

# STORMWATER MANAGEMENT

*Planning for Our Future*

&

*New Infrastructure Investment*

# STORMWATER MANAGEMENT APPROACH

- Forward Focused Comprehensive Planning
  - Address water conveyance and water quality issues in our community
  - Potential to strengthen our Community Rating System (CRS) Class
  - Contribute towards Hazard Mitigation Planning & Grant Opportunities
  - Two-Phase Project Development Standard (Plan/Design → Construct)
- Two-Stage Stormwater Utility Rate Study
- Needs-Based Project Implementation
  -  Short-Term (0 – 2 years)
  -  Mid-Term (3 – 5 years)
  -  Long-Term (6 – 10 years)

# WATERSHED-BASED STORMWATER MASTER PLAN



# OUR ROADMAP: WATERSHED-BASED STORMWATER MASTER PLAN

## Key Objectives of the Master Plan

*Our City has completed a significant amount of infrastructure projects in recent years and is ready to develop a roadmap for future proactive stormwater management, for both water quantity and quality.*

- Evaluate the conveyance capacity of our existing drainage infrastructure
- Develop a citywide water quality model
- Identify and prioritize capital projects
- Integrate relevant portions of CRS, NPDES, and EPA 319 programs/protocols into the master plan



# OUR ROADMAP: WATERSHED-BASED STORMWATER MASTER PLAN

## Pilot Study Area Approach

*To optimize the balance between cost and value the approach is to first select a pilot watershed to determine what is needed, what is wanted, and what can be afforded.*

- Identify the area
  - Mixture of open/closed drainage systems
  - Varying land use, development patterns, and infrastructure
- Develop standard operating procedures (SOPs) for completing watershed plans
  - Provides consistency throughout the citywide planning process
  - Creates the opportunity for key stakeholders to provide input into the planning process



# OUR ROADMAP: WATERSHED-BASED STORMWATER MASTER PLAN

## Pilot Study Area Approach

*The successful watershed plan will merge project specific goals and challenges, community input, and regulatory compliance.*

- Develop a Scalable Public Involvement Plan within the Pilot Study Area
  - Build awareness of the project and educational opportunities for stormwater management
  - Solicit feedback from residents and business owners in areas of flooding, erosion, or pollutant concerns
  - Host a series of public forums, stakeholder, and neighborhood meetings
- Modeling Solutions
  - Flood Hazard Mitigation Alternatives
  - Water Quality Retrofit Alternatives



# OUR ROADMAP: WATERSHED-BASED STORMWATER MASTER PLAN

*Preparing for future flood  
hazard mitigation and  
water quality retrofit  
alternative needs within  
our community.*

## Project Implementation Strategic Approach

- Establish a Stormwater Master Plan Project Account
  - Dedicated capital investment account that accrues over time
  - Provides available funds to launch a series of projects once the citywide watershed-based plan is complete
- Establish a Land Acquisition Bank Account
  - Dedicated capital investment account that accrues over time
  - Provides available funds to strategically acquire property in phases to advance projects forward

# CAPITAL IMPROVEMENT PROJECTS

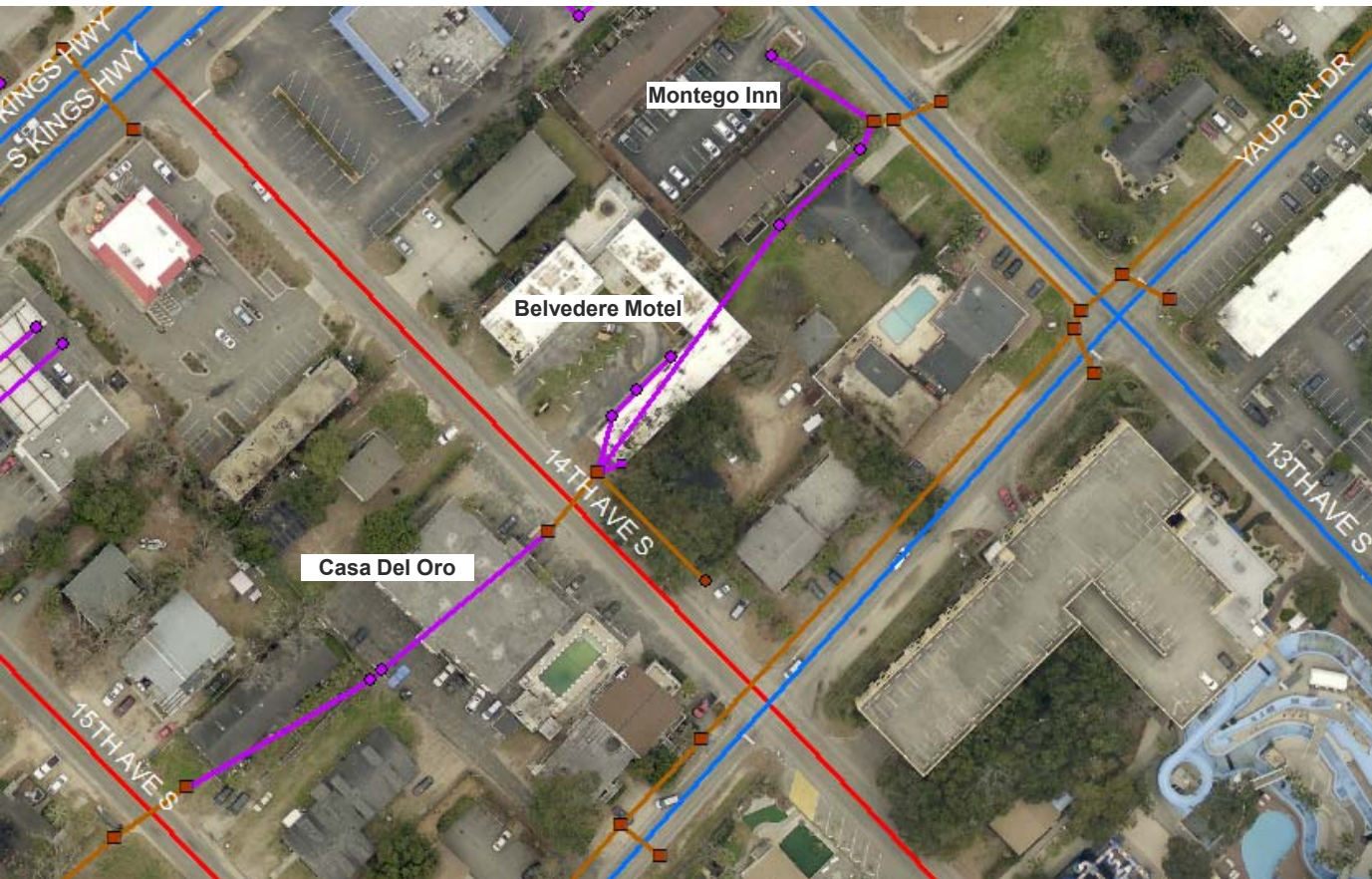
TWO-PHASE PROJECT DEVELOPMENT

ARRANGED BASED UPON CONSTRUCTION PHASING

RETROFIT ALTERNATIVES WITHIN WATERSHED-BASED STORMWATER MASTER PLAN



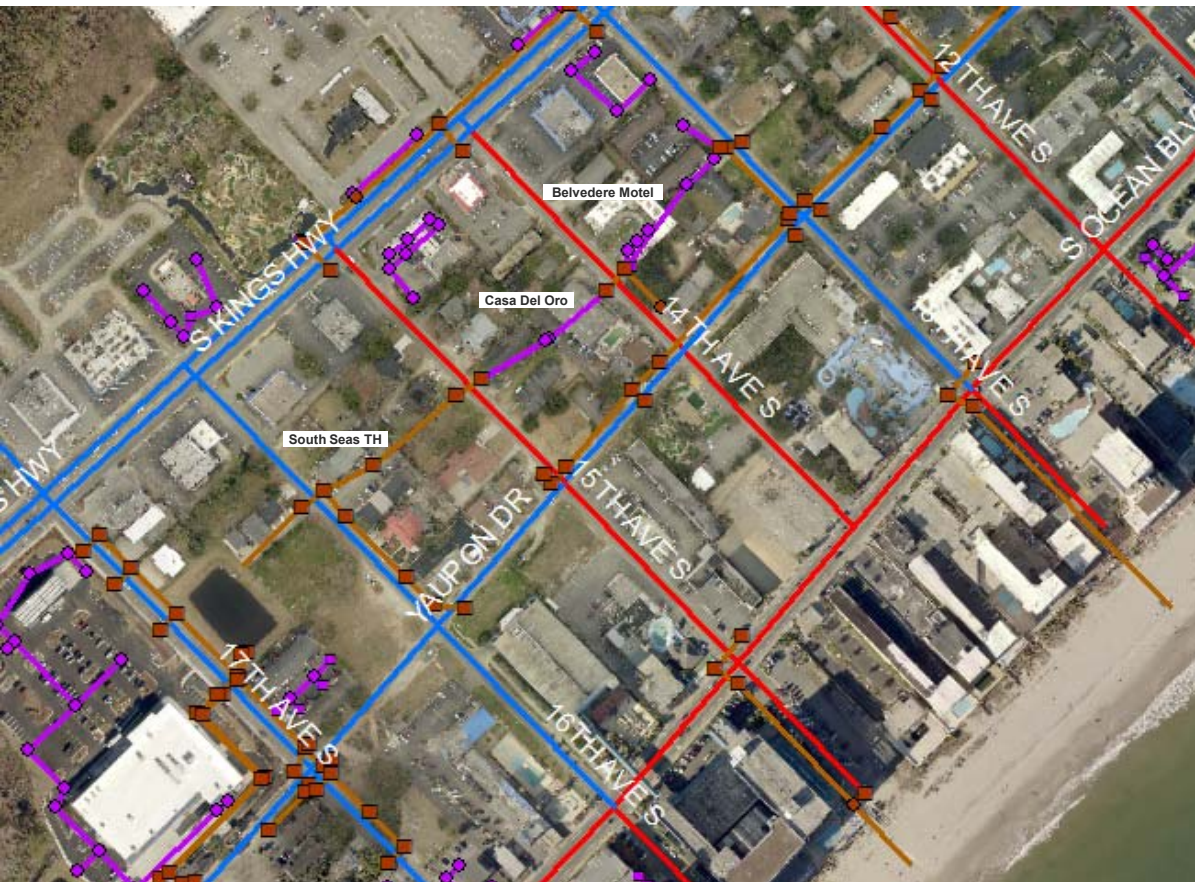
# EMERGENCY & MISCELLANEOUS DRAINAGE PROJECTS



## Dedicated Annual Funding

- Emergency Repairs
- Proactively Mitigate Utilities in Conflict with Structures
  - Case-by-Case Investigative Protocol
- Develop Public/Private Agreements
  - Collaborative Approach
  - Cost-Share Solution

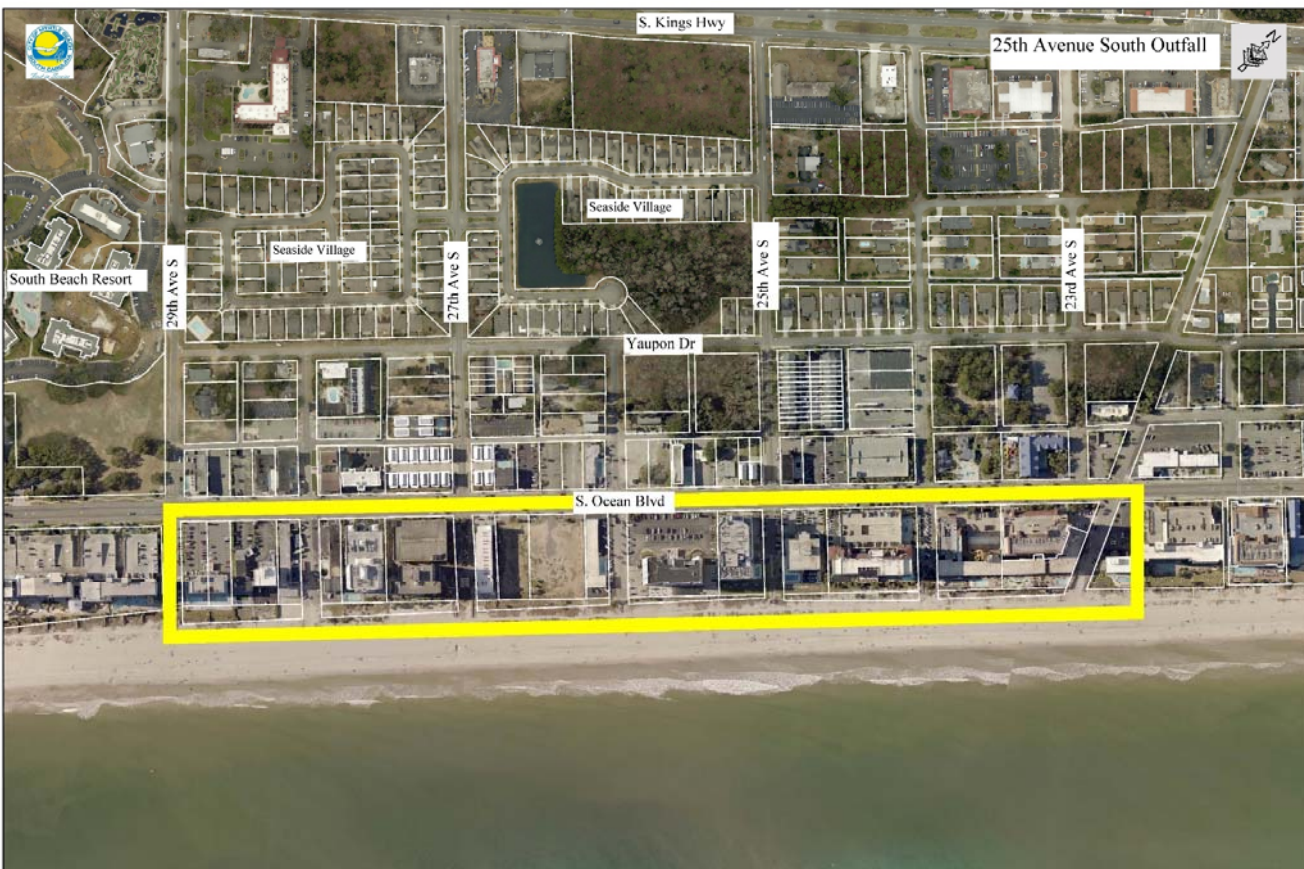
# YAUPON DRIVE – 17<sup>TH</sup> TO 14<sup>TH</sup> AVENUE SOUTH IMPROVEMENTS



- Short-Term Design Phase
- Phased Flood Hazard Mitigation Retrofit Alternative - Add storage capacity where there is currently none within a 4-block area
  - Enlarge drainage pipelines
  - Stormwater pond(s)
  - Infiltration system(s)
  - Redirect stormwater
- Attempt to mitigate utilities in conflict with structures

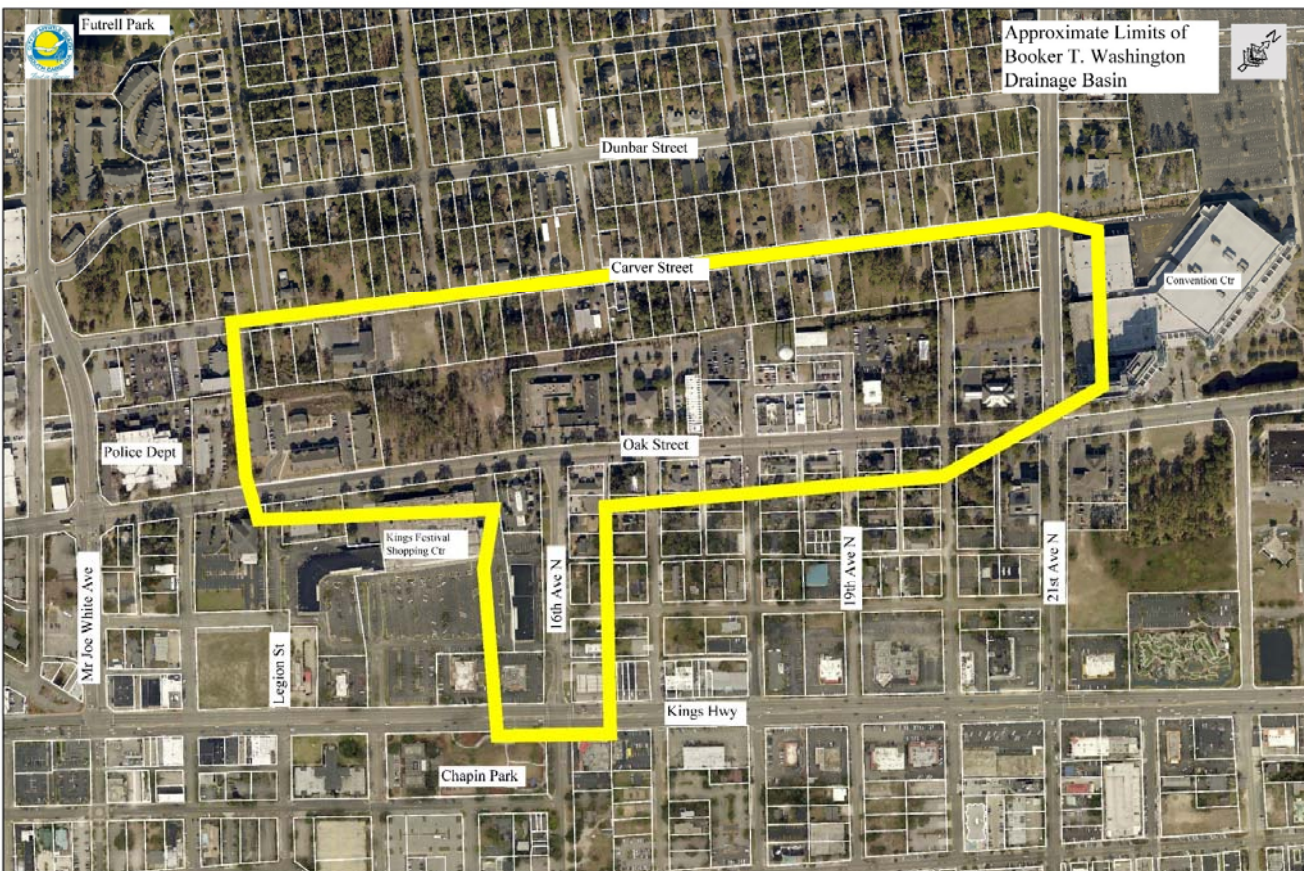


# 25<sup>TH</sup> AVENUE SOUTH OCEAN OUTFALL - HEADER PIPE



- Short-Term Design Phase
- Retrofit Alternative – Header pipe to connect to existing 25<sup>th</sup> Avenue South Ocean Outfall
- Feasibility of collecting up to 6 beach outfall pipes and redirecting street end drainage
- Continues our community's goal of enhancing water quality and removing stormwater pipes from the beachfront

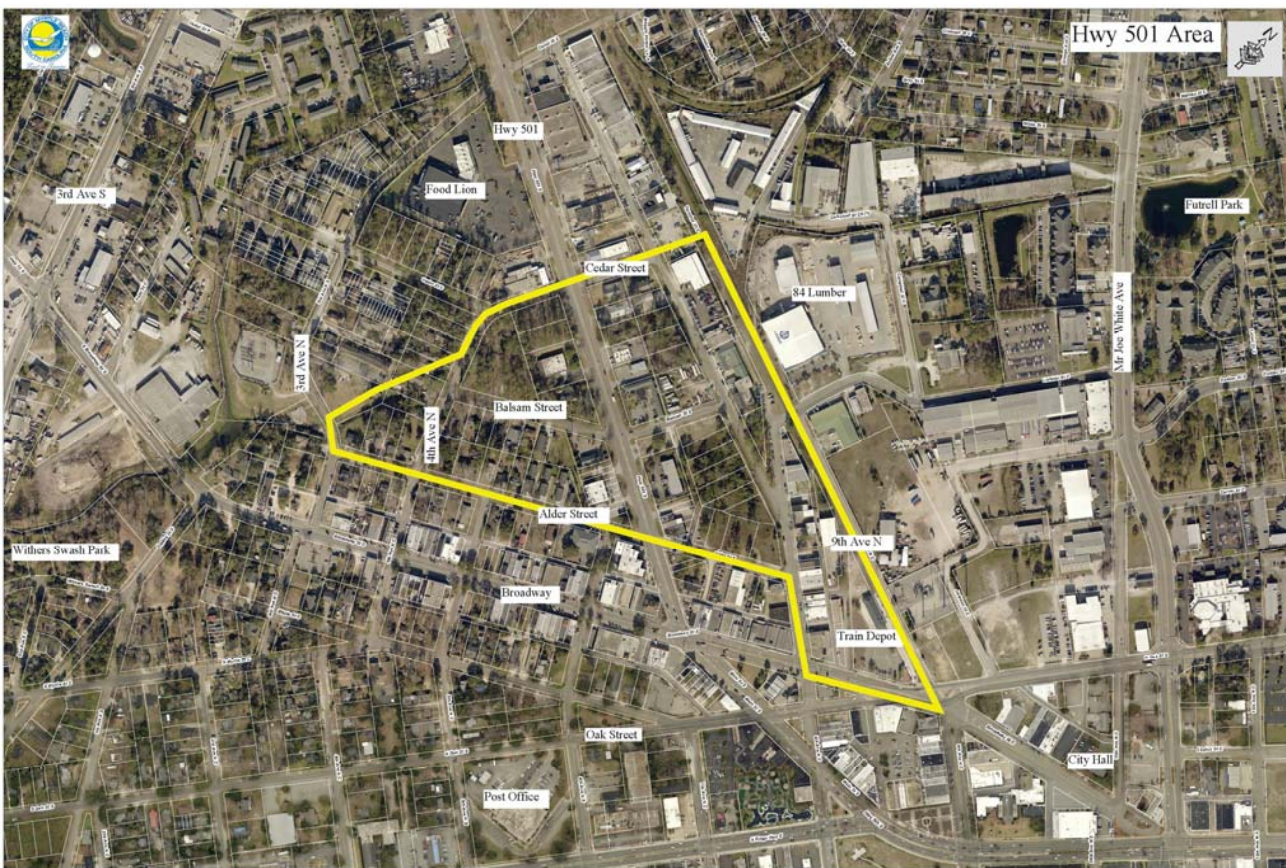
# BOOKER T. WASHINGTON NEIGHBORHOOD – OAK STREET AREA IMPROVEMENTS



- Short-Term Design Phase
- Flood Hazard Mitigation Retrofit Alternative – Redirect stormwater to 16<sup>th</sup> Avenue North
- Conveyance through the existing 14<sup>th</sup> Avenue North Ocean Outfall drainage system



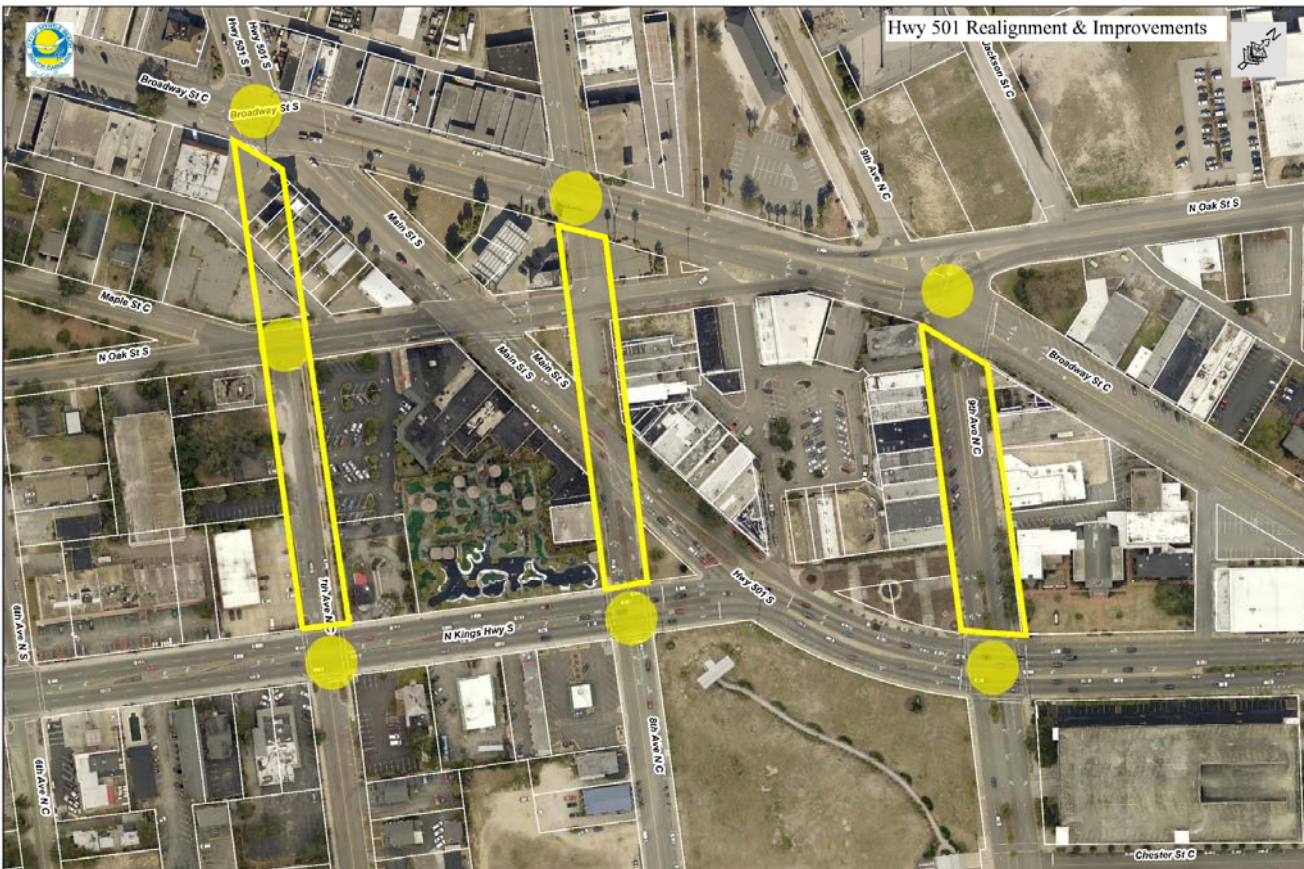
# HWY 501 & BALSAM STREET AREA IMPROVEMENTS



- Short-Term Design Phase
- Flood Hazard Mitigation Retrofit Alternative - Add storage capacity where there is currently none to benefit flood loss properties and our Hurricane evacuation corridor (Hwy 501)
  - Enlarge/Add drainage pipelines
  - Stormwater pond(s)
- Hazard Mitigation Grant Program (HMGP) Application
  - Under Review by SCEMD
  - 75 Federal / 25 Applicant Cost Share
  - Collaboration with SCDOT



# DOWNTOWN AREA: 6<sup>TH</sup> TO 10<sup>TH</sup> AVENUE NORTH – BROADWAY TO KINGS HIGHWAY



- Mid-Term Design Phase
- RIDE III – Realignment of Hwy 501 connection with 7<sup>th</sup> Avenue N
- Multiple roadway and intersection improvements programmed into the 2040 Metropolitan Transportation Plan (MTP) in the Downtown Area
- Design and Construction in accordance with GSATS schedule
- Proactively programmed funds for any future utility relocation needs



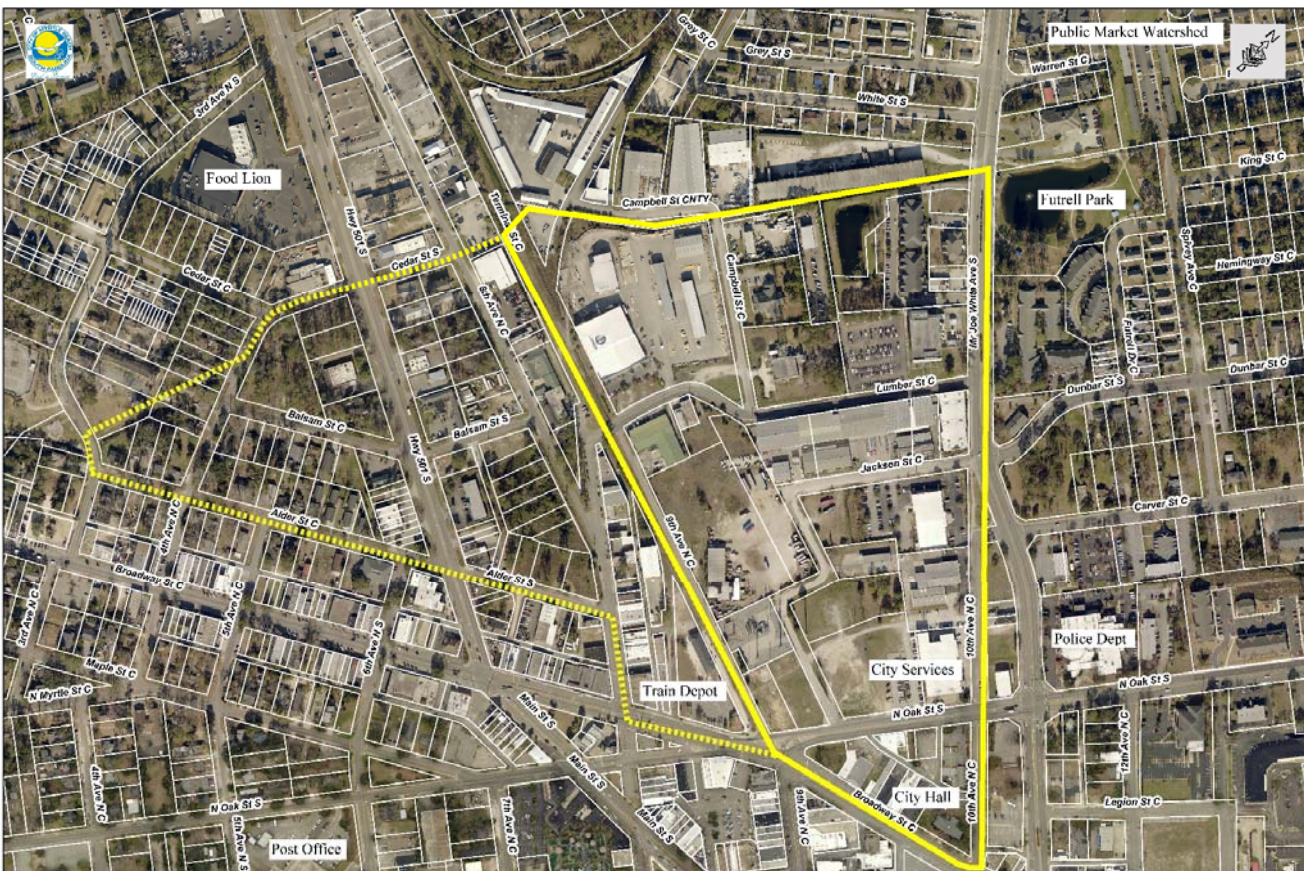
# SEABOARD STREET AREA IMPROVEMENTS



- Short-Term Design Phase
- Retrofit Alternative(s) – Investigate the industrialized area that has limited stormwater management
  - Stormwater pond(s)
  - Open channel improvements
  - Redirect stormwater
- Provides a regional plan ahead of future GSATS project to widen Seaboard Street



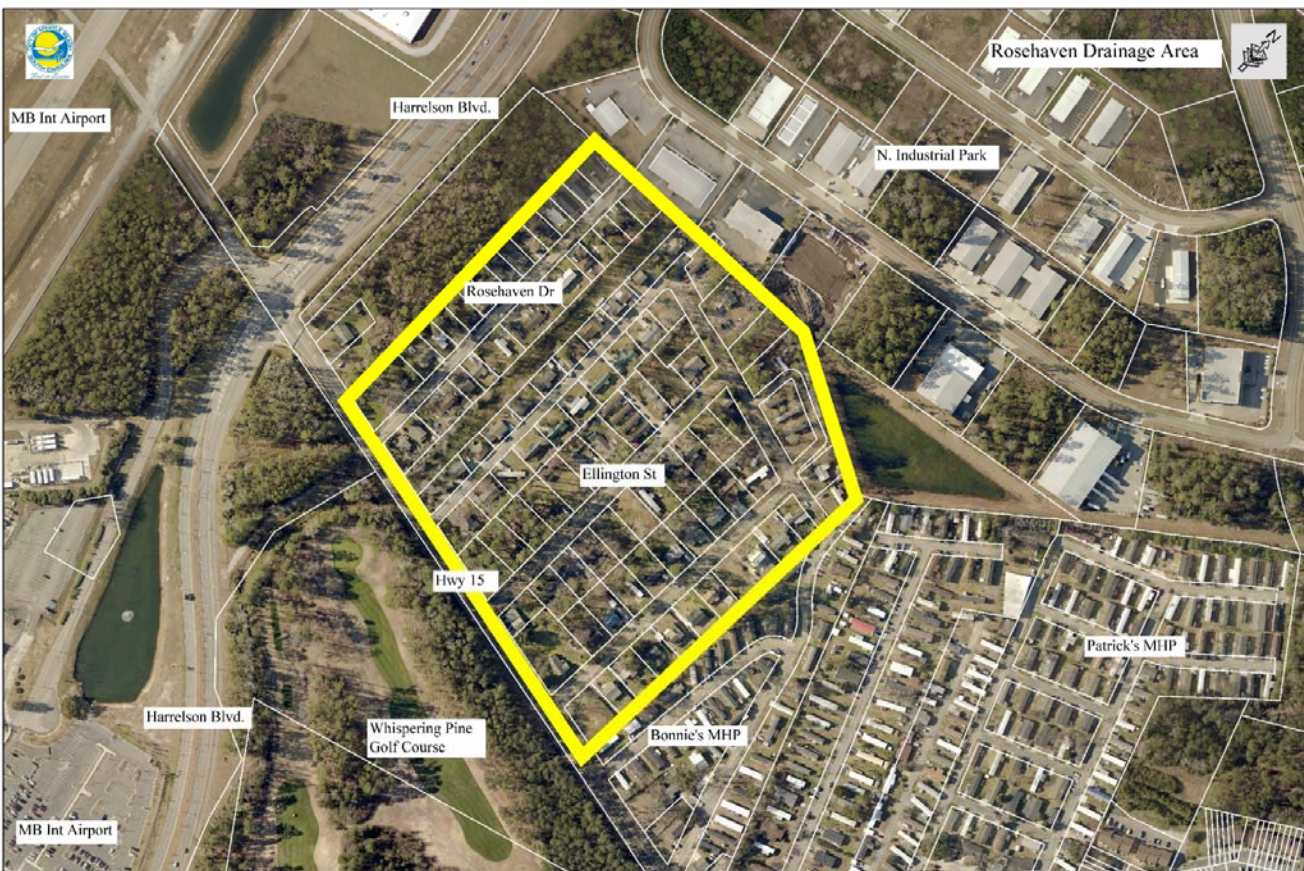
# DOWNTOWN AREA – REGIONAL STORMWATER POND



- Long-Term Design Phase
- Retrofit Alternative(s) – Add storage capacity
  - Stormwater pond(s)
  - Redirect stormwater
- Opportunity for Public/Private Partnership with redevelopment
- Combination of downstream stormwater management improvements with Hwy 501 & Balsam Street project will benefit upstream areas



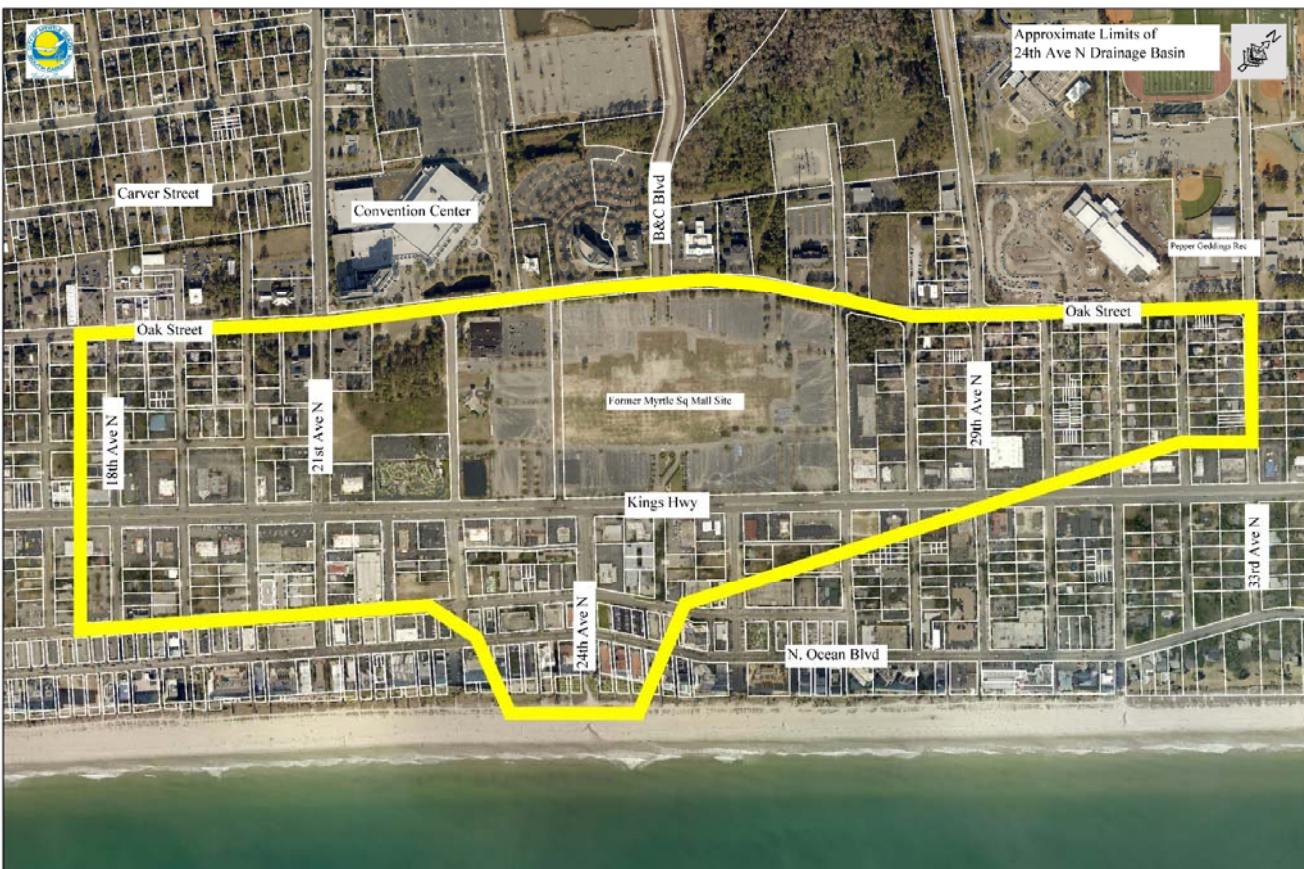
# ROSEHAVEN DRIVE AREA IMPROVEMENTS



- Long-Term Design Phase
- Retrofit Alternative(s) – Add storage capacity and new stormwater infrastructure to mitigate back lot flooding issues
  - Stormwater pond(s)
  - Open/Closed system improvements



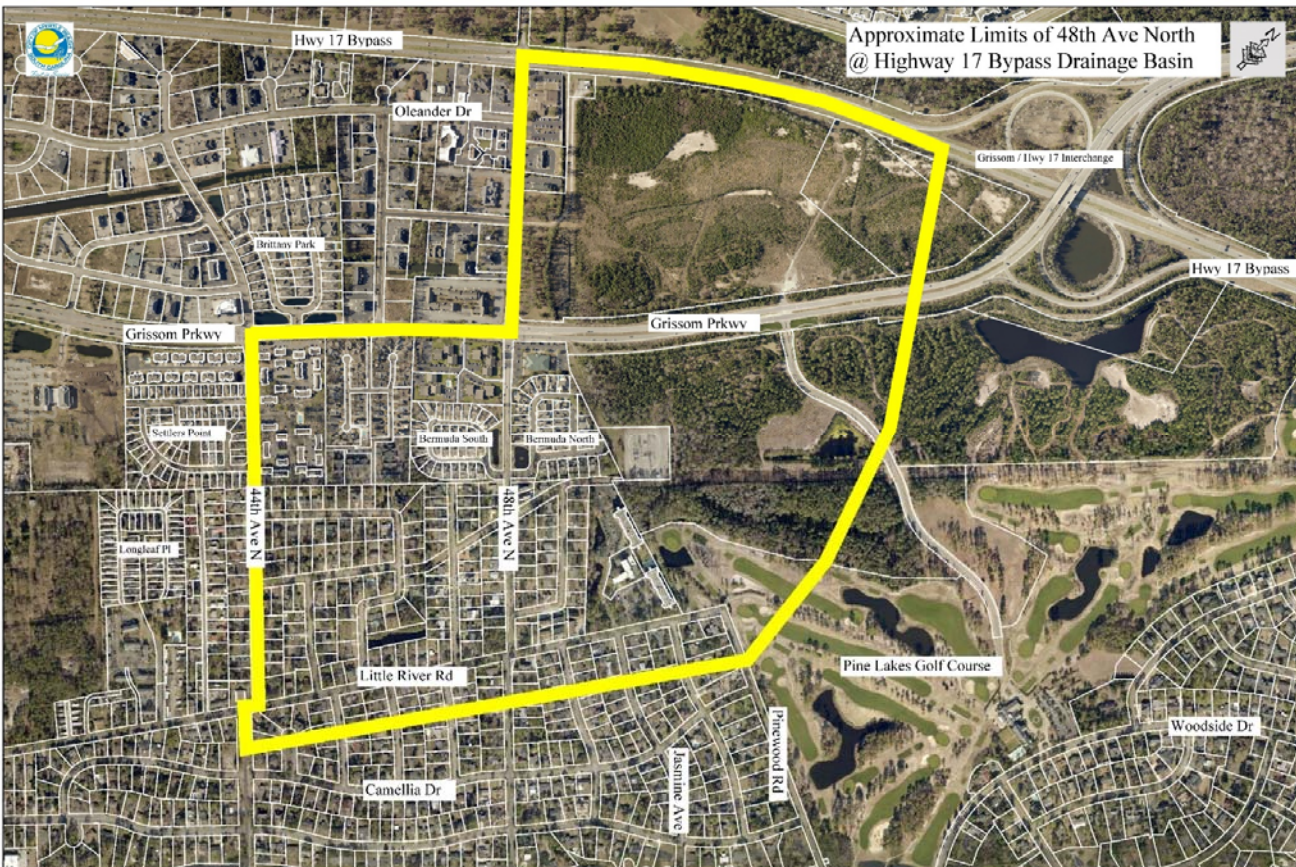
# 24<sup>TH</sup> AVENUE NORTH - OCEAN OUTFALL & LANDWARD IMPROVEMENTS



- Long-Term Design Phase
- Retrofit Alternative – Landward Improvements and Ocean Outfall
- Feasibility of collecting up to 11 beach outfall pipes and redirecting stormwater from the Myrtle Square Mall pond
- Continues our community's goal of enhancing water quality and removing stormwater pipes from the beachfront



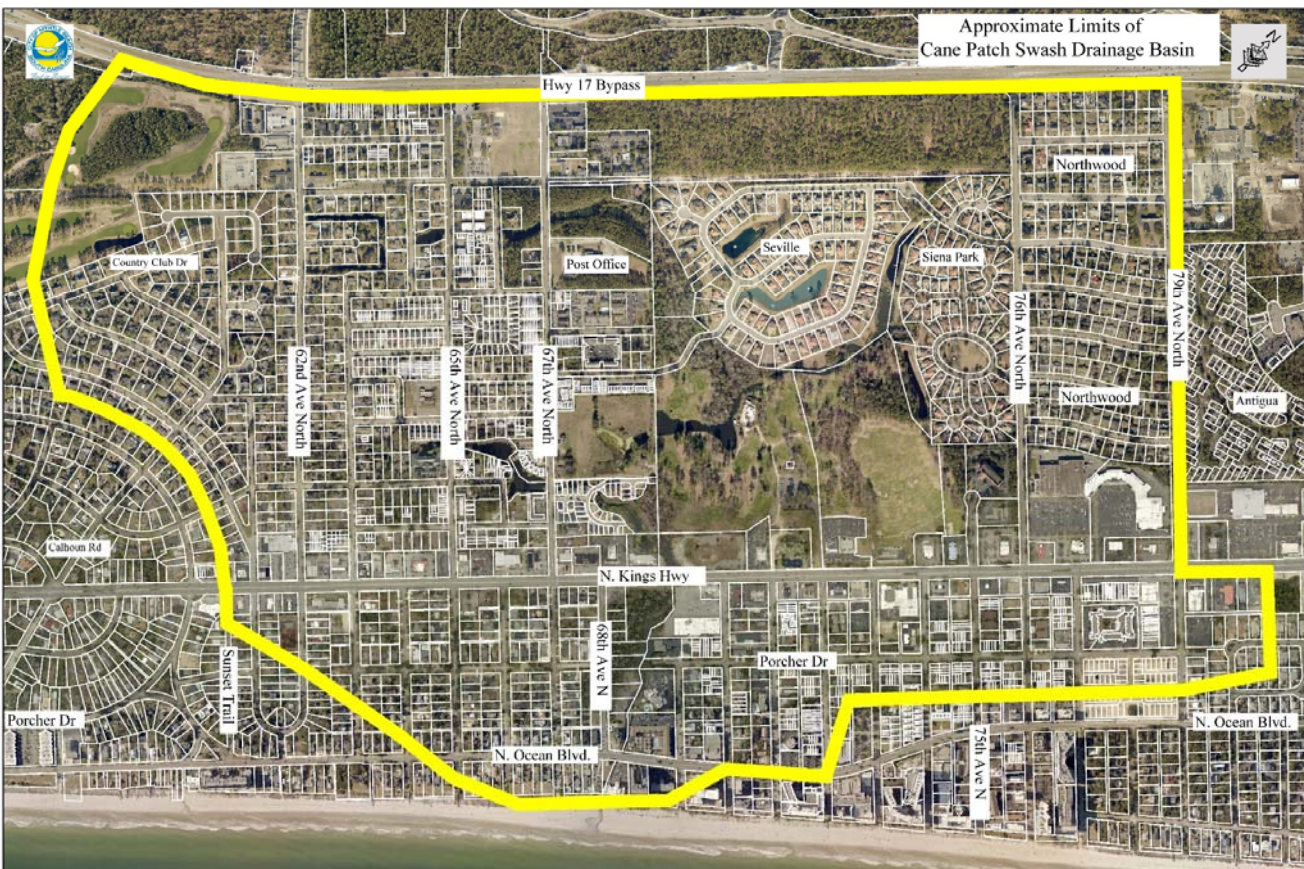
# DRAINAGE CHANNEL IMPROVEMENTS – 48<sup>TH</sup> AVENUE NORTH TO 17 BYPASS AREA



- Long-Term Design Phase
- Retrofit Alternative(s) – Add storage capacity
  - Stormwater pond(s)
  - Open channel improvements
- Opportunity for Public/Private Partnership with redevelopment
- Downstream stormwater management improvements will benefit upstream areas



# CANE PATCH SWASH – OCEAN OUTFALL



- Long-Term Design Phase
- Retrofit Alternative – Landward Improvements and Ocean Outfall
- Feasibility of adding upstream storage capacity
- Existing outfall constricted due to existing development – feasibility of redirecting stormwater outfall location
- Continues our community's goal of enhancing water quality and removing stormwater pipes from the beachfront



THANK  
YOU

