



NORTH BEACH DRAINAGE STUDY

ST JOHNS COUNTY PUBLIC WORKS



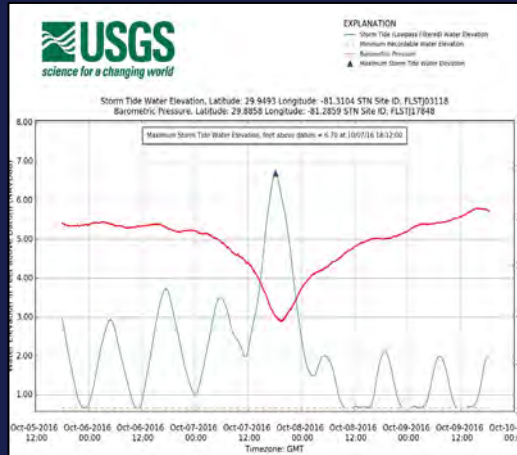
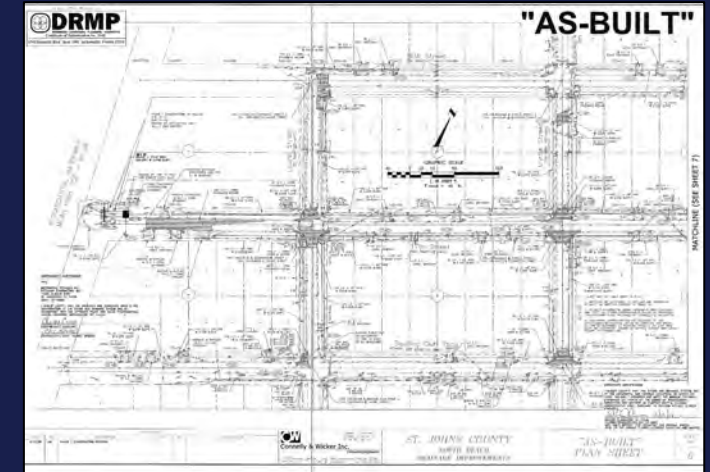
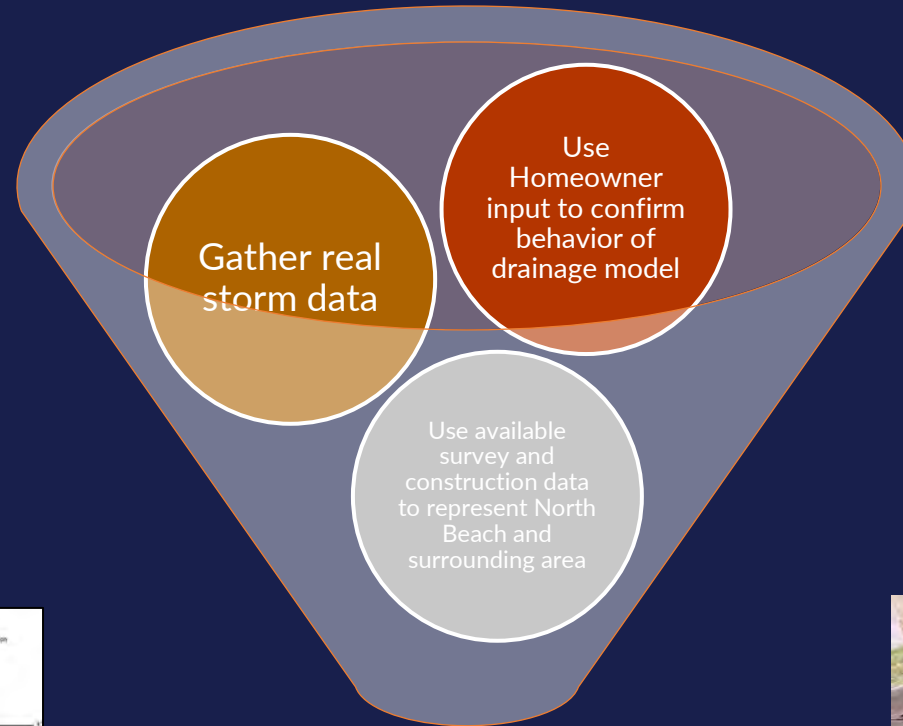
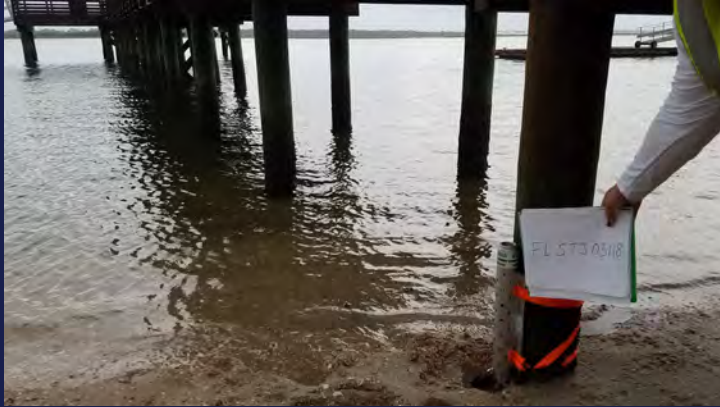
Existing Conditions



- Existing ground elevations range from 3.0 to 21.0
- Significant storm events since 2016
 - 2016: Hurricane Matthew
 - 2017: Hurricane Irma
 - 2022: Hurricane Ian
 - 2022: Hurricane Nicole
- Drainage improvements since 1980s
 - 1980s: Berms built at street ends
 - 1997: Partially constructed ditches & conveyance
 - 2005: Flap-gate structures at street ends 10th street, 17th street, 19th street, 21st street
 - 2007: 23rd street/Wahoo drive ditch and Villages of Vilano flap gate (owned by Villages of Vilano)
 - 2023: Boating Club Road boat ramp raised



Approach



Proposed Improvements

Model effects on high water stages

Estimate costs of improvements



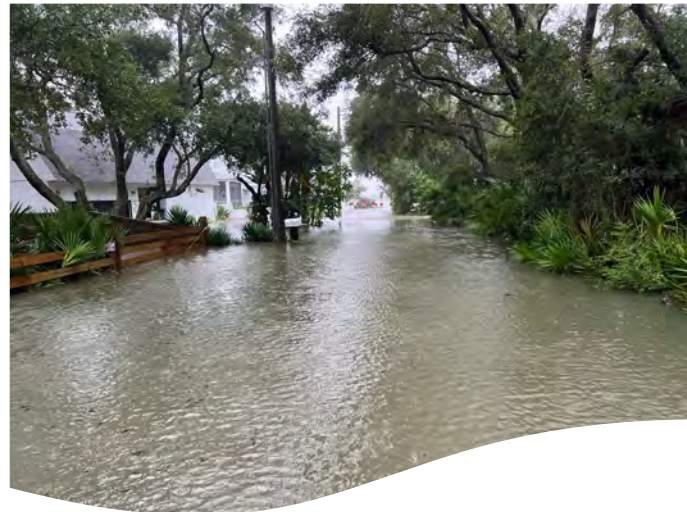
Homeowner Input



27
Responses,
Online &
Written

Hurricane Ian
and Nicole

60+ Images
and Video



Used To Calibrate
Existing Conditions
Drainage Model



Proposed Improvements



Raise Road Ends (RRE)



Advantages

- Does not require coordination from all property owners along the Intracoastal
- Will improve protection for the smaller storm events
- Allows the existing shoreline and vegetation to remain along private property

Disadvantages

- Potential for water to encroach via low-lying private property along the shoreline
- New infrastructure with additional backflow devices
- Does not prevent erosion from ICW wave action
- 2+ years: Design & Construction



Raise Myrtle, Laurel, Wahoo (RMLW)

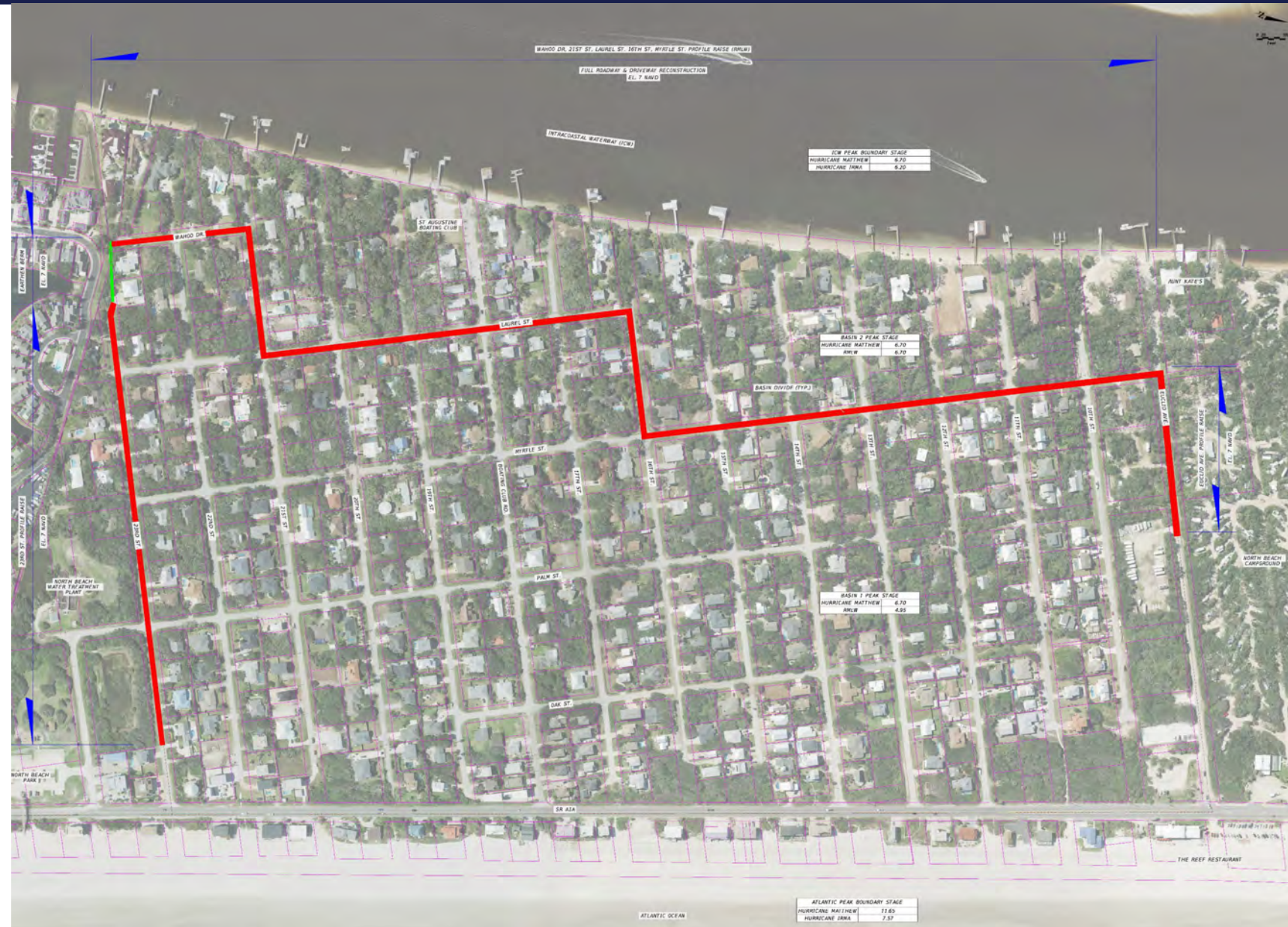


Advantages

- Within county ROW (Except Driveways and temporary construction easements)
- Minimized Intracoastal shoreline impact
- Stormwater pipes as opposed to open ditches

Disadvantages

- Permitting and water quality treatment
- Does not provide protection west of Myrtle street, Laurel street, and Wahoo drive
- Does not prevent erosion from ICW wave action
- 4+ years: Design, Permitting, Construction, & ROW



Full Length Bulkhead (FLB)



Advantages

- A constant wall elevation that will protect low-lying areas behind the bulkhead
- Erosion protection during wave action
- Low-lying areas immediately behind the bulkhead can be protected from nuisance tidal flooding

Disadvantages

- Requires cooperation between all property owners along the western shoreline of the study area
- Aesthetic loss of sandy shoreline and natural buffers
- Environmental permitting and aquatic species impacts
- 5+ years: Design, Permitting, Construction, & ROW



Next Steps

Tidal Flap Gates

- 10th street
- 17th street
- 19th street
- 21st street

- Activities
 - Inspect seals and flap gates
 - Replace seals or flap gate as necessary





Questions?