

Army Corps of Engineers 3x3 Seawall

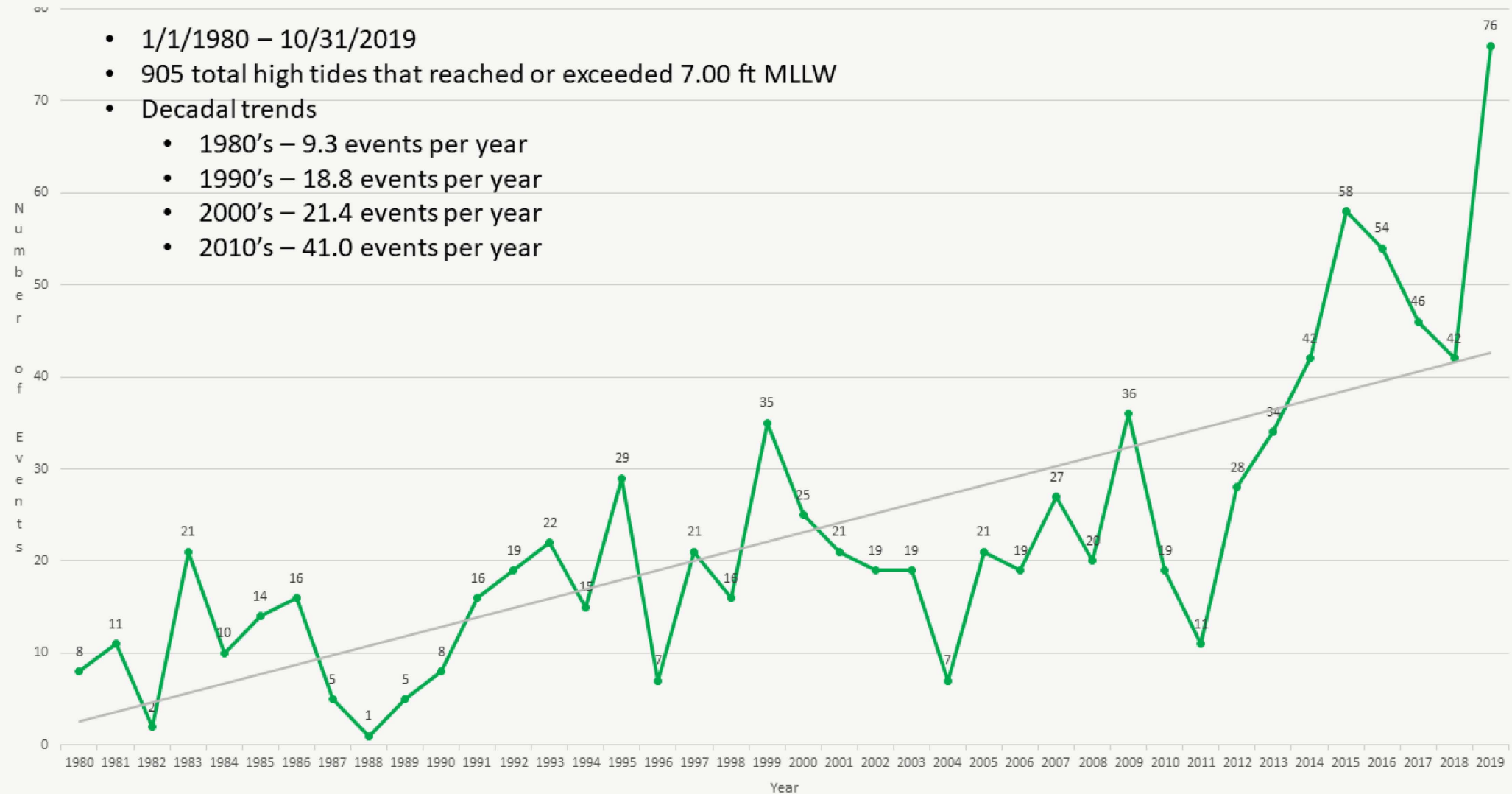
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High Tide Frequency





Army Corps of Engineers 3x3 Study

Single-Use Wall
(8.5 Miles Long)

Estimated \$1.4B

65/35 Split

Plus Easement Acquisition

Plus Maintenance (City)





The Charleston Peninsula Study Optimized Plan

Legend

- Charleston Peninsula Study Area
- Nonstructural Measures
- Proposed Living Shoreline

Wall Type

- T-Wall
- Combo Wall

Pump Stations

- Mobile
- Permanent



86 Gates



Crosses Lockwood Blvd. 4x

flooding, however economic damages and impacts to human health and safety from storm surge inundation are expected to increase in the future.

Predicted climate change impacts, such as increased ocean temperatures, ocean acidification, sea level rise, and changes in currents, upwelling, and weather patterns have the potential to affect the nature and character of estuarine and coastal ecosystems in and around the study area. Climate change and associated sea level rise have the potential to cause permanent impacts to salt marshes and local fauna with changes in salinity regimes. Wetlands surrounding the peninsula are at risk of elimination due to sea level rise when they can no longer adapt and retreat inland. Shorelines that are not protected, like Brittle Bank Park, will be subject to erosion. The High Battery could become unsafe if erosion, scour, and wave attack damages the aging structure.

A variety of different structures were considered during the early formulation process. Further analysis determined that the footprint of an earthen levee embankment was too large for the heavily developed peninsula and would require condemnation of too many properties and/or excessive salt marsh impacts. **The most effective and most efficient type of structure would be a T-wall on land and a combination wall in the marsh.** Existing topography makes extension of a wall or levee into the Neck Area of the peninsula impractical. A refined description of this alternative can be found in the Final Array of Alternatives section 3.5.

Existing marsh, historic district, and historic resources. The structure would be strategically located to allow for continued operation of all ports, marinas, and the Coast Guard Station. The structure would tie into the existing Battery seawall and potentially raise the seawall to provide a consistent level of performance.

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The storm surge wall would be constructed along the perimeter of the peninsula to reduce damages from storm surge inundation. Where feasible, it would be strategically aligned to minimize impacts to existing wetland habitat, cultural resources, and private property. The wall



elevation higher than 12 feet NAVD88 would require an additional railroad crossing and raising or gating the Ashley River Bridge, which would limit traffic circulation during a coastal storm event. A 15-foot NAVD88 wall could potentially require raising or gating Interstate 26, which is

*Charleston Peninsula
Coastal Flood Risk Management Study*

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*Draft Feasibility Report and
Environmental Impact Statement*



How to fund Construction?

- Construction anticipated from 2026 to 2032
- Fiscal gap will need to be addressed and resolved as the City moves through PED

Total Project Cost	\$ 385,000,000
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Deduct:

PED Costs	(17,000,000.00)
Estimated Easement and Property Credit	(130,000,000.00)

Remaining Estimated Cost	238,000,000.00
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Dedicated 1 Mill	(17,014,284.35)
Hospitality Fees (50% of estimated surplus)	(19,000,000.00)

Request from State Infrastructure Bank	(75,000,000.00)
Request from Charleston County	(25,000,000.00)

Additional Funding Needed	\$ (101,985,715.65)
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Municipal Improvement District (Peninsula)	\$TBD
Local Option Sales Tax	\$TBD
4 TIF districts	\$TBD
Additional Dedicated Millage	\$TBD
Resilience Bond	\$TBD





August 24, 2021

Col. Brian Hallberg
Norfolk District Commander
Norfolk District, U.S. Army Corps

Re: Miami-Dade County Back Bay Coastal Storm Risk Management

Dear Col. Hallberg,

This letter is in reference to the five Partnership Meeting held on August 11, 2021 with Miami-Dade County Commissioner Carlos A. A. Levine Cava during which the team reviewed the Back Bay Coastal Storm Risk Management Feasibility Study forward to allow time to complete the draft final feasibility report.

Miami-Dade County requested the 3-year, \$3 million feasibility study to extend the study timeline to allow Miami-Dade County and USACE to develop a Locally Preferred Plan that integrates measures that provide additional support while modifying other measures that have raised local concern. The study and funding, would allow for further analysis of alternatives that factor into the regional water management system.

There are additional coastal studies underway in Miami-Dade County including Miami-Dade Coastal Storm Risk Management Feasibility study which includes the beach. The beach study was approved for additional time. It is essential that the beach and back bay studies are well coordinated to ensure flood protection works as a larger system.

Sincerely,

James F. Murley
Chief Resilience Officer
Miami-Dade County Regulatory & Economic Resilience
James.Murley@miamidade.gov



CARLOS A. LEVINE CAVA
MAYOR
MIAMI-DADE COUNTY

December 1, 2021

Assistant Secretary Michael L. Connor
Department of the Army
108 Army Pentagon
Washington, DC 20310

Dear Assistant Secretary Connor:

Congratulations on your confirmation as the Assistant Secretary of the Army for Civil Works. I look forward to working with you on our strong partnership to address a number of critical water resource and resiliency challenges, including Everglades restoration, support Miami and our coast, and defending our community from both coastal storms and flooding by improving the resiliency of the Central and Southern Florida (C&SF) Flood Control System.

We appreciate the time and resources the USACE has dedicated to the Miami-Dade Back Bay Coastal Storm Risk Management study (Back Bay Study), which is a crucial component of our efforts to protect the Atlantic coast.

The Norfolk District is preparing a waiver to extend the timeline needed for the development of the Locally Preferred Plan (LPP). We fully support the extended timeline will enable the study to address local stakeholder strong concerns and maximum resiliency against future storms in coordination with the existing C&SF Flood Control System.

The County will continue to provide significant local stakeholder input to ensure that the LPP process and to comply fully with all environmental regulations. Miami-Dade County's commitment to providing equitable funding has been set aside to support the additional work, and we are entering into an amended cost-share agreement with the USACE.

The excellent work completed by the Norfolk District in protecting national economic interest in proactively protecting the community from coastal storm damage.

Army Corps Prerequisites

Agreed Upon Alignment

Agreed Upon Design Team for Project

Understanding on Exactly What Will be Designed

No Negative Effect on Bond Rating

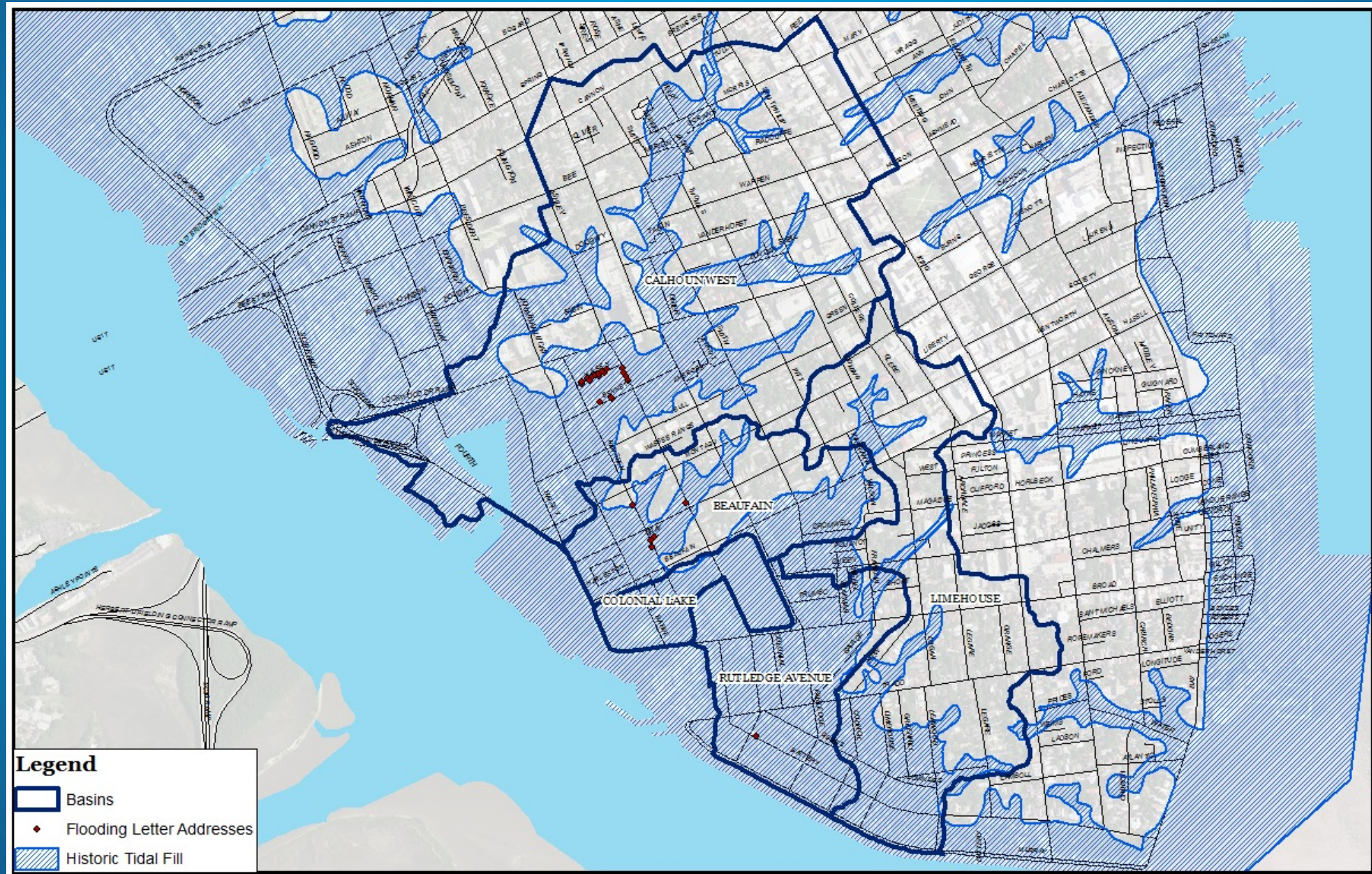
Understanding/MOU w/City, County, State

\$1 for \$1 Commitment for Calhoun West, etc.

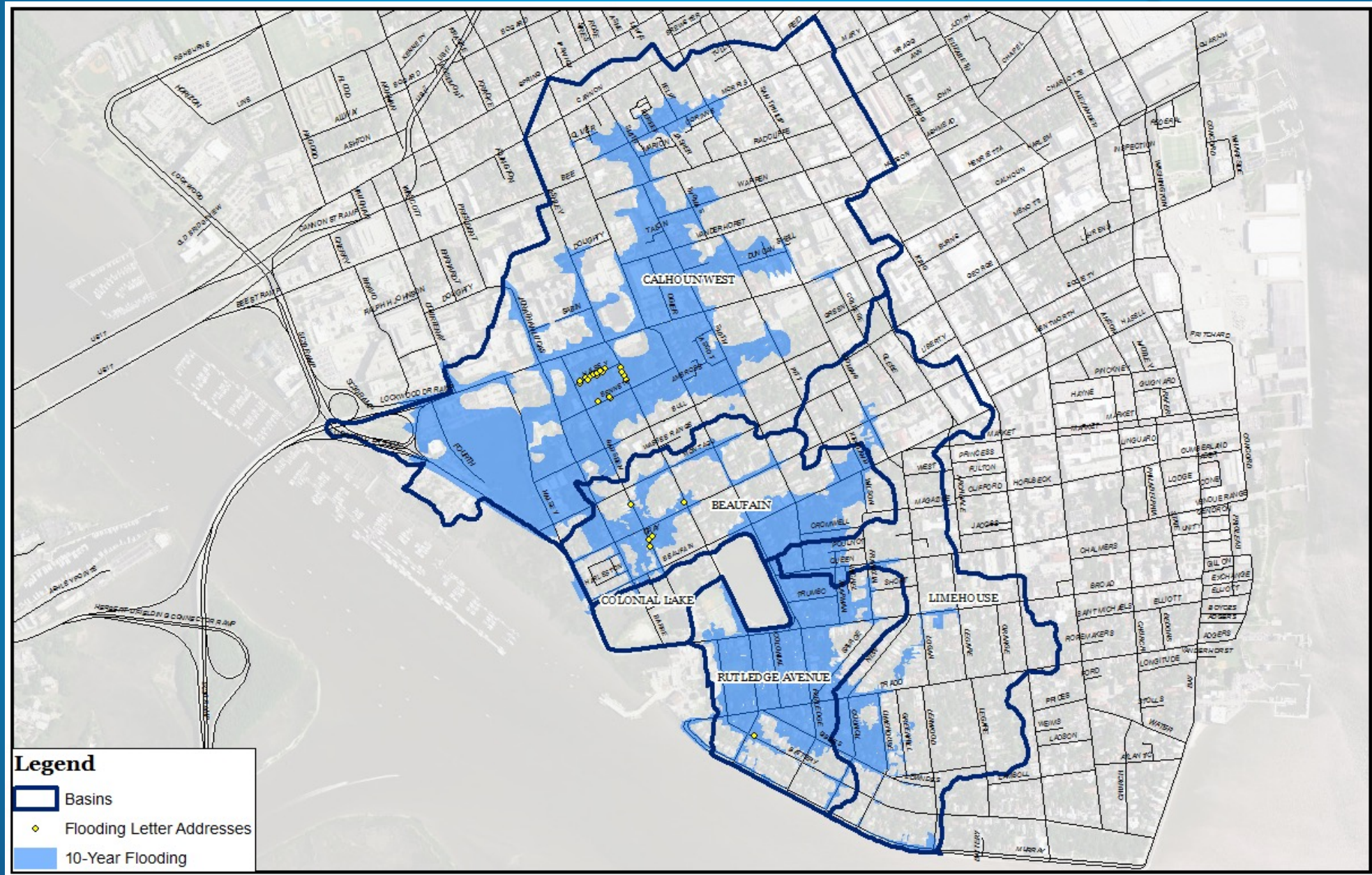
Completion of Water Management Study

Calhoun West

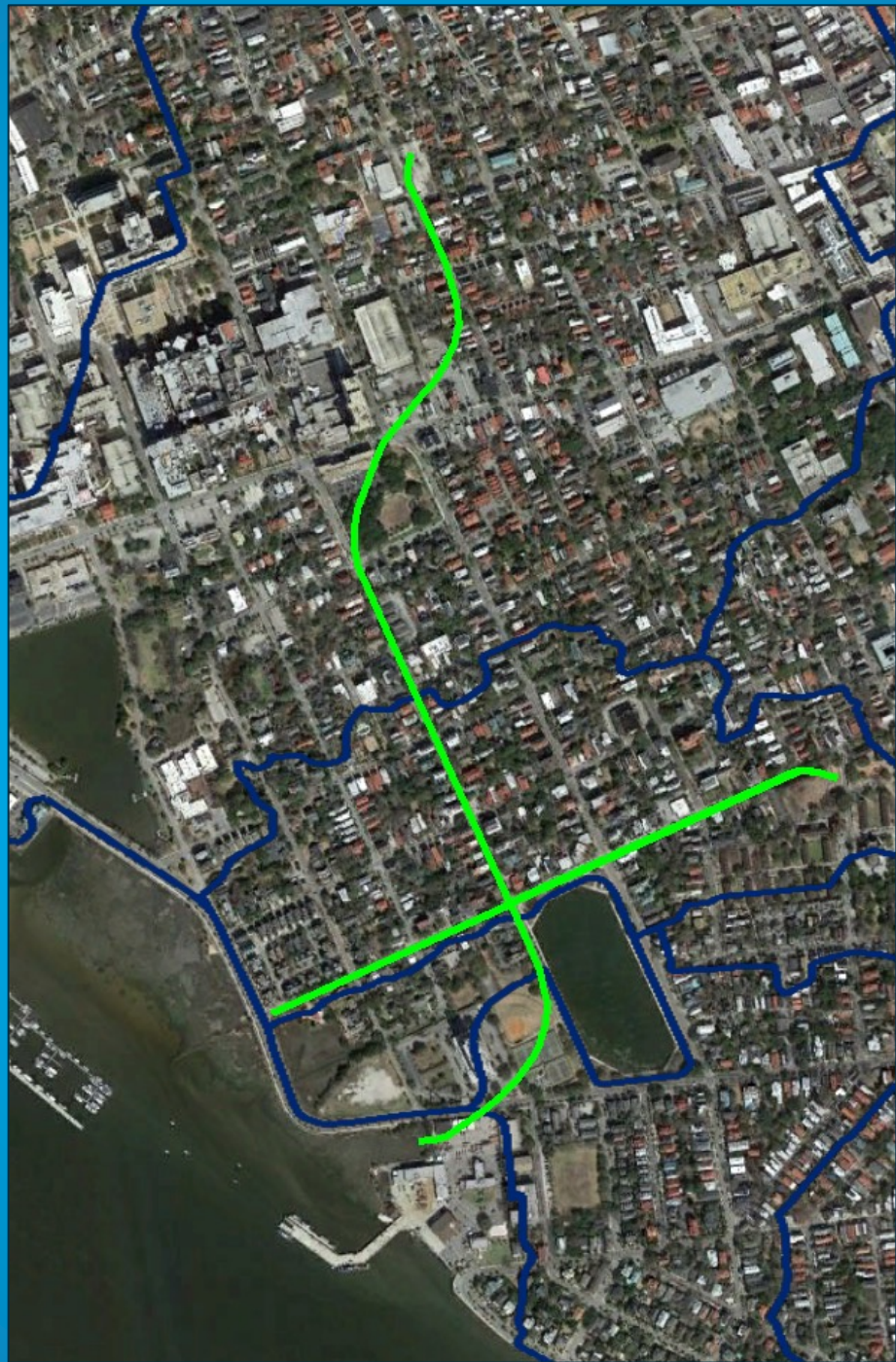
Areas of Tidal Fill



10-Year Inundation Map







TECHNICAL MEMORANDUM: TM-12

Retrofit and Short-Range Improvements

***Calhoun West Drainage Improvement and Sea-Level Rise Mitigation Project
City of Charleston***

DATE: October 11, 2019

generally less comprehensive, smaller scale, and not necessarily designed for the project area or service area have also been identified that will help alleviate frequent flooding from smaller magnitude storm events. More specifically, short-range improvements identified herein were selected to reduce the severity and duration of flooding in specific areas until the long-range improvements can be implemented.

Short-range improvements are based on the concept of “no-regret” measures. This concept is based on implementing stormwater engineering solutions that will soften the impact of intense rainfall and/or tidal flooding at a reasonable economic scale but will not solve all flooding problems experienced in the study area for the City of Charleston’s (City’s) design storm. Hence, these types of solutions are aimed at alleviating existing, frequent flood conditions associated with lower intensity rainfall and tidal flooding events. These types of solutions will help improve the drainage functionality within the study area and add increased redundancy and sustainability once the long-range improvements are implemented.

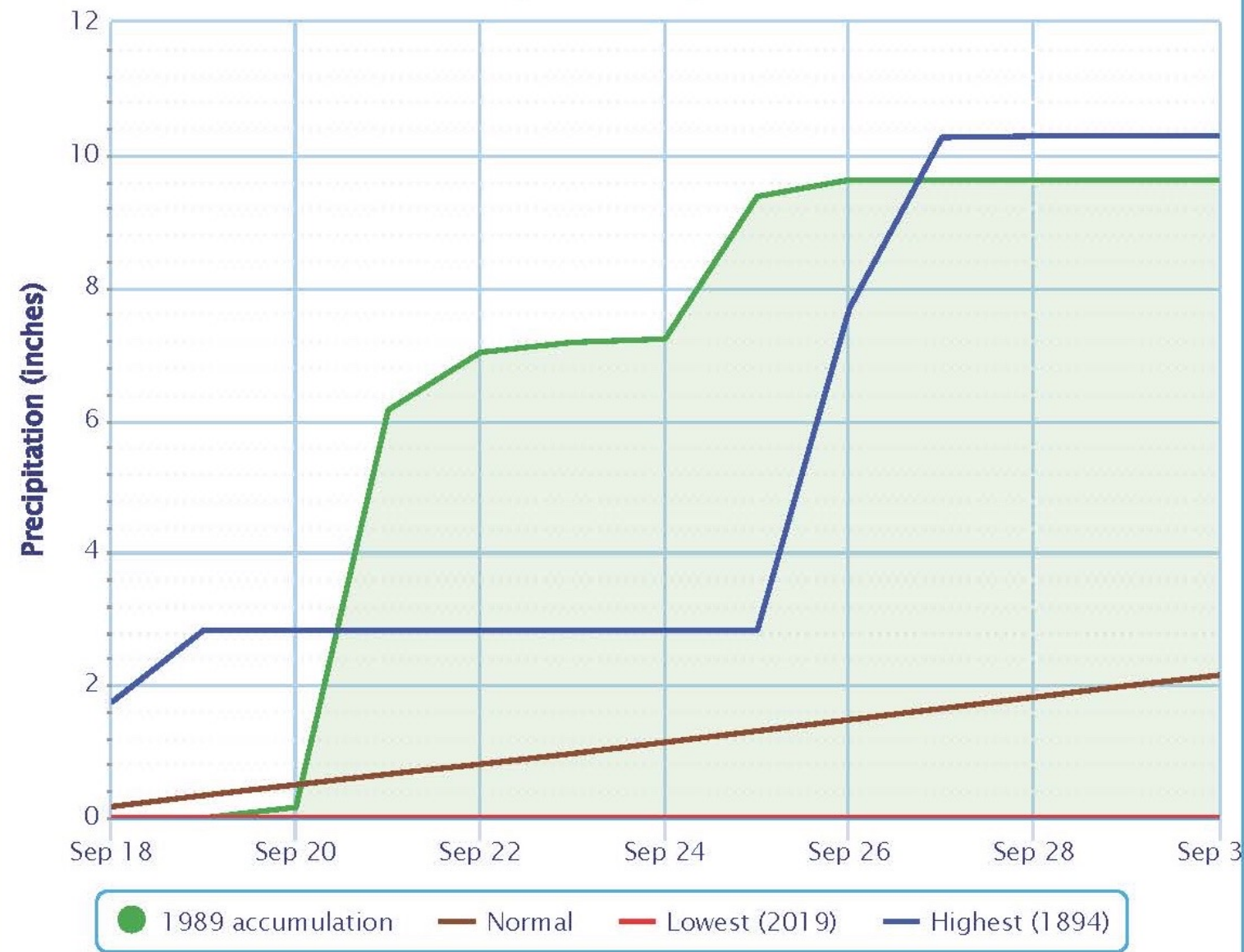
The complexity, connectivity, and age of the existing drainage network presents a cost prohibitive constraint in upgrading/improving all of the existing stormwater network to meet the current design stormwater event (i.e., 10-year, 24-hour rainfall). As a result, there is a point of diminishing marginal return in the reduction in flood impacts versus implementation cost. In this regard, engineering judgement and supporting hydraulic modeling drive the design (e.g., maximum flood reduction while minimizing implementation cost) as opposed to meeting the projects





Accumulated Precipitation – DOWNTOWN CHARLESTON, SC

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



Date	Daily Rain (in)	Accumulation (in)
19-Sept	0.0	0.0
20-Sept	0.16	0.16
21-Sept	5.99	6.15
22-Sept	0.87	7.02
23-Sept	0.15	7.17
24-Sept	0.05	7.22
25-Sept	2.15	9.37
26-Sept	0.25	9.62
27-Sept	0.0	9.62

← 6 S Adgers Wharf

Charleston, South Carolina



Google Street View

Jul 2019

[See more dates](#)

ston

Rainbow Row

Bay St

Google