

REBUILDBYDESIGN

MEADOWLANDS

CITIZENS ADVISORY GROUP MEETING #10

ALTERNATIVE 3: HYBRID

June 27, 2017

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



THE MEADOWLANDS CHALLENGE

CHALLENGE 1: **STORM SURGE FLOODING**



THE MEADOWLANDS CHALLENGE

FACTOR: **LOW-LYING ELEVATIONS**



THE MEADOWLANDS CHALLENGE

CHALLENGE 2: FREQUENT RAIN STORMS FLOOD INTERIOR



THE MEADOWLANDS CHALLENGE

FACTOR: **UNDERSIZED & UNDERPERFORMING INTERIOR DRAINAGE**



THE MEADOWLANDS CHALLENGE

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

7



REBUILD BY DESIGN MEADOWLANDS

CAG Meeting #10 // June 27, 2017

AECOM

THE MEADOWLANDS CHALLENGE

PROJECT STRATEGY: DEVELOP 3 BUILD ALTERNATIVES



Alternative 1:
Storm Surge
Flooding



Alternative 2:
Stormwater
Flooding



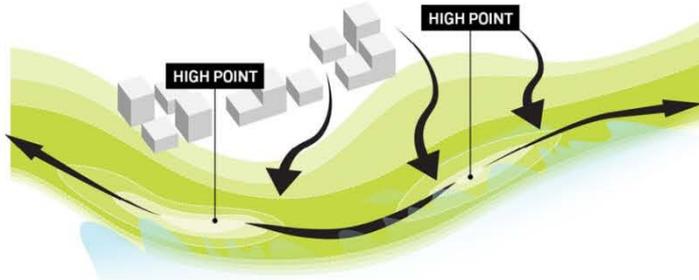
Alternative 3:
Storm Surge &
Stormwater Flooding

HYBRID BUILDING BLOCKS

**ALTERNATIVE 1: STORM SURGE FLOODING
GARRETT AVERY, AECOM**

HYBRID BUILDING BLOCKS // STORM SURGE

APPROACH & GOALS



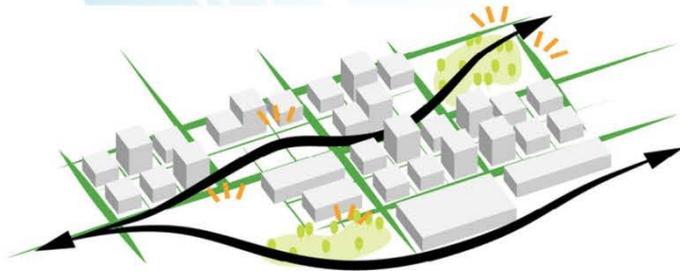
FILL THE GAPS // MAXIMIZE PROTECTION PROTECT

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.



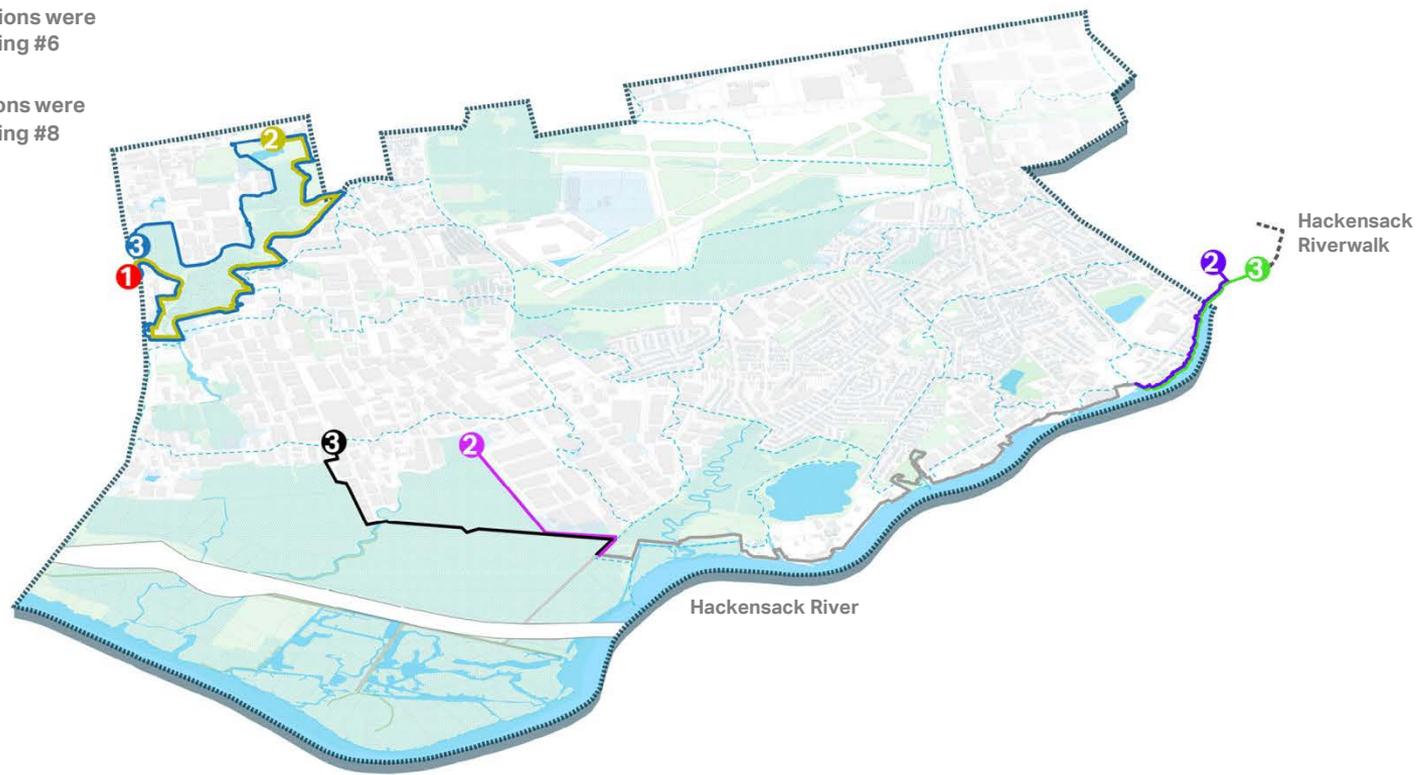
LEVERAGE PUBLIC LAND ENERGIZE

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.



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



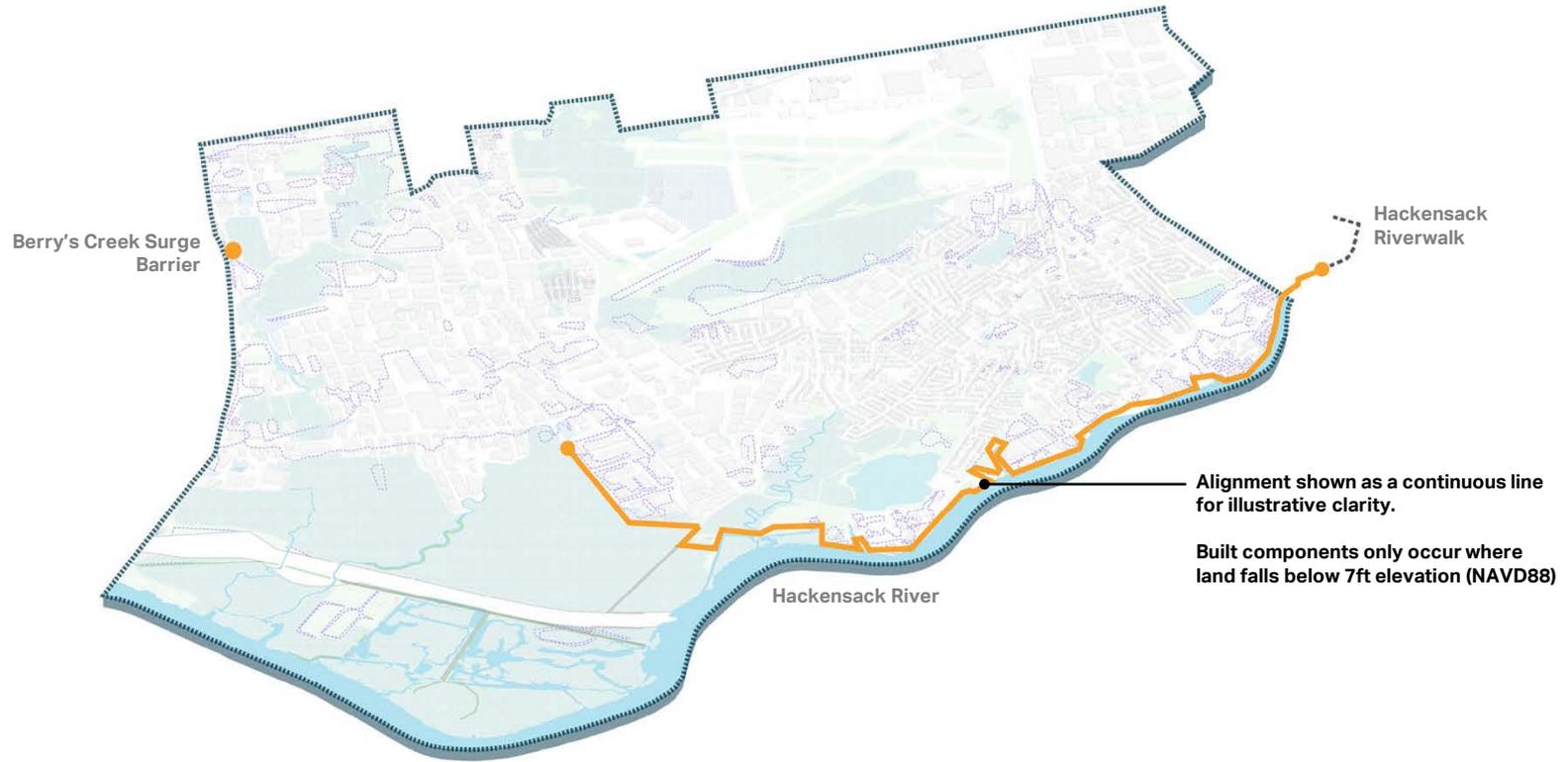
HYBRID BUILDING BLOCKS // STROM SURGE SCREENING RESULTS: SELECTED LINE OF PROTECTION

Selected Line of Protection:

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



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



HYBRID BUILDING BLOCKS

**ALTERNATIVE 2: STORMWATER
LULU LOQUIDIS, AECOM**

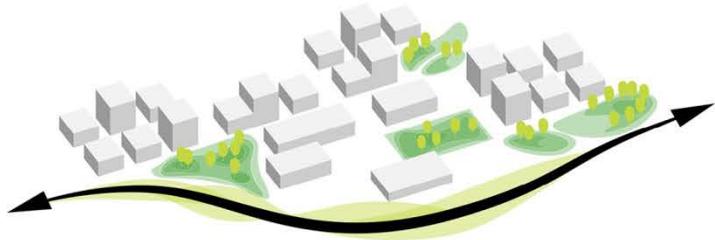
HYBRID BUILDING BLOCKS // STORMWATER

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

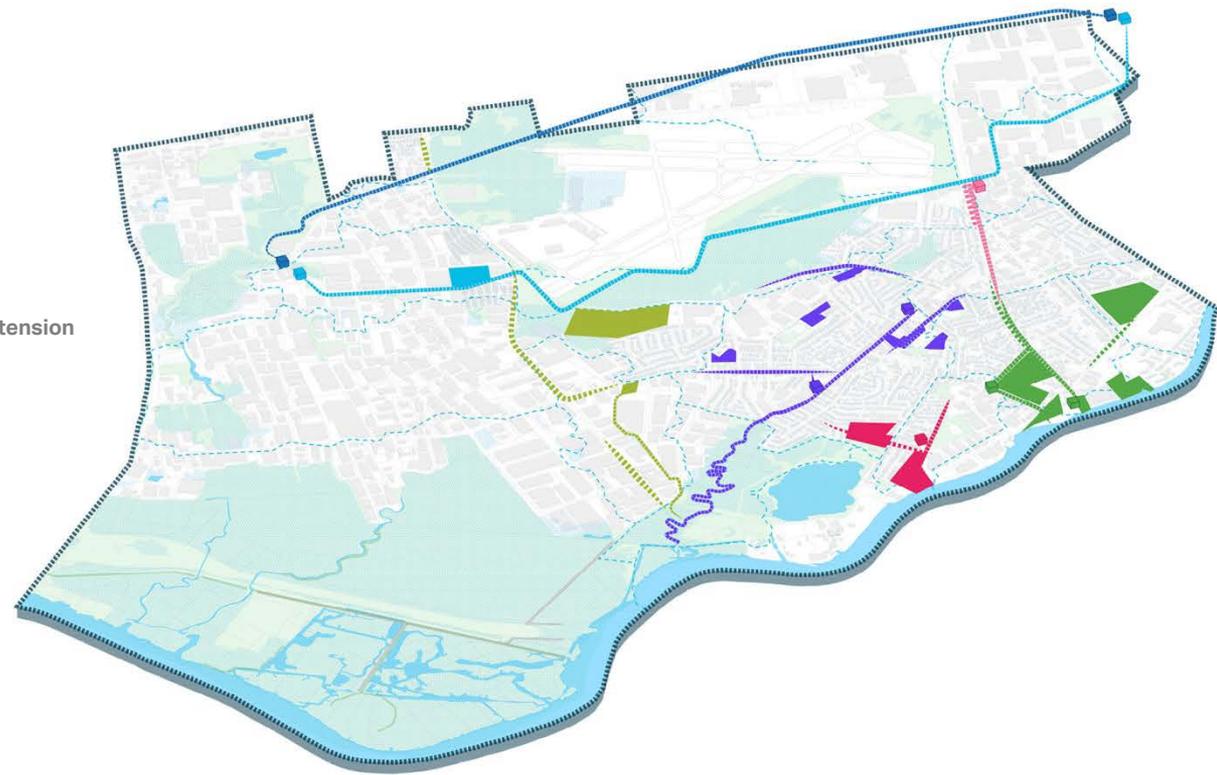
The creation of new public parks creates more opportunities for gathering and recreation. The public realm is enhanced by providing landscape and park improvements to existing public parks, municipal buildings, schools yards, and libraries.



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



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 Sote Features

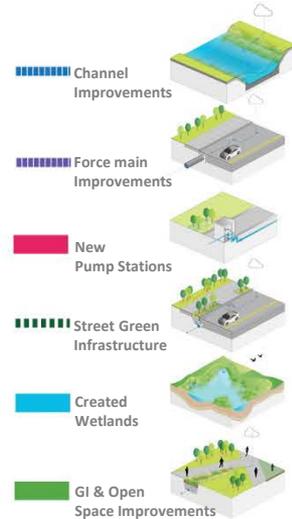
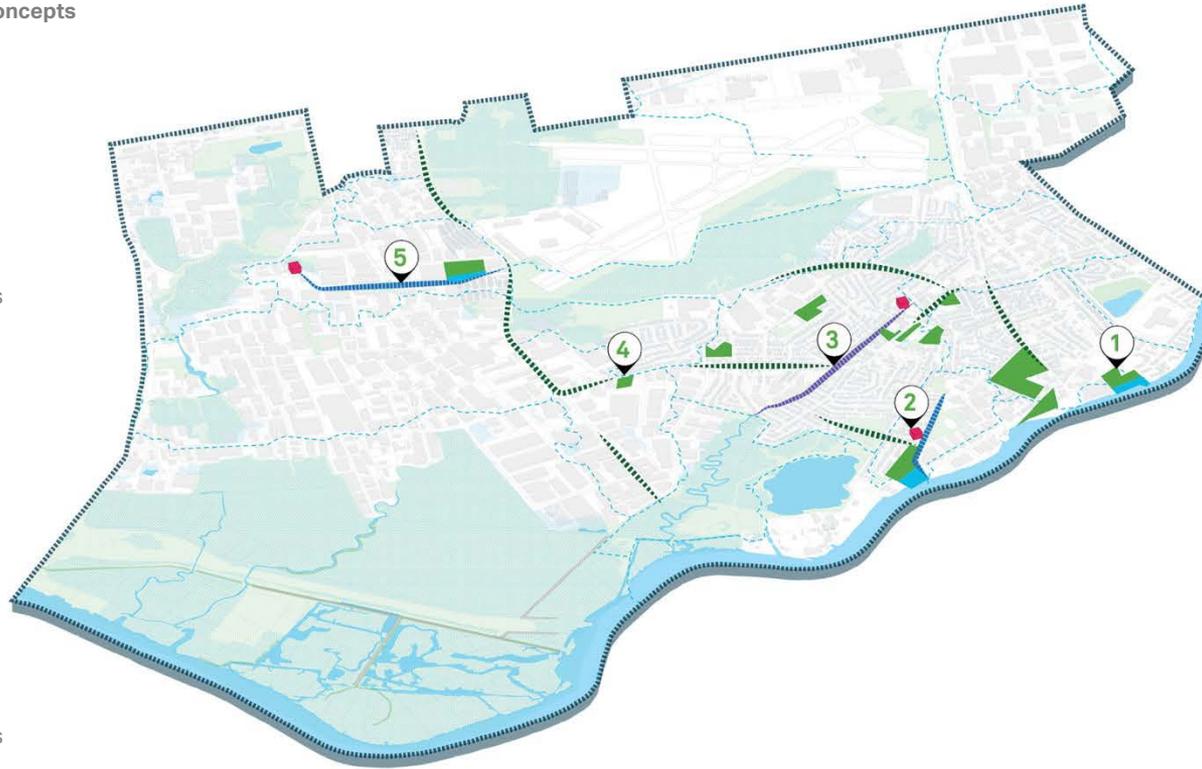
- New Pump Station
- Force Main
- Municipal & School Improvements

4. Carol Place Features

- Open Space
- Street GI

5. East Riser Features

- New Pump Station
- Open Space
- Channel Improvements

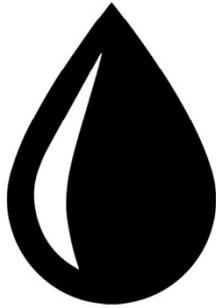


BUILDING THE HYBRID

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

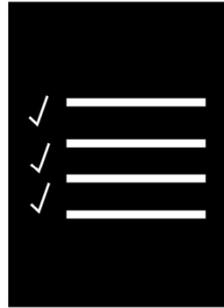
BUILDING THE HYBRID

CONSIDERATIONS



Performance

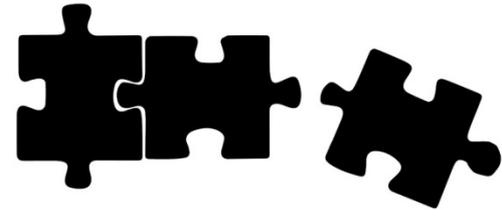
Testing concepts throughout development with hydraulic model to better understand and optimize performance.



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

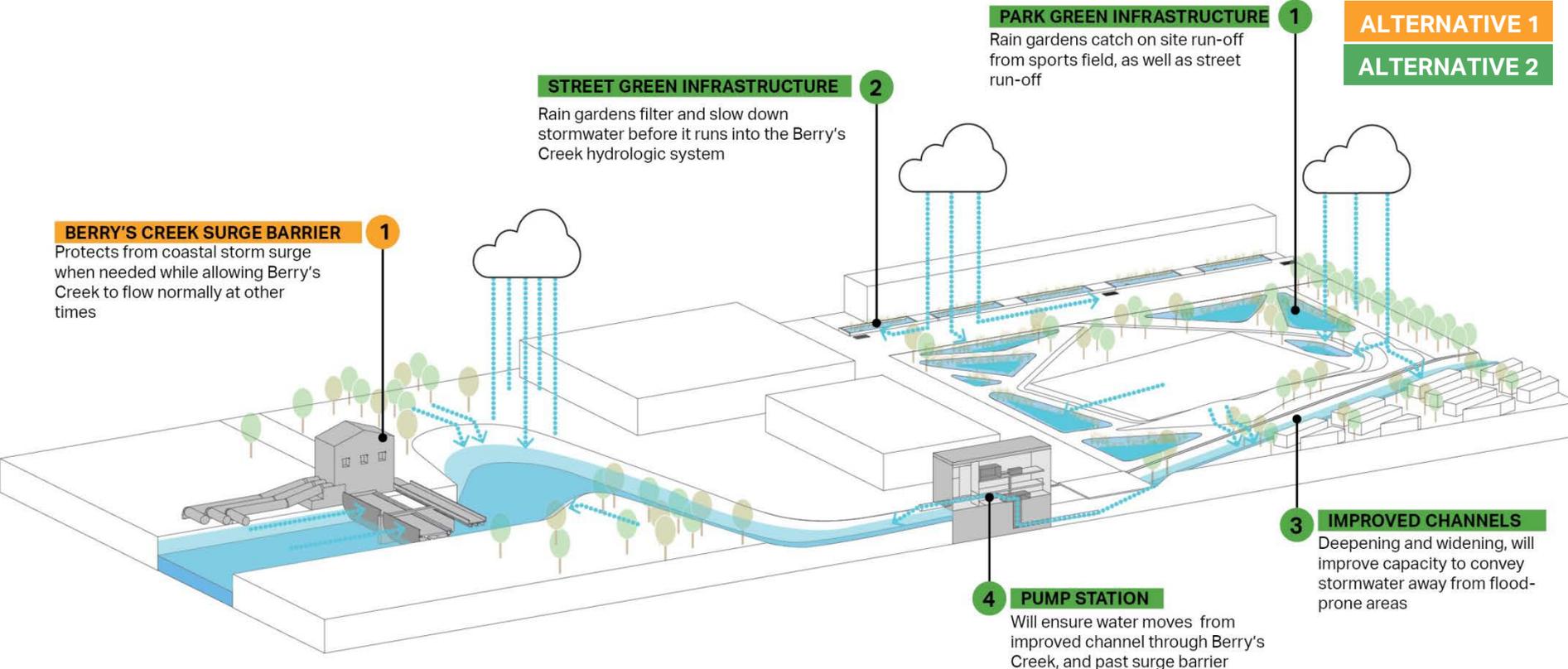
Once performance modeling and screening are complete, system function will guide a project build plan.

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.



BUILDING THE HYBRID

PERFORMANCE // CHANNELS & PARKS



BUILDING THE HYBRID

BENEFITS // CHANNELS & PARKS

1 BERRY'S CREEK SURGE BARRIER

Protects from coastal storm surge when needed while allowing Berry's Creek to flow normally at other times

2 GREEN INFRASTRUCTURE

Rain gardens and native plantings at the park provide a new ecological area between Teterboro Airport and Berry's Creek

3 RECREATION

Provides much needed passive and active recreation for communities along Moonachie Ave

PROTECT

CULTIVATE

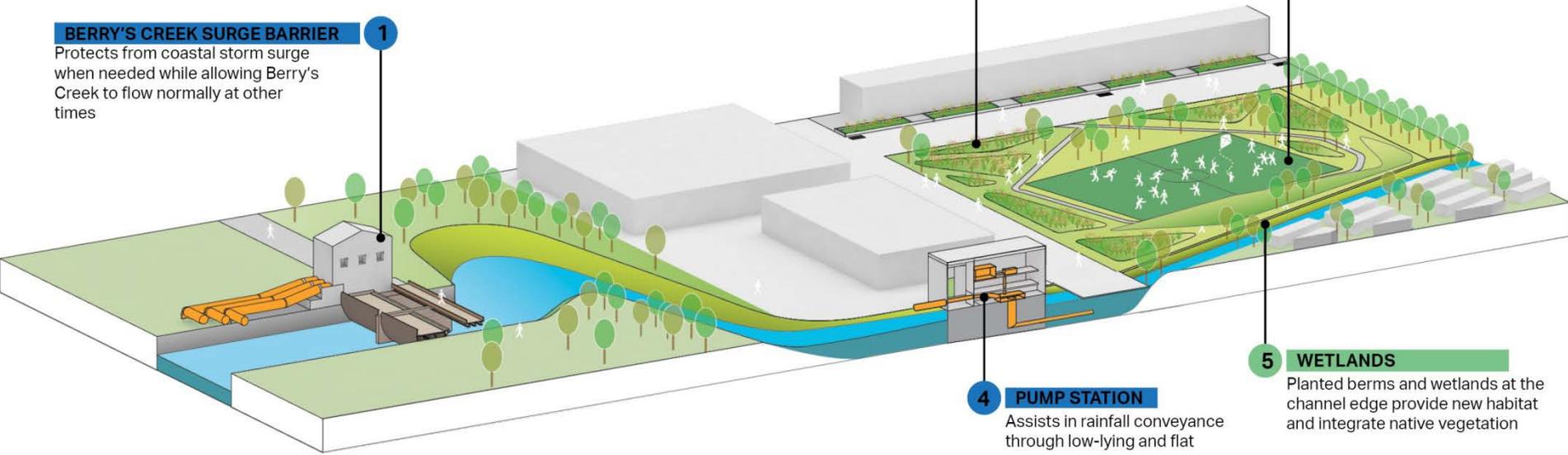
ENERGIZE

4 PUMP STATION

Assists in rainfall conveyance through low-lying and flat areas

5 WETLANDS

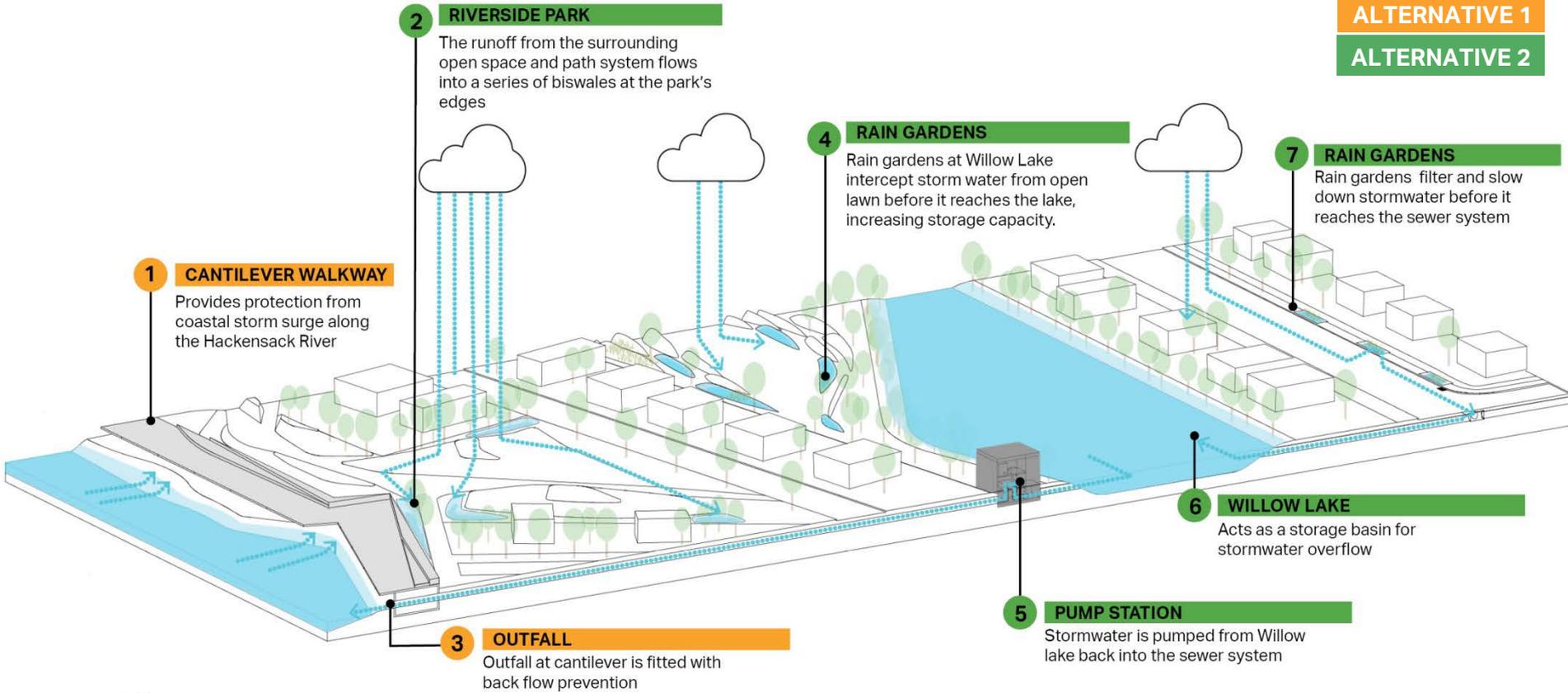
Planted berms and wetlands at the channel edge provide new habitat and integrate native vegetation



BUILDING THE HYBRID

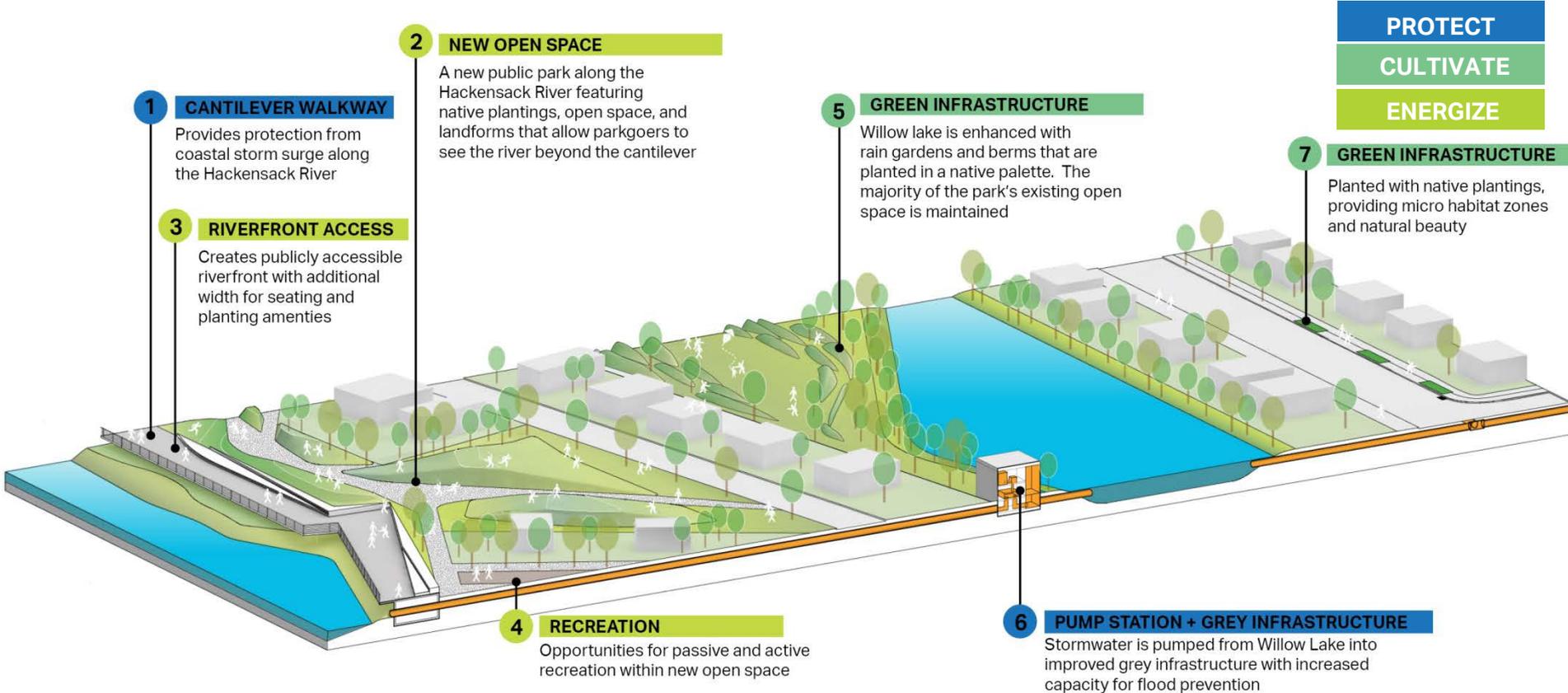
PERFORMANCE // RIVER'S EDGE & NEIGHBORHOODS

ALTERNATIVE 1
ALTERNATIVE 2



BUILDING THE HYBRID

BENEFITS // RIVER'S EDGE & NEIGHBORHOODS

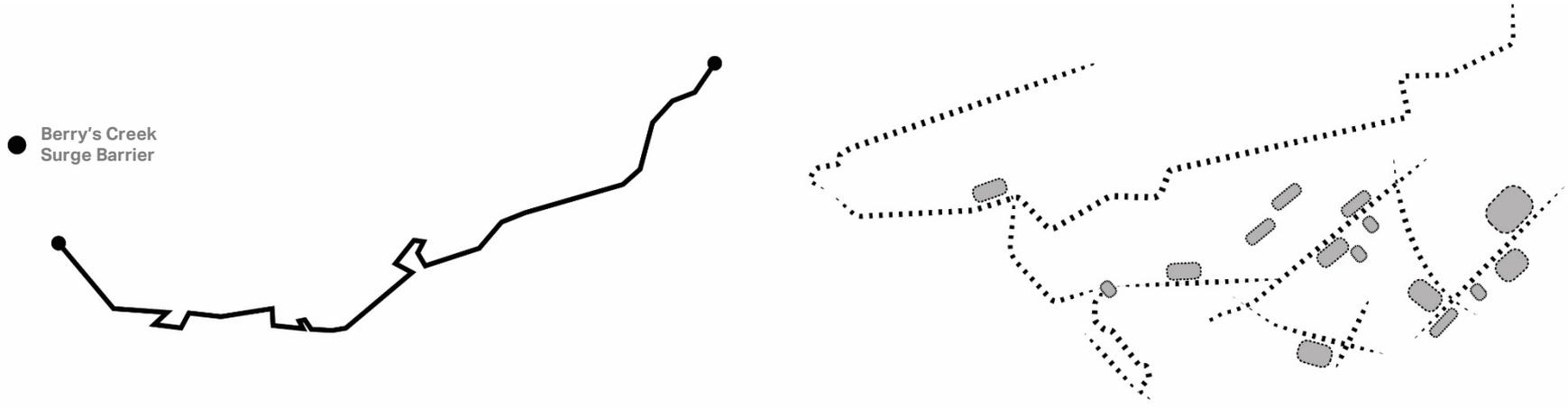


INITIAL IDEAS

**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



BUILDING THE HYBRID

CHANNEL FOCUS CONCEPT

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



- PROTECT
- CULTIVATE
- ENERGIZE



BUILDING THE HYBRID

CHANNEL FOCUS CONCEPT

ALTERNATIVE 1
ALTERNATIVE 2

FEATURES INCLUDED

Alternative 1:

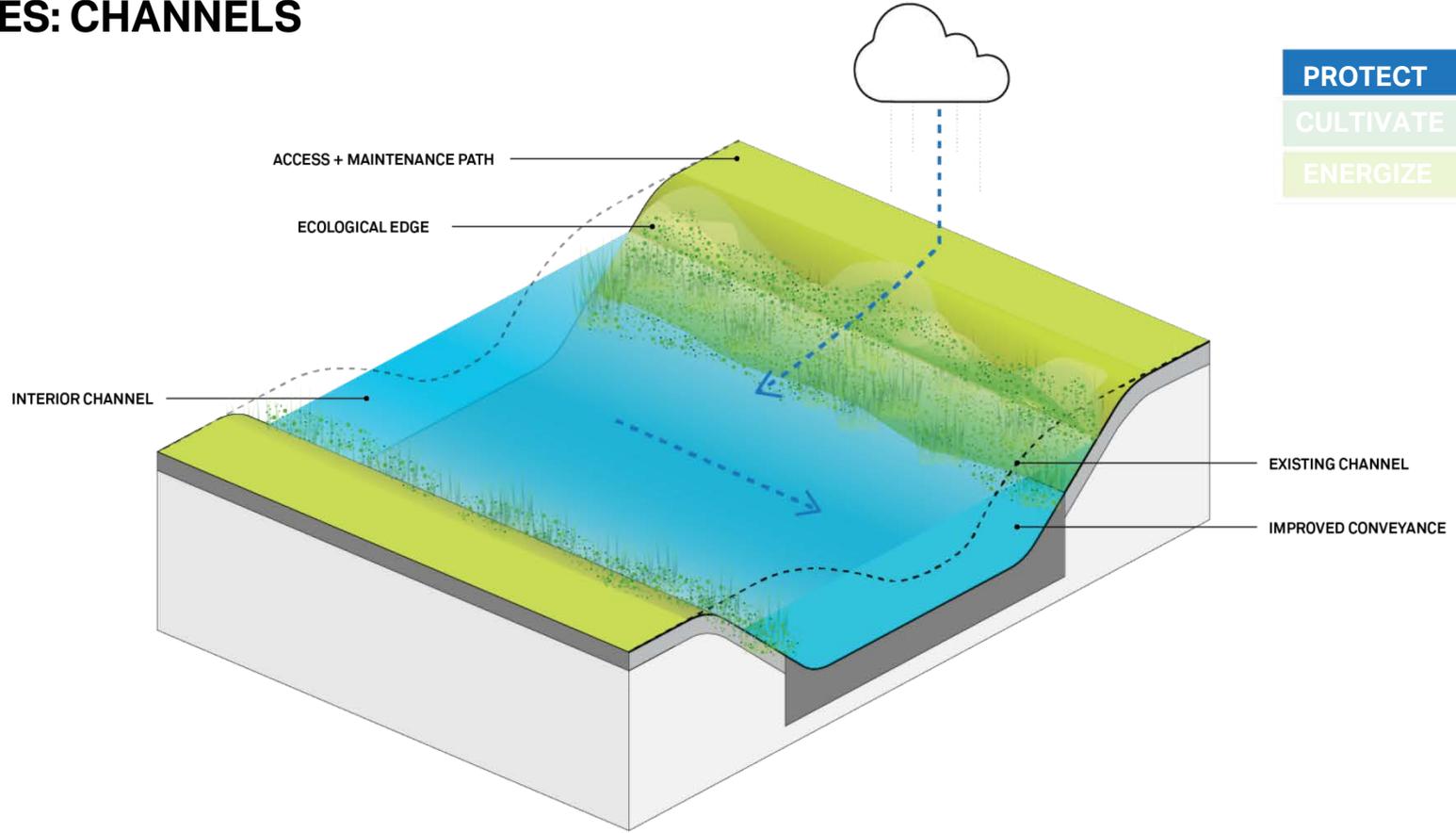
- 1. Hackensack Alignment
- 2. Surge Barrier @ Berry's Creek

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



HYBRID BUILDING BLOCKS // STORMWATER STRATEGIES: CHANNELS



HYBRID BUILDING BLOCKS // CHANNELS

ILLUSTRATIVE VIEW: EXISTING CHANNEL CONDITION



CURRENT



HYBRID BUILDING BLOCKS // CHANNELS

ILLUSTRATIVE VIEW: PROPOSE CHANNEL IMPROVEMENTS

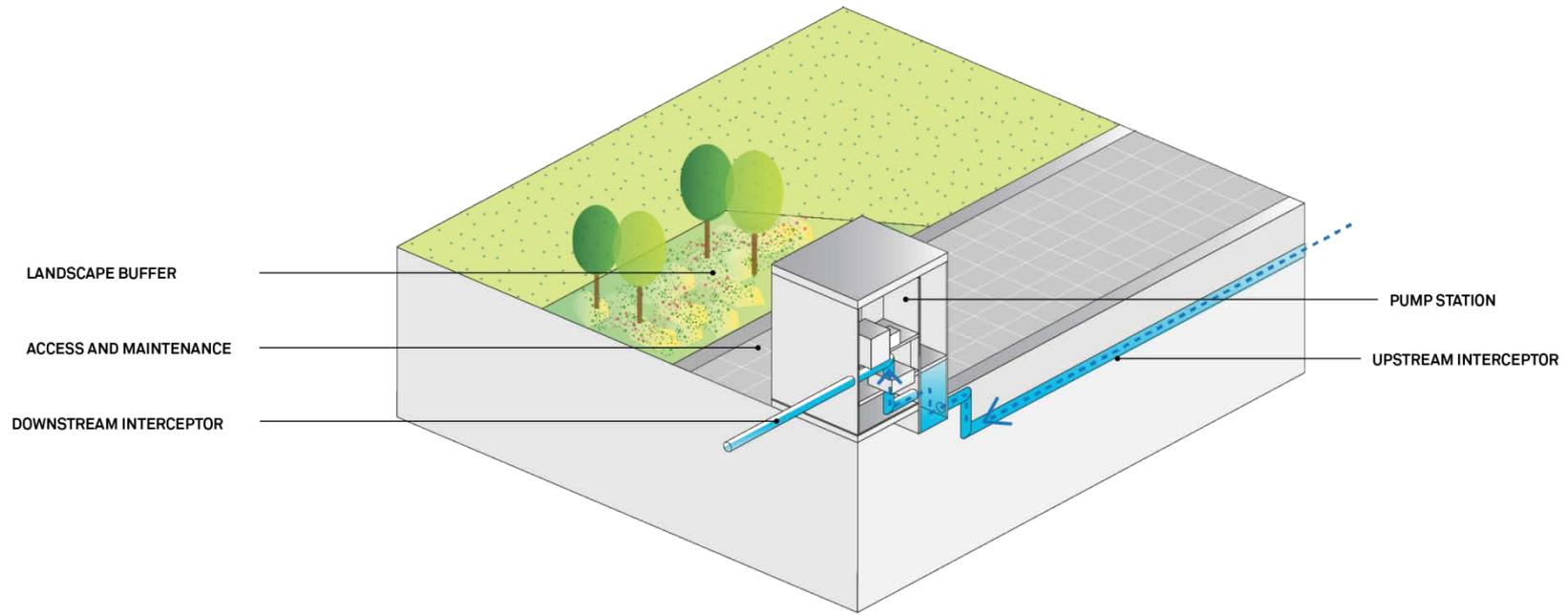


PROPOSED



HYBRID BUILDING BLOCKS // STORMWATER STRATEGIES: EQUIPMENT

- PROTECT
- CULTIVATE
- ENERGIZE



HYBRID BUILDING BLOCKS // EQUIPMENT

ILLUSTRATIVE VIEW: TYPICAL STREET CONDITION

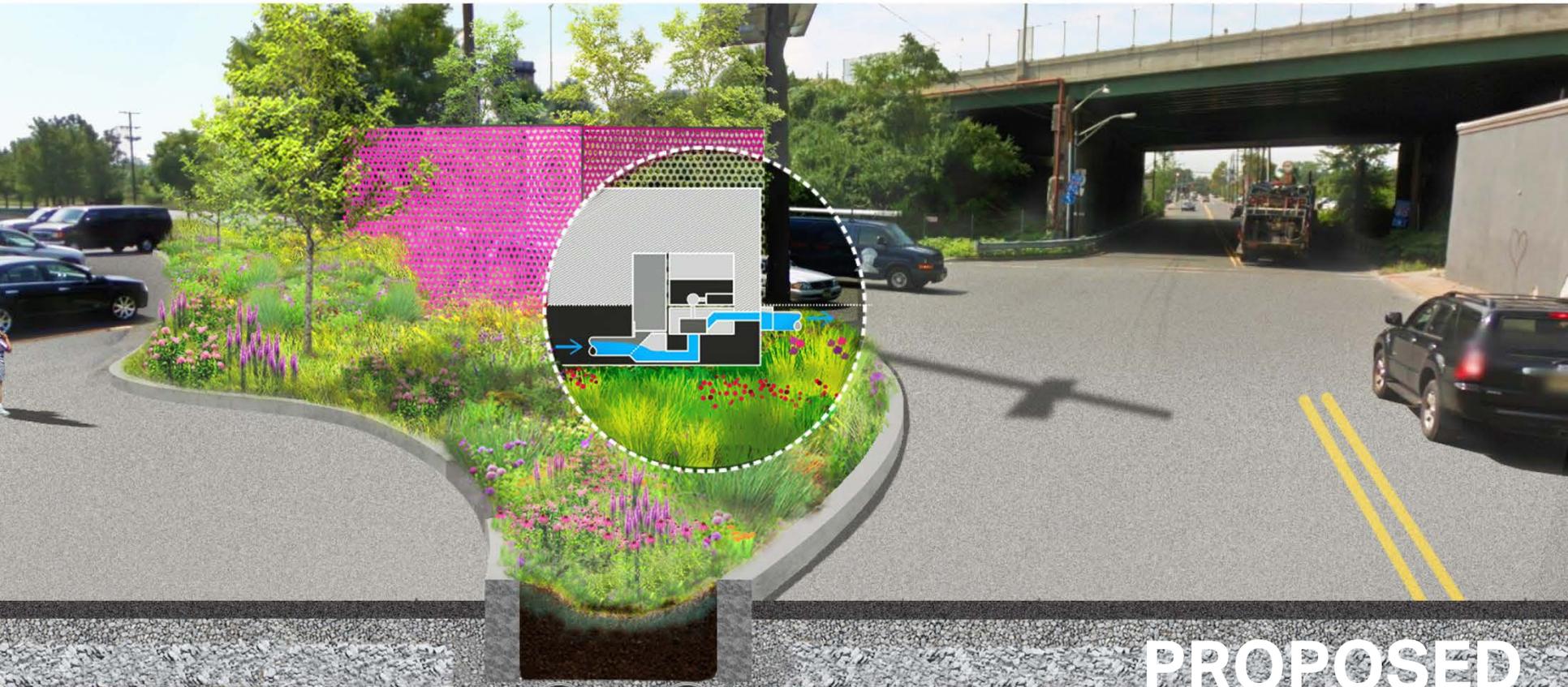


CURRENT



HYBRID BUILDING BLOCKS // EQUIPMENT

ILLUSTRATIVE VIEW: NEW PUMP STATION & GREEN INFRASTRUCTURE



PROPOSED



BUILDING THE HYBRID

COMMUNITY FOCUS CONCEPT

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



- PROTECT
- CULTIVATE
- ENERGIZE



BUILDING THE HYBRID

COMMUNITY FOCUS CONCEPT

ALTERNATIVE 1
ALTERNATIVE 2

FEATURES INCLUDED

Alternative 1:

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

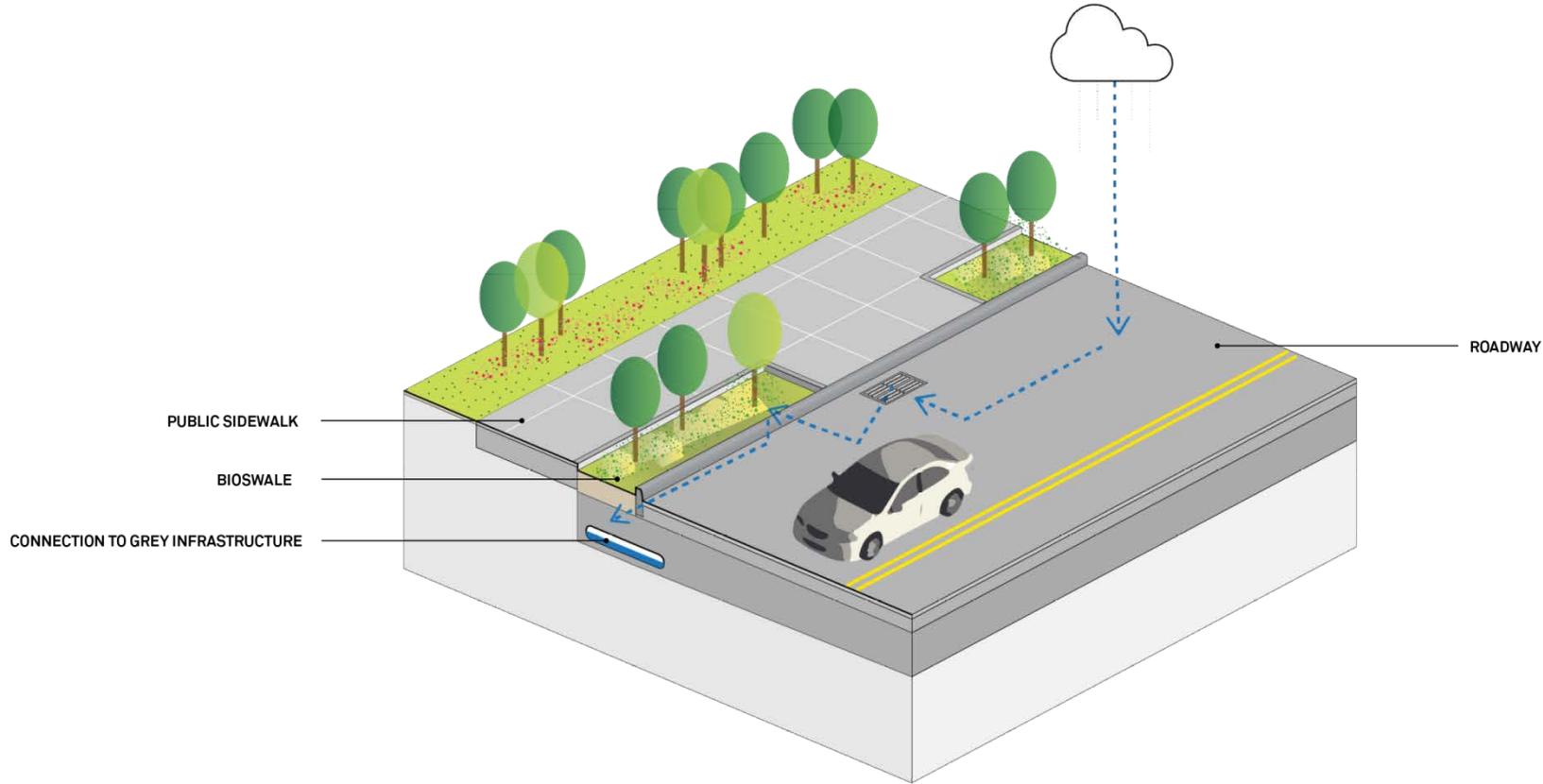
Alternative 2:

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



HYBRID BUILDING BLOCKS // STORMWATER STRATEGIES: GREEN INFRASTRUCTURE

- PROTECT
- CULTIVATE
- ENERGIZE



HYBRID BUILDING BLOCKS // GREEN INFRASTRUCTURE

ILLUSTRATIVE VIEW: EXISTING SCHOOLS



CURRENT



HYBRID BUILDING BLOCKS // GREEN INFRASTRUCTURE

ILLUSTRATIVE VIEW: IMPLEMENTATION AT MUNICIPAL & SCHOOL BUILDINGS



PROPOSED



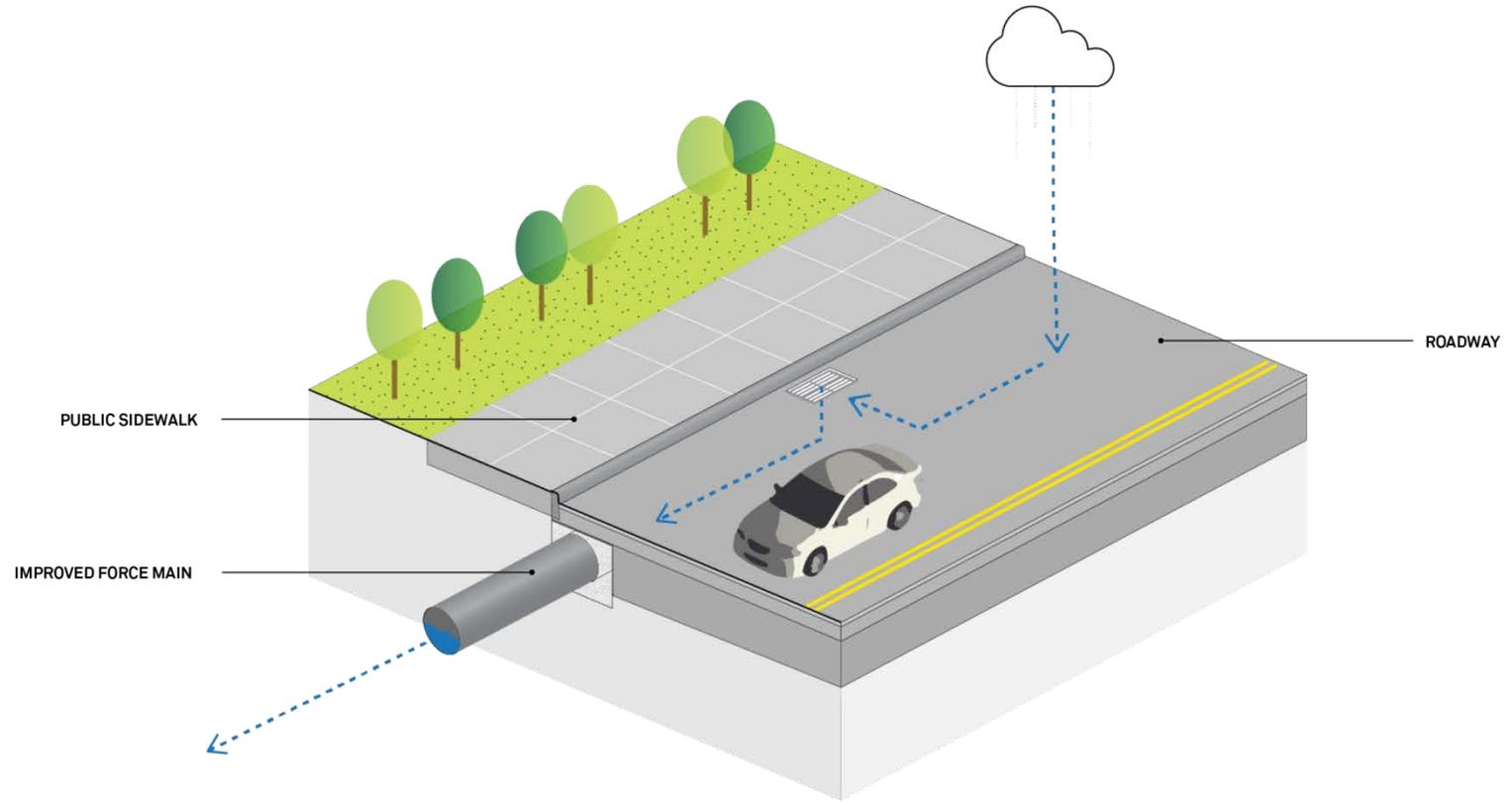
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HYBRID BUILDING BLOCKS // STORMWATER STRATEGIES: INFRASTRUCTURE

- PROTECT
- CULTIVATE
- ENERGIZE



HYBRID BUILDING BLOCKS // INFRASTRUCTURE

ILLUSTRATIVE VIEW: EXISTING DEPEYSTER CREEK CONDITION



CURRENT



HYBRID BUILDING BLOCKS // INFRASTRUCTURE

ILLUSTRATIVE VIEW: PROPOSED IMPROVEMENTS AT DEPEYSTER CREEK



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



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

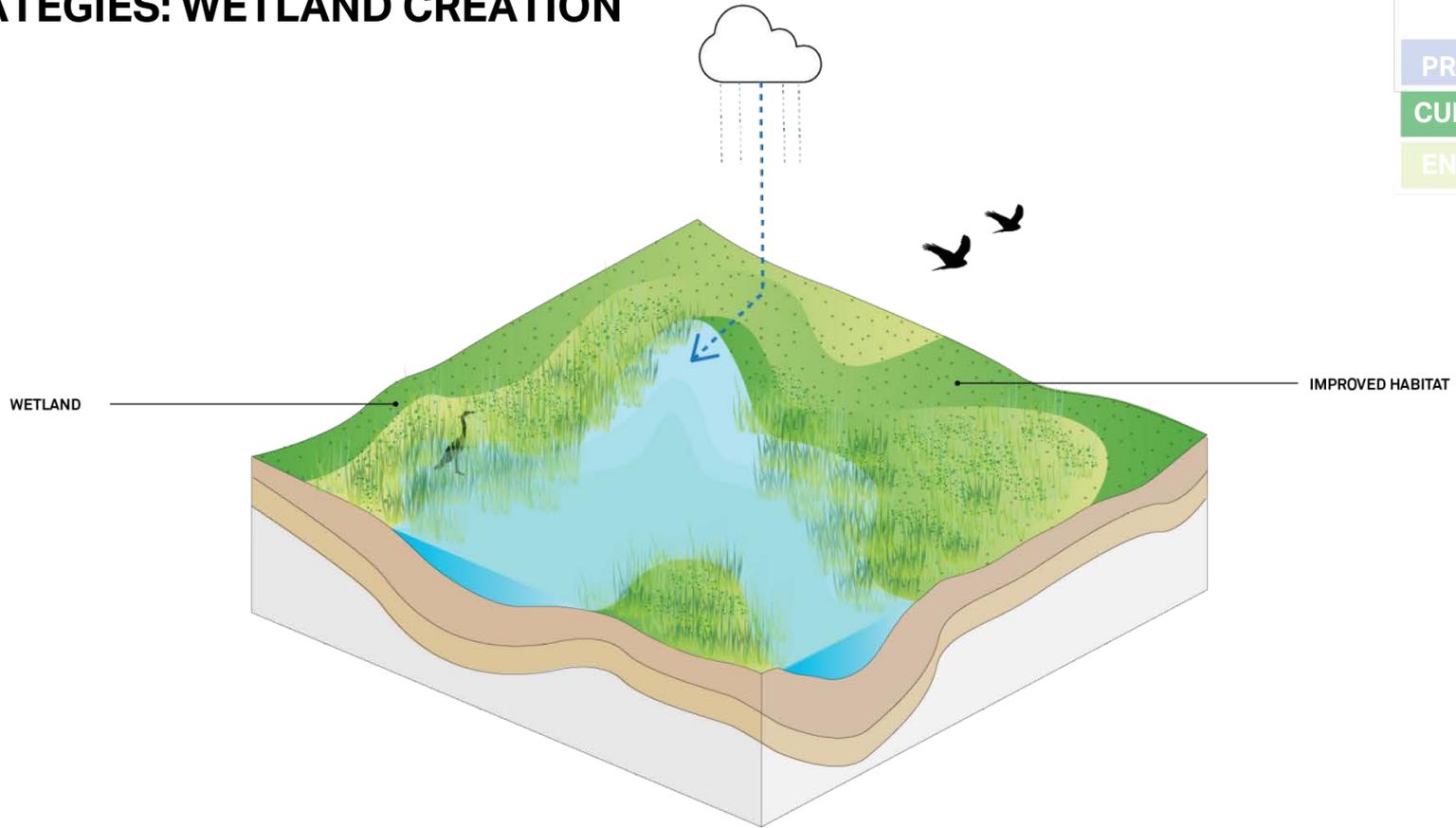
ALTERNATIVE 1

ALTERNATIVE 2



HYBRID BUILDING BLOCKS // STORMWATER STRATEGIES: WETLAND CREATION

- PROTECT
- CULTIVATE
- ENERGIZE



HYBRID BUILDING BLOCKS // WETLANDS

ILLUSTRATIVE VIEW: EXISTING RIVER FRONT CONDITION



CURRENT



HYBRID BUILDING BLOCKS // WETLANDS

ILLUSTRATIVE VIEW: PROPOSED CREATION AT FLUVIAL PARK

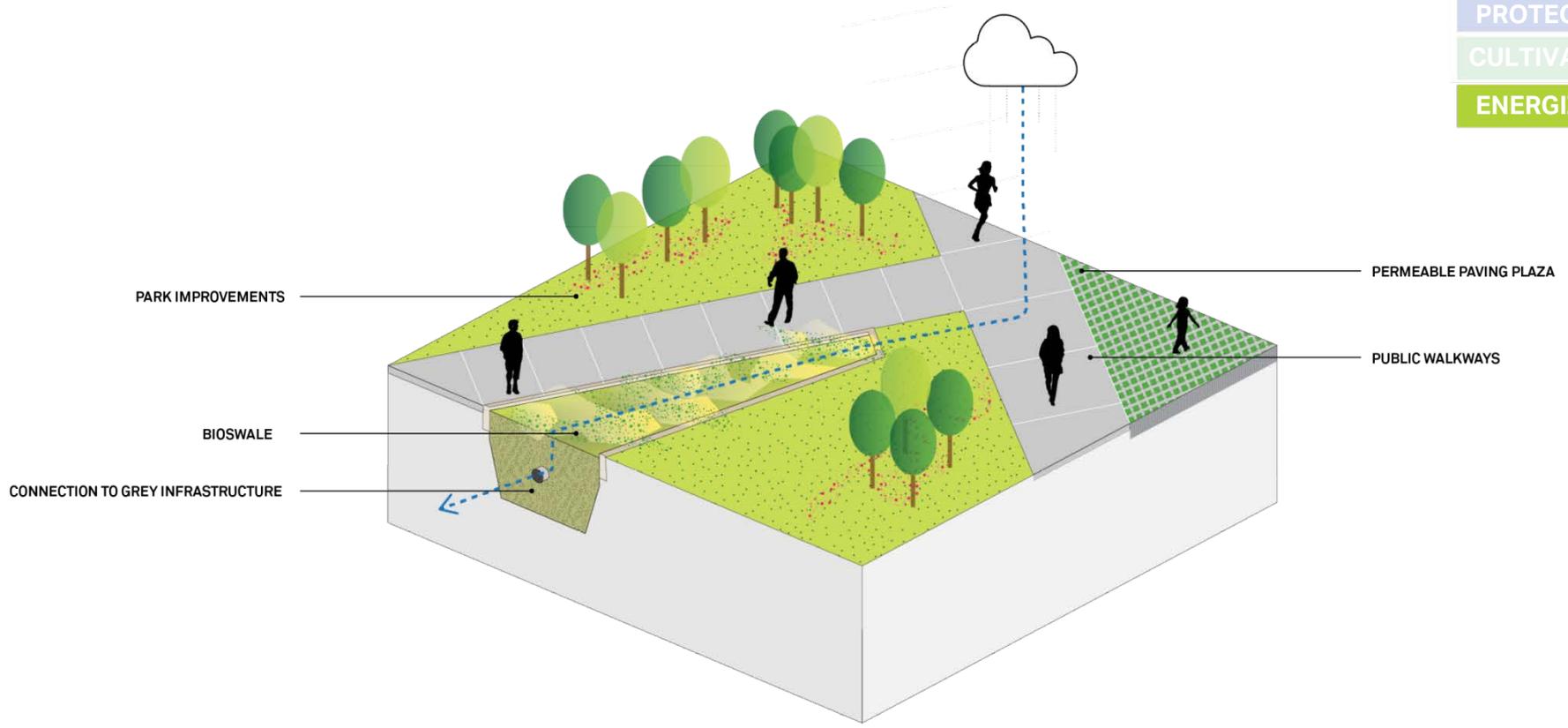


PROPOSED



HYBRID BUILDING BLOCKS // STORMWATER STRATEGIES: PUBLIC REALM

- PROTECT
- CULTIVATE
- ENERGIZE



HYBRID BUILDING BLOCKS // PUBLIC REALM

ILLUSTRATIVE VIEW: UNDEVELOPED LOT

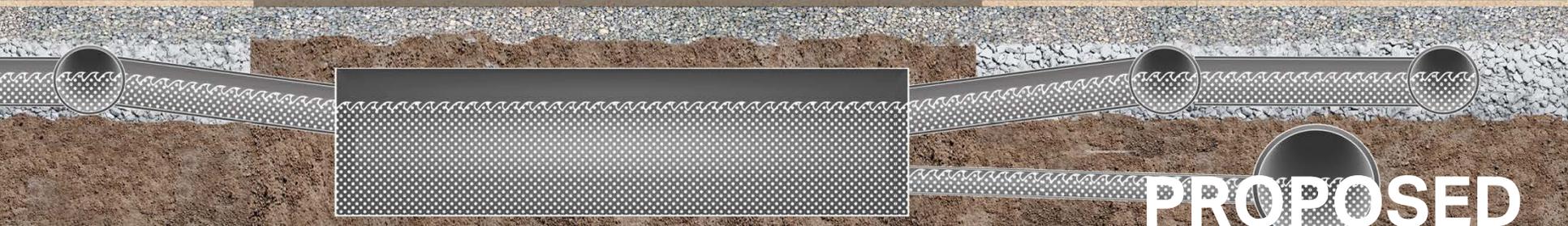


CURRENT



HYBRID BUILDING BLOCKS // PUBLIC REALM

ILLUSTRATIVE VIEW: PROPOSED PARK



PROPOSED



NEXT STEPS

CHRISTOPHER BENOSKY, AECOM

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



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)



Critical Information

Project Website

www.rbd-meadowlands.nj.gov

Project Email

rbd-meadowlands@dep.nj.gov

Question & Answer



THANK YOU