Rondout Riverport Shoreline Stabilization and Public Access – Phase II

City of
Kingston
New York

NEW YORK STATE OF OPPORTUNITY. Department of State

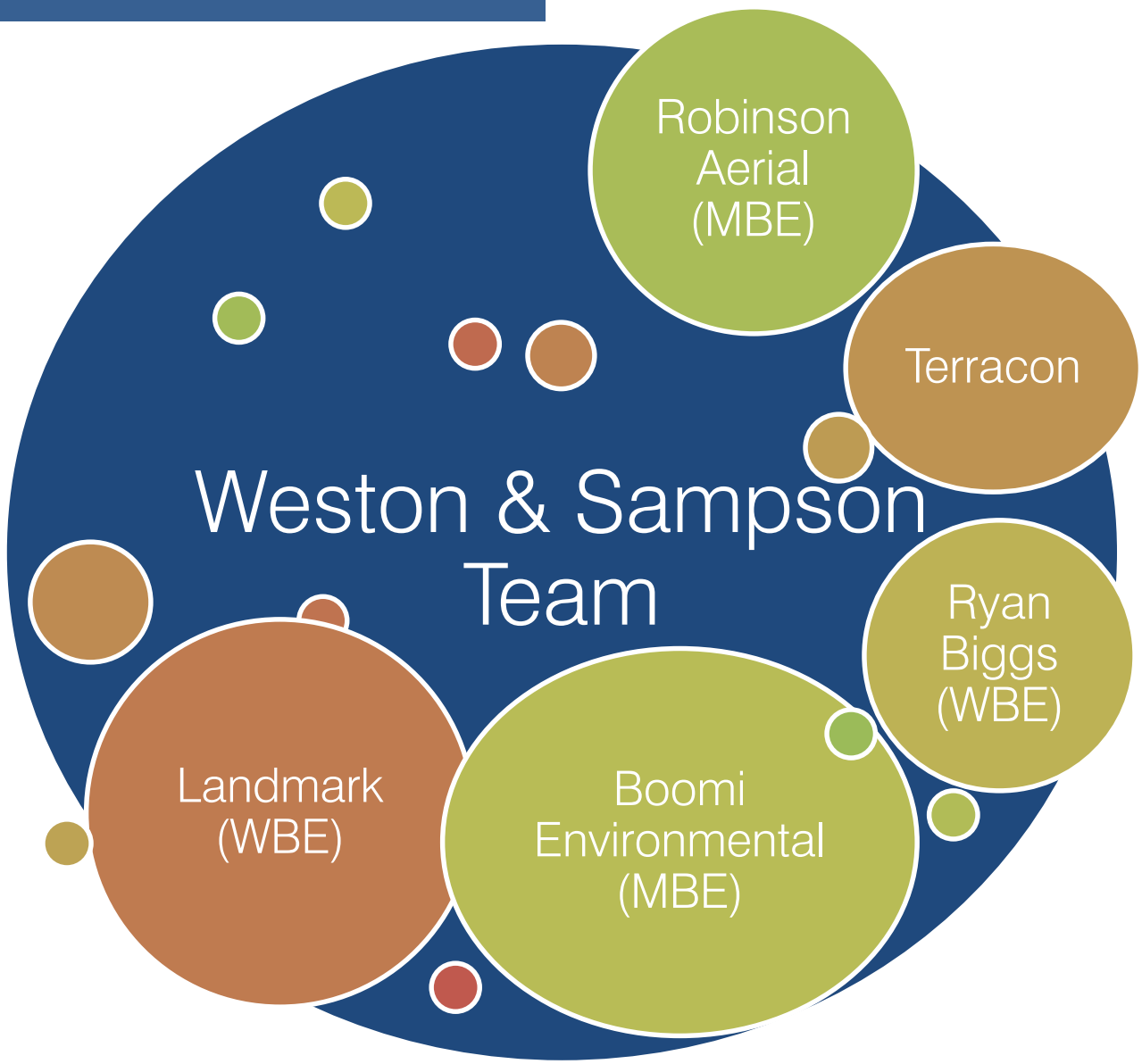
Project Advisory Committee – Meeting 1
April 08, 2019

Norman Ward, RLA
PROJECT MANAGER

Steven Roy, LEED-AP
SR.TECHNICAL LEADER

Weston & Sampson SM

who we are



- Surveying & Mapping
- Resiliency Planning & Design
- Landscape Architecture/ Planning
- Civil Engineering
- Structural Engineering
- Geotechnical Engineering
- Hydrologic/ Hydraulic Engineering
- Flood Assessment/ Mitigation
- Public Outreach
- Graphic Communication
- Environmental Permitting
- Archaeological Services

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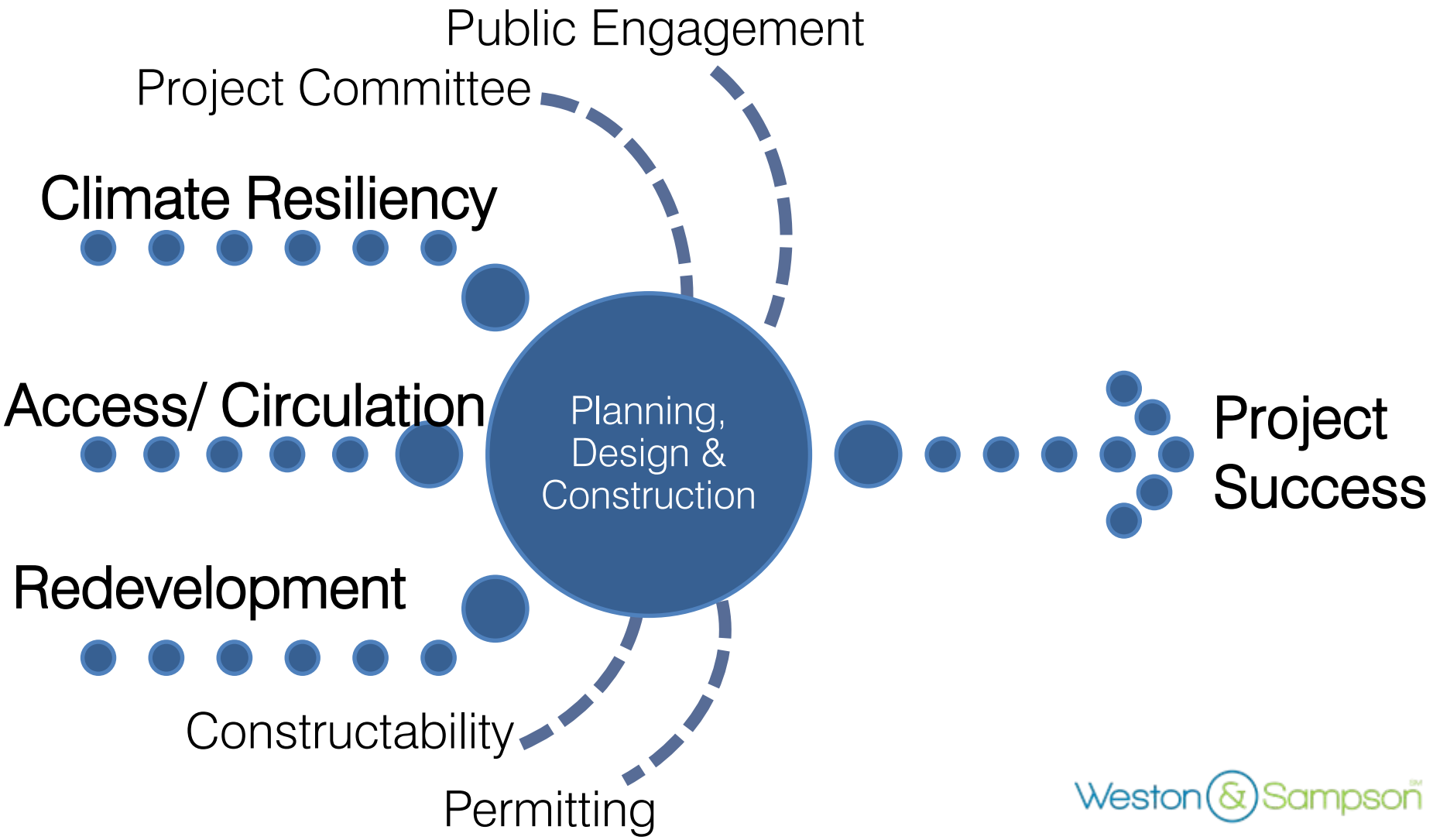
project approach



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project tasks/schedule

Task	Months											
	1	2	3	4	5	6	7	8	9	10	11	12
Phase One – Inventory Review & Analysis												
Task 1 | Project Kick-Off Meeting	P											
Task 2 | Project Advisory Committee			P		P		P		P		P	
Task 3 | Site Control –Acquisition/ Easement												
Task 4 | Site Reconnaissance and Schematic Designs												
Phase Two – Public Outreach and Visioning												
Task 5 | Public Meeting			M									
Task 6 | Construction Requirement Analysis												
Task 7 | Environmental Quality Review												
Phase Three – Final Design												
Task 8 | Draft Final Design Development												
Task 9 | Final Design and Construction Documents												
Task 10 | Permits												
Tasks 11+12 | MWBE Reporting & Project Status Reports												
Task 13 | Final Project Summary Report (and Measurable Results Forms)												

"P" = Project Committee Meeting
"M" = Stakeholder/Public Meeting

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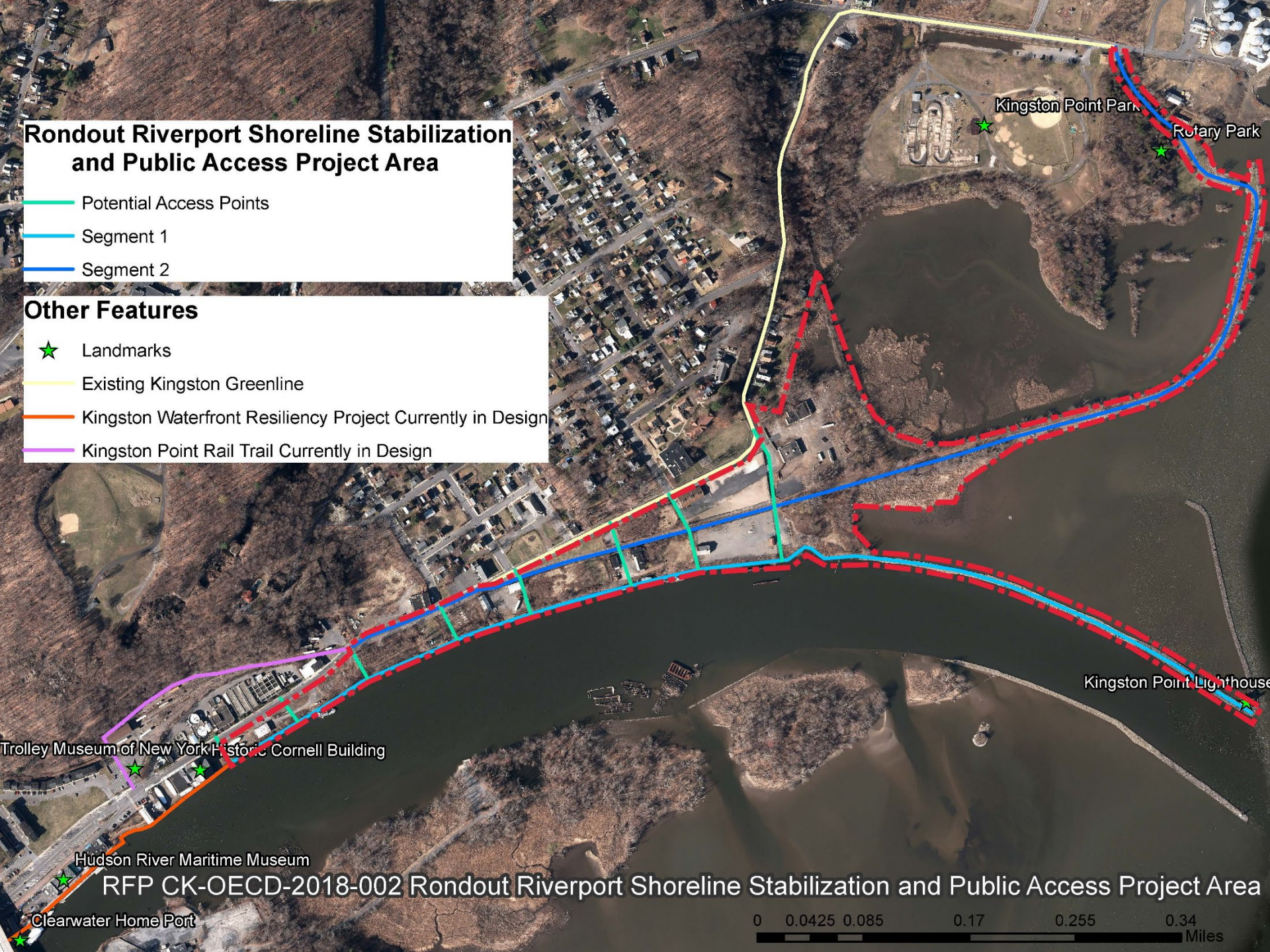
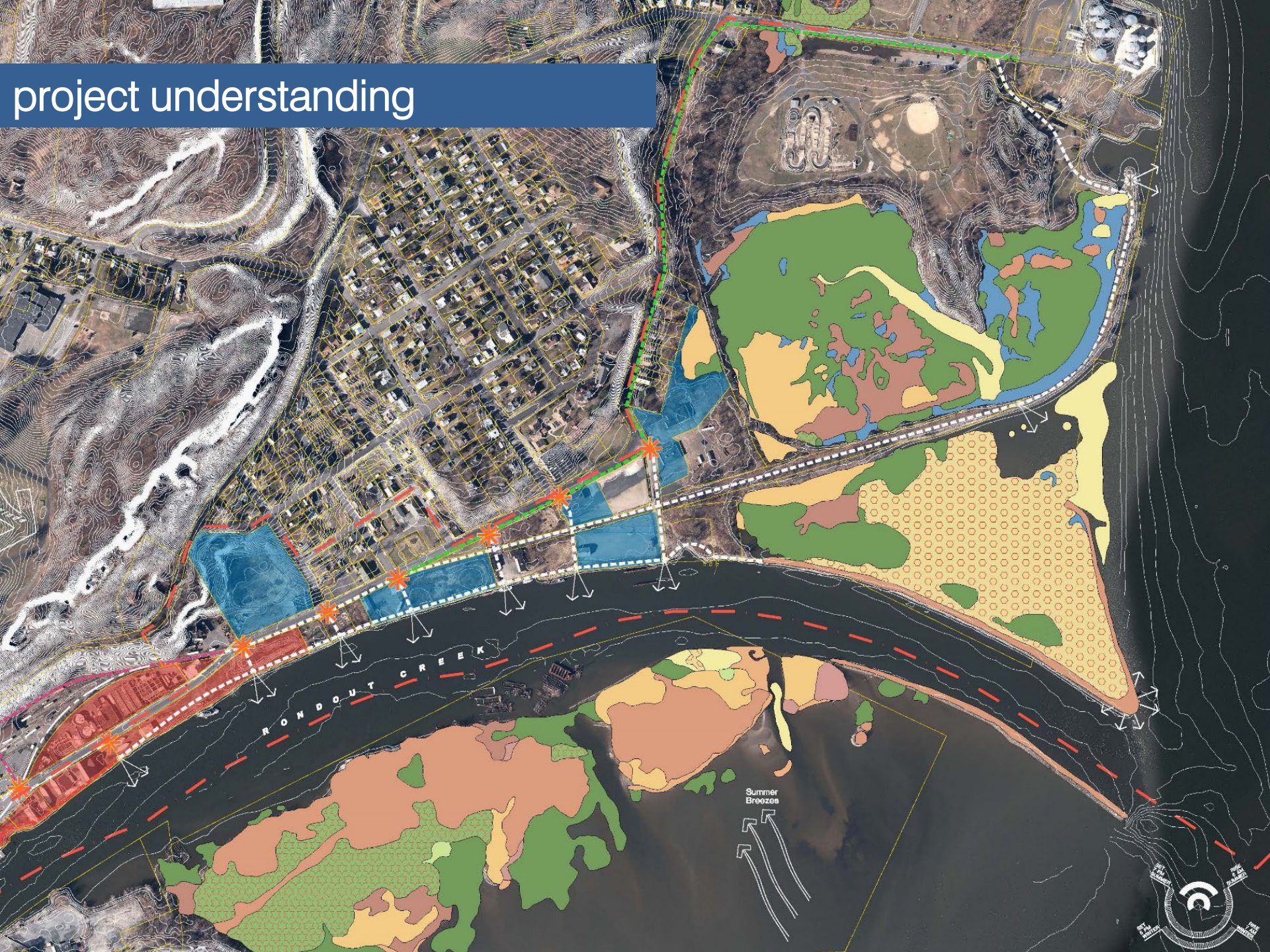
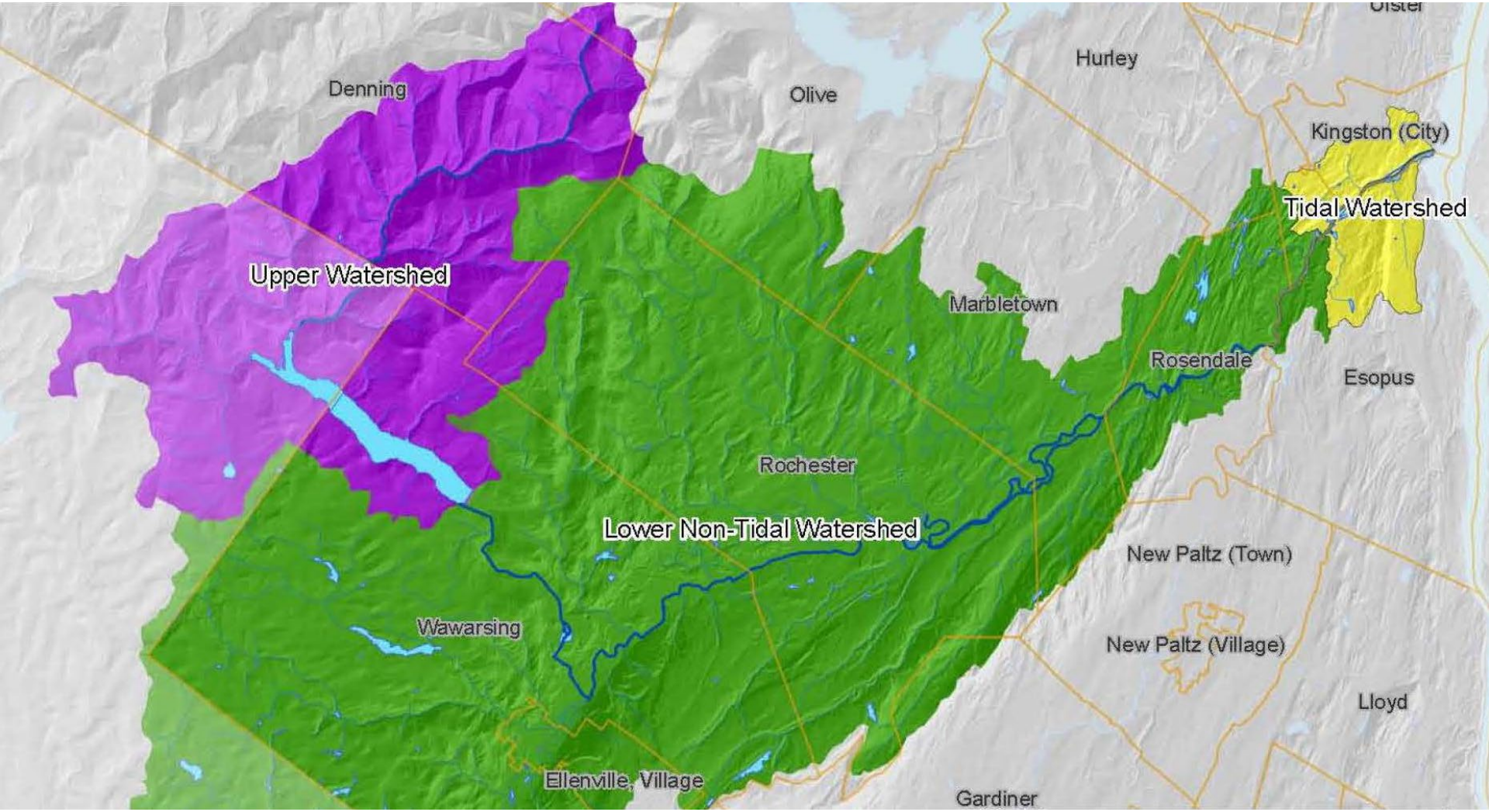

Rondout Riverport Shoreline Stabilization and Public Access Project Area
Potential Access Points
Segment 1
Segment 2
Other Features
Landmarks
Existing Kingston Greenline
Kingston Waterfront Resiliency Project Currently in Design
Kingston Point Rail Trail Currently in Design
Kingston Point Park
Rotary Park
Kingston Point Lighthouse
Trolley Museum of New York
Historic Cornell Building
Hudson River Maritime Museum
Clearwater Home Port
RFP CK-OECD-2018-002 Rondout Riverport Shoreline Stabilization and Public Access Project Area
0 0.0425 0.085 0.17 0.255 0.34
Miles

project understanding



project area

site reconnaissance – roundout creek



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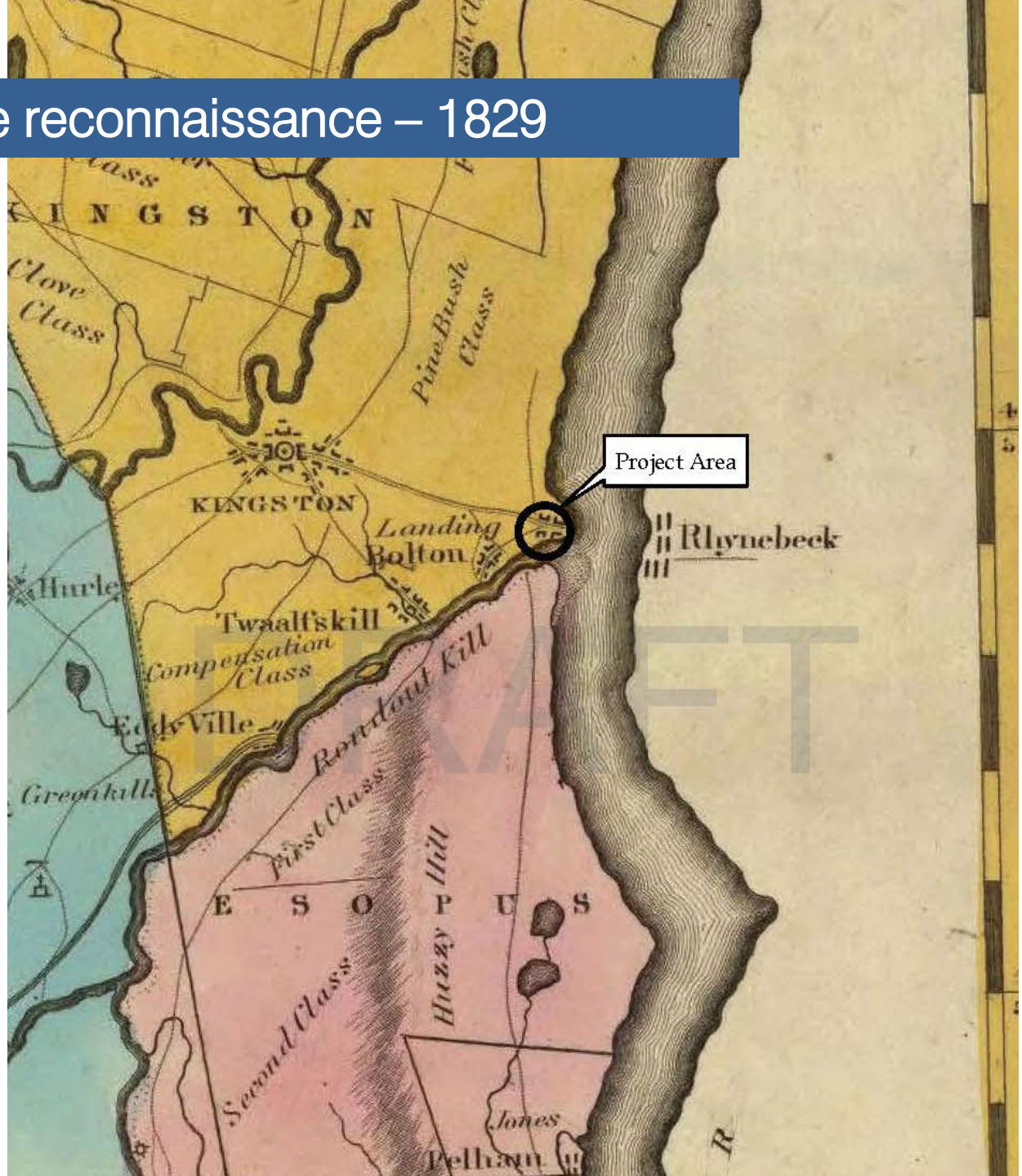
site reconnaissance – 1829



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site reconnaissance – 1853

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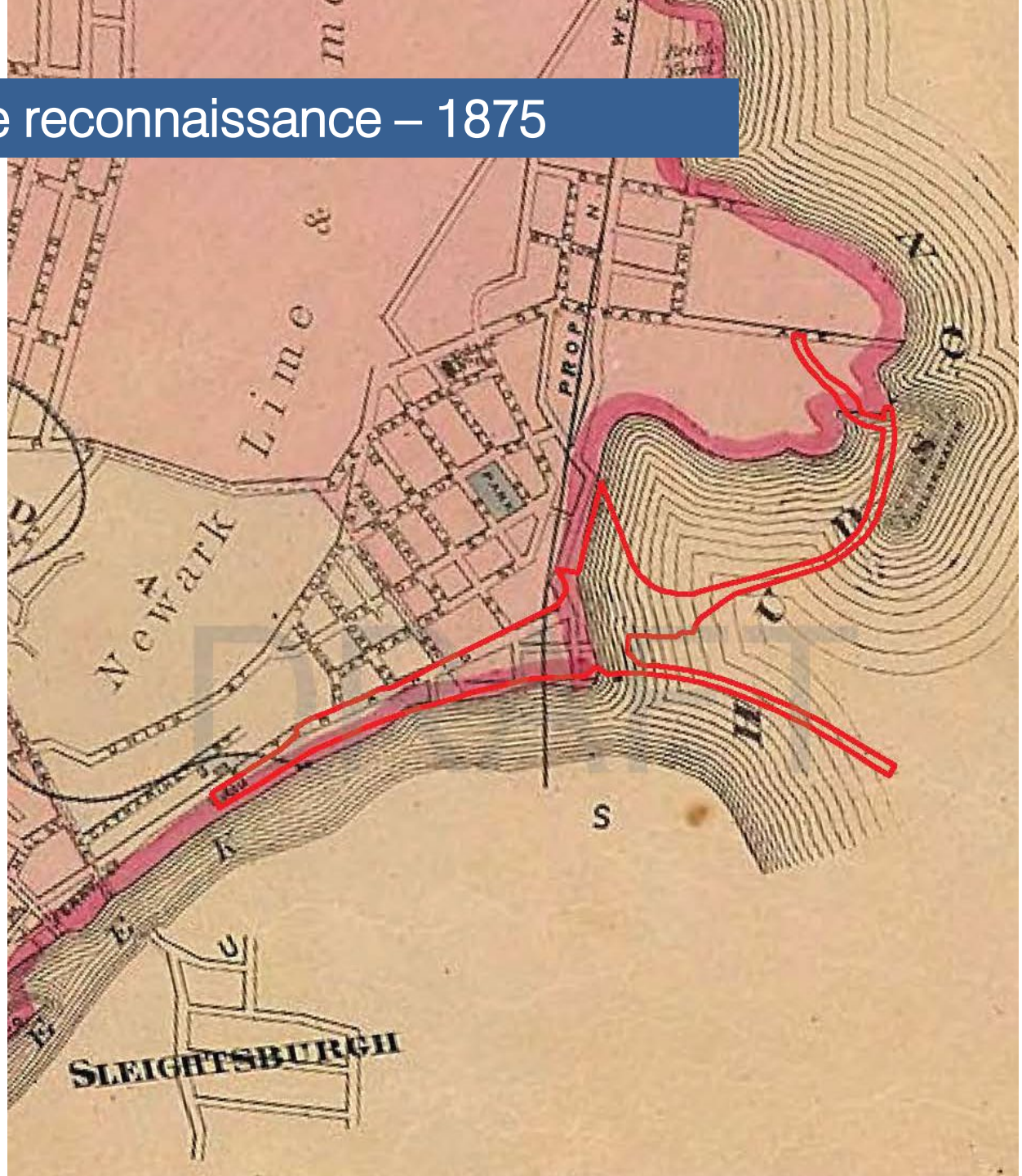
site reconnaissance – 1858

site reconnaissance – 1875



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site reconnaissance – 1898

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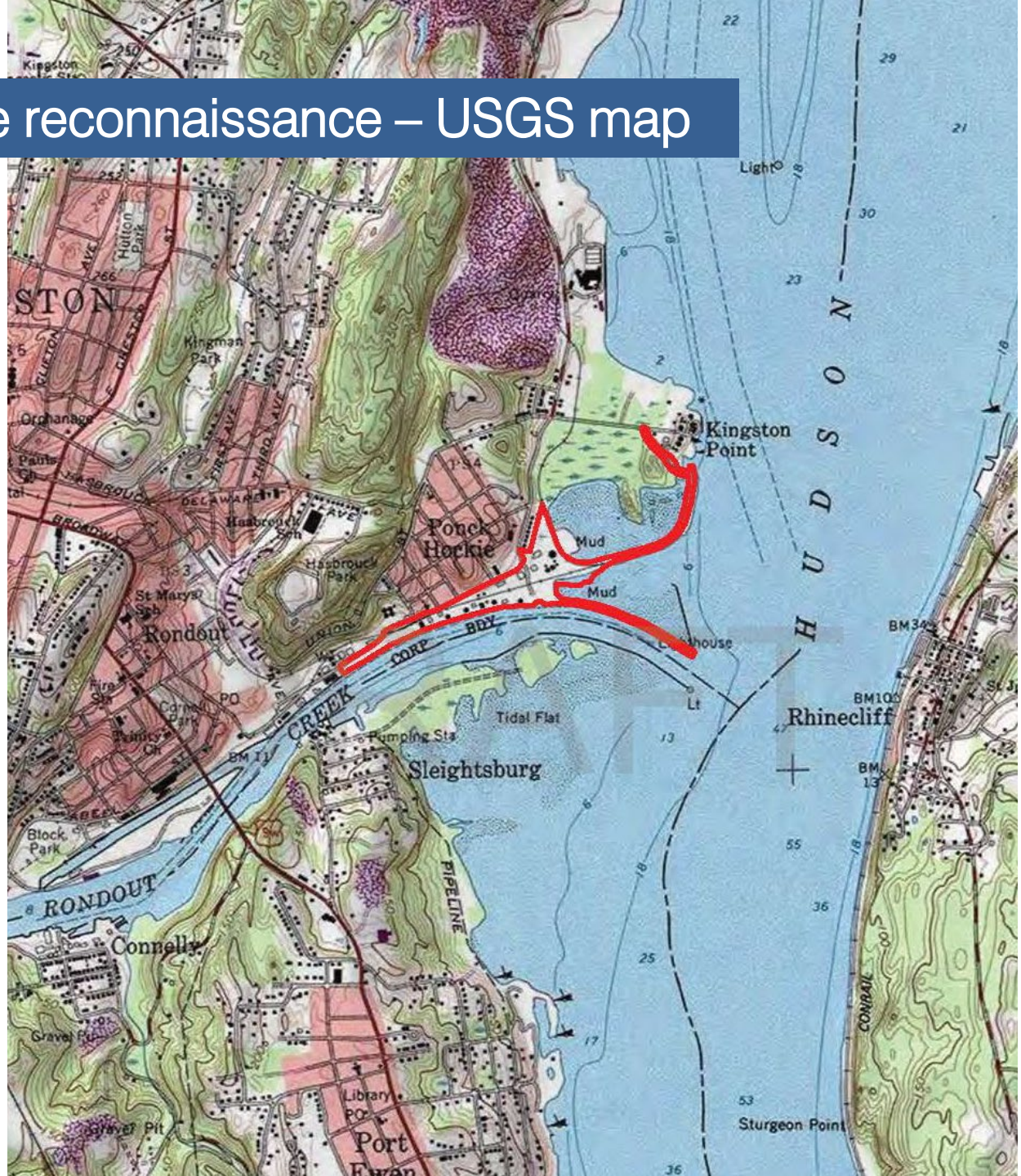
site reconnaissance – USGS map



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site reconnaissance – soils

Table 1
Soil Summary Information

Soil Name	Symbol	Slope	Drainage Class	Parent Material	Landform
Bath-Nassau-Rock outcrop complex, hilly	BOD	10-30%	Well drained to somewhat excessively drained	Glacial till	Ridges
Cut and fill land	CF	0-8%	Somewhat excessively drained	Varies	Built land
Farmington-Rock outcrop complex	FAE	25-35%	Well drained to somewhat excessively drained	Glacial till	Hills and escarpments
Fresh water marsh	FW	0-1%	Very poorly drained	Organic material	Marshes

Source: Tornes 1979; USDA 2019

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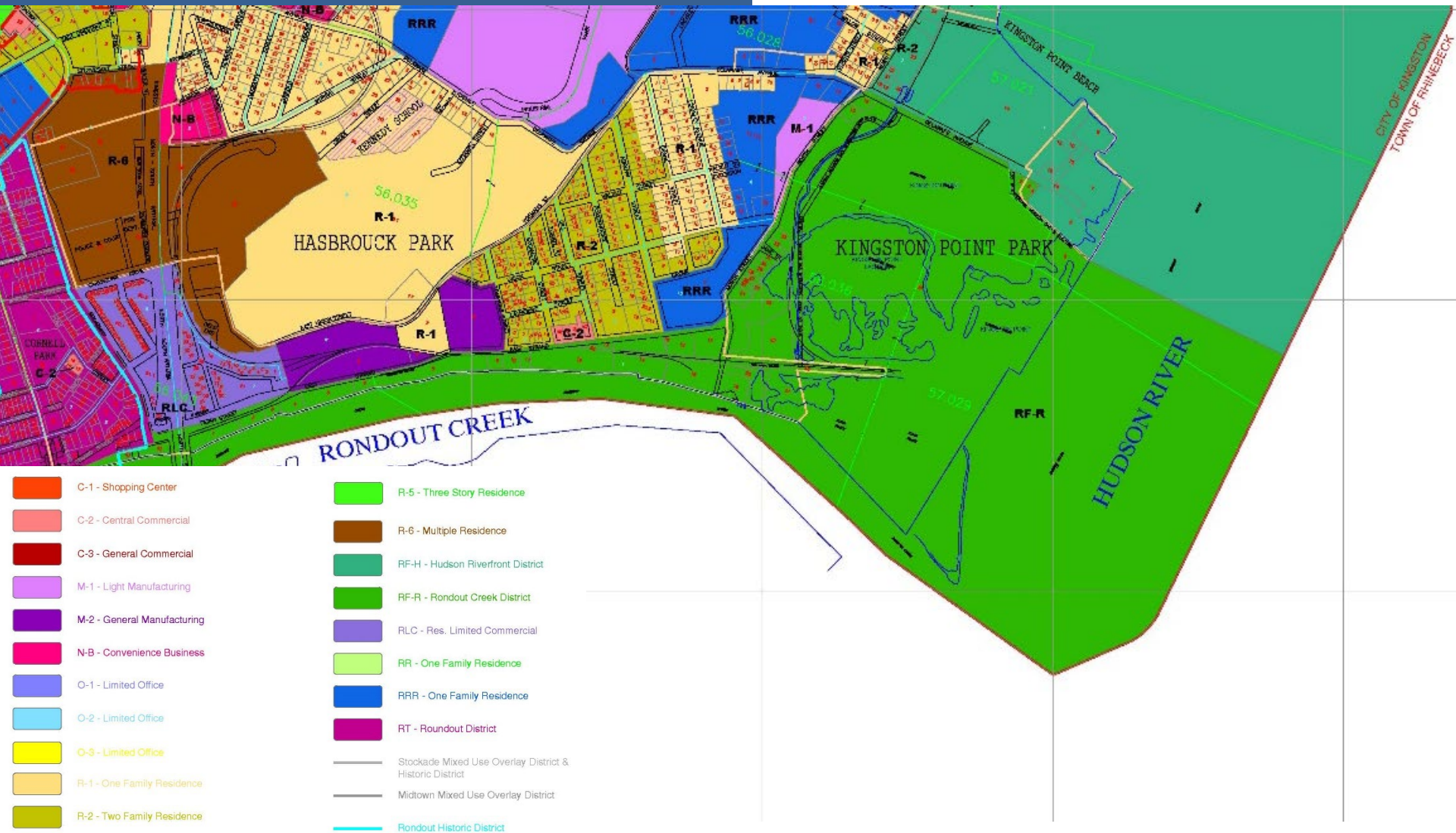
phase IB recommendations

site reconnaissance - zoning



- C-1 - Shopping Center
- C-2 - Central Commercial
- C-3 - General Commercial
- M-1 - Light Manufacturing
- M-2 - General Manufacturing
- N-B - Convenience Business
- O-1 - Limited Office
- O-2 - Limited Office
- O-3 - Limited Office
- R-1 - One Family Residence
- R-2 - Two Family Residence
- R-3 - Three Family Residence
- R-4 - Two Story Residence
- Kingston Consolidated School District Property
- R-5 - Three Story Residence
- R-6 - Multiple Residence
- RF-H - Hudson Riverfront District
- RF-R - Rondout Creek District
- RLC - Res. Limited Commercial
- RR - One Family Residence
- RRR - One Family Residence
- RT - Roundout District
- Stockade Mixed Use Overlay District & Historic District
- Midtown Mixed Use Overlay District
- Rondout Historic District
- Fair Street Historic District
- Chestnut Street Historic District
- Traditional Neighborhood Development Overlay District

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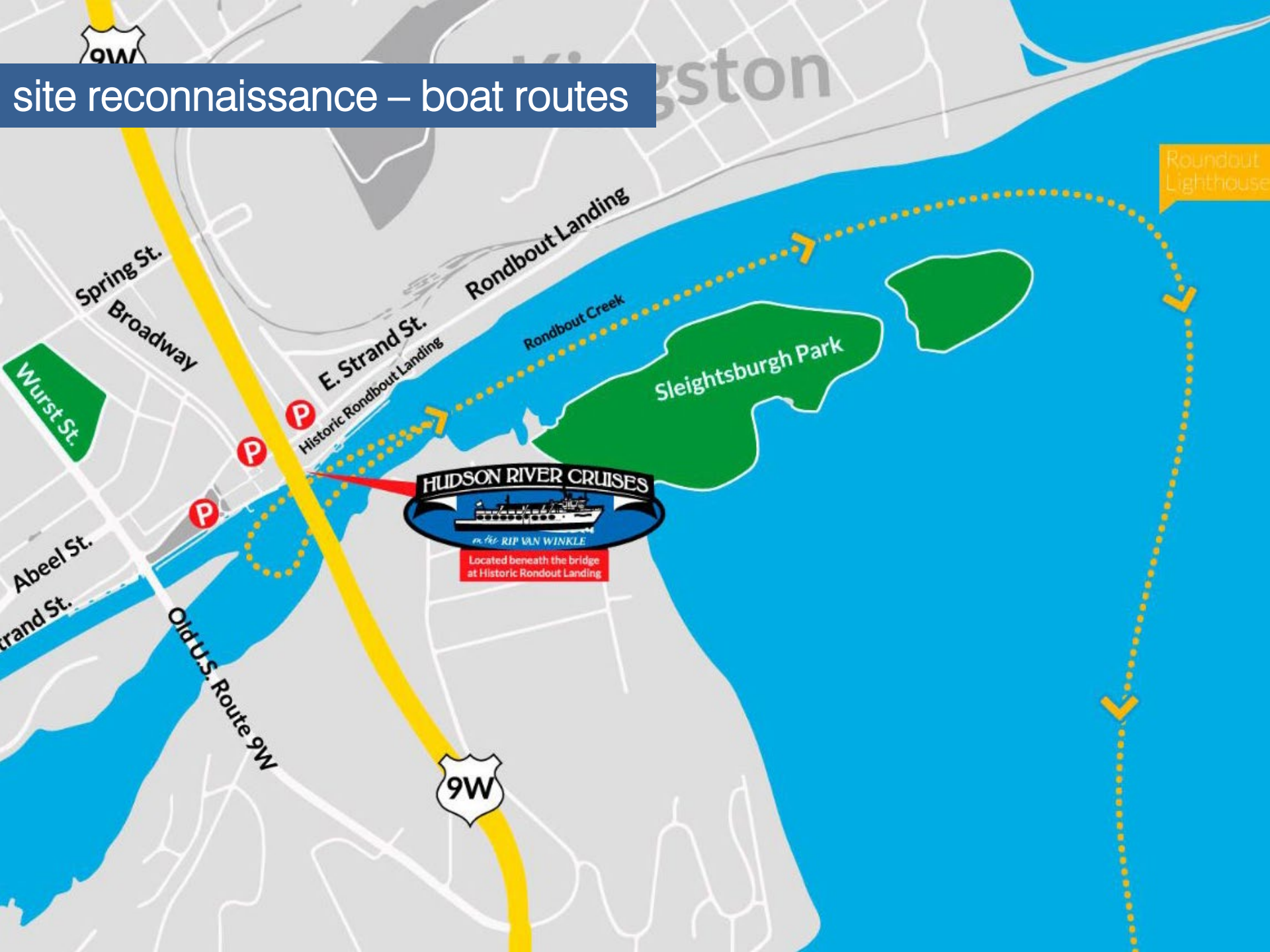
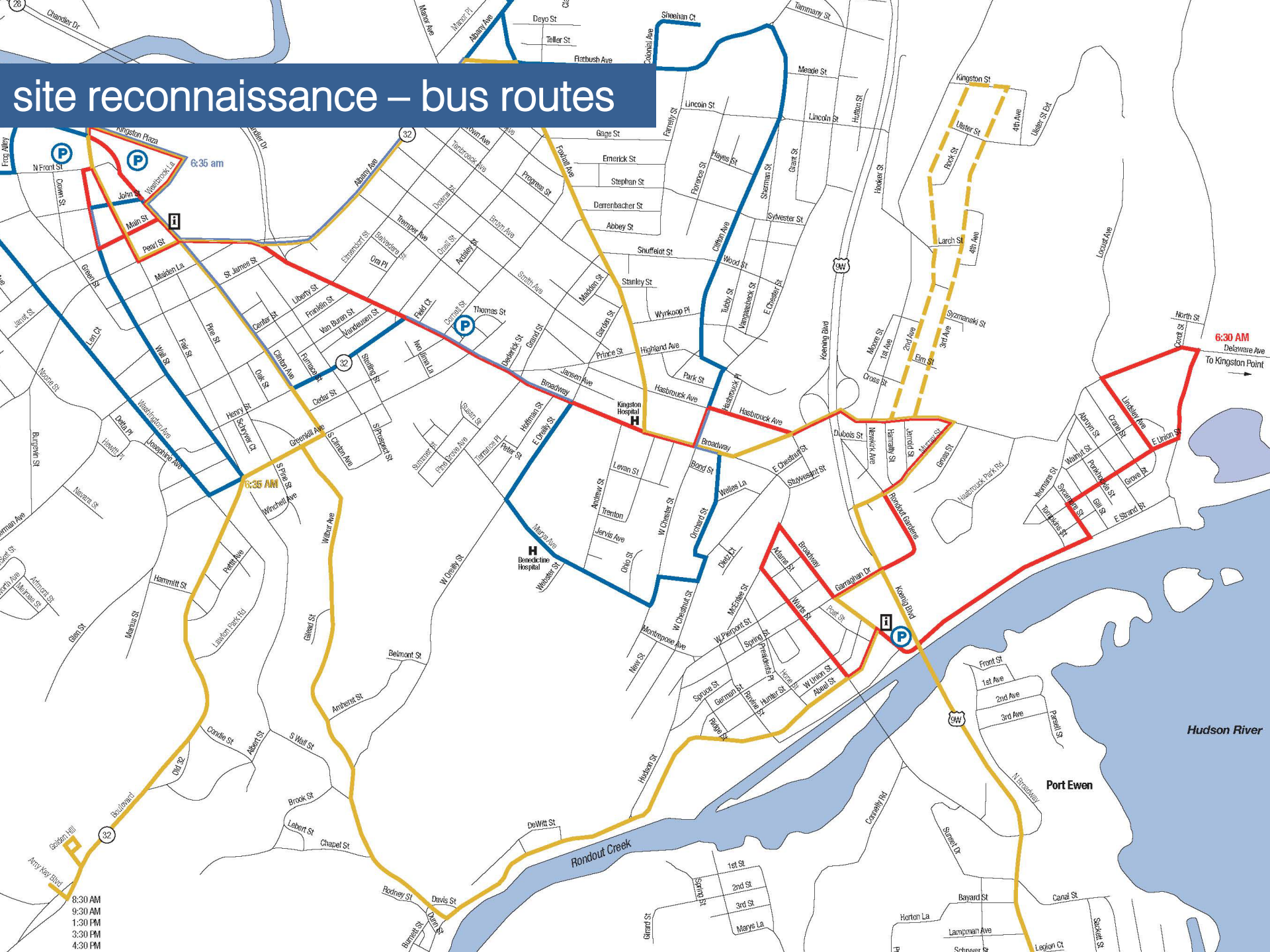
site reconnaissance – boat routes



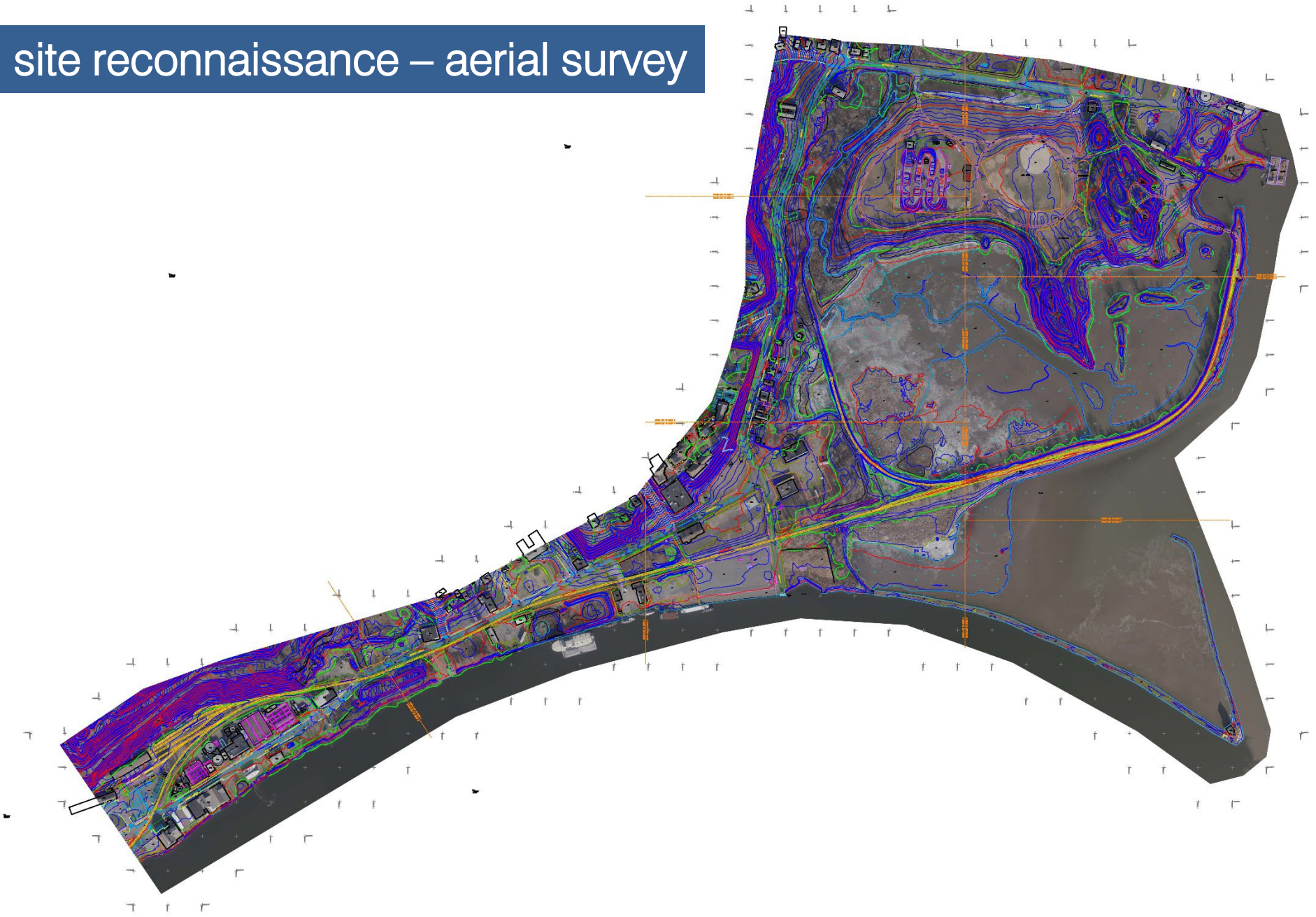
site reconnaissance – bus routes



ston-ny.gov/kingstongreenline/

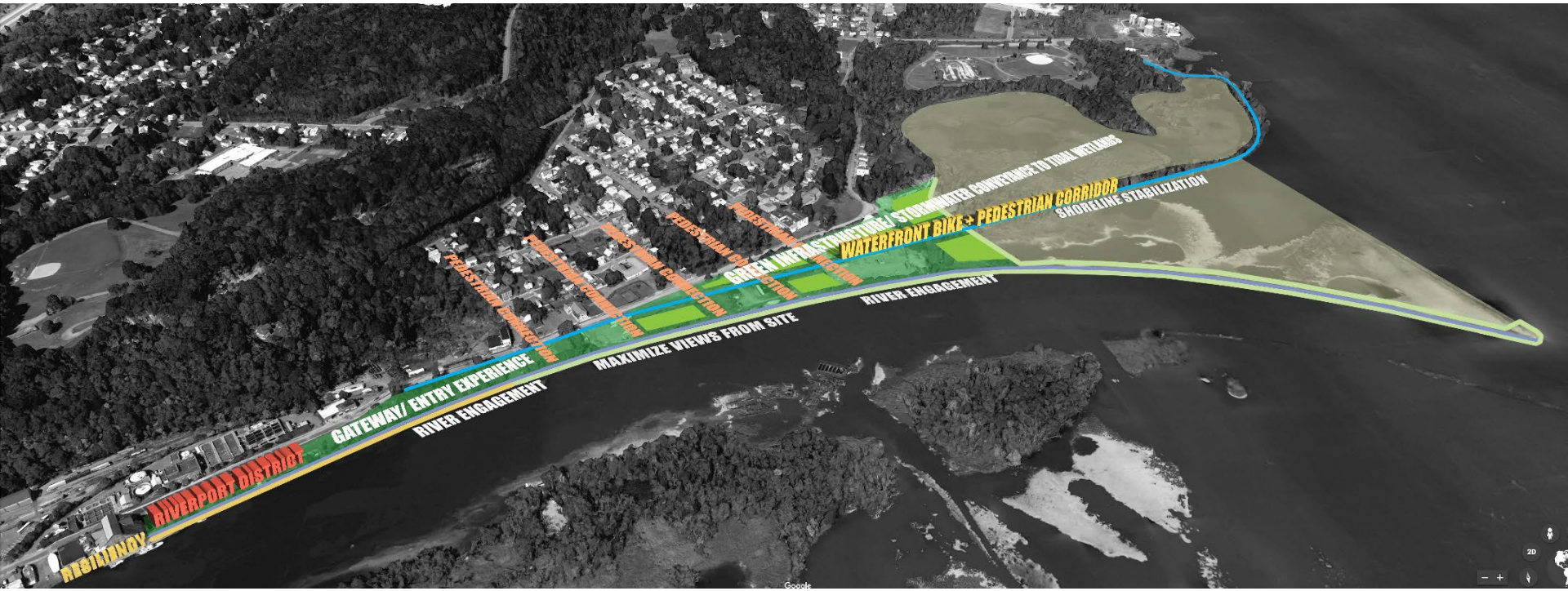
site reconnaissance – bike routes

site reconnaissance – aerial survey



site analysis – composite

concept design



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concept design

Multi-Purpose Flood Storage

Plazas can be designed as active recreation spaces during clement weather and storage during floods.

Image credit: Hans Tavsens Park and Korsgade by SLA.

Living Shoreline

A "soft," green infrastructure approach to managing erosion and flooding, providing habitat, and enhancing public space.

Image credit: Center for Coastal Resources Management, Virginia Institute of Marine Science.

Tiered Walkway

This design creates a tiered, raised area that provides gathering space and boating access to the waterfront.

Image credit: walkway design by Weston & Sampson.

Adaptable Raised Roadway

Elevated roadways act as flood barriers and can provide emergency access and evacuation routes during a flood event.

Image credit: Weston & Sampson.

Adaptable Floodwall

These barriers allow for incremental adaptation while maintaining pedestrian connectivity to the waterfront.

Image credit: Weston & Sampson.

Walking/Biking Connections

Pedestrian and bike pathways provide important shoreline access points for waterfront communities.

Image credit: walkway rendering by Weston & Sampson.

Vegetated Berm

These berms serve as flood barriers while also creating open spaces and additional value along the waterfront.

Image credit: Weston & Sampson.

Live Crib Wall

A built structure that uses vegetated root mass to stabilize slopes and manage erosion.

Image credit: New York State Soil & Water Conservation Committee

Bioretention

This green infrastructure approach can help manage stormwater by increasing infiltration and filtering runoff.

Image credit: bioretention design by Weston & Sampson.

Breakwater

An offshore strategy to attenuate wave action, facilitate sediment accretion, and provide habitat.

Image credit: oyster reef breakwater. Photo by FCIS staff.

Revetments

A transitional, sloped structure constructed with stones or other materials to help manage storm surge.

Image credit: North Carolina Division of Coastal Management.

Steel Bulkhead

A vertical, "hard" infrastructure, coastal retaining structure.

Image credit: Emilie Hauser.

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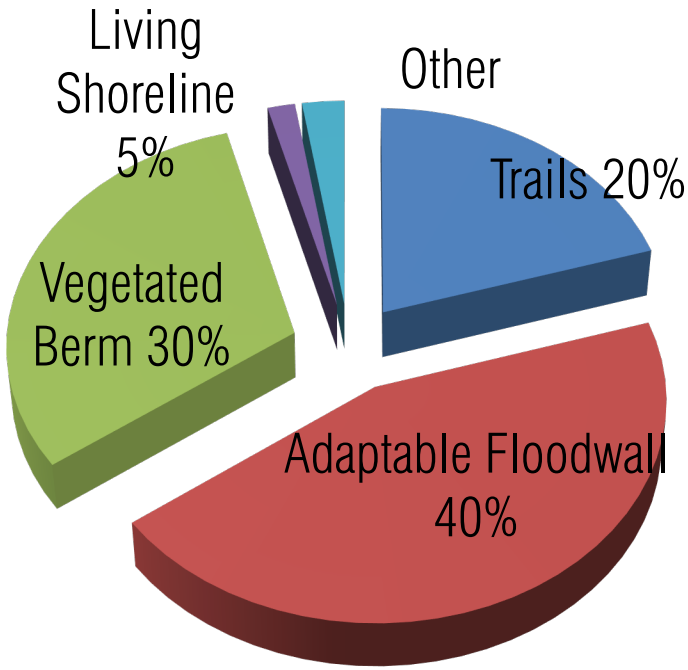
public engagement/ outreach

Multifaceted Inclusive Process

- Landowners/ Waterfront Parcels
- Citizens
- Users (Recreation, Commercial, Industry)
- Continuity with Brownfields Stakeholders

Input Methods:

- Stakeholder Interviews
- Focus Group Meetings
- Online Survey
- Public Meetings
- Walking/ Boating Tours



community actions for climate resiliency

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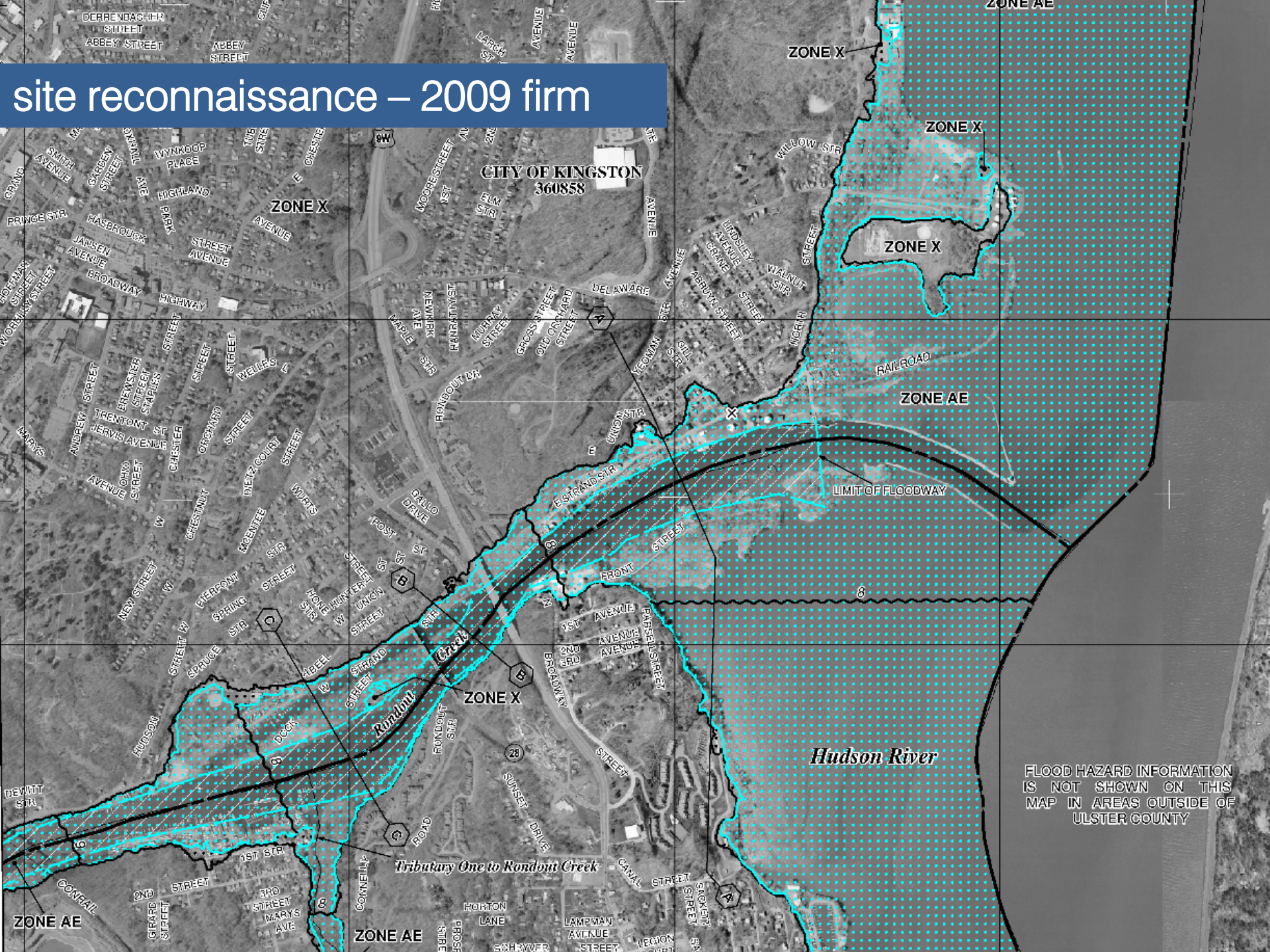
site reconnaissance – 2009 firm



climate resiliency

Projections and Scenarios used in New York Climate Change Research & Planning					
Source	**Author**	**Date**	**Time Horizons**		**SLR Projections**
Climate Projections for the Hudson Valley	Cornell College of Agriculture and Life Sciences (CALS), New York State Water Resources Institute	2019	2020s		1-9"
			2050s		5-27"
			2080s		10-54"
			2100		11-71"
Working Toward Climate Resilience: General Climate Information Prepared for Hudson Valley Communities	New York State Hudson River Estuary Program	2018	2020s		1, 3, 5, 7, 9"
			2050s		5, 9, 14, 19, 27"
			2080s		10, 14, 25, 36, 54"
			2100		11, 18, 32, 46, 71"
Climate Change in New York State	New York State Energy Research and Development Authority (NYSERDA)	2014	2020s		3-8"
			2050s		9-21"
			2080s		14-39"
Planning for Rising Waters: Final Report of the City of Kingston Tidal Waterfront Flooding Task Force	City of Kingston	2013	SLR (Central Range)	2060s	20"
				2100	33"
			SLR with rapid ice-melt scenario	2060s	36"
				2100	68"
City of Kingston Climate Action Plan	Rich Schiafo, Climate Analyst, City of Kingston	2012	SLR (Central Range)	2020s	1-4"
				2050s	5-9"
				2080s	8-18"
			SLR with rapid ice-melt scenario	2020s	4-9"
				2050s	17-26"
				2080s	37-50"
Responding to Climate Change in New York State: The ClimAID Integrated Assessment for Effective Climate Change Adaptation in New York State	New York State Energy Research and Development Authority (NYSERDA)	2011	Global Climate Model-based	2020s	1-4"
				2050s	5-9"
				2080s	8-18"
			Rapid ice-melt scenario	2020s	4-9"
				2050s	17-26"
				2080s	37-50"

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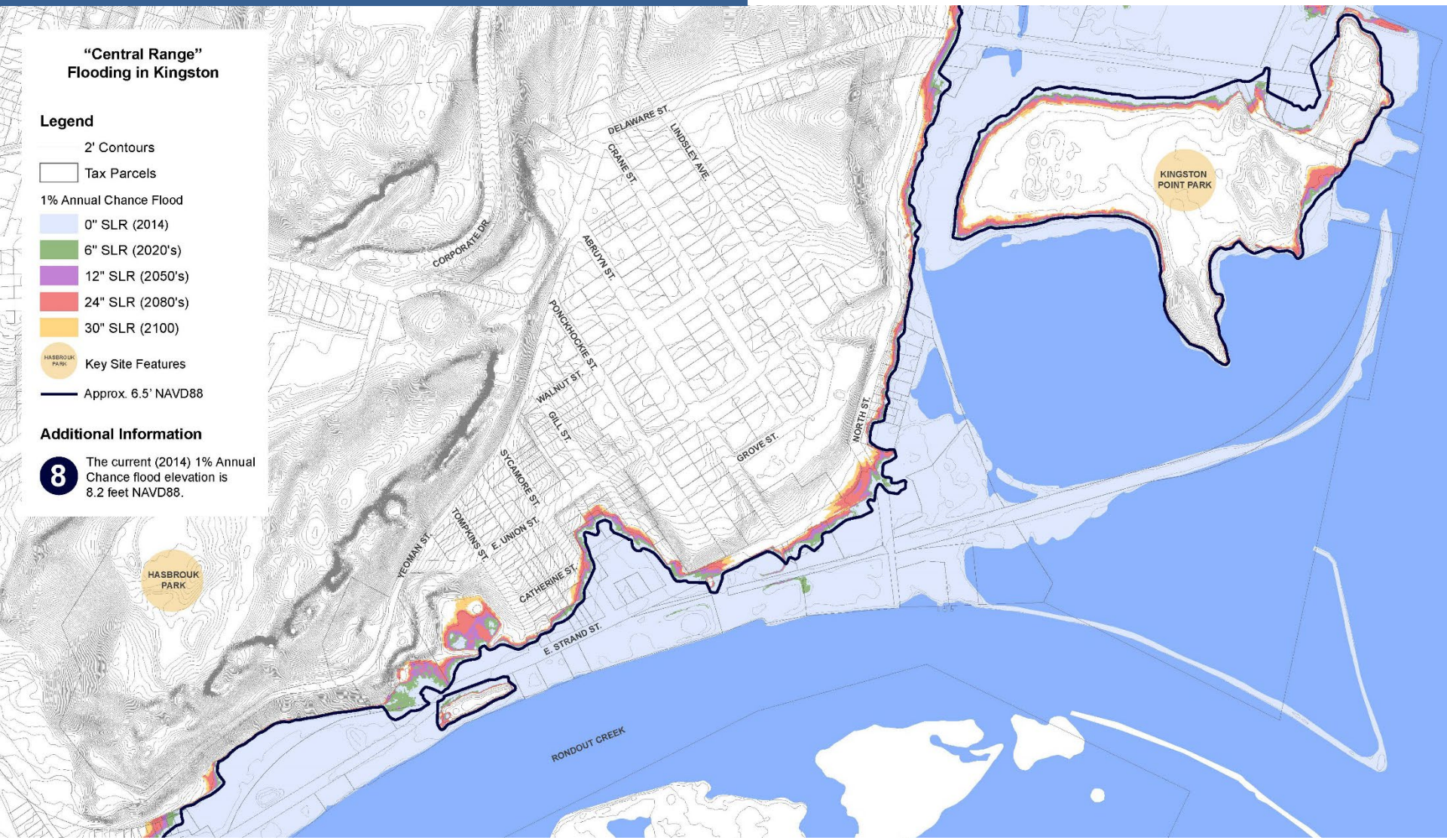
climate resiliency



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climate resiliency

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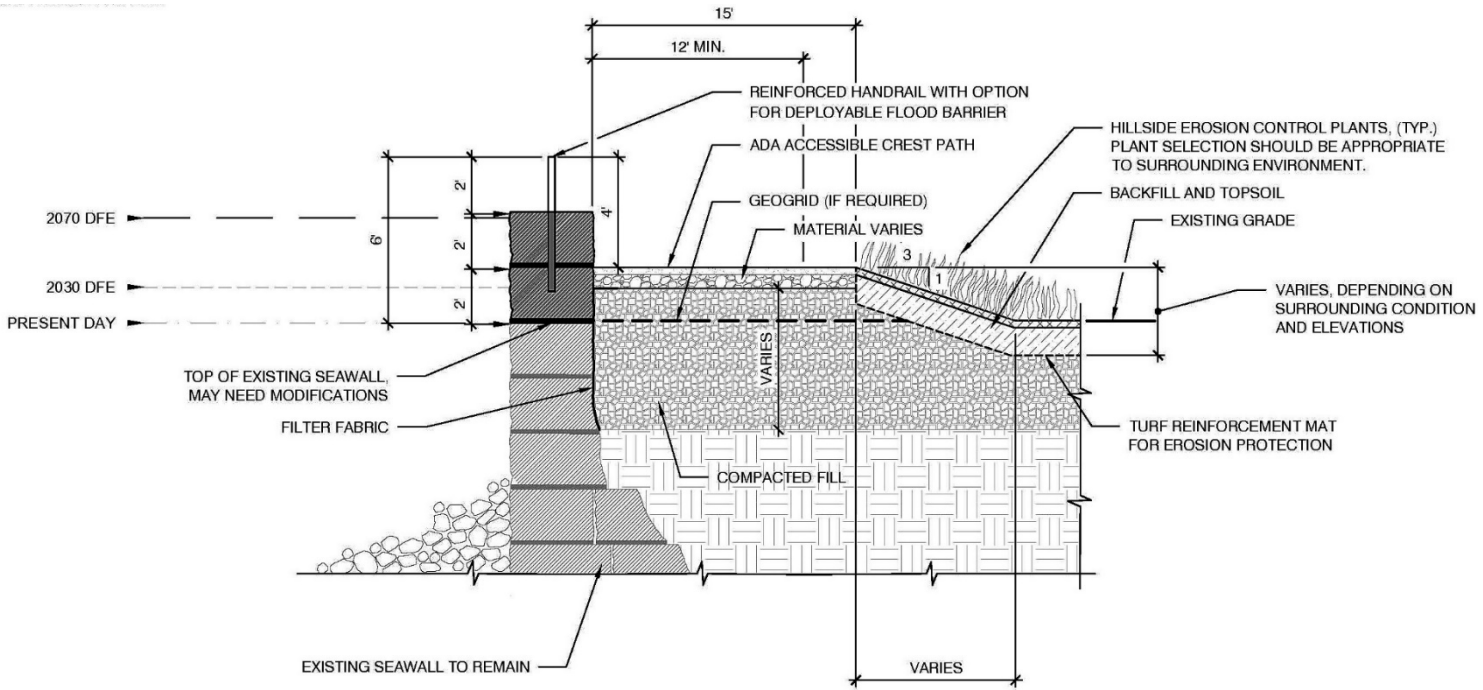
design strategies
sustainable open space

- Create sustainable spaces
- Enhance visitor experience
- Improve flood resiliency
- Stabilize deteriorating shoreline
- Treat stormwater
- Support parcels redevelopment

design strategies
adaptable floodwall

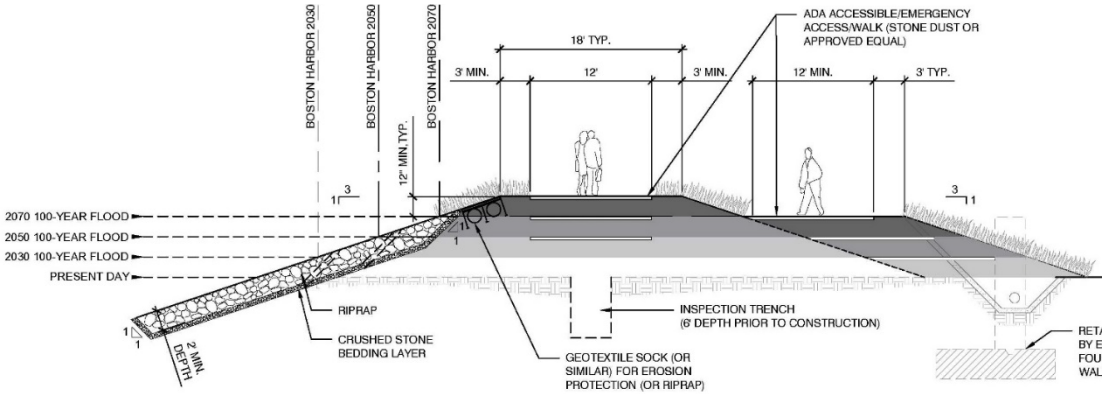
- Stabilize deteriorating shoreline
- Protect vulnerable resources/ facilities
- Adaptable Floodwalls

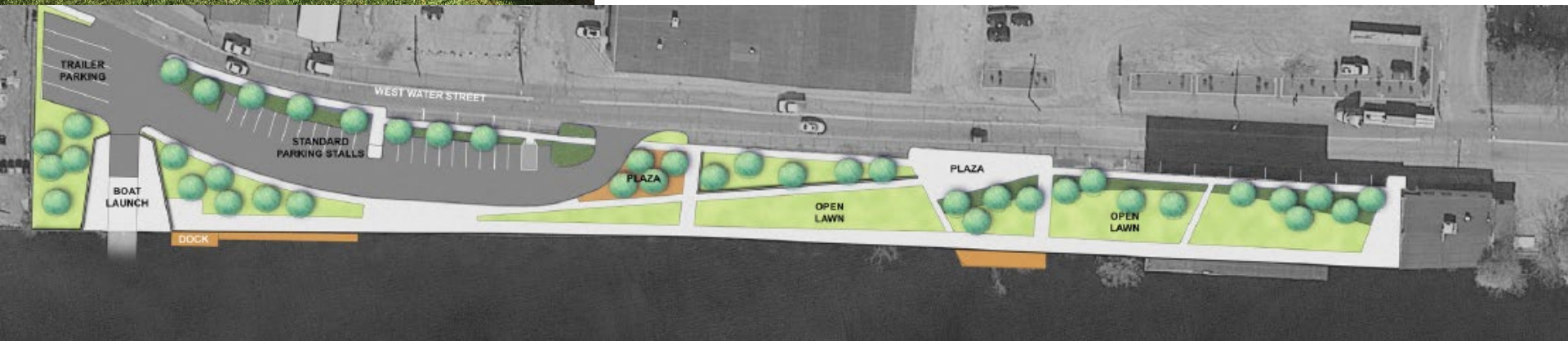
  2-ft+, 4-ft+



design strategies
vegetated berms

- Stabilize shorelines
- Protect during storm events

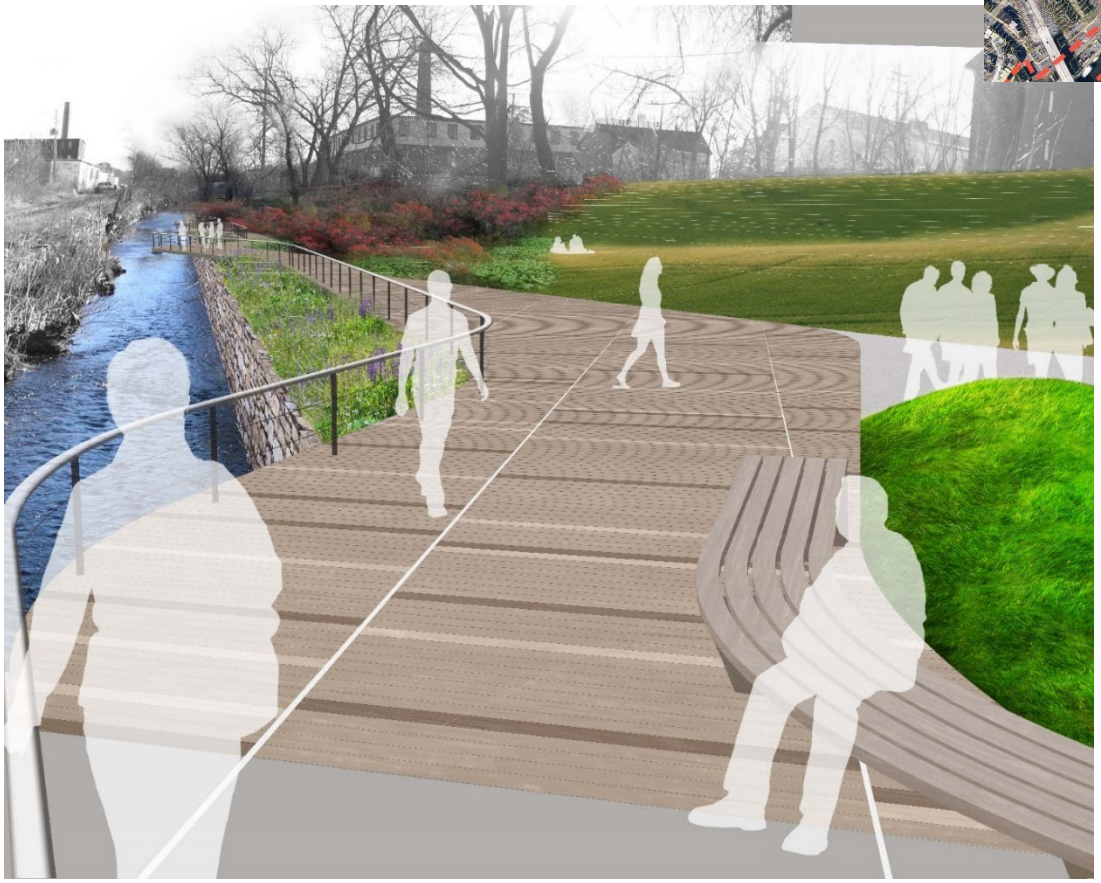




design strategies
living shorelines

- Ecologically sensitive areas
- Restore native habitat
- Invasive species removal

design strategies
circulation - land



- Create sustainable waterfront connections
- Walking/ Biking Connections
  - Kingston Point Rail Trail
  - Waterfront connections
- Maintenance access
  - City's Lighthouse
  - Promenade Extension
- Emergency access

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design strategies
circulation - water

- Enhance/ create water access
- Formalize water access for multiple water craft types/ sizes/ uses

	Trip Characteristics				Facility and Trail Requirements																
	Guided or Self Guided	Duration	Distance (miles)		Type of Trail Experience		Vessel Draft	Types of Visitor Services									Types of Access				
Vessel-Related Experience Type			Minimum	Maximum	Loop	Multiple Trailheads	Minimum water depth (feet)	Parking	Food Service	Fuel	Boating Supplies	Potable Water	Electric Service	Pump outs	Restrooms	Overnight Accommodations	Dock	Soft Launch/Cartop	Hard Launch/Ramp	Marina
Paddle Trip	Self/Guided	Half day	2	3	●		1	●									●	●		
Paddle Trip	Self/Guided	Full day	5	5	●		1	●							●		●	●		
Multi-Day Paddle Trip	Self/Guided	2-3 days	15	20	●	●	1	●	●			●			●	●	●	●		
Paddle Expedition	Self/Guided	5-7 days	30	45	●	●	1	●	●			●			●	●	●	●		
Multi-Modal Paddle/Bike Trip	Self/Guided	3 days	15	20	●	●	1.5	●	●			●			●	●	●	●		
Small Powerboat Trips	Self	1 day	10	50	●		2	●							●		●		●	●
Large Powerboat Trips	Self	2-7 days	60	200	●	●	4	●	●	●	●	●	●	●	●		●		●	●
Sailing Trip	Self	1-7 days	40	150	●	●	4	●	●	●	●	●	●	●	●		●			●

environmental permitting

- Scoping/ Pre-application Meeting
- Wetlands/ Waterways
- USACOE 404 Permit
- NYSDEC Wetland Permit
- FEMA Certification
- Threatened & Endangered Species Review
- Department of State - Coastal Consistency Review
- NYS OPRHP – Historic Resources/ Archaeological Review

Rondout Riverport Shoreline Stabilization and Public Access – Phase II

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our team

Weston & Sampson
- Coastal Resiliency
- Civil Engineering
- Environmental Permitting
- Public Engagement
- Landscape Architecture

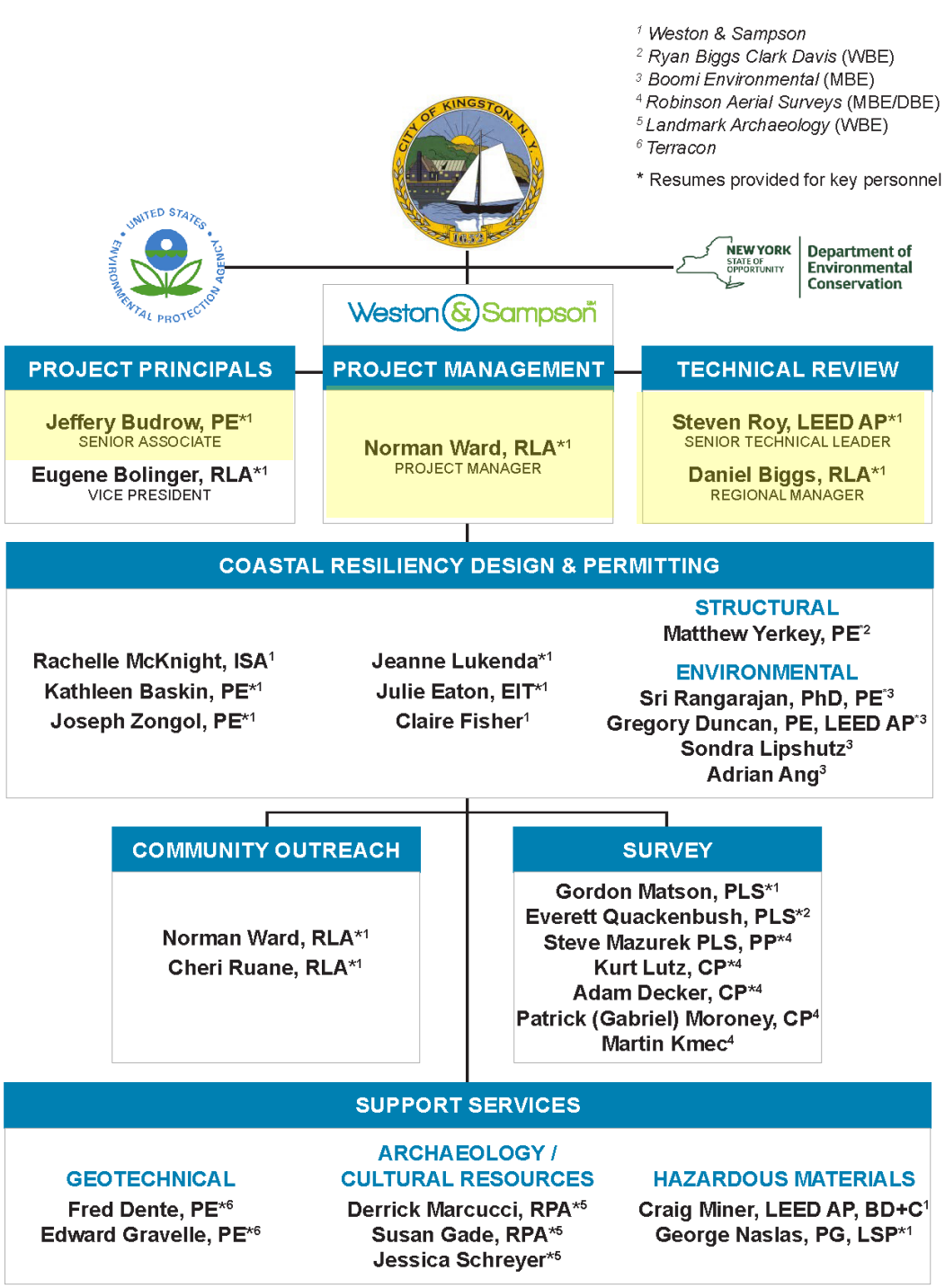
Ryan-Biggs Clark Davis (WBE)
- Surveying/ Mapping
- Structural Engineering

Boomi Environmental (MBE)
- H&H/ Flood Engineering

Robinson Aerial Surveys (MBE)
- Aerial Survey Services

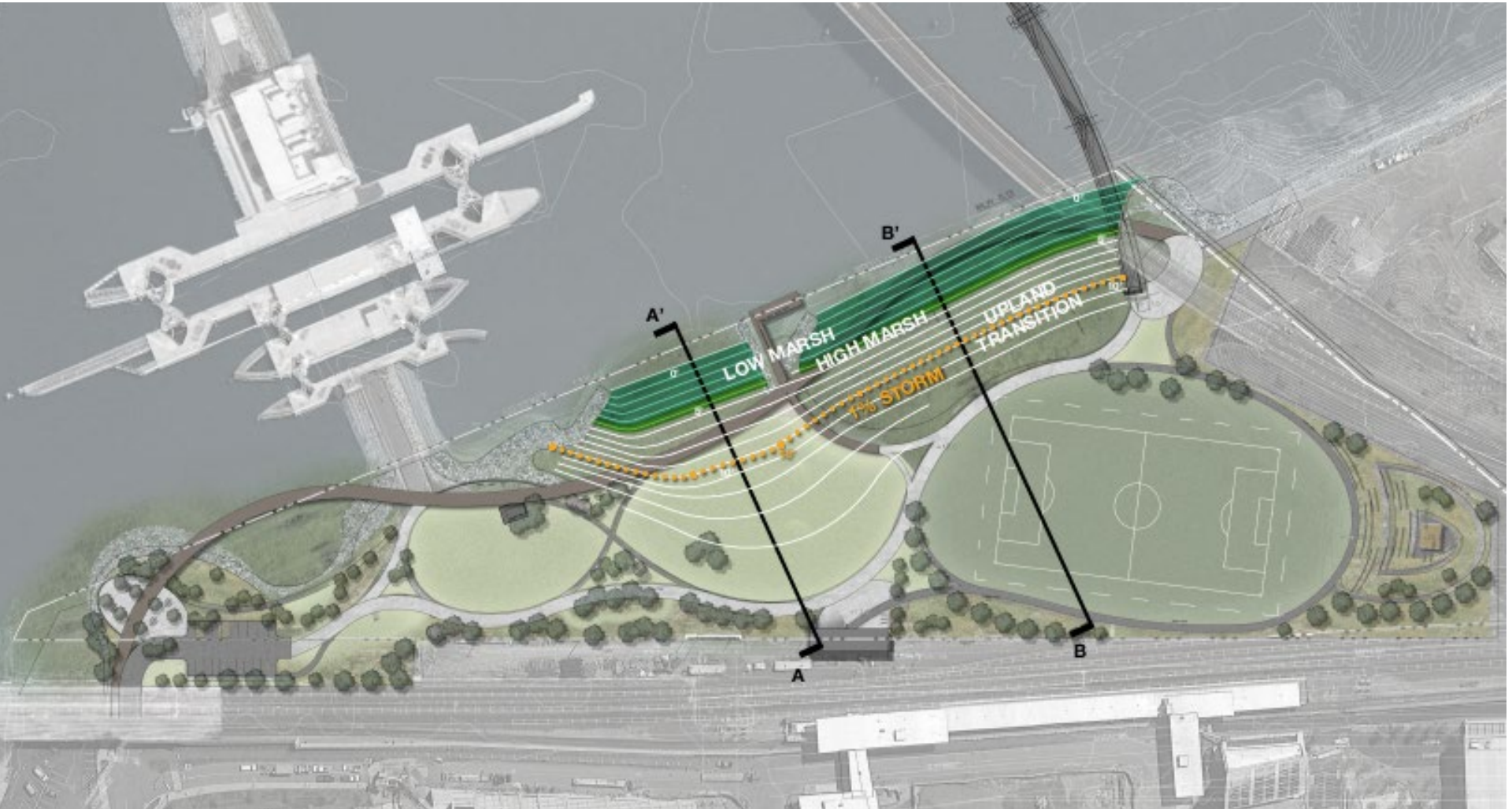
Terracon – Dente Group

Landmark Archaeology (WBE)

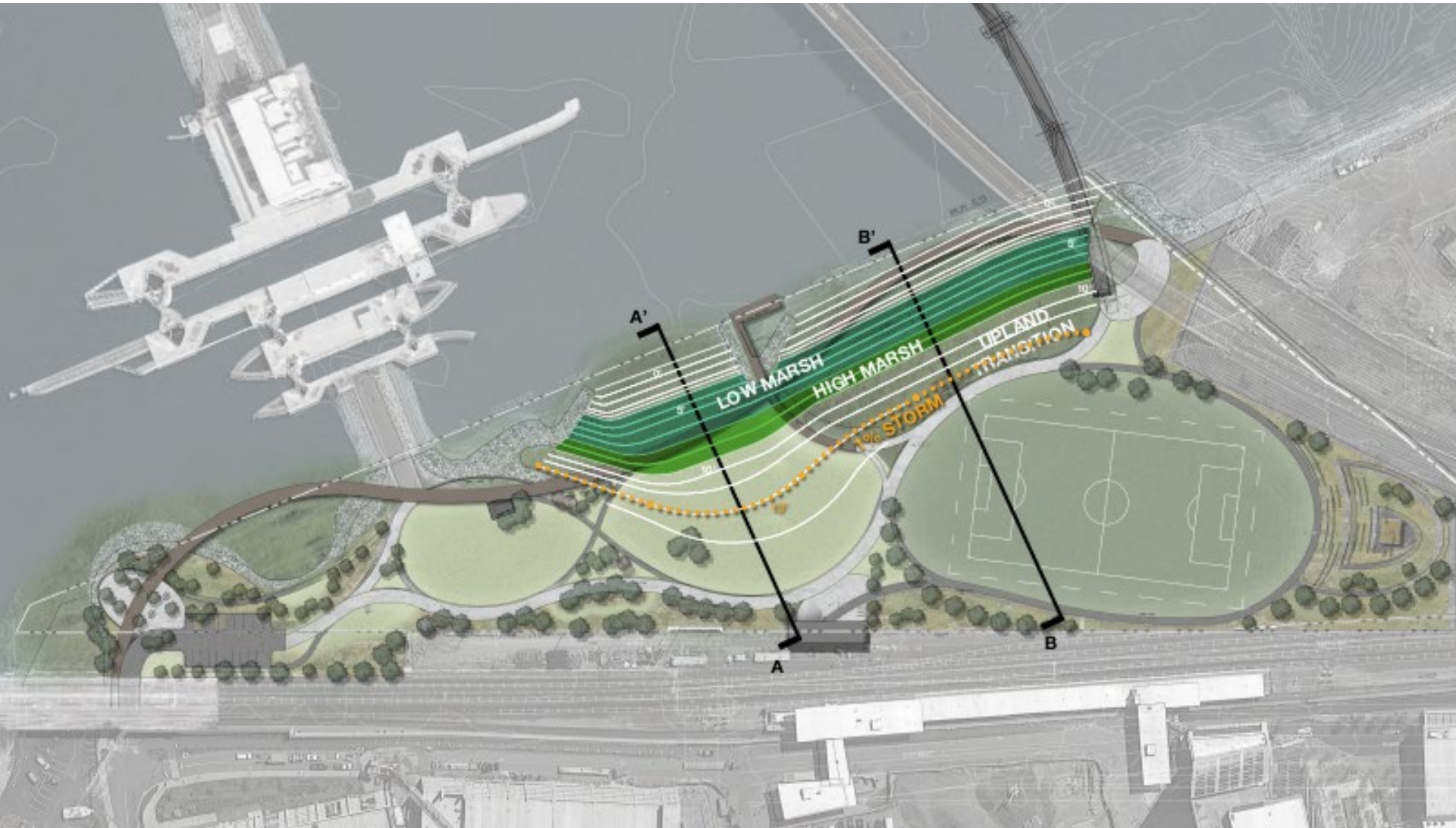


design strategies precedent [present]
park + resilient design + flood storage + access

design strategies precedent [2020]
park + resilient design + flood storage + access



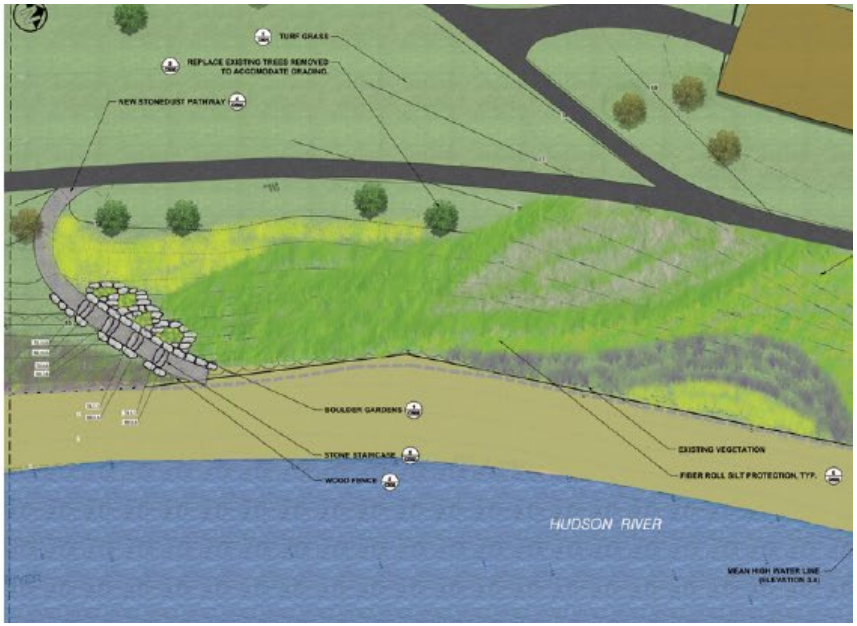
design strategies precedent [2070]
park + resilient design + flood storage + access



relevant work

Hudson Shores Park – Sustainable Shoreline

watervliet, new york



Relevant Details:

- Hudson River Estuary Grant
- Urban Park Area
- Public Access – land + water
- Sustainable Shoreline
- Environmental Permitting (DEC, ACOE, DOS, City)

relevant work

Spectacle Island Shoreline Restoration

commonwealth of massachusetts

Relevant Details:

- Living shoreline
- Tidal waterway
- Stormwater discharge
- Public Access – land + water
- Environmental Permitting

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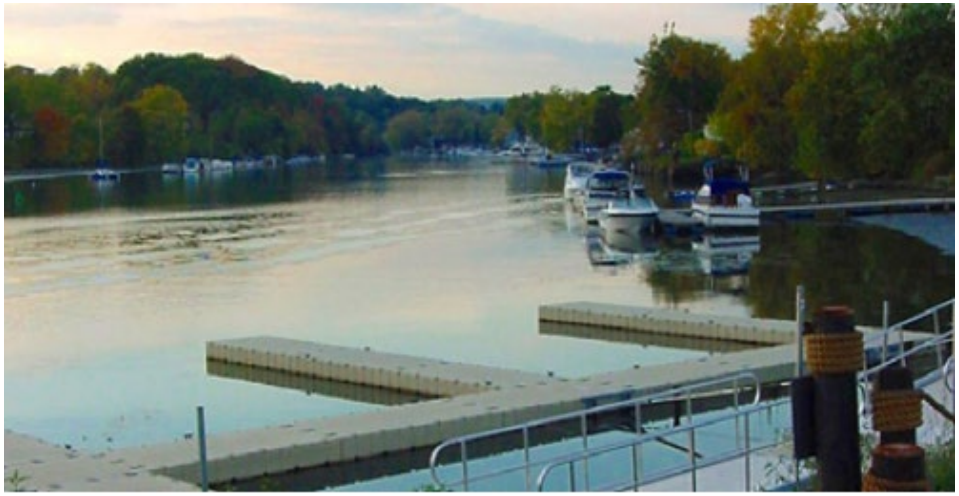
Catskill Point/ Little Falls Canal/ Waterford Canals

new york state canal corporation



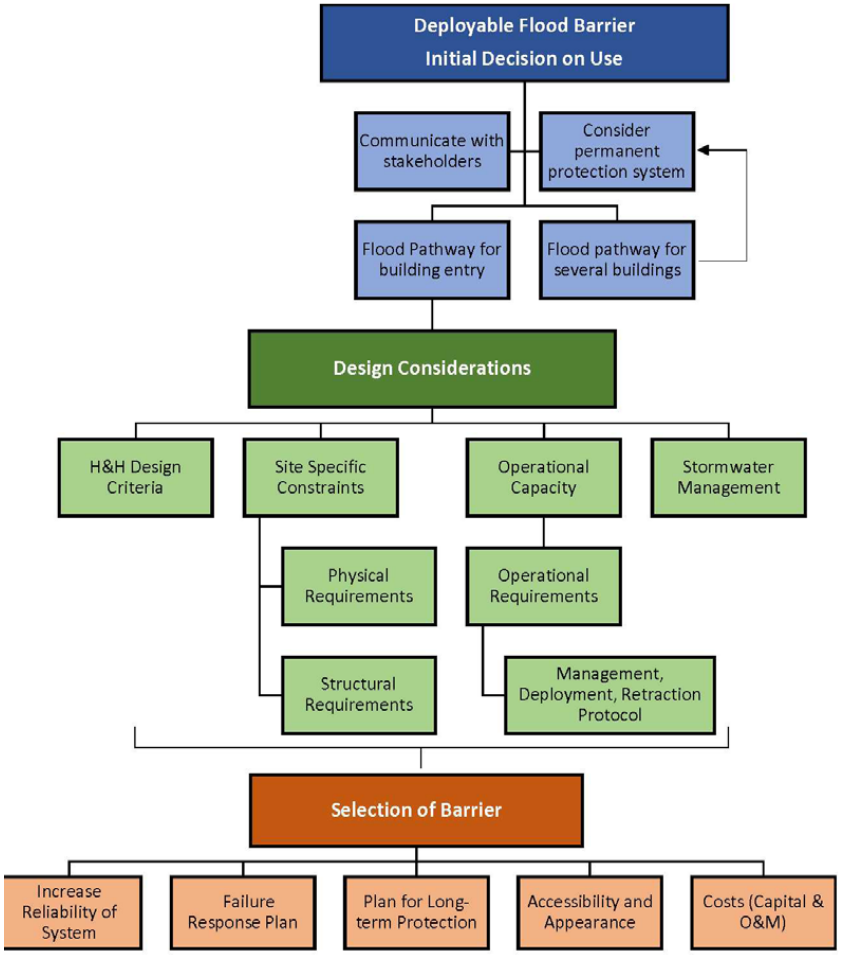
Relevant Details:

- Hudson River Access
- Shoreline Stabilization
- Bulkhead Rehabilitation
- Riverwalks/ Overlooks
- Park/ Open Space Areas
- Community Investment
- Environmental Permitting

relevant work

Climate-Resilient Design Standards + Guidelines

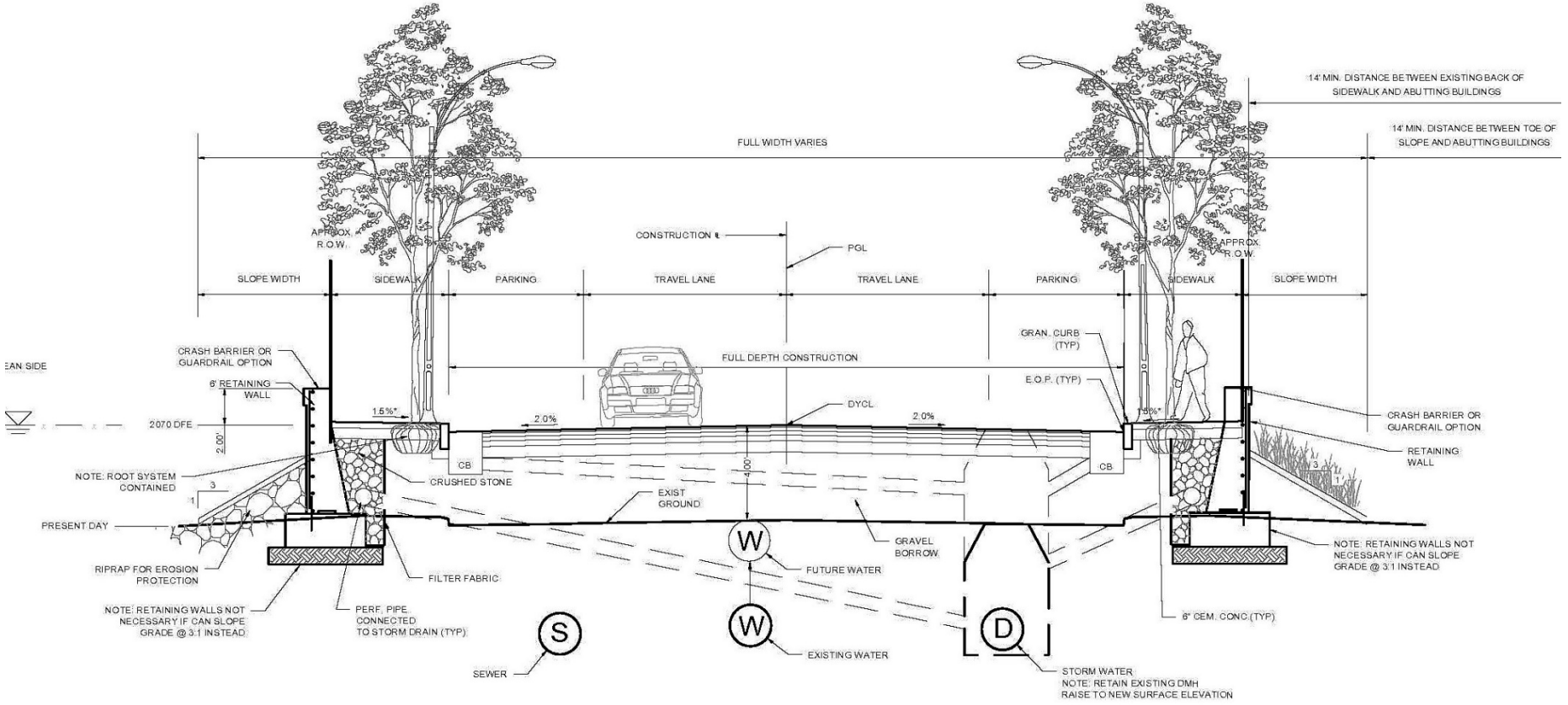
boston, massachusetts



Relevant Details:

- Climate-resilient design standards and
- specifications
- Flood protection
- Stormwater
- management
- Temporary Flood Barriers

design strategies
adaptable raised roadways



SAMPLE SECTION

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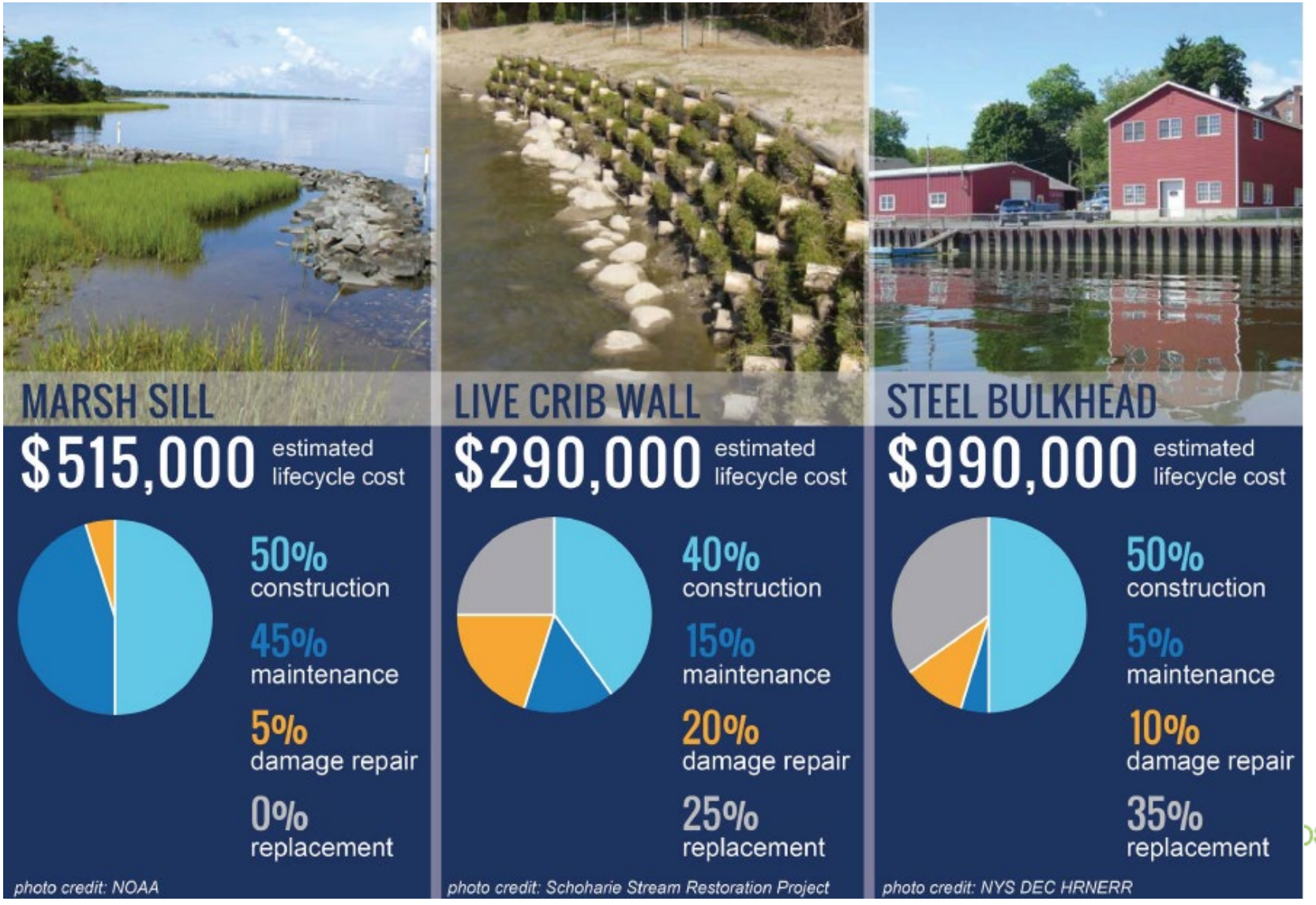
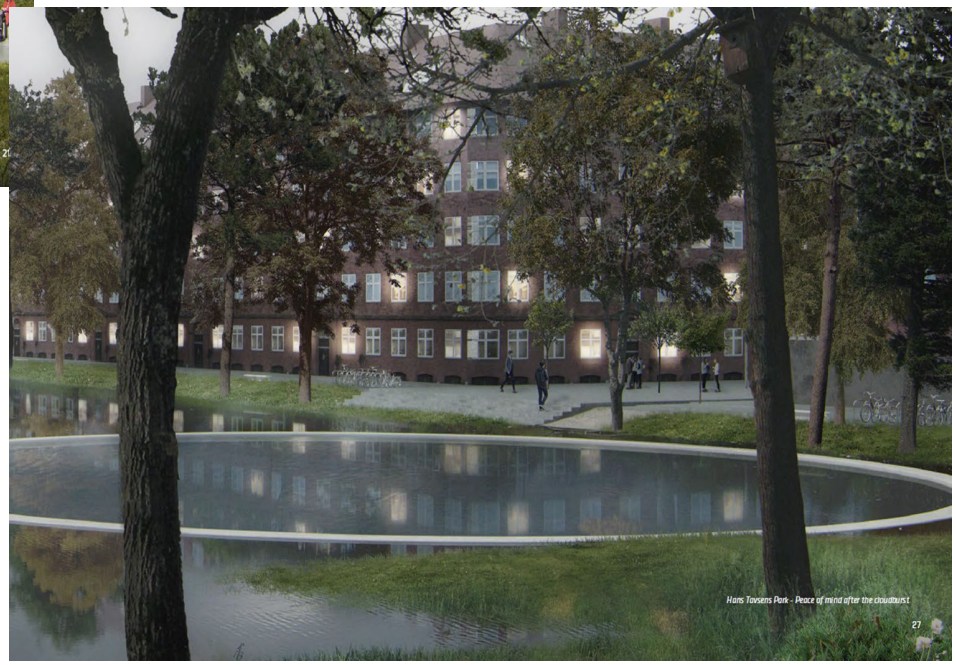
long term costs



cobenefits
multi-purpose flood storage


Hans Tavsens Park - The night-time summer rain disappears within a few hours and the rolling grass plains again fill up with people.


Hans Tavsens Park - Peace of mind after the cloudburst

Resiliency