

REBUILD BY DESIGN

MEADOWLANDS

CITIZEN ADVISORY GROUP (CAG) MEETING #8

**ALTERNATIVE 1: STRUCTURAL FLOOD REDUCTION
CONCEPT DEVELOPMENT**

Mach 29, 2017



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www.renewjerseystronger.org

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1.0 List of Acronyms

List of Acronyms

BCR	Benefit/Cost Ratio
CAG	Citizen Advisory Group
CDBG-DR	Community Development Block Grant – Disaster Recovery
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
HUD	Department of Housing and Urban Development
NEPA	National Environmental Policy Act
NJDEP	New Jersey Department of Environmental Protection
RBD	Rebuild by Design
RBDM	Rebuild by Design Meadowlands

2.0 Agenda

Alternative 1: Structural Flood Reduction

6-8 PM

March 29, 2017

**Borough of Little Ferry
215-217 Liberty Street
Little Ferry, NJ 07643**

Project Website

www.rbd-meadowlands.nj.gov

Project Email

rbd-meadowlands@dep.nj.gov

Welcome

Presentation

Opening Remarks (10 Minutes)

Welcoming (Linda Fisher, NJDEP)

Project Status Update (Chris Benosky, AECOM)

Alternative 1: Alignment Screening Process (10 Minutes)

Initial Screening Options (Chris Benosky, AECOM)

Alternative Alignment Concept Development (Garrett Avery & Lulu Loquidis, AECOM, 40 Minutes)

Alternative 3: Hybrid Alignment (Chris Benosky, 5 Minutes)

Next Steps & Q&A/Closure (20 Minutes)

Next Steps (Chris Benosky, AECOM)

Question and Answers

Physical Model Stations

3.0 Power Point Presentation

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MEADOWLANDS

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ALTERNATIVE 1: STRUCTURAL FLOOD REDUCTION CONCEPT DEVELOPMENT

AGENDA

Christopher Benosky, AECOM (2)



- Project Status Update and Schedule
- Alternative 1: Alignment
 - Screening Process
 - Concept Development
- Alternative 3 Alignment
 - Hybrid Concept Development
- Next Steps
- Question & Answer
- Physical Model Stations



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PROJECT STATUS UPDATE

Christopher Benosky, AECOM 3



- Refined working draft Concept Screening Criteria
- Completed and published to Project Website:
 - Meeting Minutes from CAG Meeting #7
 - February 2017 Newsletter
- Developing cost and moving toward a hybrid
- Field work and site surveying still ongoing
- Action Plan Amendment



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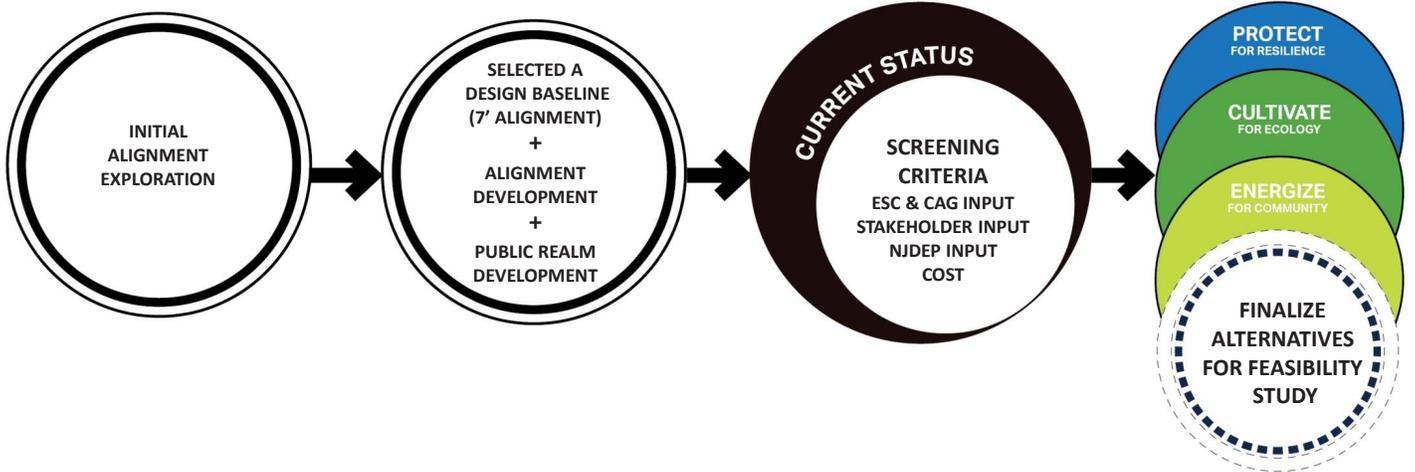
ALTERNATIVE 1: ALIGNMENT

SCREENING PROCESS

CHRISTOPHER BENOSKY, AECOM

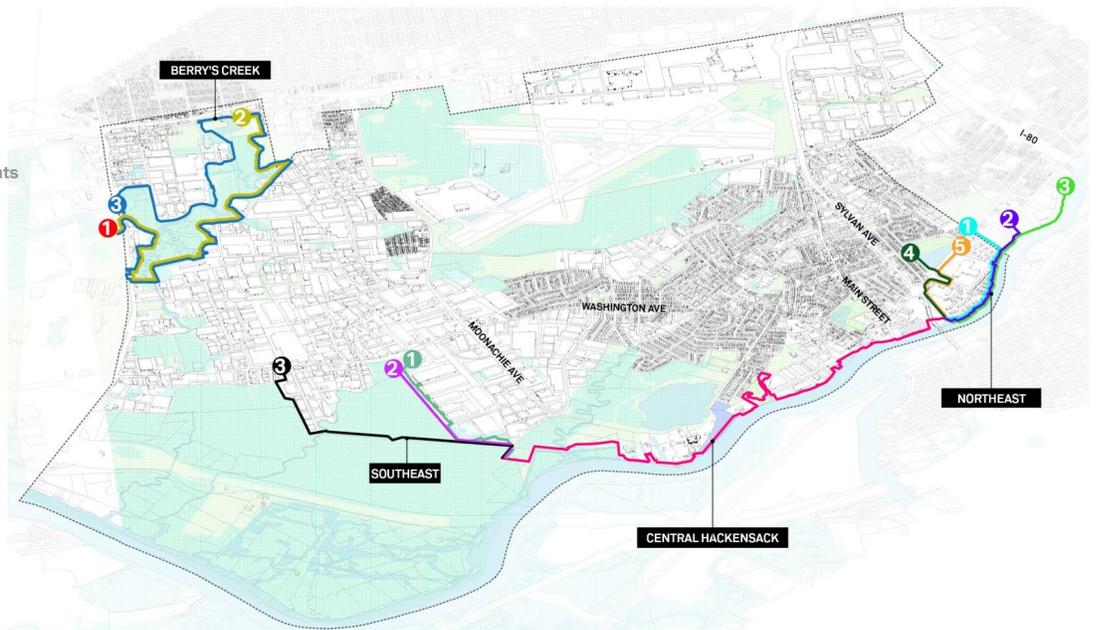
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SCREENING PROCESS
CONCEPT DEVELOPMENT & SCREENING PROCESS



ALIGNMENT OPTIONS: 11 PRESENTED IN DECEMBER

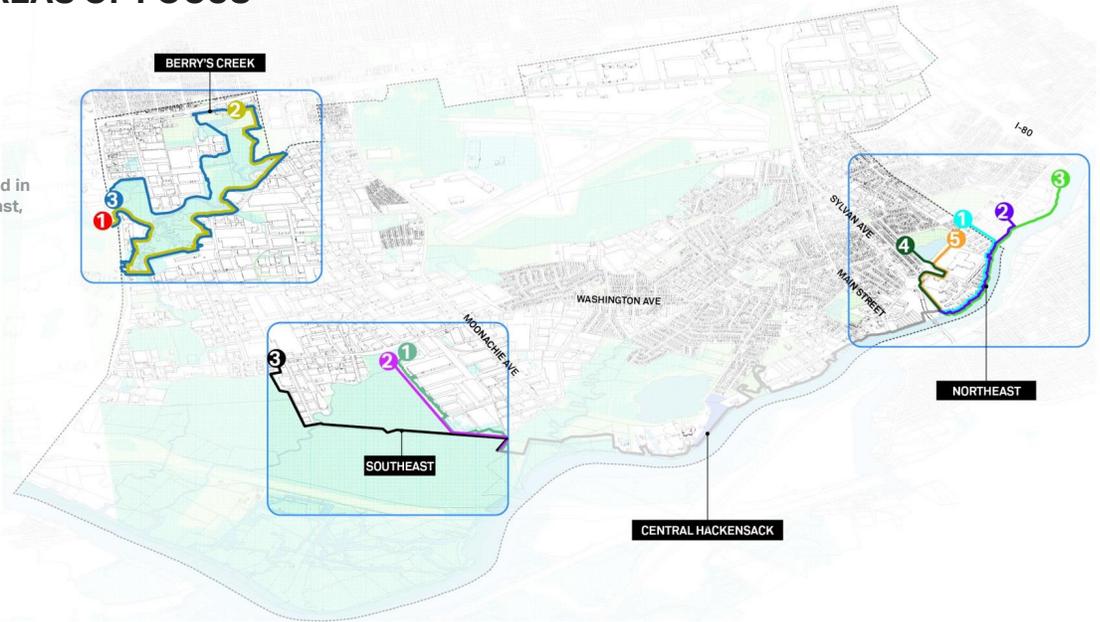
- Since December, 11 alignments were analyzed



ALIGNMENT OPTIONS: SCREENING PROCESS

3 DISTINCT AREAS OF FOCUS

- 5 tie-in options were evaluated in the northeast, 3 in the southeast, and 3 at Berry's Creek



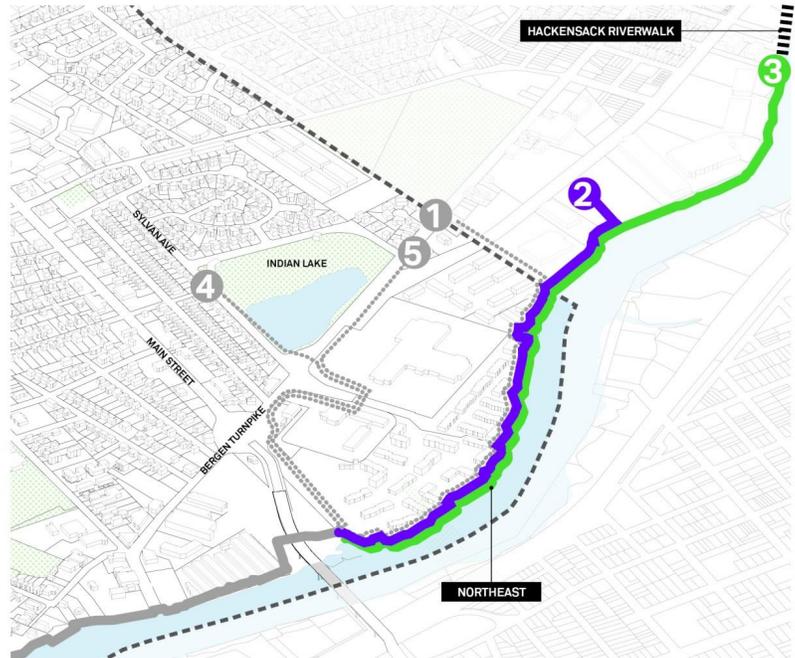
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INITIAL SCREENING OF THE NORTHEAST OPTIONS



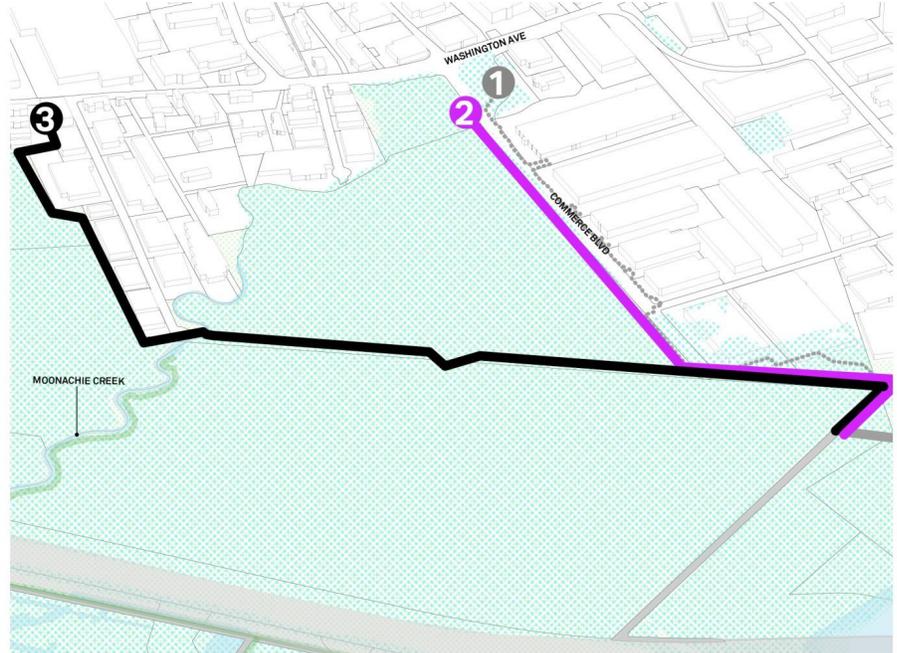
- 1** • Screened out - passive deployable (gate closure) required in evacuation route
- 2** • No road crossing or regrading required
• Tie-in north of project boundary in City of Hackensack
- 3** • Extends further north
• Creates connection to existing Hackensack Riverwalk
- 4** • Screened out - passive deployable (gate closure) required in evacuation route
• Provides less protection than 2 & 3
- 5** • Screened out - passive deployable (gate closure) required in evacuation route
• Provides less protection than 2 & 3



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SCREENING THE SOUTHEAST OPTIONS



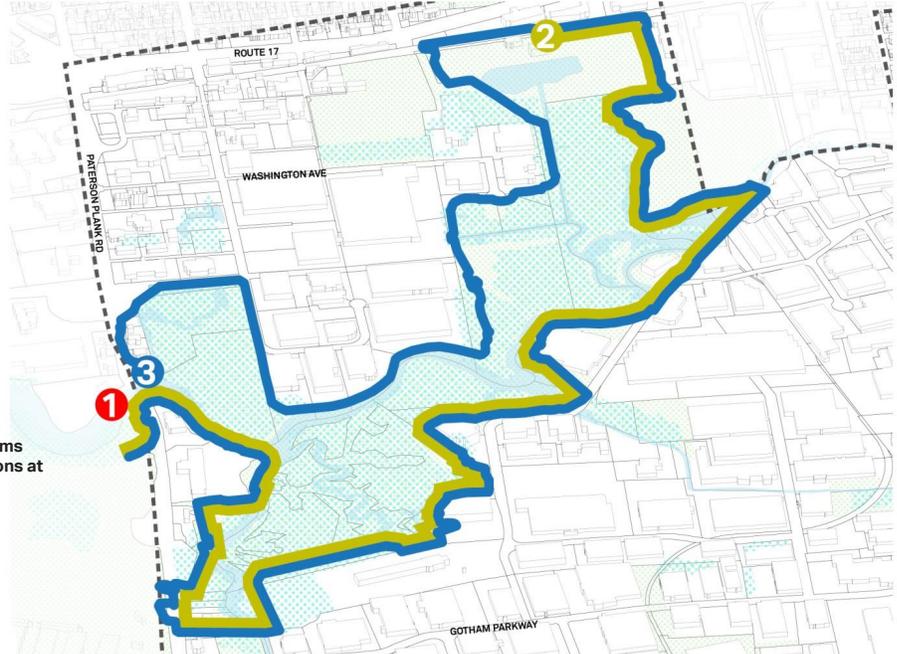
- 1**
 - Screened out – many deployables (gate closure) needed to cross private driveways
 - Requires substantial acquisition of private property
- 2**
 - Tie-in on south side of Commerce Blvd
 - Located primarily within Carlstadt R.O.W. (between curb and marsh)
- 3**
 - Sheet pile or berm with new tide gate at Moonachie Creek
 - Located on the Kane mitigation bank berm on the freshwater side
 - Tie-in on south side of Barella Riverwalk



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SCREENING THE BERRY'S CREEK OPTIONS



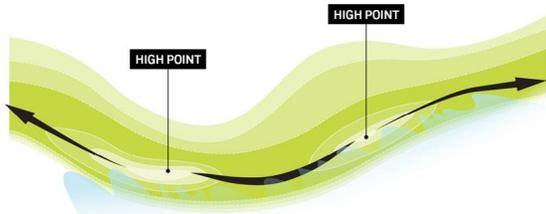
- 1**
 - Surge barrier at Berry's Creek
- 2**
 - Combined single sheet pile with concrete cap and reinforced double sheet pile and earthen berms
 - Two new tide gates near Peach Island Creek
 - Two new pump stations at the West Riser and East Riser tide gates
- 3**
 - Combined single sheet pile with concrete cap, reinforced double sheet pile, and earthen berms
 - Five new tide gates and three new pump stations at the West Riser and East Riser tide gates



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REFINING ALIGNMENT CONCEPTS



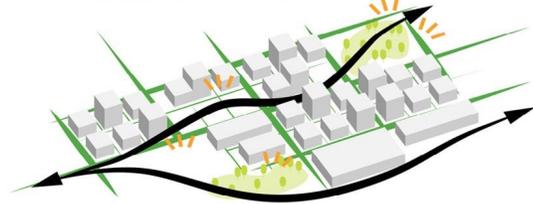
FILL THE GAPS

By connecting the existing topographical high points, the project can reduce construction costs and minimize additional regrading of the Hackensack River edge.



STICK TO THE EDGE/MAXIMIZE PROTECTION

Where possible, the flood risk intervention runs along the edge between social activity and ecology. This allows maximum engagement for place-making activities and increases the protection area.



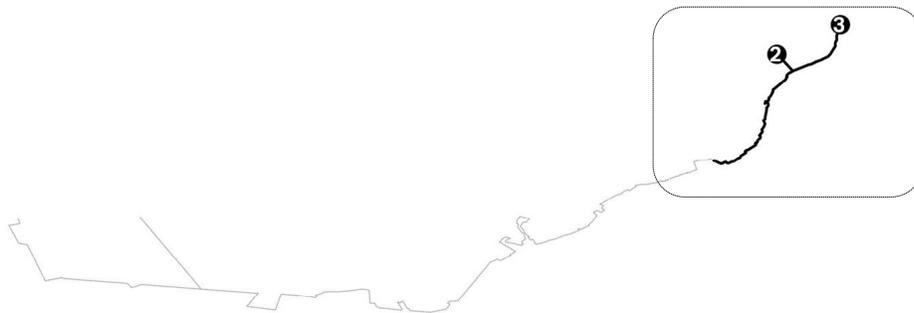
LEVERAGE PUBLIC LAND

With numerous public agencies in the project area, the project seeks to connect existing public parks as well as provide new park space on existing public land.



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ALTERNATIVE 1: ALIGNMENT

NORTHEAST

GARRETT AVERY, AECOM
&
LULU LOQUIDIS, AECOM

AECOM

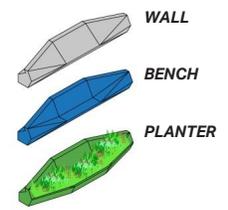
CONSIDERATIONS – WHAT GOES WHERE

NORTHEAST

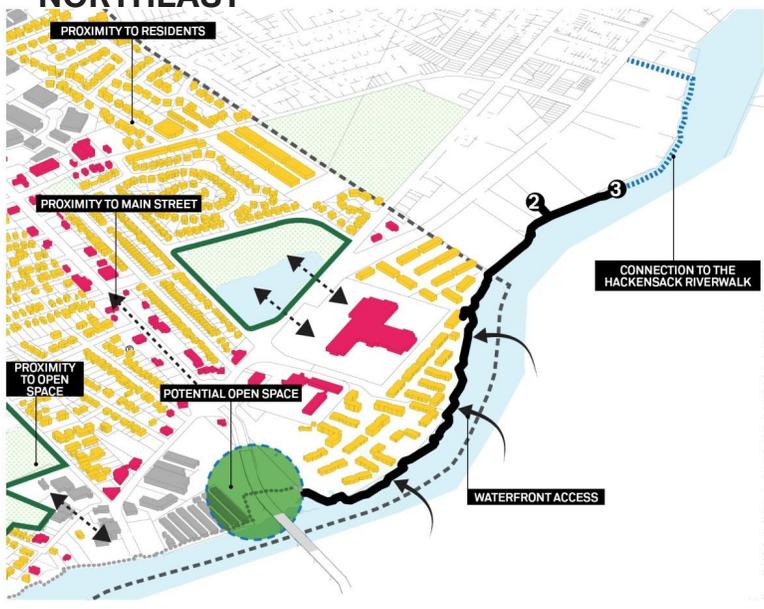
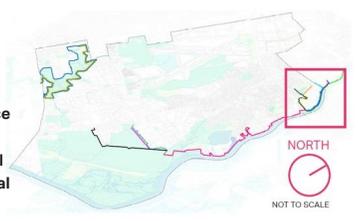
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APPLYING THE "KIT OF PARTS"

- Proximity to existing open space, the Hackensack Riverwalk, Main Street, and residential communities
- Opportunities for waterfront connection and new open space



- Wetlands
- Open Space
- Water
- Residential
- Commercial
- Industrial



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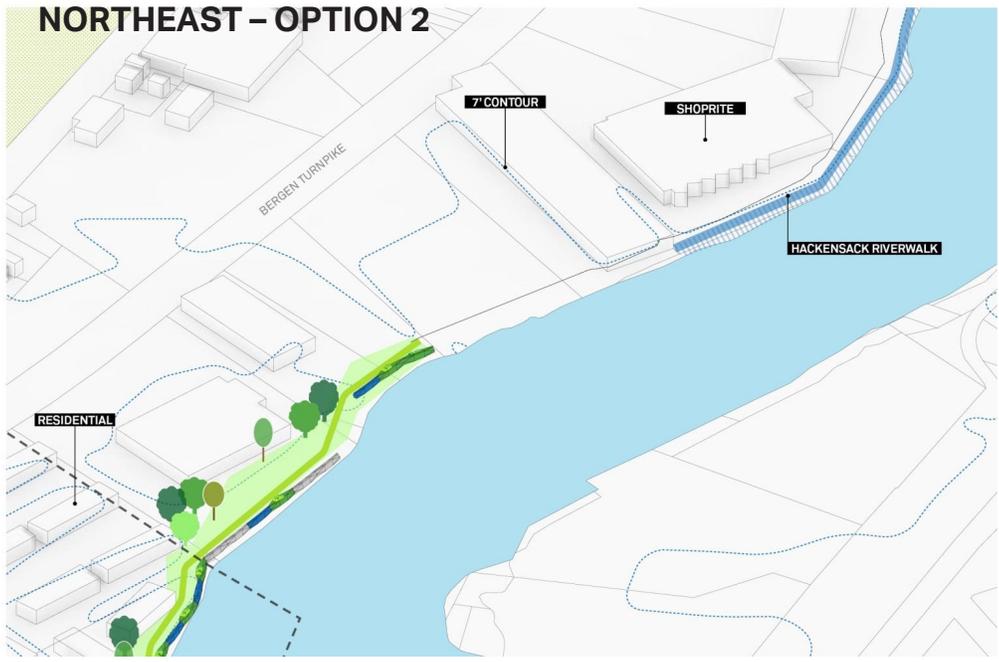
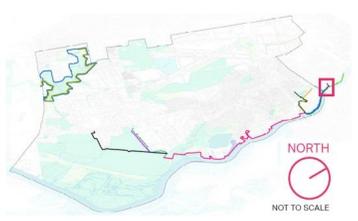
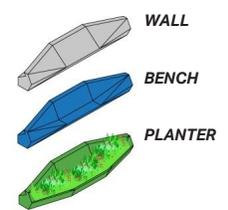
ALIGNMENT DEVELOPMENT – 7' CONTOUR TIE-IN

NORTHEAST – OPTION 2

14

APPLYING THE "KIT OF PARTS"

- No road crossing or regrading required
- Tie-in north of project boundary in the City of Hackensack

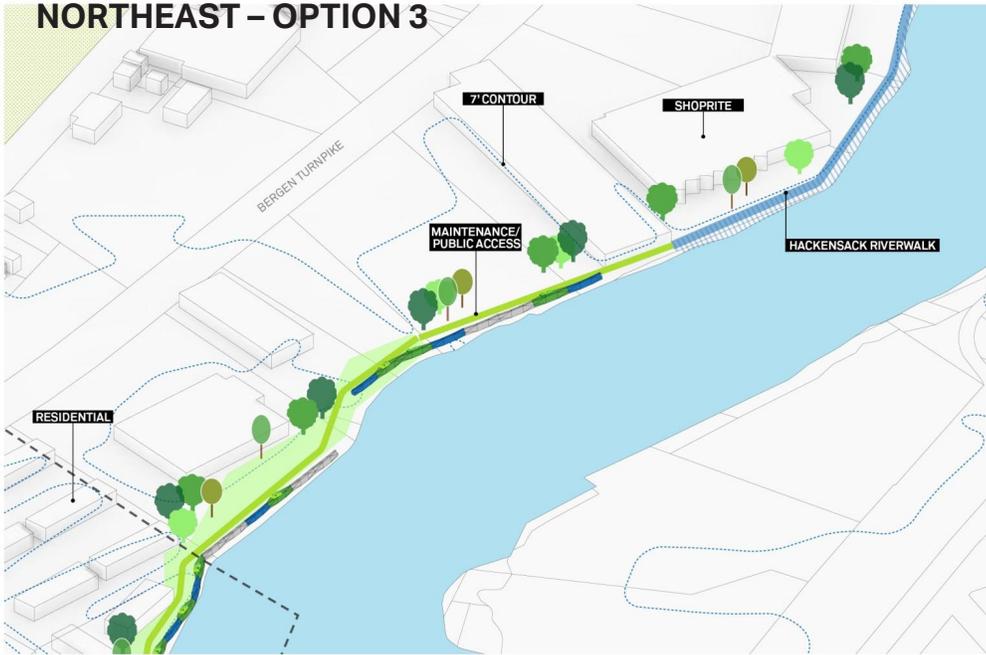


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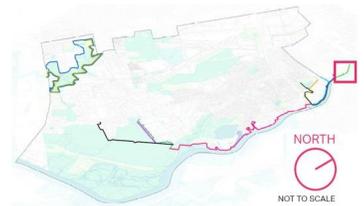
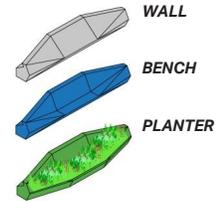
ALIGNMENT DEVELOPMENT – HACKENSACK TIE-IN

NORTHEAST – OPTION 3



APPLYING THE "KIT OF PARTS"

- Creates connection to existing segment of the Hackensack Riverwalk
- Further extends protection and modular system



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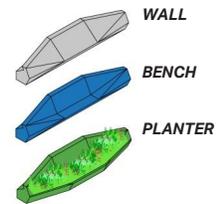
ALIGNMENT DEVELOPMENT – TYPICAL

NORTHEAST



APPLYING THE "KIT OF PARTS"

- Infrastructure improvements continue as the alignment moves south



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ALIGNMENT DEVELOPMENT – MULTI-FUNCTIONAL SYSTEM NORTHEAST

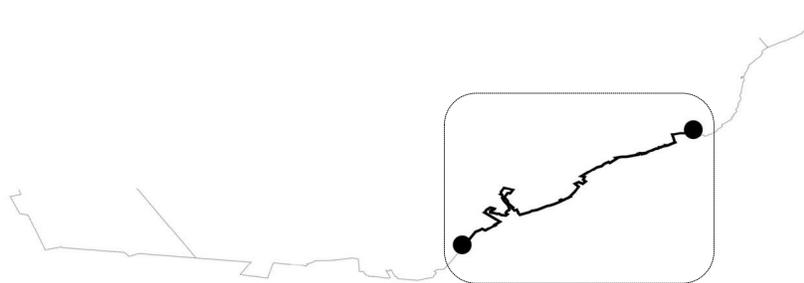


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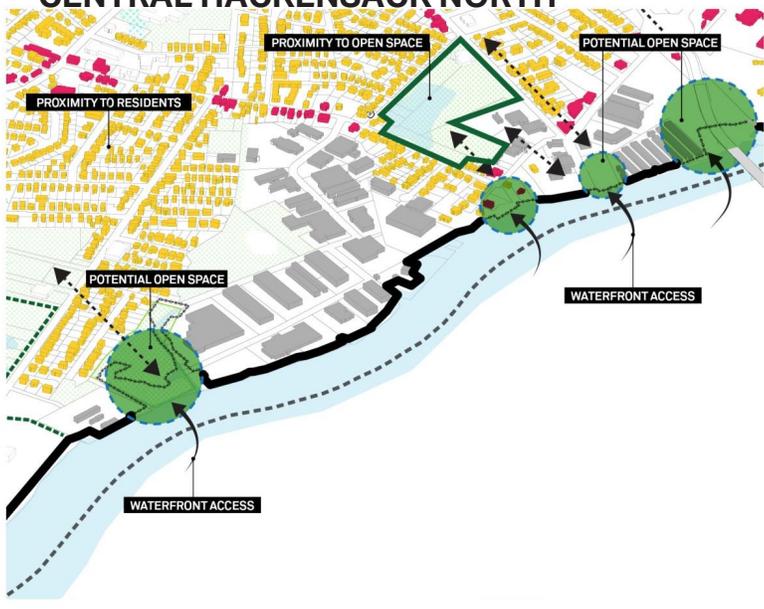


ALTERNATIVE 1: ALIGNMENT CENTRAL HACKENSACK NORTH

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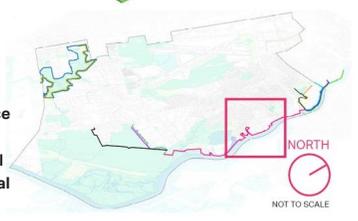
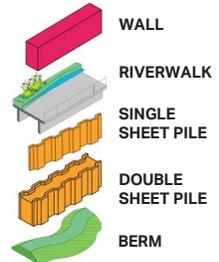
CONSIDERATIONS – WHAT GOES WHERE

CENTRAL HACKENSACK NORTH



APPLYING THE "KIT OF PARTS"

- Proximity to existing open space and residential communities
- Opportunities for waterfront connection and new open space

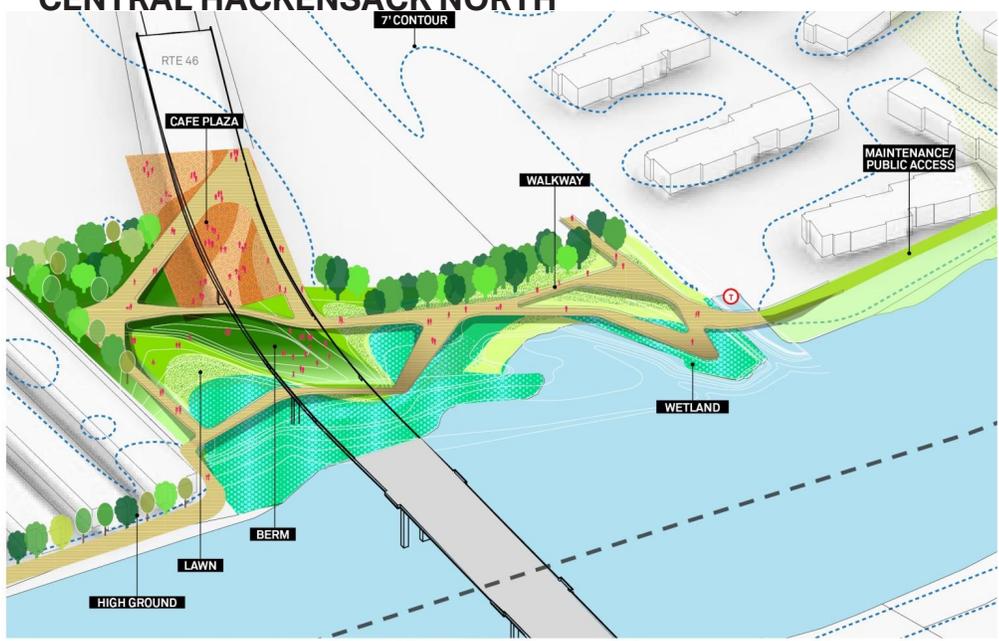


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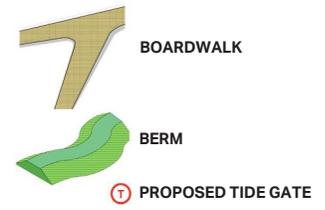
ALIGNMENT DEVELOPMENT – FLUVIAL PARK

CENTRAL HACKENSACK NORTH



APPLYING THE "KIT OF PARTS"

- A berm system turns into a public space under Route 46
- The berm system allows for inundation on the river's side during a flood event



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ALIGNMENT DEVELOPMENT – FLUVIAL PARK CONNECTION
CENTRAL HACKENSACK NORTH

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CURRENT



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ALIGNMENT DEVELOPMENT – FLUVIAL PARK CONNECTION
CENTRAL HACKENSACK NORTH

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ALIGNMENT DEVELOPMENT – FLUVIAL WETLAND PARK CENTRAL HACKENSACK NORTH



CURRENT



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ALIGNMENT DEVELOPMENT – FLUVIAL WETLAND PARK CENTRAL HACKENSACK NORTH



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ALIGNMENT DEVELOPMENT – K-TOWN PARK & RIVERWALK CENTRAL HACKENSACK NORTH



APPLYING THE "KIT OF PARTS"

- Active recreation field and public realm on the river's edge
- Cantilever walkway is designed to reduce inland flooding and provide a waterfront destination
- The floodwall is built into the structure of the walkway



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ALIGNMENT DEVELOPMENT – K-TOWN PARK & RIVERWALK CENTRAL HACKENSACK NORTH



CURRENT



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**ALIGNMENT DEVELOPMENT – K-TOWN PARK & RIVERWALK
CENTRAL HACKENSACK NORTH**



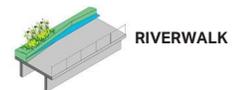
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**ALIGNMENT DEVELOPMENT – K-TOWN PARK & RIVERWALK
CENTRAL HACKENSACK NORTH**

APPLYING THE "KIT OF PARTS"

- The alignment terminates with a connection to Riverside Park
- The new open space is a combination of active and passive recreation



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ALIGNMENT DEVELOPMENT – K-TOWN PARK & RIVERWALK CENTRAL HACKENSACK NORTH



CURRENT



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ALIGNMENT DEVELOPMENT – K-TOWN PARK & RIVERWALK CENTRAL HACKENSACK NORTH



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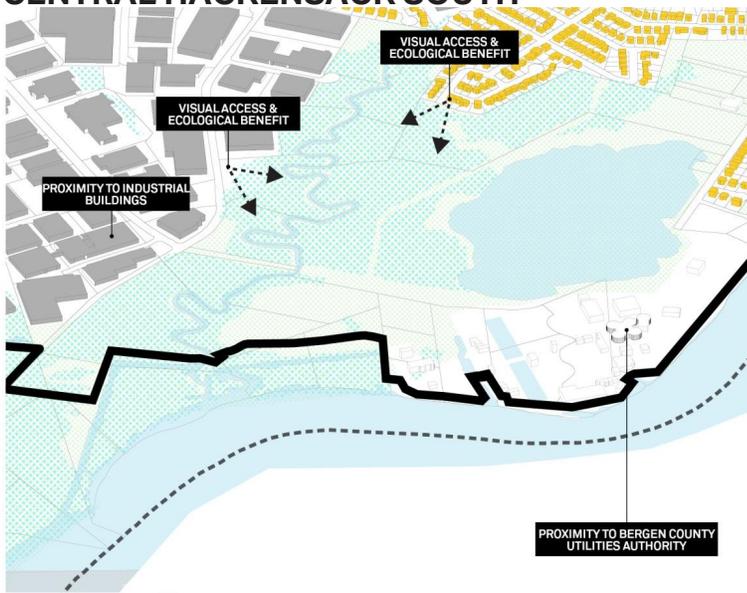
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ALTERNATIVE 1: ALIGNMENT CENTRAL HACKENSACK SOUTH

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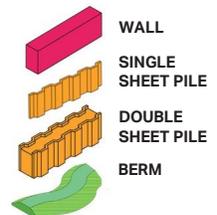
32

CONSIDERATIONS – WHAT GOES WHERE CENTRAL HACKENSACK SOUTH



APPLYING THE "KIT OF PARTS"

- Proximity to industrial buildings and Bergen County Utilities Authority
- Less public space opportunity
- Potential for visual access and ecological benefit to Losen Slote



- Wetlands
- Open Space
- Water
- Residential
- Commercial
- Industrial



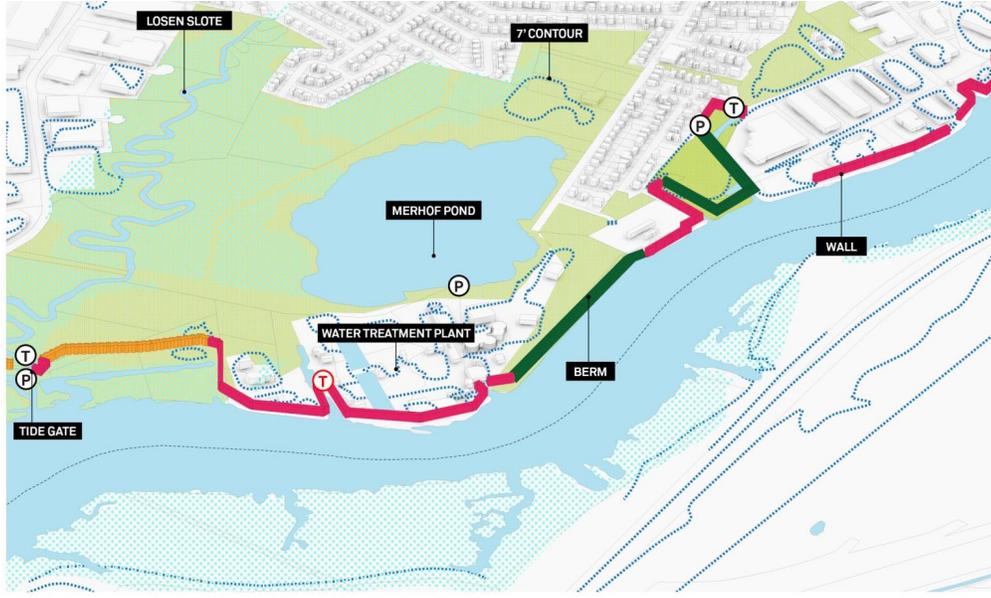
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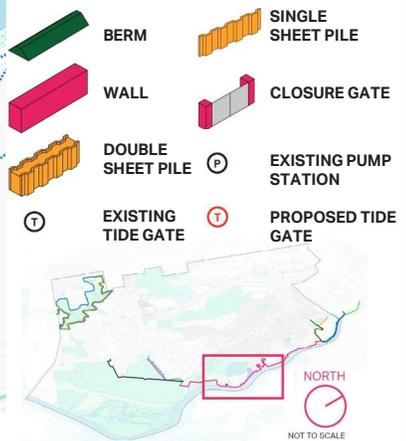
33

ALIGNMENT DEVELOPMENT – TYPICAL CENTRAL HACKENSACK SOUTH



APPLYING THE "KIT OF PARTS"

- The typical run is composed of floodwalls, sheet pile, and berm where space allows
- A tide gate protects existing treatment plant outfalls



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ALIGNMENT DEVELOPMENT – BERMS AND WALLS CENTRAL HACKENSACK SOUTH



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ALIGNMENT DEVELOPMENT – BERM CENTRAL HACKENSACK SOUTH



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ALIGNMENT DEVELOPMENT – WALL CENTRAL HACKENSACK SOUTH

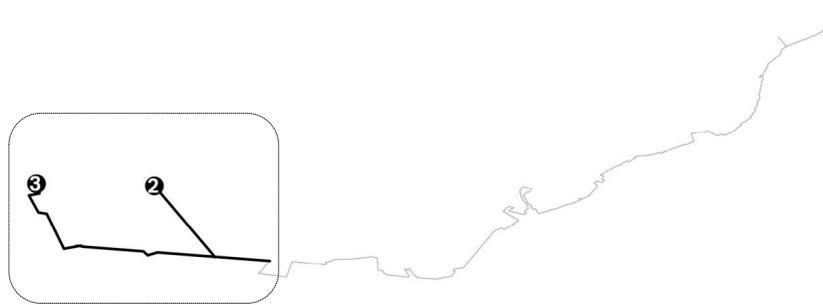


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ALTERNATIVE 1: ALIGNMENT SOUTHEAST

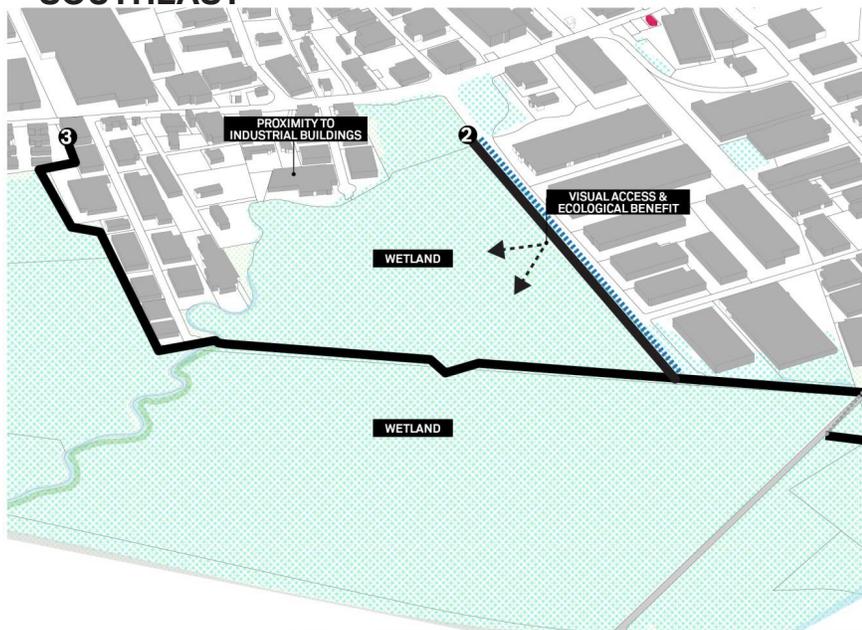
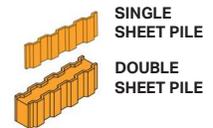
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CONSIDERATIONS – WHAT GOES WHERE SOUTHEAST

APPLYING THE "KIT OF PARTS"

- Proximity to industrial buildings
- Less public space opportunity
- Potential for visual access and ecological benefit to adjacent wetlands



- Wetlands
- Open Space
- Water
- Residential
- Commercial
- Industrial



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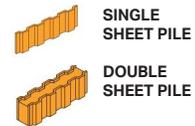
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ALIGNMENT DEVELOPMENT – ON COMMERCE BLVD SOUTHEAST – OPTION 2



APPLYING THE "KIT OF PARTS"

- Single sheet pile wall between Commerce Blvd and marsh
- Double sheet pile wall for structural integrity adjacent to existing berm



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ALIGNMENT DEVELOPMENT – ON COMMERCE BLVD SOUTHEAST – OPTION 2



CURRENT



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ALIGNMENT DEVELOPMENT – ON COMMERCE BLVD SOUTHEAST – OPTION 2



PROPOSED



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ALIGNMENT DEVELOPMENT – SOUTHEAST OPTION 3



APPLYING THE "KIT OF PARTS"

- Double sheet pile for structural integrity
- Existing berm and maintenance access remain

-  SINGLE SHEET PILE
-  DOUBLE SHEET PILE
-  PROPOSED TIDE GATE



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ALTERNATIVE 1: ALIGNMENT

BERRY'S CREEK

AECOM

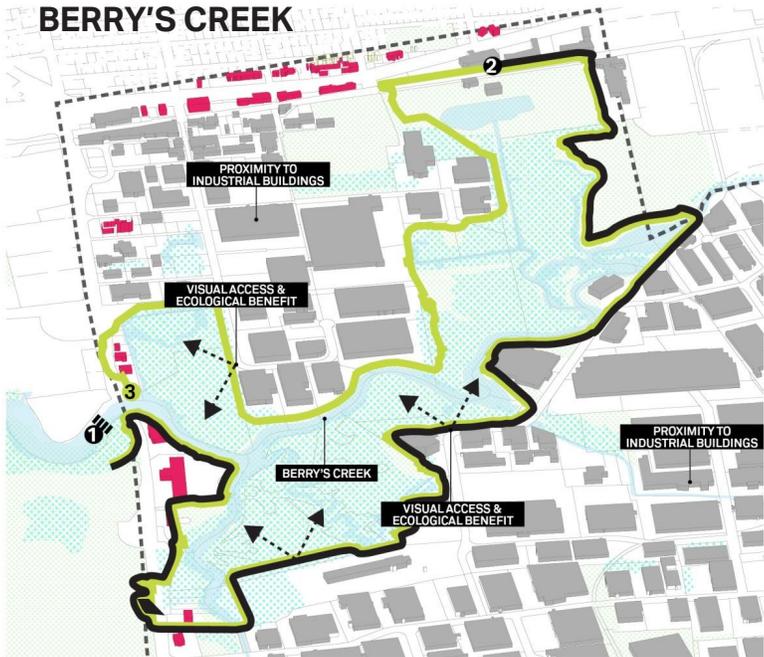
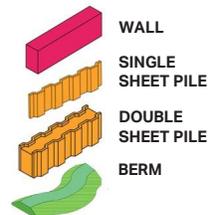
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CONSIDERATIONS – WHAT GOES WHERE

BERRY'S CREEK

APPLYING THE "KIT OF PARTS"

- Proximity to industrial buildings and Berry's Creek
- Less public space opportunity
- Potential for visual access and ecological benefit



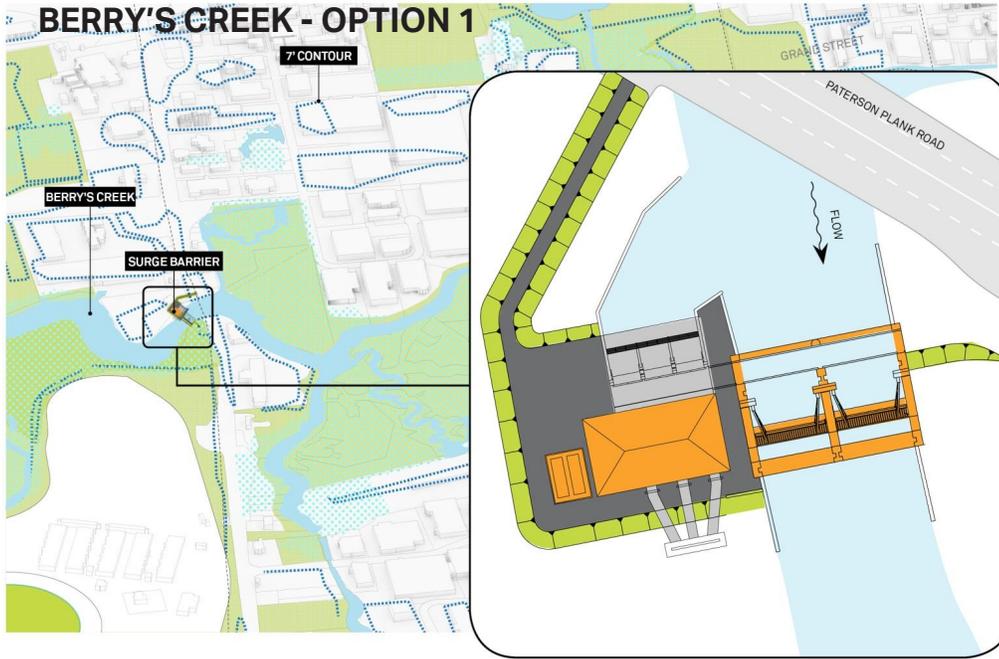
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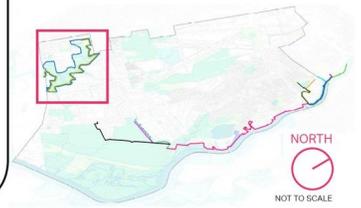
ALIGNMENT DEVELOPMENT – SURGE BARRIER

BERRY'S CREEK - OPTION 1



APPLYING THE "KIT OF PARTS"

- 118' wide dual-gate opening with short "t-wall" and earthen berms to prevent flanking (water flowing around surge barrier)
- Gate preserves low-clearance navigation through channel

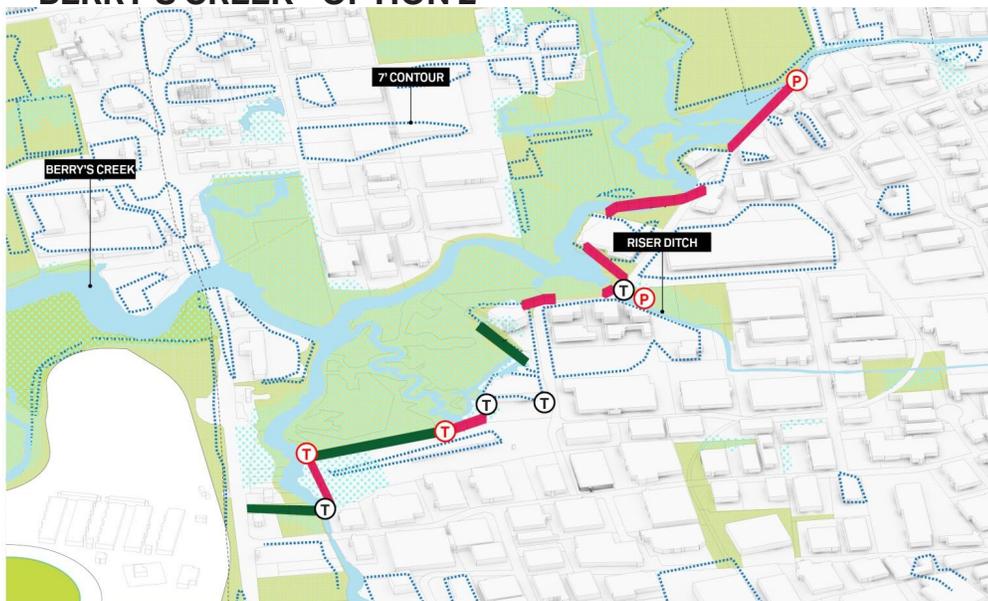


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ALIGNMENT DEVELOPMENT – EAST

BERRY'S CREEK - OPTION 2



APPLYING THE "KIT OF PARTS"

- Combined single sheet pile with concrete cap + reinforced double sheet pile + earthen berms
- Two new tide gates near Peach Island Creek and two new pump stations at the West Riser and East Riser tide gates

- BERM
- WALL
- EXISTING TIDE GATE
- PROPOSED PUMP STATION
- PROPOSED TIDE GATE

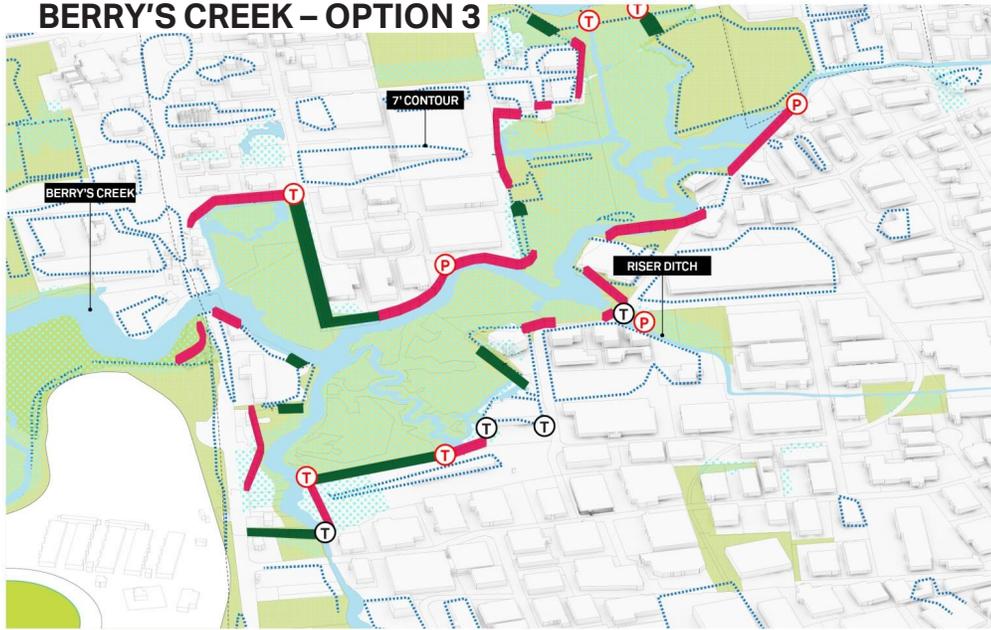


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ALIGNMENT DEVELOPMENT – EAST & WEST

BERRY'S CREEK – OPTION 3



APPLYING THE "KIT OF PARTS"

- Combined single sheet pile with concrete cap + reinforced double sheet pile + earthen berms
- Five new tide gates
- Three new pump stations at the West Riser and East Riser tide gates

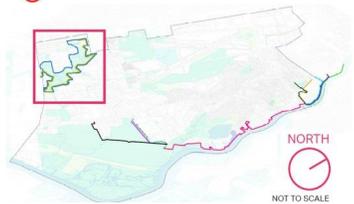
BERM

WALL

EXISTING TIDE GATE

PROPOSED PUMP STATION

PROPOSED TIDE GATE



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ALTERNATIVE 3:

HYBRID ALIGNMENT

CHRISTOPHER BENOSKY, AECOM



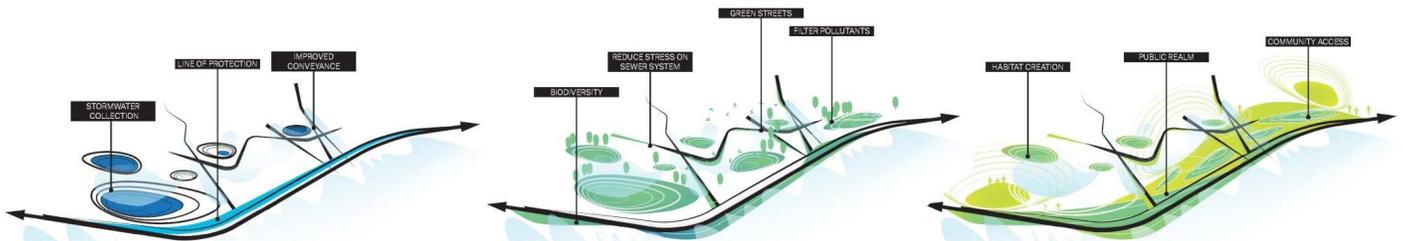
ALTERNATIVE 3 – DEVELOPING THE HYBRID COMBINING ALTERNATIVES 1 & 2



Establish effective combination of structural and stormwater strategies.

Ecologically enhance both strategies to maximize variety of habitat and program.

Public realm improvements integrated into the strategies energize communities.

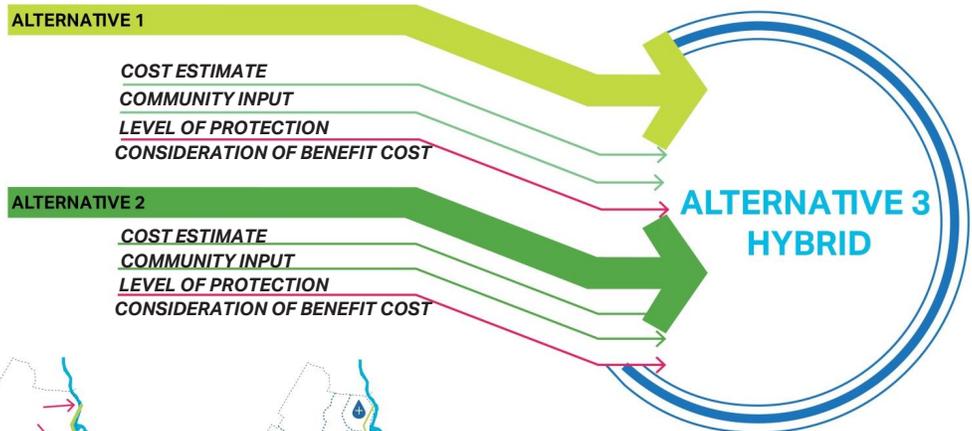


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ALTERNATIVE 3 – DEVELOPING THE HYBRID HYBRID APPROACH

- Understand cost implications, analyze community feedback, and identify level of protection
- The benefit cost analysis will assist in determining best approach to achieve maximum benefits for the community overall

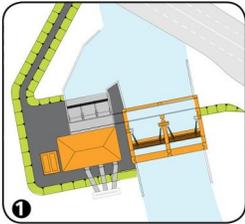


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ALTERNATIVE 3 – DEVELOPING THE HYBRID POTENTIAL OPTIONS

ALT 1:
SURGE BARRIER
@ BERRY'S
CREEK



ALT 2:
EAST RISER + MAIN STREET
DRAINAGE IMPROVEMENTS +
OPEN SPACE



- Hybrid options are currently under consideration
- This option combines interior drainage improvements and a surge barrier at Berry's Creek



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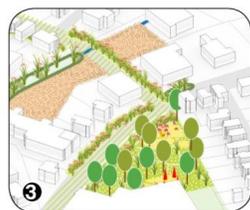
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ALTERNATIVE 3 – DEVELOPING THE HYBRID POTENTIAL OPTIONS

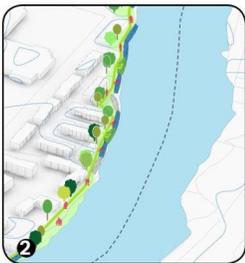
ALT 1:
NE 3 + CENTRAL + SE 2
PARKS



ALT 2:
PARKS



- Hybrid options are currently under consideration
- This option combines interior drainage improvements and Hackensack alignment options



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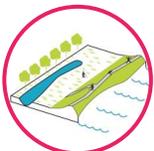
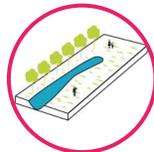
NEXT STEPS

CHRISTOPHER BENOSKY, AECOM

AECOM

NEXT STEPS

54



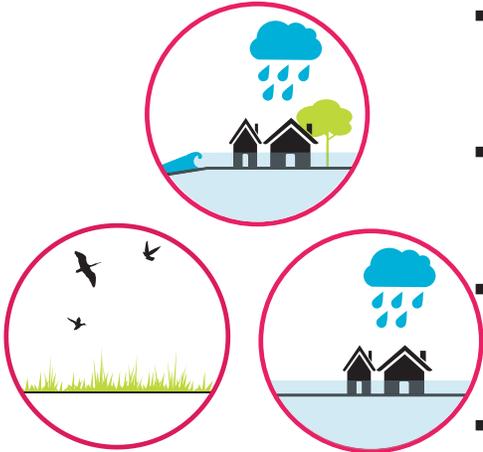
NJDEP / AECOM UPCOMING ACTIVITIES

- Prepare Meeting Summary for CAG #8
- Continue developing:
 - Concepts, Alternatives, & Costs
- Hold Public Hearing on Action Plan Amendment
- CAG #9 in Late May
 - Alternative 3 – Hybrid & Biological Resource Update





PUBLIC HEARING – ACTION PLAN AMENDMENT



- HUD requires that all RBD projects create an Action Plan Amendment that documents the proposed use of funds, and publish it for public input.
- The Action Plan Amendments for all RBD projects are required to be submitted to HUD before June 1st of this year.
- This Action Plan Amendment will be publicly noticed in local newspapers and on our DCA and DEP project website.
- The Action Plan Amendment will also be open to public comment and the State will hold a public hearing on **May 3, 2017 from 5pm to 8pm**



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NEXT STEPS

CAG: CALL TO ACTION

- Submit comments from CAG #8 meeting by **April 05, 2017**
- Share information from this meeting with friends and neighbors
- Continue to build interest in the Project
- Ensure the public knows about upcoming information (to be posted on Project website)



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NEXT STEPS

CRITICAL INFORMATION

May 05, 2017

Public Hearing: Action Plan Amendment

Project Website

www.rbd-meadowlands.nj.gov

Project Email

rbd-meadowlands@dep.nj.gov

Question & Answer



THANK YOU!



