



Fortify Lauderdale

Building a Resilient Future
in Fort Lauderdale



Tranche 2 Neighborhoods
Stormwater Management Improvements
City Project No. 12852
City Commission Meeting
October 1, 2024

Meeting Agenda

- **Original Eight Neighborhoods**
- **Tranche 2 Neighborhoods**
- **Data Collection**
- **Conceptual Approaches by Neighborhood/Project**
- **Project Schedule/Costs**
- **Public Outreach**
- **Questions**

Original Eight Neighborhoods

- Edgewood
- River Oaks
- Dorsey-Riverbend
- Durrs
- Progresso Village
- Victoria Park
- Southeast Isles
- Melrose Manors/Riverland



Original Neighborhoods Progress

Neighborhood	Project Status
1a Edgewood	Construction substantially complete
1b Osceola Creek Dredging (Edgewood)	Construction substantially complete
2a River Oaks (Underground Utilities)	Construction substantially complete
2b River Oaks (Pump Stations)	In Construction
3 Durrs	In Construction
4 Dorsey-Riverbend	In Construction
5 Progresso Village	Bidding Fourth Quarter 2024
6 Southeast Isles	Bidding Third Quarter 2025
6a Southeast Isles / Merle Fogg Seawalls Replacement	Complete
7 Victoria Park	Bidding First Quarter 2025
8 Melrose Manors / Riverland Civic	Design completion Fourth Quarter 2025



Tranche 2 Neighborhoods

1. River Landings & Adjoining Areas
2. Sailboat Bend, Riverside Park & Adjoining Areas
3. Tarpon River
4. Flagler Village
5. Harbour Isles & Adjoining Areas
6. Poinsettia Heights
7. South Middle River
8. Melrose Park
9. Shady Banks
10. Croissant Park
11. Middle River Terrace
12. Imperial Point
13. Lake Ridge
14. Riverland Manors/Woods & Adjoining Areas
15. Chula Vista & Adjoining Areas
16. Riverland Village
17. Lauderdale Isles



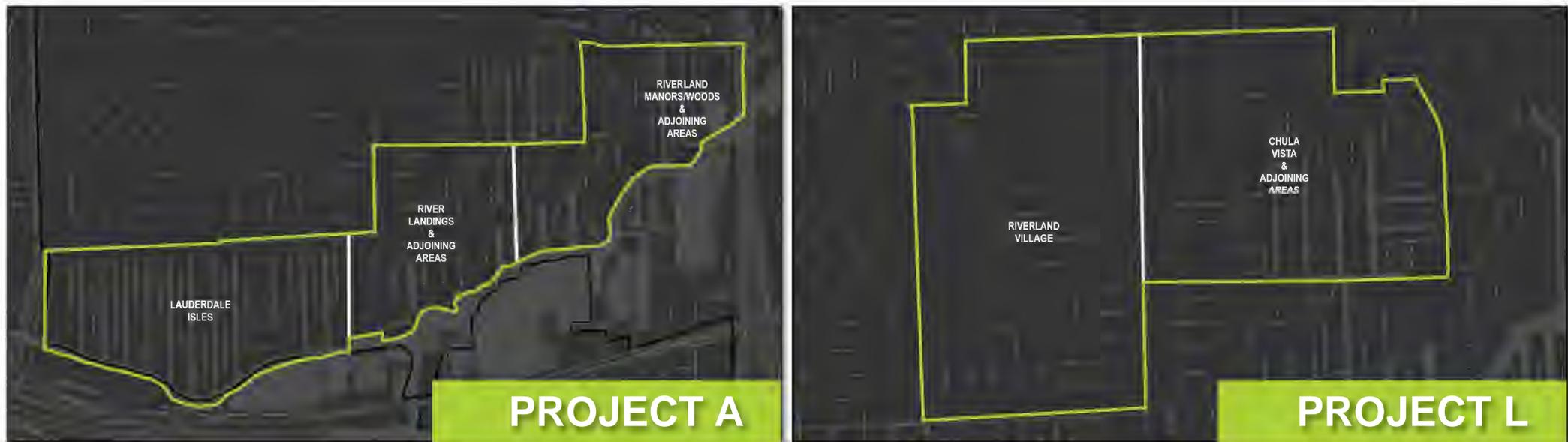
Projects

- A. River Landings, Riverland Manors/Woods, Lauderdale Isles & Adjoining Areas
- B. Sailboat Bend, Riverside Park & Adjoining Areas
- C. Tarpon River and Croissant Park
- D. Flagler Village
- E. Harbour Isles & Adjoining Areas
- F. Poinsettia Heights and Lake Ridge
- G. South Middle River
- H. Melrose Park
- I. Shady Banks
- J. Middle River Terrace
- K. Imperial Point
- L. Chula Vista, Riverland Village & Adjoining Areas



The 17 Neighborhoods were consolidated into 12 Projects based on a variety of factors

- Proximity/Adjacency
- Similarity of hydrologic conditions and drainage infrastructure



Project Phasing must also consider a number of factors

- Program funding/financing
- City ability to simultaneously manage multiple design/construction projects
- Project interdependencies



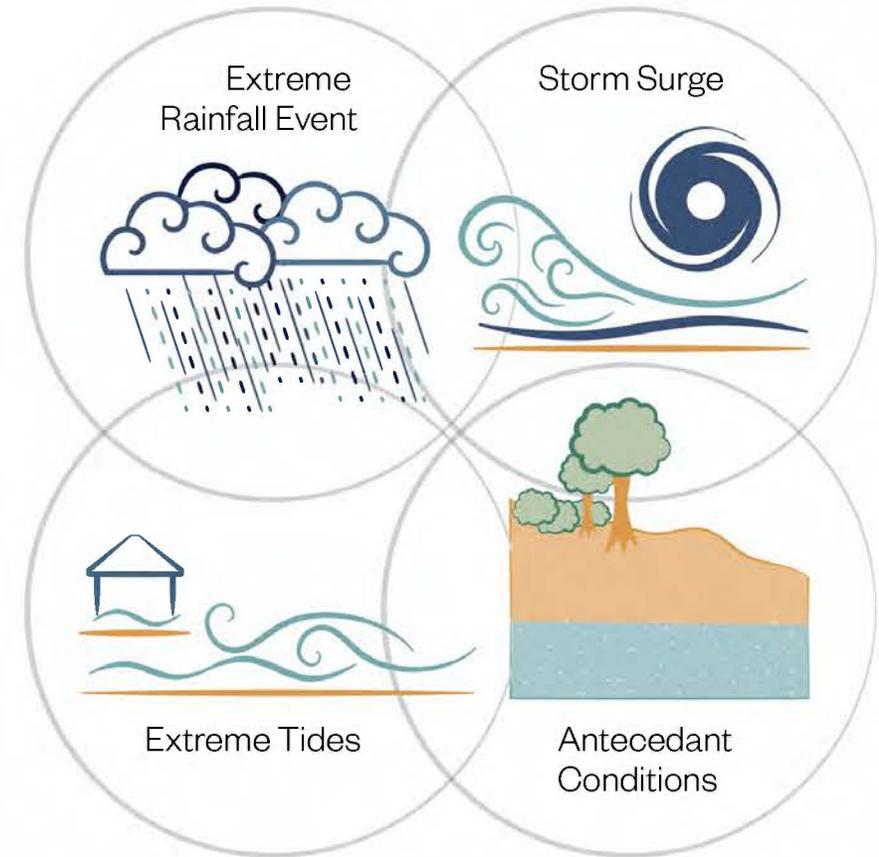
Prioritization of Projects is still ongoing and will include consideration of...

- Flooding severity
(based on **model results** and observation data)
- Critical assets within drainage basins
- Interdependencies
- Spatial distribution
(impacts on neighbors and traffic)

currently using
preliminary model results,
while model is being
updated

Underway with updating the Stormwater Model to capture advancements in resilience planning

- Model conditions and parameters consistent with FS 380.093 (Resilient Florida Grant Program)
- Incorporation of future “extreme rainfall change factors”
- Incorporation of future groundwater conditions
- Consideration of regional water management operations



Re-evaluating to a higher standard

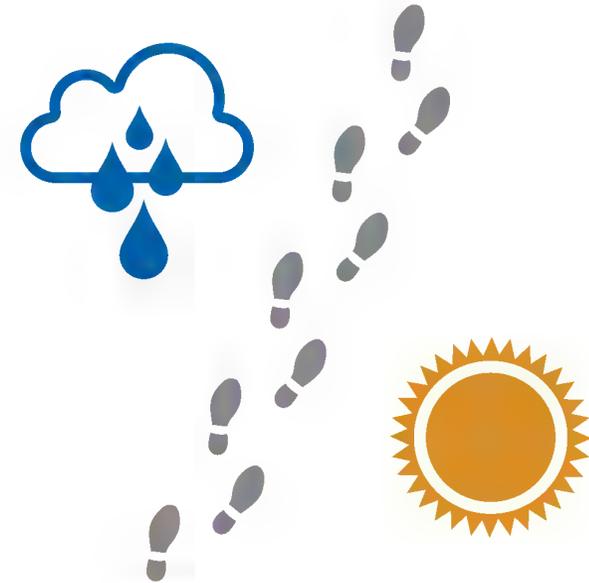
Data Collection is critical and wet weather afforded timely opportunities

Hazen's field data collection for the 17 neighborhoods occurred during June/July 2024.

- Neighborhoods were visited in wet and dry conditions.

Priority locations within the neighborhoods were determined using:

- Flood prone areas (preliminary modeling)
- Low elevations (2018 DEM)
- Properties with FEMA repetitive losses



Spatial coverage for data collection was widespread



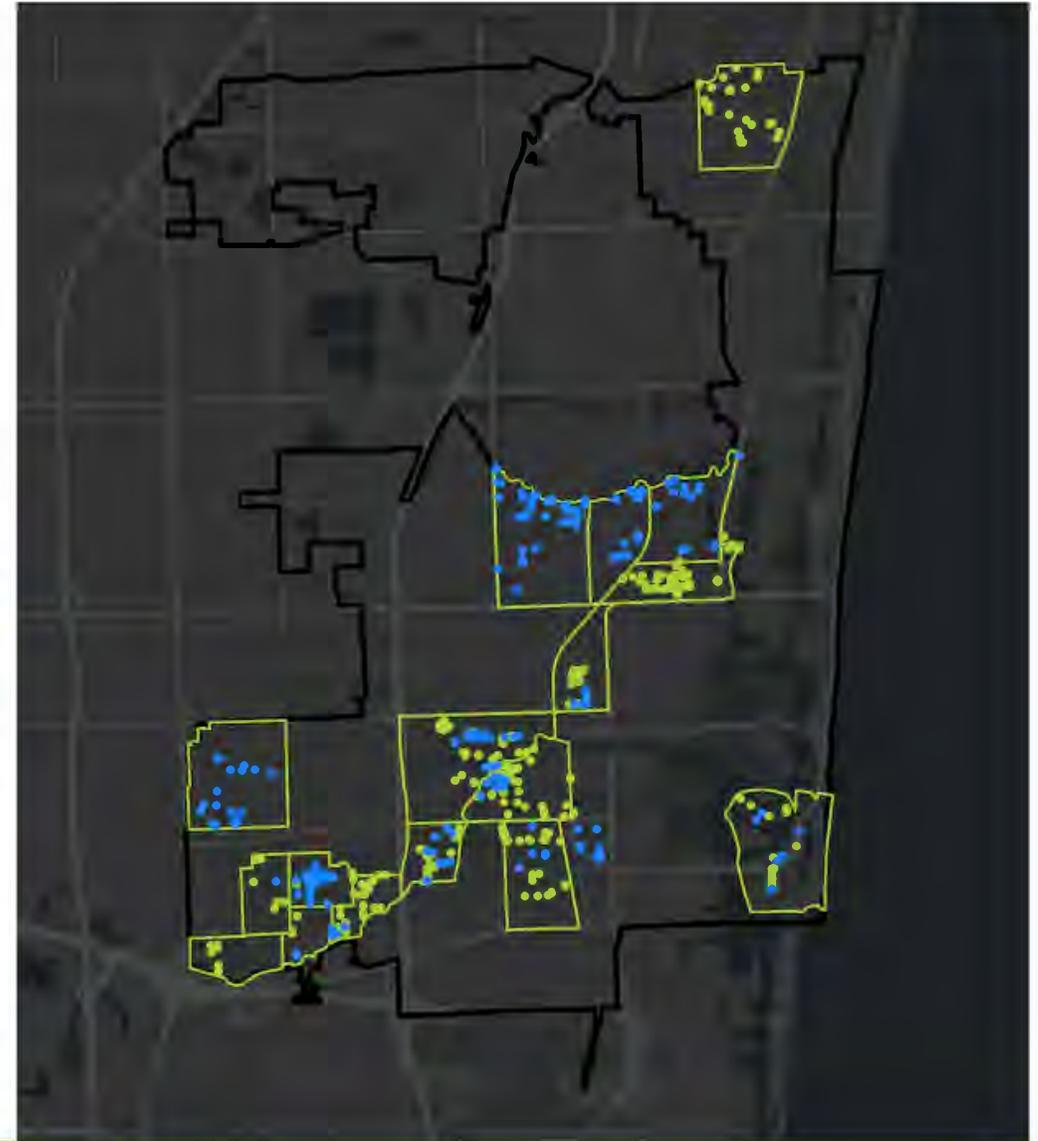
Wet Weather Site Visits

511 NW 17th St, Fort Lauderdale, FL 33311, USA

☉ 327°NW (T) • 26.149014, -80.150366 ±5m ▲ -23m



Dry Weather Site Visits



Data Collection Team used ArcGIS Survey123...

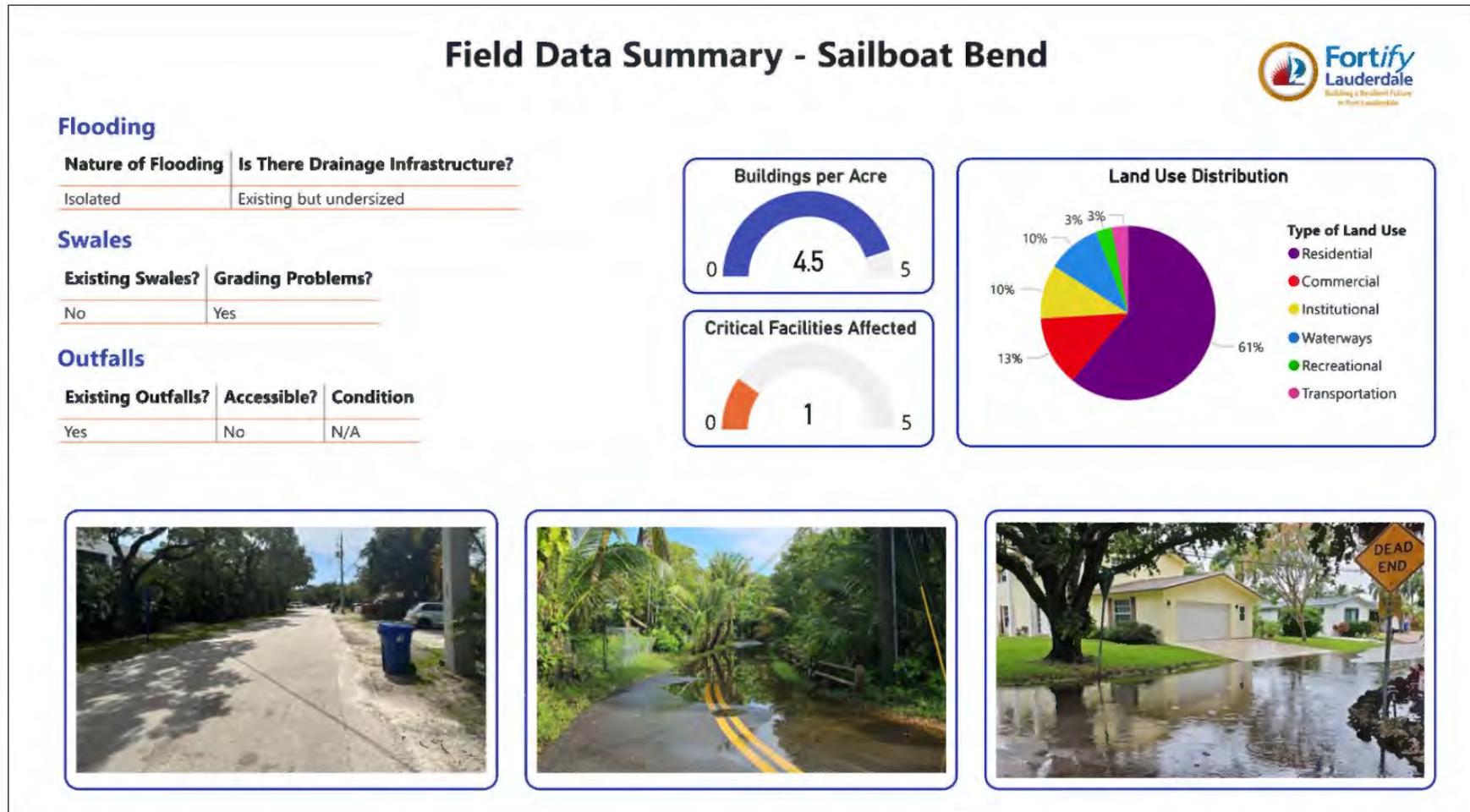
Swale Conditions
Existing Infrastructure
Outfall Conditions
Mitigation Strategies



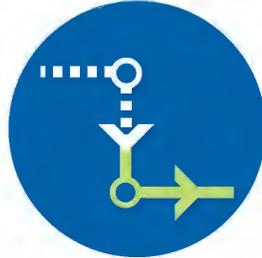
...and populated a PowerBI Dashboard



...providing a neighborhood overview “at a glance”



A variety of potential mitigation strategies is proposed



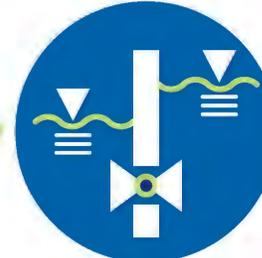
Extend Drainage System
DS



Increase Conveyance Capacity
UP



Install Pump Station
PS-I



Install Tidal Valve
TV



Capital Maintenance
MA



Private Resiliency Program
PR



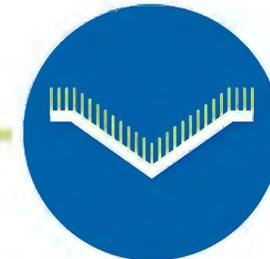
Upgrade Existing Pump Station
PS-U



Raise Seawalls
RS



Grading Improvements
GI



Rehabilitate Grass Swales
SW

Takeaway from Field Work & Desktop Analyses

		Adaptation Strategies									
											
Project	Tranche 2 Neighborhoods	DS	UP	PS-I	MA	PR	PS-U	RS	GI	TV	SW
A	Riverland Manors, Lauderdale Isles, River Landings & Adjoining Areas	✓		✓		✓		✓	✓	✓	✓
B	Sailboat Bend, Riverside Park & Adjoining Areas	✓	✓	✓		✓		✓		✓	✓
C	Tarpon River and Croissant Park	✓	✓	✓		✓		✓		✓	✓
D	Flagler Village		✓		✓	✓	✓				
E	Harbour Isles & Adjoining Areas		✓			✓				✓	
F	Lake Ridge and Poinsettia Heights	✓	✓	✓		✓			✓		✓
G	South Middle River	✓	✓	✓		✓			✓		✓
H	Melrose Park			✓	✓	✓					
I	Shady Banks	✓	✓	✓		✓				✓	✓
J	Middle River Terrace	✓	✓	✓		✓			✓		✓
K	Imperial Point	✓	✓			✓					✓
L	Riverland Village and Chula Vista & Adjoining Areas	✓		✓	✓	✓		✓		✓	✓

Conceptual Approaches by Neighborhood/Project

The following slides include
a progression through each Project Area
which **depicts drainage basin characteristics,**
highlights particular vulnerabilities, and
identifies an appropriate suite of adaptation strategies
to be utilized in the neighborhood(s).

PROJECT A

River Landings, Riverland Manors/Woods, Lauderdale Isles & Adjoining Areas



Characteristics and Vulnerabilities

- Low lying areas
- Grading issues
- Underserved areas
- Undersized existing drainage system
- Subject to tidal flooding
 - Low seawalls
 - No tidal valves

PROJECT A

River Landings, Riverland Manors/Woods, Lauderdale Isles & Adjoining Areas

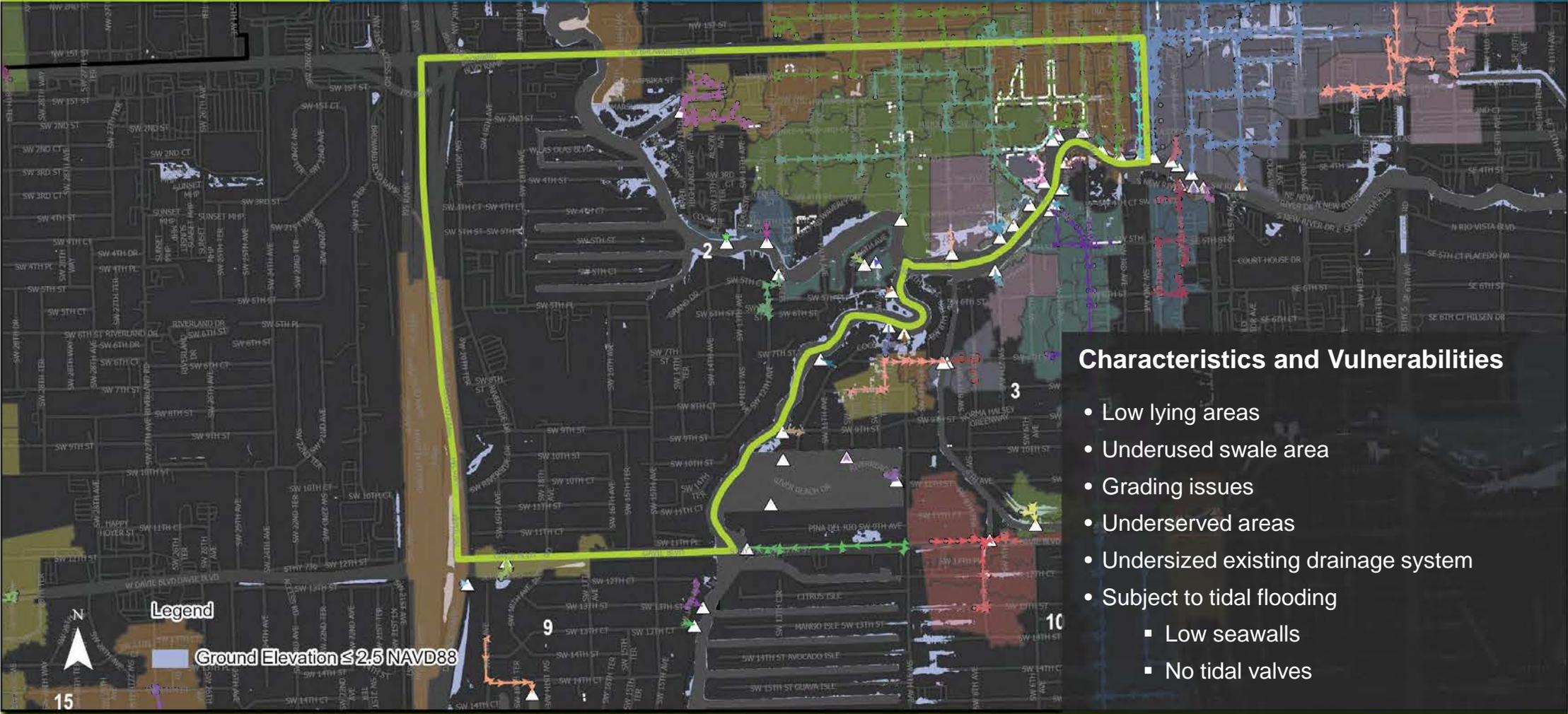


Potential Adaptation Strategies

-  Grading Improvements
-  Rehabilitate Grass Swales
-  Extend Drainage System
-  Raise Seawalls
-  Install Tidal Valve
-  Install Pump Station
-  Private Resiliency Program

PROJECT B

Sailboat Bend & Adjoining Areas

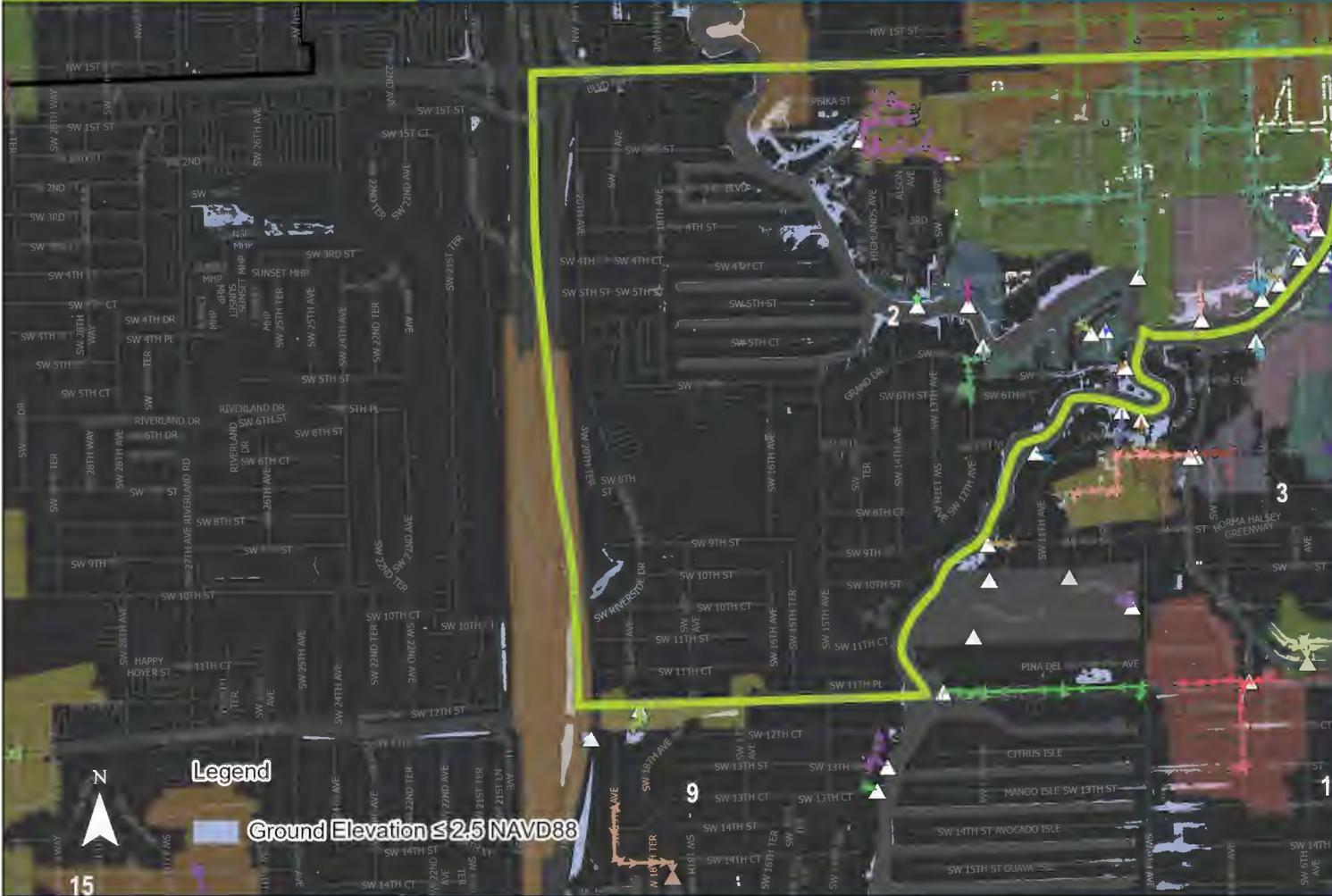


Characteristics and Vulnerabilities

- Low lying areas
- Underused swale area
- Grading issues
- Underserved areas
- Undersized existing drainage system
- Subject to tidal flooding
 - Low seawalls
 - No tidal valves

PROJECT B

Sailboat Bend & Adjoining Areas

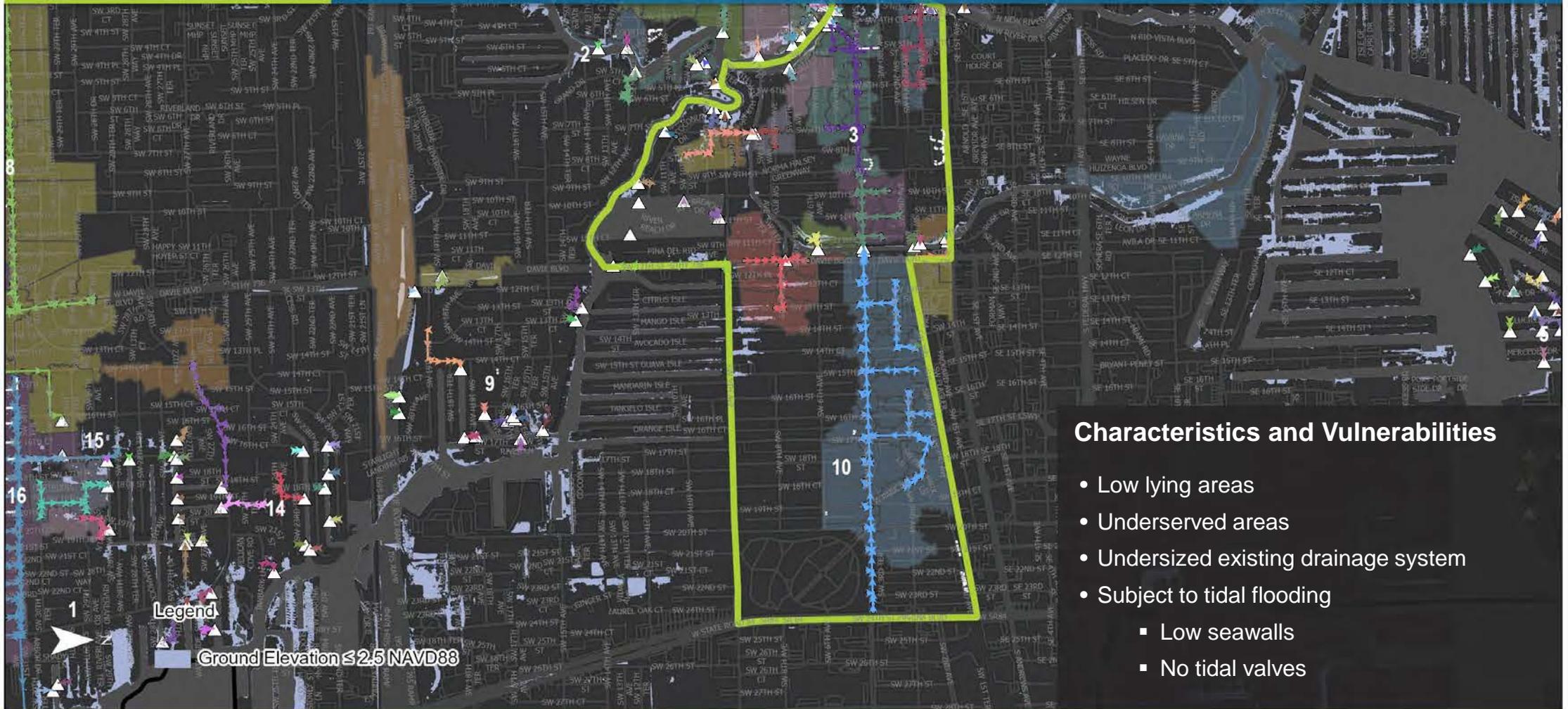


Potential Adaptation Strategies

-  **Rehabilitate Grass Swales**
-  **Increase Conveyance Capacity**
-  **Extend Drainage System**
-  **Raise Seawalls**
-  **Install Tidal Valve**
-  **Install Pump Station**
-  **Private Resiliency Program**

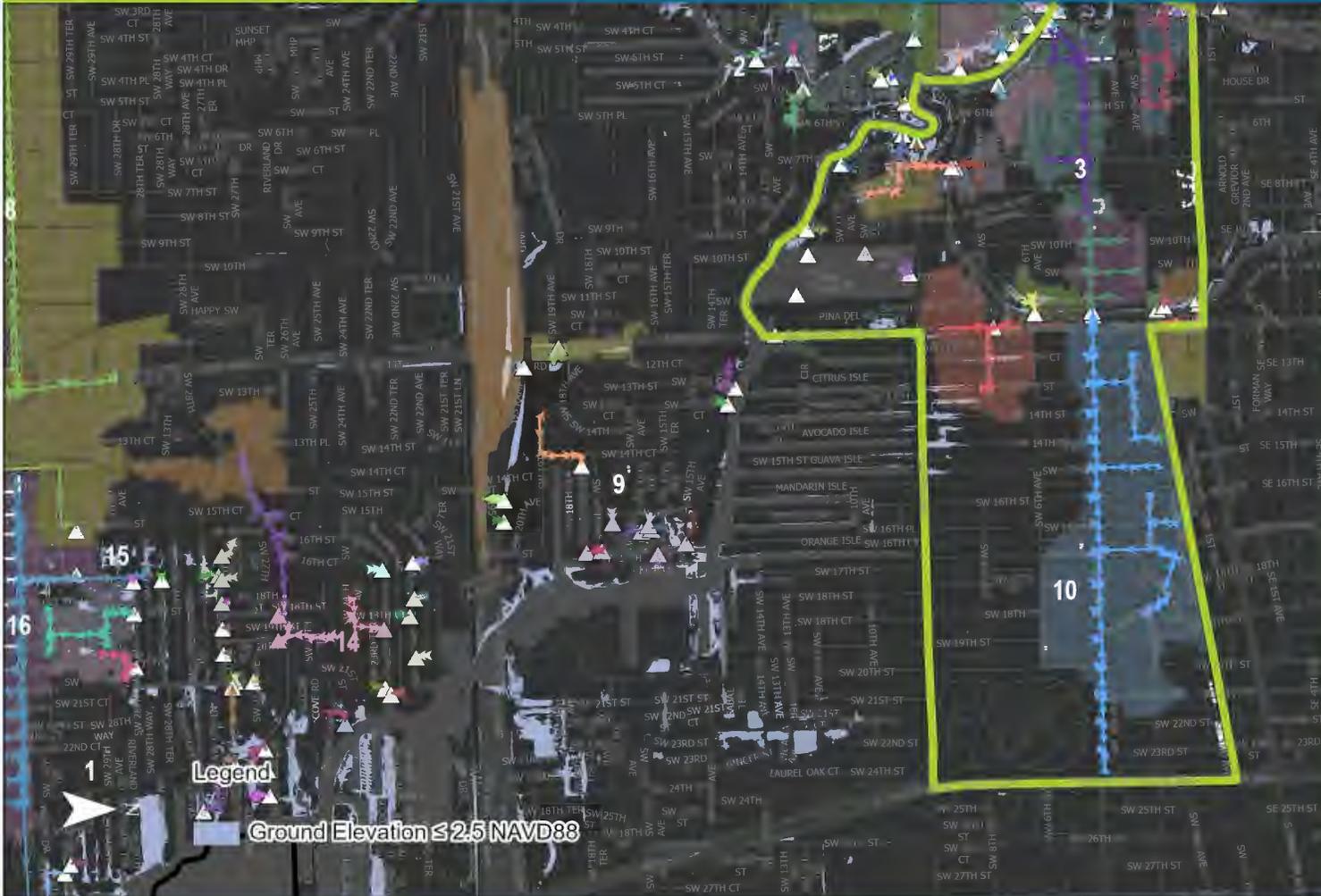
PROJECT C

Tarpon River and Croissant Park



PROJECT C

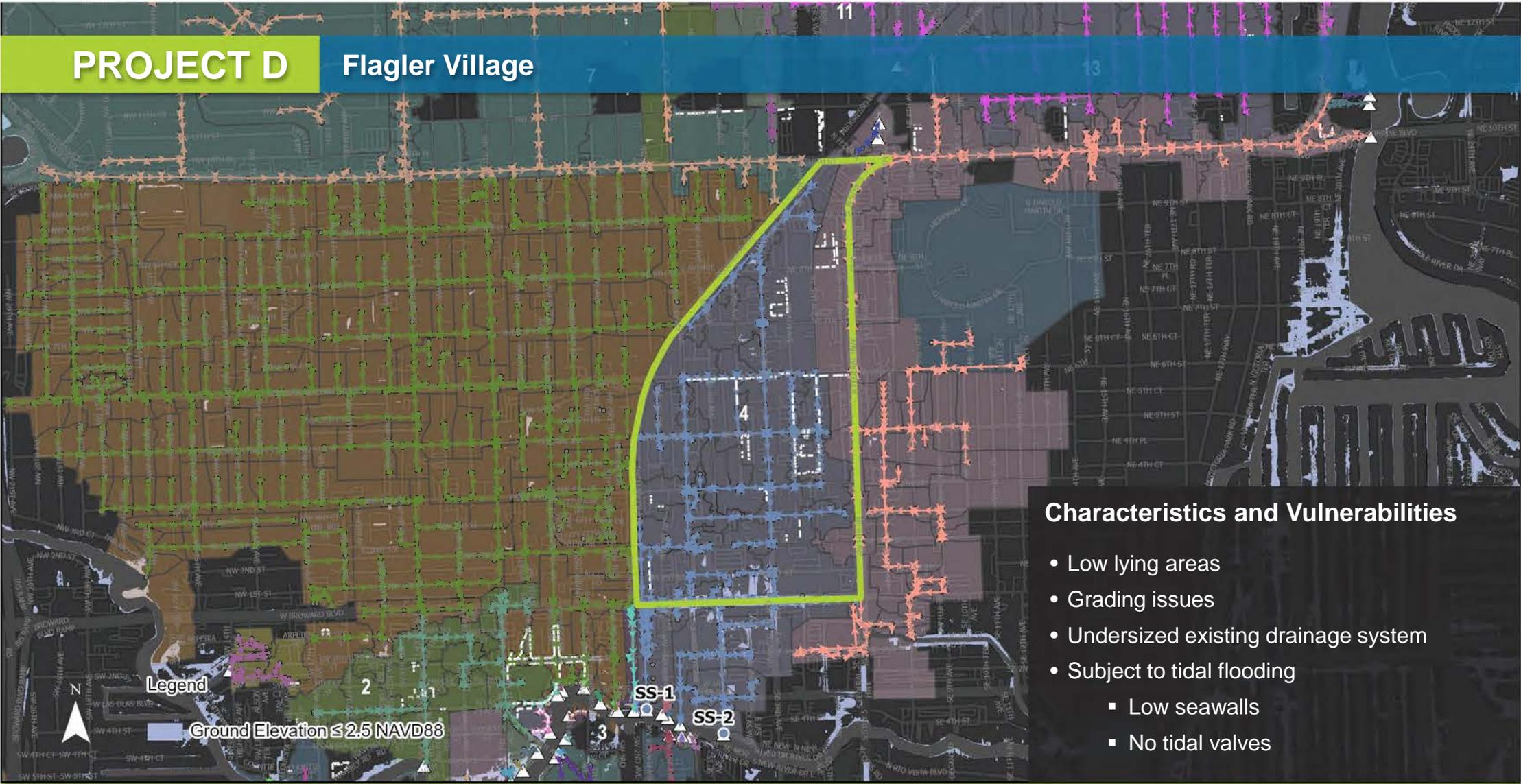
Tarpon River and Croissant Park



Potential Adaptation Strategies

-  **Rehabilitate Grass Swales**
-  **Increase Conveyance Capacity**
-  **Extend Drainage System**
-  **Raise Seawalls**
-  **Install Tidal Valve**
-  **Install Pump Station**
-  **Private Resiliency Program**

PROJECT D Flagler Village



Characteristics and Vulnerabilities

- Low lying areas
- Grading issues
- Undersized existing drainage system
- Subject to tidal flooding
 - Low seawalls
 - No tidal valves

PROJECT D

Flagler Village



Potential Adaptation Strategies

-  Increase Conveyance Capacity
-  Upgrade Existing Pump Stations
-  Capital Maintenance
-  Private Resiliency Program

PROJECT E Harbour Isles & Adjoining Areas



Potential Adaptation Strategies



Increase Conveyance Capacity



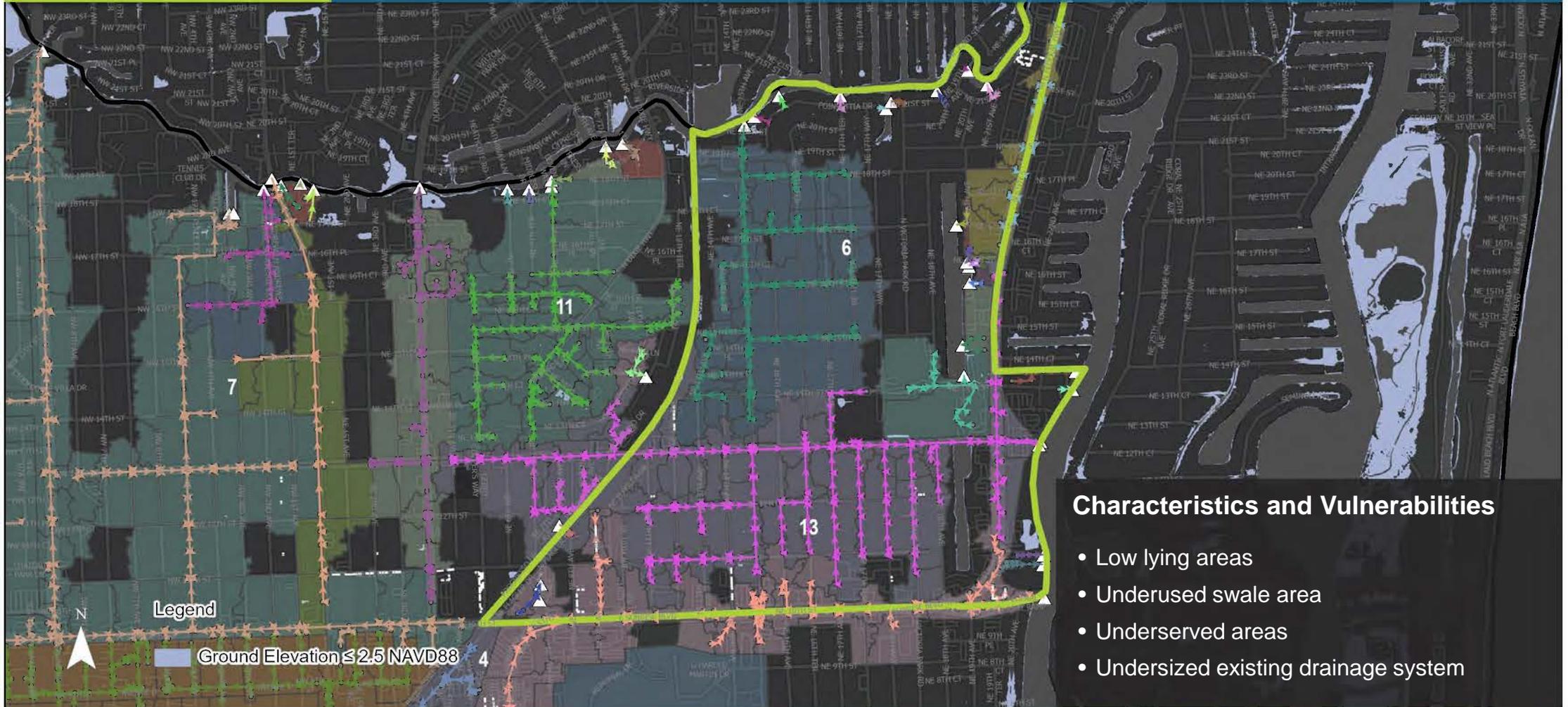
Install Tidal Valve



Private Resiliency Program

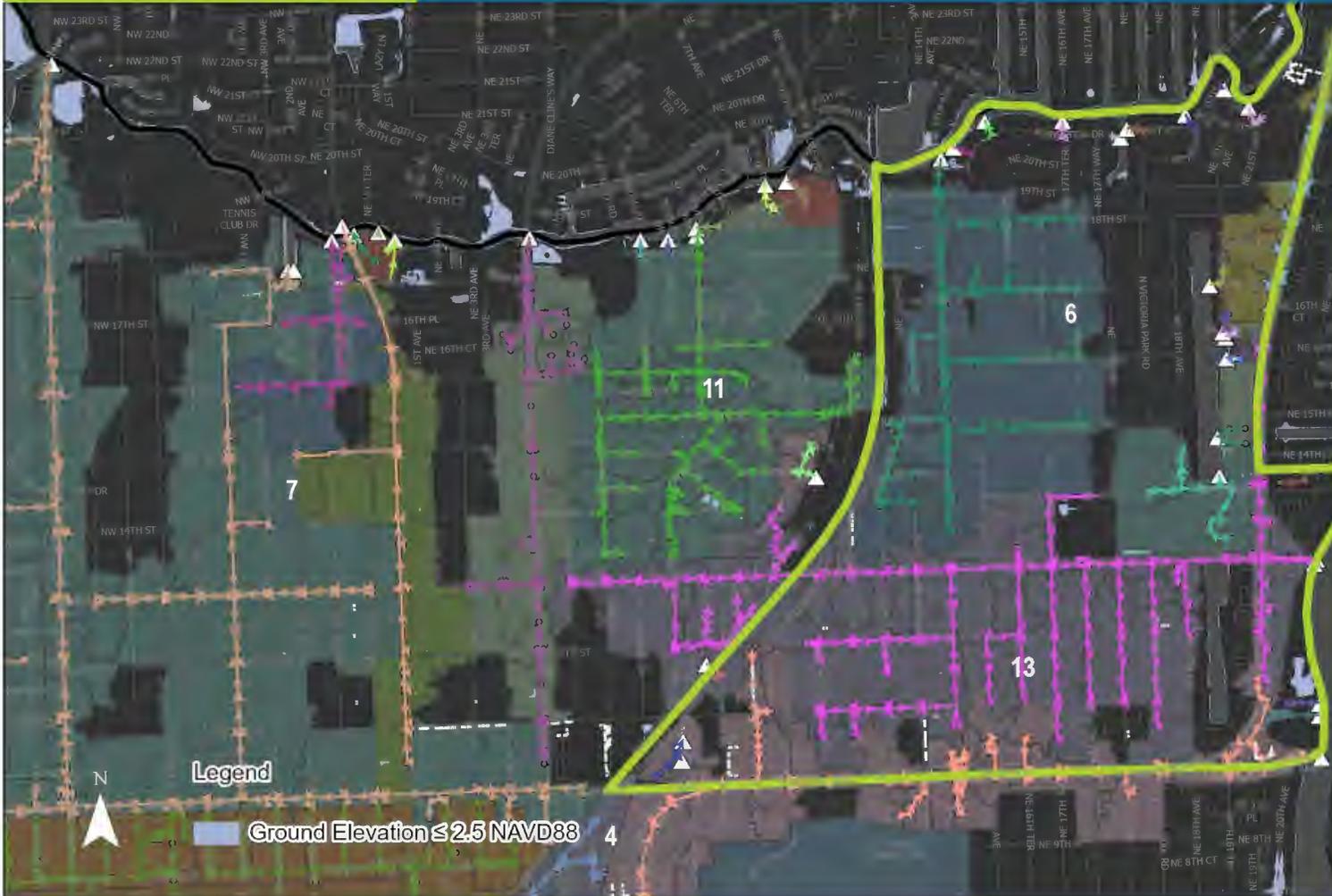
PROJECT F

Poinsettia Heights and Lake Ridge



PROJECT F

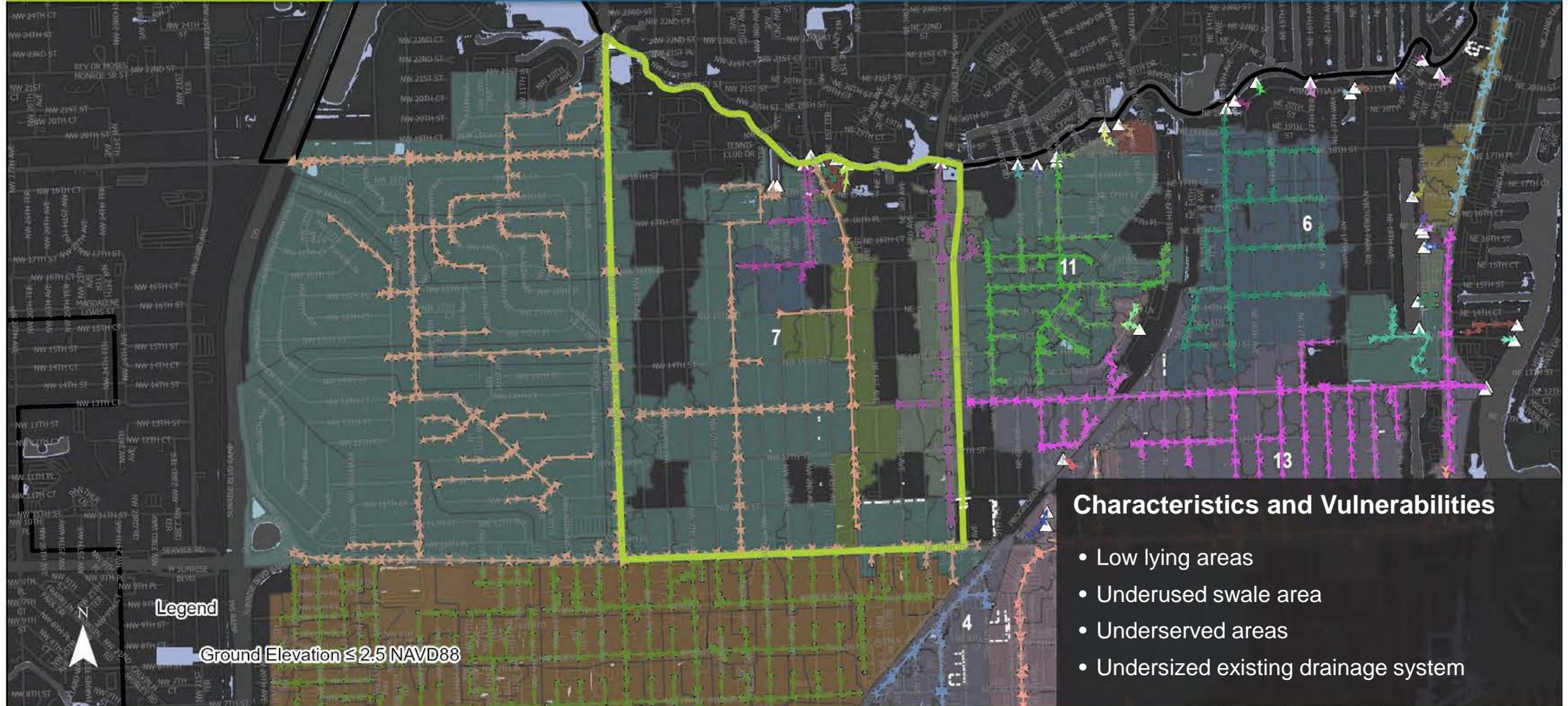
Poinsettia Heights and Lake Ridge



Potential Adaptation Strategies

-  Grading Improvements
-  Rehabilitate Grass Swales
-  Increase Conveyance Capacity
-  Extend Drainage System
-  Install Pump Station
-  Private Resiliency Program

PROJECT G South Middle River



PROJECT H

Melrose Park



Characteristics and Vulnerabilities

- Low lying areas
- No clearly defined swales
- Key elements require maintenance
 - Exfiltration Trenches
 - Discharge

PROJECT H

Melrose Park

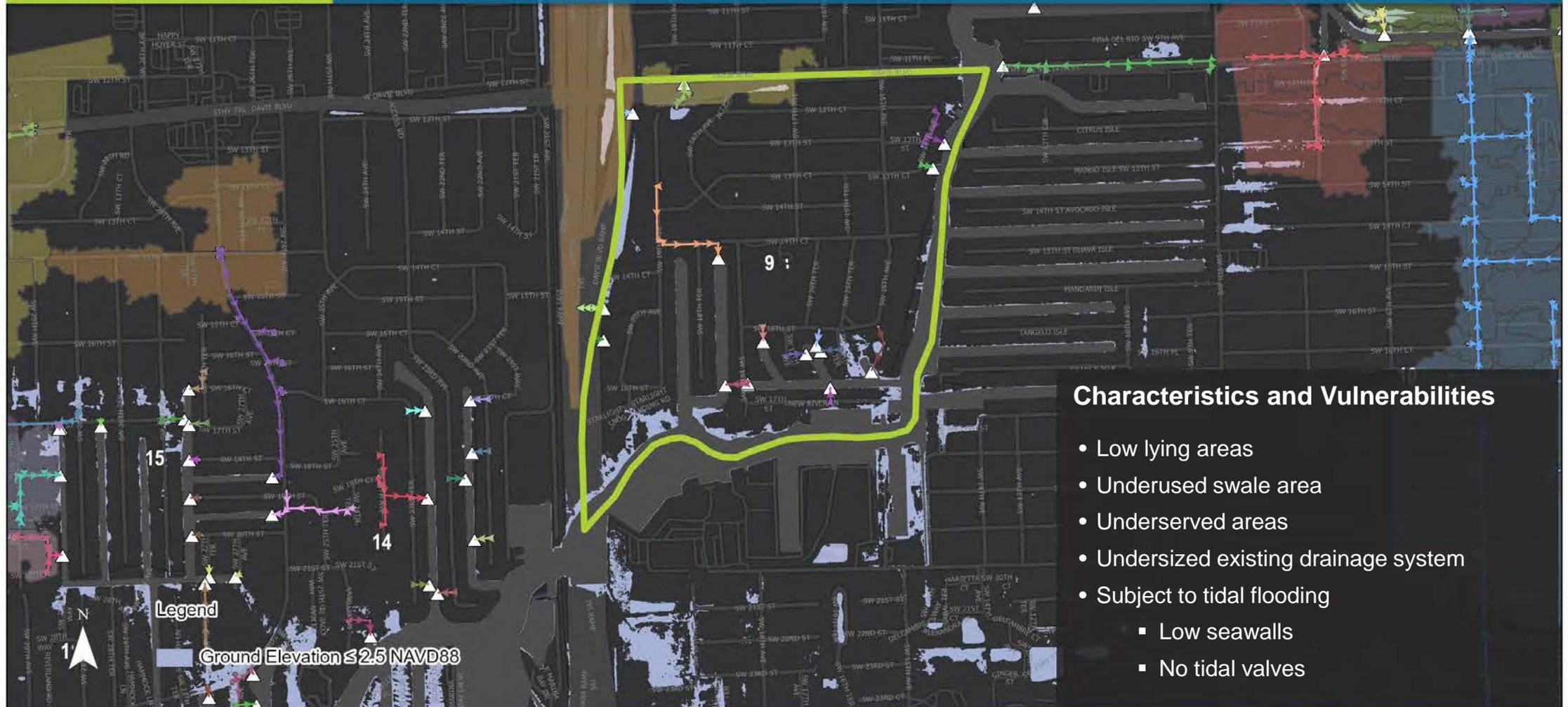


Potential Adaptation Strategies

-  Install Pump Station
-  Capital Maintenance
-  Private Resiliency Program

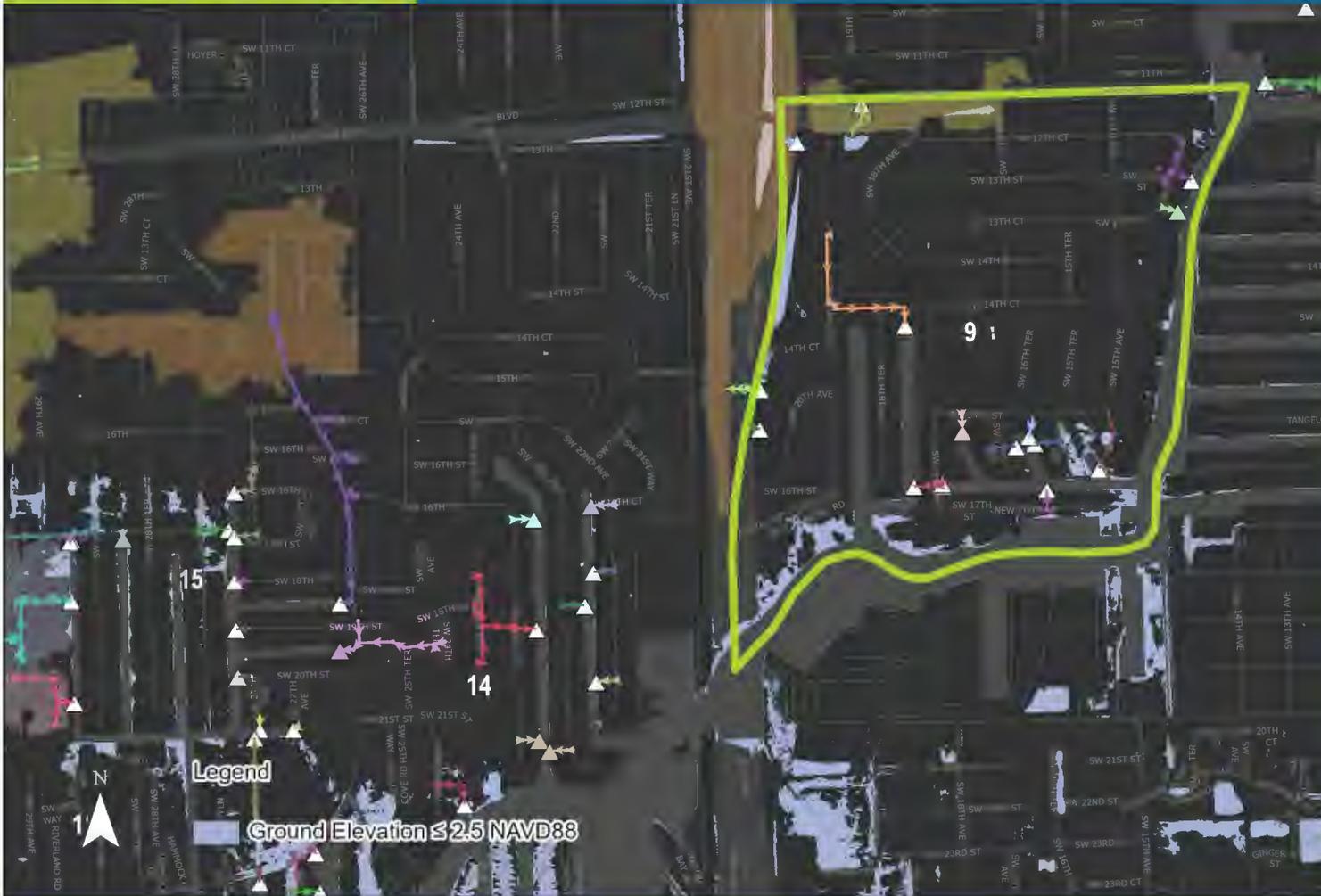
PROJECT I

Shady Banks



PROJECT I

Shady Banks

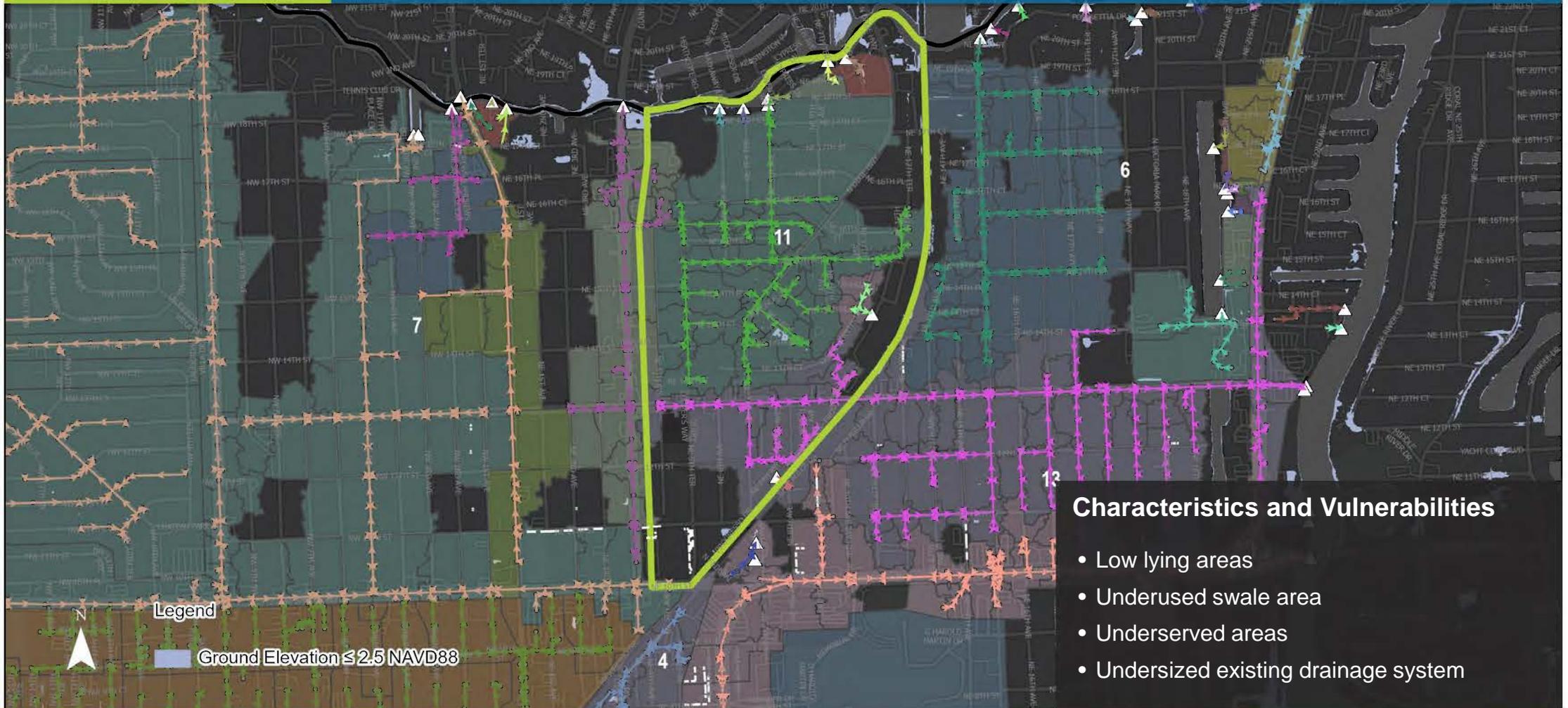


Potential Adaptation Strategies

-  **Rehabilitate Grass Swales**
-  **Increase Conveyance Capacity**
-  **Extend Drainage System**
-  **Install Pump Station**
-  **Install Tidal Valve**
-  **Private Resiliency Program**

PROJECT J

Middle River Terrace

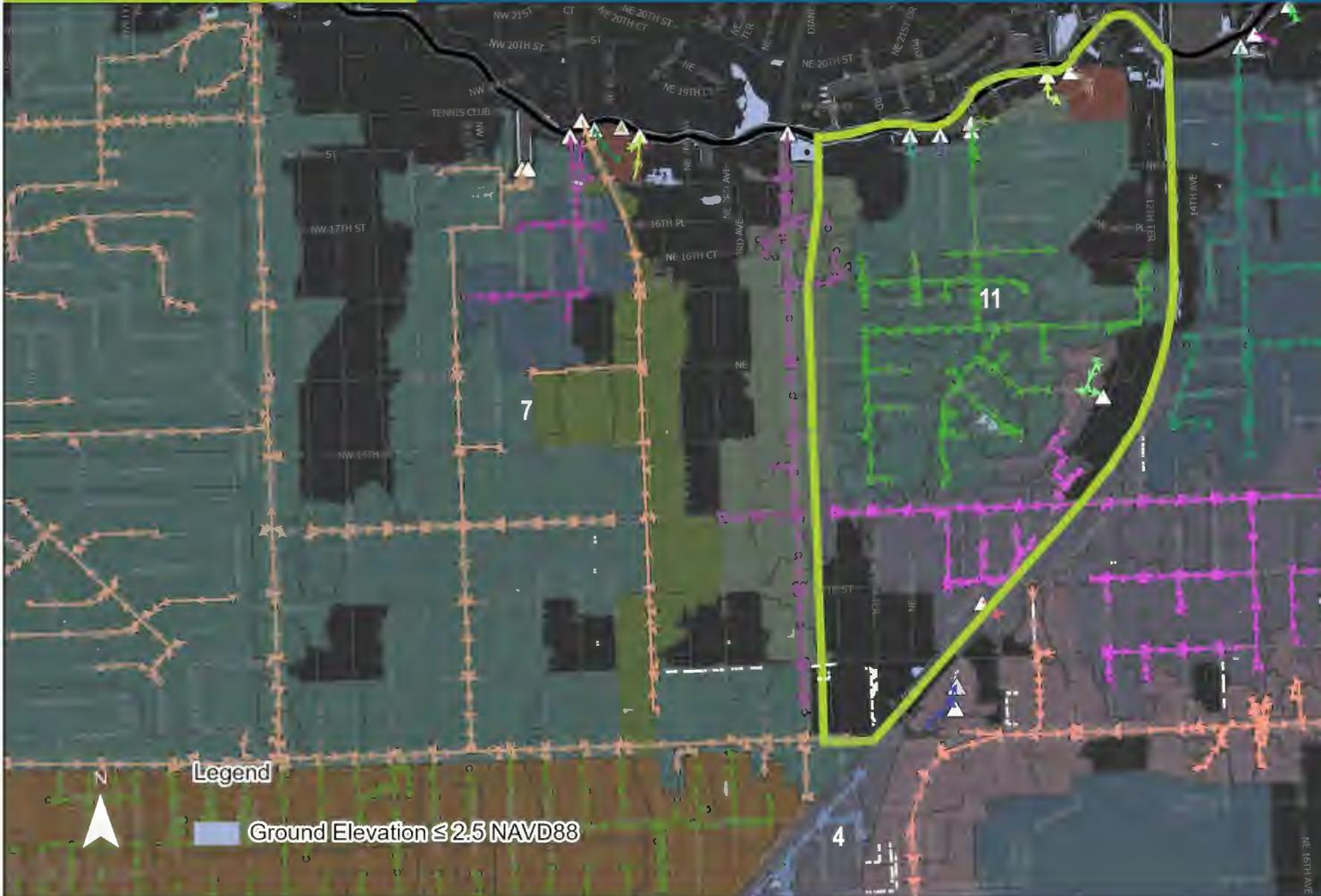


Characteristics and Vulnerabilities

- Low lying areas
- Underused swale area
- Underserved areas
- Undersized existing drainage system

PROJECT J

Middle River Terrace



Potential Adaptation Strategies

-  Rehabilitate Grass Swales
-  Grading Improvements
-  Increase Conveyance Capacity
-  Extend Drainage System
-  Install Pump Station
-  Private Resiliency Program

Legend

Ground Elevation ≤ 2.5 NAVD88

PROJECT K Imperial Point

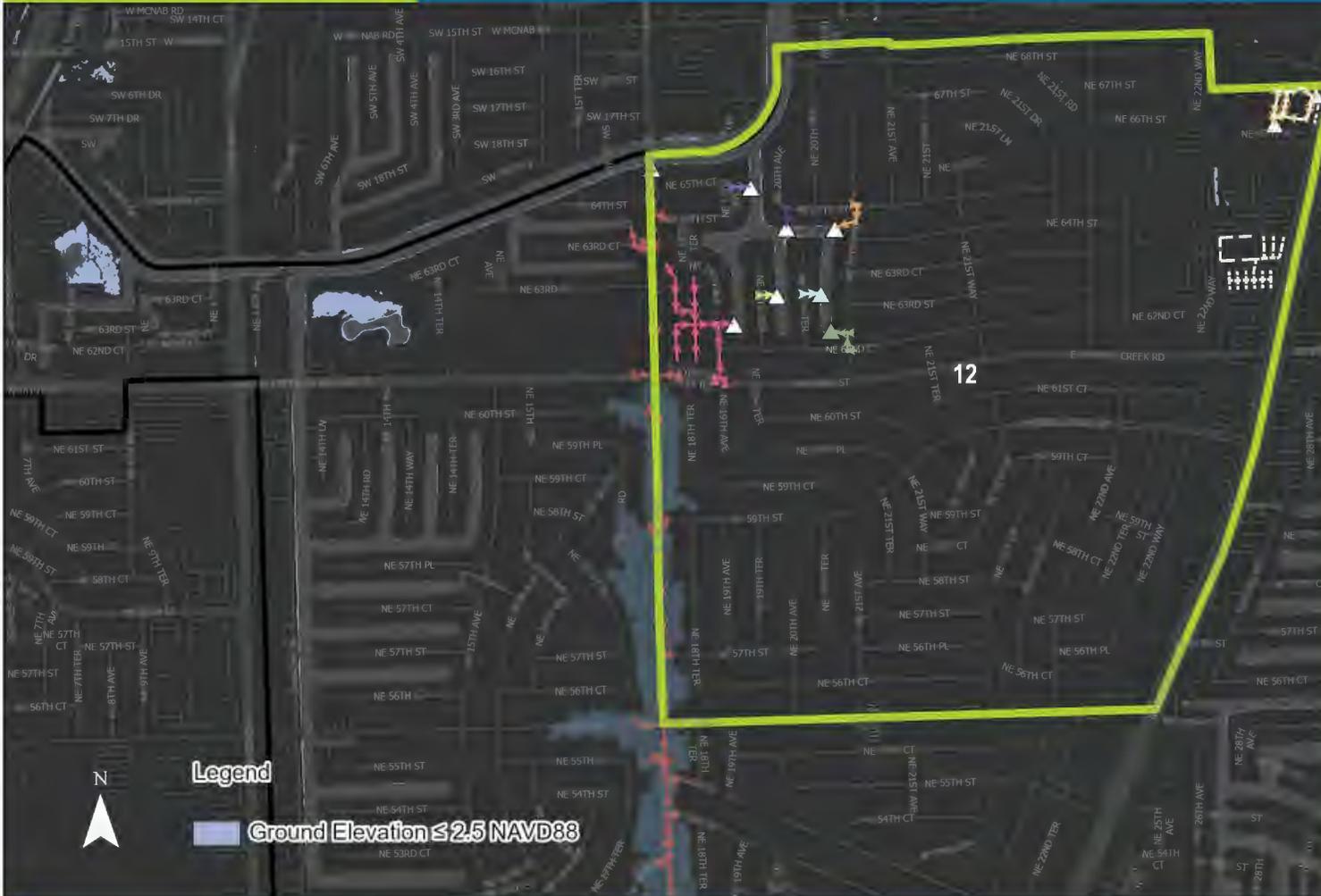


Characteristics and Vulnerabilities

- Underused swale area
- Underserved areas
- Undersized existing drainage system

PROJECT K

Imperial Point



Potential Adaptation Strategies



Rehabilitate Grass Swales



Increase Conveyance Capacity



Extend Drainage System



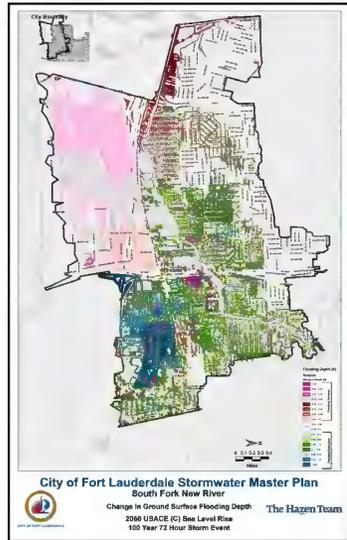
Private Resiliency Program

PROJECT L

Chula Vista, Riverland Village & Adjoining Areas

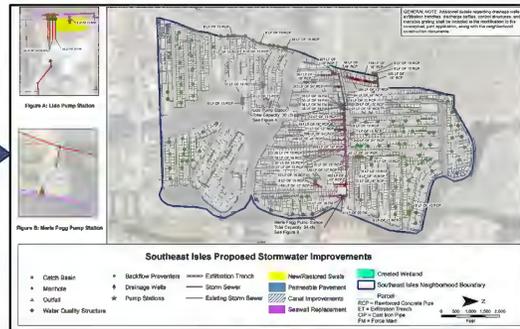


Broward County permitting of the projects will be critical



Modeling update well underway

Conceptual Design



- Kickoff meeting held with County
- Follow-up meeting scheduled for October

Separate Tranche 2 Conceptual Permit

BROWARD COUNTY
FLORIDA

Environmental Protection and Growth Management Department
ENVIRONMENTAL ENGINEERING AND PERMITTING DIVISION
Water and Environmental Licensing Section
1 North University Drive, Mailbox 201, Plantation, Florida 33324
Phone * 954-319-1450 Fax * 954-319-1412

December 04, 2018
City of Fort Lauderdale
Attention: Rares Petrica
100 N Andrews Ave
Fort Lauderdale, FL 33301

RE: Fort Lauderdale Stormwater Master Plan Conceptual
City of Fort Lauderdale, S/TR (01-50-42)

This is to notify you of the Environmental Protection and Growth Management Department's (EPGMD) action concerning your application received 04/16/2018. The application has been reviewed for compliance with the following requirements:

ERP Review - GRANTED

EPGMD has the authority to review the project for compliance with the provisions of Chapter 373, Part IV, Florida Statutes pursuant to an agreement between EPGMD, DEP and the SFWMD. The agreement is outlined in a document entitled "DELEGATION AGREEMENT AMONG THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT, AND BROWARD COUNTY."

Based on the information submitted, Environmental Resource Permit No. 06-80003-P was issued on 12/04/2018. Should you object to the conditions of the Environmental Resource Permit, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the attached "Notice of Rights", we will assume you concur with the action taken by EPGMD.

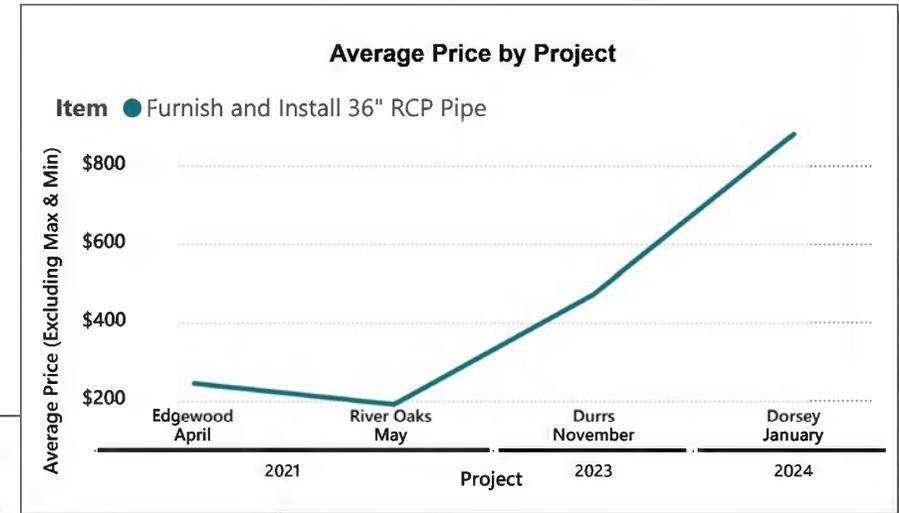
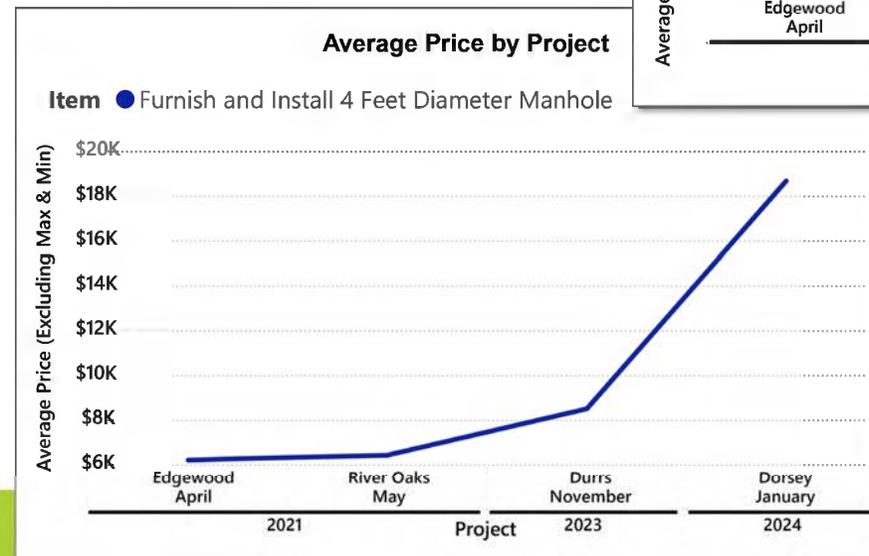
Locks in planning level concepts for future design and construction

The Phased Project Schedule plans for completion by 2034



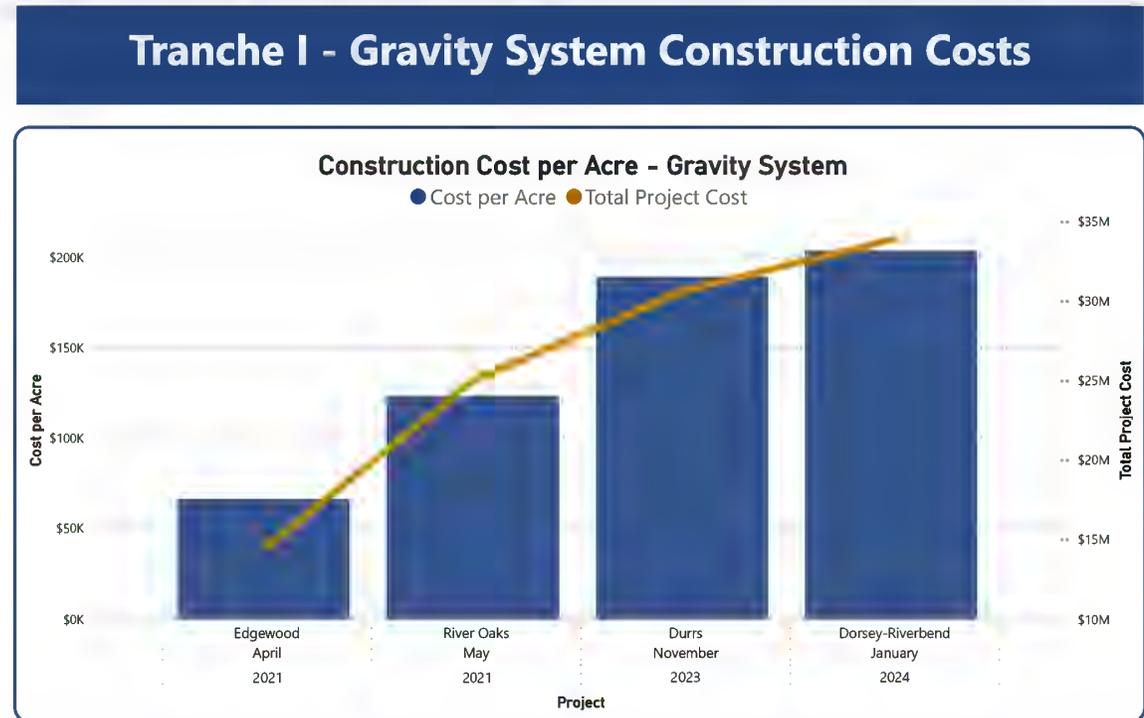
We are building a Cost Database to benefit the Program

- Developed to compare bid prices from all program projects
- Items included are sorted into various categories
- Improves cost estimating
- Allows trending analysis



Updating of City's preliminary Tranche 2 project costs will be completed in the upcoming months, but some initial observations include:

- Major construction cost escalation over last few years
- Likely Tranche 1 shortfall in funding



Public Outreach is a key component of the overall program

- Tranche 2 Neighborhood Meetings (planning, design, construction)
- Broader Citywide engagement relative to Private Property Resilience
 - City Staff
 - Homeowners/Businesses
 - Development Community



“Best results achieved via collaboration”



Update on Tranche 2 Neighborhood Improvements Timeline

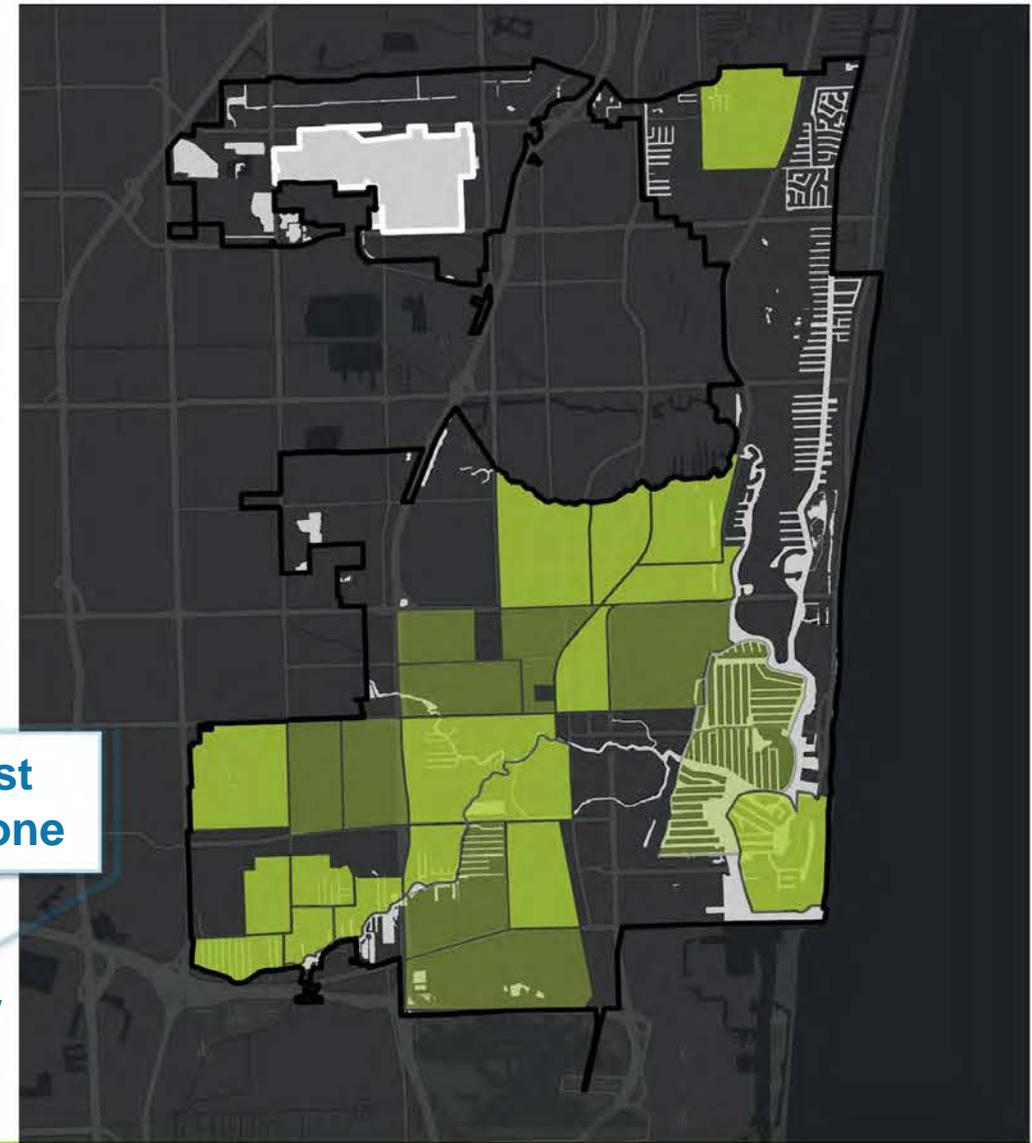


The City's Neighborhood Stormwater Capital Investments are significant

	Area	
	Acres	Percent
City of Fort Lauderdale	20,030	100%
Waterbodies	2,327	12%
FTL Executive Airport	498	2%
Original Neighborhoods	4,088	20%
Tranche 2 Neighborhoods	5,197	28%
Remaining Area	7,920	38%

After completion of the proposed neighborhood projects, the City will have **addressed 62% of the City** with stormwater improvements.

the most flood-prone





Fortify
Lauderdale
Building a Resilient Future
in Fort Lauderdale

Questions