

REBUILD BY DESIGN

M E A D O W L A N D S

CITIZEN ADVISORY GROUP (CAG) MEETING #10

ALTERNATIVE 3: HYBRID

June 27, 2017



PREPARED BY **AECOM**

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## 1.0 List of Acronyms

### List of Acronyms

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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 3: Hybrid

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**6-8 PM**

**June 27, 2017**

**Port Authority Conference Room  
90 Moonachie Ave  
Teterboro, NJ 07608**

**Project Website**

[www.rbd-meadowlands.nj.gov](http://www.rbd-meadowlands.nj.gov)

**Project Email**

[rbd-meadowlands@dep.nj.gov](mailto:rbd-meadowlands@dep.nj.gov)

Welcome

Presentation

Opening Remarks (10 Minutes)

Welcoming (Linda Fisher, NJDEP)

Meadowlands Challenge (Chris Benosky, AECOM)

Hybrid Building Blocks: (10 Minutes)

Alternative 1: Storm Surge (Garrett Avery, AECOM)

Alternative 2: Stormwater (Lulu Loquidis, AECOM)

Building the Hybrid (Garrett Avery, AECOM, 10 Minutes)

Initial Ideas (Garrett Avery & Lulu Loquidis, AECOM, 20 Minutes)

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

Next Steps (Chris Benosky, AECOM)

Question and Answers

# REBUILDBYDESIGN

# MEADOWLANDS

## CITIZENS ADVISORY GROUP MEETING #10

ALTERNATIVE 3: HYBRID  
June 27, 2017

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## AGENDA

Christopher Benosky, AECOM (2)



- Welcome
- The Meadowlands Challenge
- Concept Review
  - Alternative 1
  - Alternative 2
- Building the Hybrid
  - Development Process
  - Initial Ideas
  - Building Blocks
- Next Steps
- Question & Answer



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# THE MEADOWLANDS CHALLENGE

## CHALLENGE 1: **STORM SURGE FLOODING**



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# THE MEADOWLANDS CHALLENGE

## FACTOR: **LOW-LYING ELEVATIONS**



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# THE MEADOWLANDS CHALLENGE

## CHALLENGE 2: FREQUENT RAIN STORMS FLOOD INTERIOR



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# THE MEADOWLANDS CHALLENGE

## FACTOR: UNDERSIZED & UNDERPERFORMING INTERIOR DRAINAGE



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# THE MEADOWLANDS CHALLENGE

FACTOR: **INFRASTRUCTURE CHALLENGED TO PUMP & PROTECT**



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# THE MEADOWLANDS CHALLENGE

PROJECT STRATEGY: **DEVELOP 3 BUILD ALTERNATIVES**



**Alternative 1:**  
Storm Surge  
Flooding



**Alternative 2:**  
Stormwater  
Flooding



**Alternative 3:**  
Storm Surge &  
Stormwater  
Flooding



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# HYBRID BUILDING BLOCKS

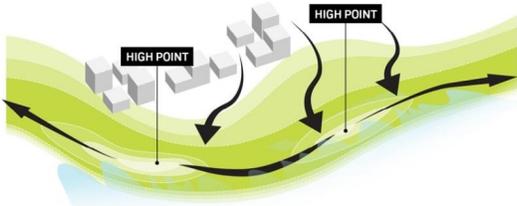
## ALTERNATIVE 1: STORM SURGE FLOODING

GARRETT AVERY, AECOM

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### HYBRID BUILDING BLOCKS // STORM SURGE APPROACH & GOALS

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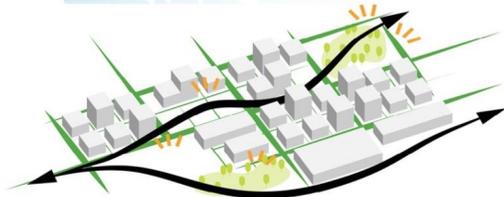
**FILL THE GAPS // MAXIMIZE PROTECTION** **PROTECT**

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



**INTEGRATE ECOLOGICAL SOLUTIONS** **CULTIVATE**

The ecological systems are essential to the Meadowlands. The approach will minimize disturbance, consider habitat improvements to fragmented systems, and creation of new ecological zones.



**LEVERAGE PUBLIC LAND** **ENERGIZE**

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.

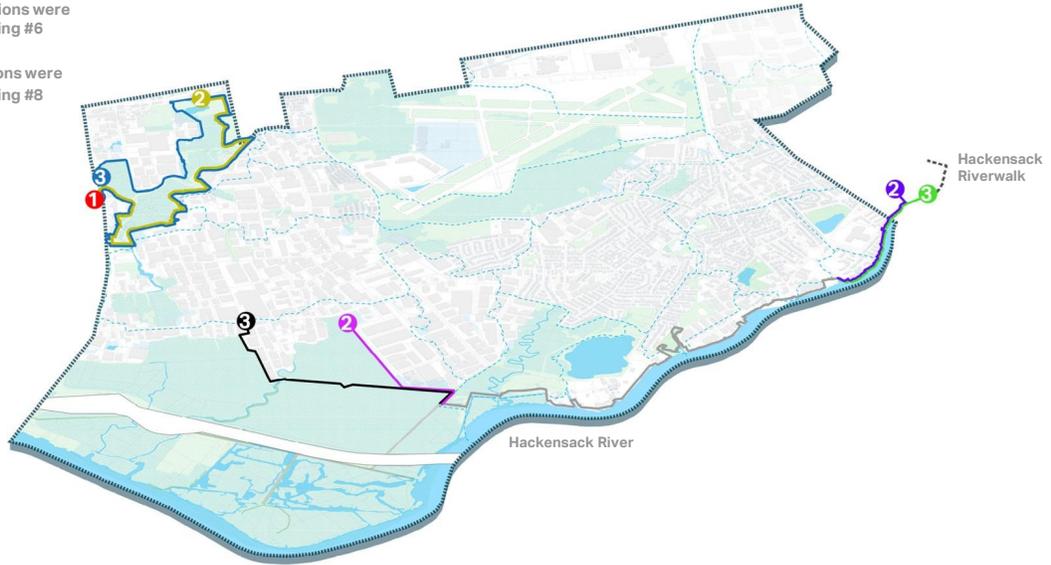


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# HYBRID BUILDING BLOCKS // STORM SURGE CONCEPTS CONSIDERED DURING SECOND SCREENING

- 11 Alignment Tie-In options were presented at CAG Meeting #6
- 7 Alignment Tie-In options were presented at CAG Meeting #8



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# HYBRID BUILDING BLOCKS // STORM SURGE SCREENING RESULTS: SELECTED LINE OF PROTECTION

Selected Line of Protection:

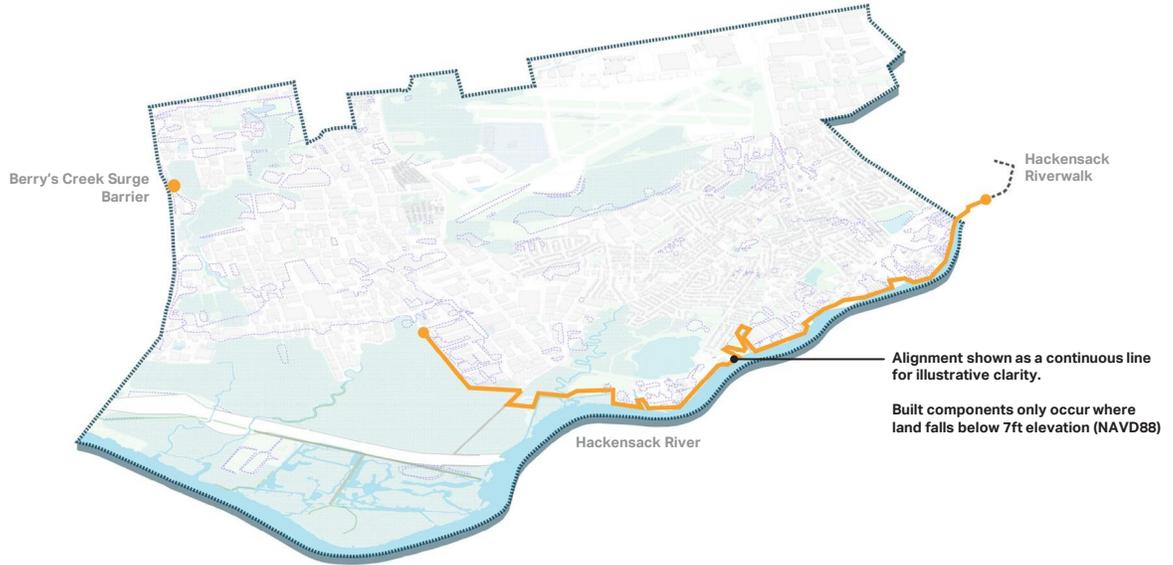
- Northeast Tie-In Option 3
- Southeast Tie-In Option 2
- Berry's Creek Option 1



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# HYBRID BUILDING BLOCKS // STORM SURGE PROTECTION TO A ~50 YEAR STORM



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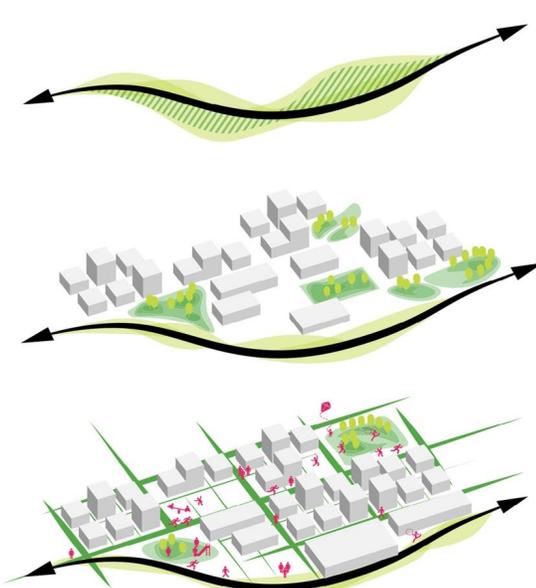
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## HYBRID BUILDING BLOCKS

ALTERNATIVE 2: STORMWATER  
LULU LOQUIDIS, AECOM

**AECOM**

# HYBRID BUILDING BLOCKS // STORMWATER APPROACH & GOALS



## IMPROVE CHANNELS PROTECT

Through deepening and regrading, the existing channels of the project area will have capacity to convey stormwater away from flood-prone areas

## CREATE HABITAT // FILTER POLLUTANTS CULTIVATE

Native plantings and naturalized channel edges provide habitat and improve water quality.

## RE-ENERGIZE THE PUBLIC REALM ENERGIZE

The creation of new public parks creates more opportunities for gathering and recreation. The public realm is enhanced by providing landscape and park improvements to existing public parks, municipal buildings, schools yards, and libraries.

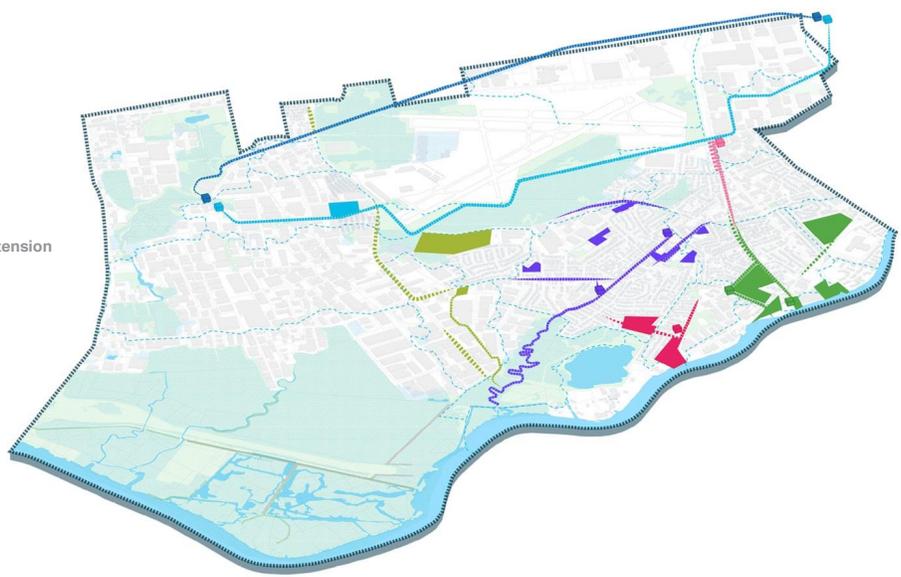


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# HYBRID BUILDING BLOCKS // STORMWATER ALTERNATIVE 2: SCREENING FROM 7

- █ Main Street
- █ DePeyster Creek
- █ Losen Slote
- █ Carol Place
- █ East Riser
- █ West Riser
- █ Main Street + East Riser Extension



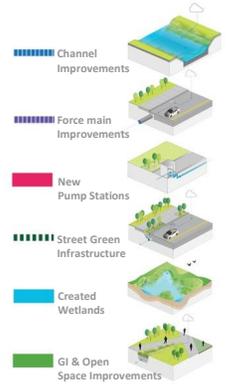
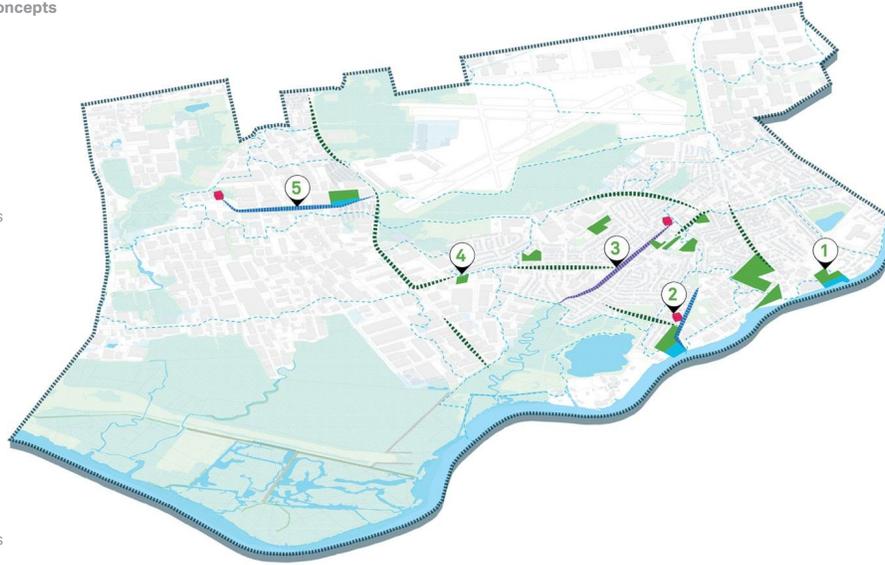
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# HYBRID BUILDING BLOCKS // STORMWATER ALTERNATIVE 2: COMPONENTS UNDER CONSIDERATION

Components of the 7 original concepts under consideration:

- 1. Main Street Green Features**  
Fluvial Park  
Riverside Park  
Willow Lake GI  
Street GI
- 2. DePeyster Features**  
New Pump Station  
Channel Improvements  
Open Space  
Street GI
- 3. Losen Slote Features**  
New Pump Station  
Force Main  
Municipal & School Improvements
- 4. Carol Place Features**  
Open Space  
Street GI
- 5. East Riser Features**  
New Pump Station  
Open Space  
Channel Improvements



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## BUILDING THE HYBRID

INTEGRATING STORM SURGE FLOOD REDUCTION AND  
STORMWATER DRAINAGE IMPROVEMENTS  
GARRETT AVERY, AECOM

# BUILDING THE HYBRID CONSIDERATIONS



## Performance

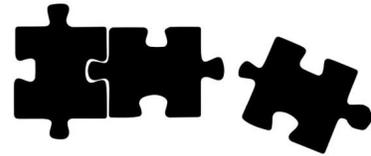
Testing concepts throughout development with hydraulic model to better understand and optimize performance.



## Screening

The Hybrid is being developed from components previously assessed and screened under Alt 1 or Alt 2.

For Alternative 3, criteria such as 'Ability to Complete Project by 2022' take on new meaning.



## Future Plan

Once performance modeling and screening are complete, system function will guide a project build plan.

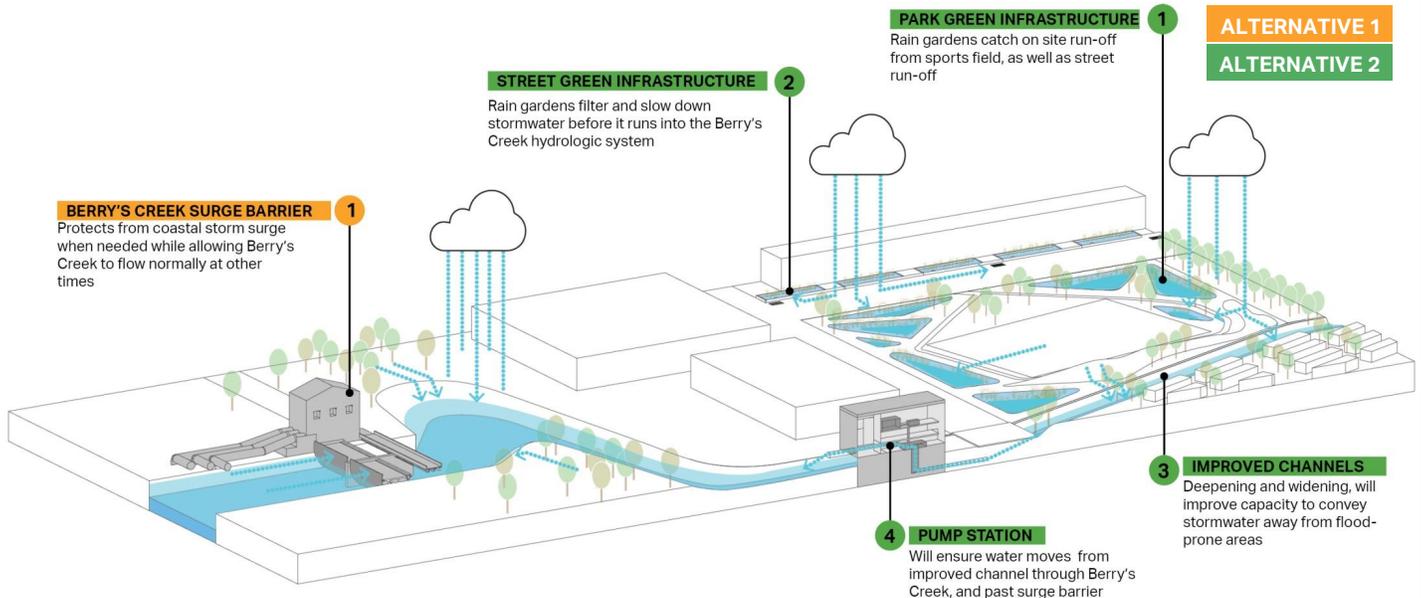
Components that aren't selected for the build plan could become elements of a Future Plan, which could be implemented by others over time as new funding sources become available.



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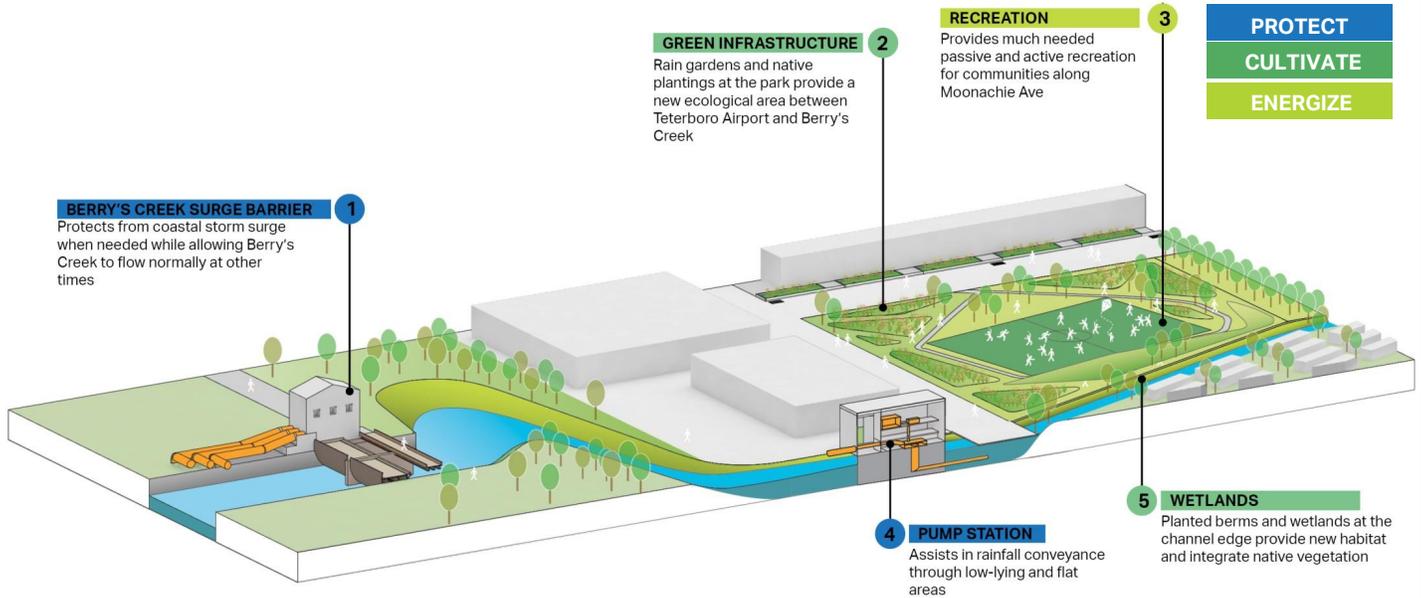
# BUILDING THE HYBRID PERFORMANCE // CHANNELS & PARKS



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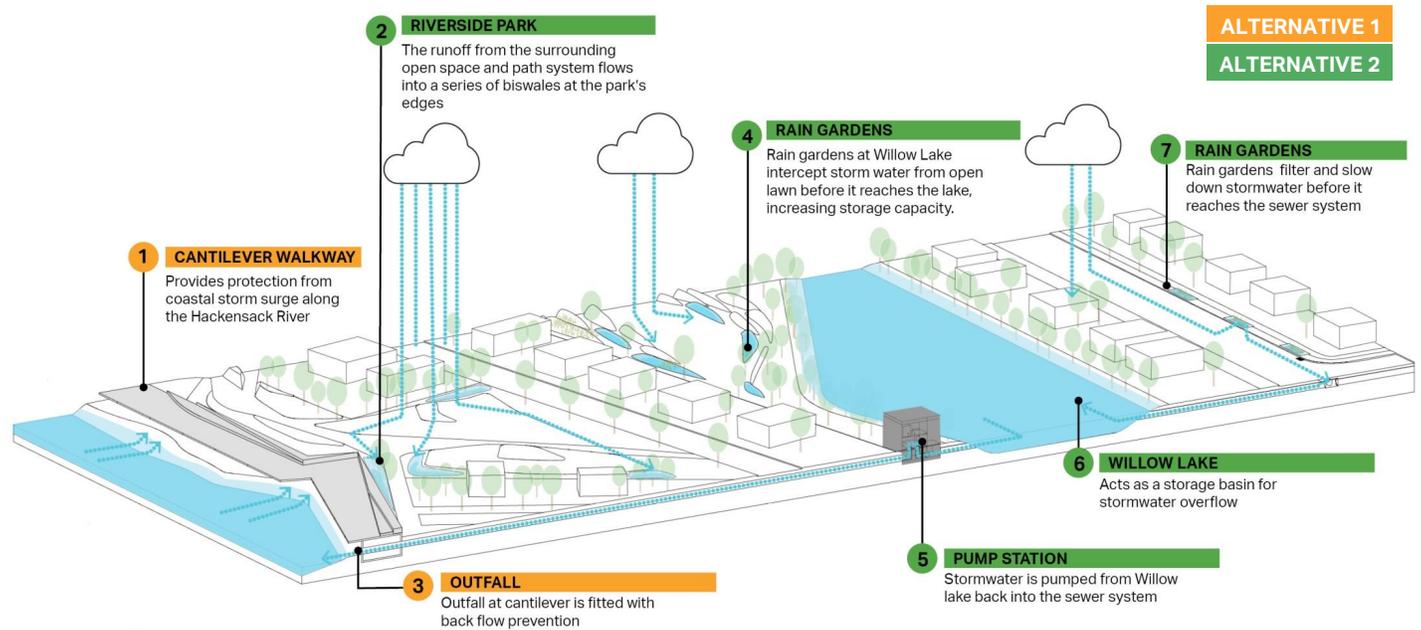
**BUILDING THE HYBRID**  
BENEFITS // CHANNELS & PARKS



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**BUILDING THE HYBRID**  
PERFORMANCE // RIVER'S EDGE & NEIGHBORHOODS

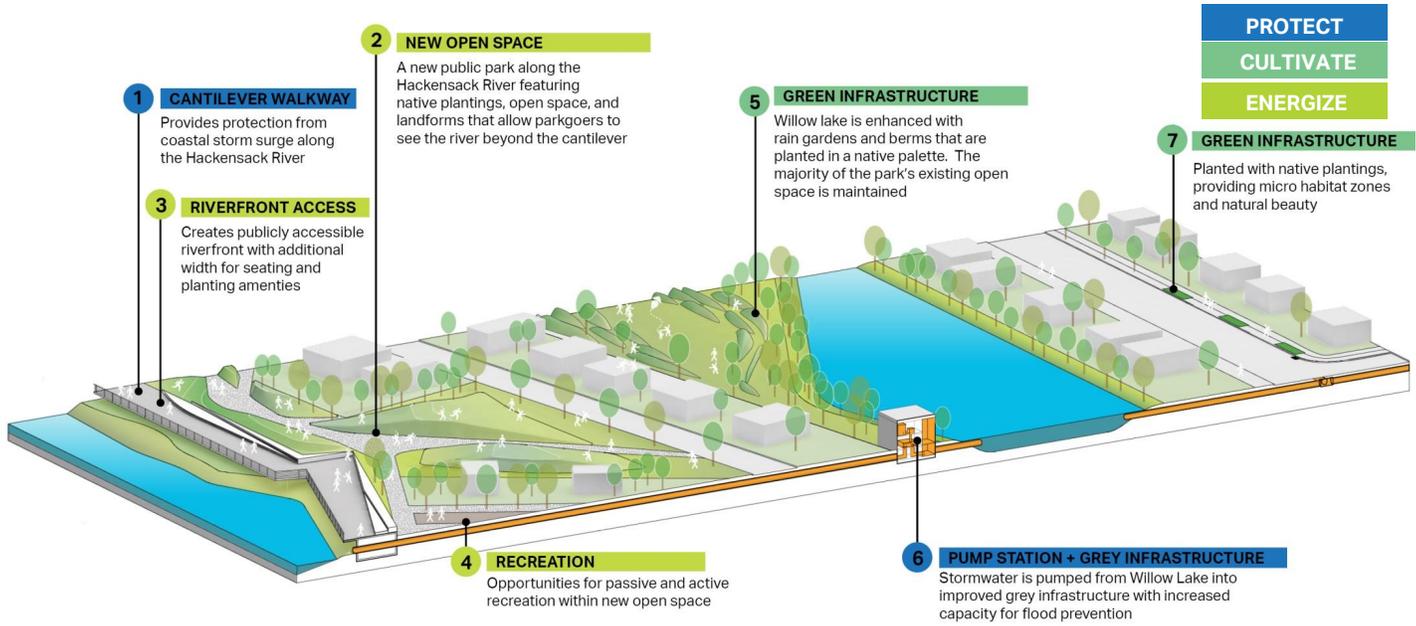


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# BUILDING THE HYBRID

## BENEFITS // RIVER'S EDGE & NEIGHBORHOODS



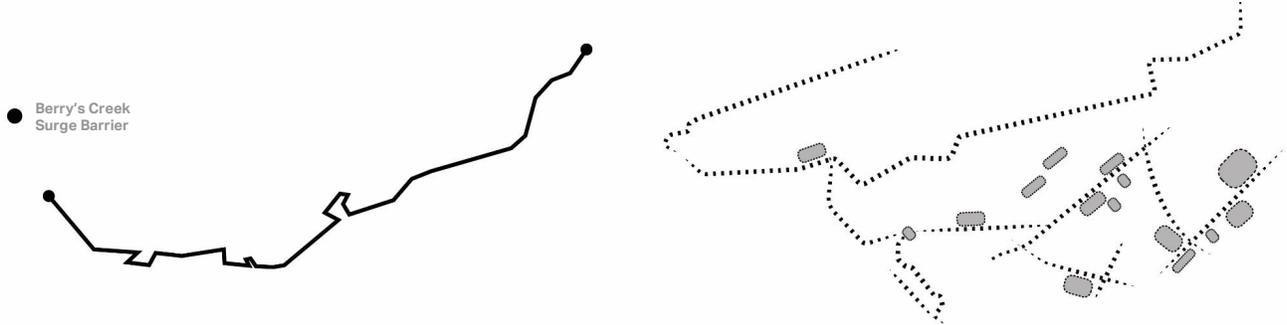
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# INITIAL IDEAS

CONNECTING THE BUILDING BLOCKS  
GARRETT AVERY & LULU LOQUIDIS, AECOM

**BUILDING THE HYBRID  
FIXED & FLEXIBLE**



**Fixed: Alt 1**

- Protection height at 7' elevation
- Alignment functions as a complete system
- Footprint remains the same with integrated public realm strategies

**Flexible: Alt 2**

- Stormwater strategies function together as one complete system and individually as a single improvement
- Concepts can be broken into smaller projects based on system performance
- Costs vary by system configuration

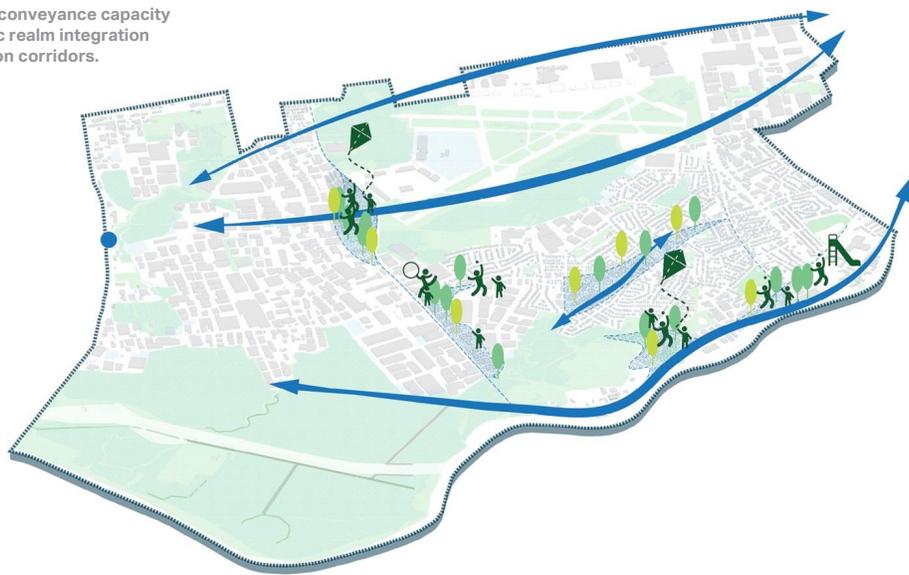


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**BUILDING THE HYBRID  
CHANNEL FOCUS CONCEPT**

Maximize ecological and conveyance capacity along channels and public realm integration along structural protection corridors.



PROTECT
CULTIVATE
ENERGIZE



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# BUILDING THE HYBRID CHANNEL FOCUS CONCEPT

FEATURES INCLUDED

**Alternative 1:**

- 1. Hackensack Alignment
- 2. Surge Barrier @ Berry's Creek

**Alternative 2:**

- 1. All Main Street Green Features
- 2. DePeyster Creek Open Space
- 3. Upper Losen Slote
- 4. Avanti Park
- 5. East Riser Ditch Extension
- 6. Caesar Place
- 7. Green Infrastructure Street Improvements
- 8. West Riser Extension



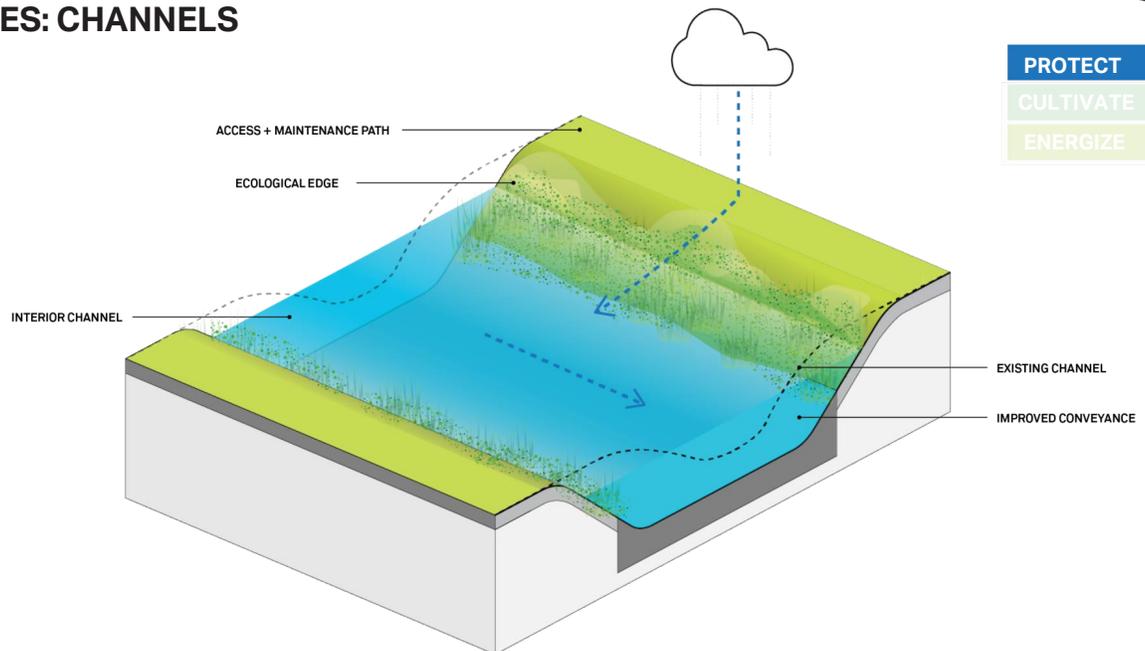
ALTERNATIVE 1  
ALTERNATIVE 2



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# HYBRID BUILDING BLOCKS // STORMWATER STRATEGIES: CHANNELS



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# HYBRID BUILDING BLOCKS // CHANNELS

## ILLUSTRATIVE VIEW: EXISTING CHANNEL CONDITION



**CURRENT**



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# HYBRID BUILDING BLOCKS // CHANNELS

## ILLUSTRATIVE VIEW: PROPOSED CHANNEL IMPROVEMENTS



**PROPOSED**

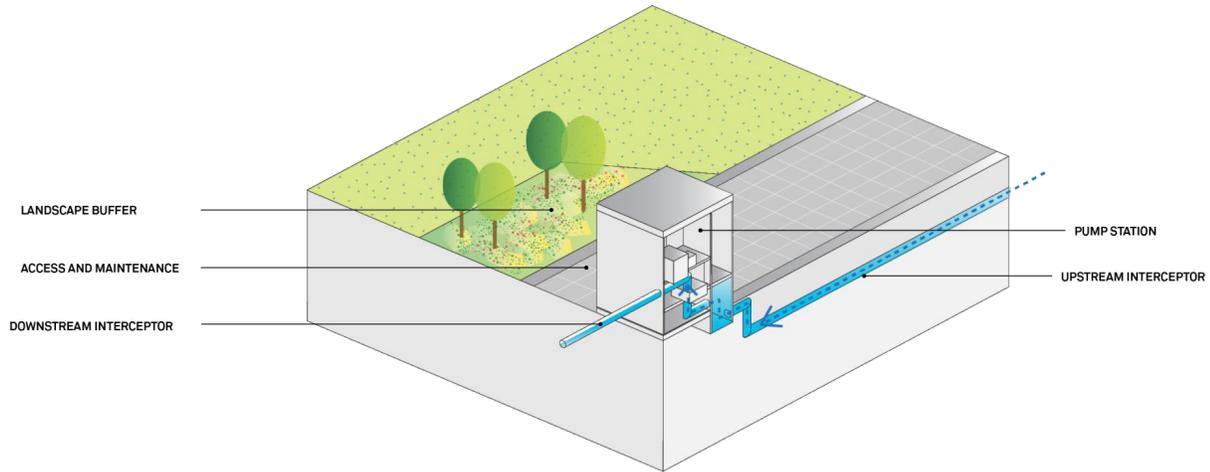


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# HYBRID BUILDING BLOCKS // STORMWATER STRATEGIES: EQUIPMENT

- PROTECT
- CULTIVATE
- ENERGIZE



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# HYBRID BUILDING BLOCKS // EQUIPMENT ILLUSTRATIVE VIEW: TYPICAL STREET CONDITION

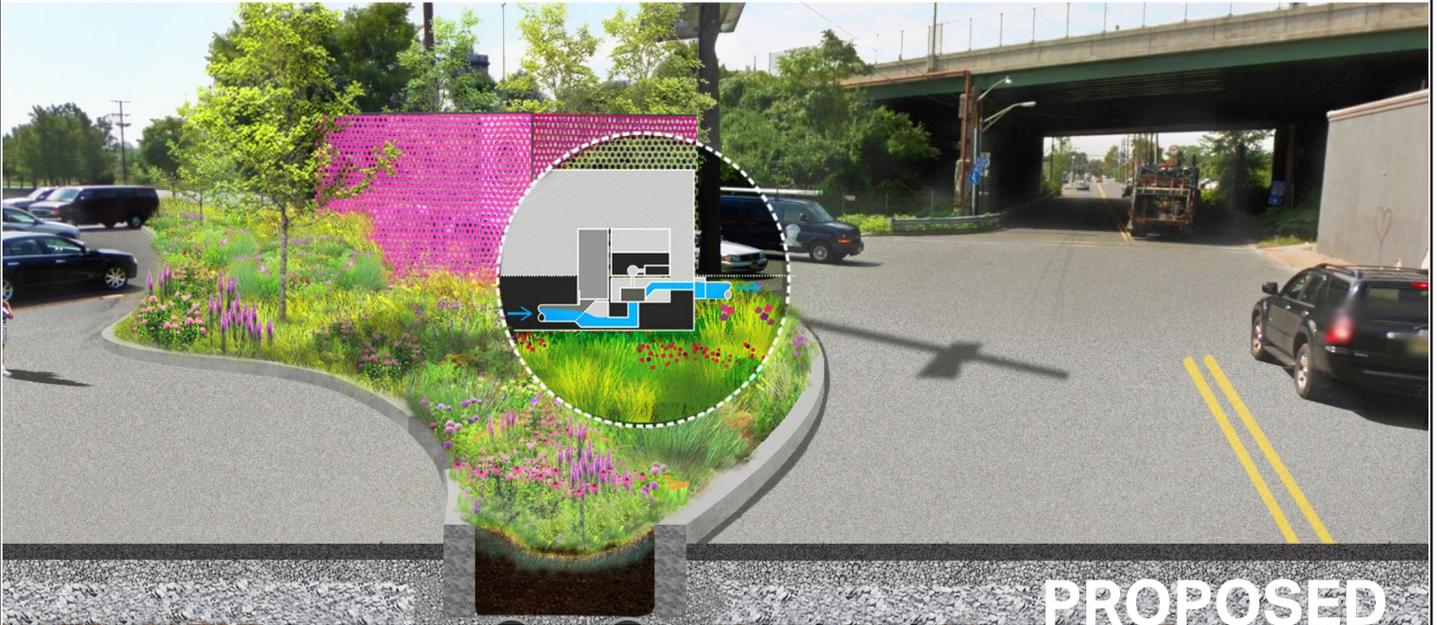


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# HYBRID BUILDING BLOCKS // EQUIPMENT

## ILLUSTRATIVE VIEW: NEW PUMP STATION & GREEN INFRASTRUCTURE



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# BUILDING THE HYBRID

## COMMUNITY FOCUS CONCEPT

Focus benefits in the community cores with integrated access to the Hackensack River edge improvements.



- PROTECT
- CULTIVATE
- ENERGIZE



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# BUILDING THE HYBRID COMMUNITY FOCUS CONCEPT

FEATURES INCLUDED

**Alternative 1:**

- 1. Hackensack Alignment
- 2. Surge Barrier @ Berry's Creek

**Alternative 2:**

- 1. All Main Street Green Features
- 2. All Main Street Grey Features
- 3. All Losen Sote
- 4. DePeyster Creek Open Space
- 5. Modified East Riser & Caesar Place Park
- 6. West Riser to Vincent Street



ALTERNATIVE 1  
ALTERNATIVE 2

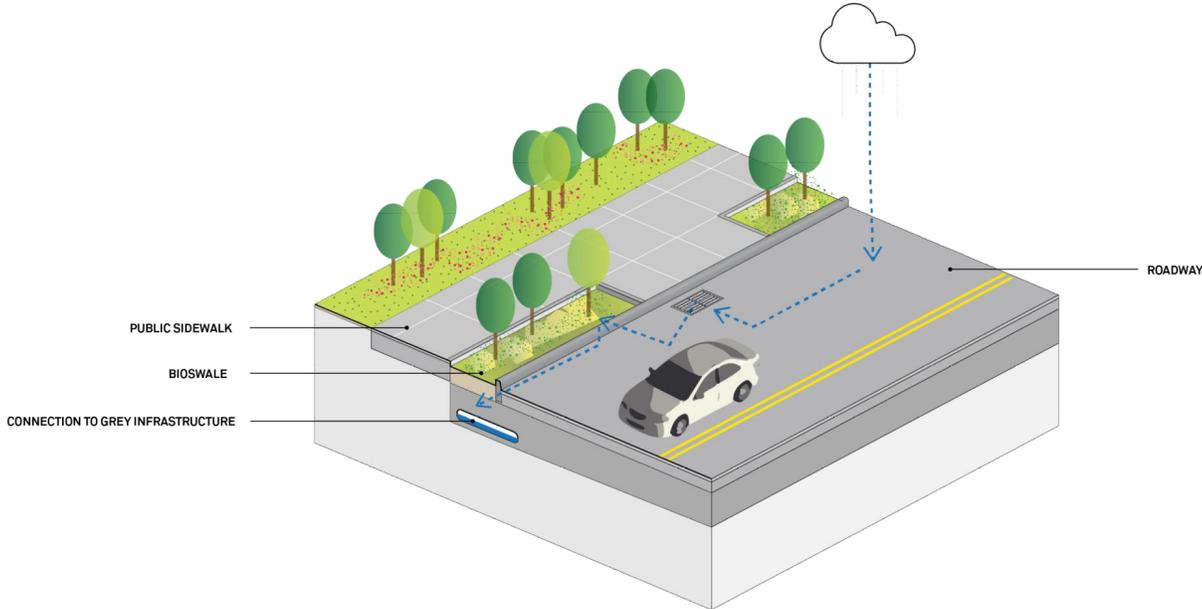


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# HYBRID BUILDING BLOCKS // STORMWATER STRATEGIES: GREEN INFRASTRUCTURE

PROTECT  
CULTIVATE  
ENERGIZE



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# HYBRID BUILDING BLOCKS // GREEN INFRASTRUCTURE

## ILLUSTRATIVE VIEW: EXISTING SCHOOLS



**CURRENT**



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# HYBRID BUILDING BLOCKS // GREEN INFRASTRUCTURE

## ILLUSTRATIVE VIEW: IMPLEMENTATION AT MUNICIPAL & SCHOOL BUILDINGS



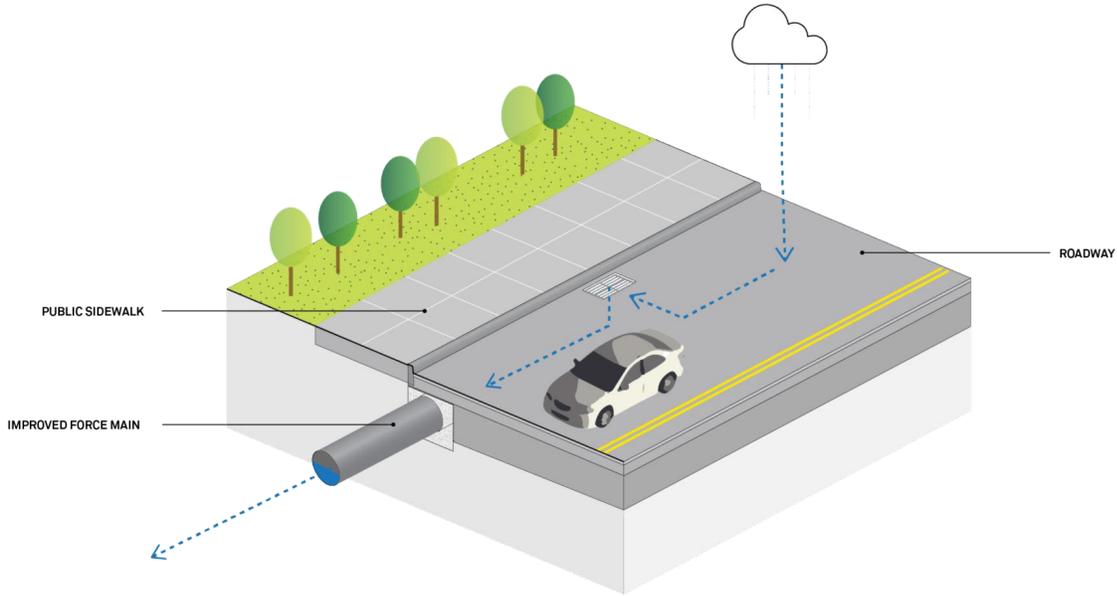
**PROPOSED**



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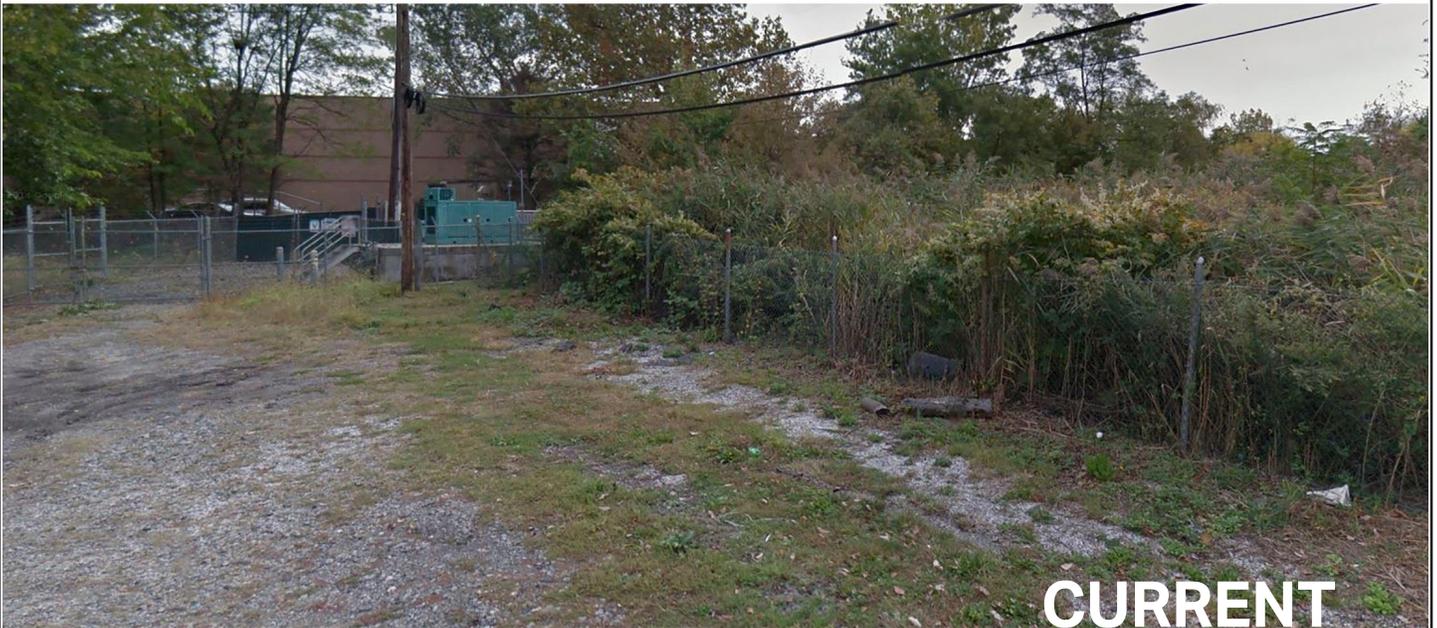
# HYBRID BUILDING BLOCKS // STORMWATER STRATEGIES: INFRASTRUCTURE



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# HYBRID BUILDING BLOCKS // INFRASTRUCTURE ILLUSTRATIVE VIEW: EXISTING DEPEYSTER CREEK CONDITION



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**HYBRID BUILDING BLOCKS // INFRASTRUCTURE**  
**ILLUSTRATIVE VIEW: PROPOSED IMPROVEMENTS AT DEPEYSTER CREEK**



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**BUILDING THE HYBRID**  
**COMPLETE SYSTEM CONCEPT**

Incorporating all features, creating a network of flood reduction and stormwater management with connected green infrastructure, habitat improvements, and public parks.



- PROTECT
- CULTIVATE
- ENERGIZE



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# BUILDING THE HYBRID COMPLETE SYSTEM CONCEPT

FEATURES INCLUDED

**Alternative 1:**

- 1. Hackensack Alignment
- 2. Surge Barrier @ Berry's Creek

**Alternative 2:**

- 1. All Main Street Green Features
- 2. All Main Street Grey Features
- 3. Upper Losen Slote
- 4. DePeyster Creek Open Space
- 5. Fresh Water Wetland
- 6. Avanti Park
- 7. East Rise Extension
- 8. Caesar Place Park
- 9. Green Infrastructure Street Improvements
- 10. Complete West Riser



ALTERNATIVE 1  
ALTERNATIVE 2

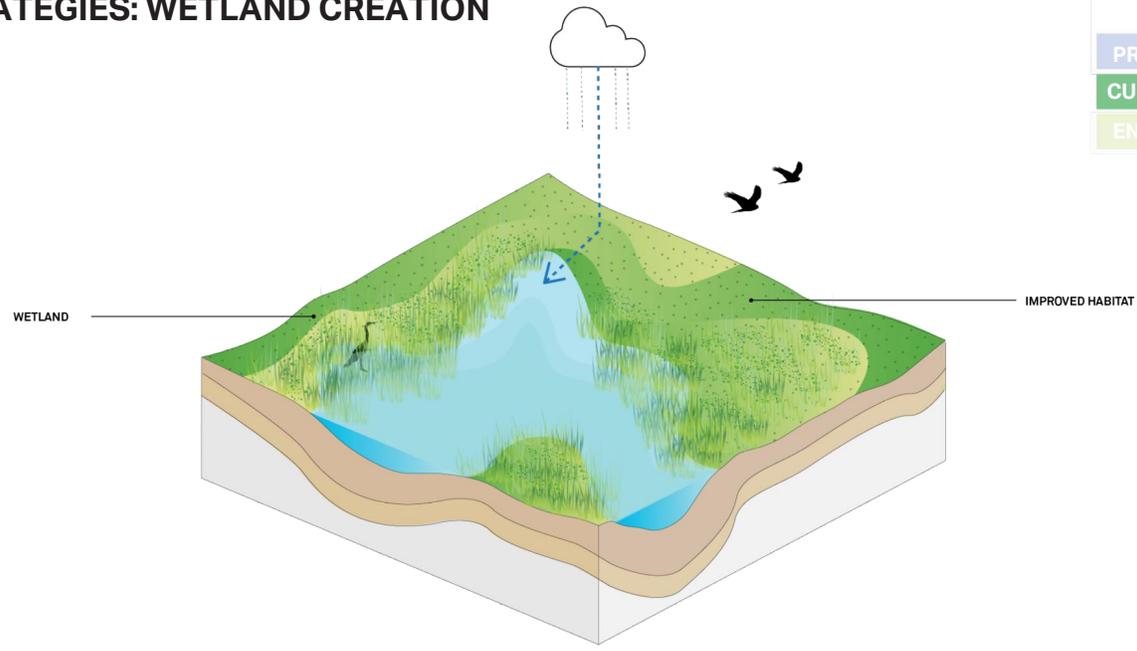


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# HYBRID BUILDING BLOCKS // STORMWATER STRATEGIES: WETLAND CREATION

PROTECT  
CULTIVATE  
ENERGIZE



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# HYBRID BUILDING BLOCKS // WETLANDS

## ILLUSTRATIVE VIEW: EXISTING RIVER FRONT CONDITION



**CURRENT**



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# HYBRID BUILDING BLOCKS // WETLANDS

## ILLUSTRATIVE VIEW: PROPOSED CREATION AT FLUVIAL PARK



**PROPOSED**

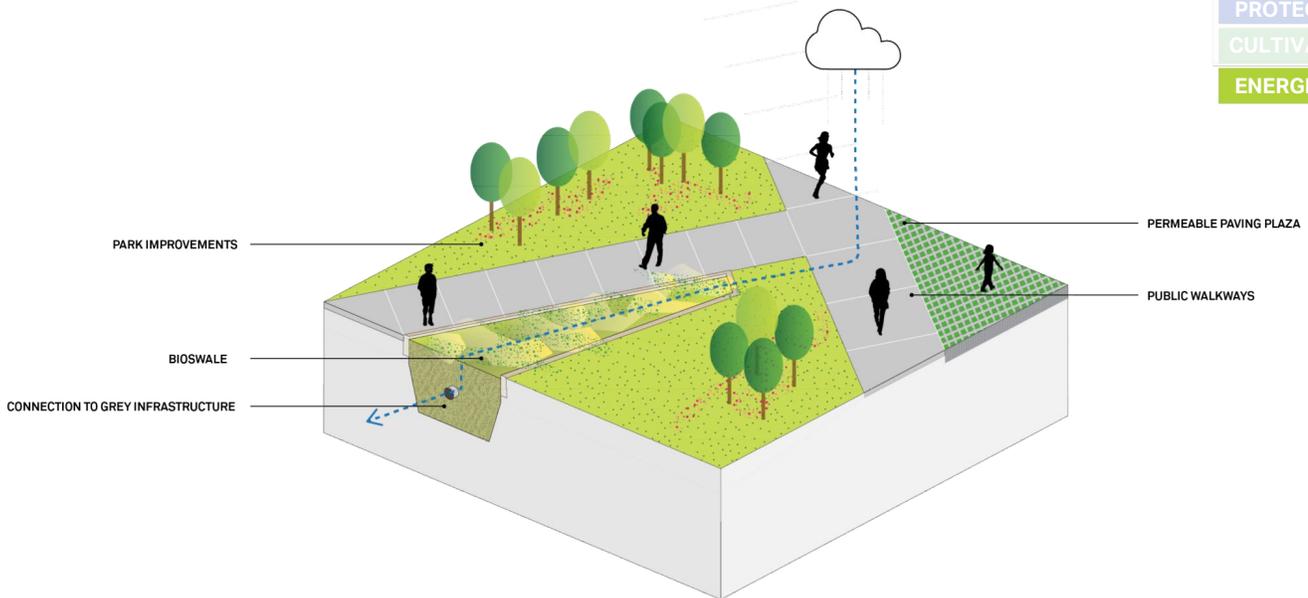


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# HYBRID BUILDING BLOCKS // STORMWATER STRATEGIES: PUBLIC REALM

- PROTECT
- CULTIVATE
- ENERGIZE



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# HYBRID BUILDING BLOCKS // PUBLIC REALM ILLUSTRATIVE VIEW: UNDEVELOPED LOT



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# HYBRID BUILDING BLOCKS // PUBLIC REALM

## ILLUSTRATIVE VIEW: PROPOSED PARK



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## NEXT STEPS

**CHRISTOPHER BENOSKY, AECOM**

## NEXT STEPS

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### NJDEP / AECOM: UPCOMING ACTIVITIES

- Prepare Meeting Summary for CAG #10
- Continue developing and screening:
  - Hybrid Concepts, Alternatives, and Costs
- CAG #11 in September 2017
  - Alternative 1 – Structural Flood Reduction
  - Alternative 2 – Stormwater Drainage Improvements
  - Alternative 3 – Hybrid Alternative



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## NEXT STEPS

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### CAG: CALL TO ACTION

- Submit comments from CAG #10 meeting by **July 11, 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

### Project Website

[www.rbd-meadowlands.nj.gov](http://www.rbd-meadowlands.nj.gov)

### Project Email

[rbd-meadowlands@dep.nj.gov](mailto:rbd-meadowlands@dep.nj.gov)

## Question & Answer



# THANK YOU





