



DESIGNING FOR URBAN COASTAL RESILIENCY

Margaret Hopkins, P.E.

Key Topics

- Challenges and constraints facing urban resiliency infrastructure
- Iterative, inclusive design approach with stakeholders
- Integrated design solutions for urban environments
- Best practices and lessons learned

An aerial, grayscale photograph of a dense urban area, likely New York City, showing a vast expanse of skyscrapers and buildings. The city is situated along a large body of water, with a prominent bridge visible in the lower right corner. The image is semi-transparent, serving as a background for the text.

**EAST SIDE COASTAL RESILIECY
PROJECT ORIGINS**

October 2012-Sandy's Path

Landfall at Brigantine, NJ

October 29, 7:30 PM

*Tropical Storm force winds
extending over 1,000 miles*

October 29, 5:30 PM
Post Tropical Cyclone

October 26, Bahamas
Cat-1 Hurricane

October 25, Cuba
Cat-2 Hurricane

October 24, Jamaica
Cat-1 Hurricane

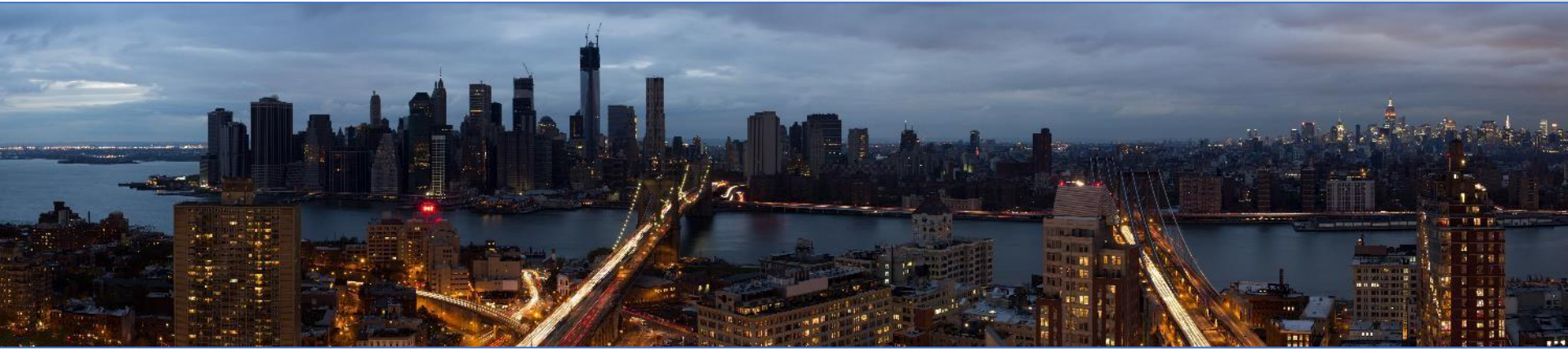
(Im)perfect Timing



Storm Impacts



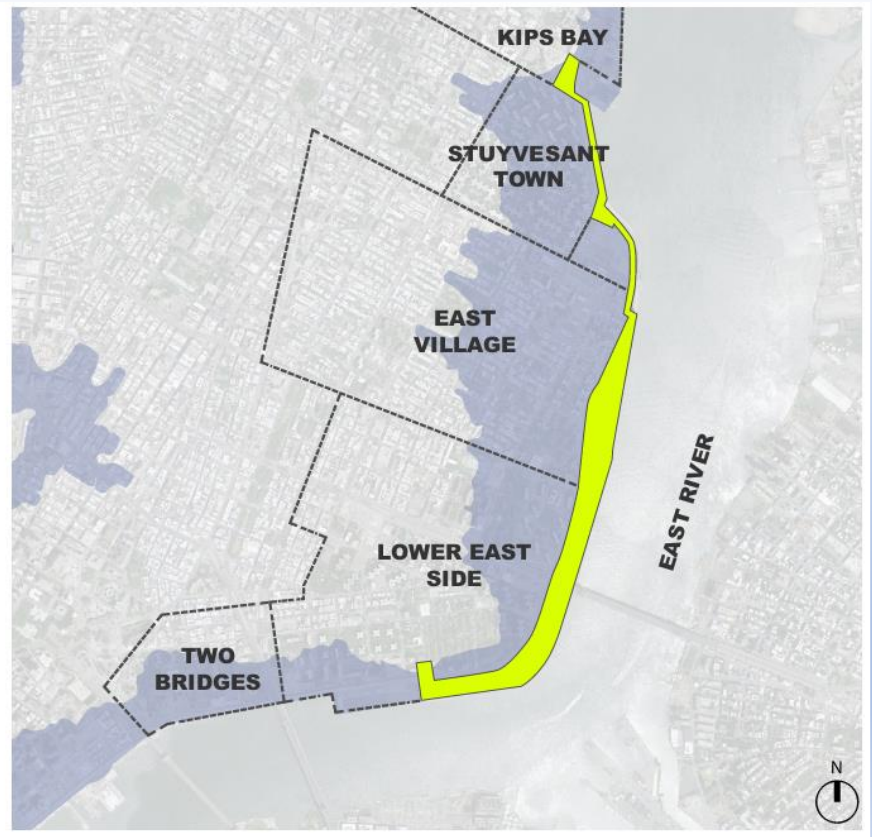
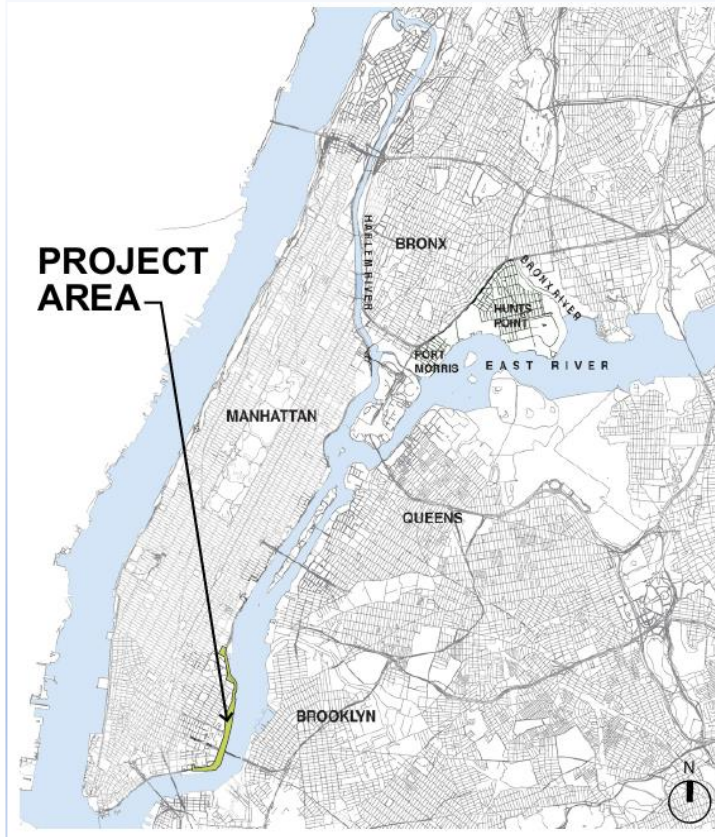
OCTOBER 29, 2013




RBD to BIG U to ESCR



Project Location



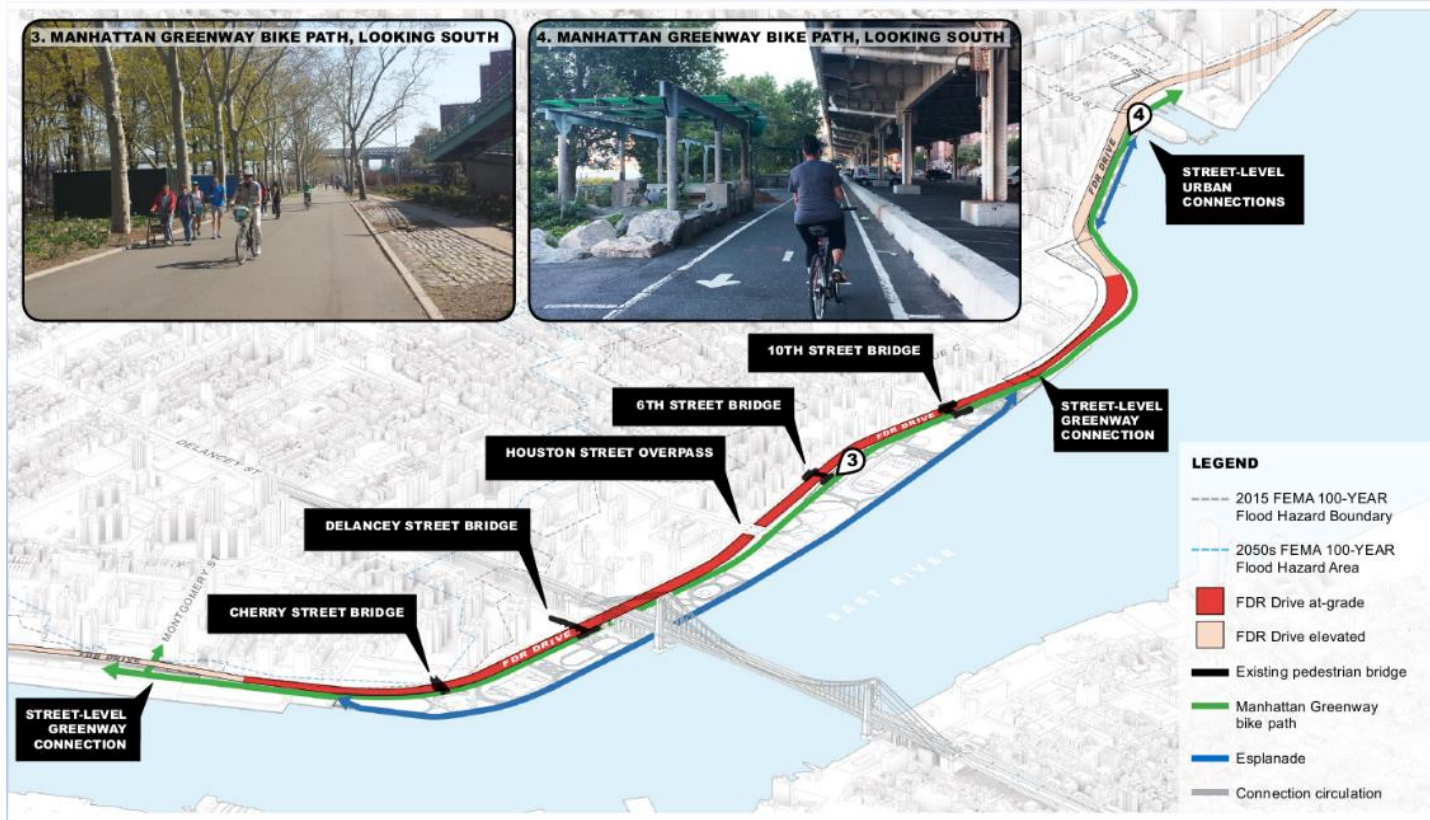
An aerial, grayscale photograph of a dense urban landscape, likely a major city like New York City. The image shows a vast expanse of buildings, streets, and green spaces, with a large body of water (the Hudson River) visible on the right side. The sky is clear and light. The overall tone is professional and technical.

TECHNICAL CONSTRAINTS & DESIGN CONSIDERATIONS

Technical & Site Constraints



Technical & Site Constraints



Technical & Site Constraints



Technical & Site Constraints



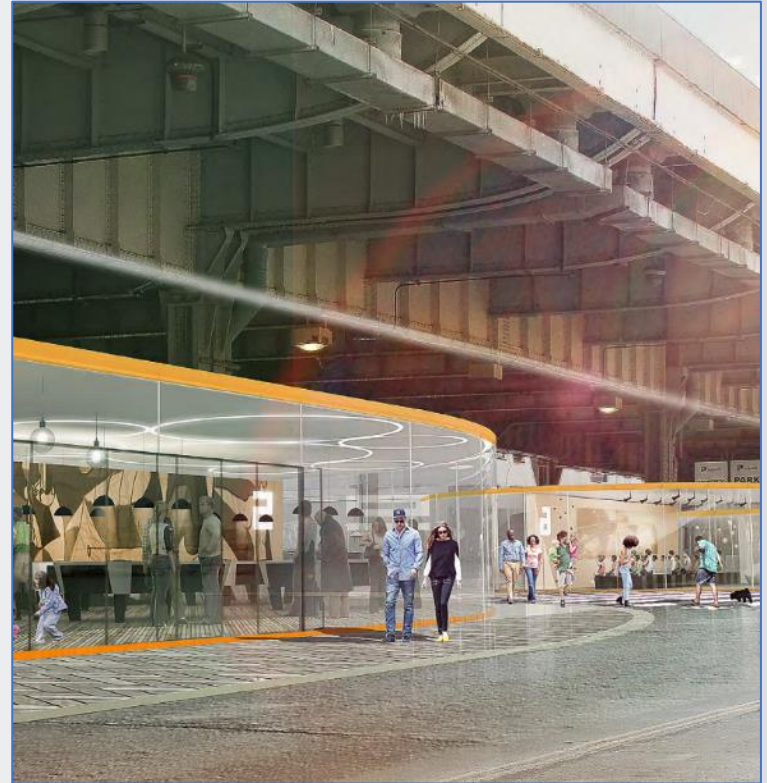
Technical & Site Constraints



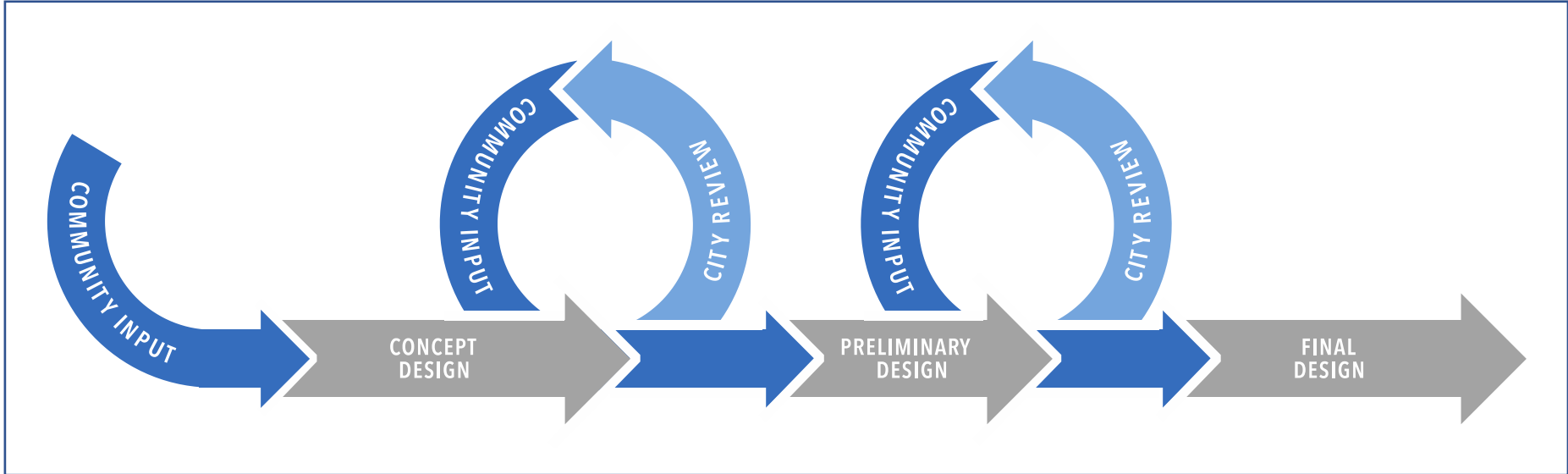


INCLUSIVE DESIGN APPROACH

Design Concept



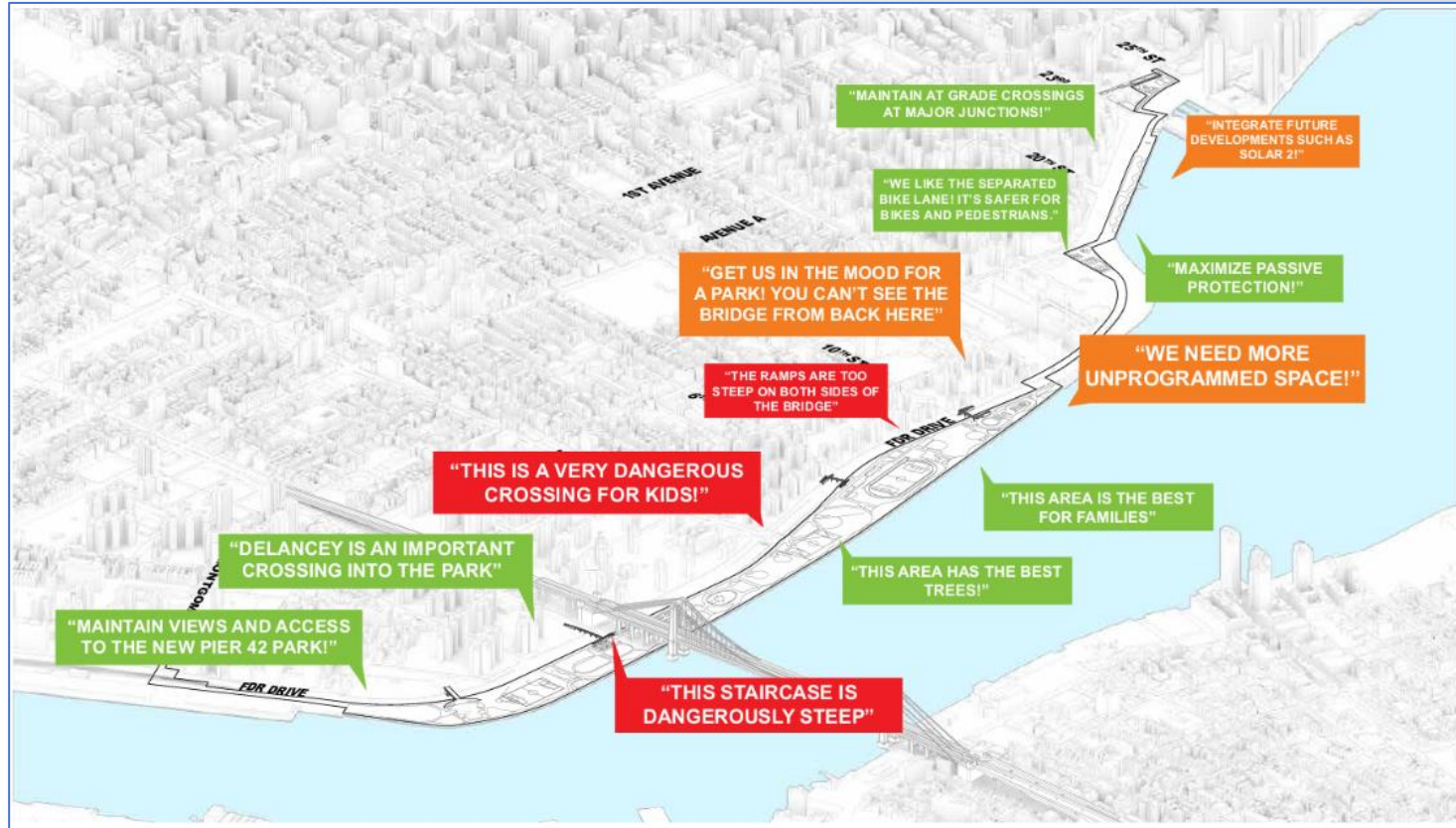
Iterative Design Process



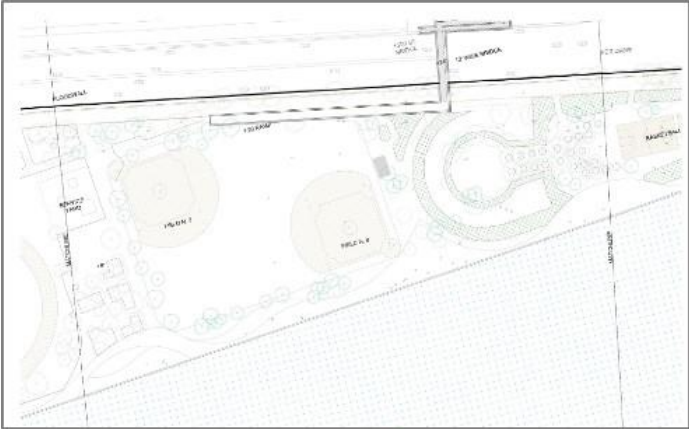
Community Input Sessions



Community Feedback



Conceptual Design Study



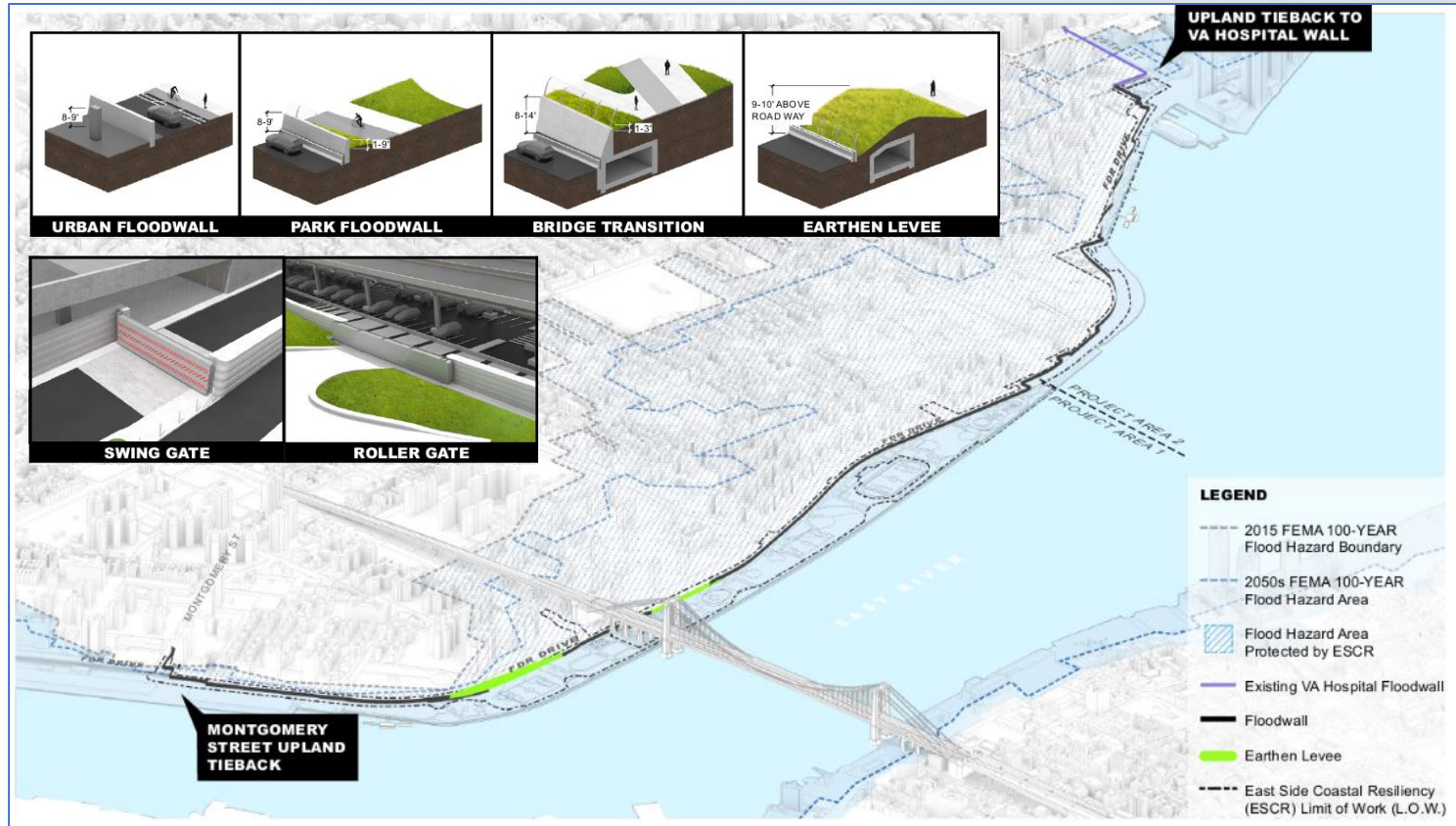
Community Reporting Sessions





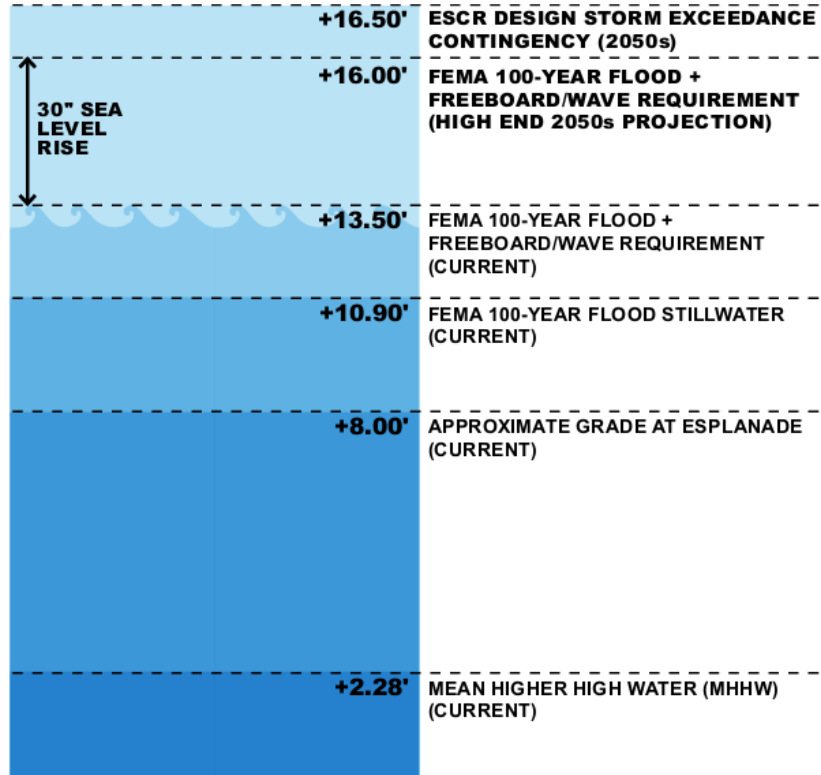
DESIGN SOLUTIONS

Flood Protection Components



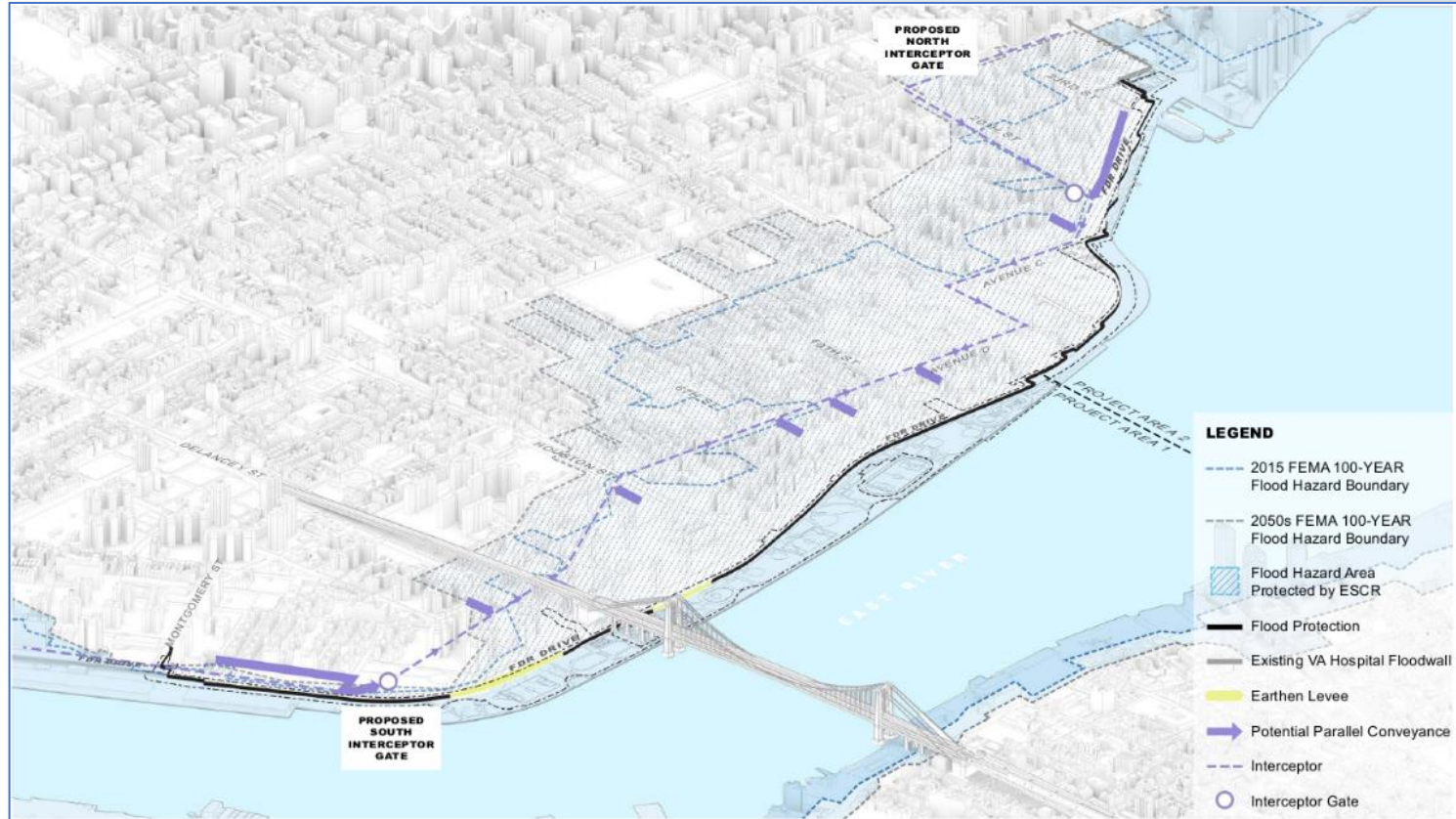
Design Elevation

**HUD FUNDING REQUIREMENT:
THE SYSTEM MUST PURSUE
FEMA ACCREDITATION WITH
MINIMUM SYSTEM ELEVATION AT
CURRENT FEMA 100-YEAR STORM
ELEVATION + FREEBOARD**

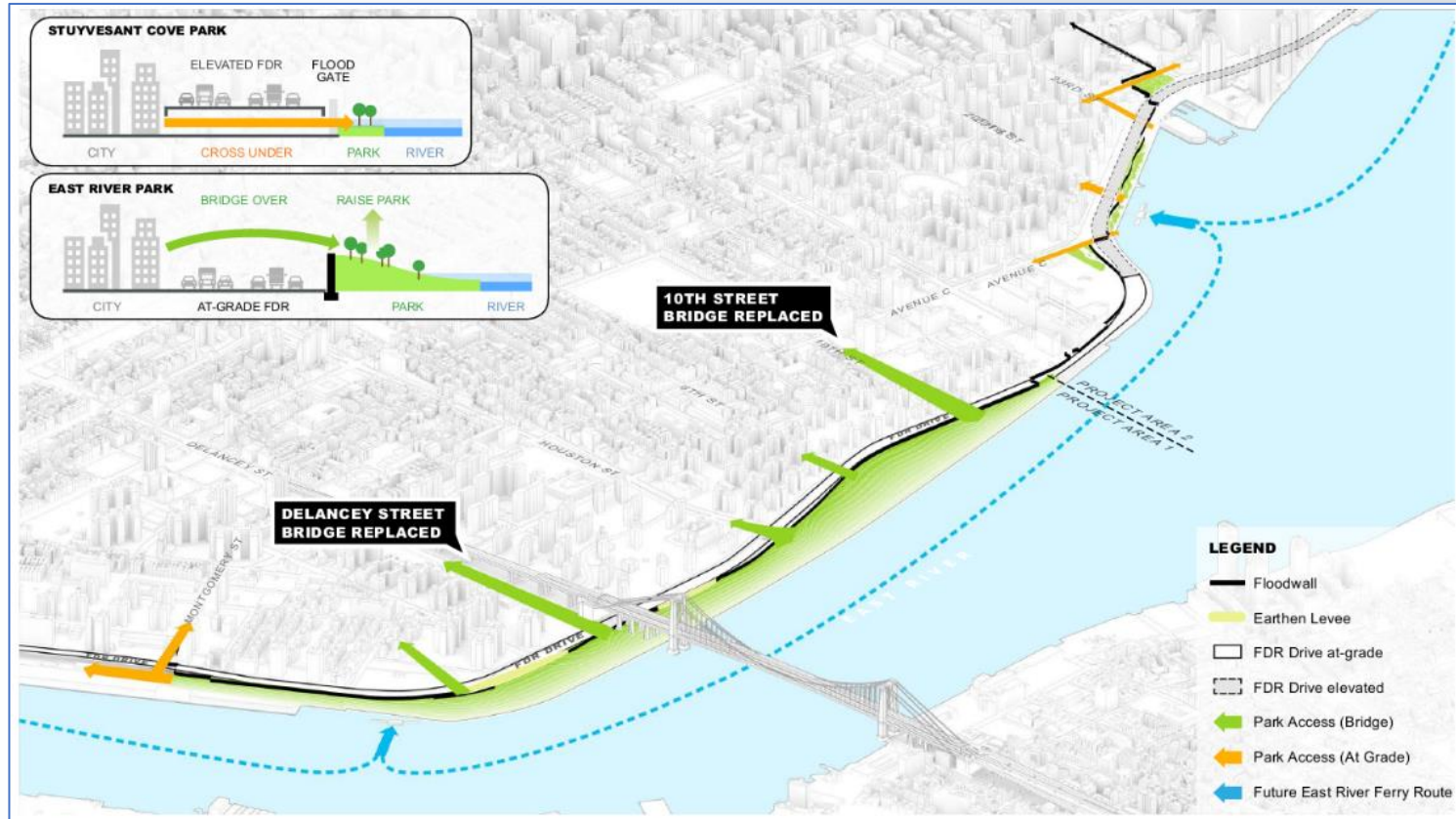


NOTE: ALL ELEVATIONS SHOWN IN NAVD88

Interior Drainage



Park & Access Strategy



Southern Tie-Back



East River Park



FDR Drive Crossing



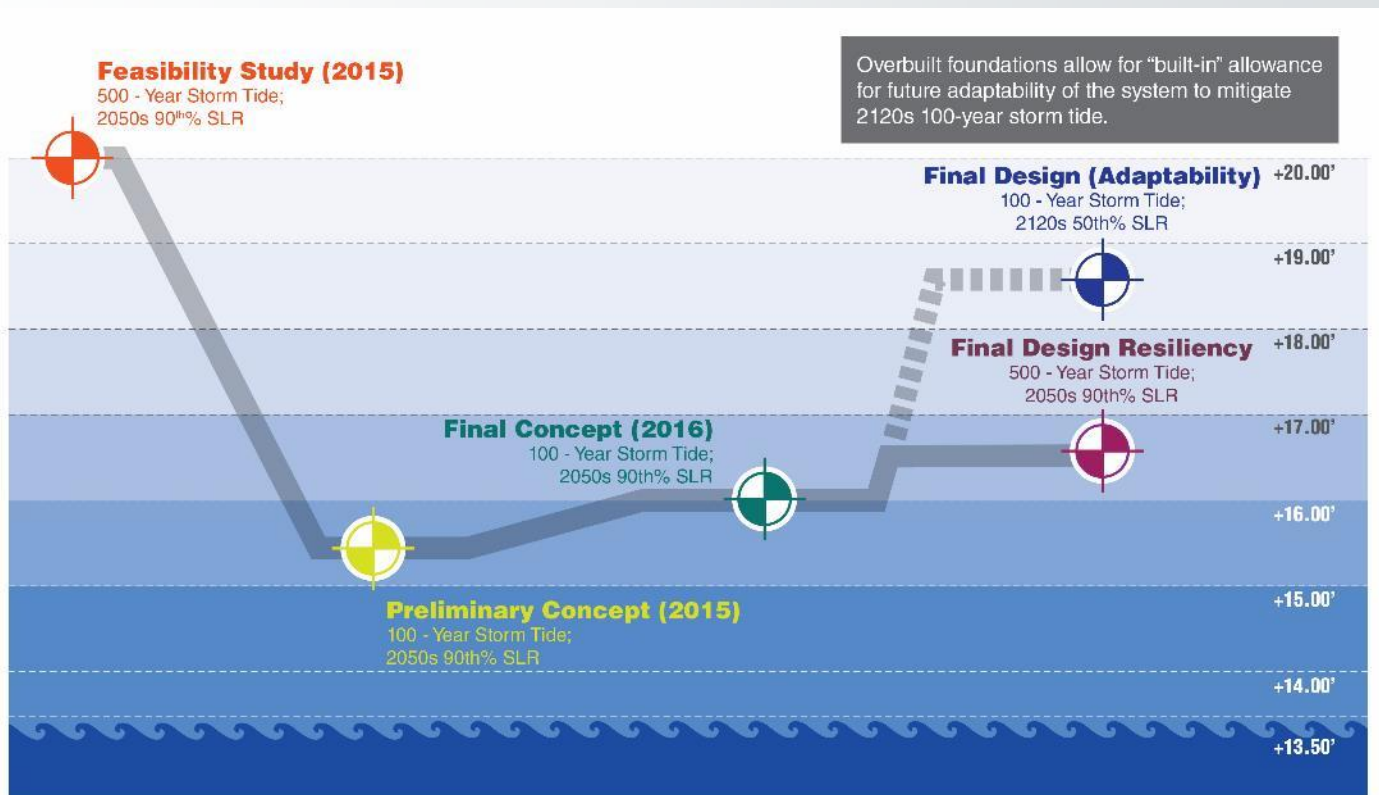
Stuyvesant Cove Park



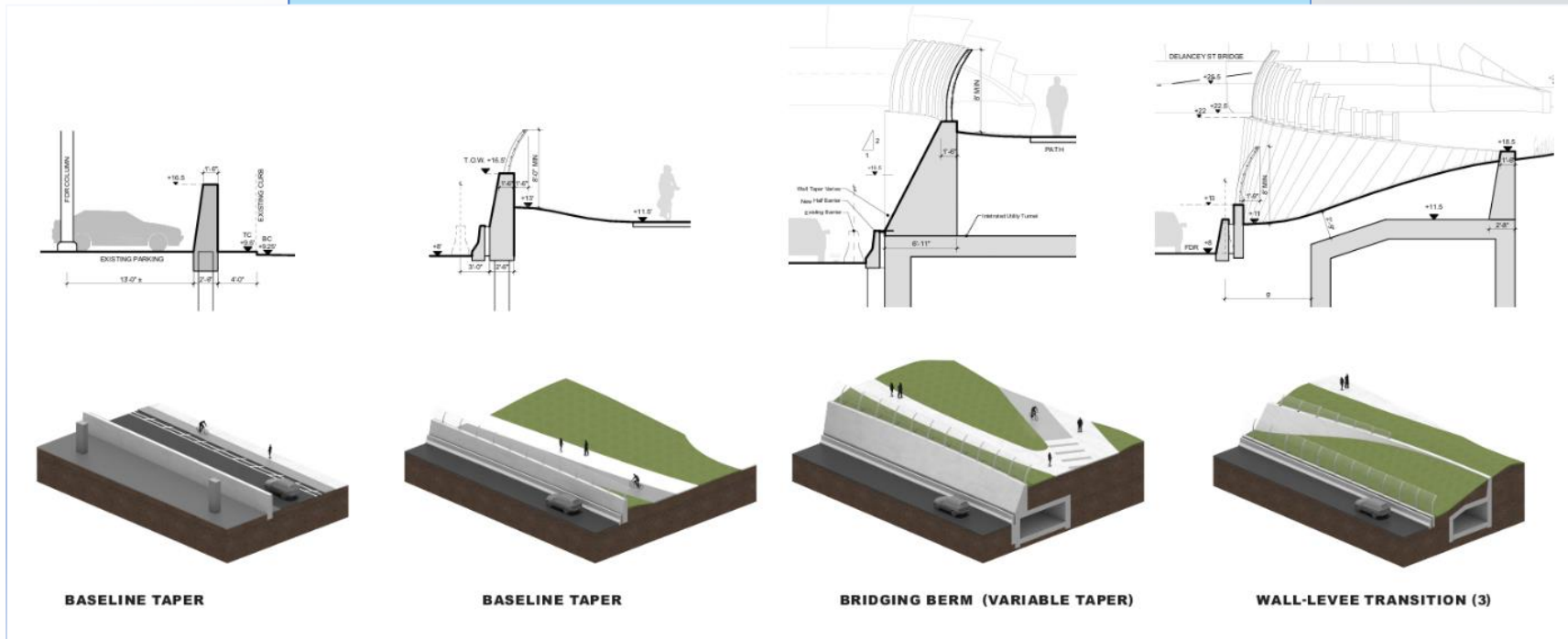


BEST PRACTICES

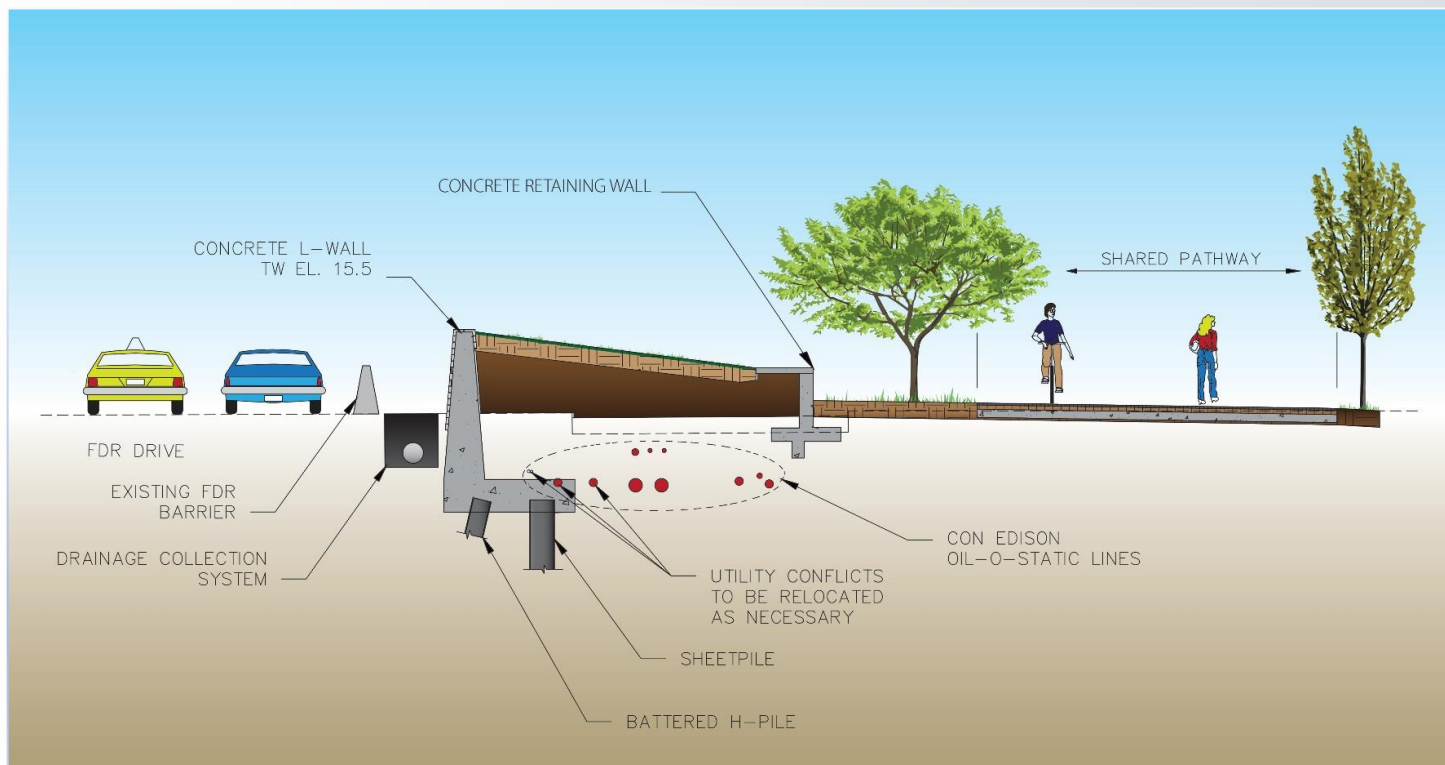
Resilient, Maintainable, Adaptable



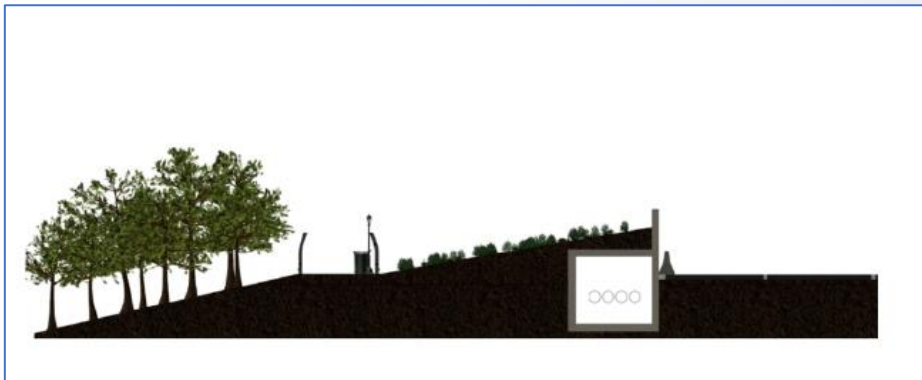
Floodwall Design Progression



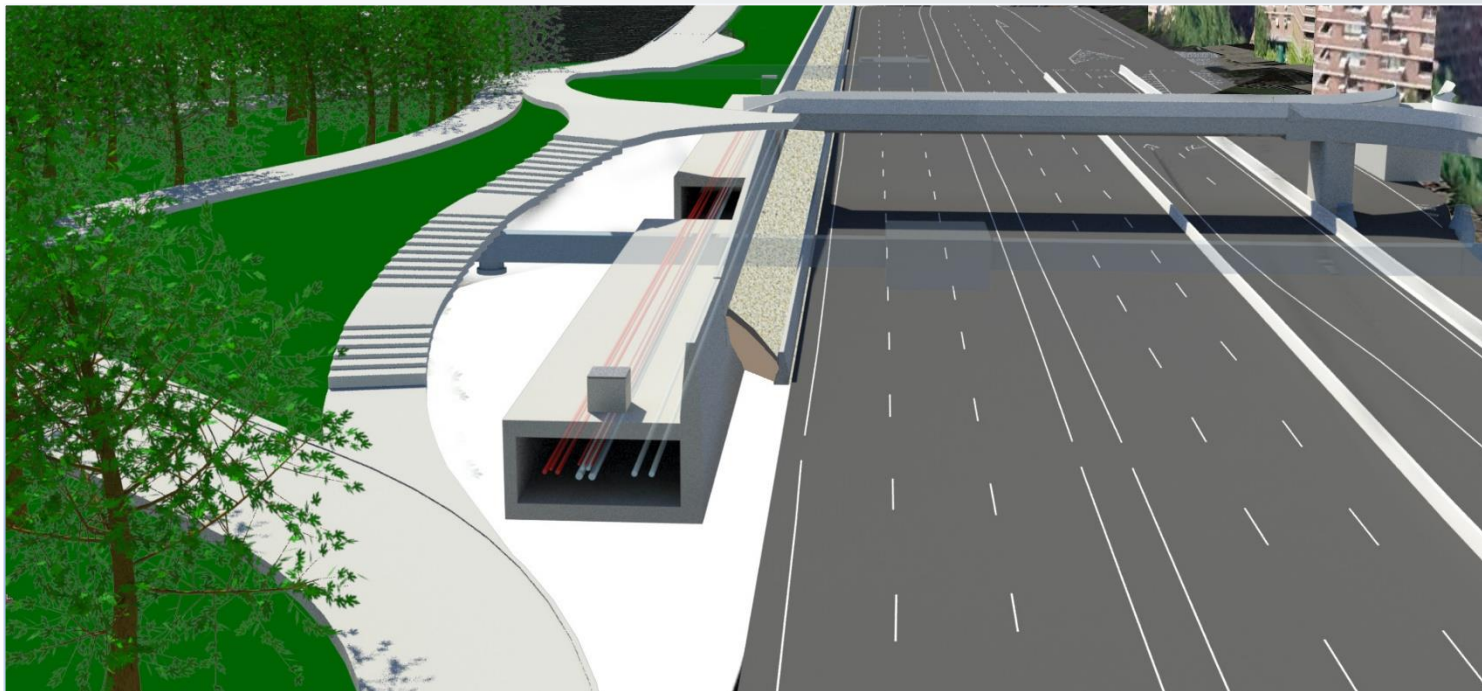
Lines to be Relocated



Utility Proposal

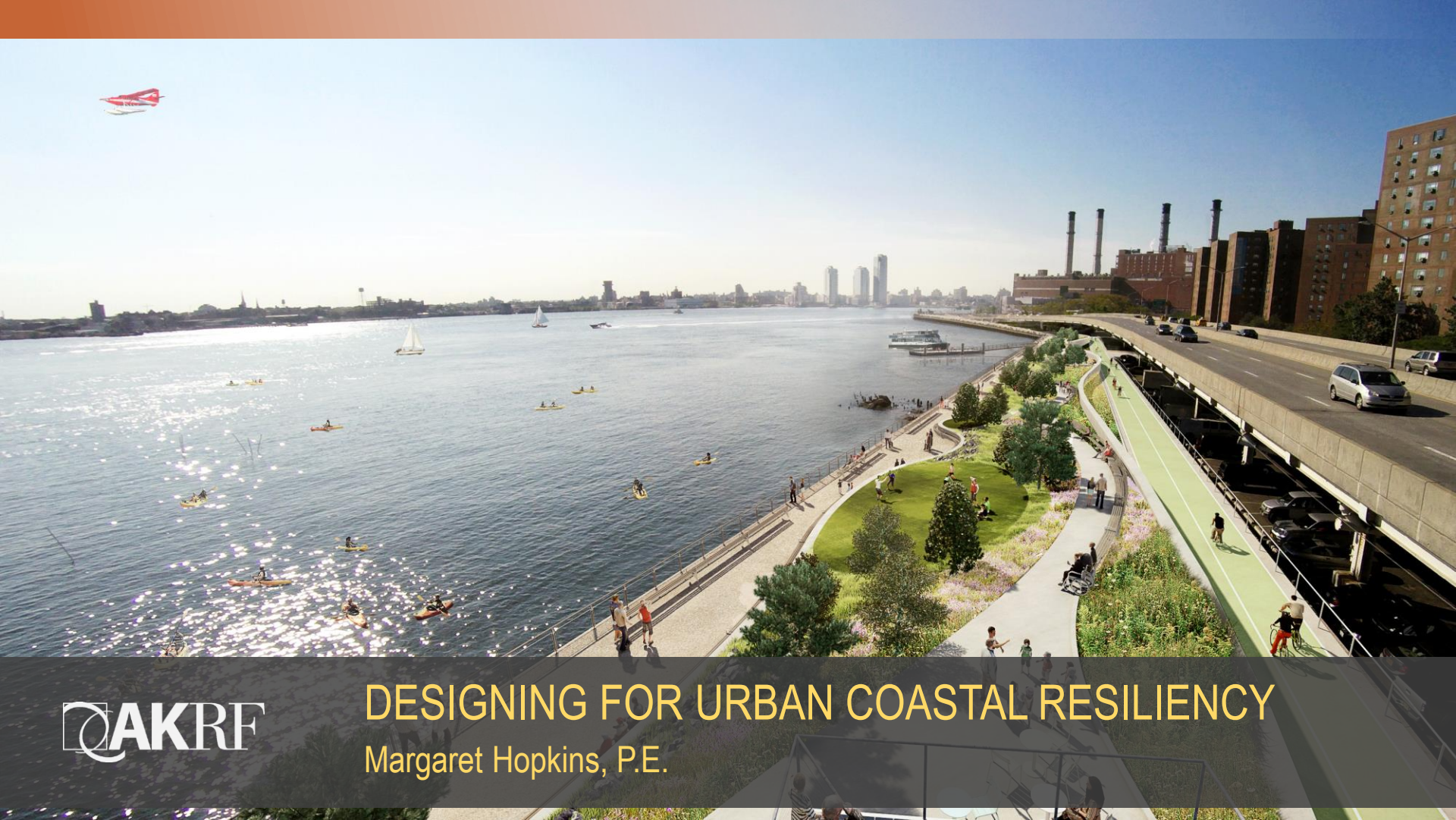


Design Synthesis



Integrated Solution





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