SEABROOK ISLAND
Property Owners Association
Flood Education Program

SEABROOK ISLAND STORMWATER MANAGEMENT

This Module provides a summary of the recent Drainage Study chartered by the SIPOA General Operations and Maintenance Committee (GOMC). This deep-dive study of the SI stormwater drainage infrastructure included comprehensive drainage site inspections, and a detailed report was prepared by an outside engineering firm, Thomas & Hutton, in June 2020.

Island Flood Management Facts

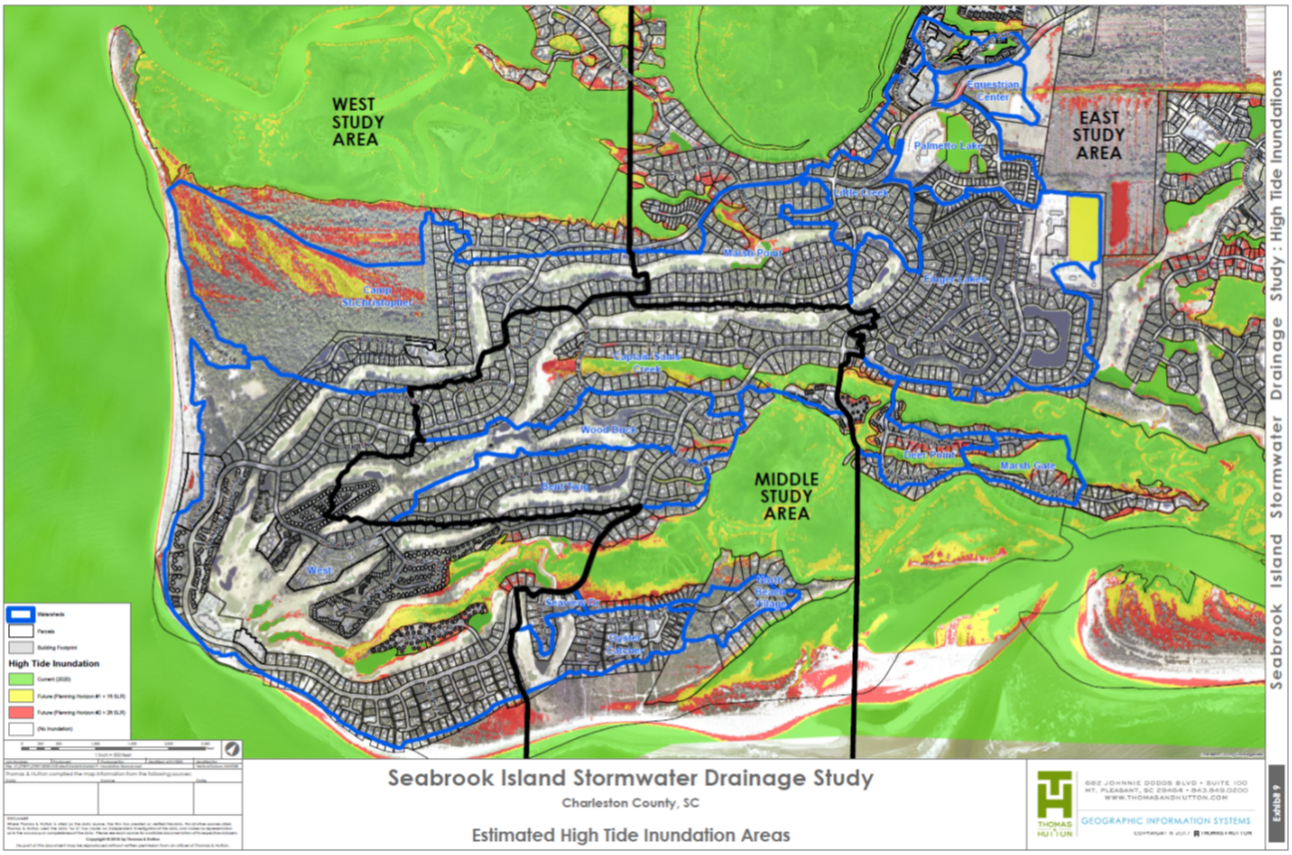
- The Island includes 4,700 acres and is surrounded by the marshland and Kiawah Island to the east, Atlantic Ocean to the south, the North Edisto River to the west and Bohicket Creek to the north
- Approximately 1800 acres have an elevation of greater than 4 feet and highest point is 9 feet above sea level
- Most of the stormwater infrastructure dates from the 1970's and 1980's when the Island was first being developed.
- The Island drainage system consists of 130,000 linear feet of pipes
- The original pipes diameter ranges from 12 to 48 inches
- The drainage system includes over 1,400 drain structures, 3 stormwater pump stations and 45 detention ponds
- The entire system is directly impacted by tidal conditions of the marshes and creeks of the Island
- The rainwater drainage system is not anyway linked into the wastewater systems

Drainage Study Summary

The purpose of the study was to establish an independent, deep-dive review of the stormwater drainage infrastructure of the Island. Thomas & Hutton engineers were contracted to scientifically evaluate stormwater drainage capacity, identify flooding problems areas and to present a detailed plan for remediations. In general, the stormwater infrastructure on Seabrook Island needs to be remediated to accommodate a 10-year rain event, which is defined as the largest rain event statistically to occur over a 10-year period. In Charleston County this equates to 7.0 inches of rain over a 24-hour period. During the drainage study, a stormwater model of the island was created to identify any areas where flooding would occur during a 10-year rain event.

The engineers divided the Island into 3 areas: East, West and Central and spend time on the Island reviewing the various structures, pumps, and tidal flows.

SEABROOK ISLAND
Property Owners Association
Flood Education Program



They also used computer simulations to “stress test” the drainage systems in each Area and to identify any remediation projects which could raise the level of service to that of a 10-year rain event. Overall the drainage system and structures are in good shape for the system age, with the pumps needing both minor and major updates since they are 40 years old, and many pipes need to be replaced and typically larger pipes will be applied. These remediation's will cost money, often cause construction disruptions and GOMC has developed a plan to logically deliver the upgrades.

Remediation Plan

The Drainage Study becomes actionable for SIPOA by prioritizing and executing on the Remediation Plan. The remediation program, ranging from simple to complex, has been organized into the following major projects:

SEABROOK ISLAND
Property Owners Association
Flood Education Program

Project	Scope	Estimate Costs	Status
Little Creek	Improve rainwater flow to avoid standing water after storm	$482,000	Design and Permitting Phase
Finger Lake	Add a tidal gate and computer controls to better flow during tidal peaks	$277,000	Design and Permitting Phase
Ocean Winds Hole #15	Add a tidal gate and computer controls to better flow during tidal peaks	$320,000	Design and Permitting Phase
Pump Station 2	Upgrade this pumping status to handle more volume and include onsite backup generator	$1,270,000	Design and Permitting Phase
Oyster Catcher	Replace current pipes with larger pipes and add a check value to avoid back-flow	$292,000	Planning
Pump Station 1 Service Area	Replace current pipes with larger pipes to increase flow of rainwater at peak levels	$733,000	Planning
Pump Station 3 Service Area	Replace current pipes with larger pipes to increase flow and avoid standing water in this are	$760,000	Planning
Captain Sam's Creek	Add a tidal gate and computer controls to better flow during tidal peaks	$352,000	Planning

For more details on these projects, follow this link to a visual storyboard for these projects.

Tidal gates will allow for better control the flow of peak rainwater across the tidal creeks, ponds and marshes and they were not included in the original drainage system. As of August 2021, six of the projects are identified projects in the engineer's study are completed and four of the more significant projects list above are in the design and permitting phase. Homeowners should be assured that SIPOA has conducted a thorough review of the rainwater drainage system, has already completed some significant remediation projects, and identified a remediation program to improve the flood management and have the capacity to manage the rainwater of a major 10-year storm.