

Miami's Roadmap to Resilience

MFB SLR & Flood Prevention Group 2 Projects Workshop

Wednesday, September 7, 2022
MFB Board & CRC

In Partnership with



Agenda



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In Partnership with
**CDM
Smith**

- Introduction and Purpose of the Workshop (OCI)
- Brief SWMP Review (CDM Smith)
- Review of Stormwater Group 1 Projects (OCI)
- Group 2 Project Candidates List and How Selected (OCI)
- Group 2 Candidate Project Details and Flooding Impact (CDM Smith)
- Open Discussion - Other City Areas (MFB/CRC)
- Closing Remarks and Action Items (OCI)



City of Miami Stormwater Master Plan Mission

What was the City's mission for the stormwater master plan?

- 🔹 Flood protection
- 🔹 Water quality & environment
- 🔹 Land use
- 🔹 Sea level rise
- 🔹 Storm surge
- 🔹 Resilient coastal features
- 🔹 Saltwater intrusion
- 🔹 Changes in groundwater levels
- 🔹 Protection of Biscayne Bay
- 🔹 Current and future regulations

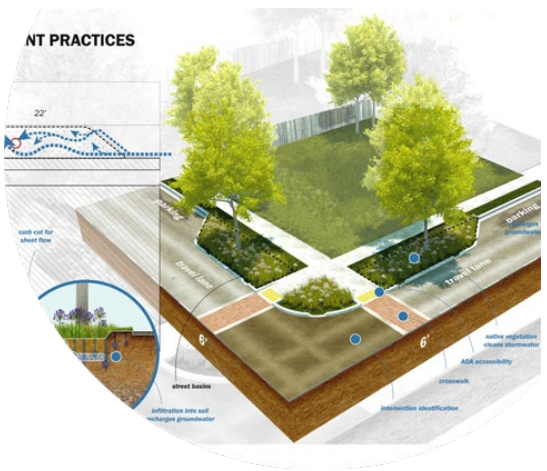
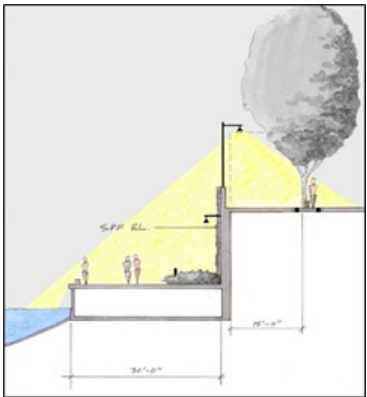


Allowing the City to establish a **policy framework** with **public support protecting** and **enhancing** the City's future over time.



Green Infrastructure Opportunities

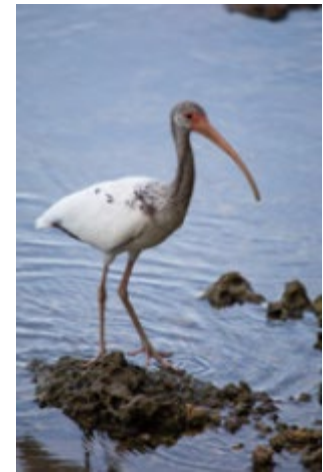
- Coordination of stormwater and coastal resilient infrastructure
- Green infrastructure opportunities:
 - Exfiltration
 - Recharge wells
 - Coordination with landscaping and bioswales
 - Retention and detention
 - Pervious Pavement
 - Coastal features – grassed levees, sea grasses, mangroves
 - Stormwater Parks, harvesting (vaults and tanks, rooftops, sides of buildings)
 - Individual lots Building Code (synergistic effect)



Water Quality and Protection of Biscayne Bay

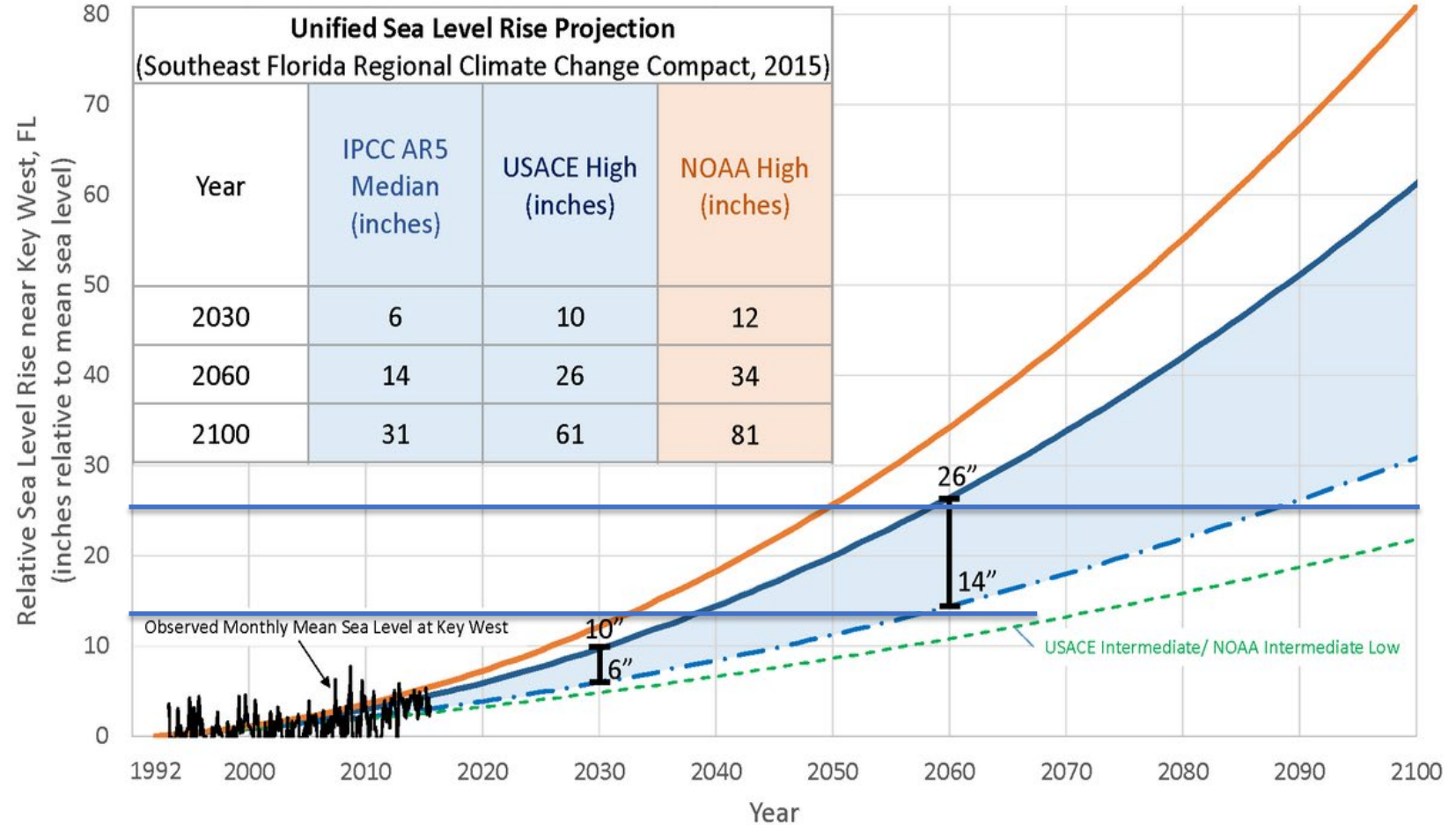
What reduction in pollution to the Bay can be achieved with the CIP in place?

- **Treatment to protect Biscayne Bay** provided in the CIP meets and exceeds Citywide and SFWMD regulatory requirements
- The calculated pre-post CIP water stages show **no offsite impacts in the receiving canal levels.**
- The calculated pre-post cumulative runoff to the Bay for the 25 Yr design storm shows no impact.



Sea Level Rise Considerations

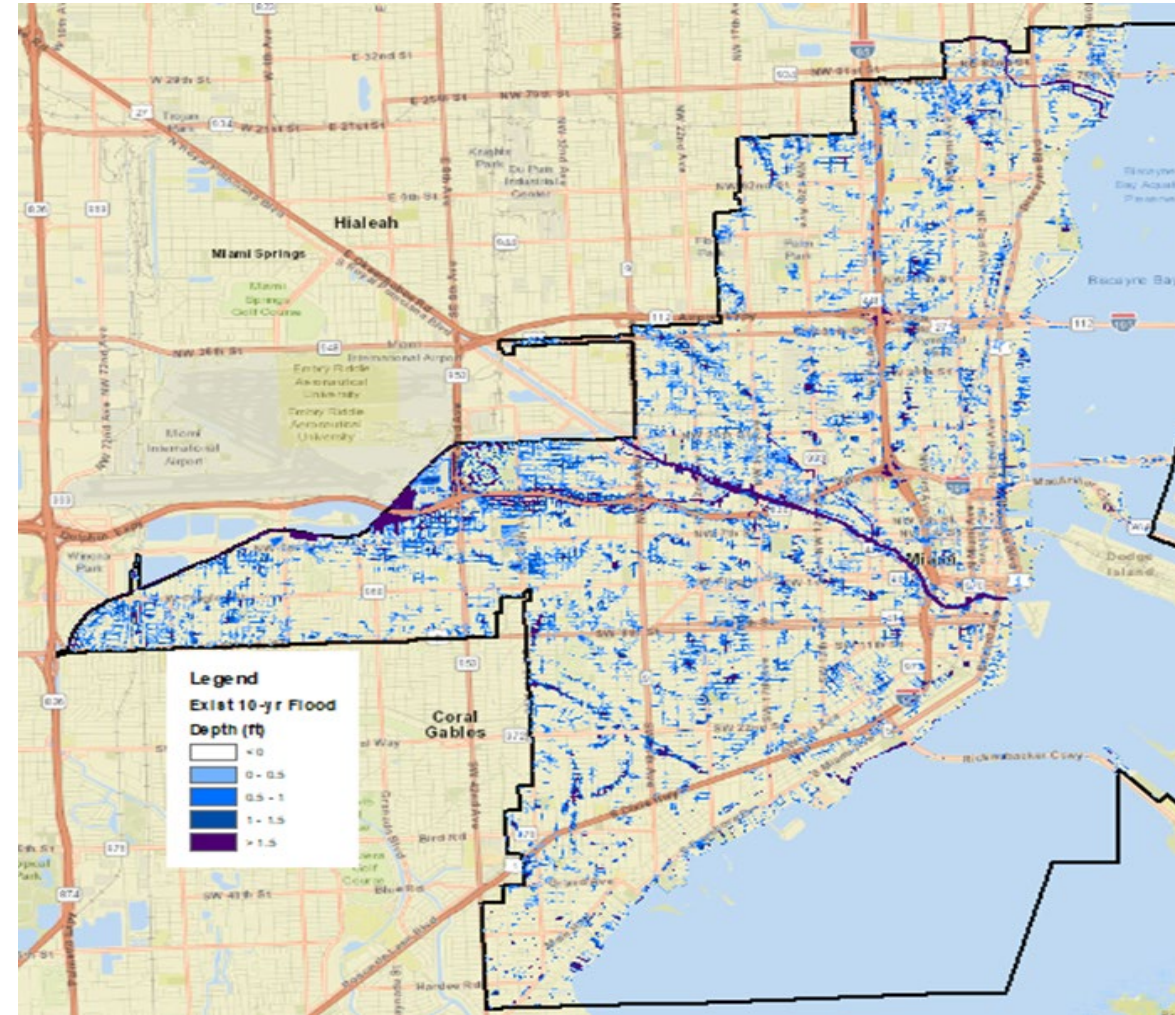
- Model considered sea level rise changes for two future sea level elevation scenarios
- Tailwater and ground water table conditions
- Tidal influence and surge
- Update for Resilient Florida FS 380 requirements



The SWMP Provided Existing Conditions LOS Analysis

Where is it currently flooding, how deep, and why?

- High imperviousness and large runoff volumes
- Limited stormwater management storage areas
- Lack of any stormwater systems in many areas
- Low lying elevations and homes and roadways located in historic canal floodplains
- Limited number of pump stations
- Maintenance and clogging issues in the existing stormwater systems
- Seawall overflow events in high tides



Post-CIP Inundation Mapping and Summary

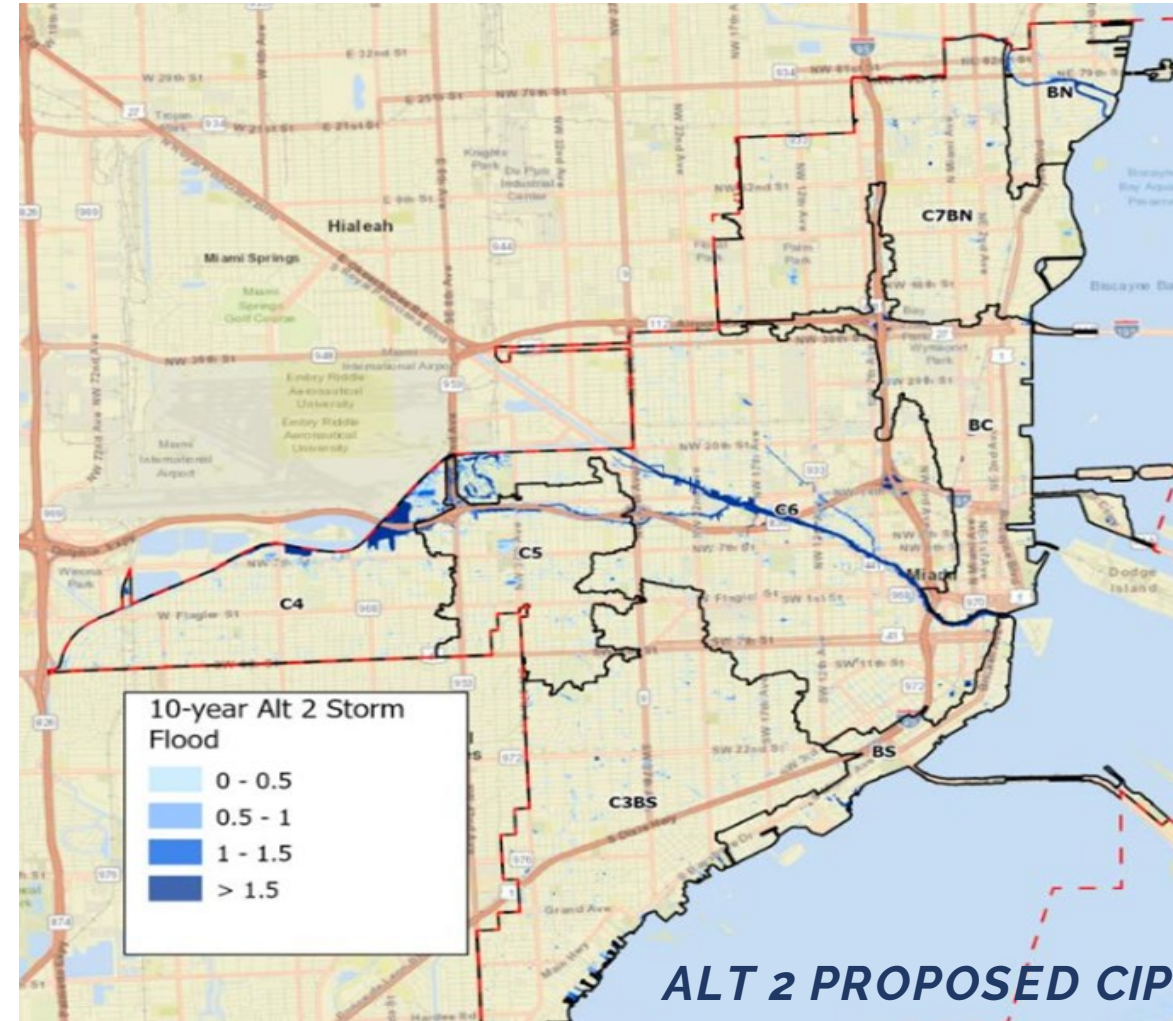
What reduction in flooding can be achieved with the recommended CIP in place?

- Alt 1: 10-year design storm LOS = Approximately **\$5.4 B**
- Alt 2: 5-year design storm LOS = Approximately **\$3.8 B**

Full ALT 2 Citywide CIP (Chosen)

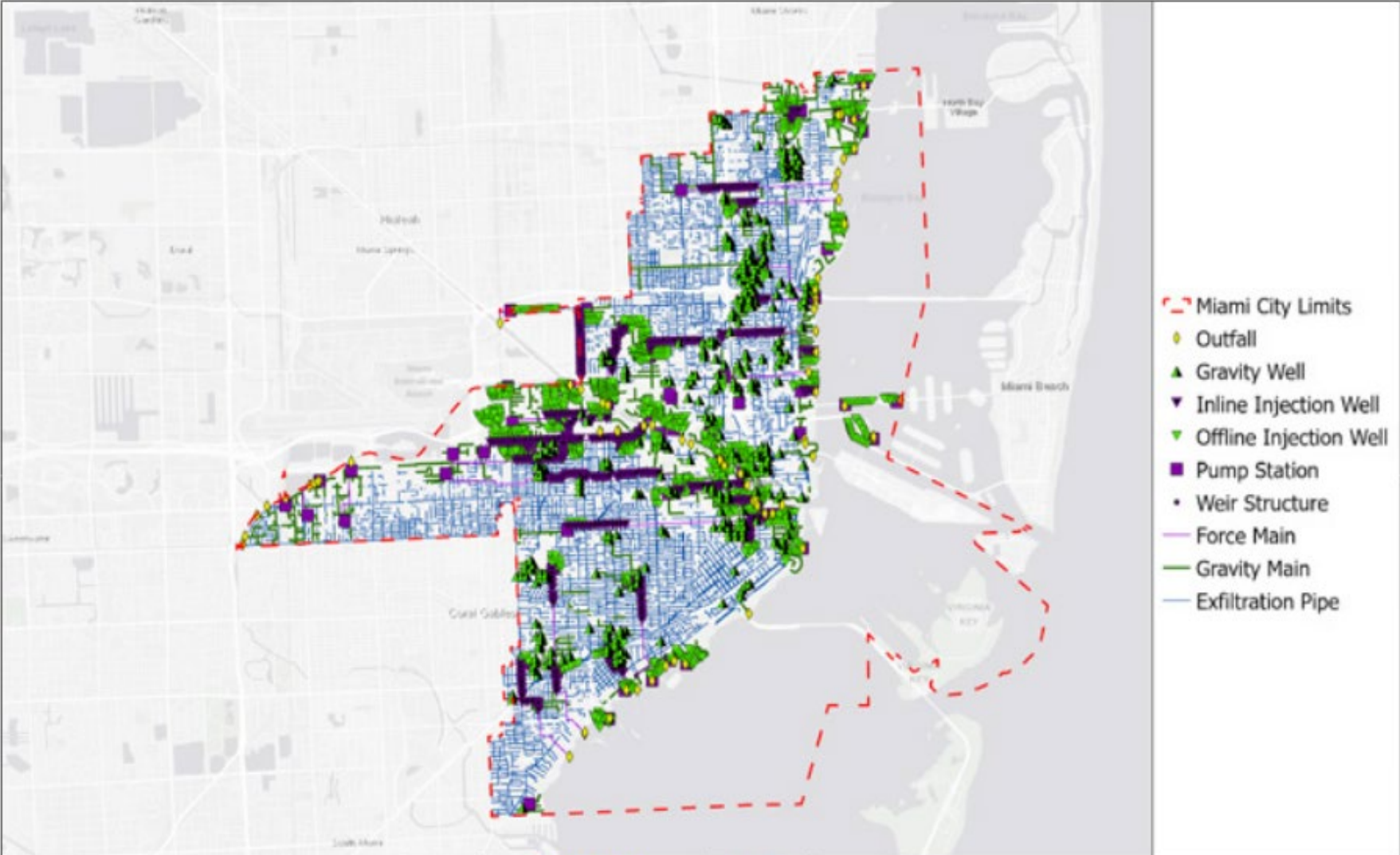
• Exfiltration Miles	250
• Gravity Wells	325
• Pump Stations	77
• Pumped Recharge Wells:	1,429
• Forcemain (mi)	53
• Storm Sewers (mi)	103
• Backflow Preventers	(450+)

1. Flood damage analysis shows existing conditions have **significant potential for economic losses associated with flood** events (both rainfall and tidal surge).
2. For a 50-year design life, there is **a net economic benefit for the City** either Alt 1 or Alt 2 LOS CIP. (FEMA HAZUS Analysis BCA)
3. *Greater than 3:1 Benefit*



Potential Future Phase Stormwater Project Areas

Where are the future project areas to be constructed Citywide?



0 1 2 3 4 Miles



Citywide CIP to Meet
Alternative 2 LOS

Date: 3/25/2021
Figure ES-11.2

Future Project Prioritization

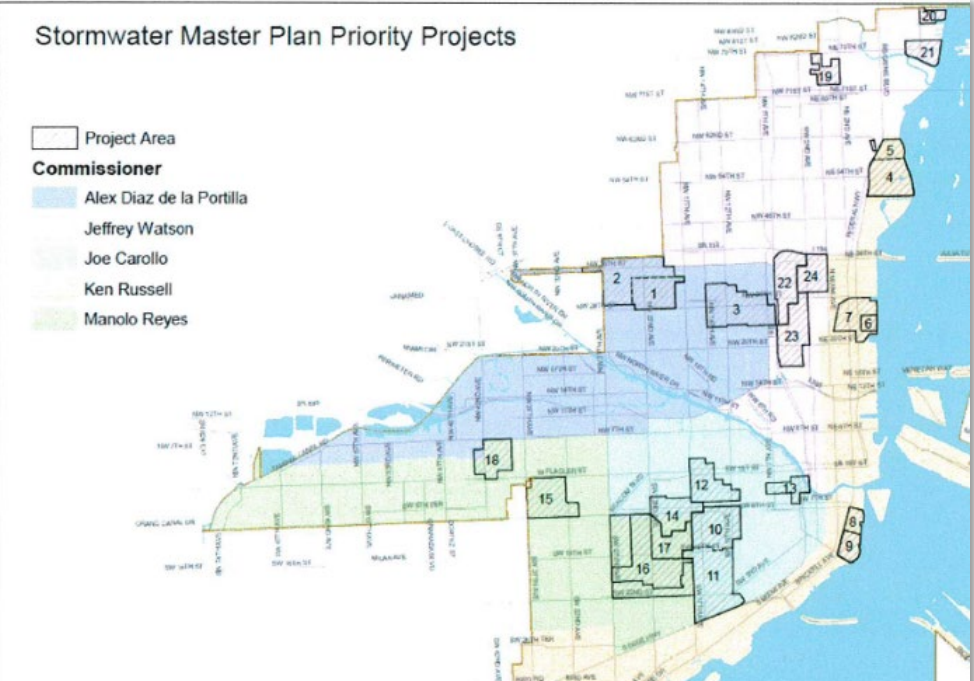
What factors will determine the priority and size of future projects?

1. Funding, and Grant and Loan Availability
2. Commission District Priorities – Complaints, Losses, Chronic Flooding
3. Coordination with Other Utility and Roadway Work
4. Public-Private-Partnerships (PPP) and Private Development
5. Environmental Permitting Requirements (NPDES/MS4 Program)
6. Design and Permitting Constraints and Project Execution Period
7. Areas of New Seawall May Require Other Flood Improvements



Group 2 Projects Candidate Selection Process

- ❑ Series of community engagements and commissioner briefings to establish priority candidates for available funding
- ❑ July 16, 2021 Commission Memo Identified 24 neighborhood projects estimated at \$600M based on:
 - ❑ Historic flood complaints
 - ❑ Damage Claims
 - ❑ Depth and duration of flooding posing risk to residents
- ❑ Narrowed the list and divided into smaller phases iteratively to meet available funding while keeping equity among the Commission Districts

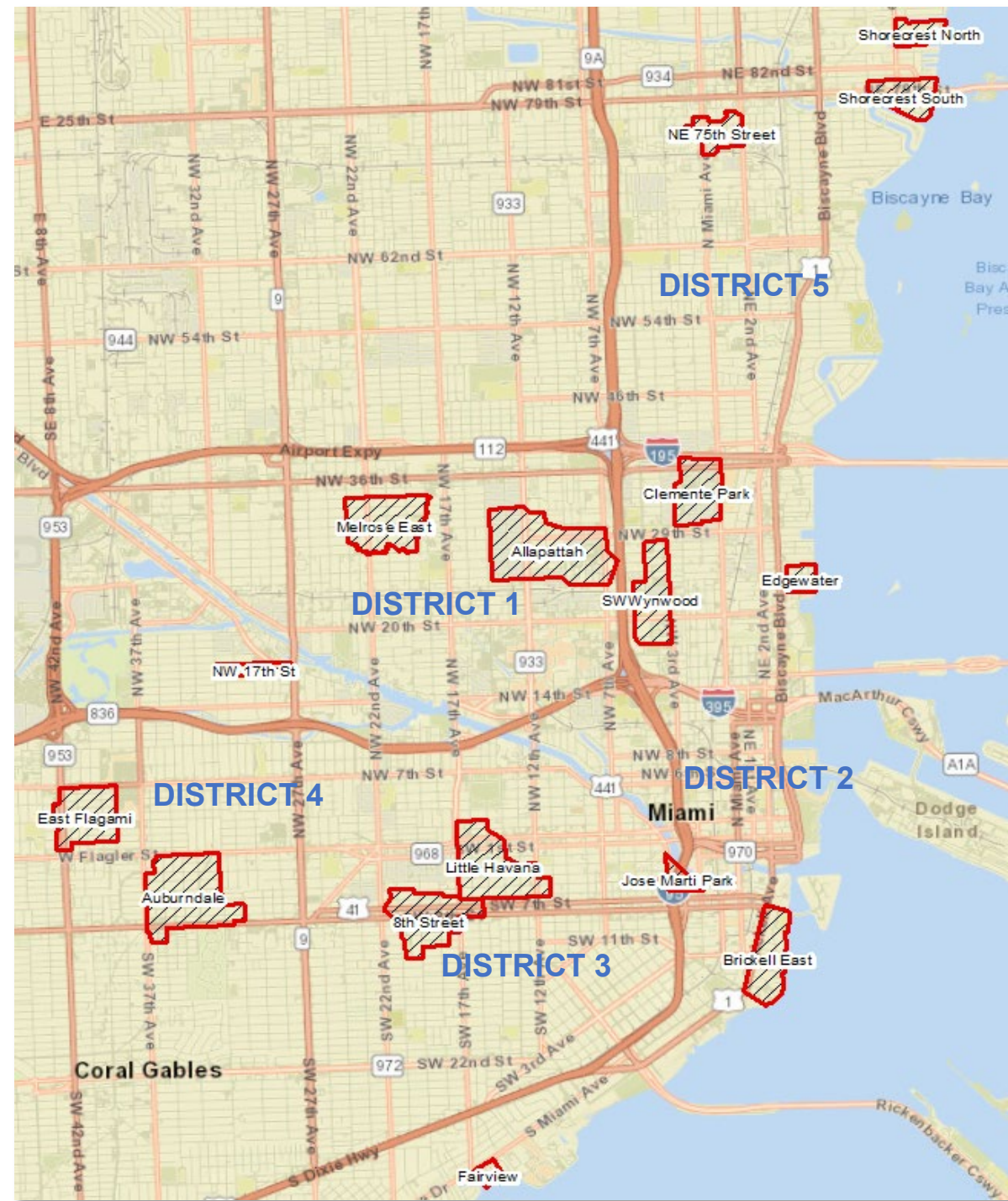


Group II Stormwater Project Locations (Updated 22-Jul-2022)

SLR & FP Distribution By District		
District	Proposed MFB Next Funding	# Projects
D1	\$20,978,318	7
D2	\$24,205,860	5
D3	\$25,985,227	6
D4	\$0*	2
D5	\$25,252,932	5
TOTAL	\$96,422,337	25

SWMP IDENTIFIED PROJECTS:

- D1 – ALLAPATTAH
- D1 – MELROSE PH I
- D2 – BRICKELL BAY DRIVE
- D2 – EDGEWATER PH I
- D3 – 8TH STREET
- D3 – E LITTLE HAVANA
- D4 – EAST FLAGAMI
- D4 – AUBERNDALE
- D5 – 75TH STREET
- D5 – SHRECREST NORTH
- D5 – SHORECREST SOUTH
- D5 – SW WYNWOOD



Recommended Projects for District 1 SLR & FP



Grants Applied

	Project Name	Estimates			Available Funding	Applied for Grants/State Funding	Grant Awarded	Proposed MFB Next Funding	Grants Funding Source
		Preliminary Cost	Design/PM/Ad min	Construction/CM					
1	Allapattah Flood Improvements - NW 7 Ave to 14 Ave, NW 23 St to 31 St	\$31,376,188	\$10,219,673	\$21,156,515		\$15,688,094	\$15,688,094	\$15,688,094	2022-2023 Flooding & Sea Level Rise Resilience Plan (State)
2	Seawall Replacements and Upgrades District 1	\$291,054	\$93,137.28	\$197,916.72		\$145,527	\$145,527	\$145,527	2022-2023 Flooding & Sea Level Rise Resilience Plan (State)
3	Immediate Flood Control: Install Backflow Valves District 1	\$324,000	\$32,400	\$291,000		\$162,000	\$162,000	\$162,000	2022-2023 Flooding & Sea Level Rise Resilience Plan (State)
4	LOCALIZED FLOODING IMPROVEMENTS District 1	\$970,000						\$970,000	
5	NW 17th Street from NW 27 AVE to NW 32 AVE	\$3,689,927	\$1,180,777	\$2,509,150	\$2,089,830	\$1,216,963	\$1,216,963	\$383,134	CDBG-MIT Round 1 (Federal Pass-Thru)
6	Pump Stations District 1	\$100,000						\$100,000	
7	Melrose Flood Improvements Phase 1, NW 23 Ave to NW 19 Ave, NW 34 St to NW 30 St	\$11,029,883	\$3,529,562.56	\$7,500,320.44				\$3,529,563	
Total		\$47,781,052	\$15,055,549	\$31,654,903	\$2,089,830	\$17,212,584	\$17,212,584	\$20,978,318	

Recommended Projects for District 2 SLR & FP

Grants Applied



	Project Name	Estimates			Available Funding	Applied for Grants/State Funding	Grants Awarded	Proposed MFB	Grants Funding Source
		Preliminary Cost	Design/PM/Admin	Construction /CM				Next Funding	
1	Fairview Flood Mitigation Phase II	\$5,923,518	\$1,895,526	\$4,027,992	\$4,601,904			\$1,321,614	
2	Brickell Bay Drive Seawall and Flood Improvements - SE 14 St to SE 15 Rd	\$27,255,000	\$8,721,600	\$18,533,400	\$6,600,000*	\$17,170,650	\$17,170,650	\$10,084,350	Resilient Florida Grant Program (RFGP) 2021-2022 (Federal Coronavirus SLFRF Pass-Thru)
3	Seawall Replacements and Upgrades District 2	\$5,987,815	\$1,916,101	\$4,071,714		\$2,993,908	\$2,993,908	\$2,993,908	2022 - 2023 Flooding & Sea Level Rise Resilience Plan (State)
4	Immediate Flood Control: Install Backflow Valves D2	\$2,500,000	\$250,000	\$2,250,000		\$1,250,000	\$1,250,000	\$1,250,000	2022 - 2023 Flooding & Sea Level Rise Resilience Plan (State)
5	LOCALIZED FLOODING IMPROVEMENTS District 2	\$3,644,160							
6	Pump Stations District 2	\$200,000							
7	Edgewater Flood Improvements Phase I - NE 4 Ave to Biscayne Bay, NE 22 St to NE 24 St (Pump Station)	\$17,111,976	\$5,573,615	\$11,538,361		\$8,555,988	\$8,555,988	\$8,555,988	Resilient Florida Grant Program (RFGP) 2021-2022 (Federal Coronavirus SLFRF Pass-Thru)
Total		\$62,622,469	\$18,356,842	\$40,421,468	\$11,201,904	\$29,970,546	\$29,970,546	\$24,205,860	

Recommended Projects for District 3 SLR & FP


	Project Name	Estimates			Available Funding	Applied for Grants/State Funding	Grants Awarded	Proposed MFB Next Funding	Grants Funding Source	State Appropriations (no match dollars needed)
		Preliminary Cost	Design/PM/Admin	Construction /CM						
1	Jose Marti Park Seawall, Shoreline, and Flood Improvements-Construction *	\$18,813,274			\$13,497,843	\$2,843,365	\$16,341,208	\$2,472,066	CDBG-MIT Round 1 (Federal Pass-Thru)	
2	SW 8 Street Flood Improvements - SW 17 Ave to SW 22 Ave, SW 5 St to SW 12 St	\$9,781,446	\$3,185,956.58	\$6,595,489		\$4,890,723		\$4,890,723		
3	Immediate Flood Control: Install Backflow Valves District 3	\$92,000	\$9,200	\$82,800		\$46,000	\$46,000		2022 - 2023 Flooding & Sea Level Rise Resilience Plan (State)	\$100,000
4	LOCALIZED FLOODING IMPROVEMENTS District 3	\$1,052,000								\$1,052,000
5	Pump Stations District 3	\$2,500,000								\$2,500,000
6	East Little Havana Flood Improvements - W 12 Ave to W 17 Ave, NW 2 St to SW 6 St (Pump Station)	\$37,244,876	\$11,918,360	\$25,326,516		\$18,622,438	\$18,622,438	\$18,622,438	CDBG-MIT Round 2 (Federal Pass-Thru)	
Total		\$90,574,200	\$21,344,291	\$45,096,418	\$13,497,843	\$26,402,526	\$35,009,646	\$25,985,227		\$3,652,000

Recommended Projects for District 4 SLR & FP

	Project Name	Estimates			Available Funding	Applied for Grants/State Funding	Grants Awarded	Proposed MFB Next Funding	Grants Funding Source	State Appropriations (no match dollars needed)
		Total Estimated Cost	Design/PM/Admin	Construction/CM						
1	East Flagami Flood Improvements - NW 38 Ct to NW 42 Ave, NW 1 St to NW 7 St (Pump Station)	\$30,000,000	\$9,600,000	\$20,400,000	\$15,000,000	\$14,438,495	\$14,438,495		Resilient Florida Grant Program (RFGP) 2021-2022 (Federal Coronavirus SLFRF Pass-Thru)	
2	Auburndale Flood Improvements - SW 32 Ave to SW 37 Ave, West Flagler St to SW 8 St	\$20,951,438	\$6,824,183	\$14,127,255	\$10,000,000					\$1,500,000
3	LOCALIZED FLOODING IMPROVEMENTS District 4	\$890,000								
4	Pump Stations District 4	\$50,000								
Total		\$51,891,438	\$16,424,183	\$34,527,255	\$25,000,000	\$14,438,495	\$14,438,495	\$0		\$1,500,000

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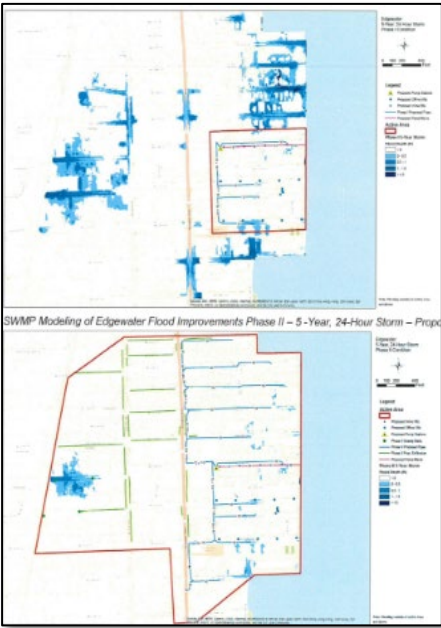
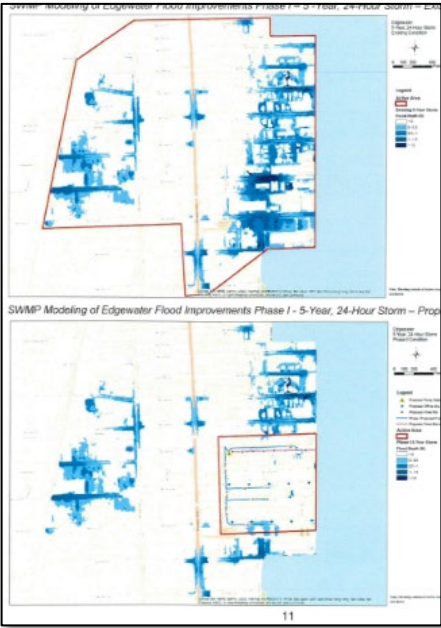
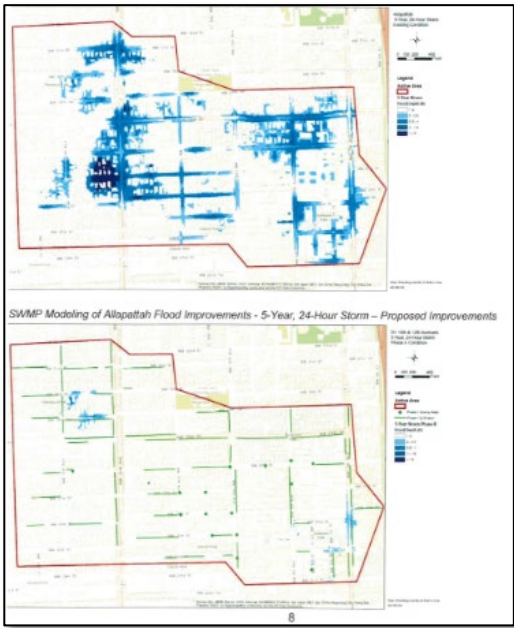
- \$15M of MFB approved by commission on 11/18/2021 Resolution R-21-0459 to East Flagami Flood Improvements
- \$10M of MFB approved by commission on 11/18/2021 Resolution R-21-0459 to Auburndale Flood Improvements (The projects is not fully funded)

 Grants Applied

Recommended Projects for District 5 SLR & FP

	Project Name	Estimates			Available Funding	Applied for Grants/State Funding	Grants Awarded	Proposed MFB Next Funding	Grants Funding Source
		Preliminary Cost	Design/PM/Ad min	Construction/C M					
1	NE 75 Street Flood Improvements - Miami Ave to NE 2 Ave (Pump Station)	\$24,337,933	\$7,788,139	\$16,549,794		\$12,168,966	\$0	\$3,894,069	
2	Shorecrest North Flood Improvements - NE 10 Ave to NE Bayshore Dr, NE 84 St to NE 86 St (Pump Station)	\$11,440,377	\$3,660,921	\$7,779,456					
3	Shorecrest South Flood Improvements - NE 8 Ct to NE Bayshore Ct, NE Little River Dr to NE 79 St (Pump Station)	\$16,067,860	\$5,141,715	\$10,926,145	\$1,760,000	\$8,033,930	\$8,033,930	\$8,033,930	Resilient Florida Grant Program (RFGP) 2021-2022 (Federal Coronavirus SLFRF Pass-Thru)
4	Clemente Park Flood Improvements - Miami Ave to NW 2 Ave and NW 30 St to 36 St	\$14,734,729	\$3,788,931	\$10,945,798					
5	Seawall Replacements and Upgrades District 5	\$1,804,269	\$577,366	\$1,226,904		\$1,804,269	\$902,135	\$902,135	2022 -2023 Flooding & Sea Level Rise Resilience Plan (State)
6	Immediate Flood Control: Install Backflow Valves D5	\$1,168,000	\$116,800	\$1,051,200		\$584,000	\$584,000	\$584,000	2022 - 2023 Flooding & Sea Level Rise Resilience Plan (State)
7	South-West Wynwood Flood Improvements - NW 3 Ave to NW 5 Pl, NW 16 St to NW 28 St (Pump Station)	\$31,698,773	\$10,087,607	\$21,436,166		\$19,859,977	\$19,859,977	\$11,838,798	CDBG-MIT Round 2 (Federal Pass-Thru)
Total		\$101,251,941	\$31,161,479	\$69,915,463	\$1,760,000	\$42,451,142	\$29,380,042	\$25,252,932	

Potential Group 2 Projects – Pre-Post Flood Mapping and Interactive Workshop Discussion



Workshop Closure

- Questions
- Next Steps
- Other Discussion Items

