

#ONENYC



EAST SIDE COASTAL RESILIENCY PROJECT

Project Area One - Conceptual Design Update

December 1st and 7th, 2016

CONCEPTUAL DESIGN UPDATE

Project Area One

December 1st and 7th, 2016

- 1. Project Status**
- 2. Project Area 1 - Inputs and Considerations**
- 3. Concept Design Update**
- 4. Next Steps/Discussion**

1. Project Status

2. Project Area 1 - Inputs and Considerations

3. Concept Design Update

4. Next Steps/Discussion

EAST SIDE COASTAL RESILIENCY

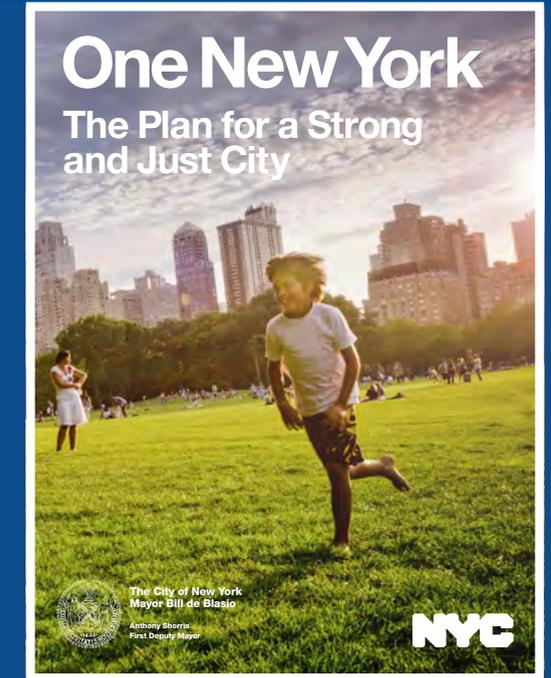
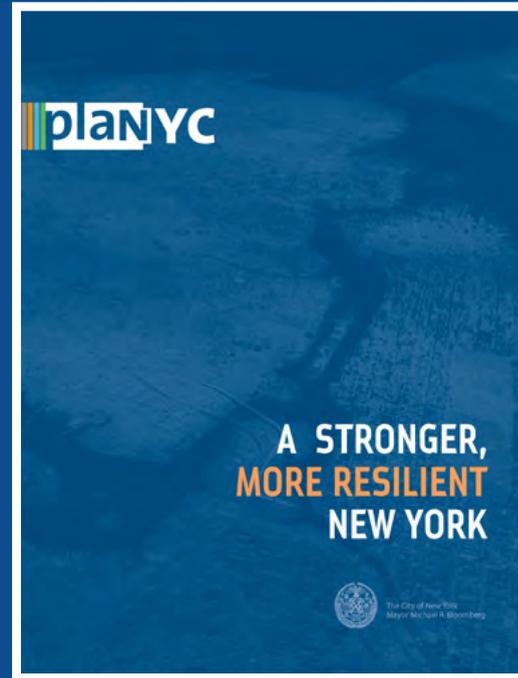
Project Goals

- Provide a reliable, integrated flood protection system; minimize use of closure structures and deployables
- Improve waterfront open spaces and access
- Respond quickly to the urgent need for increased flood protection and resiliency
- Achieve implementation milestones and project funding allocations as established by HUD



EAST SIDE COASTAL RESILIENCY

Context



HURRICANE SANDY

*A STRONGER
MORE RESILIENT
NEW YORK*

HUD FUNDING
AWARD

*ONE
NYC*

REPORT PREPARATION

REBUILD BY DESIGN COMPETITION

ESCR PROJECT SCOPING

OCTOBER
2012

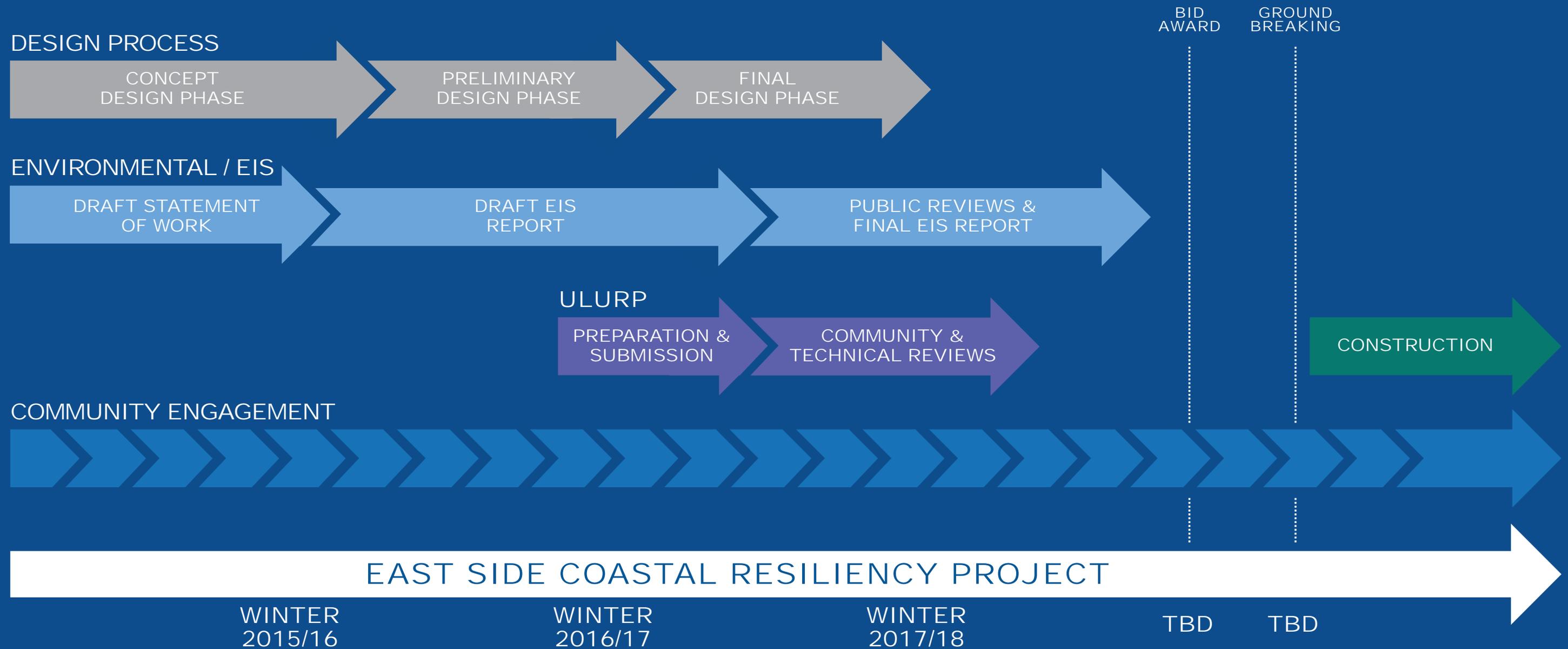
WINTER
2012/2013

WINTER
2013/2014

WINTER
2014/2015

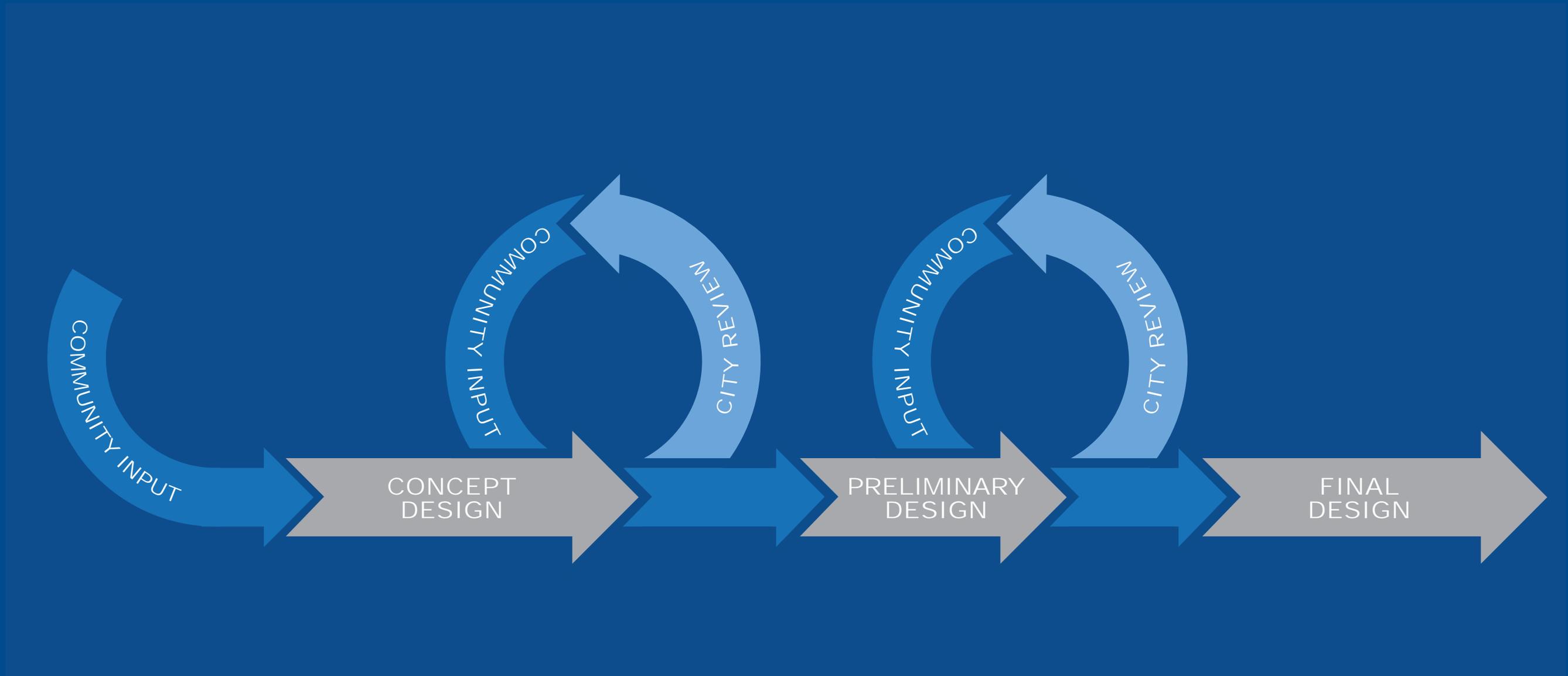
EAST SIDE COASTAL RESILIENCY

Revised Project Schedule



EAST SIDE COASTAL RESILIENCY

Iterative Design Process



EAST SIDE COASTAL RESILIENCY

2015 Community Engagement Recap

ROUND 1

x2 Meetings



MARCH 19TH + 23RD

How do you use the waterfront?

ROUND 2

x3 Meetings



MAY 18TH, 28TH, 30TH

Access and Flood Protection:
What are the options?

ROUND 3

x4 Meetings

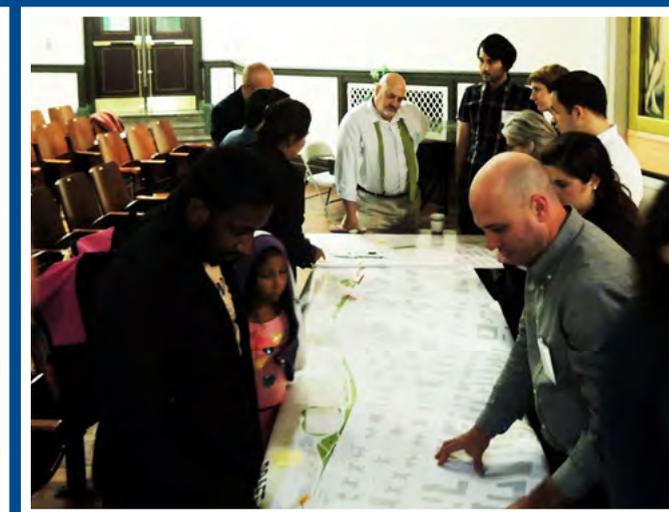


JULY 28TH, 29TH, 30TH + SEPT. 10TH

How do we combine options?

ROUND 4

x2 Meetings



OCTOBER 6TH + 8TH

Initial Design Direction:
Feedback and Discussion



QUARTERLY TASK FORCE MEETINGS

EAST SIDE COASTAL RESILIENCY

2016 Community Engagement

CB3/CB6

Joint Task Force Meetings



MAY 23 & SEPTEMBER 20

How is the overall project being developed in response to new design & technical constraints?

GOUVERNEUR GARDENS

Stakeholder Meeting

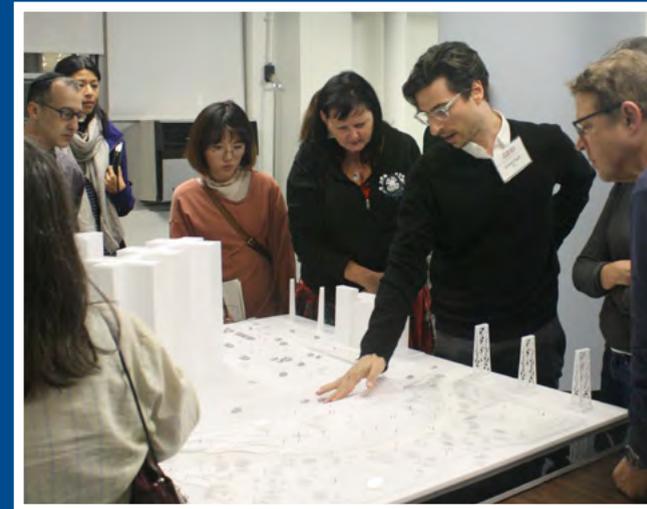


SEPTEMBER 15
OCTOBER 29

How does the Montgomery St. tie-back area integrate with Gouverneur Gardens and Pier 42?

EAST RIVER HOUSING COOP

Stakeholder Meeting



SEPTEMBER 29
AUGUST 16

Update and input session on revised bridge alignment at Delancey St.

RIIS HOUSING

Stakeholder Meeting



OCTOBER 11
SEPTEMBER 28

Update and input session on revised bridge alignment at E. 10th St.

NYC.GOV/ESCR WEBSITE FOR PUBLIC INPUT

EAST SIDE COASTAL RESILIENCY

What have we been up to?

Since Fall/Winter 2015:

- Procuring final design team
- Addressing comments on Draft Scope of Work
- Evaluating Alternatives
- Developing draft Environmental Impact Statement (EIS) and permit applications
- Met with Public Design Commission regarding conceptual design
- Refining concept design based on:
 - Community input
 - Agency requirements
 - Regulatory concerns
 - Technical constraints
 - New inputs and considerations

1. Project Status
- 2. Project Area 1 - Inputs and Considerations**
3. Concept Design Update
4. Next Steps/Discussion

CURRENT AND FUTURE RISKS

2015 and 2050's FEMA 100-YEAR FLOOD HAZARD AREAS

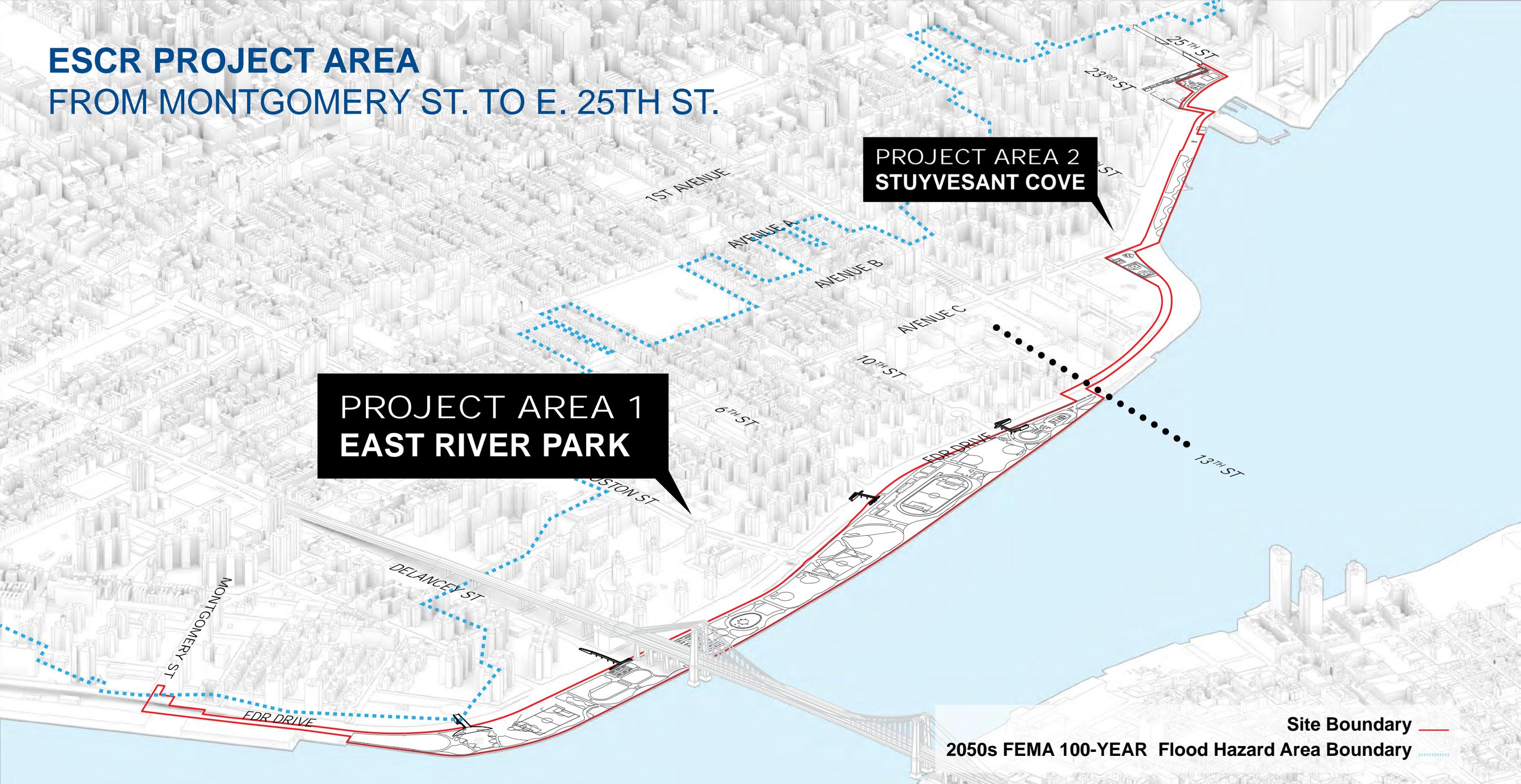


WATERFRONT OPEN SPACES AND UPLAND NEIGHBORHOODS WERE SEVERELY IMPACTED BY HURRICANE SANDY, AND ARE AT FURTHER RISK DUE TO FUTURE SEA LEVEL RISE AND INCREASING STORM FREQUENCIES



2015 FEMA 100-YEAR Flood Hazard Area
2050s FEMA 100-YEAR Flood Hazard Area - - - - -

ESCR PROJECT AREA FROM MONTGOMERY ST. TO E. 25TH ST.



**PROJECT AREA 1
EAST RIVER PARK**

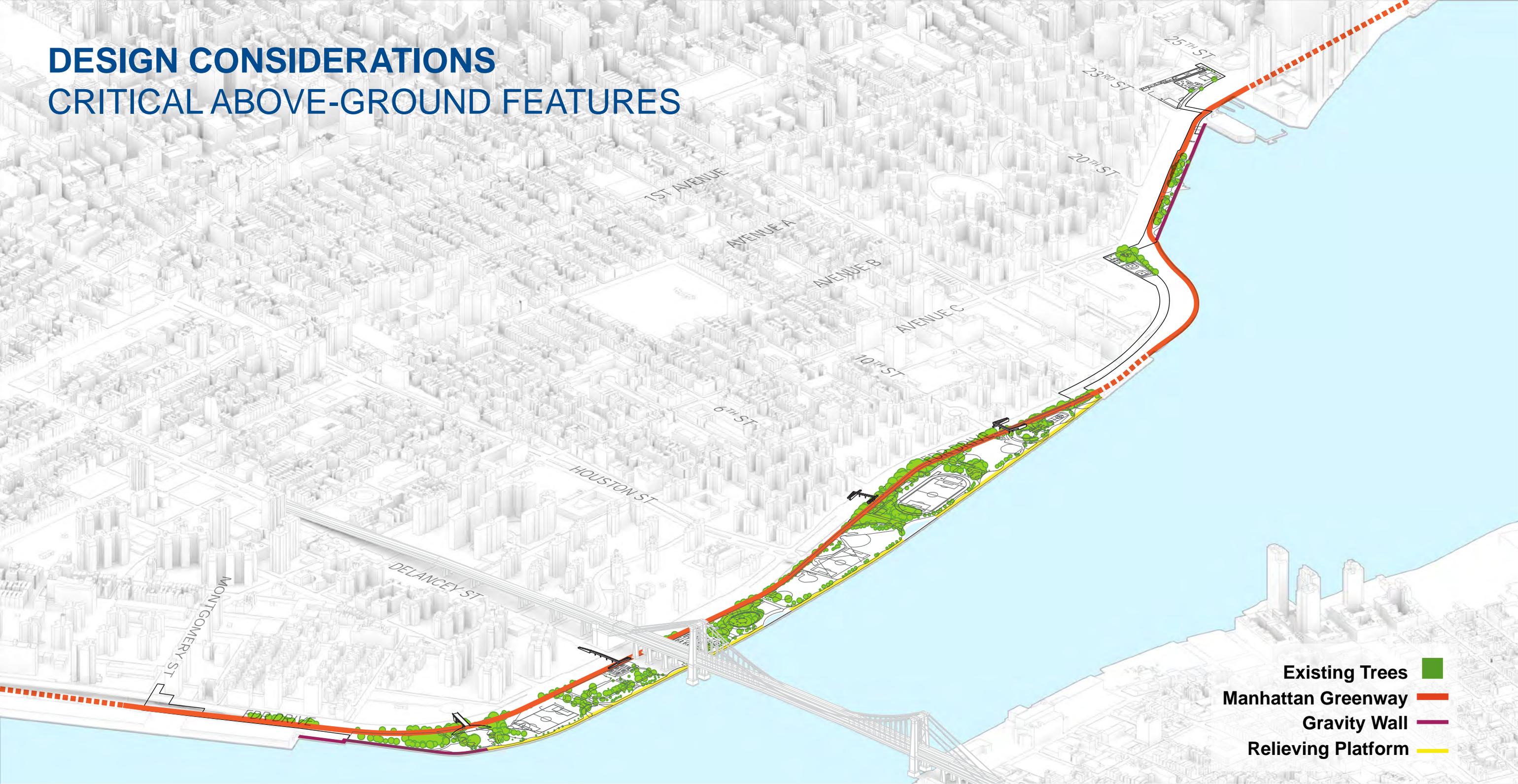
**PROJECT AREA 2
STUYVESANT COVE**

Site Boundary ———
2050s FEMA 100-YEAR Flood Hazard Area Boundary

EXISTING PROGRAM USES ALONG THE WATERFRONT

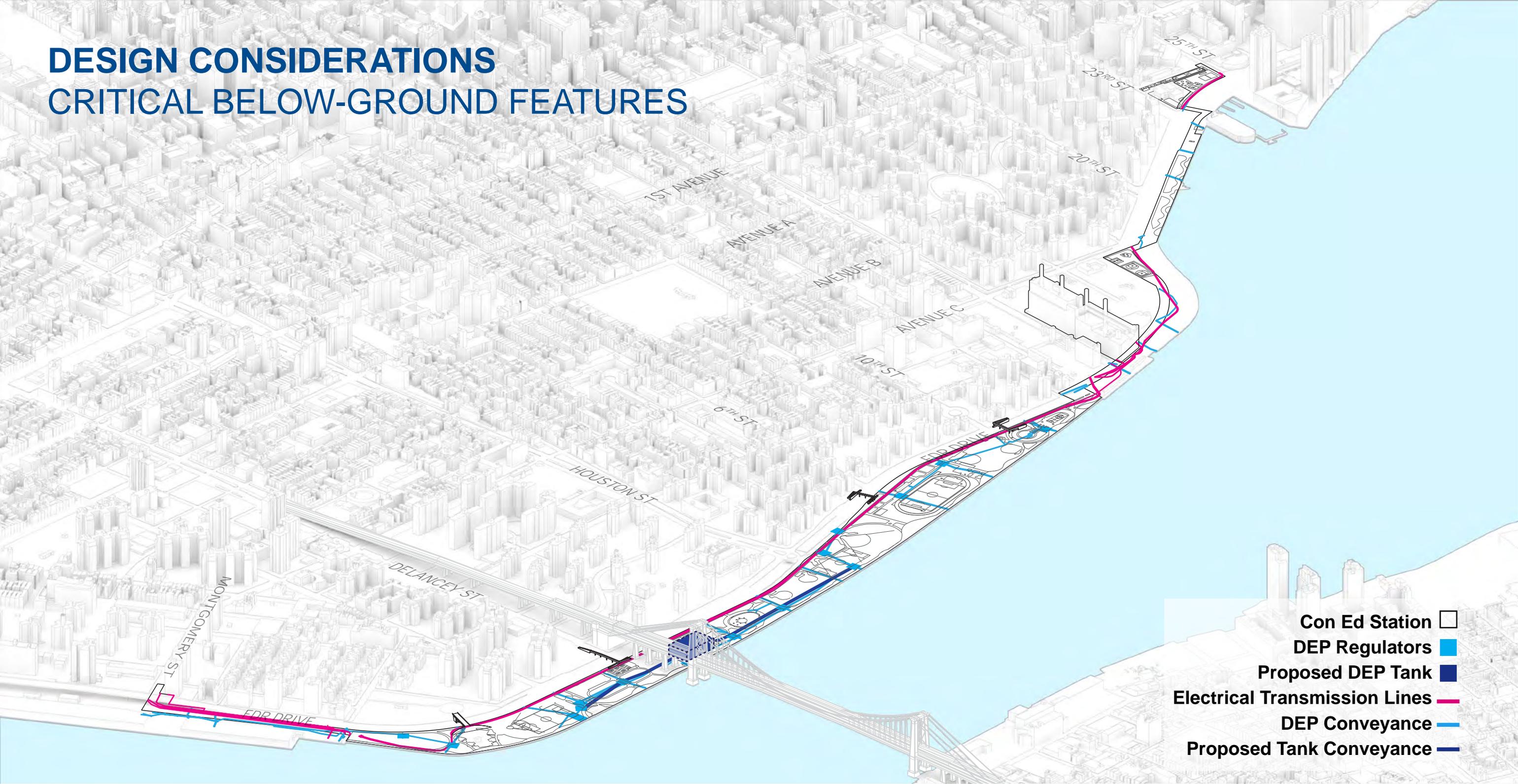


DESIGN CONSIDERATIONS CRITICAL ABOVE-GROUND FEATURES



- Existing Trees ■
- Manhattan Greenway ■
- Gravity Wall ■
- Relieving Platform ■

DESIGN CONSIDERATIONS CRITICAL BELOW-GROUND FEATURES



COMMUNITY ENGAGEMENT FEEDBACK

EXTENSIVE COMMUNITY ENGAGEMENT WAS UNDERTAKEN TO DETERMINE HOW FLOOD PROTECTION COULD MEET NEEDS AND DESIRES OF THE COMMUNITY

"MAINTAIN AT GRADE CROSSINGS AT MAJOR JUNCTIONS!"

"INTEGRATE FUTURE DEVELOPMENTS SUCH AS SOLAR 2!"

"WE LIKE THE SEPARATED BIKE LANE! IT'S SAFER FOR BIKES AND PEDESTRIANS."

"MAXIMIZE PASSIVE PROTECTION!"

"GET US IN THE MOOD FOR A PARK! YOU CAN'T SEE THE BRIDGE FROM BACK HERE"

"THE RAMPS ARE TOO STEEP ON BOTH SIDES OF THE BRIDGE"

"WE NEED MORE PASSIVE SPACE!"

"THIS IS A VERY DANGEROUS CROSSING FOR KIDS!"

"THIS AREA IS THE BEST FOR FAMILIES"

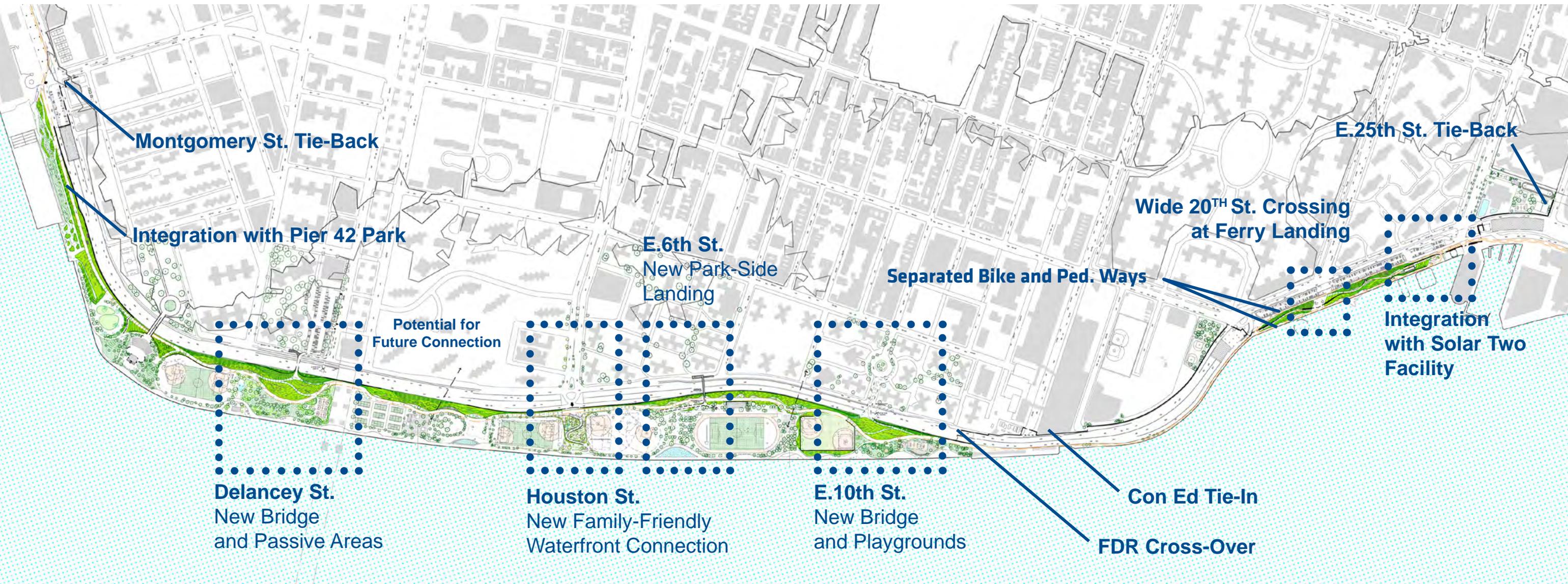
"DELANCEY IS AN IMPORTANT CROSSING INTO THE PARK"

"THIS AREA HAS THE BEST TREES!"

"MAINTAIN VIEWS AND ACCESS TO THE NEW PIER 42 PARK"

"THIS STAIRCASE IS DANGEROUSLY STEEP"

WHERE WE LEFT OFF - FALL 2015 INITIAL DESIGN DIRECTION



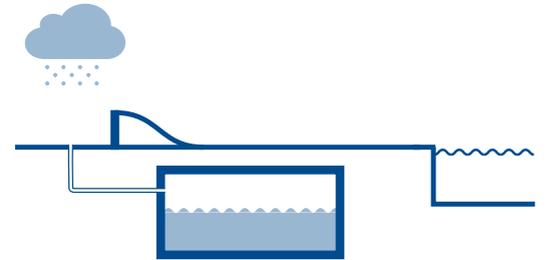
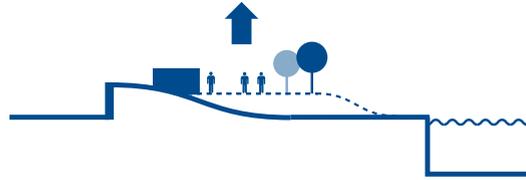
-FLOOD PROTECTION TYPICALLY +8'-9' ABOVE EXISTING GRADE
-18 GATE/DEPLOYABLE LOCATIONS



ADDITIONAL DESIGN PARAMETERS

EXPAND AVAILABLE PROGRAMMING BY CREATING MORE FLEXIBLE, CASUAL, MULTI-USE AREAS OF PARK

INCORPORATE A NEW STORAGE TANK IN EAST RIVER PARK TO MANAGE COMBINED SEWER OVERFLOW



PARK RESILIENCY

DIVERSIFY PROGRAM

INTEGRATE CON-ED

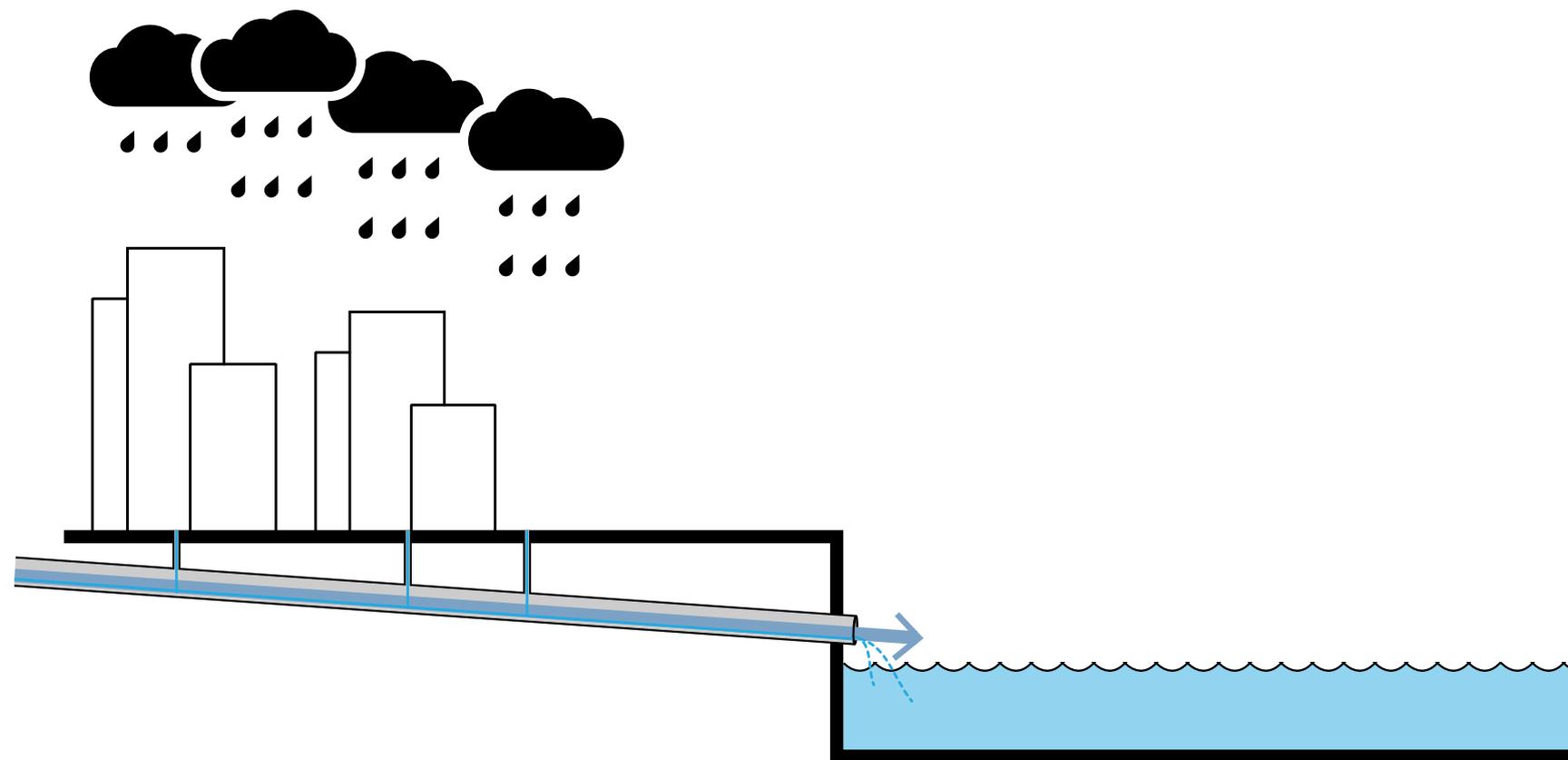
STORAGE TANK

INCORPORATE MORE HOLISTIC RESILIENCE OF WATERFRONT PARKS AND OPEN SPACES

INCORPORATE CRITICAL CON-ED TRANSMISSION LINES, WHICH CARRY 16% OF NYC'S ELECTRICITY

DESIGN CONSIDERATIONS

DRAINAGE

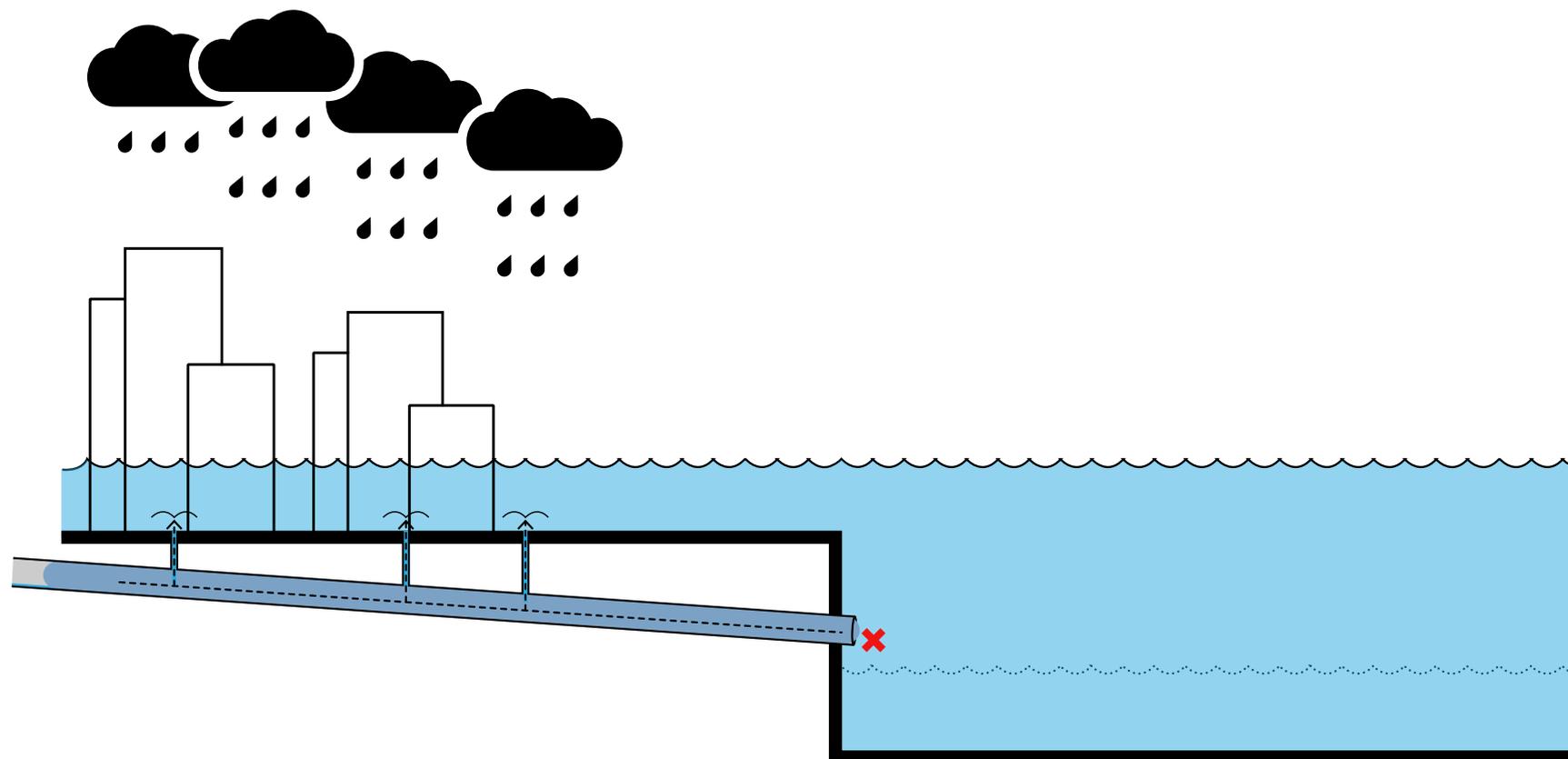


CURRENT CONDITIONS:

DURING A HEAVY PRECIPITATION EVENT

DESIGN CONSIDERATIONS

DRAINAGE

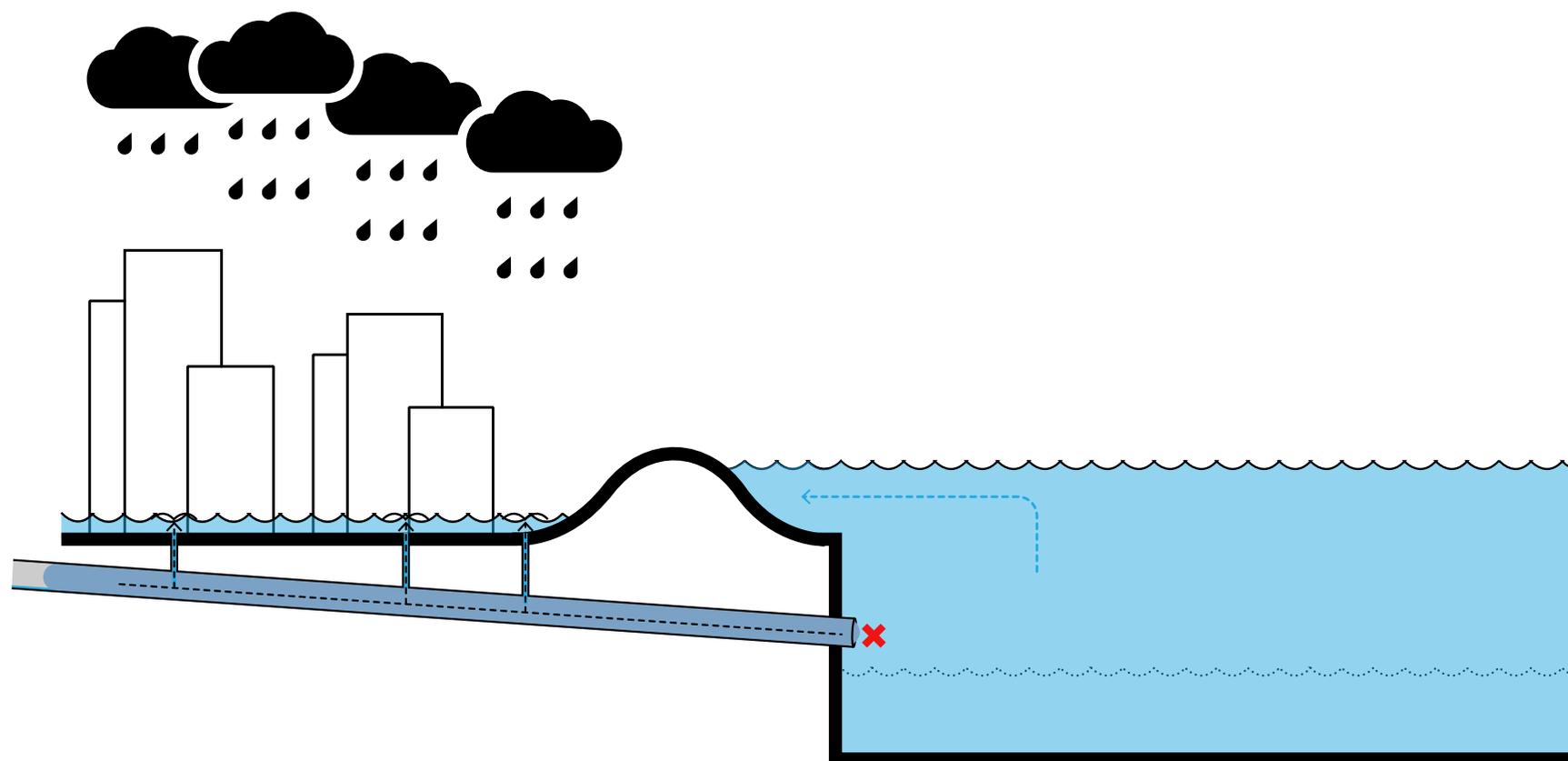


STORM EVENT WITHOUT COASTAL PROTECTION:

POTENTIAL FOR FLOODING FROM BOTH
STORM SURGE AND PRECIPITATION

DESIGN CONSIDERATIONS

DRAINAGE



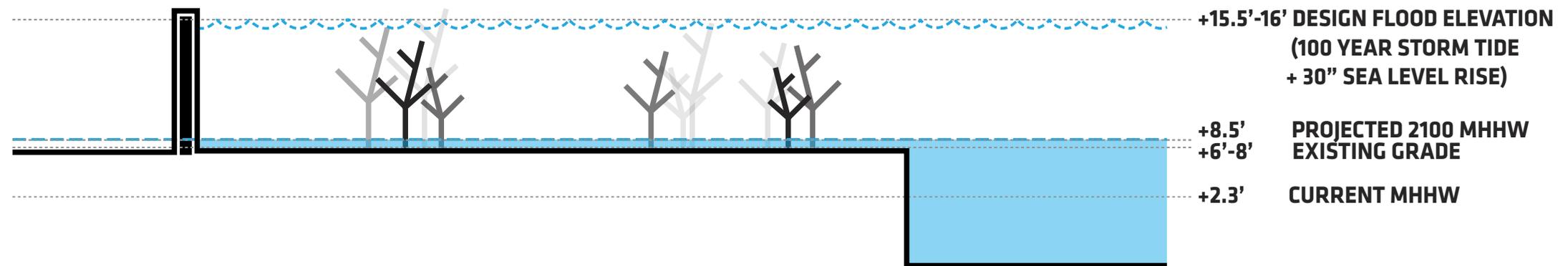
STORM EVENT WITH COASTAL PROTECTION:

INLAND FLOODING THAT NEEDS TO BE MANAGED:
EVALUATING BOTH PUMPING AND STORAGE ALTERNATIVES

EAST RIVER PARK BASELINE FLOOD PROTECTION

NOTE: ILLUSTRATIVE DIAGRAM, NOT-TO-SCALE

A FLOODWALL ALONG THE BACK EDGE OF THE PARK PROTECTS THE CITY, BUT LEAVES THE PARK OPEN TO DAMAGE FROM FUTURE SEA LEVEL RISE AND HIGHER FREQUENCY STORM EVENTS

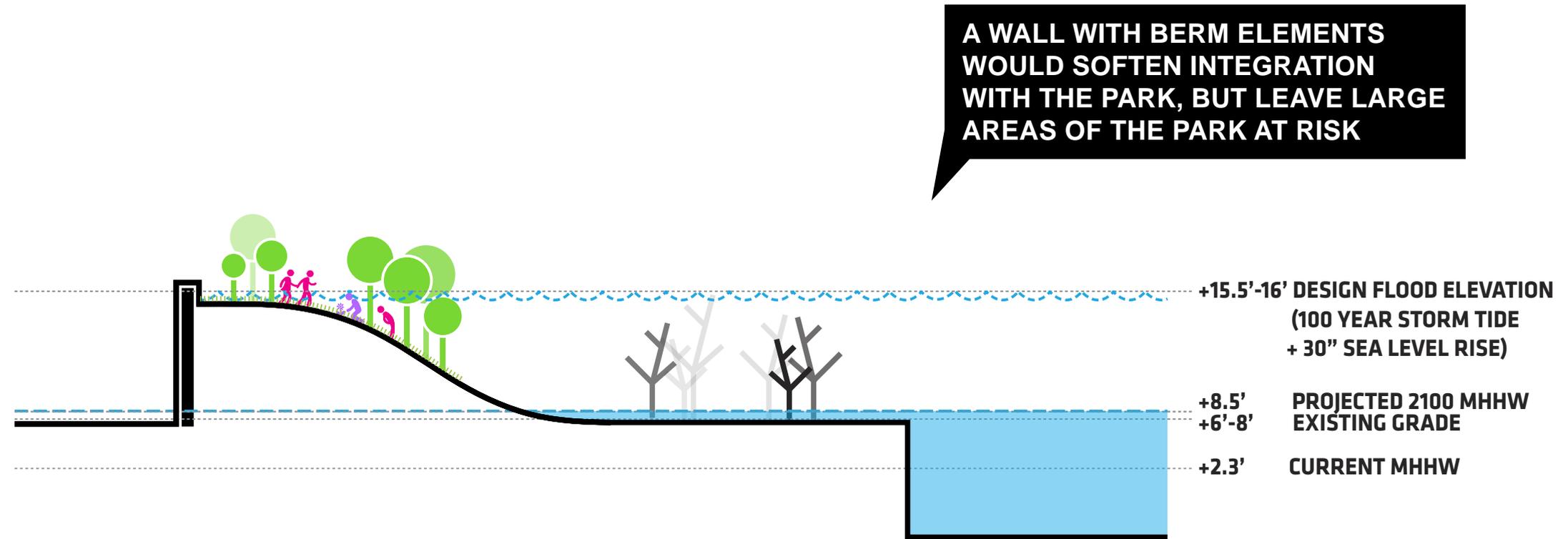


*MHHW: Mean Higher High Water

National Oceanic Atmospheric Administration: The average of the higher high water height of each tidal day observed over the National Tidal Datum Epoch

INTEGRATED FLOOD PROTECTION FALL 2015 CONCEPT

NOTE: ILLUSTRATIVE DIAGRAM, NOT-TO-SCALE



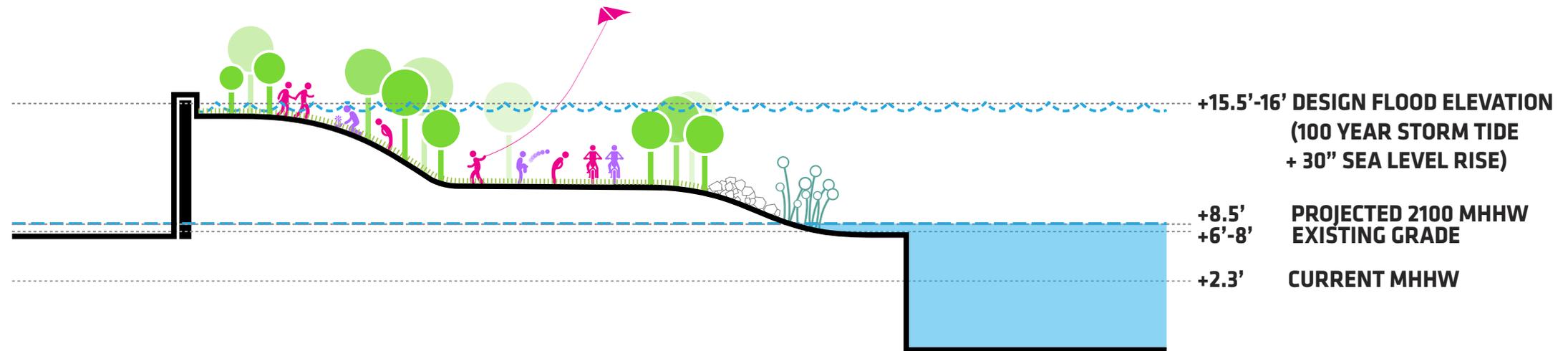
*MHHW: Mean Higher High Water

National Oceanic Atmospheric Administration: The average of the higher high water height of each tidal day observed over the National Tidal Datum Epoch

PARK INTEGRATION

NOTE: ILLUSTRATIVE DIAGRAM, NOT-TO-SCALE

**INTEGRATING AND RAISING
MORE AREAS OF THE PARK
WOULD INCREASE OPEN SPACE
RESILIENCY INTO THE FUTURE**



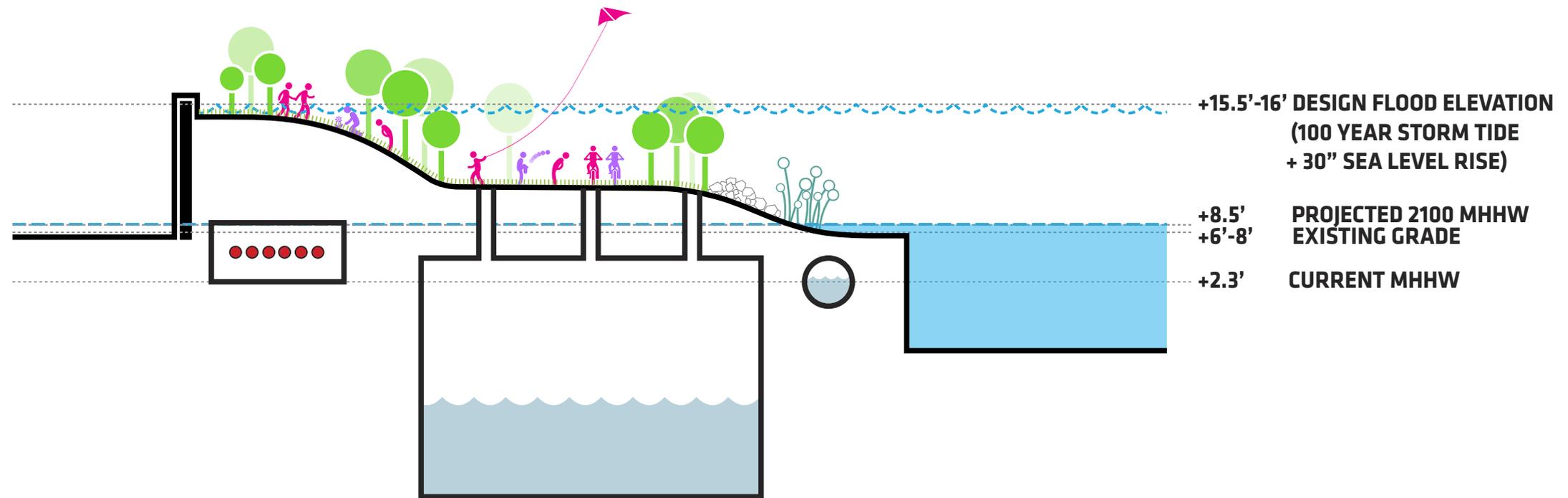
*MHHW: Mean Higher High Water

National Oceanic Atmospheric Administration: The average of the higher high water height of each tidal day observed over the National Tidal Datum Epoch

SUB-SURFACE INFRASTRUCTURE

NOTE: ILLUSTRATIVE DIAGRAM, NOT-TO-SCALE

**NEW SUB-SURFACE
INFRASTRUCTURE ACCOMODATED
BY INCREASED LIMIT OF WORK**



*MHHW: Mean Higher High Water

National Oceanic Atmospheric Administration: The average of the higher high water height of each tidal day observed over the National Tidal Datum Epoch

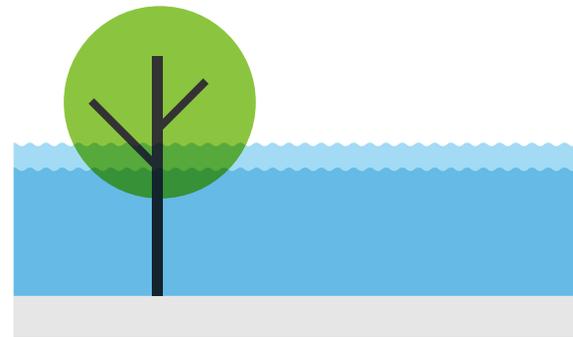
CONSIDERATION FOR WATERFRONT PARKLAND



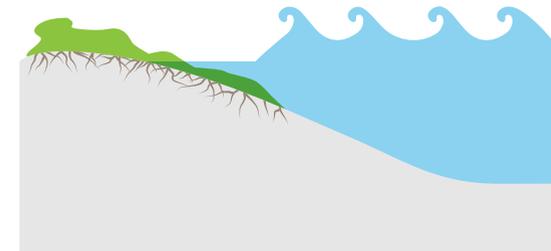
WIND

FAST GROWING TREES PROVIDE QUICK SHADE, BUT TEND TO BE WEAK-WOODDED. SLOW GROWING TREES HAVE STRENGTH BUT DELAY SHADE

EXPECT INUNDATION. MINIMIZE INUNDATION DURATION FOR TREES, GARDENS, AND HIGH VALUE & SLOW GROWING PLANTINGS



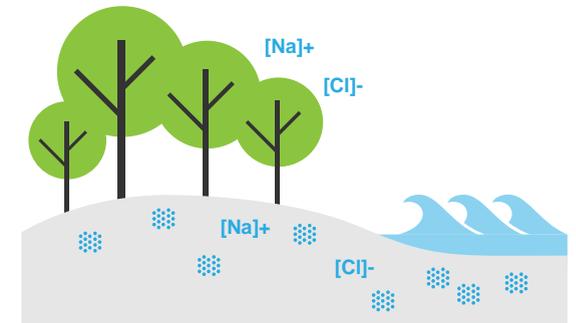
INUNDATION



WAVE ACTION + EROSION

INSTALL VIGOROUS, LOW, DENSE, AND FIBROUS ROOTED PLANTS AT WATER'S EDGE & ON SLOPES

SELECT PLANTS TOLERANT OF SALT SPRAY + ENSURE SOILS FACILITATE FAST DRAINAGE TO PREVENT EXTENDED SALT BUILD-UP

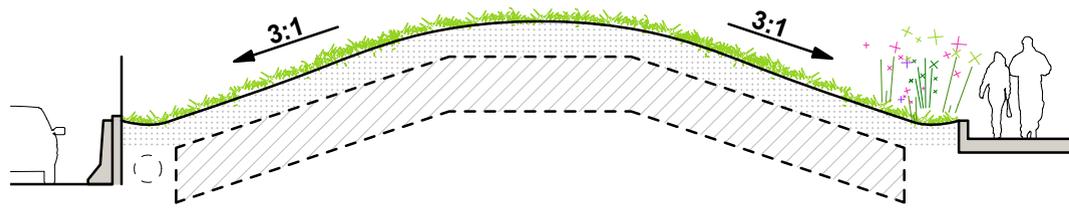


SALINITY

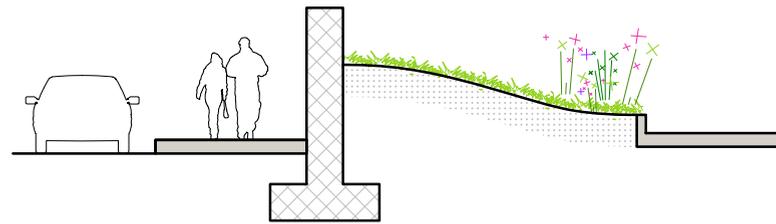
1. Project Status
2. Project Area 1 - Inputs and Considerations
- 3. Concept Design Update**
4. Next Steps/Discussion

DESIGN COMPONENTS

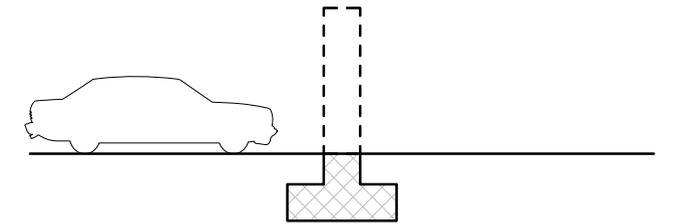
FLOOD MITIGATION



BERM / LEVEE



FLOODWALL



CLOSURE STRUCTURE

BASELINE FLOOD PROTECTION COMPONENTS

THE FLOOD PROTECTION ALIGNMENT CREATES A WALL AND LEVEE THAT IS TYPICALLY 8' HIGH, WITH CLOSURE STRUCTURE ACROSS PEDESTRIAN, CYCLIST AND VEHICULAR ACCESSWAYS

25TH STREET TIEBACK

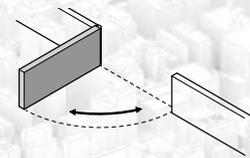
MONTGOMERY STREET TIEBACK

Pedestrian Crossings →

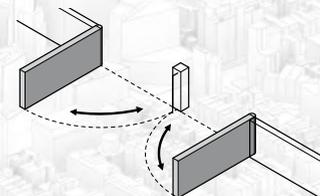
Typical Floodwall ■

Earthen Levee ■

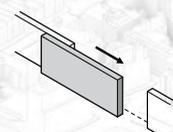
CLOSURE STRUCTURES



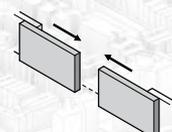
Single Swing Gate (x7)



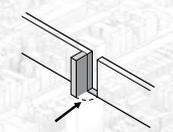
Double Swing Gates (x2)



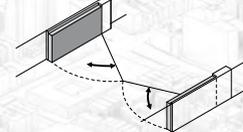
Single Roller Gates (x4)



Double Roller Gates (x1)



Pedestrian Gates (x3)



Miter Gates (x1)

*18 Total Closure Structures

25TH STREET TIEBACK

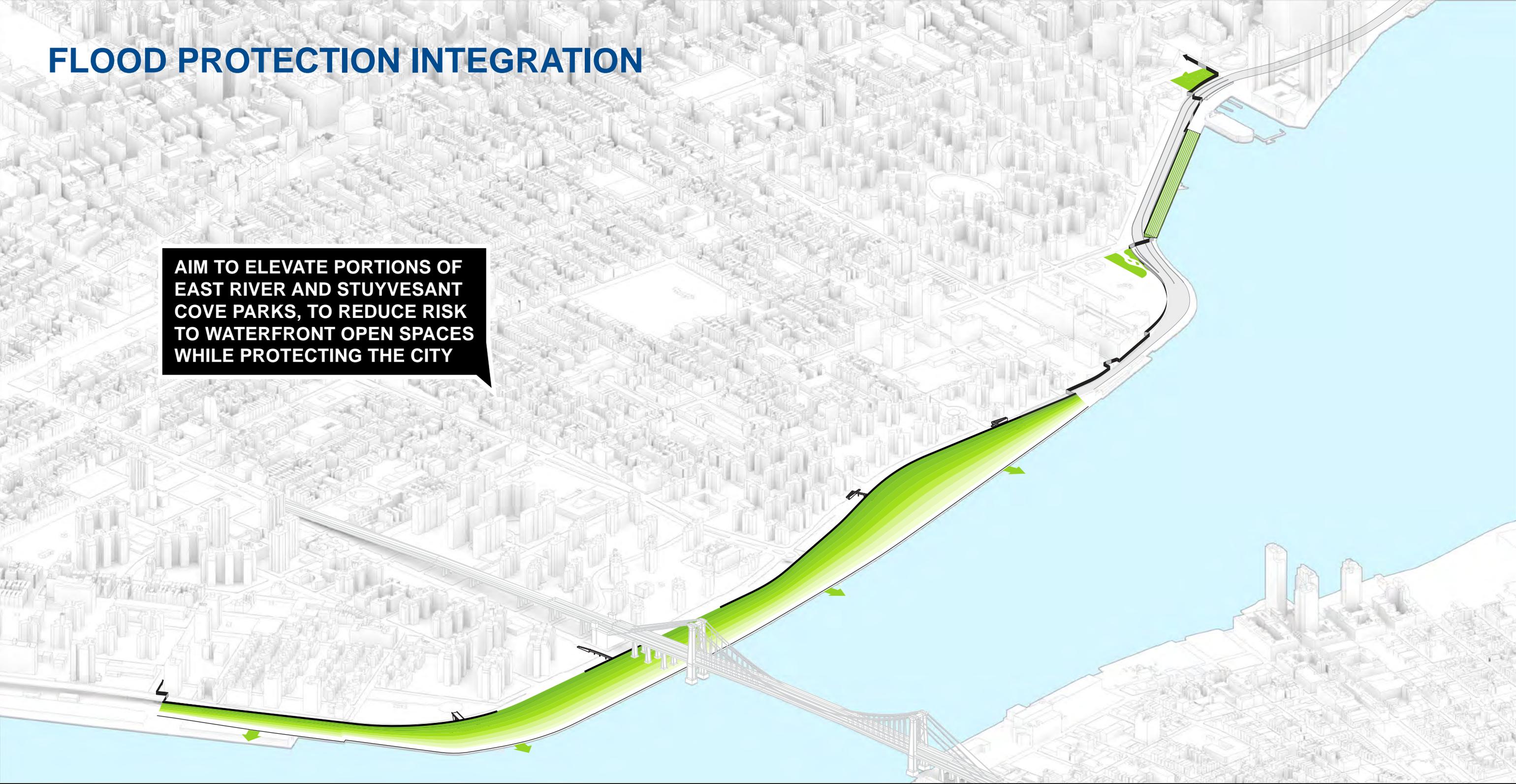
MONTGOMERY STREET TIEBACK

THE FLOOD PROTECTION ALIGNMENT, REACHING +16' ABOVE MEAN SEA LEVEL, CREATES AN ELEVATED EDGE TYPICALLY 8'-9' ABOVE EXISTING GROUND LEVEL, WITH CLOSURE STRUCTURES ACROSS PEDESTRIAN, CYCLIST AND VEHICULAR ACCESSWAYS

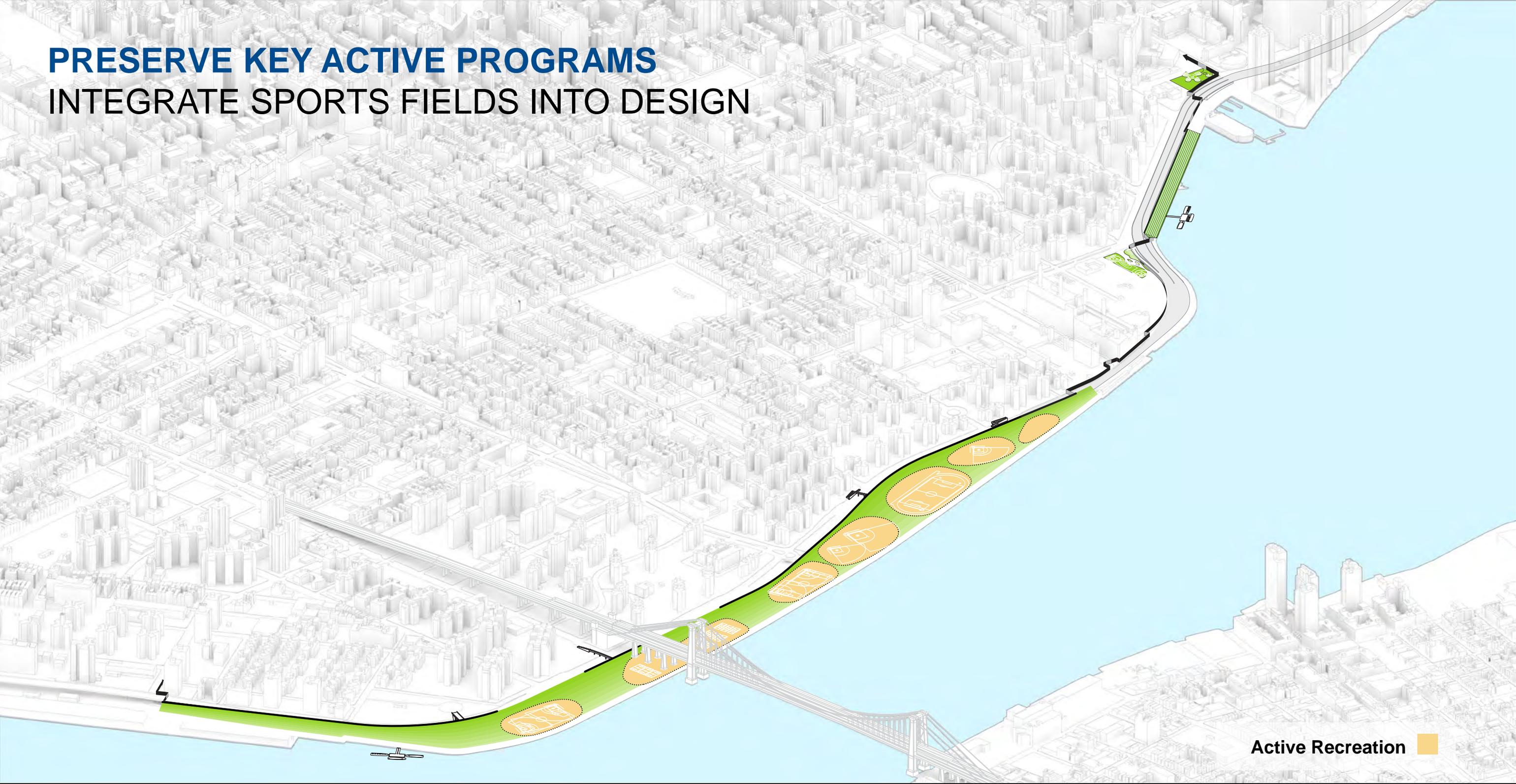
Floodwall/Levee 
Closure Areas 

FLOOD PROTECTION INTEGRATION

AIM TO ELEVATE PORTIONS OF EAST RIVER AND STUYVESANT COVE PARKS, TO REDUCE RISK TO WATERFRONT OPEN SPACES WHILE PROTECTING THE CITY



PRESERVE KEY ACTIVE PROGRAMS INTEGRATE SPORTS FIELDS INTO DESIGN



Active Recreation ■

MODIFIED PARK AREAS

NEW AREAS FOR NATURE AND INFORMAL USE

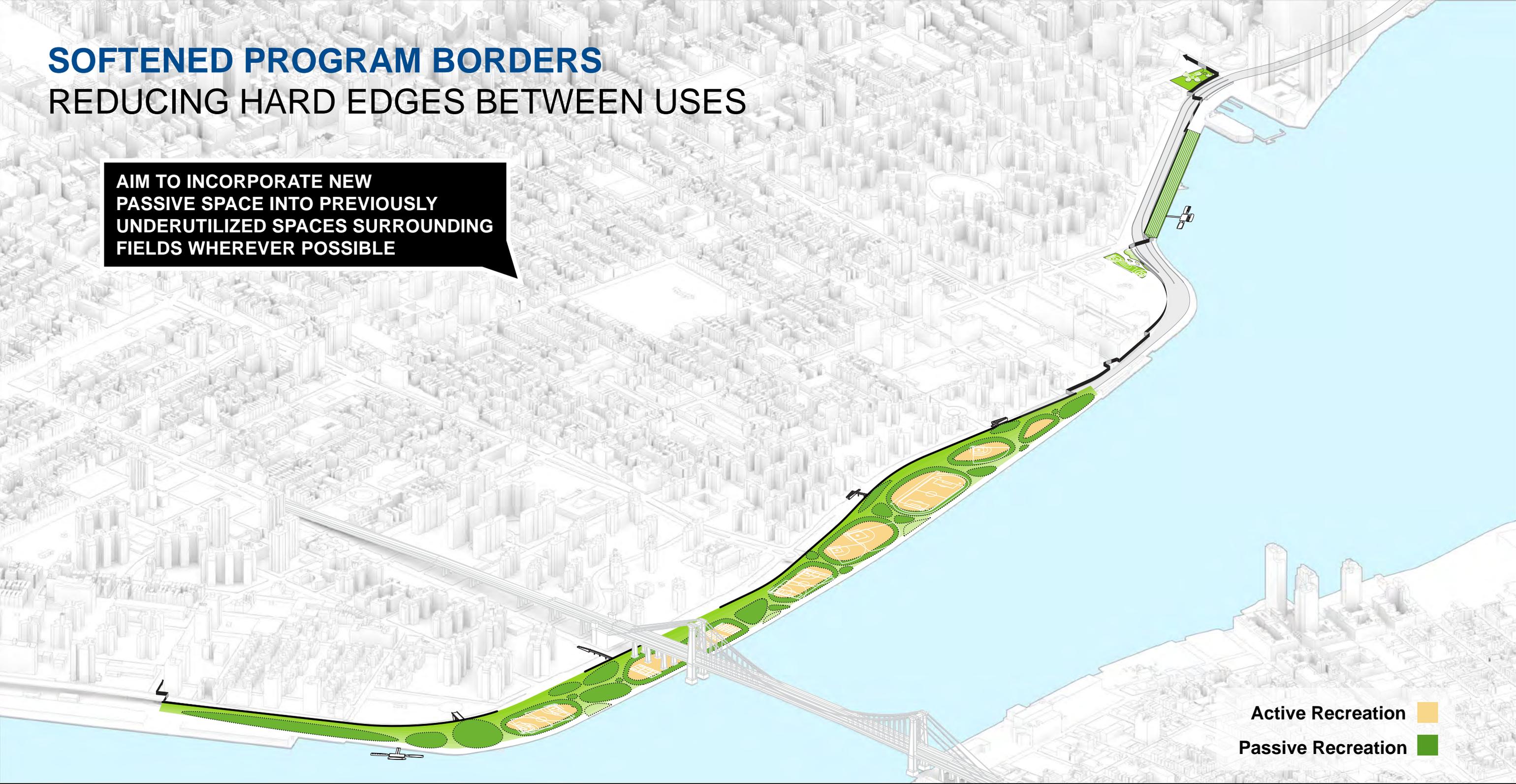
LEAVING ROOM FOR IMPROVED PASSIVE SPACE THROUGHOUT THE REST OF THE PARK!

Active Recreation 
Passive Recreation 

SOFTENED PROGRAM BORDERS

REDUCING HARD EDGES BETWEEN USES

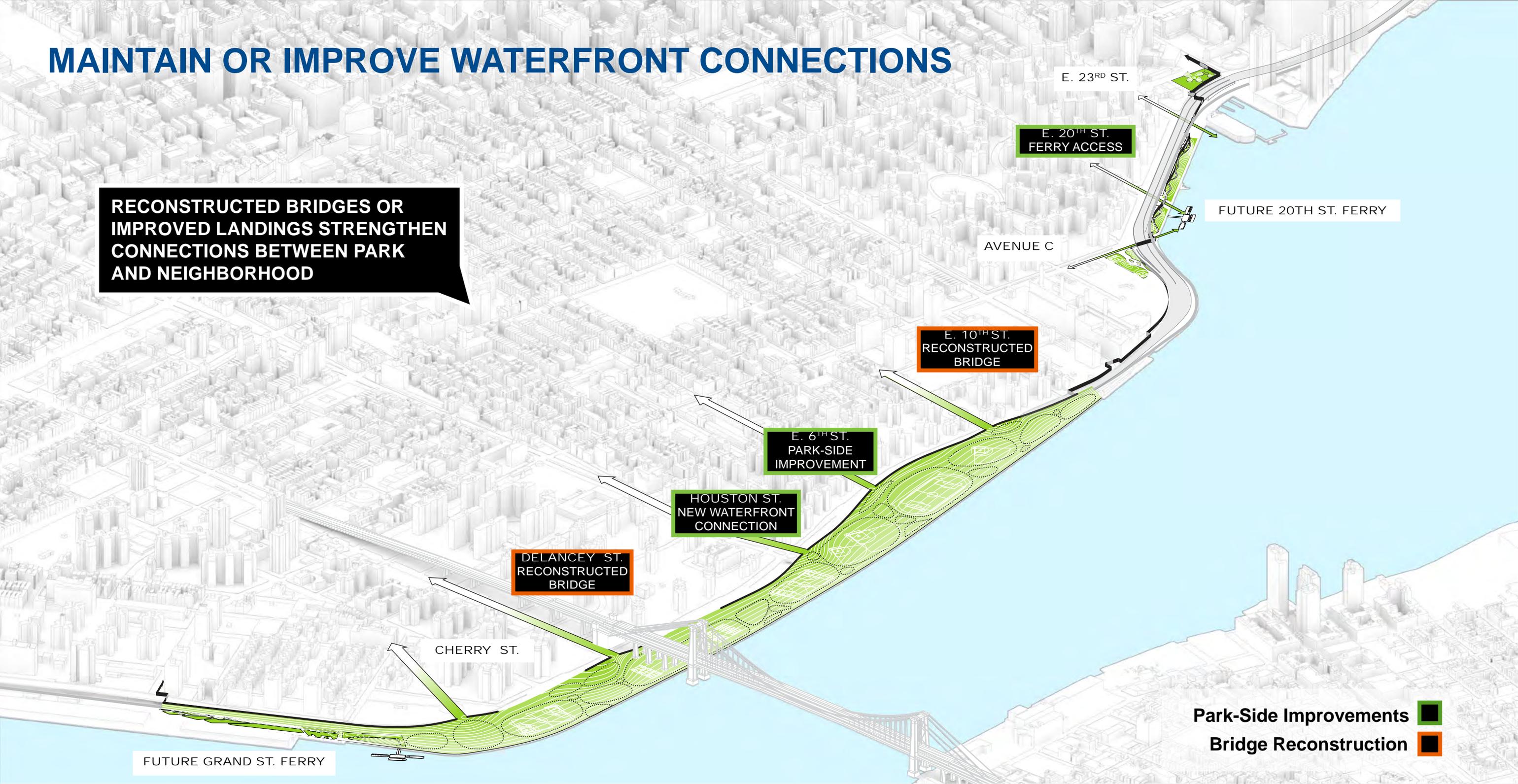
AIM TO INCORPORATE NEW
PASSIVE SPACE INTO PREVIOUSLY
UNDERUTILIZED SPACES SURROUNDING
FIELDS WHEREVER POSSIBLE



Active Recreation ■
Passive Recreation ■

MAINTAIN OR IMPROVE WATERFRONT CONNECTIONS

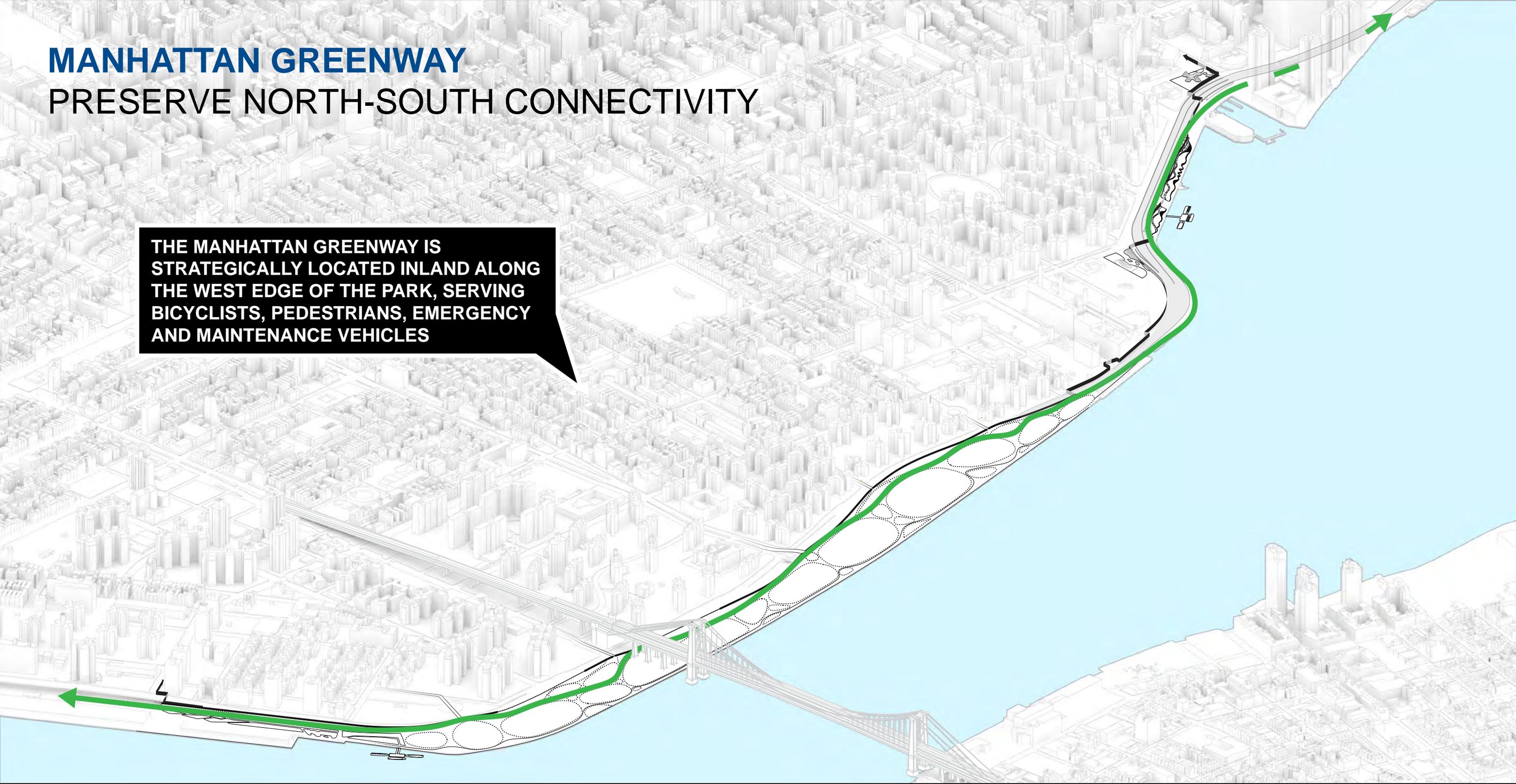
RECONSTRUCTED BRIDGES OR IMPROVED LANDINGS STRENGTHEN CONNECTIONS BETWEEN PARK AND NEIGHBORHOOD



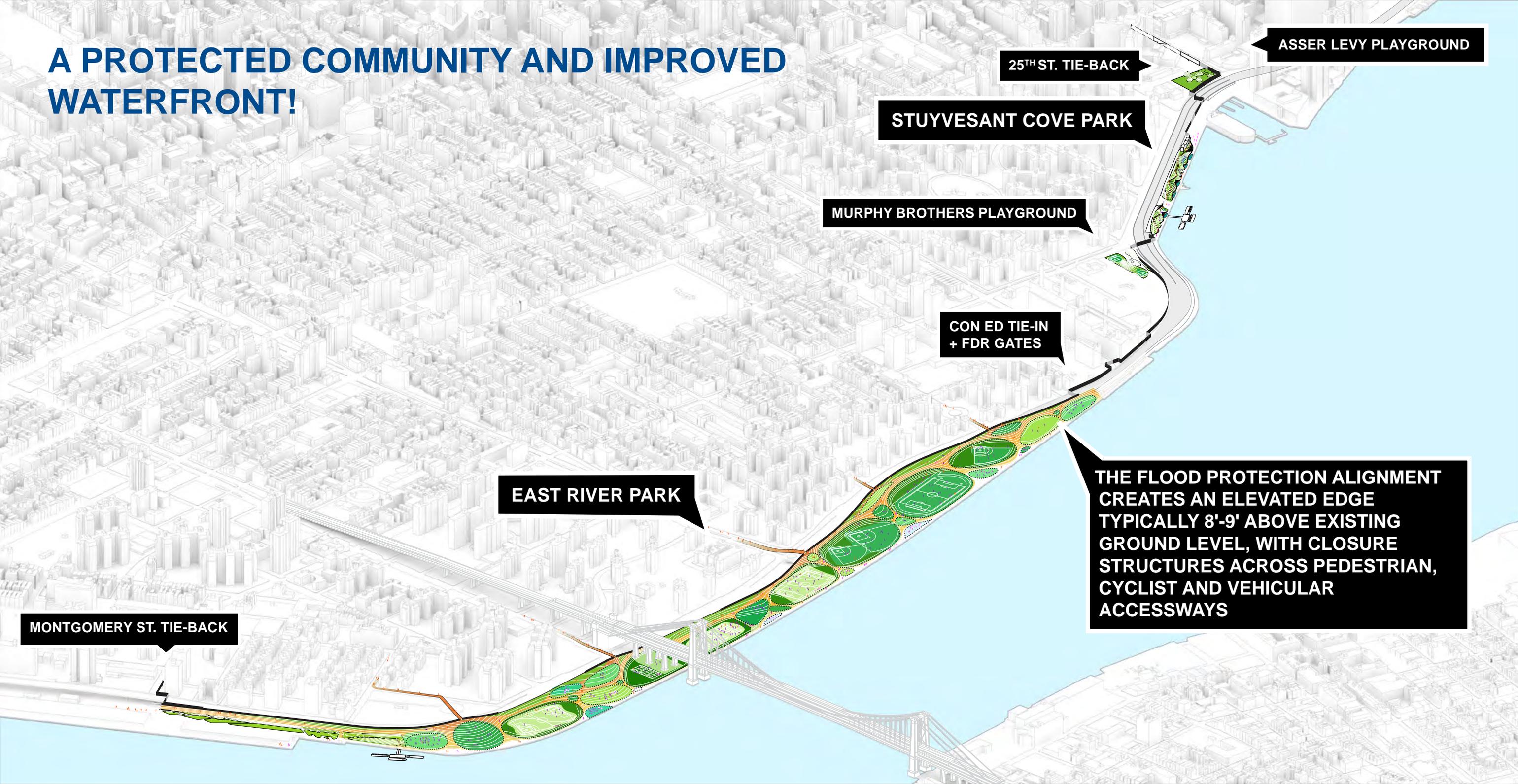
MANHATTAN GREENWAY

PRESERVE NORTH-SOUTH CONNECTIVITY

THE MANHATTAN GREENWAY IS STRATEGICALLY LOCATED INLAND ALONG THE WEST EDGE OF THE PARK, SERVING BICYCLISTS, PEDESTRIANS, EMERGENCY AND MAINTENANCE VEHICLES



A PROTECTED COMMUNITY AND IMPROVED WATERFRONT!



ASSER LEVY PLAYGROUND

25TH ST. TIE-BACK

STUYVESANT COVE PARK

MURPHY BROTHERS PLAYGROUND

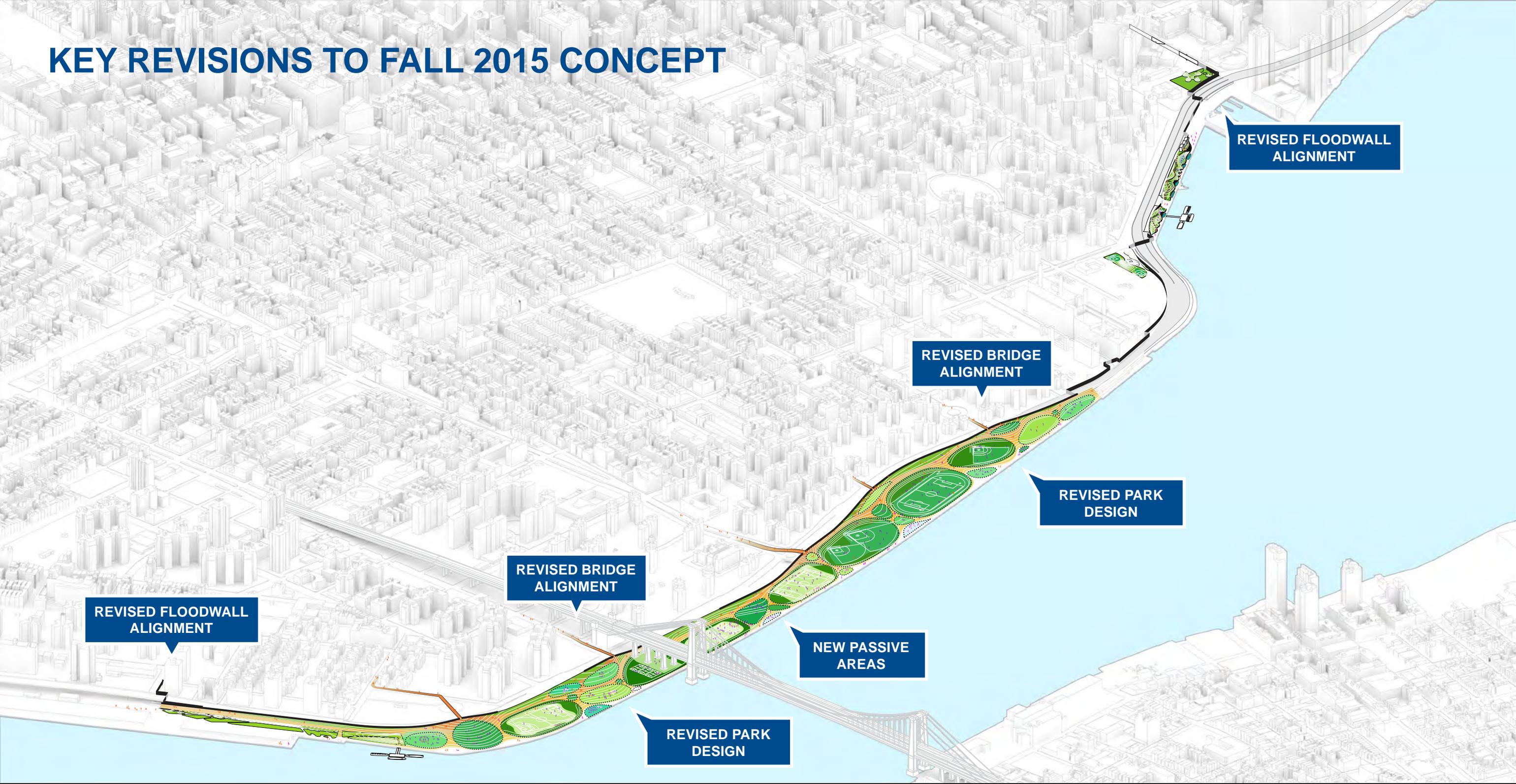
CON ED TIE-IN
+ FDR GATES

EAST RIVER PARK

THE FLOOD PROTECTION ALIGNMENT
CREATES AN ELEVATED EDGE
TYPICALLY 8'-9' ABOVE EXISTING
GROUND LEVEL, WITH CLOSURE
STRUCTURES ACROSS PEDESTRIAN,
CYCLIST AND VEHICULAR
ACCESSWAYS

MONTGOMERY ST. TIE-BACK

KEY REVISIONS TO FALL 2015 CONCEPT

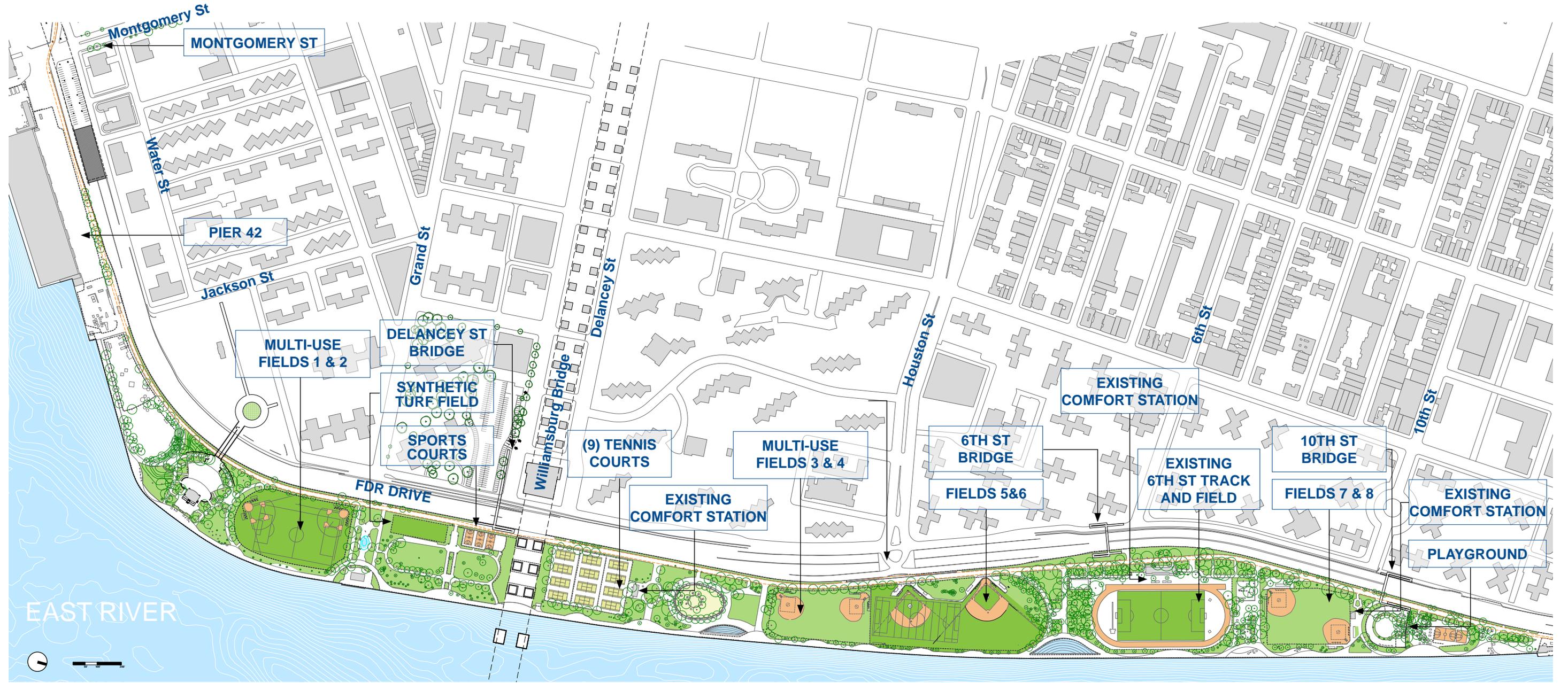


EXISTING CONDITION

PROJECT AREA 1

LEGEND

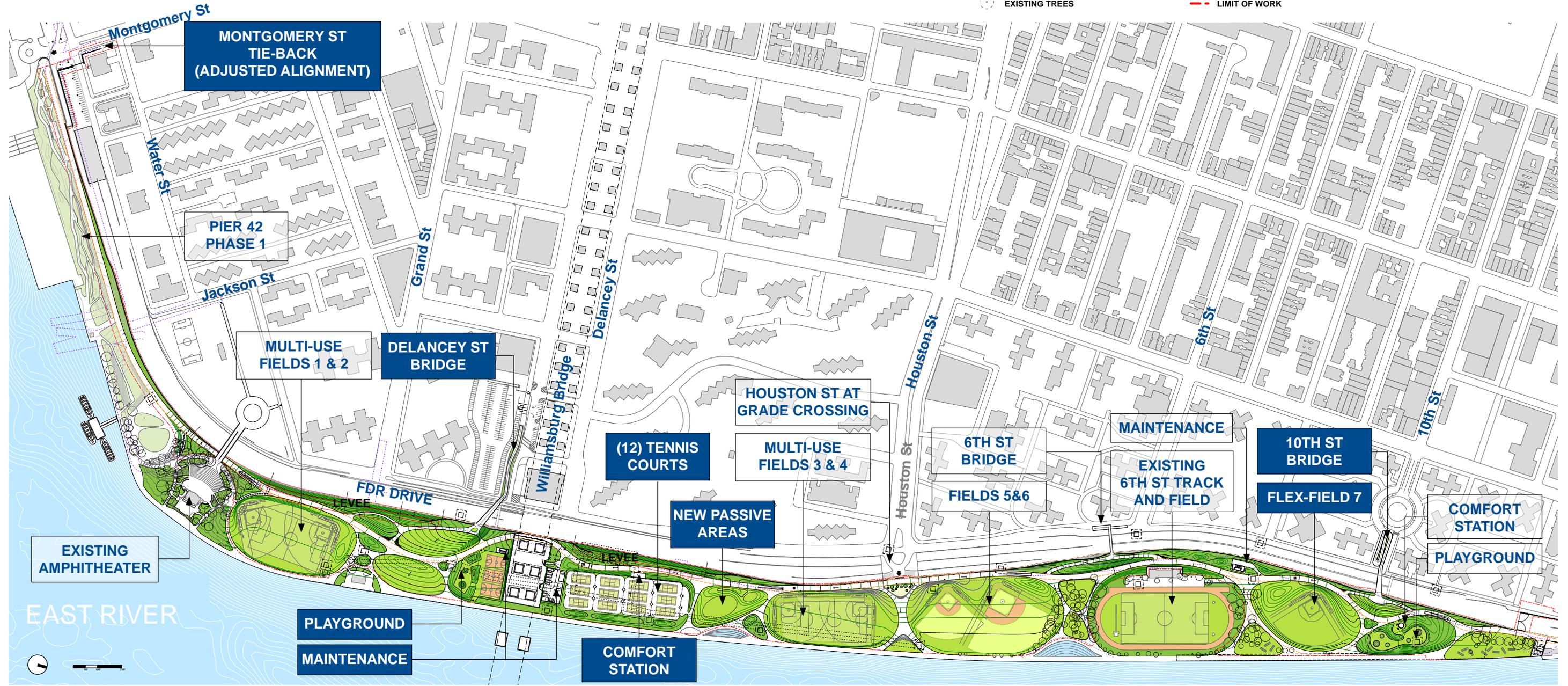
- SPORTS FIELD - SYNTHETIC TURF
- GRASSED / PLANTED AREA
- EXISTING TREES
- FENCE



REVISED CONCEPT PLAN PROJECT AREA 1

LEGEND

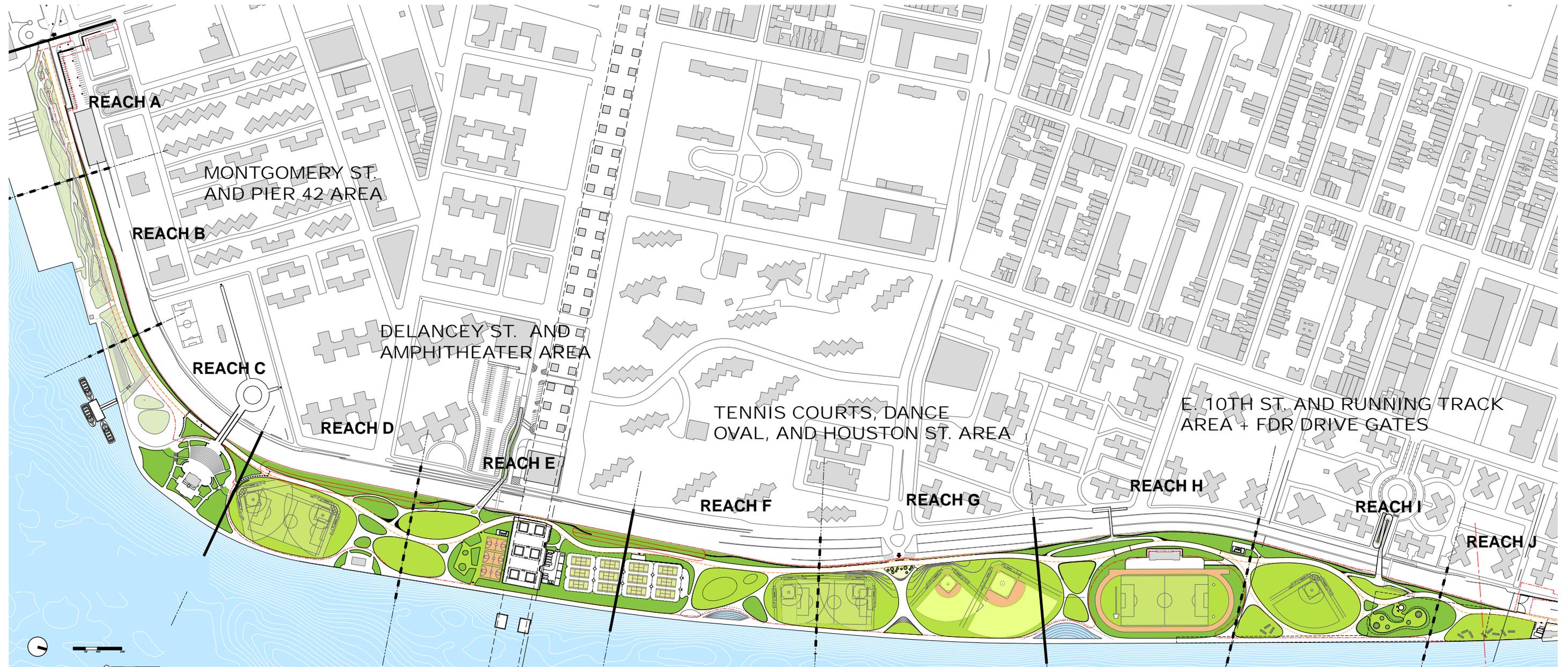
- SPORTS FIELD - SYNTHETIC TURF
- LAWN AREA
- PLANTED AREA
- EXISTING TREES
- FLOODWALL
- FENCE
- CON-ED TUNNEL / TROUGH
- LIMIT OF WORK
- REGULATORS



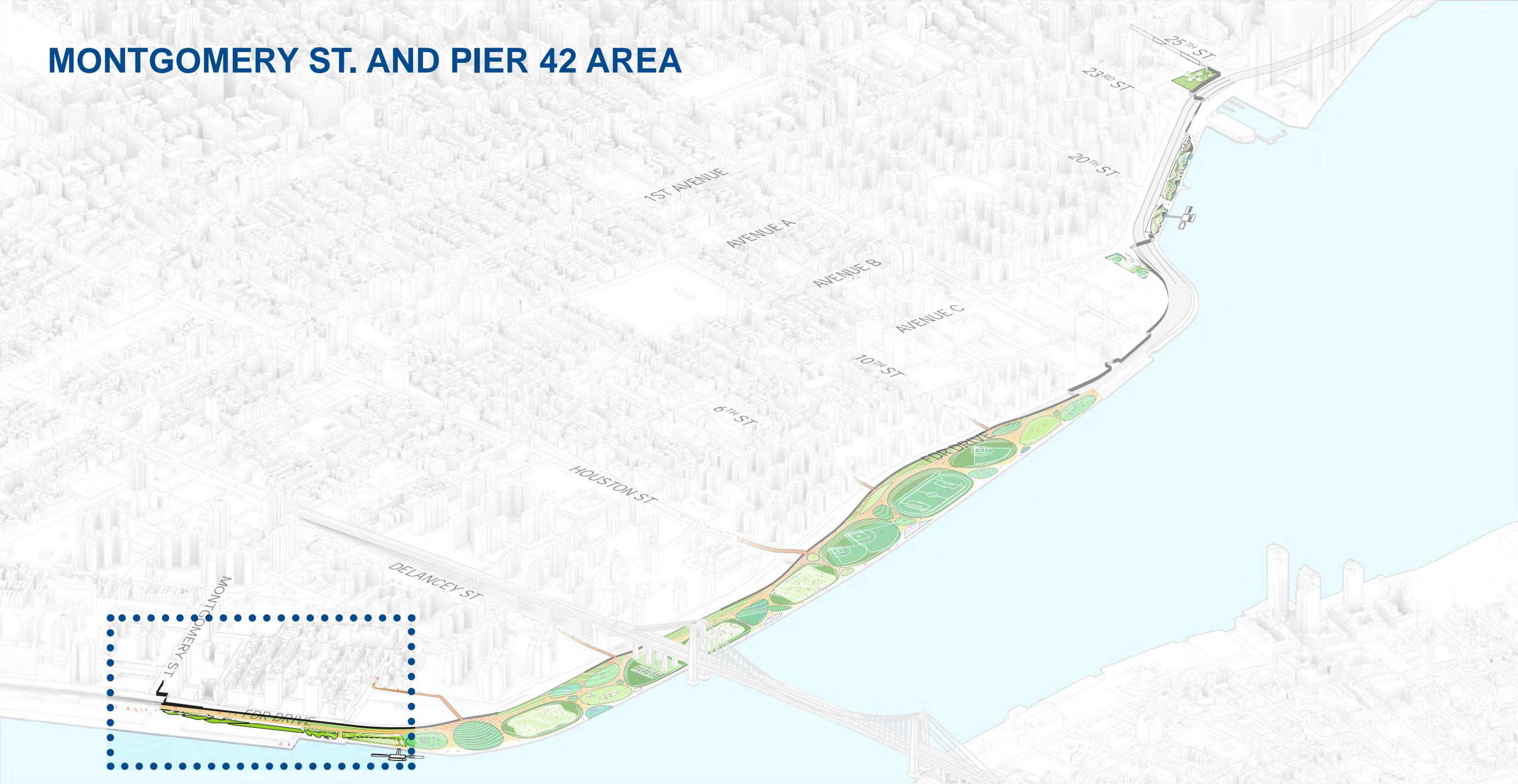
REVISED CONCEPT PLAN PROJECT AREA 1

LEGEND

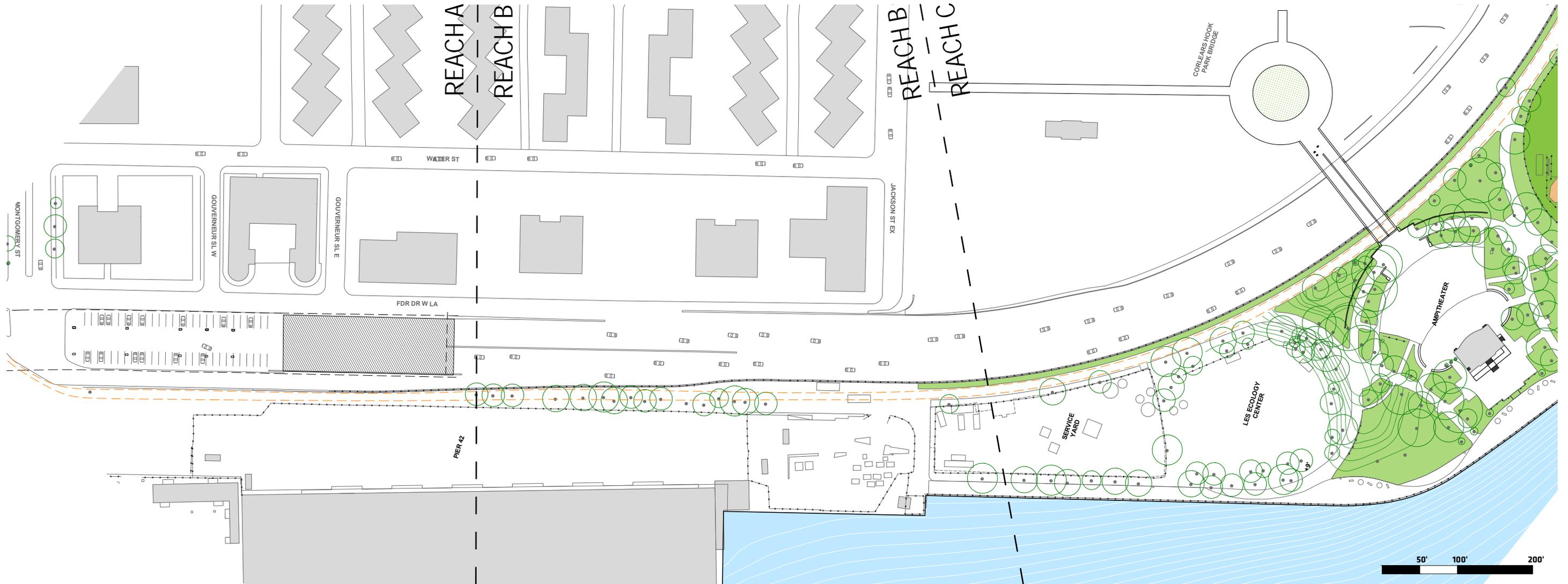
- SPORTS FIELD - SYNTHETIC TURF
- LAWN AREA
- PLANTED AREA
- FLOODWALL



MONTGOMERY ST. AND PIER 42 AREA

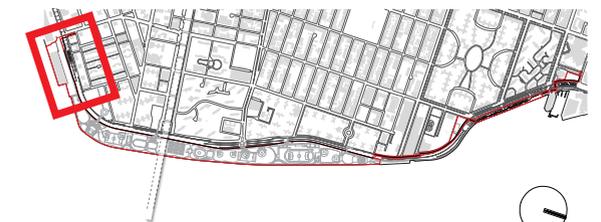


EXISTING CONDITION REACHES A-C

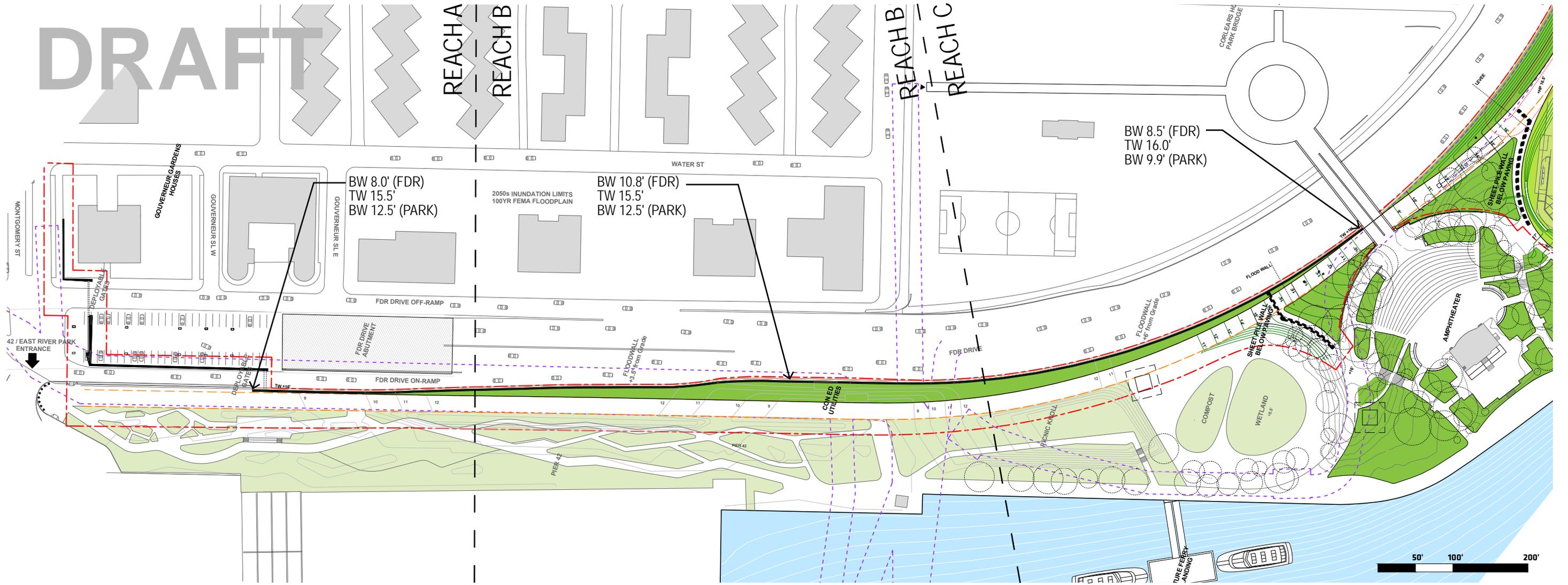


LEGEND

- SPORTS FIELD - SYNTHETIC TURF
- GRASSED / PLANTED AREA
- EXISTING TREES
- FENCE



REVISED CONCEPT PLAN REACHES A-C



LEGEND

- SPORTS FIELD - SYNTHETIC TURF
- LAWN AREA
- PLANTED AREA
- EXISTING TREES
- FLOODWALL
- FENCE
- CON-ED TUNNEL / TROUGH
- LIMIT OF WORK
- REGULATORS



EXISTING CONDITION- MONTGOMERY ST. TIE-BACK | REACH A



PROPOSED CONDITIONS - MONTGOMERY ST. TIE-BACK | REACH A
GATES STORED

DRAFT



NOTE: DRAFT ILLUSTRATIVE SKETCH
FINISHES/MATERIALS/DETAILING TO BE DEVELOPED
IN FINAL DESIGN

PROPOSED CONDITIONS - MONTGOMERY ST. TIE-BACK | REACH A
GATES CLOSED

DRAFT



NOTE: DRAFT ILLUSTRATIVE SKETCH
FINISHES/MATERIALS/DETAILING TO BE DEVELOPED
IN FINAL DESIGN

VIEW AT CORNER - MONTGOMERY ST. TIE-BACK | REACH A
EVERYDAY CONDITION

DRAFT

POSSIBLE REMOVABLE
COVER PLATE

GATE TRACK AND
SEAL PLATE

REMOVABLE COVER PLATE

NOTE: DRAFT ILLUSTRATIVE SKETCH
FINISHES/MATERIALS/DETAILING TO BE DEVELOPED
IN FINAL DESIGN

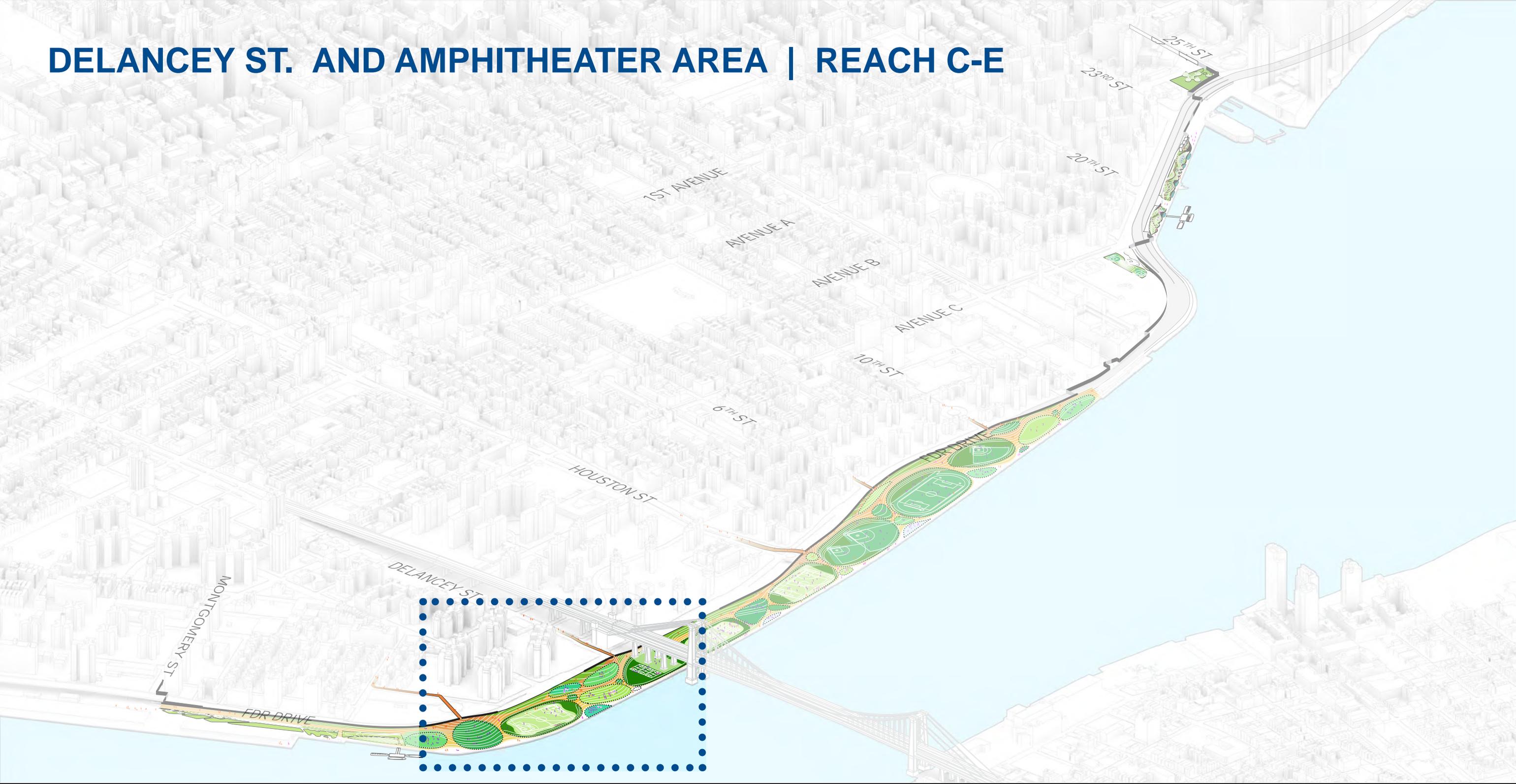
VIEW AT CORNER - MONTGOMERY ST. TIE-BACK | REACH A
FLOOD EVENT

DRAFT



NOTE: DRAFT ILLUSTRATIVE SKETCH
FINISHES/MATERIALS/DETAILING TO BE DEVELOPED
IN FINAL DESIGN

DELANCEY ST. AND AMPHITHEATER AREA | REACH C-E

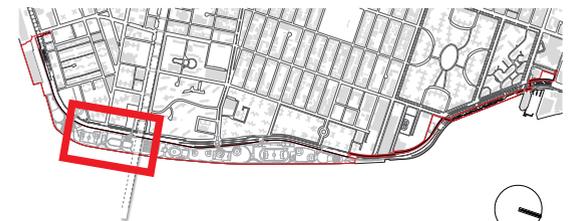


EXISTING CONDITION | REACHES C-E



LEGEND

- SPORTS FIELD - SYNTHETIC TURF
- GRASSED / PLANTED AREA
- EXISTING TREES
- FENCE

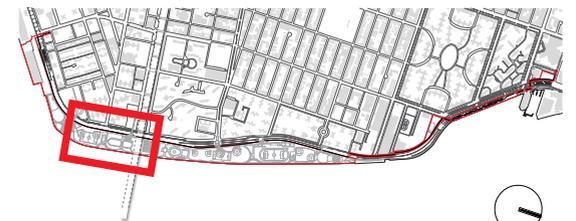


REVISED CONCEPT PLAN | REACHES C-E



LEGEND

- | | | |
|-------------------------------|------------------------|------------|
| SPORTS FIELD - SYNTHETIC TURF | FLOODWALL | REGULATORS |
| LAWN AREA | FENCE | |
| PLANTED AREA | CON-ED TUNNEL / TROUGH | |
| EXISTING TREES | LIMIT OF WORK | |



EXISTING CONDITIONS - DELANCEY STREET ENTRANCE | REACHES C-E



PROPOSED CONDITIONS - DELANCEY STREET ENTRANCE | REACHES C-E

DRAFT



Note: Rendering depicts condition 15 years post-completion.



PROPOSED CONDITIONS - DELANCEY STREET ENTRANCE | REACHES C-E

DRAFT



Note: Rendering depicts condition 15 years post-completion in a storm scenario.



EXISTING CONDITIONS - DELANCEY STREET ENTRANCE | REACH E



DRAFT



Note: Rendering depicts condition 15 years post-completion.



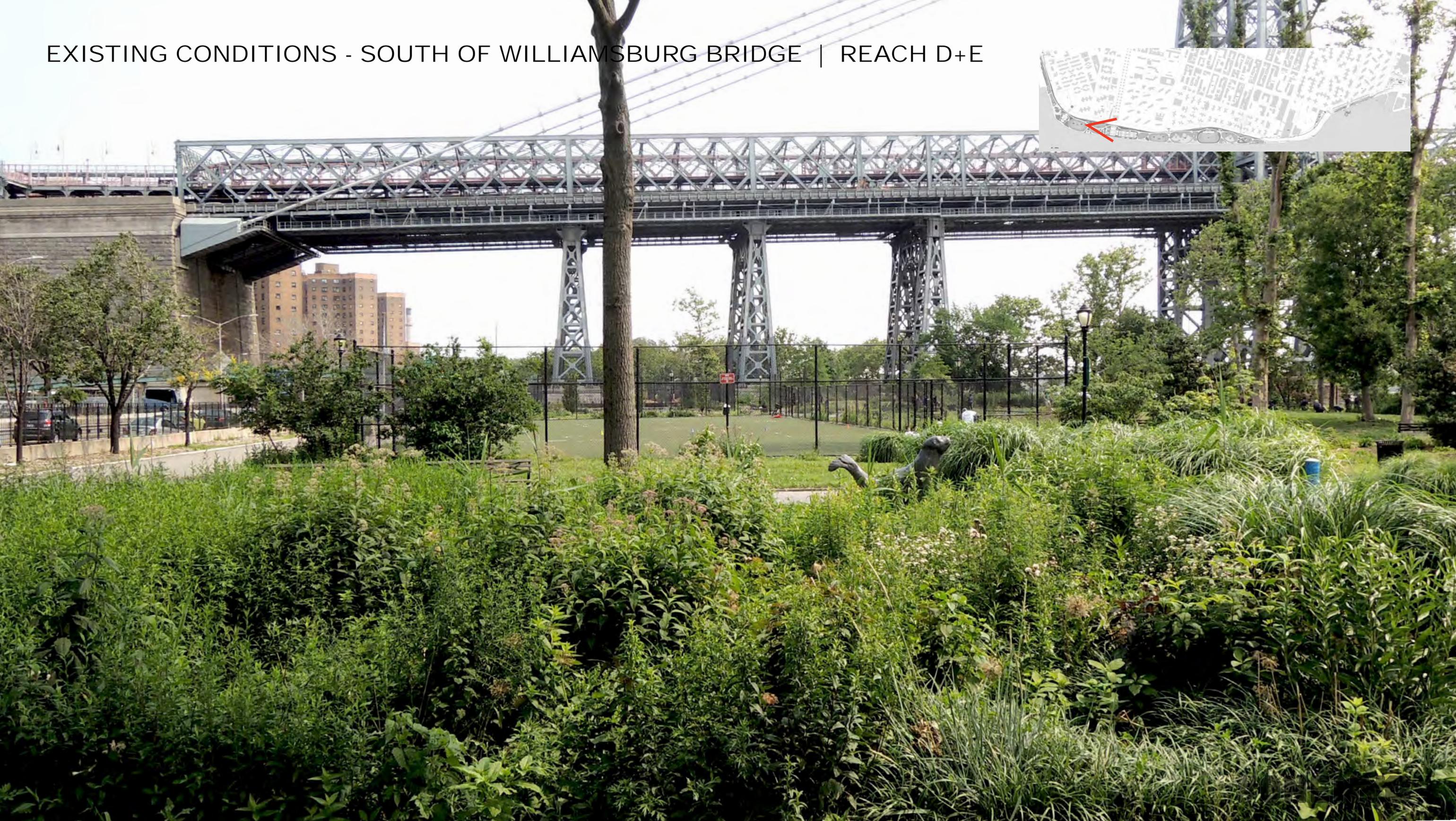
DRAFT



Note: Rendering depicts condition 15 years post-completion in a holiday scenario.



EXISTING CONDITIONS - SOUTH OF WILLIAMSBURG BRIDGE | REACH D+E



DRAFT



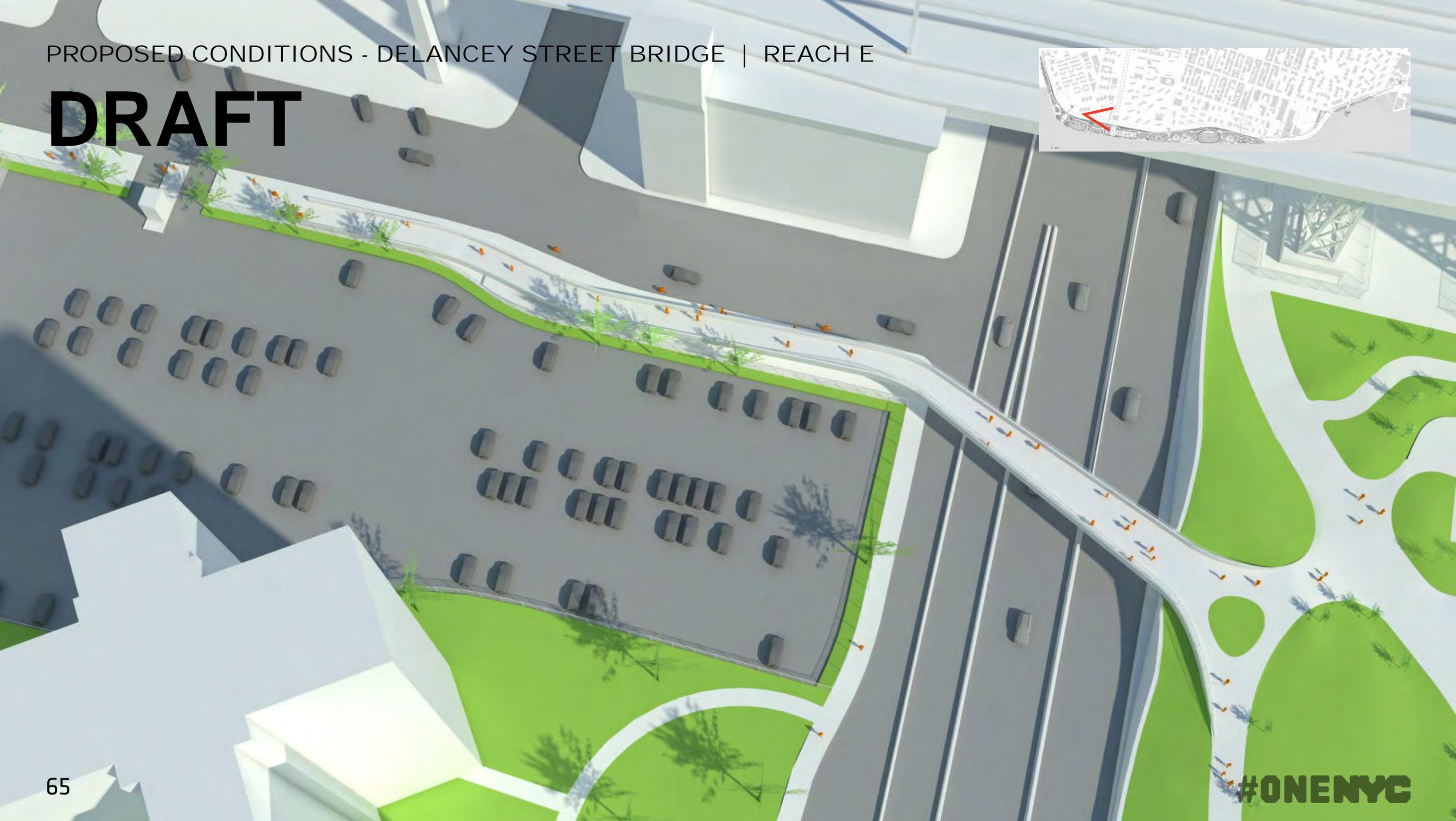
Note: Rendering depicts condition 15 years post-completion.



EXISTING CONDITIONS - DELANCEY STREET BRIDGE | REACH E



DRAFT



EXISTING CONDITIONS - DELANCEY STREET BRIDGE



DRAFT

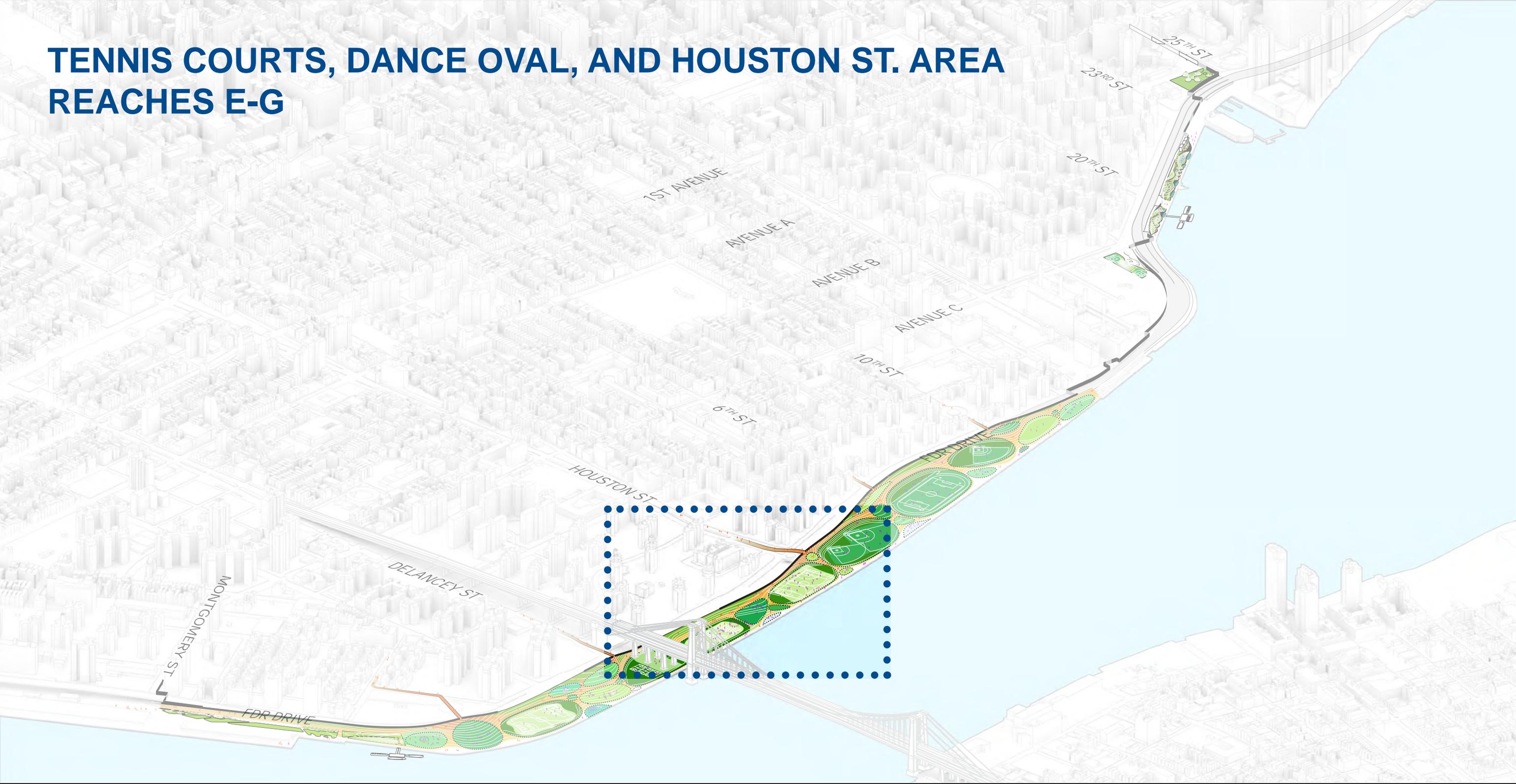


SIDEWALK
6.6'

BRIDGE
12'



TENNIS COURTS, DANCE OVAL, AND HOUSTON ST. AREA REACHES E-G

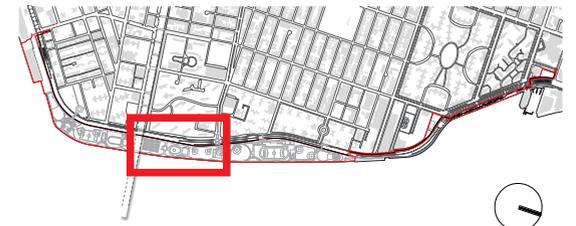


EXISTING CONDITIONS - REACHES E-G



LEGEND

- SPORTS FIELD - SYNTHETIC TURF
- GRASSED / PLANTED AREA
- EXISTING TREES
- FENCE

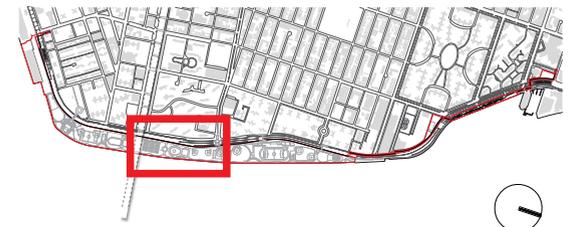


REVISED CONCEPT PLAN - REACHES E-G



LEGEND

- SPORTS FIELD - SYNTHETIC TURF
- LAWN AREA
- PLANTED AREA
- EXISTING TREES
- FLOODWALL
- FENCE
- CON-ED TUNNEL / TROUGH
- LIMIT OF WORK
- REGULATORS



EXISTING CONDITIONS - VIEW FROM BARUCH HOUSING GROUND FLOOR REACH F



PROPOSED CONDITIONS - VIEW FROM BARUCH HOUSING GROUND FLOOR
REACH F

DRAFT



NOTE: DRAFT ILLUSTRATIVE SKETCH
FINISHES/MATERIALS/DETAILING TO BE DEVELOPED
IN FINAL DESIGN

EXISTING CONDITIONS - VIEW FROM BARUCH HOUSING SECOND FLOOR



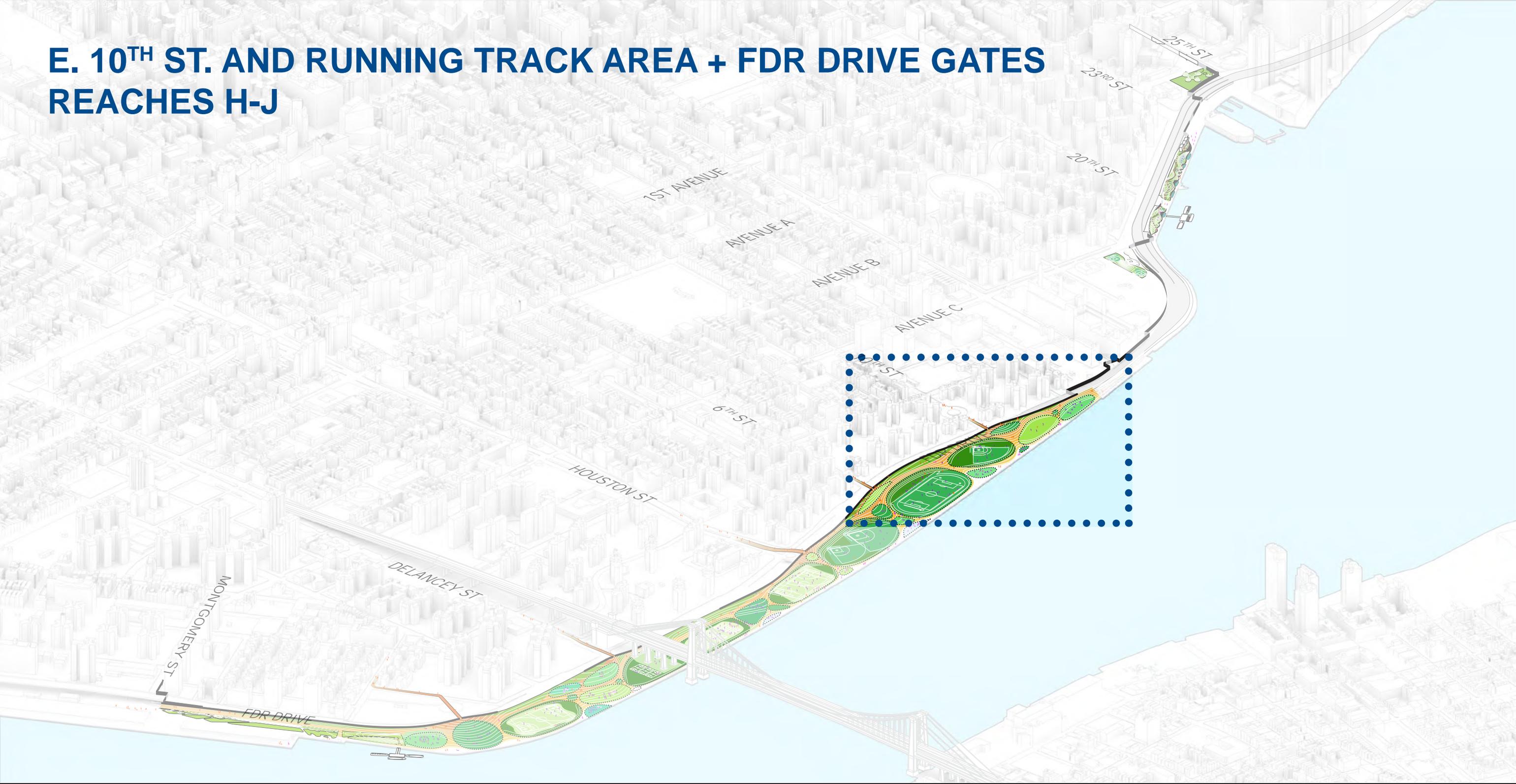
PROPOSED CONDITIONS - VIEW FROM BARUCH HOUSING SECOND FLOOR

DRAFT

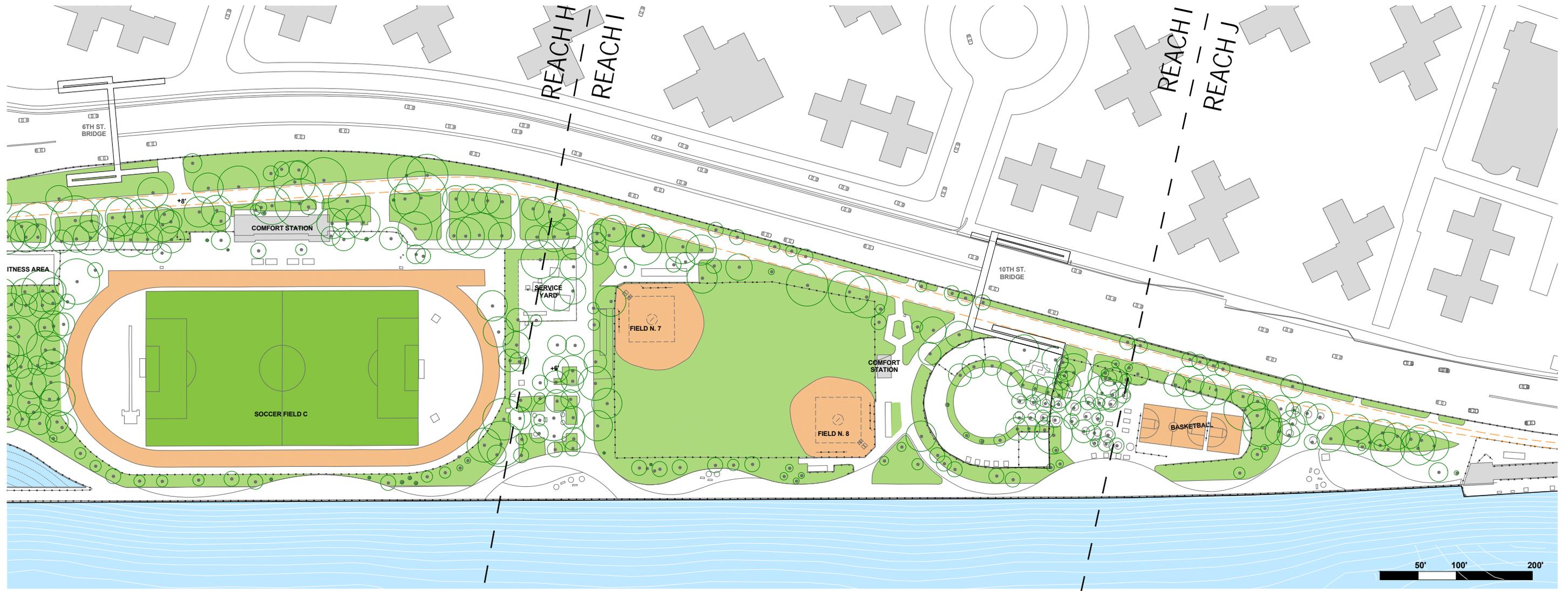


NOTE: DRAFT ILLUSTRATIVE SKETCH
FINISHES/MATERIALS/DETAILING TO BE DEVELOPED
IN FINAL DESIGN

E. 10TH ST. AND RUNNING TRACK AREA + FDR DRIVE GATES REACHES H-J

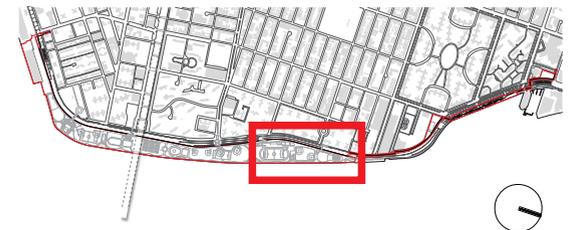


EXISTING CONDITIONS - REACHES H-J



LEGEND

- SPORTS FIELD - SYNTHETIC TURF
- GRASSED / PLANTED AREA
- EXISTING TREES
- FENCE

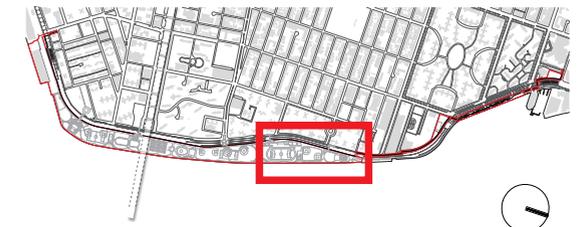


REVISED CONCEPT PLAN - REACHES H-J

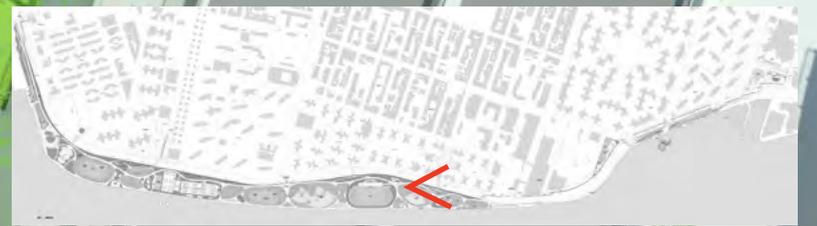


LEGEND

- | | | |
|-------------------------------|------------------------|------------|
| SPORTS FIELD - SYNTHETIC TURF | FLOODWALL | REGULATORS |
| LAWN AREA | FENCE | |
| PLANTED AREA | CON-ED TUNNEL / TROUGH | |
| EXISTING TREES | LIMIT OF WORK | |



EXISTING CONDITIONS - EAST 10TH ST. BRIDGE | REACH I



PROPOSED CONDITIONS - EAST 10TH ST. BRIDGE | REACH I

DRAFT



DRAFT

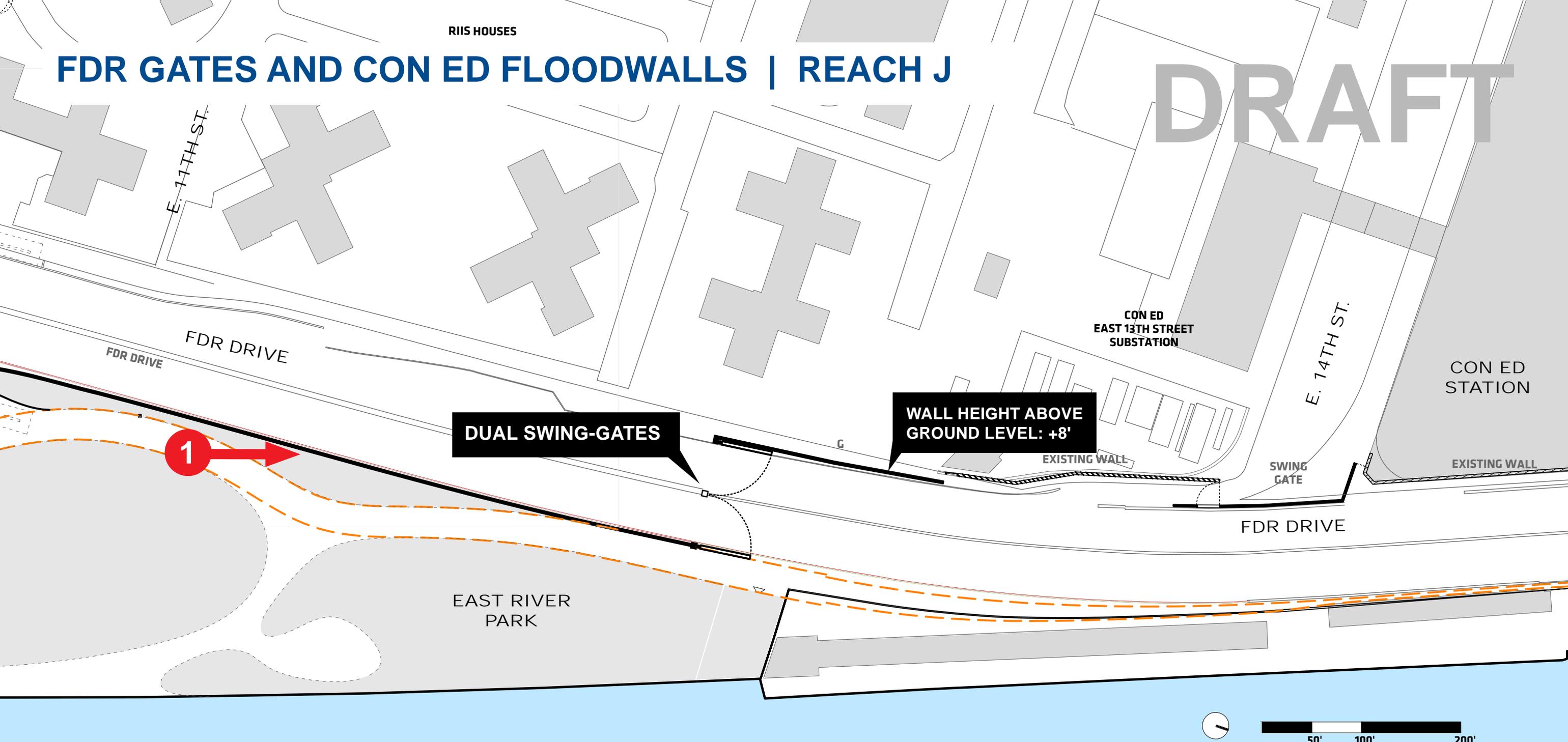


DESIGN UNDER DEVELOPMENT.
EXTERIOR CLADDING AND FINISH TO BE STUDIED



FDR GATES AND CON ED FLOODWALLS | REACH J

DRAFT



EXISTING CONDITIONS - FDR DRIVE GATE CROSSING | REACH J



PROPOSED CONDITIONS - FDR DRIVE GATE CROSSING | REACH J
GATES STORED

DRAFT

NOTE: DRAFT ILLUSTRATIVE SKETCH
FINISHES/MATERIALS/DETAILING TO BE DEVELOPED
IN FINAL DESIGN



PROPOSED CONDITIONS - FDR DRIVE GATE CROSSING | REACH J
GATES CLOSED

NOTE: DRAFT ILLUSTRATIVE SKETCH
FINISHES/MATERIALS/DETAILING TO BE DEVELOPED
IN FINAL DESIGN

DRAFT



PROPOSED CONDITIONS - FDR DRIVE GATE CROSSING | REACH J
STORM CONDITIONS

NOTE: DRAFT ILLUSTRATIVE SKETCH
FINISHES/MATERIALS/DETAILING TO BE DEVELOPED
IN FINAL DESIGN

DRAFT



1. Project Status
2. Project Area 1 - Inputs and Considerations
3. Concept Design Update
- 4. Next Steps/Discussion**

NEXT STEPS

Community Engagement and Revised Concept Roll-Out

CB3/CB6 Waterfront Task Force Meeting

January 2017

(Date/Time/Location, TBD)

Community Board Meeting(s) – related to PDC Design Review

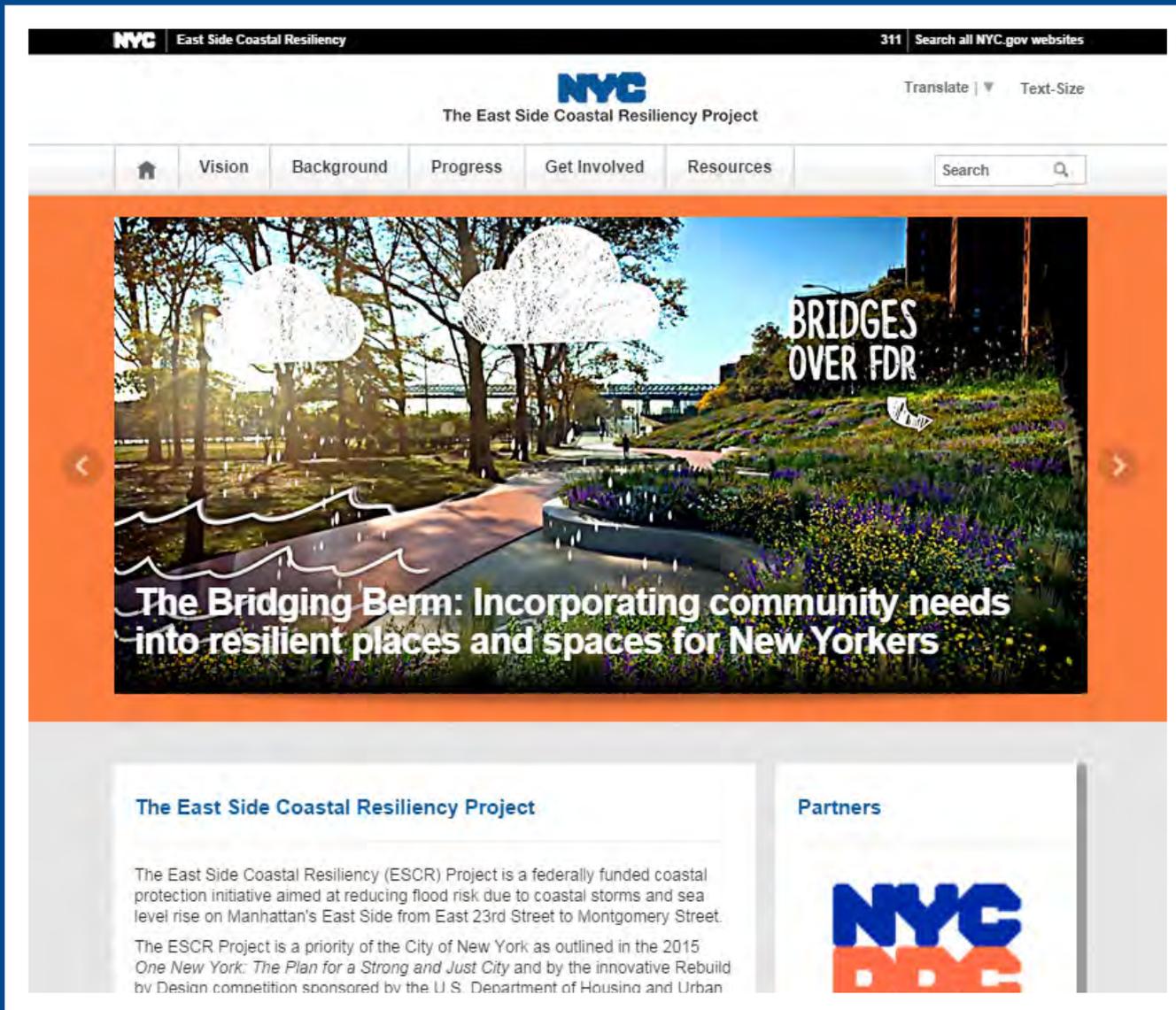
Late-Winter/Early-Spring (Dates/Times/Locations, TBD)

CB3/CB6 Waterfront Task Force Meeting

Spring 2017 (Date/Time/Location, TBD)

Ongoing Stakeholder Outreach/Meetings

Winter/Spring 2017



Visit Us!
www.nyc.gov/escr

E-Mail: nycresiliency@cityhall.nyc.gov

Twitter: [@NYClimate](https://twitter.com/NYClimate)

Q+A/Breakout