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THOMAS & HUTTON | **CHARLESTON COUNTY SOUTH CAROLINA** | **Municipal Association of South Carolina**

Charleston County Central Park Road

SC Association of Stormwater Managers
2nd Quarter Meeting
June 18, 2026

ONE TEAM



Hillary Aton, PE
Principal/Project Manager



Rick Karkowski, PE
Principal/Water Resources Manager



John Prorock, PE
Stormwater Project Manager



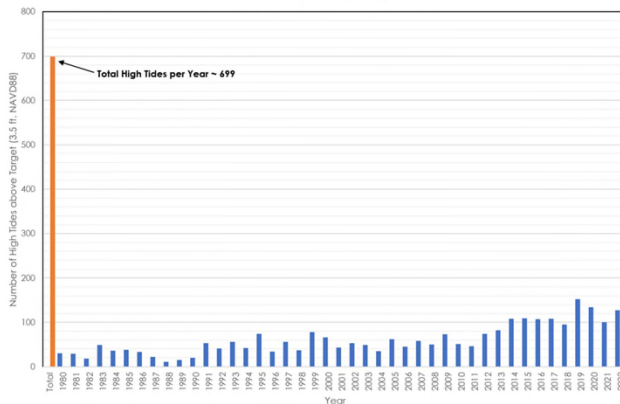
BACKGROUND/NEED

- Central Park Road experienced chronic flooding from tidal influence and stormwater runoff.
- The existing culvert system lacked capacity and allowed tidal backflow from James Island Creek.
- Roadway overtopping created unsafe travel conditions and unreliable emergency access.
- Flooding impacted nearby properties within the 470-acre watershed.
- Improvements were needed to increase drainage capacity, reduce tidal flooding, and strengthen long-term coastal resilience.

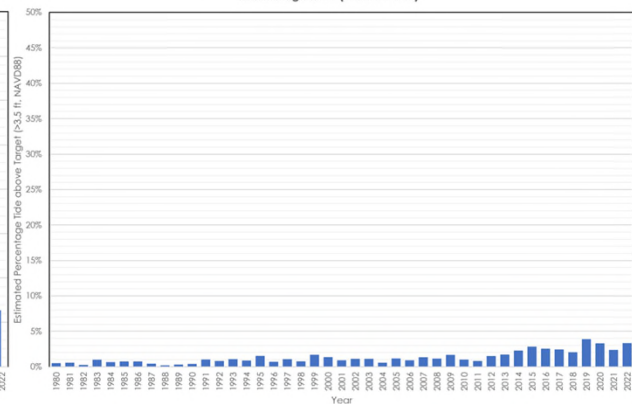


TIDES

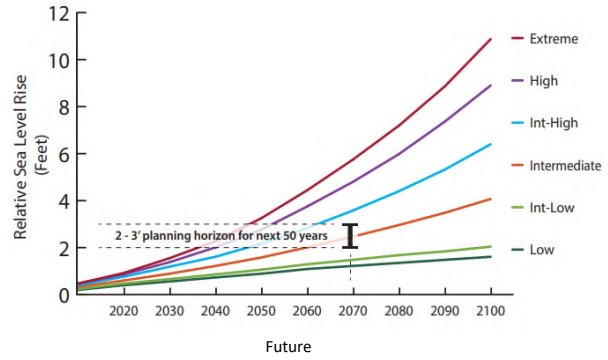
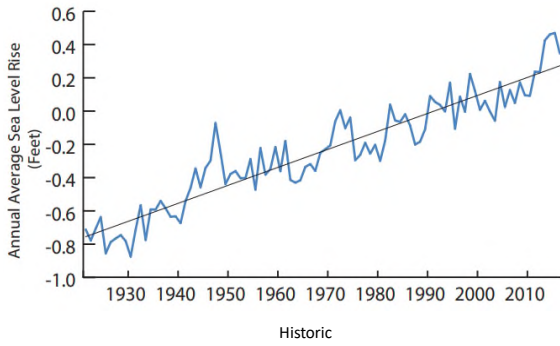
Charleston Harbor Tides
NOAA Charleston, SC - Station ID: 8465530
Annual High Tides (Count)



Charleston Harbor Tides
NOAA Charleston, SC - Station ID: 8465530
Annual High Tides (Percent Time)



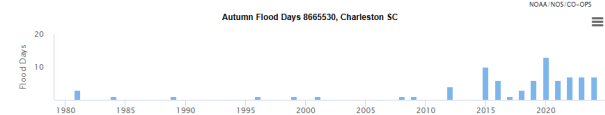
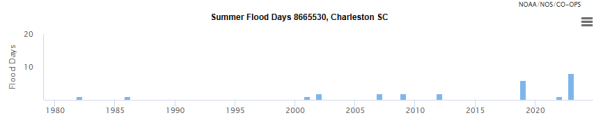
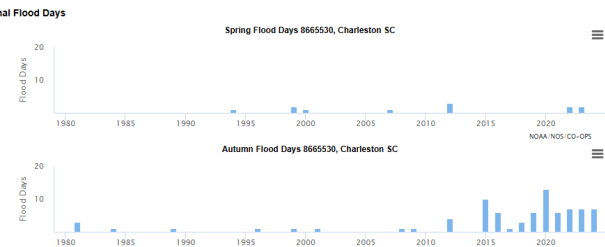
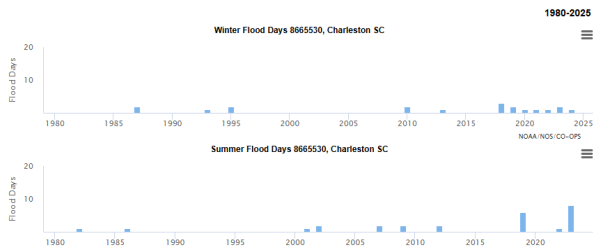
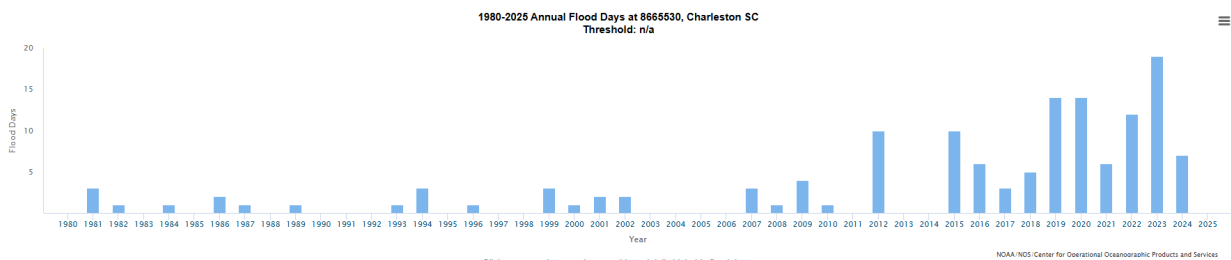
SEA LEVEL RISE (SLR)



Source: https://www.charleston-sc.gov/DocumentCenter/View/10089/12_21_15_Sea-Level-Strategy_v2_reduce?bidid=



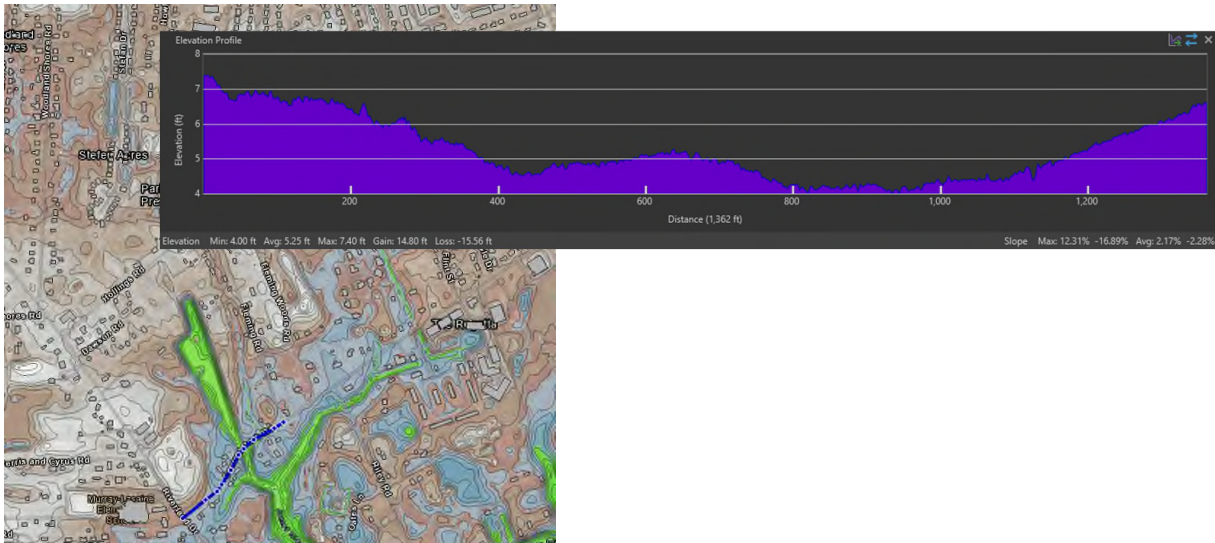
SUNNY DAY FLOODING



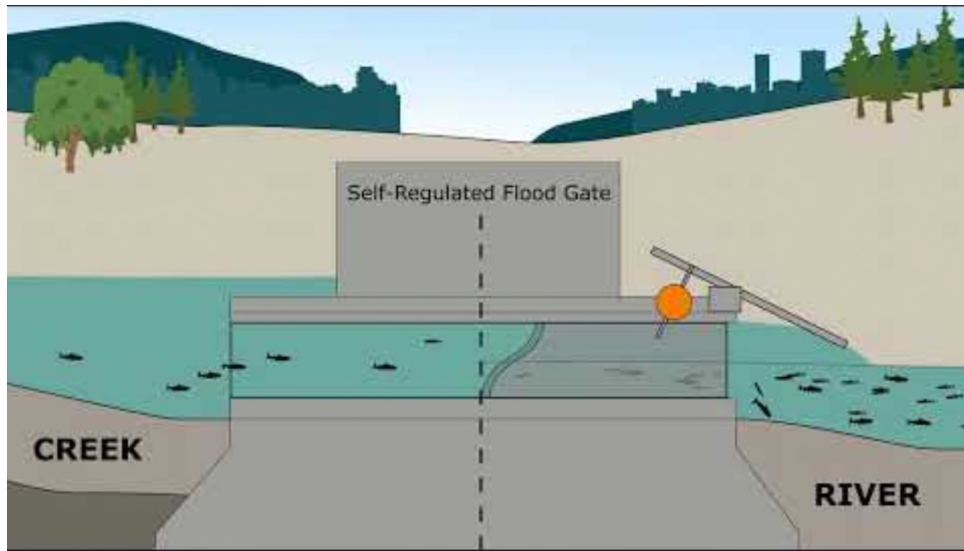
MODELING



MODELING



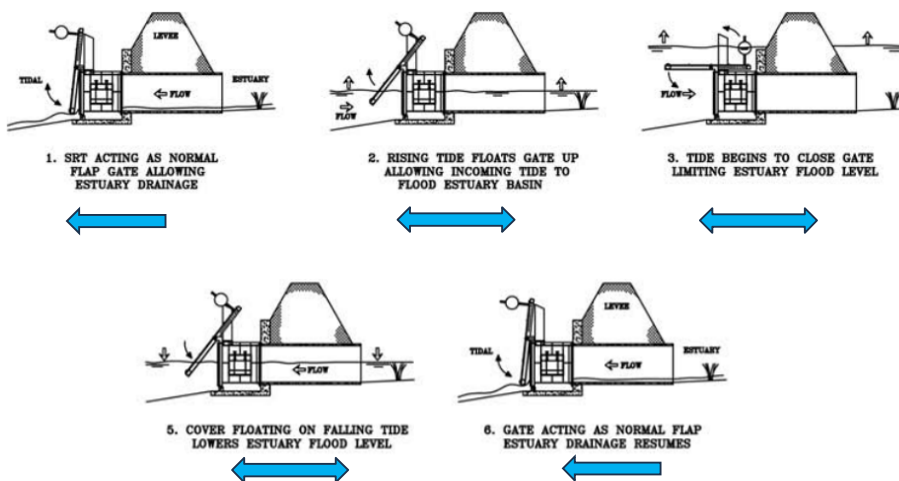
MUTED TIDE GATE



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MUTED TIDE GATE How Does it Work?

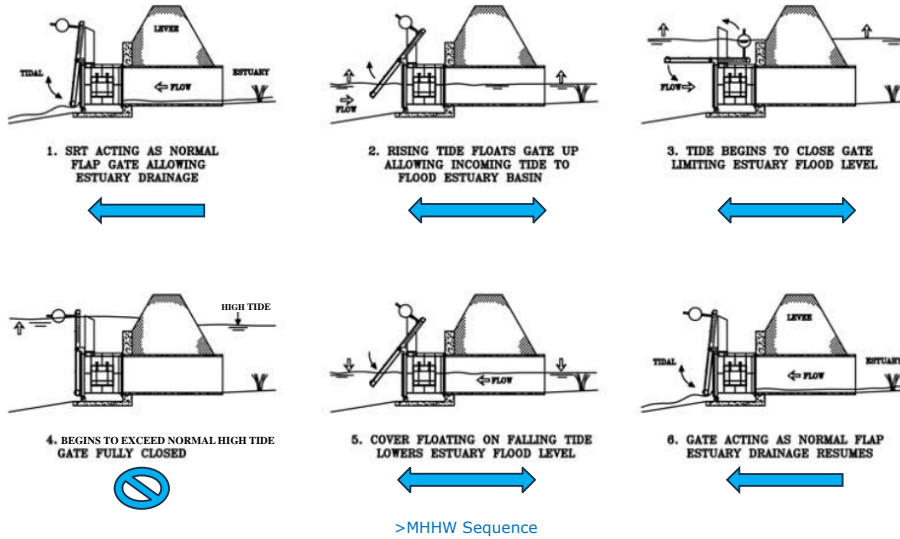


Normal Tide Sequence

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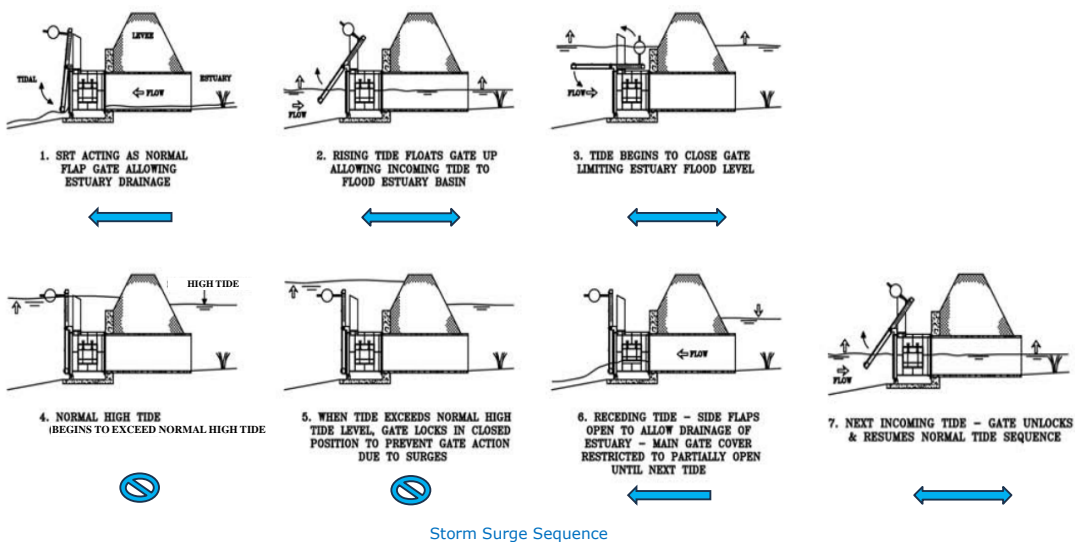
MUTED TIDE GATE How Does it Work?



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MUTED TIDE GATE How Does it Work?



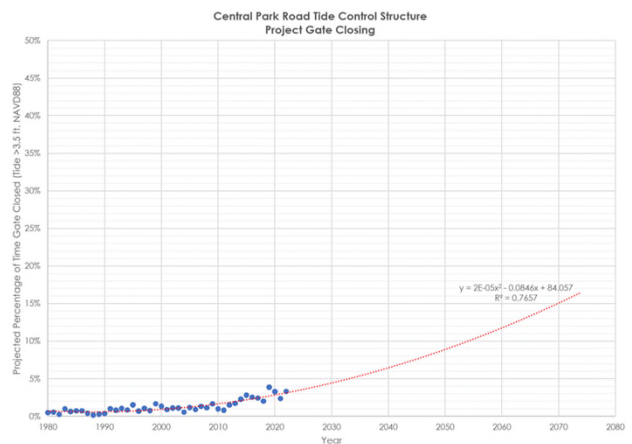
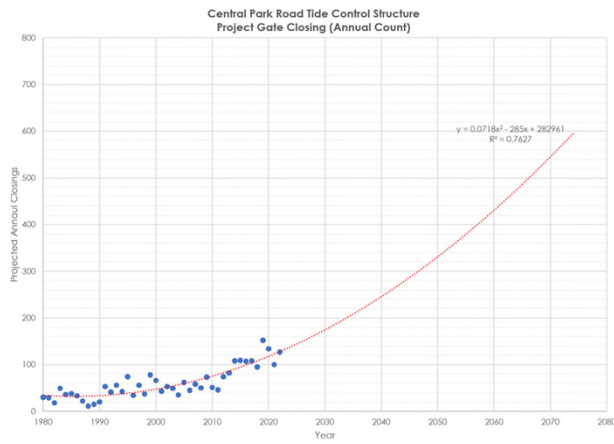
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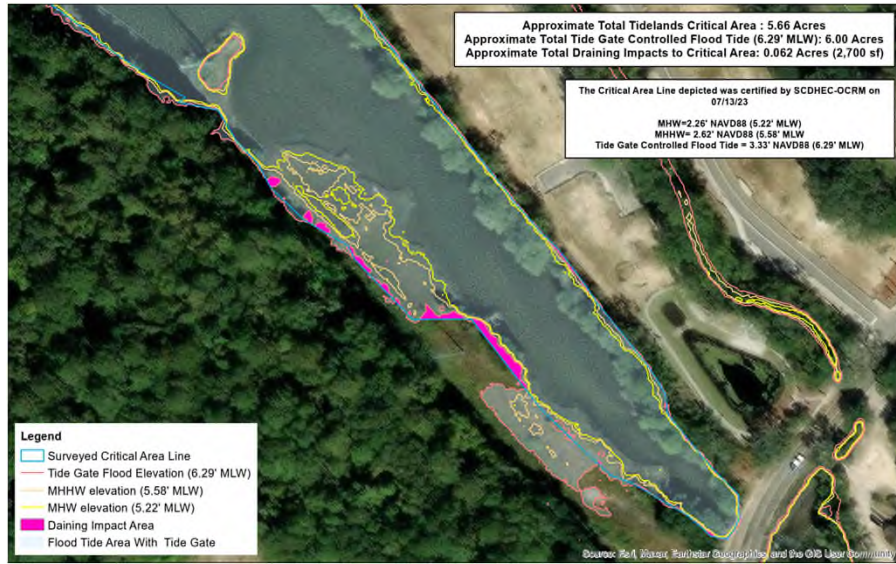
DESIGN



MUTED TIDE GATES



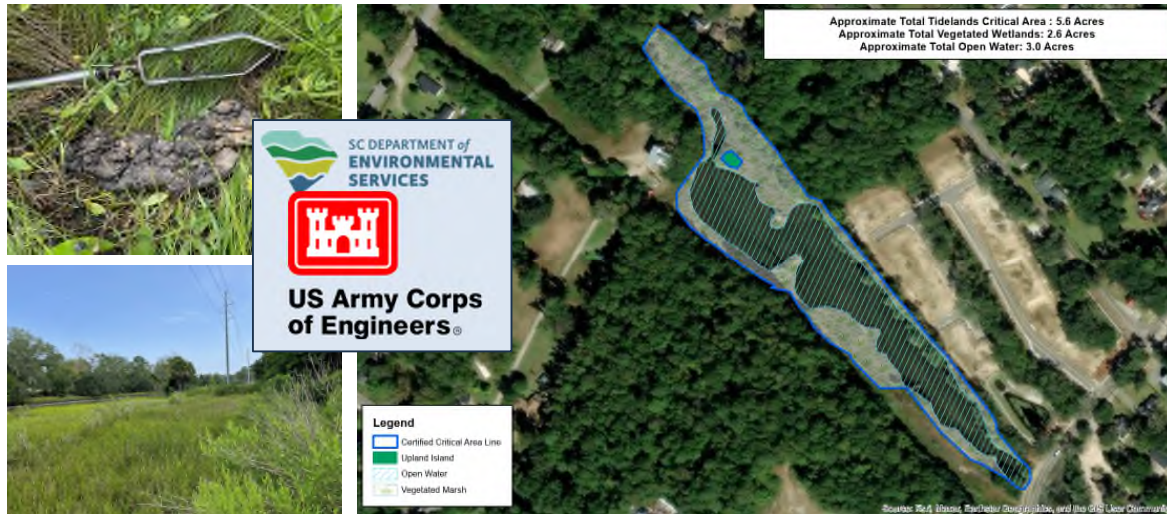
PERMITTING



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PERMITTING

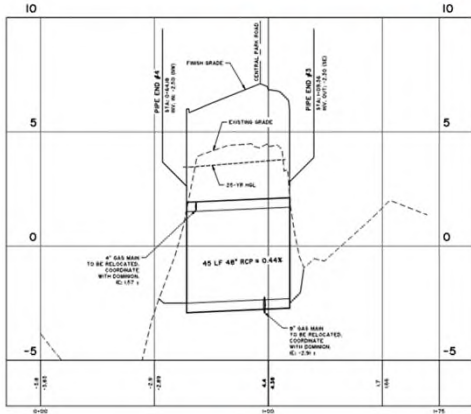


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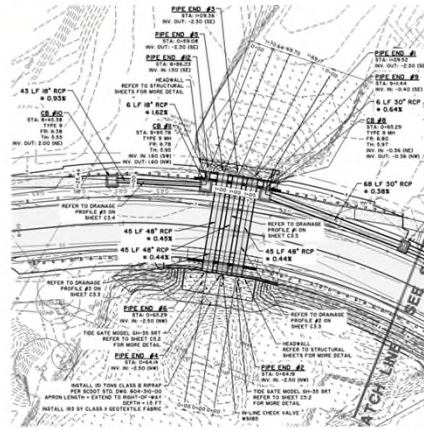
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DESIGN

Existing: 48-in RCP and 24-in RCP
Improved: Triple 48-in RCP w/ MTG and In-line Check-Valve

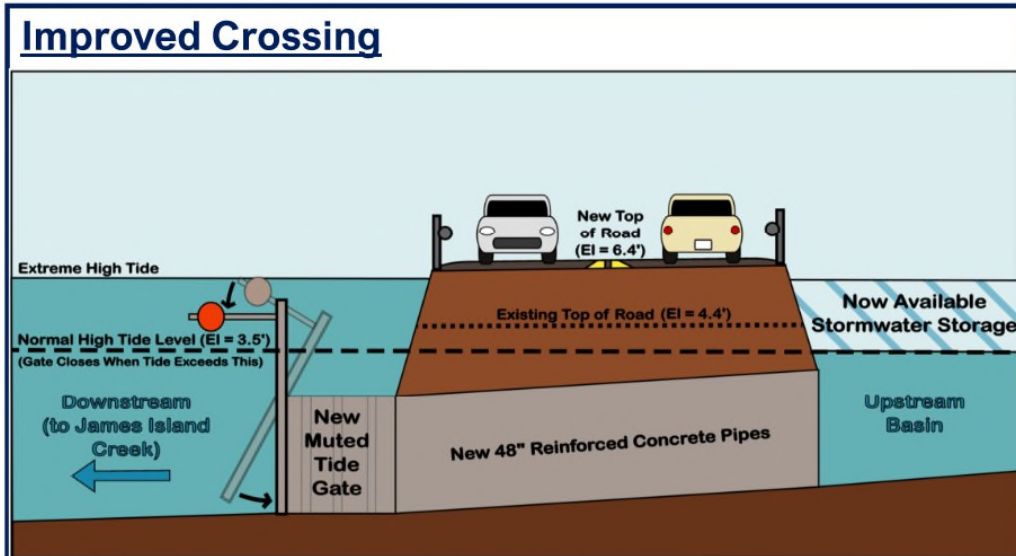


Section

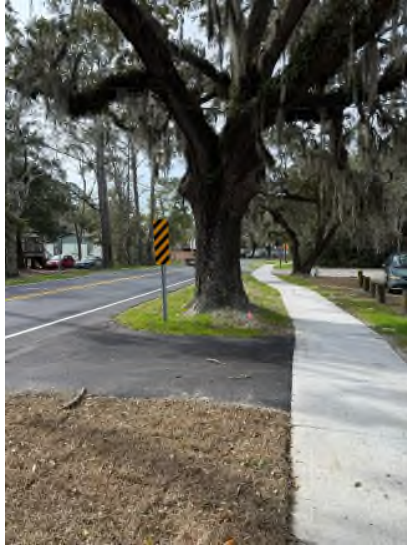
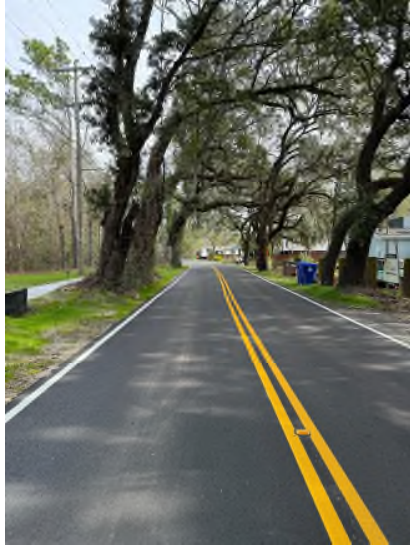


Plan

DESIGN



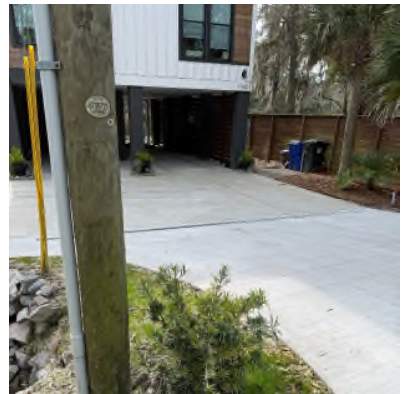
CHALLENGES



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CHALLENGES



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SAFETY IMPROVEMENTS

- Managed construction safety through controlled work zones, traffic control with full detour, and agency coordination.
- Temporary cofferdams and berms protected the work zone during king tide flooding.
- Elevated roadway and dedicated drainage system reduce tidal overtopping and standing water.
- Improvements enhance emergency access and long-term travel reliability.
- Added safety features include wider lanes, paved shoulders, guardrails, rumble strips, object markers, and 5-foot sidewalks.



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CONSTRUCTION

Before Construction:



SCIIP South Carolina Infrastructure Investment Program

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CONSTRUCTION



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BEFORE & AFTER



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BEFORE & AFTER



BEFORE



AFTER

Low Tide

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PROJECT SUMMARY

- Early and frequent public engagement and agency coordination.
- Design preserves habitat connectivity through controlled tidal exchange while improving flood protection.
 - Muted tide gates set a precedent for future local projects.
- Future upstream projects now possible.
- Post-construction monitoring includes water-level tracking and three years of drone-based marsh vegetation review.
 - County Field Operations is inspecting and maintaining long-term.
- Substantial completion: February 2, 2026, and Final Completion: March 16, 2026.
- Final Construction Cost: \$3.5M (SCIIP Grant Award of \$3.4M for project with local match).



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THANK YOU

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