City of Delray Beach

Department of Public Works

Stormwater Management Program

Program Description

The City of Delray Beach encompasses approximately 16.5 square miles with 23 miles shoreline and approximately 70,000 residents. Delray Beach experiences seasonal King Tides, sea level rise, tropical storms, and hurricanes. The stormwater division is responsible for maintaining the City-owned stormwater and drainage facilities, pump stations, canals, and roadways.

The division's overall $4M annual budget is solely funded through a stormwater utility fee collected annually through the Palm Beach County Property Non-Ad Valorem Tax Assessments. The City currently charges $5.33 per equivalent resident unit (ERU) per month.

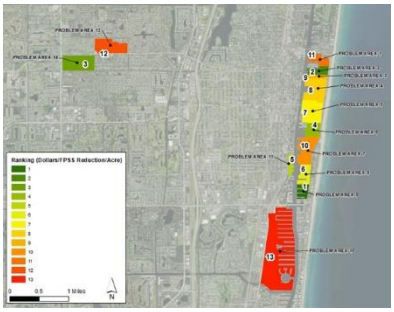
The Stormwater Management Program consists of

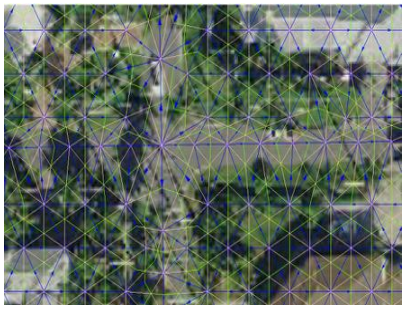
- Stormwater Master Plan: strategic planning document for 30-year stormwater capital improvement projects
- NPDES compliance and water quality monitoring programs (Lake Ida) to reduce pollutants and improve water quality
- City-Wide intracoastal infrastructure vulnerability analysis
- Seawall ordinance to establish construction standards for both private and public seawalls to mitigate the effects of tidal flooding and sea level rise

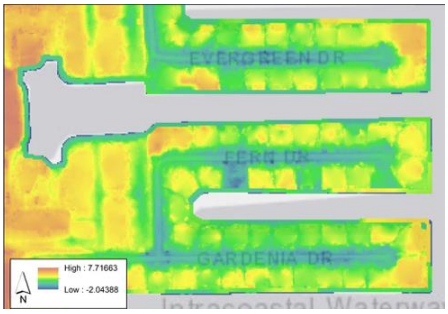
- Street Sweeping Program
- Stormwater complaint GIS tracker to log and track citizens' flooding complaints
- King Tide response program to implement short term measures to combat seasonal high tides events
- Public outreach program to provide climate change education to general public
- Stormwater capital improvement projects

Stormwater Master Plan

The plan was originally created in 1993 and is updated every five years. The last update was completed in 2018. This plan uses modelling of watershed basins and integrated sea level rise projections to identify problem areas and prioritize capital improvement projects for the next 30 years to address water resource issues, including drainage problems, street flooding, tidal flooding, inadequate infrastructure, stormwater quality and recharge. A total of 14 problem areas have been identified and a total of $378M in construction projects are recommended for 30-year capital improvement program planning.





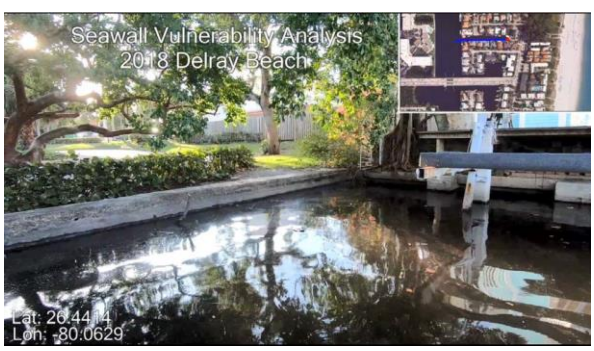


NPDES Compliance and Water Quality Monitoring Program

Stormwater division is responsible for administering programs related to the National Pollution Discharge Elimination System (NPDES) permit, such as maintaining the stormwater atlas, maintaining the stormwater management system inventory database. An annual report is submitted in compliance with permit requirements. A water quality monitoring plan is currently ongoing for Lake Ida to conduct quarterly targeted water quality monitoring at seven locations to better understand the lake water quality seasonal and spatial processes.

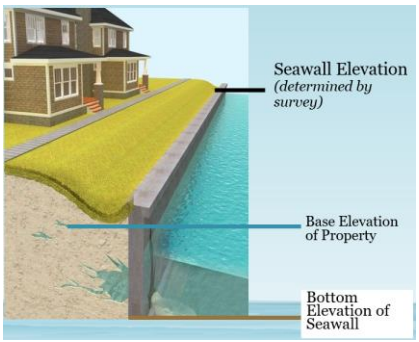
City-Wide Intracoastal Infrastructure Vulnerability Analysis

In 2018, a city-wide Intracoastal Waterway level & infrastructure vulnerability study was completed. The analysis showed 85% of waterfront parcels are vulnerable and require seawall raisings and 58 public stormwater inlets are vulnerable and require a backflow prevention device. New initiatives have been taken to install WaStop^{TM} in-line check valves in outfalls to reduce tidally influenced flooding. Public seawalls and outfalls are inspected on a regular basis.



Seawall Ordinance

A new seawall ordinance was adopted February 1, 2022 to set uniform construction and maintenance standards for both private and public seawalls. The ordinance is intended to prevent flooding due to King Tides and storm surges as well as projected sea level rise over the next 20 years, the minimum seawall elevation will be regulated and enforced in the seawall ordinance.

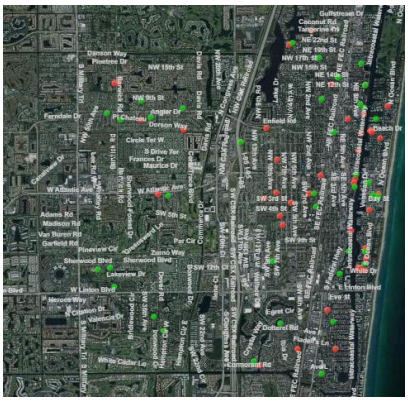


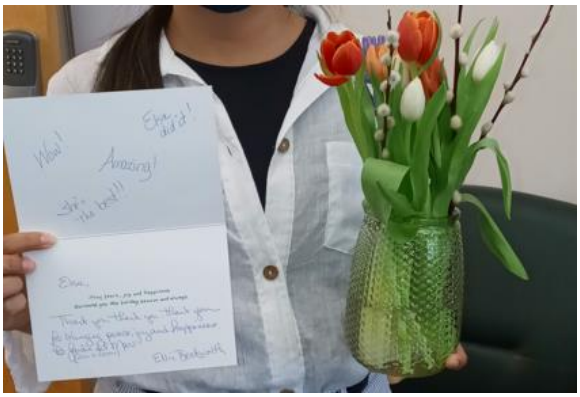
Street Sweeping Program

The City conducted 227 days last year of street sweeping to remove trash and debris before they travel into City's drainage system. In the past year City swept over 6,412.5 miles, removed 922 cubic yards of sediment and debris, 702 lbs. of total phosphors and 1289 lbs. of total nitrogen.

Stormwater Complaint Log and GIS Tracker

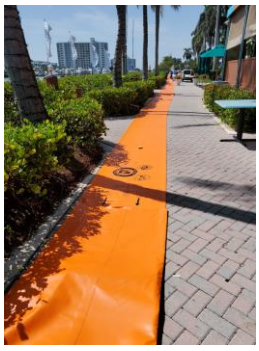
The City has a designated stormwater project manager to log and address citizens' complaints about flooding, drainage issues, seawall deficiency and other concerns. All complaints are logged in Excel and tracked in GIS. Site visits and necessary repairs/mitigation projects are completed accordingly. In the past two years, 46 complaints were resolved and there are still 49 complaints ongoing. City citizens have showed their gratitude for our top-notch customer service.





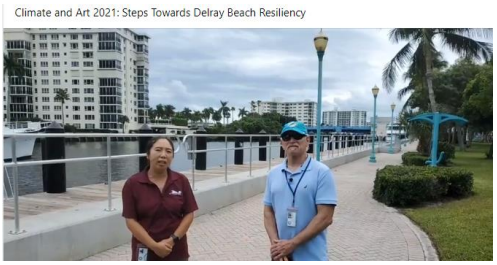
King Tide Response Program

The City has a King Tide response team to implement short-term solutions for extreme tide events, such as placing Tiger Dam tubes along Marine Way Historic District where the seawall is low and the replacement is currently under design in the CIP program placing street flooding/damage signs in areas prone to flooding, and issuing flooding alerts on social media. Tiger Dam™ system consists of elongated flexible tubes which can be quickly stacked, jointed end to end and filled with water. It is a cost-saving short-term solution for tidal flooding because 1 tube can replace 550 sandbags and it is faster and easier to build up, remove and store for future uses.



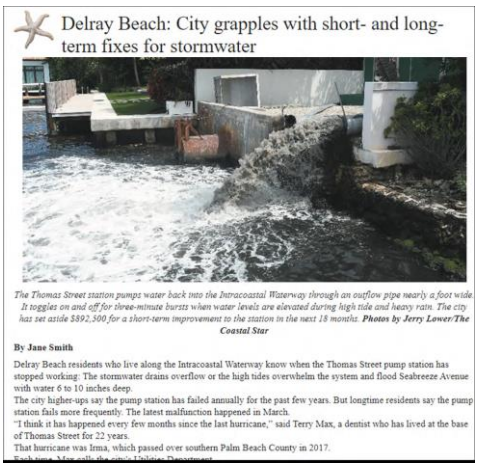
Public Outreach Program

City hosts annual Climate and Art event, which allows for many interpretations within the context of climate change. Presentations and live walking tours are offered to public to discuss about tree planting initiative and stormwater projects, designed to mitigate climate change effects including extreme heat and heavier rainfall events. City also sends out flyers of citizen reporting of illegal dumping and illicit discharges, stormwater pollution, stormwater and construction, pesticides/herbicides and fertilizers.



Stormwater Capital Improvement Projects

Capital improvement projects are mitigation efforts to stop the cycle of "Damage-Repair-Damage". Currently, there are three large stormwater-related projects planned in the City. Thomas Street Pump Station Improvement Project (Construction Cost $7M) will replace a 50-year-old 18,000 GPM (gallon per minute) with a 85,000 GPM for increased protection of the 100-year 3-day storm and 30-year projected sea level rise design standards. This project will benefit more than 800 residents and improve water flow in a 50-acre drainage basin. Marine Way Roadway and Stormwater Improvement (Construction Cost $13M) will reconstruct roadway, seawalls, and stormwater system along Marine Way Historic District. A new pump station will be installed to convert the current gravity drainage system to pump system. Roadway will be reconstructed new with curb and gutters. New seawalls will be installed along intracoastal waterway with higher cap. This project will benefit more than 8,000 people (residents, businesses, and visitors) and will provide 50-year projected sea level rise protection.


Delray Beach: City grapples with short- and long-term fixes for stormwater

The Thomas Street station pumps water back into the Intracoastal Waterway through an outflow pipe nearly a foot wide. It toggles on and off for three-minute bursts when water levels are elevated during high tide and heavy rain. The city has set aside $892,300 for a short-term improvement to the station in the next 18 months. ***Photos by Jerry Lower/The Coastal Star***

By Jane Smith

Delray Beach residents who live along the Intracoastal Waterway know when the Thomas Street pump station has stopped working: The stormwater drains overflow or the high tides overwhelm the system and flood Seabreeze Avenue with water 6 to 10 inches deep.

The city higher-ups say the pump station has failed annually for the past few years. But longtime residents say the pump station fails more frequently: The latest malfunction happened in March.

"I think it has happened every few months since the last hurricane," said Terry Max, a dentist who has lived at the base of Thomas Street for 22 years.

That hurricane was Irma, which passed over southern Palm Beach County in 2017.