TASK FORCE MEETING OBJECTIVES:

• Recap community engagement activities
• Gain an understanding of resiliency needs, public realm opportunities, and site constraints
• Provide an update on
  • Alignment
  • Design and engineering studies and feasibility tests to date
  • Deployable types
Share feedback on
• Project design
• Community priorities
• Public workshop format and content
**PROJECT OVERVIEW**

**Purpose of Study:**
1. Develop long-term strategy and feasible concept design for all of Lower Manhattan
2. Prioritize project concepts toward implementation and conduct advanced planning when possible
3. Engage with community on core design principles and priorities

**Study Funding:**
+ $7.25M CDBG-DR
  + ($3.75M GOSR; $3.5M NYC)
IMPLEMENTATION FUNDING IN PLACE

- TWO BRIDGES
  - $176M (CDBG-NDR)
  - $27M (City Capital)
  - Total: $203M

- FINANCIAL DISTRICT
  - 1.33 MILES

- BATTERY PARK CITY
  - 1.15 MILES

- ESCR
  - 2.4 MILES

- FIDI + BPC
  - $100M (City Capital)
  - $8M for The Battery
  - Total: TBD

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CORE MISSION

FLOOD RISK REDUCTION + PUBLIC BENEFIT
PROJECT PROCESS

EXISTING CONDITIONS

CONCEPT DESIGN

FEASIBILITY AND PRIORITIZATION

SCOPING FOR IMPLEMENTATION

REVIEW & PERMITTING

2016

SUMMER

2017

WINTER

SPRING

SUMMER

FALL

2018

WINTER

SPRING

SUMMER

FALL

2019

WORKSHOP 1A
What are the fundamentals?

WORKSHOP 1B

WORKSHOP 2
What are the concepts?

TODAY

WORKSHOP 3
What is the best location?

WORKSHOP 4
How can it be refined?

WORKSHOP 5
Input and feedback

COMMUNITY ENGAGEMENT

LOWER MANHATTAN COASTAL RESILIENCY

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COMMUNITY ENGAGEMENT

Public Meeting May 31, 2017
• 58 participants signed in, 31 were residents
• Overview of existing conditions throughout the neighborhood and potential impacts of interventions

Key Takeaways:
• Knit the community together
• Improve social resiliency in addition to physical infrastructure
• Explore deployables for improved access and view preservation
• Integrate community amenities with passive protection
WALKING TOUR: JULY 10, 2017

- 4 stops
- Included Task Force members, city agencies, the design team, and elected official representatives
- Discussed options and tradeoffs for waterfront and upland concepts

Key Takeaways:
- Ensure equitable distribution of community benefits
- Maintain open views and waterfront access
- Coordinate with ongoing projects
- Protect maximum number of residents and assets
- Connect to waterfront north and south of project area
EVALUATION CRITERIA

CONSTRUCTABILITY
- Cost
- Structural requirements
- Impacts on utilities
- Disruptions to existing structures and transportation
- Failure risk

SCHEDULE
- Regulatory actions
- Environmental impacts
- Jurisdictional coordination

RESILIENCE
- Buildings, residents, and infrastructure protected
- Adaptability

OPERATION & MAINTENANCE
- Accessibility
- O&M requirements

PUBLIC REALM BENEFITS
- Community amenities
- Placemaking and urban design opportunities
Evaluation criteria was used to assess the feasibility and implications of implementing flood protection within the neighborhood.
EVALUATION CRITERIA: CONSTRUCTABILITY

Goal: Minimize disruptions to street grid, circulation, and utilities

Available footprint is highly constrained around bridge + ramp footings

Required 3ft offsets around all FDR columns

Many utility lines under streets

CSO outfall

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Running protection infrastructure through parkland may trigger alienation and disrupt public space use / operations.

Timeline challenges complicate integration of flood protection into future private development.

Relocating utility lines may cause delays in implementation schedule.
Goal: maximize protection of residents, businesses, and utility corridors

Pier 36 will require building level resiliency measures
**Goal:** Minimize potential disruptions to street crossings, driveways, and building entries

**Coordinating closures of driveways and building access adds significant complication**

**Deployables are required when crossing streets**

**Tie-backs have potential impacts on emergency access during deployment**
EVALUATION CRITERIA: PUBLIC REALM BENEFIT

Goal: Enable opportunities to incorporate community benefits throughout Two Bridges

Consider important view corridors from neighborhood to the waterfront
A refined working envelope allows the team to shift focus to technical analysis of baseline infrastructure. This includes testing different deployable types into various configurations and locations throughout the alignment area.
PROJECT COORDINATION

CONTINUOUS WATERFRONT BIKE CORRIDOR

BROOKLYN BRIDGE ESPLANADE NORTH

EAST RIVER ESPLANADE PACKAGE 4

EAST RIVER ESPLANADE PACKAGE 3

PIER 42 and ESCR CONNECTIONS

BUILT

PLANNED + DESIGNED

UNDESIGNED

ESCR LINE OF PROTECTION

BIKE CORRIDOR CONNECTIONS

REFINED ALIGNMENT STUDY AREA

ALIGNMENT STUDY AREA BOUNDARY

2050s 100 YR FLOODLINE

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TECHNICAL ANALYSIS UPDATE
EVALUATION CRITERIA: DEPLOYABLE TYPES

The project team is exploring numerous deployable flood protection technologies and manufacturers, and vetting their potential feasibility across project locations.

**STRUCTURAL REQUIREMENTS**
- Foundation size and depth
- Impacts on utilities
- Storage needs

**COST**
- Frequency + extent of maintenance
- System lifespan

**MAINTENANCE**
- Accessibility
- Labor – manpower
- Labor – hours

**DEPLOYMENT**
- Placemaking and urban design opportunities
- Preservation of view corridors

**URBAN DESIGN IMPACTS**
INFRASTRUCTURE TOOLKIT

GATES VISIBLE WHEN STORED

SWING GATES

GATES HIDDEN WHEN STORED

FLIP UP BARRIER

ROLLER GATES

FLEX WALL SYSTEM

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GENERAL DESCRIPTION

Swing gates operate similarly to a hinged door; one end is hinged in place allowing the other end to rotate from an open to closed position. Swing gates are designed to span between two end supports and can swing up to 270 degrees.
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ROLLER GATES: BLUE SKY

GENERAL DESCRIPTION

Roller gates, also referred to as sliding gates, are deployable barriers that are permanently installed on a track and manually slid into position prior to a flooding event.
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FLIP UP BARRIER: BLUE SKY

GENERAL DESCRIPTION

Flip up walls can deploy automatically, manually, or mechanically. When not deployed, the barrier lays flat on the ground flush with the surface.
FLIP UP BARRIER: DEPLOYED

GENERAL DESCRIPTION

Flip up walls can deploy automatically, manually, or mechanically. When not deployed, the barrier lays flat on the ground flush with the surface.
FLEX WALLS : BLUE SKY

GENERAL DESCRIPTION

A custom fabric reinforced with watertight Kevlar panel. The fabric is extremely high strength and capable of withstanding hydrostatic, hydrodynamic, and debris impact loads in accordance with FEMA P-55 guidelines.
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A custom fabric reinforced with watertight Kevlar panel. The fabric is extremely high strength and capable of withstanding hydrostatic, hydrodynamic, and debris impact loads in accordance with FEMA P-55 guidelines.
PLACEMAKING AND PROJECT DESIGN
Placemaking can be concentrated in a few key areas of the site, or distributed more evenly along the waterfront. In both strategies, it is possible that some areas may still only feature baseline infrastructure.

Key considerations for placemaking:
- Preservation of view corridors
- Available space
- Neighborhood connections
- Existing and planned amenities
- Community Feedback
The project team is investigating opportunities to activate the waterfront with site features that integrate flood protection infrastructure into programmatic amenities such as seating, sports courts, pavilions, and recreation spaces.

These opportunities are dependent upon feasibility considerations such as foundation requirements, subsurface infrastructure, available funding, design flood elevation, maintenance requirements, etc.

Programmatic amenities will consider planned and existing site features and community feedback.
1. **INFORM ABOUT FACTORS LEADING TO PREFERRED FOOTPRINT**
   - Discuss how community feedback is being used as a lens
   - Look at tradeoffs considered throughout study area
   - Provide an opportunity for participants to understand the challenges and opportunities presented by neighborhood constraints

2. **DISCUSS OPPORTUNITIES FOR INTEGRATION AND ACTIVATION**
   - Provide participants an opportunity to learn how protection can integrate into their community and activate community assets
   - Collect participant feedback on community concerns, needs, and programming ideas for specific places in preferred footprint
WORKSHOP ACTIVITY: FORMAT

1. Work Session #1
   - Small group discussion
   - Use map(s) and/or transparency layers with preferred project footprint, key community assets, and evaluation criteria
   - Facilitator walks through evaluation criteria to explain how preferred footprint was reached
   - Participants comment directly through writing on tool or through facilitated discussion

2. Work Session #2 (TBD)
NEXT STEPS AND TIMELINE

• Public meeting: End of November/December

• Spring 2018 TF/ Public Meeting

- Concept Design Progress
- Drainage Management Update
- Schematic Design/ Construction Contract Update