

# FLOOD INSURANCE STUDY

## FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 11



### HILLSBOROUGH COUNTY, FLORIDA AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
HILLSBOROUGH COUNTY, UNINCORPORATED AREAS	120112
PLANT CITY, CITY OF	120113
TAMPA, CITY OF	120114
TEMPLE TERRACE, CITY OF	120115



# FEMA

**REVISED  
PRELIMINARY  
09/24/2020**

REVISED:

TBD

FLOOD INSURANCE STUDY NUMBER  
12057CV001C

Version Number 2.4.3.5

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 Bullfrog/Wolf Branch Creek Watershed	
Big Bend	13 P
Bullfrog Creek	14-17 P
Bullfrog Creek Tributary 1	18 P
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Archie Creek	35-36 P
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Curiosity Creek Tributary 1.1	123 P
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Dug Creek Tributary 1	129 P
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Little Manatee River Tributary 4		153 P
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Baker Creek Tributary 2	201 P
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Lake Thonotosassa Tributary	210 P
Mill Creek Tributary 1	211 P
Mill Creek Tributary 2	212 P
Pemberton Creek Tributary 1	213 P
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Flood Profiles	<u>Panel</u>
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Sweetwater Creek Channel H	237-238 P
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Tampa Bypass Canal Main Ditch	243 P
Tampa Bypass Canal Tributary 1	243 P
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## Transect Profiles

## Panel

Transect 1	01-02 T
Transect 2	03-04 T
Transect 3	05-06 T
Transect 4	07-08 T
Transect 5	09-11 T
Transect 6	12-14 T
Transect 7	15-16 T
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Transect 10	21-22 T
Transect 11	23-25 T
Transect 12	26-27 T
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Transect 15	32-33 T
Transect 16	34-36 T
Transect 17	37-39 T
Transect 18	40-41 T
Transect 19	42-43 T
Transect 20	44-46 T
Transect 21	47-48 T
Transect 22	49-50 T
Transect 23	51-52 T
Transect 24	53-54 T
Transect 25	55-57 T
Transect 26	58-59 T
Transect 27	60-61 T
Transect 28	62-63 T
Transect 29	64-65 T
Transect 30	66-67 T

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### Exhibits

## Transect Profiles

## Panel

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Transect 35	79-81 T
Transect 36	82-83 T
Transect 37	84-85 T

Transect 38	86-87 T
Transect 39	88-89 T
Transect 40	90-91 T
Transect 41	92-93 T
Transect 42	94-95 T
Transect 43	96-97 T
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Transect 46	102-103 T
Transect 47	104-105 T
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Transect 51	112-113 T
Transect 52	114-115 T
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Transect 54	118-119 T
Transect 55	120-121 T
Transect 56	122-123 T
Transect 57	124-125 T
Transect 58	126-127 T
Transect 59	128-129 T
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Transect 61	132 T
Transect 62	133-134 T
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Transect 64	136-137 T
Transect 65	138-139 T
Transect 66	140 T
Transect 67	141 T
Transect 68	142-143 T
Transect 69	144-145 T
Transect 70	146-147 T
Transect 71	148-149 T
Transect 72	150-151 T

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Transect Profiles	<u>Exhibits</u>	<u>Panel</u>
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Transect 78		164-166 T
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Transect 82		175-177 T
Transect 83		178-180 T
Transect 84		181-183 T
Transect 85		184-185 T
Transect 86		186-188 T
Transect 87		189-191 T
Transect 88		192-194 T
Transect 89		195-197 T
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Transect 100		224-225 T
Transect 101		226-227 T
Transect 102		228-229 T
Transect 103		230-231 T
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Transect 105		234 T

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### Exhibits

#### Transect Profiles

#### Panel

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Transect 108	240-241 T
Transect 109	242-244 T
Transect 110	245-247 T
Transect 111	248-250 T
Transect 112	251-253 T
Transect 113	254-256 T
Transect 114	257-259 T
Transect 115	260-262 T
Transect 116	263-265 T
Transect 117	266-267 T
Transect 118	268-269 T

### **Published Separately**

Flood Insurance Rate Map (FIRM)

# **FLOOD INSURANCE STUDY REPORT HILLSBOROUGH COUNTY, FLORIDA**

## **SECTION 1.0 – INTRODUCTION**

### **1.1 The National Flood Insurance Program**

The National Flood Insurance Program (NFIP) is a voluntary Federal program that enables property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods.

For decades, the national response to flood disasters was generally limited to constructing flood-control works such as dams, levees, sea-walls, and the like, and providing disaster relief to flood victims. This approach did not reduce losses nor did it discourage unwise development. In some instances, it may have actually encouraged additional development. To compound the problem, the public generally could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked.

In the face of mounting flood losses and escalating costs of disaster relief to the general taxpayers, the U.S. Congress created the NFIP. The intent was to reduce future flood damage through community floodplain management ordinances, and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for the protection.

The U.S. Congress established the NFIP on August 1, 1968, with the passage of the National Flood Insurance Act of 1968. The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. It was further modified by the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004. The NFIP is administered by the Federal Emergency Management Agency (FEMA), which is a component of the Department of Homeland Security (DHS).

Participation in the NFIP is based on an agreement between local communities and the Federal Government. If a community adopts and enforces floodplain management regulations to reduce future flood risks to new construction and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses. The community's floodplain management regulations must meet or exceed criteria established in accordance with Title 44 Code of Federal Regulations (CFR) Part 60, *Criteria for Land Management and Use*.

SFHAs are delineated on the community's Flood Insurance Rate Maps (FIRMs). Under the NFIP, buildings that were built before the flood hazard was identified on the community's FIRMs are generally referred to as "Pre-FIRM" buildings. When the NFIP was created, the U.S. Congress recognized that insurance for Pre-FIRM buildings would be prohibitively expensive if the premiums were not subsidized by the Federal

Government. Congress also recognized that most of these floodprone buildings were built by individuals who did not have sufficient knowledge of the flood hazard to make informed decisions. The NFIP requires that full actuarial rates reflecting the complete flood risk be charged on all buildings constructed or substantially improved on or after the effective date of the initial FIRM for the community or after December 31, 1974, whichever is later. These buildings are generally referred to as "Post-FIRM" buildings.

## 1.2 Purpose of this Flood Insurance Study Report

This Flood Insurance Study (FIS) Report revises and updates information on the existence and severity of flood hazards for the study area. The studies described in this report developed flood hazard data that will be used to establish actuarial flood insurance rates and to assist communities in efforts to implement sound floodplain management.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive than the minimum Federal requirements. Contact your State NFIP Coordinator to ensure that any higher State standards are included in the community's regulations.

## 1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Hillsborough County, Florida.

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the United States Geological Survey (USGS) 8-digit Hydrologic Unit Code (HUC-8) sub-basins affecting each, are shown in Table 1. The FIRM panel numbers that affect each community are listed. If the flood hazard data for the community is not included in this FIS Report, the location of that data is identified.

**Table 1: Listing of NFIP Jurisdictions**

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Hillsborough County, Unincorporated Areas	120112	03100101, 03100202, 03100203, 03100204, 03100205, 03100206, 03100207	12057C0017H 12057C0019H 12057C0038H 12057C0039H 12057C0040H 12057C0041H 12057C0042H 12057C0043H 12057C0044H 12057C0061H 12057C0062H 12057C0063H 12057C0064H 12057C0070H 12057C0090H	

**Table 1: Listing of NFIP Jurisdictions (continued)**

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Hillsborough County, Unincorporated Areas (continued)	120112	03100101, 03100202, 03100203, 03100204, 03100205, 03100206, 03100207	12057C0095H 12057C0115H 12057C0120H 12057C0140H 12057C0145H <sup>1</sup> 12057C0157J 12057C0159J 12057C0167J 12057C0169J 12057C0179H 12057C0180H 12057C0181H 12057C0182H 12057C0183H 12057C0184H 12057C0186J 12057C0187J 12057C0188J 12057C0189J 12057C0191J 12057C0192H 12057C0193J 12057C0194H 12057C0204H 12057C0205H 12057C0209H 12057C0210H 12057C0211H 12057C0212H 12057C0213J 12057C0216H 12057C0217H 12057C0218J 12057C0219H 12057C0230H 12057C0234H 12057C0235H 12057C0236H 12057C0238H 12057C0240H 12057C0242H 12057C0245H 12057C0251H 12057C0252H 12057C0253H 12057C0254H 12057C0260H 12057C0261H 12057C0262H	

**Table 1: Listing of NFIP Jurisdictions (continued)**

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Hillsborough County, Unincorporated Areas (continued)	120112	03100101, 03100202, 03100203, 03100204, 03100205, 03100206, 03100207	12057C0263H 12057C0264H 12057C0266H 12057C0267H 12057C0268H 12057C0269H 12057C0280H 12057C0285H 12057C0286H 12057C0288H 12057C0290H 12057C0295H 12057C0307J 12057C0326J 12057C0327J 12057C0331J 12057C0332J 12057C0333J 12057C0351J 12057C0358J 12057C0359J 12057C0360H 12057C0364J <sup>1</sup> 12057C0366J 12057C0367J 12057C0368J 12057C0369J 12057C0378K 12057C0379K 12057C0380K 12057C0385H 12057C0386K 12057C0387J 12057C0388J 12057C0389J 12057C0391H 12057C0392H 12057C0393J 12057C0394H 12057C0405H 12057C0410H 12057C0415H 12057C0420H 12057C0430H 12057C0435H 12057C0440H 12057C0445H 12057C0454H <sup>1</sup> 12057C0458J 12057C0459J	

**Table 1: Listing of NFIP Jurisdictions (continued)**

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Hillsborough County, Unincorporated Areas (continued)	120112	03100101, 03100202, 03100203, 03100204, 03100205, 03100206, 03100207	12057C0462H <sup>1</sup> 12057C0466H <sup>1</sup> 12057C0467H <sup>1</sup> 12057C0468H <sup>1</sup> 12057C0469H <sup>1</sup> 12057C0477J 12057C0478J 12057C0479J 12057C0481J 12057C0482J 12057C0483J 12057C0484J 12057C0486H <sup>1</sup> 12057C0487J 12057C0488J <sup>1</sup> 12057C0489J 12057C0491J 12057C0492J 12057C0493J 12057C0494J 12057C0501J 12057C0502J 12057C0503J 12057C0504J 12057C0506J 12057C0507H 12057C0508H 12057C0509H 12057C0511J 12057C0515H 12057C0520H 12057C0530H 12057C0535H 12057C0540H 12057C0545H 12057C0555H 12057C0560H 12057C0565H 12057C0570H 12057C0588H <sup>1</sup> 12057C0589H <sup>1</sup> 12057C0593H <sup>1</sup> 12057C0594H <sup>1</sup> 12057C0613H <sup>1</sup> 12057C0614H <sup>1</sup> 12057C0616J <sup>1</sup> 12057C0617J <sup>1</sup> 12057C0618H <sup>1</sup> 12057C0619H <sup>1</sup>	

**Table 1: Listing of NFIP Jurisdictions (continued)**

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Hillsborough County, Unincorporated Areas (continued)	120112	03100101, 03100202, 03100203, 03100204, 03100205, 03100206, 03100207	12057C0627H <sup>1</sup> 12057C0629H <sup>1</sup> 12057C0631H <sup>1</sup> 12057C0632J <sup>1</sup> 12057C0633H <sup>1</sup> 12057C0634J 12057C0636H <sup>1</sup> 12057C0637H <sup>1</sup> 12057C0638H <sup>1</sup> 12057C0639J 12057C0641J 12057C0642J 12057C0643J 12057C0644J 12057C0651J 12057C0652J 12057C0653J 12057C0654J 12057C0656J 12057C0657J 12057C0658J 12057C0659H 12057C0661J 12057C0662J 12057C0665H 12057C0670J 12057C0676H 12057C0678H 12057C0680H 12057C0685H 12057C0690H 12057C0695H 12057C0705H 12057C0710H 12057C0715H 12057C0720H 12057C0730H 12057C0735H 12057C0740H 12057C0745H 12057C0751H <sup>1</sup> 12057C0752H <sup>1</sup> 12057C0753H <sup>1</sup> 12057C0754H <sup>1</sup> 12057C0756H <sup>1</sup> 12057C0757J 12057C0758H <sup>1</sup> 12057C0759J 12057C0776H <sup>1</sup> 12057C0777H <sup>1</sup>	

**Table 1: Listing of NFIP Jurisdictions (continued)**

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Hillsborough County, Unincorporated Areas (continued)	120112	03100101, 03100202, 03100203, 03100204, 03100205, 03100206, 03100207	12057C0778H <sup>1</sup> 12057C0779H <sup>1</sup> 12057C0781H <sup>1</sup> 12057C0782H <sup>1</sup> 12057C0783H <sup>1</sup> 12057C0801H <sup>1</sup>	
Plant City, City of	120113	03100204, 03100205	12057C0260H 12057C0267H 12057C0268H 12057C0269H 12057C0280H 12057C0286H 12057C0288H 12057C0290H 12057C0295H 12057C0410H 12057C0430H 12057C0435H	
Tampa, City of	120114	03100205, 03100206	12057C0070H 12057C0090H 12057C0095H 12057C0169J 12057C0209H 12057C0210H 12057C0211H 12057C0212H 12057C0213J 12057C0214J 12057C0216H 12057C0217H 12057C0218J 12057C0219H 12057C0230H 12057C0307J 12057C0309J 12057C0326J 12057C0327J 12057C0328J <sup>1</sup> 12057C0329J 12057C0331J 12057C0332J 12057C0333J 12057C0334J 12057C0336H <sup>1</sup> 12057C0337J 12057C0339H <sup>1</sup> 12057C0341J	

**Table 1: Listing of NFIP Jurisdictions (continued)**

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Tampa, City of (continued)	120114	03100205, 03100206	12057C0342J 12057C0343J 12057C0344J 12057C0351J 12057C0352J 12057C0353J 12057C0354J 12057C0358J 12057C0359J 12057C0360H 12057C0361J 12057C0362J 12057C0363J 12057C0364J <sup>1</sup> 12057C0366J 12057C0368J 12057C0378K 12057C0452J <sup>1</sup> 12057C0454H <sup>1</sup> 12057C0456J 12057C0457J 12057C0458J 12057C0459J 12057C0476J 12057C0477J 12057C0478J 12057C0479J	
Temple Terrace, City of	120115	03100205, 03100206	12057C0209H 12057C0217H 12057C0219H 12057C0230H 12057C0236H 12057C0238H	

<sup>1</sup> Panel Not Printed

#### 1.4 Considerations for using this Flood Insurance Study Report

The NFIP encourages State and local governments to implement sound floodplain management programs. To assist in this endeavor, each FIS Report provides floodplain data, which may include a combination of the following: 10-, 4-, 2-, 1-, and 0.2-percent annual chance flood elevations (the 1% annual chance flood elevation is also referred to as the Base Flood Elevation (BFE)); delineations of the 1% annual chance and 0.2% annual chance floodplains; and 1% annual chance floodway. This information is presented on the FIRM and/or in many components of the FIS Report, including Flood Profiles, Floodway Data tables, Summary of Non-Coastal Stillwater Elevations tables, and Coastal Transect Parameters tables (not all components may be provided for a specific FIS).

This section presents important considerations for using the information contained in this FIS Report and the FIRM, including changes in format and content. Figures 1, 2, and 3 present information that applies to using the FIRM with the FIS Report.

- Part or all of this FIS Report may be revised and republished at any time. In addition, part of this FIS Report may be revised by a Letter of Map Revision (LOMR), which does not involve republication or redistribution of the FIS Report. Refer to Section 6.5 of this FIS Report for information about the process to revise the FIS Report and/or FIRM.

It is, therefore, the responsibility of the user to consult with community officials by contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table 30, "Map Repositories," within this FIS Report.

- New FIS Reports are frequently developed for multiple communities, such as entire counties. A countywide FIS Report incorporates previous FIS Reports for individual communities and the unincorporated area of the county (if not jurisdictional) into a single document and supersedes those documents for the purposes of the NFIP.

The initial Countywide FIS Report for Hillsborough County became effective on August 28, 2008. Refer to Table 27 for information about subsequent revisions to the FIRMs.

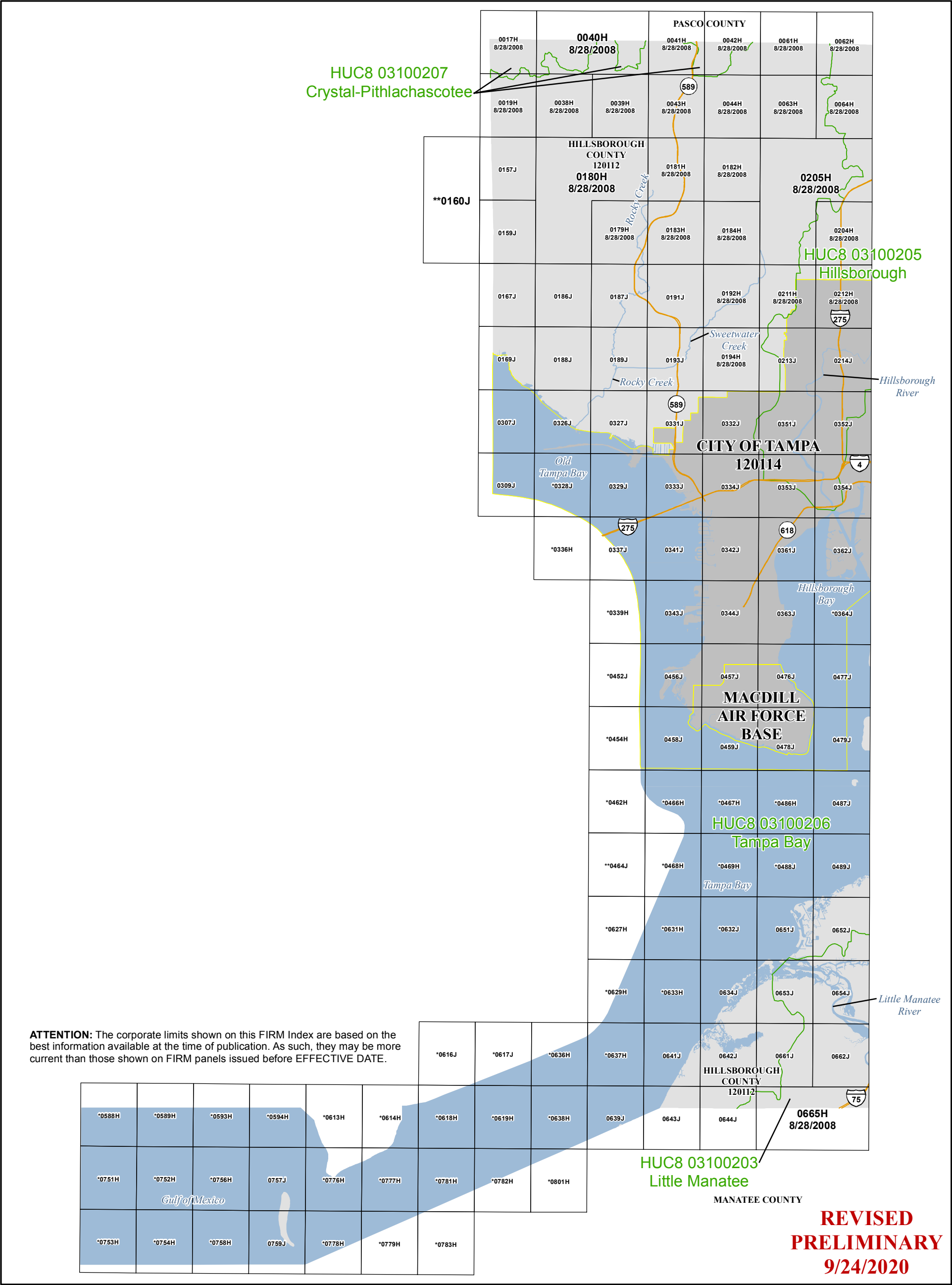
- FEMA does not impose floodplain management requirements or special insurance ratings based on Limit of Moderate Wave Action (LiMWA) delineations at this time. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. If the LiMWA is shown on the FIRM, it is being provided by FEMA as information only. For communities that do adopt Zone VE building standards in the area defined by the LiMWA, additional Community Rating System (CRS) credits are available. Refer to Section 2.5.4 for additional information about the LiMWA.

The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Visit the FEMA Web site at [www.fema.gov/national-flood-insurance-program-community-rating-system](http://www.fema.gov/national-flood-insurance-program-community-rating-system) or contact your appropriate FEMA Regional Office for more information about this program.

- FEMA has developed a *Guide to Flood Maps* (FEMA 258) and online tutorials to assist users in accessing the information contained on the FIRM. These include how to read panels and step-by-step instructions to obtain specific information. To obtain this guide and other assistance in using the FIRM, visit the FEMA Web site at [www.fema.gov/online-tutorials](http://www.fema.gov/online-tutorials).

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Hillsborough County, and also displays the panel number and effective date for each FIRM panel in the county. Other information shown on the FIRM Index includes community boundaries, transportation features, flooding sources, watershed boundaries, and USGS HUC-8 codes.

Figure 1: FIRM Index



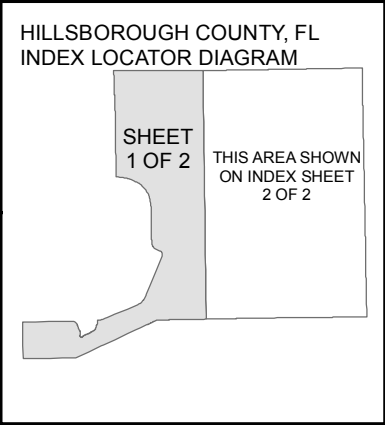
1 inch = 17,083 feet 1:205,000

0 4,850 9,700 19,400 29,100 38,800 feet

Map Projection:  
State Plane Transverse Mercator, Florida West  
Zone 0902; North American Datum 1983

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING  
DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT  
**[HTTPS://MSC.FEMA.GOV](https://MSC.FEMA.GOV)**

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION



**NATIONAL FLOOD INSURANCE PROGRAM**  
**FLOOD INSURANCE RATE MAP INDEX**

**HILLSBOROUGH COUNTY, FLORIDA** and Incorporated Areas  
SHEET 1 OF 2

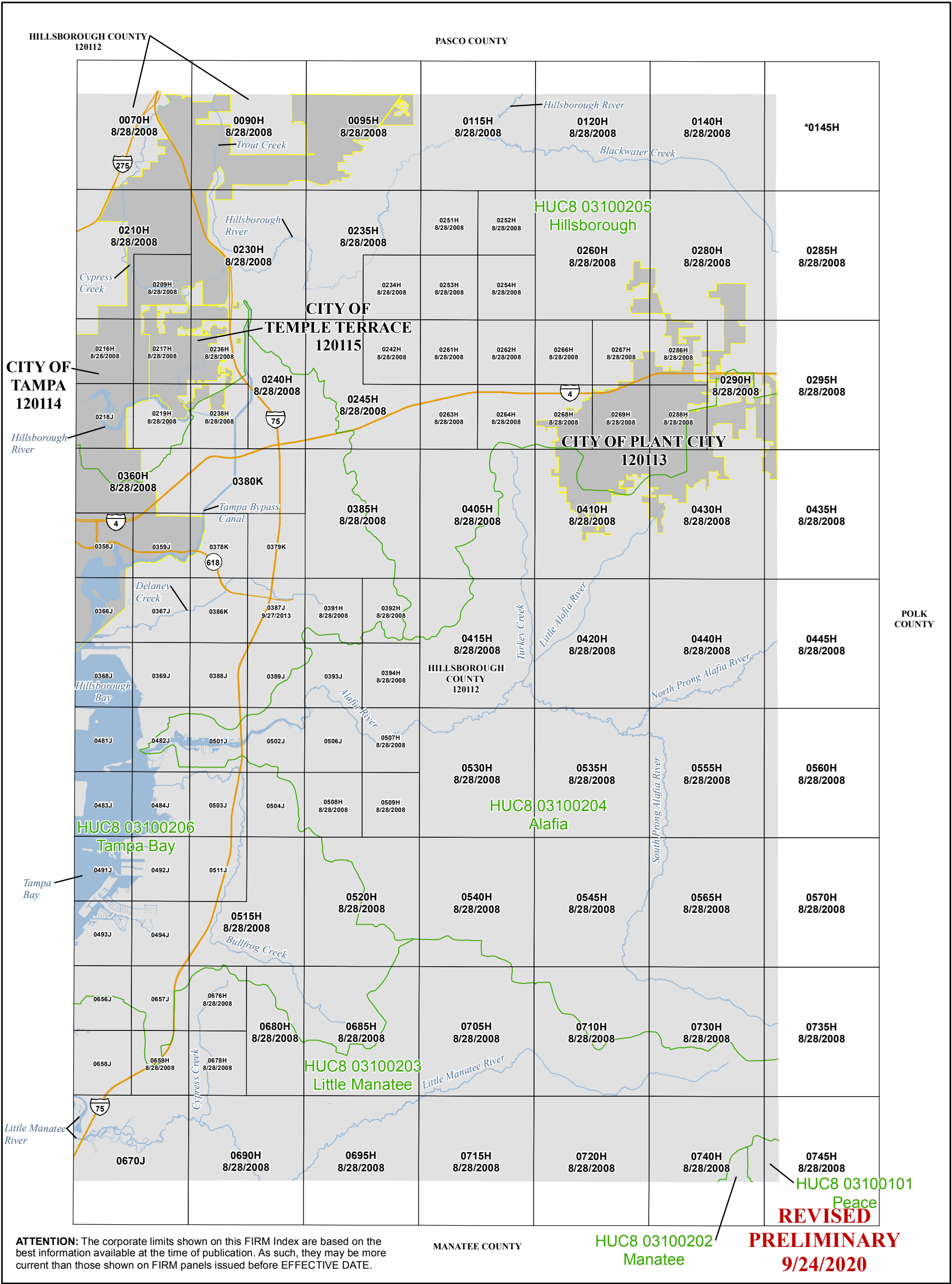
PANELS PRINTED:  
0017, 0019, 0038, 0039, 0040, 0041, 0042, 0043, 0044, 0061, 0062, 0063, 0064, 0157, 0159, 0167, 0169, 0179, 0180, 0181, 0182, 0183, 0184, 0186, 0187, 0188, 0189, 0191, 0192, 0193, 0194, 0204, 0205, 0211, 0212, 0213, 0214, 0307, 0309, 0326, 0327, 0329, 0331, 0332, 0333, 0334, 0337, 0341, 0342, 0343, 0344, 0351, 0352, 0353, 0354, 0361, 0362, 0363, 0456, 0457, 0458, 0459, 0476, 0477, 0478, 0479, 0487, 0489, 0634, 0639, 0641, 0642, 0643, 0644, 0651, 0652, 0653, 0654, 0661, 0662, 0665, 0757, 0759

**FEMA**

MAP NUMBER  
12057CIND1C

MAP REVISED

Figure 1: FIRM Index, continued



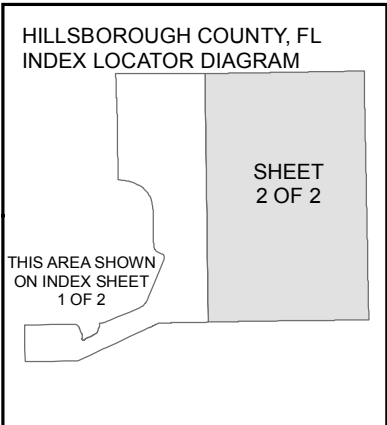
1 inch = 16,667 feet 1:200,000

0 4,750 9,500 19,000 28,500 38,000 feet

Map Projection:  
State Plane Transverse Mercator, Florida West  
Zone 0902; North American Datum 1983

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING  
DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT  
[HTTPS://MSC.FEMA.GOV](https://MSC.FEMA.GOV)

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION



**NATIONAL FLOOD INSURANCE PROGRAM**  
FLOOD INSURANCE RATE MAP INDEX

HILLSBOROUGH COUNTY, FLORIDA and Incorporated Areas  
SHEET 2 OF 2

PANELS PRINTED:  
0070, 0090, 0095, 0115, 0120, 0140, 0209, 0210, 0216, 0217, 0218, 0219,  
0230, 0234, 0235, 0236, 0238, 0240, 0242, 0245, 0251, 0252, 0253, 0254,  
0260, 0261, 0262, 0263, 0264, 0266, 0267, 0268, 0269, 0280, 0285, 0286,  
0288, 0290, 0295, 0358, 0359, 0360, 0366, 0367, 0368, 0369, 0378, 0379,  
0380, 0385, 0386, 0387, 0388, 0389, 0391, 0392, 0393, 0394, 0405, 0410,  
0415, 0420, 0430, 0435, 0440, 0445, 0481, 0482, 0483, 0484, 0491, 0492,  
0493, 0494, 0501, 0502, 0503, 0504, 0506, 0507, 0508, 0509, 0511, 0515,  
0520, 0530, 0535, 0540, 0545, 0555, 0560, 0565, 0570, 0656, 0657, 0658,  
0659, 0670, 0676, 0678, 0680, 0685, 0690, 0695, 0705, 0710, 0715, 0720,  
0730, 0735, 0740, 0745



FEMA

MAP NUMBER  
12057CIND2C

MAP REVISED

\* PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS

Each FIRM panel may contain specific notes to the user that provide additional information regarding the flood hazard data shown on that map. However, the FIRM panel does not contain enough space to show all the notes that may be relevant in helping to better understand the information on the panel. Figure 2 contains the full list of these notes.

**Figure 2: FIRM Notes to Users**

## **NOTES TO USERS**

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products, or the National Flood Insurance Program in general, please call the FEMA Mapping and Insurance eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at [msc.fema.gov](http://msc.fema.gov). Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Flood Map Service Center website or by calling the FEMA Mapping and Insurance eXchange.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Panel Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates, refer to Table 27 in this FIS Report.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

**PRELIMINARY FIS REPORT:** FEMA maintains information about map features, such as street locations and names, in or near designated flood hazard areas. Requests to revise information in or near designated flood hazard areas may be provided to FEMA during the community review period, at the final Consultation Coordination Officer's meeting, or during the statutory 90-day appeal period. Approved requests for changes will be shown on the final printed FIRM.

The map is for use in administering the NFIP. It may not identify all areas subject to flooding, particularly from local drainage sources of small size. Consult the community map repository to find updated or additional flood hazard information.

**BASE FLOOD ELEVATIONS:** For more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, consult the Flood Profiles and Floodway Data and/or Summary of Non-Coastal Stillwater Elevations tables within this FIS Report. Use the flood elevation data within the FIS Report in conjunction with the FIRM for construction and/or floodplain management.

Coastal Base Flood Elevations shown on the map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD88). Coastal flood elevations are also provided in the Coastal Transect Parameters table in the FIS Report for this jurisdiction. Elevations shown in the Coastal Transect Parameters table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on the FIRM.

**FLOODWAY INFORMATION:** Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the FIS Report for this jurisdiction.

**Figure 2: FIRM Notes to Users**

**FLOOD CONTROL STRUCTURE INFORMATION:** Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 4.3 "Non-Levee Flood Protection Measures" of this FIS Report for information on flood control structures for this jurisdiction.

**PROJECTION INFORMATION:** The projection used in the preparation of the map was State Plane Transverse Mercator, Florida West Zone 0902. The horizontal datum was the North American Datum of 1983 NAD83, GRS 1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

**ELEVATION DATUM:** Flood elevations on the FIRM are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at [www.ngs.noaa.gov](http://www.ngs.noaa.gov).

Local vertical monuments may have been used to create the map. To obtain current monument information, please contact the appropriate local community listed in Table 30 of this FIS Report.

**BASE MAP INFORMATION:** Base map information shown on the FIRM was provided by Hillsborough County, dated 2008 and 2018; the Florida Department of Transportation, dated 2017; the Florida Resources and Environmental Analysis Center, dated 2003; the U.S. Department of Agriculture, dated 2018; and the U.S. Fish and Wildlife Service, dated 2018. For information about base maps, refer to Section 6.2 "Base Map" in this FIS Report.

The map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables may reflect stream channel distances that differ from what is shown on the map.

Corporate limits shown on the map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after the map was published, map users should contact appropriate community officials to verify current corporate limit locations.

## **NOTES FOR FIRM PANEL INDEX**

**REVISIONS TO INDEX:** As new studies are performed and FIRM panels are updated within Hillsborough County, Florida, corresponding revisions to the FIRM Panel Index will be incorporated within the FIS Report to reflect the effective dates of those panels. Please refer to Table 27 of this FIS Report to determine the most recent FIRM revision date for each community. The most recent FIRM panel effective date will correspond to the most recent index date.

**ATTENTION:** The corporate limits shown are based on the best information available at the time of publication of this FIRM Panel Index. As such, they may be more current than those shown on FIRM panels issued before TBD.

**Figure 2: FIRM Notes to Users**

**SPECIAL NOTES FOR SPECIFIC FIRM PANELS**

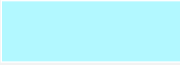
This Notes to Users section was created specifically for Hillsborough County, Florida, effective TBD.

LIMIT OF MODERATE WAVE ACTION: Zone AE has been divided by a Limit of Moderate Wave Action (LiMWA). The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between Zone VE and the LiMWA (or between the shoreline and the LiMWA for areas where Zone VE is not identified) will be similar to, but less severe than, those in Zone VE.




















FLOOD RISK REPORT: A Flood Risk Report (FRR) may be available for many of the flooding sources and communities referenced in this FIS Report. The FRR is provided to increase public awareness of flood risk by helping communities identify the areas within their jurisdictions that have the greatest risks. Although non-regulatory, the information provided within the FRR can assist communities in assessing and evaluating mitigation opportunities to reduce these risks. It can also be used by communities developing or updating flood risk mitigation plans. These plans allow communities to identify and evaluate opportunities to reduce potential loss of life and property. However, the FRR is not intended to be the final authoritative source of all flood risk data for a project area; rather, it should be used with other data sources to paint a comprehensive picture of flood risk.

Each FIRM panel contains an abbreviated legend for the features shown on the maps. However, the FIRM panel does not contain enough space to show the legend for all map features. Figure 3 shows the full legend of all map features. Note that not all of these features may appear on the FIRM panels in Hillsborough County.


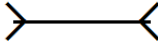












**Figure 3: Map Legend for FIRM**

<p><b>SPECIAL FLOOD HAZARD AREAS:</b> <i>The 1% annual chance flood, also known as the base flood or 100-year flood, has a 1% chance of happening or being exceeded each year. Special Flood Hazard Areas are subject to flooding by the 1% annual chance flood. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. See note for specific types. If the floodway is too narrow to be shown, a note is shown.</i></p>	
	Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)
Zone A	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.
Zone AE	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone.
Zone AH	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the hydraulic analyses are shown at selected intervals within this zone.
Zone AO	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the hydraulic analyses are shown within this zone.
Zone AR	The flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
Zone A99	The flood insurance rate zone that corresponds to areas of the 1% annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or flood depths are shown within this zone.
Zone V	The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations are not shown within this zone.
Zone VE	Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.














**Figure 3: Map Legend for FIRM**

	Regulatory Floodway determined in Zone AE.
<b>OTHER AREAS OF FLOOD HAZARD</b>	
	Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.
	Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.
	Area with Reduced Flood Risk due to Levee: Areas where an accredited levee, dike, or other flood control structure has reduced the flood risk from the 1% annual chance flood.
	Area with Flood Risk due to Levee: Areas where a non-accredited levee, dike, or other flood control structure is shown as providing protection to less than the 1% annual chance flood.
<b>OTHER AREAS</b>	
	Zone D (Areas of Undetermined Flood Hazard): The flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.
	Unshaded Zone X: Areas of minimal flood hazard.
<b>FLOOD HAZARD AND OTHER BOUNDARY LINES</b>	
  (ortho)      (vector)	Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)
	Limit of Study
	Jurisdiction Boundary
	Limit of Moderate Wave Action (LiMWA): Indicates the inland limit of the area affected by waves greater than 1.5 feet
<b>GENERAL STRUCTURES</b>	
   	Channel, Culvert, Aqueduct, or Storm Sewer
  	Dam, Jetty, Weir

**Figure 3: Map Legend for FIRM**

	Levee, Dike, or Floodwall
 <i>Bridge</i>	Bridge
<b>REFERENCE MARKERS</b>	
 22.0	River mile Markers
 130A	Node – Flow accumulation point or hydraulic connection
<b>CROSS SECTION &amp; TRANSECT INFORMATION</b>	
 20.2	Lettered Cross Section with Regulatory Water Surface Elevation (BFE)
 21.1	Numbered Cross Section with Regulatory Water Surface Elevation (BFE)
 17.5	Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)
 - - - - -	Coastal Transect
	Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.
	Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.
 513	Base Flood Elevation Line
<b>ZONE AE</b> (EL 16)	Static Base Flood Elevation value (shown under zone label)
<b>ZONE AO</b> (DEPTH 2)	Zone designation with Depth
<b>ZONE AO</b> (DEPTH 2) (VEL 15 FPS)	Zone designation with Depth and Velocity
<b>BASE MAP FEATURES</b>	
 <i>Missouri Creek</i>	River, Stream or Other Hydrographic Feature
	Interstate Highway
	U.S. Highway

**Figure 3: Map Legend for FIRM**

	State Highway
	County Highway
	Street, Road, Avenue Name, or Private Drive if shown on Flood Profile
	Railroad
	Horizontal Reference Grid Line
	Horizontal Reference Grid Ticks
	Secondary Grid Crosshairs
	Name of Land Grant
	Section Number
	Range, Township Number
	Horizontal Reference Grid Coordinates (UTM)
	Horizontal Reference Grid Coordinates (State Plane)
	Corner Coordinates (Latitude, Longitude)

## **SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS**

### **2.1 Floodplain Boundaries**

To provide a national standard without regional discrimination, the 1% annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2% annual chance (500-year) flood is employed to indicate additional areas of flood hazard in the community.

Each flooding source included in the project scope has been studied and mapped using professional engineering and mapping methodologies that were agreed upon by FEMA and Hillsborough County as appropriate to the risk level. Flood risk is evaluated based on factors such as known flood hazards and projected impact on the built environment. Engineering analyses were performed for each studied flooding source to calculate its 1% annual chance flood elevations; elevations corresponding to other floods (e.g. 10-, 4-, 2-, 0.2-percent annual chance, etc.) may have also been computed for certain flooding sources. Engineering models and methods are described in detail in Section 5.0 of this FIS Report. The modeled elevations at cross sections were used to delineate the floodplain boundaries on the FIRM; between cross sections, the boundaries were interpolated using elevation data from various sources. More information on specific mapping methods is provided in Section 6.0 of this FIS Report.

Depending on the accuracy of available topographic data (Table 22), study methodologies employed (Section 5.0), and flood risk, certain flooding sources may be mapped to show both the 1% and 0.2% annual chance floodplain boundaries, regulatory water surface elevations (BFEs), and/or a regulatory floodway. Similarly, other flooding sources may be mapped to show only the 1% annual chance floodplain boundary on the FIRM, without published water surface elevations. In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary is shown on the FIRM. Figure 3, “Map Legend for FIRM”, describes the flood zones that are used on the FIRMs to account for the varying levels of flood risk that exist along flooding sources within the project area. Table 2 and Table 3 indicate the flood zone designations for each flooding source and each community within Hillsborough County, respectively.

Table 2, “Flooding Sources Included in this FIS Report,” lists each flooding source, including its study limits, affected communities, mapped zone on the FIRM, and the completion date of its engineering analysis from which the flood elevations on the FIRM and in the FIS Report were derived. Descriptions and dates for the latest hydrologic and hydraulic analyses of the flooding sources are shown in Table 12. Floodplain boundaries for these flooding sources are shown on the FIRM (published separately) using the symbology described in Figure 3. On the map, the 1% annual chance floodplain corresponds to the SFHAs. The 0.2% annual chance floodplain shows areas that, although out of the regulatory floodplain, are still subject to flood hazards.

Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic

data. The procedures to remove these areas from the SFHA are described in Section 6.5 of this FIS Report.

**Table 2: Flooding Sources Included in this FIS Report**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Alafia River	Hillsborough County, Unincorporated Areas	Approximately 1 mile downstream of U.S. Highway 41	Approximately 2.1 miles upstream of confluence of Buckhorn Creek	03100204	9.5	--	Y	AE, VE	2017
Alafia River	Hillsborough County, Unincorporated Areas	Approximately 2.1 miles upstream of confluence of Buckhorn Creek	Confluence of North Prong Alafia River/ South Prong Alafia River	03100204	14.7	--	Y	AE	2003
Alderman Creek	Hillsborough County, Unincorporated Areas	Confluence with Manatee River	Approximately 2.4 miles upstream of Taylor Gill Road	03100203	4.2	--	Y	AE	2003
Archie Creek	Hillsborough County, Unincorporated Areas	Approximately 200 feet downstream of 78 <sup>th</sup> Street South	Approximately 0.4 miles upstream of 78 <sup>th</sup> Street South	03100206	0.5	--	Y	AE	2017
Archie Creek	Hillsborough County, Unincorporated Areas	Approximately 0.4 miles upstream of 78 <sup>th</sup> Street South	Approximately 1,900 feet upstream of Interstate 75	03100206	1.3	--	Y	AE	2003
Baker Canal	Hillsborough County, Unincorporated Areas	Confluence with Lake Thonotosassa Tributary and Baker Creek	Approximately 0.5 miles upstream of Walden Sheffield Road	03100205	7.9	--	Y	AE	2004
Baker Canal Tributary 1	Hillsborough County, Unincorporated Areas	Taylor Road	Confluence with Baker Canal	03100205	1.7	--	Y	AE	2004
Baker Canal Tributary 2	Hillsborough County, Unincorporated Areas	Confluence with Baker Canal	Approximately 0.5 miles upstream of Gallagher Road	03100205	2.4	--	N	AE	2001

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Baker Canal Tributary 3	Hillsborough County, Unincorporated Areas	Confluence with Baker Canal	Approximately 1,100 feet upstream of U.S. Highway 92	03100205	0.8	--	N	AE	2001
Baker Canal Tributary 5	Hillsborough County, Unincorporated Areas	Confluence with Baker Canal	Just upstream of McIntosh Road	03100205	1.8	--	N	AE	2001
Baker Canal Tributary 6	Hillsborough County, Unincorporated Areas	Confluence with Baker Canal	Approximately 0.9 miles upstream of confluence with Baker Canal	03100205	0.9	--	N	AE	2001
Baker Canal Tributary 7	Hillsborough County, Unincorporated Areas	Confluence with Baker Canal	Approximately 0.6 miles upstream of Dover Road North	03100205	1.0	--	N	AE	2001
Baker Canal Tributary 8	Hillsborough County, Unincorporated Areas	Confluence with Baker Canal	Approximately 0.7 miles upstream of Walden Sheffield Road	03100205	1.4	--	N	AE	2001
Baker Creek/ Pemberton Creek/ Mill Creek	Hillsborough County, Unincorporated Areas; Plant City, City of	Confluence with Lake Thonotosassa and Baker Canal	Approximately 145 feet upstream of North Wheeler Street	03100205	10.0	--	Y	AE	2004
Baker Creek Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Pemberton Creek	Approximately 0.9 miles upstream of Emerald Acres Avenue	03100205	1.4	--	N	AE	2001
Baker Creek Tributary 2	Hillsborough County, Unincorporated Areas	Confluence with Baker Creek Tributary 1	Approximately 0.7 miles upstream of confluence with Baker Creek Tributary 1	03100205	0.7	--	N	AE	2001

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Basset Branch	Hillsborough County, Unincorporated Areas; Tampa, City of	Confluence with Hillsborough River	At Pasco County boundary	03100205	3.9	--	Y	AE	2003
Bell Creek	Hillsborough County, Unincorporated Areas	Confluence with Alafia River	Approximately 1.4 miles upstream of Rhodine Road	03100204	7.1	--	N	AE	2002
Big Bend	Hillsborough County, Unincorporated Areas	Confluence with Bullfrog Creek	Approximately 0.7 miles upstream of Simmons Loop	03100206	1.3	--	Y	AE	2002
Blackwater Creek	Hillsborough County, Unincorporated Areas	Confluence with Hillsborough River	Approximately 0.9 miles upstream of Canaan Avenue	03100205	13.4	--	Y	AE	2003
Brooker Creek	Hillsborough County, Unincorporated Areas	At Pinellas County boundary	Approximately 0.7 miles upstream of Farmer Road	03100206	3.9	--	Y	AE	2003
Brushy Creek	Hillsborough County, Unincorporated Areas	Confluence with Rocky Creek	Approximately 900 feet upstream of Round Oak Drive	03100206	6.9	--	Y	AE	2004
Brushy Creek Branch 2	Hillsborough County, Unincorporated Areas	Confluence with Brushy Creek	Approximately 30 feet upstream of Hutchison Road	03100206	2.3	--	Y	AE	2004
Brushy Creek Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Brushy Creek	Approximately 50 feet upstream of Country Lake Drive	03100206	0.5	--	Y	AE	2004

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Buckhorn Creek	Hillsborough County, Unincorporated Areas	Confluence with Alafia River	Kings Avenue South	03100204	1.2	--	N	AE	2002
Bullfrog Creek	Hillsborough County, Unincorporated Areas	Confluence with Hillsborough Bay	Approximately 40 feet upstream of Symmes Road	03100206	4.6	--	Y	AE	2017
Bullfrog Creek	Hillsborough County, Unincorporated Areas	Approximately 40 feet upstream of Symmes Road	Approximately 0.6 miles upstream of Edina Street	03100206	14.0	--	Y	AE	2002
Bullfrog Creek Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Bullfrog Creek	Just upstream of Lincoln Road	03100206	0.5	--	N	AE	2001
Bullfrog Creek Tributary 2	Hillsborough County, Unincorporated Areas	Confluence with Bullfrog Creek	Approximately 0.4 miles upstream of West Lake Drive	03100206	0.8	--	Y	AE	2002
Bullfrog Creek Tributary 3	Hillsborough County, Unincorporated Areas	Confluence with Bullfrog Creek	Approximately 40 feet upstream of County Road 672	03100206	3.7	--	Y	AE	2002
Cabbagehead Bayou	Hillsborough County, Unincorporated Areas	Approximately 100 feet upstream of Hillsborough Avenue	Confluence with Rocky Creek	03100206	2.7	--	Y	AE	2017
Campbell Branch	Hillsborough County, Unincorporated Areas	Confluence with Flint Creek	Approximately 1,020 feet upstream of Thonotosassa Road	03100205	6.2	--	Y	AE	2004

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Campbell Branch Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Campbell Branch	Approximately 0.5 miles upstream of McIntosh Road	03100205	0.6	--	N	AE	2001
Carlton Branch	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 1,600 feet upstream of Huckleberry Road	03100203	6.7	--	Y	AE	2003
Carlton Branch Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Carlton Branch	Approximately 24 feet upstream of Leonard Lee Road	03100203	0.9	--	Y	AE	2003
Carlton Branch Tributary 2	Hillsborough County, Unincorporated Areas	Confluence with Carlton Branch	Approximately 0.5 miles upstream of Balm Wimauma Road	03100203 03100206	3.3	--	Y	AE	2003
Carlton Branch Tributary 3	Hillsborough County, Unincorporated Areas	Confluence with Carlton Branch	Just upstream of Sweat Loop Road	03100203	1.0	--	Y	AE	2003
Carlton Branch Tributary 3.1	Hillsborough County, Unincorporated Areas	Confluence with Carlton Branch Tributary 3	Approximately 40 feet upstream of Balm Wimauma Road	03100203	0.4	--	N	AE	2002
Clay Gulley East	Hillsborough County, Unincorporated Areas	Confluence with Hillsborough River	Approximately 1.8 miles upstream of Five Acre Road	03100205	4.9	--	Y	AE	2003
Clay Gulley East Tributary 2	Hillsborough County, Unincorporated Areas	Confluence with Clay Gulley East	Five Acre Road	03100205	0.2	--	Y	AE	2003

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Clay Gulley East Tributary 4	Hillsborough County, Unincorporated Areas	Confluence with Clay Gulley East Tributary 6	Approximately 75 feet upstream of Five Acre Road	03100205	0.7	--	Y	AE	2003
Clay Gulley East Tributary 5	Hillsborough County, Unincorporated Areas	Confluence with Clay Gulley Tributary 7	Approximately 80 feet upstream of Burnt Barn Avenue	03100205	2.0	--	Y	AE	2003
Clay Gulley East Tributary 6	Hillsborough County, Unincorporated Areas	Confluence with Clay Gulley East	Approximately 1 mile upstream of confluence of Clay Gulley East Tributary 4	03100205	1.4	--	Y	AE	2003
Clay Gulley East Tributary 7	Hillsborough County, Unincorporated Areas	Confluence with Clay Gulley East	Approximately 480 feet upstream of Warren Byrd Lane	03100205	1.1	--	Y	AE	2003
Clay Gulley East Tributary 8	Hillsborough County, Unincorporated Areas	Confluence with Clay Gulley East	Approximately 0.7 miles upstream of confluence with Clay Gulley East	03100205	0.7	--	N	AE	2002
Clay Gulley West	Hillsborough County, Unincorporated Areas; Tampa, City of	Confluence with Hillsborough River	At Pasco County boundary	03100205	7.1	--	Y	AE	2003
Cow House Creek	Hillsborough County, Unincorporated Areas; Temple Terrace, City of	Confluence with Hillsborough River	Confluence of Hillsborough River	03100205 03100206	5.2	--	Y	AE	2003
Curiosity Creek	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 0.5 miles upstream of confluence of Curiosity Creek Tributary 1	03100203	1.4	--	Y	AE	2017

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Curiosity Creek	Hillsborough County, Unincorporated Areas	Approximately 0.5 miles upstream of confluence of Curiosity Creek Tributary 1	Approximately 1.1 miles upstream of Lightfoot Road	03100203	1.3	--	Y	AE	2003
Curiosity Creek (near City of Tampa)	Hillsborough County, Unincorporated Areas; Tampa, City of	Approximately 1,450 feet downstream of 122 <sup>nd</sup> Avenue	Approximately 1,000 feet upstream of Bearss Avenue	03100205	3.0	--	Y	AE	2002
Curiosity Creek Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Curiosity Creek	Approximately 0.7 miles upstream of confluence with Curiosity Creek	03100203	0.7	--	Y	AE	2017
Curiosity Creek Tributary 1	Hillsborough County, Unincorporated Areas	Approximately 0.7 miles upstream of confluence with Curiosity Creek	Just upstream of Pinetree Circle	03100203	1.5	--	Y	AE	2003
Curiosity Creek Tributary 1.1	Hillsborough County, Unincorporated Areas	Confluence with Curiosity Creek Tributary 1	Approximately 0.7 miles upstream of Butch Cassidy Trail	03100203	1.0	--	Y	AE	2003
Cypress Creek	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Just upstream of 19 <sup>th</sup> Avenue NE	03100203	5.9	--	Y	AE	2003
Cypress Creek (near City of Tampa)	Hillsborough County, Unincorporated Areas; Tampa, City of	Confluence with Hillsborough River	County Line Road	03100205	11.2	--	Y	AE	2003
Delaney Creek	Hillsborough County, Unincorporated Areas	Approximately 1.2 miles downstream of 50 <sup>th</sup> Street	78 <sup>th</sup> Street South	03100206	4.0	--	Y	AE	2017

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Delaney Creek	Hillsborough County, Unincorporated Areas	78 <sup>th</sup> Street South	Approximately 1,000 feet upstream of I-75	03100206	3.2	--	Y	AE	2011
Delaney Creek	Hillsborough County, Unincorporated Areas	Approximately 1,000 feet upstream of I-75	Approximately 1,700 feet upstream of Lakewood Drive South	03100206	1.7	--	Y	AE	2003
Delaney Creek Lateral C	Hillsborough County, Unincorporated Areas	Confluence with Delaney Creek	Approximately 15 feet upstream of Rideout Road	03100206	0.8	--	Y	AE	2011
Delaney Creek Lateral D	Hillsborough County, Unincorporated Areas	Confluence with Delaney Creek	Approximately 710 feet upstream of Ridein Road	03100206	0.6	--	N	AE	2011
Delaney Creek Lateral E	Hillsborough County, Unincorporated Areas	Confluence with Delaney Creek	Approximately 770 feet upstream of Palm River Road	03100206	0.4	--	Y	AE	2011
Delaney Creek Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Delaney Creek	Approximately 30 feet upstream of Maydell Drive	03100206	0.7	--	Y	AE	2017
Delaney Creek Tributary 2	Hillsborough County, Unincorporated Areas	Confluence with Delaney Creek	Approximately 0.2 miles upstream of confluence with Delaney Creek	03100206	0.2	--	Y	AE	2017
Delaney Creek Tributary 2	Hillsborough County, Unincorporated Areas	Approximately 0.2 miles upstream of confluence with Delaney Creek	Approximately 920 feet upstream of Robindale Road	03100206	0.7	--	Y	AE	2002

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Dug Creek	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 800 feet upstream of State Road 674	03100203	4.0	--	Y	AE	2003
Dug Creek Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Dug Creek	Approximately 2,100 feet upstream of Ed Lane	03100203	1.0	--	N	AE	2002
Dug Creek Tributary 2	Hillsborough County, Unincorporated Areas	Confluence with Dug Creek	Approximately 1,150 feet upstream of West Lake Drive	03100203	1.5	--	Y	AE	2003
Dug Creek Tributary 3	Hillsborough County, Unincorporated Areas	Confluence with Dug Creek	Approximately 20 feet upstream of West Lake Drive	03100203	1.0	--	N	AE	2002
East Canal	Hillsborough County, Unincorporated Areas; Plant City, City of	Confluence with Itchepackesassa Creek	Approximately 1,200 feet upstream of East Terrace Drive	03100205	4.9	--	Y	AE	2003
East Canal (upstream of Frontage Road)	Plant City, City of	Frontage Road	Approximately 1,275 feet upstream of Alabama Street	03100205	2.1	--	N	AE	2002
East Canal Tributary	Plant City, City of	Confluence at East Canal	Approximately 740 feet upstream of Crystal Terrace	03100205	0.9	--	N	AE	2002
Fishhawk Creek	Hillsborough County, Unincorporated Areas	Confluence with Alafia River	Boyette Road	03100204	5.2	--	N	AE	2002
Flint Creek	Hillsborough County, Unincorporated Areas	U.S. Highway 301	Confluence of Campbell Branch	03100205	1.6	--	Y	AE	2004

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Gulf of Mexico	Hillsborough County, Unincorporated Areas	Entire coastline	Entire coastline	N/A	4.3	--	N	VE	2017
Gulley Branch	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 2.5 miles upstream of confluence with Little Manatee River	03100203	2.5	--	Y	AE	2003
Halfmoon Lake Branch	Hillsborough County, Unincorporated Areas	Confluence with Rocky Creek	Approximately 1 mile upstream of DJ Drive	03100206	1.8	--	Y	AE	2004
Hillsborough Bay	Hillsborough County, Unincorporated Areas; Tampa, City of	Entire coastline	Entire coastline	N/A	24.5	--	N	AE, AO, VE	2017
Hillsborough River	Hillsborough County, Unincorporated Areas; Tampa, City of; Temple Terrace, City of	Tampa Dam	At Pasco County boundary	03100205 03100206	35.6	--	Y	AE	2003
Hollomans Branch	Hillsborough County, Unincorporated Areas	Confluence with Hillsborough River	Approximately 0.7 miles upstream of West Knights Griffin Road	03100205	8.9	--	Y	AE	2003
Hollomans Branch Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Hollomans Branch	Approximately 25 feet upstream of Dormany Road	03100205	1.1	--	Y	AE	2003
Hollomans Branch Tributary 2	Hillsborough County, Unincorporated Areas	Confluence with Hollomans Branch	Approximately 0.4 miles upstream of Frazier Road	03100205	3.7	--	Y	AE	2003

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Hollomans Branch Tributary 3	Hillsborough County, Unincorporated Areas	Confluence with Hollomans Branch	Approximately 1.25 miles upstream of Knights Griffin Road	03100205	2.0	--	Y	AE	2003
Howard Prairie Branch	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Just upstream of South County Road 39	03100203	5.1	--	Y	AE	2003
Howard Prairie Branch Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Howard Prairie Branch	Approximately 3.2 miles upstream of Grange Hall Loop	03100203	3.4	--	Y	AE	2003
Howard Prairie Branch Tributary 2	Hillsborough County, Unincorporated Areas	Confluence with Howard Prairie Branch	Just upstream of South County Road 39	03100203	1.3	--	Y	AE	2003
Itchepackesassa Creek	Hillsborough County, Unincorporated Areas	Confluence with Blackwater Creek	Approximately 1.3 miles upstream of Knights Griffin Road	03100205	7.6	--	Y	AE	2003
Itchepackesassa Creek Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Itchepackesassa Creek	Approximately 1.3 miles upstream of Knights Griffin Road	03100205	1.5	--	Y	AE	2003
Itchepackesassa Creek Tributary 2	Hillsborough County, Unincorporated Areas	Confluence with Itchepackesassa Creek	Approximately 0.4 miles upstream of confluence with Itchepackesassa Creek	03100205	0.4	--	Y	AE	2003
Lake Thonotosassa Tributary	Hillsborough County, Unincorporated Areas	Thonotosassa Road	Confluence with Baker Creek and Baker Canal	03100205	0.9	--	Y	AE	2004

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Little Bullfrog Creek	Hillsborough County, Unincorporated Areas	Confluence with Bullfrog Creek	Approximately 0.6 miles upstream of Big Bend Road	03100206	5.7	--	Y	AE	2002
Little Manatee River	Hillsborough County, Unincorporated Areas	Confluence with Ruskin Inlet/Marsh Branch	Approximately 0.8 miles upstream of confluence of Little Manatee River Tributary 2	03100203	10.2	--	Y	AE	2017
Little Manatee River	Hillsborough County, Unincorporated Areas	Approximately 0.8 miles upstream of confluence of Little Manatee River Tributary 2	Approximately 2.2 miles upstream of Taylor Gill Road	03100203	28.6	--	Y	AE	2003
Little Manatee River Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	30 <sup>th</sup> Street SE	03100203	2.0	--	Y	AE	2017
Little Manatee River Tributary 2	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 0.6 miles upstream of confluence of Little Manatee River Tributary 2.2	03100203	1.1	--	Y	AE	2017
Little Manatee River Tributary 2	Hillsborough County, Unincorporated Areas	Approximately 0.6 miles upstream of confluence of Little Manatee River Tributary 2.2	Approximately 60 feet upstream of U.S. Highway 301	03100203	0.6	--	Y	AE	2003
Little Manatee River Tributary 2.1	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River Tributary 2	Approximately 0.4 miles upstream of confluence with Little Manatee River Tributary 2	03100203	0.4	--	Y	AE	2017

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Little Manatee River Tributary 2.1	Hillsborough County, Unincorporated Areas	Approximately 0.4 miles upstream of confluence with Little Manatee River Tributary 2	Approximately 1,020 feet upstream of Lightfoot Road	03100203	0.3	--	Y	AE	2003
Little Manatee River Tributary 2.2	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River Tributary 2	Approximately 410 feet upstream of confluence with Little Manatee River Tributary 2	03100203	0.1	--	Y	AE	2017
Little Manatee River Tributary 2.2	Hillsborough County, Unincorporated Areas	Approximately 410 feet upstream of confluence with Little Manatee River Tributary 2	Approximately 550 feet upstream of Butch Cassidy Trail	03100203	0.6	--	Y	AE	2003
Little Manatee River Tributary 3	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 0.5 miles upstream of confluence with Little Manatee River	03100203	0.5	--	Y	AE	2003
Little Manatee River Tributary 4	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 1.3 miles upstream of confluence with Little Manatee River	03100203	1.3	--	Y	AE	2003
Little Manatee River Tributary 5	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 1.4 miles upstream of confluence of Little Manatee River Tributary 5.1	03100203	2.8	--	Y	AE	2003
Little Manatee River Tributary 5.1	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River Tributary 5	Approximately 0.9 miles upstream of confluence with Little Manatee River Tributary 5	03100203	0.9	--	Y	AE	2003

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Little Manatee River Tributary 6	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 1,525 feet upstream of Leonard Lee Road	03100203	0.7	--	Y	AE	2003
Little Manatee River Tributary 7	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 1.1 miles upstream of confluence of Little Manatee River Tributary 7.1	03100203	2.7	--	Y	AE	2003
Little Manatee River Tributary 7.1	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River Tributary 7	Approximately 1.0 mile upstream of confluence with Little Manatee River Tributary 7	03100203	1.0	--	Y	AE	2003
Little Manatee River Tributary 8	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 0.5 miles upstream of Grange Hall Loop	03100203	1.3	--	Y	AE	2003
Little Manatee River Tributary 9	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 1.6 miles upstream of Grange Hall Loop	03100203	2.1	--	Y	AE	2003
Little Manatee River Tributary 10	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 1.1 miles upstream of State Highway 674	03100203	1.5	--	Y	AE	2003
Little Manatee River Tributary 11	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 1.6 miles upstream of confluence with Little Manatee River	03100203	1.6	--	Y	AE	2003
Little Manatee River Tributary 12	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 50 feet upstream of State Highway 674	03100203	1.2	--	Y	AE	2003

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Little Manatee River Tributary 13	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 1,618 feet upstream of State Highway 674	03100203	1.8	--	N	AE	2002
Lower Sweetwater Creek Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Sweetwater Creek	Approximately 1,050 feet upstream of Veterans Expressway	03100206	1.1	--	N	AE	2017
Lower Sweetwater Creek Tributary 1	Hillsborough County, Unincorporated Areas; Tampa, City of	Approximately 1,050 feet upstream of Veterans Expressway	Approximately 1 mile upstream of West Paris Street	03100206	3.0	--	N	AE	2002
Mill Creek Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Mill Creek	Approximately 50 feet upstream of Bennet Road	03100205	0.8	--	Y	AE	2004
Mill Creek Tributary 2	Hillsborough County, Unincorporated Areas; Plant City, City of	Confluence with Mill Creek	Approximately 0.6 miles upstream of I- 4	03100205	1.2	--	Y	AE	2004
Mill Lake Tributary	Hillsborough County, Unincorporated Areas	Approximately 0.4 miles downstream of Livingston Avenue	Approximately 58 feet downstream of Livingston Avenue	03100205	0.4	--	N	AE	2002
New River	Hillsborough County, Unincorporated Areas; Tampa, City of	Confluence with Hillsborough River	Approximately 0.6 miles upstream of Morris Bridge Road	03100205	2.8	--	Y	AE	2003
New River East	Hillsborough County, Unincorporated Areas	Confluence with New River	At Pasco County boundary	03100205	1.8	--	Y	AE	2003

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
North Archie Creek	Hillsborough County, Unincorporated Areas	Approximately 0.5 miles downstream of 78 <sup>th</sup> Street South	Approximately 0.5 miles upstream of 82 <sup>nd</sup> Street South	03100206	1.1	--	Y	AE	2017
North Archie Creek	Hillsborough County, Unincorporated Areas	Approximately 0.5 miles upstream of 82 <sup>nd</sup> Street South	Approximately 20 feet upstream of Valhalla Pond Drive	03100206	1.6	--	Y	AE	2003
North Lake Tributary	Hillsborough County, Unincorporated Areas	North Pebble Beach Boulevard	Approximately 1,750 feet upstream of Cherry Hill Drive	03100203	1.0	--	N	AE	2002
North Prong Alafia River	Hillsborough County, Unincorporated Areas	Confluence with Alafia River and South Prong Alafia River	At Polk County boundary	03100204	9.3	--	Y	AE	2003
North Prong Bullfrog Creek	Hillsborough County, Unincorporated Areas	Confluence with Bullfrog Creek	Approximately 1.4 miles upstream of confluence with Bullfrog Creek	03100206	1.4	--	Y	AE	2002
Old Tampa Bay	Hillsborough County, Unincorporated Areas; Tampa, City of	Entire Coastline	Entire Coastline	N/A	19.0	--	N	AE, VE	2017
Pemberton Creek Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Pemberton Creek	Approximately 1,280 feet upstream of Glen Harwell Road	03100205	0.6	--	N	AE	2001
Pierce Branch	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 2.1 miles upstream of confluence of Pierce Branch Tributary 3	03100203 03100204	6.1	--	Y	AE	2003

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Pierce Branch Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Pierce Branch	Approximately 0.8 miles upstream of confluence with Pierce Branch	03100203	0.8	--	Y	AE	2003
Pierce Branch Tributary 2	Hillsborough County, Unincorporated Areas	Confluence with Pierce Branch	Approximately 1.9 miles upstream of confluence with Pierce Branch	03100203 03100204	1.9	--	Y	AE	2003
Pierce Branch Tributary 3	Hillsborough County, Unincorporated Areas	Confluence with Pierce Branch	Approximately 25 feet upstream of Sweat Loop Road	03100203	0.8	--	N	AE	2002
Rice Creek	Hillsborough County, Unincorporated Areas	Confluence with Alafia River	Approximately 1 mile upstream of Oak Forest Drive	03100204	2.3	--	Y	AE	2003
Rocky Creek	Hillsborough County, Unincorporated Areas	Approximately 100 feet downstream of Sheldon Road	Approximately 0.5 miles upstream of Linebaugh Avenue	03100206	4.0	--	Y	AE	2017
Rocky Creek	Hillsborough County, Unincorporated Areas	Approximately 0.5 miles upstream of Linebaugh Avenue	Approximately 300 feet upstream of Hammock Woods Drive	03100206	5.9	--	Y	AE	2004
Rocky Creek Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Turkey Ford Lake	Approximately 0.8 miles upstream of Fishermans Bend Drive	03100206	4.3	--	N	AE	2001
Ruskin Inlet/ Marsh Branch	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Approximately 0.5 miles upstream of College Avenue	03100203	4.3	--	Y	AE	2017

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Ruskin Inlet/ Marsh Branch	Hillsborough County, Unincorporated Areas	Approximately 0.5 miles upstream of College Avenue	Approximately 0.8 miles upstream of 14 <sup>th</sup> Avenue SE	03100203	0.9	--	Y	AE	2003
Six Mile Creek	Hillsborough County, Unincorporated Areas	Confluence at Tampa Bypass Canal	Approximately 1,590 feet upstream of Danny Bryan Boulevard	03100206	0.6	--	N	AE	2017
Six Mile Creek	Hillsborough County, Unincorporated Areas	Approximately 1,590 feet upstream of Danny Bryan Boulevard	Approximately 480 feet upstream of Orient Road	03100206	0.6	--	N	AE	2002
South Fork Little Manatee River	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	At Manatee County boundary	03100203	1.4	--	Y	AE	2003
South Prong Alafia River	Hillsborough County, Unincorporated Areas	Confluence with Alafia River and North Prong Alafia River	Approximately 2.7 miles upstream of Jameson Road	03100204	10.0	--	Y	AE	2003
Spartman Branch	Hillsborough County, Unincorporated Areas; Plant City, City of	Confluence with Pemberton Creek	Mud Lake Road	03100205	5.7	--	Y	AE	2004
Sweetwater Creek	Hillsborough County, Unincorporated Areas	Confluence with Rocky Creek	Approximately 1,270 feet upstream of Veterans Expressway	03100206	2.4	--	Y	AE	2017
Sweetwater Creek	Hillsborough County, Unincorporated Areas	Approximately 1,270 feet upstream of Veterans Expressway	Orange Grove Drive	03100206	4.7	--	Y	AE	2003

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Sweetwater Creek Channel H	Hillsborough County, Unincorporated Areas	Confluence with Sweetwater Creek	Approximately 0.7 miles upstream of Thatcher Avenue	03100206	2.5	--	Y	AE	2003
Tadpole Creek	Hillsborough County, Unincorporated Areas	Confluence with Bullfrog Creek	Approximately 65 feet upstream of U.S. Highway 301	03100206	1.1	--	Y	AE	2002
Tampa Bay	Hillsborough County, Unincorporated Areas	Entire Coastline	Entire Coastline	N/A	158.3	--	N	AE, VE	2017
Tampa Bypass Canal	Hillsborough County, Unincorporated Areas; Tampa, City of	Approximately 0.7 miles downstream of Broadway Avenue East	Confluence of Cow House Creek	03100205 03100206	8.6	--	Y	AE	2003
Tampa Bypass Canal Main Ditch	Hillsborough County, Unincorporated Areas	Confluence with Tampa Bypass Canal	Approximately 0.7 miles upstream of Eureka Springs Road	03100206	1.2	--	N	AE	2002
Tampa Bypass Canal Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Tampa Bypass Canal	Approximately 1,552 feet upstream of Raga Boulevard	03100206	0.8	--	N	AE	2017
Tampa Bypass Canal Tributary 1	Hillsborough County, Unincorporated Areas	Approximately 1,552 feet upstream of Raga Boulevard	Approximately 0.5 miles upstream of Williams Road	03100206	2.3	--	N	AE	2002
Tampa Bypass Canal Tributary 1 South Branch	Hillsborough County, Unincorporated Areas	Confluence with Tampa Bypass Canal Tributary 1	Approximately 300 feet upstream of confluence with Tampa Bypass Canal Tributary 1	03100206	0.1	--	N	AE	2002

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Tampa Bypass Canal Tributary 2	Hillsborough County, Unincorporated Areas; Tampa, City of	Confluence with Tampa Bypass Canal	Approximately 120 feet upstream of U.S. Highway 301	03100206	1.0	--	N	AE	2017
Tampa Bypass Canal Tributary 2	Hillsborough County, Unincorporated Areas	Approximately 120 feet upstream of U.S. Highway 301	Approximately 1,150 feet upstream of U.S. Highway 301	03100206	0.2	--	N	AE	2002
Tiger Creek	Hillsborough County, Unincorporated Areas	Confluence with Blackwater Creek	Approximately 30 feet upstream of Half Mile Road	03100205	3.5	--	Y	AE	2003
Tributary Canal	Hillsborough County, Unincorporated Areas	Confluence with Buckhorn Creek	Approximately 0.7 miles upstream of confluence with Buckhorn Creek	03100204	0.7	--	N	AE	2002
Trout Creek	Hillsborough County, Unincorporated Areas; Tampa, City of	Confluence with Hillsborough River	At Pasco County boundary	03100205	7.1	--	Y	AE	2003
Tucker Rhodine	Hillsborough County, Unincorporated Areas	Confluence with Bullfrog Creek	Approximately 0.6 miles upstream of confluence with Bullfrog Creek	03100206	0.6	--	Y	AE	2002
Two Hole Branch	Hillsborough County, Unincorporated Areas	Confluence with Hillsborough River	Approximately 1.5 miles upstream of Bruton Road	03100205	8.3	--	Y	AE	2003
Two Hole Branch Tributary 1	Hillsborough County, Unincorporated Areas	Confluence with Two Hole Branch	Approximately 2.2 miles upstream of Bob Smith Avenue	03100205	5.3	--	Y	AE	2003

**Table 2: Flooding Sources Included in this FIS Report (continued)**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Wildcat Creek	Hillsborough County, Unincorporated Areas	Confluence with Little Manatee River	Stephens Road	03100203	0.7	--	Y	AE	2017
Wildcat Creek	Hillsborough County, Unincorporated Areas	Stephens Road	Approximately 0.7 miles upstream of Stephens Road	03100203	3.1	--	Y	AE	2003
Zone A Flooding Sources	Hillsborough County, Unincorporated Areas; Plant City, City of; Tampa, City of	Within Hillsborough County	Within Hillsborough County	03100203 03100204 03100205 03100206 03100207	340.4	--	N	A	2004
Zone AE Ponding Areas	Hillsborough County, Unincorporated Areas; Plant City, City of; Tampa, City of	Within Hillsborough County	Within Hillsborough County	03100203 03100204 03100205 03100206 03100207	--	56.9	N	AE	2004

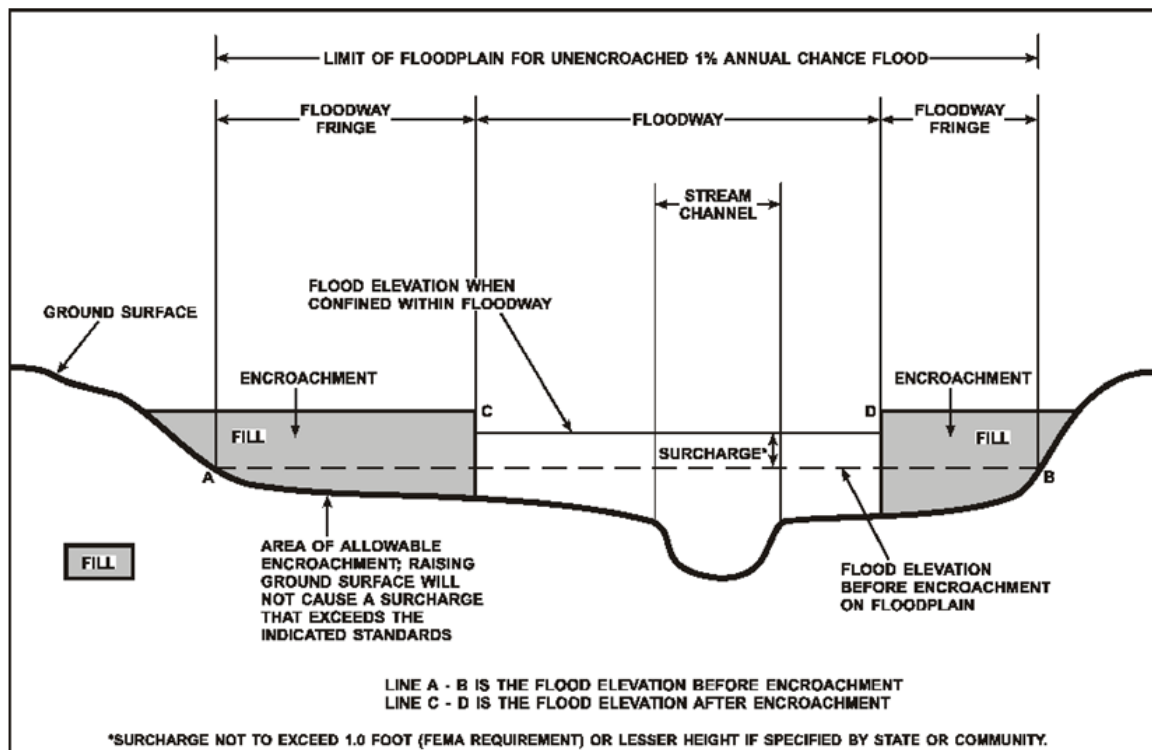
## 2.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard.

For purposes of the NFIP, a floodway is used as a tool to assist local communities in balancing floodplain development against increasing flood hazard. With this approach, the area of the 1% annual chance floodplain on a river is divided into a floodway and a floodway fringe based on hydraulic modeling. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order to carry the 1% annual chance flood. The floodway fringe is the area between the floodway and the 1% annual chance floodplain boundaries where encroachment is permitted. The floodway must be wide enough so that the floodway fringe could be completely obstructed without increasing the water surface elevation of the 1% annual chance flood more than 1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.

To participate in the NFIP, Federal regulations require communities to limit increases caused by encroachment to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this project are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway projects.

**Figure 4: Floodway Schematic**



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the floodplain would be reduced equally. The results of the floodway computations have been tabulated for selected cross sections and are shown in Table 23, "Floodway Data."

All floodways that were developed for this Flood Risk Project are shown on the FIRM using the symbology described in Figure 3. In cases where the floodway and 1% annual chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown on the FIRM. For information about the delineation of floodways on the FIRM, refer to Section 6.3.

### **2.3 Base Flood Elevations**

The hydraulic characteristics of flooding sources were analyzed to provide estimates of the elevations of floods of the selected recurrence intervals. The Base Flood Elevation (BFE) is the elevation of the 1% annual chance flood. These BFEs are most commonly rounded to the whole foot, as shown on the FIRM, but in certain circumstances or locations they may be rounded to 0.1 foot. Cross section lines shown on the FIRM may also be labeled with the BFE rounded to 0.1 foot. Whole-foot BFEs derived from engineering analyses that apply to coastal areas, areas of ponding, or other static areas with little elevation change may also be shown at selected intervals on the FIRM.

Cross sections with BFEs shown on the FIRM correspond to the cross sections shown in the Floodway Data table and Flood Profiles in this FIS Report. BFEs are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM.

### **2.4 Non-Encroachment Zones**

This section is not applicable to this Flood Risk Project.

### **2.5 Coastal Flood Hazard Areas**

For most areas along rivers, streams, and small lakes, BFEs and floodplain boundaries are based on the amount of water expected to enter the area during a 1% annual chance flood and the geometry of the floodplain. Floods in these areas are typically caused by storm events. However, for areas on or near ocean coasts, large rivers, or large bodies of water, BFE and floodplain boundaries may need to be based on additional components, including storm surges and waves. Communities on or near ocean coasts face flood hazards caused by offshore seismic events as well as storm events.

Coastal flooding sources that are included in this Flood Risk Project are shown in Table 2.

### 2.5.1 Water Elevations and the Effects of Waves

Specific terminology is used in coastal analyses to indicate which components have been included in evaluating flood hazards.

The stillwater elevation (SWEL or still water level) is the surface of the water resulting from astronomical tides, storm surge, and freshwater inputs, but excluding wave setup contribution or the effects of waves.

- *Astronomical tides* are periodic rises and falls in large bodies of water caused by the rotation of the earth and by the gravitational forces exerted by the earth, moon and sun.
- *Storm surge* is the additional water depth that occurs during large storm events. These events can bring air pressure changes and strong winds that force water up against the shore.
- *Freshwater inputs* include rainfall that falls directly on the body of water, runoff from surfaces and overland flow, and inputs from rivers.

The 1% annual chance stillwater elevation is the stillwater elevation that has been calculated for a storm surge from a 1% annual chance storm. The 1% annual chance storm surge can be determined from analyses of tidal gage records, statistical study of regional historical storms, or other modeling approaches. Stillwater elevations for storms of other frequencies can be developed using similar approaches.

The total stillwater elevation (also referred to as the mean water level) is the stillwater elevation plus wave setup contribution but excluding the effects of waves.

- *Wave setup* is the increase in stillwater elevation at the shoreline caused by the reduction of waves in shallow water. It occurs as breaking wave momentum is transferred to the water column.

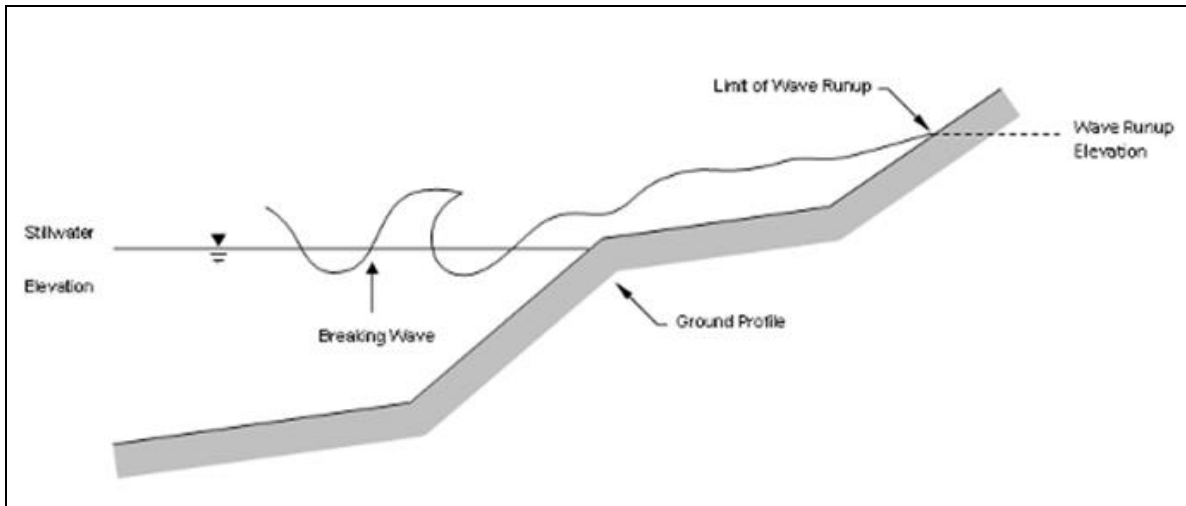
Like the stillwater elevation, the total stillwater elevation is based on a storm of a particular frequency, such as the 1% annual chance storm. Wave setup is typically estimated using standard engineering practices or calculated using models, since tidal gages are often sited in areas sheltered from wave action and do not capture this information.

Coastal analyses may examine the effects of overland waves by analyzing storm-induced erosion, overland wave propagation, wave runup, and/or wave overtopping.

- *Storm-induced erosion* is the modification of existing topography by erosion caused by a specific storm event, as opposed to general erosion that occurs at a more constant rate.
- *Overland wave propagation* describes the combined effects of variation in ground elevation, vegetation, and physical features on wave characteristics as waves move onshore.

- *Wave runup* is the uprush of water from wave action on a shore barrier. It is a function of the roughness and geometry of the shoreline at the point where the stillwater elevation intersects the land.
- *Wave overtopping* refers to wave runup that occurs when waves pass over the crest of a barrier.

**Figure 5: Wave Runup Transect Schematic**



### 2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

For coastal communities along the Atlantic and Pacific Oceans, the Gulf of Mexico, the Great Lakes, and the Caribbean Sea, flood hazards must take into account how storm surges, waves, and extreme tides interact with factors such as topography and vegetation. Storm surge and waves must also be considered in assessing flood risk for certain communities on rivers or large inland bodies of water.

Beyond areas that are affected by waves and tides, coastal communities can also have riverine floodplains with designated floodways, as described in previous sections.

#### Floodplain Boundaries

In many coastal areas, storm surge is the principle component of flooding. The extent of the 1% annual chance floodplain in these areas is derived from the total stillwater elevation (stillwater elevation including storm surge plus wave setup) for the 1% annual chance storm. The methods that were used for calculation of total stillwater elevations for coastal areas are described in Section 5.3 of this FIS Report. Location of total stillwater elevations for coastal areas are shown in Figure 8, “1% Annual Chance Total Stillwater Levels for Coastal Areas.”

In some areas, the 1% annual chance floodplain is determined based on the limit of wave runup or wave overtopping for the 1% annual chance storm surge. The methods that were used for calculation of wave hazards are described in Section 5.3 of this FIS Report.

Table 25 presents the types of coastal analyses that were used in mapping the 1% annual chance floodplain in coastal areas.

### **Coastal BFEs**

Coastal BFEs are calculated as the total stillwater elevation (stillwater elevation including storm surge plus wave setup) for the 1% annual chance storm plus the additional flood hazard from overland wave effects (storm-induced erosion, overland wave propagation, wave runup and wave overtopping).

Where they apply, coastal BFEs are calculated along transects extending from offshore to the limit of coastal flooding onshore. Results of these analyses are accurate until local topography, vegetation, or development type and density within the community undergoes major changes.

Parameters that were included in calculating coastal BFEs for each transect included in this FIS Report are presented in Table 16, "Coastal Transect Parameters." The locations of transects are shown in Figure 9, "Transect Location Map." More detailed information about the methods used in coastal analyses and the results of intermediate steps in the coastal analyses are presented in Section 5.3 of this FIS Report. Additional information on specific mapping methods is provided in Section 6.4 of this FIS Report.

### **2.5.3 Coastal High Hazard Areas**

Certain areas along the open coast and other areas may have higher risk of experiencing structural damage caused by wave action and/or high-velocity water during the 1% annual chance flood. These areas will be identified on the FIRM as Coastal High Hazard Areas.

- *Coastal High Hazard Area (CHHA)* is a SFHA extending from offshore to the inland limit of the primary frontal dune (PFD) or any other area subject to damages caused by wave action and/or high-velocity water during the 1% annual chance flood.
- *Primary Frontal Dune (PFD)* is a continuous or nearly continuous mound or ridge of sand with relatively steep slopes immediately landward and adjacent to the beach. The PFD is subject to erosion and overtopping from high tides and waves during major coastal storms.

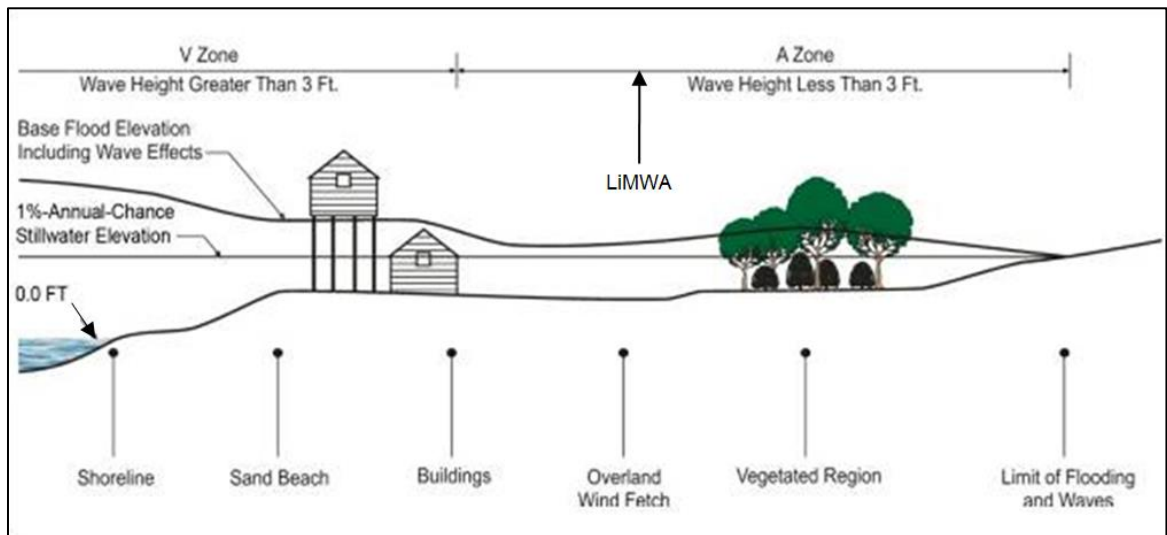
CHHAs are designated as "V" zones (for "velocity wave zones") and are subject to more stringent regulatory requirements and a different flood insurance rate structure. The areas of greatest risk are shown as VE on the FIRM. Zone VE is further subdivided into elevation zones and shown with BFEs on the FIRM.

The landward limit of the PFD occurs at a point where there is a distinct change from a relatively steep slope to a relatively mild slope; this point represents the landward extension of Zone VE. Areas of lower risk in the CHHA are designated with Zone V on the FIRM. More detailed information about the identification and designation of Zone VE is presented in Section 6.4 of this FIS Report.

Areas that are not within the CHHA but are SFHAs may still be impacted by coastal flooding and damaging waves; these areas are shown as “A” zones on the FIRM.

Figure 6, “Coastal Transect Schematic,” illustrates the relationship between the base flood elevation, the 1% annual chance stillwater elevation, and the ground profile as well as the location of the Zone VE and Zone AE areas in an area without a PFD subject to overland wave propagation. This figure also illustrates energy dissipation and regeneration of a wave as it moves inland.

**Figure 6: Coastal Transect Schematic**



Methods used in coastal analyses in this Flood Risk Project are presented in Section 5.3 and mapping methods are provided in Section 6.4 of this FIS Report.

Coastal floodplains are shown on the FIRM using the symbology described in Figure 3, “Map Legend for FIRM.” In many cases, the BFE on the FIRM is higher than the stillwater elevations shown in Table 16 due to the presence of wave effects. The higher elevation should be used for construction and/or floodplain management purposes.

#### **2.5.4 Limit of Moderate Wave Action**

Laboratory tests and field investigations have shown that wave heights as little as 1.5 feet can cause damage to and failure of typical Zone AE building construction. Wood-frame, light gage steel, or masonry walls on shallow footings or slabs are subject to damage when exposed to waves less than 3 feet in height. Other flood hazards associated with coastal waves (floating debris, high velocity flow, erosion, and scour) can also damage Zone AE construction.

Therefore, a LiMWA boundary may be shown on the FIRM as an informational layer to assist coastal communities in safe rebuilding practices. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The location of the LiMWA relative to Zone VE and Zone AE is shown in Figure 6.

The effects of wave hazards in Zone AE between Zone VE (or the shoreline where Zone VE is not identified) and the limit of the LiMWA boundary are similar to, but less severe than, those in Zone VE where 3-foot or greater breaking waves are projected to occur during the 1% annual chance flooding event. Communities are therefore encouraged to adopt and enforce more stringent floodplain management requirements than the minimum NFIP requirements in the LiMWA. The NFIP Community Rating System provides credits for these actions.

Where wave runup elevations dominate over wave heights, there is no evidence to date of significant damage to residential structures by runup depths less than 3 feet. Examples of these areas include areas with steeply sloped beaches, bluffs, or flood protection structures that lie parallel to the shore. In these areas, the FIRM shows the LiMWA immediately landward of the VE/AE boundary. Similarly, in areas where the zone VE designation is based on the presence of a primary frontal dune or wave overtopping, the LiMWA is delineated immediately landward of the Zone VE/AE boundary.

## SECTION 3.0 – INSURANCE APPLICATIONS

### 3.1 National Flood Insurance Program Insurance Zones

For flood insurance applications, the FIRM designates flood insurance rate zones as described in Figure 3, “Map Legend for FIRM.” Flood insurance zone designations are assigned to flooding sources based on the results of the hydraulic or coastal analyses. Insurance agents use the zones shown on the FIRM and depths and base flood elevations in this FIS Report in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

The 1% annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (e.g. Zones A, AE, V, VE, etc.), and the 0.2% annual chance floodplain boundary corresponds to the boundary of areas of additional flood hazards.

Table 3 lists the flood insurance zones in Hillsborough County.

**Table 3: Flood Zone Designations by Community**

Community	Flood Zone(s)
Hillsborough County, Unincorporated Areas	A, AE, AH, AO, VE, X
Plant City, City of	A, AE, X
Tampa, City of	A, AE, VE, X
Temple Terrace, City of	A, AE, X

## SECTION 4.0 – AREA STUDIED

### 4.1 Basin Description

Table 4 contains a description of the characteristics of the HUC-8 sub-basins within which each community falls. The table includes the main flooding sources within each basin, a brief description of the basin, and its drainage area.

**Table 4: Basin Characteristics**

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Alafia	03100204	Alafia River	Watershed is located in Polk and Hillsborough counties. Much of the watershed is rural farmland and wilderness areas.	421
Crystal-Pithlachascotee	03100207	Crystal River and Pithlachascotee River	Watershed is located in Hernando, Pasco, Citrus, Hillsborough, and Pinellas counties and is covered by coastal swamps, wetlands, dense woodlands, lakes and pastures, with residential and commercial development.	1,174
Hillsborough	03100205	Hillsborough River	Watershed is located in Pasco, Polk and Hillsborough counties.	690
Little Manatee	03100203	Little Manatee River	The watershed flows across the southern portion of Hillsborough County and the northern portion of Manatee County crossing the Polk Upland, DeSoto Plain, and the Gulf Coastal Lowlands.	226
Manatee	03100202	Manatee River	Located in Manatee, Sarasota and Hillsborough counties. Watershed has various features from hardwood swamps, mesic flatwoods, coastal lowlands, and marshes.	364
Peace	03100101	Peace River	The watershed is low and flat, with shallow lakes and wetlands.	2,341
Tampa Bay	03100206	Tampa Bay	Located in Manatee, Pasco, Hillsborough, and Pinellas counties.	874

## 4.2 Principal Flood Problems

Table 5 contains a description of the principal flood problems that have been noted for Hillsborough County by flooding source.

**Table 5: Principal Flood Problems**

Flooding Source	Description of Flood Problems
All flood sources in Hillsborough County	Flooding in Hillsborough County results primarily from overflow of streams caused by rainfall and runoff, and from tidal surge in the coastal areas of the county caused by hurricanes and tropical storms.
Alafia, Hillsborough, and Little Manatee Rivers	Under certain conditions, tides generated at their mouths in Tampa Bay can intrude far upstream. Rainfall that accompanies hurricanes can aggravate the tidal flood situation, particularly in areas where the secondary drainage system is poorly developed.

Table 6 contains information about historic flood elevations in the communities within Hillsborough County.

**Table 6: Historic Flooding Elevations**

Flooding Source	Location	Historic Peak (Feet NAVD88)	Event Date	Approximate Recurrence Interval (years)	Source of Data
Hillsborough River	City of Tampa	26.3	1933	50	FEMA 2013
Tampa Bay	City of Tampa	9.6	1921	*	Tide Gage
Tampa Bay	City of Tampa	5.6	1972	*	Tide Gage
Tampa Bay	Fort Brooke	14.0	1848	*	Tide Gage
Tampa Bay	Fort Brooke	9.0	1848	*	Tide Gage

\*Data not available

## 4.3 Non-Levee Flood Protection Measures

Table 7 contains information about non-levee flood protection measures within Hillsborough County such as dams, jetties, and or dikes. Levees are addressed in Section 4.4 of this FIS Report.

**Table 7: Non-Levee Flood Protection Measures**

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Hillsborough River	Tampa Bay Bypass Canal	Canal	Hillsborough County	Constructed by the U.S. Army Corps of Engineers as part of the Four River Basin Project (USACE 1974). Its purpose is to redirect flood waters from the Hillsborough River to Tampa Bay.
Hillsborough River	Tampa Water Works Dam	Dam	Approximately 10 miles above the mouth of the Hillsborough River	Constructed in 1945 to provide water supply impoundment for Tampa. Impoundment elevations range from 20-22 feet above mean sea level. The effects of regulation are detectable as far upstream as Temple Terrace Highway, however the Tampa Water Works Dam does not provide flood protection to Temple Terrace.
Hillsborough River and Tampa Bay	Lower Hillsborough Flood Detention Area	Detention Area	Hillsborough County	Constructed by the U.S. Army Corps of Engineers as part of the Four River Basin Project (USACE 1974). This area provides storage and detention of overflow water from the Hillsborough River and Tampa Bay.
Tampa Bay	N/A	Seawalls and bulkheads	Shoreline along Tampa Bay	Seawalls and bulkheads are expected to remain intact during a 1-percent annual chance storm tide and are considered to be effective wave energy dissipaters when of sufficient elevation.

#### 4.4 Levees

This section is not applicable to this Flood Risk Project.

**Table 8: Levees**  
**[Not Applicable to this Flood Risk Project]**

## **SECTION 5.0 – ENGINEERING METHODS**

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2% annual chance, respectively, of being equaled or exceeded during any year.

Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

The engineering analyses described here incorporate the results of previously issued Letters of Map Change (LOMCs) listed in Table 26, “Incorporated Letters of Map Change”, which include Letters of Map Revision (LOMRs). For more information about LOMRs, refer to Section 6.5, “FIRM Revisions.”

### **5.1 Hydrologic Analyses**

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source studied. Hydrologic analyses are typically performed at the watershed level. Depending on factors such as watershed size and shape, land use and urbanization, and natural or man-made storage, various models or methodologies may be applied. A summary of the hydrologic methods applied to develop the discharges used in the hydraulic analyses for each stream is provided in Table 12. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 9. (Coastal stillwater elevations are discussed in Section 5.3 and shown in Table 16.) Stream gage information is provided in Table 11.

**Table 9: Summary of Discharges**

Flooding Source	Location	Node Number	Drainage Area (Square Miles)	Peak Discharge (cfs)				
				10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Alafia River	Just upstream of U.S. Highway 41	A 700100 <sup>1</sup>	N/A	4,790	*	9,360	11,200	*
Alderman Creek	Approximately 0.5 mile upstream of mouth	985100	N/A	440	*	965	1,180	*
Archie Creek	Just downstream of U.S. Highway 41	280010 <sup>1</sup>	N/A	399	*	474	489	*
Archie Creek	Just upstream of I-75	290000	N/A	88	*	137	150	*
Baker Canal	Approximately 1,240 feet upstream of mouth	330150	N/A	306	*	656	711	*
Baker Canal	Just upstream of Jaudon Road	390400	N/A	288	*	328	354	*
Baker Canal	Just upstream of Railroad	391890 <sup>1</sup>	N/A	41	*	47	49	*
Bassett Branch	Not provided	670000	N/A	1,000	*	1,200	1,540	*
Big Bend	Just downstream of Simmons Loop	816040	N/A	575	*	684	786	*
Blackwater Creek	Approximately 1,625 feet upstream of mouth	680000	N/A	2,830	*	5,140	6,650	*
Blackwater Creek	Just downstream of Canaan Avenue	680890	N/A	296	*	574	770	*
Brooker Creek	At Tarpon Springs Road	490070	N/A	*	*	786	913	*
Brooker Creek	Approximately 1.75 miles upstream of Tarpon Springs Road	490290	N/A	*	*	536	626	*
Brushy Creek	Approximately 0.5 mile upstream of mouth	440000	N/A	2,280	*	3,170	3,740	*

**Table 9: Summary of Discharges (continued)**

Flooding Source	Location	Node Number	Drainage Area (Square Miles)	Peak Discharge (cfs)				
				10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Brushy Creek	Just downstream of Northdale Boulevard	440240	N/A	1,460	*	1,460	1,460	*
Buckhorn Creek	Just downstream of Bloomingdale Avenue West	A 720080 <sup>1</sup>	N/A	584	*	1,050	1,250	*
Bullfrog Creek	Just downstream of Railroad	810115	N/A	3,550	*	5,870	6,570	*
Bullfrog Creek	Upstream of Symmes Road	810390	N/A	2,310	*	4,290	5,010	*
Bullfrog Creek	Downstream of Big Bend Road	810594	N/A	2,280	*	4,120	4,810	*
Bullfrog Creek	Just upstream of U.S. Highway 301	811080	N/A	2,880	*	4,960	5,680	*
Bullfrog Creek Tributary 1	Approximately 1,060 feet upstream of confluence with Bullfrog Creek	815000	N/A	285	*	530	620	*
Bullfrog Creek Tributary 2	Downstream of West Lake Drive	811154	N/A	610	*	632	635	*
Bullfrog Creek Tributary 3	Approximately 1,370 feet upstream of confluence with Bullfrog Creek	811240	N/A	1,310	*	2,340	2,690	*
Cabbage Head Bayou	Approximately 1,694 feet upstream of Ehrlich Road	450060	N/A	905	*	1,220	1,400	*
Campbell Branch	Approximately 270 feet upstream of mouth	320008	N/A	989	*	1,690	1,890	*
Campbell Branch	Just downstream of Thonotosassa Road	320020	N/A	256	*	288	294	*

**Table 9: Summary of Discharges (continued)**

Flooding Source	Location	Node Number	Drainage Area (Square Miles)	Peak Discharge (cfs)				
				10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Carlton Branch	Approximately 0.5 mile upstream of mouth	965150	N/A	1,210	*	2,270	2,650	*
Carlton Branch Tributary 1	Just downstream of Chert Rock Trail	965340	N/A	*	*	*	100	*
Carlton Branch Tributary 2	Approximately 0.4 mile upstream of confluence with Carlton Branch	965550	N/A	*	*	*	150	*
Carlton Branch Tributary 3	Just downstream of Burnett Road	966190	N/A	*	*	*	455	*
Carlton Branch Tributary 3.1	Just downstream of Balm Wimauma Road	966140	N/A	*	*	*	185	*
Clay Gulley East	Just downstream of U.S. Highway 301	660030	N/A	269	*	458	564	*
Clay Gulley East Tributary 2	Approximately 740 feet upstream of mouth	660440	N/A	11	*	29	36	*
Clay Gulley East Tributary 4	Approximately 1,250 feet upstream of confluence with Clay Gulley East Tributary 6	663650	N/A	35	*	58	67	*
Clay Gulley East Tributary 5	Just downstream of Five Acre Road	662290	N/A	174	*	284	338	*
Clay Gulley East Tributary 6	Approximately 1,530 feet upstream of mouth	662999	N/A	133	*	186	217	*
Clay Gulley East Tributary 7	Just downstream of St. Francis Lane	660110	N/A	209	*	276	350	*
Clay Gulley East Tributary 8	Approximately 1,300 feet upstream of confluence with Clay Gulley East	660950	N/A	55	*	100	190	*

**Table 9: Summary of Discharges (continued)**

Flooding Source	Location	Node Number	Drainage Area (Square Miles)	Peak Discharge (cfs)				
				10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Clay Gulley West	Just downstream of Flatwoods Park Trail	635290	N/A	164	*	252	327	*
Cow House Creek	Approximately 650 feet upstream of confluence with Clay Gulley East	619000	N/A	230	*	340	380	*
Curiosity Creek	Just downstream of Light Foot Road	930760	N/A	1,030	*	1,500	1,680	*
Curiosity Creek (Near City of Tampa)	At Jeanal Place	550200	N/A	558	*	921	1,050	*
Curiosity Creek (Near City of Tampa)	Just upstream of 138 <sup>th</sup> Avenue	551800	N/A	296	*	410	466	*
Curiosity Creek Tributary 1	Approximately 0.7 mile upstream of mouth	930275	N/A	1,230	*	1,980	2,210	*
Curiosity Creek Tributary 1.1	Just downstream of Butch Cassidy Trail	930610	N/A	373	*	688	787	*
Cypress Creek	Approximately 0.9 mile upstream of confluence with Little Manatee River	940200	N/A	*	*	*	1,720	*
Cypress Creek (Near City of Tampa)	Just upstream of Bruce B. Downs Boulevard	500100	N/A	1,870	*	1,870	3,690	*
Delaney Creek	Just downstream of Railroad	210020	N/A	1,530	*	2,270	2,540	*
Delaney Creek	Just downstream of U.S. Highway 301	210250	N/A	328	*	472	514	*

**Table 9: Summary of Discharges (continued)**

Flooding Source	Location	Node Number	Drainage Area (Square Miles)	Peak Discharge (cfs)				
				10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Delaney Creek Lateral C	Just downstream of Tidewater Trail	213000	N/A	226	*	420	475	*
Delaney Creek Lateral D	Just downstream of Tidewater Trail	213500	N/A	112	*	137	154	*
Delaney Creek Lateral E	Just downstream of Palm River Road	215005	N/A	89	*	120	130	*
Delaney Creek Tributary 1	Approximately 252 feet downstream of 24 <sup>th</sup> Avenue South	211020	N/A	123	*	170	183	*
Delaney Creek Tributary 2	Approximately 1,050 feet upstream of mouth	212000	N/A	402	*	626	697	*
Dug Creek	Approximately 1,150 feet downstream of Saffold Road	946115	N/A	1,240	*	2,010	2,230	*
Dug Creek Tributary 1	Just downstream of Ed Lane	946240	N/A	*	*	*	670	*
Dug Creek Tributary 2	Just downstream of Crestview Road	946575	N/A	179	*	365	438	*
Dug Creek Tributary 3	Approximately 1,420 feet upstream of confluence with Dug Creek	947600	N/A	*	*	*	383	*
East Canal	Approximately 1,135 feet upstream of mouth	686000	N/A	907	*	1,550	1,970	*
East Canal	Just upstream of Sam Allen Road East	686550	N/A	103	*	115	118	*
East Canal (upstream of Frontage Road)	Just downstream of Young Street	ND-2001	N/A	*	*	*	*	*

**Table 9: Summary of Discharges (continued)**

Flooding Source	Location	Node Number	Drainage Area (Square Miles)	Peak Discharge (cfs)				
				10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
East Canal Tributary	Just downstream of Gordon Street North	ND-1904	N/A	*	*	*	*	*
Flint Creek	Just upstream of U.S. Highway 301	300100	N/A	563	*	906	1,000	*
Gulley Branch	Approximately 0.5 mile upstream of mouth	960263	N/A	577	*	1,130	1,130	*
Half Moon Lake Branch	Just downstream of Turtle Creek Boulevard	452500	N/A	129	*	172	199	*
Hillsborough River	Just downstream of 40 <sup>th</sup> Street North	600250	N/A	4,580	*	5,890	6,750	*
Hollomans Branch	Approximately 1.1 miles above mouth	650000	N/A	1,000	*	1,510	1,920	*
Hollomans Branch	Approximately 579 feet upstream of Kelly Road	650700	N/A	183	*	277	353	*
Hollomans Branch Tributary 1	Approximately 520 feet upstream of mouth	655000	N/A	74	*	105	181	*
Hollomans Branch Tributary 2	Approximately 520 feet upstream of mouth	654005	N/A	340	*	483	527	*
Hollomans Branch Tributary 3	Approximately 905 feet upstream of confluence with Hollomans Branch	653000	N/A	345	*	490	640	*
Howard Prairie Branch	Approximately 1,595 feet upstream of confluence with Little Manatee River	980100	N/A	*	*	*	2,660	*
Howard Prairie Branch Tributary 1	Just downstream of Grange Hall Loop	980155	N/A	*	*	*	2,190	*
Howard Prairie Branch Tributary 2	Just downstream of South County Road 39	980630	N/A	*	*	*	205	*

**Table 9: Summary of Discharges (continued)**

Flooding Source	Location	Node Number	Drainage Area (Square Miles)	Peak Discharge (cfs)				
				10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Itchepackesassa Creek	Approximately 1,590 feet upstream of mouth	684000	N/A	1,560	*	2,580	3,300	*
Itchepackesassa Creek Tributary 1	Just downstream of Knights Griffin Road East	685000	N/A	37	*	81	109	*
Itchepackesassa Creek Tributary 2	Approximately 517 feet upstream of mouth	684500	N/A	87.7	*	129	163	*
Lake Thonotosassa Tributary	Approximately 0.8 mile upstream of Thonotosassa Road	301095	N/A	521	*	628	645	*
Little Bullfrog Creek	Approximately 1,027 feet downstream of U.S. Highway 301	817010	N/A	2,000	*	3,230	3,680	*
Little Bullfrog Creek	Just downstream of Big Bend Road	817415	N/A	651	*	776	817	*
Little Manatee River	Just downstream of Railroad	900225	N/A	7,370	*	12,000	13,600	*
Little Manatee River	Approximately 0.4 mile upstream of State Highway 579	901950	N/A	4,480	*	7,410	8,420	*
Little Manatee River	Just upstream of Taylor Gill Road	904150	N/A	653	*	1,040	1,170	*
Little Manatee River Tributary 1	Approximately 0.6 mile upstream of confluence with Little Manatee River	905350	N/A	*	*	*	540	*
Little Manatee River Tributary 2	Just downstream of Lightfoot Road	935330	N/A	1,250	*	2,050	2,290	*

**Table 9: Summary of Discharges (continued)**

Flooding Source	Location	Node Number	Drainage Area (Square Miles)	Peak Discharge (cfs)				
				10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Little Manatee River Tributary 2.1	Approximately 450 feet downstream of Lightfoot Road	935105	N/A	14	*	24	28	*
Little Manatee River Tributary 2.2	Just downstream of Lightfoot Road	935130	N/A	403	*	594	686	*
Little Manatee River Tributary 3	Approximately 1,010 feet upstream of mouth	905940	N/A	471	*	724	776	*
Little Manatee River Tributary 4	Approximately 1,250 feet upstream of mouth	906400	N/A	557	*	1,030	1,200	*
Little Manatee River Tributary 5	Approximately 1,570 feet upstream of mouth	959150	N/A	1,080	*	1,210	1,350	*
Little Manatee River Tributary 5.1	Approximately 0.6 mile upstream of mouth	960241	N/A	226	*	342	381	*
Little Manatee River Tributary 6	Approximately 1,820 feet upstream of mouth	906650	N/A	559	*	903	1,000	*
Little Manatee River Tributary 7	Approximately 0.6 mile upstream of mouth	975250	N/A	983	*	1,760	2,030	*
Little Manatee River Tributary 7.1	Just downstream of Hobbs Road	975330	N/A	202	*	340	386	*
Little Manatee River Tributary 8	Just downstream of Grange Hall Loop	906875	N/A	*	*	*	470	*
Little Manatee River Tributary 9	Just downstream of Grange Hall Loop	907110	N/A	*	*	*	2,560	*
Little Manatee River Tributary 10	Just downstream of Sate Highway 674	907440	N/A	*	*	*	970	*
Little Manatee River Tributary 11	Approximately 0.4 mile upstream of mouth	907800	N/A	1,000	*	1,780	2,060	*

**Table 9: Summary of Discharges (continued)**

Flooding Source	Location	Node Number	Drainage Area (Square Miles)	Peak Discharge (cfs)				
				10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Little Manatee River Tributary 12	At approximately 0.7 mile upstream of confluence with Little Manatee River	903700	N/A	*	*	*	540	*
Little Manatee River Tributary 13	Just downstream of South County Road 39	908445	N/A	*	*	*	500	*
Lower Sweetwater Creek Tributary Y1	Confluence with Lower Sweetwater Creek	402100	N/A	1,640	*	2,420	2,800	*
Mill Creek	Approximately 929 feet upstream of Cason Street	346200	N/A	171	*	267	296	*
Mill Creek Tributary 1	Approximately 845 feet upstream of mouth	342800	N/A	129	*	224	254	*
Mill Creek Tributary 2	Just upstream of Cason Street	346100	N/A	102	*	118	118	*
Mill Lake Tributary	Just downstream of Livingston Avenue	510190	N/A	90	*	90	210	*
New River	Approximately 0.4 mile upstream of mouth	673000	N/A	601	*	913	1,200	*
New River East	Approximately 0.4 mile above mouth	674000	N/A	335	*	517	716	*
North Archie Creek	Just downstream of U.S. Highway 41	260030 <sup>1</sup>	N/A	402	*	658	741	*
North Archie Creek	Just upstream of Robert Tolle Drive	260370	N/A	105	*	146	159	*
North Lake Tributary	Just downstream of Cherry Hill Drive	943100	N/A	*	*	*	195	*
North Prong Alafia River	Just downstream of Keysville Road East (State Highway 676)	H 781700 <sup>1</sup>	N/A	5,100	*	10,600	12,600	*

**Table 9: Summary of Discharges (continued)**

Flooding Source	Location	Node Number	Drainage Area (Square Miles)	Peak Discharge (cfs)				
				10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
North Prong Bullfrog Creek	At approximately 250 feet upstream of confluence	819000	N/A	385	*	754	884	*
Pemberton Creek	Just upstream of Pemberton Creek Drive	340100	N/A	769	*	1,100	1,110	*
Pemberton Creek	Just downstream of Wallace Branch Road	342540	N/A	232	*	337	377	*
Pierce Branch	Just downstream of Sate Highway 674	970140	N/A	1,270	*	2,410	3,040	*
Pierce Branch Tributary 1	Approximately 0.4 mile upstream of mouth	970600	N/A	211	*	348	394	*
Pierce Branch Tributary 2	Approximately 1,080 feet upstream of mouth	970850	N/A	180	*	488	612	*
Pierce Branch Tributary 3	Just downstream of Owens Road	971170	N/A	*	*	*	1,250	*
Rice Creek	At approximately 775 feet upstream of McMullen Loop	B 719105 <sup>1</sup>	N/A	740	*	1,370	1,630	*
Rocky Creek	Just downstream of Sheldon Road	420010	N/A	1,490	*	2,180	2,580	*
Ruskin Inlet/Marsh Branch	Approximately 1.3 miles upstream of mouth	900130	N/A	980	*	1,450	1,610	*
Six Mile Creek	Just upstream of Danny Bryan Boulevard	102015	N/A	205	*	235	290	*
South Fork Little Manatee River	Just downstream of State Highway 579	950110	N/A	3,070	*	5,790	6,760	*
South Prong Alafia River	At approximately 1,400 feet upstream of Lithia Pinecrest Boulevard	F 770700 <sup>1</sup>	N/A	2,120	*	4,380	5,420	*

**Table 9: Summary of Discharges (continued)**

Flooding Source	Location	Node Number	Drainage Area (Square Miles)	Peak Discharge (cfs)				
				10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Spartman Branch	Just downstream of Harvey Tew Road	360010	N/A	345	*	519	590	*
Spartman Branch	Just downstream of Railroad	361480	N/A	134	*	206	232	*
Sweetwater Creek	Just downstream of Webb Road	410000	N/A	1,230	*	1,900	2,360	*
Sweetwater Creek	Just downstream of Linebaugh Avenue West	410250	N/A	437	*	689	879	*
Sweetwater Creek	Just downstream of Dale Mabry Highway North	413900	N/A	89	*	119	122	*
Sweetwater Creek	Just upstream of Ehrlich Road	410510 <sup>1</sup>	N/A	190	*	273	324	*
Sweetwater Creek Channel H	Just downstream of Anderson Road	414050	N/A	572	*	824	928	*
Tadpole Creek	Approximately 1,475 feet upstream of confluence with Bullfrog Creek	814000	N/A	745	*	1,320	1,540	*
Tampa Bypass Canal Main Ditch	Just downstream of Wilkins Road	616020	N/A	105	*	170	185	*
Tampa Bypass Canal Tributary 1	Just downstream of Coconut Palm Drive	614020	N/A	605	*	1,010	1,060	*
Tampa Bypass Canal Tributary 1 South Branch	At approximately 100 feet upstream of confluence with Tampa Bypass Canal Tributary 1	615000	N/A	165	*	225	230	*
Tampa Bypass Canal Tributary 2	Just downstream of Railroad	612025	N/A	360	*	570	600	*

**Table 9: Summary of Discharges (continued)**

Flooding Source	Location	Node Number	Drainage Area (Square Miles)	Peak Discharge (cfs)				
				10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Tiger Creek	At approximately 0.8 mile upstream of confluence with Blackman Creek	682050	N/A	320	*	445	535	*
Tributary Canal	Approximately 250 feet upstream of confluence with Buckhorn Creek	A 722000 <sup>1</sup>	N/A	155	*	280	315	*
Trout Creek	Approximately 1.4 miles upstream of mouth	630000	N/A	930	*	1,660	2,270	*
Tucker Rhodine	At approximately 1,525 feet upstream of confluence with Bullfrog Creek	812230	N/A	258	*	467	548	*
Two Hole Branch	Just upstream of U.S. Highway 301	665050	N/A	210	*	305	386	*
Two Hole Branch Tributary 1	Approximately 1.6 miles upstream of mouth	667300	N/A	52	*	78	89	*
Wildcat Creek	Approximately 1.2 miles downstream of Stephens Road	915150	N/A	1,540	*	1,540	1,710	*

\* Not calculated for this Flood Risk Project.

<sup>1</sup> Node not shown on FIRM.

**Figure 7: Frequency Discharge-Drainage Area Curves**  
**[Not Applicable to this Flood Risk Project]**

**Table 10: Summary of Non-Coastal Stillwater Elevations**  
**[Not Applicable to this Flood Risk Project]**

**Table 11: Stream Gage Information used to Determine Discharges**

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record	
					From	To
Alafia River	02301500	USGS	Alafia River at Lithia	335	*	*
Blackwater Creek	02302500	USGS	Blackwater Creek near Knights	110	*	*
Hillsborough River	02303000	USGS	Hillsborough River at Zephyrhills	220	*	*
North Prong Alafia River	02301000	USGS	North Prong Alafia River at Keysville	135	*	*
South Prong Alafia River	02301300	USGS	South Prong Alafia River near Lithia	107	*	*

\* Data not available