DRAFT

MEETING MINUTES
CITY OF FORT LAUDERDALE
INFRASTRUCTURE TASK FORCE ADVISORY COMMITTEE
MONDAY, APRIL 3, 2023 – 2:00 P.M. TO 5:00 P.M.

January-December 2023		Attendance	
Marilyn Mammano, Chair	P	3	0
Peter Partington, Vice Chair	P	3	0
Gerald Angeli	A	2	1
Shane Grabski	P	1	1
James LaBrie	P	3	0
Michael Lambrechts	P	3	0
Michael Marshall	A	2	1
Roosevelt Walters	P	3	0
Ralph Zeltman	P	3	0

As of this date, there are 9 appointed members to the Committee, which means 5 would constitute a quorum.

Staff
Alan Dodd, Director of Public Works
Chris Bennett, Assistant Director of Public Works – Strategic Support
Omar Castellon, Assistant Director of Public Works – Engineering
Dr. Nancy Gassman, Assistant Director of Public Works – Sustainability
Matthew Cobb, Assistant Risk Manager
Vickie Beauvais, Senior Administrative Assistant
Jill Prizlee, Chief Engineer
Karen Warfel, Transportation Planning Manager
Susan Grant, Assistant City Manager/Finance Director
Anthony Fajardo, Assistant City Manager
Jamie Opperlee, Recording Secretary, Prototype, Inc.

Communication to the City Commission

None.

1. Call to Order

i. Roll Call

Chair Mammano called the meeting to order at 2:03 p.m. Roll was called and it was noted a quorum was present.

ii. Approval of Agenda

Motion made by Mr. Walters, seconded by Mr. Zeltman, to approve. In a voice vote, the **motion** passed unanimously.

iii. Approval of Previous Meeting Minutes – February 1, February 6 & March 6

Motion made by Vice Chair Partington, seconded by Mr. Walters, to approve [the February 1, 2023 minutes]. In a voice vote, the **motion** passed unanimously.

Motion made by Mr. Walters, seconded by Vice Chair Partington, to approve [the February 6, 2023 minutes]. In a voice vote, the **motion** passed unanimously.

Motion made by Vice Chair Partington, seconded by Mr. Walters, to approve [the March 6, 2023 minutes]. In a voice vote, the **motion** passed unanimously.

Mr. LaBrie expressed concern that the Committee had not formalized a procedure on how to address contact from the public in the future. Chair Mammano recommended that this issue be discussed further under Member Comments at today's meeting.

2. Old Business

i. Update on the City Water Distribution Mapping

Chris Bennett, Assistant Director of Public Works, (Strategic Support), stated that mobile laser imaging, detection, and ranging (LIDAR) scanning throughout the City is approximately 89% complete. Aerial photography is also underway. The LIDAR imagery will be provided within the next week, and the Public Works Department may begin using this data for various needs. City water distribution mapping is on schedule to be complete well before the Florida Department of Environmental Protection (DEP) deadline of December 20, 2024.

Mr. Bennett added that Public Works has provided outreach to the public via social media, the City's website, and other outlets to ensure that residents are aware of the work being done in and around their neighborhoods.

Vice Chair Partington asked how this mapping will be integrated into the City's existing system. Mr. Bennett replied that the mapping will be used for asset management purposes so the City knows where its pipes, valves, and other infrastructure exists in case emergency shutoff is needed. Models will be updated to properly reflect all infrastructure. It will not replace any existing information, but will supplement geographic information systems (GIS) data by providing survey-level accuracy for pipes 8 in. or more in diameter. Other methods of information gathering, such as aerial surveys and ground-penetrating radar, will be used to update mapping as well.

Vice Chair Partington asked what entity would be responsible for the update. Mr. Bennett replied that this would be a consulting group which is working in tandem with City Staff. The CityWorks software program will include GIS drawings in the background so all Public Works Staff will have access to the new information.

Chair Mammano requested an estimate of the cost of this contract. Mr. Bennett replied that it is roughly $8 million, most likely to come from bond funds.

ii. Update on Comprehensive Funding for Sidewalks and Streets

Chair Mammano recalled that at their March 6, 2023 meeting, the Committee had received a significant amount of information on sidewalk and street repairs in Fort Lauderdale. They had requested that this information be compiled into a document for future reference.

Chief Engineer Jill Prizlee explained that Public Works has a General Fund balance of $1.5 million for fiscal year (FY) 2022-2023. The City's Risk Division has a separate budget. The City has a Sidewalk Master Plan assessment, which is a one-time expense of $108,000. There is the possibility that the City may receive funds at a later time from the Broward Metropolitan Planning Organization (MPO) or the Florida Department of Transportation (FDOT). The City also has a pending application for $1.25 million in Broward County surtax funds.

At present, Fort Lauderdale's Public Works Department has $500,000 from the General Fund, as well as $1 million from the gas tax. The Department is working on a task order for the $108,000 pavement condition assessment with a City consultant. They also hope to complete a condition assessment for the City's alleyways. Due to accessibility issues and the unique nature of many alleyways, LIDAR mapping is not possible for all of these spaces.

Mr. Walters asked how Staff keeps track of the money used from different funding sources, including the City, the County, and the surtax dollars. Ms. Prizlee explained that the City, County, and FDOT roadways are separate: for example, there are no City projects on County or FDOT roads. In most cases, the sidewalks adjacent to County roads are under County jurisdiction as well. There are also instances in which the City enters into a maintenance agreement to take care of some facilities that are under County jurisdiction.

Vice Chair Partington requested clarification of the goals of the City-wide pavement and alleyway assessments. Ms. Prizlee replied that the pavement assessment simply assess the current condition of the pavement. While a similar assessment will be done for alleyways, these are separated from the pavement condition index (PCI), as many of the City's alleyways are inaccessible to modern technology such as LIDAR. They may be unpaved, landscaped, built over, or may pose other challenges. The City has to

know the condition of its alleyways before they can consider any future steps to improve them.

Dr. Nancy Gassman, Assistant Director of Public Works (Sustainability), added that some of the City's alleyways are maintained to provide stormwater drainage. These specific locations are inspected on a regular basis to ensure they are working as needed.

Mr. LaBrie asked how many alleyways are in the City. Ms. Prizlee advised that there are 28 miles of alleyways. Mr. LaBrie asked if the structures around alleyways are assessed for any of the costs of this program, pointing out that the owners of these properties may be using the alleyway. Ms. Prizlee explained that at present, no improvements are being made to these facilities: they are only being assessed for their condition. In addition, if an alleyway is improved, it would be the work of the City maintaining its property.

Chair Mammano observed that in FY 2023, the City allocated $1.5 for the resurfacing of streets and $1,680,000 for sidewalks. She asked what the anticipated request may be for these types of projects in FY 2024. Ms. Prizlee replied that the funding requests will remain essentially the same, although with an additional $500,000 over five years.

Ms. Warfel stated that because there is no funding in the City's budget for new roadway capacity, the City seeks these funds from other sources. Capacity improvements are often part of larger projects. This means some funds may come through the Capital Improvement Program (CIP), from competitive grants offered by the Broward MPO, or through the Broward County surtax program. The City also applies for federal and other grants that can fund small improvements.

Ms. Warfel reviewed funding priorities, including LauderTrail, which provides shared use paths across the City. A $5 million parks bond is being used for this project. LauderTrail is intended to be a recreational facility connecting trail systems in Holiday Park, Carter Park, Mills Pond Park, the Flagler Greenway, NW 15th Avenue, and other areas. This is the first major project for which Fort Lauderdale has received surtax funding.

Chair Mammano requested that a full presentation on the LauderTrail project and its various phases be provided to the Committee at a later meeting.

Ms. Warfel continued that as a regional transportation and planning agency, the Broward MPO oversees all federal transportation funding that comes into Broward County. Some of this federal funding is bundled together in the MPO's competitive grant program known as the Complete Streets and Other Localized Initiatives Program (CSLIP). In the past, FDOT managed CSLIP projects on behalf of the cities in which projects were located; however, they will no longer do this moving forward.

Ms. Warfel briefly reviewed a number of upcoming projects, including sidewalk gaps and improvements, traffic calming, and shared use paths. All new facilities will comply with the requirements of the Americans with Disabilities Act (ADA).

Assistant Risk Manager Matthew Cobb explained that the Risk Management Department budgets for "trip-and-fall" claims filed against the City due to sidewalks that are not properly maintained. He reviewed a spreadsheet on this process, stating that the state of Florida has a four-year statute of limitations for these claims from the date on which the incident occurred.

The City averages roughly 32 claims per year on City-maintained sidewalks. Fort Lauderdale sidewalks may be owned by FDOT, Broward County, or the City; reports for sidewalks not maintained by the City are forwarded to the appropriate party. The average trip-and-fall claim costs approximately $30,000, which typically combines payment for bodily injury, attorneys' fees, and the City's attorneys' fees for defense of the case. The claimant often receives no more than 25% of this amount after their medical and attorneys' fees are settled. The most common injuries may total $15,000 to $30,000 in medical costs.

Chair Mammano asked if these claims are addressed through the City Attorney's Office. Mr. Cobb replied that the City uses in-house risk management adjusters, who are City employees tasked with handling the claims pre-suit. These individuals oversee investigations and provide workup on claims. The City also employs three different outside counsel firms which handle these types of claims. The average annual cost of these claims to the City is approximately $370,000.

The City is divided into four quadrants in which incidents occur. Most happen in the northeast and southeast quadrants, which are located east of Andrews Avenue and north or south of Broward Boulevard. These are older sections of the City where sidewalks are more likely to be aged. By contrast, the western part of the City is more suburban and its sidewalks are less heavily used, with fewer large vehicles creating damage.

Chair Mammano asked if individuals sue adjacent property owners as well as the City. Mr. Cobb advised that when the City settles claims, liability is most likely divided three ways between the owner of the sidewalk, the adjacent property owner, and the individual who fell. By Ordinance, the adjacent property owner is responsible for notifying the City of hazards and/or defects and helping the City maintain the facility in good order. If they fail to do so, they may be found negligent. As the maintaining entity, the City assumes the greatest share of negligence. The individual may also bear some responsibility depending upon the nature of the hazard, the type of shoes they were wearing, or what they were doing that may have contributed to the fall.

Vice Chair Partington asked if the City has considered a program of grinding sidewalks on a proactive basis. Ms. Prizlee confirmed that this is a line item in the City's existing

contract; however, some slabs are displaced to an extent that grinding cannot be done. When she is notified that a trip-and-fall incident has been alleged, the City's grinding program must be re-prioritized to address the need at that location.

Mr. Zeltman noted that displaced sidewalks may be caused by pressure from tree roots below, and asked if these causes are analyzed and eliminated where possible. Mr. Cobb advised that this is part of the inspection following an alleged incident: a scene investigator locates the area, and a Public Works investigator determines where the hazard will be prioritized on the sidewalk repair list. A property owner may have some liability if the tree is on their land.

Mr. LaBrie asked what the process might be if a neighborhood wanted to connect a series of sidewalk gaps, as well as clarification of the time frame for this process. Ms. Warfel replied that if the address of gaps has already been requested, they are already on the City's priority list, which tracks what types of improvements, such as ADA upgrades, are needed, or what damage requires repair or replacement.

Chair Mammano asked if, when making sidewalk improvements, Public Works coordinates with the City Department that may be responsible for swales. Ms. Warfel replied that whenever a sidewalk is installed, the swales are considered as well, as they may need to be re-graded as well.

iii. Funding for Water Treatment Plant

It was determined that this Item would be heard following New Business.

The following Item was taken out of order on the Agenda.

3. New Business

i. Bypass Road and New Pipe to the Ejection (sic) [Injection] Wells at Treatment Plant

Chair Mammano recalled that 15 years ago, a Port bypass road was proposed from State Road (SR) 84 through Port Everglades to Eisenhower Boulevard. This was to serve as an exclusive roadway that would not impact traffic to the Port, 17th Street, or the Convention Center. The project did not come to fruition at that time. When the decision was made more recently to expand the Convention Center and hotel, the bypass road plans were resurrected, although the roadway is no longer intended to be a flyover. The new plans must be operable prior to the issuance of a Certificate of Occupancy (CO) for the Convention Center hotel.

Chair Mammano continued that this Item addresses some of the challenges associated with this roadway with respect to upcoming sewer projects. Mr. Bennett confirmed this, stating that an effluent force main running from the George T. Lohmeyer Wastewater

Treatment Plant extends past Eisenhower Boulevard to the injection wells. A new force main is being constructed to provide redundancy to the wellfields. This new effluent line will run down Eisenhower Boulevard on the east side of the road, which is where elevated light rail may be constructed in the future. As the line crosses back over to 20th Street, it would run beneath an area at which the elevated portion of the bypass road would drop back down to normal grade. This will require coordination of the force main and elevated bypass projects.

Mr. Bennett continued that the City is currently working with Broward County on an inter-local agreement (ILA) for the force main project. One key timing issue is completion of the work on Eisenhower Boulevard in order to allow unrestricted access to the Convention Center and its new hotel, as well as to the Port. Another consideration is crossing the intersection at 20th Street and Eisenhower Boulevard, which is planned for late 2024 to early 2025 due to the construction of the bypass road. The roadway construction is expected to occur during roughly the same time frame as installation of the redundant pipe. These concurrent time frames add complications to the ILA.

Mr. Bennett advised that Staff has considered approximately 10 different routes for the effluent pipe; however, many of these options would dramatically increase the cost of the project, as they would result in routes through neighborhoods in the area and would require significantly greater length of pipe.

Vice Chair Partington requested clarification of whether or not Eisenhower Boulevard is considered to be within Port Everglades. Mr. Bennett replied that roads within the Port are still considered public rights-of-way, which is why the City would be permitted to place the pipe along Eisenhower. The greater question, however, is whether or not the County wishes to make the two projects possible within the same time frame, as they do not have an interest in the City's effluent pipe and do not want it in their way.

Mr. Bennett continued that the City will be attempting to thread the effluent pipe through an area where the foundation pilings for a proposed future elevated train station are expected to be laid. Mr. Dodd added that the County has other demands for the same right-of-way, including more transportation connections.

Mr. Bennett noted that while there is physically enough room for the pipe, the issue is the need to estimate the positions of proposed piles, while the City must also work around encroachment onto County property on 20th Street. This roadway already includes gas and other unknown lines as well, as well as overhead transmission lines from Florida Power and Light (FPL).

Another issue facing the City's construction is that the County wishes to maintain, at all times, five lanes of traffic on Eisenhower Boulevard. This means the installation of the 54 in. force main would be limited to one lane at a time. This will significantly slow the

process. 20th Street presents a separate issue, as the City must enter into an agreement that allows them to place the pipe on County property.

Vice Chair Partington asked if an elevated pipe has been considered instead of underground. Mr. Bennett replied that there was consideration of elevated pipe due to the number of potential underground utility conflicts in some areas, but ultimately there was no coordination of plans for an elevated pipe across properties along the way. The Eisenhower Boulevard and 20th Street locations were not considered for elevated alternatives, although the final layout of the route includes an elevated portion from 14th Avenue to the back of the wellfield.

Chair Mammano requested clarification of the project's cost and whether or not it will be in the CIP. Mr. Bennett replied that it is in the CIP and is funded at a Class 4 level preliminary estimate. It is currently planned to be funded partially through bond money and partially through the CIP at a total of roughly $30 million.

Mr. Bennett further clarified that this project is part of the City's Consent Order for sewer improvements. The time frame for the Consent Order will require the project to be complete in 2026, which is a very tight time frame. The last remaining Consent Order-related projects, which are all in the $15 million to $30 million range, will be partially funded through bond money and partially through the CIP.

iii. Funding for Water Treatment Plant

Finance Director/Assistant City Manager Susan Grant stated that the City's financial advisor has run four potential funding scenarios: 30- and 40-year level debt service, 30-year wrapped debt service, and 30-year wrapped debt service with multiple issuances. She is currently reviewing these scenarios and will bring detailed rate scenarios back to the Committee in June 2023.

Chair Mammano recalled that the public-private partnership (P3) was approved at a rate of approximately $1.61 per gallon for the first year, with escalators, which brought the project's estimated cost to a total of $1.44 billion. She asked if this is still the expected cost. Ms. Grant confirmed that this would be the case with no changes to the contract. She pointed out, however, that this cost does not include the City's debt service. The cost will not be fully clarified until this debt has been issued, which is planned for October 2023.

Chair Mammano commented that this meant the first year's cost per gallon is not guaranteed at $1.61. Ms. Grant advised that this cost is not accurate until the third year, as the City does not pay the private partner anything until the plant is commissioned. The only impact on rates at that time would be the cost of debt issuance in year one, which is October 2023.

Chair Mammano asked if there is any estimation of the cost in the third year. Ms. Grant reiterated that she has just received the information from running the four scenarios and has not yet been able to fully examine this information.

Vice Chair Partington asked if the City is still looking for possible grant funding for the project. Ms. Grant confirmed this, especially for the enabling works, which the City is procuring itself. She also noted that the City's credit rating is AAA.

4. Public Works Update

i. Water & Sewer Breaks Report w/Mapping

The Committee briefly reviewed the most recent report and mapping of water and sewer breaks, noting that there were no sewer breaks in the past month.

ii. CIP Financial Report

5. General Discussion and Comments

i. Committee Members

Chair Mammano recalled that at the Committee's April meeting, they discussed a proposed new way to allocate capacity. Instead of assigning the capacity of a project during the Development Review Committee (DRC) process. She also reminded the Committee members that the City Commission had previously requested the Committee offer an opinion on a potential moratorium on new development. After several hours of review, the Committee concluded that a moratorium was not justified at that time, which was approximately one year ago.

Chair Mammano continued that changes in the capacity calculation do not mean the physical capacity of the City's sewage treatment plant has changed: instead, the change would address administrative means of raising the plant's capacity limit in order to continue with new development. She pointed out that the new capacity letters issued as part of the DRC process provide an analysis and review of what would be necessary to accommodate new projects, such as upgraded or new pump stations.

Assistant City Manager Anthony Fajardo explained that determination of capacity has multiple considerations, including the ability to change when capacity is actually allocated to a project. Another consideration is the City's injection wells. If the City cleans these wells more regularly, this will ensure that flows into these wells are at optimal condition. The injection wells are the primary limiting factor: while the plant itself has a capacity of over 93 million gallons per day (MGD), the injection wells do not have the capacity to accept this level of flow.

Mr. Fajardo continued that at present, the injection wells are cleaned every five years by permit. Mr. Dodd advised that the City is seeking to change this schedule so cleaning is done every two years, which will keep the injection wells operating at a higher capacity. The City has engaged a firm which is discussing the possibility of raising the plant's limit by using different methodology from what is currently used by the County. There are also other potential enhancements that can be made at the water treatment plant itself to address these issues. Inflow and infiltration (I&I) is another issue that affects the plant's capacity, and the City is continuing with CIP projects that address this.

Chair Mammano recalled that the current methodology for capacity allocation meant a project has two years from the time its allocation was provided to begin work on a project. If a project did not meet this time frame, it was reassessed. Mr. Fajardo explained that while capacity letters were written in this way, it was not supported by State Statute. It has since been determined that an allocation is not official until a project has been approved by the City Commission.

Mr. Fajardo continued that this change returned roughly 500,000 gallons of capacity to the City; however, since that time, the City has returned to roughly 1.164 MGD. Unless there is additional capacity to allocate, the lack of capacity would effectively halt development in Fort Lauderdale unless an administrative agreement is reached with the County which would allow the City to change the methodology used to determine permit capacity.

Mr. Fajardo recalled that the average MGD can fluctuate due to storm events, I&I, and other considerations that can increase or decrease this number over a period of months. While the County did not oppose the proposed new calculation method, they have asked what the City might do to address treated water that is sent to outfalls, which is one of their greatest concerns.

Chair Mammano commented that ways the City might increase capacity include the address of I&I, not only in Fort Lauderdale but in other communities served by Fort Lauderdale's system, such as Oakland Park, as well as cleaning of the injection wells every two rather than every five years. Mr. Fajardo pointed out that cleaning these wells does not change the permitted amount, but makes it possible to inject more water into the wells instead of through outfall. He confirmed, however, that these changes would not have any effect on the capacity letters issued for projects.

Mr. Dodd noted that the only time there are issues with the injection wells is when heavy rain events occur, which raise peak flows to 80 or 90 MGD rather than an MGD average in the low 40s. If the City can show improvement in the outflow issue during peak flow events, the County is more likely to increase the plant's permitted capacity.

Mr. Zeltman recalled that there was discussion at one point regarding a sixth injection well. Mr. Dodd confirmed that the City's consultant is considering this as one option for the physical increase of capacity in the City's wellfield; however, this is a complicated

process, as a new injection well would have to meet modern construction standards, provide additional pre-treatment, and meet space constraints in the subject area.

Chair Mammano asked how much more water could be pumped into the injection wells if they are cleaned more often. It was clarified that with the existing five-year cleaning cycle, the wells operate at a capacity of roughly 80 MGD. Immediately after a well is cleaned, it can accommodate 90 to 93 MGD. Approximately 10 MGD are lost with a five-year cleaning cycle, although it has not been determined how much capacity would be recovered on a two-year cleaning cycle.

Vice Chair Partington requested additional information regarding the County's concern with use of outfall. Mr. Bennett reiterated that this is one of the County's biggest concerns regarding capacity. The City is permitted outfall due to its grandfathered permit conditions, which would not continue if the City had to rebuild or make major improvements to the wastewater treatment plant. The County's concern is that while the City is requesting a capacity increase, they also had to use the outfall option five times in the previous year. If the City can reach a point where they no longer use outfall, the County is less concerned with other issues, such as I&I.

Vice Chair Partington noted that other municipalities which rely on Fort Lauderdale for water and sewer services are not prohibited from approval of projects. Mr. Fajardo confirmed that Fort Lauderdale is not involved in these cities' approval processes. He recalled, however, that the city of Wilton Manors has requested a comprehensive plan amendment that would allow them to increase their capacity. He has met with their city manager, who indicated that Wilton Manors will provide information showing the steps they have taken to address I&I. Fort Lauderdale also plans on reaching out to other cities served by their water and sewer systems to determine what they are doing as well.

Chair Mammano asked if there were also issues with capacity permitting at the state level. Mr. Bennett replied that the state permits 56.6 MGD, which is based on a three-month rolling average of flows. The County uses a one-year rolling average of flows and applies a peaking factor as well. This is because the state standard must apply to all of Florida, while South Florida has different weather and environmental conditions that are taken into consideration for the County standard. The County also wants to ensure that its subject agencies remain within the amount permitted, which is why the peaking factor is applied.

Chair Mammano asked how much it would cost to clean the injection wells more often and where this money would come from. It was clarified that this would be an operational cost rather than coming from the CIP budget. Omar Castellon, Assistant Director of Public Works (Engineering), advised that the cost of cleaning all five wells is approximately $3 million. The cleaning process also examines the wells' structure to determine whether cracks exist or repairs must be made.

Mr. LaBrie requested that the Committee come to a procedural agreement on how any future letters to them as an advisory body are addressed. He recalled that the Chair had indicated no individual should respond, but felt the Committee owed members of the public some type of response.

Mr. LaBrie suggested that no individual member of the Committee respond until the entire advisory body has met to discuss the issue. Once they have met, the Chair could be responsible for drafting a response on behalf of the group.

Mr. Walters pointed out that this could mean individuals or entities who contact the Committee may have to wait for up to one month for their next meeting, and even longer for a response. He felt the Chair, or another designee, could be authorized to respond on behalf of the full Committee. Mr. Lambrechts pointed out that the Committee serves in an advisory capacity only, and an individual experiencing an emergency should instead reach out to City Staff or the City's emergency number. He cautioned against giving the public the impression that the Committee is a point of contact for City business.

Chair Mammano suggested that letters to the Committee could be added as an Agenda Item, which would ensure that any communications received from the public between Committee meetings are addressed at the next scheduled meeting. She also noted that if a letter is sent to the Committee, the City sends it to her for informational purposes. At that time, she could acknowledge receipt of the letter, state that it will be discussed at the next meeting, and direct the individual to call the City's emergency number. She concluded that they could discuss this response in greater depth at the next meeting.

Chair Mammano referred again to a letter addressing capacity and development, noting that the letter states improvements must be made to a pump station to reduce the run time and meet increased demand. It was clarified that the developer in question would be responsible for increasing the size of the pumps. Mr. Castellon added that while the City may have a CIP project to improve a pump station, a developer who needs the station's capacity increased before the project is undertaken in the CIP would be responsible for making the upgrades to accommodate their development.

Mr. Grabski commented that the City does not always consider all the improvements needed in a given basin to determine whether or not they align with one another. Mr. Bennett explained that while this may have been the case in the past, the City now looks at projects which have gone through the DRC process, as well as projects that are likely to be developed within the same basin.

Mr. Bennett further clarified that in the past, a developer may have been required to make an improvement that is only intended to meet their own project's capacity; however, there is no prohibition against the City requesting that proper infrastructure improvements be made in order to handle the projects they know are coming to an

area. If a development fee is higher than the cost of the infrastructure, the difference would be refunded to the developer.

Senior Administrative Assistant Vickie Beauvais noted that the Committee's September 2023 meeting will need to be rescheduled, as it falls on a holiday. Chair Mammano requested that this be placed on the next Agenda, as well as a discussion of a summer break.

ii. Public Comments

None.

6. Adjournment – NEXT SCHEDULED MEETING DATE – Monday, May 1, 2023

There being no further business to come before the Committee at this time, the meeting was adjourned at 4:24 p.m.

Any written public comments made 48 hours prior to the meeting regarding items discussed during the proceedings have been attached hereto.

[Minutes prepared by K. McGuire, Prototype, Inc.]

Public Works Update – Flash Flood 2023

April 12 - 21, 2023

Infrastructure Task Force Meeting

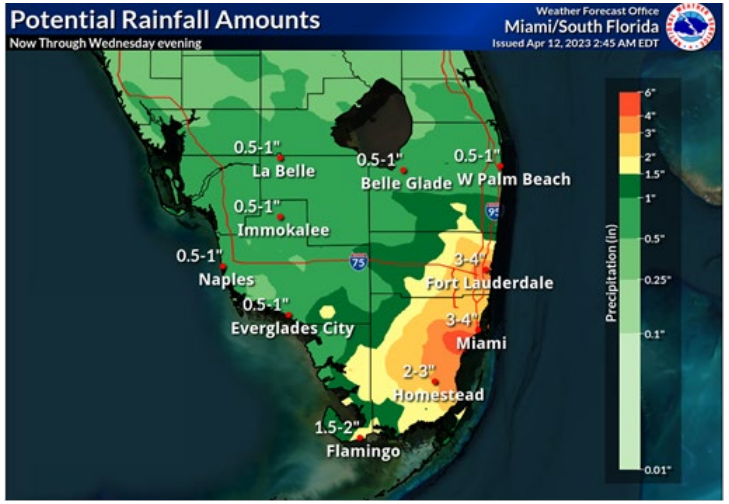
May 2, 2023

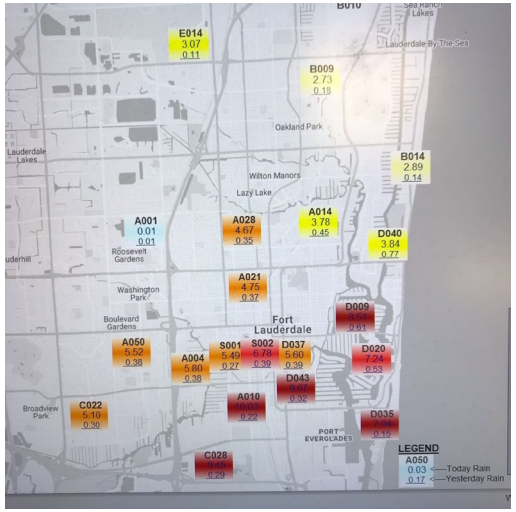
Agenda

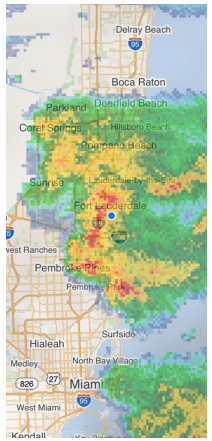
- Rain Event and Rescue Operations April 12 –13, 2023
- Recovery Operations April 13 –20, 2023
  - Task Force Unwatering
  - Daily Situation Update
  - Heavily Impacted Neighborhoods
- Stormwater System and Stormwater Master Plan
- Debris Removal Operations
- Lessons Learned
- Immediate Actions and Long Term Plan

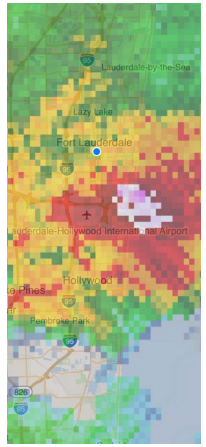
Rain Event and Rescue Operations
April 12 – 13, 2023

3:12 pm Melrose Manors flooding - 2 pump trucks respond
4:12 pm Flooding reported into homes in Edgewood
4:37 pm Edgewood received 8” rain
5:00 pm PW trucks pulled in for safety concerns
Kinney Tunnel Closed
5:30 pm Croissant Park received 10” rain
6:22 pm 11” rain reported across city
9:00 pm Partial Activation EOC
11:57 pm Emergency Proclamation Issued

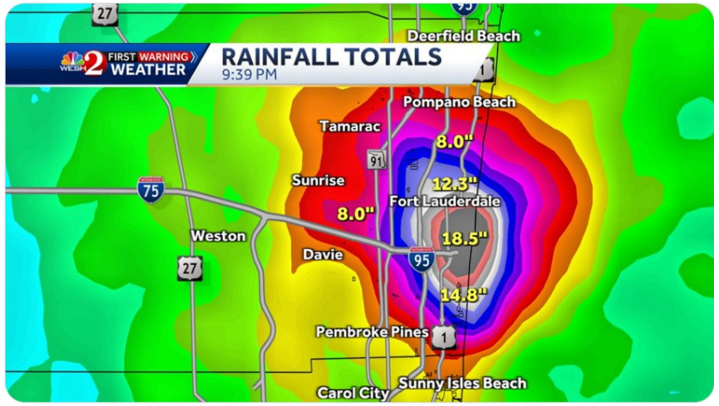






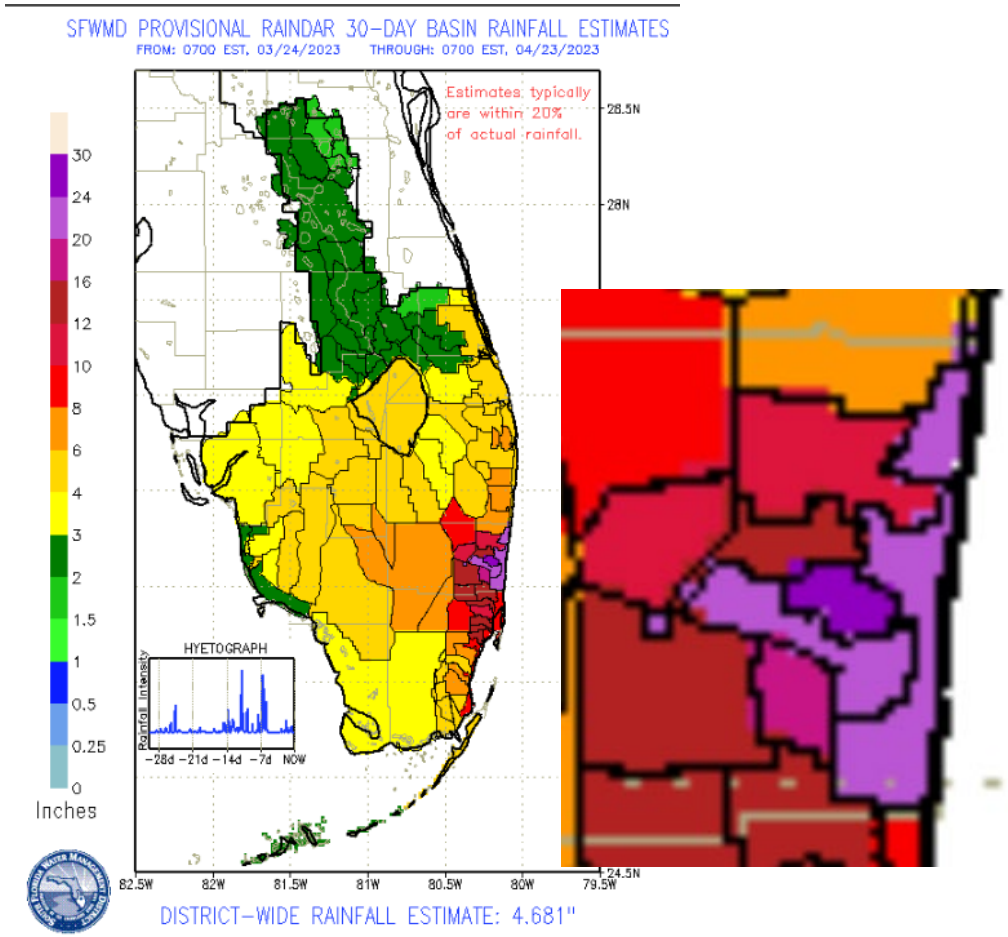


Fort Lauderdale Airport is closed due to flooding...



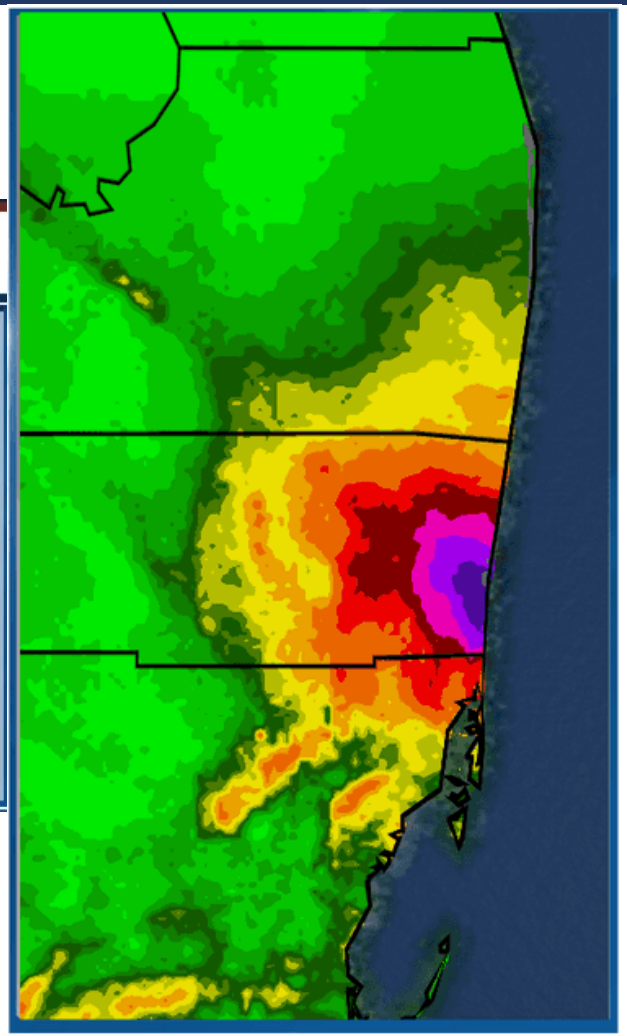
9:41 PM · Apr 12, 2023 · **81.6K** Views

Rainfall Amounts
April 12 – 13, 2023



TOP RAIN TOTALS
» YESTERDAY

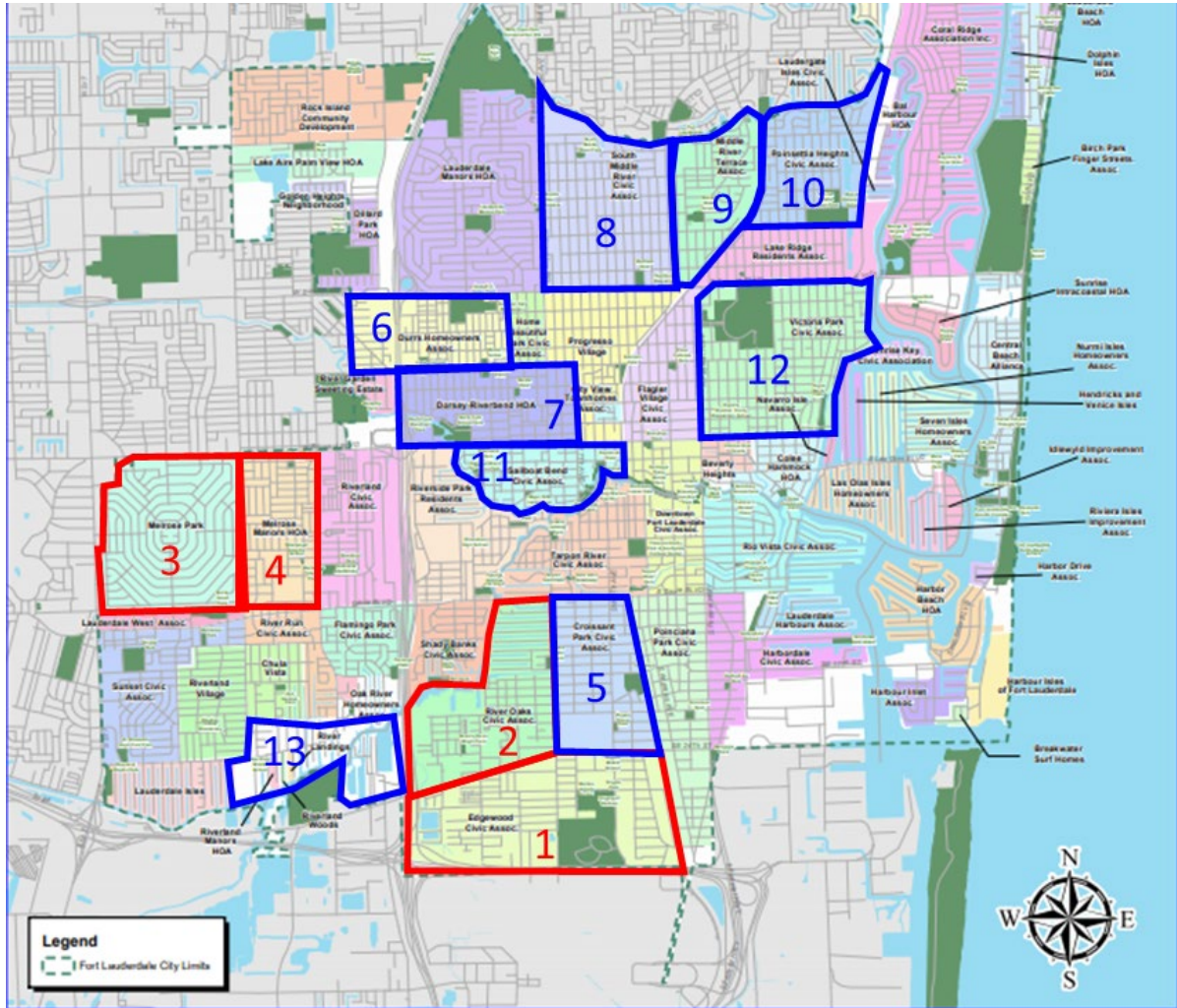
Fort Lauderdale	25.91"
Hollywood	18.16"
Dania Beach	17.30"
Plantation	15.06"
Lauderhill	14.58"
Coconut Grove	13.15"



Neighborhoods Initially Reporting Major Impacts

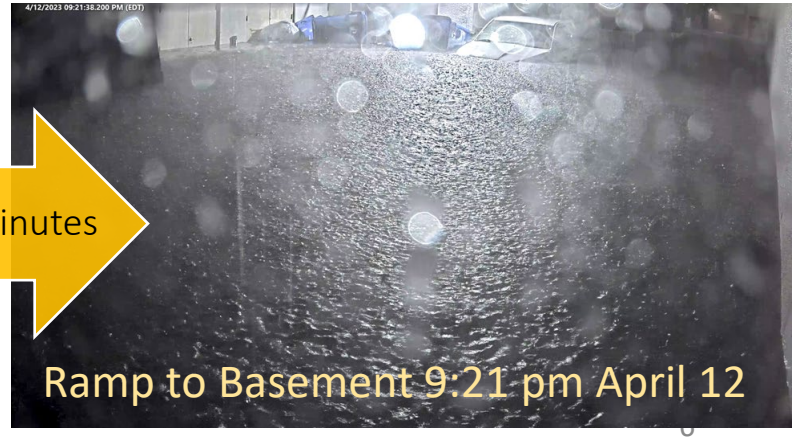
Initial Flooding Assessments

1) Edgewood
2) River Oaks
3) Melrose Park
4) Melrose Manors
5) Croissant Park
6) Durrs
7) Dorsey Riverbend
8) South Middle River
9) Middle River Terrace
10) Poinsettia Heights
11) Sailboat Bend
12) Victoria Park
13) River Landing



City Hall
Impacts of Flash Flood

21 minutes

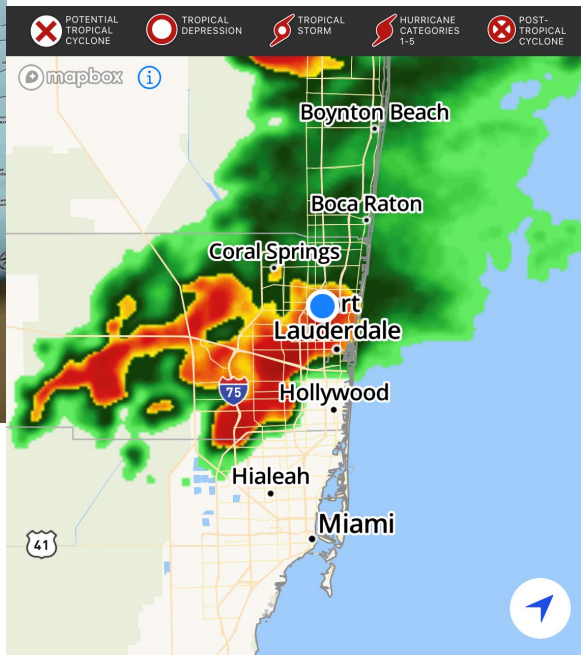


Recovery Operations
April 13, 2023

Initial Situation

- Numerous Areas Flooded – Up to 26” of rain
- Police/Fire Rescue operations ongoing
- City Hall/Communications down
- GTL exceeding 100 MGD
- 30+ Wastewater stations offline
- Multiple water/sewer breaks reported
- All PW vehicles deployed

12:00 am Monitoring activity and prioritizing response from EOC
7:00 am Area Assessments ongoing
10:00 am City Hall Unwatering ongoing
10:30 am Multiple vendors engaged for emergency pumping services
2:00 pm Vendor Trucks in operation
3:00 pm Additional rain began (3”)
WebEOC request for additional pumping capacity

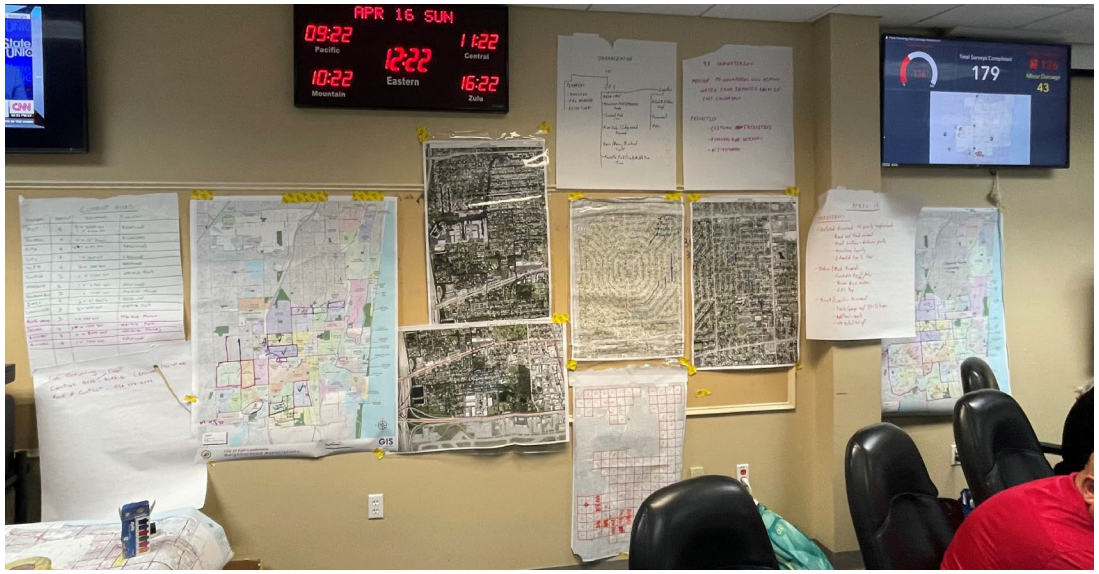


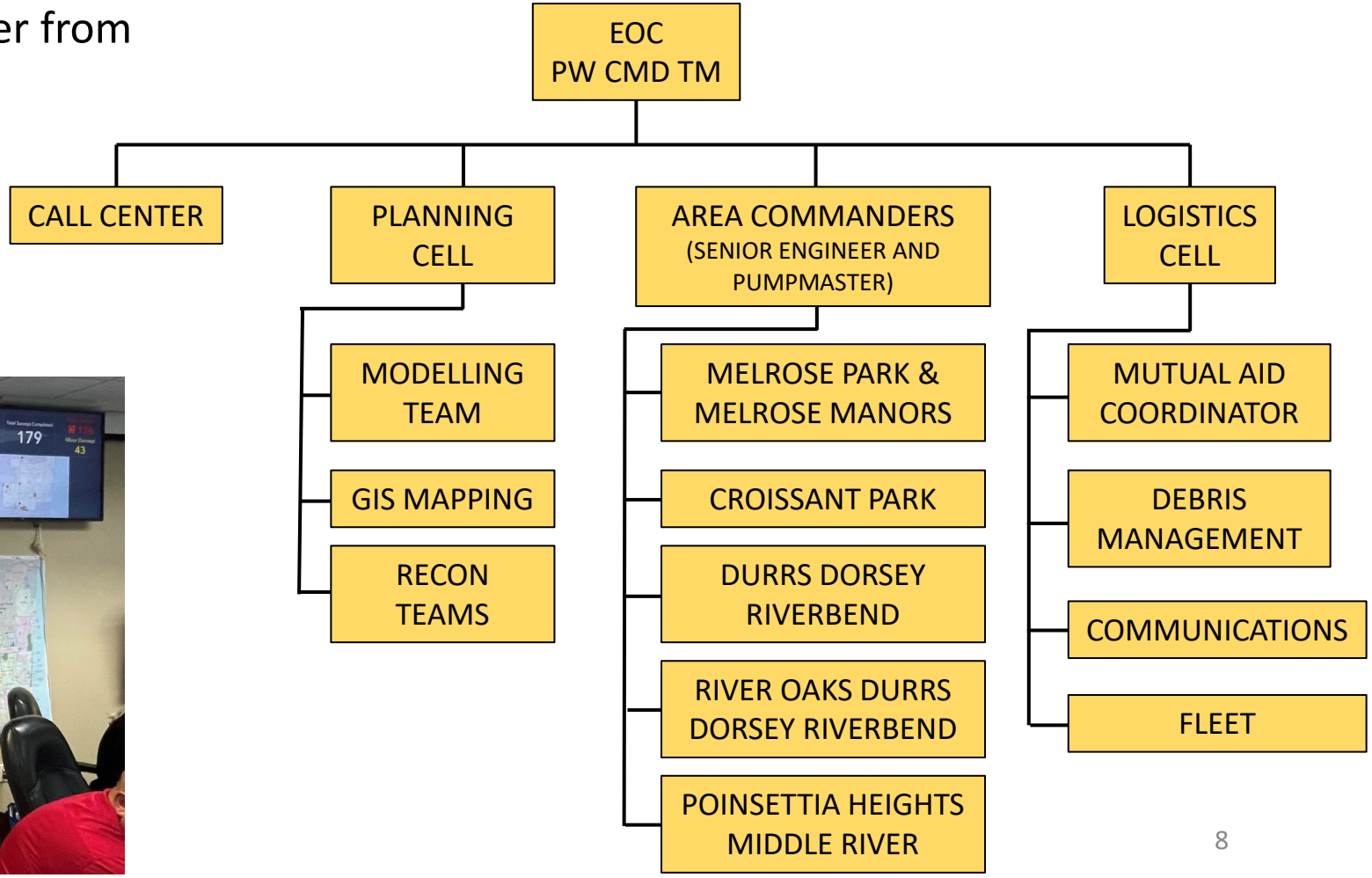
Recovery Operations
Task Force (TF) Unwatering

MISSION: TF Unwatering will remove water from impacted areas in Fort Lauderdale

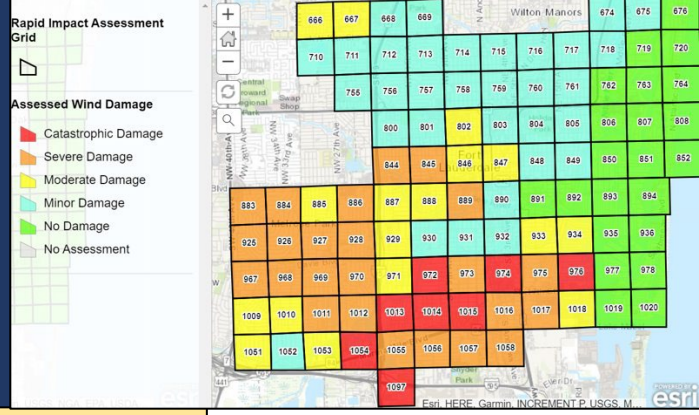
PRIORITIES:

- Critical Facilities
- Roadways and Arterials
- Neighborhoods





Recovery Operations
April 14, 2023



Assets on Hand

28 Pumping and/or Vactor Trucks

5 City, 17 Contractor, 6 Mutual Support

Road and Arterials

SW 27 Ave between Broward and Davie (Passable)

SW 31 Ave between Broward and Davie (Passable)

Sistrunk (Passable Trucks/SUVs, cars not recommended)

NW 9 Ave (Passable trucks/SUVs, cars not recommended)

Riverland Road (Coned Off)

Multiple sink holes

Water and Wastewater

GTL: 98 MGD; discharging over the Emergency Outfall

Lift Stations: 120 surcharged: 6 without power

Water Main Breaks: 2

Call Center

1,257 calls since 6AM; 4,432 since incident began

City Hall

Basement drained; assessments initiated

Heavily Impacted Neighborhoods (above 1' Depth)

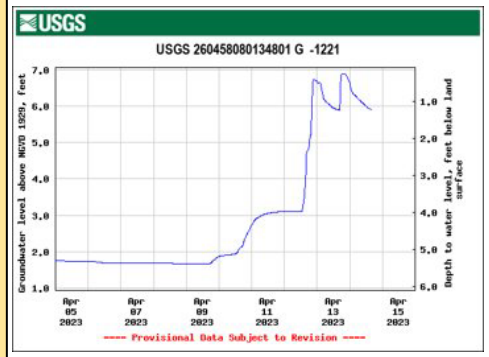
- **Edgewood** (2-3') Canals too high to pump; tankers only
- **River Oaks** (2-3') Initiated pumping w/new stormwater system
- **Melrose Manors** (2-3') Tankers only; no connection to waterways/outfalls. Meeting with County to discuss
- **Melrose Park** (2-3') Drainage ditch not flowing due to waterway elevations/sluice gate
- **Durrs** (2-3') Tankers only; no connection to waterways/outfalls
- **Dorsey-Riverbend** (2-3') Tankers only; no connection to waterways/outfalls

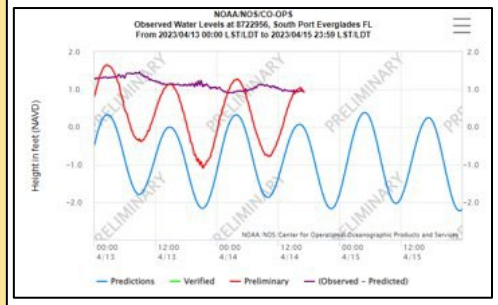
Additional Areas of Concern

- Sailboat Bend
- Victoria Park (East Side)
- Croissant Park
- Riverland Areas
- SE Isles
- South Middle River
- Poinsettia Heights
- Middle River Terrace
- Holiday Park - Reunification Center entrance flooded

9:49 am FDOT authorizes discharging into FDOT systems

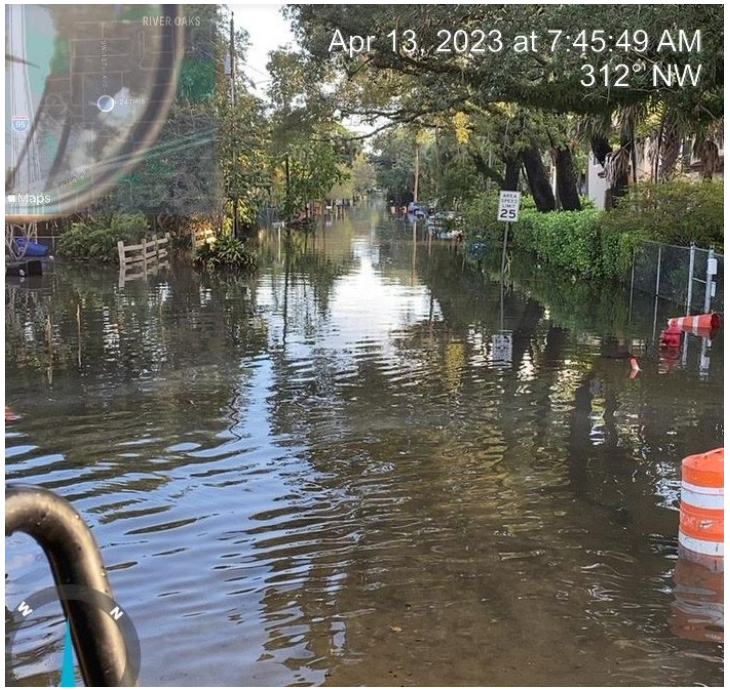
11:00 am Meeting to authorize discharge into Broward County system

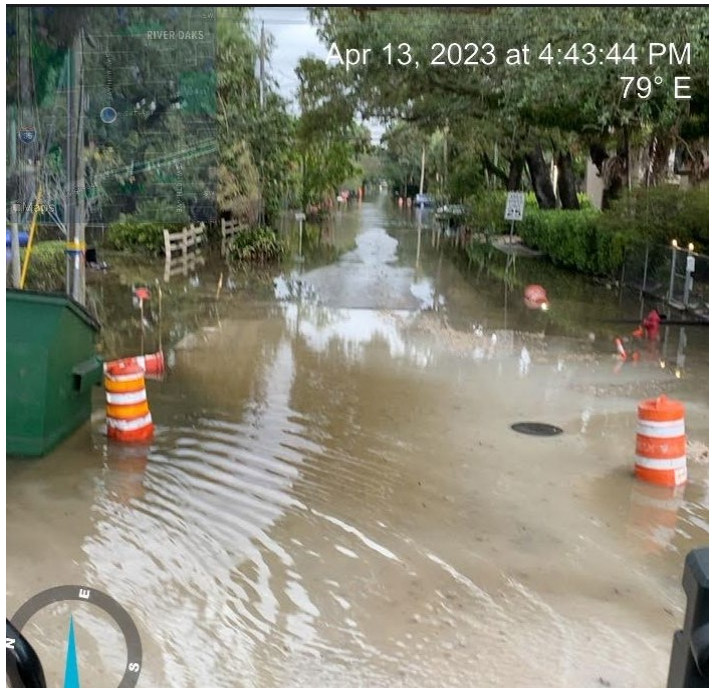




Recovery Operations
April 14, 2023

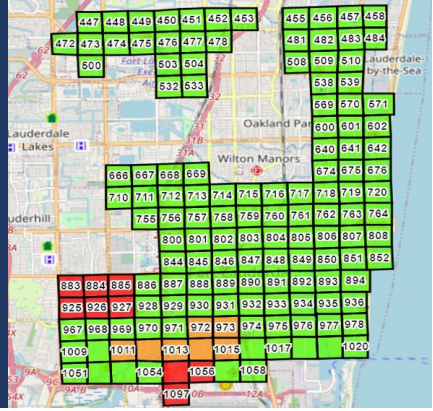
River Oaks Progress :





Holiday Park (Red Cross)

Recovery Operations
April 15, 2023



Assets on Hand

36 Pumping and/or Vactor Trucks

8 City, 21 Contractor, 7 Mutual Support

Road and Arterials

All Roadways Passable

Road Crew responding to potholes and sinkholes

Road Assessments initiated

Muck removal initiated in Melrose Park

Water and Wastewater

GTL: 83 MGD; discharging over the Emergency Outfall

Lift Stations: 48 surcharged, all on FPL power; 2 out of service

Water Main Breaks: 0

Wastewater Break: 1

Call Center

5,127 calls since incident began

City Hall

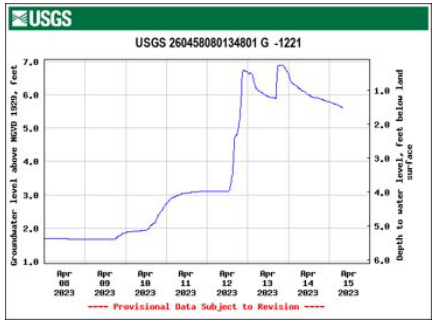
Emergency Repairs ongoing

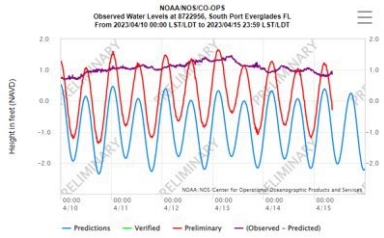
Heavily Impacted Neighborhoods (1 to 3' Depth)

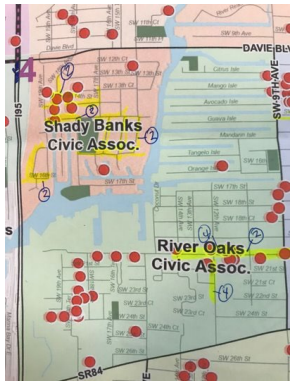
- **Edgewood** (1') Initiated pumping into FDOT system at SW 9th and 12th Ave;
- **River Oaks** (1-2') 2 x 12" pumps operating into South Fork New River
- **Melrose Manors** (2') Tankers only; no connection to waterways/outfalls
- **Melrose Park** (1') Levels fall by 1' following opening of sluice gate; cleaned debris buildup in system
- **Durrs** (ponding) All roads open and passable
- **Dorsey-Riverbend** (1-2') Tankers only; no connection to waterways/outfalls

Additional Areas of Concern

- Sailboat Bend: 6" flooding in some areas
- Victoria Park: (East Side) 6" – 9" in some areas
- Croissant Park: 2" of ponding water
- Riverland Areas – County response
- SE Isles
- South Middle River: Dry; small pockets of standing water
- Poinsettia Heights: Dry; small pockets of standing water
- Middle River Terrace
- Holiday Park: pump truck needed to maintain access

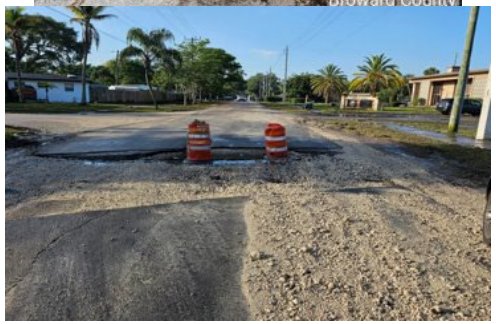




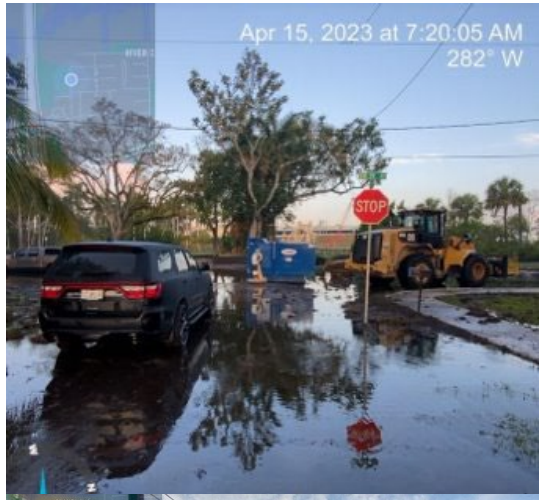


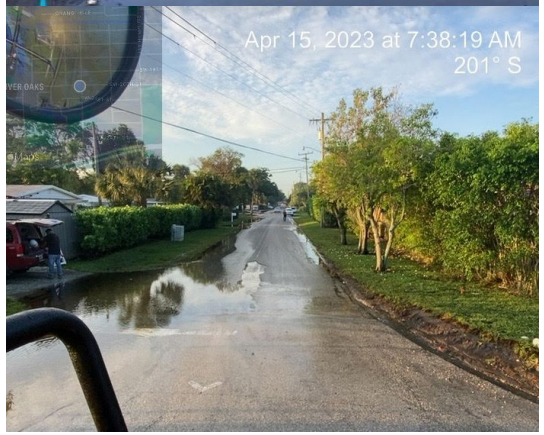
Recovery Operations
April 15, 2023

Edgewood



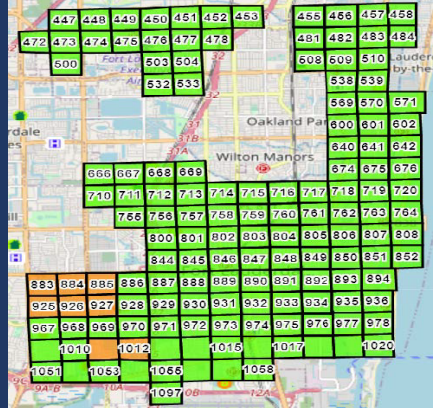
River Oaks





Melrose Manors

Recovery Operations
April 16, 2023



Assets on Hand

36 Pumping and/or Vactor Trucks

1 City, 25 Contractor, 10 Mutual Support

Road and Arterials

Day 2 Road assessments ongoing

Road Crew responding to potholes and sinkholes

Muck removal ongoing in areas no longer flooded

Durrs roads swept

Water and Wastewater

GTL: 81 MGD; emergency outfall discharge resumed After rainfall started

Lift Stations: 37 surcharged, 2 out of service

Water Main Breaks: 0

Wastewater Breaks: 0

Call Center

5,909 calls since incident began

City Hall

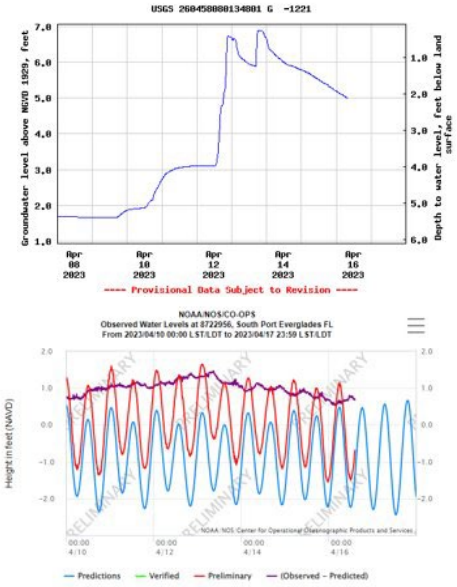
Emergency Repairs ongoing

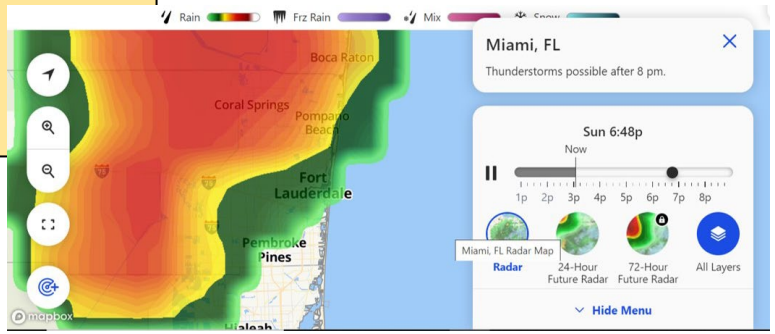
Heavily Impacted Neighborhoods (1 to 3' Depth)

- **Edgewood** (4”) Pumping into FDOT system at SW 9th and 12th Ave; unable to pump into River Oaks due to surcharging
- **River Oaks** (1-2’) 2 x 12” pumps operating into South Fork New River
- **Melrose Manors** (over 6”) Tankers only; no connection to waterways/outfalls
- **Melrose Park** (4”-6”) Flooding persists in middle of neighborhood. Debris cleared at grates to improve flow
- **Durrs** (ponding) All roads open and passable
- **Dorsey-Riverbend** All roads open and passable

Additional Areas of Concern

- Sailboat Bend: Dry; small pockets of standing water
- Victoria Park: Dry; small pockets of standing water
- Croissant Park: 2” of ponding water
- Riverland Areas – County response



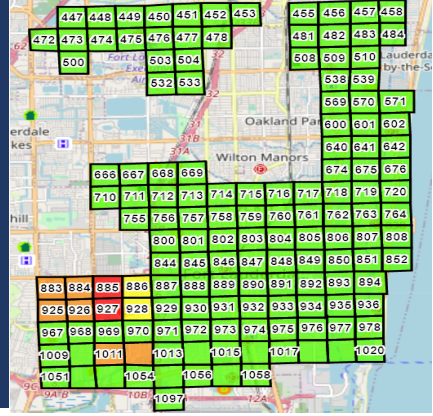


Recovery Operations
April 16, 2023

River Oaks

Melrose Manors

Recovery Operations
April 17, 2023



Assets on Hand

27 Pumping and/or Vactor Trucks

2 City, 18 Contractor, 7 Mutual Support

Road and Arterials

Day 3 Road assessments ongoing

Road Crew responding to potholes and sinkholes

Muck removal in Melrose Manors, River Oaks

Durrs and Dorsey-Riverbend roads swept

Water and Wastewater

GTL: 89 MGD; discharging over emergency outfall

Lift Stations: 48 surcharged

Water Main Breaks: 5

Wastewater Breaks: 0

Call Center

6,761 calls since incident began

City Hall

Emergency Repairs ongoing

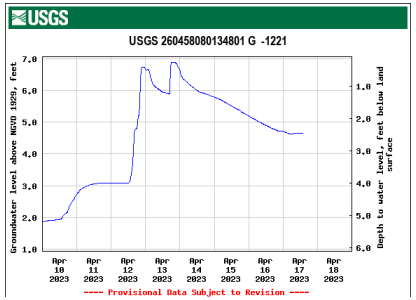
Heavily Impacted Neighborhoods (1 to 3' Depth)

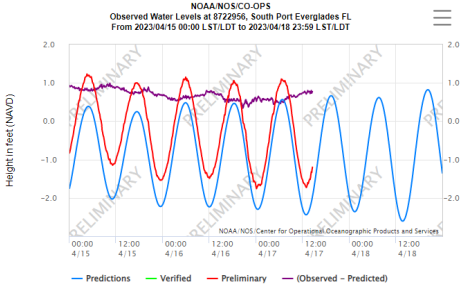
- **Edgewood** (Ponding) Pumping into FDOT system at SW 9th and 12th Ave; unable to pump into River Oaks due to surcharging
- **River Oaks** (Ponding) 2 x 12” pumps operating into South Fork New River
- **Melrose Manors** (over 6”) Added 6” pump on SW 1st St, discharging to Broward Blvd and continued tanker use
- **Melrose Park** (4”-6”) Flooding persists in middle of neighborhood
- **Durrs** (ponding) All roads open and passable
- **Dorsey-Riverbend** All roads open and passable

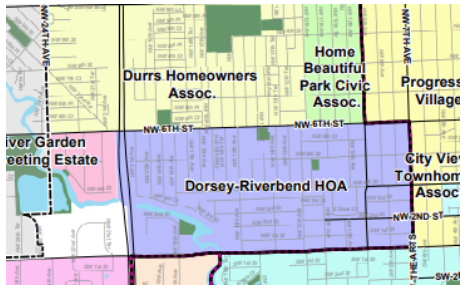
Additional Areas of Concern

- Sailboat Bend: Dry; small pockets of standing water
- Victoria Park: Dry; small pockets of standing water
- Croissant Park: 2” of ponding water
- Riverland Areas – County response

*Conditions worsened due to additional rainfall during the previous 24 hours

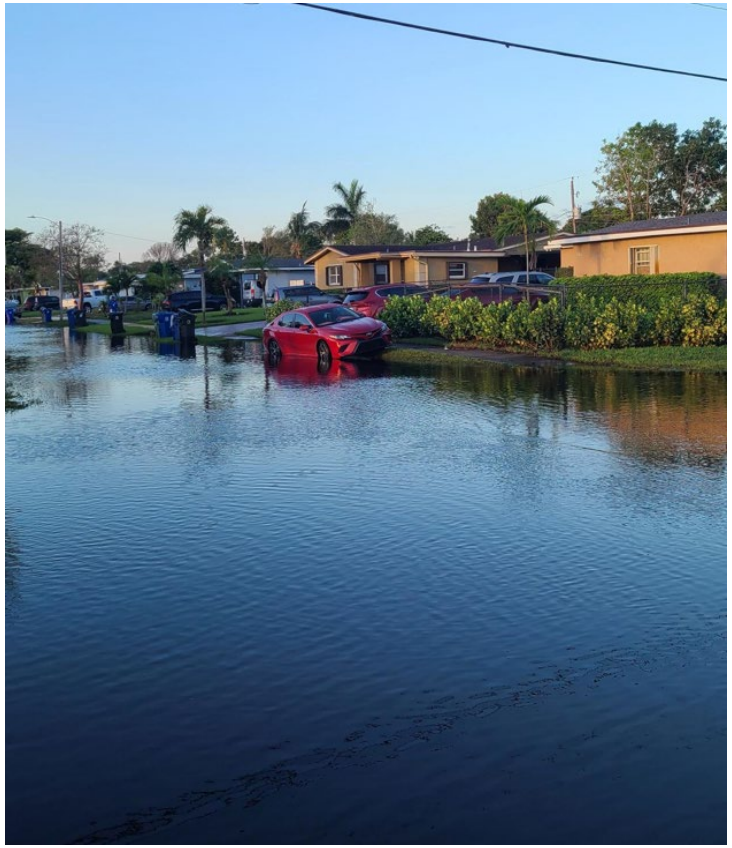




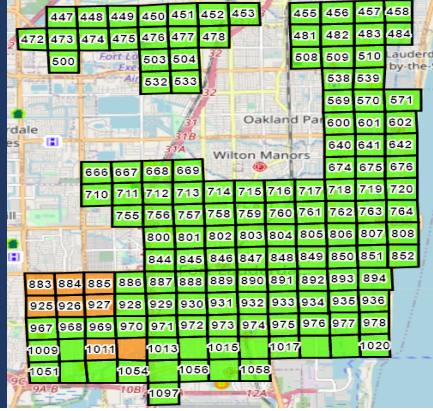


Recovery Operations
April 17, 2023

Melrose Manors



Recovery Operations
April 18, 2023



Assets on Hand

24 Pumping and/or Vactor Trucks

2 City, 11 Contractor, 10 Mutual Support

Road and Arterials

Day 4 Road assessments ongoing

Road Crew responding to potholes and sinkholes

Muck removal through all impacted areas

Roadway sweeping of areas no longer flooded

Water and Wastewater

GTL: 79 MGD; intermittently discharging over emergency outfall

Lift Stations: 31 surcharged

Water Main Breaks: 0

Wastewater Breaks: 0

Call Center

8,214 calls since incident began

City Hall

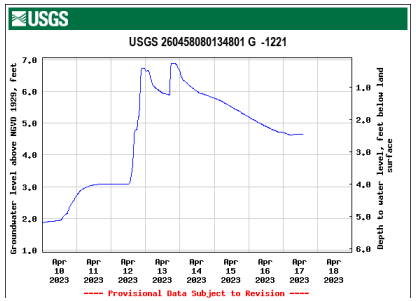
Emergency Repairs ongoing

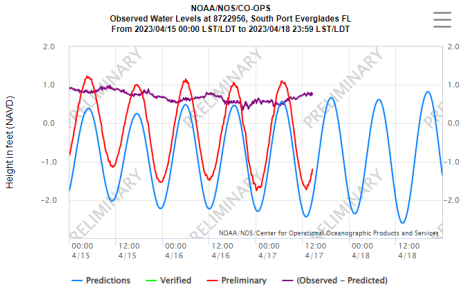
Heavily Impacted Neighborhoods (1 to 3' Depth)

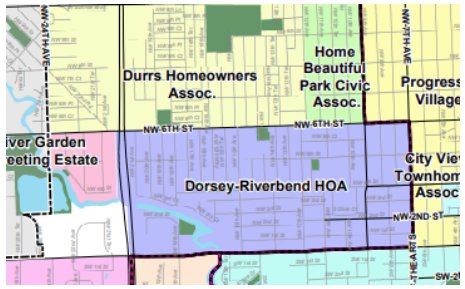
- **Edgewood** (Ponding") Pumping into FDOT system at SW 9th and 12th Ave; unable to pump into River Oaks due to surcharging
- **River Oaks** (Ponding') 2 x 12" pumps operating into South Fork New River
- **Melrose Manors** (4" or less) Flooding persists in eastern portion of neighborhood; continued use of tankers and 2 stationary pumps
- **Melrose Park** (4"-6") Flooding persists in middle of neighborhood
- **Durrs** All roads open and passable
- **Dorsey-Riverbend** All roads open and passable

Additional Areas of Concern

- Riverland Areas – County response

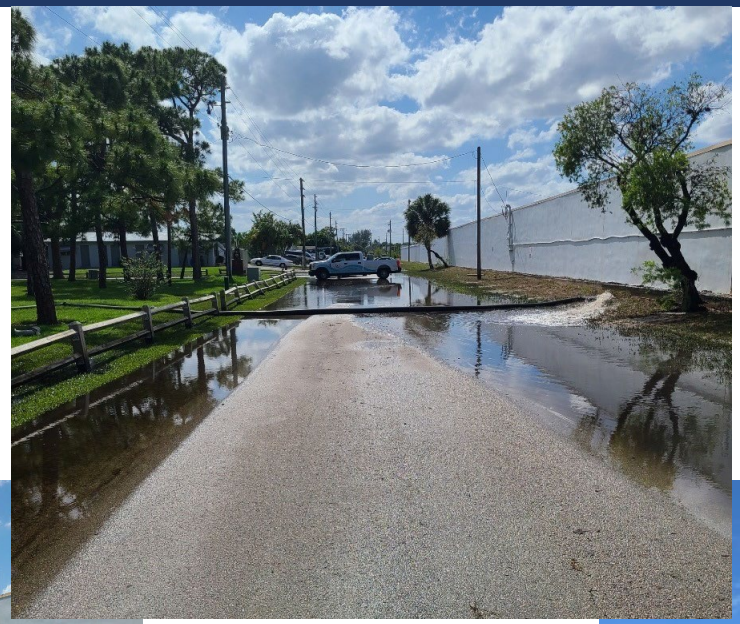






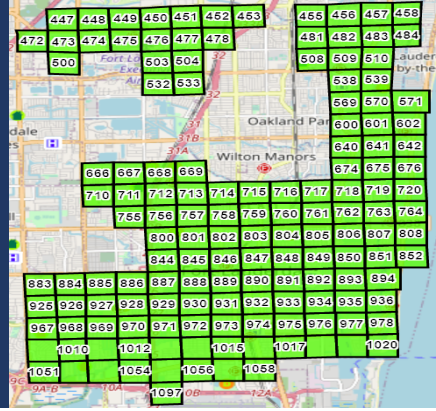
Recovery Operations
April 18, 2023

Melrose Manors



Melrose Park

Recovery Operations April 19, 2023



Assets on Hand

All Contractor and Mutual Aide Dewatering Assets released at 3:00PM

Road and Arterials

Muck removal ongoing in impacted areas and initiated in Melrose Park and Melrose Manors

Swept roads in Riverland area

Water and Wastewater

GTL: 70-80 MGD; no longer discharging over emergency outfall

Lift Stations: 26 surcharged

Water Main Breaks: 0

Wastewater Breaks: 0

Call Center

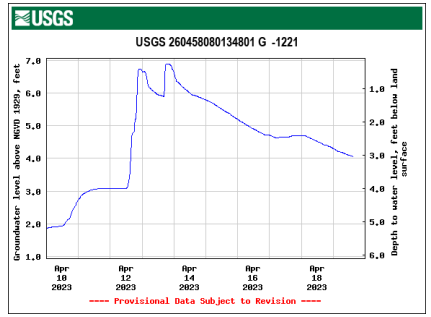
9,371 calls since incident began

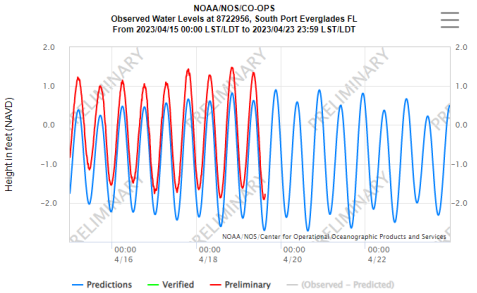
City Hall

Emergency Repairs ongoing

Heavily Impacted Neighborhoods (1 to 3' Depth)

- **Edgewood** All roads open and passable
- **River Oaks** All roads open and passable
- **Melrose Manors** (Ponding) All roads open and passable; Flooding restricted to swales
- **Melrose Park** (Ponding) All roads open and passable; Flooding restricted to swales
- **Durrs** All roads open and passable
- **Dorsey-Riverbend** All roads open and passable

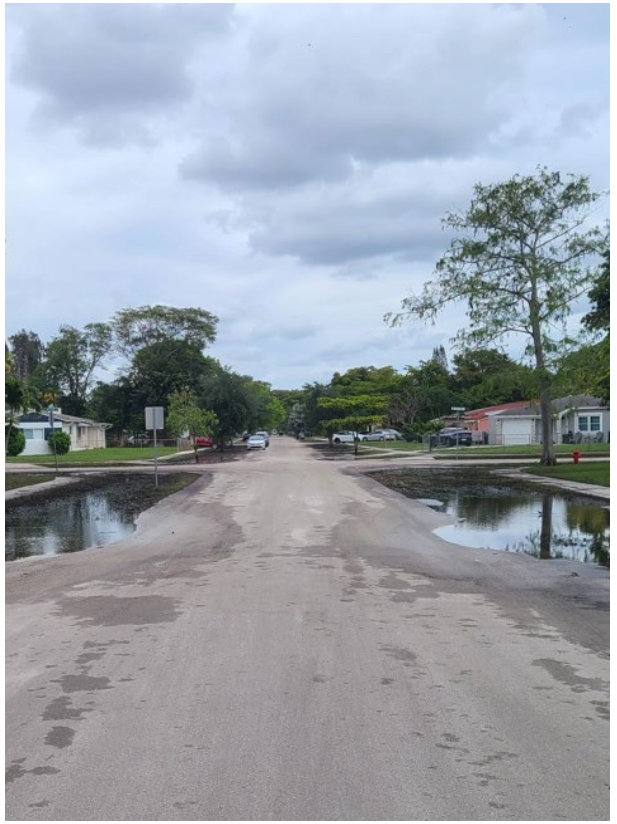




Recovery Operations
April 19, 2023

Melrose Manors

Melrose Park



Recovery Operations
April 19, 2023

Melrose Park Drainage Ditch and Catch Basin Clearing

Recovery Operations
April 20, 2023

Road and Arterials

Muck Removal Activities continue in the Melrose Manors, Melrose Park, Riverland, River Oaks, Edgewood, Dorsey Riverbend, and Durrs Neighborhoods

Streetsweeping continues in impacted areas

Water and Wastewater

GTL: 75 MGD

Lift Stations: 19 surcharged

Water Main Breaks: 1

Wastewater Breaks: 0

Call Center

9,690 calls since incident began; Call Center experienced significant technical issues preventing calls from being answered (resolved 7AM)

Recovery Operations
River Oaks

Assets Used

- 2 Pumping/Vactor Trucks
- (2) 12" pumps used to bypass to the dissipator and (2) 6" pumps throughout the neighborhood to drain areas into the system

Methodology

- Ric-Man Construction (contractor for River Oaks) was able to utilize the newly installed stormwater infrastructure consisting of a 72" trunkline with peripheral systems, to dewater this neighborhood within 72 hours of the event.

Dewatering Timeline and Outcomes

- Ric-Man began to mobilized with the pumping system on Thursday 4/13 at 1 pm.
- Permission was given to discharge into the South Fork of the New River by the Broward County Emergency Management and State of Florida.
- Using the newly installed piping infrastructure and strategic pumping: The River Oaks neighborhood was under 6" of flooding by noon 4/15 (48 hours since the pumping started), can cleared by 4/16 in the am (less than 72hrs since pumping started)

Conclusion

- Although the system was not yet connected to the outfall/dissipator: (2) 12" and (2) 6" pumps were used to bypass discontinuities in the systems and the contractor (Ric-Man) was able to drain this neighborhood much faster than it would have been possible using just Vactor trucks.

Recovery Operations Edgewood

Assets Used

- Up to 11 Pumping/Vactor Trucks
- (1) 12" pump, (1) 8" pump and (1) 6" pump

Methodology

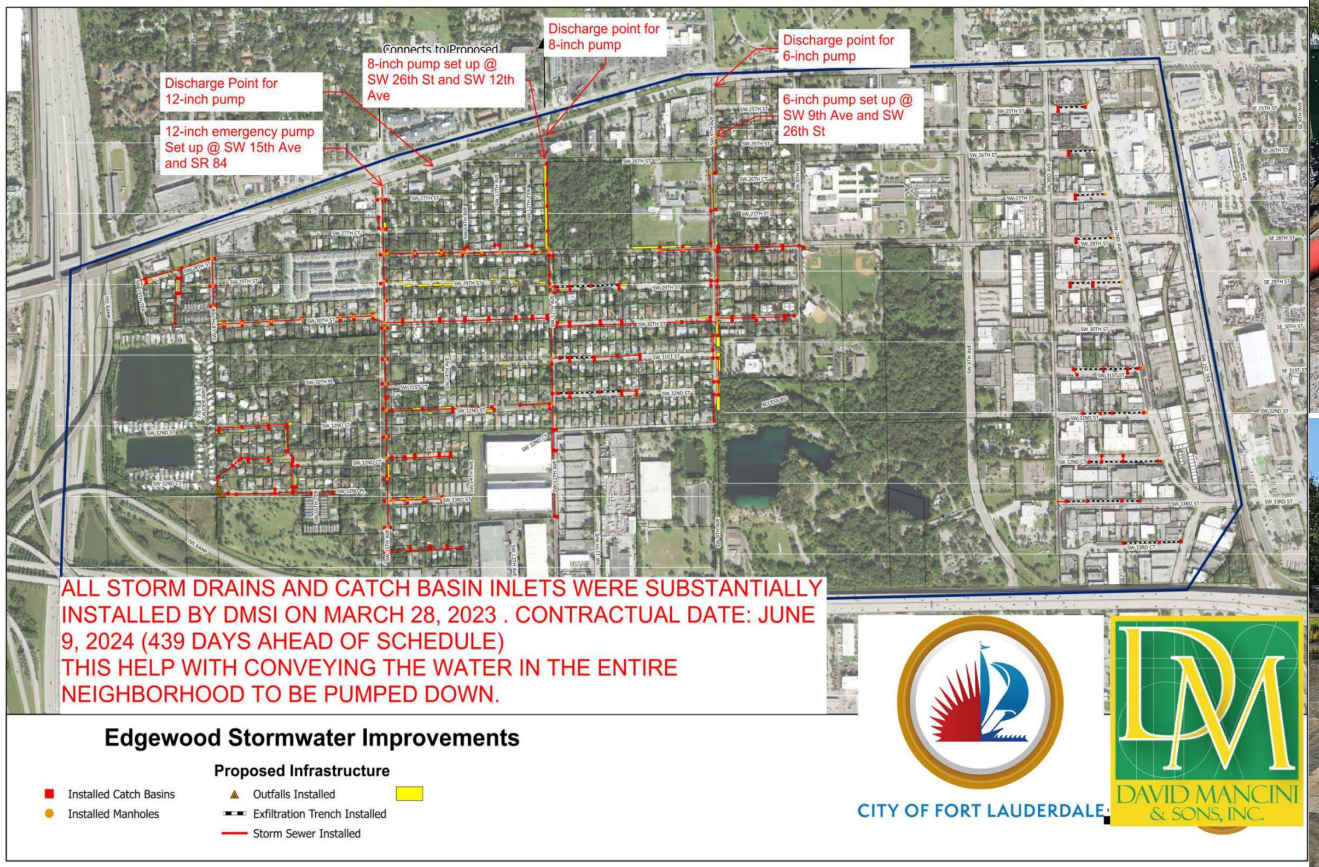
- DMSI (contractor for Edgewood) was able to utilize the newly installed stormwater infrastructure to dewater this neighborhood within 72 hours of the event. A 12" pump was used to dewater into the 72" pipe leading to River Oaks, once enough capacity was created and cleared by Ric-Man, and two (6" and 8") pumps were used to dewater into the SR 84 FDOT system, which drains to the New River.

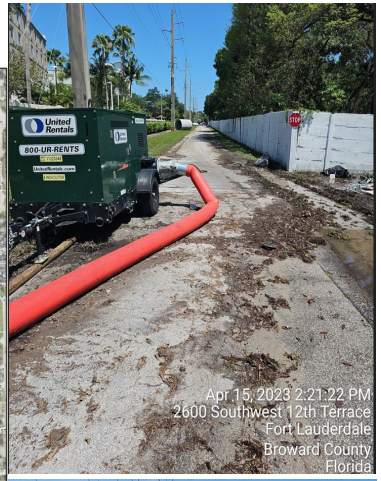
Dewatering Timeline and Outcomes

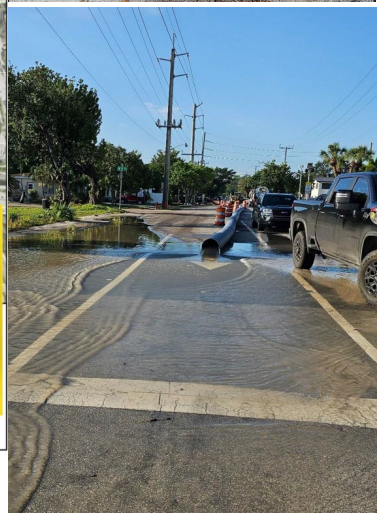
- DMSI began to mobilized with the pumping system on Friday 4/14 in the afternoon.
- Permission was given to discharge into the South Fork of the New River and FDOT system along SR 84 by the State of Florida.
- Using the newly installed piping infrastructure and strategic pumping: The Edgewood neighborhood was under 6" of flooding by noon 4/16 (48 hours since the pumping started), and declared cleared by 4/17 in the am (less than 72hrs since pumping started)

Conclusion

- Using the new infrastructure in Edgewood, and utilizing the systems within River Oaks and along SR 84, the contractor (DMSI) was able to drain this neighborhood much faster than it would have been possible using just Vactor trucks.







Recovery Operations Melrose Manors

Assets Used

- Up to 12 Pumping/ Vactor Trucks
- (4) 6" Pumps

Methodology

- Due to the lack of stormwater infrastructure in this neighborhood, the majority of the dewatering activities had to be performed using Pump/Vactor trucks.
- A chain pumping system was deployed on SW 1st Street and Guthrie-Blake Park by AshBritt (contractor) and City staff. The chain-pump dewatering system consisted of (3) 6" pumps connected one to another which discharged in the FDOT system along Broward Blvd. This configuration performed well for the flooded areas located behind U-Haul and Starbucks, due to its proximity to the FDOT system, but could not be used for flooded areas located deeper within the Melrose Manors neighborhood.

Dewatering Timeline and Outcomes

- Pump/Vactor trucks began operating though the neighborhood Thursday morning (4/13).
- Friday (4/15) permission was granted to dewater in the County systems on NW 31st Ave. and FDOT systems along Broward Blvd.
- Saturday: Dewatering continued using City/Mutual Aid and Contractor Pump/Vactor trucks which dewatered into the system on NW 31st Ave.
- Sunday: chain-pump system was set up on SW 1st Street.
- Using the around the clock Pump/Vactor trucks and the chain-pump system, all flooding in the Melrose Manors neighborhood was reduced to under 6" of flooding by morning 4/18, and cleared by 4/19 afternoon.

Conclusion

- Because the use of stationary pumps was restricted to one area, dewatering took significantly longer using primarily Pump/Vactor trucks. Permanent stormwater improvements are currently in design for Melrose Manors, in the meantime, a temporary solution will be implemented that can accommodate stationary pumping in the event of extreme rainfalls.

Recovery Operations
Melrose Park

Assets Used

- Up to 13 Pumping/ Vactor Trucks

Methodology

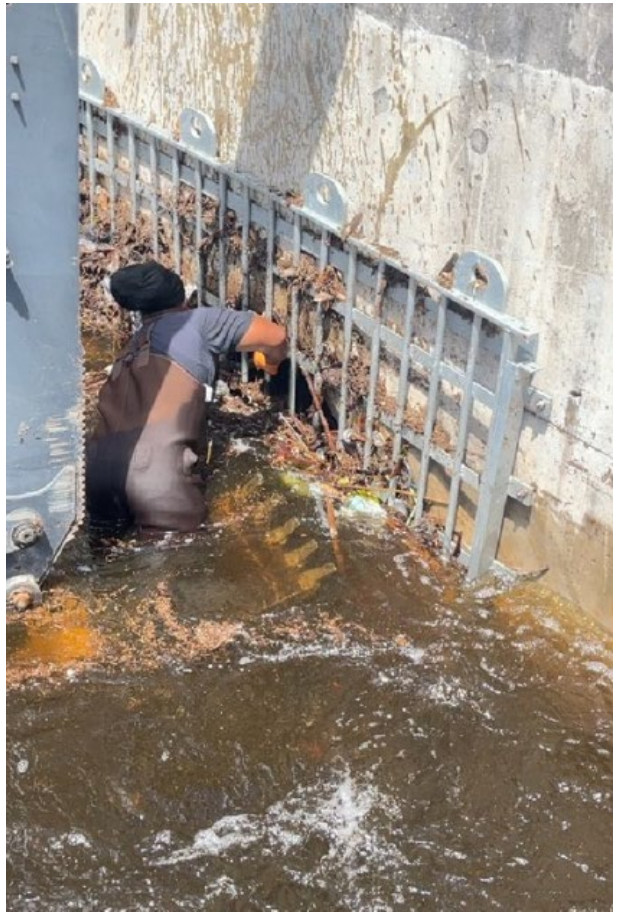
- A large portion of this neighborhood is being drained by the open swale system and remained relatively dry during the rain event. The middle areas of the neighborhood not hydraulically connected to the swale system sustained significant flooding which could only be attenuated using Pump/Vactor trucks.
- Continuous cleaning and maintenance was carried out off the swale system and the screened outfall located and Kentucky Ave., which had to be cleared of debris several times after the storm.

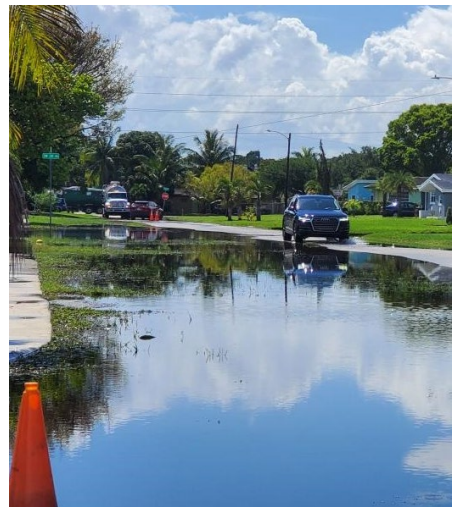
Dewatering Timeline and Outcomes

- Opened Lauderhill sluice gates late on April 14 which supported drainage of the ditch.
- Pump/Vactor trucks began operating though the neighborhood Thursday morning (4/13).
- 4/18 the grate at Kentucky Avenue was cleared by City crews for the 2nd time since the storm, causing water levels in the canal to drop significantly
- Using the around the clock Pump/Vactor trucks and maintenance on the swale system all flooding in the Melrose Park neighborhood was reduced to under 6" of flooding by afternoon 4/17, and cleared by 4/19 morning.

Conclusion

- Maintenace of the swale system within this neighborhood remains critical in order to keep the runoff from surcharging in the swales.





Recovery Operations
Other Impacted Neighborhoods

Durrs Neighborhood

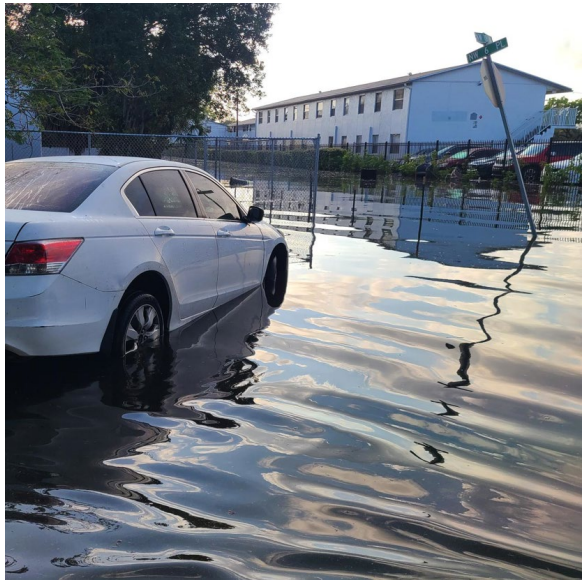
- Up to 5 Pump/Vactor Trucks were deployed in this neighborhood to relieve the flooding
- The flooding was significantly reduced by 4/14 and all roads became passable by morning of 4/15
- A permanent stormwater infrastructure project for this neighborhood is scheduled to start construction summer, 2023 and will take approximately 2 years to complete. Once installed, the new infrastructure will significantly reduce the intensity and duration of the flooding in the Durrs neighborhood.

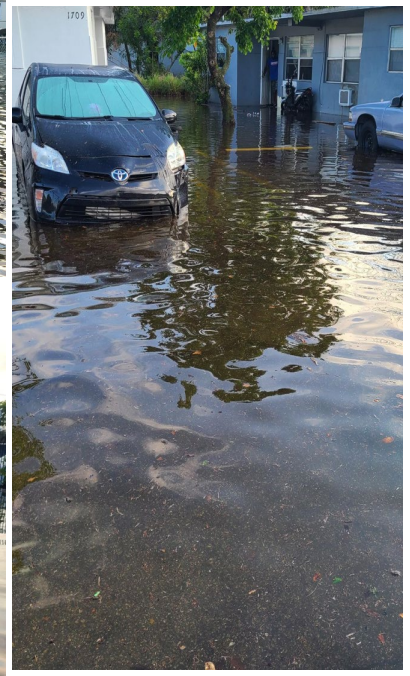
Dorsey Riverbend Neighborhood

- Up to 2 Pump/Vactor Trucks were deployed in this neighborhood to relieve the flooding
- The flooding was significantly reduced by 4/14 and all roads became passable by morning of 4/15
- A permanent stormwater infrastructure project for this neighborhood is scheduled to start construction summer 2023 and will take approximately 2 years to complete. Once installed, the new infrastructure will significantly reduce the intensity and duration of the flooding in the Dorsey Riverbend neighborhood.

Sailboat Bend, Poinsettia Heights, South Middle River and Middle River Terrace

- Additional low lying neighborhoods were impacted during this unprecedented rainfall event. Flooding in these areas was caused by lack of infrastructure and/or elevated water level in the waterway exasperated by upstream discharges from the western areas of the county. Drainage studies for these neighborhoods have been identified in the future years as part of the City's CIP program.





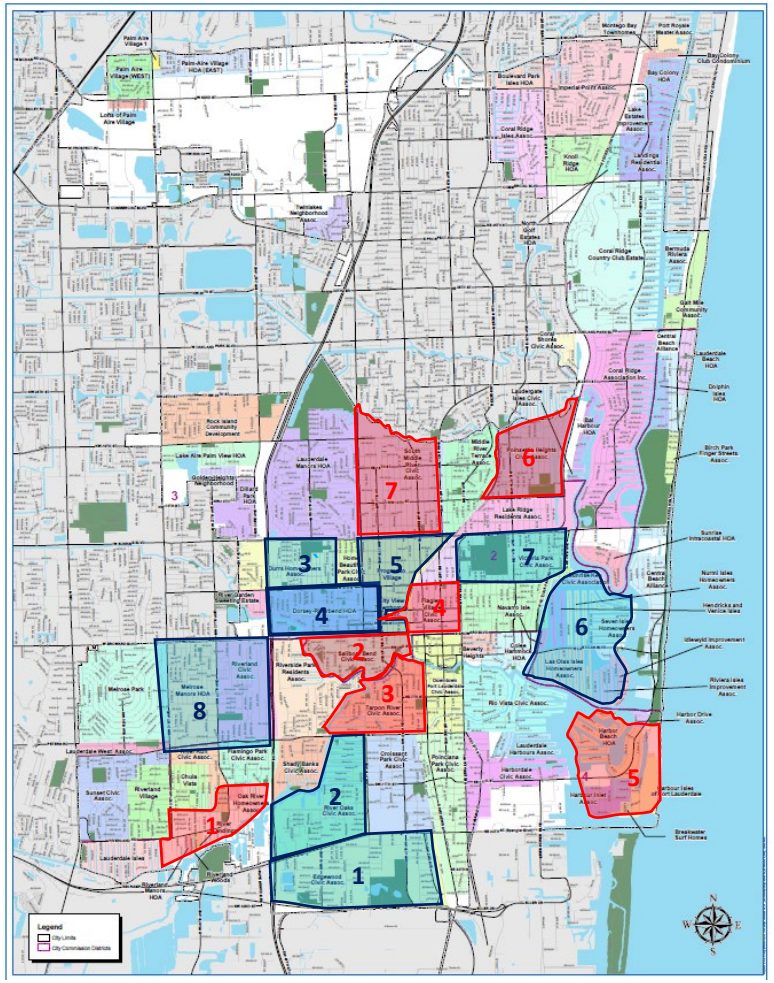
Stormwater Master Plan

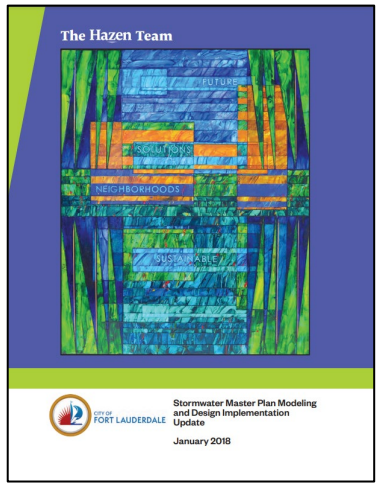
Tranche 1

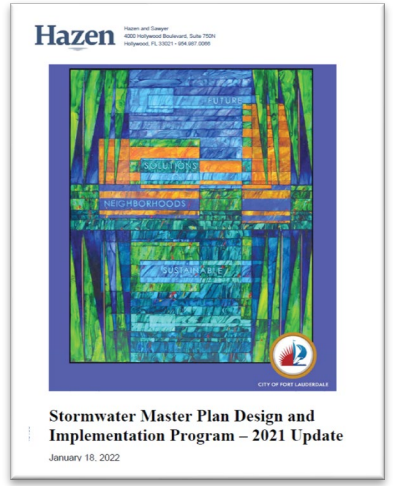
1. Edgewood: In Construction
2. River Oaks: In Construction
3. Durrs: Design Complete; Bidding May 2023
4. Dorsey-Riverbend: Design Complete; Bidding May 2023
5. Progresso Village: Design Complete; Bidding May 2024
6. Southeast Isles: Design Complete; Bidding May 2025
7. Victoria Park: Design Complete; Bidding May 2024
8. Melrose Manors/Riverland Civic: In Design; est completion Dec 2024

Tranche 2 (Planning and Design to begin 2025)

1. Riverland Road Areas
2. Sailboat Bend
3. Tarpon River
4. Flagler Village
5. Harbor Isles/Inlet
6. Poinsettia Heights
7. South Middle River







Recovery Operations
Pump/Vactor Trucks vs. Pumps

Example: 4"of rainfall over a 100-acre watershed ➡ **10,750,000** gallons of ponding water.

Pump/Vactor Truck Specs:
- Capacity: 3000 gallons
- 10-15 Trips per day (depending on dewatering location)

Resources Required to Dewater 10,750,000 gallons Using Pump/Vactor Trucks :
- Assuming 15 Trucks working in the example
- 15 trips for each truck per day

Results:
- 3584 total trips required
- **16 days** required for (15 trucks at 15 trips/per truck to dewater 10,750,000 gallons

6" Pump Specs:
- Capacity: Min/Max 500/3300 gpm (gallons per minute)
- Assume 1750 gpm with 24-hr per day run time

Resources Required to Dewater 10,750,000 gallons Using 6" Pumps:
- Assuming 2 pumps working in the example
- Running 24-hrs

Results:
- **2.1 days (51 hours)** required to dewater 10,750,000 gallons with (2) 6" pumps

8" Pump Specs:
- Capacity: Min/Max 500/4000 gpm (gallons per minute)
- Assume 2500 gpm with 24-hr per day run time

Resources Required to Dewater 10,750,000 gallons Using 8" Pumps:
- Assuming 2 pumps working in the example
- Running 24-hrs

Results:
- **1.5 days (36 hours)** required to dewater 10,750,000 gallons with (2) 8" pumps

12" Pump Specs:
- Capacity: Min/Max 1300/9000 gpm (gallons per minute)
- Assume 5000 gpm with 24-hr per day run time

Resources Required to Dewater 10,750,000 gallons Using 12" Pumps:
- Assuming 2 pumps working in the example
- Running 24-hrs

Results:
- **18 hours** required to dewater 10,750,000 gallons with (2) 12" pumps

Pump/Vactor Trucks

Pros:
- Mobility - can reach flooded areas easily
- High visibility
- Ability to dewater at away location

Cons:
- Limited capacity: takes 10X or more time to dewater a given volume of water compared to stationary pumps
- Requires many resources (financial and equipment/staff)

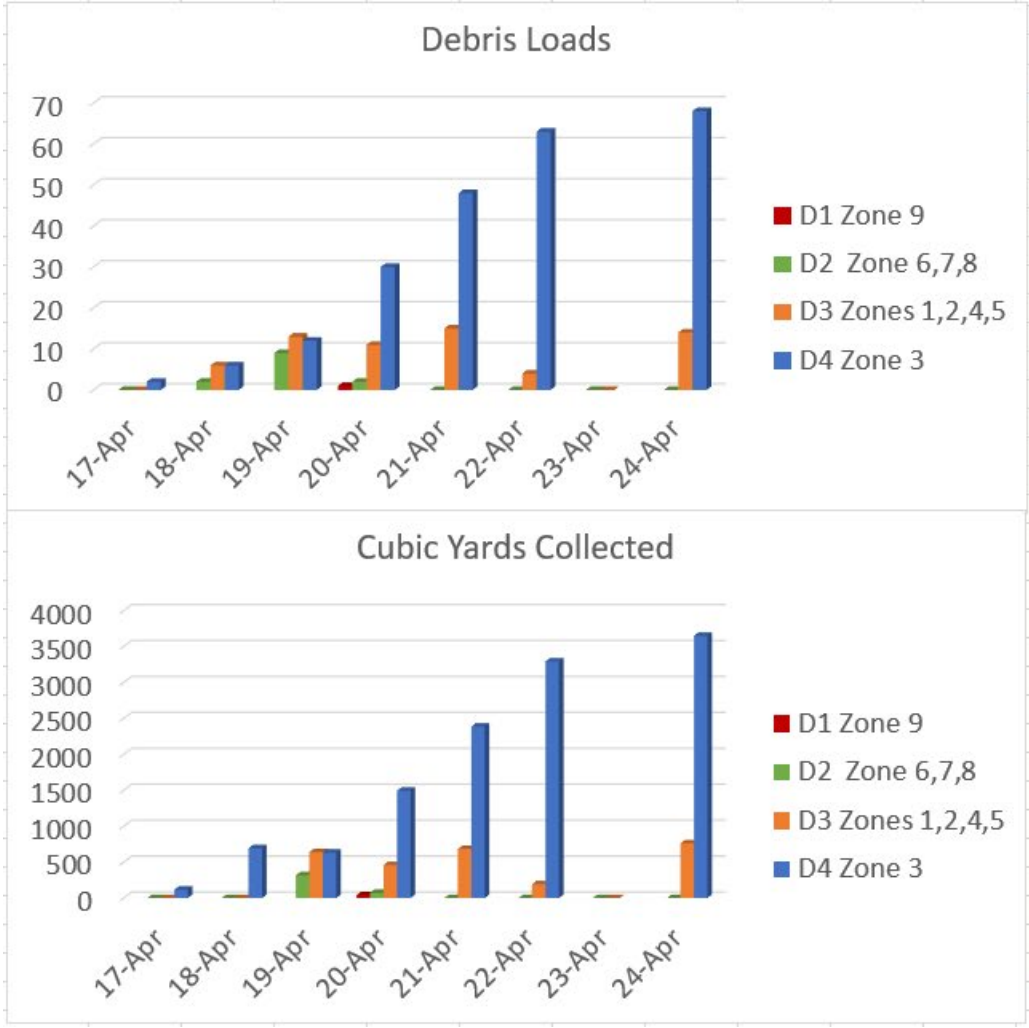
Pumps

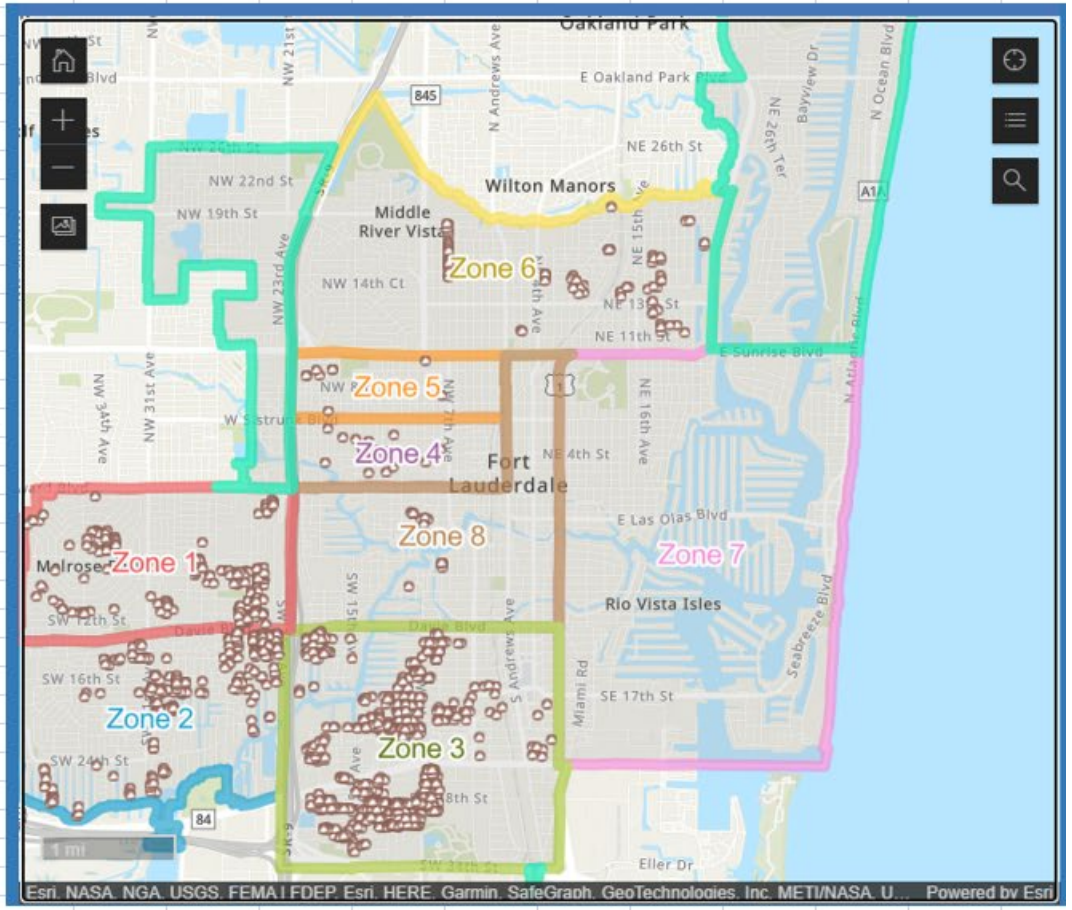
Pros:
- Highly efficient compared to Pump/Vactor Trucks
- Cheaper to operate, using less resources

Cons:
- Flooding locations must meet certain criteria:
  - Near dewatering location to minimize impacts (discharge hoses) to residents
  - Requires a drainage system with sumps, so pumps can properly operate

Debris Summary (as of 4/24)

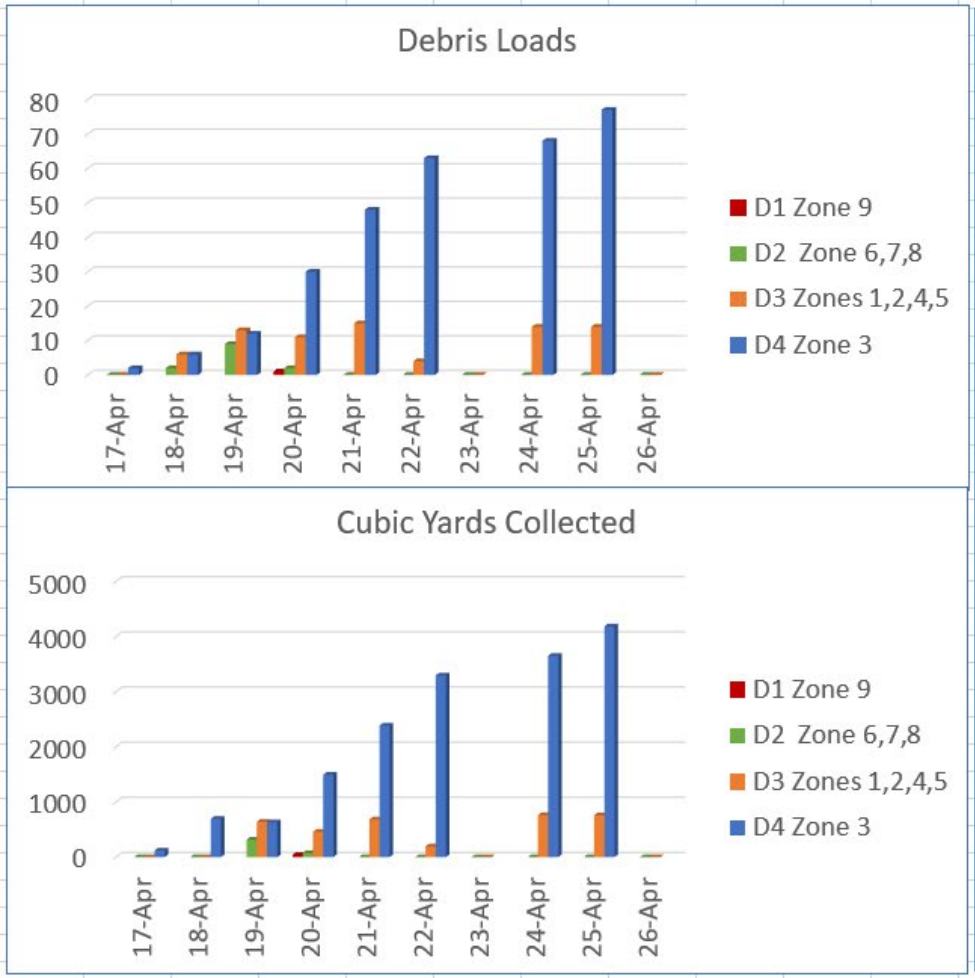
NOTE: District Boundaries do not exactly align with the Debris Zones

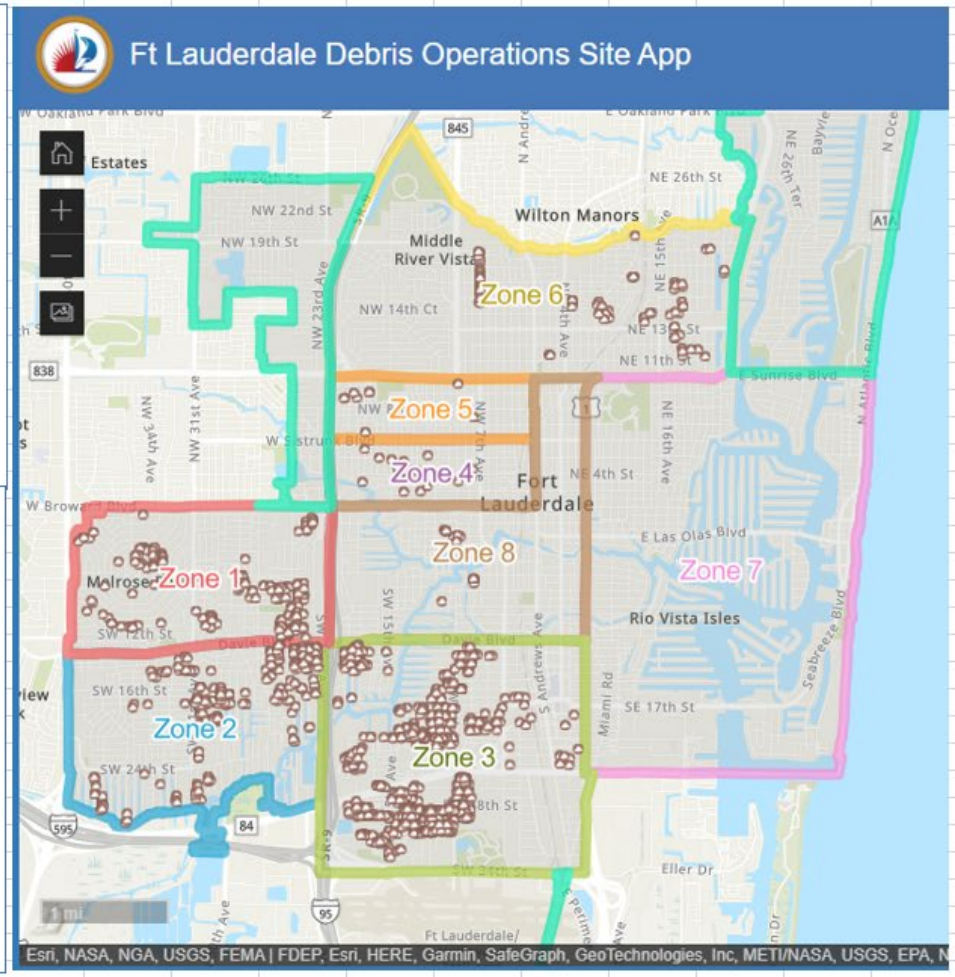


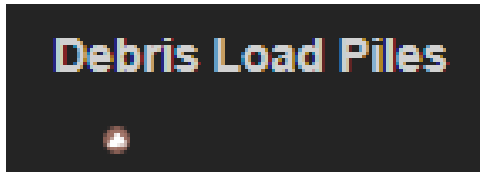


Daily Debris Summary (as of 4/25)

NOTE: District Boundaries do not exactly align with the Debris Zones



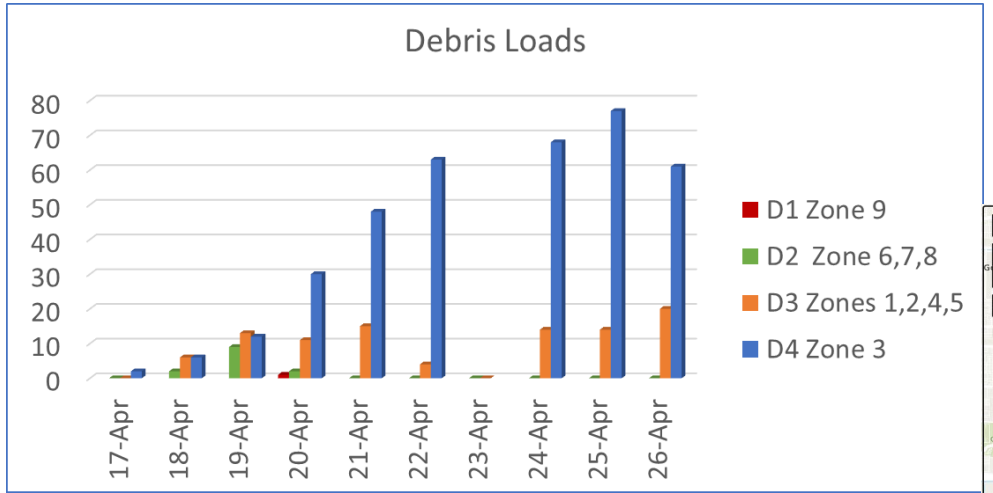


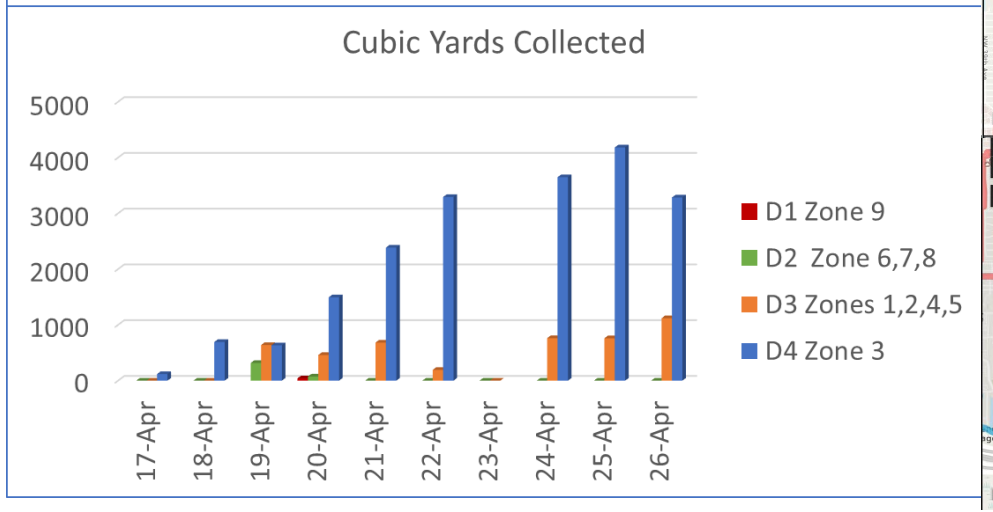


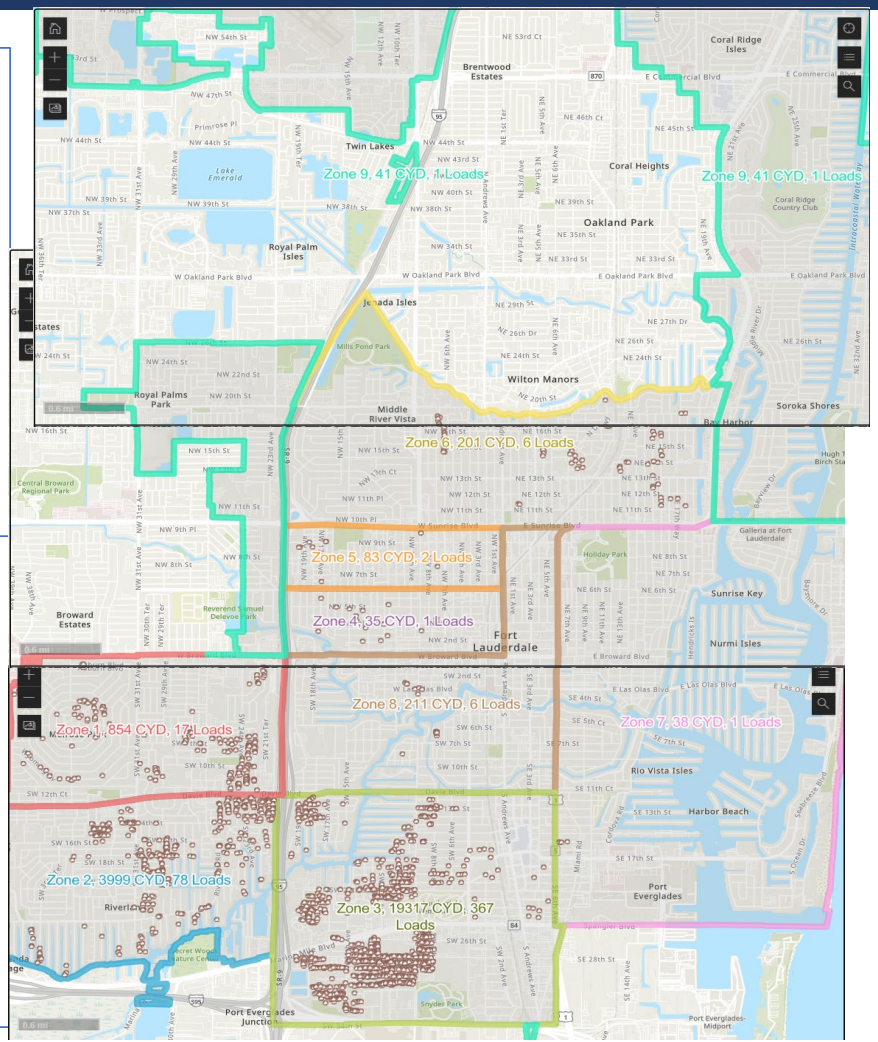
307 Loads Collected

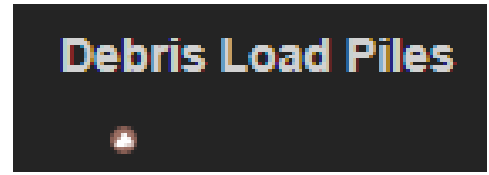
Daily Debris Summary (as of 4/26)

NOTE: District Boundaries do not exactly align with the Debris Zones





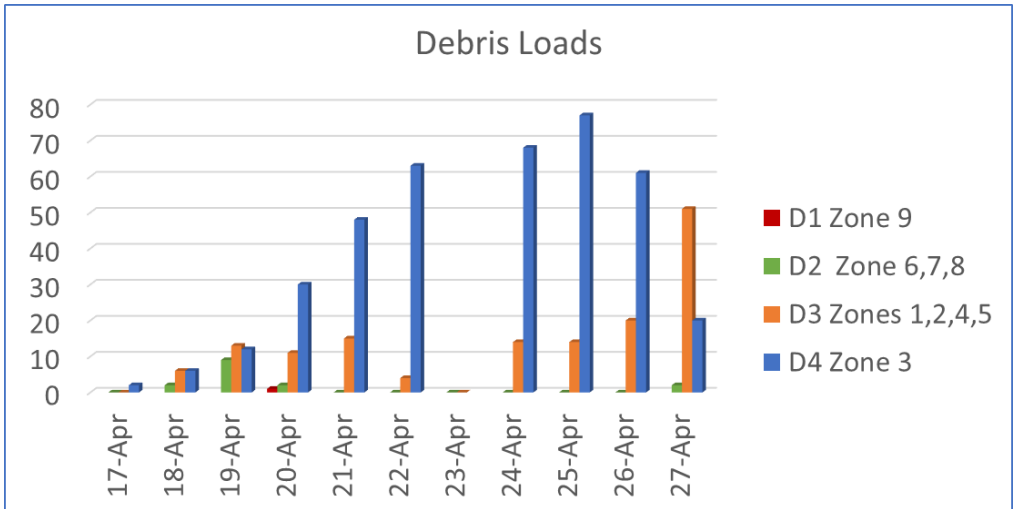


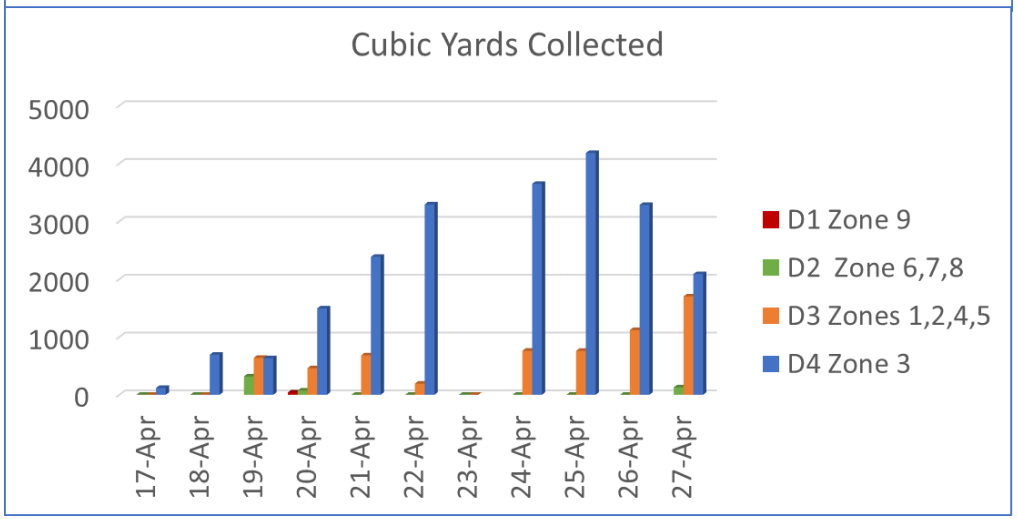


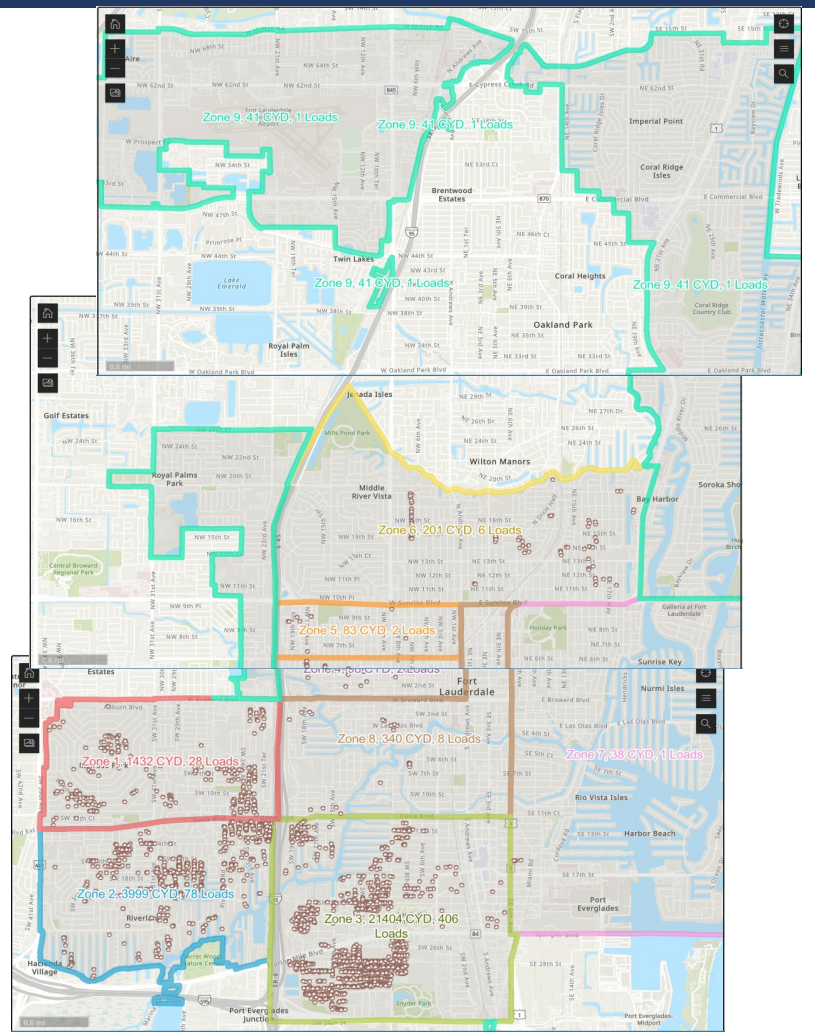
479 Loads Collected

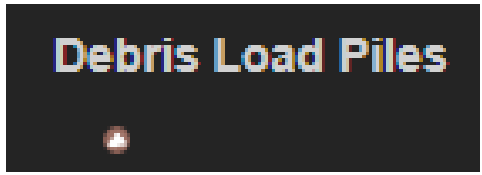
Daily Debris Summary (as of 4/27)

NOTE: District Boundaries do not exactly align with the Debris Zones





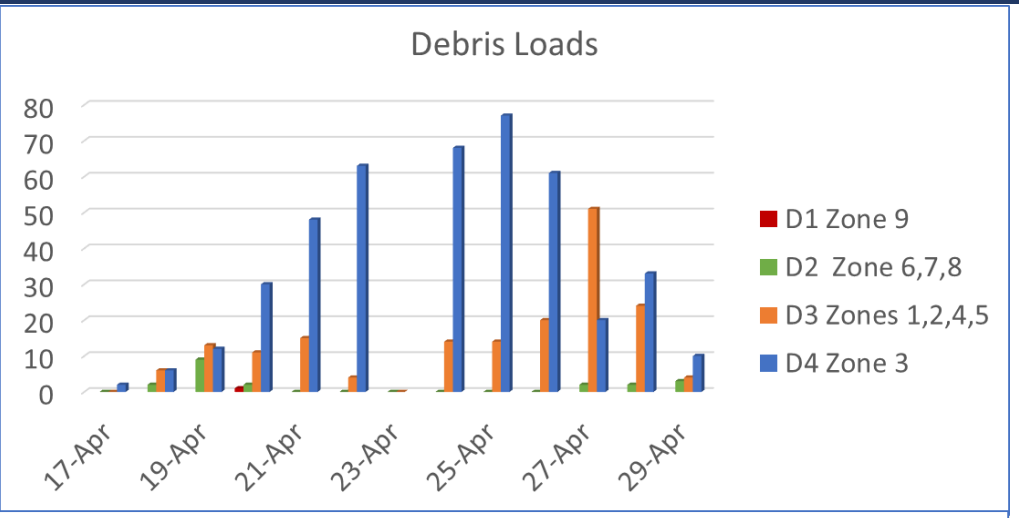


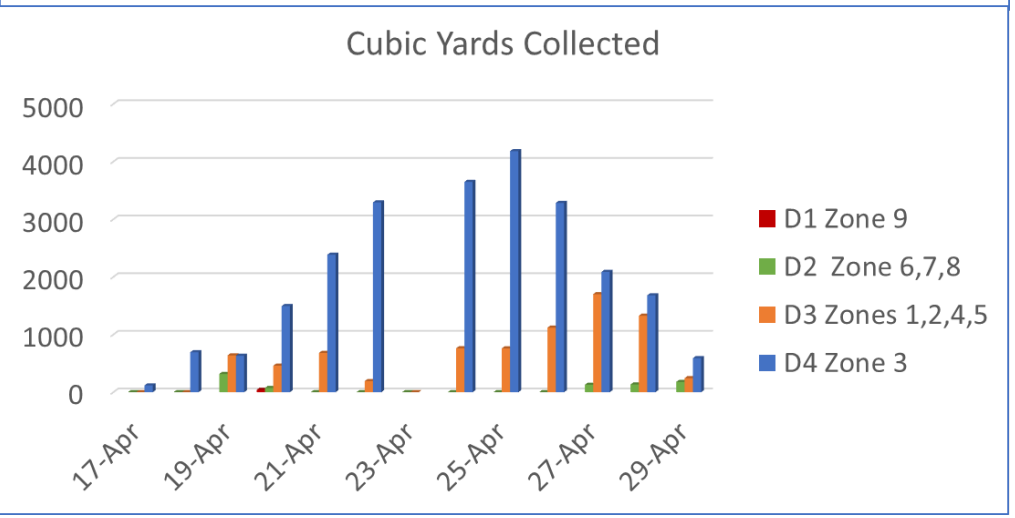


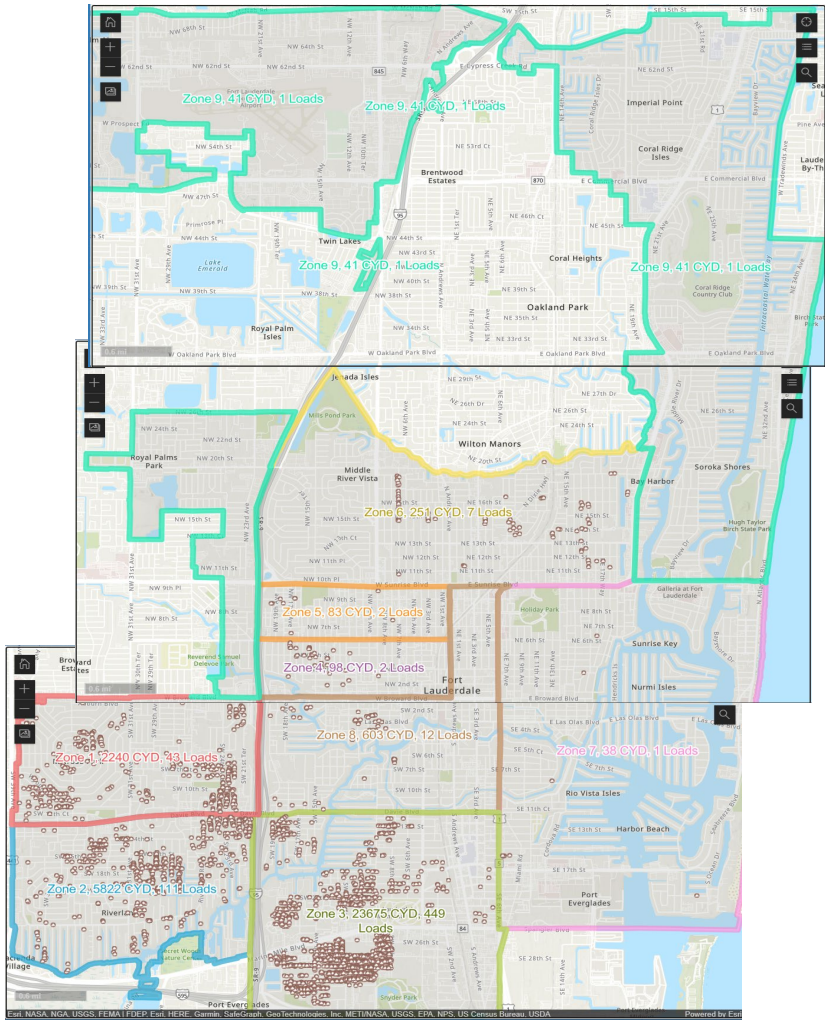
552 Loads Collected

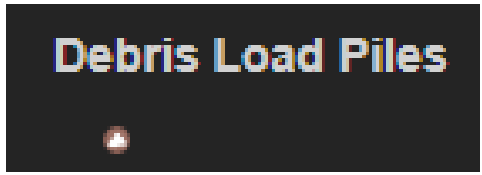
Daily Debris Summary (as of 4/29)

NOTE: District Boundaries do not exactly align with the Debris Zones









628 Loads Collected

Recovery Operations Lessons Learned

- Effectiveness of Portable Pumps vs Vactor/Pumping Trucks
- Stormwater Operations not staffed for 24/7 operations; organizational changes needed during emergencies for operations greater than 48 hours to maintain continuous coverage
- Impact of canal levels and groundwater levels on drainage capacity and unwatering operations
- Importance of ILAs with Broward County, Lauderhill and adjacent communities to operate & maintain systems
- Emergency use of Broward County / FDOT drainage systems necessary when flood thresholds reached
- Use of emergency contracts to augment vactor/pump truck capacity
- Area commanders & pump masters to manage operations in each neighborhood
- Coordination of mutual aid support
- Airtags to track location of vendors/mutual support vehicles to augment GPS tracking of City vehicles
- Use of drones and helicopters for rapid assessments
- Debris clearing of stormwater systems to aid in water flow (Melrose Park ditch)
- Integration of Qalerts, GIS mapping, and recon teams for situational awareness (assessment and prioritization)
- Muck removal and debris management scheduled immediately following unwatering operations

Recovery Operations Immediate Actions

- Temporary Pumping Plan for Melrose Manors with sump pits, pre-identified equipment, and ILAs with Broward County and FDOT
- Accelerate Melrose Manors design and permitting to the extent possible
- Procure additional Vactor truck and 4”/6” pumps with hoses
- Work with IT to develop GIS tracking program to directly input recon data

Recovery Operations Long Term Plan

- Review priorities for Stormwater Master Plan
  - Tranche 1
    - Edgewood & River Oaks – In Construction
    - Durrs & Dorsey Riverbend – Solicitation May 2023, start construction January 2024
    - Progresso & Victoria Park - Solicitation May 2024, start construction January 2025
    - Southeast Isles – Solicitation May 2025, start construction January 2026
    - Melrose Manors – Design complete December 2024, solicitation January 2025, start construction September 2025
  - Tranche 2 development – planning and design January 2025 – December 2027

Riverland Road Areas
Sailboat Bend
Tarpon River
Flagler Village

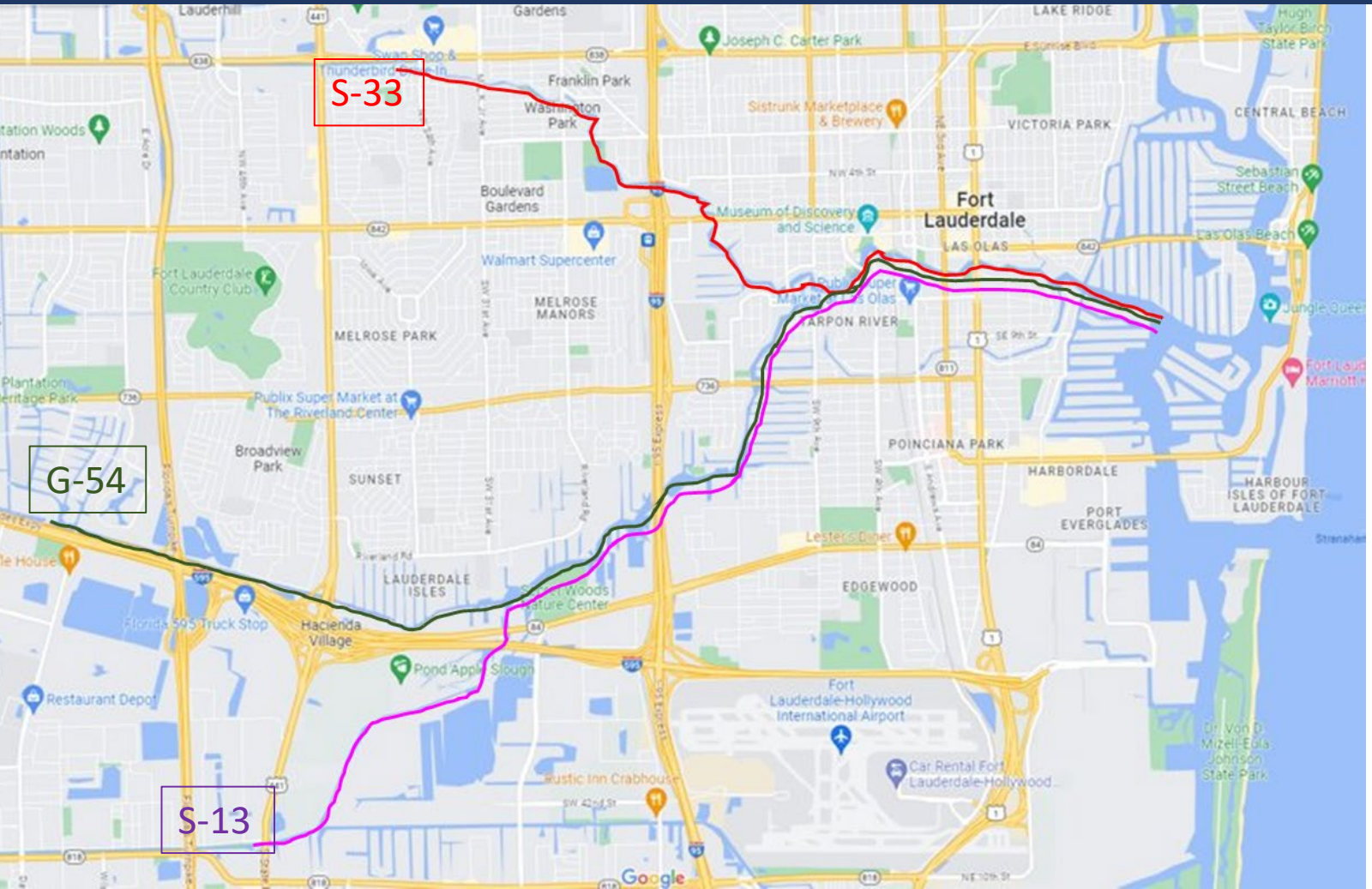
Harbor Isles/Inlet
Poinsettia Heights
South Middle River

- Adjust staffing levels to prioritize and accelerate stormwater project execution (project management)

Conclusion

Although much more intense than any storm system is designed to handle, the rain event of April 2023 demonstrated the City's strong emergency response capacity and the ability to quickly implement respond need to for robust response plans to alleviate flooding

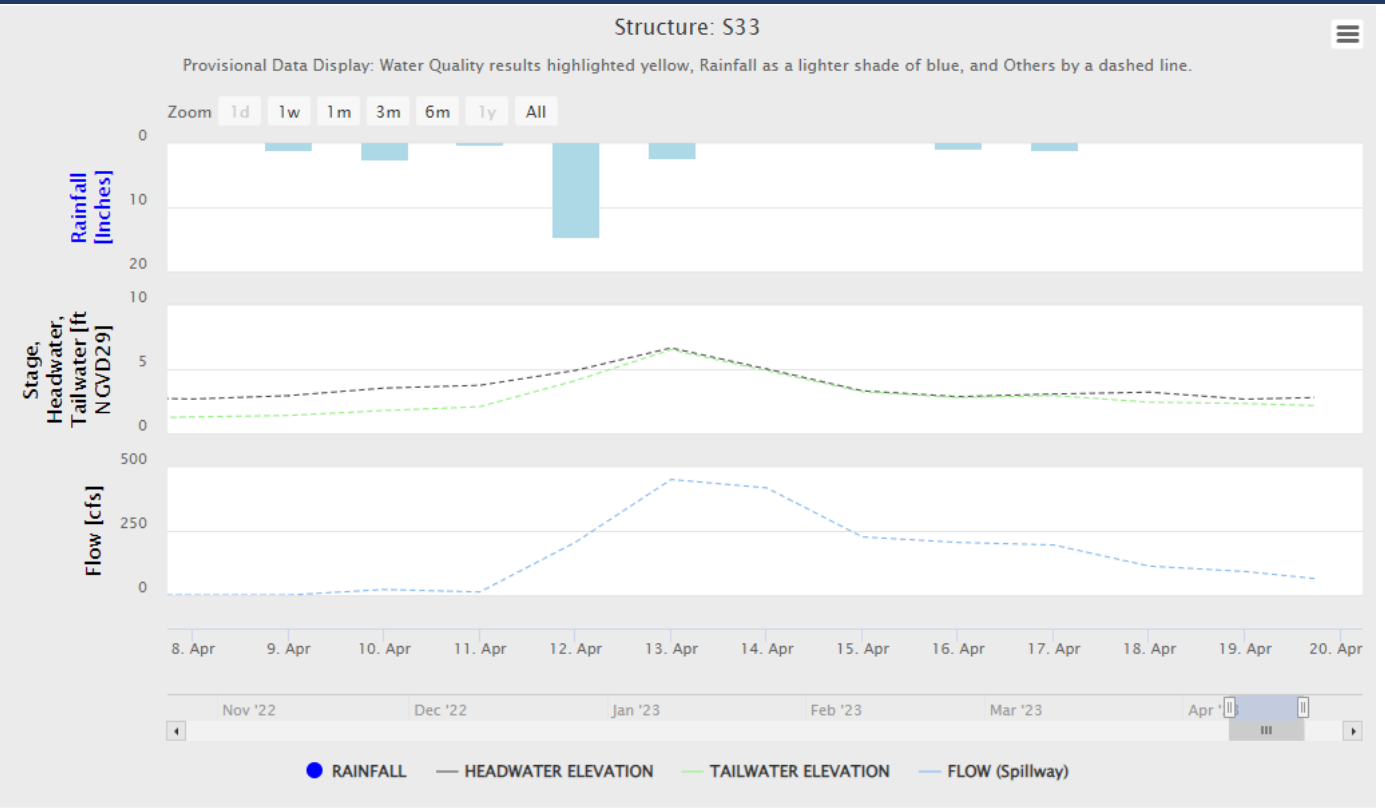
SFWMD Structures



Three SFWMD structures discharge into the north and south forks of the New River.

Flows from the west increase surface water levels in the tidal waterways in Fort Lauderdale, reducing the City's ability to drain our stormwater systems by gravity.

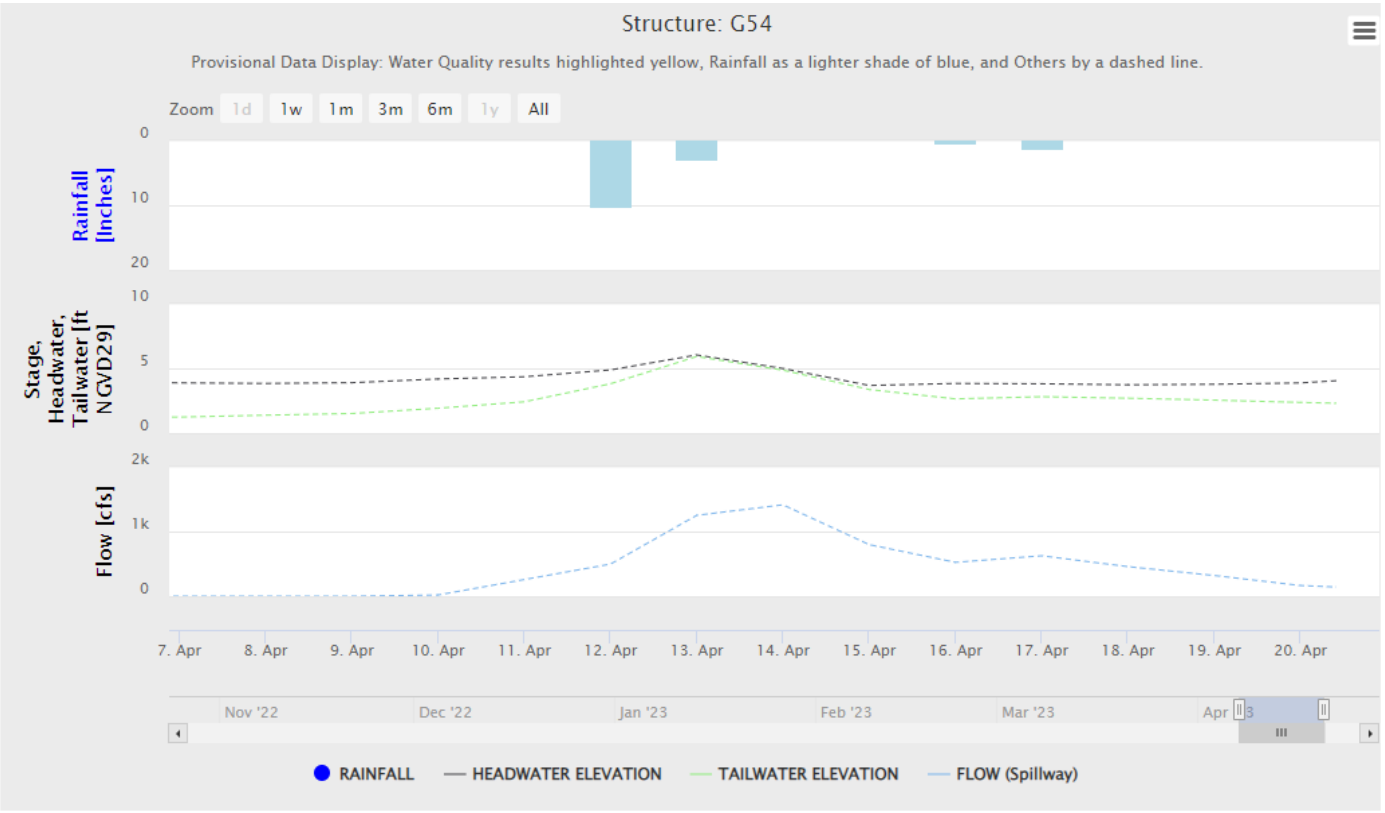
Water Levels in SFWMD Structures
S-33



This structure started actively discharge on April 11 in response to earlier rain events impacting western communities. Tailwater elevations did not return to a normal level until after April 20.

At Sunrise across from the Swap Shop.

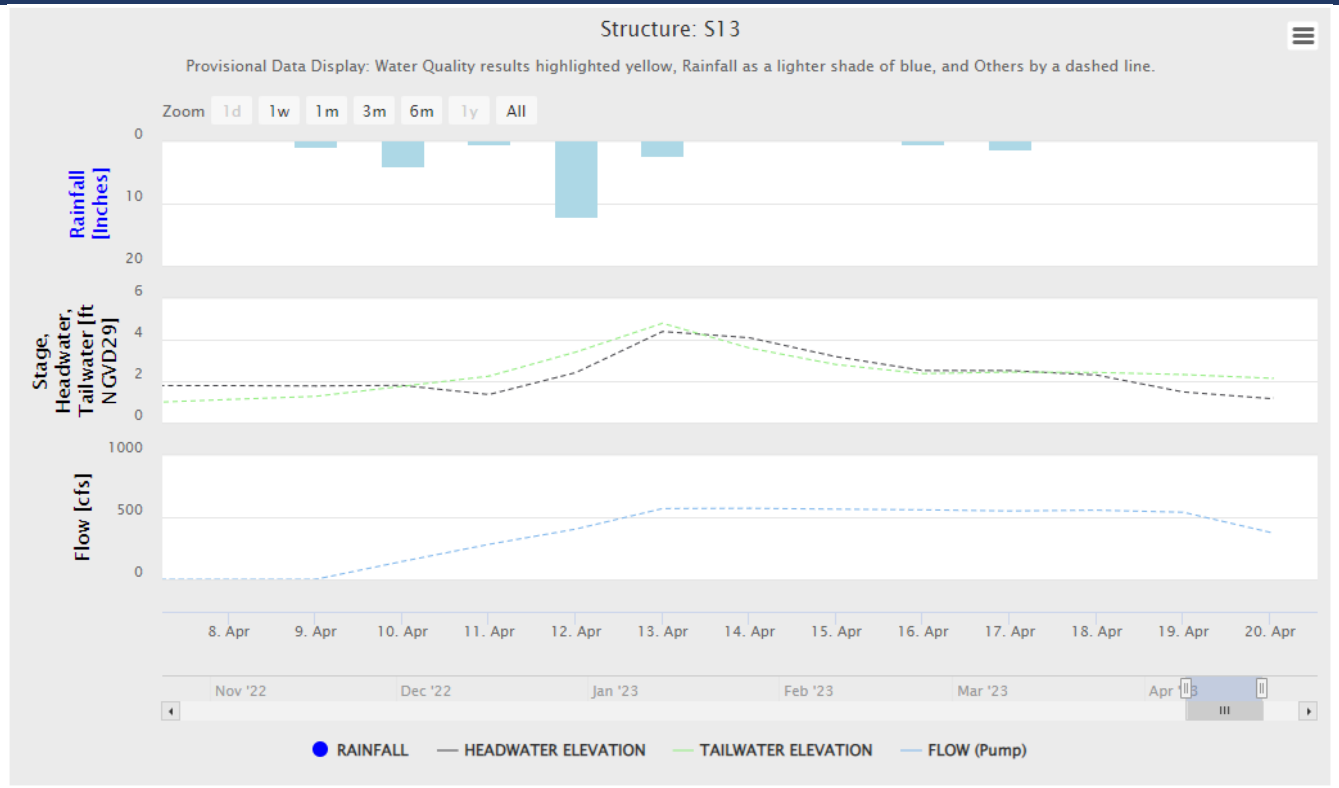
Water Levels in SFWMD Structures
G-54 – Sewell Lock



Griffin, east of University

This structure discharging on April 14 at over 1400 cfs (volume of an Olympic Swimming pool every minute). Tailwater elevations did not return to a normal level until after April 20.

Water Levels in SFWMD Structures S-13

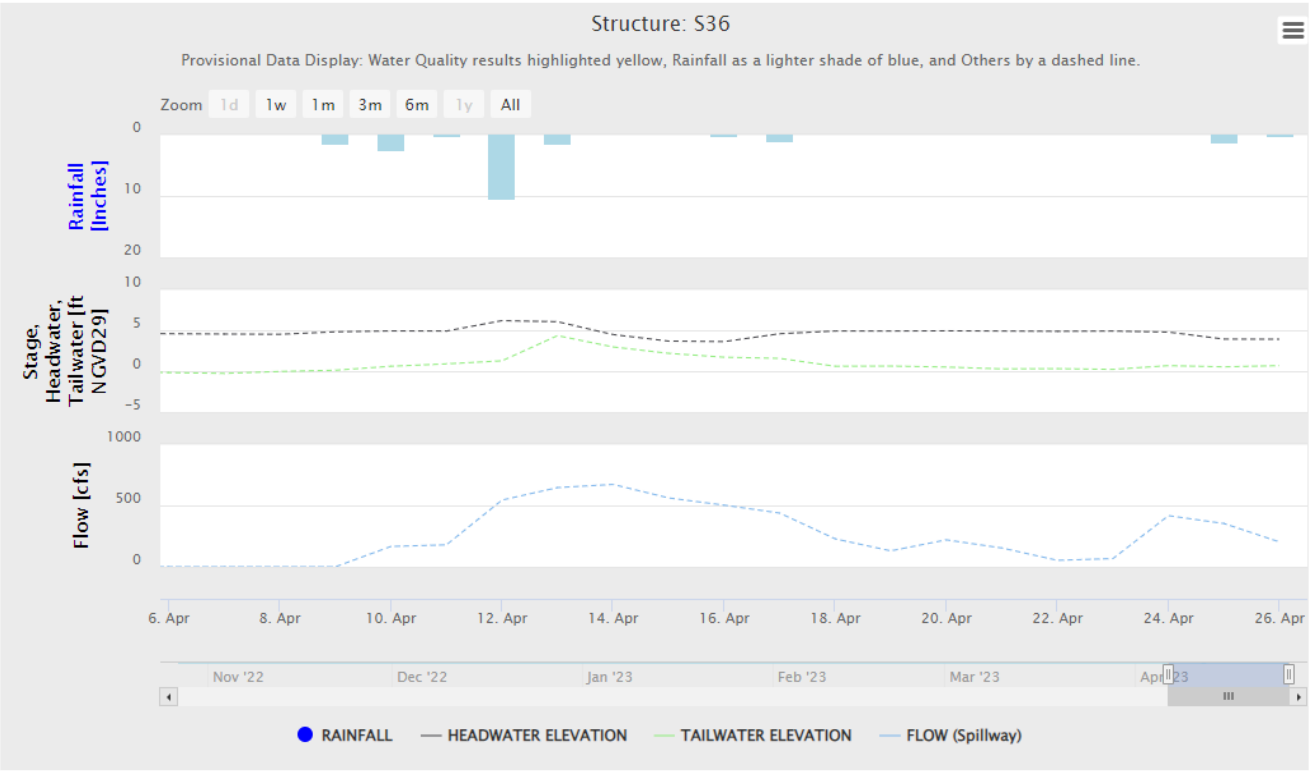


This structure started actively discharge on April 9 in response to earlier rain events impacting western communities. Following the flash flood, flows of 500 cfs continued through April 19.

At 441 and Orange Drive – Discharges to South Fork of the New River

Water Levels in SFWMD Structures

S-36 – Impacts on the South Fork of the Middle River



This structure started actively discharge on April 9 in response to earlier rain events impacting western communities. Tailwaters (elevation of surface water in FTL neighborhoods) were elevated through April 18)

West of Wilton Manors near 441