lower manhattan
COASTAL RESILIENCY

CB1 TASK FORCE UPDATE
DECEMBER 5, 2016

NYC Mayor's Office of Recovery & Resiliency NYCEDC #ONENYC

MEETING GOALS

1. Update on how LMCR is incorporating community feedback into the design approach
2. Inform Task Force on the LMCR technical process
3. Coordinate project timeline and upcoming milestones

SPEAKERS

Michael Shaikh, Climate Policy and Programs, NYC Mayors Office

Dan Zarrilli, Office of Recovery and Resiliency

James Lima, James Lima Planning + Development

Gonzalo Cruz, AECOM Design

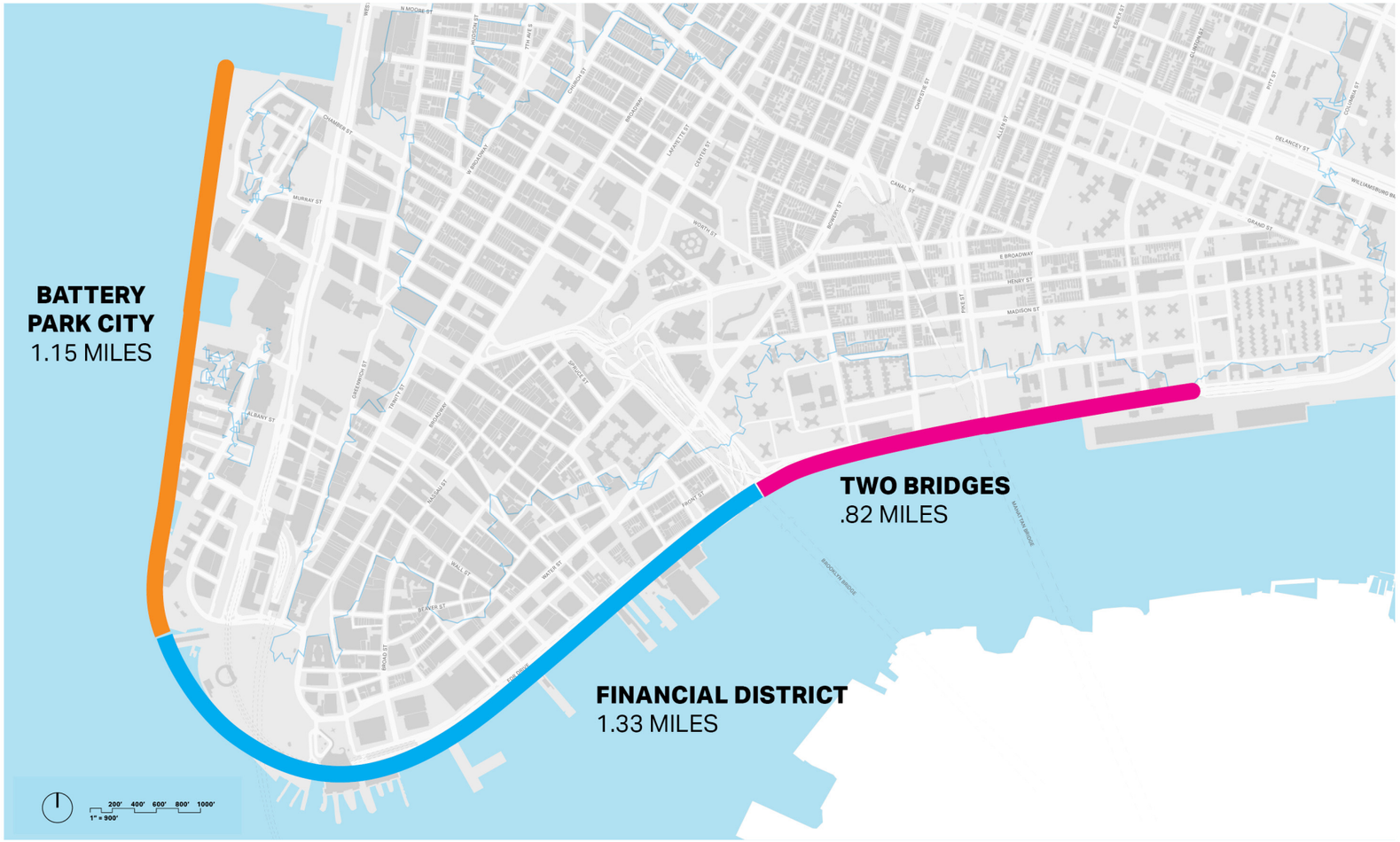
PROJECT OVERVIEW

Purpose of Study

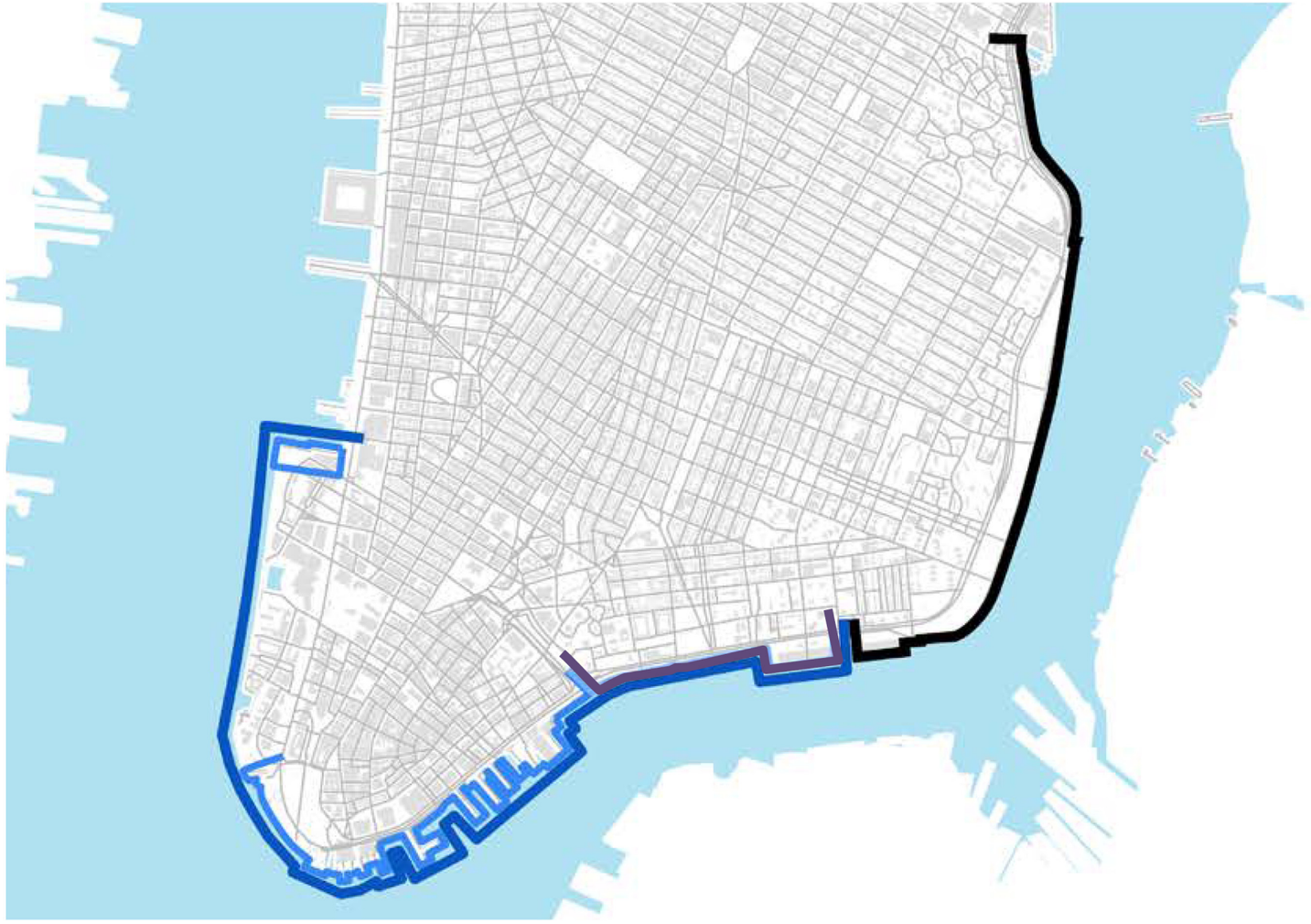
- Develop long-term strategy and feasible concept design for all of Lower Manhattan
- Prioritize project concepts toward implementation and conduct advanced planning when possible
- Engage with community on core design principles and priorities

Study Funding:

- $7.25M CDBG-DR
  ($3.75M GOSR; $3.5M NYC)



IMPLEMENTATION FUNDING IN PLACE



EAST SIDE COASTAL RESILIENCY
FUNDING SECURED:
$335 million (CDBG-DR)
$170 million (City Capital) Project Budget : $505 million

LOWER MANHATTAN COASTAL RESILIENCY IMPLEMENTATION

TWO BRIDGES
FUNDING SECURED:
$176 million (CDBG-NDR)
$27 million (City Capital)
Project Budget: $230 million

MANHATTAN TIP
FUNDING SECURED
- $100 million (City Capital)
  +$8 million for The Battery
  Project Budget: TBD

PROJECT PROCESS

Task 6: Community Engagement

FINAL DESIGN & IMPLEMENTATION

Task 1: Existing Conditions

SUMMER '16 TO SPRING '17

- Research previous plans & concepts
- Mapping
- Site Conditions
- Assessments

Task 2: Concept Design

FALL '16 TO WINTER '17

- Hydrological mgmt Strategies
- Drainage & sewer analysis
- Economic analysis
- Regulatory framework
- Develop conceptual scenarios

Task 3: Project Feasibility and Prioritization

WINTER '17 TO FALL '17

- Framework to evaluate and identify priorities
- Identify required ULURP actions
- Determine project phasing

Task 4: Near-Term Scoping for Implementation

SUMMER '16 TO SPRING '18

- Surveying, geotech, sampling
- Schematic design documents
- Cost estimates

Task 5: Enviro. Review & Permitting

WINTER '16 TO FALL '18

- Preparation of environmental review documents

COORDINATION EFFORTS

LMCR is actively engaging multiple entities to coordinate public and private resilience planning implementation and inform a comprehensive approach to developing alignments.

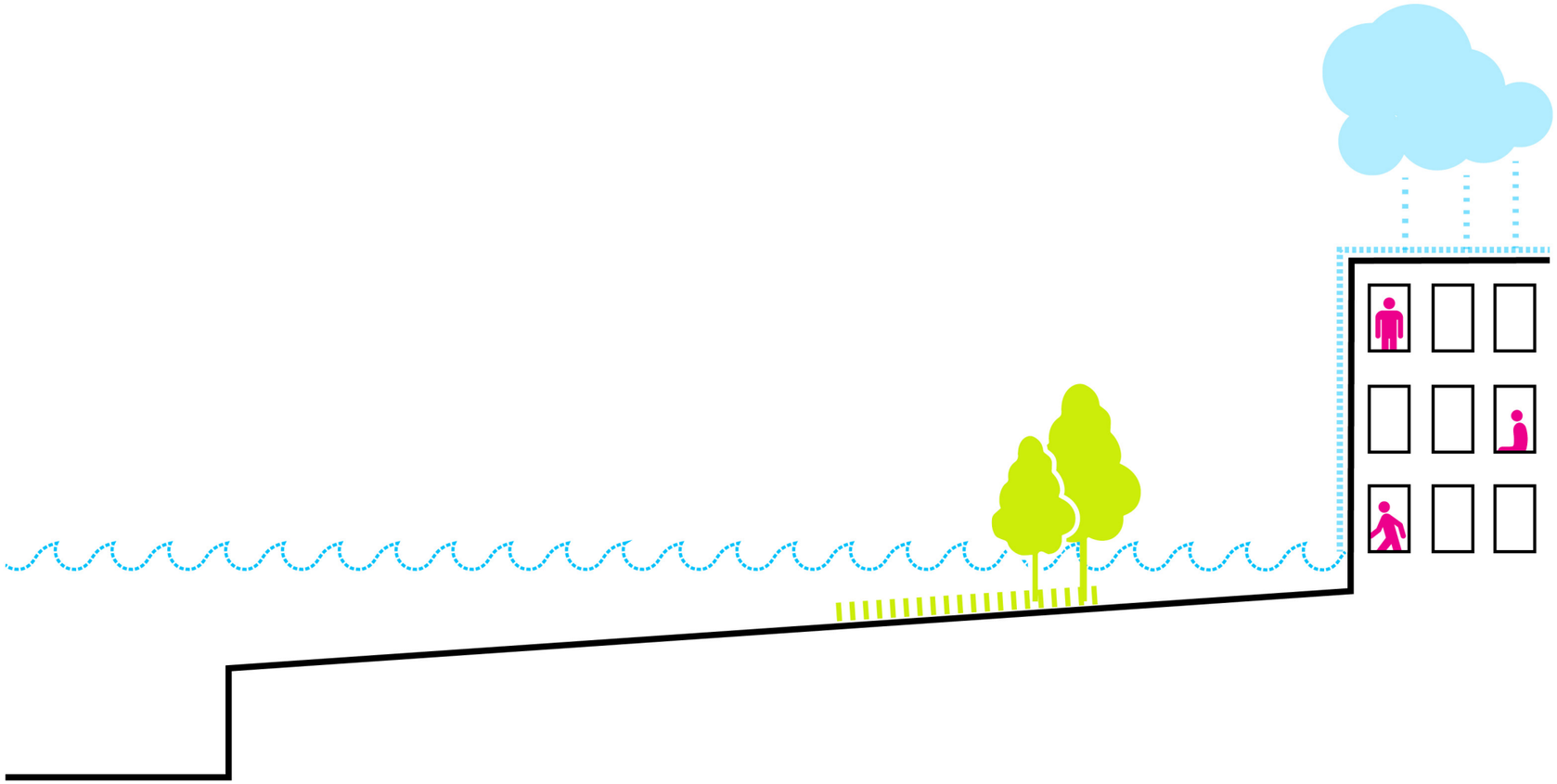
Internal

- Interagency coordination: GOSR, DCP, DOT, DPR, NYCHA, DEP, DDC, State DOT, MTA
- Capital projects and planning: EDC Capital, Asset Management, and Development Divisions; other agency capital plans
- Data sharing agreements between agencies

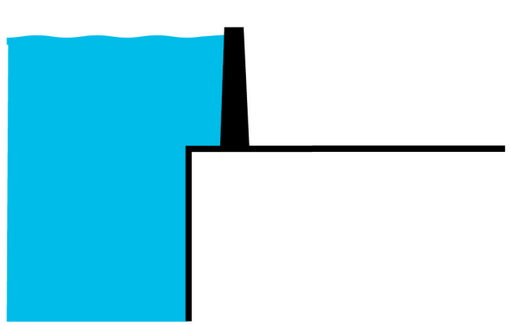
External

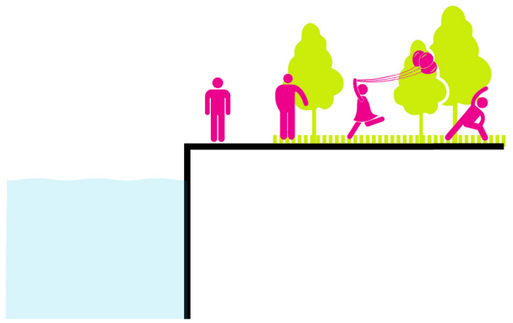
- Task Force updates and feedback
- Stakeholder focus groups
- Neighborhood organization engagement
- Private property owner and developer interviews
- Elected office coordination
- Battery Park City Authority

THE CHALLENGE



CORE MISSION

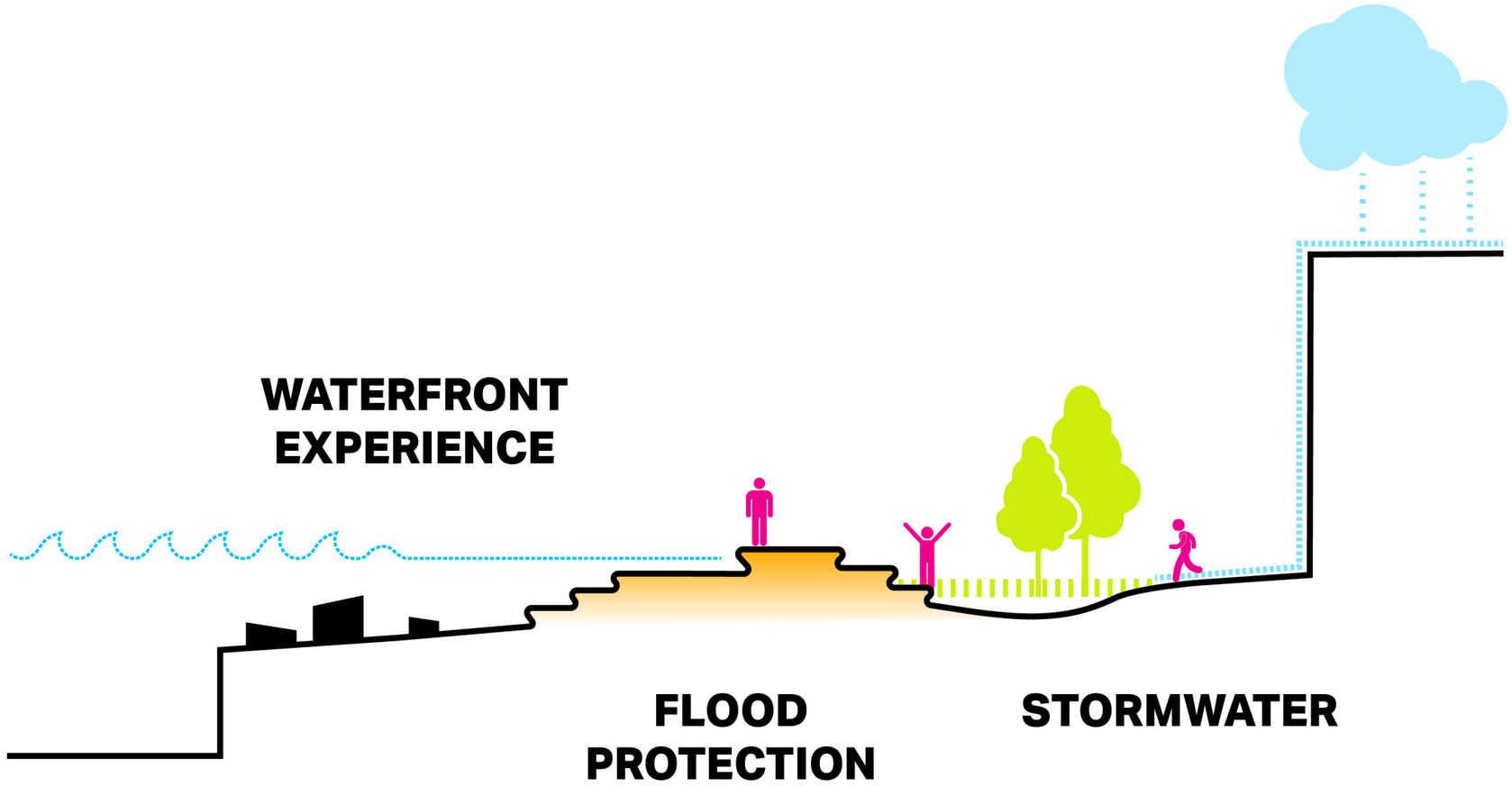




FLOOD RISK REDUCTION

PUBLIC BENEFIT

WATERFRONT EXPERIENCE



A TAILORED APPROACH

Solutions that are developed block-by-block

Minimize impacts to traffic and everyday city operations

COMMUNITY ENGAGEMENT SUMMARY

July 28
Oct 6
public workshops

160
Sign-ins

44%
Residents*

Outreach:
- Distributed over 7,800 flyers; reached 44,000+ online audience and 350,000+ print audience
  (across overall project area)

Evaluation:
- Excellent overall evaluation score between 4-5 (on a 1-5 scale)

* Other 55% includes workers, businesses, and other stakeholders in Lower Manhattan

TOP PRIORITIES FROM STICKER EXERCISE

RELIABILITY

67 VOTES

RESIDENTS
44 VOTES

NON- RESIDENTS
23 VOTES

SAFETY + LIGHTING

17 VOTES

RESIDENTS
15 VOTES

NON- RESIDENTS
2 VOTES

WATERFRONT ACCESS

14 VOTES

RESIDENTS
7 VOTES

NON- RESIDENTS
7 VOTES

MAINTENANCE + OPERATIONS

14 VOTES

RESIDENTS
6 VOTES

NON- RESIDENTS
8 VOTES

RECREATION

4 VOTES

RESIDENTS
2 VOTES

NON- RESIDENTS
2 VOTES

AMENITIES

4 VOTES

RESIDENTS
3 VOTES

NON- RESIDENTS
1 VOTE

VIEWS

3 VOTES

RESIDENTS
1 VOTE

NON- RESIDENTS
2 VOTES

LOOK + FEEL

2 VOTES

RESIDENTS
1 VOTE

NON- RESIDENTS
1 VOTE

CONCERNS AND PREFERENCES ABOUT INFRASTRUCTURE TYPES

KEY PREFERENCES

- Overall, similar results for BPC and FiDi
- Maintain existing waterfront views and access
- Prioritize infrastructure that has a natural look
- Ensure that resiliency infrastructure is accessible for all ages and residents

KEY CONCERNS

- Blocking the waterfront (BPC - slightly stronger concern)
- High costs
- High maintenance requirements (FiDi - slightly stronger concern)
- Not enough space for berms
- Reliance on manual deployment in times of crisis and the associated risks (FiDi - slightly stronger concern)

WHERE ARE WE NOW?
EXISTING CONDITIONS

DOCUMENTING EXISTING CONDITIONS

The project team is documenting existing conditions throughout the project area. Ongoing work includes:

- Private property resiliency interviews
- Photography site survey
- Tree survey
- Utilities and subsurface infrastructure
- Bathymetry survey
- Coastal modeling
- Interior drainage survey
- Bulkhead and coastline survey
- Spot elevations and contours
- FDR Overpass survey

PREVIOUS PLANS AND PROJECTS

ONGOING

CB3 PLANNING DOCUMENTS

CB1 PLANNING DOCUMENTS

EAST SIDE COASTAL RESILIENCY PROJECT

NYC PANEL ON CLIMATE CHANGE

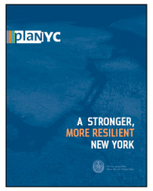
EAST RIVER BLUEWAY

NY RISING COMMUNITY RECONSTRUCTION PLAN FOR LOWER MANHATTAN

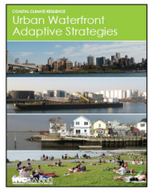
ONENYC: THE PLAN FOR A STRONG AND JUST CITY

ACTIVE DESIGN GUIDELINES

NYC WATERFRONT STRATEGY (WAVES)

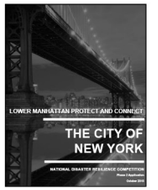


A STRONGER, MORE RESILIENT NEW YORK

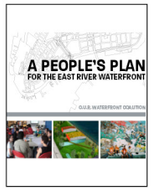


URBAN WATERFRONT ADAPTIVE STRATEGIES

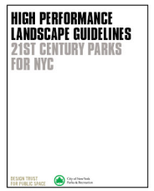
REBUILD BY DESIGN: THE BIG U



NDRC NYC APPLICATION



A PEOPLE'S PLAN FOR THE EAST RIVER WATERFRONT



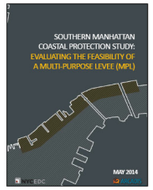
HIGH PERFORMANCE LANDSCAPE GUIDELINES

VISION 2020

2012 HURRICANE SANDY

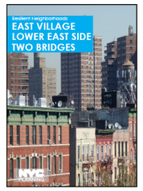
NYC WATERFRONT REVITALIZATION PROGRAM

SOUTH FERRY TERMINAL



SOUTHERN MANHATTAN COASTAL PROTECTION STUDY

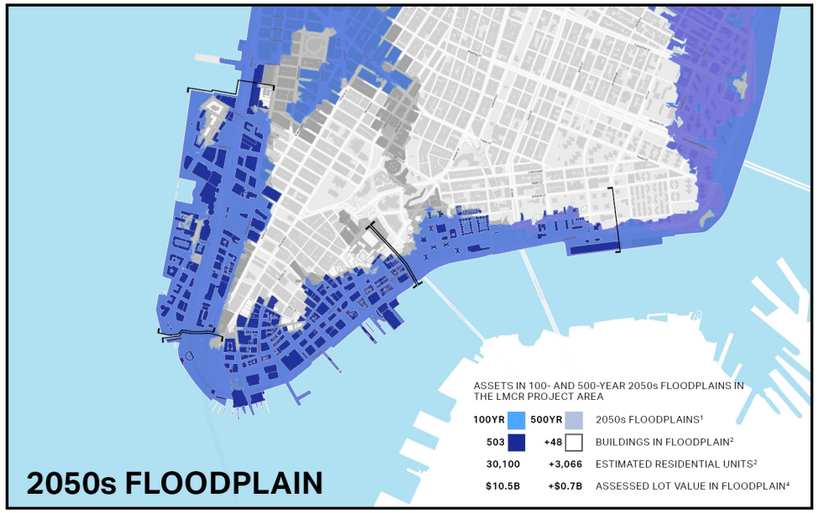
DEP NYC GREEN INFRASTRUC-TURE PLAN

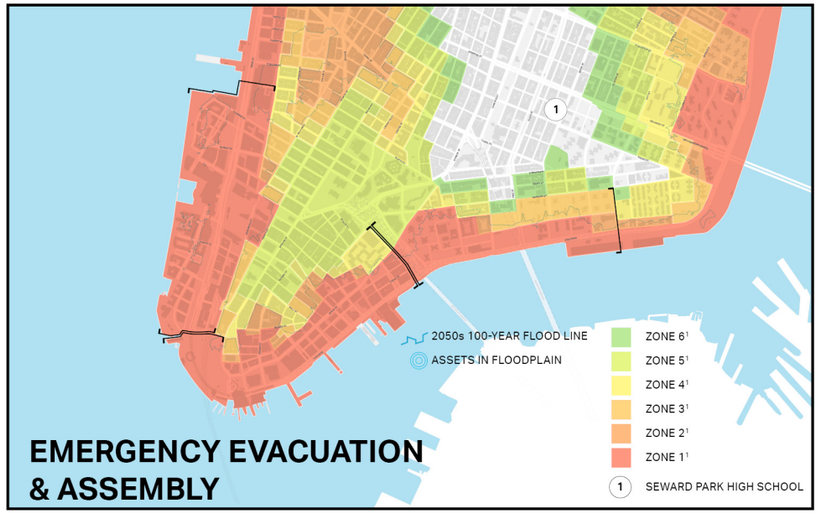


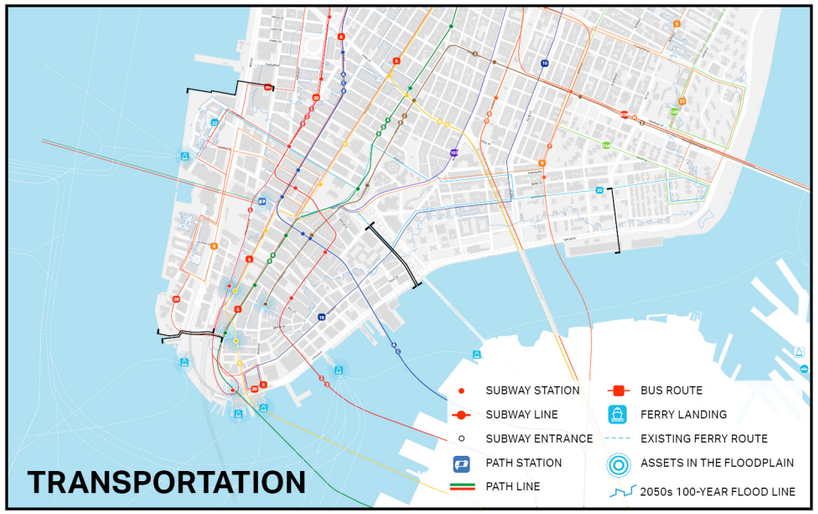
RESILIENT NEIGHBORHOODS

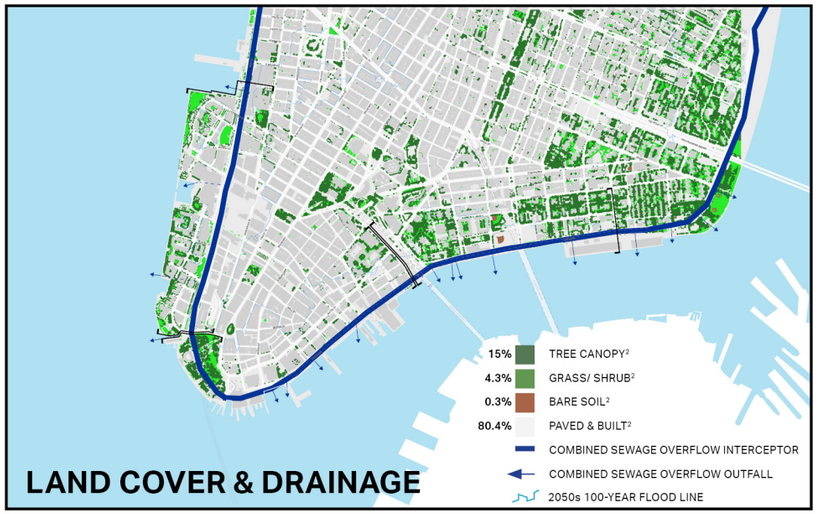
2009 2010 2011 2013 2014 2015 2016

EXISTING CONDITIONS ANALYSIS : OVERALL PROJECT AREA

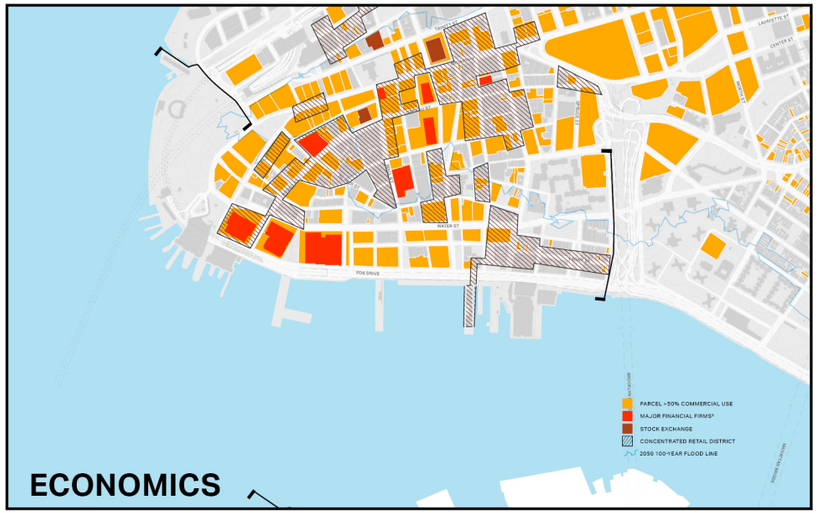




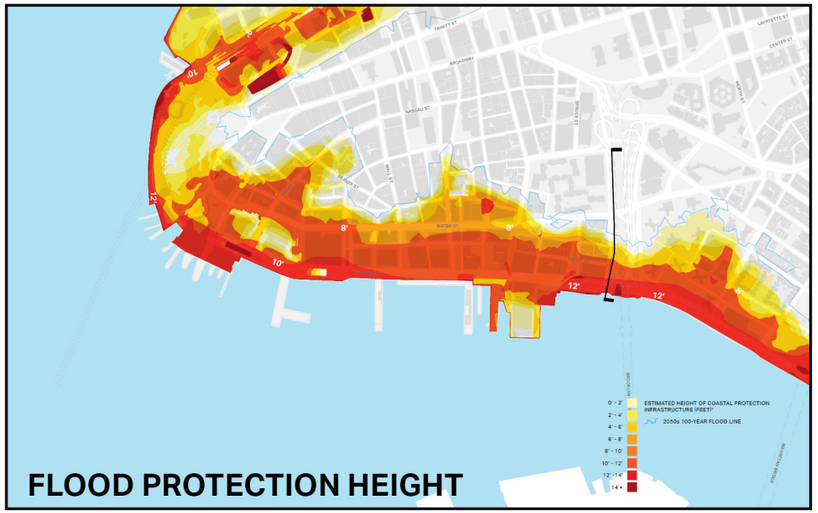




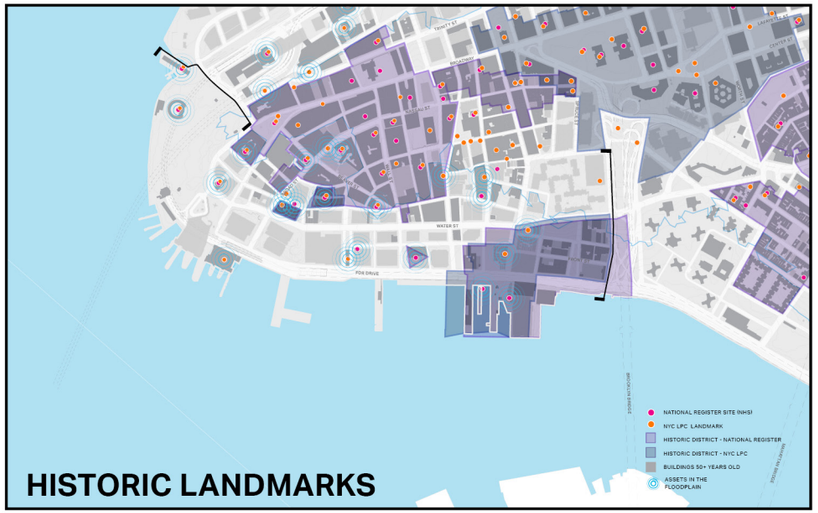
EXISTING CONDITIONS ANALYSIS : A CLOSER LOOK



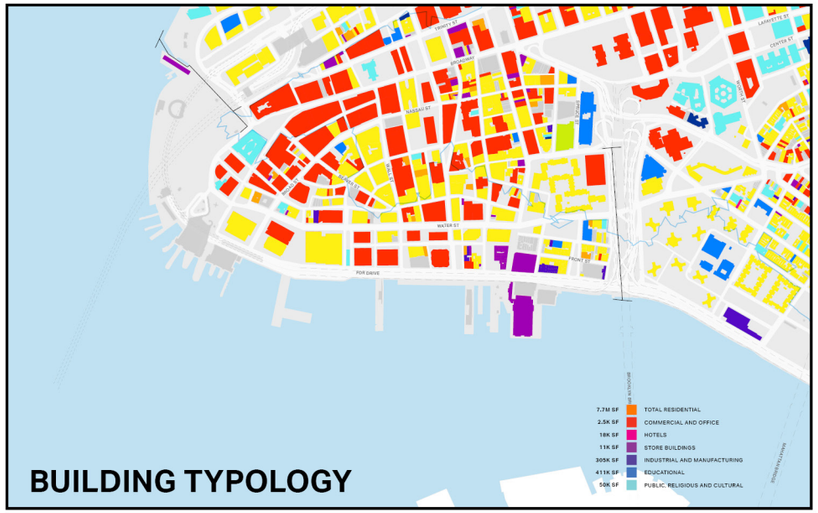
ECONOMICS



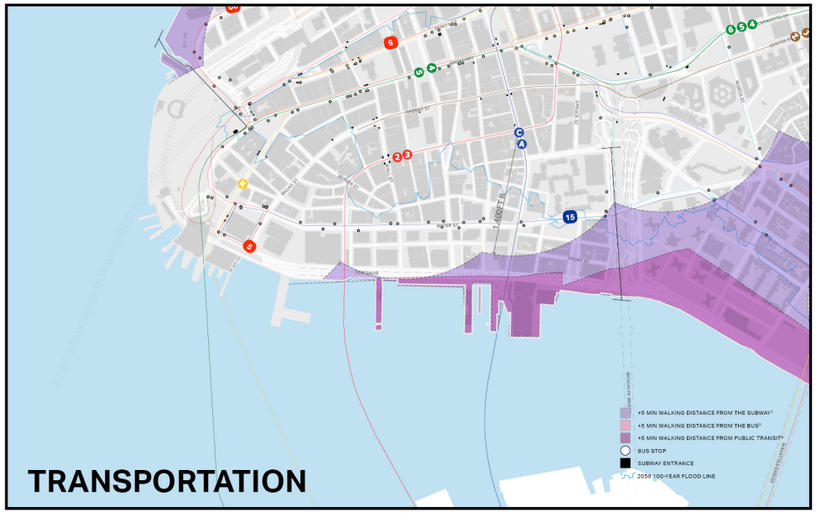
FLOOD PROTECTION HEIGHT



HISTORIC LANDMARKS



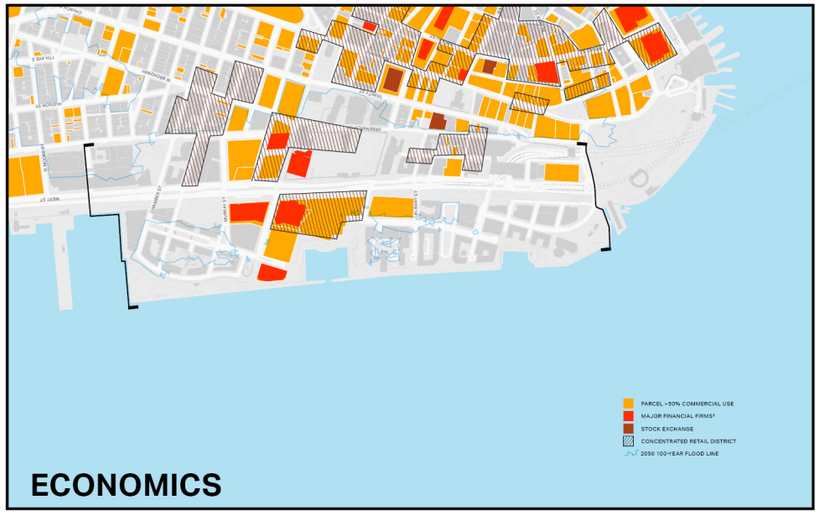
BUILDING TYPOLOGY



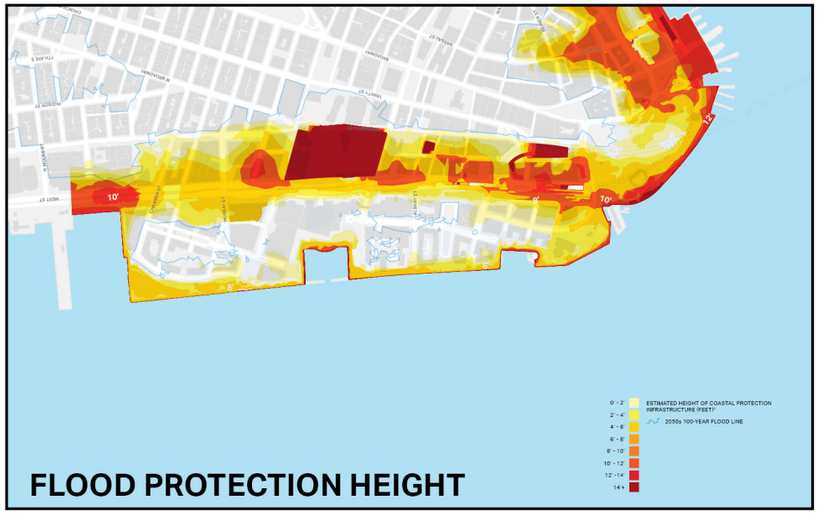
TRANSPORTATION

OPEN AREAS

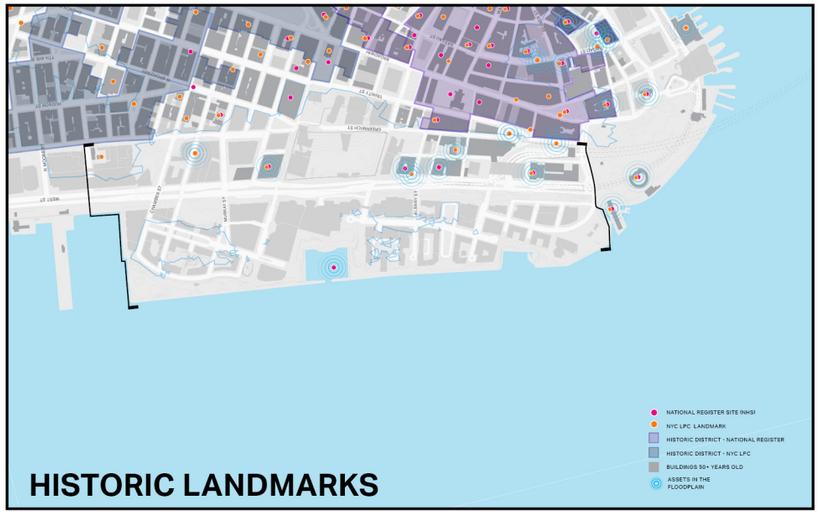
EXISTING CONDITIONS ANALYSIS : A CLOSER LOOK



ECONOMICS



FLOOD PROTECTION HEIGHT



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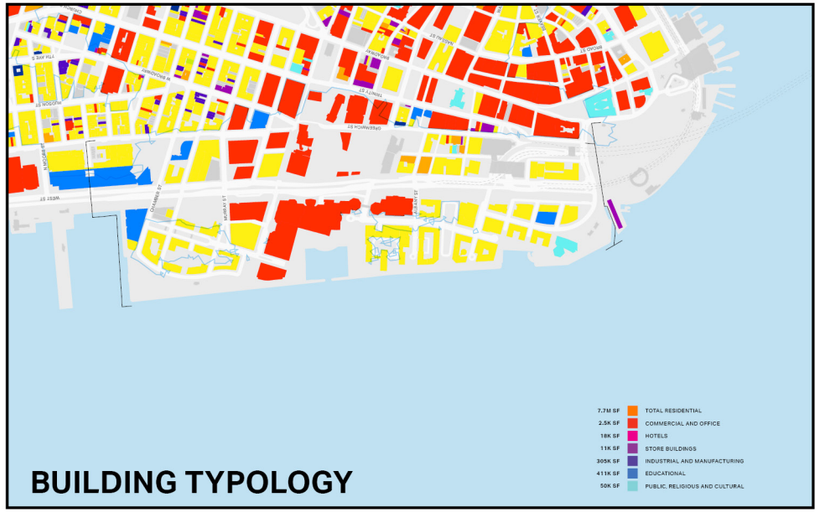
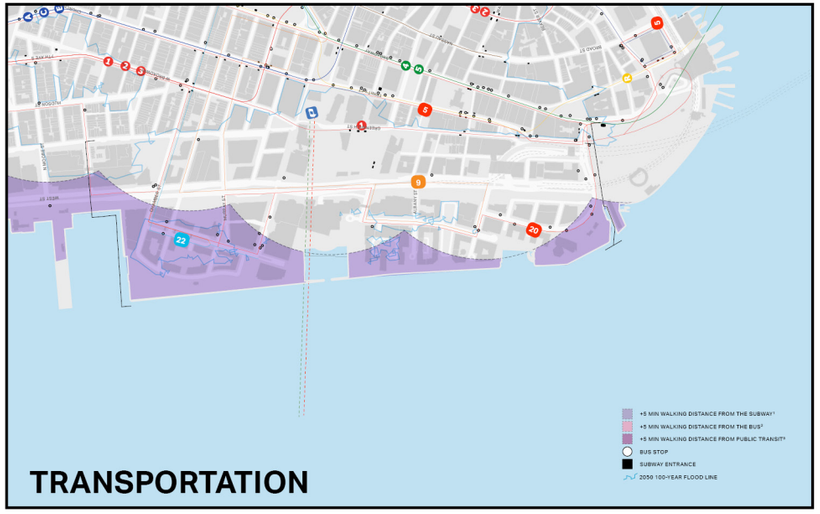


BUILDING TYPOLOGY



TRANSPORTATION

OPEN AREAS

APPLYING THE EXISTING CONDITIONS ANALYSIS

The existing conditions analyses will be used in the concept design phase to:

- Determine space constraints for different types of resiliency infrastructure
- Assess potential heights and visual/accessibility impacts of resiliency infrastructure
- Identify opportunities to tie into high ground or move interventions inland
- Leveraging other public and private resiliency investments
- Determine assets and population being protected (understanding alignment trade-offs and conducting BCA)
- Explore potential interior drainage strategies

WHERE ARE WE GOING?
DESIGN HEIGHTS AND IMPLICATIONS

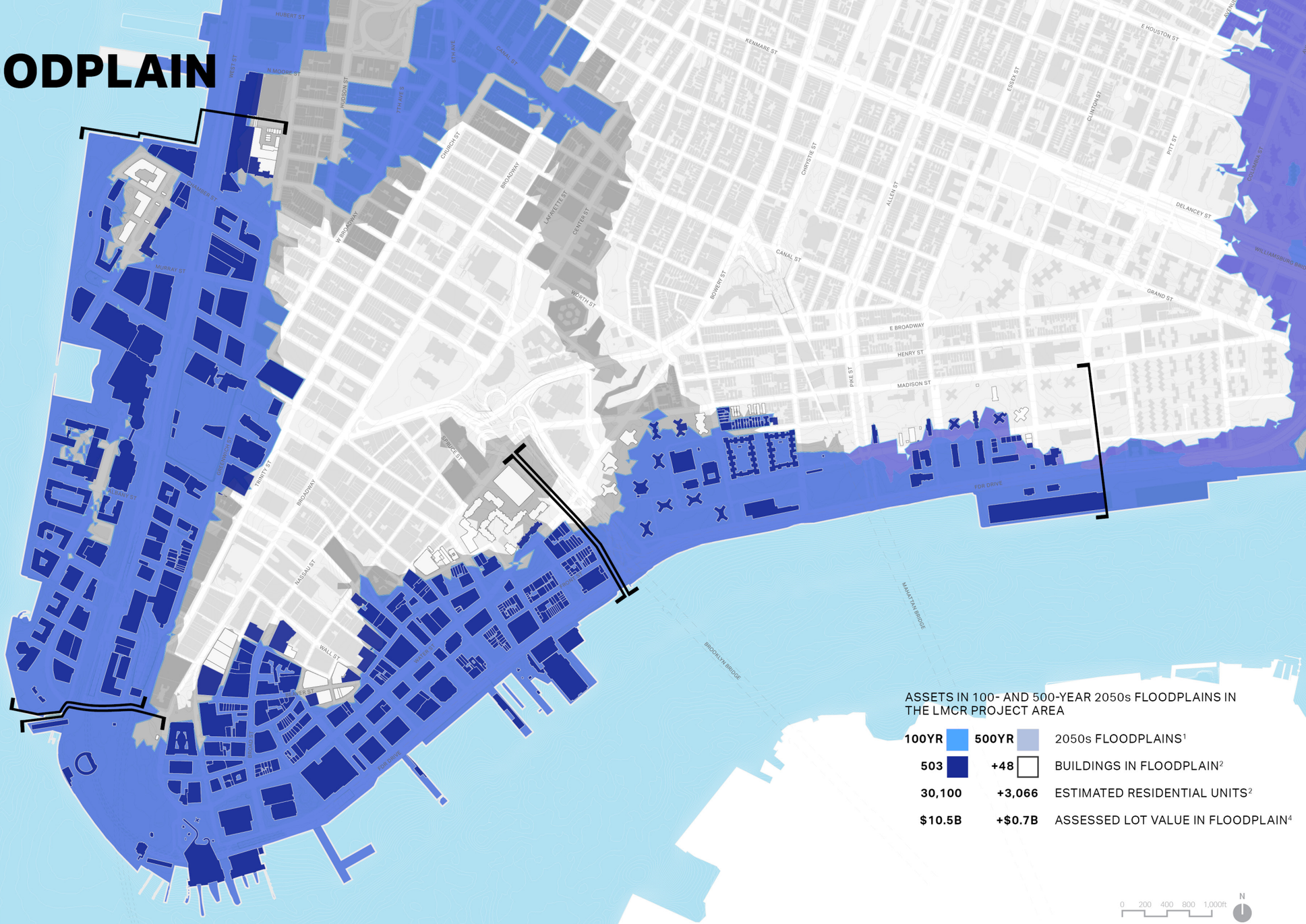
FEMA 2050s FLOODPLAIN

30,100

Estimated Residential Units within floodplain

$10.5 Billion

Assessed Lot Value within floodplain



ASSETS IN 100- AND 500-YEAR 2050s FLOODPLAINS IN THE LMCR PROJECT AREA

100YR	500YR	
		2050s FLOODPLAINS[1]
503	+48	BUILDINGS IN FLOODPLAIN[2]
30,100	+3,066	ESTIMATED RESIDENTIAL UNITS[2]
$10.5B	+$0.7B	ASSESSED LOT VALUE IN FLOODPLAIN[4]

0 200 400 800 1,000ft

N

1. Mayor's Office of Recovery and Resiliency (ORR) on behalf of CUNY Institute for Sustainable Cities (CISC) and the New York Panel on Climate Change (NPCC)

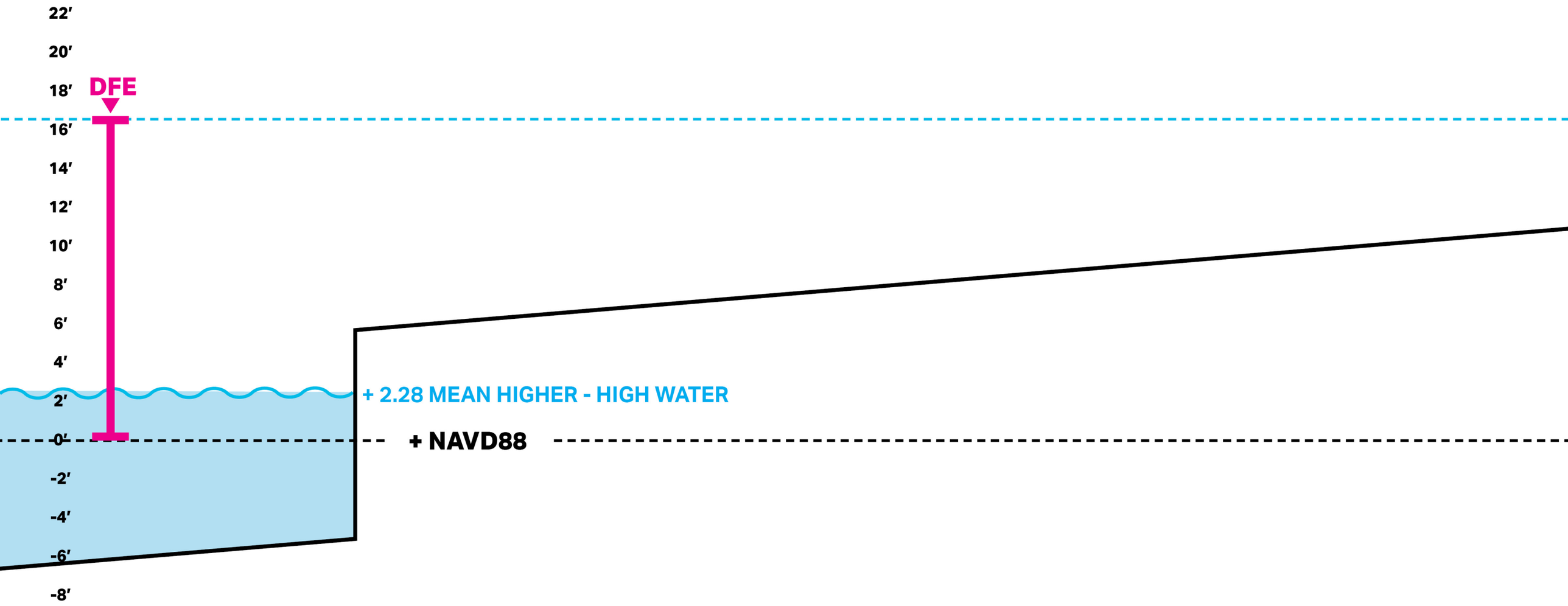
2. PLUTO 16v1 - NYC DCP
Calculating PLUTO lots intersecting with floodplain clipped to study area

3. Building Footprints - NYC Open Data 03.28.2016

4. PLUTO 16v1 - NYC DCP - Assessed value field

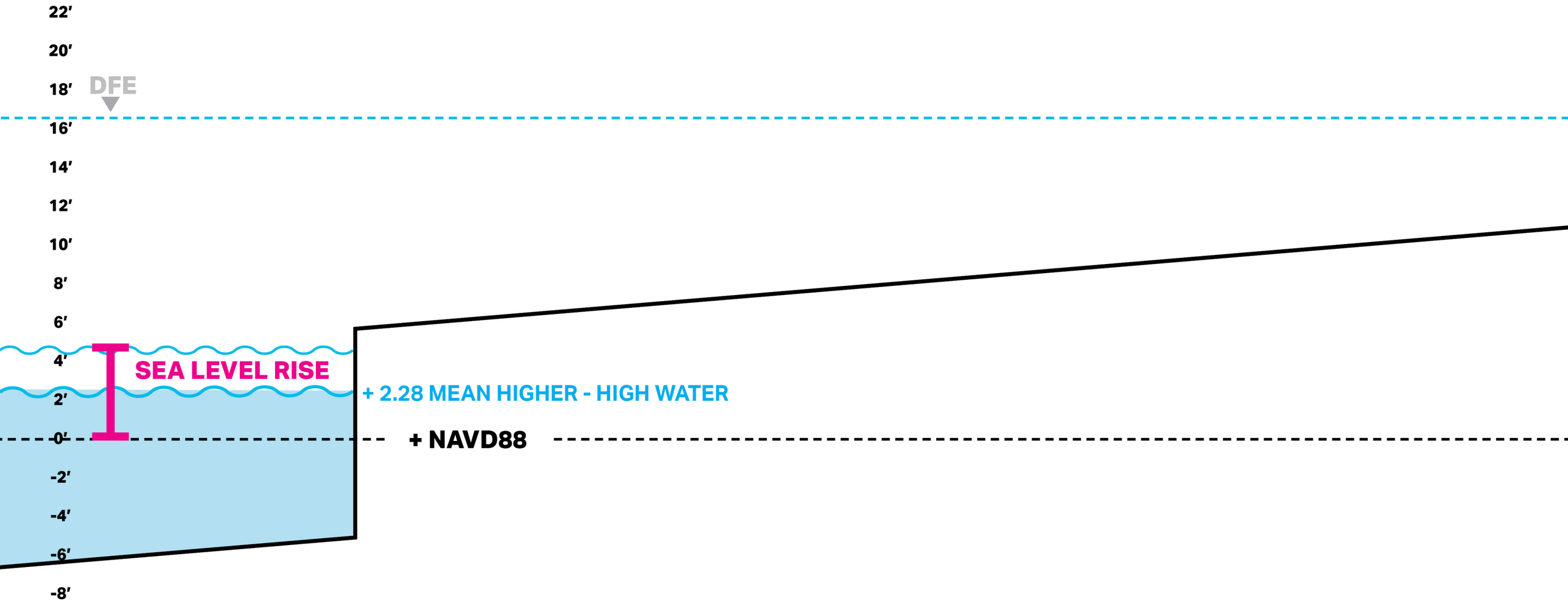
DESIGN FLOOD ELEVATION

*NOT TIED TO SPECIFIC GEOGRAPHY



DESIGN FLOOD ELEVATION - COMPONENTS

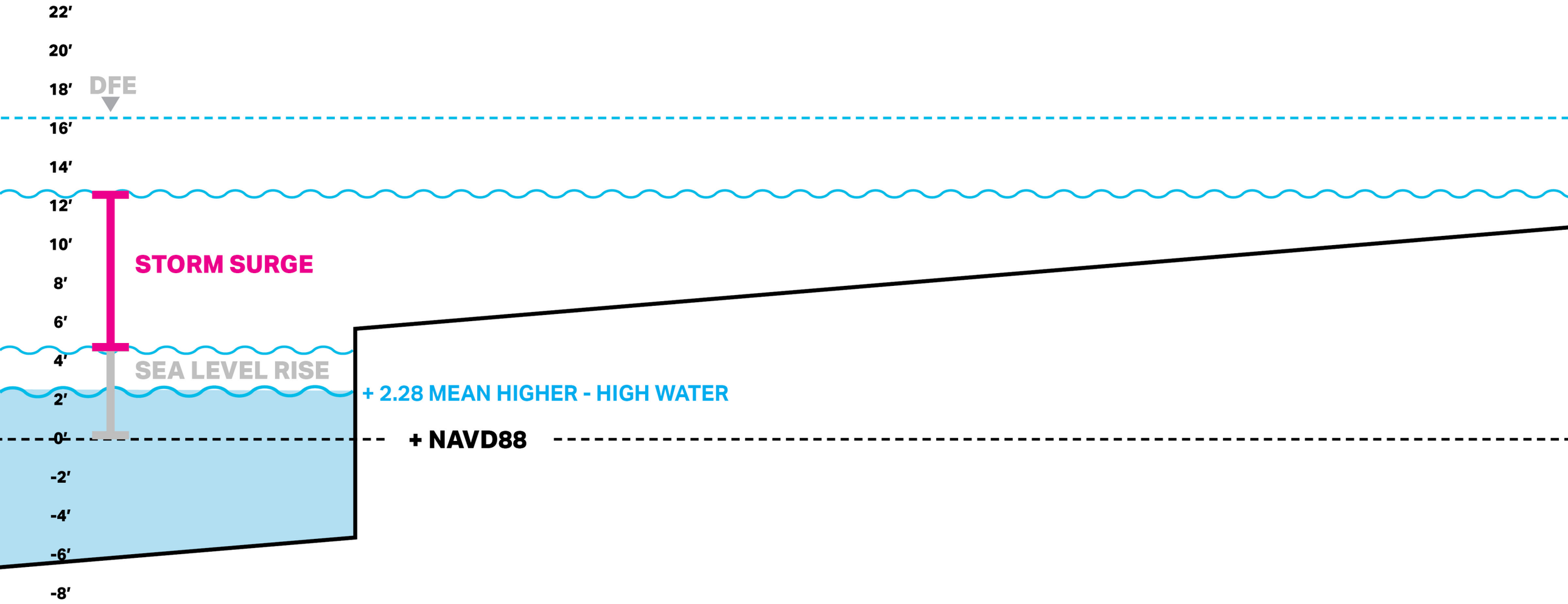
*NOT TIED TO SPECIFIC GEOGRAPHY



NPCC 2050S 90% ESTIMATE (2.5′)
VERTICAL DATUM NAVD88

DESIGN FLOOD ELEVATION - COMPONENTS

*NOT TIED TO SPECIFIC GEOGRAPHY



DESIGN FLOOD ELEVATION - COMPONENTS

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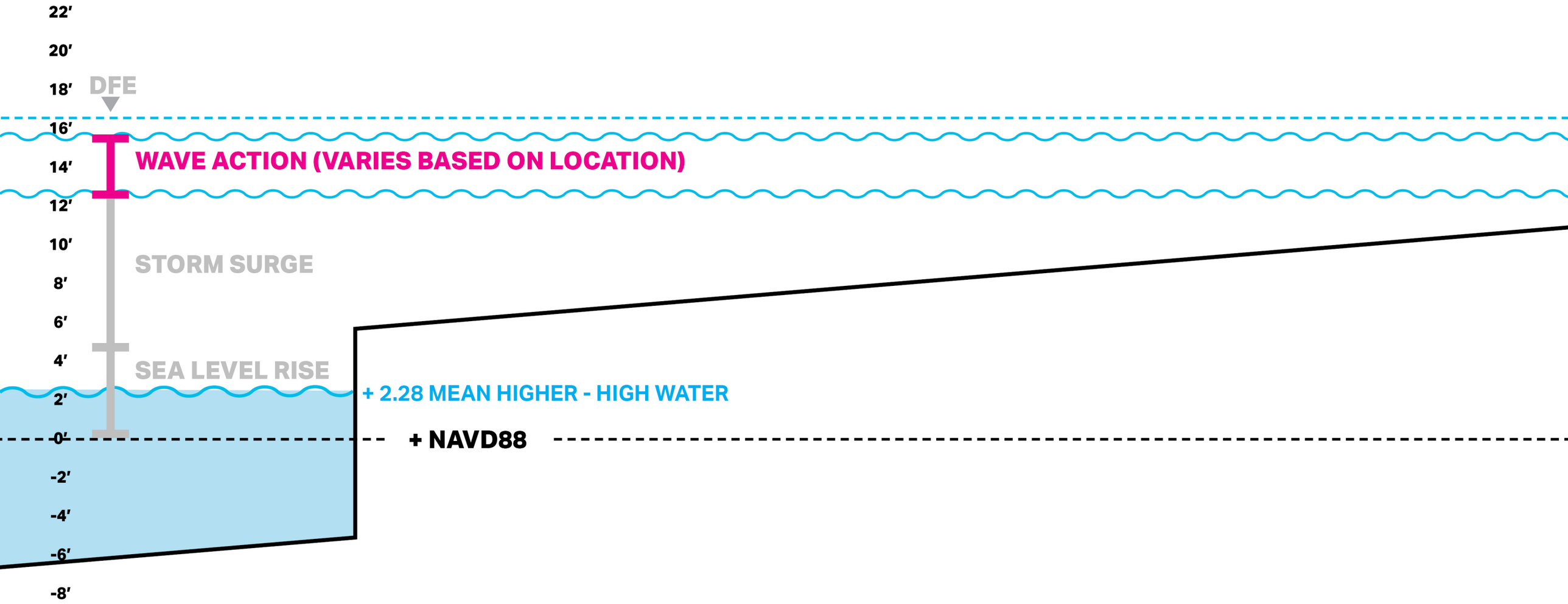

DESIGN FLOOD ELEVATION - COMPONENTS

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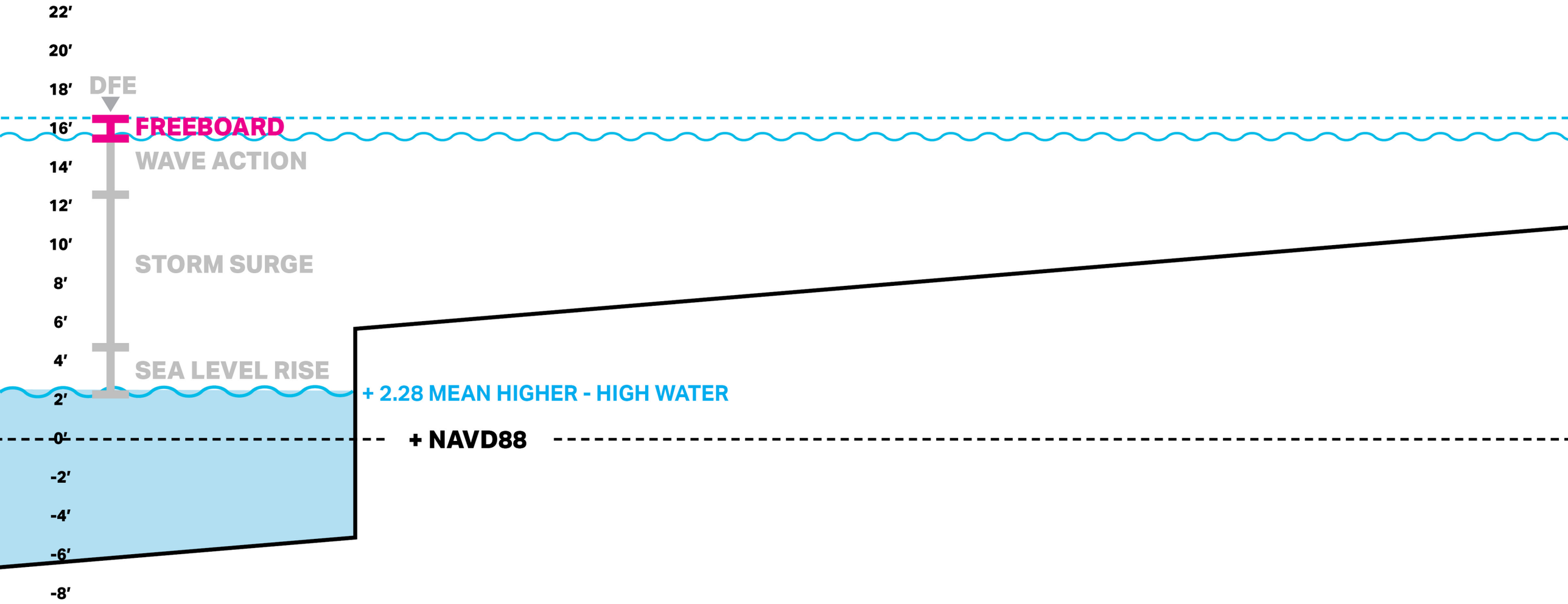

DESIGN FLOOD ELEVATION - COMPONENTS

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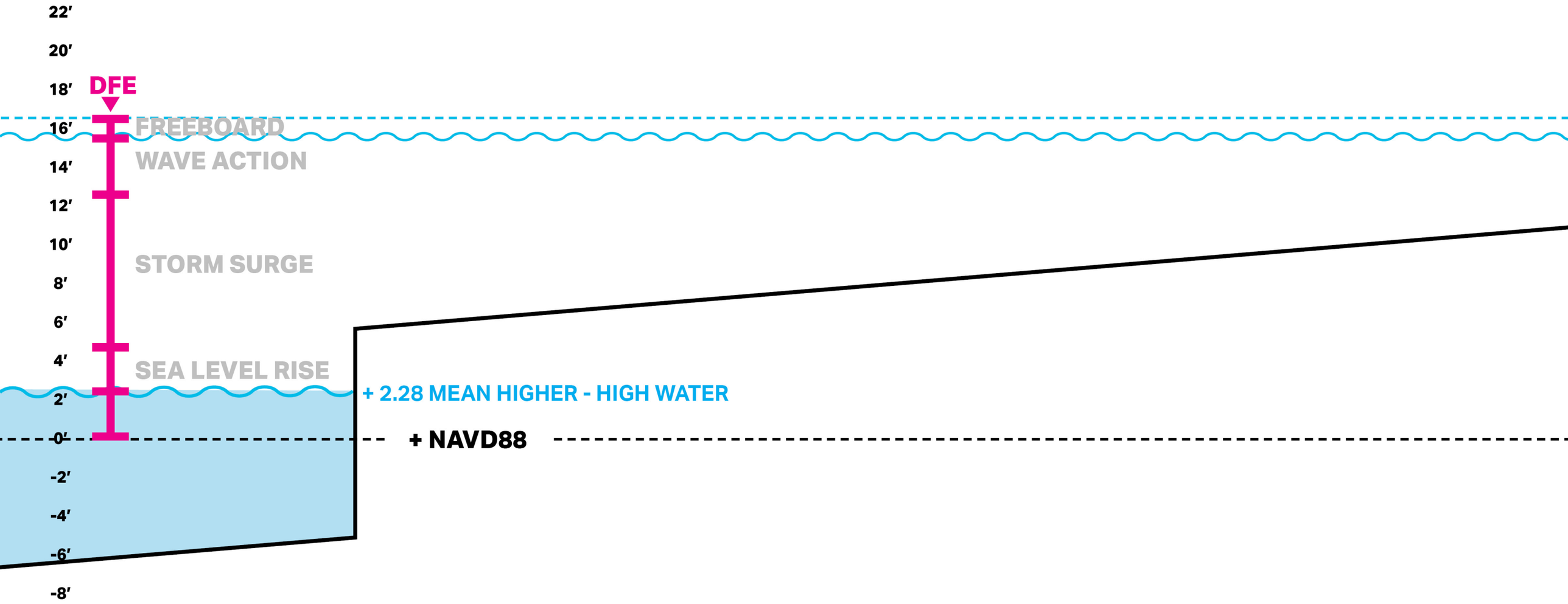


DFE ASSUMPTIONS - 2050s DESIGN STORMS AND HEIGHTS

100 YEAR STORM

+16.5^{ft}

50 YEAR STORM

+15.5^{ft}

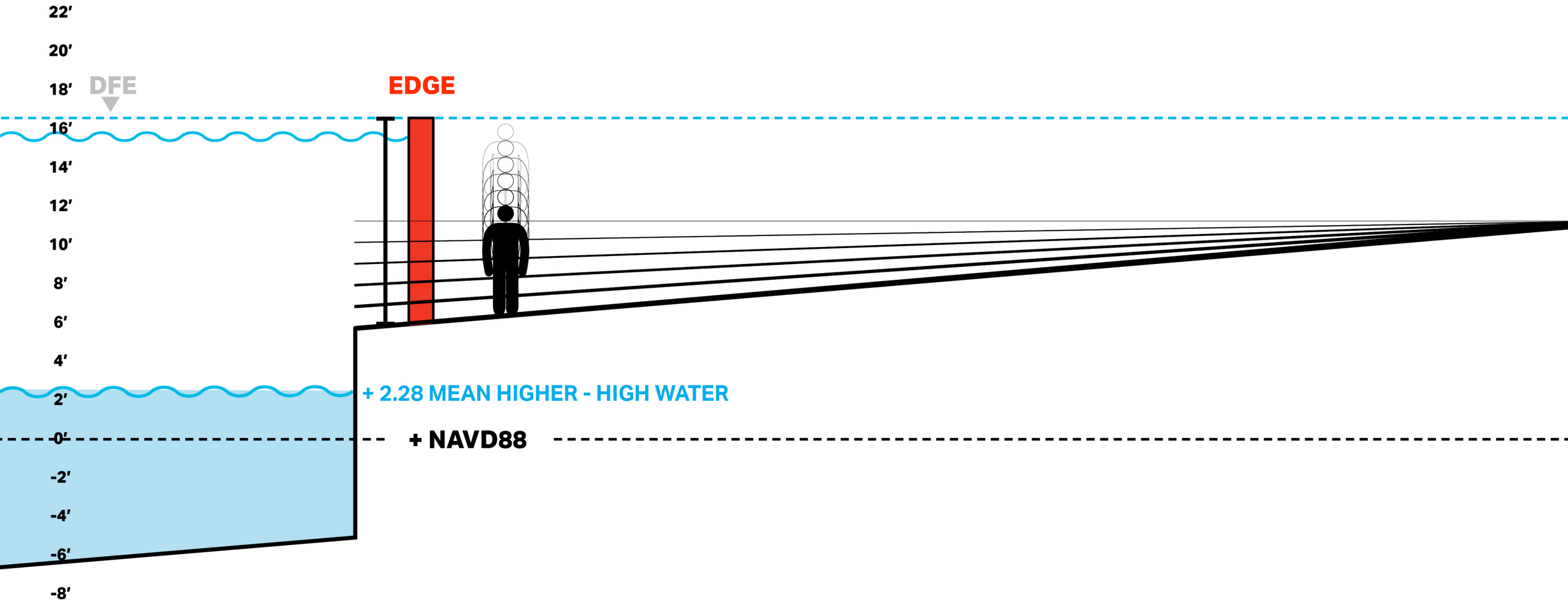
25 YEAR STORM

+14.0^{ft}

*Average preliminary estimate for overall site. DFE varies based on location and will be modified with dynamic modeling

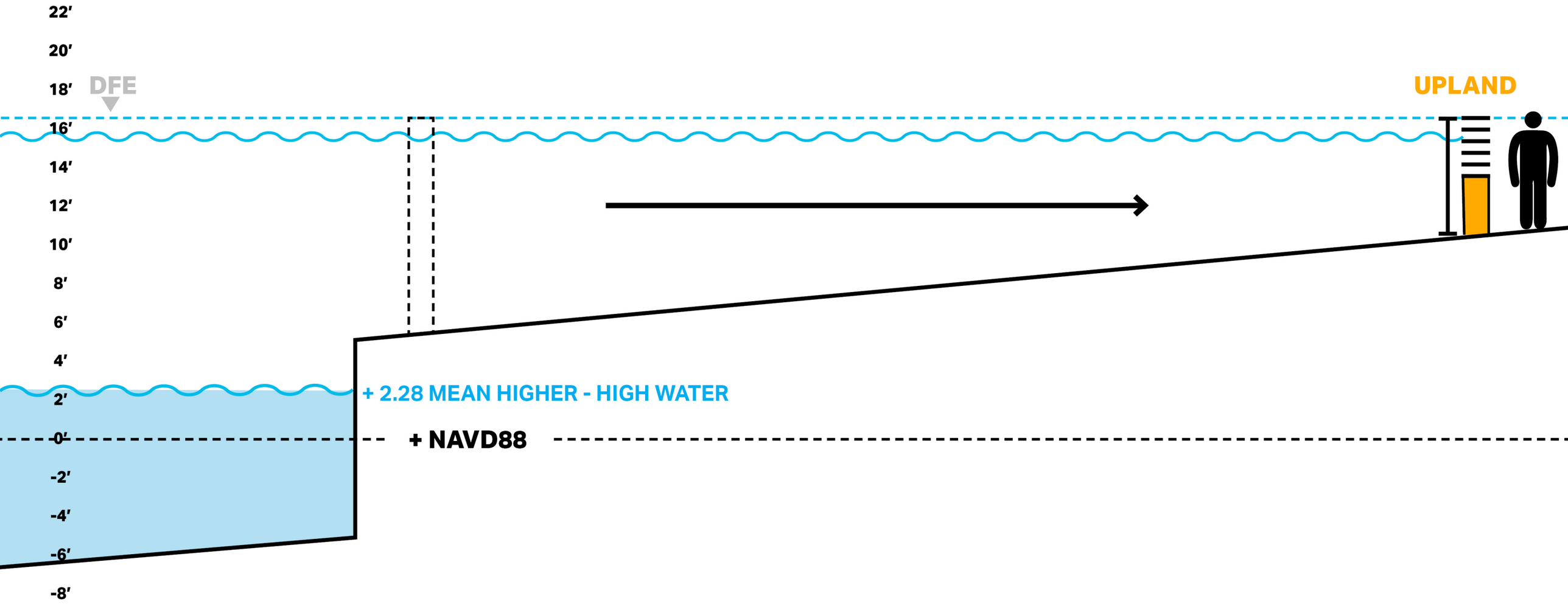
HEIGHT OF INTERVENTION - EDGE

*NOT TIED TO SPECIFIC GEOGRAPHY



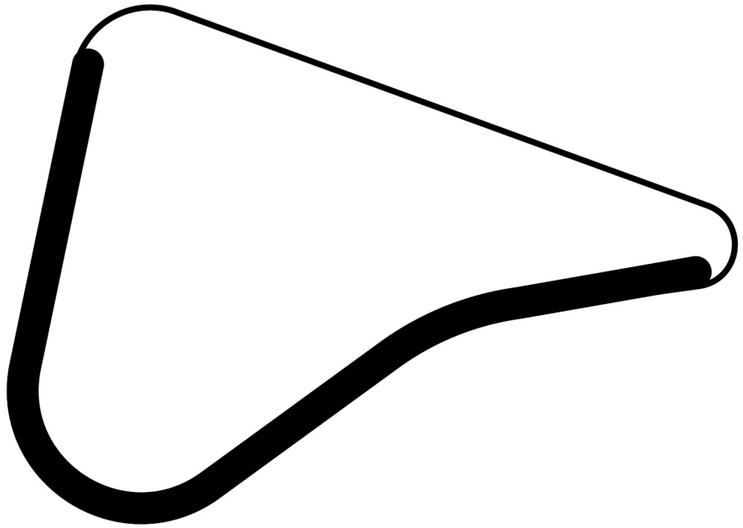
HEIGHT OF INTERVENTION - UPLAND

*NOT TIED TO SPECIFIC GEOGRAPHY

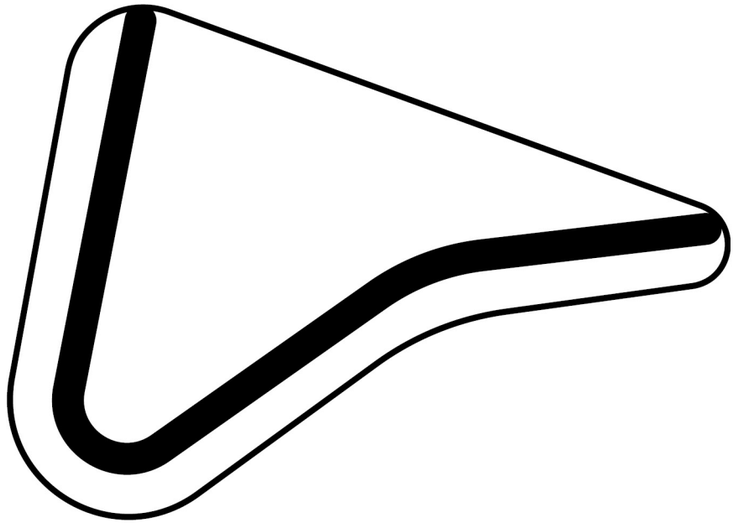


HOW DO WE GET THERE?
DESIGN APPROACH

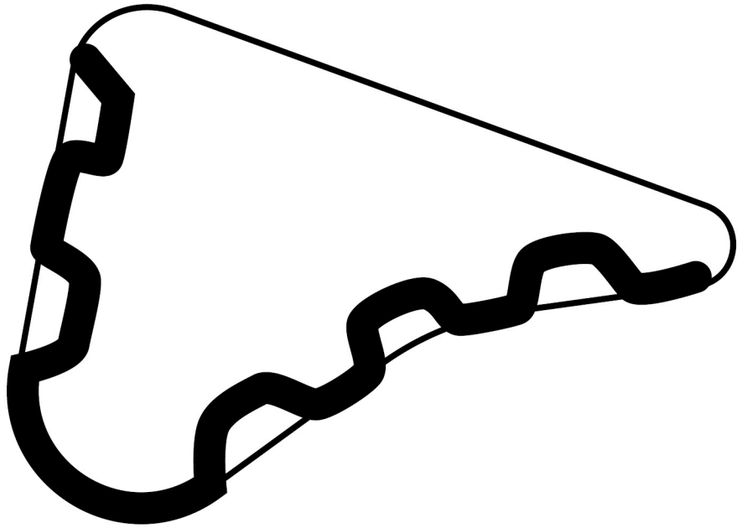
ALIGNMENT METHODOLOGY



EDGE

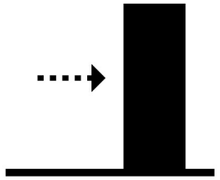


UPLAND



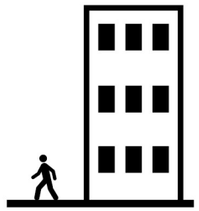
HYBRID

DESIGN CONSIDERATIONS



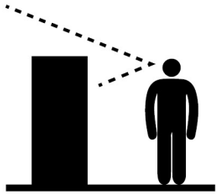
RELIABILITY

Design Flood Height
Passive/Deployable
Wave Attenuation
Stormwater Management



URBAN BENEFITS

Waterfront Access
Placemaking
Safety
Community Amenities
Ecology
Transportation Improvements



VISUAL & PHYSICAL IMPACT

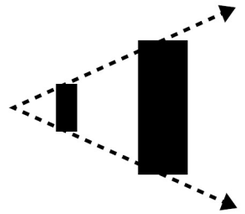
Height
Footprint
Design

ASSETS PROTECTED

Location of Protection
Critical Infrastructure
Property at Risk

FEASIBILITY

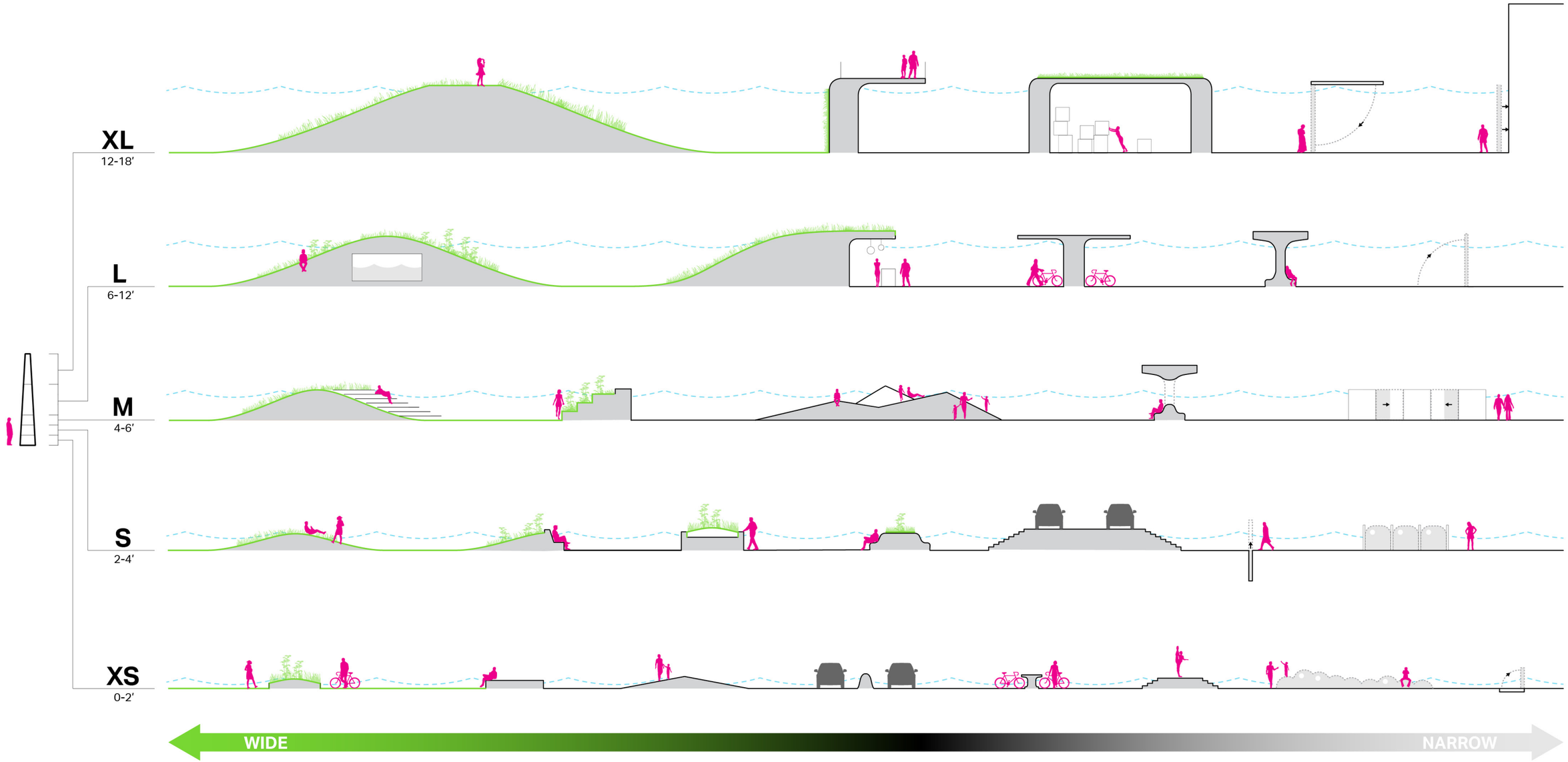
Cost
Constructibility
Ownership/Siting
Transportation Disruption
Regulatory Approvals
Operations and Maintenance
Speed of Implementation
FEMA Certification



FUTURE-FLEXIBLE

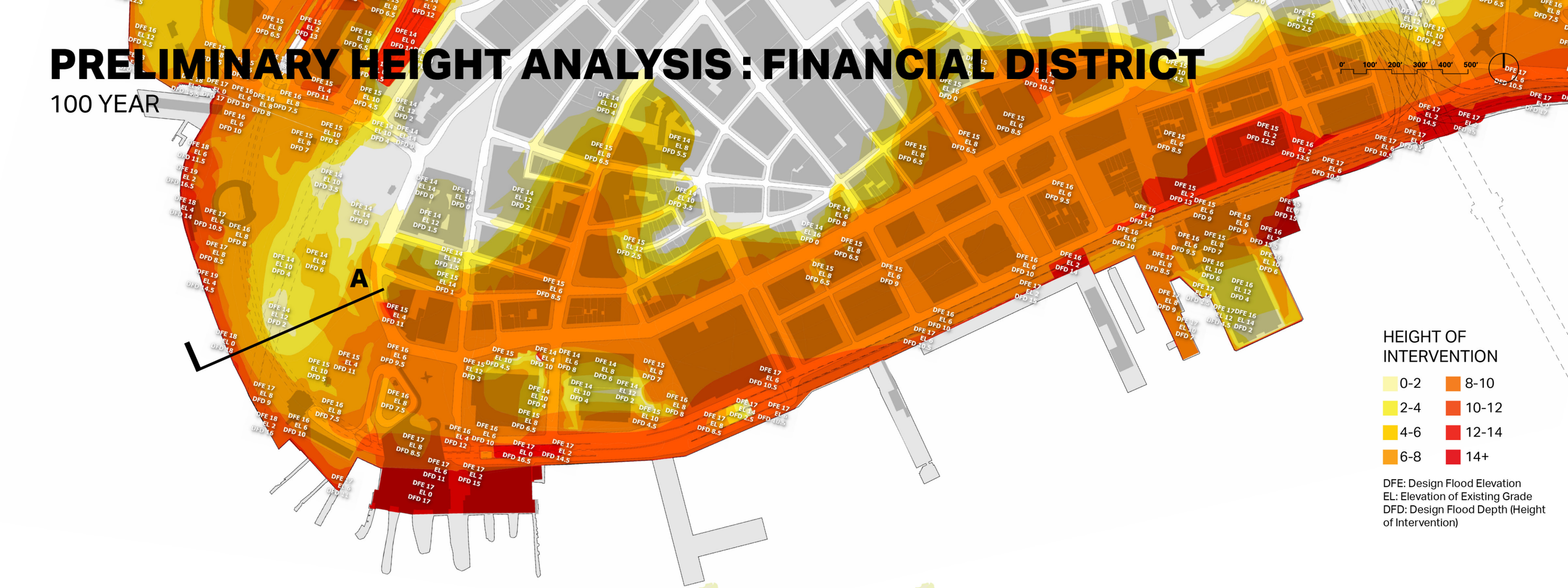
Phasing
Long-term Vision
Future-proofing
Climate Change Adaptation
Future Urban Needs

INFRASTRUCTURE TOOLKIT

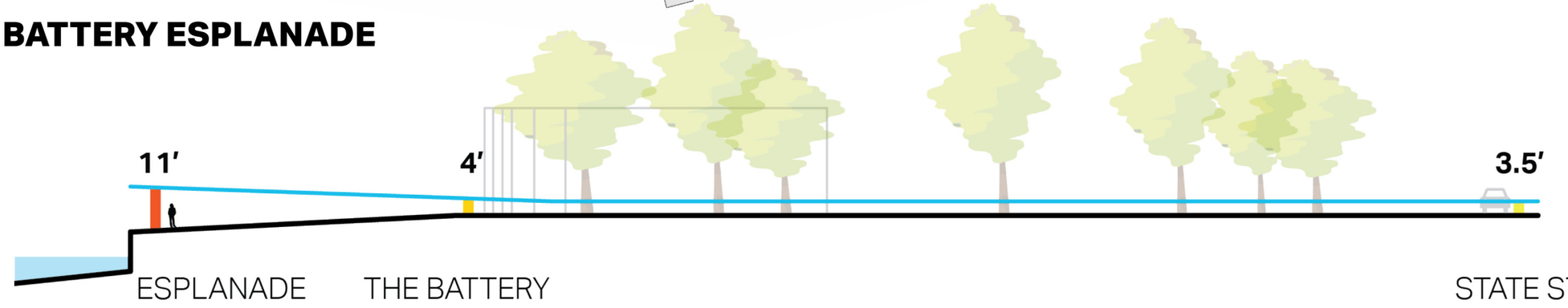


PRELIMINARY HEIGHT ANALYSIS : FINANCIAL DISTRICT

100 YEAR



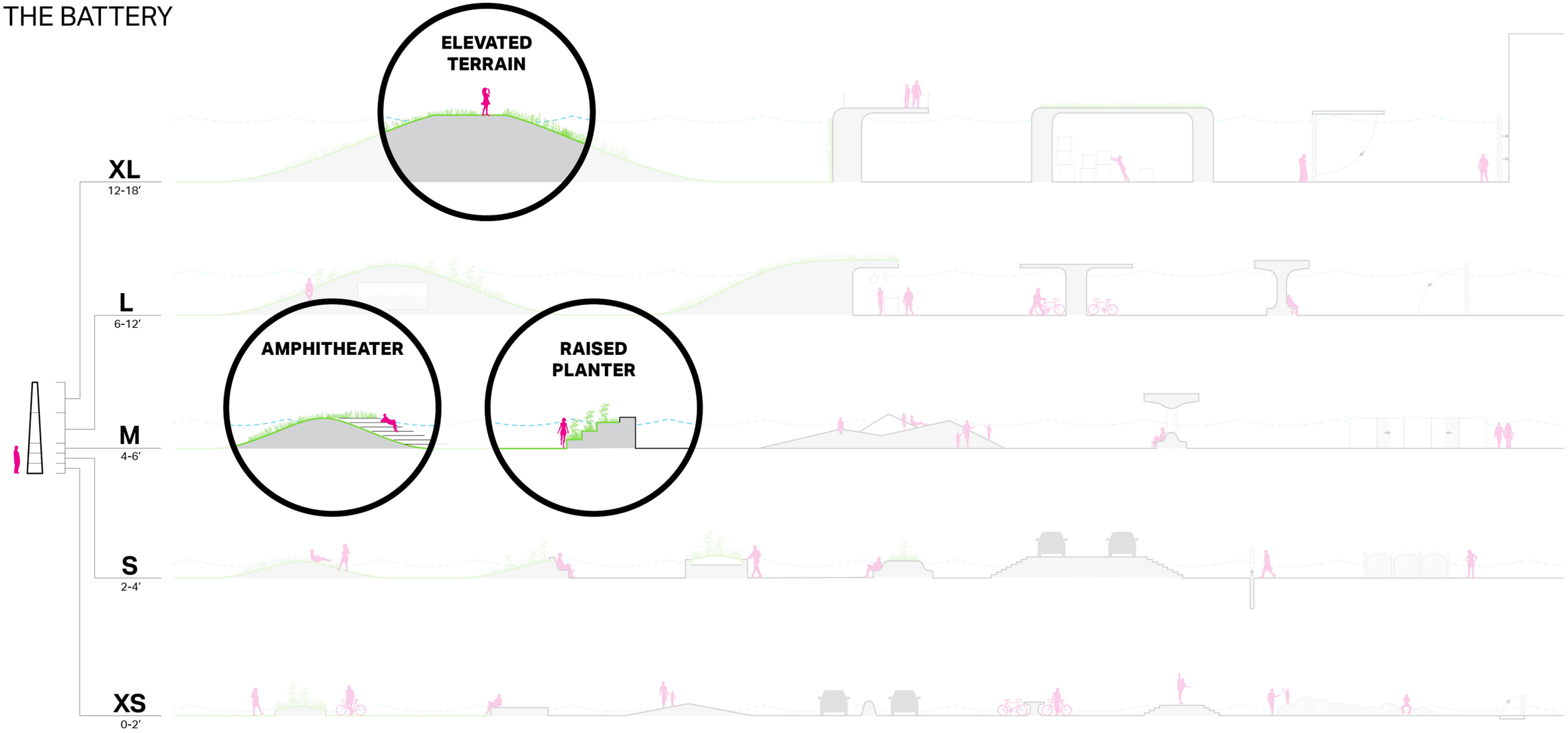
A THE BATTERY ESPLANADE



ENGINEERING DFE ASSUMPTIONS COMPARED AGAINST 2' CONTOURS (DOITT 2006)

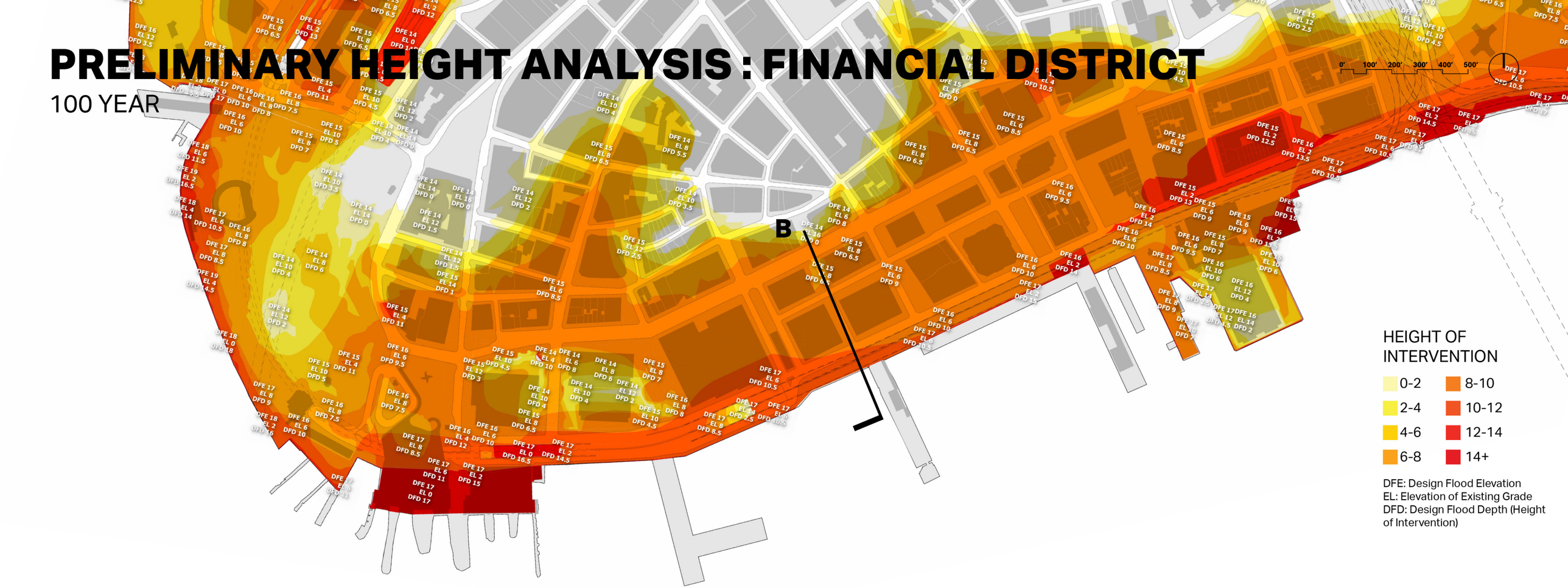
INFRASTRUCTURE TOOLKIT

THE BATTERY

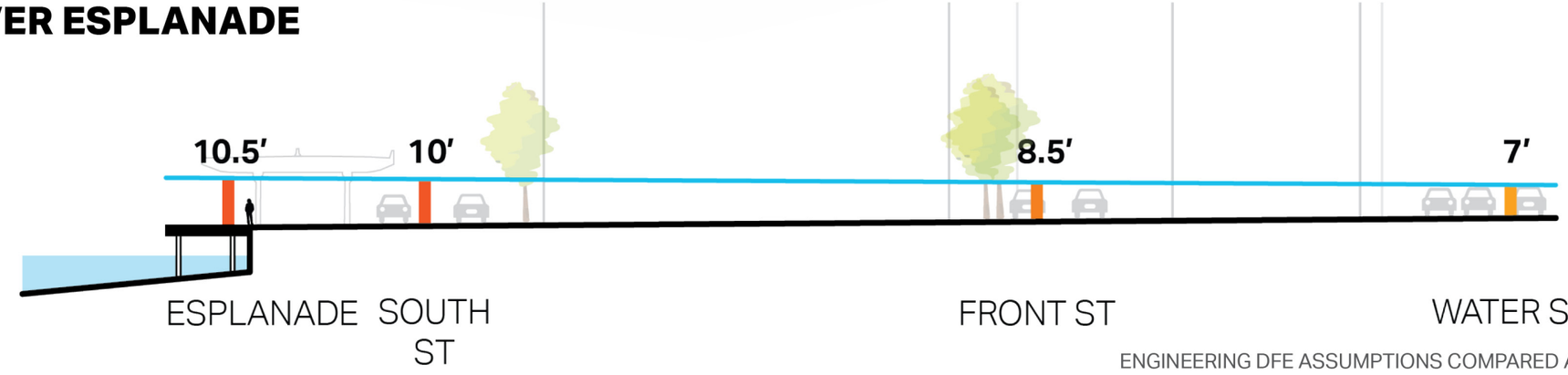


PRELIMINARY HEIGHT ANALYSIS : FINANCIAL DISTRICT

100 YEAR



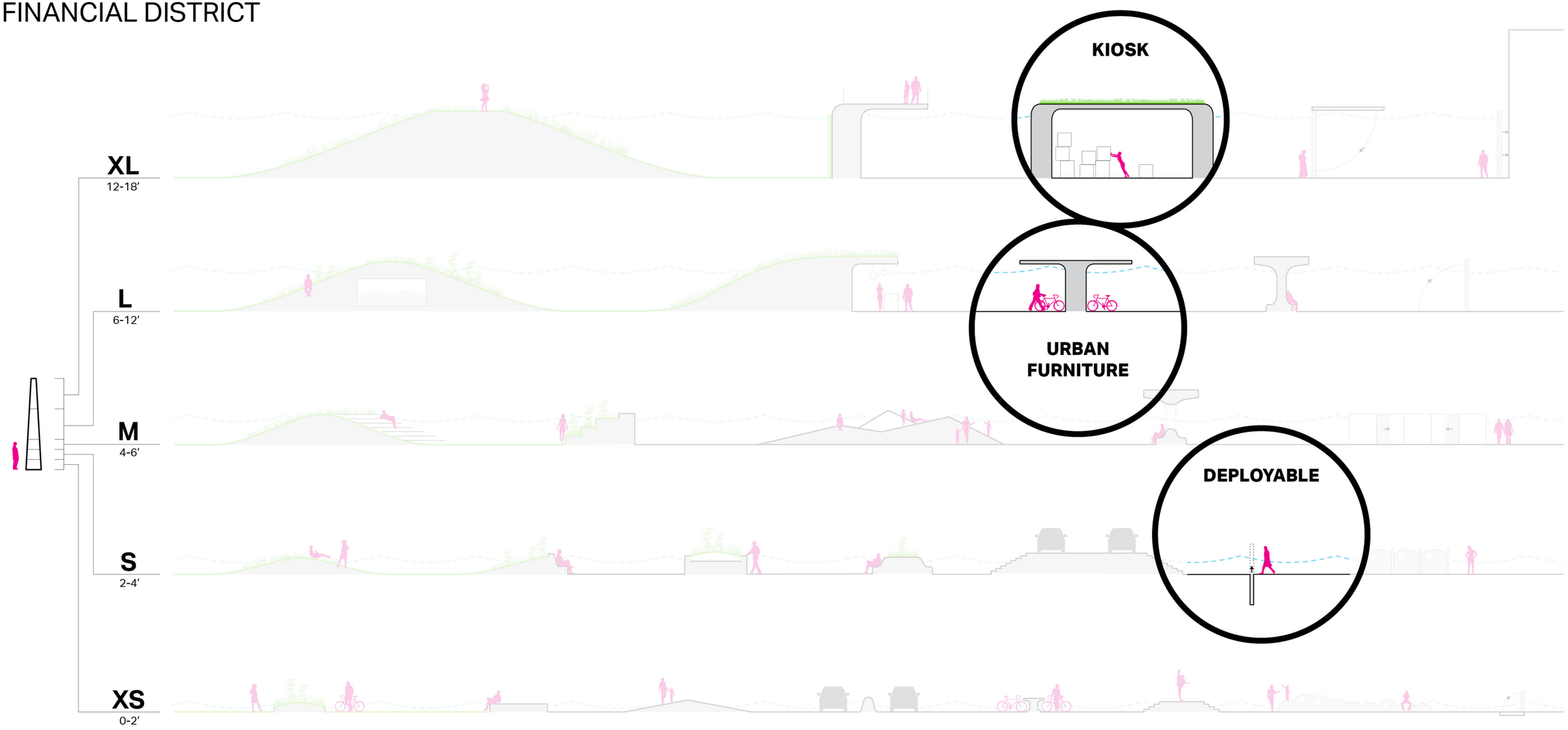
B EAST RIVER ESPLANADE



ENGINEERING DFE ASSUMPTIONS COMPARED AGAINST 2' CONTOURS (DOITT 2006)

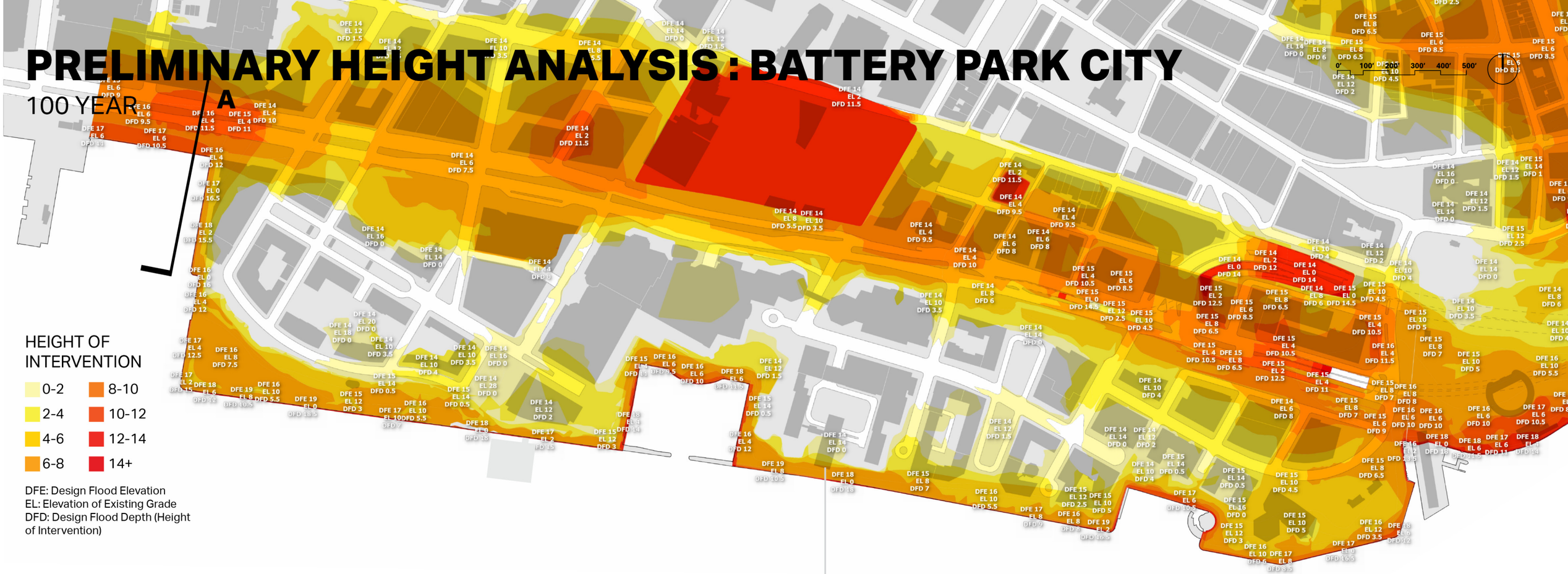
INFRASTRUCTURE TOOLKIT

FINANCIAL DISTRICT



PRELIMINARY HEIGHT ANALYSIS : BATTERY PARK CITY

100 YEAR

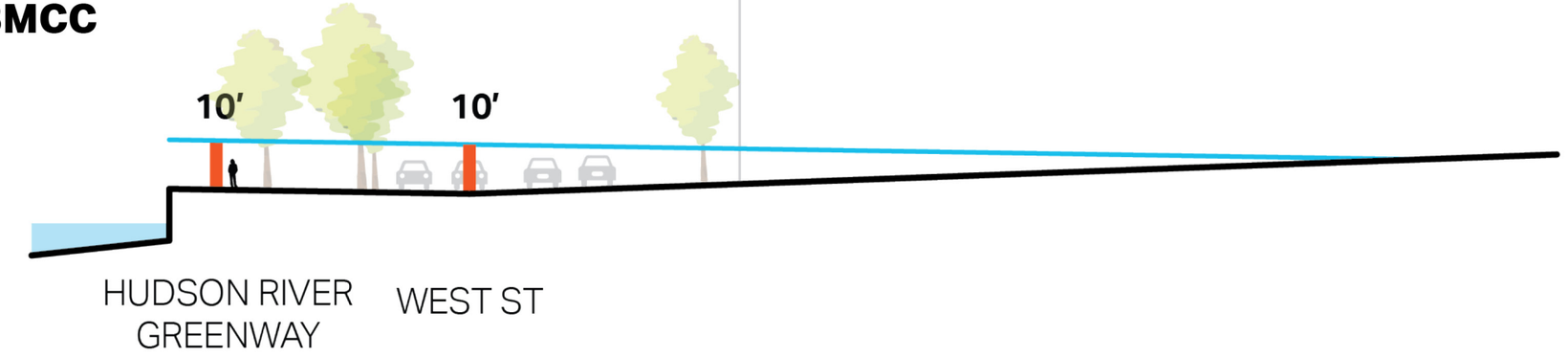


HEIGHT OF INTERVENTION

- 0-2
- 2-4
- 4-6
- 6-8
- 8-10
- 10-12
- 12-14
- 14+

DFE: Design Flood Elevation
EL: Elevation of Existing Grade
DFD: Design Flood Depth (Height of Intervention)

A WEST STREET AT BMCC



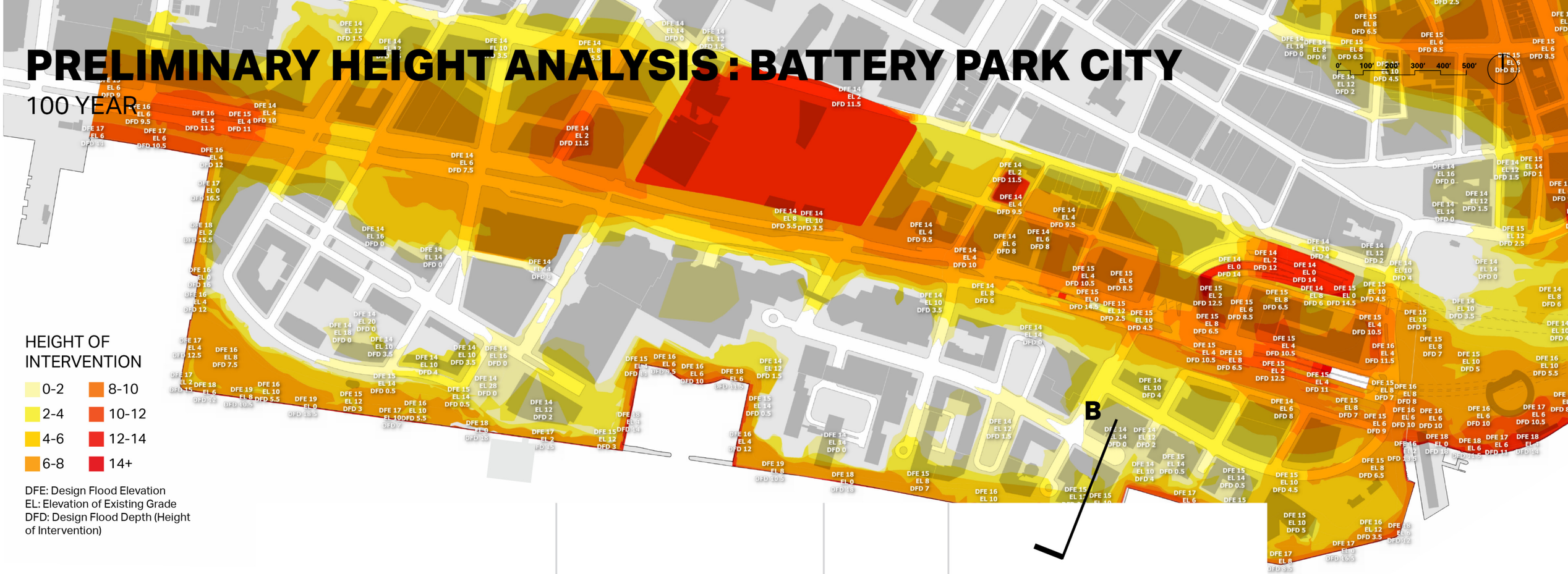
ENGINEERING DFE ASSUMPTIONS COMPARED AGAINST 2′ CONTOURS (DOITT 2006)

INFRASTRUCTURE TOOLKIT

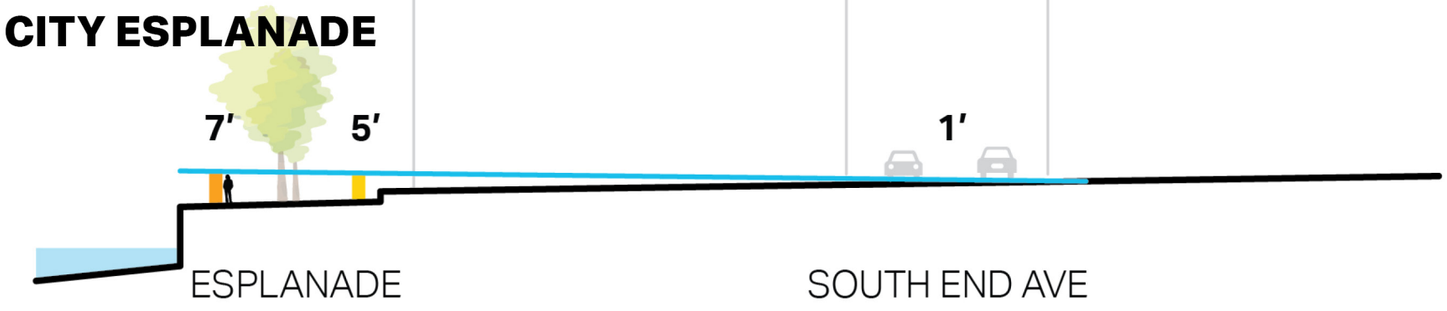
BREACH POINTS

PRELIMINARY HEIGHT ANALYSIS : BATTERY PARK CITY

100 YEAR



B BATTERY PARK CITY ESPLANADE



ENGINEERING DFE ASSUMPTIONS COMPARED AGAINST 2' CONTOURS (DOITT 2006)

INFRASTRUCTURE TOOLKIT

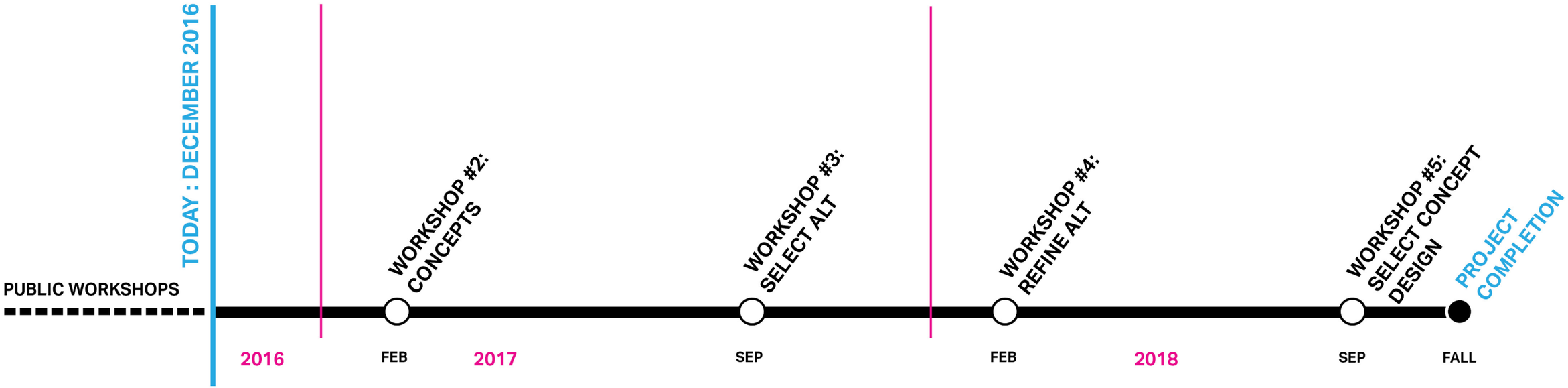
BATTERY PARK CITY

NEXT STEPS

NEXT STEPS

- Private property owner interviews and stakeholder outreach : **completed end of 2016**
- Continue detailed surveying : **completed early 2017**
    - Utilities
    - Existing Elevations
    - Key Infrastructure
- Develop conceptual scenarios : **completed early 2017**
- Coastal modeling & interior drainage : **completed spring 2017**
- Project feasibility : **completed spring 2017**
- Identify alignments : **completed fall 2017**

FUTURE MILESTONES



UPCOMING PUBLIC MEETING

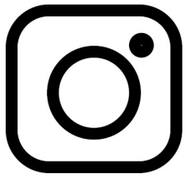
1. Progress Update
- Reporting on private property assessment
- Update on surveys and data collection

2. Alignments
- Overall concepts
- Preliminary geographically specific alignments

3. Community Feedback on Concepts
- Workshops on alignments

STAY IN TOUCH & PROVIDE FEEDBACK

www.nyc.gov/lmcr



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