



# CIRCA Phase III: Resilient South End Stratford

UConn Avery Point, Groton, CT  
May 15, 2023

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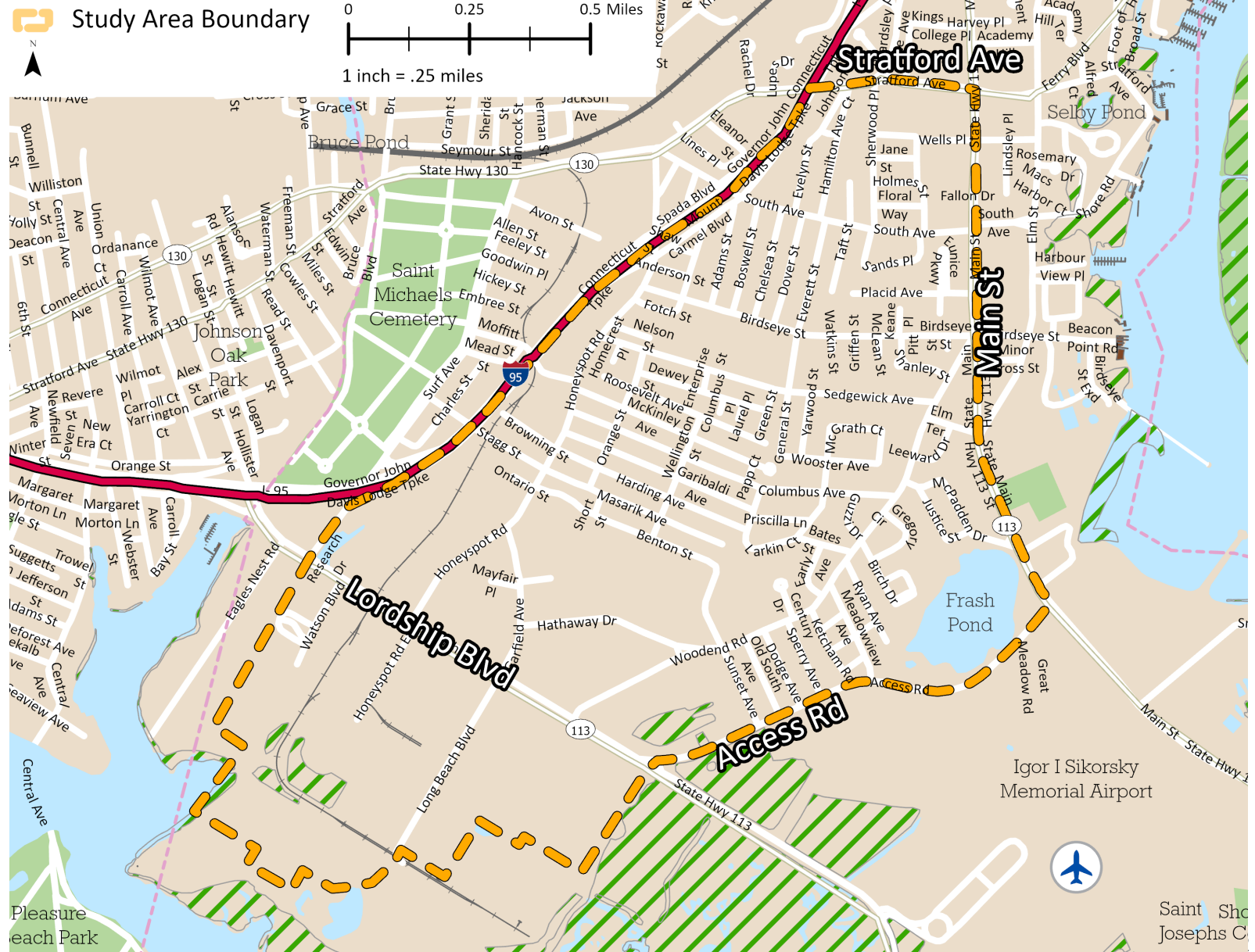
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# Introduction

- **Project Study Area:** South End Neighborhood and Lordship Commercial and Industrial District
- **Objectives:**
  - Identify and document challenges to implementing Key Projects from 2016 Resilience Plan.
  - Identify additional beneficial projects or revisions to proposed projects.
  - Outreach to Stakeholders and community members.

### Resilient Stratford South End - Study Area Map





# Technical Advisory Committee

- Laura R. Hoydick, Mayor, Town of Stratford
- Christopher Pia, Council Chair, Stratford Town Council
- Mary Dean, Economic & Community Development Director, Town of Stratford
- Christopher Tymniak, Chief Administrative Officer, Town of Stratford
- Jay Habansky, Planning and Zoning Administrator, Town of Stratford
- Kelly Kerrigan, Environmental Conservation Superintendent, Town of Stratford
- John Casey, Town Engineer, Town of Stratford
- Susmitha Attota, Town Planner, Town of Stratford
- Matt Fulda, Executive Director, Metro COG



# Workshop 1: Results

**Format: Open House Event in South End with 7 Stations**

## Objectives:

- **Inform participants** of short- and long-term climate change impacts and climate resilience **strategies** in the 2016 Coastal Community Resilience Plan
- **Identify local experiences and concerns** about climate change and existing infrastructure, programs, and policies that already support community **resilience**
- **Develop priorities and criteria** for evaluating climate resilience projects in the South End neighborhood, including criteria in support of federal grant funding and **PERSISTS\*** criteria:

\***P**ermissible, **E**quitable, **R**ealistic, **S**afe, **I**nnovative, **S**cientific, **T**ransferable, and **S**ustainable

**Station 1: Introduction**

**Station 2: Hazards and Vulnerabilities**

**Station 3: Stratford Coastal Resilience Strategies and Projects—Progress So Far**

**Station 4: Resilience Strategies—Protect, Accommodate, Retreat**

**Station 5: South End Resilience Priorities**

**Station 6: Criteria for Evaluating Projects**

**Station 7 Closing Survey**



## STATION # 2

### Sea Level Rise

### Inland & Coastal Flooding

### Extreme Temperatures and Drought

#### My experience is...

(write on post-it notes and stick them below)

Great Meadows Marsh Plant native phragmites. Sell the concept of nature-based protection. People want the view. Rocks won't save you. plant trees, talk to landscapers about native species.

Housatonic River high tide cycles higher every year

Frequent flooding along Main Street near airport->cuts off access for cars

Hamilton Ave. Floods with big drop in road

Surf Ave flooding under exit 30 overpass (astronomical high tide)

Children & elderly have to walk in flooded waters to bus stop

1 foot of water in building

Surf Ave Exit 30 underpass

Residents feel no one cares. Years old problem

Flooding Exit 30. Property value???

Basement floods up to 2nd step leading to main level-Orange St.

House on Hamilton Ave between Corinthian Ave and South Ave. Main level floods. Floor had to be replaced

Housatonic River incoming tide/storm water coming down creating flooding is more frequent

Base flooding Lack of insurance issue Children and bus stops. Children have to walk through flooded streets

Air pollution. Lack of trees.

Open space needs more funding to increase value of non-industry buildings

#### The South End places and people that I'm most concerned about are...

(write on post-it notes and stick them below)

Exit 30 Stratford having a replay of Katrina. Where is everyone going to go?

Contained flooding not only causing structural damage to homes/ devalues property, but increases mental stress and health problems, i.e. mold

Housatonic River Marsh Areas Sikorski Airport

Natural areas along river/marsh

Loss of cars, property caused by flooding insurance claims get denied.

Orange St. Hazard. whole road floods making driving hazardous.

Children unable to play in front or back yards when it floods. 304 Orange St and surrounding areas.

Loss of cars, property caused by flooding insurance claims get denied.

Signage and evacuation plans. Not clear which any to go during a flood. Need signage.

Cannot drive some roads when flooded. Finding alternate roads can be challenging. South End--Orange St, Garibaldi, Harding, Masarik.

Increase in frequency and depth of the water flooding on Long Beach Blvd.

Columbus Ave. McKinley Ave. Hamilton Ave and Stratford Ave corner. Masarik Ave.

Elderly residents/young children stuck indoors when flooding is high. Anywhere it floods.

Property damage to vehicles and basements and property. Orange St, Harding, Hamilton, Columbus



STATION # 5

Station 5:  
South End  
Resilience Priorities

# Resilient Stratford South End Stratford Coastal Resilience Projects



**Progress Identifier**

- 30% Engineering and Design
- Final Engineering and Design, Permitting, and Construction
- Conceptual Design
- Completed

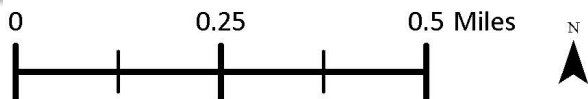


## PROJECT DESCRIPTIONS

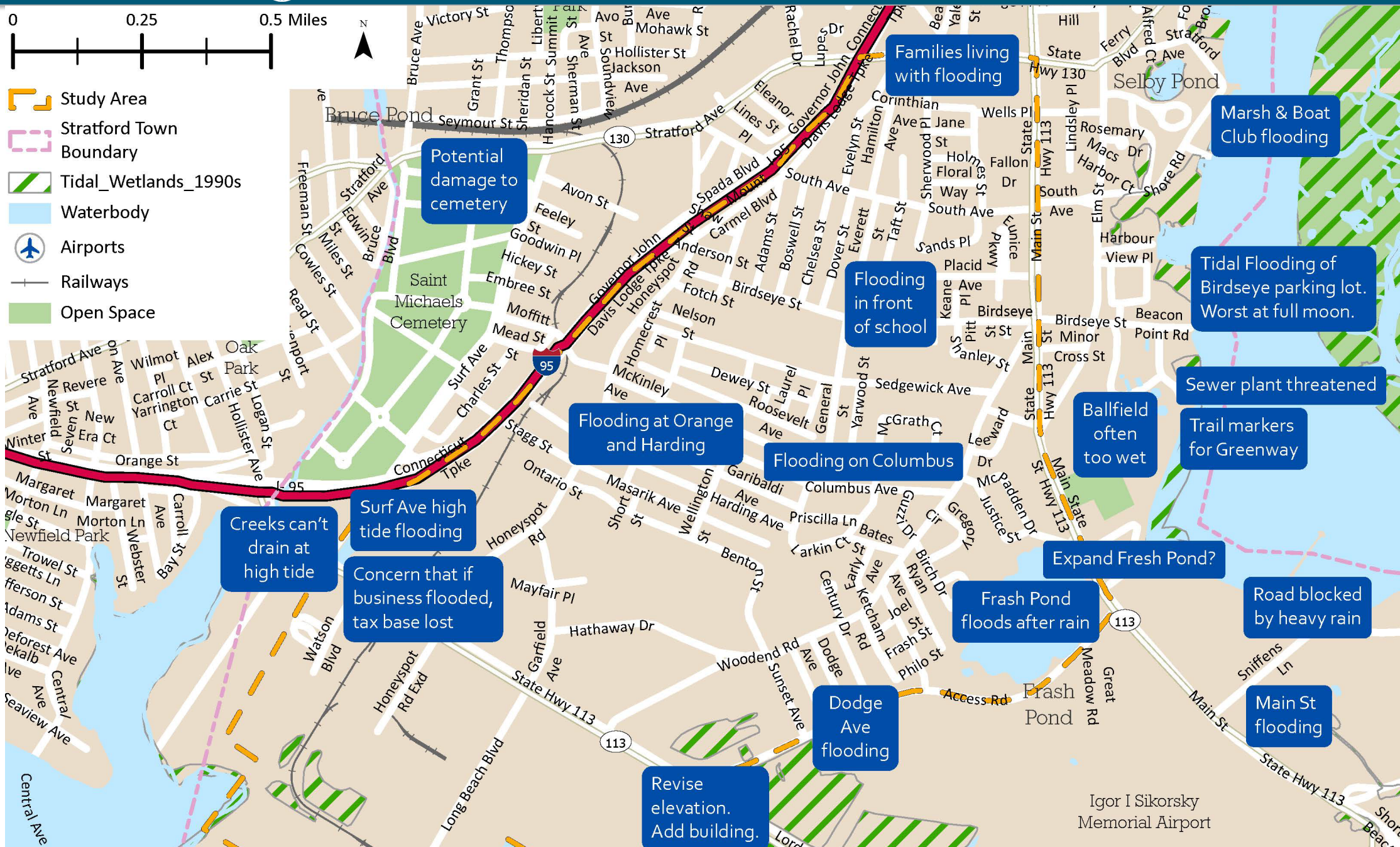
- 1. Birdseye Levee**  
The project concept is to construct an earth berm/levee from the Birdseye Street to the Tide Harbor Condominiums parking area.
- 2. Wastewater Treatment Plant**  
Preferred design alternative includes: 1) permanent flood protection structures around the site perimeter to enhance the existing; and 2) use of deployable, temporary flood protection measures around perimeter areas.
- 3. Greenway Levee and Living Shoreline**  
The project concept is to construct a planted revetment/earth berm/levee near the shoreline. The project will also include elements to blend into the existing living shoreline.
- 4. Former Stratford Army Engine Plant (SAEP)**  
The project concept is to elevate the crest elevation of the existing levee along the shoreline.
- 5. Stratford Point Living Shoreline**  
In total, the project will provide an additional 750 feet of coastal erosion control, 4.5 acres of intertidal habitat, 1.5 acres of coastal dune habitat and 25 acres of woodland/meadow mix.
- 6. Great Meadows Marsh Restoration**  
Restorations include improved community access, 33 acres of restored tidal marsh, and experimental hummocks for saltmarsh sparrow nesting.
- 7. Long Beach Boulevard Flood Protection**  
The project concept is to construct levee/floodwall at the project site located at and adjacent to Long Beach Blvd. to a flood protection elevation of 13 feet NAVD88.



# STATION # 5



- Study Area
- Stratford Town Boundary
- Tidal\_Wetlands\_1990s
- Waterbody
- Airports
- Railways
- Open Space



Potential damage to cemetery

Families living with flooding

Marsh & Boat Club flooding

Flooding in front of school

Tidal Flooding of Birdseye parking lot. Worst at full moon.

Flooding at Orange and Harding

Flooding on Columbus

Sewer plant threatened

Ballfield often too wet

Trail markers for Greenway

Creeks can't drain at high tide

Surf Ave high tide flooding

Concern that if business flooded, tax base lost

Expand Fresh Pond?

Fresh Pond floods after rain

Road blocked by heavy rain

Dodge Ave flooding

Revise elevation. Add building.

Main St flooding



# STATION # 6

Criteria	Weighted Avg	Frequency of top rankings (1)	Frequency of bottom rankings (8)	Weighted Total	Total
Permittable	4.4	3	1	74	17
Equitable	2.9	7	0	52	18
Realistic	2.8	4	1	48	17
Safe	3.3	1	0	49	15
Innovative	4.7	1	2	66	14
Scientific	4.2	2	2	72	17
Transferrable	7.2	0	9	123	17
Sustainable	5.7	0	1	97	17

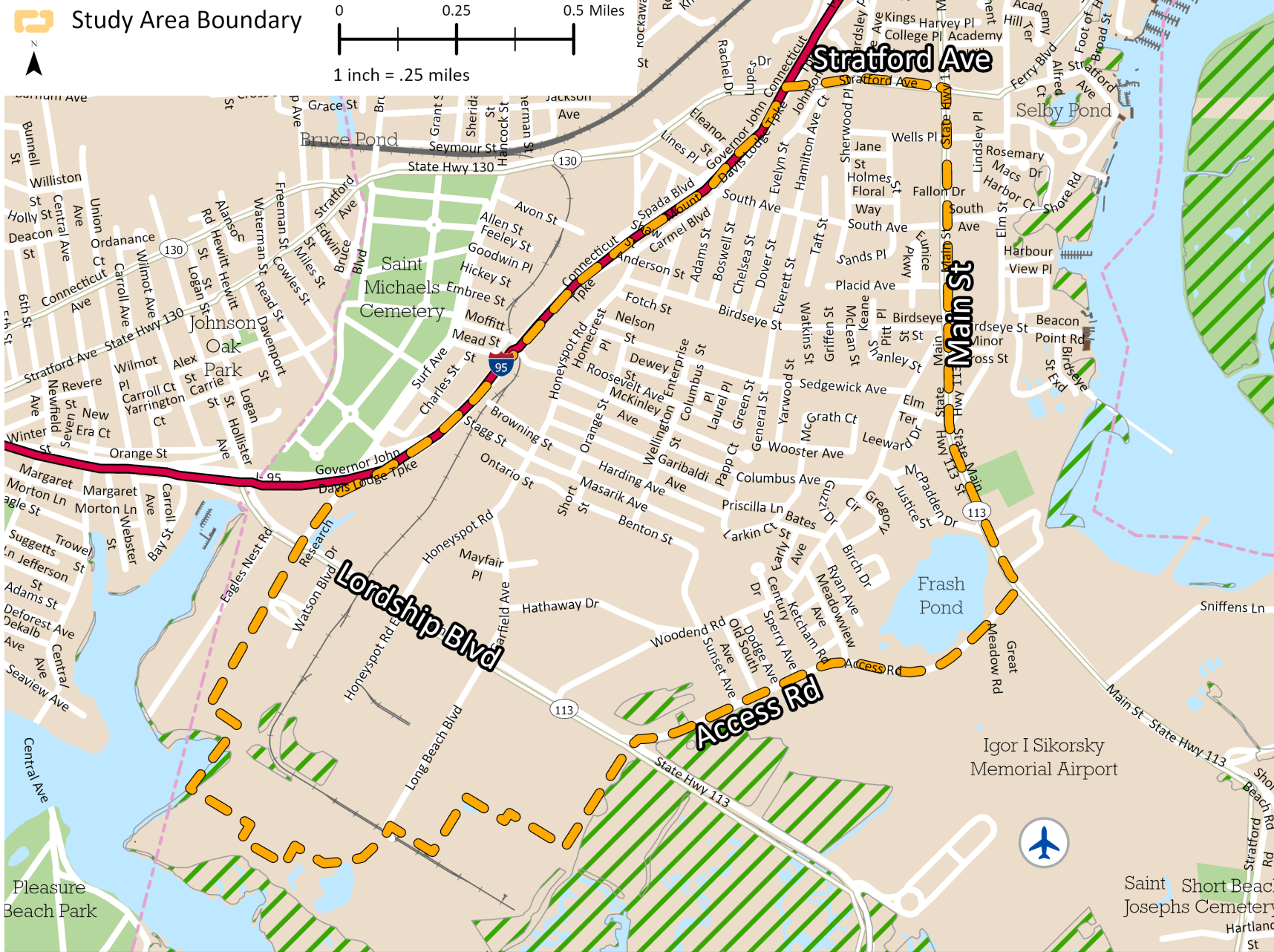
Potential Criteria (from Resilient Connecticut)	Rating (use the numbered stickers to prioritize the criteria)
<b>Permittable</b> Can be authorized through necessary Federal, State, and local permits	
<b>Equitable</b> Ensures that benefits are equitable among populations	
<b>Realistic</b> Can be realistically engineered and is plausibly fundable	
<b>Safe</b> Reduces risks to people and infrastructure	
<b>Innovative</b> Process has considered innovative options	
<b>Scientific</b> Apply and improve on the best available science	
<b>Transferrable</b> Can serve as model for other communities	
<b>Sustainable</b> Socially, economically, and ecologically sustainable and supported by the public and leadership	



# Implementation Challenges: Neighborhood Protect Strategy

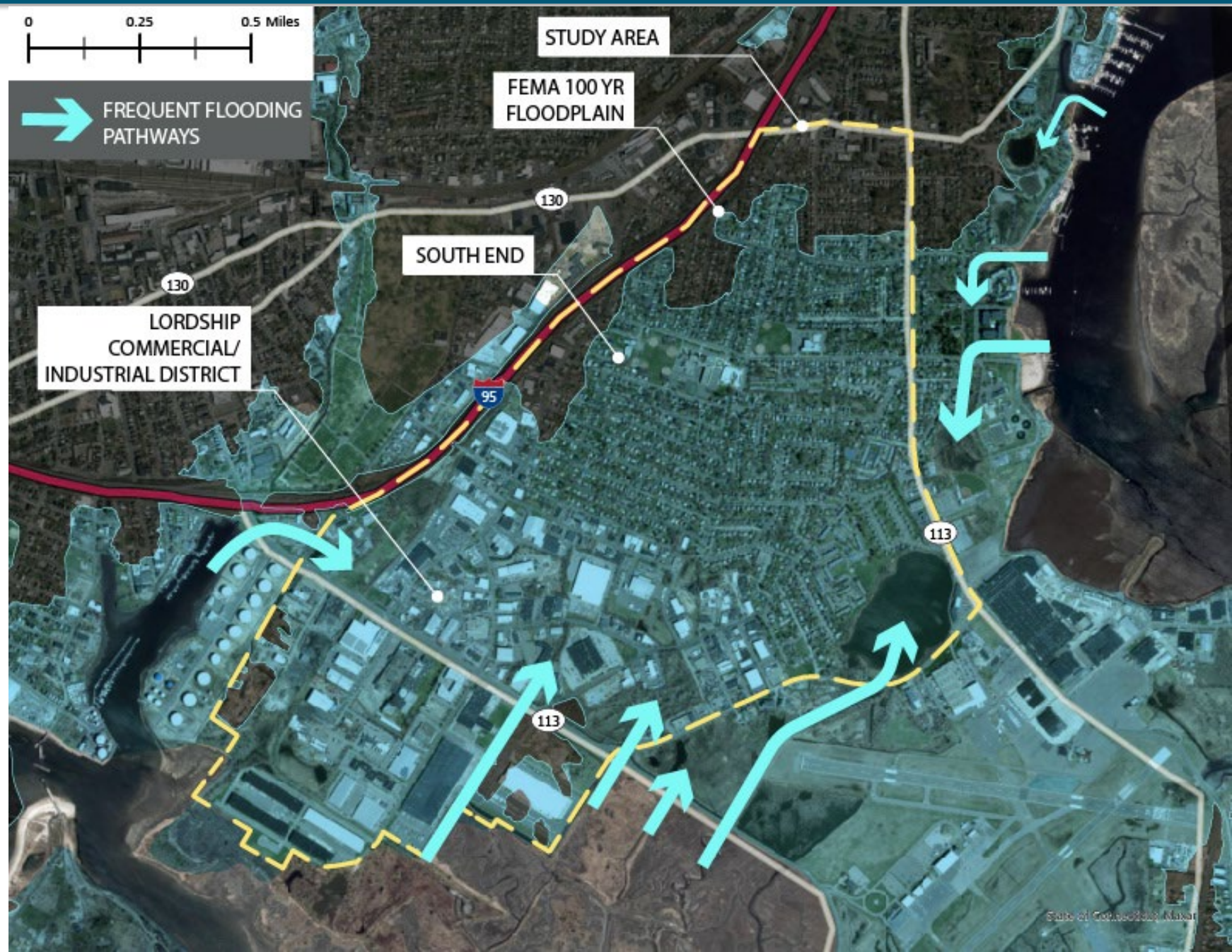
**Protection** is Stratford's long-term resilience strategy for the study area.

## Resilient Stratford South End - Study Area Map



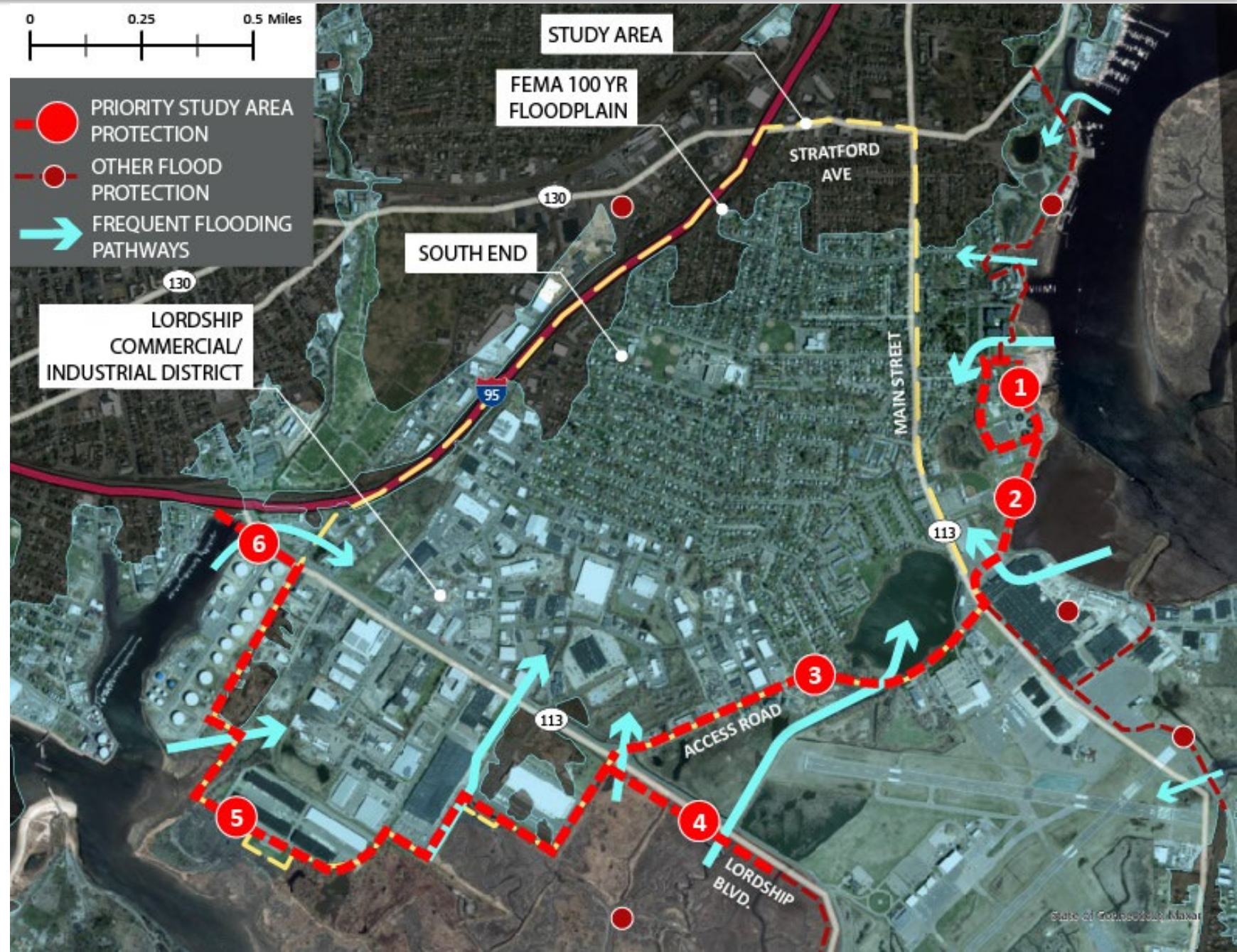
# Implementation Challenges: Neighborhood Protect Strategy

**2016 Plan identifies frequent flooding pathways** where water enters the study area today during storms with a greater than 1% annual chance of occurring, such as Hurricane Sandy



# Implementation Challenges: Neighborhood Protect Strategy

A neighborhood flood protection strategy for the study area would need to close these current flood pathways. Mitigating impacts from less frequent floods, or similar frequency future floods, requires higher flood protection structures and a greater extent north along the Housatonic River.



# Implementation Challenges: Protect Strategy

## Permitting Challenges:

- **Connecticut Coastal Management Act: “No-Net-Increase” in Shoreline Armoring, Prioritizing Natural and Nature-based Solutions, and avoiding adverse impacts, including:**
  - degrading rocky shorefronts, beaches, or tidal wetlands
  - degrading natural or existing drainage patterns
  - degrading natural shoreline erosion and accretion patterns
  - degrading habitat
  - degrading visual quality
  - reducing existing public access
- **Work on Private Property:** avoiding scenarios where private sector decisions negatively impact publicly funded projects.
- **Coastal A Zone Regulation:** land seaward of the Limit of Moderate Wave Activity (LiMWA) is regulated as strictly as the Coastal VE zone



# Implementation Challenges: Protect Strategy

## Consensus Building and Public Support

- **Coastal Resiliency Team:** Providing adequate coordination with other Town boards, staff, commissions.
- **Public Investment:** Increasing property value and preventing gentrification
- **Communicating Realistic Benefits and Limitations:** Ongoing communications about the realistic benefits and limitations of flood protection will be critical to enable trust between government and residents and ensure that residents and businesses do not take on excessive economic risks.
- **Prioritizing Stormwater Flooding Hazards:** Town has retained a consultant to begin an engineering study

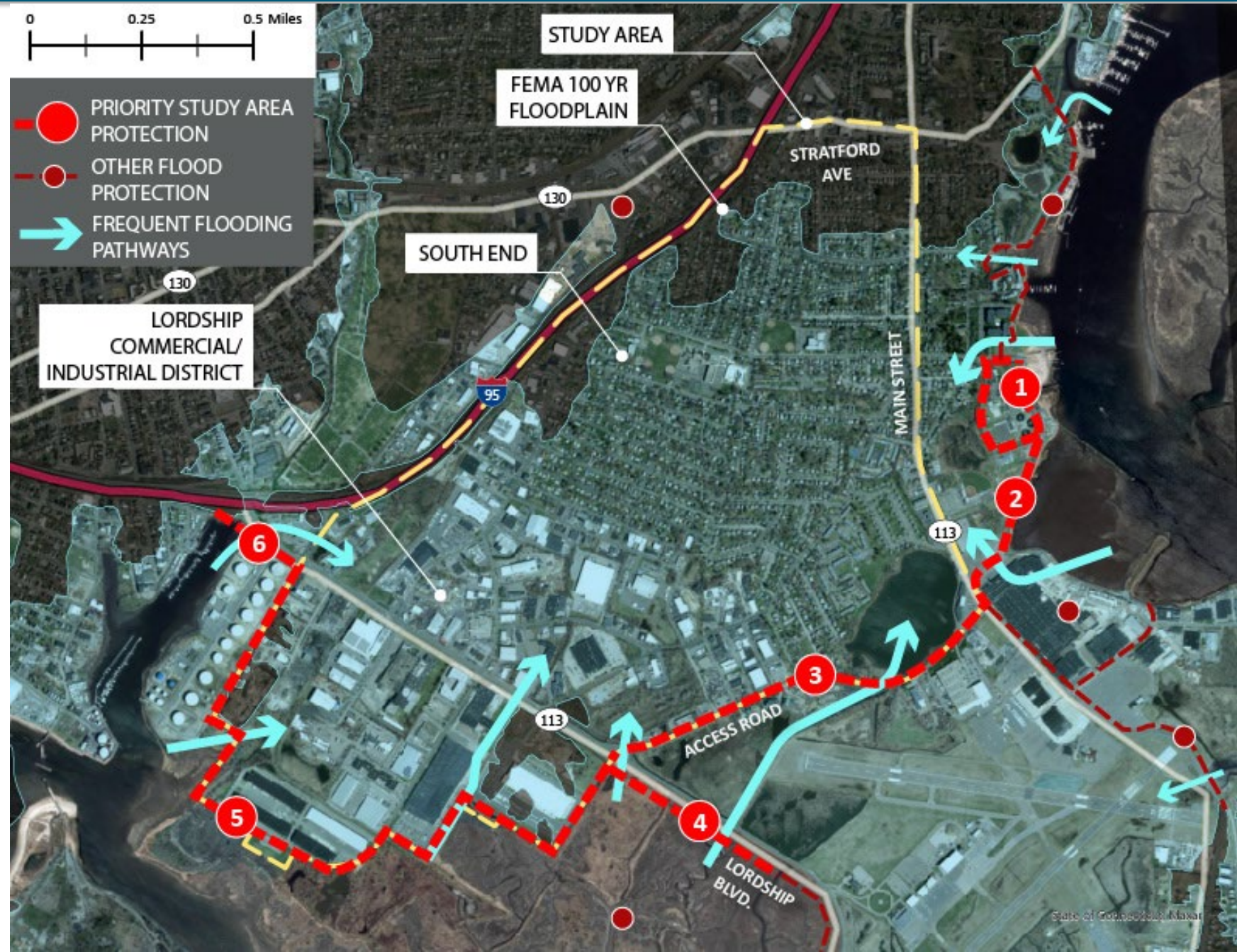
# Implementation Challenges: Protect Strategy

## Funding

- **Short Term Funding** – Municipal and grant matching funding needed
- **Short Term Funding – Grant Competitiveness:** FEMA Building Resilient Infrastructure and Communities (BRIC) funding requires that mitigation projects “must solve a problem independently or constitute a functional portion of a long-term solution with **assurance the project as a whole will be completed.**”
- **Determining a Target Level of Protection:** will this neighborhood flood protection system seek to mitigate the impacts of more frequent current flooding, less frequent/future frequent flooding? Will levees be designed to achieve FEMA Accreditation?
- **Long Term Funding** – Operation & Maintenance, elevating buildings and transportation infrastructure

## Key Projects

1. Water Pollution Control Facility Flood Improvements and Birdseye Levee Connection
2. Greenway Berm
3. Access Road Flood Wall
4. Lordship Boulevard Flood Wall
5. Lordship Industrial Flood Wall/Vegetated Berm
6. Bruce Brook Culvert

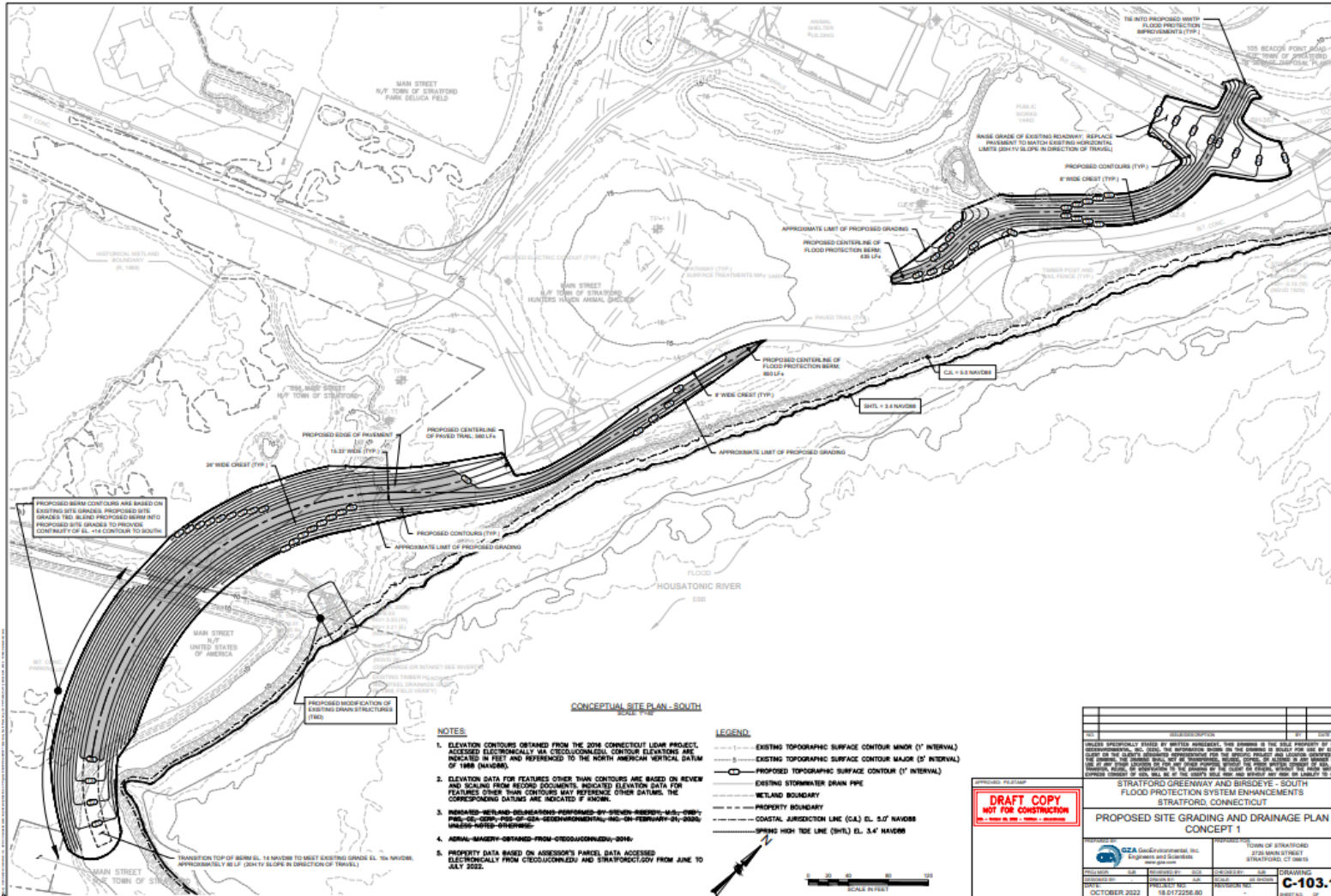


# Implementation Challenges: Project 2

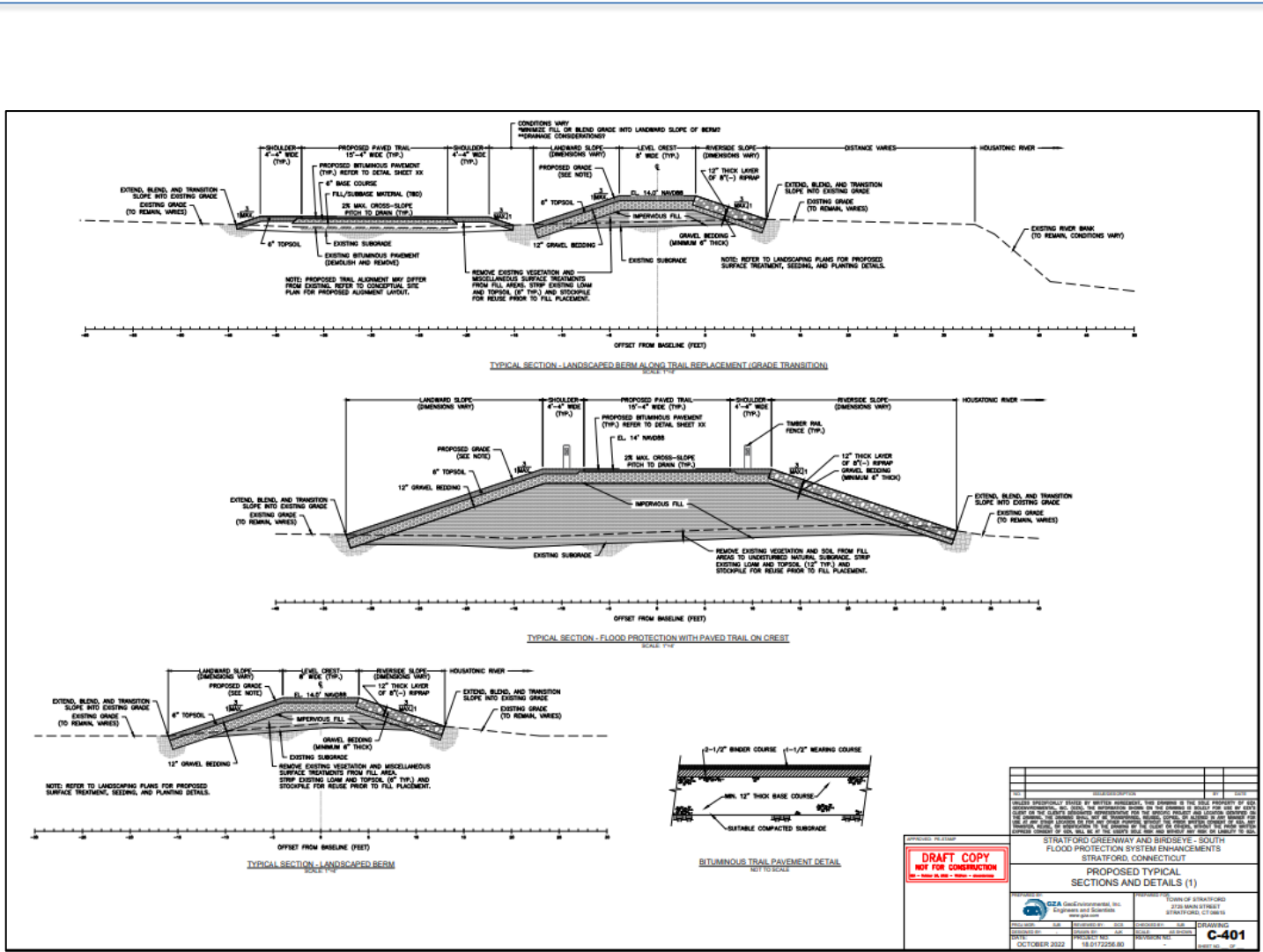
## Greenway Levee and Living Shoreline

### Barriers to Overcome

- Property Ownership and abutters?
- Spatial and Topographic Constraints?
- Public Access?
- Visual Impacts?
- Environmental Impacts?
- Zoning?
- Maintenance?
- Other?







# Implementation Challenges: Project 3

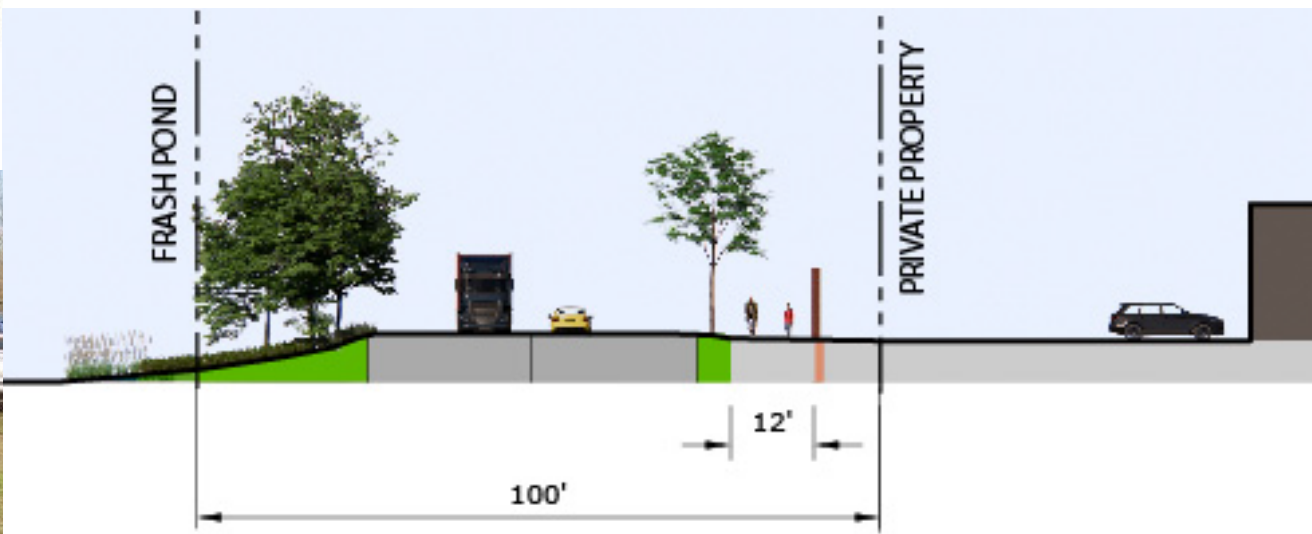
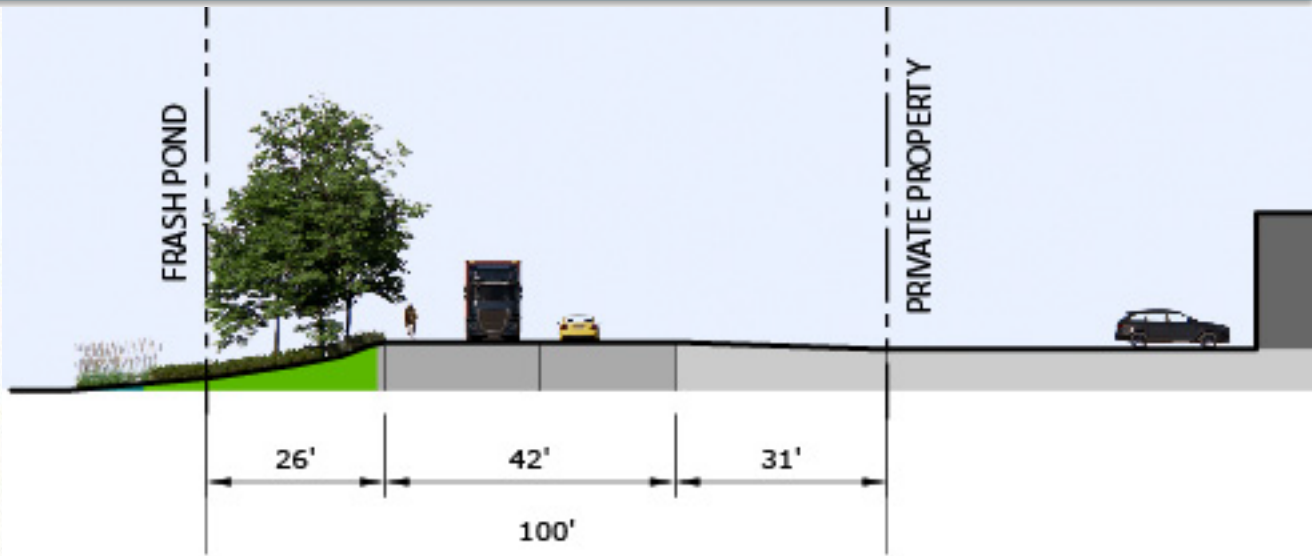
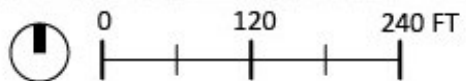
## Access Road Flood Wall



## Barriers to Overcome

### Property Ownership and abutters?

- Spatial and Topographic Constraints?
- Public Access?
- Visual Impacts?
- Environmental Impacts?
- Zoning?
- Maintenance?
- Other?



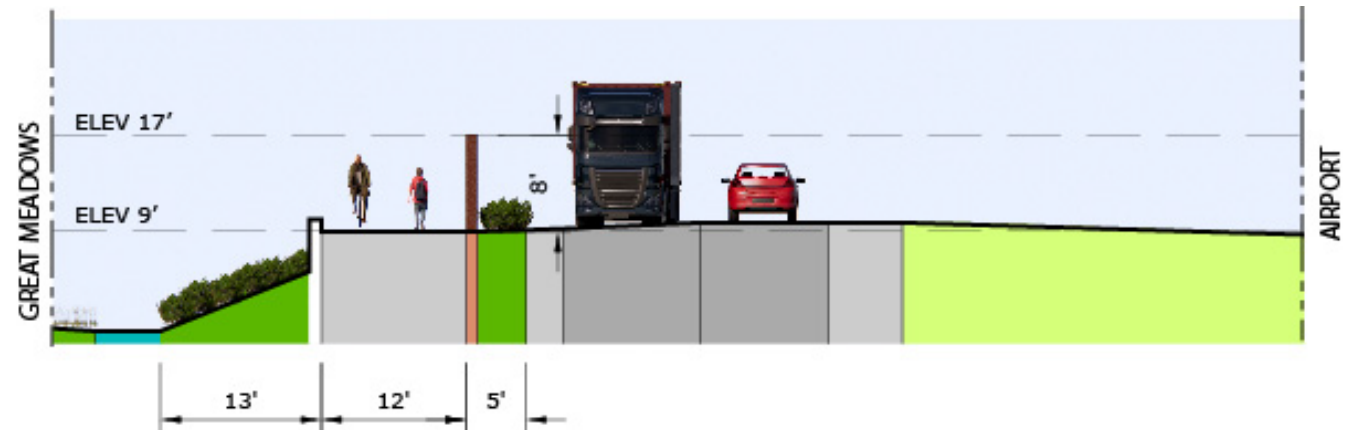
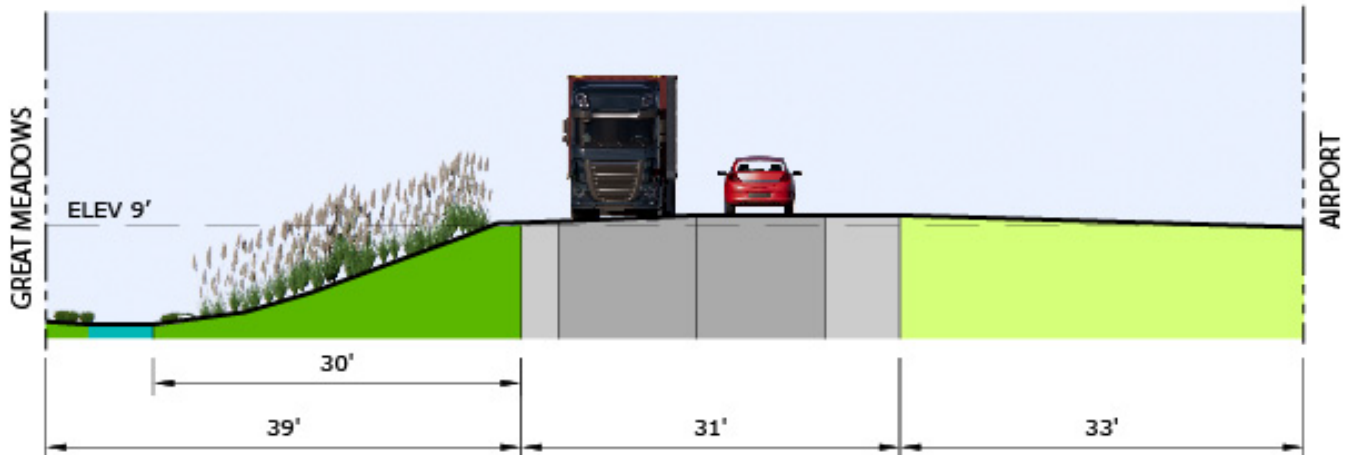
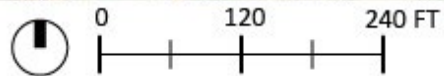
# Implementation Challenges: Project 4

## Lordship Boulevard



### Barriers to Overcome

- Property Ownership and abutters?
- Spatial and Topographic Constraints?
- Public Access?
- Visual Impacts?
- Environmental Impacts?
- Zoning?
- Maintenance?
- Other?





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Landscape Architecture and Planning



# Implementation Challenges: Project 5

## Lordship Industrial Flood Wall/Vegetated Berm



### Barriers to Overcome

- Property Ownership and abutters?
- Spatial and Topographic Constraints?
- Public Access?
- Visual Impacts?
- Environmental Impacts?
- Zoning?
- Maintenance?
- Other?

# Alternative Alignment: Project 3

## Access Road Flood Wall







# Alternative Alignment: Project 5

## Lordship Industrial Flood Wall/Vegetated Berm



# LESSONS LEARNED

- Integrating and connecting project segments is key to creating an effective Neighborhood-Scale Protect Strategy for coastal flooding
- Inclusive consensus building on solutions with socially vulnerable residents, community leaders, businesses, Technical Advisory Committee members and other stakeholders is essential.
- Need to also advance stormwater resiliency solutions within the South End residential area.
- Regulations for new development need to incentivize design for resiliency
- Sikorsky Memorial Airport location, elevation, FAA restrictions, ownership complicates protect strategies



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Landscape Architecture and Planning



THANK YOU!

