lower manhattan
COASTAL RESILIENCY

TWO BRIDGES
WORKSHOP NO. 1 : RE ENGAGEMENT
JULY 27, 2016, PS 184

AGENDA

6:30 – 6:40pm	**Welcome + Opening Remarks** (10 mins)
6:40 – 6:50pm	**OneNYC: Our Resilient City** (10 mins)
6:50 – 7:00pm	**Project Overview** (10 mins)
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VISION

The Lower Manhattan Coastal Resiliency (LMCR) Project aims to reduce flood risk due to coastal storms and sea level rise from Manhattan's Two Bridges neighborhood through Battery Park City. It intends to build the physical, social, and economic resiliency of the area by integrating flood protection into the community fabric through strengthening the City's coastline while improving access to the waterfront and enhancing public spaces.

OneNYC: RESILIENCY

Following Hurricane Sandy, a global conversation on resiliency emerged. Here's what it means to us in New York City.

Our Resilient City

Our neighborhoods, economy, and public services will be ready to withstand and emerge stronger from the impacts of climate change and other 21st century threats

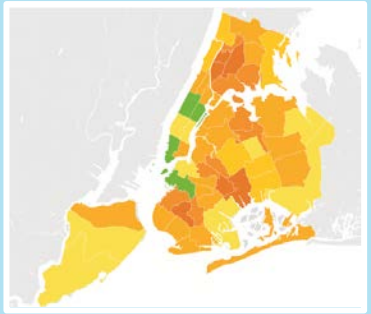
HURRICANE SANDY
TWO BRIDGES

HURRICANE SANDY
TWO BRIDGES

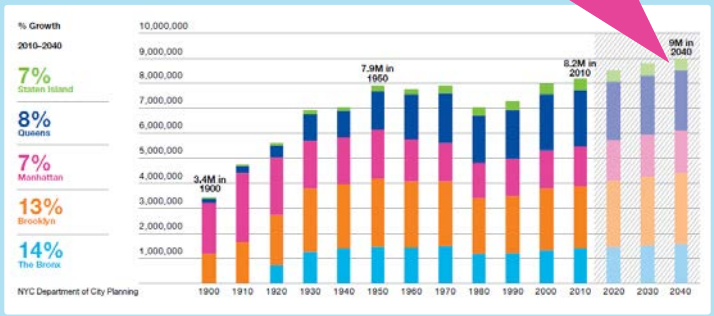
CLIMATE CHANGE / 21ST CENTURY THREATS

…But we know that Sandy is not the only risk we face. As we look towards the future, we must take stock of our current challenges…

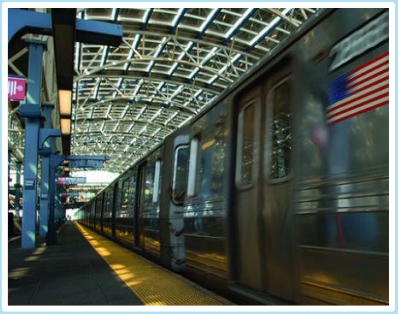
Hurricane Sandy



Increasing Inequality



A Growing Population

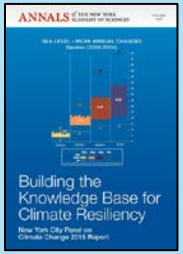


Aging Infrastructure

CLIMATE CHANGE / 21ST CENTURY THREATS

…And grapple with the impacts of climate change on our city.

The NYC Panel on Climate Change (NPCC) projects increased chronic climate hazards…



By the 2050s:
+ 4.1°F to 5.7°F increase in average temperature
+ 4% to 11% increase in average annual precipitation
+ Sea levels likely to rise 1-2 ft.; maybe 2½ ft.

By 2100:
+ High-end projections *may* reach 6 ft.

…and increased impact from extreme weather events.

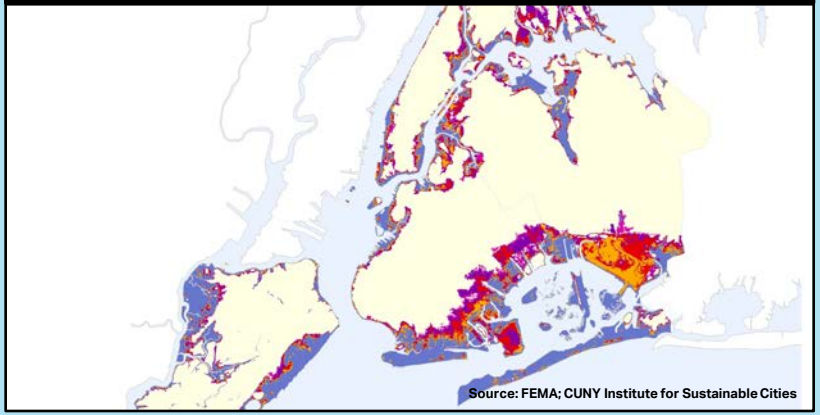
By the 2050s:
+ Number of days in NYC above 90º could triple
+ Number of most intense hurricanes and associated extreme winds may increase

Even today:
+ 100-year floodplain expanded by 17 square miles (51%) citywide; 2.3 ft. average increase in 100-year flood elevations; will increase with further sea level rise; now encompasses 71,500 structures

SEA LEVEL RISE AND STORM SURGE

The City's 520 miles of coastline is vulnerable to flooding from coastal storms.

Projected floodplain for the 2020s, 2050s, 2080s, and 2100



- FEMA 2013 Preliminary FIRMs 100-year Floodplain
- Projected 2020s 100-year Floodplain
- Projected 2050s 100-year Floodplain
- Projected 2080s 100-year Floodplain
- Projected 2100 100-year Floodplain

100-YEAR FLOODPLAIN*

	2013 PFIRMs	2050s Projected	Change (%)
Residents	400,000	808,900	102%
Jobs	290,800	555,700	91%
Buildings	71,500	118,000	65%
1-4 Family	57,400	89,000	55%
Floor Area (Sq Ft.)	534M	855M	42%

* Numbers are rounded for clarity

Over 171,000 Buildings And 1.2 Million New Yorkers Projected To Live In The Floodplain By 2100.

OneNYC: OUR FOUR VISIONS

On April 22nd, 2015 Mayor Bill de Blasio released a new long-term strategic plan to address our most pressing challenges.

OneNYC: OUR RESILIENT CITY

This plan builds on existing efforts and strengthens and expands the City's commitment to a multilayered approach to resiliency.

Neighborhoods	Every city neighborhood will be safer by strengthening community, social, and economic resiliency
Buildings	The city's buildings will be upgraded against changing climate impacts
Infrastructure	Infrastructure systems across the region will adapt to enable continue services
Coastal Defense	New York City's coastal defenses will be strengthened against flooding and sea level rise

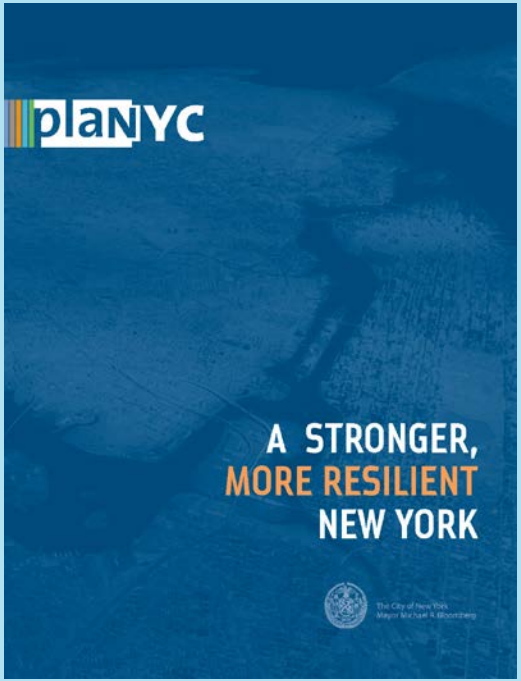
PLANNING EFFORTS

Building off of recommendations from previous resiliency plans

REBUILD BY DESIGN

NY RISING

#ONENYC



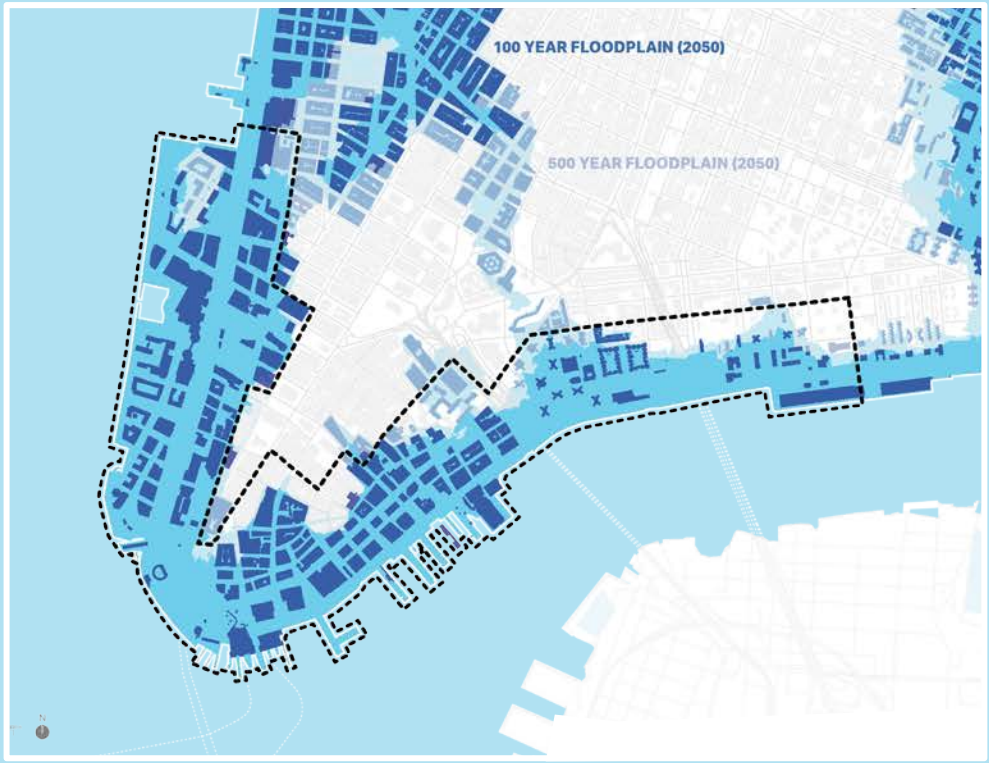
PROJECT OVERVIEW

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

East Side Coastal Resiliency
Funding Secured :
$335 million (CDGB-DR)
$170 million (City Capital)
Project Budget : $505 million

Lower Manhattan Coastal Resiliency Implementation :

Two Bridges
Funding Secured :
$176 million (CDGB-NDR)
$27 million (City Capital)
Project Budget : $203 million

Manhattan Tip
Funding Secured :
$108 million (City Capital)
Project Budget : TBD

PROJECT LOGIC & ACTIVITIES

Build Off Previous Planning & Design

- Existing Conditions
- Mapping
- Site Conditions
- Assessments

Develop Comprehensive Concept Design

- Hydrological Mgmt Strategies
- Drainage and Sewer
- Ecological/Environmental
- O & M
- Economic Analysis
- Regulatory Framework
- Determine Design Flood Elevations

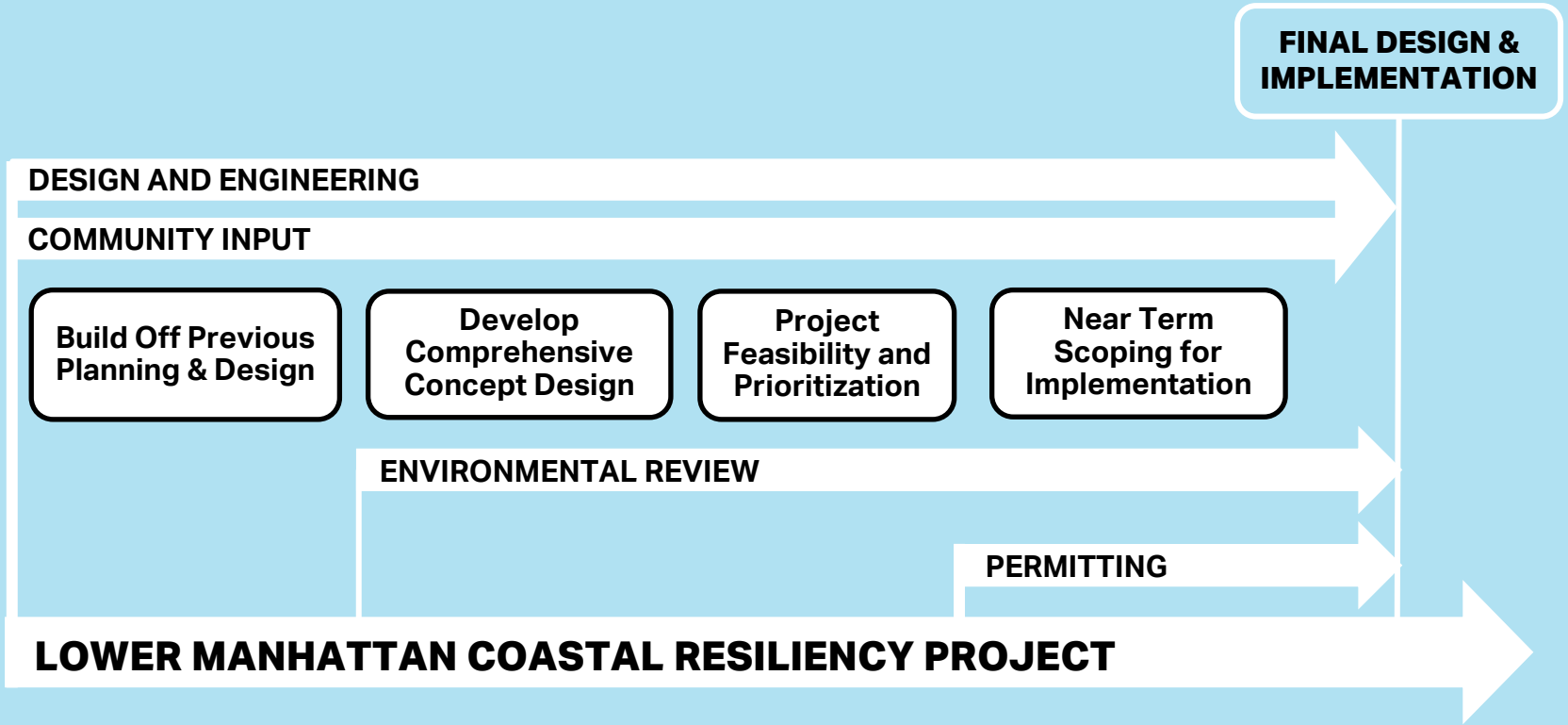
Project Feasibility and Prioritization

- Feasibility, Prioritization and Phasing

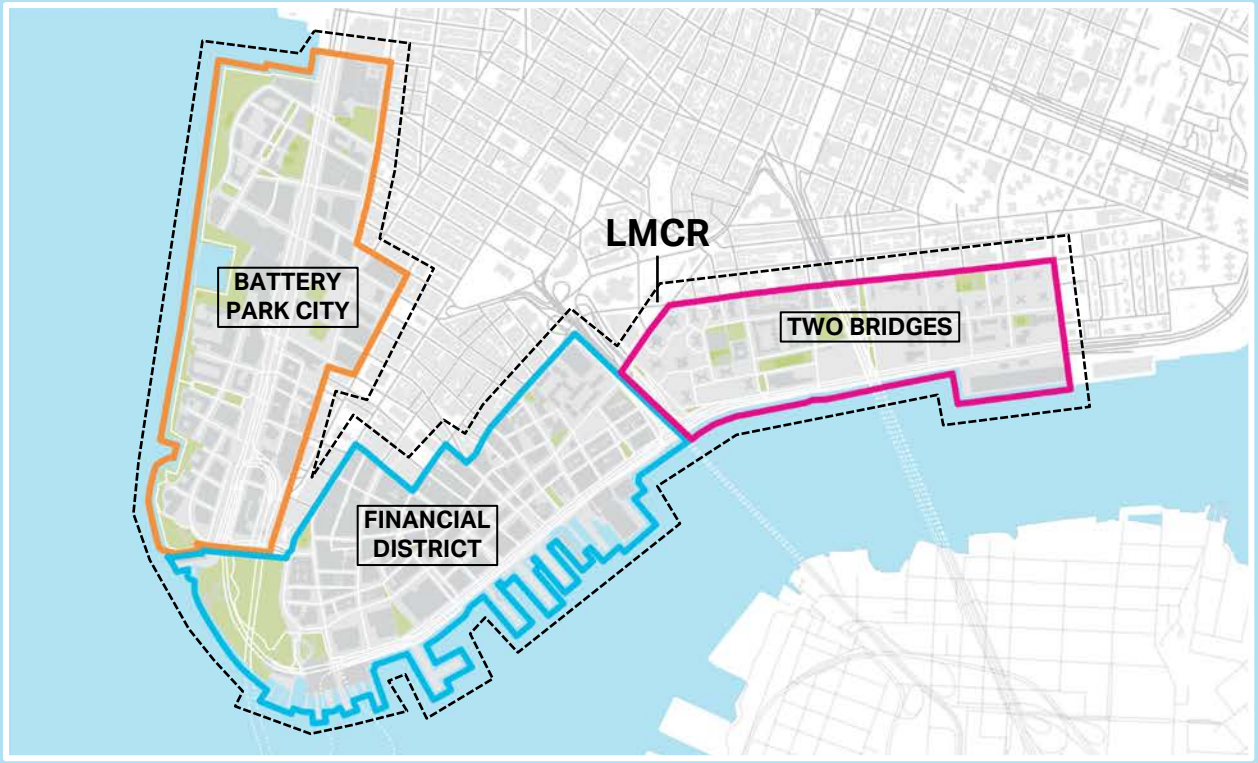
Near Term Scoping for Implementation

- Detailed schematic design
- Surveying, Geotech, Sampling
- Environmental Review and Permitting

PROJECT PROCESS



PLANNING STUDY AREA



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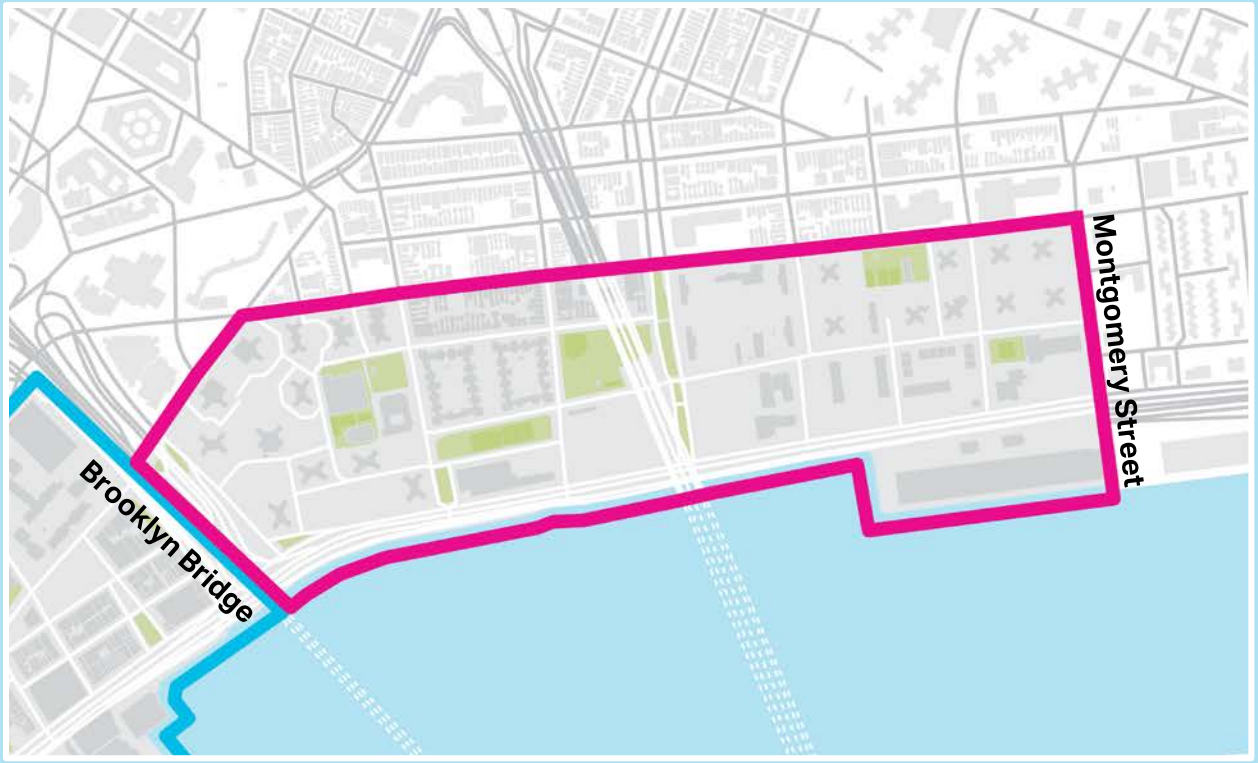
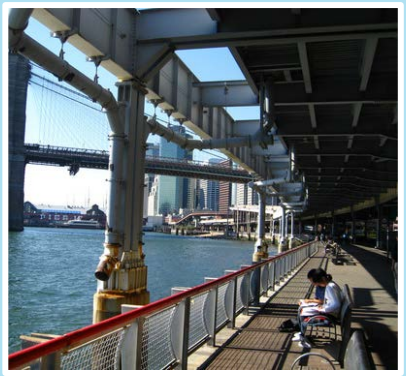
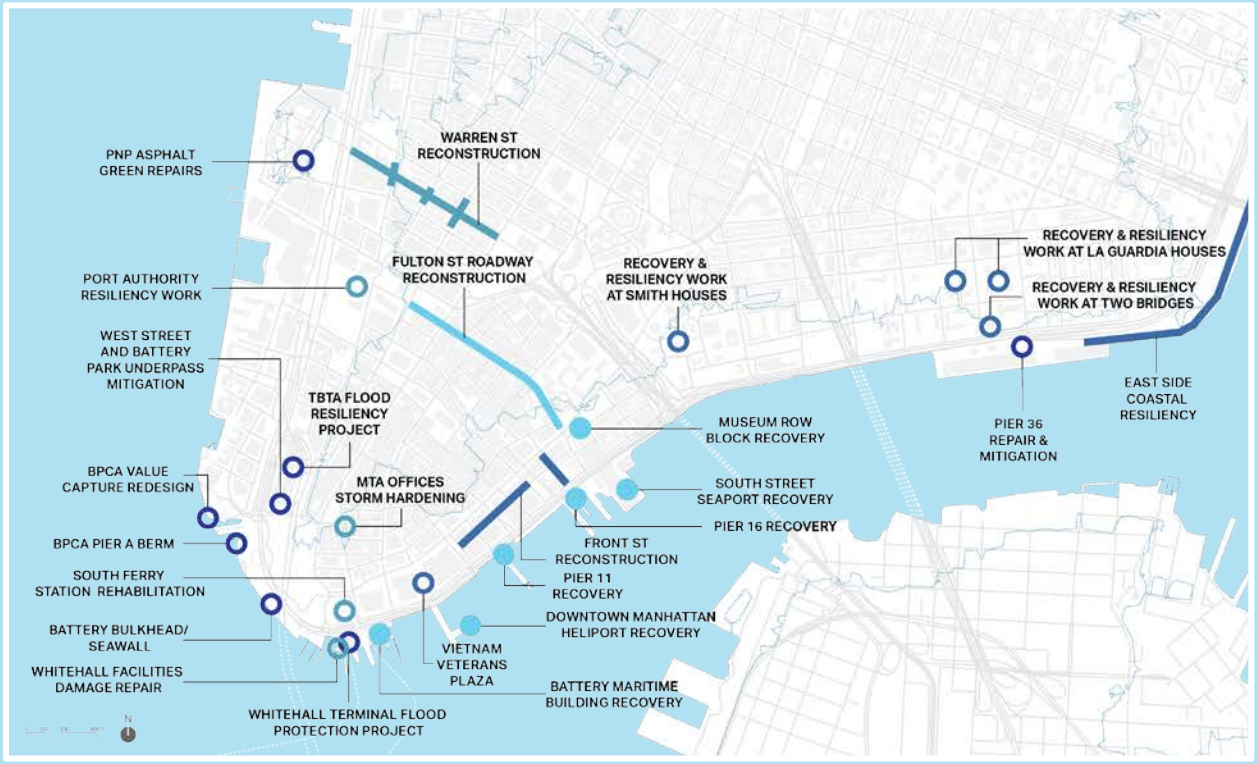


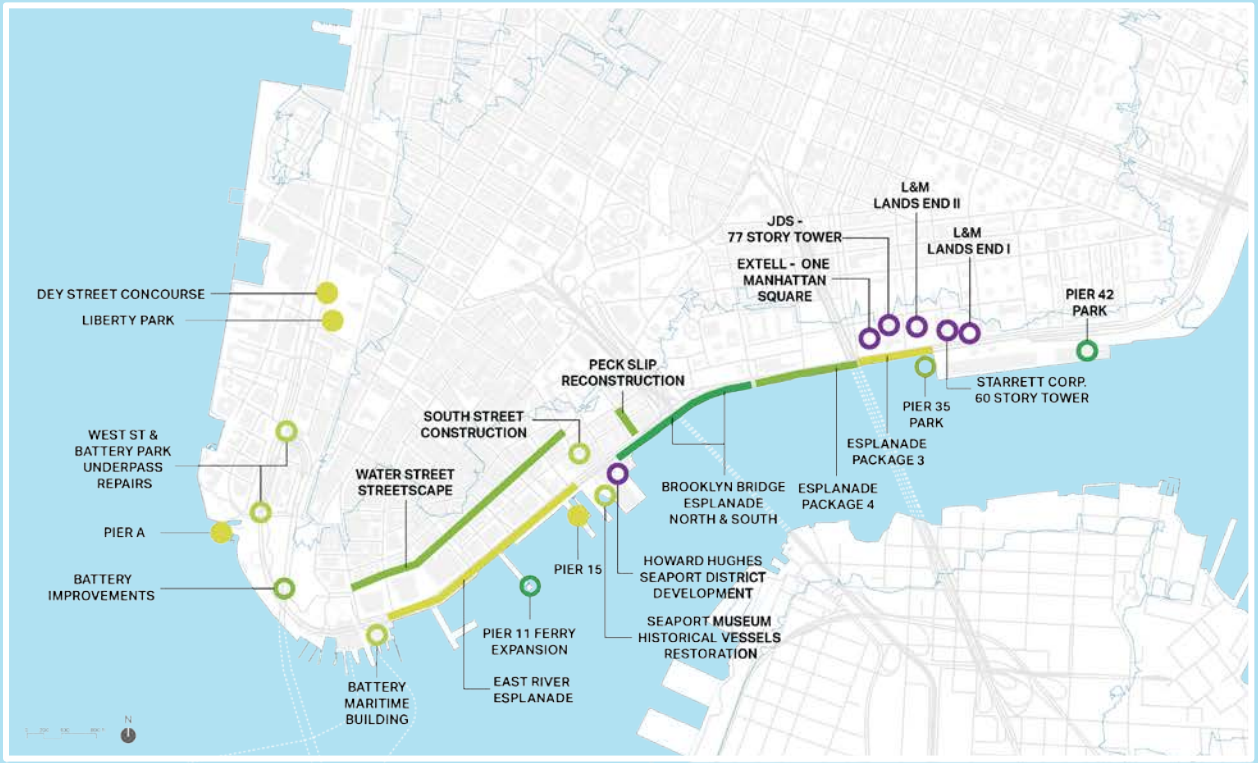


ADJACENT RESILIENCY PROJECTS



- **PLANNED**
- **DESIGN PHASE**
- **CONSTRUCTION PHASE**
- **COMPLETED**

ADJACENT WATERFRONT IMPROVEMENT PROJECTS



- PLANNED
- DESIGN PHASE
- CONSTRUCTION PHASE
- COMPLETED
- PLANNED PRIVATE DEVELOPMENT

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EAST RIVER PORTS

1900
1940
1950
1960
1970
1980
1990
2000
2010
2016
1901

SOUTH STREET

1900
1940
1950
1960
1970
1980
1990
2000
2010
2016

1932

SOUTH STREET UNDER THE FDR

1900
1940
1950
1960
1970
1980
1990
2000
2010
2016

1982

EAST RIVER ESPLANADE UNDER THE FDR

1900
1940
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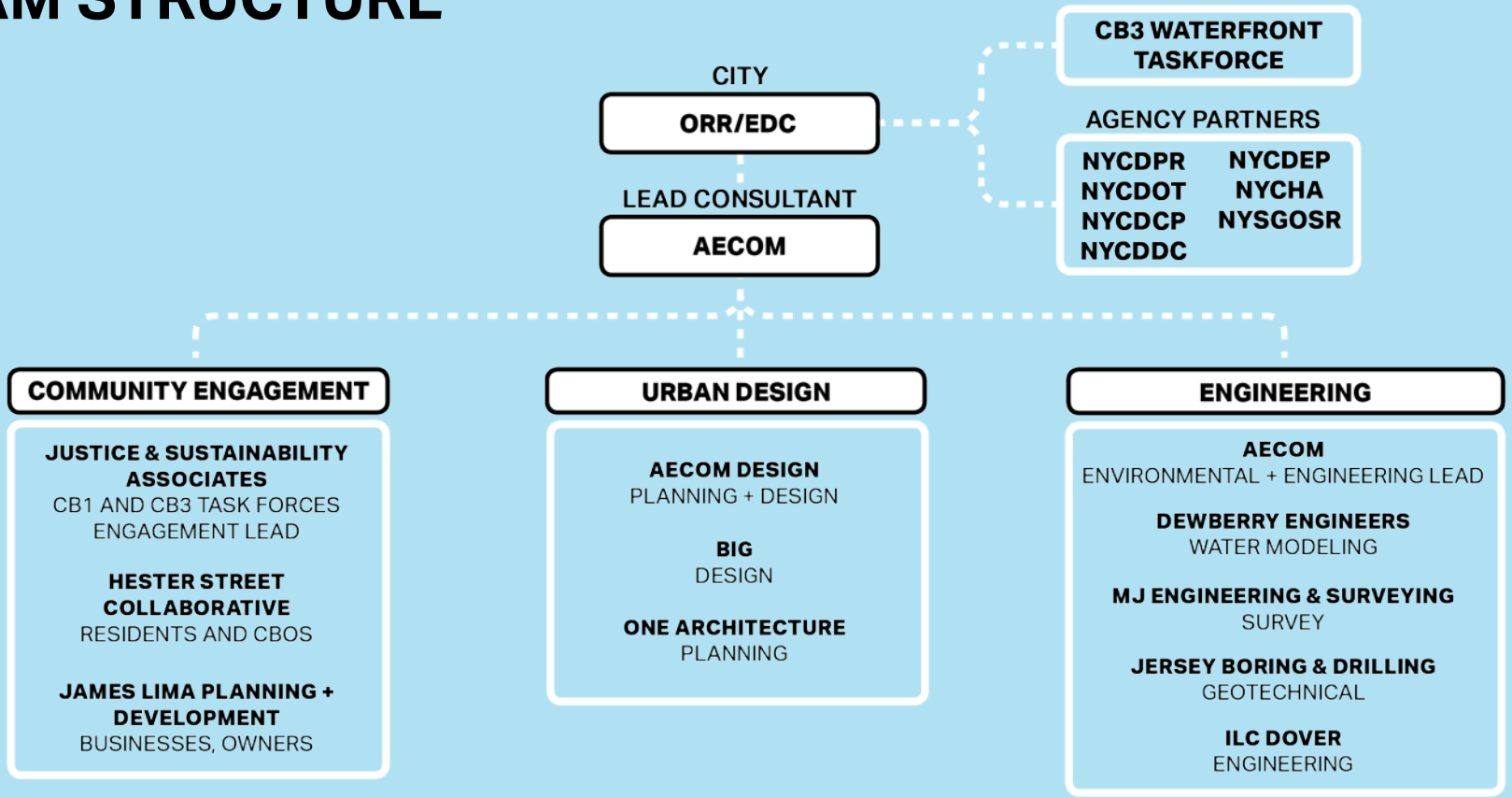
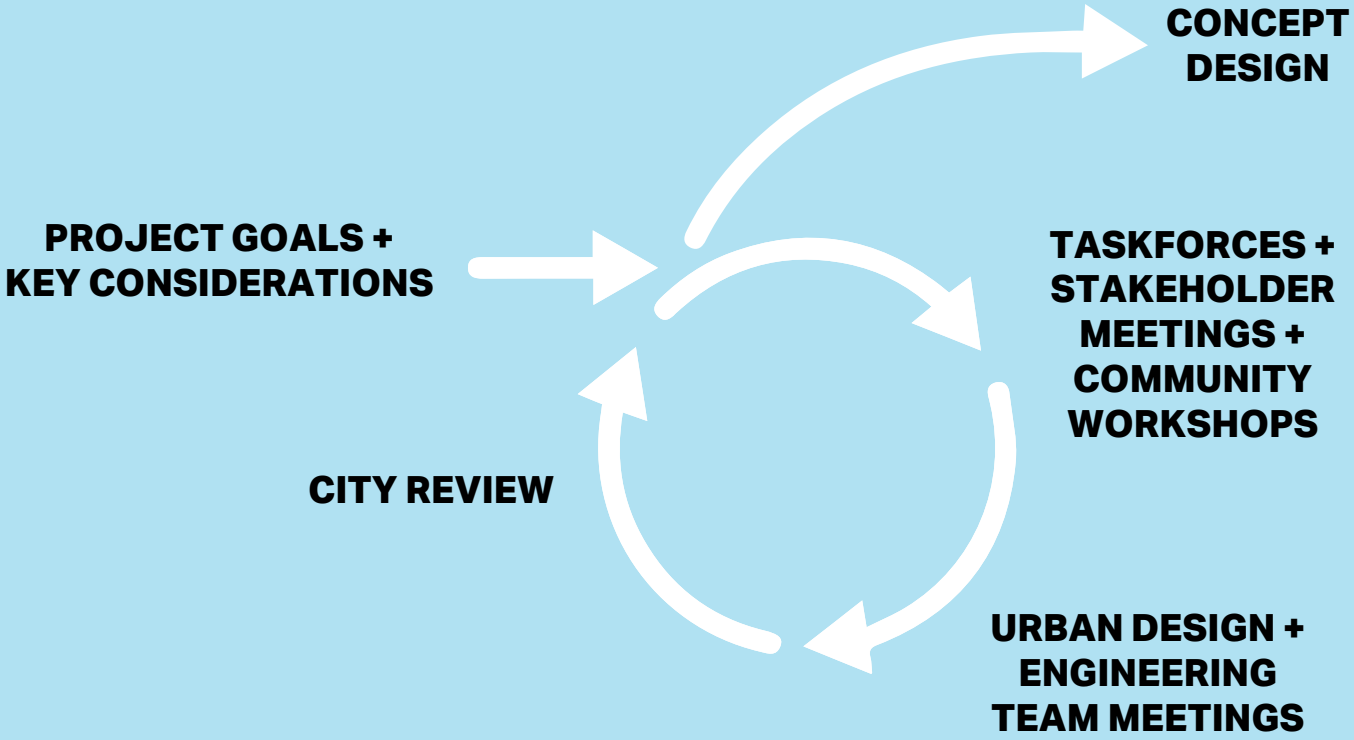
2012

TEAM STRUCTURE

TEAM STRUCTURE



COLLABORATIVE PROCESS
HOW ARE WE GOING TO WORK TOGETHER?



ENGAGEMENT METHODS – MEETING TYPES

+ Public Workshops
+ Informal Engagement
+ Stakeholder Interviews
+ Focus Groups
+ Surveys
+ Walking/Biking tours

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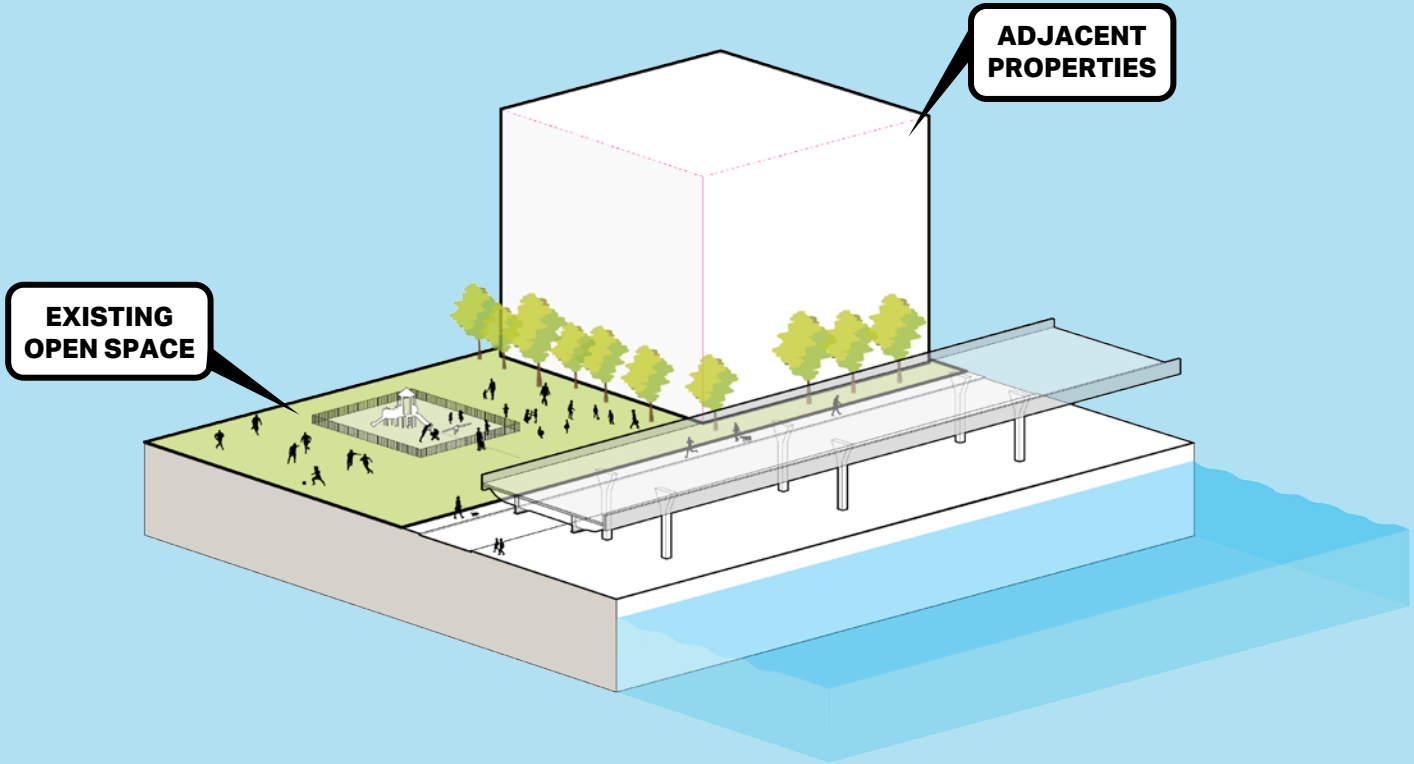
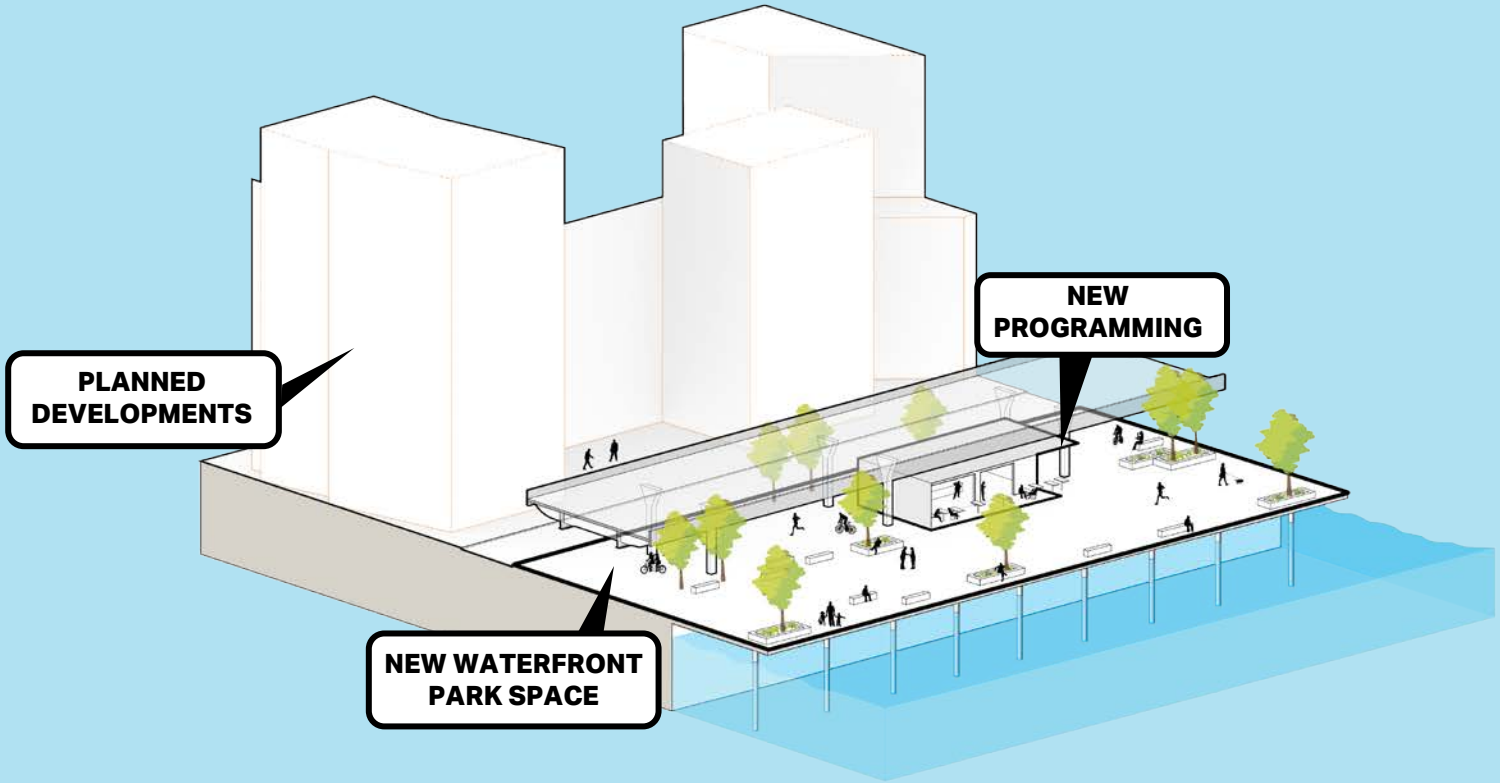
KEY CONSIDERATIONS

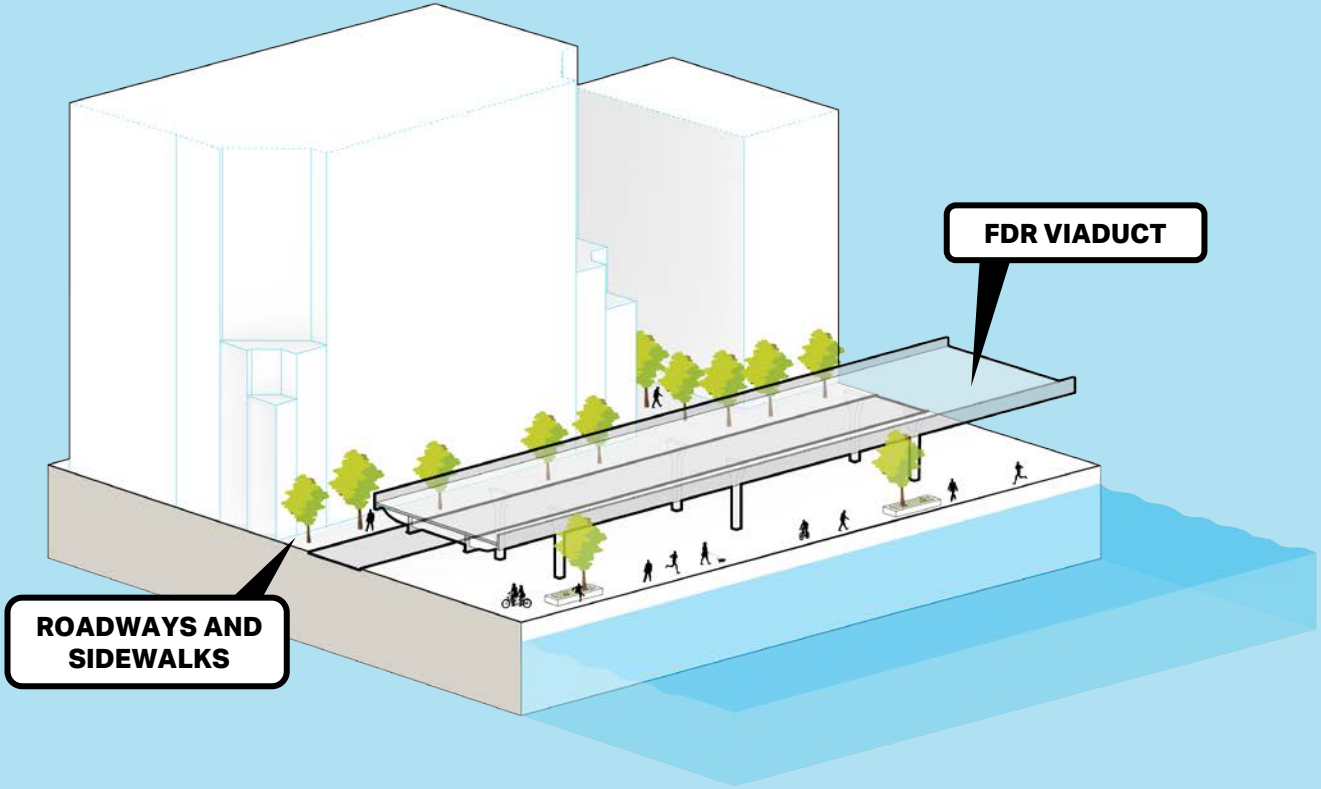
ADJACENT USES



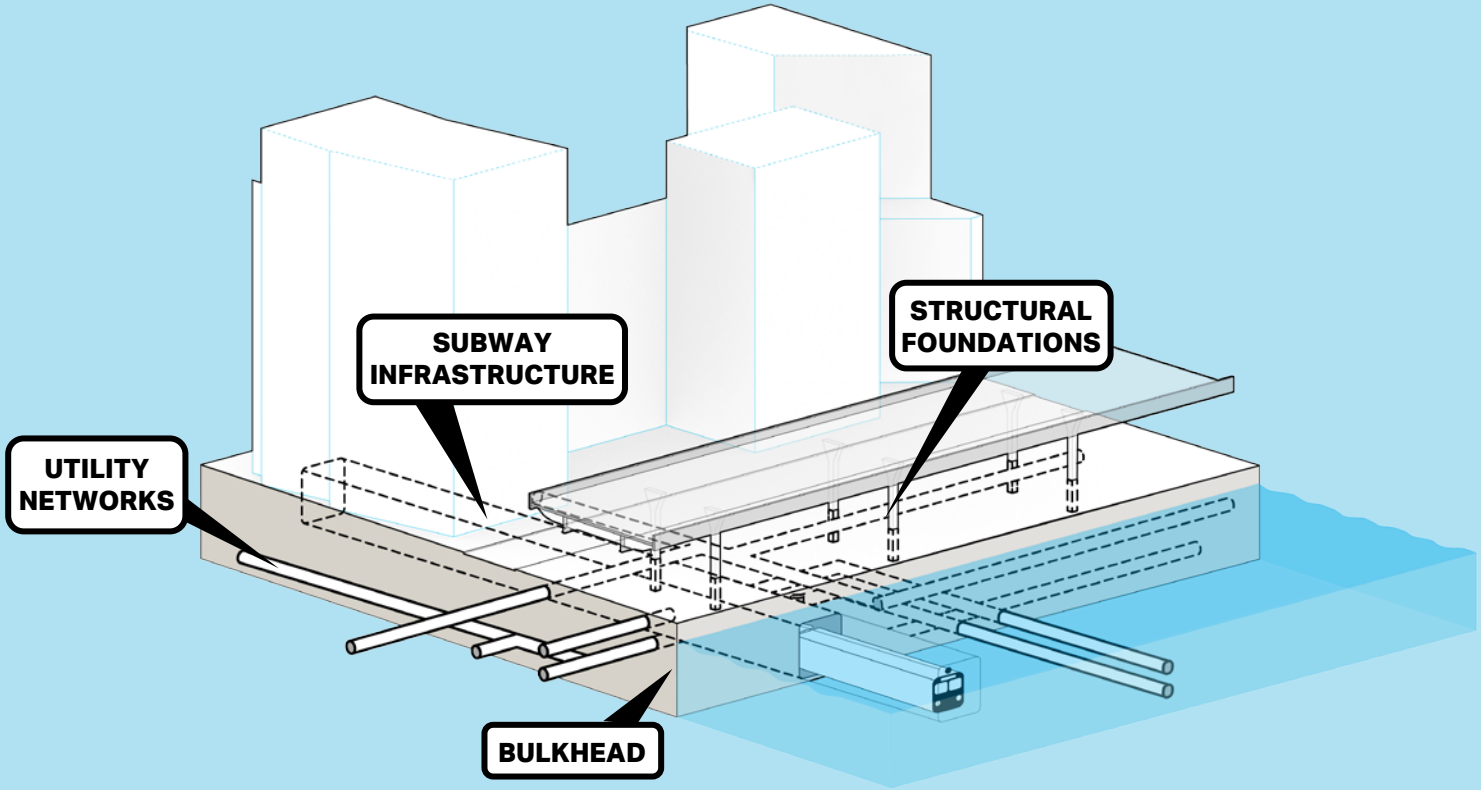
NEW AND PLANNED IMPROVEMENTS



CIRCULATION AND TRANSPORTATION



UNDERGROUND



TYPES OF COASTAL RESILIENCY INFRASTRUCTURE

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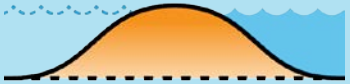
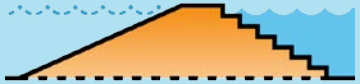
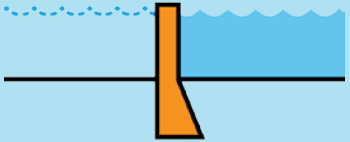


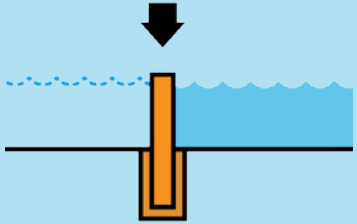
EARTHEN BERM



URBAN BERM



FLOOD WALL



DEPLOYABLES

ELEVATED STREET

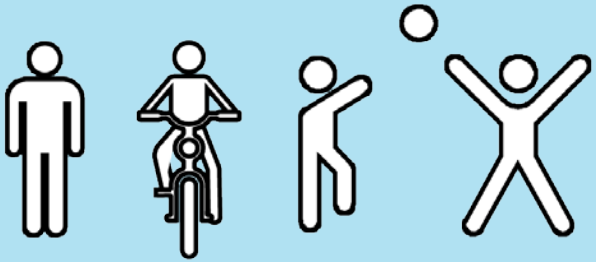
RAISED MEDIAN

ELEVATED PATHWAYS

RAISED PLANTERS

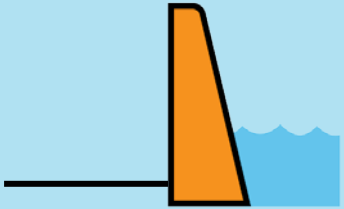
SOCIAL INFRASTRUCTURE

HOW DOES RESILIENCY INFRASTRUCTURE BENEFIT PEOPLE?



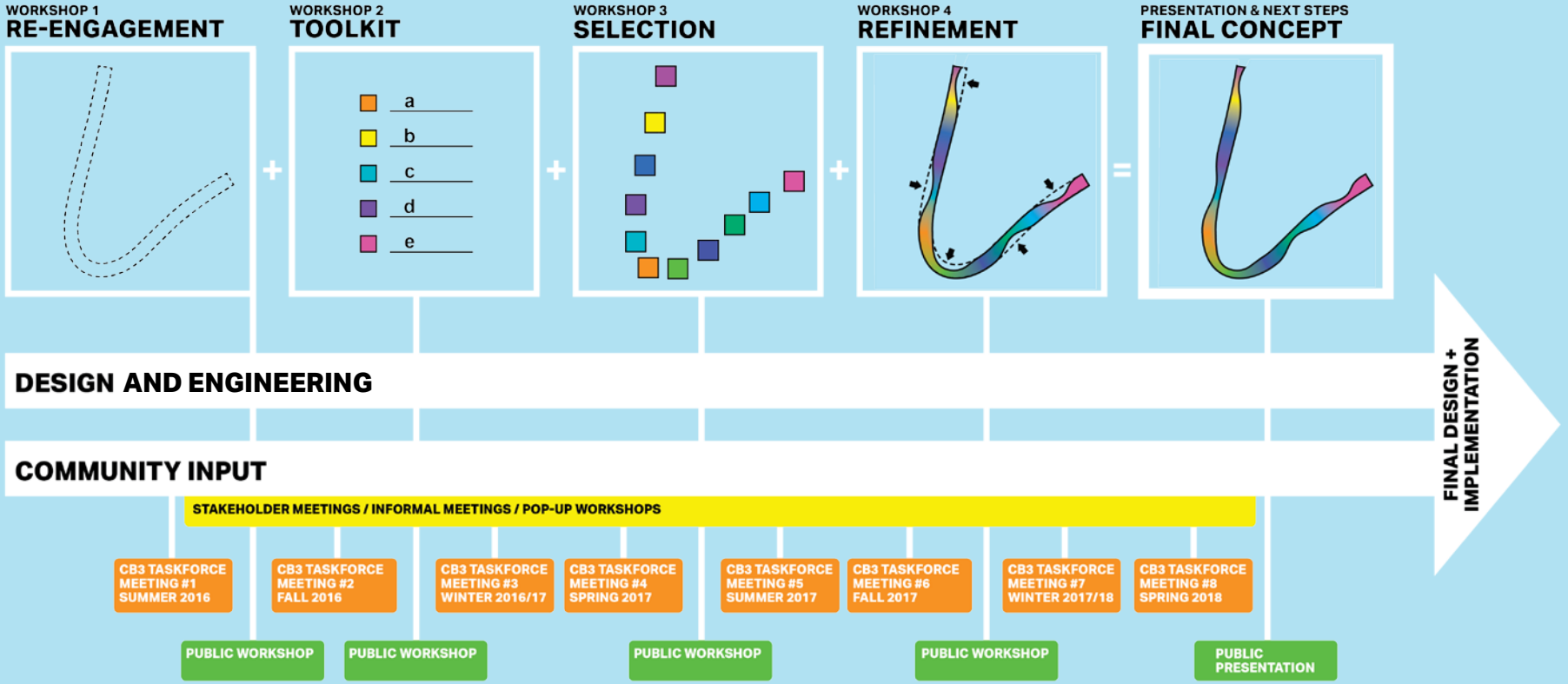
PEOPLE

+



RESILIENCY INFRASTRUCTURE

ENGAGEMENT TIMELINE
OPPORTUNITIES TO PARTICIPATE



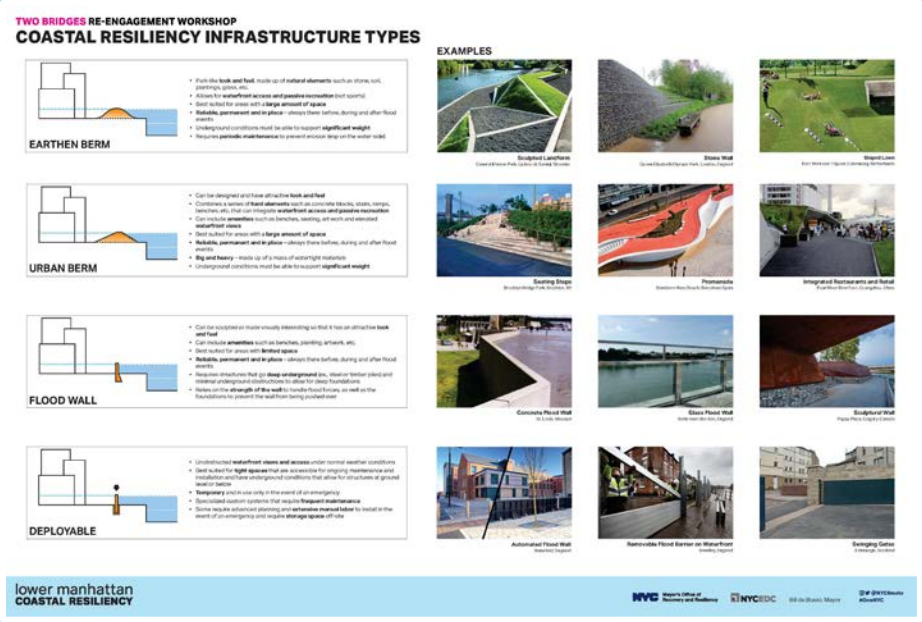
SMALL GROUP DISCUSSIONS

HOW WILL YOUR INPUT SHAPE THE PROJECT?

WORK SESSION 1: 30 minutes

Coastal Resiliency Infrastructure Types – Priorities and Concerns

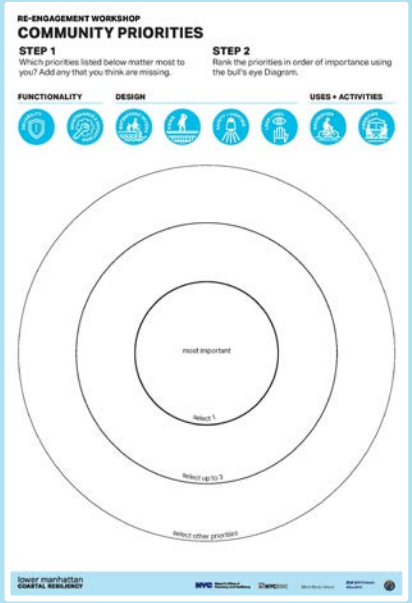
WORKSHEET 1:



HOW WILL YOUR INPUT SHAPE THE PROJECT?

WORK SESSION 2: 20 minutes
Community Priorities

WORKSHEET 2:



STAY IN TOUCH

www.nyc.gov/lmcr

@NYClimate

@NYClimate

by mail
253 Broadway – 14th Floor

in person

nycresiliency@cityhall.nyc.gov

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