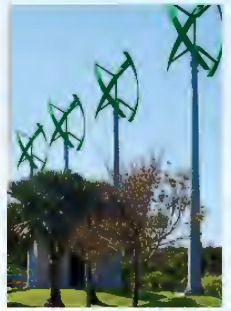
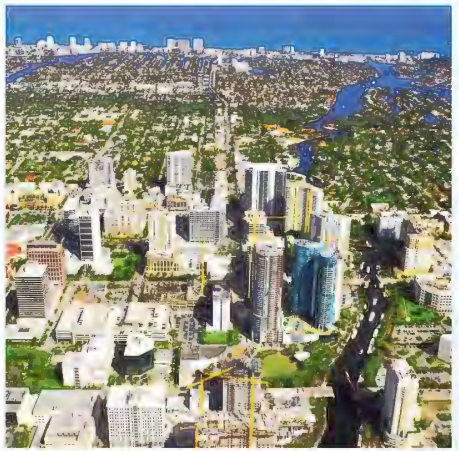
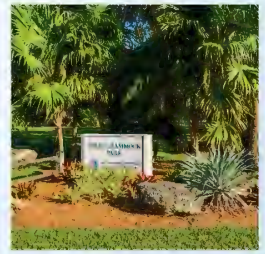
Fortify Lauderdale

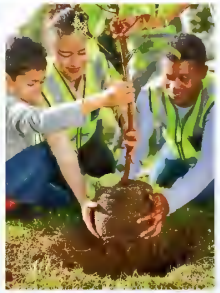
Building a Resilient Future in Fort Lauderdale






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

Meeting Agenda

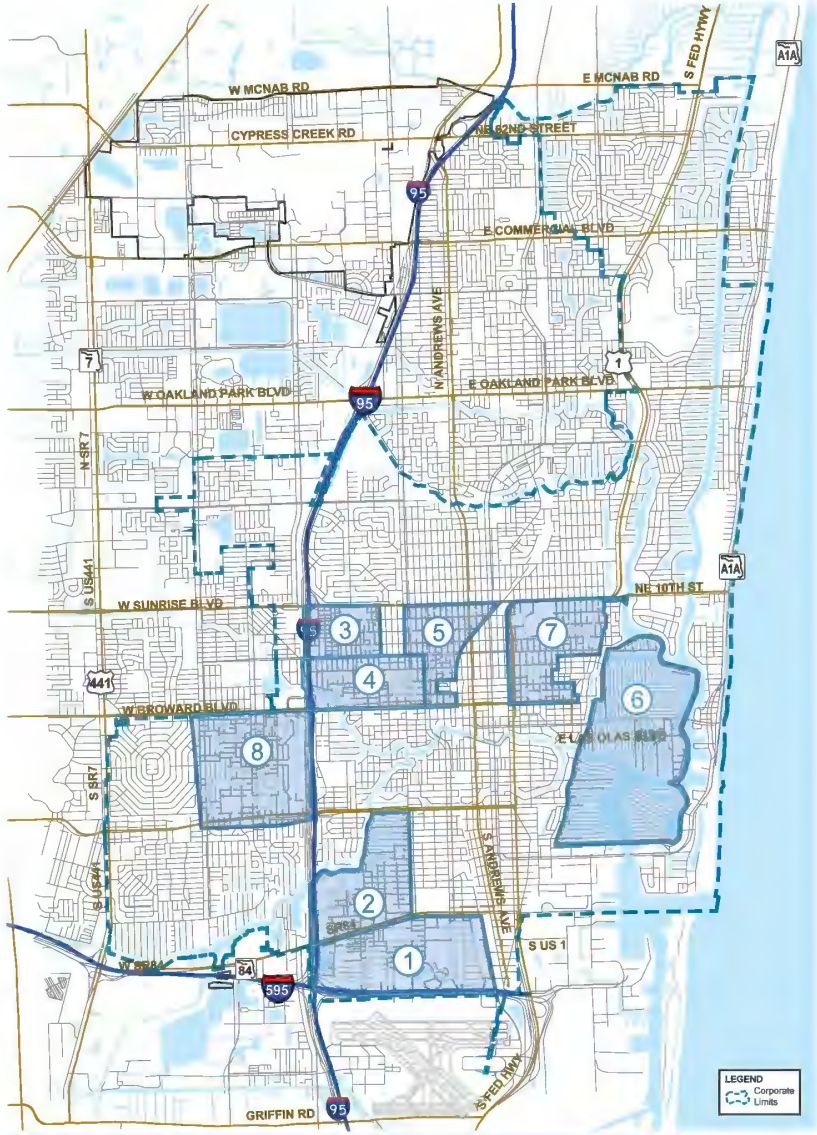
- Original Eight Neighborhoods
- Tranche 2 Neighborhoods
- Data Collection
- Conceptual Approaches by Neighborhood/Project
- Project Schedule/Costs
- Public Outreach
- Questions

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

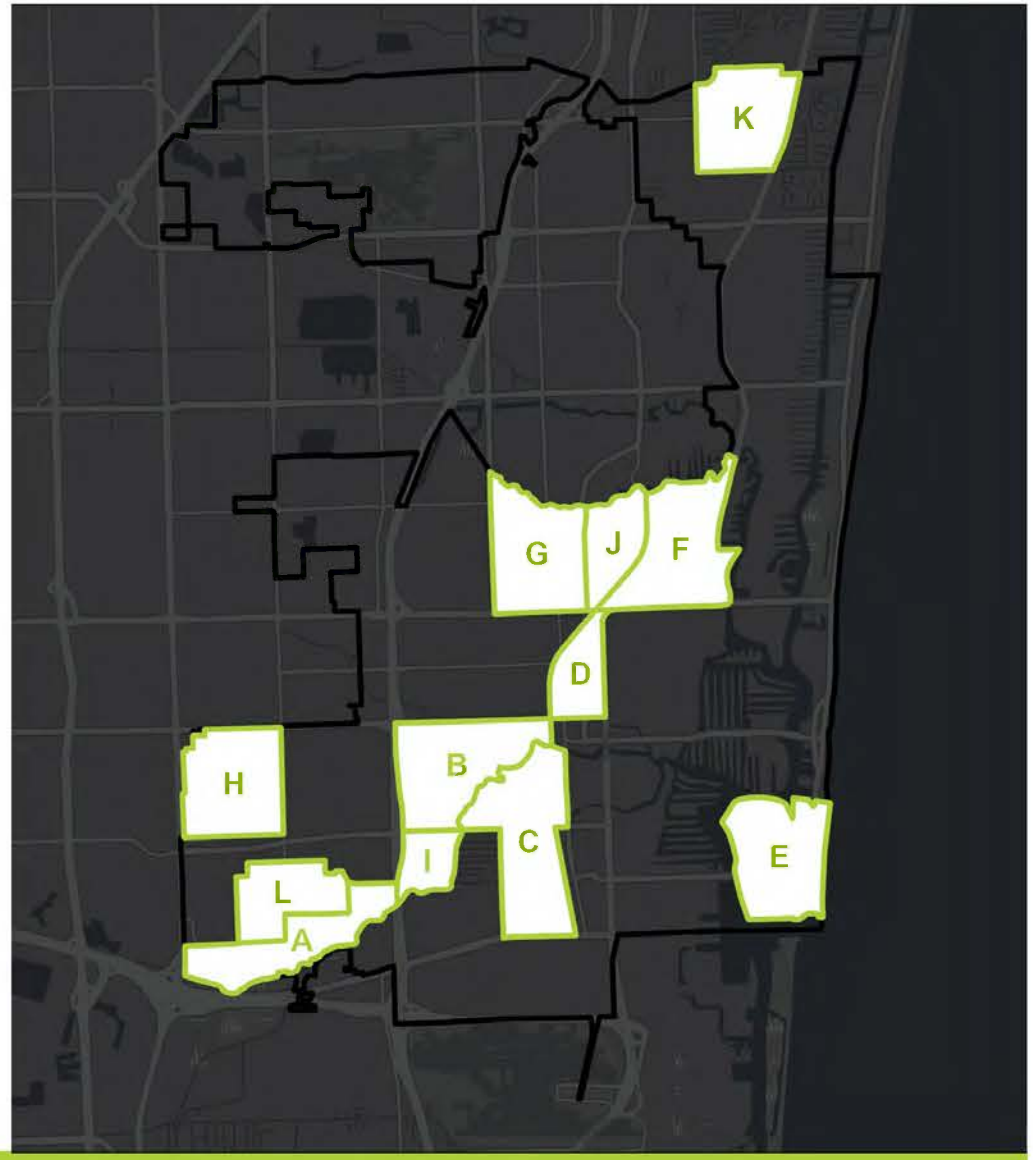


Tranche 2 Neighborhoods

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

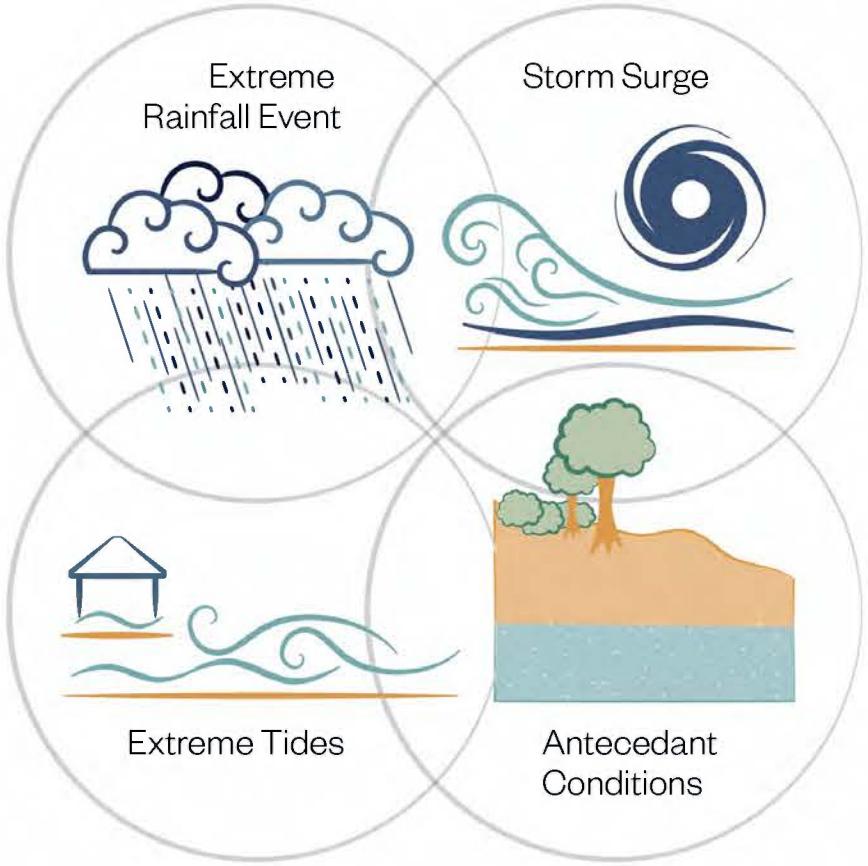
Prioritization of Projects is still ongoing and will include consideration of…

- 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.

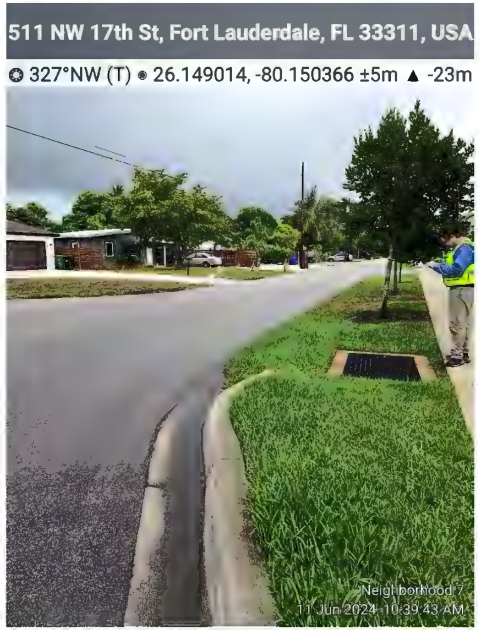
- Neighborhoods were visited in wet and dry conditions.

Priority locations within the neighborhoods were determined using:

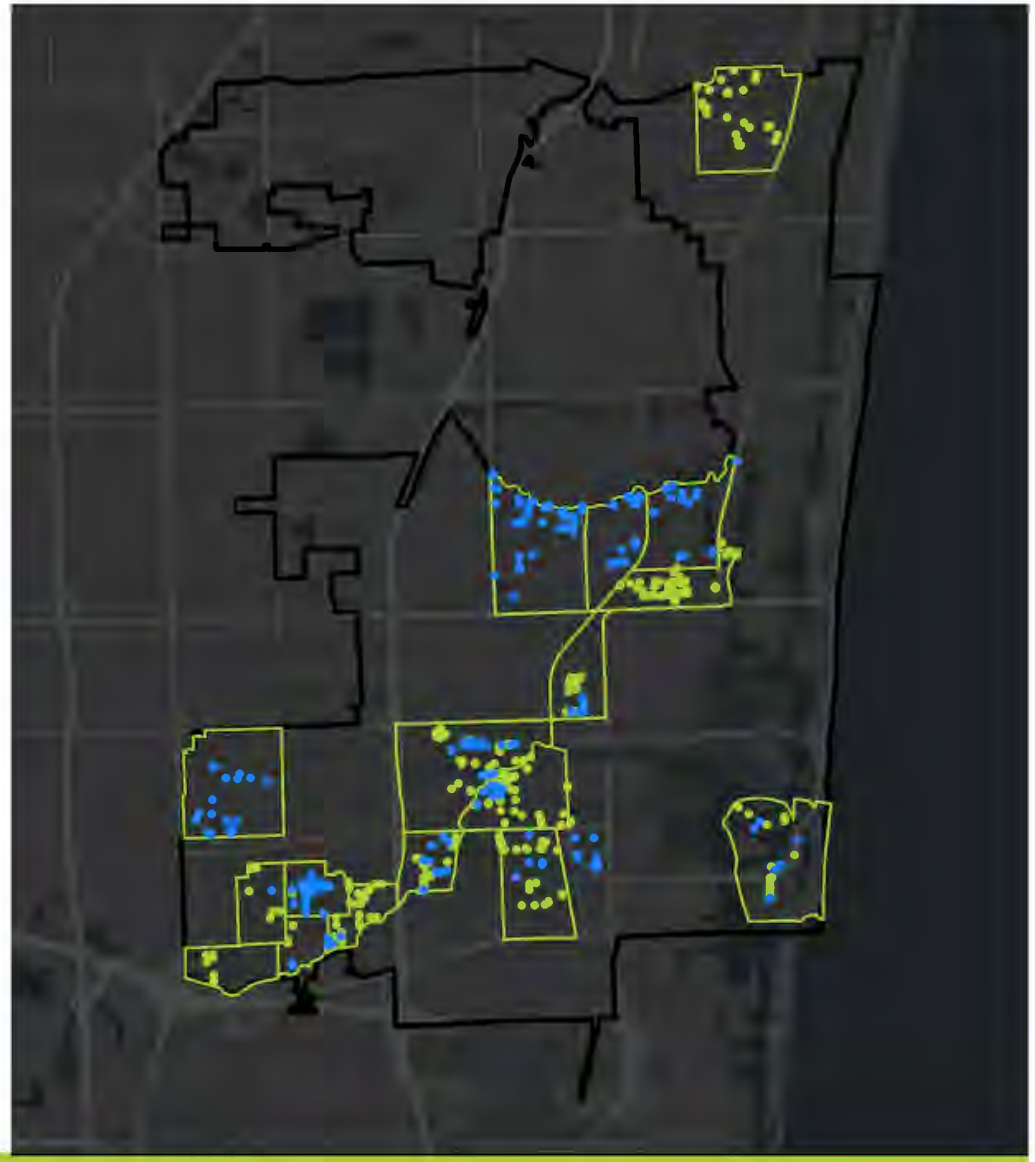
- Flood prone areas (preliminary modeling)
- Low elevations (2018 DEM)
- Properties with FEMA repetitive losses

Spatial coverage for data collection was widespread

Wet Weather Site Visits



Dry Weather Site Visits



Data Collection Team used ArcGIS Survey123…

Swale Conditions

Existing Infrastructure

Outfall Conditions

Mitigation Strategies

Power BI

…and populated a PowerBI Dashboard

…providing a neighborhood overview “at a glance”

Field Data Summary - Sailboat Bend

Fortify Lauderdale

Flooding

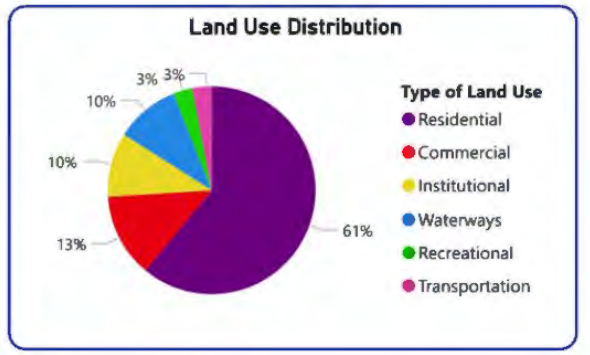
Nature of Flooding	Is There Drainage Infrastructure?
Isolated	Existing but undersized

Swales

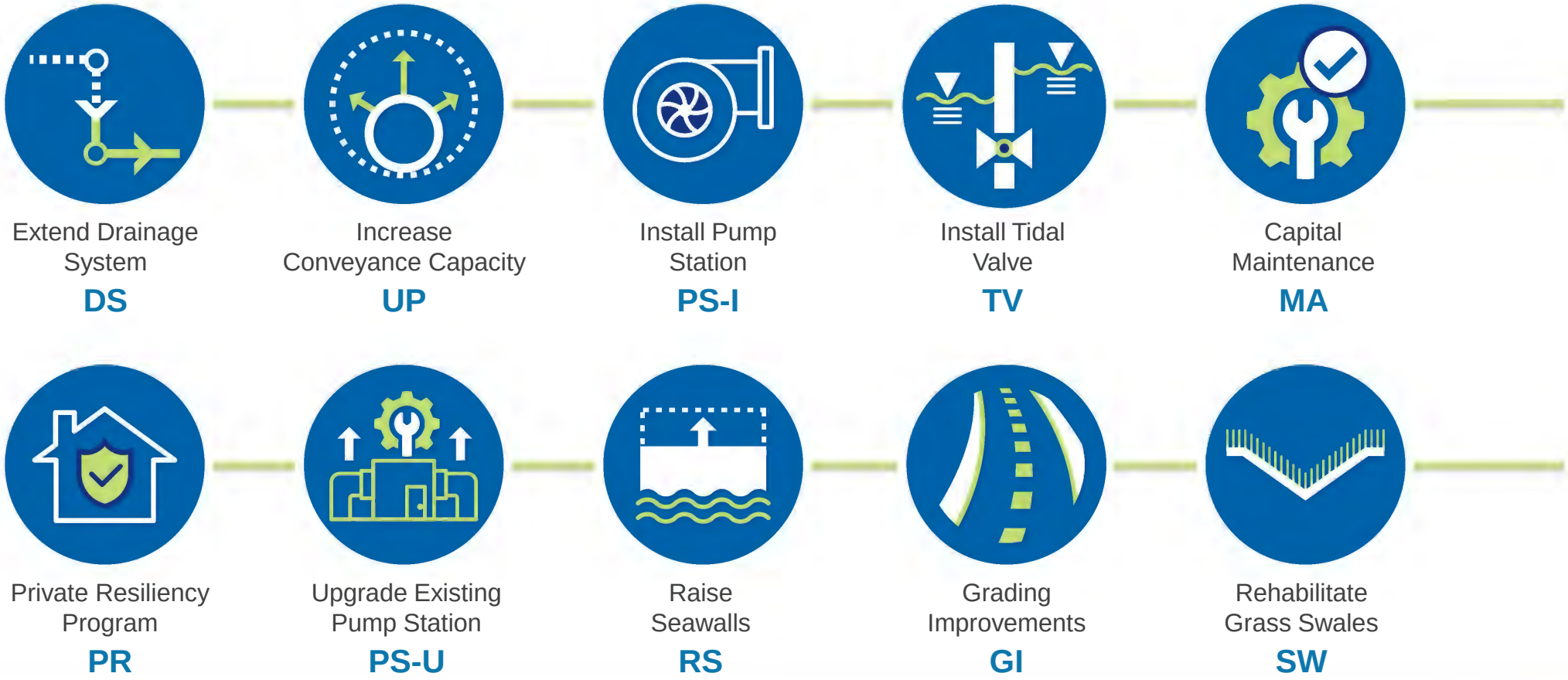
Existing Swales?	Grading Problems?
No	Yes

Outfalls

Existing Outfalls?	Accessible?	Condition
Yes	No	N/A



A variety of potential mitigation strategies is proposed



Takeaway from Field Work & Desktop Analyses

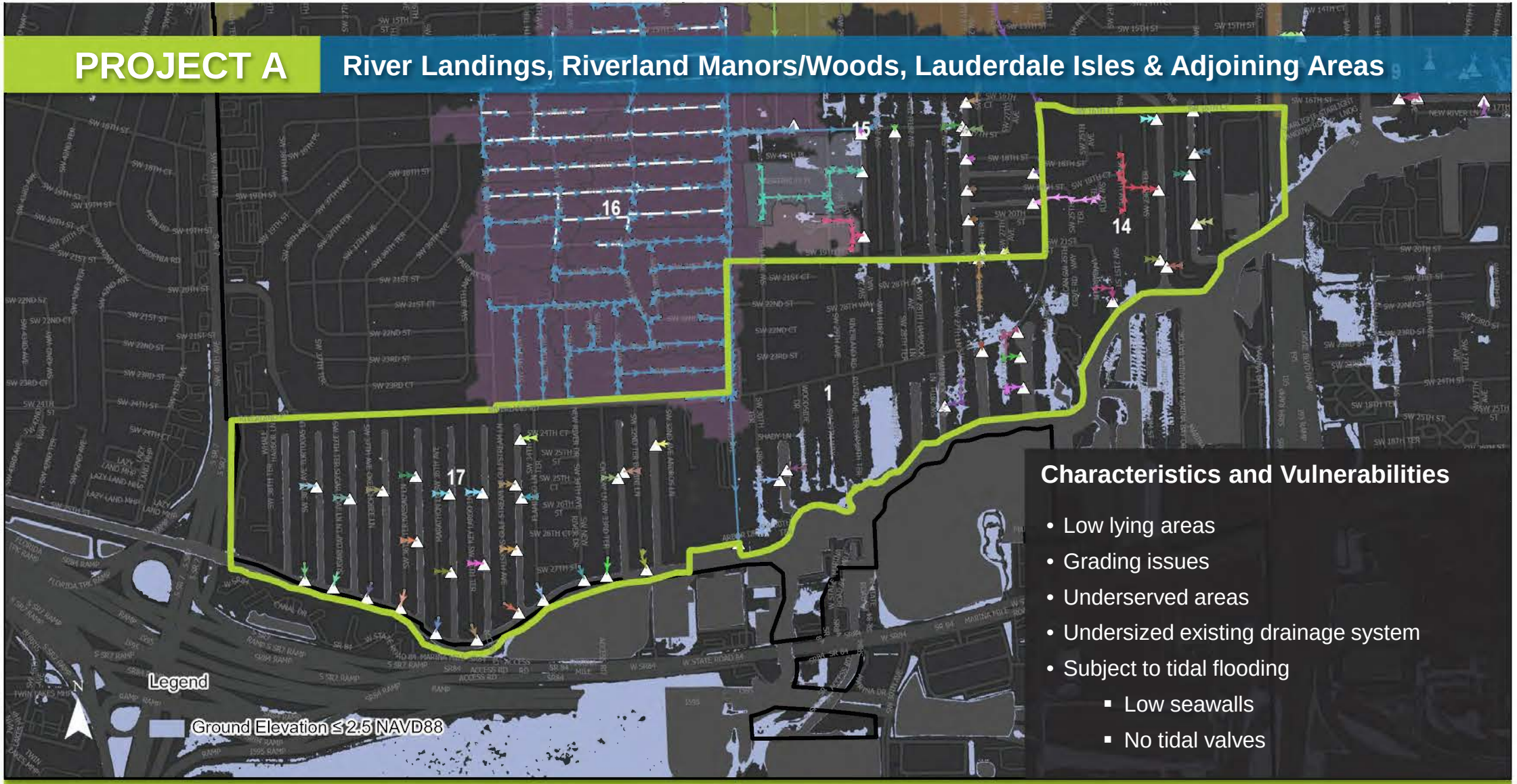
		Adaptation Strategies									
Project	Tranche 2 Neighborhoods	DS	UP	PS-I	MA	PR	PS-U	RS	GI	TV	SW
A	Riverland Manors, Lauderdale Isles, River Landings & Adjoining Areas	✓		✓		✓		✓	✓	✓	✓
B	Sailboat Bend, Riverside Park & Adjoining Areas	✓	✓	✓		✓		✓		✓	✓
C	Tarpon River and Croissant Park	✓	✓	✓		✓		✓		✓	✓
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

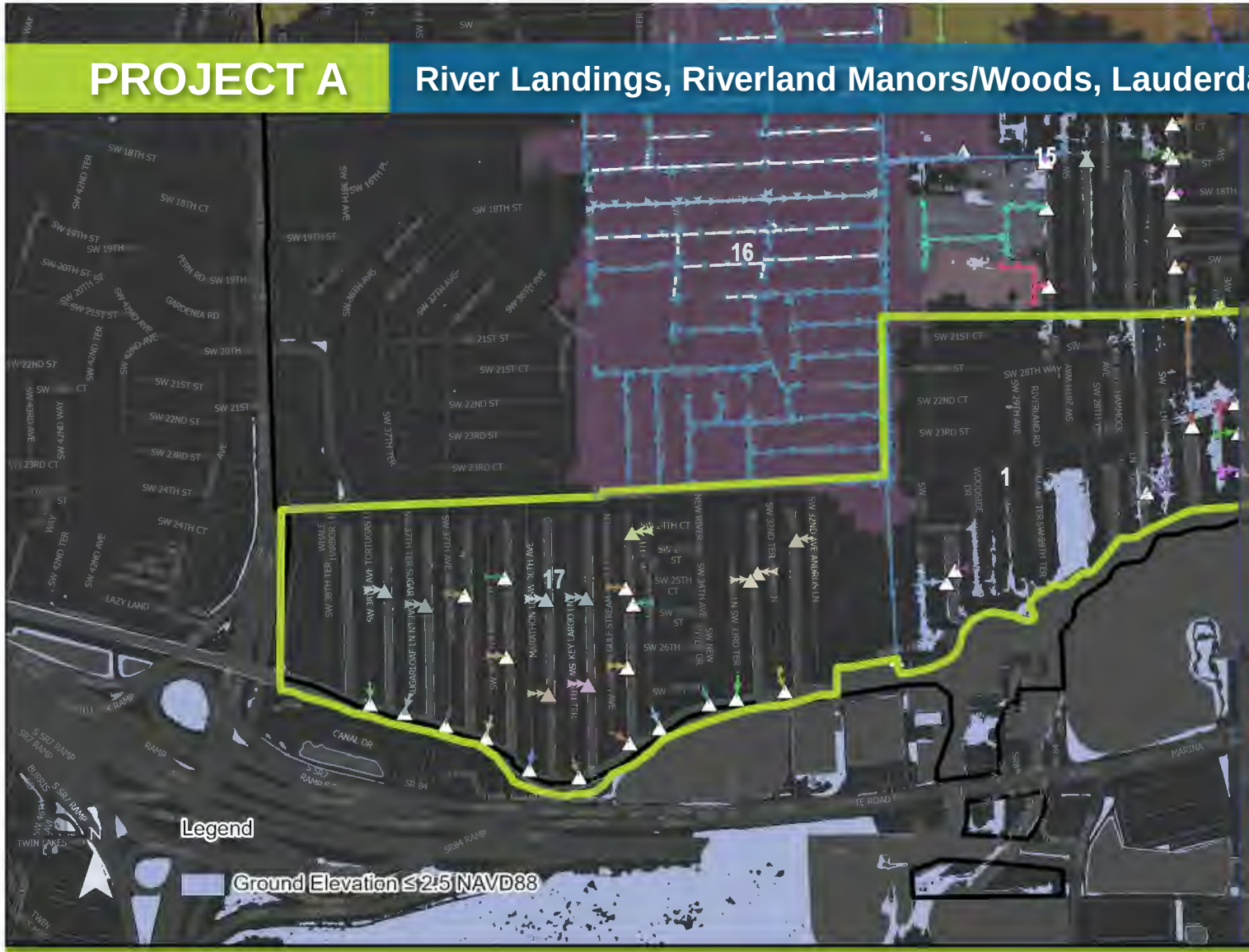


Characteristics and Vulnerabilities

- 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

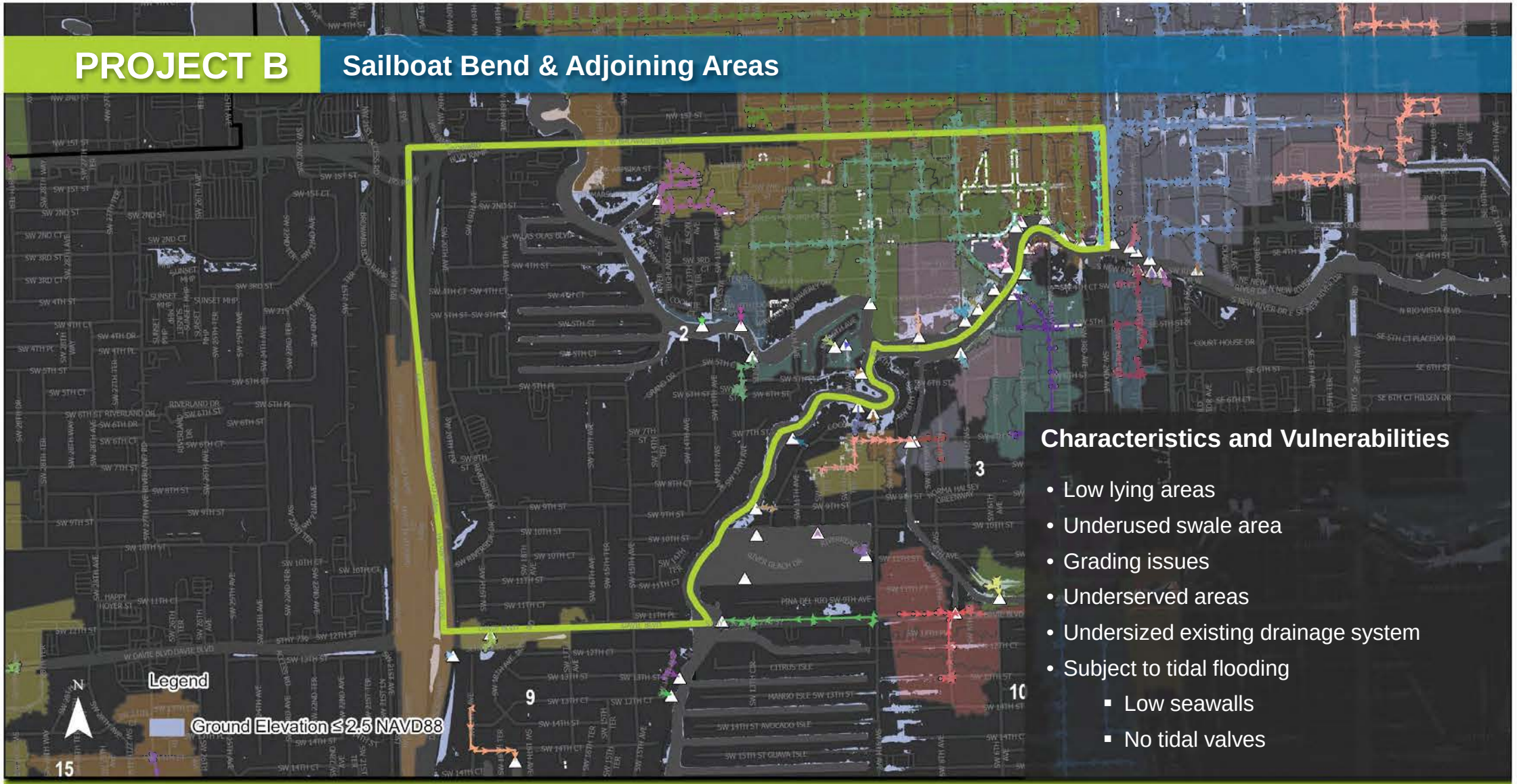


Potential Adaptation Strategies

- 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

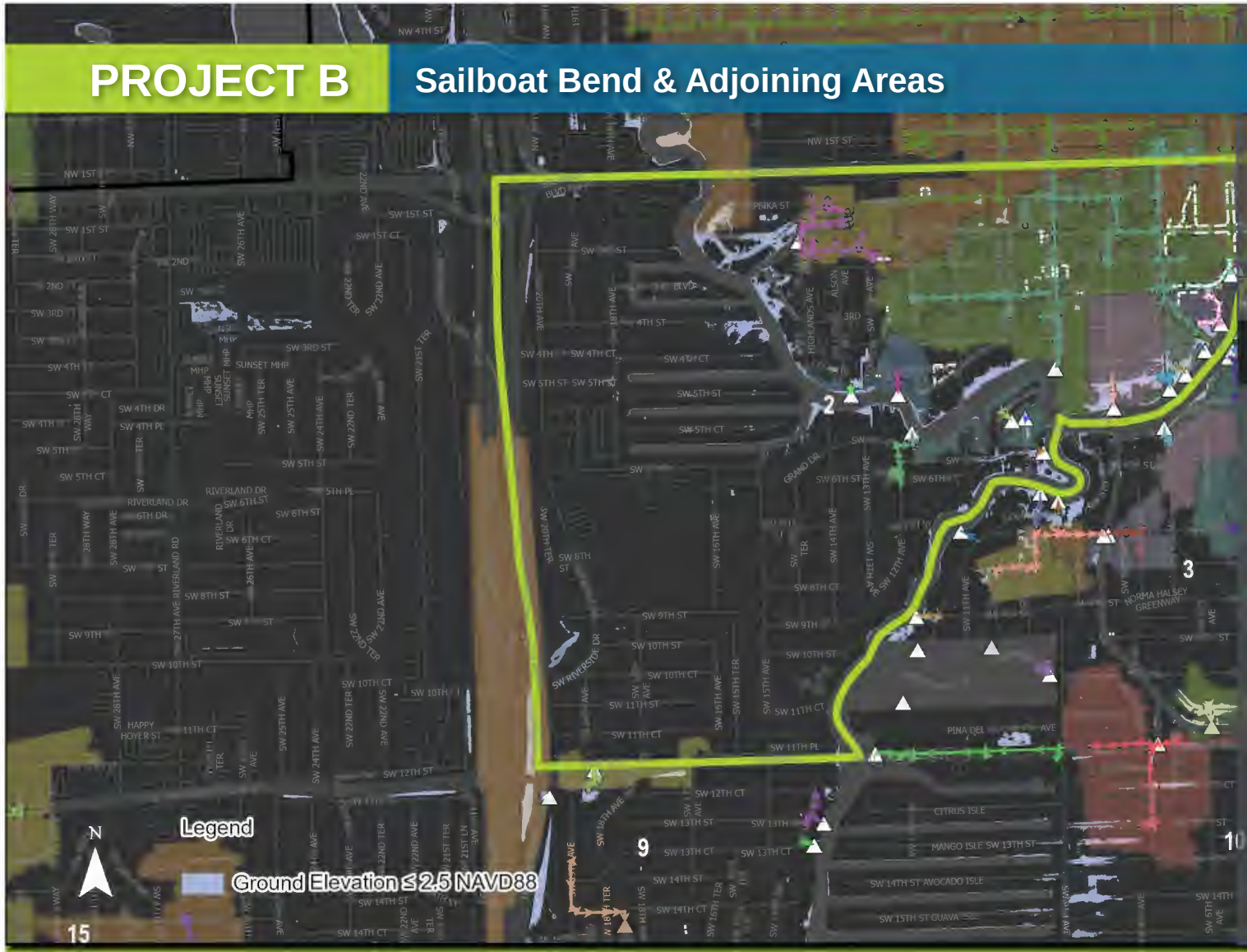


Characteristics and Vulnerabilities

- 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

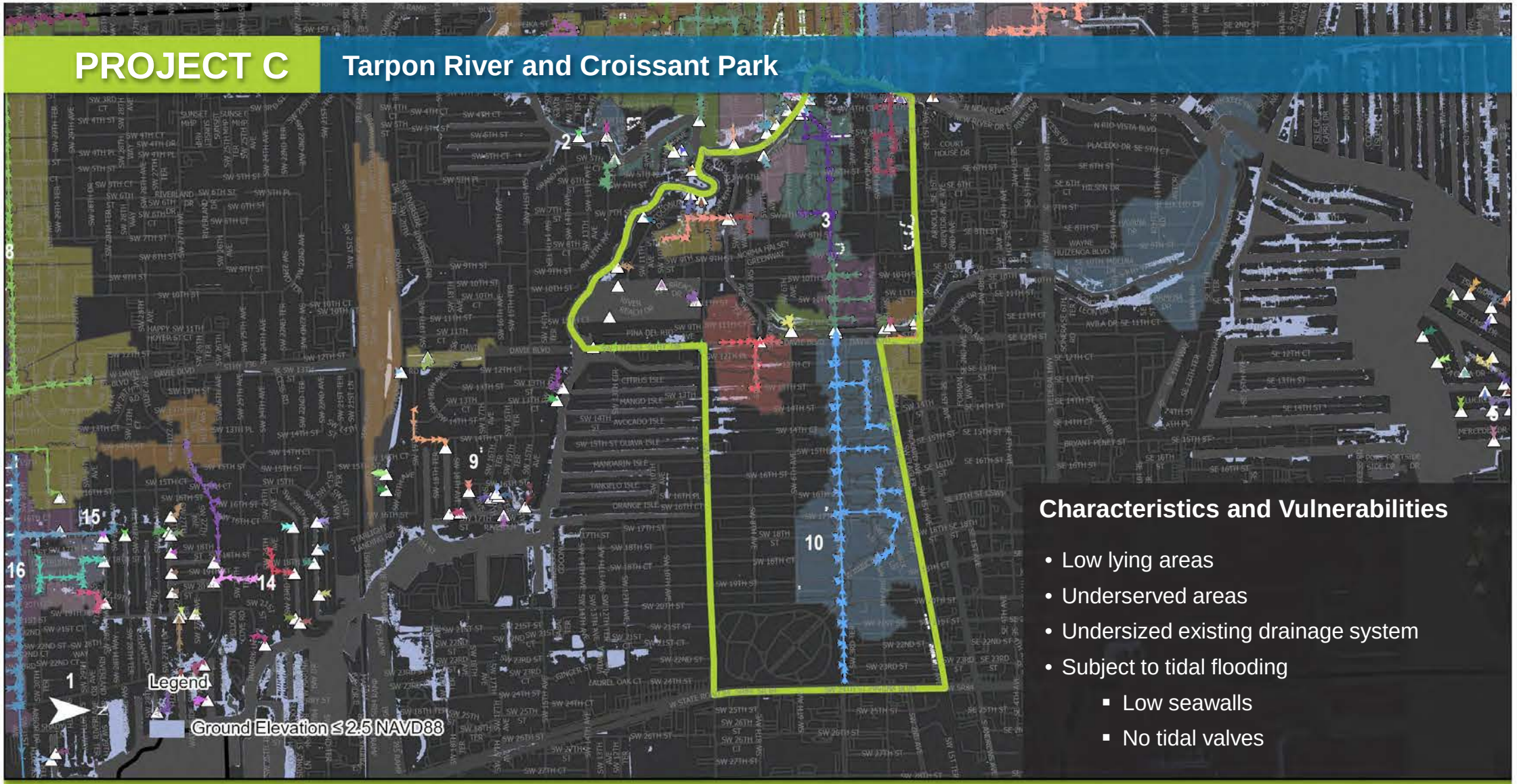


Potential Adaptation Strategies

- 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

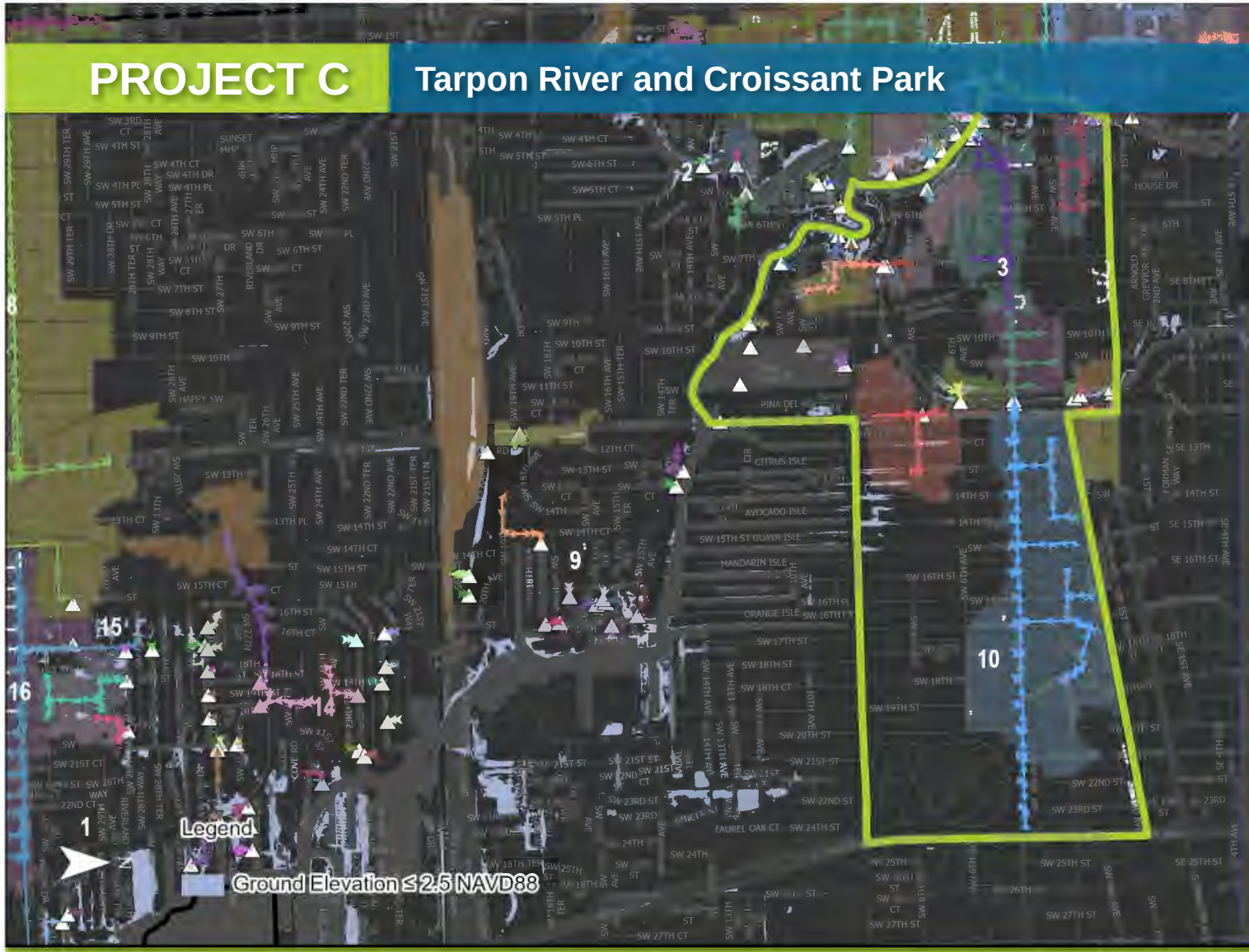


Characteristics and Vulnerabilities

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

PROJECT C

Tarpon River and Croissant Park

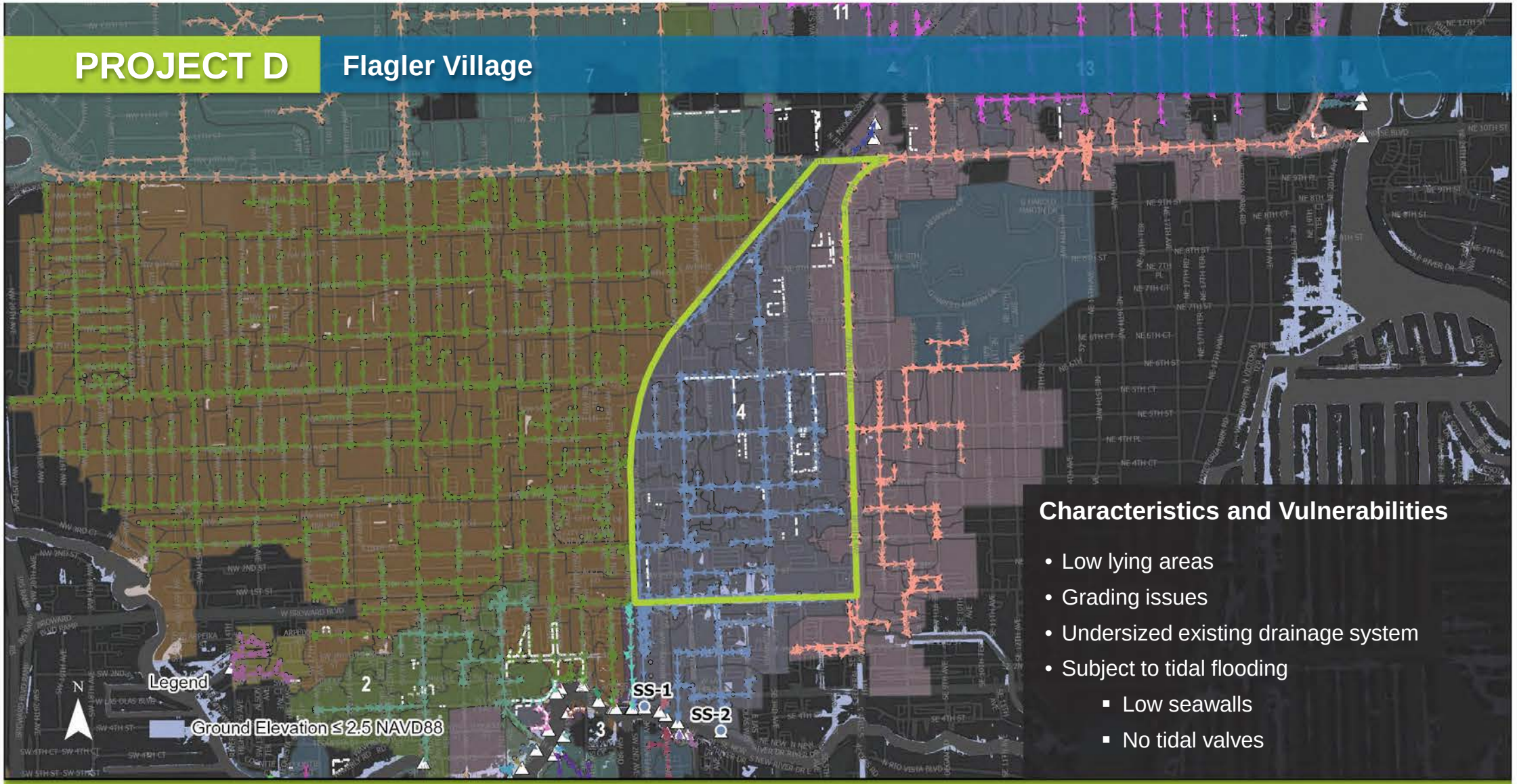


Potential Adaptation Strategies

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

PROJECT D

Flagler Village

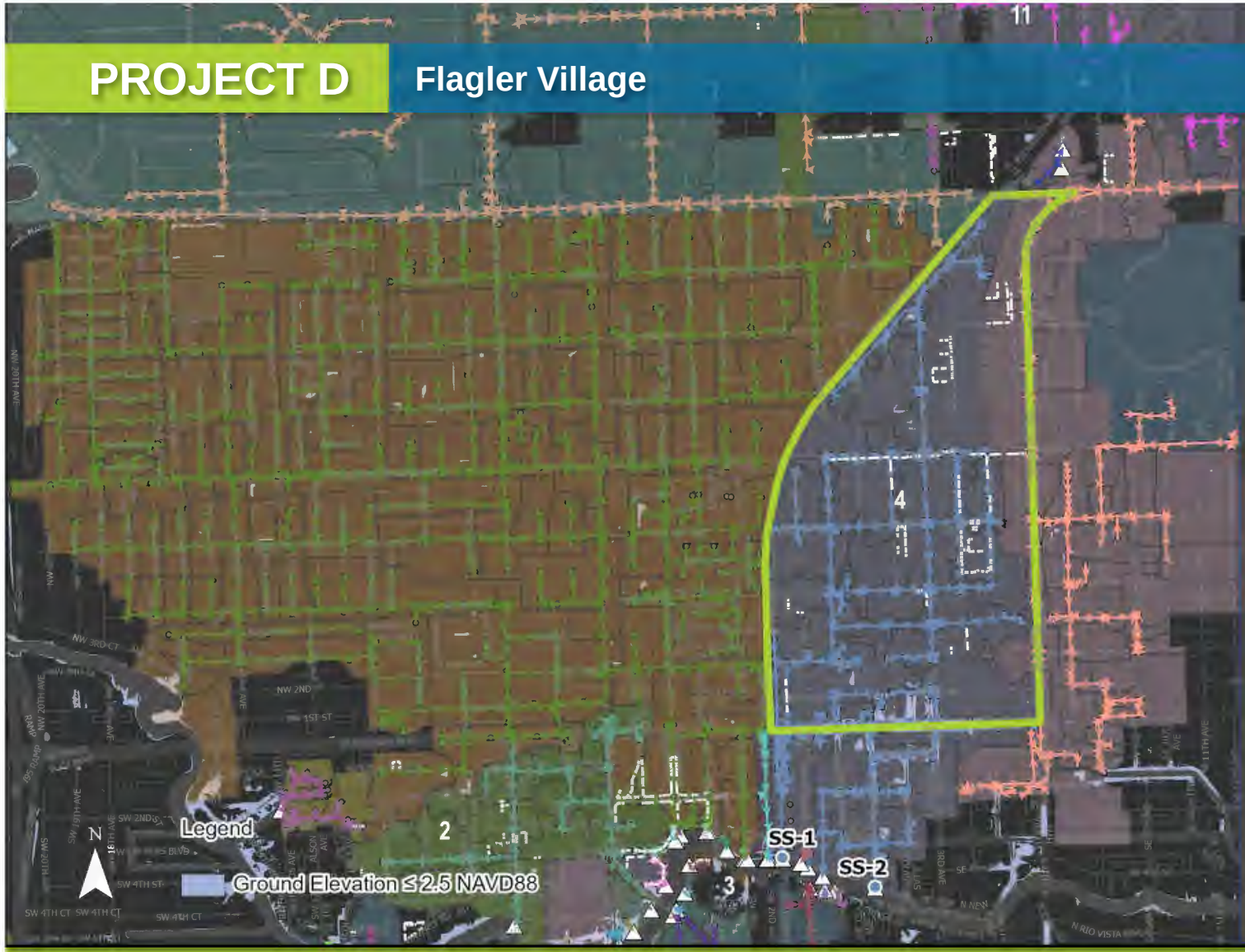


Characteristics and Vulnerabilities

- 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

Characteristics and Vulnerabilities

- Low lying areas
- No clearly defined swales
- Underserved areas
- Undersized existing drainage system
- Subject to tidal flooding
  - Low seawalls
  - No tidal valves

PROJECT E

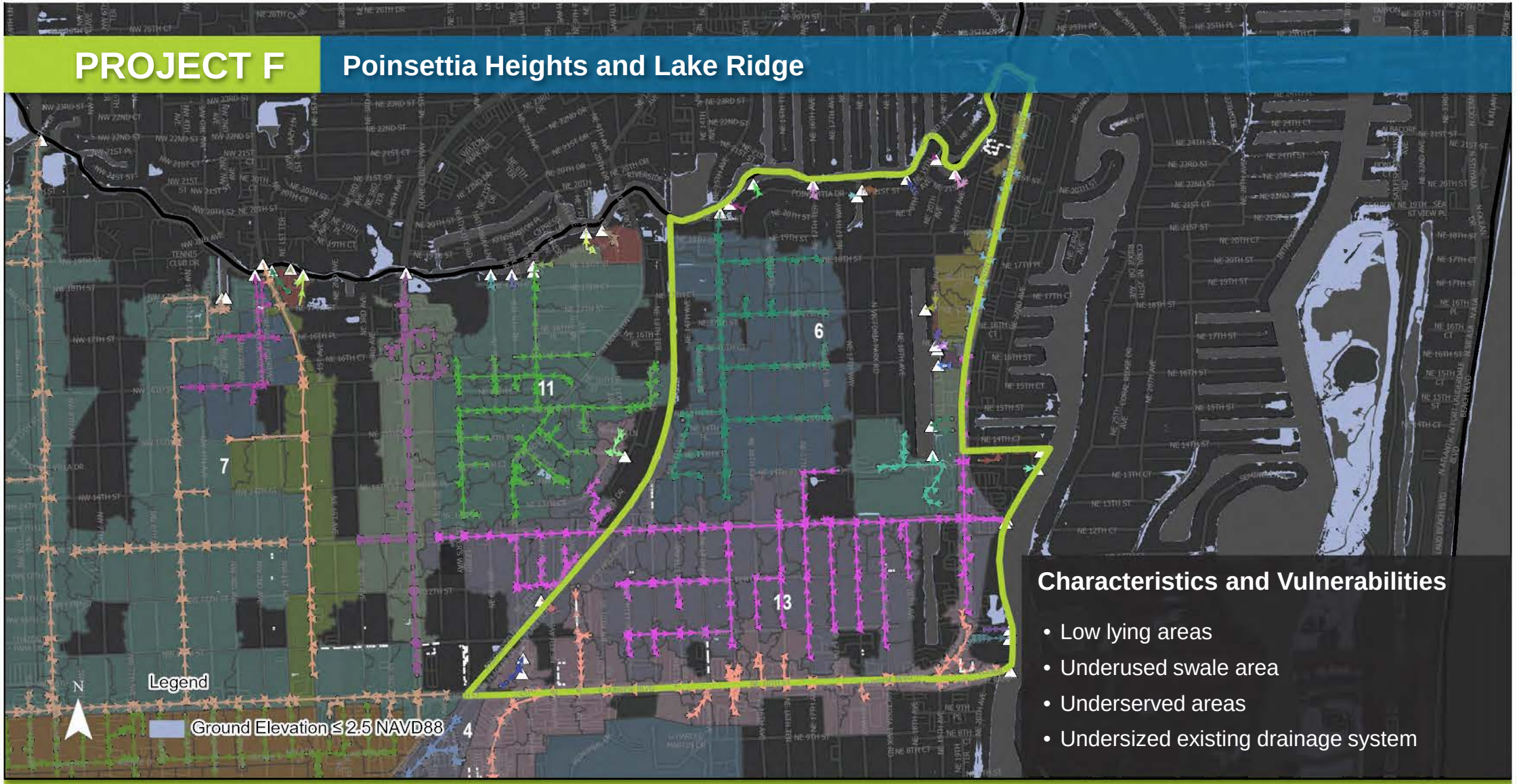
Harbour Isles & Adjoining Areas

Potential Adaptation Strategies

- Increase Conveyance Capacity
- Install Tidal Valve
- Private Resiliency Program

PROJECT F

Poinsettia Heights and Lake Ridge

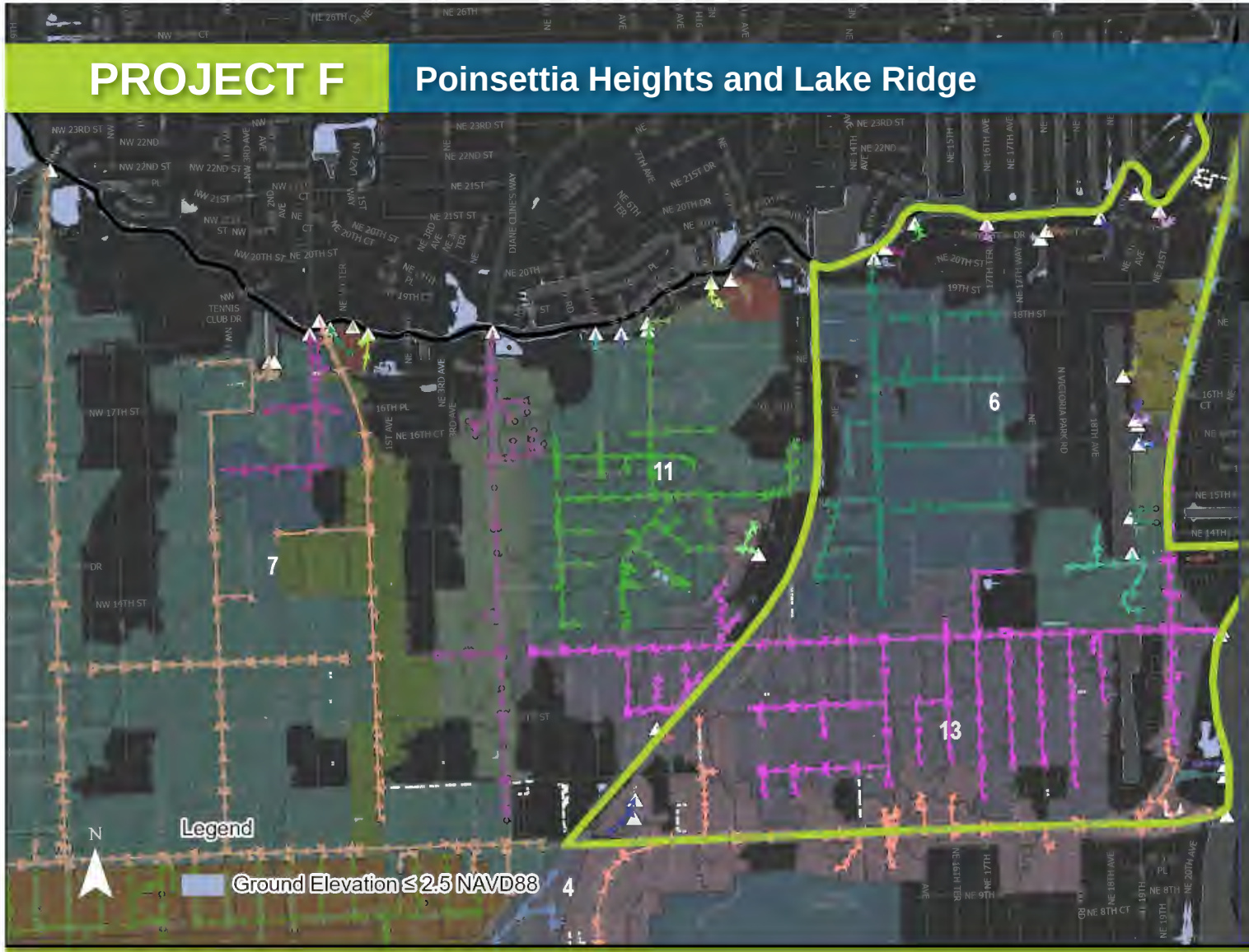


Characteristics and Vulnerabilities

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

PROJECT F

Poinsettia Heights and Lake Ridge

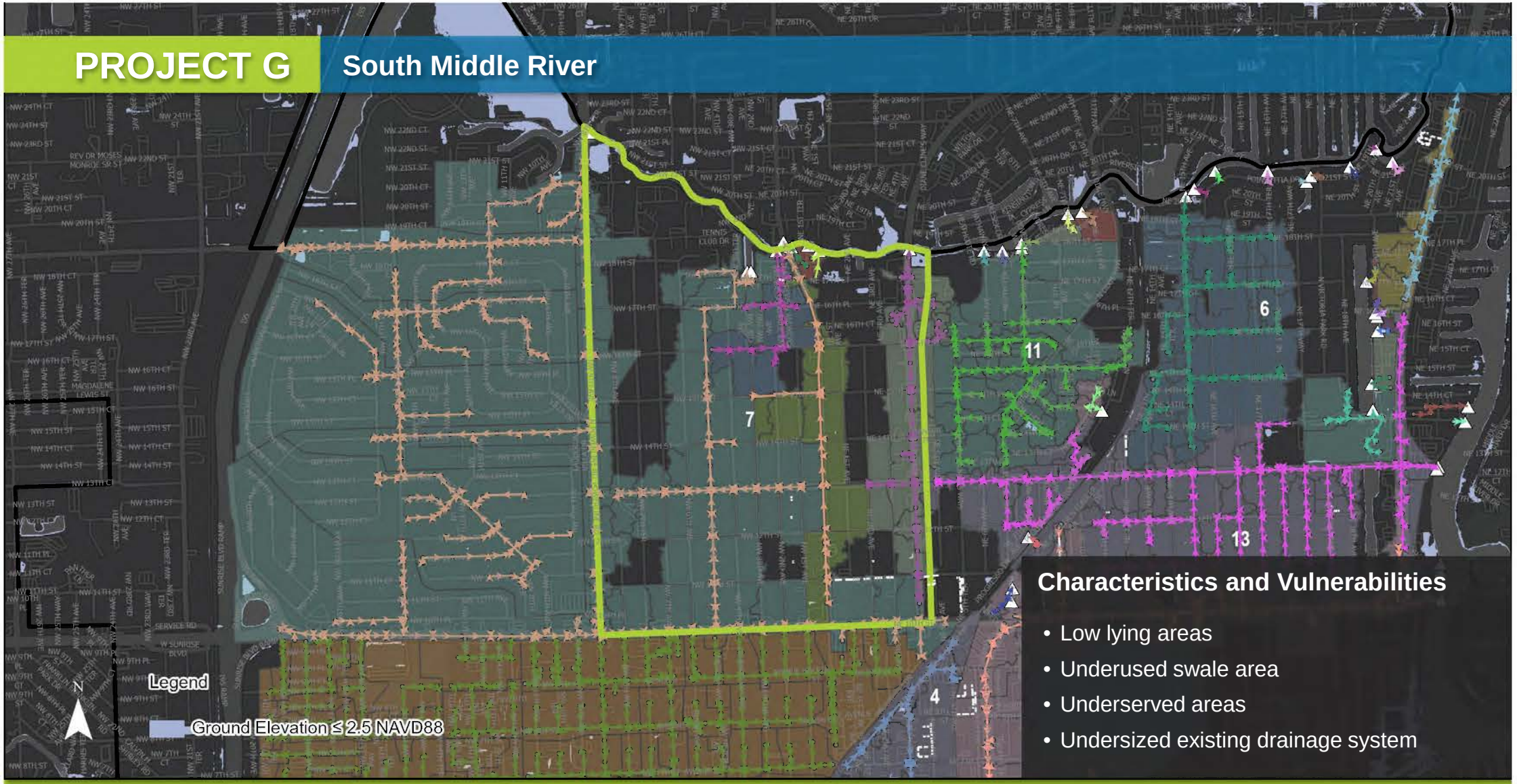


Potential Adaptation Strategies

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

PROJECT G

South Middle River

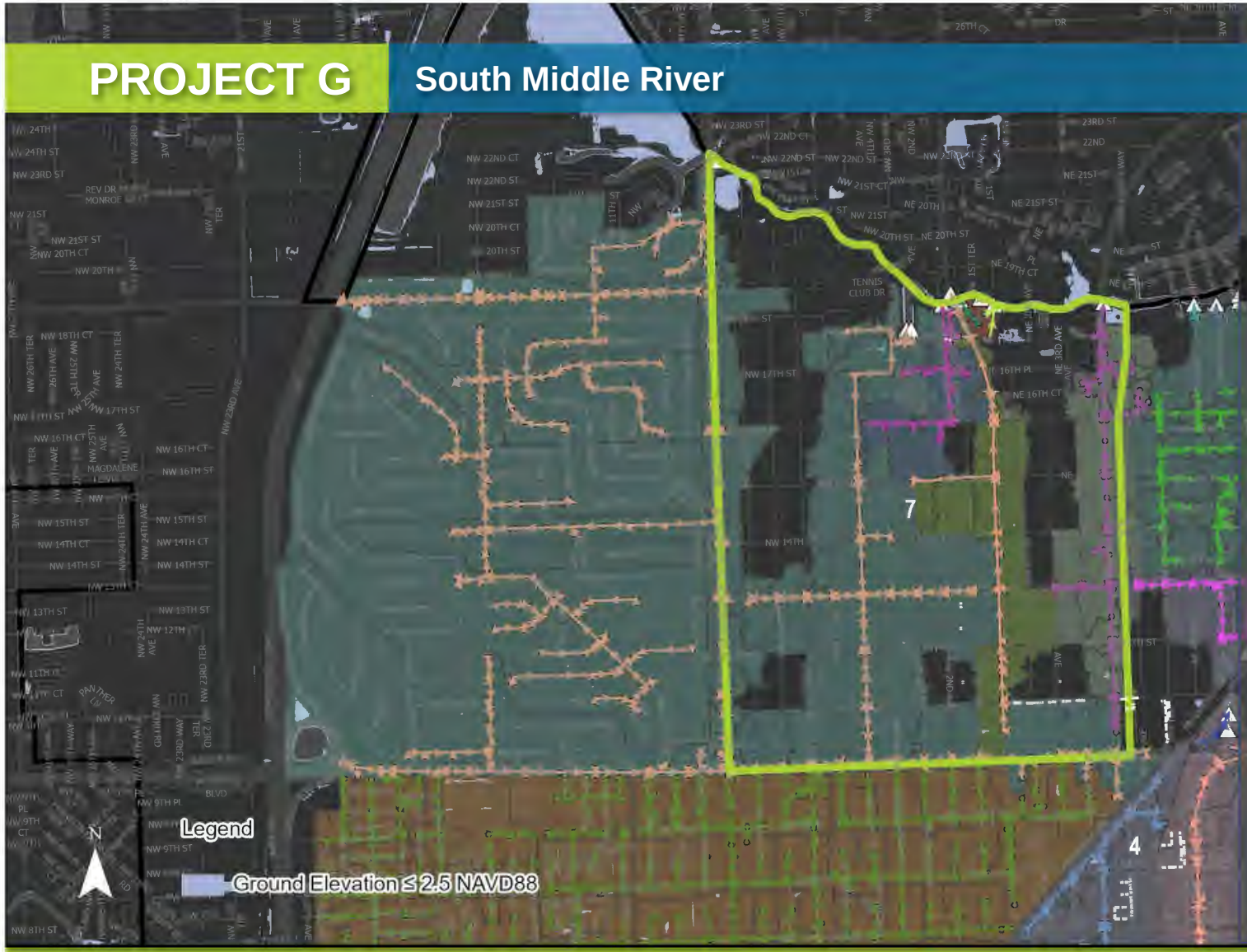


Characteristics and Vulnerabilities

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

PROJECT G

South Middle River



Potential Adaptation Strategies

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

PROJECT H

Melrose Park

Characteristics and Vulnerabilities

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

PROJECT H

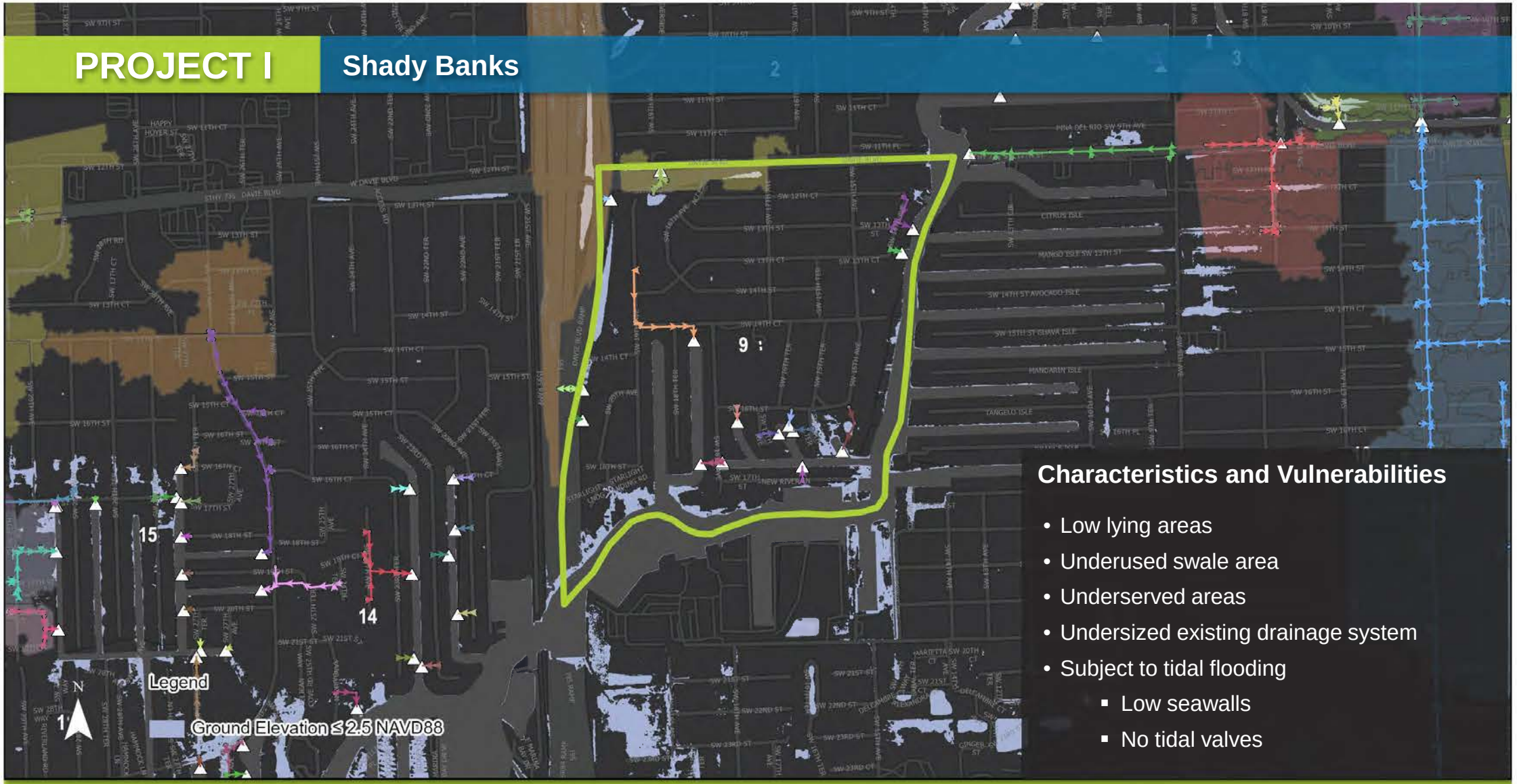
Melrose Park

Potential Adaptation Strategies

- Install Pump Station
- Capital Maintenance
- Private Resiliency Program

PROJECT I

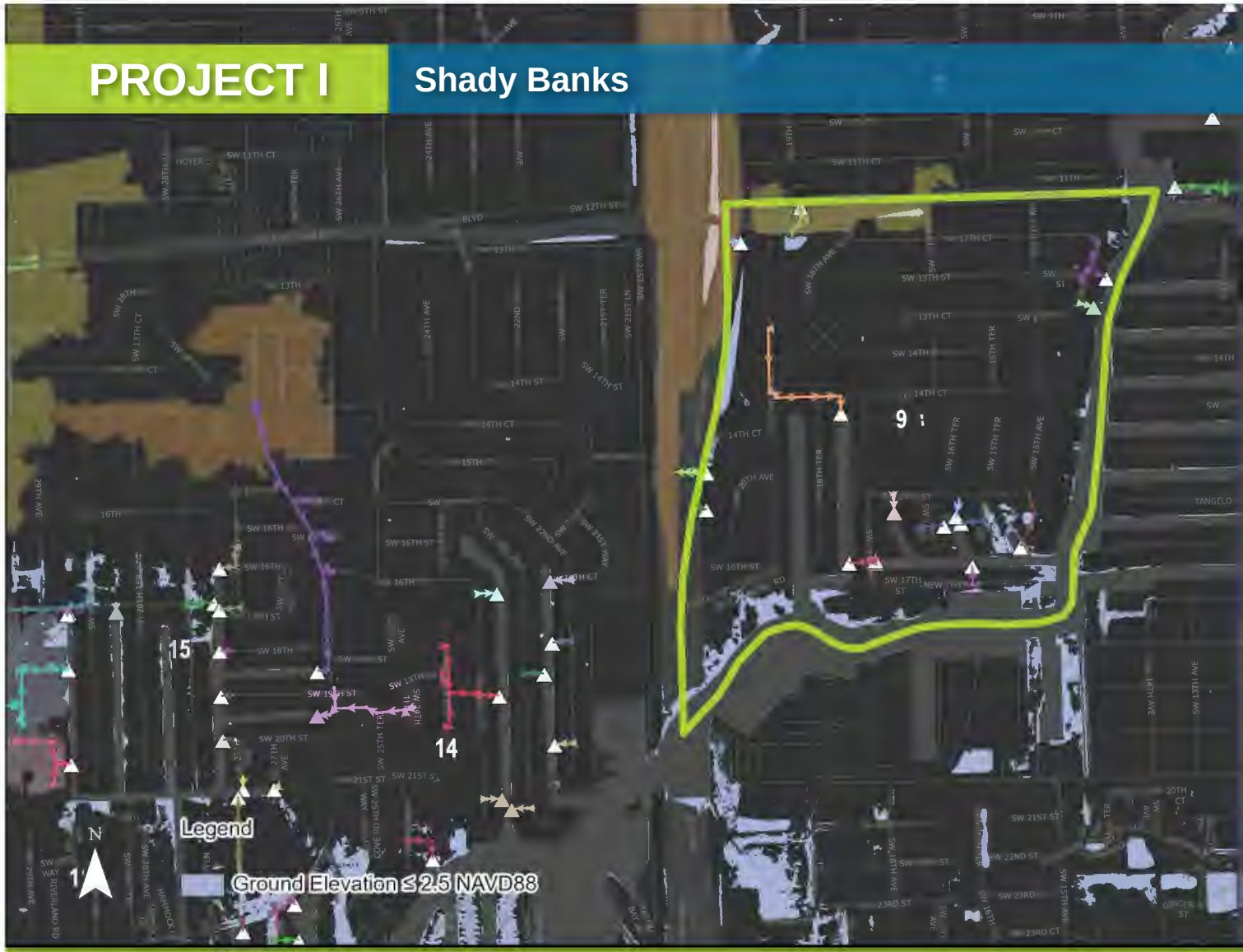
Shady Banks



Characteristics and Vulnerabilities

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

PROJECT I Shady Banks

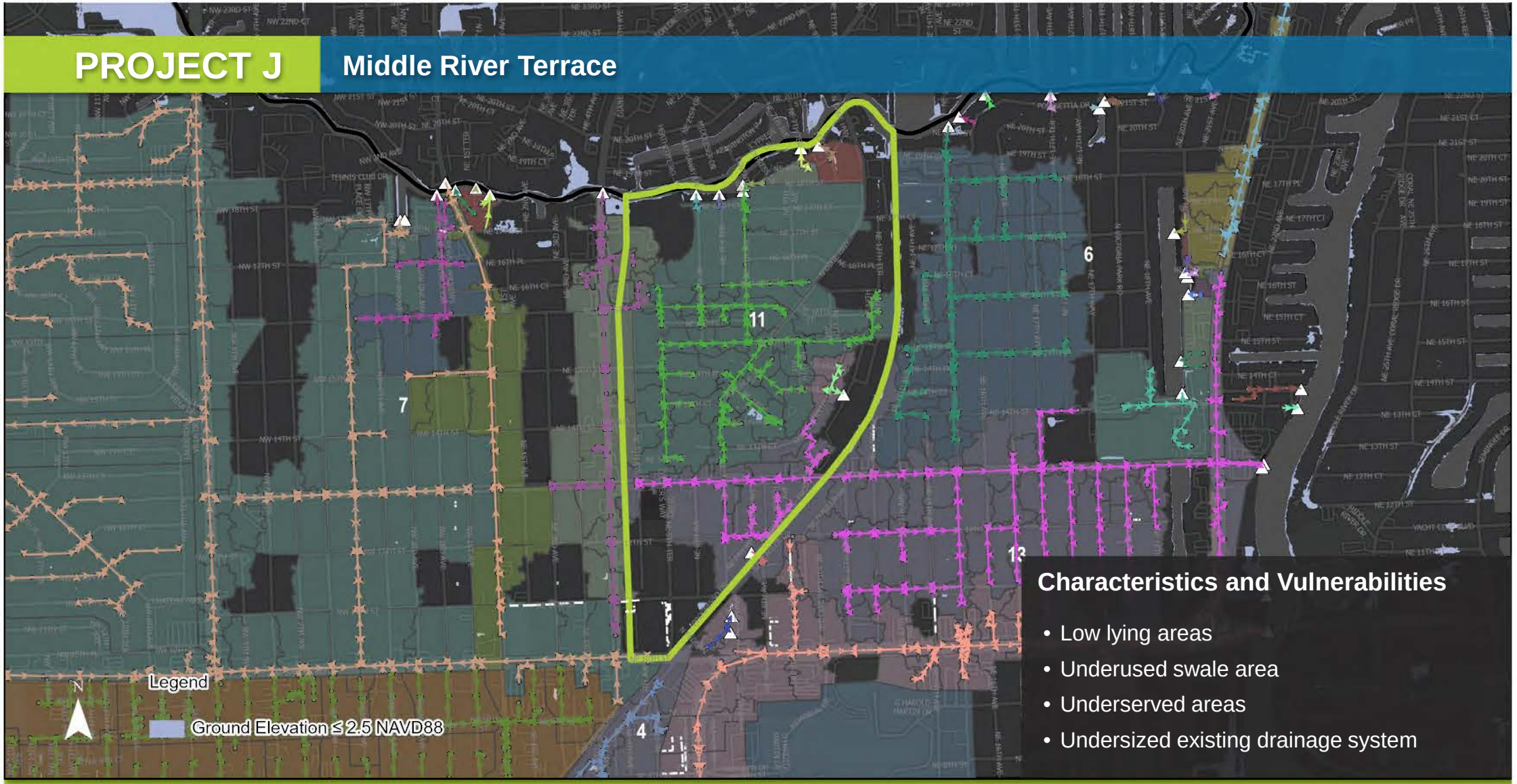


Potential Adaptation Strategies

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

PROJECT J

Middle River Terrace

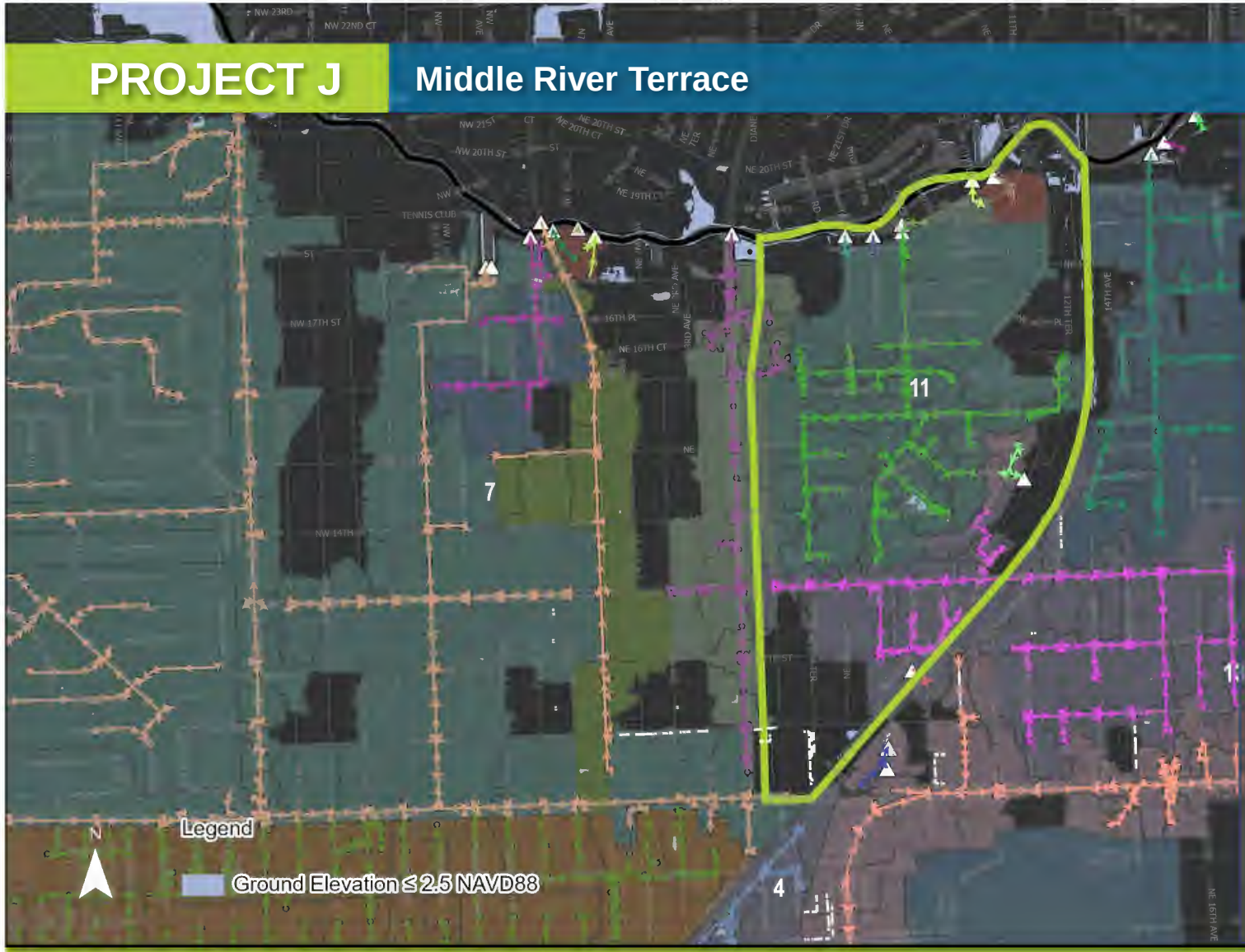


Characteristics and Vulnerabilities

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

PROJECT J

Middle River Terrace

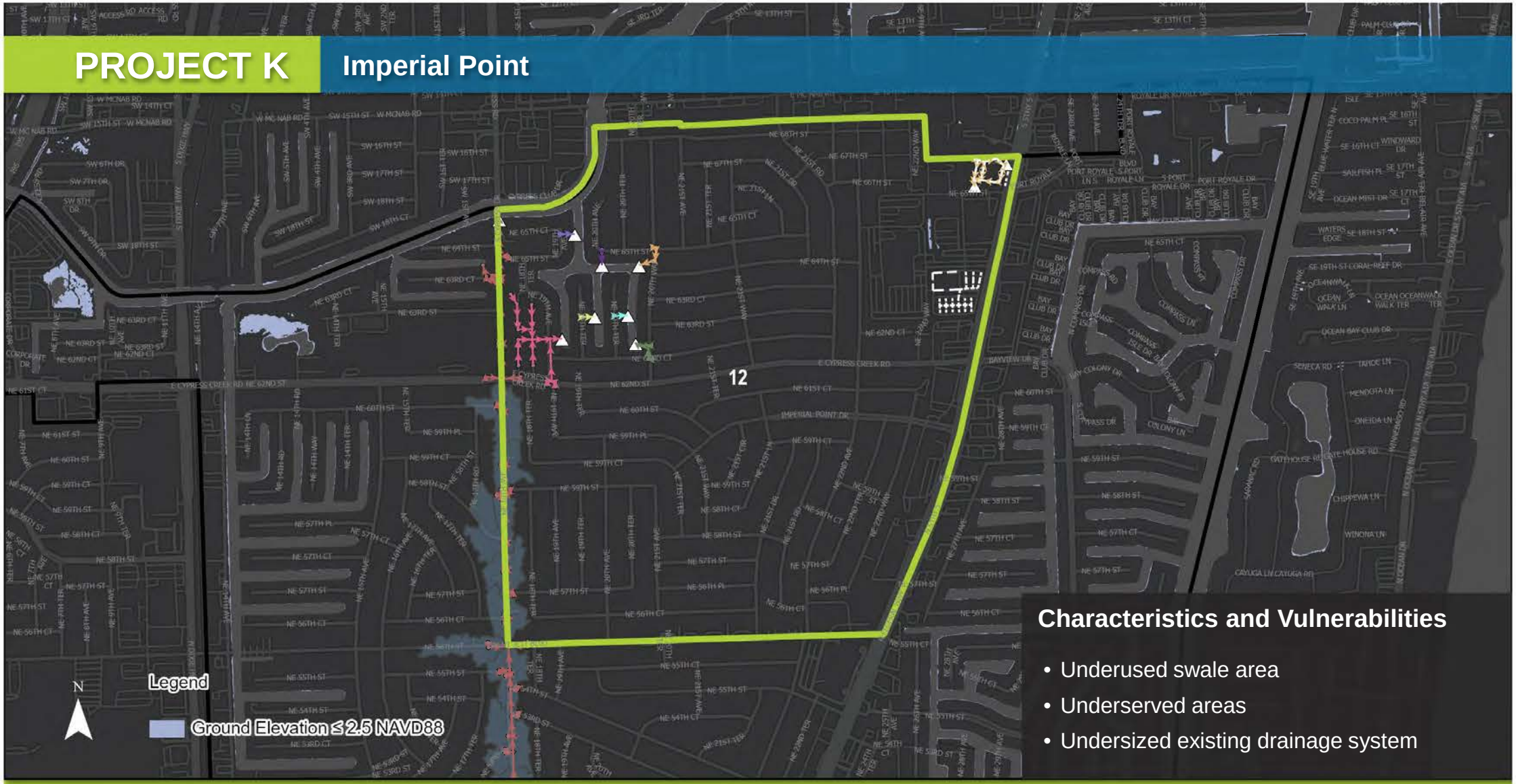


Potential Adaptation Strategies

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

PROJECT K

Imperial Point



Characteristics and Vulnerabilities

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

PROJECT K

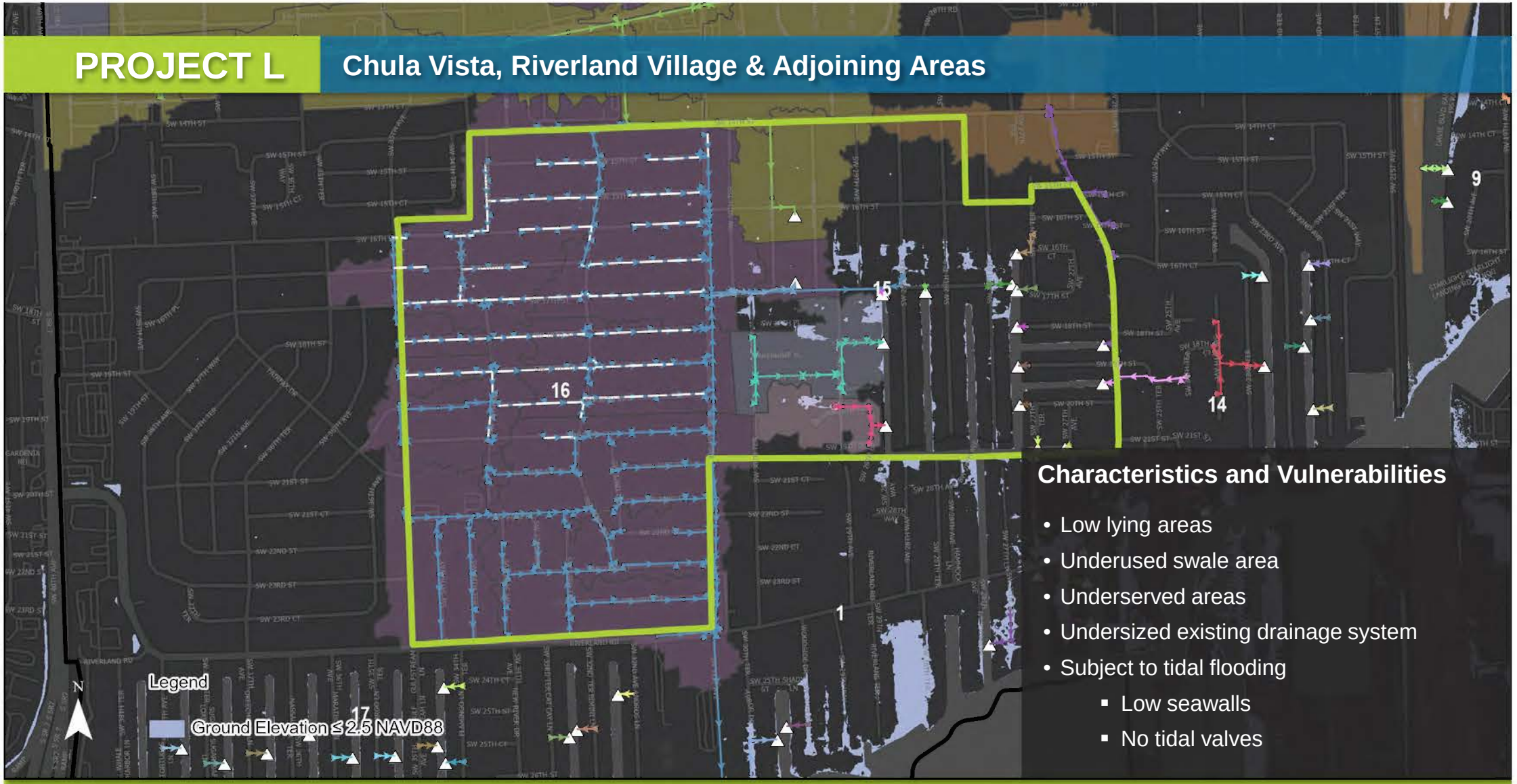
Imperial Point

Potential Adaptation Strategies

- Rehabilitate Grass Swales
- Increase Conveyance Capacity
- Extend Drainage System
- Private Resiliency Program

PROJECT L

Chula Vista, Riverland Village & Adjoining Areas

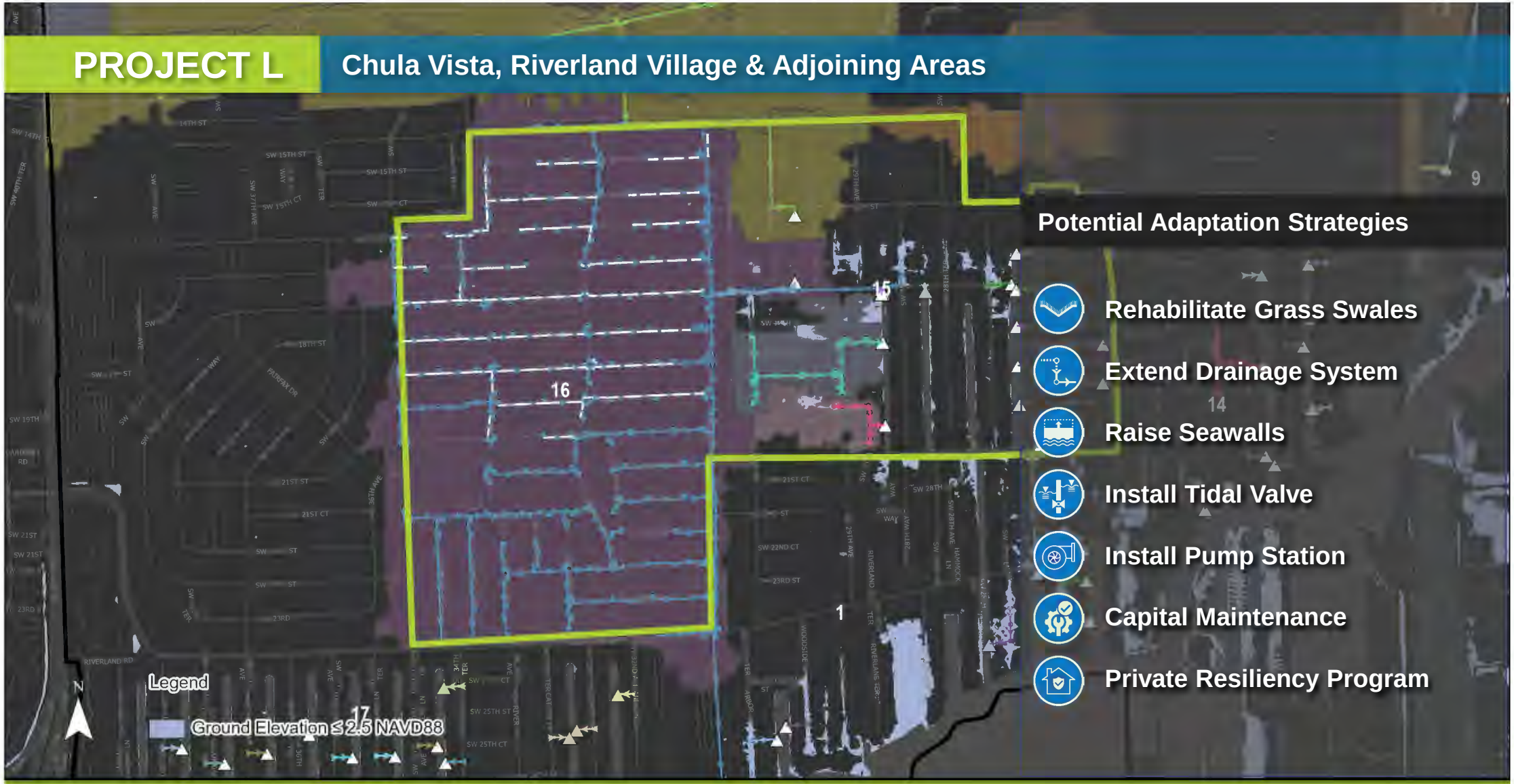


Characteristics and Vulnerabilities

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

PROJECT L

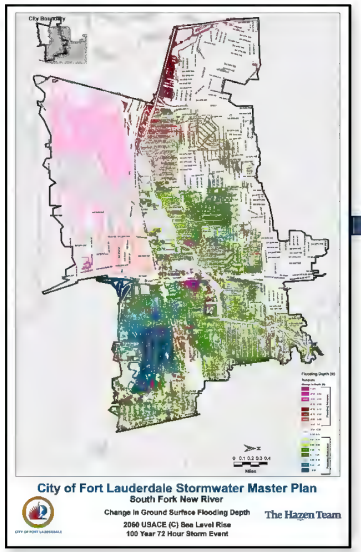
Chula Vista, Riverland Village & Adjoining Areas



Potential Adaptation Strategies

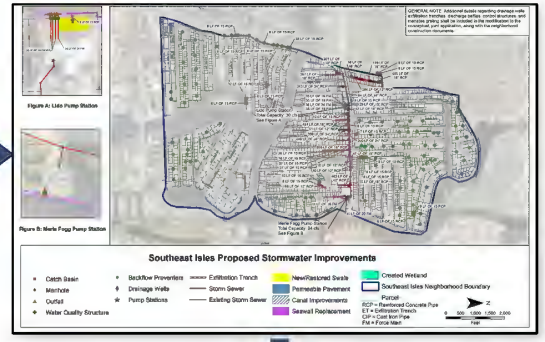
- Rehabilitate Grass Swales
- Extend Drainage System
- Raise Seawalls
- Install Tidal Valve
- Install Pump Station
- Capital Maintenance
- Private Resiliency Program

Broward County permitting of the projects will be critical



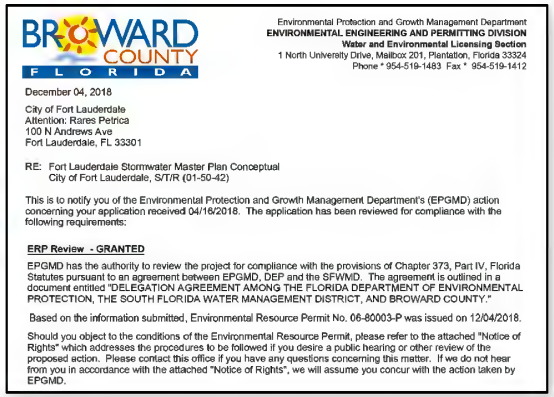
Modeling update well underway

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 * 954-519-1483 Fax * 954-519-1412

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/T/R (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.

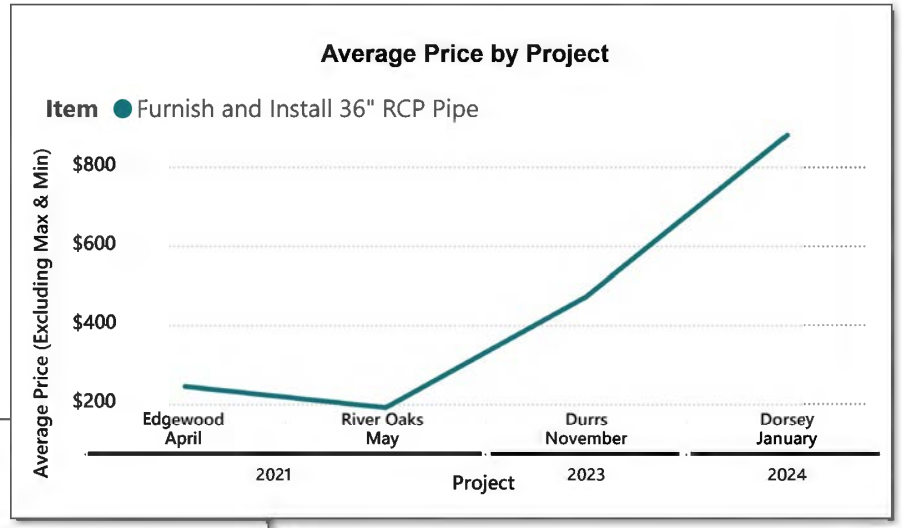
Should you object to the conditions of the Environmental Resource Permit, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed action. Please contact this office if you have any questions concerning 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.

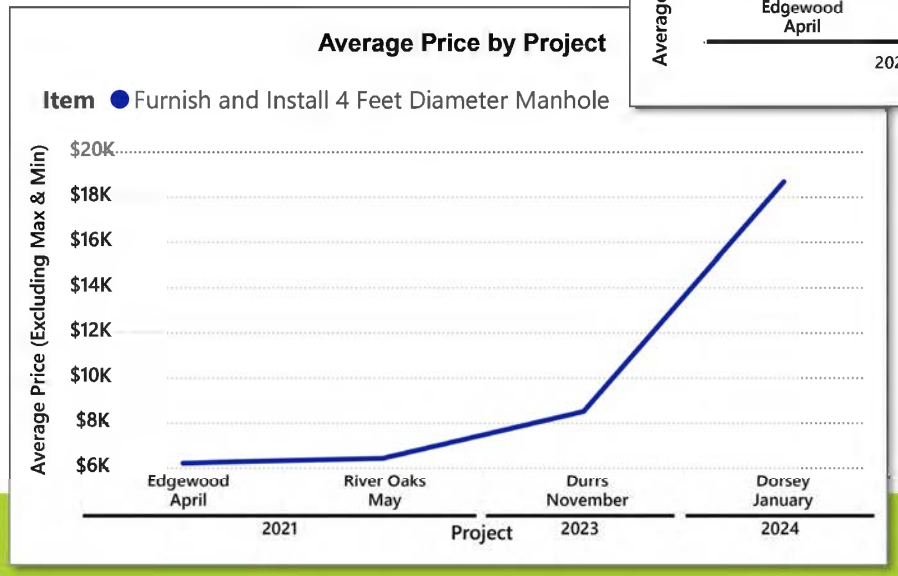
Locks in planning level concepts for future design and construction

The Phased Project Schedule plans for completion by 2034

We are building a Cost Database to benefit the Program

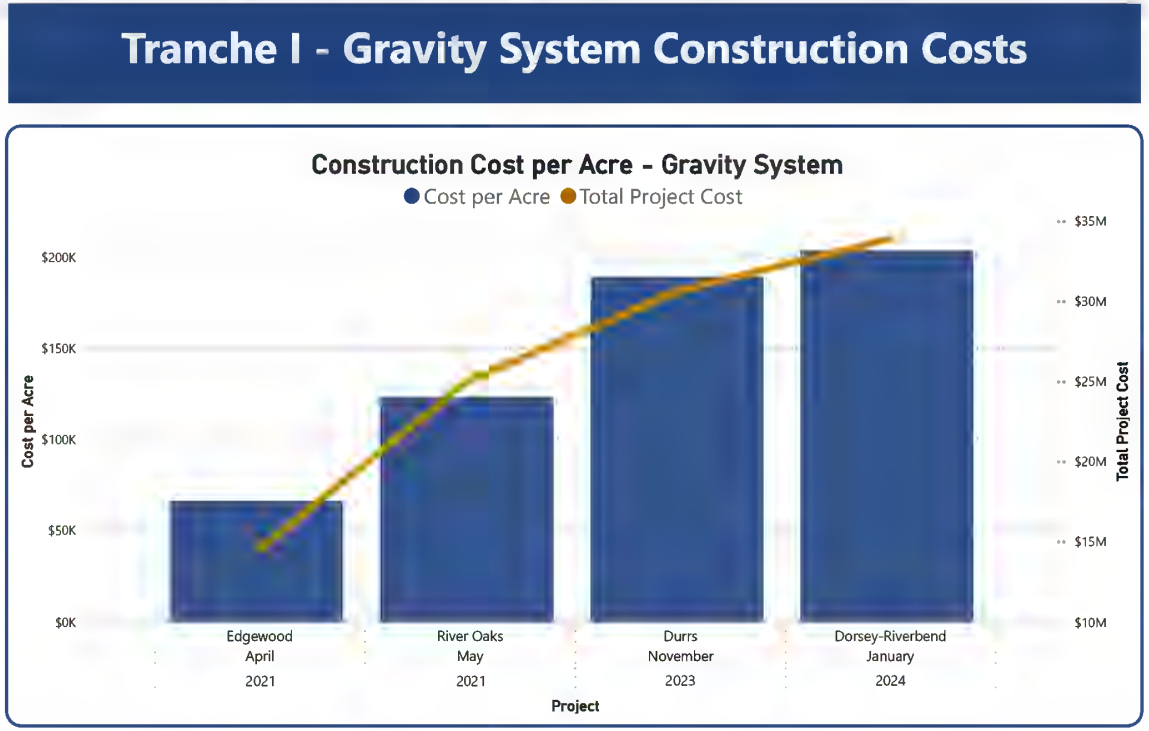
- Developed to compare bid prices from all program projects
- Items included are sorted into various categories
- Improves cost estimating
- Allows trending analysis





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

Residents

“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%

the most flood-prone

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

Fortify Lauderdale

Building a Resilient Future in Fort Lauderdale

Questions