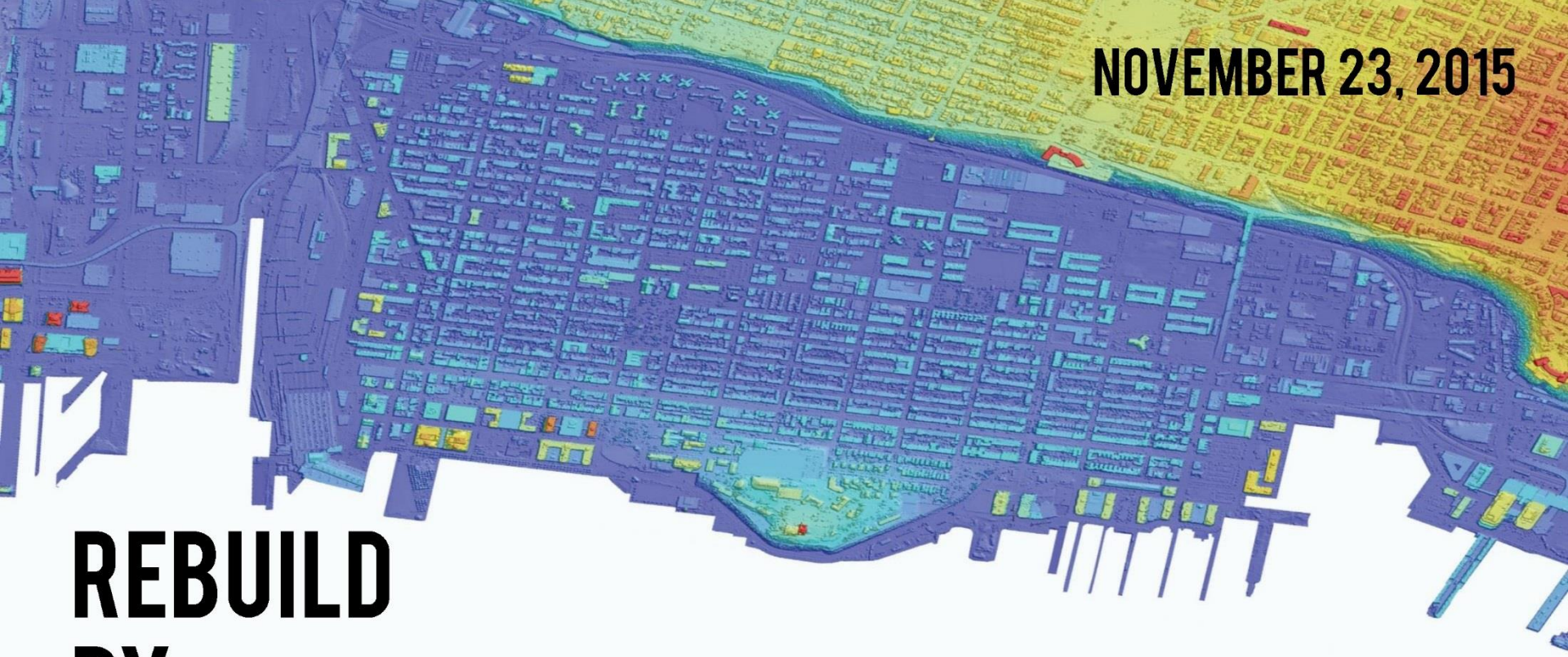


NOVEMBER 23, 2015

REBUILD BY DESIGN

▪ RESIST ▪ DELAY ▪ STORE ▪ DISCHARGE ▪

HUDSON RIVER

Hoboken Weehawken Jersey City | New Jersey

CITIZEN ADVISORY GROUP - CONCEPT DEVELOPMENT

AGENDA

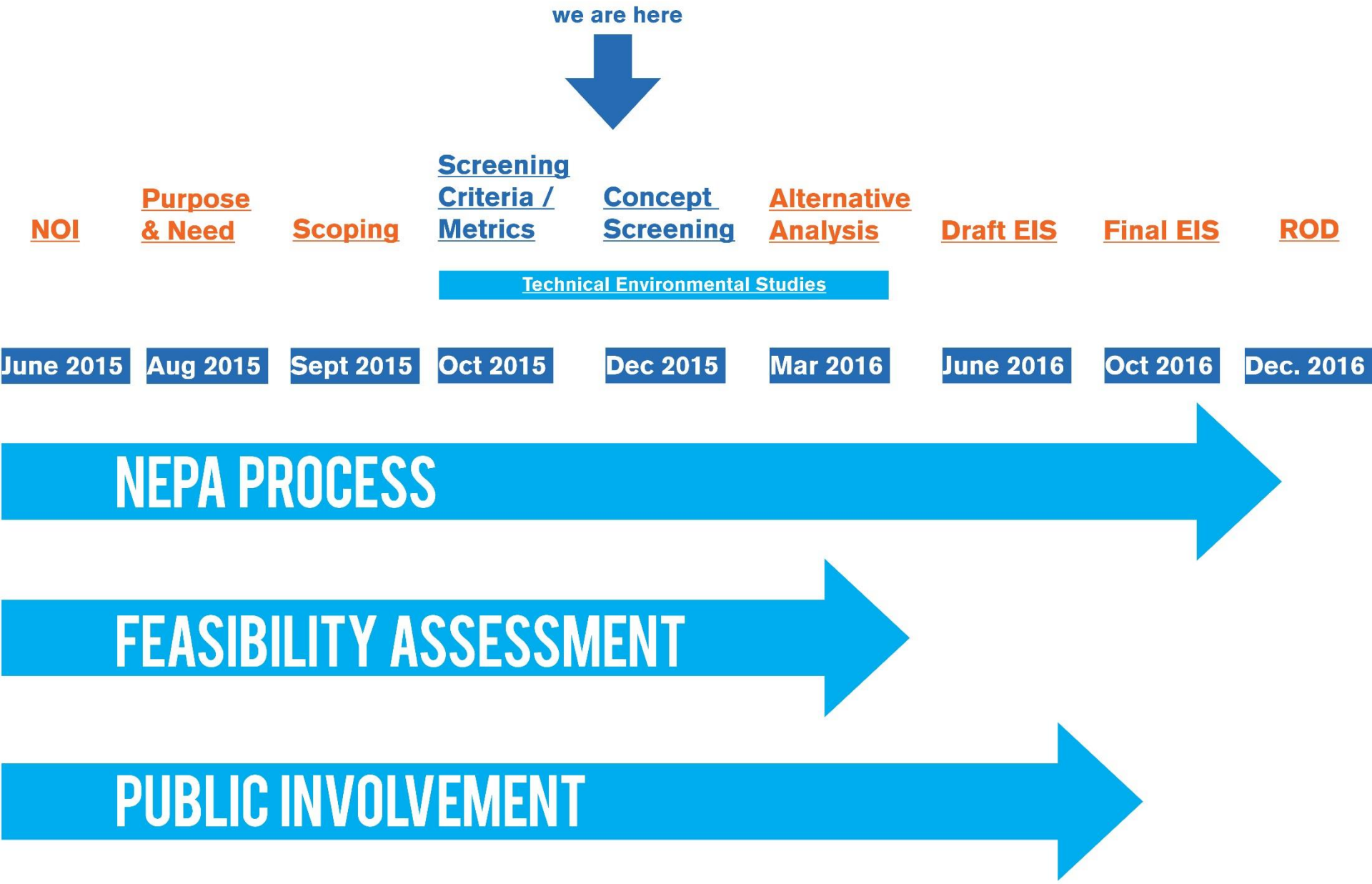
1. Introductions
2. Housekeeping
3. Project Status
4. Concept Development Background
   - Resist
   - Delay/Store/Discharge
5. Concept Review & Breakout Sessions
6. Q&A
7. Open House-Additional Concept Review
8. Wrap-up

HOUSEKEEPING

- CAG Communication Frameworks

	Planned	Actual
– 1 DAY after CAG meeting:		
• All material provided at meeting distributed	Oct 30	Oct 30
– 5 DAYS after CAG meeting:		
• Distribution of meeting summary	Nov 5	Nov 5
– 10 DAYS after CAG meeting:		
• CAG comments on meeting summary due	Nov 12	Nov 12
– 2 Days prior to CAG meeting:		
• Finalize meeting summary	Nov 19	Nov 12
• Provide agenda	Nov 19	Nov 12
• Other information regarding meeting content	Nov 19	None

PROJECT STATUS


we are here
NOI
Purpose & Need
Scoping
Screening Criteria / Metrics
Concept Screening
Alternative Analysis
Draft EIS
Final EIS
ROD
Technical Environmental Studies
June 2015
Aug 2015
Sept 2015
Oct 2015
Dec 2015
Mar 2016
June 2016
Oct 2016
Dec. 2016
NEPA PROCESS
FEASIBILITY ASSESSMENT
PUBLIC INVOLVEMENT

we are here

Data Collection

Basemap

Waterfront Inspection

Geotechnical

Modeling

Concept Development

Toolkit

Elements of RBD

Suitability Assessment

Themes

Parameters of RBD

Concept Development Principles

Concepts

Screening Criteria

Alternatives

Alternative Analysis

Preferred Alternative

DRAFT IDEAS
FOR DISCUSSION
PURPOSES ONLY

Strategy Resiliency Approach

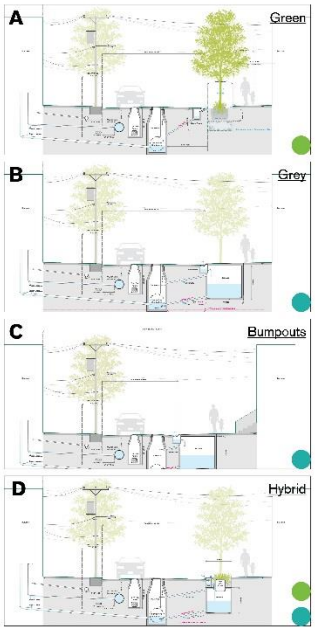
Delay + Store, Discharge

Inner Hoboken

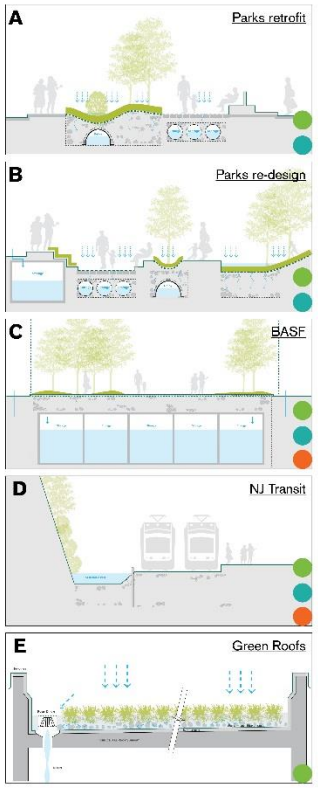
Reach Area of Alignment

Alignment Configuration of Intervention

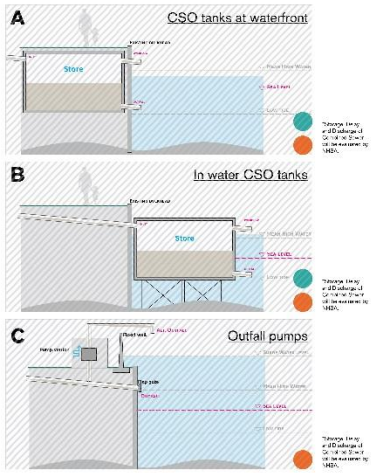
(1) Public Right Of Way



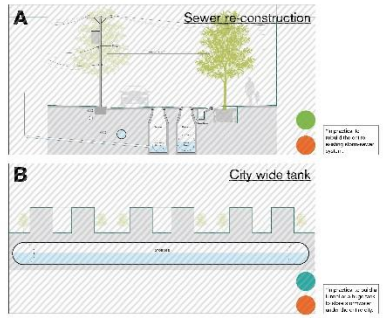
(2) Parcel Based Sites



(3) Waterfront



(4) Systemwide



Delay
Store
Discharge

DELAY
STORE
DISCHARGE

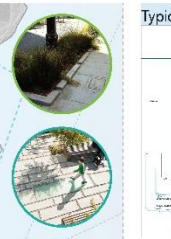
- Aim to maximize the potential to capture, store, infiltrate, evaporate and release of stormwater (STORE + DELAY + DISCHARGE)
- Look to achieve community co-benefits while improving management of stormwater that could reduce rainfall flooding.
- With the exception of the BASF site, all stormwater management strategies are entirely on publicly-owned land.
- Use both "green" and "grey" stormwater management strategies.
- Consider physical, environmental and infrastructure constraints in locating and designing specific interventions.

Legend:

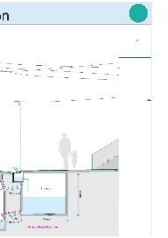
- Delay + Store - Parks
- Water Storage Sites
- Catchment Area
- Outfall Pipe
- Storm Sewer Pipe
- Hybrid Tank
- Tank
- Tank Bumpout
- Ongoing Projects
- Existing Flooding "Hotspot"
- Municipal Boundaries
- Study Area
- Ferry Lines

N 0' 400' 800' 1,600'

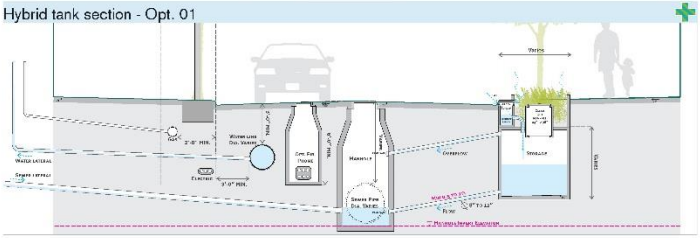
State of New Jersey Department of Environmental Protection



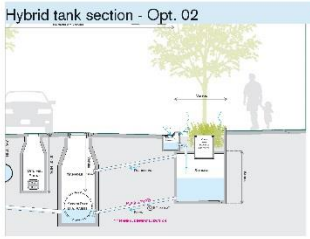
Typical bumpout tank section



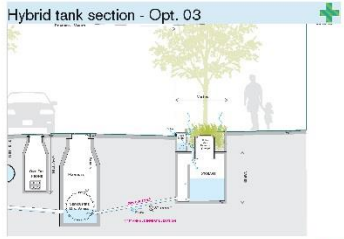
Typical water storage unit section



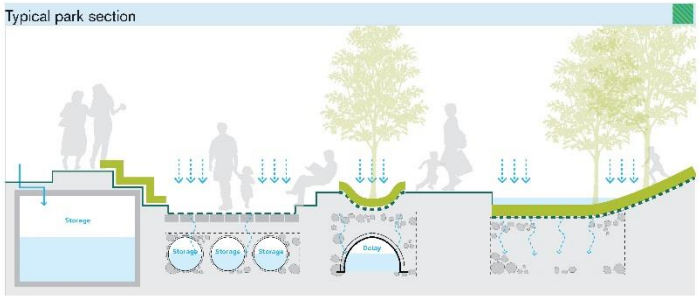
Hybrid tank section - Opt. 01



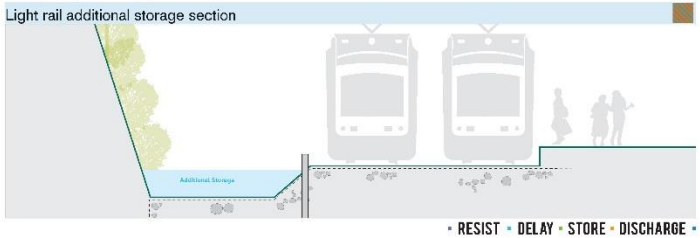
Hybrid tank section - Opt. 02



Hybrid tank section - Opt. 03



Typical park section



Light rail additional storage section

▪ RESIST ▪ DELAY ▪ STORE ▪ DISCHARGE ▪

Dewberry

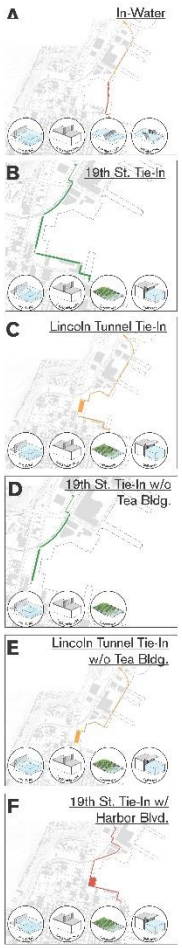
State of New Jersey Department of Environmental Protection

(11/23) DRAFT IDEAS FOR DISCUSSION PURPOSES ONLY

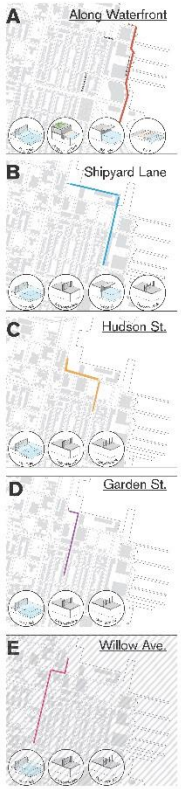
Resist

North

(1) Weehawken Cove

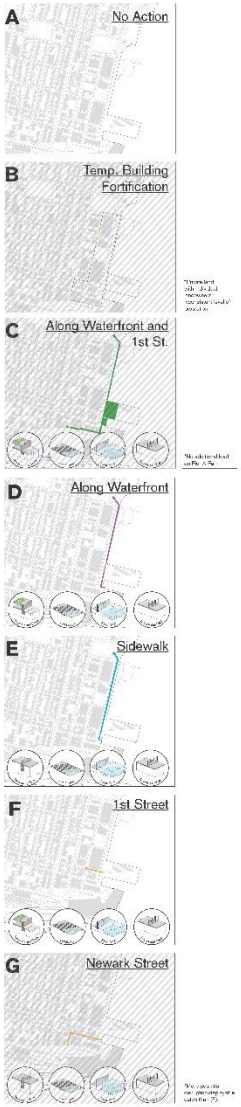


(2) North Waterfront

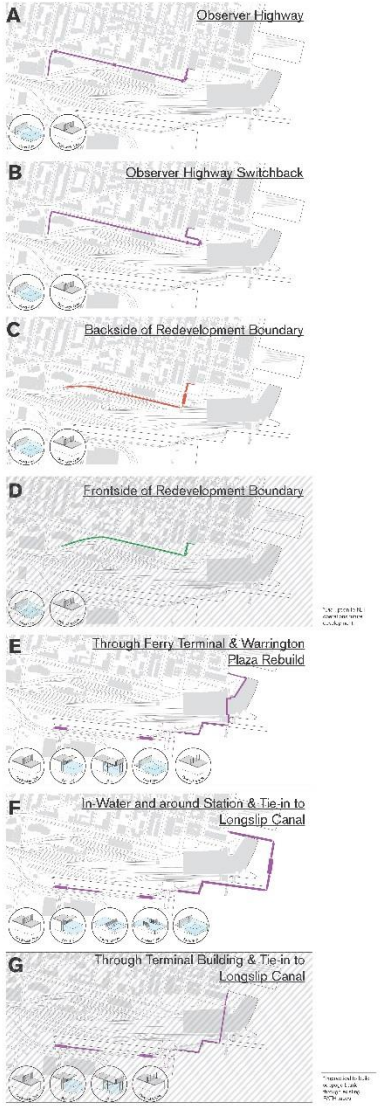


South

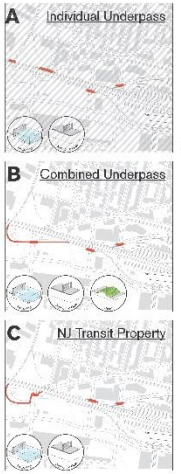
(3) South Waterfront



(4) Railyard/Terminal



(5) Rail Underpass



CONCEPT A

Lowest impact alignments which still provide substantial flood risk reduction benefits to most residents.

- North Waterfront takes Boathouse into account.
- North Hoboken on-street protection provided along Garden Street until elevation tie-in.
- Hoboken Terminal does not receive flood risk reduction benefits.
- South Waterfront constructed independent of Longslip Canal.
- Permanent movable gates proposed to address flood risk reduction along the underpass.

Legend:

- Gate - Sliding
- Gate - Swinging
- Deployable Flood Wall
- Landscape
- Berm
- Revetment
- Raised Path
- Seawall
- Flood Wall
- T Wall
- Ramp
- Municipal Boundaries
- Study Area
- Ferry Lines
- Preliminary FEMA 100 year Flood Plain

MIN DFE : Approx. Min. FEMA Certification

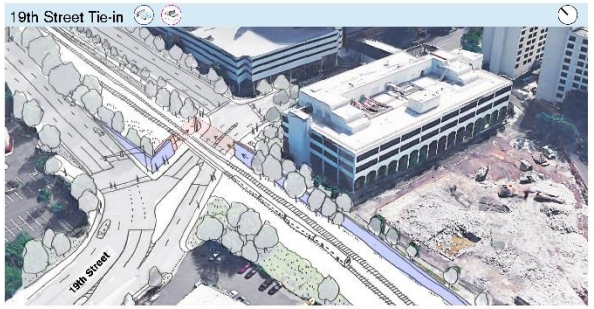
MAX DFE : Approx. 500 Year + 2075 NOAA SLR

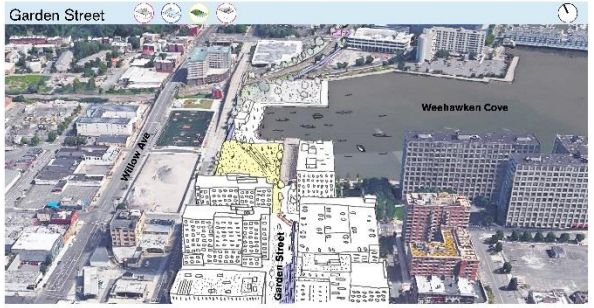
*All DFE's are Approximate and Subject to Change

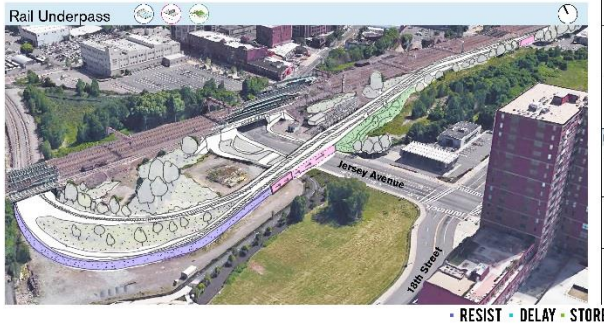
N

0' 400' 800' 1,600'

State of New Jersey Department of Environmental Protection







Flood Risk Reduction
Coastal Storm Surge
Potential to Adapt to Higher Coastal Flood Event (+100yr and Sea Level Rise
Rainfall
Built Environment
View Corridors
Waterfront Access
Potential Community Benefits
Connectivity/ Circulation
Environmental Justice Populations
Construction/ Maintenance & Operation
Constructability
Construction Duration
Maintenance and Operation for Overall System
Environmental Impacts
Hazardous Waste
Wetlands
Essential Fish Habitat
Threatened and Endangered Species
Army Corp. Permits
Historic Properties
Archaeological Resources
Benefit/Cost Analysis
Benefits
Costs
Benefit/Cost Ratio

▪ RESIST ▪ DELAY ▪ STORE ▪ DISCHARGE ▪

CONCEPT B

Moderate impact alignments which give Weehawken and the North Waterfront substantial flood risk reduction benefits.

- Weehawken tie-in at Lincoln Tunnel.
- Permanent built structures on North Waterfront provide flood risk reduction benefits.
- Hoboken Terminal does not receive flood risk reduction benefits.
- South Waterfront constructed independent of Longslip Canal.
- Permanent movable gates proposed to address flood risk reduction along the underpass.

Legend:

- Gate - Sliding
- Gate - Swinging
- Deployable Flood Wall
- Landscape
- Berm
- Revetment
- Raised Path
- Seawall
- Flood Wall
- T Wall
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- Municipal Boundaries
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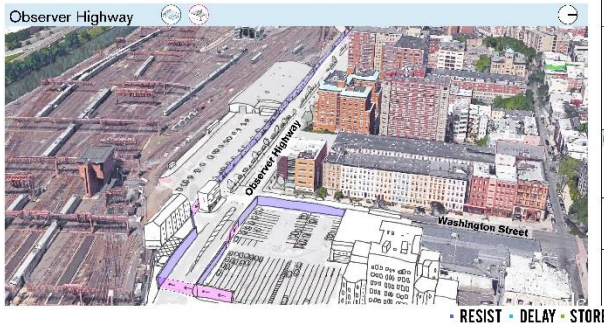

Flood Risk Reduction
- Coastal Storm Surge
- Potential to Adapt to Higher Coastal Flood Event (+100yr and Sea Level Rise
- Rainfall

Built Environment
- View Corridors
- Waterfront Access
- Potential Community Benefits
- Connectivity/ Circulation
- Environmental Justice Populations

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Environmental Impacts
- Hazardous Waste
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- Army Corp. Permits
- Historic Properties
- Archaeological Resources

Benefit/Cost Analysis
- Benefits
- Costs
- Benefit/Cost Ratio

RESIST · DELAY · STORE · DISCHARGE

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CONCEPT C

Maximum impact alignments which offer flood risk reduction benefits to Weehawken, N/S Waterfront, and Hoboken Terminal.

- An in-water revetment is planned in Weehawken Cove, and to the North a Lincoln Tunnel tie-in.
- Permanent built structures on North Waterfront provide flood risk reduction benefits.
- Programmed Bulkheads offer added community benefits, while providing flood risk reduction benefits to those on the water.
- South Waterfront constructed assuming the proposed construction of the Longslip Canal project.
- Hoboken Terminal does receive flood risk reduction benefits; resist portion is planned in-water in front of the Terminal.
- Permanent movable gates proposed to address flood risk reduction along the underpass.

Legend:

- Gate - Sliding
- Gate - Swinging
- Deployable Flood Wall
- Landscape
- Berm
- Revetment
- Raised Path
- Seawall
- Flood Wall
- T Wall
- Ramp
- Municipal Boundaries
- Study Area
- Ferry Lines
- Preliminary FEMA 100 year Flood Plain

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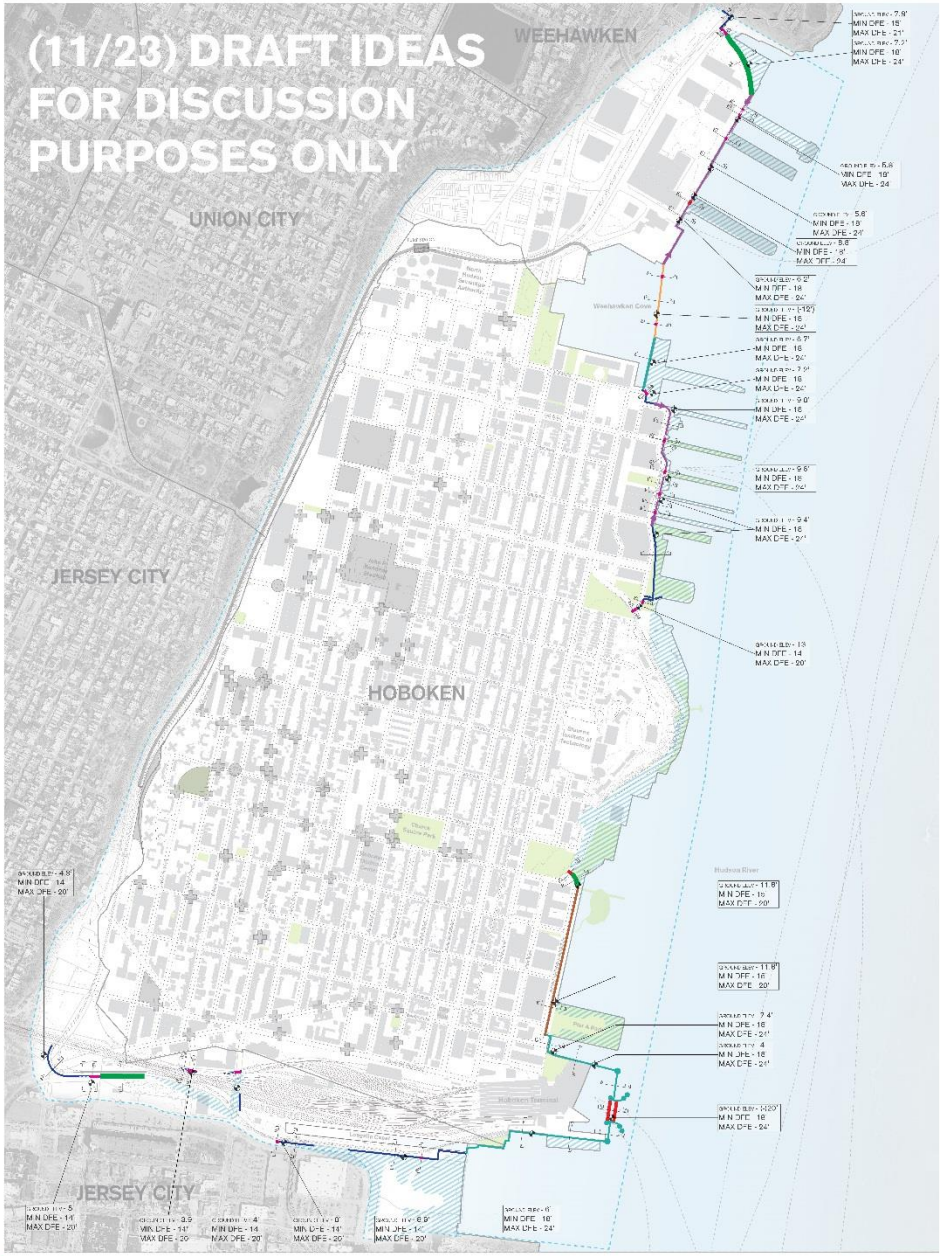
State of New Jersey Department of Environmental Protection



Flood Risk Reduction
Coastal Storm Surge
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Army Corp. Permits
Historic Properties
Archaeological Resources
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Benefits
Costs
Benefit/Cost Ratio

▪ RESIST ▪ DELAY ▪ STORE ▪ DISCHARGE ▪

Dewberry

State of New Jersey Department of Environmental Protection

CONCEPT D

High impact alignments which offer flood risk reduction benefits to Weehawken, N/S Waterfront, and Hoboken Terminal.

- North Resist portion offers Lincoln Tunnel Tie-In.
- Permanent built structures on North Waterfront provide flood risk reduction benefits.
- Programmed Bulkheads offer added community benefits, while providing flood risk reduction benefits to those on the water.
- South Waterfront constructed assuming the proposed construction of the Longslip Canal project.
- Alignment goes through Hoboken Terminal, offering flood risk reduction benefits to essential electrical and utility assets (allows for continued operations in the case of an event).
- Permanent movable gates proposed to address flood risk reduction along the underpass.

Legend:

- Gate - Sliding
- Gate - Swinging
- Deployable Flood Wall
- Landscape
- Berm
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- Raised Path
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State of New Jersey Department of Environmental Protection

- Flood Risk Reduction
  - Coastal Storm Surge
  - Potential to Adapt to Higher Coastal Flood Event (+ 100yr and Sea Level Rise
  - Rainfall
- Built Environment
  - View Corridors
  - Waterfront Access
  - Potential Community Benefits
  - Connectivity/ Circulation
  - Environmental Justice Populations
- Construction/ Maintenance & Operation
  - Constructability
  - Construction Duration
  - Maintenance and Operation for Overall System
- Environmental Impacts
  - Hazardous Waste
  - Wetlands
  - Essential Fish Habitat
  - Threatened and Endangered Species
  - Army Corp. Permits
  - Historic Properties
  - Archaeological Resources
- Benefit/Cost Analysis
  - Benefits
  - Costs
  - Benefit/Cost Ratio

▪ RESIST ▪ DELAY ▪ STORE ▪ DISCHARGE ▪

Dewberry

State of New Jersey Department of Environmental Protection

CONCEPT E

Moderate impact alignments which offer partial flood risk reduction benefits to North waterfront and full benefits to South Waterfront.

- North Waterfront takes Boathouse into account.
- North Hoboken on-street protection provided along Hudson Blvd (Option 1) and Shipyard Lane (Option 2) until elevation tie-in.
- Some programmed bulkhead and other resist structures proposed along South Waterfront.
- Permanent movable gates proposed to address flood risk reduction along the underpass.

Legend:

- Gate - Sliding
- Gate - Swinging
- Deployable Flood Wall
- Landscape
- Berm
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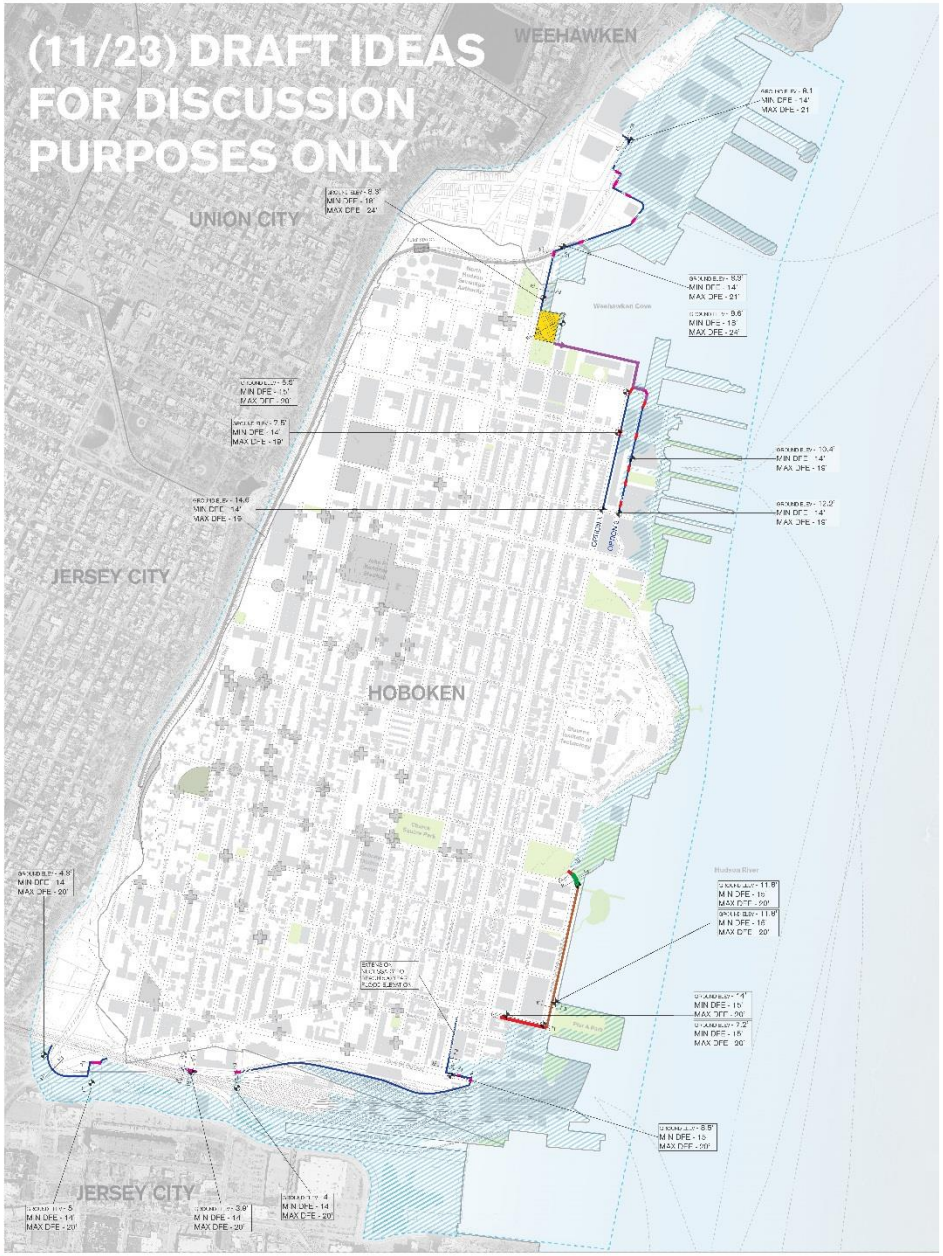

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Army Corp. Permits
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Archaeological Resources
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Benefits
Costs
Benefit/Cost Ratio

ALL CONCEPTS

RESIST

BREAKOUT SESSION

NOVEMBER 23, 2015

Q&A AND NEXT STEPS

NOVEMBER 23, 2015

- December 3, 2015: Concept Screening (CAG)
- December 10, 2015: Concept Screening (Public)