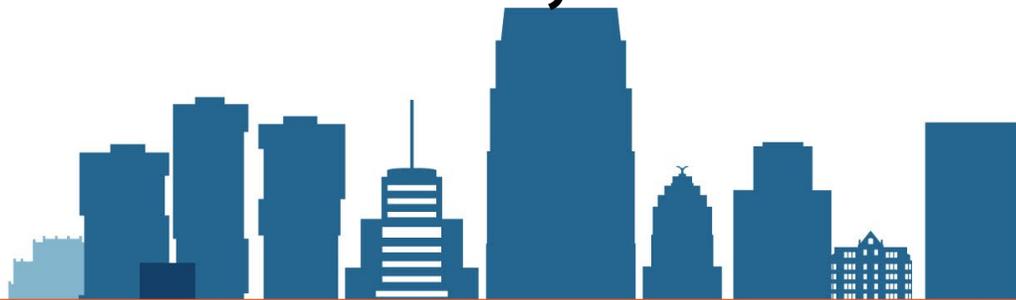




# RESILIENT NORTHEASTERN NJ

## SCENARIO DEVELOPMENT BAYONNE – BERGEN POINT, CONSTABLE HOOK, MOTBY

WAVE 3 MEETING IN A BOX  
SPRING 2022



### PLEASE NOTE:

All content is working DRAFT for planning and discussion purposes only  
This document can be used either for individual review or to help guide a meeting

# NOTES TO THE FACILITATOR

**HIDE THIS SLIDE WHEN PRESENTING BY RIGHT CLICKING ON THE SLIDE IN THE PANEL AND SELECTING “HIDE SLIDE” (or delete it)**

- First, thank you so much for helping to ensure there is widespread public involvement in this important project!
- We recommend that one person presents this slide deck, while another takes notes either directly in the form accessible through the QR code to the right or separately such that it can be later logged as feedback via the QR code to the right.
- This deck is intended to help support and guide conversations to obtain the input needed at this phase of the project, but it is not intended to be prescriptive. All content is working DRAFT for planning and discussion purposes only.
- It can be helpful at the beginning of meetings with people new to you to set ground rules to help guide the meeting. Example possible ground rules include: Participate fully, give everyone the chance to speak, seek first to understand then be understood, respect the group’s time.
- Please share your thoughts about what worked and didn’t work about the information provided herein, and how our next rounds of materials can be even better in the feedback form.



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MEETING  
[HERE](#)**



# Community Meeting Guidelines

TO ENSURE THAT WE ARE ABLE TO MAXIMIZE OUR TIME TOGETHER AS A GROUP

- **Please remain on mute unless speaking**
- **During the main presentation:**
  - Please submit questions in the chat
  - Please turn off video to allow for ASL accessibility
- **During the breakouts:**
  - If you are able and willing to, please consider turning on your camera
  - Use one mic and stack
  - Acknowledge everyone's voice and time. If you find yourself speaking frequently, consider opening the floor to your group members. We look forward to hearing what everyone has to say!
  - Please speak from your own experience
  - If there are several group members with things to share, please use the 'raise hand' function, the chat, or gesticulating in Zoom and a facilitator will call on you
- **Please save discussion for the breakouts and report out**



**Join the conversation!**

Please use the chat function to ask questions as we go!

If the meeting abruptly ends, please be patient and re-join using the same Zoom link. You will also receive an email with the meeting link.

# TOPICS

- **What's important and at risk in this neighborhood?**
- **For each solution scenario:**
  - Possible actions
  - How the area might change
  - Key considerations
  - What do you think?
- **Discussion**
  - Of everything we discuss, what is most important to advance?
  - What do you want to not happen?



***“We have tools and ideas, like a carpenter, but this is your house”***

***For this regional level plan, we have broken the community down into geographic areas. This means that there is nuance and community boundaries that might not always be honored. Let us know when we don't get it right.***

**BERGEN POINT,  
CONSTABLE HOOK,  
MOTBY, ETC**

# AREA CONTEXT

- Access to the waterfront and parks
- Desire to see more green space, trees, and green infrastructure
- Pedestrian experience and access to public transportation

Land Use	
<b>Residential</b>	
	High Density
	Medium to Low Density (Single Unit)
<b>Commercial &amp; Industry</b>	
	Commercial/Services
	Cultural Attractions
	Industrial & Commercial Complexes
	Industrial
	Transportation, Services & Utilities
	Other Urban/Built-Up Land
<b>Natural &amp; Open Space</b>	
	Mixed Forests
	Coniferous Forests
	Deciduous Forests
	Wetlands/Marshes
	Agriculture
	Recreational Land
	Open Field (< 25% Covered)
	Cemetery
	Phragmites Dominate Areas
	Beaches
<b>Other</b>	
	Barren Lands
	Altered Lands
	Military Installations
	Transitional Areas

Asset_Type	
	Hurricane Evacuation Route
	Bus Routes
	Light Rail/Commuter Rail
	Child Care Centers
	Colleges
	Combined Sewer Outfall
	EMS
	Ferry Terminal
	Fire Stations
	Gas Stations
	Hospitals/Medical Centers
	Landfill
	Library
	Major Sports Venue
	Municipal Building
	Nursing Homes
	Other Surface Discharge
	Places of Worship
	Police Stations
	Power Generation
	Public Housing
	Rail Stations
	Schools
	Senior Housing
	Shelters
	Stormwater Discharge
	Substations
	Wastewater Treatment

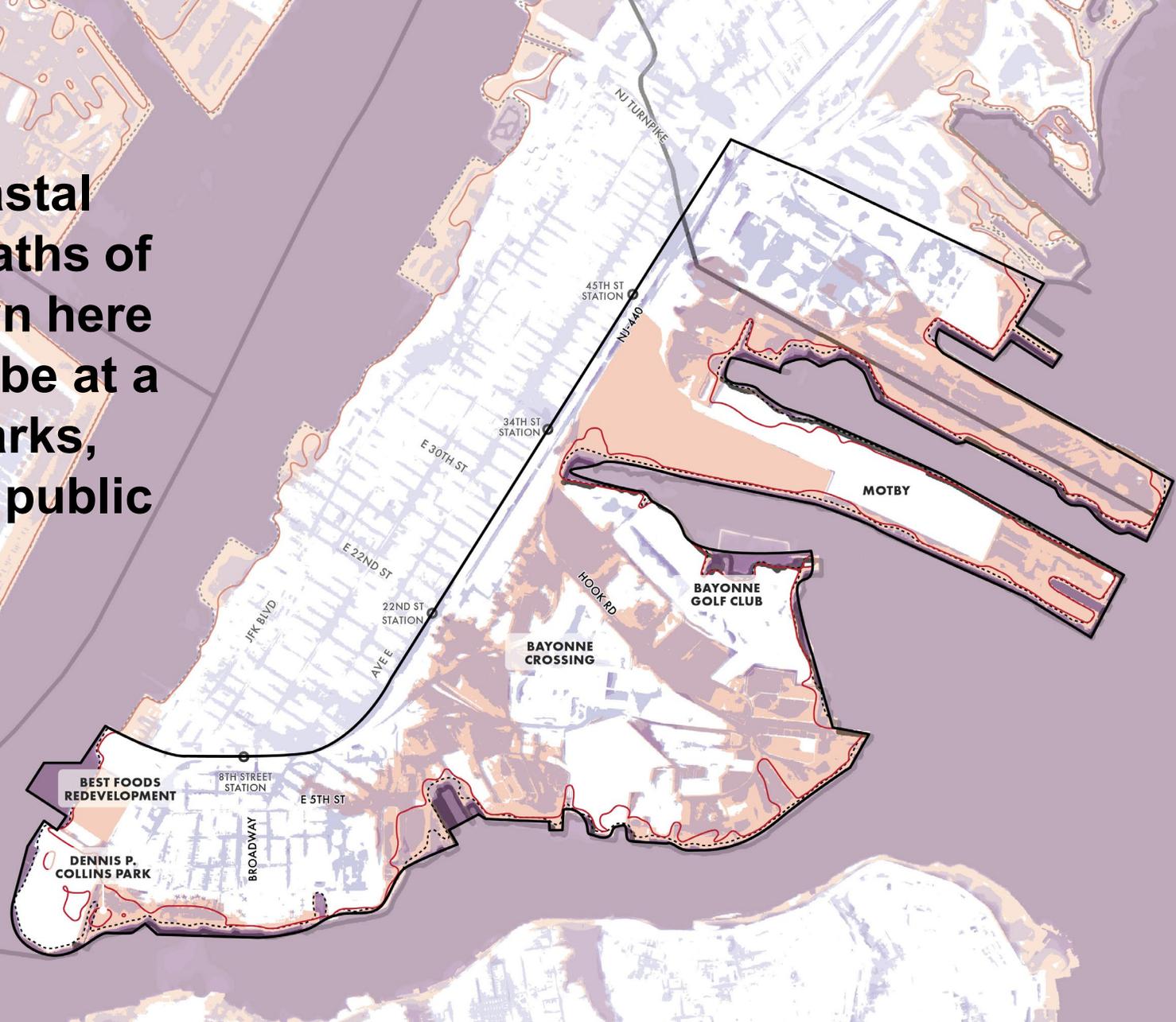


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# RISK CONTEXT

Both rainfall flooding and coastal flooding can impact large swaths of this area. Tidal flooding shown here impacts little area, but would be at a nearly constant frequency. Parks, homes, streets, industry, and public transportation are all at risk.

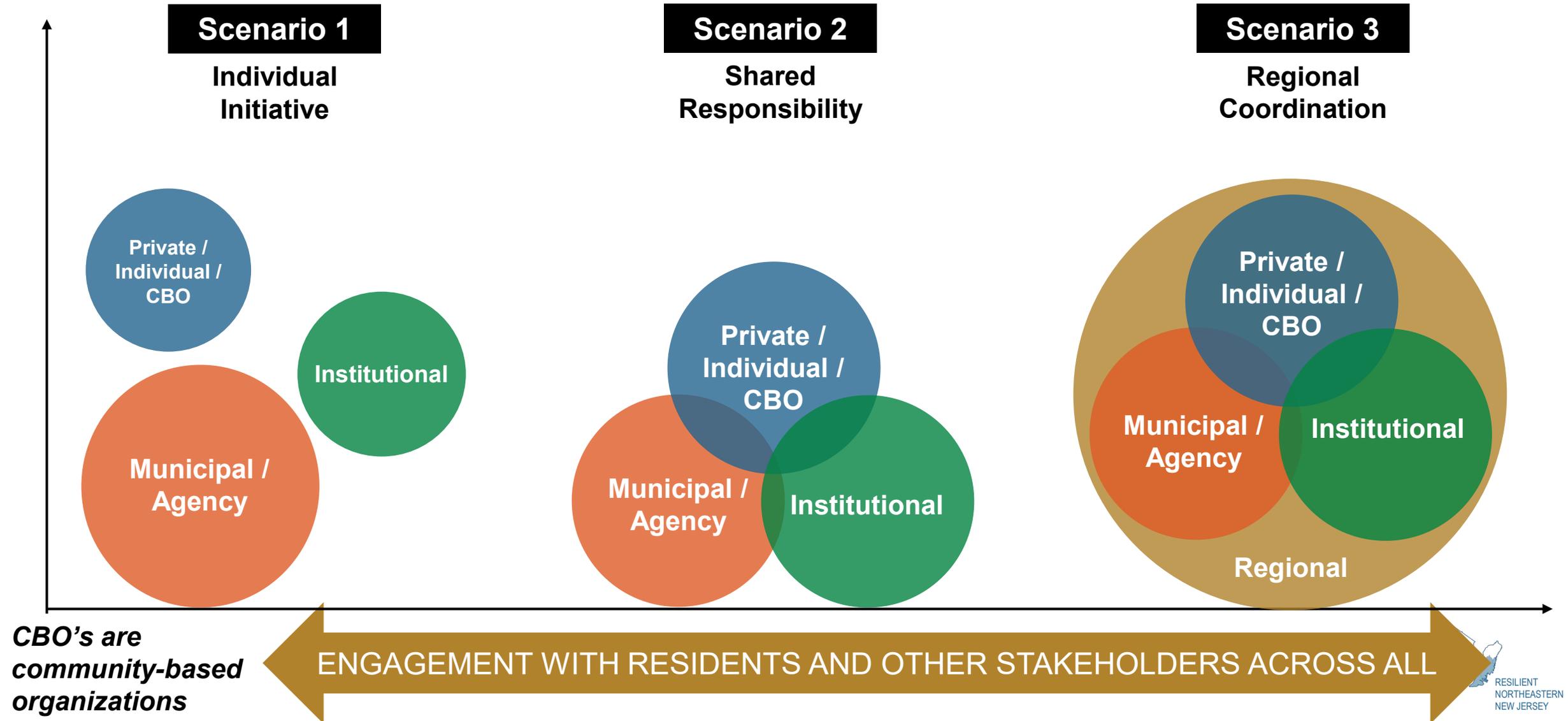
- 24 HOUR, 100 YEAR STORM**
  - 2070 MODEL (HIGH TIDE + SLR + 10% RAINFALL INCREASE)
- STORM SURGE**
  - 2070 EXTENT (HURRICANE SANDY + SEA LEVEL RISE)
- AREAS OF OVERLAP**
- SEA LEVEL RISE**
  - 2070 MHHW + 2.4' SLR
  - 2070 MHHW + 5.0' SLR

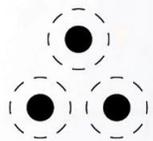


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# SCENARIOS

*The scenarios are not alternatives.  
The action plan could be a combination  
of actions from the different scenarios.*





# SCENARIO 1

## INDIVIDUAL INITIATIVE

### EXISTING CONDITIONS

- PROJECTS ALREADY PLANNED OR IN PROGRESS
- EXISTING OUTFALLS
- LTCP STORAGE TANKS
- PROPOSED GREENWAY CORRIDORS (BY OTHERS)

### RESILIENT NJ MEASURES

- COASTAL PROTECTION ALIGNMENTS
- GREEN INFRASTRUCTURE CORRIDORS
- SUGGESTED FLOW PATHS
- SUGGESTED RETENTION AREAS
- PUMP STATIONS
- PROPOSED GREENWAY CORRIDORS
- AREAS OUTSIDE PROTECTIONS
- REDEVELOPMENT AREAS
- SITES TO ADAPT
- POSSIBLE RESILIENCE HUB LOCATION

### NON-PHYSICAL SOLUTIONS

- 1 ADOPT ORDINANCES TO STATE MODELS & GUIDANCE
- 2 GI PROGRAM FOR CITY PROPERTIES
- 3 GUIDELINES FOR GI ON OPEN SPACE
- 4 TREE CANOPY PROGRAMS
- 5 RESILIENCE HUBS AT CITY PROPERTIES
- 6 MUNICIPAL TRASH CLEANUP & CATCH BASIN PROGRAMS
- 7 PROMOTE & INCORPORATE RESIDENT FLOOD REPORTING
- 8 INTER-DEPARTMENT & MUNICIPAL COORDINATION



RELY ON DEVELOPERS TO PROTECT SITES WITH CITY COORDINATION OF BARRIER ALIGNMENTS

REVIEW & STRENGTHEN RESILIENCE MEASURES OF PLANNED REDEVELOPMENT

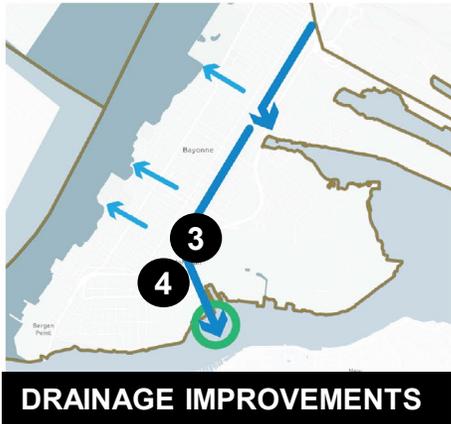
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## KEY CHANGES, SCENARIO 1



### 1. INDIVIDUAL SITE PROTECTION

Reading, United Kingdom



### 3. IMPROVED STORMWATER SURFACE CONVEYANCE

Waterplein Benthemplein  
Rotterdam, Netherlands



### 5. PERMEABLE PARKING SURFACES

TU Delft  
Netherlands



### 2. HOMES RAISED TO PRESCRIBED DESIGN FLOOD ELEVATION

Beach Haven, Long Beach Island

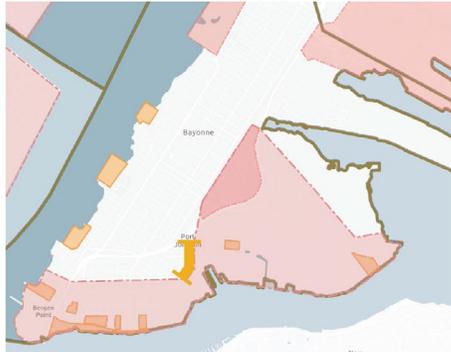


### 4. SUBSURFACE STORMWATER DETENTION SYSTEM



### 6. R.O.W GREEN INFRASTRUCTURE

Queens, New York City



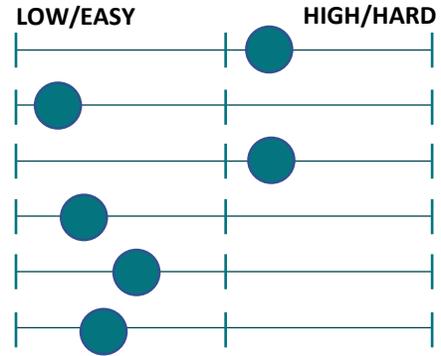
**COASTAL PROTECTIONS**

**OBJECTIVES, SCENARIO 1**

Cut off flood pathways through strategic road raising and rely on site level protection for critical infrastructure and redevelopment areas.

**KEY CONSIDERATIONS, SCENARIO 1**

- CONSTRUCTION TIME
- IMPACT TO PUBLIC ACCESS & USE
- COSTS
- PERMITTING
- CONSTRUCTABILITY
- LEVEL OF PROTECTION



**ISSUES TO CONSIDER**

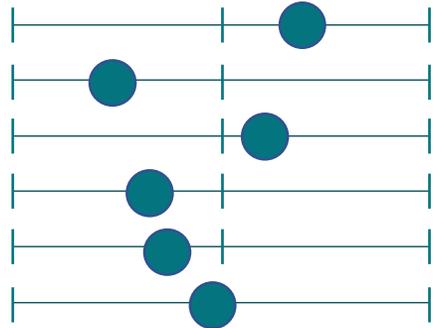
Strategic retrofits can protect upland areas with minimal investment **BUT** large coastal areas would need to be protected through a patchwork of site level retrofits.



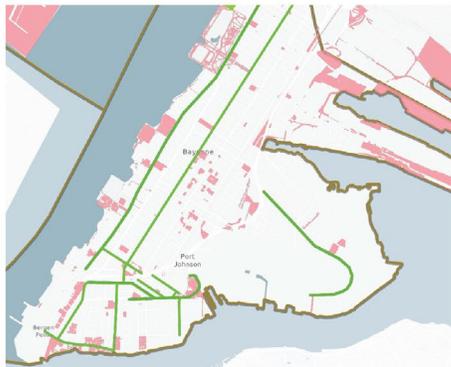
**DRAINAGE IMPROVEMENTS**

Collect stormwater through large trunk sewers and re-direct to separate outfalls, using storage and pumping where needed to manage flows.

- CONSTRUCTION TIME
- IMPACT TO PUBLIC ACCESS & USE
- COSTS
- PERMITTING
- CONSTRUCTABILITY
- LEVEL OF PROTECTION



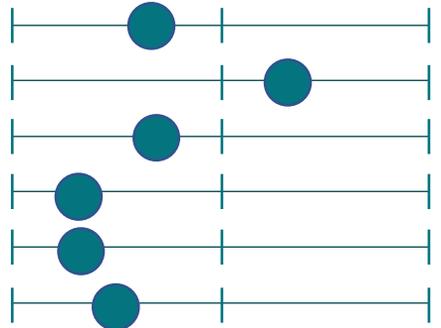
New separate storm sewers has the added benefit of reducing flows in the combined sewer system, expanding existing capacity **BUT** large investments are needed before benefits can be realized and additional pumping is likely required.



**GREEN INFRASTRUCTURE**

Expand green infrastructure installations on public property targeting key primary corridors and lots with significant impervious area.

- CONSTRUCTION TIME
- IMPACT TO PUBLIC ACCESS & USE
- COSTS
- PERMITTING
- CONSTRUCTABILITY
- LEVEL OF PROTECTION



Green infrastructure projects can treat stormwater at the source and add other benefits to the city **BUT** will compete with other needs in the public right of way and is limited in treating large storm events.

# NON-PHYSICAL SOLUTIONS, SCENARIO 1



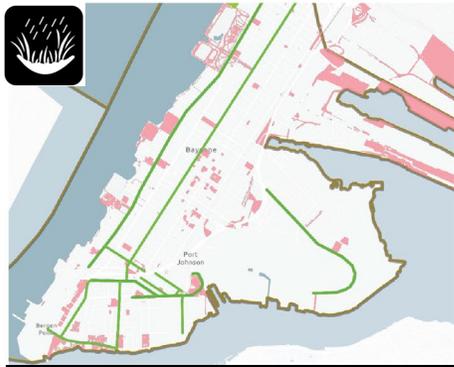
**COASTAL PROTECTIONS**

Policy based coastal measures are needed for areas outside of protections & for areas integrated with inland alignments.



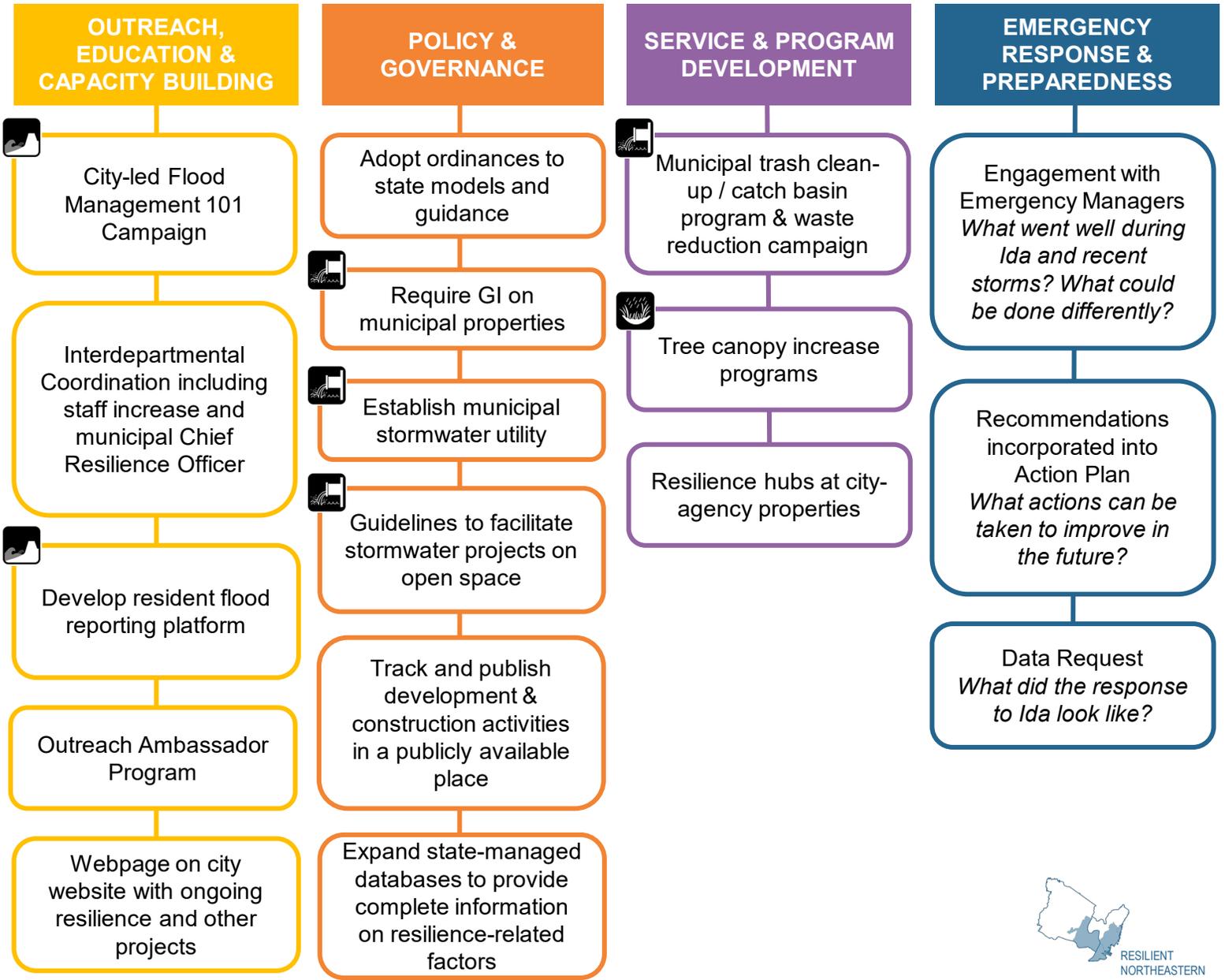
**DRAINAGE IMPROVEMENTS**

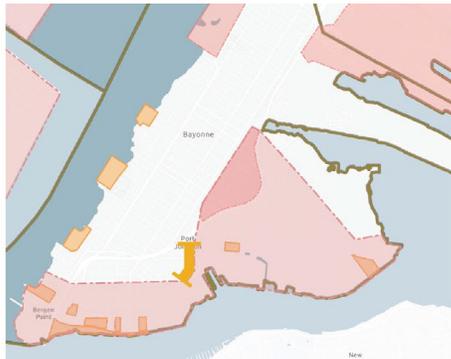
Policy based measures like trash clean-up & catch basin programs help with drainage efficiency while larger measures like a Municipal Stormwater utility increase resilience equity.



**GREEN INFRASTRUCTURE**

Measures like tree programs and Green Infrastructure requirements on public open-space are essential to meeting resilience goals in Scenario 1.

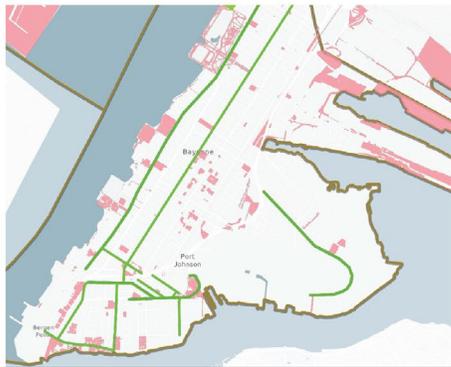




**COASTAL PROTECTIONS**



**DRAINAGE IMPROVEMENTS**



**GREEN INFRASTRUCTURE**

**QUESTIONS TO CONSIDER**

- Which streets or city properties do you want to see transformed?
- What greening projects would appeal to you most?
- Where would you like to see Resilience Hubs?



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FROM THE  
MEETING  
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**WHAT DO YOU LIKE ABOUT SCENARIO 1?**

Empty dashed box for feedback on Scenario 1 likes.

Empty dashed box for feedback on Scenario 1 likes.

Empty dashed box for feedback on Scenario 1 likes.

**WHAT DO YOU DISLIKE ABOUT SCENARIO 1?**

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Empty dashed box for feedback on Scenario 1 dislikes.



# SCENARIO 2

## SHARED RESPONSIBILITY

All content working DRAFT for planning and discussion purposes

### EXISTING CONDITIONS

- PROJECTS ALREADY PLANNED OR IN PROGRESS
- EXISTING OUTFALLS
- LTCP STORAGE TANKS
- PROPOSED GREENWAY CORRIDORS (BY OTHERS)

### RESILIENT NJ MEASURES

- COASTAL PROTECTION ALIGNMENTS
- POTENTIAL ALTERNATE COASTAL ALIGNMENTS
- GREEN INFRASTRUCTURE CORRIDORS
- SUGGESTED FLOW PATHS
- SUGGESTED RETENTION AREAS
- PUMP STATIONS
- PROPOSED GREENWAY CORRIDORS
- AREAS OUTSIDE PROTECTIONS
- REDEVELOPMENT AREAS
- SITES TO ADAPT
- POSSIBLE RESILIENCE HUB LOCATION

### NON-PHYSICAL SOLUTIONS

- 1** INCORPORATE RESILIENCE INTO REDEVELOPMENT PLANS
- 2** INCENTIVIZE GI ON PRIVATE PROPERTIES
- 3** RESILIENCE LEADER OUTREACH AND TRAINING PROGRAM
- 4** TRASH CLEAN-UP DAYS AND COMMUNITY GARDENS THROUGH PARTNERSHIPS
- 5** RAIN BARREL DISTRIBUTION & GUIDE FOR INSTALLATION





**COASTAL PROTECTIONS**

**KEY CHANGES, SCENARIO 2**



**1. ELEVATED BOARDWALK INTEGRATED WITH NATURE BASED COASTAL PROTECTIONS**

Pier 26, Hudson River Park  
New York City



**2. INLAND ROAD ELEVATION**

Miami Beach, Florida



**DRAINAGE IMPROVEMENTS**



**3. URBAN STORMWATER RETENTION PARK**

Qunli Stormwater Wetland Park  
Haerbin, China



**4. IMPROVED DRAINAGE ALONG RAILWAY CORRIDOR**

Severn Tunnel East, UK



**GREEN INFRASTRUCTURE**



**5. GREEN INFRASTRUCTURE ON PRIVATELY OWNED SPACES**

First Avenue Water Plaza  
Manhattan, New York City



**6. BLUE & GREEN ROOFS**

Osbourne Association  
South Bronx, New York City



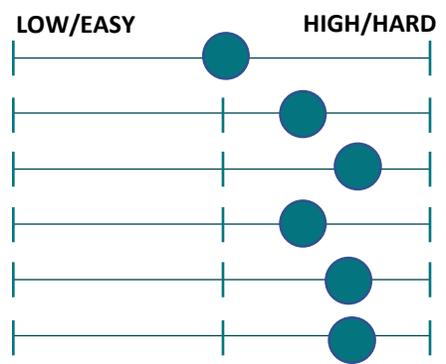
COASTAL PROTECTIONS

OBJECTIVES, SCENARIO 2

Use existing highway, road, rail and boardwalk infrastructure integrated with new flood barriers and raised walkways.

KEY CONSIDERATIONS, SCENARIO 2

- CONSTRUCTION TIME
- IMPACT TO PUBLIC ACCESS & USE
- COSTS
- PERMITTING
- CONSTRUCTABILITY
- LEVEL OF PROTECTION



ISSUES TO CONSIDER

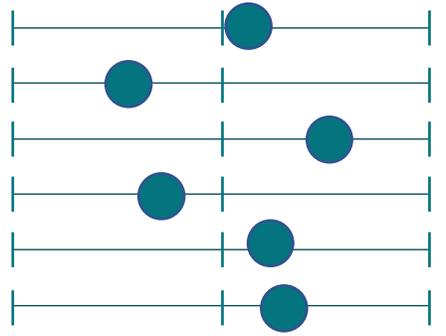
Expanding protection using existing corridors results in more comprehensive and cohesive protection **BUT** extending protection will require additional coordination with agencies and other property owners.



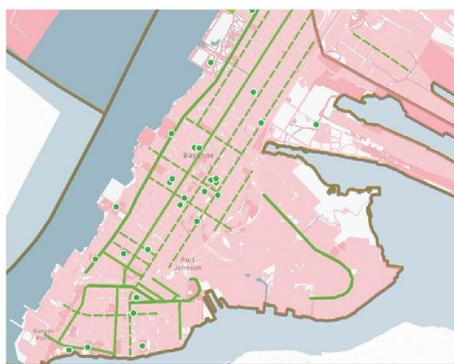
DRAINAGE IMPROVEMENTS

Consolidate drainage infrastructure and expand retention areas in conjunction with partners.

- CONSTRUCTION TIME
- IMPACT TO PUBLIC ACCESS & USE
- COSTS
- PERMITTING
- CONSTRUCTABILITY
- LEVEL OF PROTECTION



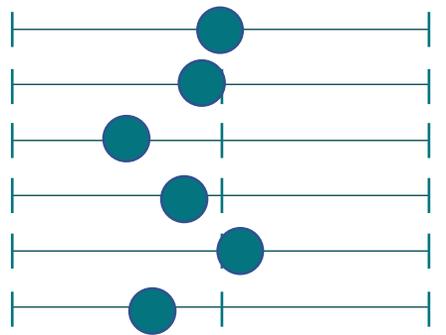
Adding retention areas helps to address a large range of storm events **BUT** subsurface storage can require a significant investment without providing any co-benefits.



GREEN INFRASTRUCTURE

Expand green infrastructure to secondary corridors and beyond public sites to incentivize additional GI on private properties. Target large parcels to implement regional GI practices.

- CONSTRUCTION TIME
- IMPACT TO PUBLIC ACCESS & USE
- COSTS
- PERMITTING
- CONSTRUCTABILITY
- LEVEL OF PROTECTION



Expanding GI to private properties provides broader watershed management **BUT** results in a greater number of assets that need to be inspected and maintained to provide protection.

## NON-PHYSICAL SOLUTIONS, SCENARIO 2



Resilience advancements deepened through collaboration with community members, schools, and community-based organizations

### COASTAL PROTECTIONS



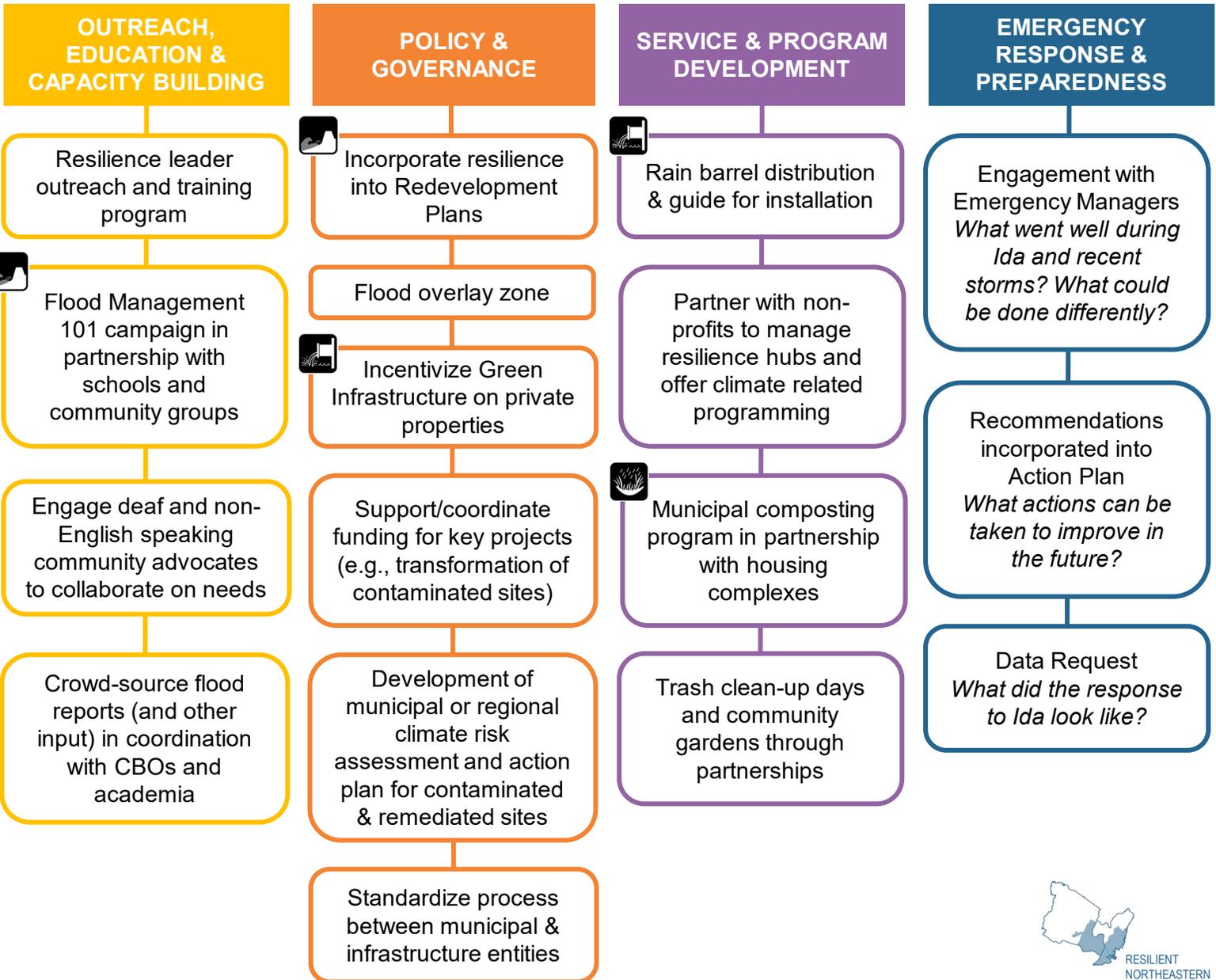
Partnerships in composting and trash clean-up help reduce drainage system clogging

### DRAINAGE IMPROVEMENTS



Public private partnerships expand green infrastructure benefits

### GREEN INFRASTRUCTURE





**COASTAL PROTECTIONS**



**DRAINAGE IMPROVEMENTS**



**GREEN INFRASTRUCTURE**

**QUESTIONS TO CONSIDER**

- Which streets or city properties do you want to see transformed?
- What Greening projects would appeal to you most?
- Where would you like to see Resilience Hubs?



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**WHAT DO YOU LIKE ABOUT SCENARIO 2?**

**WHAT DO YOU DISLIKE ABOUT SCENARIO 2?**




# SCENARIO 3

## REGIONAL COORDINATION

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### EXISTING CONDITIONS

- PROJECTS ALREADY PLANNED OR IN PROGRESS
- EXISTING OUTFALLS
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### RESILIENT NJ MEASURES

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- PROPOSED GREENWAY CORRIDORS
- AREAS OUTSIDE PROTECTIONS
- REDEVELOPMENT AREAS
- SITES TO ADAPT
- POSSIBLE RESILIENCE HUB LOCATION

### NON-PHYSICAL SOLUTIONS

- 1** CREATE A "SINGLE SOURCE OF TRUTH" FOR RESILIENCE-RELATED INFORMATION AND RESOURCES
- 2** REGIONAL GI CHAMPIONS TRAINING PROGRAM
- 3** DEVELOP PIPELINE OF SITES FOR STORMWATER MANAGEMENT / RESILIENT TRANSFORMATION OF BROWNFIELDS & CONTAMINATED SITES
- 4** REGIONAL TREE PLANTING PROGRAM
- 5** REGIONAL NETWORK OF RESILIENCE HUBS
- 6** REGIONAL PROGRAM DEVELOPMENT AND SUPPORT FOR COMPOSTING AND WASTE REDUCTION CAMPAIGNING



# KEY CHANGES, SCENARIO 3



## 1. RIVERWALK INTEGRATED WITH GREEN INFRASTRUCTURE COASTAL PROTECTIONS

Hudson River Walkway, New York City



## 2. RIVERTRAIL INTEGRATED WITH GREEN INFRASTRUCTURE COASTAL PROTECTIONS

Hunters Point New York City



## 3. RAIL TRAIL WITH INTEGRATED PROTECTIONS AND DRAINAGE

Ashokan Rail Trail West Hurley, New York



## 4. DEEP TUNNEL STORMWATER CONVEYANCE & STORAGE

DigIndy Indianapolis, Indiana



## 5. REGIONAL URBAN GREENWAY

The BeltLine Atlanta, Georgia



## 6. RIGHT-OF-WAY GREEN INFRASTRUCTURE FOR STORMWATER MANAGEMENT

Swale on Yale Seattle, Washington



COASTAL PROTECTIONS



DRAINAGE IMPROVEMENTS



GREEN INFRASTRUCTURE

OBJECTIVES, SCENARIO 3

Provide a comprehensive barrier alignment utilizing coastal walkways, road and rail corridors, and partnerships with redevelopment sites.

Additional stormwater separation can be accomplished by re-directing separated sewers into subsurface conveyance and storage.

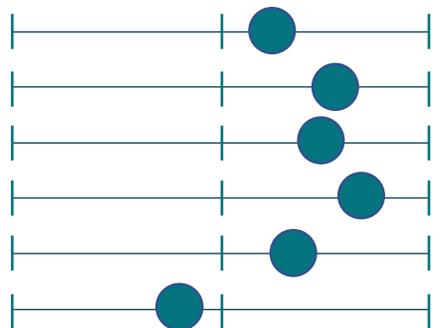
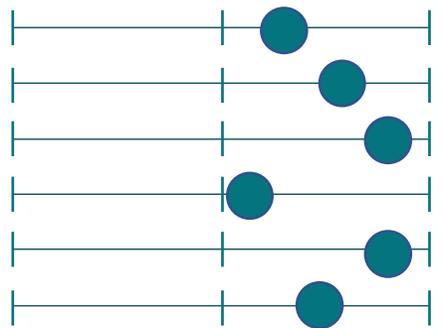
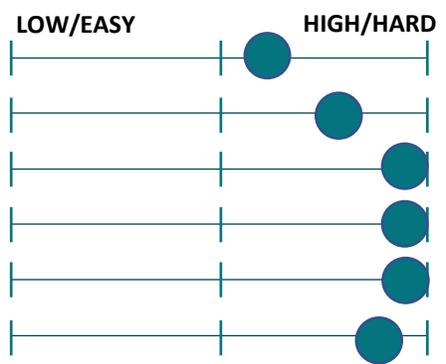
Build additional green infrastructure improvements into drainage corridors and soften the coastline through wetland restoration projects.

KEY CONSIDERATIONS, SCENARIO 3

- CONSTRUCTION TIME
- IMPACT TO PUBLIC ACCESS & USE
- COSTS
- PERMITTING
- CONSTRUCTABILITY
- LEVEL OF PROTECTION

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ISSUES TO CONSIDER

A comprehensive barrier provides cohesive coastal protection **BUT** requires significant coordination and agreements across multiple landowners and significant investment before protection is achieved.

Subsurface storage creates an opportunity to re-direct stormwater to other outfalls **BUT** presents potential constructability challenges due to the potential depth of infrastructure.

Incorporating additional GI and wetland restoration into other projects improves cost-effectiveness **BUT** requires conversion of existing uses to natural stormwater management.

# NON-PHYSICAL SOLUTIONS, SCENARIO 3



**COASTAL PROTECTIONS**

Continuing and expanding the Resilient NENJ program could allow the region to learn from, build on, and advance work completed to date



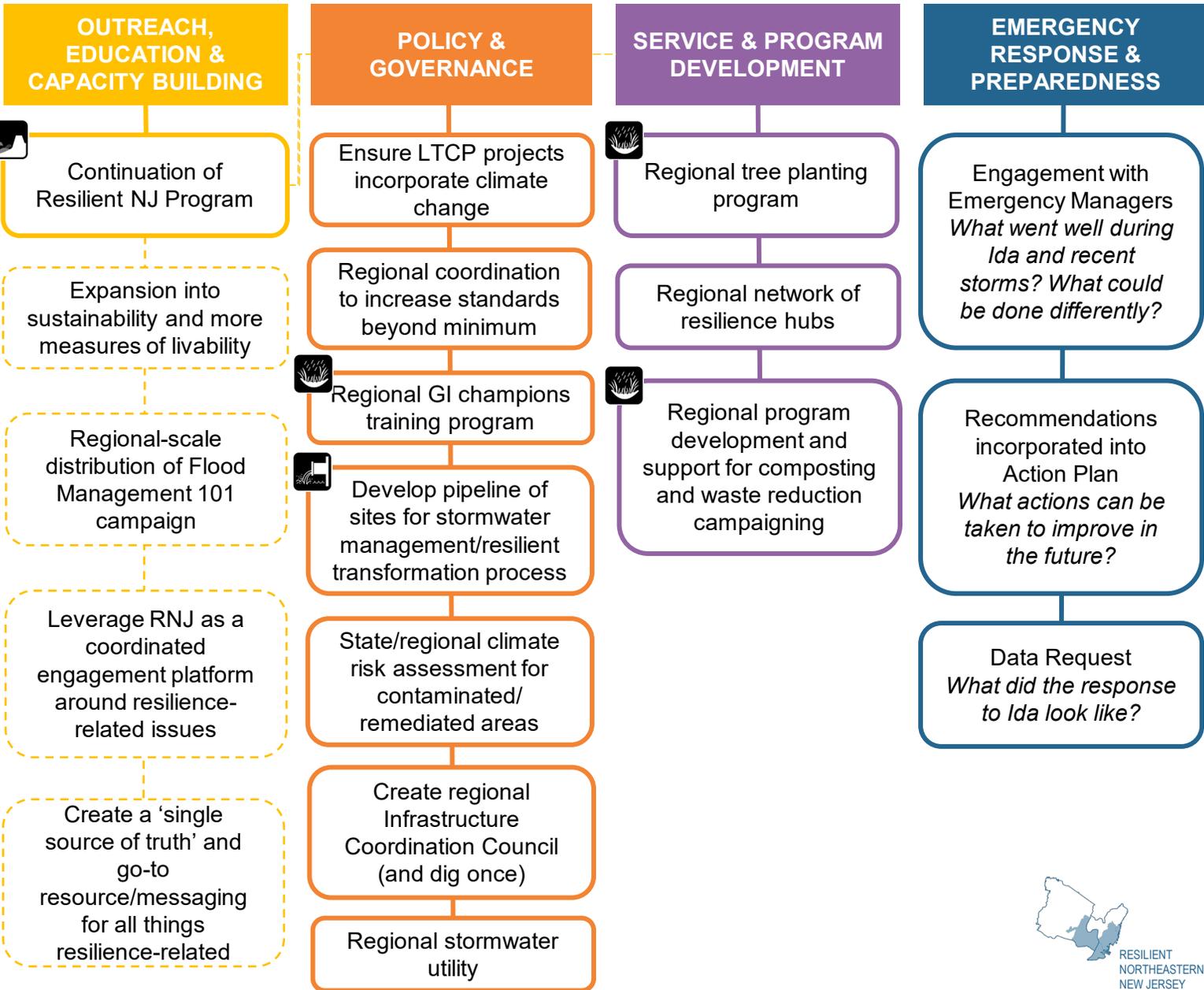
**DRAINAGE IMPROVEMENTS**

A regional infrastructure coordination council help maximize resilience in planned infrastructure improvements and limit disruption to communities



**GREEN INFRASTRUCTURE**

A regional network of resilience hubs could help CBOs and municipalities coordinate and share resources and information in times of disaster





**COASTAL PROTECTIONS**



**DRAINAGE IMPROVEMENTS**



**GREEN INFRASTRUCTURE**

**QUESTIONS TO CONSIDER**

- Which streets or city properties do you want to see transformed?
- What greening projects would appeal to you most?
- Where would you like to see Resilience Hubs?



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**WHAT DO YOU LIKE ABOUT SCENARIO 3?**

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**WHAT DO YOU DISLIKE ABOUT SCENARIO 3?**

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# DISCUSSION & QUESTIONS

*Of everything we've discussed, what is the most important thing to advance in this area?*

*What do you want to make sure does not happen?*

