

City of St. Petersburg Stormwater Master Plan

Virtual public meeting

Presented by:

City of St. Petersburg ECID & CH2M

April 12, 2023





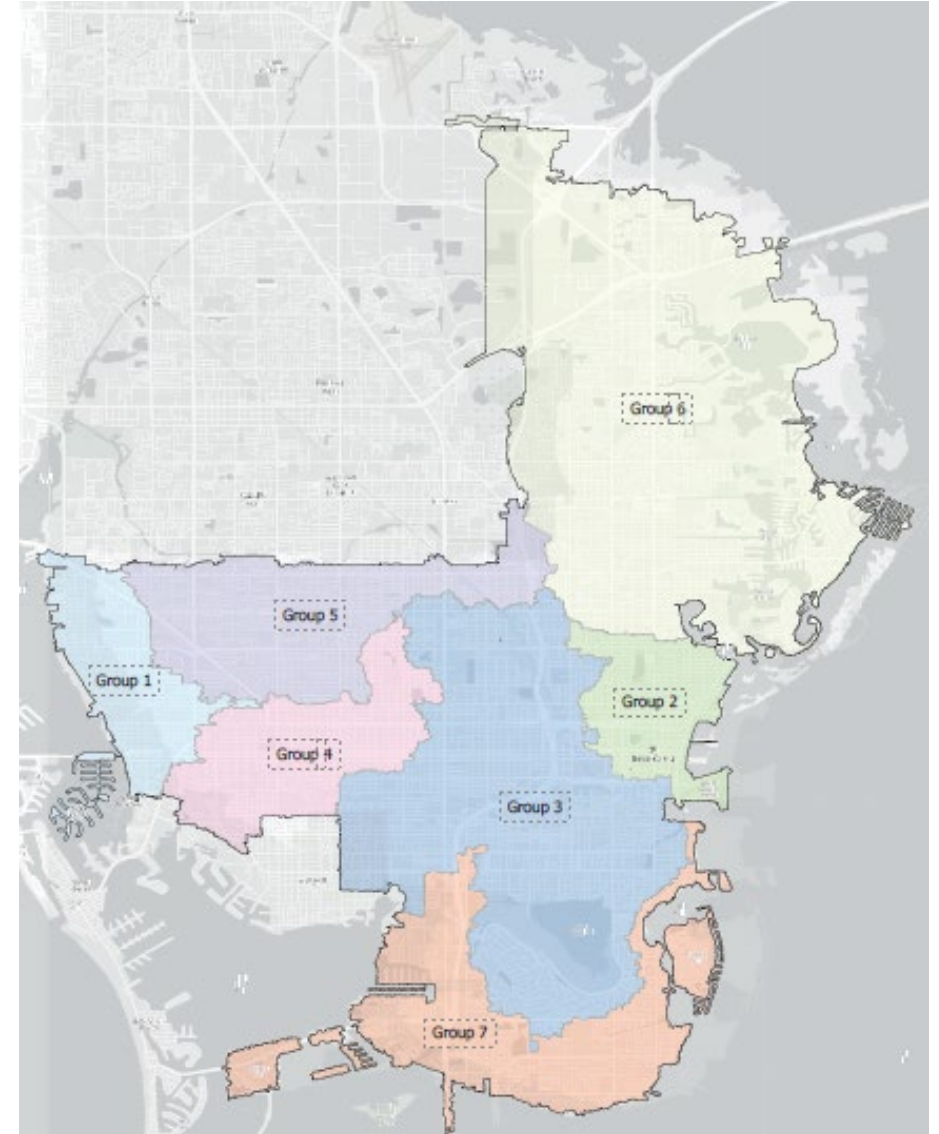
St. Petersburg Stormwater Master Plan

City Presentation for Public:

April 12, 2023 6:00PM to 7:00PM

Public Outreach for April 2023 Meeting:

- Notice in utility bill March 2023
- City Website/Press Release/Media Alert
- Included in the Urban Affairs Newsletter
- Postcard mailed to potentially impacted residents





St. Petersburg Stormwater Master Plan

Meeting Objective and Agenda

Presentation 6:05 pm to 6:25 pm

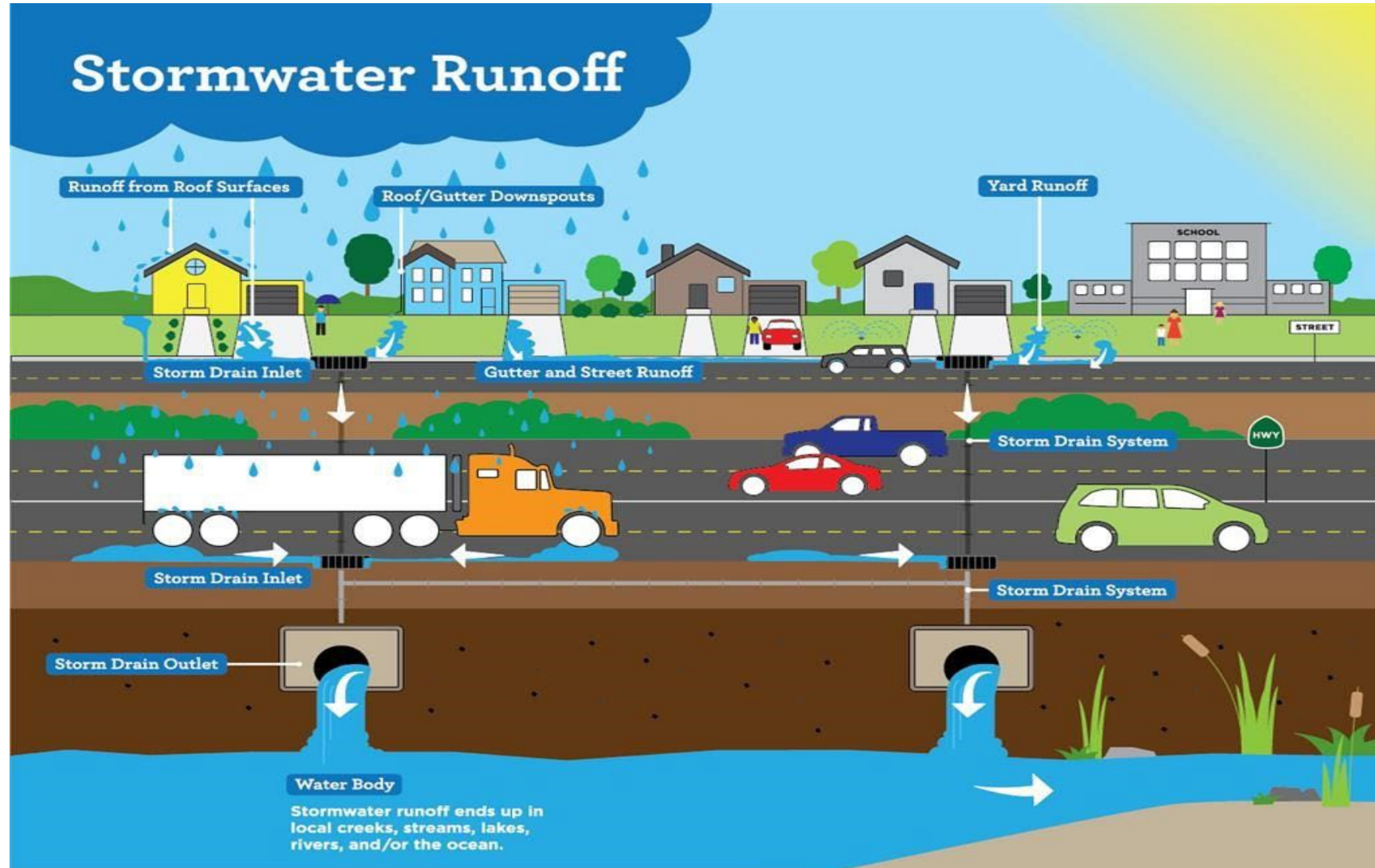
- What is a Stormwater Master Plan
- What is involved in developing a Stormwater Master Plan
- Why is this important
- Get your feedback and how you can provide this
- To let you know what are the next steps

Questions & Answers 6:25 pm to 6:45 pm

Closing Remarks 6:45 pm to 6:50 pm

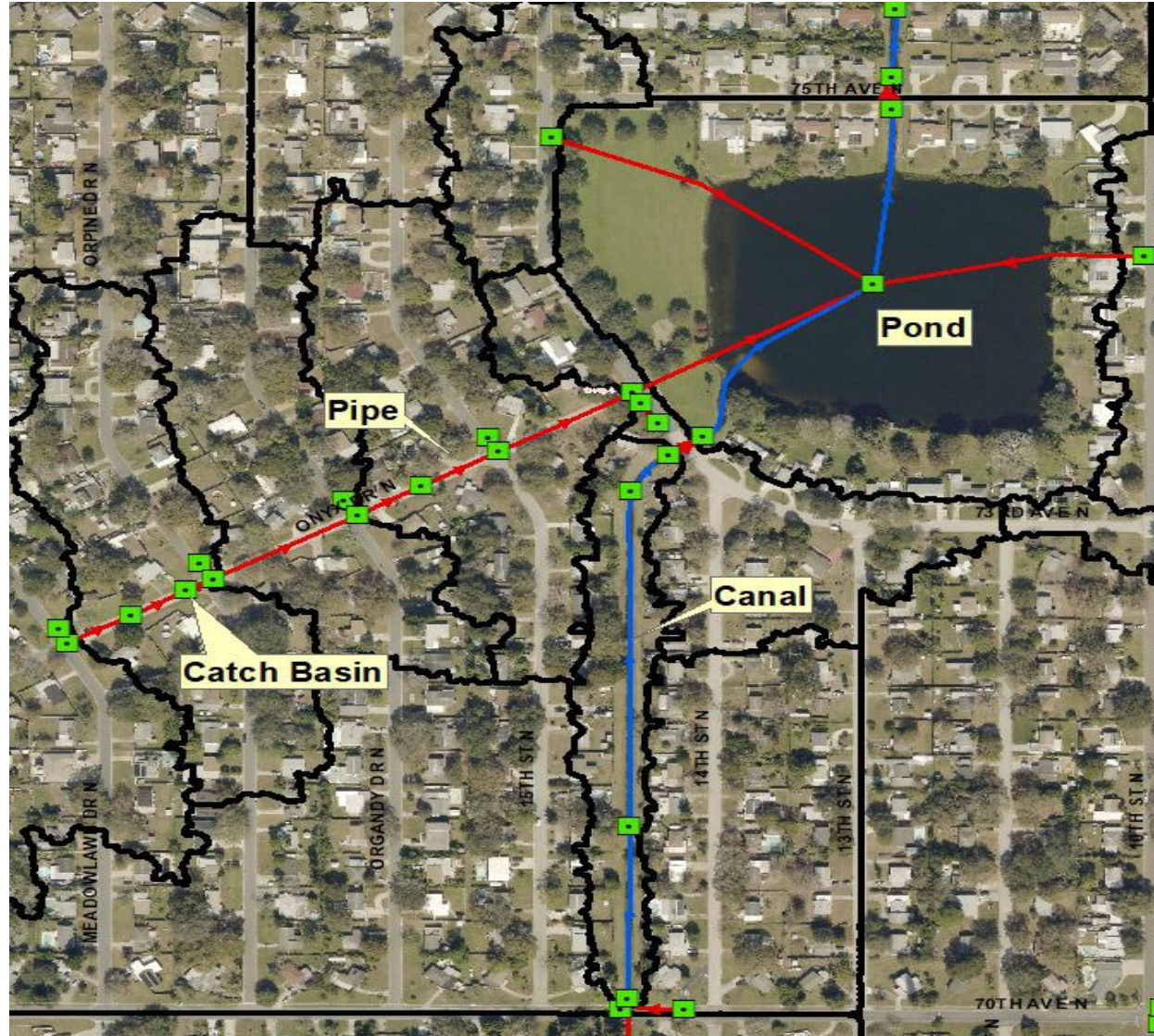


How a Stormwater System Network Works





How a Stormwater System Network Works





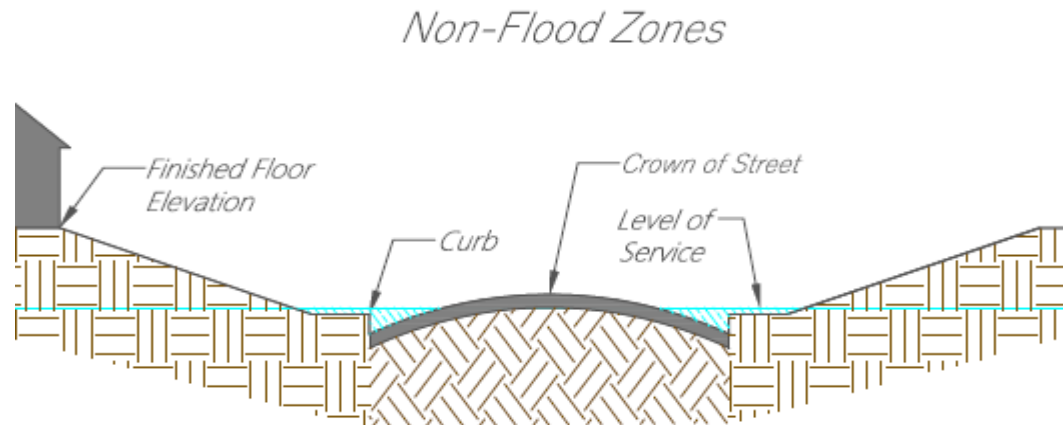
Elements of a Storm System





Elements of a Storm System

- Flow must exceed a certain threshold of level of service in order to be considered as a flood
- Roads are considered part of a stormwater system, as they convey runoff to the nearest drainage structure
- It is normal to notice stormwater runoff up to a planned level during rain events





What is a Stormwater Master Plan?

The Stormwater Master Plan (SMP) is

- Also referred to as a Watershed Master Plan
- A Citywide, long-term vision document that will guide major investment in the city's stormwater infrastructure to bring about long-term improvement
- A combination of the need for protection of life and property against the threat of local and regional flooding, and meeting regulatory requirements intended to protect the environment
- Includes considerations for sea level rise, resiliency and sustainability
- An SMP is an element included in the analysis of the Community Rating System and as such benefits residential insurance rates





What is a Stormwater Master Plan?

- The SMP is an element of the St Pete Water Plan which provides an overall plan that complies with regulations:



- Develop a comprehensive approach to address aging assets
- Develop a methodology and sequence for capital investments
- Incorporate sustainability and resiliency
- Update existing or develop new regulatory compliance strategies and policies



What is a Stormwater Master Plan?

The SMP is the beginning, not the end

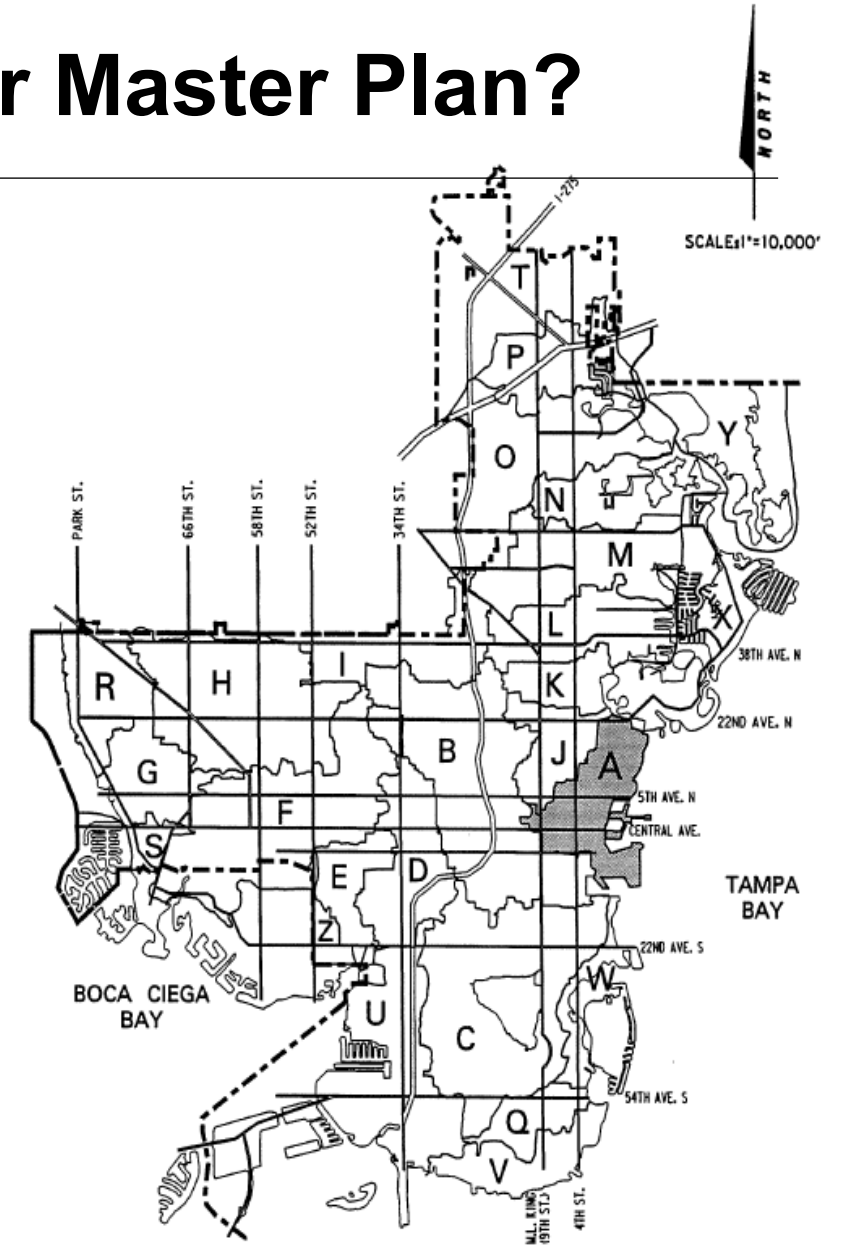
SMP is	SMP is Not
Guiding Vision	Detailed Design Document
Prioritization Methodology	Cookbook approach with Step-by-Step instructions
Conceptual Cost Estimates	Detailed Cost Estimates
Master Site Plans, Pipeline Alignments	Precise field evaluations (survey, subsurface conditions, etc.)
Recommended water quality locations	Evaluation of utility rates needed to implement the SMP



What is the Current Stormwater Master Plan?

The Stormwater Master Plan:

- Was completed in 1994
- Delineated the City into 26 drainage basins
- Design conditions for local streets:
 - ✓ 3.2-inch rainfall in 10 YR/1HR
- Recommended 338 projects at an estimated cost of \$610 million*
- City completed about 1/3 of the projects at a cost of \$211 million*



*costs adjusted to 2019



How Is This New Stormwater Master Plan Developed?

This new plan includes:

- *Detailed data gathering and analysis* – LiDAR* as well as field survey of the City's stormwater system and surface
- *Coordination with other programs and initiatives* – Developed to be consistent with the other City initiatives such as the Integrated Sustainability Action Plan (ISAP), and Vision 2050
- *Actual data verification* – The City has installed water level gauges in the stormwater system and utilized the data from the flow meters compared to the recorded rain event to further refine the model accuracy. The City will continue to utilize flowmeters to ensure the model integrity following completion of the Plan
- *Continuous input from our residents* – Data received from SeeClickFix, neighborhood meetings, etc. regarding concerns from residents is utilized in calibrating the model for accuracy

*LiDAR - Light Detection and Ranging or 3-D laser scanning



How Is This New Stormwater Master Plan Developed?

This new plan includes:

- *Coordination with Regulatory Agencies*– The Plan is being developed for compliance with the Southwest Florida Water Management District (SWFWMD), with a focus on 100-yr rain event(s)
- *Establish the Model Condition for Analysis* – A 100-yr/24hr rain event is utilized which is a storm of severity that has a probability of occurring 1% in any given year
- *Independent Review* – In addition to the partnership of the regulatory review, the City has partnered with SWFWMD for a third party independent review of the model being developed and the Plan
- *Accounting for Sea Level Rise* – Consistent with the City’s policies and utilized the NOAA Intermediate High Sea Level Rise projections
- *Variable analysis based on risk* – Level of Service and Risk are reviewed for each basin



Creating a Model of a Stormwater System

How long is our system and how complex is it?

The SMP computer model is 10 times more detailed than the 1994 model due to advances in stormwater modelling software in the past 30 years

The total linear footage installed pipe in the entire City is = 2,932,240 Ft = 555 Miles



From:
St. Petersburg

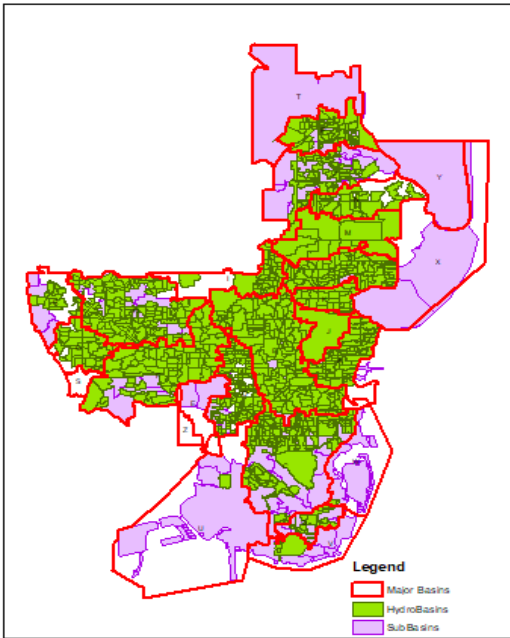
~555 Miles

To:
Myrtle Beach,
South Carolina

Basin ID	Number of Assets				
	SubBasins	Channel	Pipe	Drop Structures	Weirs
A	665	0	988	28	1643
B	1847	25	3014	79	5011
C	948	48	1261	21	2605
D	662	6	979	30	1724
E	381	23	548	15	997
F	888	56	1552	39	2486
G	416	23	560	12	1112
H	750	72	1427	75	2273
I	392	0	890	16	1183
J	358	0	575	5	990
K	220	1	392	16	690
L	391	23	838	17	1257
M	554	5	1076	22	1658
N	266	16	466	14	1000
O	563	91	1055	36	3025
P	384	81	507	85	2256
Q	137	9	272	14	391
R	338	8	433	27	926
S	203	0	235	2	512
T	645	193	967	78	3750
U	609	49	981	72	1782
V	232	2	504	7	708
W	171	0	346	4	463
X	424	12	822	11	1180
Y	4	0	0	0	20
Z	180	0	248	6	479
Total	12628	743	20936	731	40121

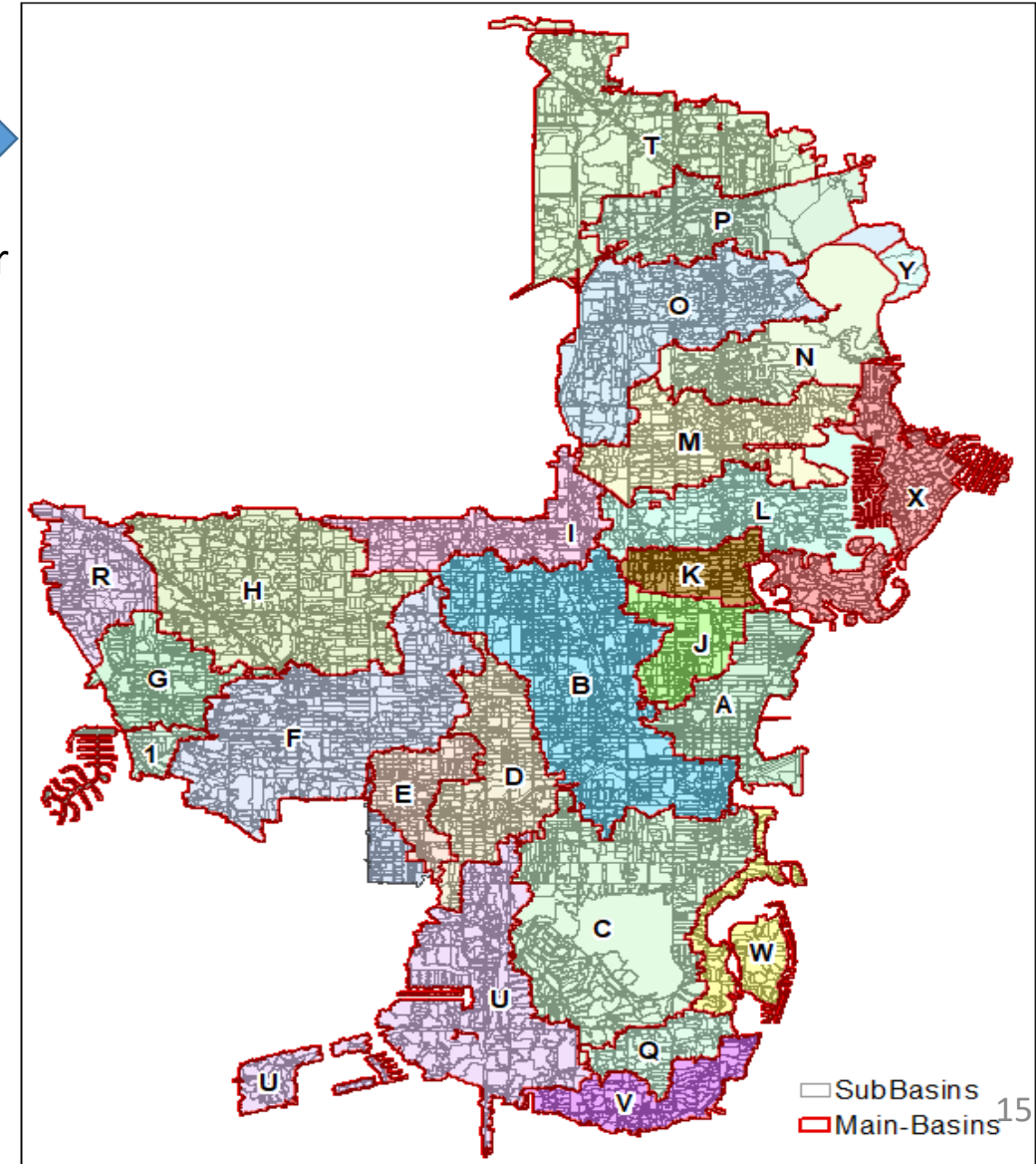


Creating a Model of a Stormwater System



- A new more detailed model was developed for the City
- More accurate asset and field information
- More accurate data:
 - Pinellas County 2018 LiDAR
 - City, County, and State project plans
 - Field survey of 2200 assets to supplement LiDAR data

Stormwater Master Plan	1994	Current
Total Model SubBasins	1,186	12,628





Establishing Current and Future Conditions

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

2050 NOAA Intermediate SLR projections will be adopted for SMP future conditions modeling.

Tidal Reference Points: Vertical Datums
(St. Pete tide gauge #8726520, based on 1983-2001 epoch)



What is the benefit of a Stormwater Master Plan?

Your feedback is as important as having an accurate Stormwater Master Plan:

- Allows the City to strategically plan capital improvements to be more cost effective in mitigating risk
- Being strategic in planning allows for effective analysis of rates
- Is an element of the Community Rating System and provide benefit to residential insurance rates
 - City has a current rating of 5 which equates to a 25% discount
 - With the successful completion of this SMP, the City has a potential of achieving a rating of 4 which would equate to a 30% discount
- Allows for better forecasting during storm events to alert residents of risk
- With updated policies and ordinances, this will assist in improving water quality in our lakes, ponds and Tampa Bay



How You Can Help

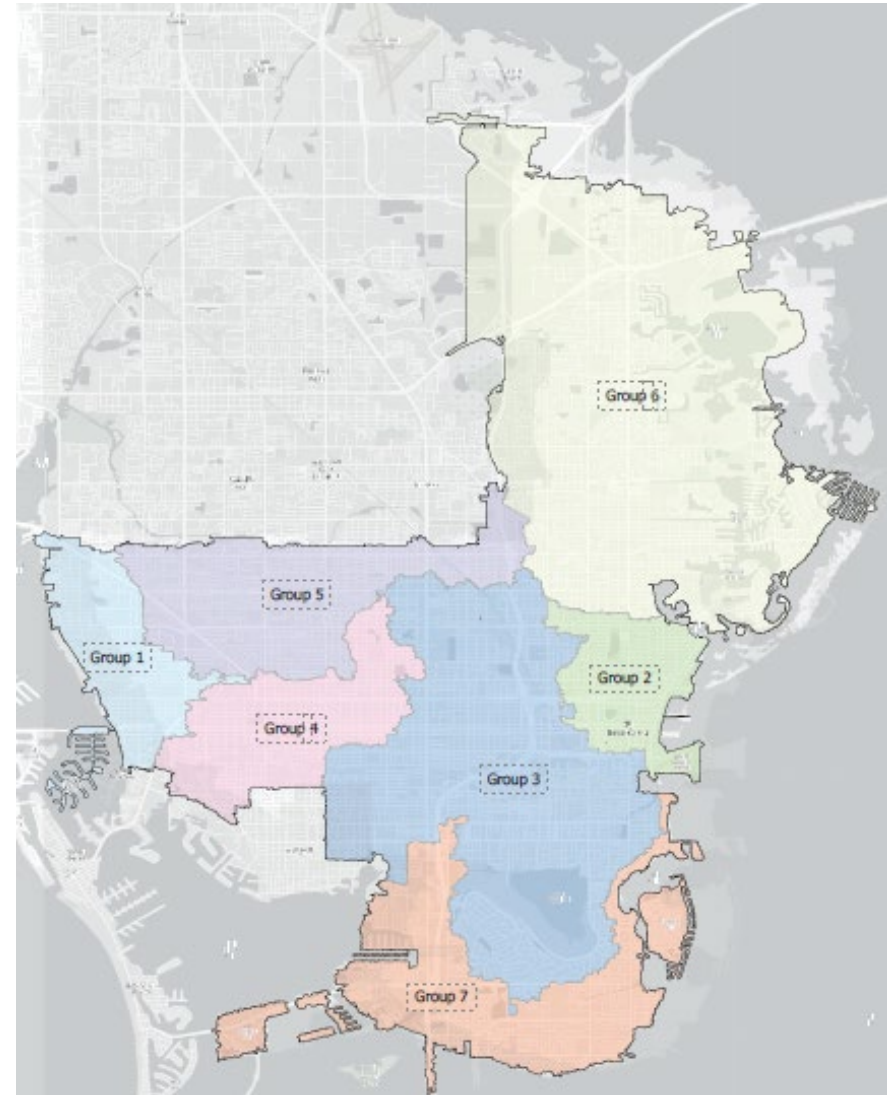
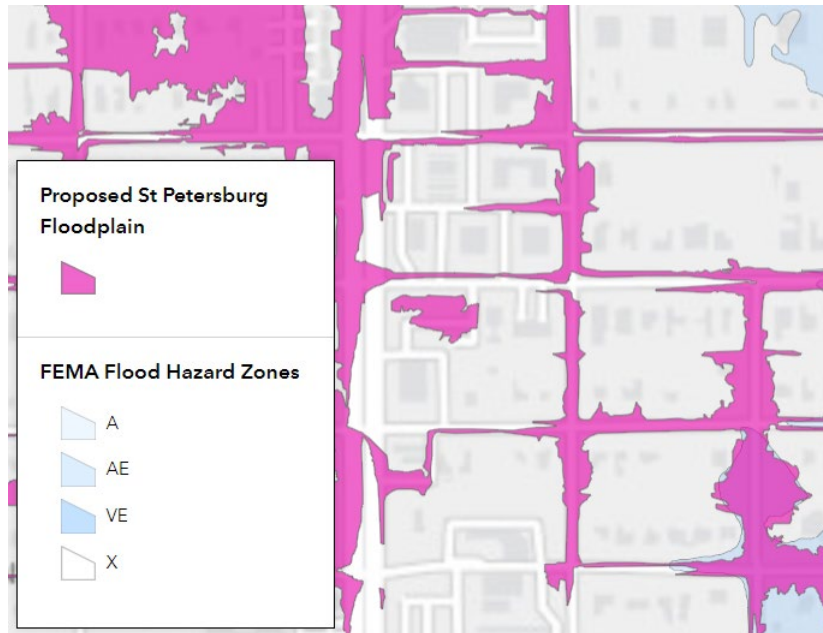
- All information covered in previous slides are then compiled into a model to generate flood plain maps
- Maps and the viewer have been developed to show locations where flooding could occur under a severe weather event
- We need your feedback!
- There are three ways to provide feedback:
 1. By visiting an on site locations to view the map. These maps are available until 05/05/23 at the following locations for review:
 - Lake Vista Recreation Center, 1401 62nd Avenue S.
 - Thomas “Jet” Jackson Recreation Center, 1000 28th Street S.
 - J.W. Cate Recreation Center, 5801 22nd Avenue N.
 - Willis S. Johns Recreation Center, 6635 Dr. Martin Luther King Jr. Street N.
 2. By visiting the Project Online Viewer [CoSP Proposed Stormwater Floodplain Viewer \(arcgis.com\)](https://arcgis.com)
 3. By email stormwater.masterplan.update@stpete.org
- Please review these maps and indicate if you have noticed flooding outside of the areas identified as the “Proposed St Petersburg Floodplain”



City of St Petersburg Stormwater Groups

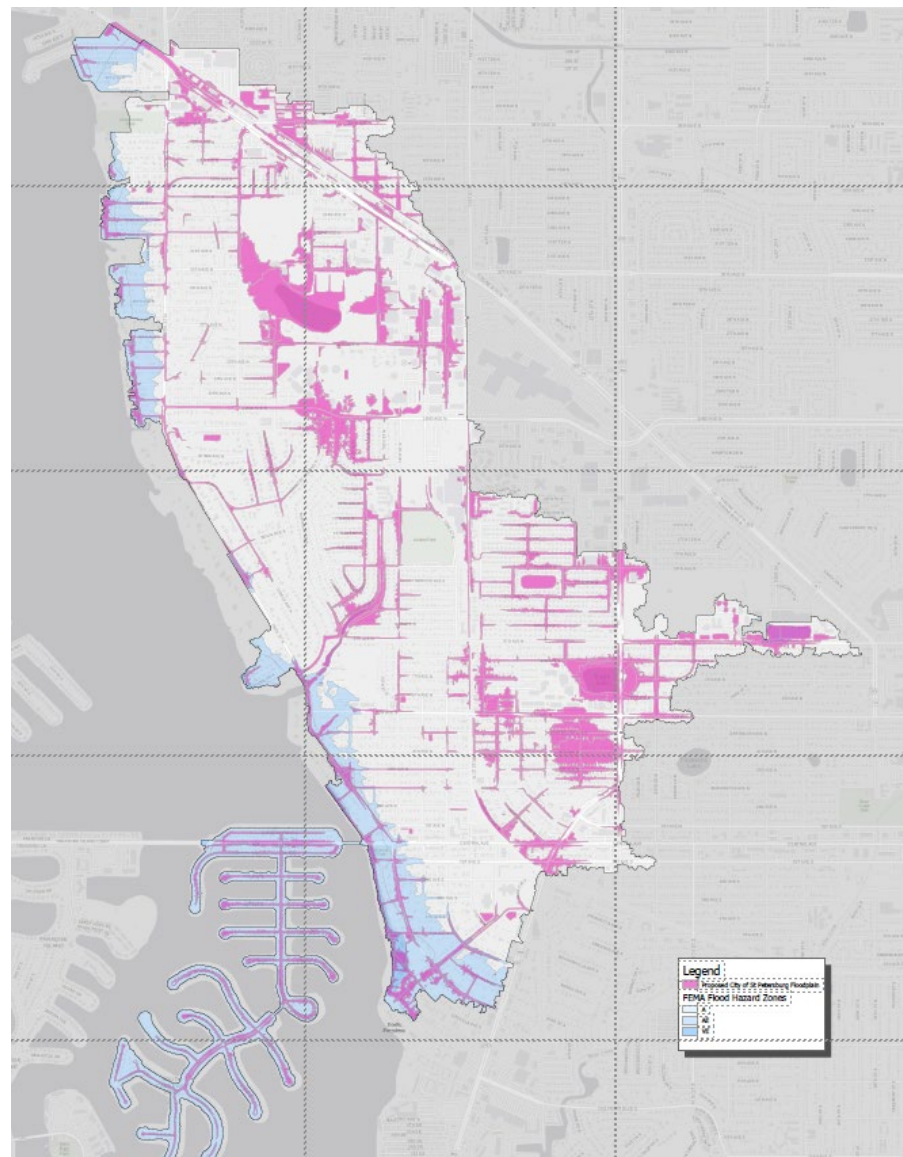
Due to the magnitude and complexity of the model, the City of St. Petersburg was divided into seven (7) model groups.

Legend for Map and Viewer



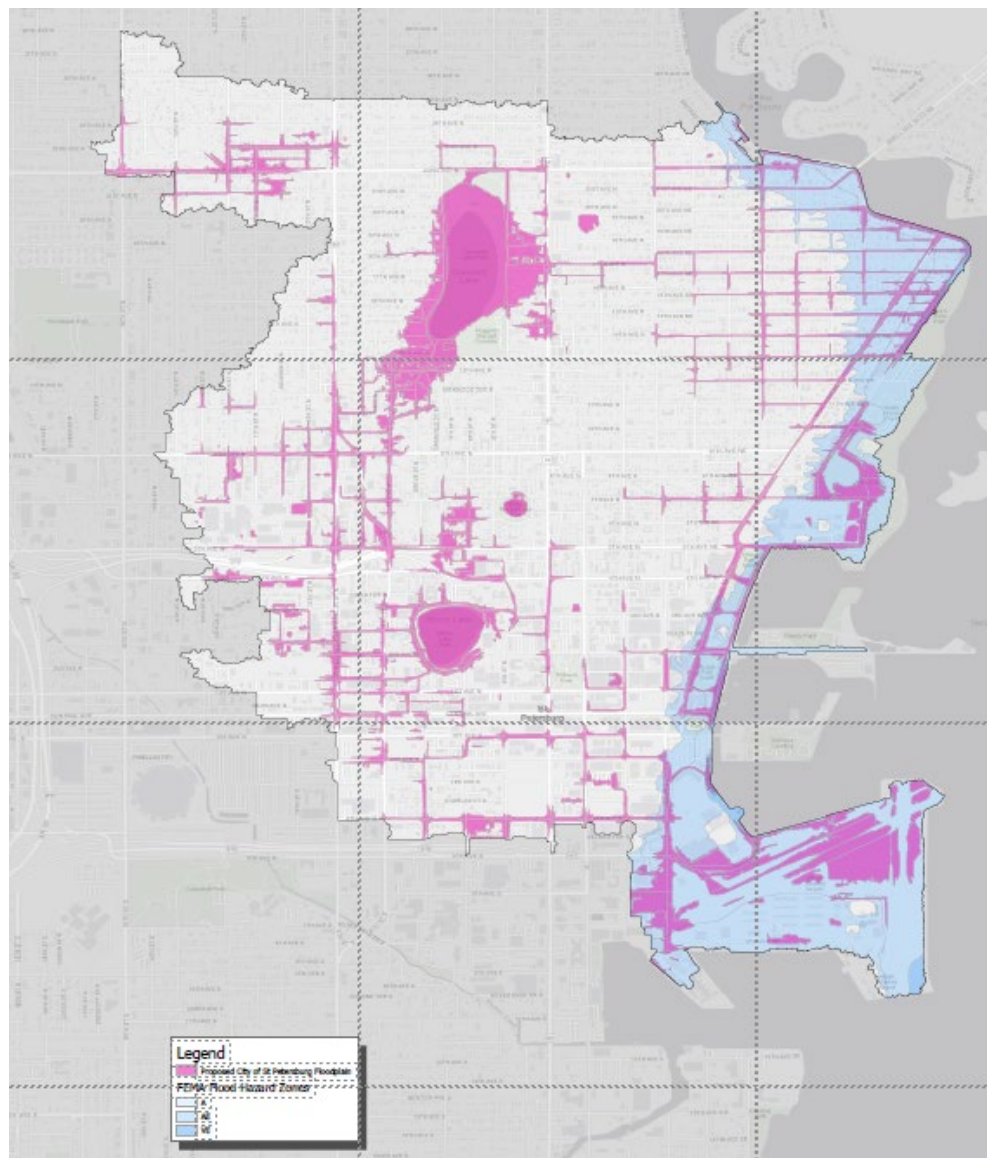


Group 1 Proposed Stormwater Floodplain



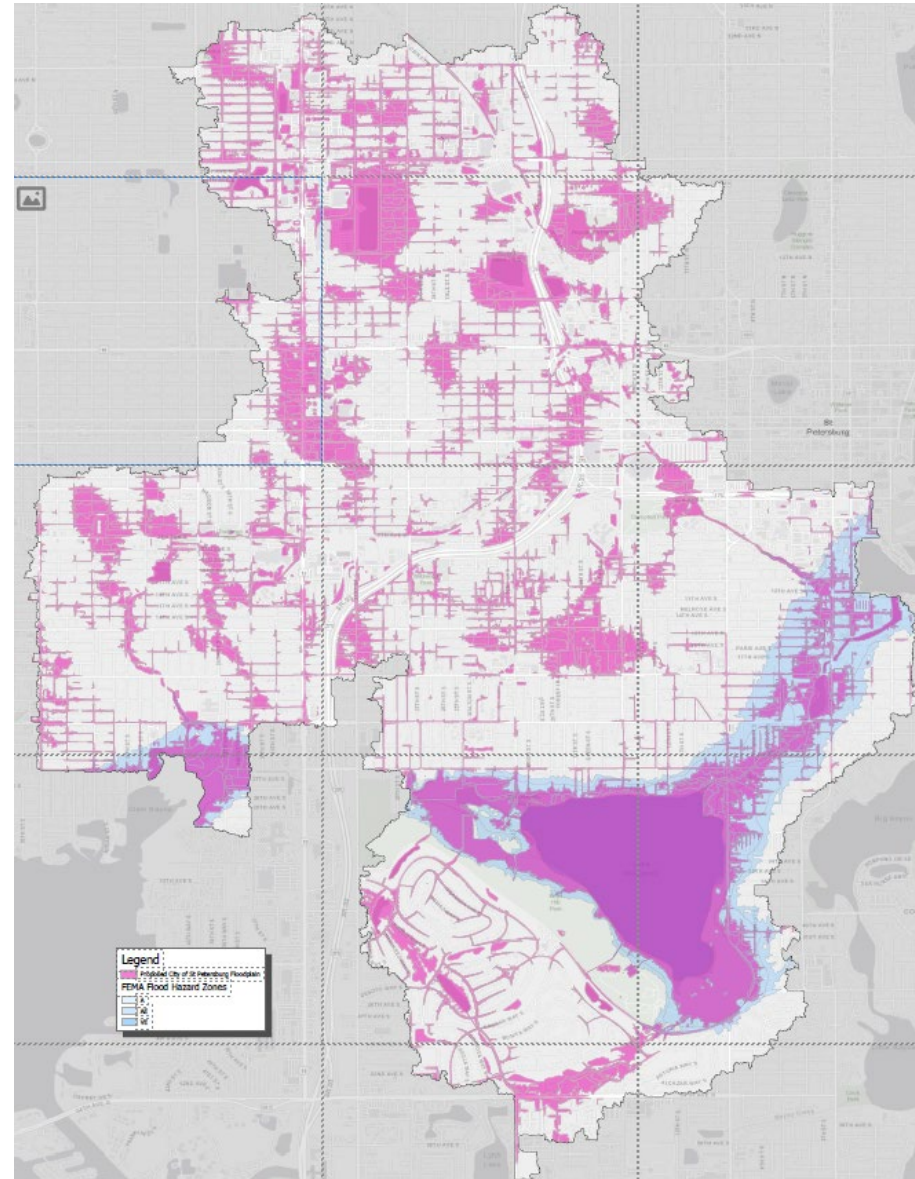


Group 2 Proposed Stormwater Floodplain



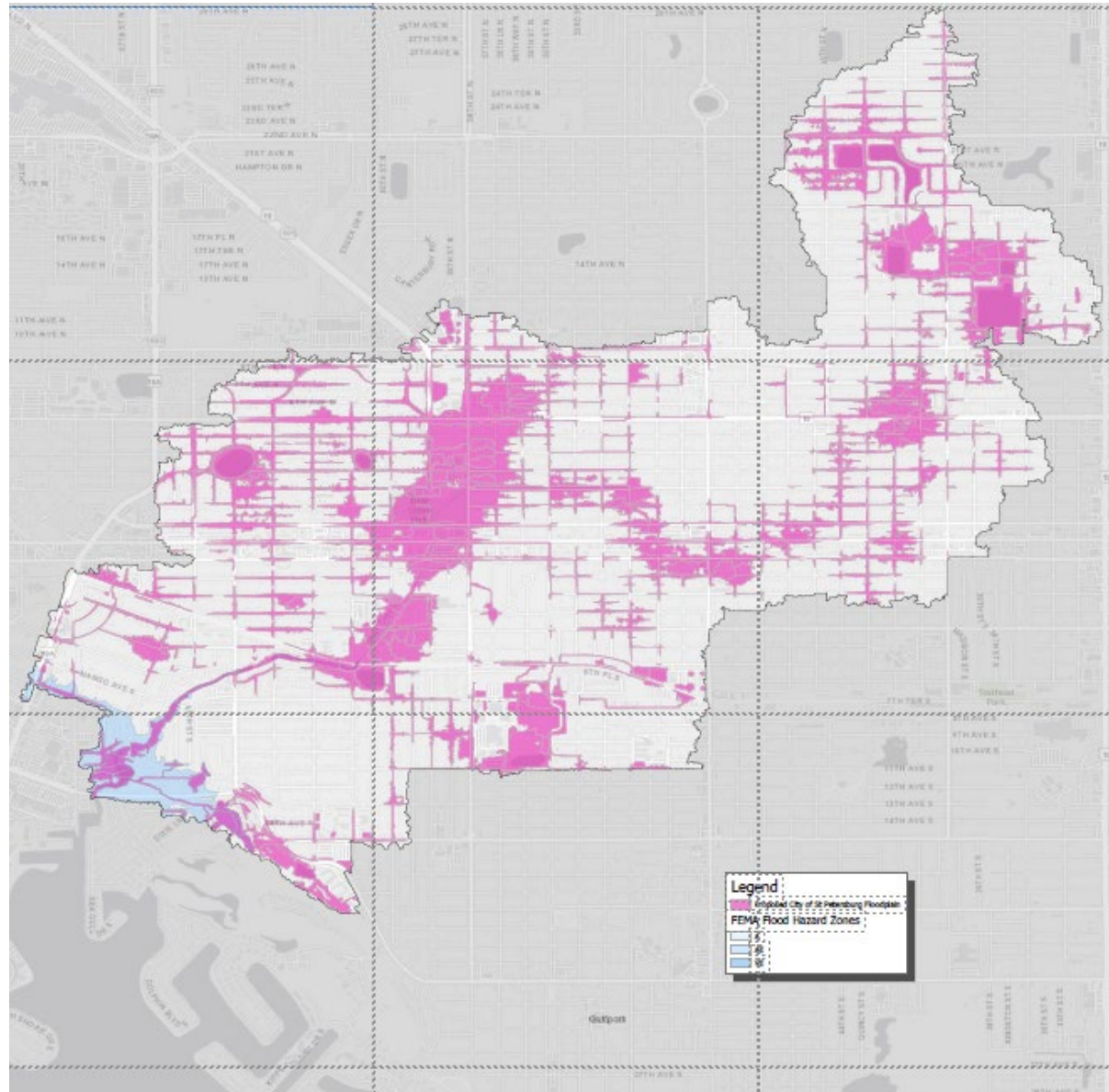


Group 3 Proposed Stormwater Floodplain



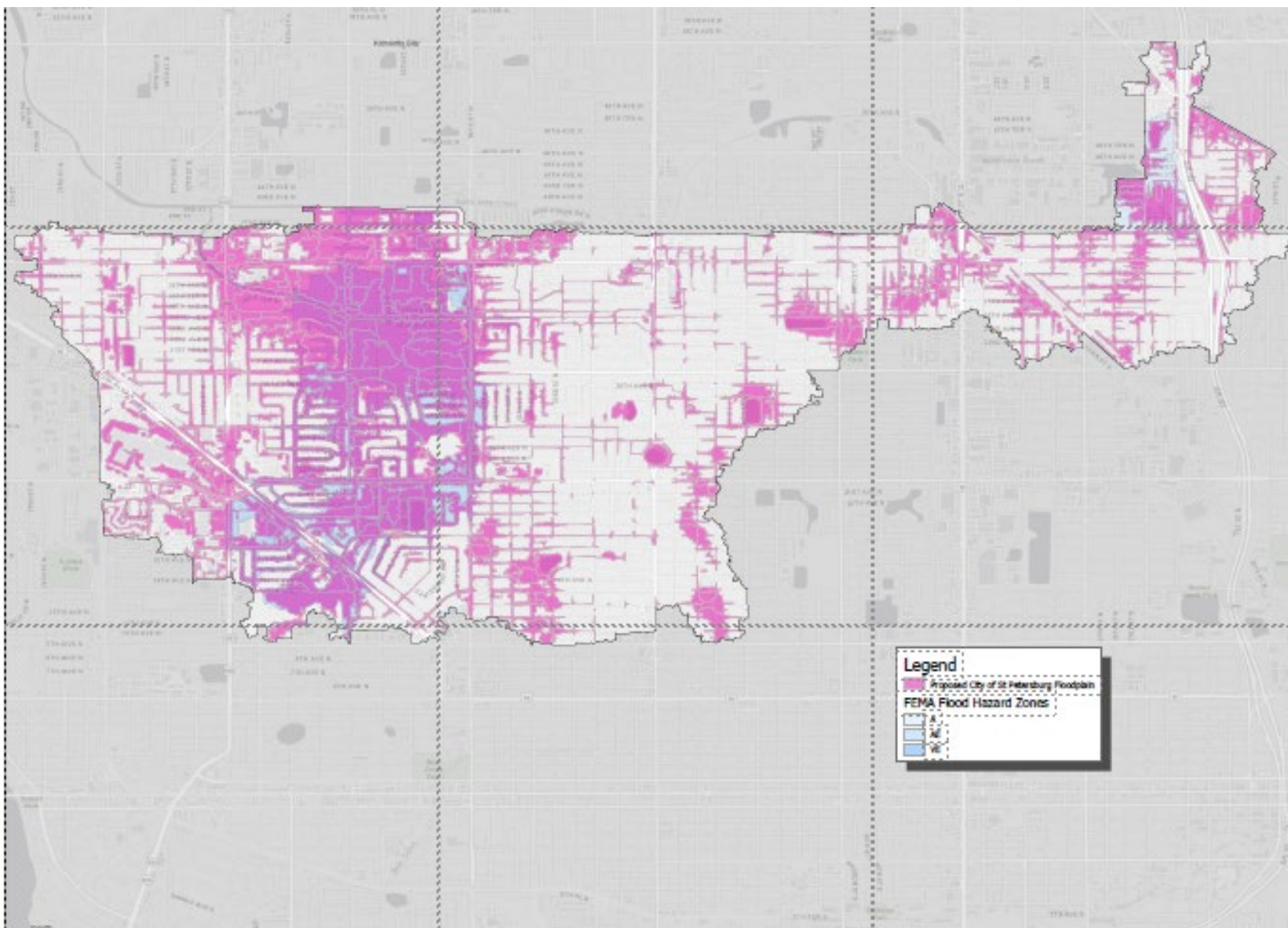


Group 4 Proposed Stormwater Floodplain



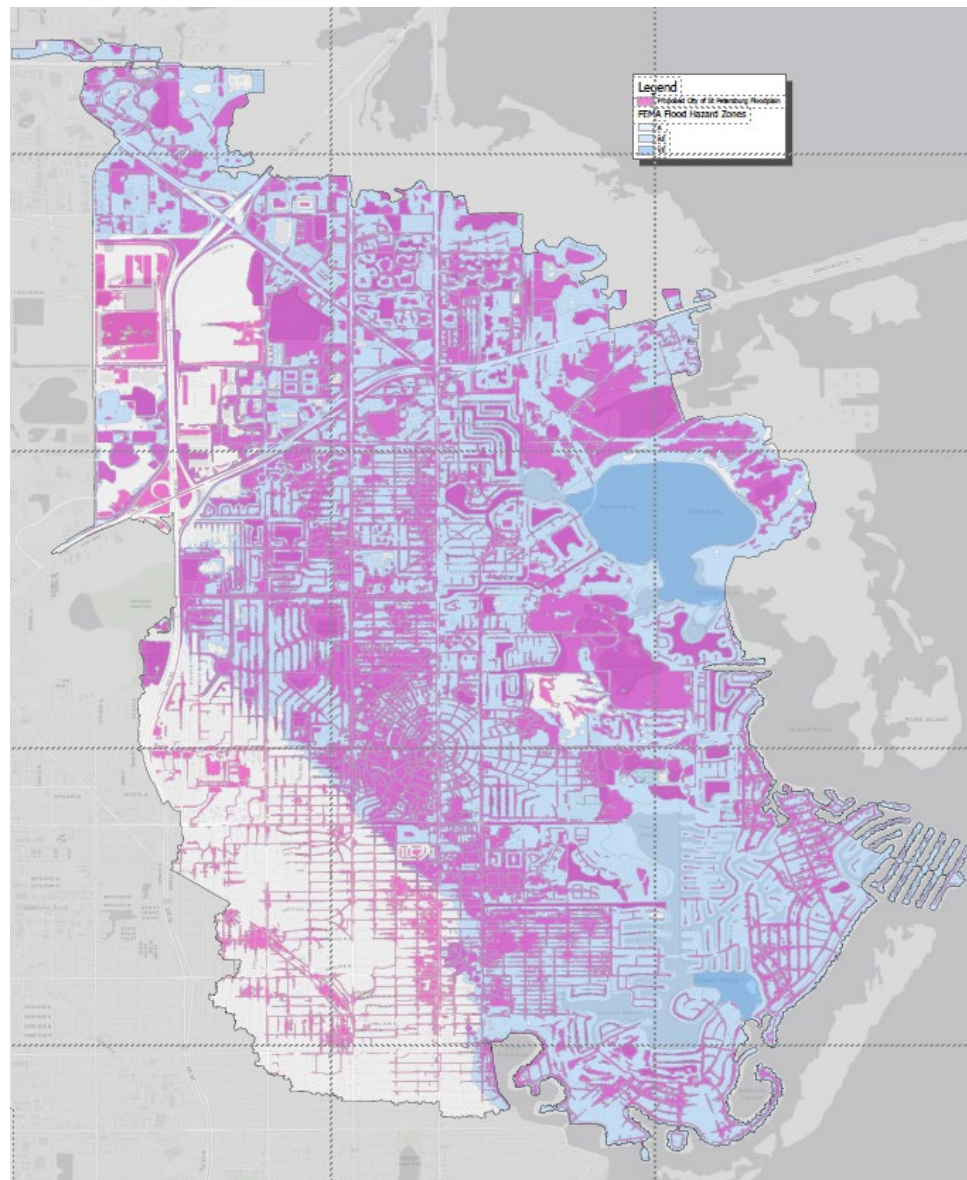


Group 5 Proposed Stormwater Floodplain



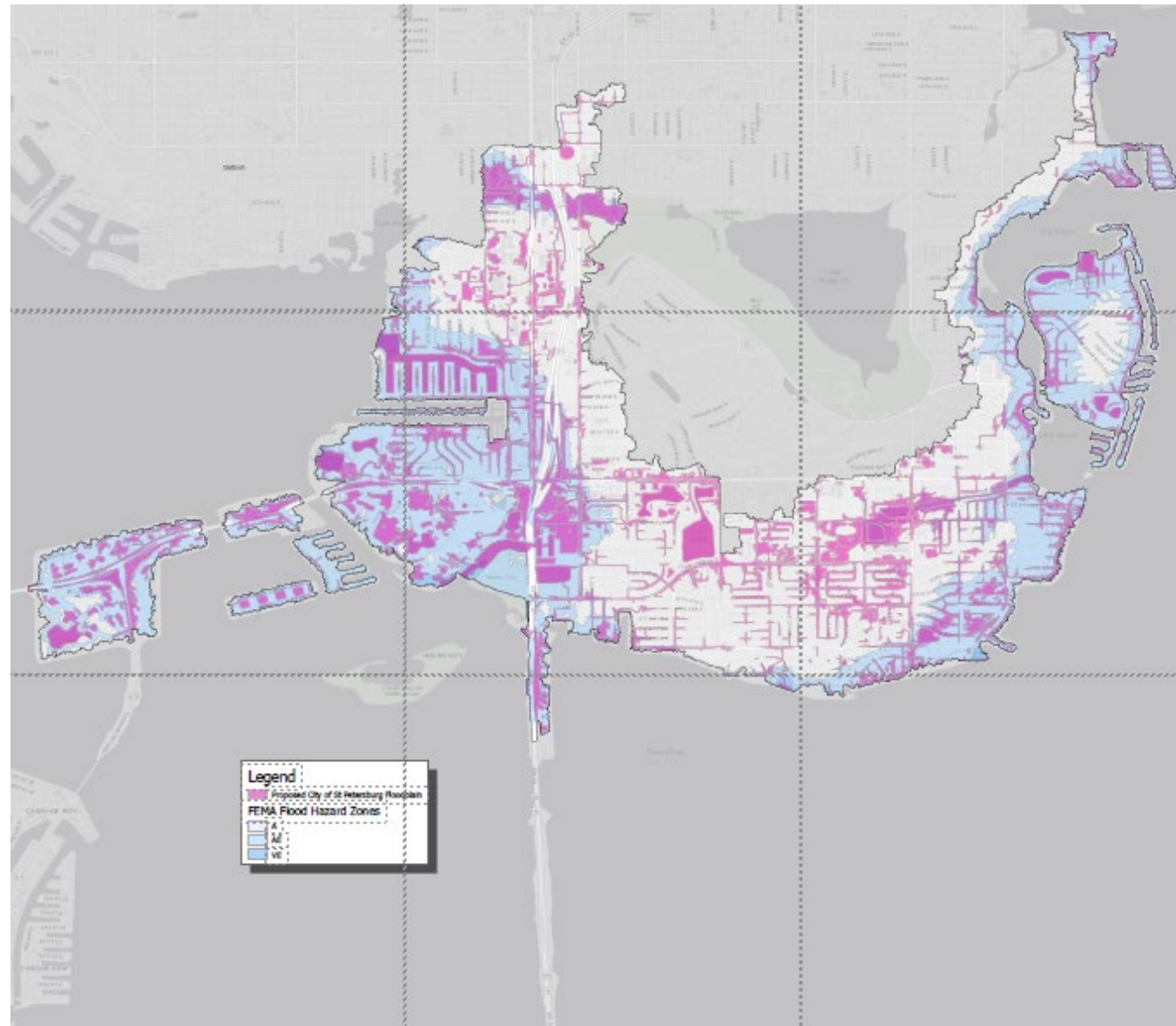


Group 6 Proposed Stormwater Floodplain



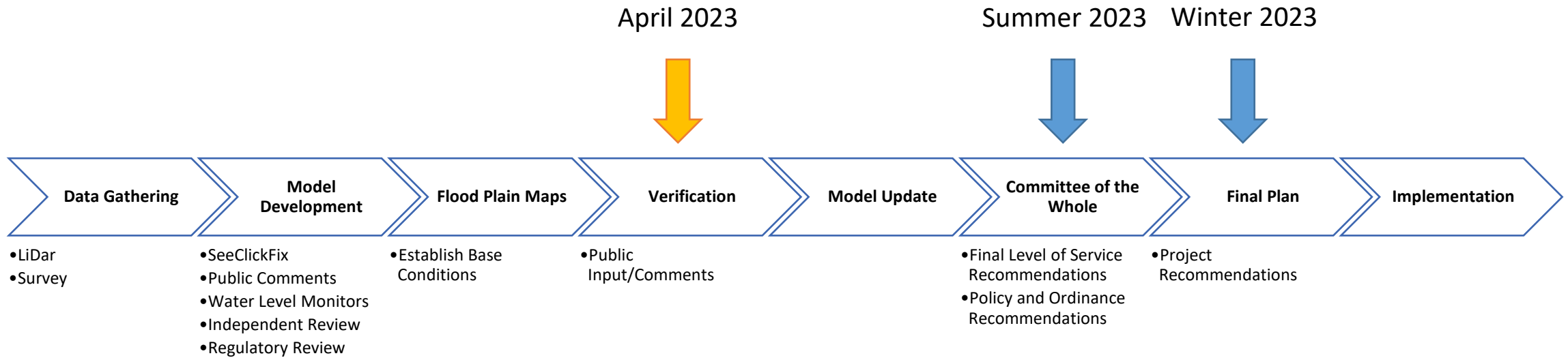


Group 7 Proposed Stormwater Floodplain





Implementing the Stormwater Master Plan



Outfall Construction at Jungle Lake



Jungle Lake clearing, grubbing, preliminary excavation.



Examples of Completed Projects (Jungle Lake NE SDI Project - District 1)



Box Culverts (5x12) installed looking North from outfall structure 00. (15)

Jungle Lake NE SDI Project



Catch Basin 12 A being installed, note pipe to East.

05.01.2018 15:20



SD 11 B with ERCP being installed into.

04.06.2018 14:47

Oak Street SDI - District 2



10/31/2018 14:07

Oak Street SDI - District 2



Looking App. West on Brightwaters at Job site over Canal.



Snell Isle Blvd NE Project - District 3

Looking at 801 Residence, Note very large Catch basins just installed .(Snell Isle Blvd).



02.01.2017 13:18

Sectional Lid Installation on SD 43 Catch Basin 800 Blk Snell Isle Blvd.



02.01.2017 09:46

Snell Isle Blvd NE Project

SD01 Outfall Base at crescent Lake being placed.



07.26.2017 14:16

Forming walls around 66" RCP



08.02.2017 11:03

Crescent Lake SDI Project - District 4



Outfall into Crescent Lake.

11 . 28 . 2017 23 : 10

Crescent Lake SDI Project

THANK YOU

We want your feedback! A public survey will be available until 05/05/2023 at **www.stpete.org/StormwaterMasterPlan** for you to share your thoughts on the plan as well as on tonight's presentation.

You may also send in questions to our project team at **stormwater.masterplan.update@stpete.org**

For immediate flooding concerns, please contact the hotline - 727-893-7421



Engineering and Capital Improvements Department
1 4th Street North, St. Petersburg, FL

THANK YOU

Stormwater Tiered Rate Portal

https://www.stpete.org/residents/utilities/stormwater_pavement_and_traffic_operations/tiered_rates.php



Engineering and Capital Improvements Department
1 4th Street North, St. Petersburg, FL