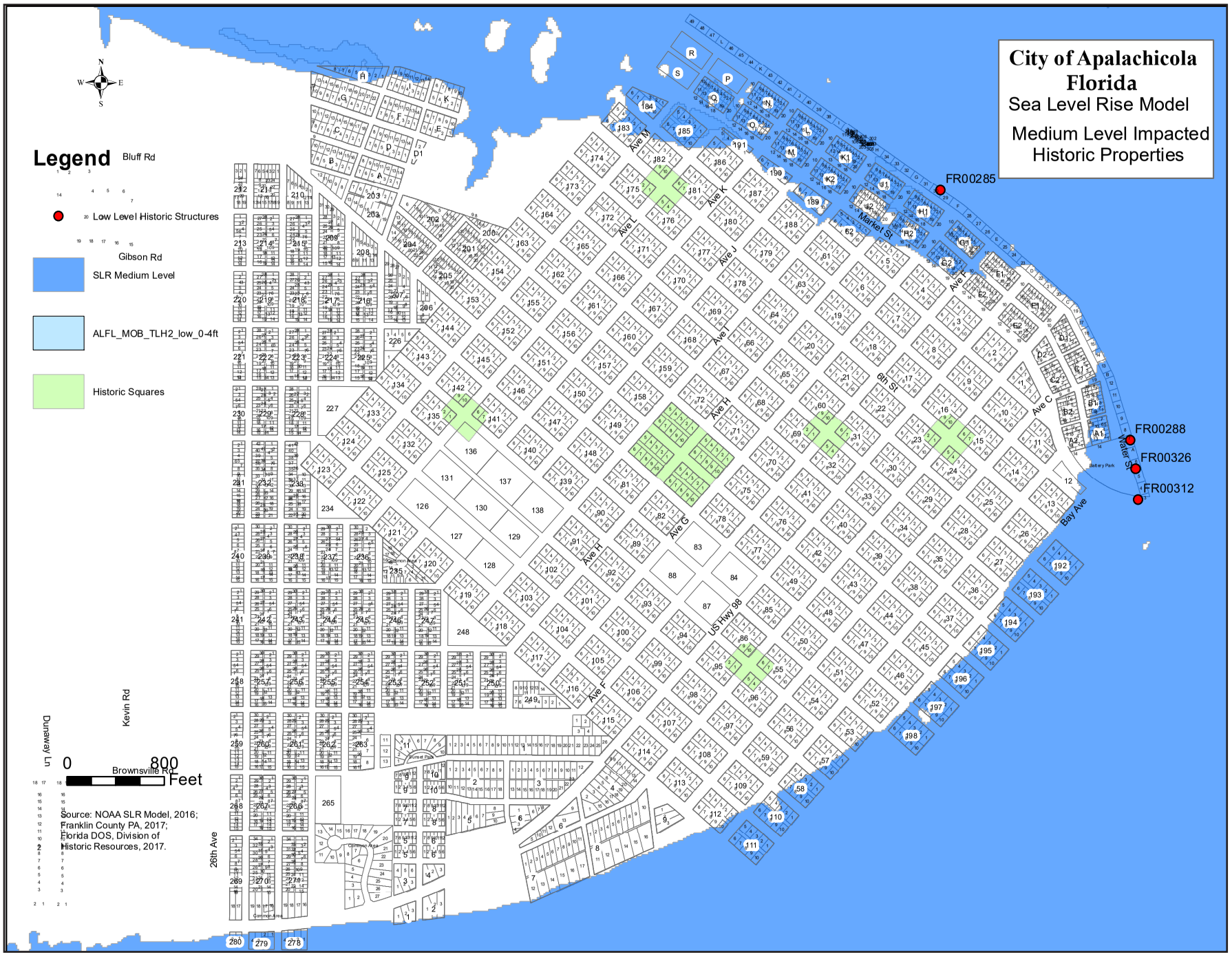
Map 15. Low Projected Inundation - Historic Resources



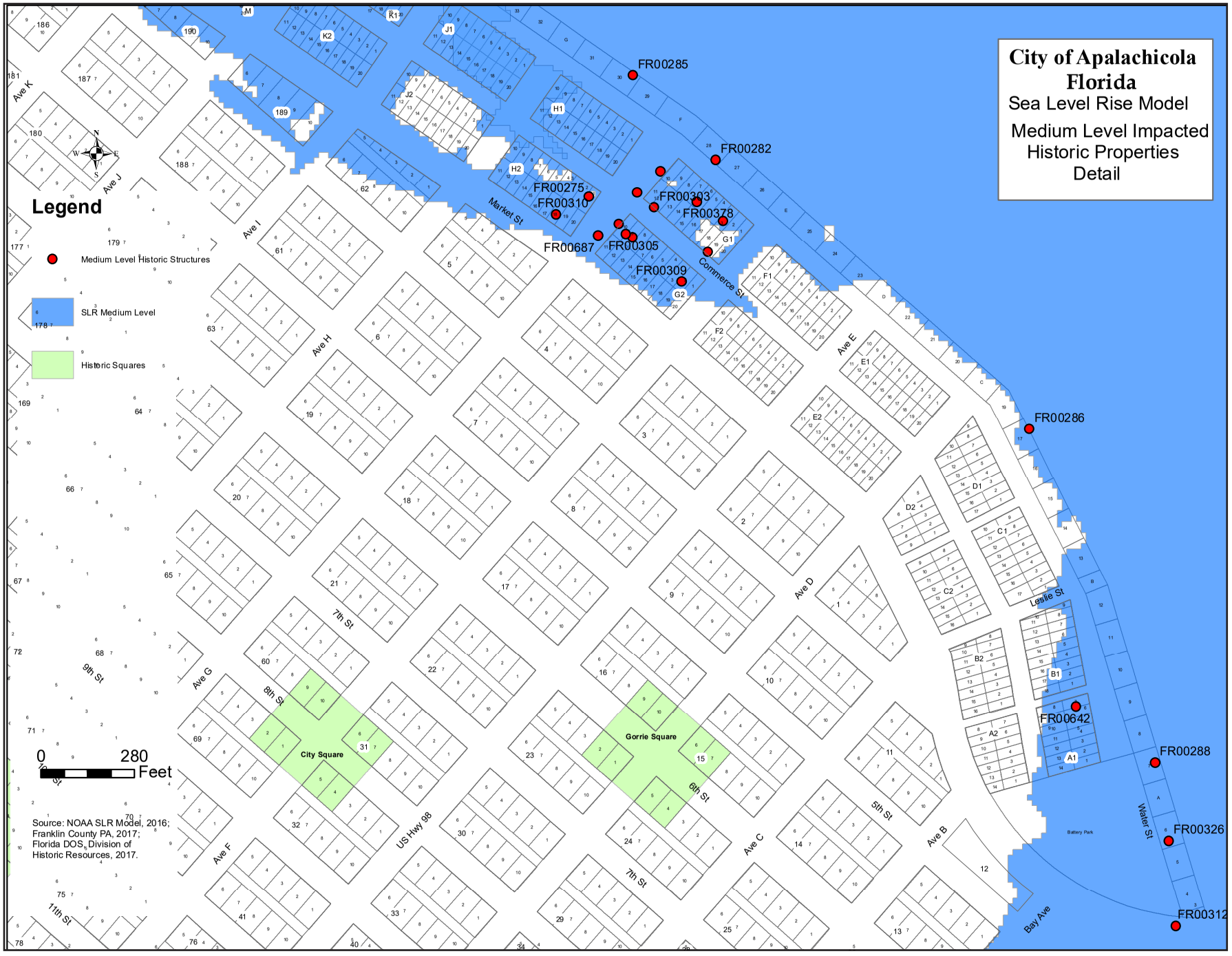
Map 15a. Low Projected Inundation - Historic Resources - Detail



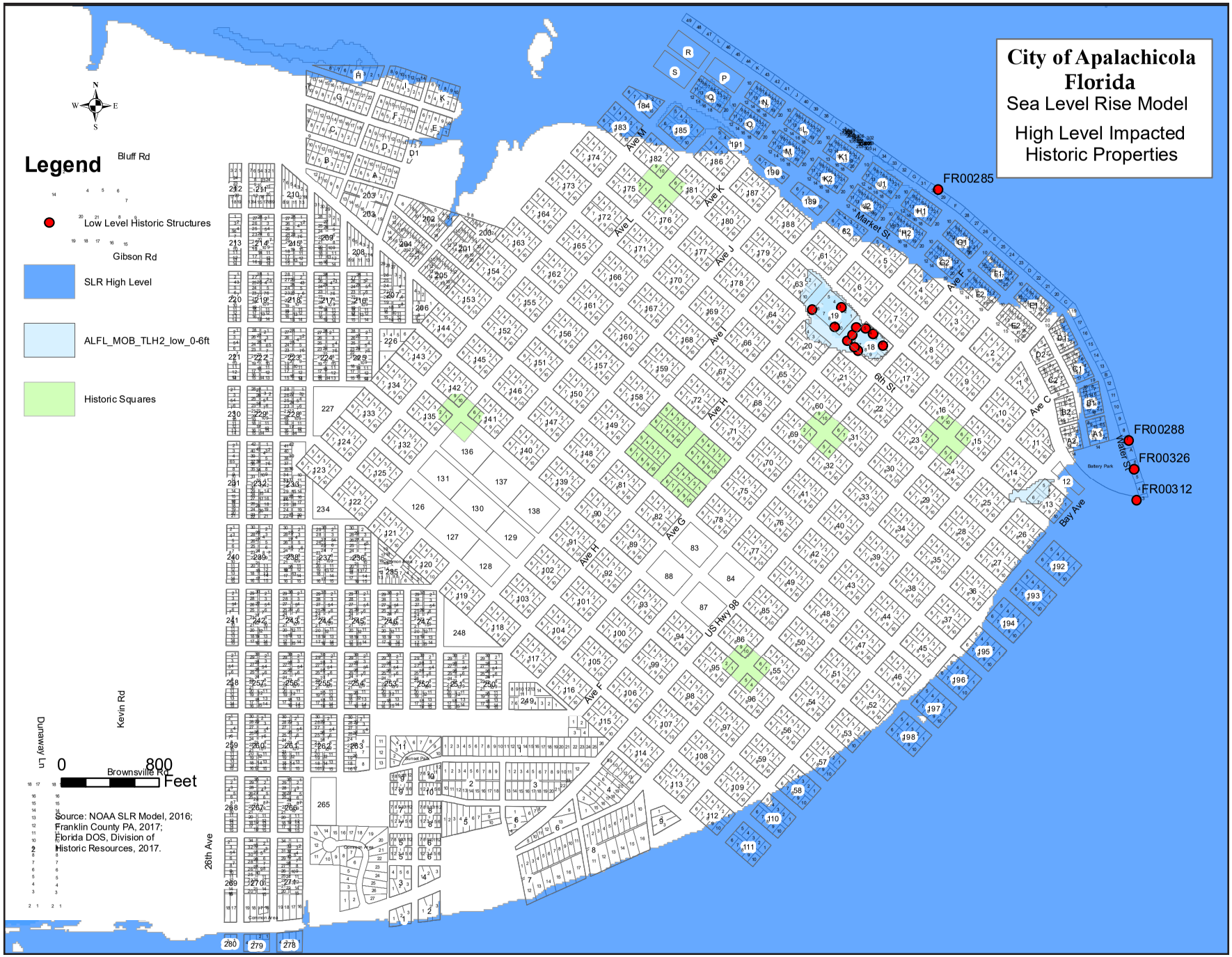
Map 16. Medium Projected Inundation - Historic Resources



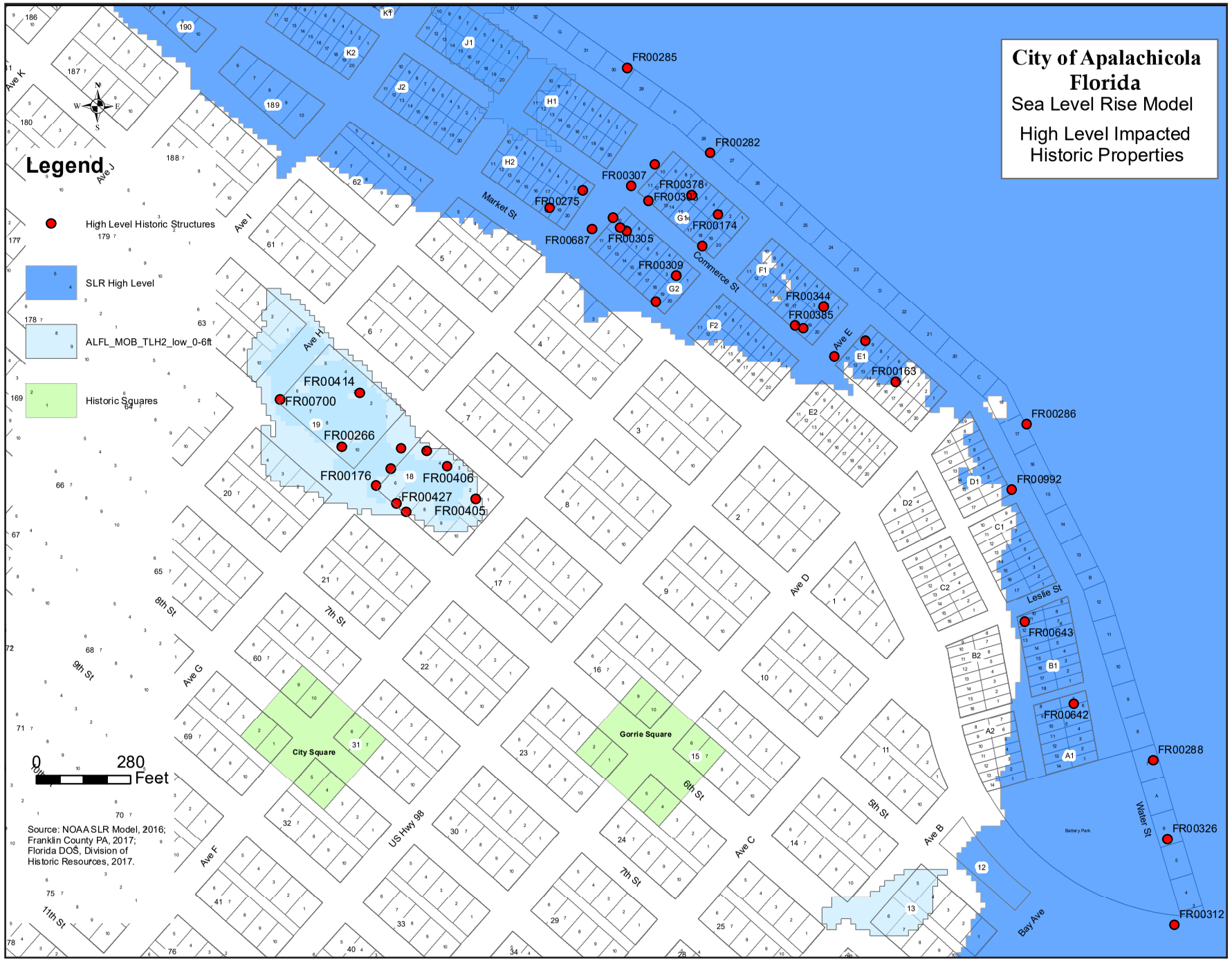
Map 16a. Medium Projected Inundation - Historic Resources - Detail



Map 17. High Projected Inundation - Historic Resources



Map 17a. High Projected Inundation - Historic Resources - Detail



Current and Future Exposure to Coastal Flood Hazard

Analysis of the Focus Area Topography and FEMA Elevation Requirements

Most of the downtown commercial district is located in FEMA's Area of Special Flood Hazard (Rated AE & V zones) See map 14. A small percentage of the low level inundation model areas include the Areas of Special Flood Hazard. All of the medium and high level inundation model areas include the Areas of Special Flood Hazard.

The topography of the C-1, C-4 and RF districts ranges from 2-6 feet. The required elevations range from 13' to 15' depending on the FIRM zone in which an individual parcel is located.

The majority of the C-1 and C-4 property falls within the AE12 and 13 zones with an elevation requirement of 13 and 14 feet respectively. Most of the C-1 and C-4 property in this zone averages between 4-6 feet in elevation although there is an area directly adjacent to the river with a 2 foot elevation.

The V zone property is located along south Water Street and affects the lots directly adjacent to the river. The elevation of this property is lower, averaging between 2-4 feet.

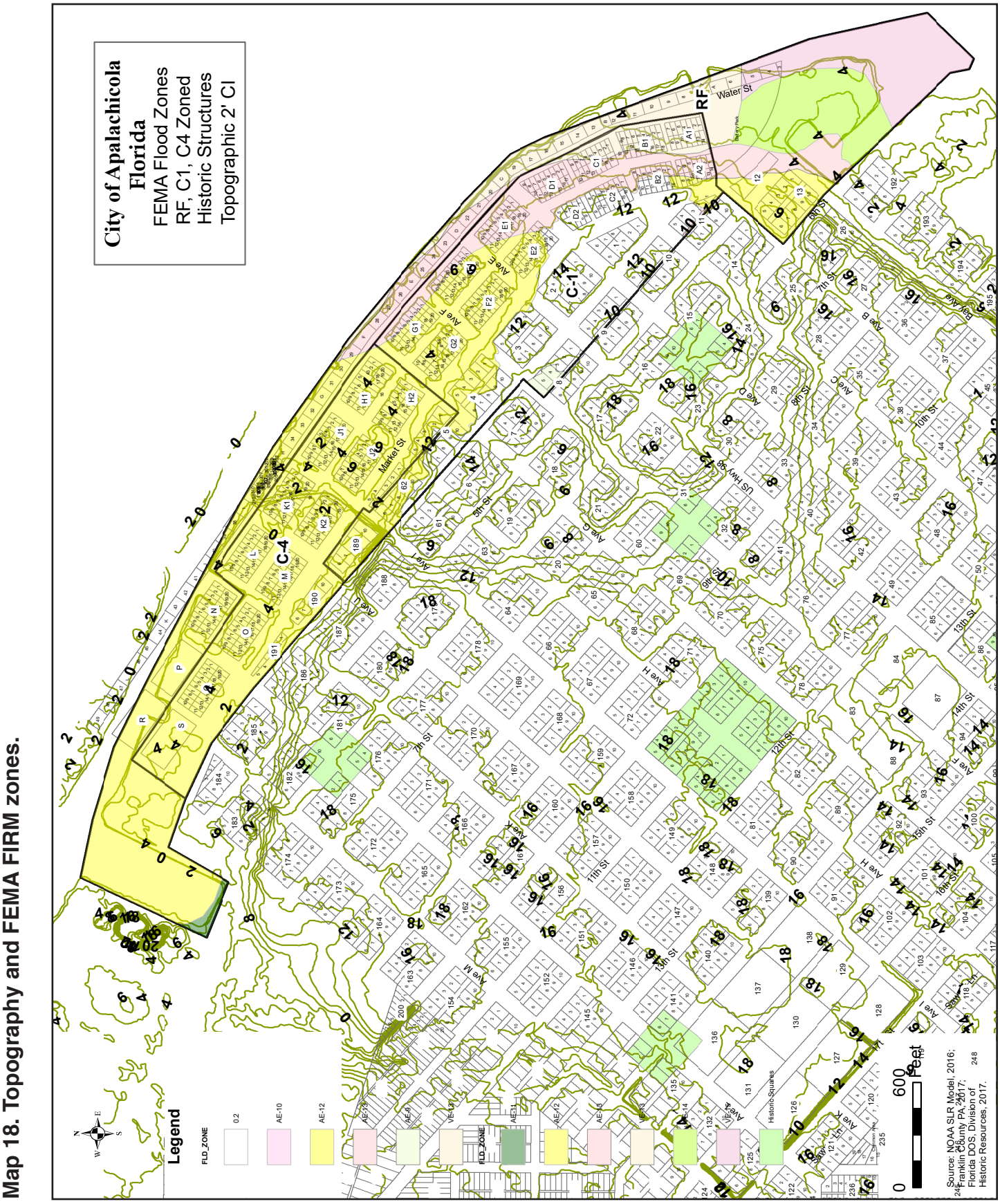
Not unexpectedly, most of the C-1, C-4 and RF districts are currently subject to coastal flooding. The SLR projected inundation model exacerbates the potential vulnerability of the area.

The City adopted its most recent Floodplain Management Ordinance in 2013. In it, the City adopted provisions that require a one foot free-board above the required base flood elevation requirements. All new construction within the City is required to meet and exceed the required BFE by one foot.

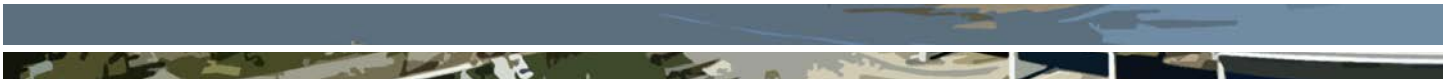
Table 6 shows the required elevation necessary in each of the FEMA Flood Zones for the C-1, C-4 and RF district.

Table 6. FEMA Zones in C-1, C-4, RF and Require Elevations

FEMA Zone	Existing Topographic Elevations	Required Elevation
AE12	0, 2, 4, 6	13'
AE13	6	14'
VE13	4	14'
VE14	2	15'



Map 18. Topography and FEMA FIRM zones.



Economic and Cultural Impacts

Economic Impacts

Property owners within the downtown commercial district's Area of Special Flood Hazard are already impacted economically based on the property's location within area subject to flooding. Strict building code requirements within flood-prone areas and high flood insurance premiums increase the cost of development within these areas and make development an economic challenge. Complete inundation based on projected models may result in some parcels being totally submerged and therefore undevelopable.

Cultural Impacts

The cultural impacts of coastal vulnerability are connected to the economic impacts. Owners of many of the traditional waterfront uses such as seafood processing and water-dependent businesses are no longer able to afford the economic burden of insurance and increased development costs. Many traditional seafood processing plants have been shuttered and replaced with more profitable tourism-based development with new owners that are able to afford the higher costs associated with coastal development. The impacts of projected models could result in a further loss of the traditional water-dependent maritime and seafood related businesses.

Adaptation Action Area Consideration

"Adaptation Action Area" or "Adaptation Area" means a designation in the coastal management element of a local government's comprehensive plan which identifies one or more areas that experience coastal flooding due to extreme high tides and storm surge, and that are vulnerable to the related impacts of rising sea ..."

Adaptation Strategy Concepts

Adaptation is fundamentally a risk management strategy; risk is a combination of the likelihood of sea level rise impacts and the magnitude of the potential consequences Response options are evaluated for their feasibility and potential effectiveness at reducing the identified risk(s). The City of Apalachicola has not yet adopted policies relating to Adaptation Action Area planning. The City's Comprehensive Plan has not been updated for several years and it would first be recommended that the City's plan data and analysis, along with it's Goals, Objectives and Policies be updated before advanced It is possible that the entire C-1, C-4 and RF district could be considered as a focus area for adaptation planning.

The implementation of Adaptation Action Area within Apalachicola's C-1, C-4 and RF district would allow the City to gradually plan for adaptation to current and future sea level rise and other potential impacts. The four optional strategies (protection, accommodation, retreat and avoidance) of adaptation provide an avenue for the City to address the four major impacts of concern.

Protection strategies may be appropriate for the downtown areas that are location-dependent and cannot be significantly altered or relocated, such as historical resources, or water- dependent uses. Protection could include shoreline armoring that is either natural or man-made. Examples include: seawalls and bulkheads, living shorelines, tide gates and saltwater intrusion barriers.

Accommodation strategies aim to reduce potential risks rather than seeking to prevent flooding or inundation entirely. Examples include: the flood proofing of nonresidential structures, vertical elevation of structures; using structural fill to raise grade elevations; limit development in projected hazard zones; planting salt water tolerant plant species. If a critical facility in a high risk area requires substantial upgrades, it might be cost-effective in terms of hazard avoidance to relocate the facility.

Managed Retreat or Relocation strategies may involve the transition of vulnerable lands from private to public ownership, but may also include a combination other strategies such as transfer of development rights (TDRs), purchase of development rights and conservation easements. Examples include infrastructure relocation/removal; and, transfer of development rights to upland sending areas that are characterized by lower vulnerabilities to coastal hazards.

Avoidance strategies may involve identifying opportunities for future conservation or low density development areas within local government planning documents. A wide range of planning tools may be identified, facilitating a local decision to limit development in areas subject to moderate to high risk. Regulatory tools may include the designation of lands for low density or passive uses. An avoidance strategy may include land acquisition or tools such as a land trusts, zoning codes, and overlay zones.