

NYC DOT | NYC PARKS

East Village / Lower East Side Waterfront Access Study

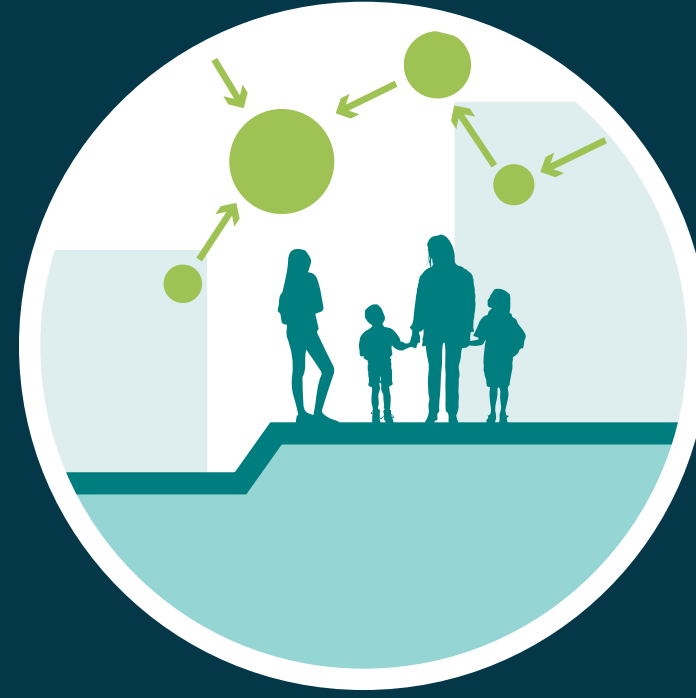
MARCH 2024



**GREEN
INFRASTRUCTURE**



**IMPROVED PEDESTRIAN +
BIKE SPACES**



**COMMUNITY
ANCHORS**



**CONNECTIONS
TO THE PARK**



Project Team

This study was led by the New York City Department of Transportation (NYC DOT) with support from the New York City Department of Parks and Recreation (NYC Parks) and a consultant team led by Arcadis with support from One Architecture & Urbanism, Starr Whitehouse, Sam Schwartz Engineers, TCT, and Matrix New World.

The process integrated community input into recommendations throughout the process by gathering feedback from public workshops, mobile events, surveys, and focus groups. The study team also coordinated with other city agencies to gather feedback and understand feasibility and implementation considerations.

This study was funded by the Capital Project Scope Development (CPSD) program, which is managed by the New York City Office of Management and Budget.

CITY TEAM

- New York City Department of Transportation
- New York City Department of Parks and Recreation

CONSULTANT TEAM

- Arcadis
- One Architecture & Urbanism
- Starr Whitehouse Landscape Architects and Planners
- Sam Schwartz Engineers
- Toscano Clements Taylor
- Matrix New World



STARR WHITEHOUSE
Landscape Architects
and Planners PLLC



Glossary of Terms

Constructability

A relative measure of how easily and efficiently a physical project can be built or constructed.

Curb extension

Curb extensions move the line of the sidewalk curb to widen the sidewalk space. This can be done at crosswalks to reduce the crossing distance for pedestrians or to provide space for amenities like seating, plantings, bike stations, and other sidewalk features.

East Side Coastal Resiliency project

The East Side Coastal Resiliency (ESCR) Project is a coastal protection initiative that will reduce flood risk due to coastal storms and sea level rise in the study area and on Manhattan’s East Side from East 25th Street to Montgomery Street. The East Village / Lower East Side Waterfront Access study builds off the improvements being made through ESCR.

Engagement & outreach

This refers to the process of establishing channels and opportunities for two-way communication between the study team and interested residents, community leaders, and other members of the general public. The study team hears input from the community, incorporates it into the study, and reports out on findings and recommendations in an iterative process.

Frontage road or service road

In this study, these terms are used to refer to the roadway adjacent to the FDR Drive, which includes South Street and the local road adjacent to the FDR Drive that runs south from East 10th Street to Cherry Street.

Green infrastructure

Green infrastructure practices manage runoff from rainfall through nature-based features that incorporate vegetation and / or infiltration to allow water to flow to underlying soil or slow down the movement of water into the sewer system. Examples of green infrastructure include rain gardens and permeable pavement.

Improvement concept

In this study, improvement concept refers to a preliminary sketch or set of recommendations that was considered for addressing the challenges in the study area.

Mobility

One of the key themes of the study, referring to the ability for people to move around the neighborhood easily and safely.

Resilience

In the context of climate adaptation planning, the ability to prepare for, recover from, and adapt to impacts of climate-related events such as flooding, storms, and extreme heat.

Upland enhancements

“Upland enhancements” is one of the improvement concepts evaluated for this study and refers to improvements such as traffic calming, plantings, green infrastructure, and other improvements to the pedestrian realm in the areas leading up to the FDR Drive and the waterfront.

Acronyms & Abbreviations

ADA

Americans with Disabilities Act

BOS

Bottom of structure

BMCR

Brooklyn Bridge-Montgomery Coastal Resilience project

EDC

NYC Economic Development Corporation

ERP

East River Park

ESCR

East Side Coastal Resiliency project

FDNY

Fire Department City of New York

FDR Drive

Franklin D. Roosevelt East River Drive

M&O Area

Maintenance & Operations area

NAVD88

North American Vertical Datum of 1988

NYC DOT

New York City Department of Transportation

NYC DEP

New York City Department of Environmental Protection

NYC EDC

New York City Economic Development Corporation

NYCHA

New York City Housing Authority

NYC Parks

New York City Department of Parks & Recreation

NYC PDC

New York City Public Design Commission

NYC DDC

New York City Department of Design Development & Construction

NYPD

New York Police Department

NYS DOT

New York State Department of Transportation

TOD

Top of deck

USDOT

United States Department of Transportation

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SECTION 1

Executive Summary



The East Village / Lower East Side Waterfront Access Study presents a vision for green infrastructure, improved pedestrian and bike spaces, community anchors, and connections to East River Park. NYC DOT and NYC Parks created this vision in collaboration with community stakeholders from across the East Village and Lower East Side. This vision expands upon the improvements being made as part of the East Side Coastal Resiliency Project to create a safer and greener environment along the FDR Drive corridor.

Enhancing East River Connectivity

WATERFRONT ACCESS STUDY

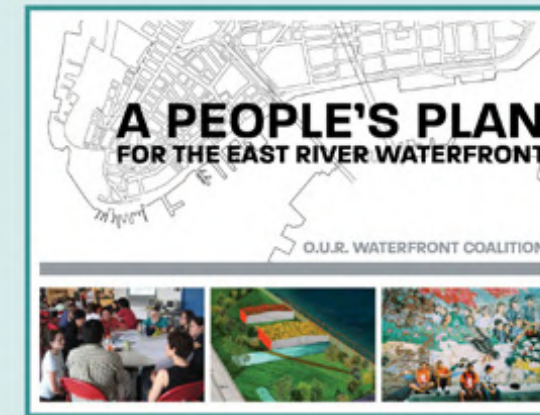
This study builds upon past and ongoing planning and projects in the East Village and Lower East Side to identify opportunities for enhancing mobility, accessibility, open space, sustainability, and resilience from Montgomery Street to 14th Street along the FDR Drive corridor. The East Village and Lower East Side are diverse, dense areas located across from the 57-acre East River Park, which is a beloved community and recreational space for the community and many New Yorkers.

Community stakeholders, elected officials, and city agencies have been engaged in planning along this waterfront for the last 20 years. Since the impacts of Hurricane Sandy in 2012, the park and waterfront have been undergoing transformations through several projects to protect the waterfront and adjacent neighborhoods. The East Side Coastal Resiliency (ESCR) project, which will provide flood protection for the neighborhood and reconstruct East River Park, will also achieve many of the goals of previous plans for a greener, more connected waterfront. In addition to reimagining East River Park, the ESCR project is enhancing three existing pedestrian bridges and planting over 1,000 trees in the neighborhood.

This waterfront access study was envisioned by community stakeholders and elected leaders as an extension of these improvements and an opportunity to further realize enhancements that community members have been advocating for over the past 20 years. The study was designed to assess the feasibility, constructability, and desirability of a range of improvement concepts to address community priorities identified through previous efforts and continued dialogue through this study.

The resulting vision presents approaches that NYC DOT and partners may pursue in the future through the city capital planning process. The vision is an outcome of a collaborative process between community stakeholders, city agencies, and the consultant planning and design team to develop projects that are achievable today.

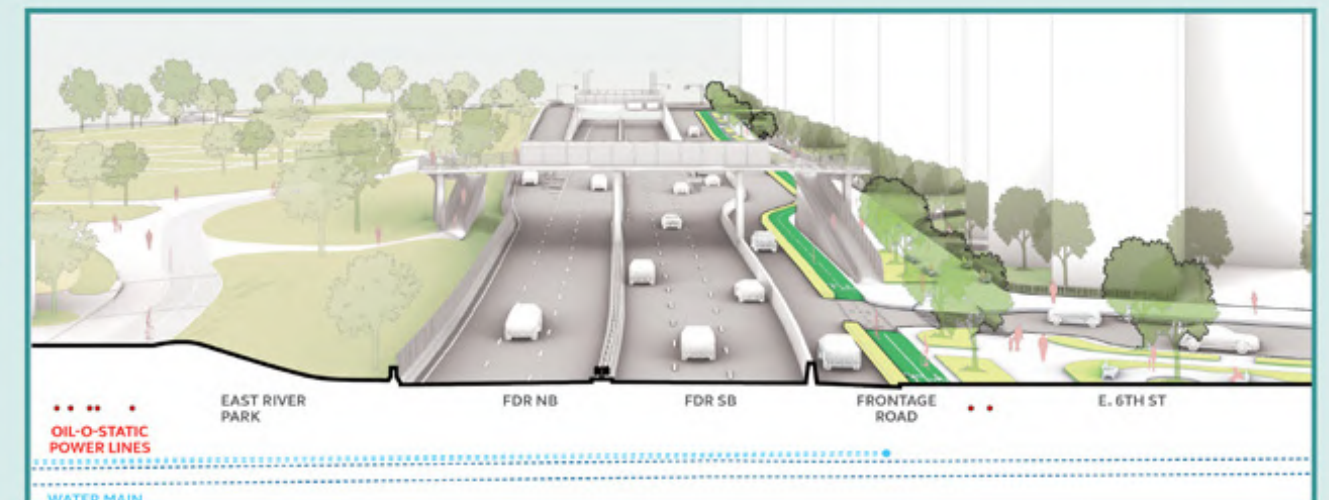
COMMUNITY WATERFRONT PLANS (2004 – 2012)



HURRICANE SANDY, REBUILD BY DESIGN, EAST SIDE COASTAL RESILIENCY PROJECT (2012– PRESENT)



EAST VILLAGE / LOWER EAST SIDE WATERFRONT ACCESS STUDY (2023 – 2024)



Study Process

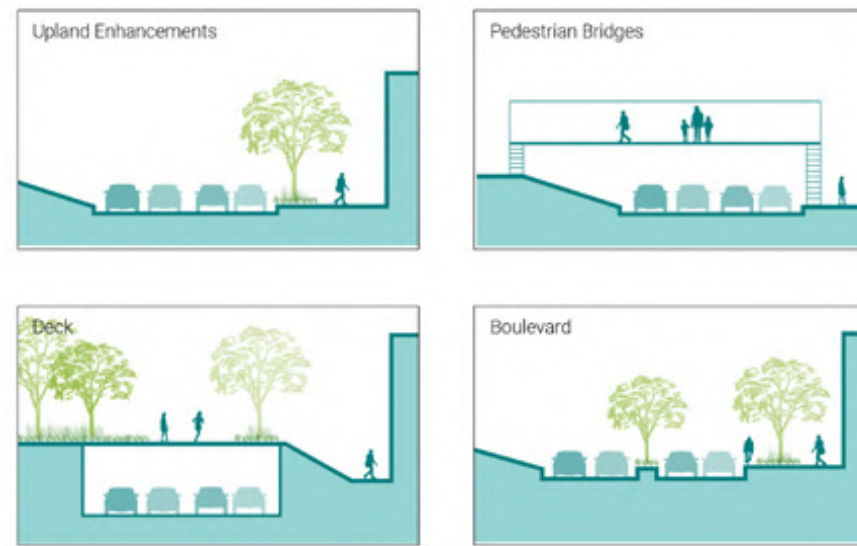
WATERFRONT ACCESS STUDY

COMMUNITY CONCERNS



- Before developing any recommendations, the study team listened to the community to hear concerns around enhancing mobility, accessibility, open space, and resilience in the context of the improvements being made through the East Side Coastal Resiliency project.
- The team gathered input through a series of meetings and other outreach events. The feedback set the focus for feasibility studies in the next stage.

FEASIBILITY STUDIES



- Based on identified concerns, the team created potential layouts and plans for four improvement concepts: upland enhancements, pedestrian bridges, decking over the FDR, and creating a boulevard condition similar to the West Side Highway in Manhattan. The team assessed the feasibility, constructability, and desirability of each concept to understand pros and cons of the different approaches. This assessment considered factors such as space constraints, disruption during and after construction, circulation impacts and benefits, and construction and maintenance costs.
- The findings of the feasibility studies led the team to concentrate on upland enhancements and pedestrian bridges due to technical limitations with the deck-over and boulevard improvement concepts. NYC DOT did not pursue further design of the deck and boulevard approaches as part of this study.

RECOMMENDED IMPROVEMENT CONCEPTS



- Focusing on upland enhancements and pedestrian bridges, the team created a series of recommended project packages for addressing community concerns.
- The team gathered feedback on draft layouts and alternatives and incorporated feedback about community preferences into the final recommendations presented in this report.
- The recommendations are conceptual in nature. Future implementation would involve identification of funding, additional community engagement, additional analyses, and detailed design by NYC DOT.

Study Vision

WATERFRONT ACCESS STUDY

The shared vision for the study area is greener, walkable, bikeable, and interconnected. While East River Park is an invaluable park and the largest open space in Lower Manhattan, the park is separated from adjacent neighborhoods by the FDR Drive, a critical north-south regional connector. The FDR Drive corridor is dominated by gray and concrete, and the division of space leads to conflicts between walkers, runners, bikers, and vehicles.

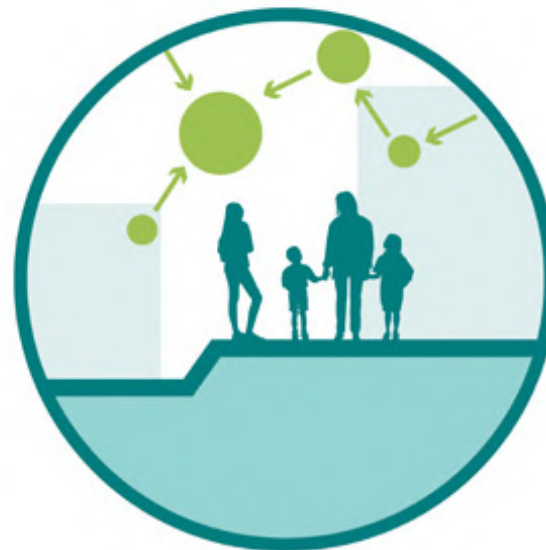
To advance the shared vision, the study recommendations consist of a suite of streetscape enhancements, pedestrian mobility improvements, new pedestrian bridges, green infrastructure, bike lane improvements, and new roadway configurations. These enhancements are divided into the four pillars shown to the right. The improvements shift the use of space within the corridor, increase greenery and biodiversity, and add new and improved connections to East River Park and the waterfront. The recommendations build upon and support the changes being made through the ESCR project by promoting connectivity to the new East River Park and creating a more vibrant environment for everyone accessing the park and the waterfront.



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THE PARK**

Study Vision

WATERFRONT ACCESS STUDY

OVERALL PLAN DIAGRAM



Public Engagement

COMMUNITY ENGAGEMENT SUMMARY

This study was launched by NYC DOT and NYC Parks in direct response to community concerns regarding access to East River Park and the quality of public spaces along the FDR corridor following ESCR. For this reason, the community engagement process was designed to be flexible and responsive to community input and aimed to hear from the diversity of perspectives in the neighborhoods. The process was also sensitive to the fact that significant construction is underway with the rebuilding of East River Park. This study engaged residents and organizations at the earliest stages of planning for waterfront connections and public realm improvements to hear community members' concerns about potential projects that would further impact the neighborhood.

The engagement process employed a variety of methods to reach community members. These included virtual and in-person public workshops, mobile outreach, digital surveys, and focus group discussions.

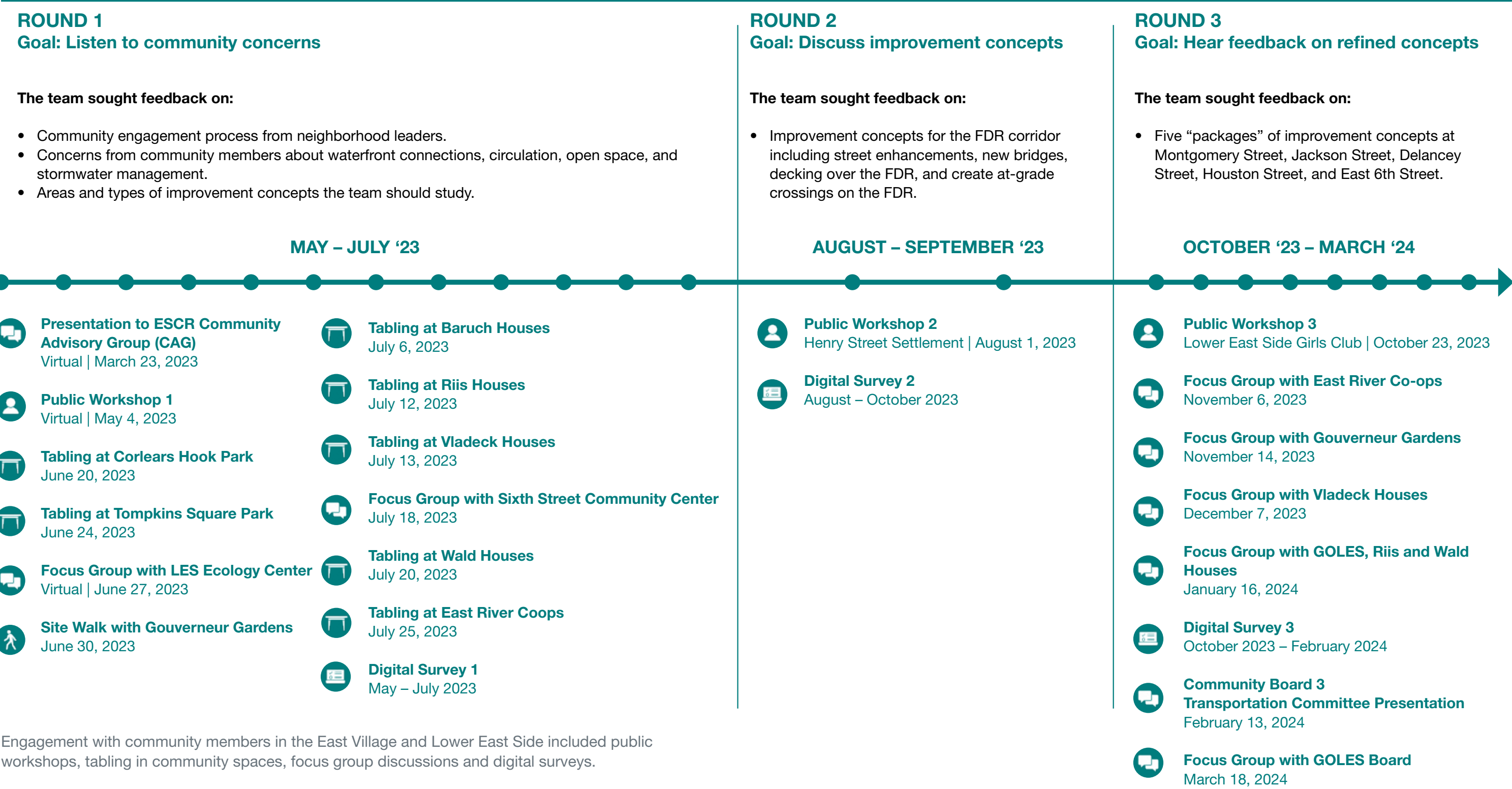


The team engaged with a total of approximately 875 people through public workshops, tabling in community spaces, focus group discussions and digital surveys.



Public Engagement Approach

SCHEDULE OF ENGAGEMENT ACTIVITIES



Engagement with community members in the East Village and Lower East Side included public workshops, tabling in community spaces, focus group discussions and digital surveys.

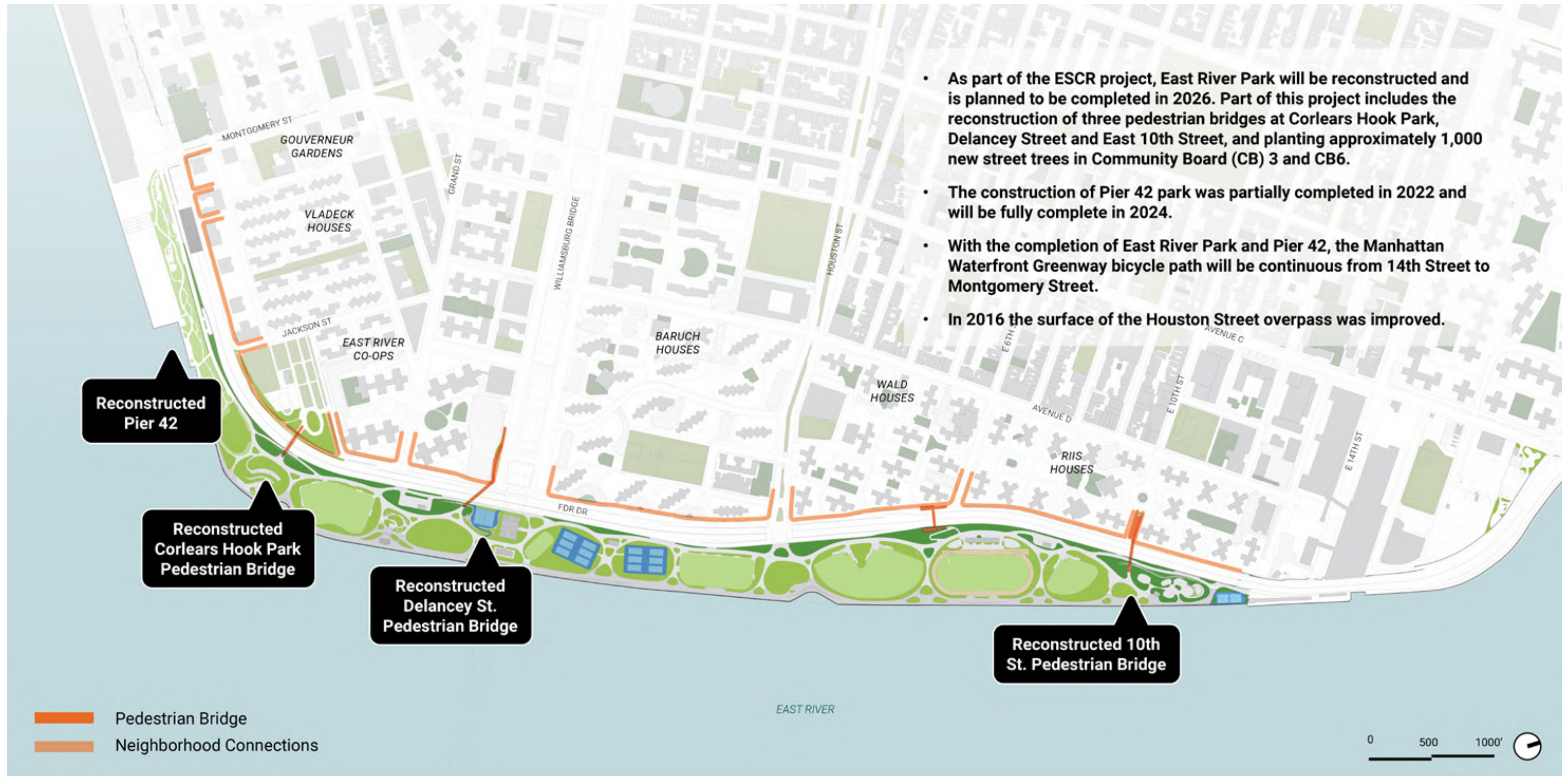
Site Assessment

EXISTING CONDITIONS | PRE-ESCR



Site Assessment

FUTURE CONDITIONS | ESCR 2016 – 2026



- As part of the ESCR project, East River Park will be reconstructed and is planned to be completed in 2026. Part of this project includes the reconstruction of three pedestrian bridges at Corlears Hook Park, Delancey Street and East 10th Street, and planting approximately 1,000 new street trees in Community Board (CB) 3 and CB6.
- The construction of Pier 42 park was partially completed in 2022 and will be fully complete in 2024.
- With the completion of East River Park and Pier 42, the Manhattan Waterfront Greenway bicycle path will be continuous from 14th Street to Montgomery Street.
- In 2016 the surface of the Houston Street overpass was improved.

Feasibility Studies

STUDY PROCESS

OVERVIEW

This study provided an opportunity to review ideas explored during the Rebuild by Design competition in 2013 and ESCR that were ultimately not incorporated into the final design of ESCR. This included a review of the feasibility of ideas such as decking over the FDR Drive and making the FDR Drive into a boulevard with at-grade pedestrian connections (similar to the West Side Highway), as well as more conventional approaches, such as streetscape enhancements and additional pedestrian bridges.

The feasibility studies were selected based on feedback from community members that was received during Public Workshop #1. Details on the feasibility studies are provided in Section 4: Feasibility Studies. For each improvement concept, the study team developed conceptual plans and high level cost estimates for the study area, determined feasibility based on site conditions, and evaluated desirability and constructibility using evaluation criteria that were confirmed with the community in Public Workshop #1. As described further in Section 2: Site Assessment, the team used the projected conditions following completion of the ESCR project as the basis for “existing” conditions for this study’s recommendations, since ESCR construction was underway at the time of the study.

PURPOSE

The team developed preliminary improvement concepts to improve access, mobility, and open space along the FDR Drive corridor and evaluated, at a high level, the feasibility of each concept. The study team evaluated four improvement concepts (listed on the next page) that were identified based on prior proposals, the site assessment, and Round 1 of engagement. The goal of analyses was to highlight opportunities, understand technical constraints, identify trade-offs for each concept, and outline next steps for the study process.

SCOPE

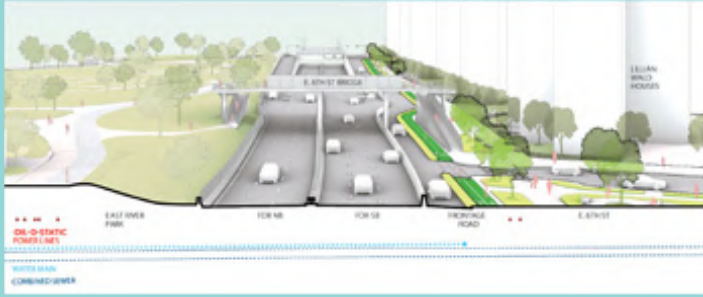

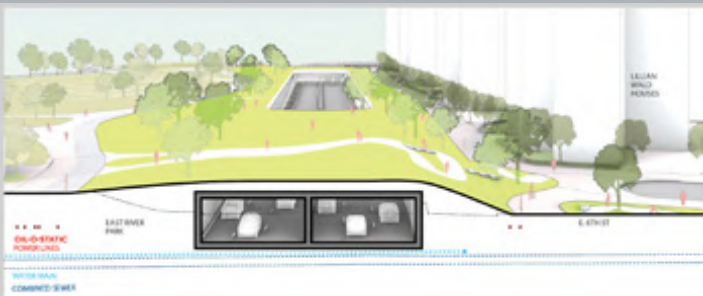

This process involved developing plans and maps for each concept to understand feasibility and gather feedback through engagement. The planning considered how the improvements would integrate with new conditions following completion of ESCR, Brooklyn Bridge-Montgomery Coastal Resilience (BMCR), and Pier 42 construction.

Analyses for the feasibility studies included:

- Exploring precedent projects, or examples of similar projects that have been completed elsewhere in New York City or in other areas.
- Identifying preliminary locations for siting improvements based on availability of space, avoiding conflicts with utilities, and integration with the existing street grid and open space connections.
- Assessing constructibility based on precedents, technical considerations, and construction timeframes.
- Developing conceptual, rough order-of-magnitude cost estimates.
- Understanding trade-offs between the improvement concepts using evaluation criteria that were refined based on community feedback.

Feasibility Studies

CONCLUSIONS

	CONCEPT	DESCRIPTION	CONCLUSIONS
ADVANCED IN ANALYSIS	UPLAND ENHANCEMENTS 	<p>Mobility and greening interventions within the existing right-of-way (sidewalks and streets) to increase vegetated and landscaped spaces, improve circulation, and provide additional benefits associated with green infrastructure.</p>	<ul style="list-style-type: none"> Creates localized benefits and improves the pedestrian realm. Implementation would involve relatively little construction as compared to the other concepts, resulting in lower disruption.
	PEDESTRIAN BRIDGES 	<p>Expand on ESCR's network of accessible pedestrian bridges by adding additional bridges and reconstructing existing bridges to the ESCR standard.</p>	<ul style="list-style-type: none"> Addresses community desire to see more frequent connections to the waterfront and improves accessibility to East River Park and Pier 42 Park. Coordination will be needed to seamlessly integrate bridge landings into the park and in adjacent NYCHA communities.
NOT ADVANCED FURTHER	DECK-OVER 	<p>Covering the FDR Drive in the study area with a continuous deck or smaller deck segments and creating green space on top of deck to strengthen the connections between the park and adjacent residential areas.</p>	<ul style="list-style-type: none"> The lack of space between the parkway, the park, and nearby residential buildings makes this concept challenging. Construction would create significant disruption to the improvements being made through ESCR. Found infeasible due to space constraints; would result in significant disruption/displacement of NYCHA and other adjacent residences.
	BOULEVARD 	<p>Transforming the FDR Drive to a boulevard, similar to the West Side Highway, by creating signalized intersections, crossings, medians, and new green space.</p>	<ul style="list-style-type: none"> Converting the FDR Drive to a boulevard could result in increased congestion and pedestrian exposure to more vehicles and pollution on their way to the waterfront. Insufficient right-of-way for effective boulevard. A boulevard concept would need to be studied in the context of the broader FDR Drive corridor, not just within the study area.

The deck-over and boulevard approaches were not studied further following completion of the feasibility stage of this study.

Recommended Improvement Concepts

STUDY PROCESS

OVERVIEW

The East Village / Lower East Side Waterfront Access Study recommends five packages of improvement concepts. These improvement concept packages are refinements of the upland enhancements and pedestrian bridges approaches that were studied in the feasibility section of this report. The packages address the four themes presented in the study vision – green infrastructure, pedestrian and bicycle safety, community anchors, and waterfront connections. In addition, the packages present improvements that NYC DOT, in coordination with other city agencies, could seek funding for and implement in stages.

The improvement concepts are presented in Section 5: Recommended Improvement Concepts alongside community input that the team heard through stakeholder meetings, workshops, and surveys. In addition, some of the concepts offer alternative approaches for future design of the improvement. The intent of reporting on community input alongside the conceptual designs is to provide a point of reference on opportunities and concerns to be considered if NYC DOT were to advance any of these packages.

The study has focused its recommendations on improvement concepts that are feasible for NYC DOT and other agencies to realize in the near-to-medium-term. The packages present a scope of work, high-level cost estimate, and next steps for implementation. The packages emphasize feasibility to provide an opportunity for timely implementation and community benefit.

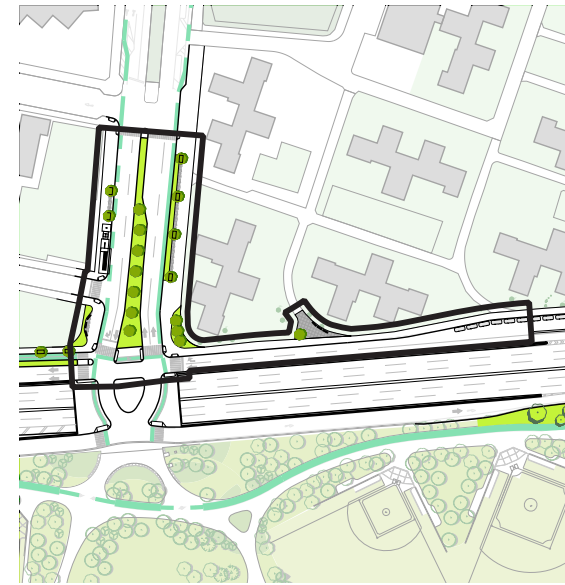
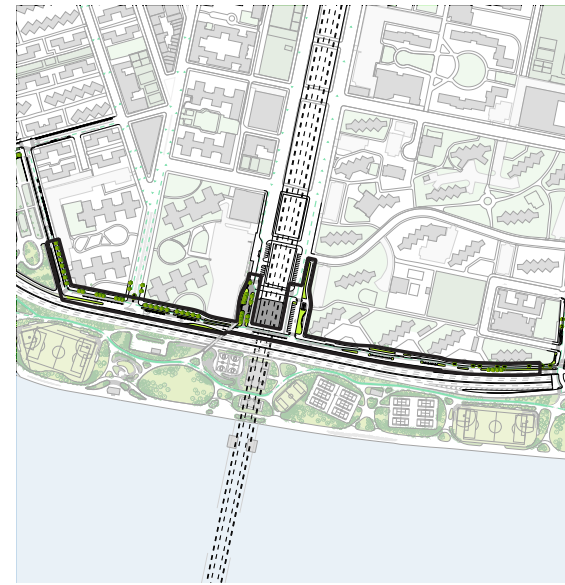
OVERALL PLAN DIAGRAM



This plan shows the overall proposed recommendations throughout the FDR corridor from Montgomery Street to E.14th Street.

Recommended Improvement Concepts

CAPITAL PROJECTS



1 – MONTGOMERY STREET	2 – JACKSON STREET	3 – DELANCEY STREET	4 – HOUSTON STREET	5 – EAST 6TH STREET
SCOPE OF WORK <ul style="list-style-type: none"> Green infrastructure Streetscape improvement Bike connection improvement 	SCOPE OF WORK <ul style="list-style-type: none"> New pedestrian bridge Streetscape improvement 	SCOPE OF WORK <ul style="list-style-type: none"> Green infrastructure Streetscape improvement Bike connection improvement Shared street / pedestrian plaza 	SCOPE OF WORK <ul style="list-style-type: none"> Streetscape improvement Bike connection improvement 	SCOPE OF WORK <ul style="list-style-type: none"> Pedestrian bridge replacement Green infrastructure Streetscape improvement
COST: \$12M – \$20M	COST: \$34M – \$56M	COST: \$27M – \$44M	COST: \$4M – \$6M	COST: \$73M – \$119M
NEXT STEPS <ul style="list-style-type: none"> Coordinate access improvements with Pier 42 and Basketball City projects. Further study of potential effects on traffic of closing the slip lane under the FDR viaduct. Identification of maintenance partner or funding. 	NEXT STEPS <ul style="list-style-type: none"> Coordination with Pier 42 project for the riverside landing. Further study of potential effects on traffic of conversion of segment of Jackson Street to one-way. Identification of maintenance partner or funding. 	NEXT STEPS <ul style="list-style-type: none"> More detailed traffic analysis to confirm proposed roadway changes. More detailed analysis of parking, stormwater management opportunities, and coordination with NYC DEP. Identification of maintenance partner or funding. 	NEXT STEPS <ul style="list-style-type: none"> Detailed transportation analysis to understand potential effects of new crosswalk on traffic on the FDR Drive exit ramp. Identification of maintenance partner or funding. 	NEXT STEPS <ul style="list-style-type: none"> Coordination with ESCR project for park-side landing. Further study of potential effects on traffic of conversion of East 6th Street to one-way. Identification of maintenance partner or funding.

All cost estimates are preliminary and include design and construction costs.

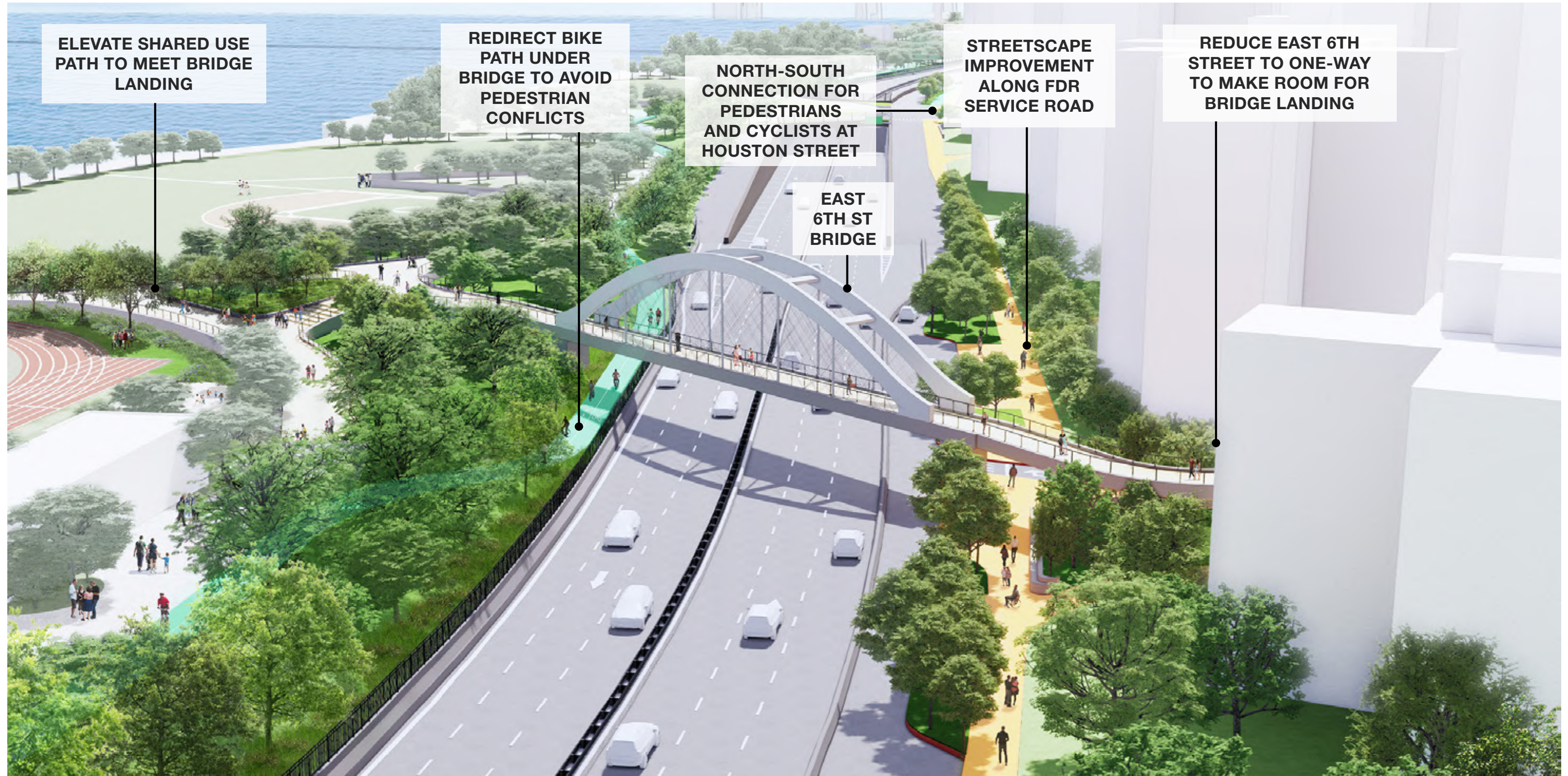
Montgomery Street to Delancey Street Improvements

IMPROVEMENT PACKAGES 1, 2, AND 3



Houston Street to East 6th Street Improvements

IMPROVEMENT PACKAGES 4 AND 5



Next Steps

IMPLEMENTATION AND FUNDING

These recommendations will guide future planning led by DOT with support from NYC Parks and other partners. This study is not tied to capital funding for implementation. The recommendations provided in this report are conceptual in nature and will require additional detailed analyses to advance implementation, such as:

- Detailed transportation analyses to confirm viability and safety of recommended changes to roadway configurations and geometries.
- Detailed design, such as geotechnical analyses and structural design for pedestrian bridges, design for green infrastructure improvements, confirmation of potential utility conflicts and siting, and refinement of placement of roadway and sidewalk features.
- Additional coordination between DOT, NYC Parks, and other partners such as NYCHA for jurisdictional approvals and to identify maintenance partners for the various improvements.
- Securing funding for implementation, which may involve pursuing federal grant funding for transportation and green infrastructure improvements.
- Assessing potential environmental impacts and securing permits.
- Additional community engagement as designs and construction timetables are developed.

FEDERAL TRANSPORTATION GRANT PROGRAMS

With the passage of the Bipartisan Infrastructure Law in 2021, there are historic amounts of federal funding available for many of the types of mobility improvements explored through this study. The law provides a total of \$550 billion in new spending over five years for roads, bridges, transit, rail, airports, ports, waterways, electric vehicles, and more. However, these programs are also highly competitive across the country, as the actual need far exceeds even this historic investment. While across the country, these programs provide hundreds of billions of

dollars, a given project in New York City should expect to receive much less. In addition, most funding programs require a local match. A few key programs that are well aligned with the goals of this study include the following:

Surface Transportation Block Grant Program

The Surface Transportation Block Grant Program (STBGP) is the largest and most flexible grant program for transportation projects. It provides funding to states and local governments through formula funds granted to states and can be used for a wide range of projects, such as highways, bridges, tunnels, transit, bike and pedestrian facilities, safety improvements, and environmental mitigation. The Bipartisan Infrastructure Law increases the funding for STBGP by \$40 billion over five years, bringing the total to \$110 billion. In Fiscal Year 2024 New York State was allocated \$578 million.

Rebuilding American Infrastructure with Sustainability and Equity Grants

The Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grants, formerly known as BUILD and TIGER Grants, are discretionary grants that support projects that have a significant local or regional impact. The RAISE Grants fund projects that improve safety, mobility, accessibility, environmental quality, and economic competitiveness. The Bipartisan Infrastructure Law provides \$7.5 billion for RAISE Grants over five years, an increase of \$3.75 billion from the previous level. For fiscal year 2024, the maximum grant award for capital and planning grants is \$25 million.

Reconnecting Communities and Neighborhoods Program

The Reconnecting Communities and Neighborhoods Program encompasses the Reconnecting Communities Pilot (RCP) and Neighborhood Access and Equity (NAE) discretionary grant programs,

which have similar goals of advancing community-centered transportation connection projects, with a focus on benefits to disadvantaged communities. RCP supports projects that remove, retrofit, or mitigate transportation infrastructure that creates barriers to community connectivity, mobility, and access. The Reconnecting Communities Program funds projects that address the negative impacts of highways, railroads, or other transportation facilities that divide neighborhoods, limit economic opportunities, or harm the environment and public health. The Bipartisan Infrastructure Law provides \$1 billion for the Reconnecting Communities Program over five years. The NAE program funds projects that improve walkability, safety, and affordable transportation access and was provided \$3.2 billion through the Inflation Reduction Act. In fiscal year 2023, there was no maximum award amount for capital projects under RCP or NAE.

Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation Program

The Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Competitive Grants are discretionary grants that support projects that improve the resilience and reliability of transportation infrastructure to extreme weather and natural disasters. The PROTECT Grants fund projects that enhance the preparedness, response, and recovery of transportation systems to floods, wildfires, earthquakes, hurricanes, and other hazards. The Bipartisan Infrastructure Law provides \$6.25 billion for PROTECT Grants over five years. In fiscal year 2023, \$848 million was available with no maximum award sizes.

SECTION 2

Community Engagement Summary

Community Engagement Approach

GOALS AND METHODS

The East Village and Lower East Side are large, vibrant, and diverse neighborhoods. Six distinct communities are located adjacent to the FDR, Pier 42, and East River Park. These include four NYCHA communities – Riis, Wald, Baruch, and Vladeck Houses – and two cooperative communities – Gouverneur Gardens and East River Coops. These communities have been engaged in planning for the waterfront for decades and, most recently, involved in the East Side Coastal Resiliency project (ESCR).

This study was launched by NYC DOT and NYC Parks in direct response to community concerns regarding access to East River Park and the quality of public spaces along the FDR corridor following ESCR. For this reason, the community engagement process was designed to be flexible and responsive to community input and aimed to hear from the diversity of perspectives in the neighborhoods. The process was also sensitive to the fact that significant construction is underway with the rebuilding of East River Park. This study engaged residents and organizations at the earliest stages of planning for waterfront connections and public realm improvements to hear community members' concerns about potential projects that would further impact the neighborhood.

The engagement process employed a variety of methods to reach community members. These included virtual and in-person public workshops, mobile outreach, digital surveys, and focus group discussions. Community feedback was sought in three rounds:

Round 1: Hear community concerns and seek feedback on what types of improvements the design team should study. Community members asked that the team study the feasibility of four different concepts, including street enhancements, decking over the FDR, creating new bridges, and creating at-grade crossings like the West Side Highway.



Round 2: Seek feedback on the four improvement concepts to understand concerns about pedestrian and bicycle safety, open space opportunities, parking and vehicular circulation, and construction and environmental impacts. At this stage, the team shared that the study would focus on street enhancements and new bridges and deck-over and boulevard concepts would not be studied by NYC DOT further.

Round 3: Discuss draft concept improvements for five areas along the FDR and understand community concerns related to circulation, park access, traffic impacts, and construction.



Community feedback on the draft final improvement concepts is included in the design section of this report. It should be noted that the team also heard important feedback and concerns related to issues for which developing solutions was out of the scope of this study. These include noise, air quality, inland traffic impacts, and public transportation routing. While addressing air quality was not the primary focus of this study, many of the green infrastructure improvements included in the recommended improvement concepts would help improve air quality. These concerns are noted throughout this report.

Community Engagement Approach

SCHEDULE OF ENGAGEMENT ACTIVITIES


ROUND 1

Goal: Listen to community concerns

The team sought feedback on:

- Community engagement process from neighborhood leaders.
- Concerns from community members about waterfront connections, circulation, open space, and stormwater management.
- Areas and types of improvement concepts the team should study.


MAY – JULY '23

 **Presentation to ESCR Community Advisory Group (CAG)**
Virtual | March 23, 2023

 **Public Workshop 1**
Virtual | May 4, 2023


 **Tabling at Corlears Hook Park**
June 20, 2023

 **Tabling at Tompkins Square Park**
June 24, 2023

 **Focus Group with LES Ecology Center**
Virtual | June 27, 2023

 **Site Walk with Gouverneur Gardens**
June 30, 2023

 **Tabling at Baruch Houses**
July 6, 2023

 **Tabling at Riis Houses**
July 12, 2023

 **Tabling at Vladeck Houses**
July 13, 2023

 **Focus Group with Sixth Street Community Center**
July 18, 2023

 **Tabling at Wald Houses**
July 20, 2023

 **Tabling at East River Coops**
July 25, 2023

 **Digital Survey 1**
May – July 2023

ROUND 2


Goal: Discuss improvement concepts

The team sought feedback on:

- Improvement concepts for the FDR corridor including street enhancements, new bridges, decking over the FDR, and create at-grade crossings on the FDR.

AUGUST – SEPTEMBER '23

 **Public Workshop 2**
Henry Street Settlement | August 1, 2023

 **Digital Survey 2**
August – October 2023

ROUND 3

Goal: Hear feedback on refined concepts

The team sought feedback on:

- Five “packages” of improvement concepts at Montgomery Street, Jackson Street, Delancey Street, Houston Street, and East 6th Street.

OCTOBER '23 – MARCH '24

 **Public Workshop 3**
Lower East Side Girls Club | October 23, 2023

 **Focus Group with East River Co-ops**
November 6, 2023

 **Focus Group with Gouverneur Gardens**
November 14, 2023

 **Focus Group with Vladeck Houses**
December 7, 2023

 **Focus Group with GOLES, Riis and Wald Houses**
January 16, 2024

 **Digital Survey 3**
October 2023 – February 2024

 **Community Board 3 Transportation Committee Presentation**
February 13, 2024

 **Focus Group with GOLES Board**
March 18, 2024

Engagement with community members in the East Village and Lower East Side included public workshops, tabling in community spaces, focus group discussions and digital surveys. The team engaged with a total of approximately 875 people.

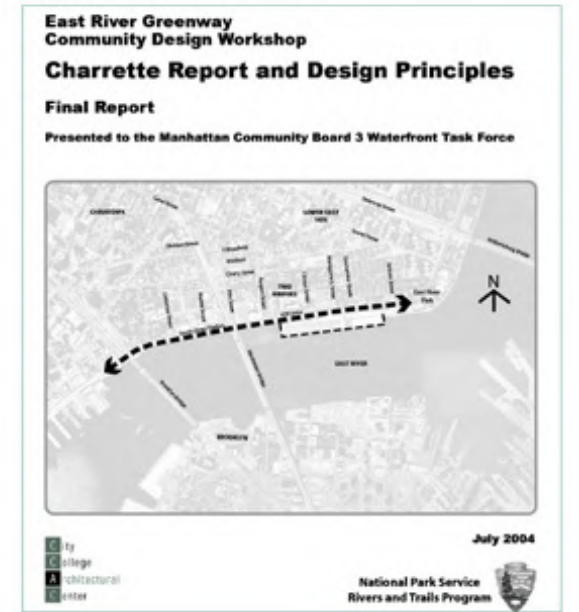
Previous Engagement

REVIEW OF EXISTING WATERFRONT PLANS

The East Village and Lower East Side have been highly active in engagement processes for planning projects for many years. In order to build on community engagement for prior waterfront planning efforts, the team reviewed plans created by Community Board 3, the O.U.R. Waterfront Coalition, and former Manhattan Borough President Scott Stringer. In addition, the team reviewed the community engagement reports from the East Side Coastal Resiliency project.

The team identified and mapped concerns and proposals that have been historically included within these plans. While many concerns have been addressed by NYC DOT and other city agencies through capital projects over the past two decades, the team identified the following overarching concerns:

- Lack of green and vegetation
- Conflicts between pedestrian and bicycle circulation
- Lighting
- Lack of signage
- Safety under the Williamsburg Bridge
- Safety on the East 10th Street Bridge (note: 10th Street Bridge is being replaced with a universally accessible bridge through ESCR)
- Stormwater management
- Noise
- Air quality



Visuals from past waterfront plans for the East Village / Lower East Side.

Previous Engagement

REVIEW OF COMMUNITY FEEDBACK FROM EXISTING WATERFRONT PLANS



Engagement Round 1

COMMUNITY CONCERNS AND CONFIRMING PROJECT SCOPE

ACTIVITIES

Engagement included a digital survey and meetings with community members to share information about the project, hear concerns about the study area, and ask what types of improvements community members wanted the team to consider. Activities included:

- Presentation to the East Side Coastal Resiliency Community Advisory Group (CAG)
- Meeting with community leaders to develop engagement approach
- Digital survey
- 3 focus group discussions / site walks
- 6 mobile engagement activities (tabling)
- 1 public workshop (virtual)

PUBLIC WORKSHOP #1

The public workshop discussion focused on concerns related to access and mobility, open space, health and environment, and stormwater management.

Twenty-two people attended the workshop. In addition, the team spoke with 120 community members during tabling activities in public spaces in the East Village and Lower East Side. Through mobile engagement, the team promoted Digital Survey #1, which received 663 responses. Feedback from these activities informed how the team approached studying improvement concepts for the entire corridor.



Engagement Round 1

COMMUNITY CONCERNS AND CONFIRMING PROJECT SCOPE

COMMUNITY CONCERNS

Access and Mobility

- Pedestrian safety and wayfinding
- Bicycle connections to East River Park
- Distances between pedestrian bridges
- Universal accessibility
- Access to public transportation
- Impacts of FDR traffic on neighborhood

Open Space

- Additional trees and green
- Lighting
- Biodiversity and native plants

Health and Environment

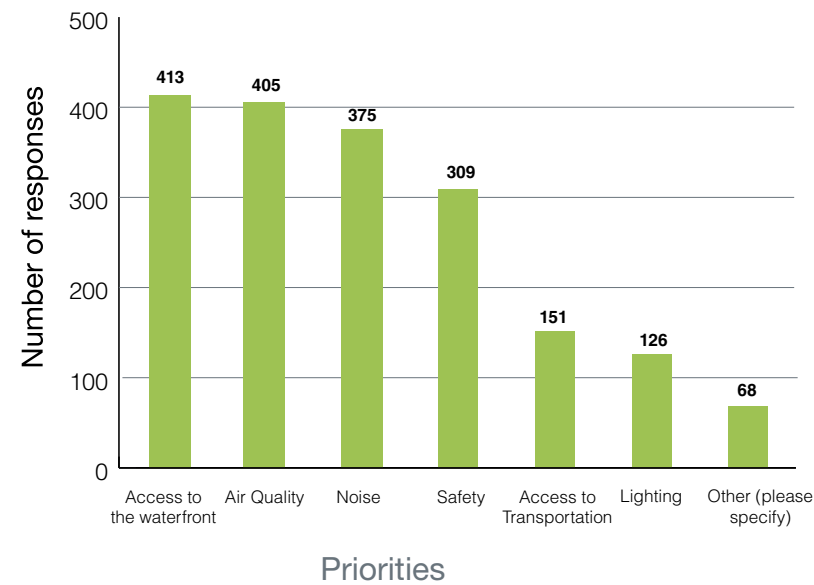
- Noise and air quality
- Lack of tree canopy and heat island
- Environmental impact of car dependence

Stormwater Management

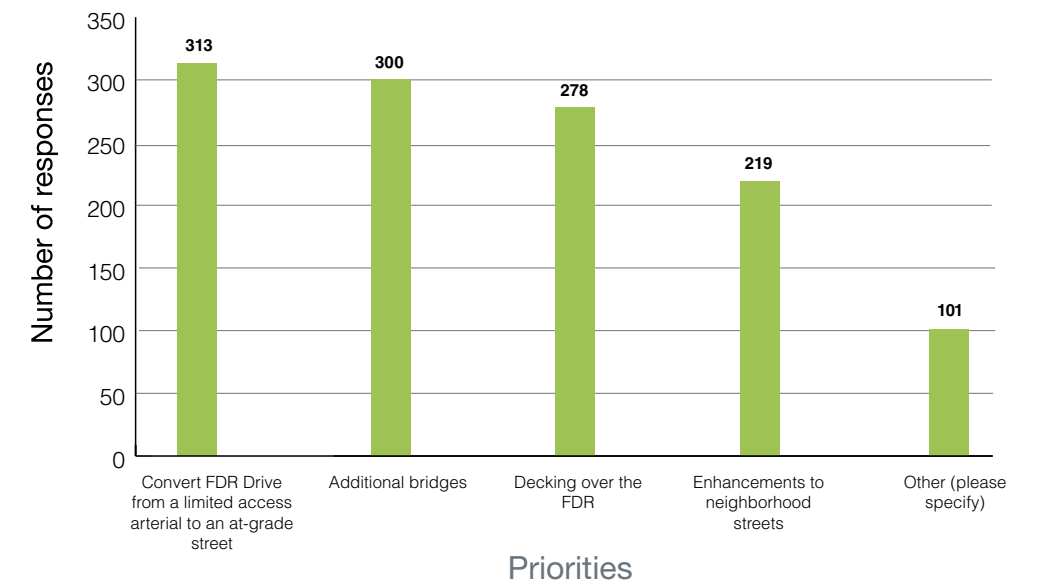
- Localized flooding on bike routes
- Flooding observed on FDR Drive during heavy rain

SURVEY RESPONSES

What quality of life concerns do you have related to the FDR Drive? (select all that apply)



What would you like the project team to study to improve access to East River Park and the waterfront? (select all that apply)



SURVEY RESULTS

In addition to concerns, the digital survey asked community members what types of improvements the design team should consider as part of this study. The survey was shared through NYCHA property management offices and was distributed by nine neighborhood organizations, schools, and cooperative boards.

Six hundred and sixty community members responded to the survey that the study should consider:

- Converting the FDR to an at-grade street.
- Adding additional bridges over the FDR.
- Decking over the FDR.
- Making enhancements to neighborhood streets.

Engagement Round 1

COMMUNITY CONCERNS SUMMARY

WHAT THE TEAM HEARD

Through the first public workshop, mobile outreach, and a digital survey, the team asked community members about their top concerns in the study area. The team asked about mobility and access, open space, health and the environment, and stormwater management.

The team also asked about how people access the waterfront, where they walk and bike, and what their concerns are about vehicular traffic. The team heard:

- The top issues mentioned include trees, green space, stormwater management, and access to the waterfront.
- Survey results highlighted the specific user groups the project team should consider, such as dog walkers, cyclists, families with young children (especially Little League participants), seniors, and disabled community members.
- Community members visit East River Park frequently, either by foot or bicycle, and therefore are focused on pedestrian and cyclist safety.
- The distance between crossings to East River Park can be a barrier for waterfront access, especially for seniors and those with young children.
- Community members are concerned about the safety and clarity of existing and potential at-grade crossings.
- Noise and air quality are concerns related to both physical and mental health.
- Some community members expressed a desire for robust north-south public transit along the FDR.
- The service road and South Street seem to be generally avoided by East Village and Lower East Side residents.

Engagement Round 1

COMMUNITY CONCERNS SUMMARY



Engagement Round 2

FEEDBACK ON IMPROVEMENT CONCEPTS

ACTIVITIES

Engagement included a digital survey and workshop with community members to seek feedback on the four improvement concepts identified in Round 1. Activities included:

- 1 public workshop (in-person)
- Digital survey

PUBLIC WORKSHOP #2

The public workshop discussion focused on feedback on four improvement concepts identified during the first round of engagement.

The workshop was formatted as an open house, and team members were available to speak with community members at Henry Street Settlement from 12 p.m. to 8 p.m. on August 1, 2023. Forty-six community members attended the workshop. Thirty-two community members responded to the survey, which sought additional feedback on the four concepts from those who didn't attend the public workshop.

Specific feedback on these concepts can be read on pages 77, 90, 106 and 114 in Section 4: Feasibility Studies.



Engagement Round 2

FEEDBACK ON IMPROVEMENT CONCEPTS

Street Improvements Improvement Concepts

IMPROVEMENT AREA

CONSIDERATIONS

Access Benefits: Enhanced pedestrian environment on service road and existing at-grade crossings

Open Space Benefits: +100 trees (potential)

Estimated Cost: \$30 - 50 million

Construction: Approximately 2-4 years total with 6 months to 1 year of construction

Example maintaining current parking areas

Example with impacts to parking lane

NEW YORK CITY DOT

Lower East Side | East Village Waterfront Access Study

Street Improvements Improvement Concepts

TOOLKIT OF STREET IMPROVEMENTS

ENHANCED TREE BEDS ENLARGED TREE BEDS PLANTED CURB EXTENSION

PLANTED BIWAY RAIN GARDEN WITH PERMEABLE PAVERS PLANTED PLAZA

TREE BEDS WITH PERMEABLE PAVERS ENLARGED TREE BED PLANTED CURB EXTENSION RAIN GARDEN

Team is also considering bike lane improvements, accessibility improvements, lighting, wayfinding, and seating.

NEW YORK CITY DOT

Lower East Side | East Village Waterfront Access Study

Pedestrian Bridges Improvement Concepts

IMPROVEMENT AREA

CONSIDERATIONS

Access Benefits: Additional bridge connections to waterfront

Open Space Benefits: Opportunity to enhance sidewalks near bridges

Estimated Cost: \$40 - 75 million per bridge

Construction: Approximately 6 years total with 3 years of construction

NEW YORK CITY DOT

Lower East Side | East Village Waterfront Access Study

Examples of presentation boards from Public Workshop 2.

Engagement Round 3

COMMUNITY CONCERNS AND CONFIRMING PROJECT SCOPE

ACTIVITIES

Engagement included a digital survey, focus group discussions, and an in-person workshop with community members to seek feedback on refined improvement concepts focused on five areas within the project study area: Montgomery Street, Jackson Street, Delancey Street, Houston Street, and East 6th Street. The FDR service road sections connecting these five focus areas were also included in these improvement concepts. Activities included:

- 1 public workshop (in-person)
- Digital survey
- 4 focus group discussions

PUBLIC WORKSHOP #3

The public workshop discussion focused on feedback on five improvement concepts. The workshop was formatted as a presentation with table discussions and was held at the Lower East Side Girls Club at the request of Assemblyman Harvey Epstein. Sixteen community members attended the workshop. Eighty-four community members responded to a follow up survey for those who didn't attend the workshop.

Specific feedback on these concepts can be read on pages 139, 146, 154, and 159 in Section 5: Recommended Improvement Concepts.



Engagement Round 3

COMMUNITY CONCERNS AND CONFIRMING PROJECT SCOPE

Montgomery Street Existing Condition

LOCATION

EXISTING CONDITION IN 2023

ESCR PLAN | TO BE COMPLETED 2026

Lower East Side | East Village
Waterfront Access Study

NEW YORK CITY

Montgomery Street Improvement Concept | At Grade Crossing

- Other Open Spaces
- Green Infrastructure
- Additional Paving
- Permeable Paving
- Bike Lane

CLOSED SLIP LANE, BIKE PATH, PEDESTRIAN PATH

CURB EXTENSION AND DECREASED CROSSING DISTANCE

REDUCED ON-STREET PARKING & EXTENDED CURB

ADDITIONAL STREET TREES & GREEN INFRASTRUCTURE

SIDEWALK EXTENSION WITH INCORPORATED LIGHTING

FOR DRIVE

MONTGOMERY ST.

WATER ST.

CERRY ST.

Lower East Side | East Village
Waterfront Access Study

NEW YORK CITY

Examples of presentation boards from Public Workshop 3.

Engagement Summary

FINDINGS AND NEXT STEPS

OVERALL FINDINGS

Throughout the design process, the team sought to be responsive to community feedback and focus on approaches and issues raised by community members. At the conclusion of the study, overarching feedback for all five improvement concepts included:

- Support for more landscape in the study area and for safer pedestrian crossings and protected bike lanes.
- Desire for access to East River Park and Pier 42 as soon as possible – there is concern about additional construction in the neighborhood and how it would be coordinated with Pier 42 and ESCR.
- Support for reducing walking distances between access points and bridges into and out of East River Park and Pier 42. Community members raised questions about construction impacts of new bridges, but generally recognized the benefit of enhanced pedestrian spaces at all connections.
- Support for creating dedicated pedestrian and bicycle paths, especially if new bridges are constructed.
- Concern about conflicts between people walking, running, and riding bikes, e-bikes, and scooters on walkways and bridges, and recognition that the proliferation of micro-mobility in the past few years is a new issue.
- Recognition that parking along the FDR Drive is important for neighborhood residents as well as for deliveries to the NYCHA and cooperative communities in the study area.

- Recognition that new green spaces require maintenance and that partnerships between city agencies and neighborhood groups and programs are necessary to provide adequate level of maintenance.

ENGAGEMENT NEXT STEPS

Implementation of the improvement concepts explored in this study will require additional community engagement as designs are developed. The feedback received during this study will form an important reference point for NYC DOT as they identify future capital projects and pursue funding. Future considerations include:

- Community concerns regarding mobility and access, open space, health and the environment, and stormwater management.
- Feedback on improvement concepts regarding park access, potential use, potential benefits to community members, and concerns about traffic.
- Collecting additional feedback on concerns such as air quality and noise that were not within the scope of this study to develop conceptual solutions for.
- Incorporate community feedback into any future design or capital projects in the neighborhood.
- Balancing tradeoffs between open space and mobility improvements and preservation of street parking.

SECTION 3

Site Assessment

Site Assessment

EXECUTIVE SUMMARY

GOALS

The team performed a site assessment in early-2023 to gather important data and information about the study area. The assessment created an understanding of existing conditions to provide context for development of recommendations in later phases of the study by identifying potential opportunities, gaps, and constraints. Specific goals of the site assessment process included:

- Identify and assess the existing conditions of the study area, as well as the future conditions with the implementation of ESCR, with a focus on waterfront access, open space, and other environmental conditions.
- Analyze the existing mobility network, including the uses and patterns for various modes and the existing allocation of space for various uses of the existing roadway network.
- Assess community and environmental health indicators to identify neighborhood needs.
- Identify specific areas and themes for future investigations, including space for greening, improving connections, and incorporating stormwater resilience.

PROCESS

The site assessment relied primarily on publicly available data to identify existing infrastructure, resources, health statistics, and demographics in the area. The study team collected and mapped geospatial data on existing utilities, roads, public transportation networks, bike lanes, open space and recreation amenities, trees, green infrastructure, urban

Site Assessment Summary

- The study area is currently in flux because of the East Side Coastal Resiliency (ESCR) project, which is in construction at the time of writing of this report. As such, the study team investigated both pre- and post-ESCR infrastructure based on the best available data, with an emphasis on post-ESCR conditions as the baseline for planning for the study.
- Many areas of the FDR Drive service road have excess striping or excess pavement with lane widths that exceed DOT standards. Despite this, there are disconnected bike and pedestrian pathways along the corridor.
- Adjacent to the largest open space in Lower Manhattan, the FDR Drive corridor is primarily made up of gray, impervious surfaces. While there is a lack of mature shade trees in the study area, NYC Parks completed an effort to plant 1,000 trees in the Lower East Side as one of the commitments associated with ESCR.
- The ESCR project is designed to reduce risk from coastal flooding, but also includes additional stormwater management infrastructure to improve inland drainage.
- NYCHA communities comprise a large portion of the areas immediately adjacent to the FDR Drive in the study area, and the population in these NYCHA communities primarily identify as Hispanic and Black. The study area overall has a high poverty rate, with nearly a third of families living below the poverty line. The study area also has a concentration of older New Yorkers. Most of the study area is classified as disadvantaged communities under the White House's Justice40 initiative.

heat island, health conditions, social vulnerability, and disadvantaged community status. Additionally, the team reviewed materials from the ESCR project to incorporate any relevant findings and to integrate the final design into conceptual plans for this study.

These desktop reviews were supplemented by a site visit to the study area in which the team walked along the FDR Drive corridor, viewed areas of ESCR improvements, and documented existing conditions with photos and notes.

Site Assessment

HISTORY OF THE EAST SIDE WATERFRONT

The Lower East Side and East Village are vibrant and bustling neighborhoods that are home to residents with diverse ages, incomes, and ethnic and racial backgrounds. The neighborhoods have historically served as home to many foreign-born immigrants, and while demographics have shaped the area today, it remains home to many foreign-born New Yorkers.

The waterfront has been vastly transformed over the last century and its origins as a working waterfront, harbor, and industrial area. East River Drive, which is now the FDR Drive, was constructed as an arterial boulevard in tandem with East River Park in the 1930s as one of the many projects conceived by Robert Moses. This segment of the broader East River Drive was one of the first to be completed, and by 1940 the section from Montgomery Street to 30th Street was fully contiguous, with access to East River Park through at-grade crossings.

Starting in the 1940s, access to the waterfront began to be scaled back, starting with the construction of large public housing blocks in the 1940s that reduced the number of through-streets to the waterfront. Between 1948 and 1966, the boulevard, by then renamed to the FDR Drive, was converted into a higher-speed controlled-access parkway. This shift led to the current condition where pedestrian access to East River Park is through grade-separated crossings via pedestrian bridges or under / overpasses that cross the FDR Drive.



At-grade crossing into East River Park, at Delancey Street, 1941. Source: NY Public Library Archives.



1930 (top) and 1955 (bottom) Composite Plat Map, East River Waterfront. Source: NY Public Library Archives.

ESCR Improvements

CORRIDOR WIDE SUMMARY

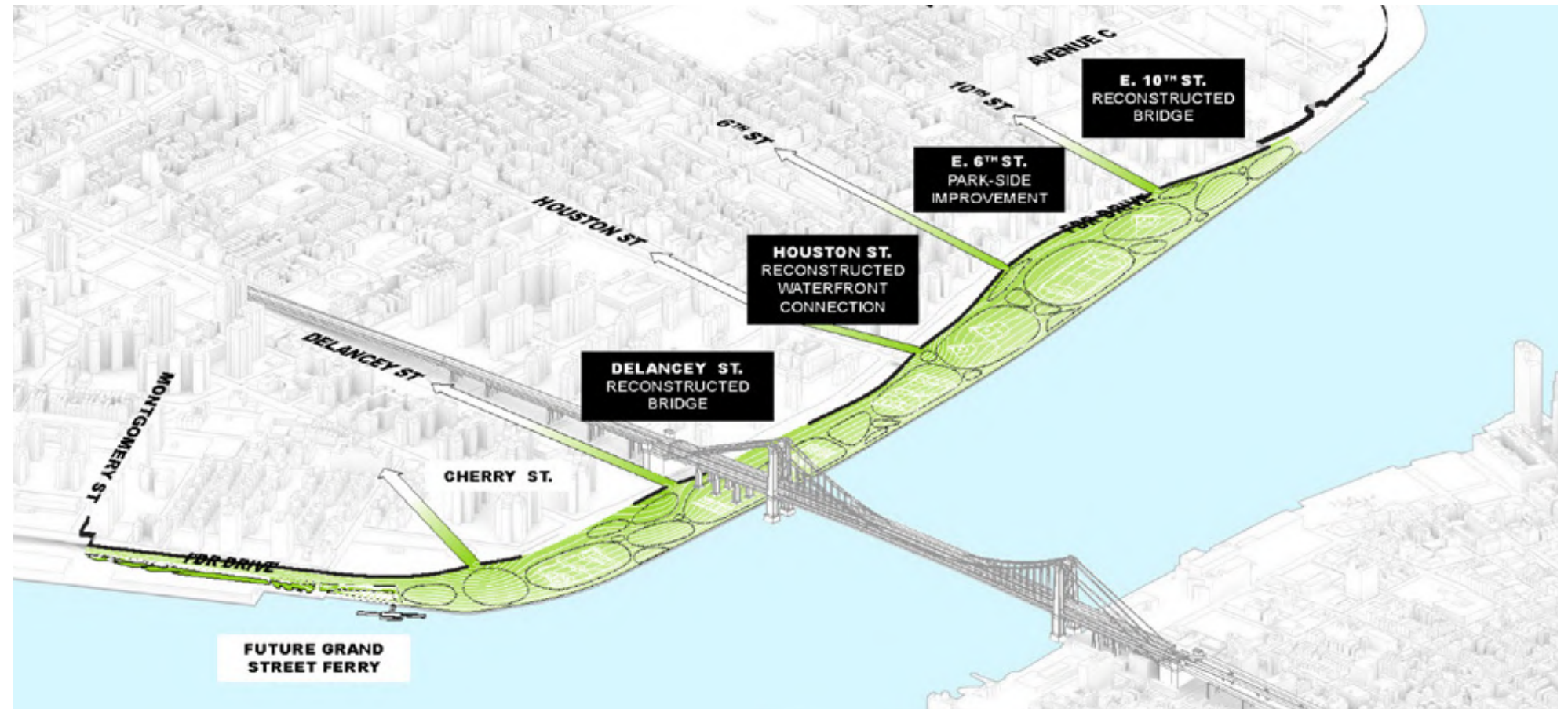
PLANNING IN THE CONTEXT OF ESCR

The East Side Coastal Resiliency (ESCR) Project is a coastal protection initiative that will reduce flood risk due to coastal storms and sea level rise in the study area and on Manhattan's East Side from East 25th Street to Montgomery Street. The project design integrates flood protection into the community fabric, improving waterfront open spaces and access. In addition to elevating and enhancing East River Park, ESCR will improve connectivity by replacing three existing bridges with wider, higher clearance and universally accessible spans.

Construction on the ESCR project began in Fall 2020 and will continue through 2026. As such, this study considers both existing and future conditions so that recommendations are developed in the context of ESCR's improvements to access and open space.

The following enhancements will be made through ESCR:

- Pedestrian bridge improvements will occur at Corlears Hook Park, Delancey St, and 10th Street. The bridges will be reconstructed and replaced with wider, universally accessible bridges.
- 1,000 new street trees will be planted in CB3 and CB6.
- Flood protection will be constructed on South Street at Montgomery Street.



ESCR pedestrian access enhancements.

ESCR Improvements

CORRIDOR WIDE SUMMARY

ESCR HIGHLIGHTS

- The new pedestrian bridges will result in some shifts to pedestrian paths and roadways. For example, at the East 10th Street pedestrian bridge, the existing two-lane road will be reduced to a one-way, one-lane road to allow space for the bridge widening.
- The Manhattan Waterfront Greenway running through East River Park will be reconstructed, running primarily along the western edge of the park.

HOW CAN THIS STUDY BUILD OFF OF ESCR?

- Though studied in the earlier stages of ESCR, the East 6th Street Bridge will not be replaced through ESCR.
- As described in Section 2, the ESCR engagement process highlighted other community concerns, such as feedback to improve lighting under the FDR Drive viaduct at Montgomery Street and making city-side public open space improvements.



Montgomery Street Tie-Back (1); Manhattan Greenway (2); Delancey Street Bridge (3); East 10th Street Bridge (4).

ESCR Improvements

WATERFRONT ACCESS

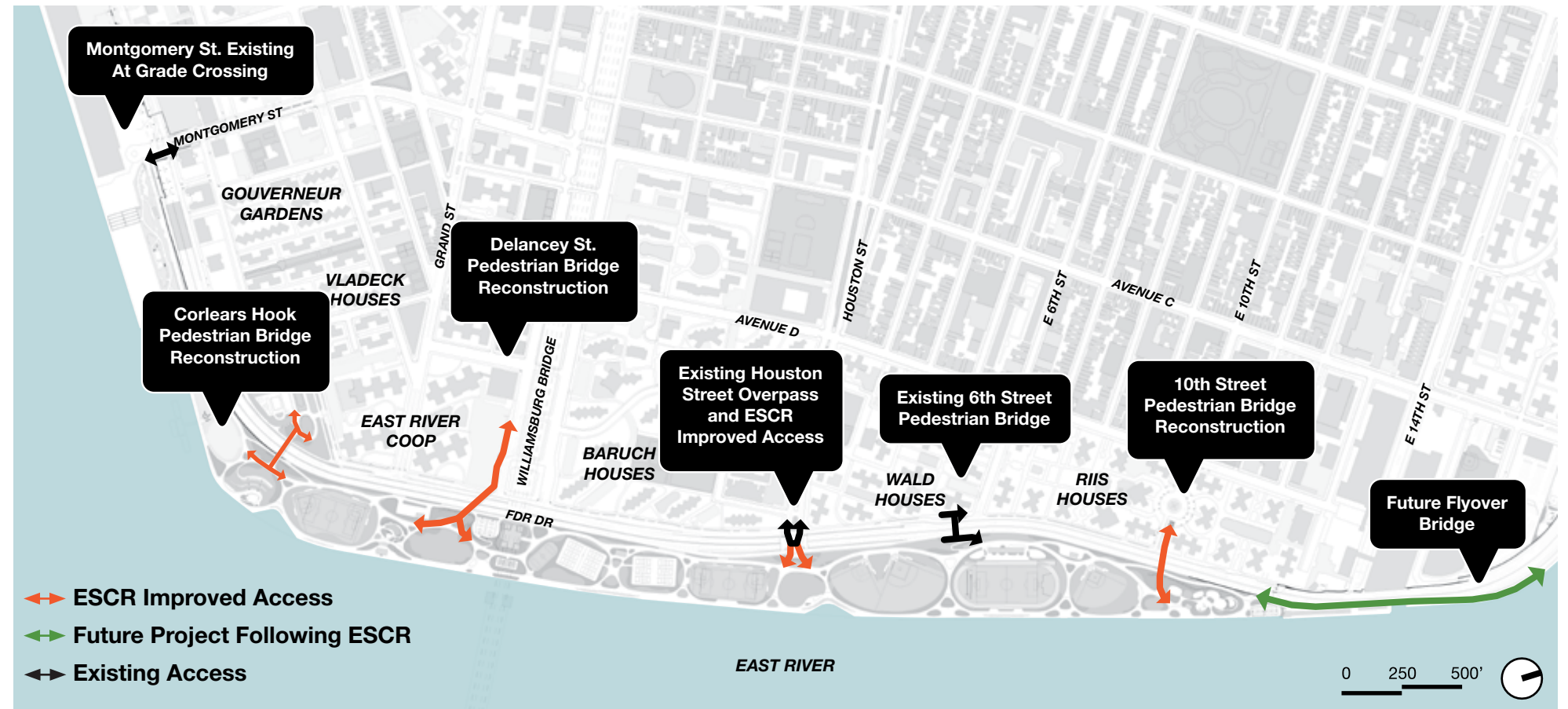
ACCESS TO EAST RIVER PARK

Pre-ESCR, there were six pedestrian access points to East River Park.

The ESCR project will enhance three existing pedestrian bridges as well as the at grade crossing at Houston Street. ESCR does not address the at-grade crossing at Montgomery Street or the pedestrian bridge at East 6th Street. ESCR project construction includes the construction of foundations for a future flyover bridge that will connect the north end of East River Park to Captain Patrick J. Brown Walk, crossing from 13th Street to 15th Street.

ESCR will improve the pedestrian bridges at:

- Corlears Hook Park
- Delancey Street
- East 10th Street



Source: NYC DOT, Google Maps

Corridor Wide Summary

OTHER RELEVANT CAPITAL PROJECTS

STUDY CONTEXT

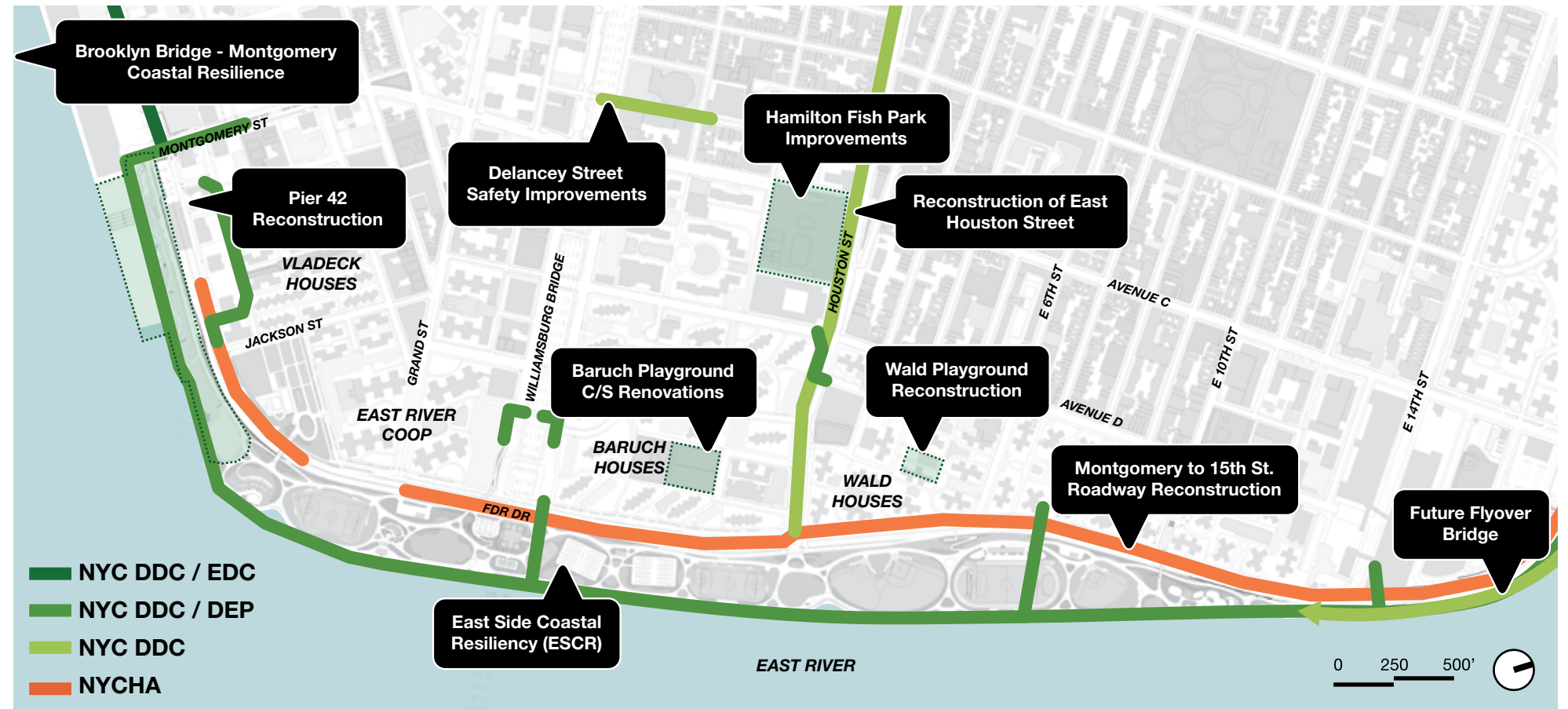
Beyond ESCR, there are other recently completed or ongoing projects making improvements to the surrounding neighborhoods. Any future implementation that may advance recommendations from this study should consider and build off these projects.

Projects shown on map:

- Delancey Street Safety Improvements (MED-667)
- Flyover Bridge (under design)
- Pier 42 (under construction)
- Montgomery to 15th Street – Hurricane Sandy (roadway reconstruction)
- Hamilton Fish Park Improvements
- Reconstruction of East Houston Street (MED-604)
- Wald Playground Renovation

Other Projects:

- Sara D. Roosevelt Park Improvements
- NYCHA Recovery and Resilience Program – completing improvements at 6 NYCHA properties within study area
- Other citywide resiliency measures



Source: NYC DDC, NYC DEP, NYC DPR, NYC DOT, NYC EDC, NYC HPD, NYCHA

Site Assessment

NEIGHBORHOOD DEMOGRAPHICS PROFILE

NEIGHBORHOOD DEMOGRAPHICS

- The total population in and around the project area is approximately 59,900.
- The median household income in the area is \$39,401 —significantly lower than the citywide median household income of \$70,663.
- Twenty six and nine tenths percent of families in the area live below the poverty level, a rate almost twice as high as the citywide rate of 13.6%.
- The local population is approximately 38.5% Hispanic, 27.2% White, 18.5% Asian, 11.9% Black and 3.9% Other.
- The local population is older than NYC as a whole, with a median age of 40.9 compared with the citywide median age of 36.8. Twenty percent of the local population is 65 and older—5.1% higher than citywide rate of 14.9%.
- Further, 45.8% of the population aged 65 and older are identified as persons with disabilities, compared to 33.9% of the citywide population aged 65 and older.
- Seventy seven and seven tenths percent of occupied housing units in and around the project area are renter-occupied, higher than the citywide rate of 70.2%.
- Approximately 25.9% of the area’s population resides in NYCHA housing, which include the Baruch, Riis (I and II), Wald, and Vladeck (I and II) housing developments (see Table).

COMMUNITY NAME	TOTAL POPULATION	% WHITE	% BLACK	% HISPANIC	% ASIAN	% OTHER	AVERAGE GROSS INCOME
VLADECK HOUSES	2,774	4.3%	20.0%	46.3%	28.6%	0.9%	\$24,402
VLADECK II HOUSES	508	4.1%	21.1%	45.5%	28.0%	1.4%	\$26,645
BARUCH HOUSES	4,553	5.8%	20.4%	54.8%	18.2%	0.8%	\$23,926
WALD HOUSES	3,816	2.7%	21.3%	58.3%	17.2%	0.6%	\$24,616
RIIS HOUSES	2,627	3.4%	25.8%	56.2%	14.0%	0.7%	\$28,563
RIIS II HOUSES	1,225	2.9%	23.3%	57.9%	14.9%	1.1%	\$29,052

Source: Data provided by NYCHA.

- The majority of those residing in NYCHA housing are Hispanic, comprising between 45.5 to 54.8% of the respective populations of the NYCHA housing developments.
- The average gross income for families in these NYCHA developments range from \$23,926 to \$29,052, all of which fall below the national poverty threshold.

Site Assessment

NEIGHBORHOOD DEMOGRAPHICS PROFILE

DISADVANTAGED COMMUNITIES

The Justice40 initiative, which was established through President Biden’s Executive Order 14008, established the goal for 40% of the benefits of certain federal funding programs (e.g., many programs funded by the Bipartisan Infrastructure Law and Inflation Reduction Act) to flow to disadvantaged communities, which are census tracts with populations that are undeserved and overburdened by pollution. The White House Council on Environmental Quality has established the Climate & Economic Justice Screening Tool (CEJST), which identifies census tracts that are classified as disadvantaged considering various factors including demographics, climate change, housing, pollution, and transportation.

Most of the census tracts along the FDR Drive corridor are defined as disadvantaged under Justice40. As such, they would be prioritized for funding awards under many federal funding programs.



Source: Council on Environmental Quality (CEQ) Climate and Economic Justice Screening Tool.

Corridor Wide Summary

JURISDICTION

Future projects that may come out of this study will require coordination with the entity having jurisdiction. Properties in the study area are primarily city owned.

This section of the FDR Drive is under NYC DOT jurisdiction. Other roadways and most sidewalks in the study area are also under NYC DOT jurisdiction.

There are four large NYCHA properties along or close to the FDR Drive service road: Vladeck, Baruch, Wald, and Riis (I and II). There are also two private co-ops along the service road, East River Houses and Gouverneur Gardens.

Other prominent jurisdictions in the study area include NYC Parks (green spaces) and a few NYC DOE properties (schools).



Source: NYC Department of City Planning, City Owned and Leased Properties

Open Space and Connectivity

IMPERVIOUS SURFACES

Overall, the project area is highly impervious, with significant water-resistant materials such as asphalt and concrete, despite having significant green space nearby.

Within the study area and including East River Park, the study area is 82% impervious.

Excluding East River Park, the area is 84% impervious, with most pervious areas located in NYCHA green space.

The FDR corridor itself is almost completely impervious.



Source: DEP's Citywide Parcel-based Impervious Area GIS Study

Open Space and Connectivity

TREE CANOPY

The project area has a lower tree canopy cover than recommended for that neighborhood.

- The Lower East Side has an urban tree canopy cover of 14%, far below the US Forest Service's 44% recommendation for that neighborhood.
- 4,286 trees are found in the neighborhood compared to 1,771 in Battery Park City, 2,633 in Chinatown and 4,622 in West Village.
- There is a lack of mature shade trees between the NYCHA properties and the FDR corridor.
- Approximately 1,000 new street trees will be planted in the neighborhood as part of ESCR.



Source: New York City Tree Map

Open Space and Connectivity

OPEN SPACE INVENTORY

This study investigated open space and connectivity improvements within the project area, considering the broader context of parks and open space in the East Village and Lower East Side. There are 86.3 acres of open space in the Lower East Side, and residents are generally within close proximity to these spaces.

In the Lower East Side, there are 30.7 acres of active open space (e.g. playgrounds, athletic fields) and 55.6 acres of passive open space (e.g. community gardens).

East River Park, which is 57 acres, comprises most of the open space in the study area.

According to a 2010 study by New Yorkers for Parks (NY4P), in the Lower East Side, there were 0.42 acres of active open space for 1,000 residents compared to the NY4P proposed neighborhood standard of 1 acre / 1,000 residents; 0.8 acres of passive open space for 1,000 residents compared to NY4P proposed neighborhood standard of 1.5 acres / 1,000 residents; and 3.4 playgrounds for 1,250 children compared to NY4P proposed neighborhood standard of 1 playground for 1,250 children. (Source: NY4P Open Space Index Report 2010.)

All residents in the Lower East Side live within a 5-minute walk from a neighborhood park and a 10-minute walk from a large park.



Source: NY4P Open Space Index report, 2010.

Open Space and Connectivity

TREE BENEFITS

As a part of ESCR the city committed to planting 1,000 trees in the Community Board 3 and 6 districts. Since 2023, NYC Parks studied opportunities for new street trees and planted the 1,000th tree as of June 2023.

In 2023 City Councilor Carlina Rivera created a street tree health survey for the Lower East Side and East Village and found that there are over 5,000 trees in the neighborhood. Over 60% are in good health.

Approximately 1,000 new street trees will be planted in the neighborhood as part of ESCR.

NYC Parks quantifies the benefits of trees according to the following criteria:

- **Stormwater Interception:** Healthy trees may reduce the amount of stormwater runoff and decrease pollutant washoff.
- **Energy Conservation:** Trees reduce the need for heating and cooling by providing shade, reducing wind speeds, and lowering summertime temperatures.
- **Air Pollution Removal:** Urban canopies absorb gaseous pollutants and sulfur dioxide, release oxygen, reduce PM10 particles (such as dust, ash, and smoke), and reduce emissions via reduced energy use.
- **Carbon Dioxide Storage:** Trees sequester CO2 and reduce emissions via reduced energy use.



Source: NYC Parks Street Tree Planting Locations as of 2/23/24.

Open Space and Connectivity

GREEN SPACE TRADEOFFS

Due to the limited availability of space along the FDR Drive service road and adjacent sidewalks, planting new street trees and additional green spaces may require the removal of on street parking. There are several constraints for adding green spaces in the corridor, some considerations include:

- Existing subsurface and surface infrastructure
- Existing street furniture
- Minimum sidewalk clearance requirements
- Distance to existing street trees
- Building and parking lot entrances

If the improvement concepts in this study move forward, NYC DOT will conduct additional analysis and engagement to assess the trade-offs between parking and green space in the corridor.



Typical existing conditions



Planted bulb-out



Expanded sidewalk with street trees



Planted plaza

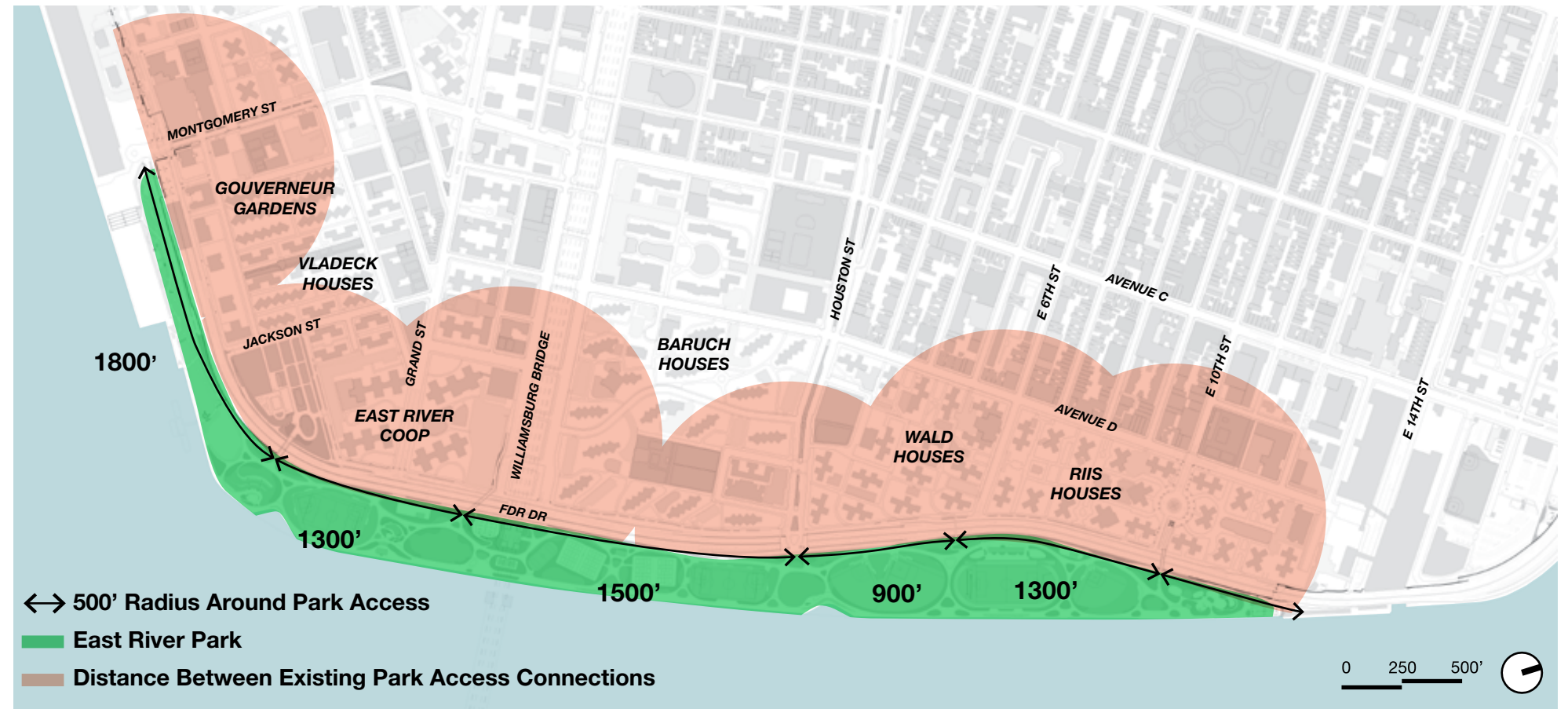
Open Space and Connectivity

PEDESTRIAN ACCESS

While there are three pedestrian bridges being improved through ESCR, the frequency of connections from the neighborhood to East River Park is currently sparse.

The largest distance between connections to East River Park is ~1800 feet, or about 7 blocks long. The average maximum walking distance to a bridge in the study area is 590 feet, which is over twice the distance of an average north-south city block.

As described in Section 2, the spacing between connections can be a barrier for residents, especially seniors, to access East River Park from the neighborhood.



Source: NY4P Open Space Index 2010 Report

Mobility

BIKE ROUTES

NYC DOT is committed to increasing bikeability in New York City by expanding bike lanes and improving safety for cyclists. The study area is highlighted as a Tier 1 Priority Investment Area in NYC DOT's 2023 NYC Streets Plan Update. This makes the area a potential focus for bike lanes and other transportation improvements based on factors such as equity, density, and previous levels of NYC DOT investment.

Within the study area, Conventional / On-Street (Class II) and Shared / Sharrow (Class III) bike routes are prominent, and the primary Protected (Class I) route is the Manhattan Waterfront Greenway, which is being reconstructed through ESCR.

While the Manhattan Waterfront Greenway will run north / south through East River Park once complete, there is a lack of north / south bike lanes in the study area on the west side of the FDR Drive.

Primary bike lane corridors to access the FDR Drive service road are along Montgomery Street (on street), Grand Street (on street), Delancey Street (shared), Houston Street (on street), and East 10th Street (shared).



Source: NYC DOT

Mobility

FDR DRIVE ENTRANCES AND EXITS

The FDR Drive is primarily at-grade within the study area, except where (a) it is depressed at Houston Street to allow for an overpass for the exit / entrance ramps and a pedestrian entrance into East River Park and (b) where it becomes a viaduct west of Jackson Street and continuing southward.

There are 3 entries/exits for the FDR Drive within the project area: South Street/Manhattan Bridge, Grand Street/Williamsburg Bridge, and Houston Street to Holland Tunnel.

Northbound Entries in project area:

- South Street / Manhattan Bridge (ramp)
- Houston Street to Holland Tunnel (ramp)

Northbound Exits in project area:

- Houston Street to Holland Tunnel (ramp)

Southbound Entries in project area:

- Grand Street / Williamsburg Bridge (service road)
- Houston Street to Holland Tunnel (service road)

Southbound Exits in project area:

- South Street / Manhattan Bridge (service road)
- Grand Street / Williamsburg Bridge (service road)
- Houston Street to Holland Tunnel (service road)



Source: NYC DOT, Google Maps

Mobility

BUS ROUTES

Buses are a frequently used form of public transportation in the area due to lack of proximity to subway stations. There are no subway stations within a 5-minute walk, but five subway stations are within a 15 to 20-minute walk.

There are seven MTA bus routes that serve the study area. These include:

- 2 Select Bus Service (M14 A/D SBS with 4,106,098 annual ridership).
- 4 Manhattan lines (M8 with 171,057 annual ridership, M9 with 835,301 annual ridership, M21 with 182,585 annual ridership, and M22 with 317,378 annual ridership).
- 1 Brooklyn line via Williamsburg bridge (B39 with 52,900 annual ridership).

A bus layover site is located on Grand Street at FDR Drive. The M21, M22, and M14 SBS bus routes travel along portions of the FDR Drive service road.

Recent bus improvements were made on the M14A/D corridor on Avenue D, where a curbside bus lane (north bound from Houston to East 9th Street and south bound from East 6th Street to East 4th Street) was constructed.



Source: NYC DOT, Google Maps

Mobility

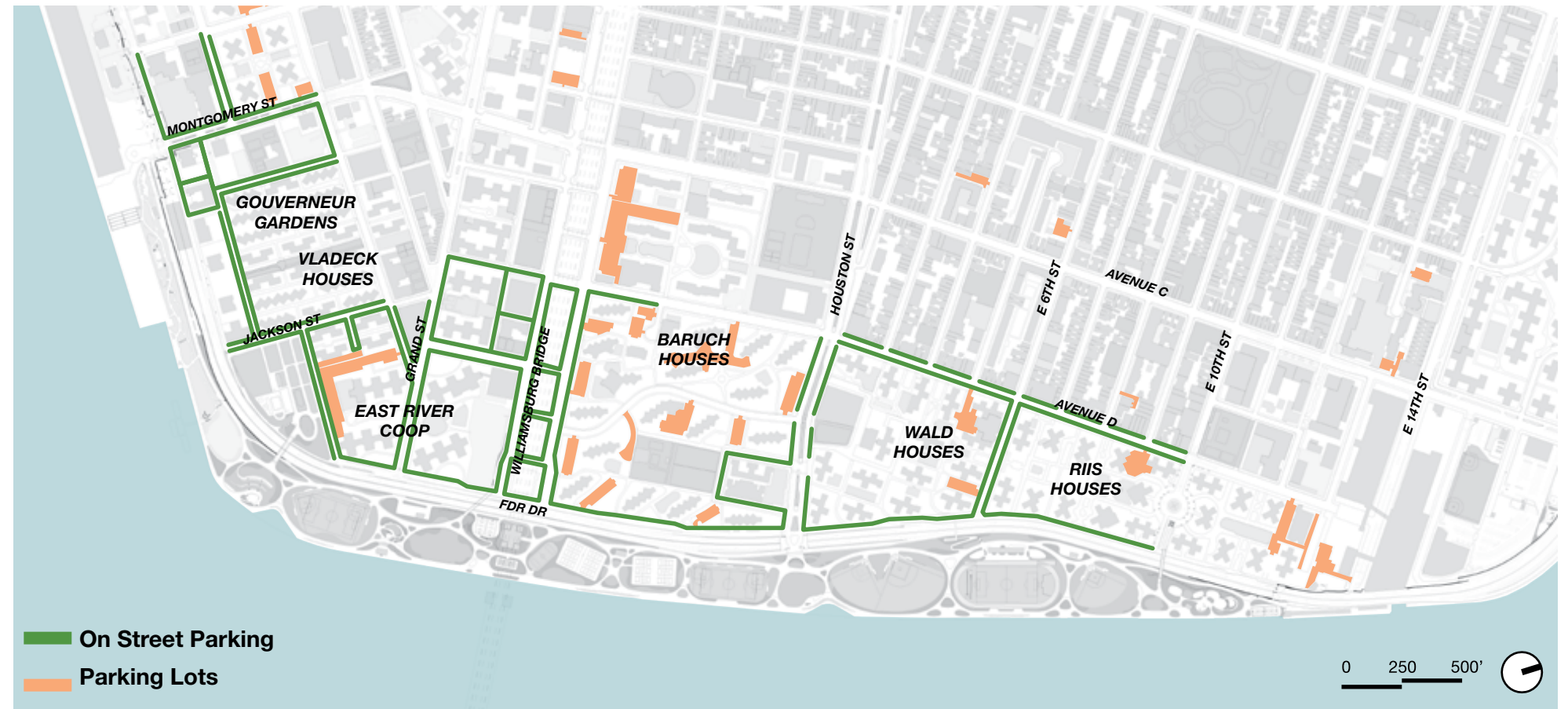
PARKING

While street parking is allowed in several areas along the service road, the availability of legal parking is limited and not common directly on this road.

To the west of the FDR Drive corridor, there is primarily metered parking along Avenue D.

Available parking is at capacity based on site observations.

Illegal parking in areas marked as “No Stopping”, “No Parking” or “No Standing” was also observed.



Source: NYC DOT, Google Maps

Mobility

VISION ZERO

Several Vision Zero initiatives are included in the study area to improve the safety of pedestrians and commuters.

Beginning in 2014, New York City has made significant investments in engineering, enforcement, and educational strategies, to achieve the goal of zero deaths and a substantial reduction in serious road injuries.

Vision Zero initiatives encompassed in the study area include: Neighborhood Slow Zone, Priority Locations (including Houston Street & Avenue C intersection, and 14th Street & Houston St Corridor), and Major Safety Project Corridors (including Houston Street, Grand Street, Montgomery Street, and Avenue C).



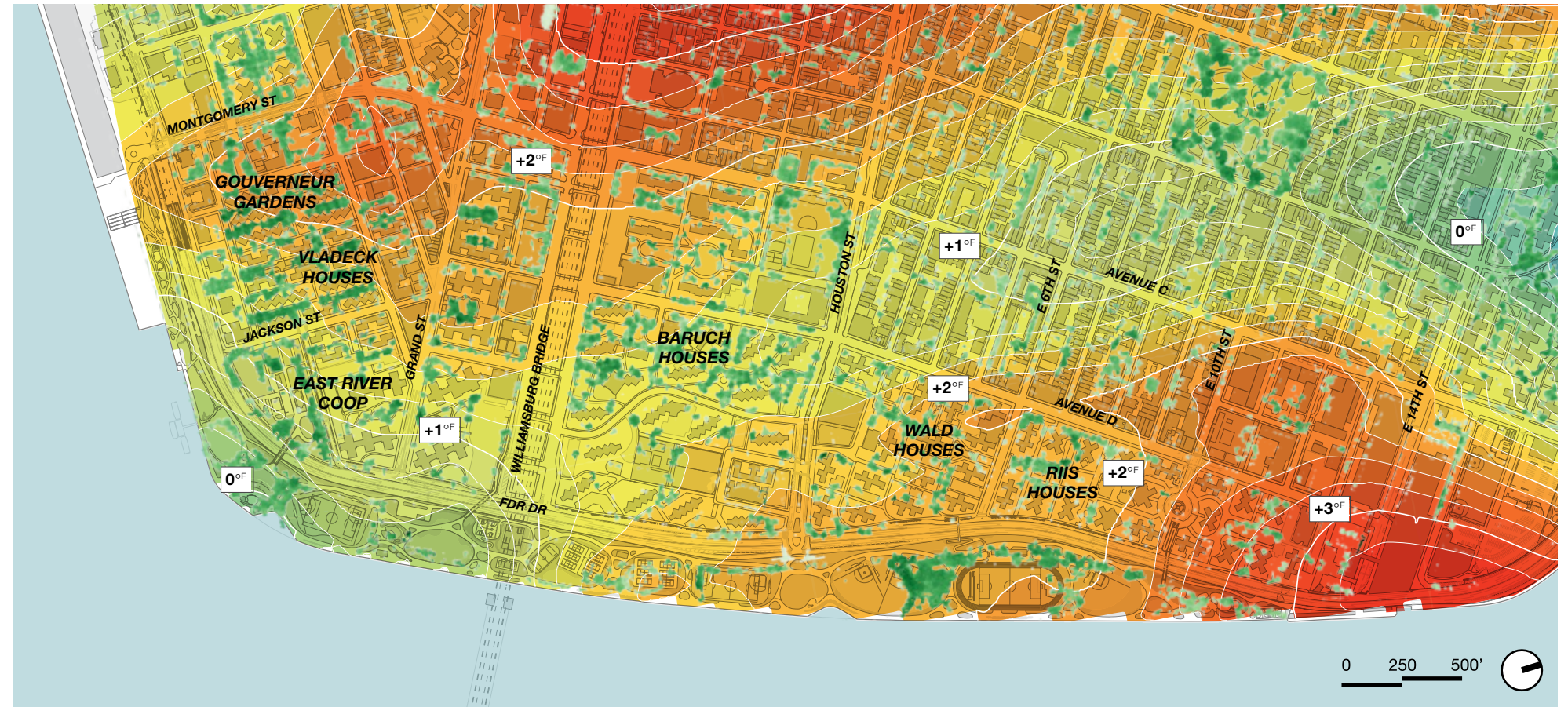
Source: NYC DOT, Google Maps

Environment and Health

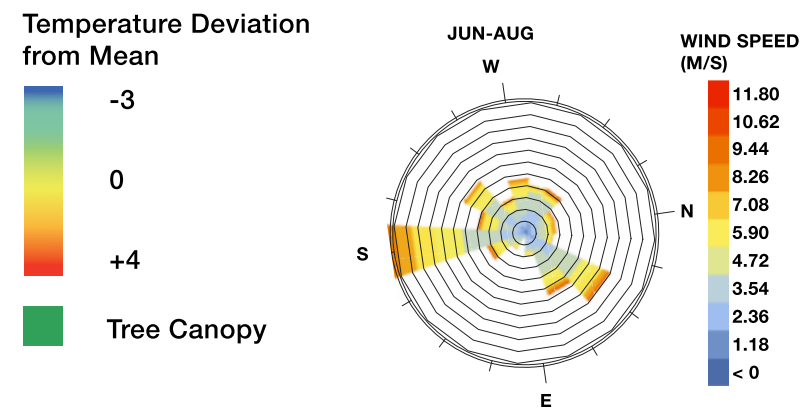
URBAN HEAT ISLAND

Impervious surfaces across New York City contribute to the urban heat island effect, where paved areas have hotter temperatures than greener areas. The study area's vulnerability to heat generally mimics the citywide average.

- The Heat Vulnerability Index (HVI) in the Lower East Side is the same as the citywide average of 3.
- The daytime summer surface temperature is 97.4, lower than the citywide average of 98.6.
- Air conditioning usage is the same as the citywide average of 91%, based on data from the New York City Department of Health & Mental Hygiene.



Source: NYC Council Data Team 2021



Environment and Health

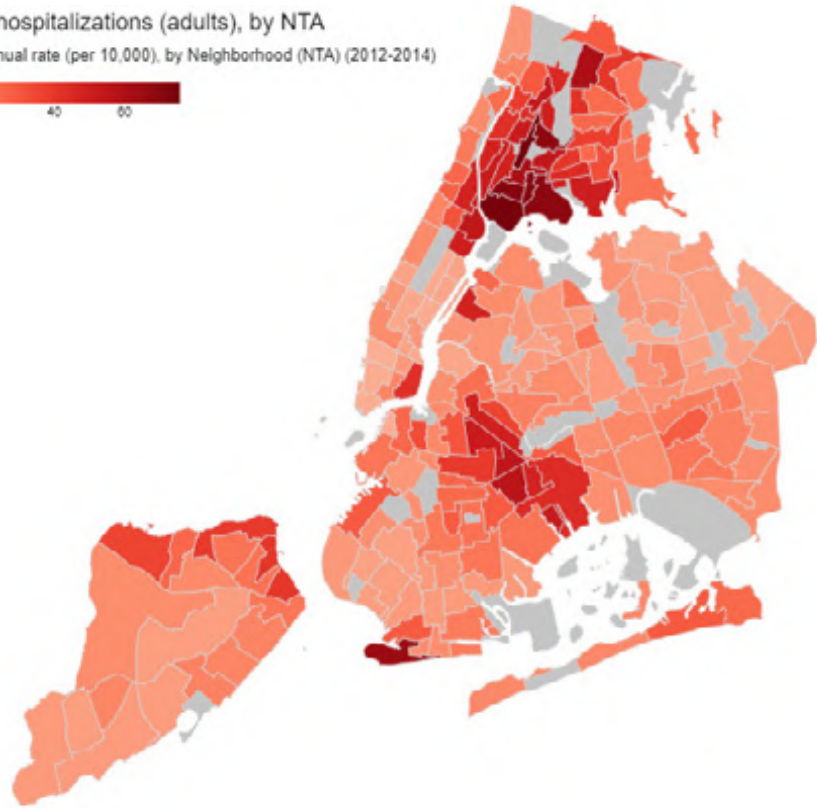
AIR QUALITY

The project area has poor air quality in comparison to NYC average, affecting residents of all ages.

The study area experiences higher levels of fine particulate matter (P.M 2.5), the most harmful air pollutant. The average in the Lower East Side is 8.9 micrograms per cubic meter, higher than the average of 7.5 across New York City.

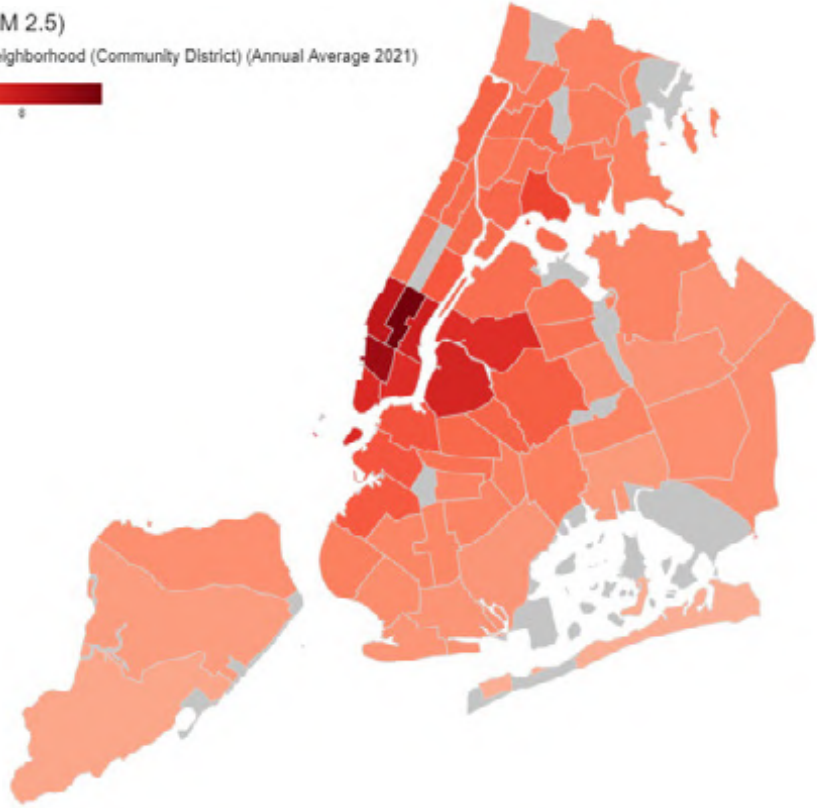
Childhood asthma rates are higher than the citywide rate.

Asthma hospitalizations (adults), by NTA
Average annual rate (per 10,000), by Neighborhood (NTA) (2012-2014)



Adult Asthma Hospitalizations

Fine particles (PM 2.5)
Mean (mcg/m3), by Neighborhood (Community District) (Annual Average 2021)



Fine Particles (PM 2.5)

Source: NYC DOHMH, Community Air survey, 2016 + New York State Statewide Planning and Research Cooperative System (SPARCS) De-identified Discharge data

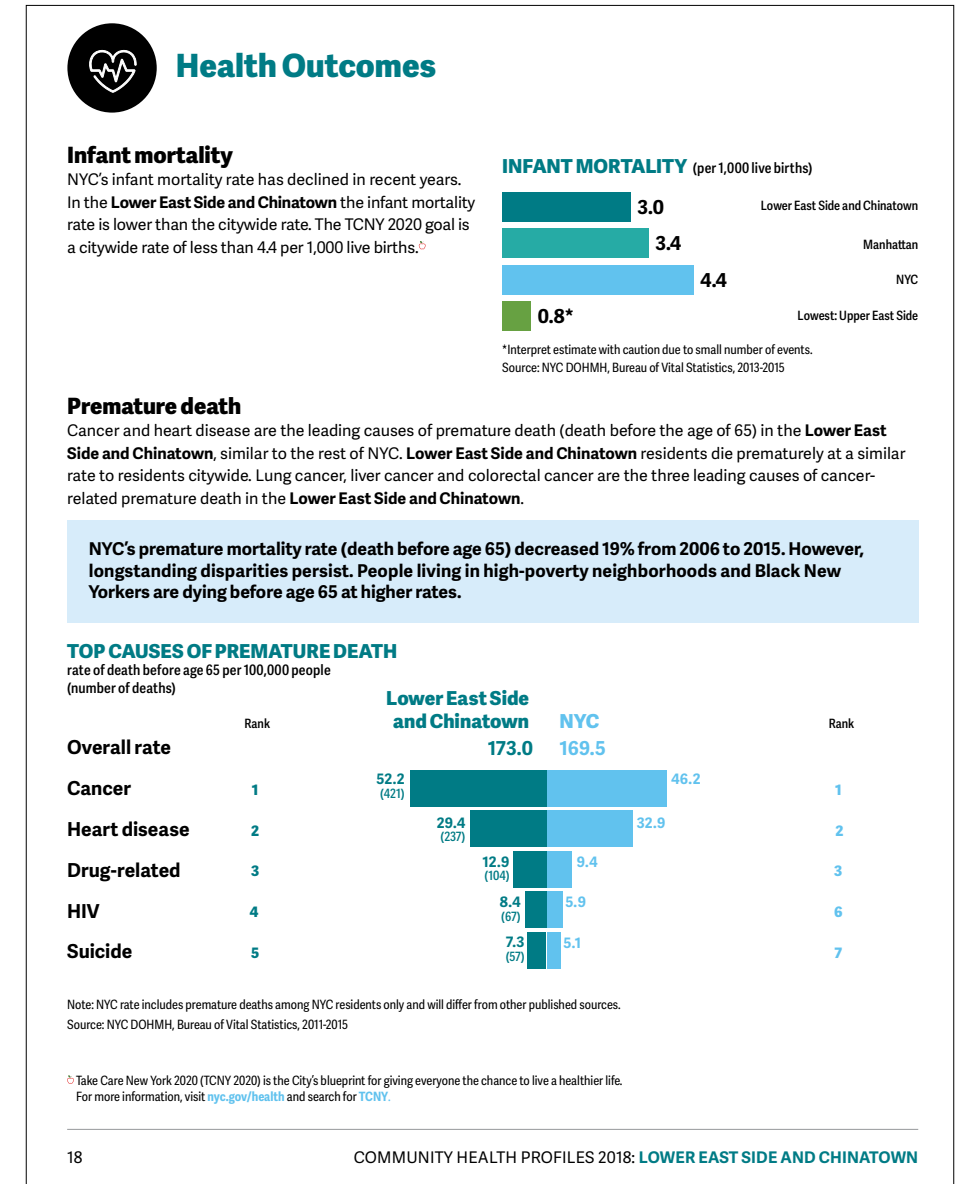
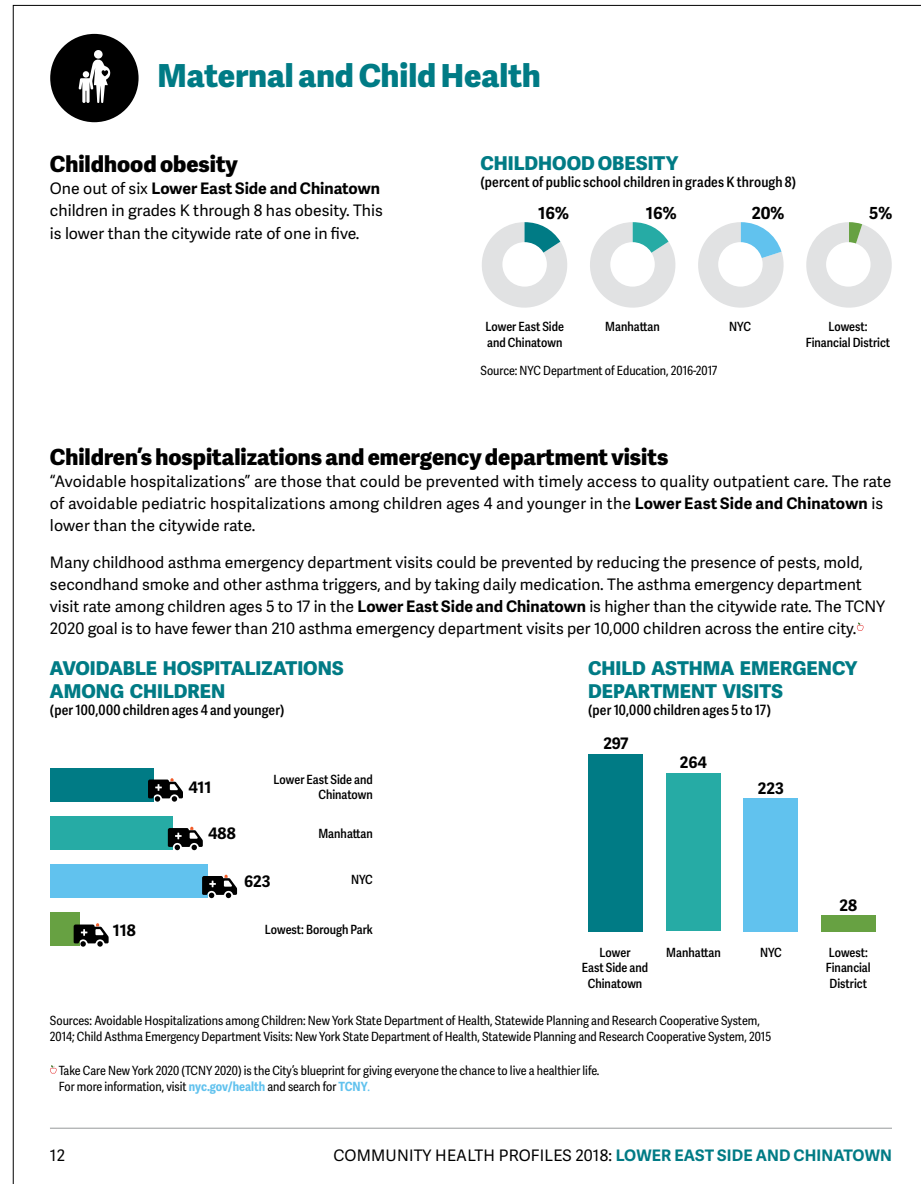
Environment and Health

PUBLIC HEALTH

Health statistics show that the Lower East Side has better health indicators than the New York City average, except for asthma which is the top health risk in the area.

Overall rates for childhood obesity, diabetes, and hypertension are lower than the citywide average.

Child asthma emergency department visits are high for the Lower East Side compared to New York City, seeing 297 per 10,000 children ages 5 to 17, compared to 223 per 10,000 children for the city.



Source: NYC Health Lower East Side and Chinatown Community Health Profile 2018

Stormwater Management

COMMUNITY FLOOD REPORTS

There is a high concentration of flood reports along major roadways in the study area which align with modeled flood areas based on the NYC Stormwater Flood Map.

Numerous 311 reports of flooding, sewer backups, and water in basements were received in the study area between 2010 to March 2023.

There are also reports of highway flooding, street flooding, clogged catch basins and puddles outside of modeled flood areas.

Most recently, flooding along the FDR Drive due to the remnants of Tropical Storm Ophelia in September 2023 was highlighted in local news as floodwaters shut down portions of the FDR Drive in the study area.

In the study area, combined sewage flows to regulators in East River Park, which control flow into the interceptor sewer and discharge overflows into the East River. Although ESCR is primarily focused on coastal flooding, the project includes improvements that will increase the capacity of the combined sewer system in the project's protected area.



Source: NYC Open Data: 311 Service Requests from 2010 to March 2023

SECTION 4

Preliminary Feasibility Studies

Preliminary Feasibility Studies

PURPOSE + APPROACH

PURPOSE

The team developed preliminary improvement concepts to improve access, mobility, and open space along the FDR Drive corridor and evaluated the feasibility of each concept. The study team evaluated four improvement concepts (listed on the next page) that were identified based on prior proposals, the site assessment, and Round 1 of engagement. The goal of analyses was to highlight opportunities, understand technical constraints, and identify trade-offs for each concept and to outline next steps for the study process.

SCOPE

This process involved developing plans and maps for each improvement concept to assess feasibility and gather feedback through engagement. The planning considered how the improvements would integrate with new conditions following the completion of ESCR, Brooklyn Bridge-Montgomery Coastal Resilience (BMCR), and Pier 42 construction.

Analyses for the feasibility studies included:

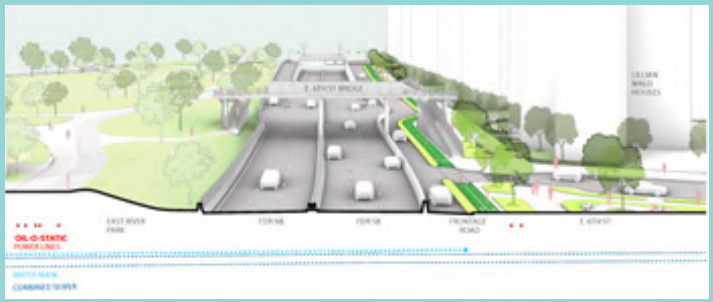

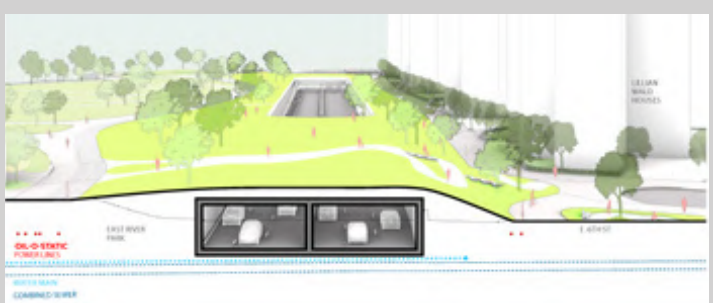

- Referencing precedent projects, or examples of similar projects that have been completed elsewhere in New York City or in other areas.
- Identifying preliminary locations for improvements based on availability of space, avoiding conflicts with utilities, and integration with the existing street grid and open space connections.
- Assessing constructability based on precedents, technical considerations, and construction timeframes.
- Developing conceptual, order-of-magnitude cost estimates.
- Understanding trade-offs between the improvement concepts using evaluation criteria that were refined based on community feedback.

Feasibility Study Summary

- The feasibility studies included a high-level assessment of siting constraints, constructability, transportation considerations, and costs to develop and evaluate each of the four improvement concepts.
- Decking over the FDR Drive presents constructability challenges and the potential for significant disruption to the neighborhood and ESCR-related improvements. As a result, NYC DOT determined not to further study this concept.
- Converting the FDR Drive to a boulevard with at-grade crossings presents potential traffic challenges that are beyond the scope of this study, including the need to coordinate with necessary traffic modifications to the north and south of the study area. For these reasons, NYC DOT determined not to further study this concept through this study.
- There are opportunities for streetscape improvements to the upland road network, improvements to existing pedestrian bridges, and potentially new pedestrian bridges. These concepts were identified for further study.

Preliminary Feasibility Studies

CONCEPT OVERVIEW

	CONCEPT	DESCRIPTION	CONCLUSIONS
ADVANCED IN ANALYSIS	UPLAND ENHANCEMENTS 	Mobility and greening interventions within the existing right-of-way (sidewalks and streets) to increase vegetated and landscaped spaces, improve circulation, and provide additional benefits associated with green infrastructure.	<ul style="list-style-type: none"> Creates localized benefits and improves the pedestrian realm. Implementation would involve relatively little construction as compared to the other concepts, resulting in lower disruption.
	PEDESTRIAN BRIDGES 	Expand on ESCR's network of accessible pedestrian bridges by adding additional bridges and reconstructing existing bridges to the ESCR standard.	<ul style="list-style-type: none"> Addresses community desire to see more frequent connections to the waterfront and improves accessibility to East River Park and Pier 42 Park. Coordination will be needed to seamlessly integrate bridge landings into the park and in adjacent NYCHA communities.
NOT ADVANCED FURTHER	DECK-OVER 	Covering the FDR Drive in the study area with a continuous deck or smaller deck segments and creating green space on top of deck to strengthen the connections between the park and adjacent residential areas.	<ul style="list-style-type: none"> The lack of space between the parkway, the park, and nearby residential buildings makes this concept challenging. Construction would create significant disruption to the improvements being made through ESCR. Found infeasible due to space constraints; would result in significant disruption/displacement of NYCHA and other adjacent residences.
	BOULEVARD 	Transforming the FDR Drive to a boulevard, similar to the West Side Highway, by creating signalized intersections, crossings, medians, and new green space.	<ul style="list-style-type: none"> Converting the FDR Drive to a boulevard could result in increased congestion and pedestrian exposure to more vehicles and pollution on their way to the waterfront. Insufficient right-of-way for effective boulevard. A boulevard concept would need to be studied in the context of the broader FDR Drive corridor, not just within the study area. Found infeasible due to considerations regarding impacts on FDR Drive to the north and south.

The deck-over and boulevard approaches were not studied further following completion of the feasibility study stage of this study.

Upland Enhancements

IMPROVEMENT CONCEPT 1

OVERVIEW

This concept studies opportunities to enhance the public realm along the west side of the FDR drive, including sidewalk and planting area expansion, extending the curb to convert on-street parking to pedestrian space, and localized bicycle network enhancements.

OPEN SPACE IMPROVEMENTS

Section 3 examined environmental factors affecting health and comfort, including urban heat islands, tree canopies, air quality, and impervious surfaces to document the need for greening interventions.

The constraint analysis that follows identified potential street and sidewalk spaces for improvements, avoiding surface and subsurface infrastructure in conformance with NYC DOT's "Street Design Manual."

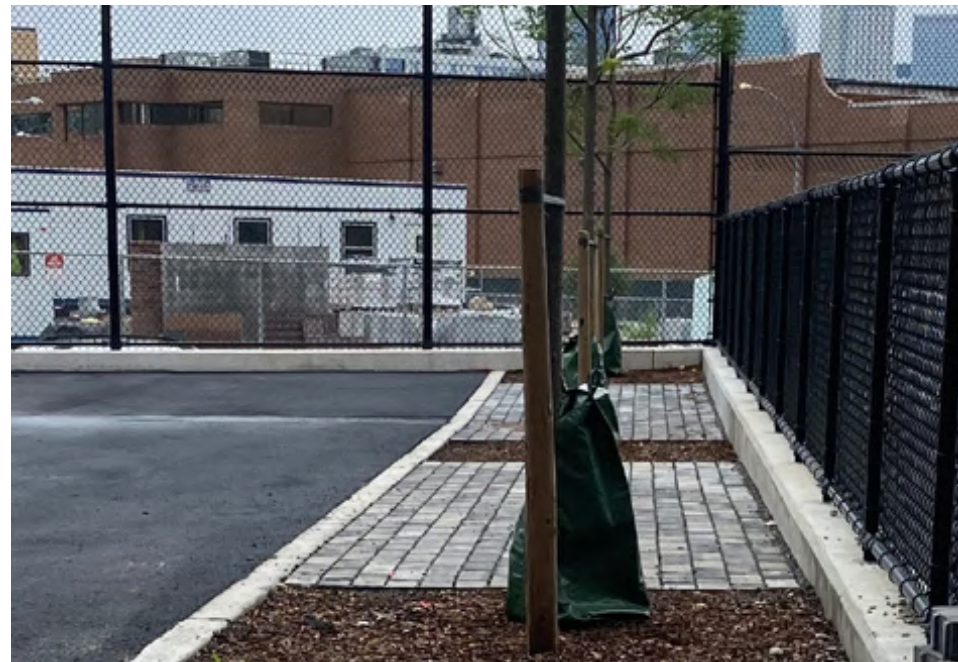
A toolkit of solutions was developed along with a matrix showing their applicability in various conditions; these were used as the basis for creating a preliminary plan. The toolkit features a range of improvements, including landscape, green infrastructure, sidewalk, and public realm improvements.

MOBILITY IMPROVEMENTS

The study evaluated the existing bike network and opportunities for enhancements based on connections and space availability. The team gathered community feedback on areas needing improvements and integrated feedback into recommendations. The concept includes a range of mobility solutions, including bike lane additions or safety improvements and pedestrian safety improvements.

Technical Criteria: Siting Green Infrastructure & Street Trees

- No encroachments on DEP sewer interceptors or Con Ed oil static lines.
- 15' buffer from DEP infrastructure in street (buffer does not apply beyond curb line).
- 5' buffer from DEP infrastructure when it crosses sidewalk perpendicularly.
- 3.5' buffer from DEP infrastructure for green infrastructure.
- Electric lines considered flexible (i.e. can be located under planted areas or moved locally).



Tree Beds with permeable pavers



Rain garden

Upland Enhancements | Toolkit

IMPROVEMENT CONCEPT 1



Enhanced Tree Beds



Enlarged Tree Beds



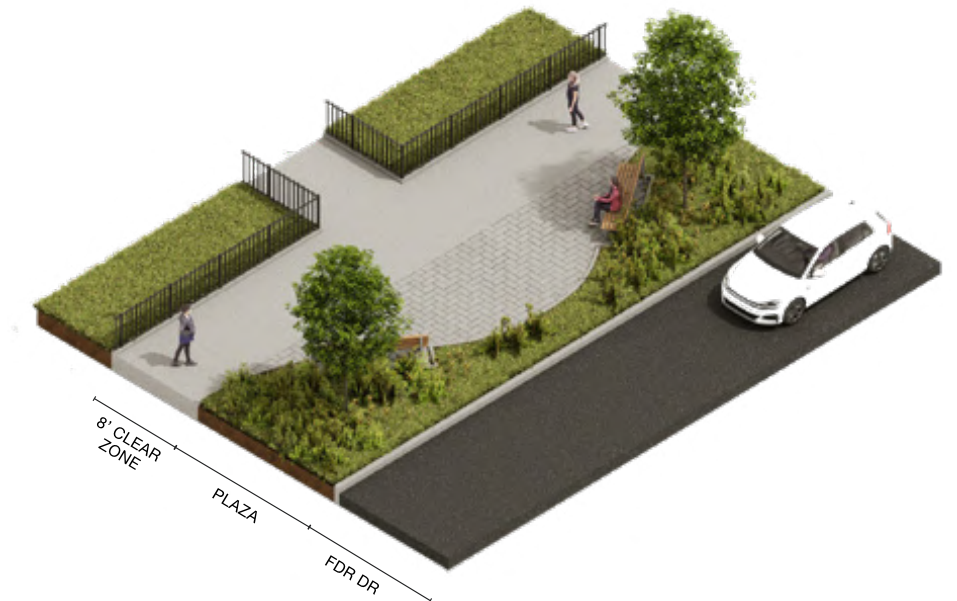
Planting in ROW



Planted Curb Extension with Parking



Planted Curb Extension



Planted plaza

This toolkit of solutions draws on NYC DOT's "Street Design Manual" as well as NYC Parks and NYC DEP standard details. These solutions can be applied along the FDR Drive corridor to enhance pedestrian and bicycle spaces.

Upland Enhancements | Precedent Projects

IMPROVEMENT CONCEPT 1

Recent streetscape enhancements completed by NYC DOT and the Hudson Square Business Improvement District (BID) illustrate strategies for integrating street plantings and green infrastructure with pedestrian and bicycle spaces. Enhancements to MTA Select Bus Service (SBS) stops, such as on Nostrand Avenue in Brooklyn, integrate green infrastructure with SBS furnishings. In Hudson Square in Manhattan, new protected bicycle lanes are complemented by generous street tree plantings. The Hudson Square BID used a new tree bed detail on Hudson Street that interconnects the soil between individual trees, thereby promoting tree health.



Nostrand Avenue, Brooklyn



Hudson Street, Manhattan



Upland Enhancements | Precedent Projects

IMPROVEMENT CONCEPT 1

On Flushing Avenue in Brooklyn adjacent to the Brooklyn Navy Yard, the bicycle lane is integrated with a wide sidewalk. Pedestrian and bicycle space are differentiated by standard and landmark gray concrete.

On Allen Street in the Lower East Side, a pedestrian path and bicycle lane are protected from street traffic within a tree-lined mall.



Flushing Avenue, Brooklyn



Allen Street, Manhattan



Upland Enhancements | Lighting Precedents

IMPROVEMENT CONCEPT 1

One approach for lighting the areas under the FDR Drive viaduct is to coordinate with New York State Department of Transportation (NYS DOT) to enhance security lighting attached to the underside of the viaduct. There is an agreement between NYS DOT and New York City Economic Development Corporation (NYC EDC) to mount custom fixtures under the FDR viaduct. These lights are maintained by NYC Parks and paid for by NYC EDC.

A second approach is to coordinate with NYC DOT's "Under the EI" pilot program to advance lighting prototypes such as those installed in Sunset Park.

A third approach is to coordinate with NYC Parks. If pedestrian space under the FDR viaduct is categorized as a Green Street or within Parks jurisdiction, it may be possible to install Flushing Meadows luminaires. NYC DOT maintains standard Flushing Meadows luminaires in parks.



Sunset Park, Brooklyn (top left); East River Park, Manhattan (top right); East River Esplanade, Manhattan (above).

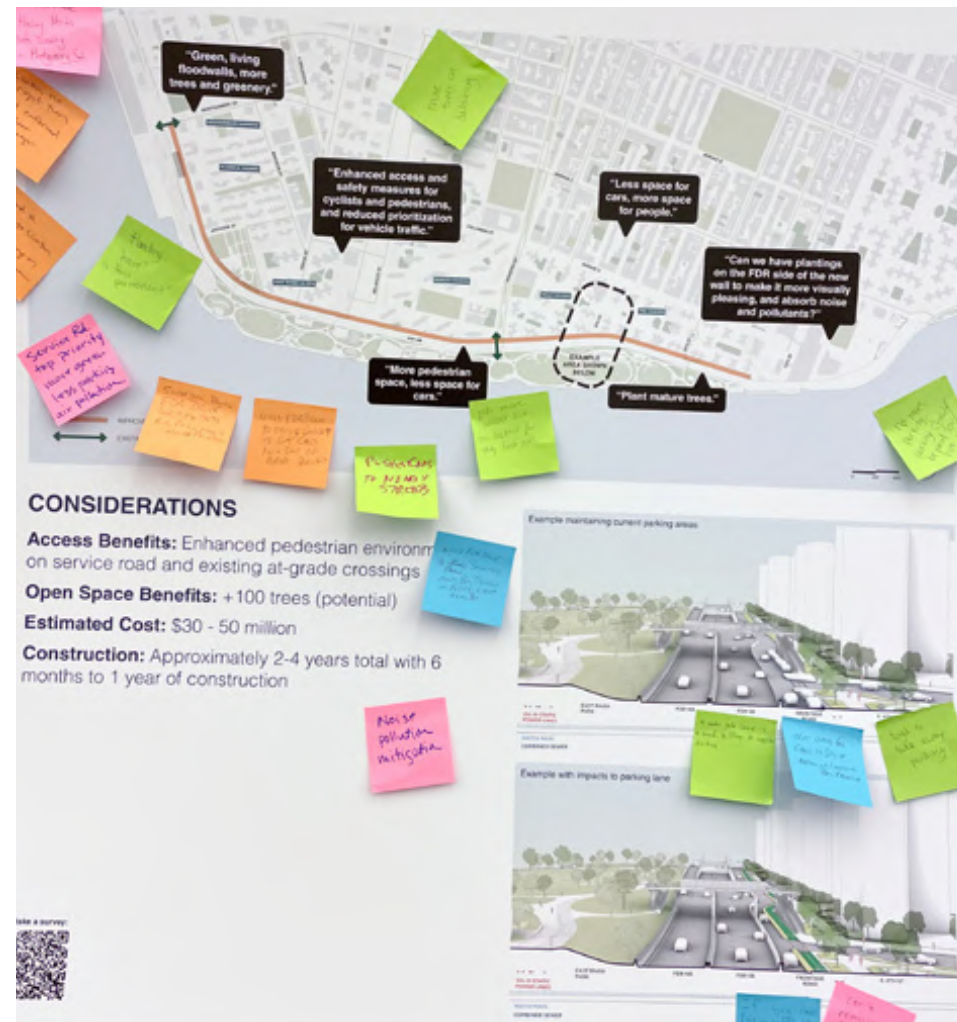
Upland Enhancements | Community Feedback

IMPROVEMENT CONCEPT 1

WHAT THE TEAM HEARD

Street Enhancements

- Some community members at Public Workshop 2 voiced support for removing parking and creating protected bike lanes or additional green space. Other community members rely on parking for commuting and deliveries.
- Support for more biodiversity, native plants and rain gardens.
- Support for new street trees that feature ground cover and tree guards.
- Concerns about maintenance of new plantings as well as existing plantings.



Survey Responses

“I think this is a great piece of improving the area around the FDR. Right now it’s treeless, dusty, and filled with car emissions.”

“Our area desperately needs more greenery, so anything would be welcome.”

“I like the idea of adding more green space, narrowing service roads and adding bike lanes on the western side of the street.”

“This would be a minimally effective way of improving bike access on the east side, and would do nothing for other quality of life concerns caused by the FDR.”

“I like them all, in particular the planted plaza. The green invites birds, absorbs pollution, keeps the city cooler, and absorbs rainwater. I like the planted curb extension for the same reasons.”

Feedback on the upland enhancements improvement concept received during Public Workshop 2 (left) and from the second survey (right).

Pedestrian Bridges

IMPROVEMENT CONCEPT 2





OVERVIEW

The concept studied opportunities for new or improved pedestrian bridge connections in addition to the improvements being made to the Corlears Hook, Delancey Street, and East 10th Street bridges as part of ESCR. The studies considered bridges at Jackson Street, the Baruch Houses, East 6th Street, and East 8th Street. The table illustrates which bridge concepts were advanced further. The concepts considered potential bridge and ramp alignments based on street and sidewalk conditions on the city-side of FDR Drive and impacts to East River Park.

The bridge connections would improve access to the waterfront by creating universally accessible, shared-use bridges that minimize switchbacks, making it easier and safer to get across. The locations were considered based on community feedback from the ESCR process, neighborhood pedestrian and bicycle circulation, and the distance between existing pedestrian bridges. The concept includes preliminary plans for bridges that meet the technical criteria below. The team evaluated the pedestrian connectivity implications of each bridge location and other public realm impacts.

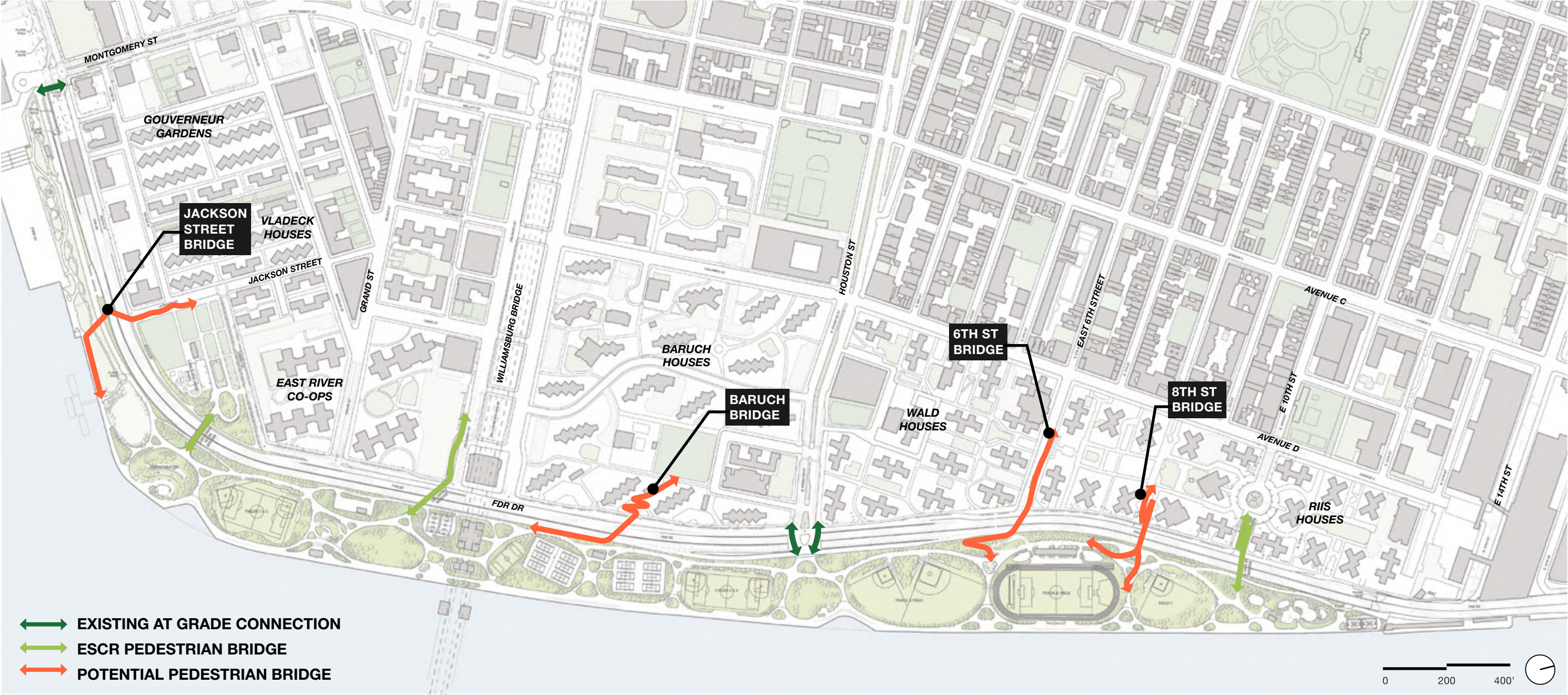
Technical Criteria

- 5% slope for universally designed ramp.
- Minimum 15.5' vertical clearance between bridge structure and FDR.
- Minimum width of 12' clear shared-use path for bridge landing (minimum width of ESCR bridges).
- When space allows, 20' width, including separated bike path (10') and pedestrian path (10'), is recommended.

	BRIDGE LOCATION	CONCLUSIONS
ADVANCED IN ANALYSIS	JACKSON STREET BRIDGE New universal access pedestrian bridge from Jackson Street to East River Park / Pier 42. 	<ul style="list-style-type: none"> • Addresses community desire to see a more direct connection to Pier 42 and ferry terminal. • Coordination with Pier 42 project will be needed for park side landing.
	EAST 6TH STREET BRIDGE Replace existing East 6th Street pedestrian bridge with a new universal access bridge. 	<ul style="list-style-type: none"> • Addresses community desire for wider and multipurpose bridge. • Coordination will be needed to seamlessly integrate bridge landings into the park.
NOT ADVANCED FURTHER	BARUCH BRIDGE New pedestrian bridge connecting East River Park to Baruch Houses (East 4th Street area). 	<ul style="list-style-type: none"> • Significant impacts to adjacent NYCHA properties. Additional NYCHA community feedback would be needed were a concept like this advanced as a capital project.
	EAST 8TH STREET BRIDGE New pedestrian bridge connecting East River Park to Riis Houses (East 8th Street plaza). 	<ul style="list-style-type: none"> • Significant impacts to adjacent NYCHA properties. Additional NYCHA community feedback would be needed were a concept like this advanced as a capital project. • Coordination will be needed with NYC Parks to address impact to the maintenance and operation yard.

Pedestrian Bridges

IMPROVEMENT CONCEPT 2



This plan shows the potential locations: a reconstructed bridge at East 6th Street, and new bridges at Jackson Street, Baruch Houses, and East 8th Street.

Pedestrian Bridges | Jackson Street Bridge

IMPROVEMENT CONCEPT 2



APPROACH A: RAISED PATH ON PIER 42



APPROACH B: EAST RIVER ESPLANADE CONNECTION



APPROACH C: PIER 42 CONNECTION



APPROACH D: CORLEARS HOOK FERRY TERMINAL CONNECTION

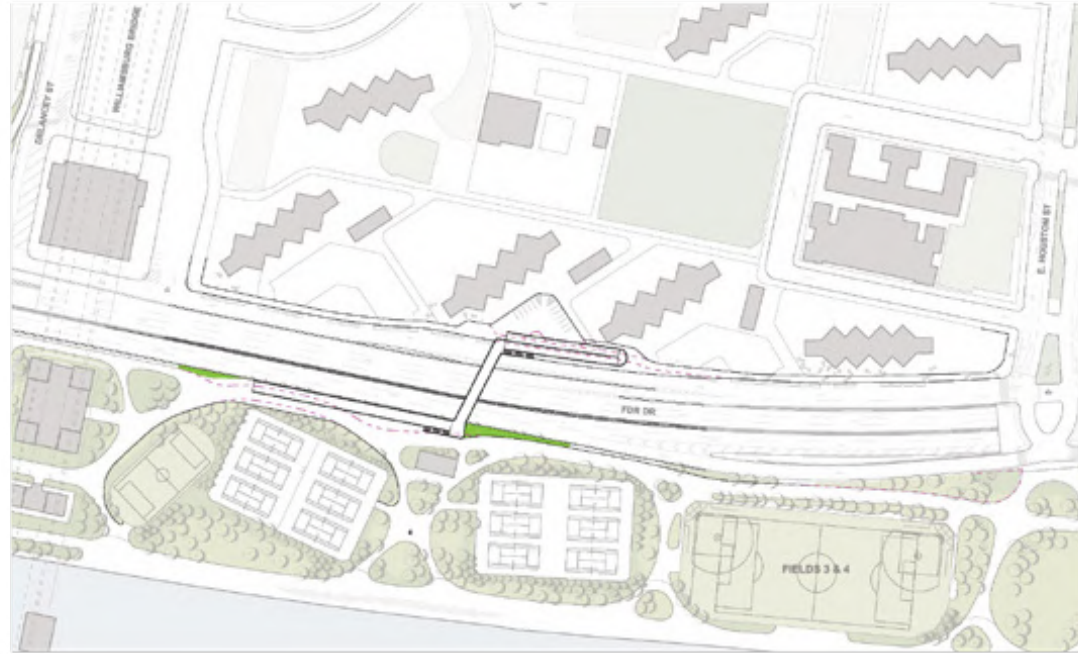
Pedestrian Bridges | Jackson Street Bridge

IMPROVEMENT CONCEPT 2

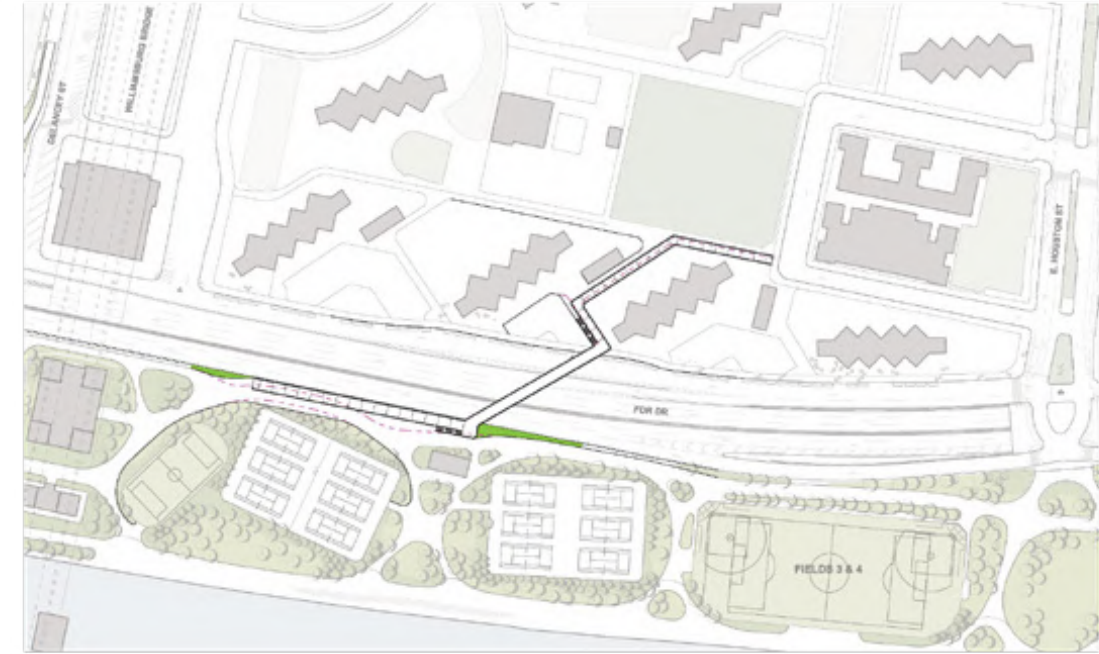
APPROACH	TRADE-OFFS
<p>APPROACH A: RAISED PATH ON PIER 42</p>	<p>Pro: Creates access to Pier 42 Park and Manhattan Greenway.</p> <p>Con: Modifies southern edge of Corlears Hook Park for bridge landing on the city-side.</p> <p>Con: Requires modification to the shared use path (Manhattan Greenway) for the bridge landing in park.</p> <p>Con: Significant impacts to the landscaping and grading of Pier 42 park.</p>
<p>APPROACH B: EAST RIVER ESPLANADE CONNECTION</p>	<p>Pro: Creates access to East River Park and East River Esplanade.</p> <p>Pro: Open space improvement with expanded sidewalk and green infrastructure opportunity on the city-side.</p> <p>Con: Modifies southern edge of Corlears Hook Park, and removes street parking for bridge landing on the city-side.</p> <p>Con: Requires modification to the landscaping and grading of Pier 42 Park.</p> <p>Con: Raises south end of the East River Esplanade for park side bridge landing.</p>
<p>APPROACH C: PIER 42 CONNECTION</p>	<p>Pro: Creates access to Pier 42 park.</p> <p>Pro: Open space improvement with expanded sidewalk and green infrastructure opportunity on the city-side.</p> <p>Con: Modifies southern edge of Corlears Hook Park, and removes street parking and one travel lane for bridge landing on the city-side.</p> <p>Con: Significant impacts to the landscaping and grading of Pier 42 Park.</p>
<p>APPROACH D: CORLEARS HOOK FERRY TERMINAL CONNECTION</p> <p>This approach was recommended for further study, as it provides connection to the ferry terminal, which was requested by the community, and requires the least modification to Pier 42 landscape and grading.</p>	<p>Pro: Creates access to Corlears Hook ferry terminal.</p> <p>Pro: Open space improvement with expanded sidewalk and green infrastructure opportunity on the city-side.</p> <p>Con: Modifies southern edge of Corlears Hook Park, and removes street parking and one travel lane for bridge landing on the city-side.</p> <p>Con: Requires some modification to the landscaping and grading of Pier 42 Park.</p>

Pedestrian Bridges | Baruch Bridge

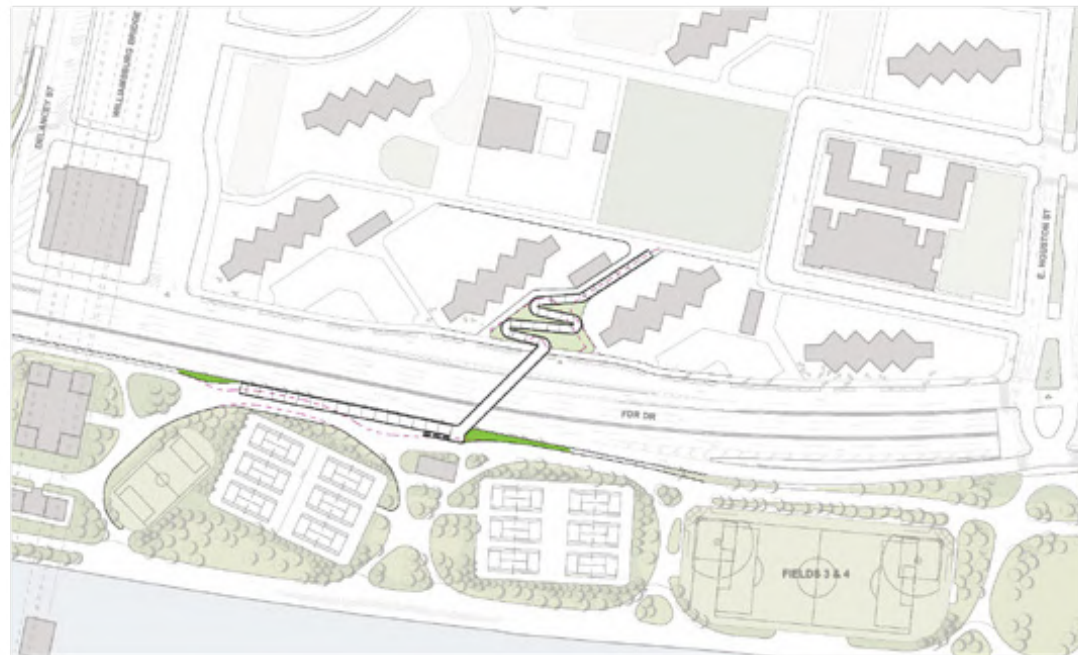
IMPROVEMENT CONCEPT 2



APPROACH A: BRIDGE LANDING PARALLEL TO FDR



APPROACH B: LANDING ON MANGIN STREET



APPROACH C: PARKS CONNECTION

Pedestrian Bridges | Baruch Bridge

IMPROVEMENT CONCEPT 2

APPROACH	TRADE-OFFS
<p>APPROACH A: BRIDGE LANDING PARALLEL TO FDR</p>	<p>Pro: Provides connection between the NYCHA open space and East River Park.</p> <p>Con: Encroaches on NYCHA properties and modifies NYCHA parking lot, sidewalk, and lawn to accommodate space for bridge landing.</p> <p>Con: Removes street parking.</p> <p>Con: Requires modification to East River Park landscape and grading.</p> <p>Con: Narrow (16 ft. clear) shared use path ramping down in East River Park because of the limited space available; preferred typical width is 20 ft, on park-side.</p>
<p>APPROACH B: LANDING ON MANGIN STREET</p>	<p>Pro: Provides connection between the NYCHA open space and East River Park.</p> <p>Con: Encroaches on NYCHA properties and modifies NYCHA internal path, sidewalk, and lawn to accommodate space for bridge landing.</p> <p>Con: Requires modification to East River Park landscape and grading.</p> <p>Con: Narrow (16 ft. clear) shared use path ramping down in East River Park because of the limited space available; preferred typical width is 20 ft, on park-side.</p>
<p>APPROACH C: PARKS CONNECTION</p>	<p>Pro: Provides connection between the NYCHA open space and East River Park.</p> <p>Con: Encroaches on NYCHA properties and modifies NYCHA parking lot, internal path, sidewalk, and lawn to accommodate space for bridge landing.</p> <p>Con: Removes street parking.</p> <p>Con: Requires modification to East River Park landscape and grading.</p> <p>Con: Narrow (16 ft. clear) shared use path ramping down in East River Park because of the limited space available; preferred typical width is 20 ft, on park-side.</p>

This concept is not recommended for further study due to significant impacts to Baruch Houses property. Additional NYCHA community feedback would be needed if a concept like this were to be advanced as a capital project.

Pedestrian Bridges | East 6th Street Bridge

IMPROVEMENT CONCEPT 2



APPROACH A: REPLACE EXISTING BRIDGE LANDING



APPROACH B: CONVERT EAST 6TH STREET TO ONE-WAY



APPROACH C: END EAST 6TH STREET AT MID-BLOCK



APPROACH D: GREEN BRIDGE

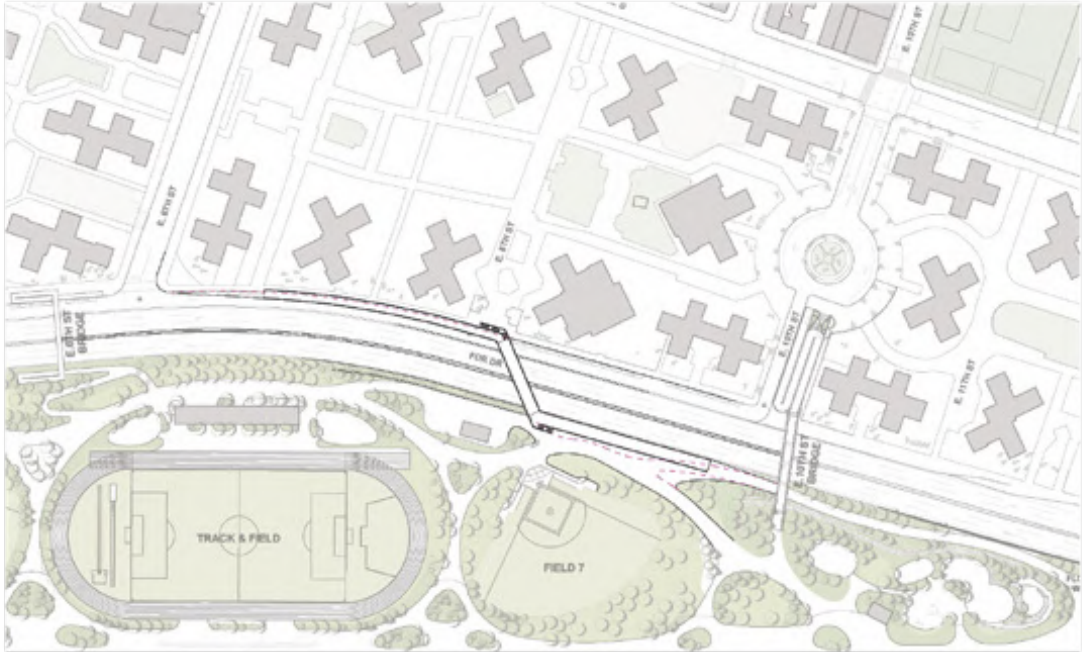
Pedestrian Bridges | East 6th Street Bridge

IMPROVEMENT CONCEPT 2

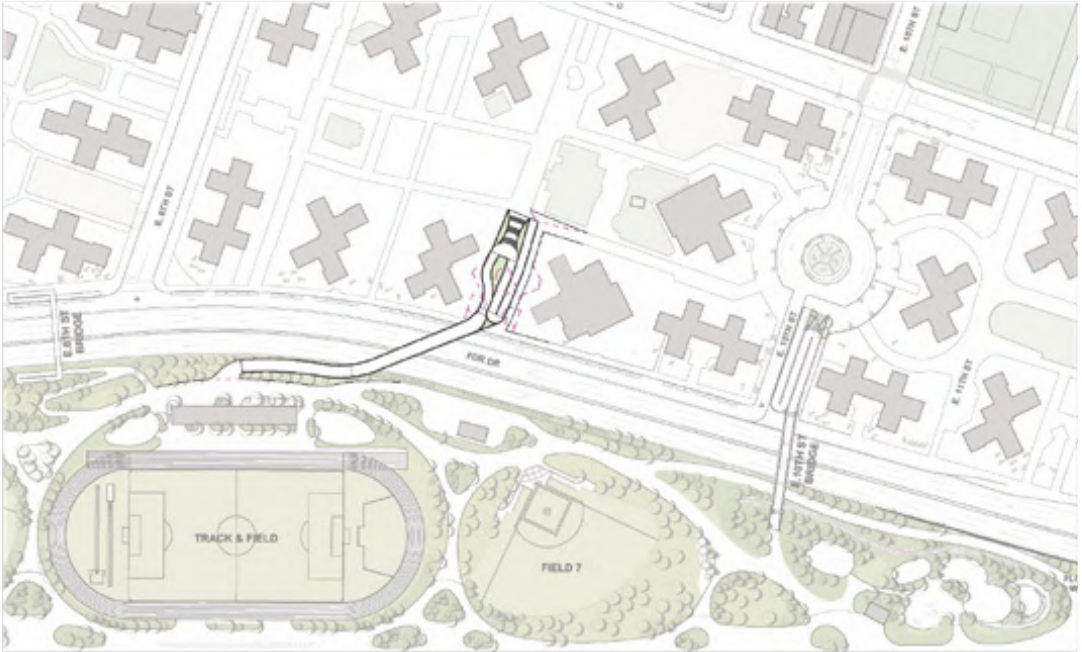
APPROACH	TRADE-OFFS
<p>APPROACH A: REPLACE EXISTING BRIDGE LANDING</p>	<p>Pro: Replaces existing narrow and ADA non-compliant bridge ramp with a universally accessible bridge ramp.</p> <p>Con: Encroaches on NYCHA properties and modifies NYCHA properties to accommodate space for bridge landing.</p> <p>Con: Removes street parking and creates 8' pinch point on the FDR Drive service road sidewalk.</p> <p>Con: Requires modification to East River Park landscape and grading.</p>
<p>APPROACH B: CONVERT EAST 6TH STREET TO ONE-WAY</p> <p>This approach was recommended for further study, as it normalizes 6th St to be consistent with the surrounding street grid.</p>	<p>Pro: Replaces existing narrow and ADA non-compliant bridge ramp with a universally accessible bridge ramp.</p> <p>Pro: Bridge ramp starts along the East 6th Street corridor, provides connection between the neighborhood and East River Park.</p> <p>Pro: Open space improvement with expanded sidewalk and green infrastructure opportunity on the city-side.</p> <p>Con: Removes street parking and one travel lane along East 6th Street for bridge ramp.</p> <p>Con: Requires modification to East River Park landscape and grading.</p>
<p>APPROACH C: END EAST 6TH STREET AT MID BLOCK</p>	<p>Pro: Replaces existing narrow and ADA non-compliant bridge ramp with a universally accessible bridge ramp.</p> <p>Pro: Bridge ramp starts along the East 6th Street corridor, provides connection between the neighborhood and East River Park.</p> <p>Pro: Open space improvement with expanded sidewalk and green infrastructure opportunity on the city-side.</p> <p>Con: Significant impacts to adjacent NYCHA properties.</p> <p>Con: Requires traffic re-route as East 6th Street is terminated with a cul-de-sac.</p> <p>Con: Requires modification to East River Park landscape and grading.</p>
<p>APPROACH D: GREEN BRIDGE</p>	<p>Pro: Replaces existing narrow and ADA non-compliant bridge ramp with a universally accessible bridge ramp.</p> <p>Pro: Bridge ramp starts along the East 6th Street corridor, provides connection between the neighborhood and East River Park.</p> <p>Pro: Provides continuous landscaping and separated bike and pedestrian path along the bridge.</p> <p>Con: Significant impacts to the NYCHA properties.</p> <p>Con: Requires modification to East River Park landscape and grading.</p> <p>Con: Plantings on bridges present a maintenance challenge.</p>

Pedestrian Bridges | East 8th Street Bridge

IMPROVEMENT CONCEPT 2



APPROACH A: BRIDGE LANDING PARALLEL TO FDR



APPROACH B: 8TH STREET PLAZA INTEGRATION



APPROACH C: EAST RIVER PARK INTEGRATION

Pedestrian Bridges | East 8th Street Bridge

IMPROVEMENT CONCEPT 2

APPROACH	TRADE-OFFS
<p>APPROACH A: BRIDGE LANDING PARALLEL TO FDR</p>	<p>Pro: Provides connection between NYCHA open spaces and East River Park.</p> <p>Con: Both city-side and park-side landings are close to existing bridges, which creates redundancy of pedestrian bridge connections.</p> <p>Con: Encroaches on NYCHA properties and modifies NYCHA properties to accommodate space for bridge landing.</p> <p>Con: Removes street parking and creates 8' pinch point on the FDR Drive service road sidewalk.</p> <p>Con: Requires modification to East River Park landscape and grading.</p>
<p>APPROACH B: 8TH STREET PLAZA INTEGRATION</p>	<p>Pro: Provides connection between NYCHA open spaces and East River Park.</p> <p>Con: Encroaches on NYCHA properties and modifies East 8th Street plaza, sidewalk and lawn to accommodate space for bridge landing.</p> <p>Con: Requires modification to East River Park landscape and grading.</p>
<p>APPROACH C: EAST RIVER PARK INTEGRATION</p>	<p>Pro: Provides connection between NYCHA open spaces and East River Park.</p> <p>Con: Encroaches on NYCHA properties and modifies East 8th Street plaza, sidewalk and lawn to accommodate space for bridge landing.</p> <p>Con: Requires major changes in East River Park (NYC Parks' maintenance and operation yard, geometry of multiple pathways, landscaping, and grading).</p>

This concept is not recommended for further study due to significant impacts to Riis Houses property. NYCHA community feedback is needed to confirm interest, and coordination will be needed with NYC Parks to address impacts to the maintenance and operation yard.

Pedestrian Bridges | Precedent Projects

IMPROVEMENT CONCEPT 2

The follow precedents illustrate architectural pedestrian bridges that have been recently constructed in New York City.

The Robert R. Douglass Bridge was built as a replacement for the Rector Street Pedestrian Bridge. The Robert. R. Douglas bridge structure uses the minimum footprint and a light structure and connects pedestrians to the waterfront parks in Battery Park City.

The Tribeca Bridge utilizes a Warren truss design, with an enclosed walkway that hangs from the truss. The bridge primarily serves pedestrians, offering a safe and convenient alternative to crossing the busy six-lane West Side Highway.



Robert R. Douglass Bridge, Manhattan



Tribeca Bridge, Manhattan



Pedestrian Bridges | Precedent Projects

IMPROVEMENT CONCEPT 2

The East 54th Street pedestrian bridge in Sutton Place Park anchors the southern end of the East Midtown Greenway and provides a connection for pedestrians and bicyclists between the community and the Manhattan Waterfront Greenway.

The Squibb Park Bridge is a footbridge connecting Brooklyn Bridge Park and Squibb Park in Brooklyn Heights. The bridge is constructed of a steel truss and supported by concrete columns.



East 54th Street Pedestrian Bridge, Manhattan



Squibb Park Bridge, Brooklyn



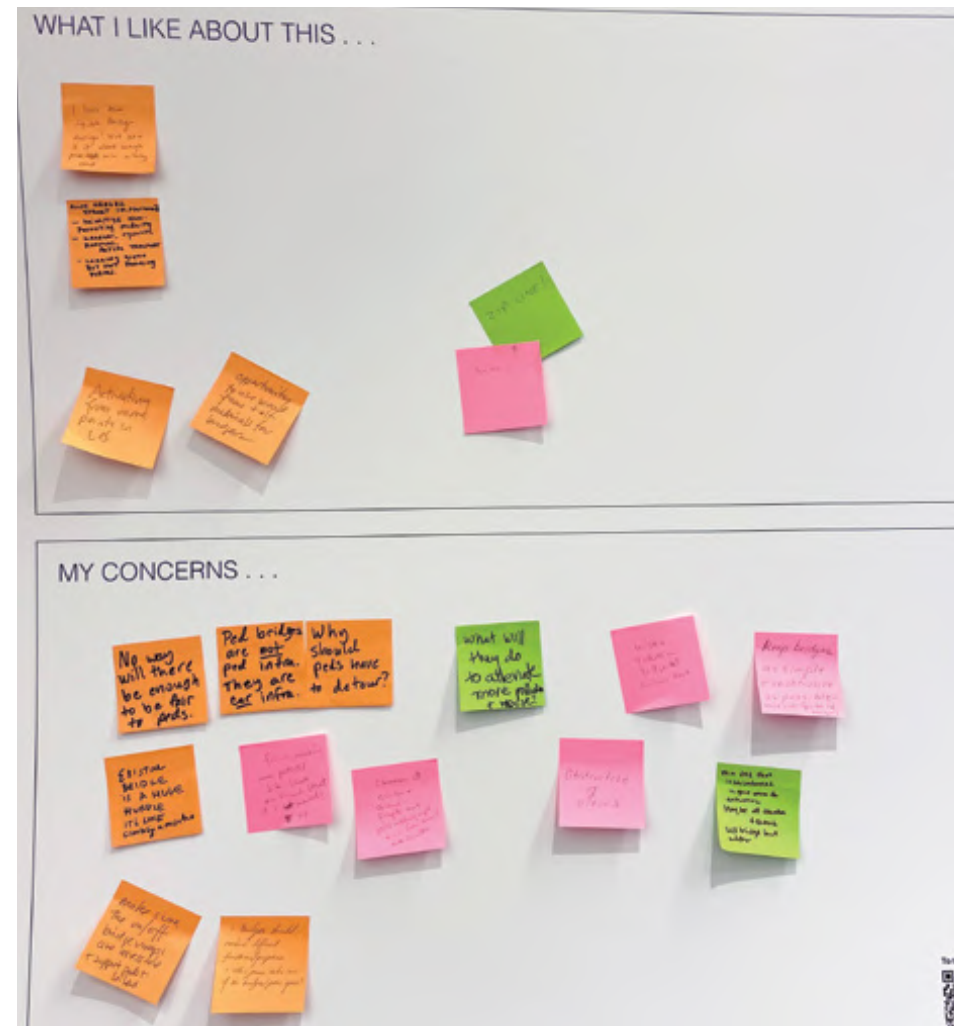
Pedestrian Bridges | Community Feedback

IMPROVEMENT CONCEPT 2

WHAT THE TEAM HEARD

New Bridges

- Community members at Public Workshop 2 discussed the opportunity to use wood or alternative materials for pedestrian bridges.
- Attendees expressed a desire for bridges to feature programming or green spaces, like the High Line.
- Attendees highlighted the importance of ensuring bridge ramps are accessible and designed to support both pedestrians and cyclists.
- Attendees noted that additional bridges could activate more areas of the neighborhood.
- Attendees expressed concerns about the effectiveness of bridges in alleviating noise and air pollution from vehicles.



Survey Responses

“ESCR has already involved a close to unbearable amount of construction, so I am leery about an additional bridge; that said, the East 6th Street bridge could certainly use improvement.”

“The more bridges the better and the High Line and Squibb Park bridges are most aesthetically pleasing.”

“It’s not clear to me that we need more bridges at this point.”

“I think additional elevated walkways will be nice but hard to keep clean and maintain.”

“I don’t think these designs do enough to increase mobility and waterfront access. The ascent up and over the FDR at East 6th Street is a real pain. The grade feels too steep after a hard soccer game or a long run on the water – I can only imagine how that feels for folks with mobility issues.”

Feedback on the pedestrian bridges improvement concept received during Public Workshop 2 (left) and from the second survey (right).

Pedestrian Bridges | Community Feedback

IMPROVEMENT CONCEPT 2



Public Workshop 2 attendees gave feedback on the pedestrian bridges improvement concept.

Deck-Over

IMPROVEMENT CONCEPT 3

CONTEXT

The concept of decking over the FDR Drive was proposed during the Rebuild by Design competition in 2013. A rendering of what this could look like as a long-term vision for the neighborhood, which portrayed burying the FDR Drive beneath an elevated continuous park west of East River Park, was included in the final report of “The Big U” proposal. During engagement for both East Side Coastal Resiliency and this study, community members have asked the City to further explore the feasibility of a deck-over.

OVERVIEW

Responding to community feedback, this concept explores different configurations of decking over FDR to create additional open space and connections to East River Park. The team evaluated a range of alternatives, ranging from a concept close to what was shown in “The Big U” report to alternatives that involve partial deck-over connections.

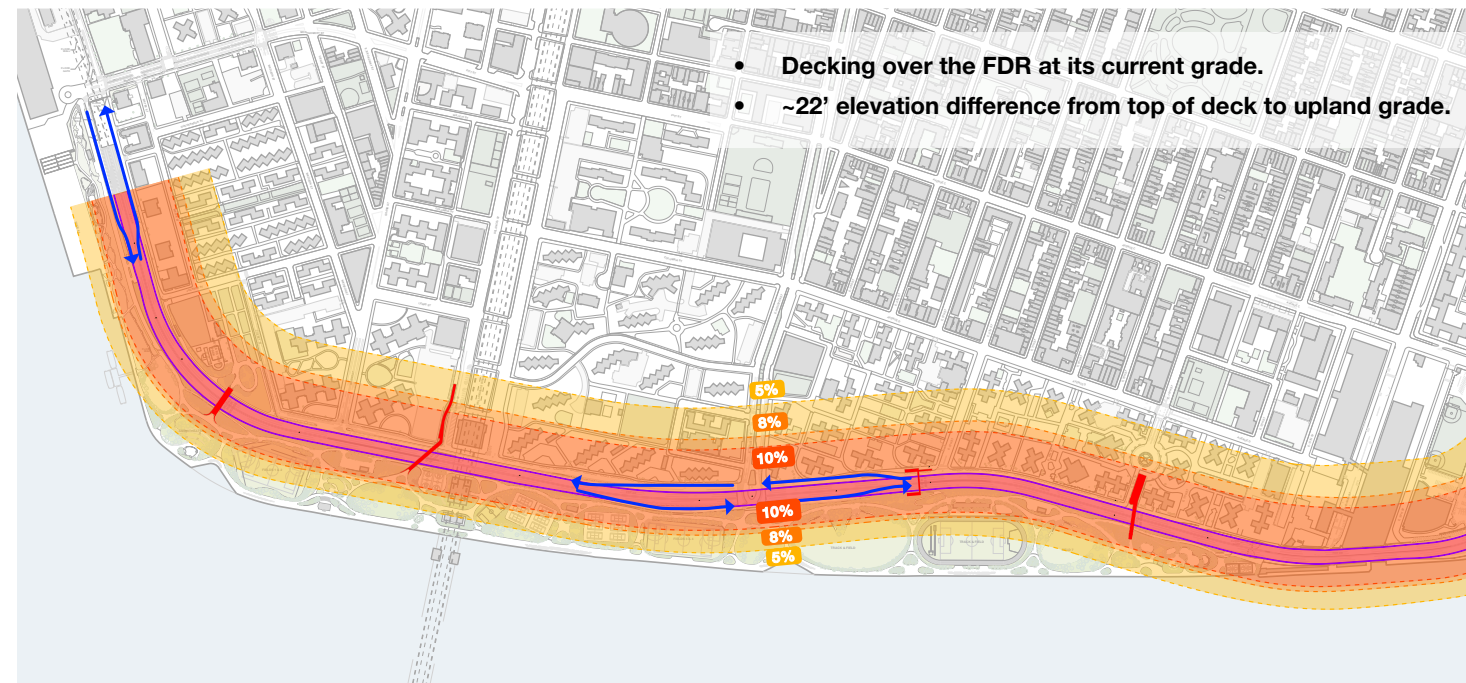
The alternatives on the follow page were developed to understand and illustrate the scale and feasibility of decking over FDR Drive. The alternatives include a range of approaches from fully decking over FDR Drive to decking over FDR Drive in sections with “land bridges.” Because a 15.5’ minimum clearance between the roadway and the bottom of a deck is required by NYS DOT, the alternatives illustrate how much space is needed to connect the neighborhood and East River Park to the top of the deck via universally accessible sloping surfaces or ramps. The alternatives illustrate that ramps or sloping surfaces would significantly encroach on adjacent residential areas and East River Park. Approaches B, C, and D assume that such encroachments could be reduced if the FDR Drive were lowered by between 5’ and 9’ from its existing elevation. This is the most the roadway can be lowered due to below ground infrastructure. Excavation to lower the FDR Drive would increase the cost of a project.



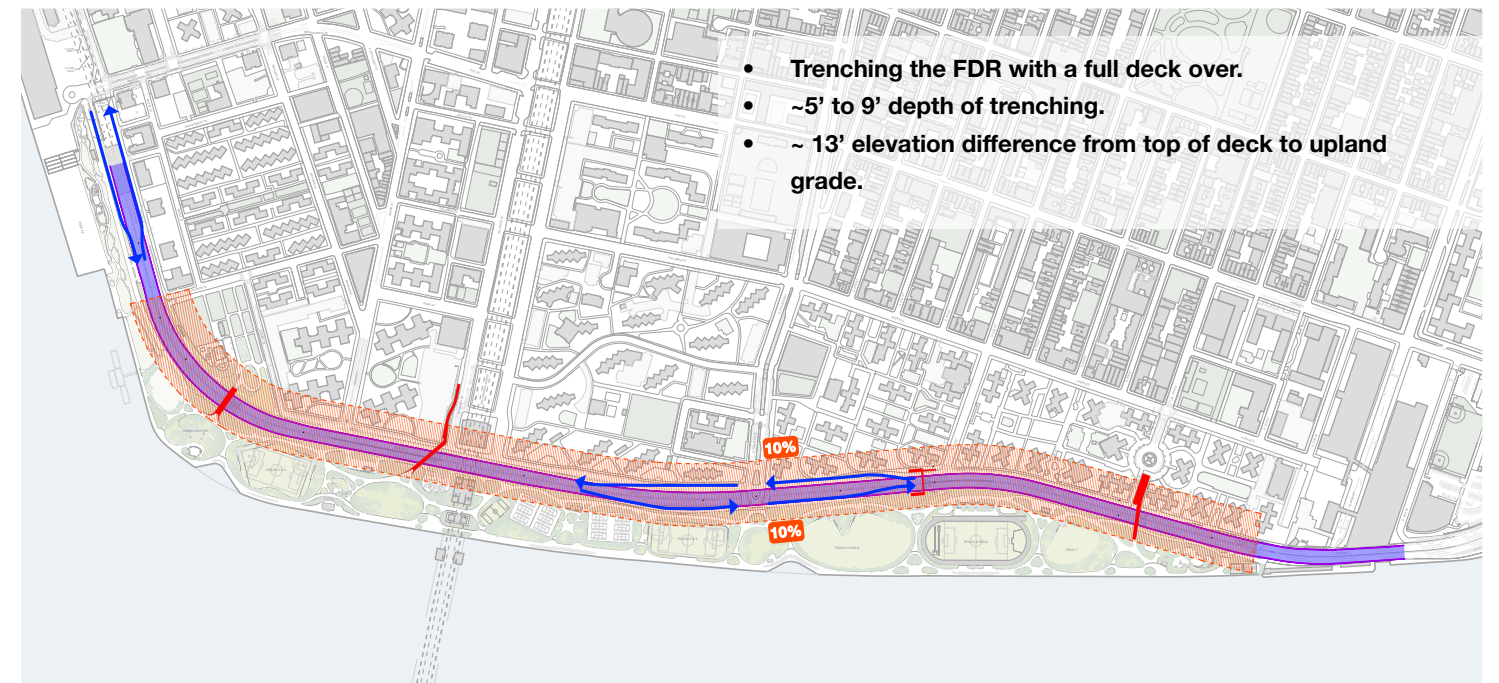
FDR Drive deck-over as illustrated in “The Big U” proposal (2013)

Deck-Over | Alternatives

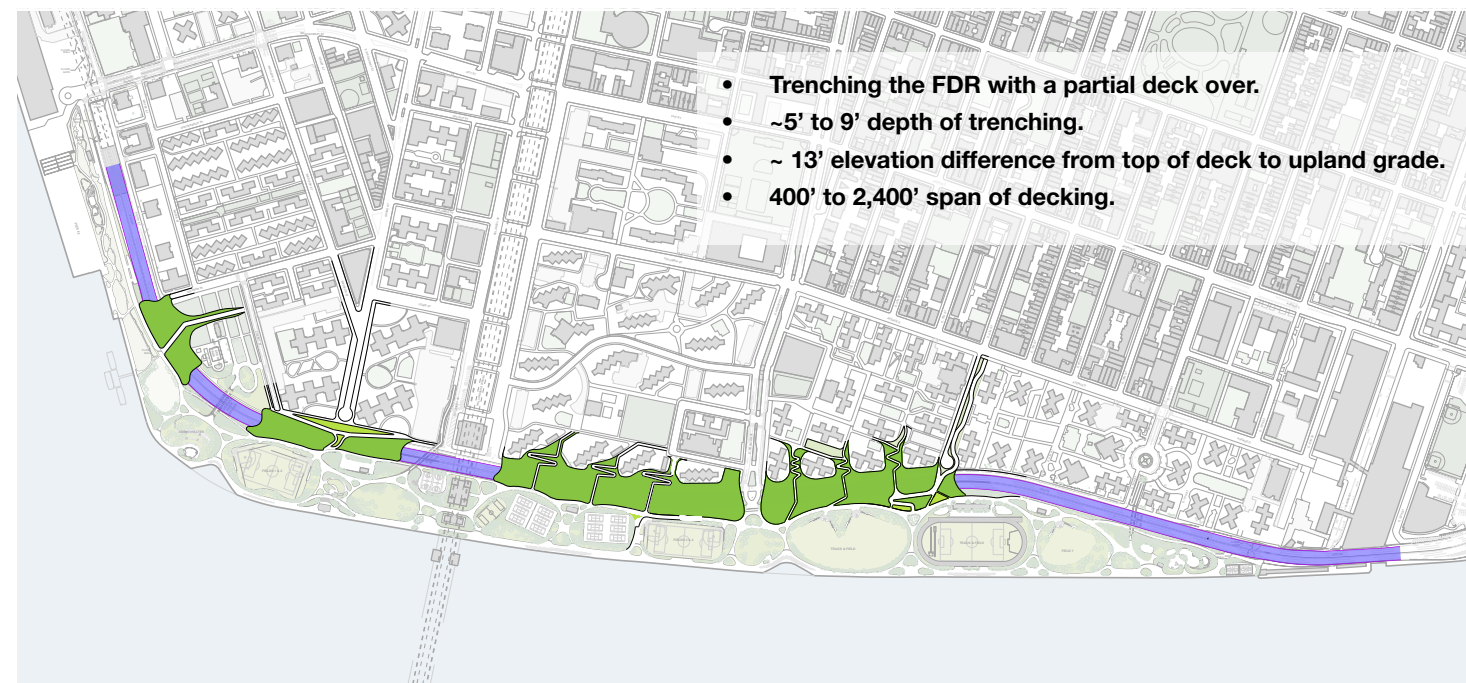
IMPROVEMENT CONCEPT 3



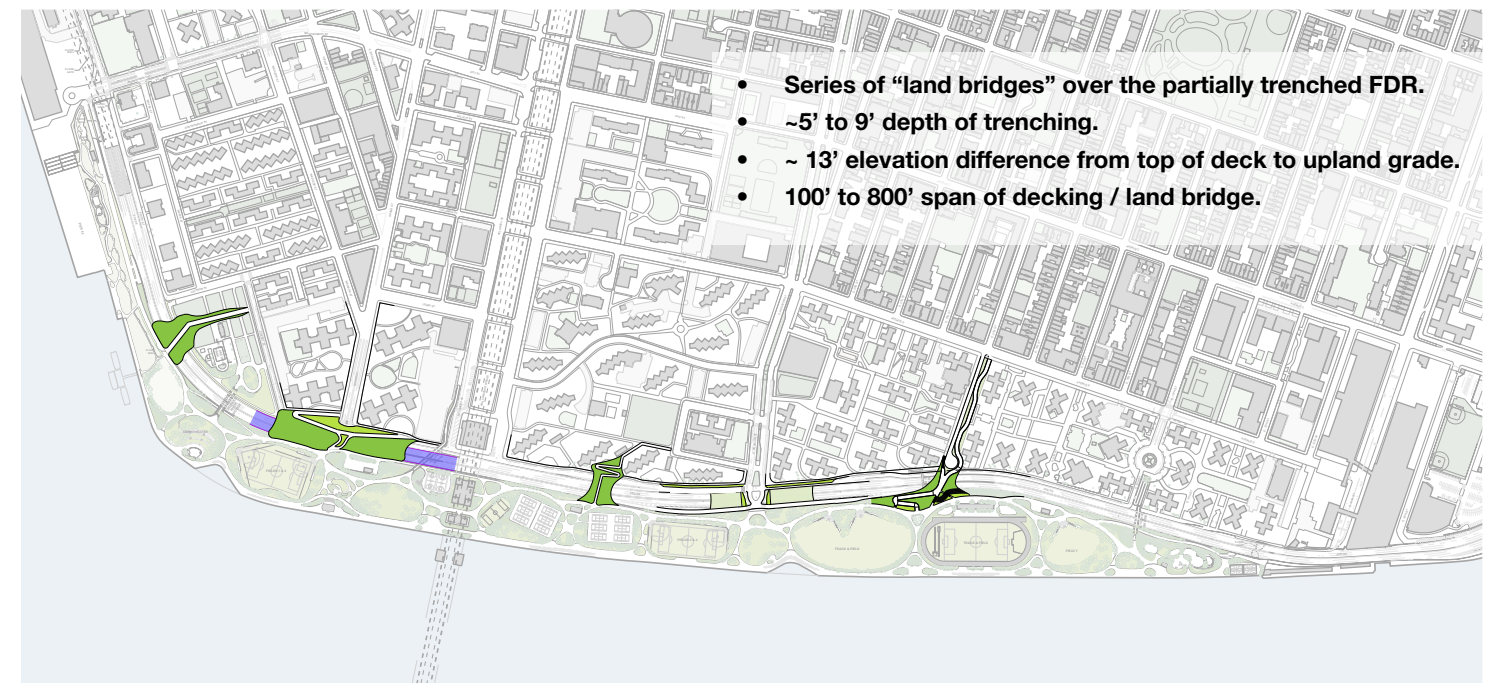
APPROACH A: DECK-OVER AT GRADE



APPROACH B: TRENCH AND DECK-OVER



APPROACH C: TRENCH AND PARTIAL DECK-OVER (LONGER SECTIONS)



APPROACH D: PARTIAL TRENCH AND PARTIAL DECK-OVER (SHORTER SECTIONS)

Deck-Over | Feasibility Analysis

IMPROVEMENT CONCEPT 3

Any of the options developed for constructing a deck-over of the FDR Drive would be a significant infrastructure investment and technical challenge due to the constraints and considerations that follow. In addition, since the Big U, which envisioned the deck-over concept, the ESCR project has reimagined East River Park, changing the context for such a project.

SURFACE CONSTRAINTS

- There are maximum slope criteria for creation of new open space that would need to be followed in design of the deck (see text box to the right). These requirements would mean that significant amounts of space on both sides of the FDR Drive would be needed for the overall footprint of the deck. As such, the deck would encroach upon large areas of adjacent NYCHA properties and other residential areas as well as the newly reconstructed East River Park and three pedestrian bridges.
- While trenching the highway limits the elevation changes, trenching creates greater disruption and costs, and has limitations due to groundwater.

SUBSURFACE CONSTRAINTS

- Construction of decks is expected to require deep foundations for the structures, which would need to avoid major utilities such as Con Edison oil-o-static lines and NYC DEP combined sewers, interceptors, and water mains.
- The presence of utilities beneath the FDR Drive limits the extent to which the parkway can be trenched, as shown later in this section.

ADDITIONAL KEY CHALLENGES

Constructability: It would be very challenging to construct a trench & deck-over without extended periods (months to years) of complete closure of either the northbound or southbound lanes of the FDR Drive. Construction would likely result in significant community disruption. A preliminary, high-level construction process may involve:

- Closure of one direction of the FDR Drive.
- Excavation of the roadway to achieve desired new grading, which would require significant temporary shoring to support excavation.
- Construction of the deck for that side of the highway, extending to the highway centerline. Significant temporary supports would be needed while the other side is constructed.
- Repetition of this process to excavate the roadway and construct the deck on the other side of the highway, and steps to connect the deck at the center.
- Potentially one travel lane could be maintained in each direction for most of construction, though there may be periods where full closure would be needed. These capacity limitations could divert more traffic to local streets. Note that in ESCR, closure of two lanes at a time was only permitted during night hours (1:00am to 5:00am), whereas this construction would require full-time closure of two lanes in each direction.

Long-term traffic implications: The continuous deck concepts would require permanent closure of the FDR Drive entrances and exits along the corridor, which could increase traffic on local streets to some extent. Detailed traffic analysis would be needed to further understand the vehicular traffic impacts.

Technical Criteria

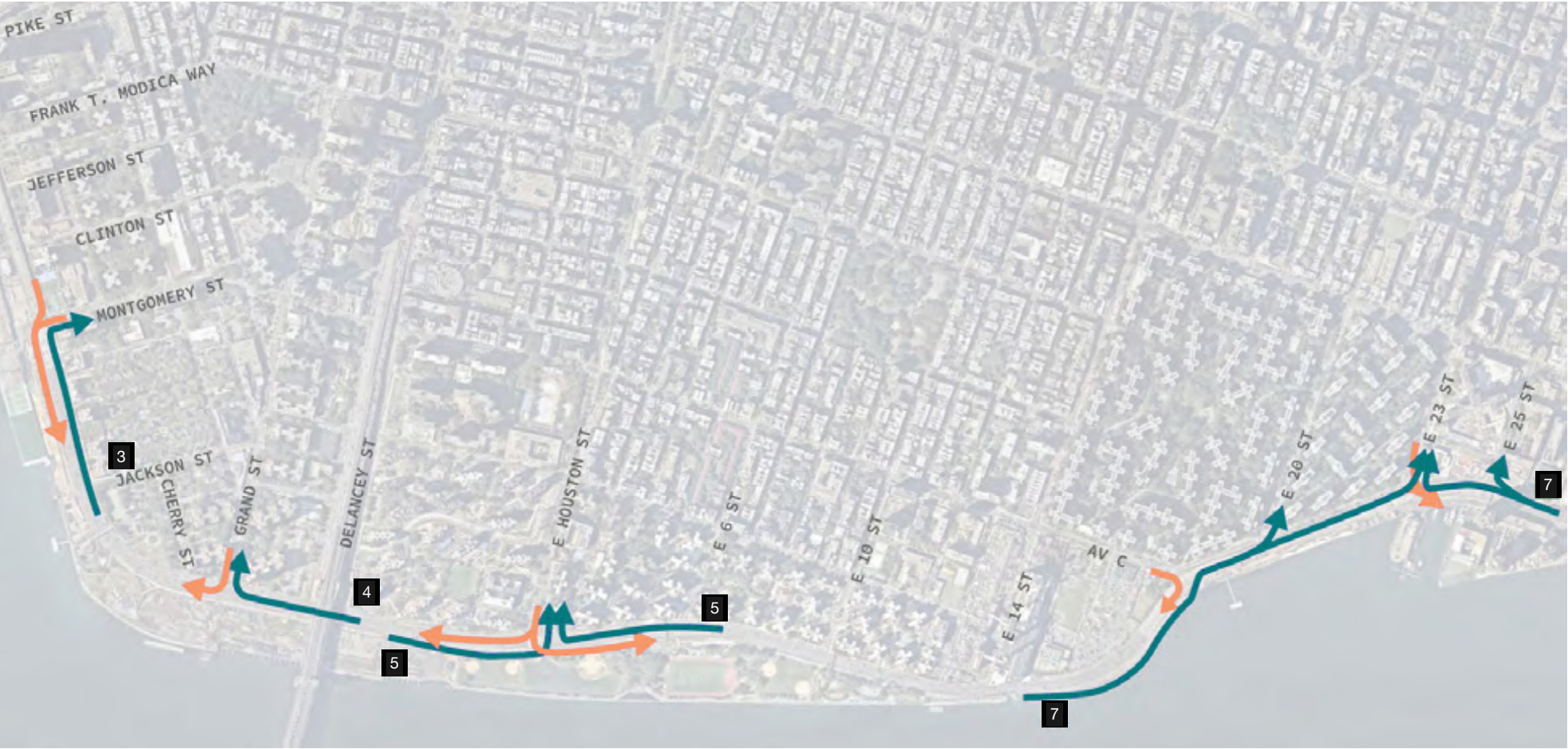
- 8% slope with landing for universally designed ramp.
- 3-10% slope for informal outdoor activities and landscaping.
- Maximum 33% landscape slope.
- Deck clearances must meet required / desired clearances in the NYS DOT Bridge Manual. New decks are shown as minimum 15.5' vertical clearance between decking structure and FDR Drive.
- Minimum 3' structure and 3' soil depth.
- >300' deck requires passive ventilation; >800' deck requires active ventilation.

Deck-Over | Traffic Impacts

IMPROVEMENT CONCEPT 3

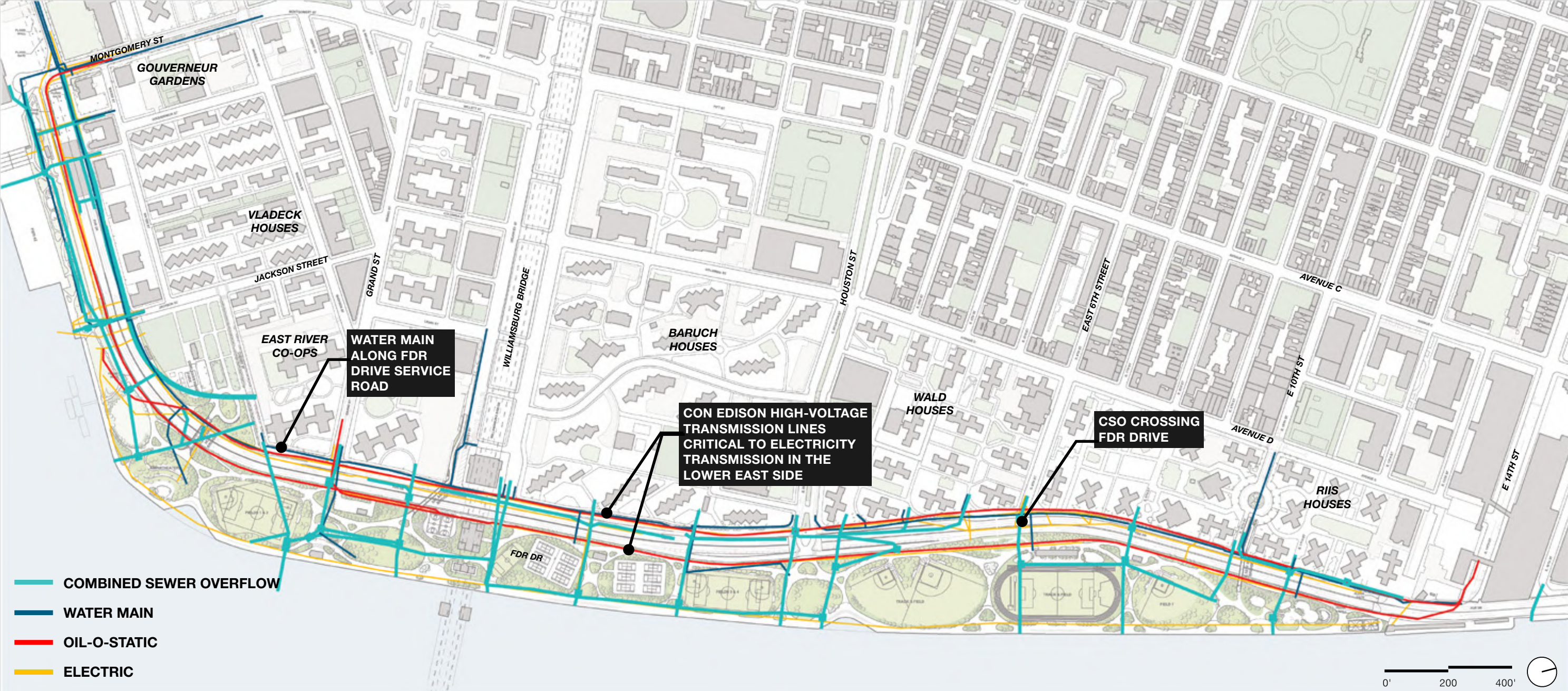
There are two north-bound (NB) entrances, one NB exit, two south-bound (SB) entrances, and three SB exits from FDR Drive that would be impacted to varying extents by construction of a continuous deck or partial decks. These impacts could lead to greater congestion in local roads or segments of FDR Drive as drivers find alternative routes to get to their destinations.

Exit	Destinations	Entry		Exit	
		NB	SB	NB	SB
-	-	NB	SB	NB	SB
3	South Street / Manhattan Bridge	Ramp	-	-	Service road
4	Grand Street / Williamsburg Bridge	-	Service road	-	Service road
5	Houston Street to Holland Tunnel	Ramp	Service road	Ramp	Service road
-	Avenue C	-	Ramp	-	-
7	East 20-23 St	Ramp	Ramp	Service road	Service road



Deck-Over | Utility Constraints

IMPROVEMENT CONCEPT 3

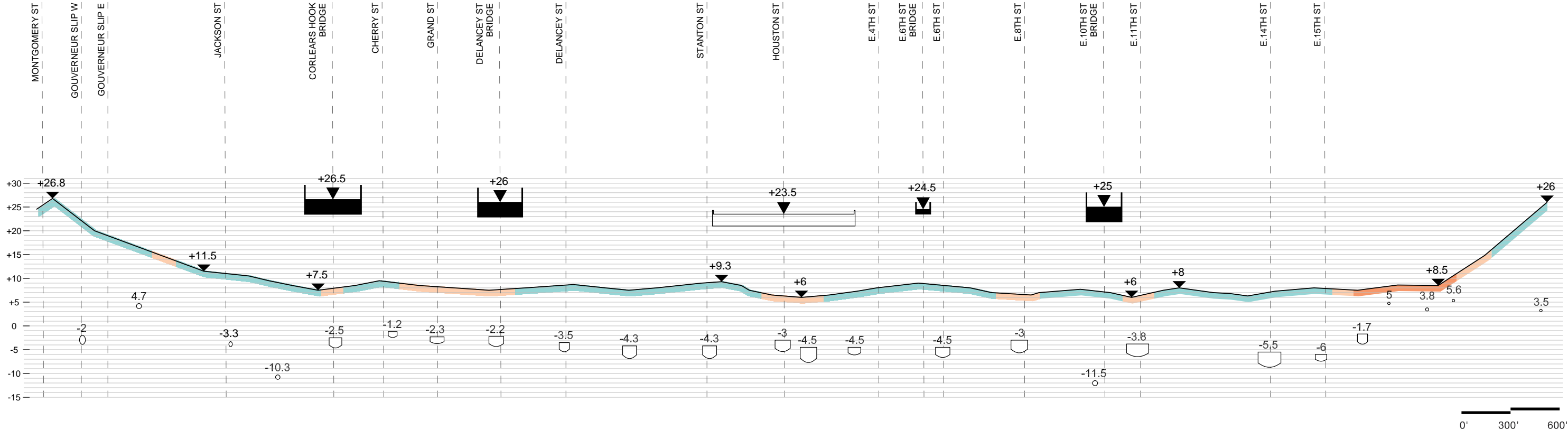


This plan shows subsurface utilities that serve the East Village and Lower East Side.

Deck-Over | Utility Constraints

IMPROVEMENT CONCEPT 3

FDR OVERALL SECTION DIAGRAM



This diagram shows a cross section of the FDR Drive from Montgomery Street to beyond 14th Street. The diagram shows the elevation of the roadway as well as elevations of utilities that cross perpendicularly beneath the FDR Drive. As shown, subsurface water and sewer utilities limit the ability to lower the elevation of the FDR Drive to minimize the grade change between a deck and adjacent ground levels.

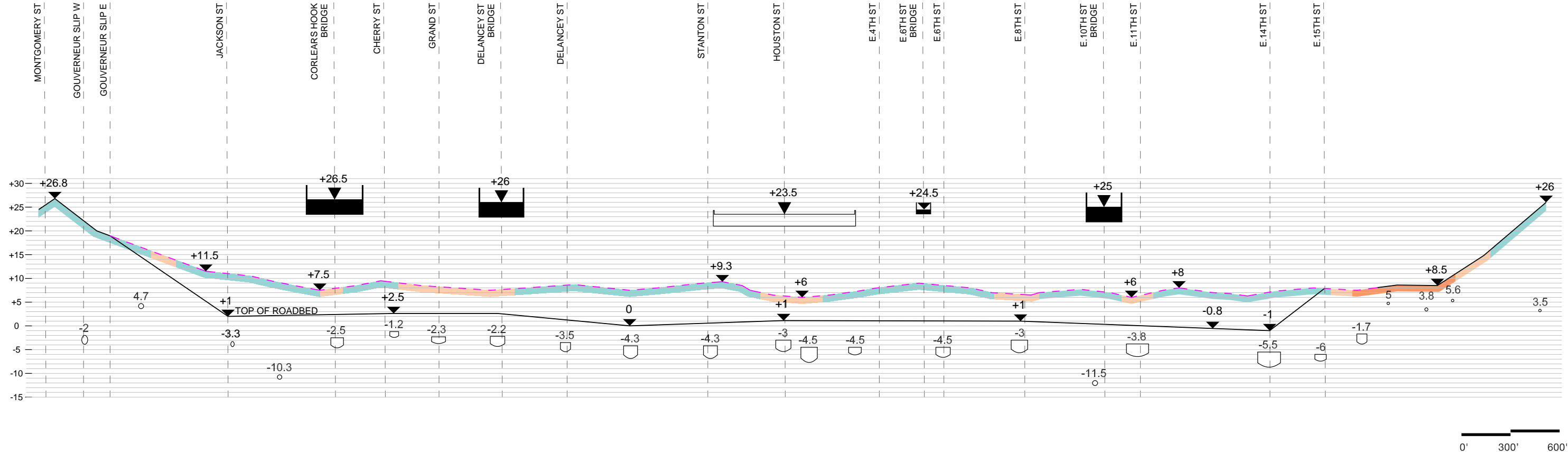
Vertical Clearance
(From top of FDR to top of sewer)

- >10 ft
- 10-5 ft
- >5 ft

Deck-Over | Trench and Deck-Over

IMPROVEMENT CONCEPT 3

FDR OVERALL SECTION DIAGRAM



This profile shows the maximum the FDR Drive can be trenched without disturbing subsurface utilities between 5' and 9', depending on location, to maintain minimum required soil cover over subsurface utilities.

Vertical Clearance
(From top of FDR to top of sewer)

- █ >10 ft
- █ 10-5 ft
- █ >5 ft

Deck-Over | Deck-over at Grade

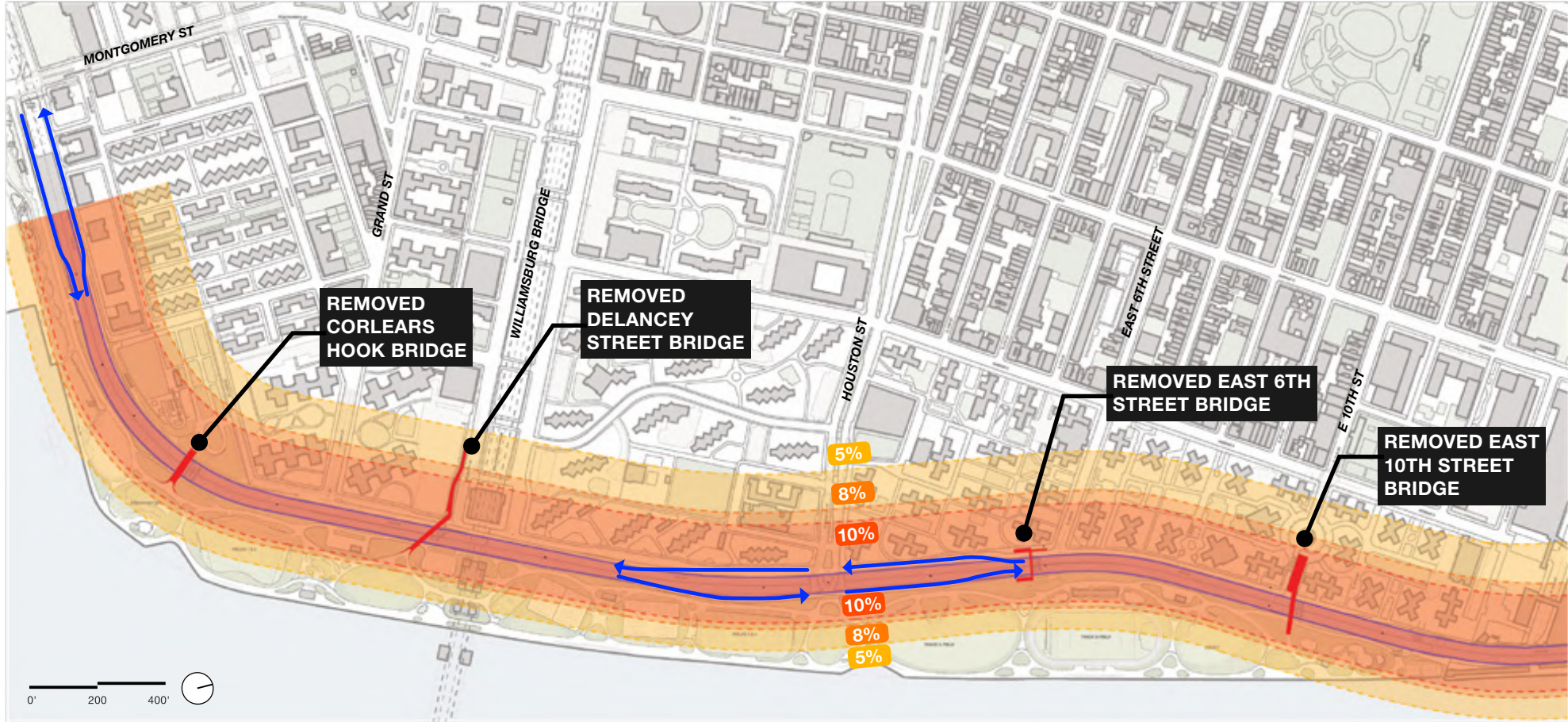
IMPROVEMENT CONCEPT 3 | APPROACH A

CHALLENGES + CONSIDERATIONS

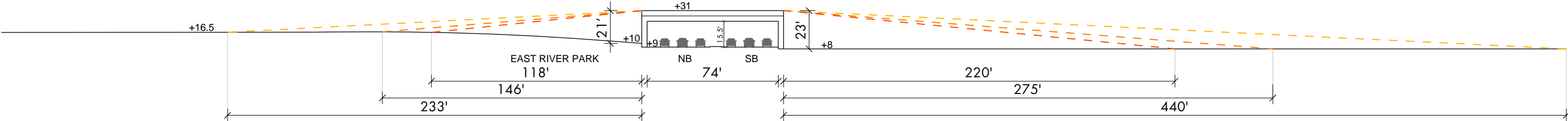
- **Pro:** Creates significant new open space and continuous park.
- **Con:** Significant impacts to NYCHA properties and other residential areas.
- **Con:** Significant impacts to ESCR improvements.
- **Con:** Requires closure of several FDR Drive on/off ramps.

Decking over FDR Drive with the highway remaining at grade is not recommended for further study due to spatial constraints with slopes from the top of the deck to existing grades. Based on initial analysis, there would be significant conflicts with NYCHA buildings, adjacent residential areas and open spaces, and East River Park

The plan diagram to the right shows the extents of encroachments of the deck footprint into adjacent residential areas and East River Park considering required slopes. A straight, universally accessible route (5% slope) would extend 440' inland. A non-accessible, passive sloping landscape (10%) would encroach 220' inland.



SECTION DIAGRAM



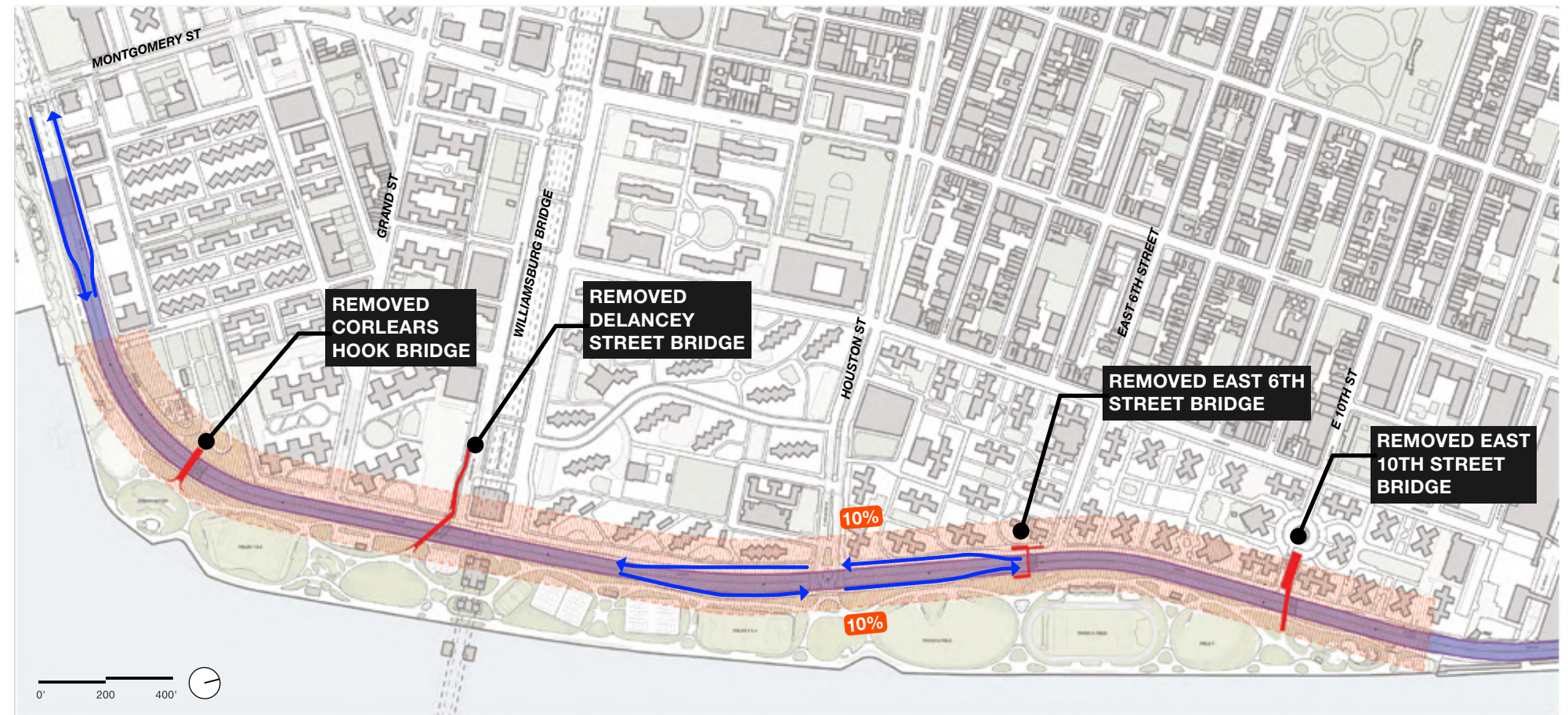
Deck-Over | Trench and Deck-Over

IMPROVEMENT CONCEPT 3 | APPROACH B

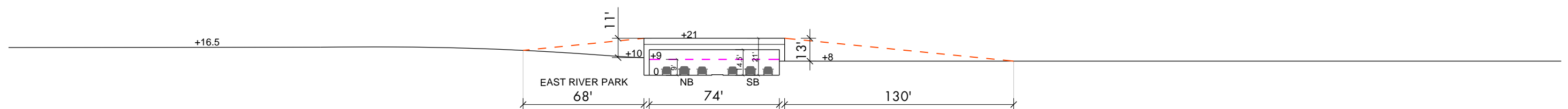
CHALLENGES + CONSIDERATIONS

- **Pro:** Creates significant new open space and continuous park.
- **Con:** Significant impacts to NYCHA properties and other residential areas, though to a lesser extent than Approach A.
- **Con:** Significant impacts to ESCR improvements, though to a lesser extent than Approach A.
- **Con:** Construction challenges (significant excavation, drainage implications).
- **Con:** Requires closure of several FDR Drive on / off ramps.

This concept explores trenching the FDR Drive corridor by 5' to 9' to minimize the elevation change from the top of the deck to existing adjacent areas. Even lowering the elevation of FDR Drive by 5' to 9', significant areas of NYCHA properties and East River Park would still be impacted by a continuous deck. The depth of trenching is limited by the presence of subsurface utilities crossing the FDR Drive (see pages 97 and 98). This concept is not recommended for further study due to impacts to ongoing ESCR investments and adjacent properties on the upland side.



SECTION DIAGRAM



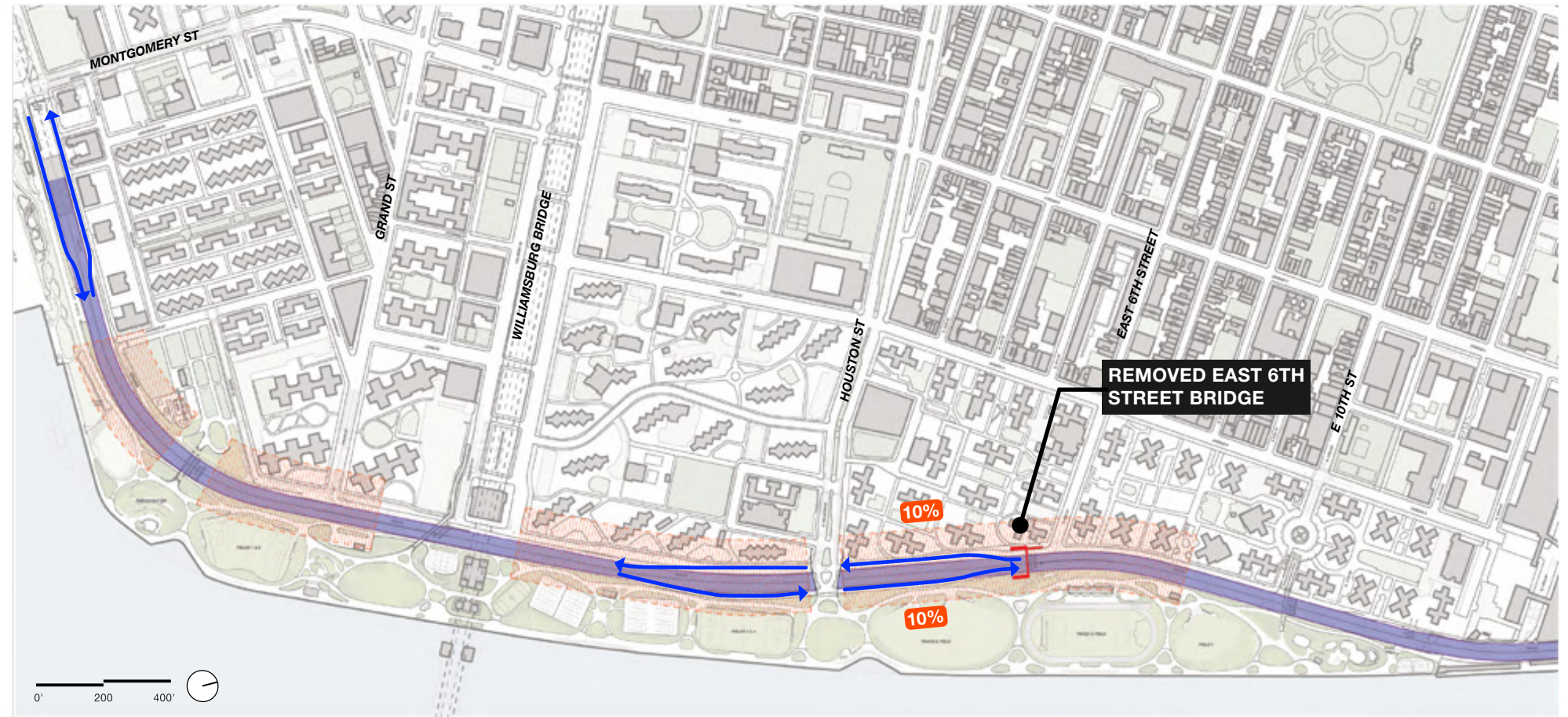
Deck-Over | Trench and Partial Deck-Over (Longer Sections)

IMPROVEMENT CONCEPT 3 | APPROACH C

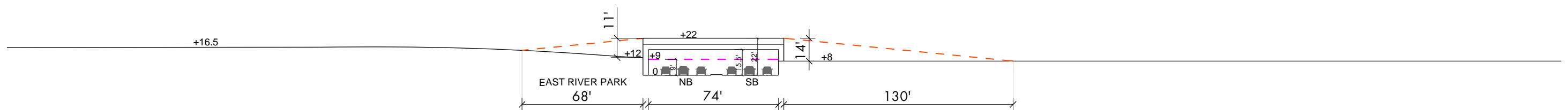
CHALLENGES + CONSIDERATIONS

Trenching the FDR Drive and constructing segmented decks minimizes site conflicts and constructability challenges while providing new open space and connections to East River park.

This concept explores two approaches for trenching FDR from Gouverneur Street to East 14th Street with partial deck-overs. Locations are selected to avoid impacts to new pedestrian bridges constructed as part of ESCR.



SECTION DIAGRAM



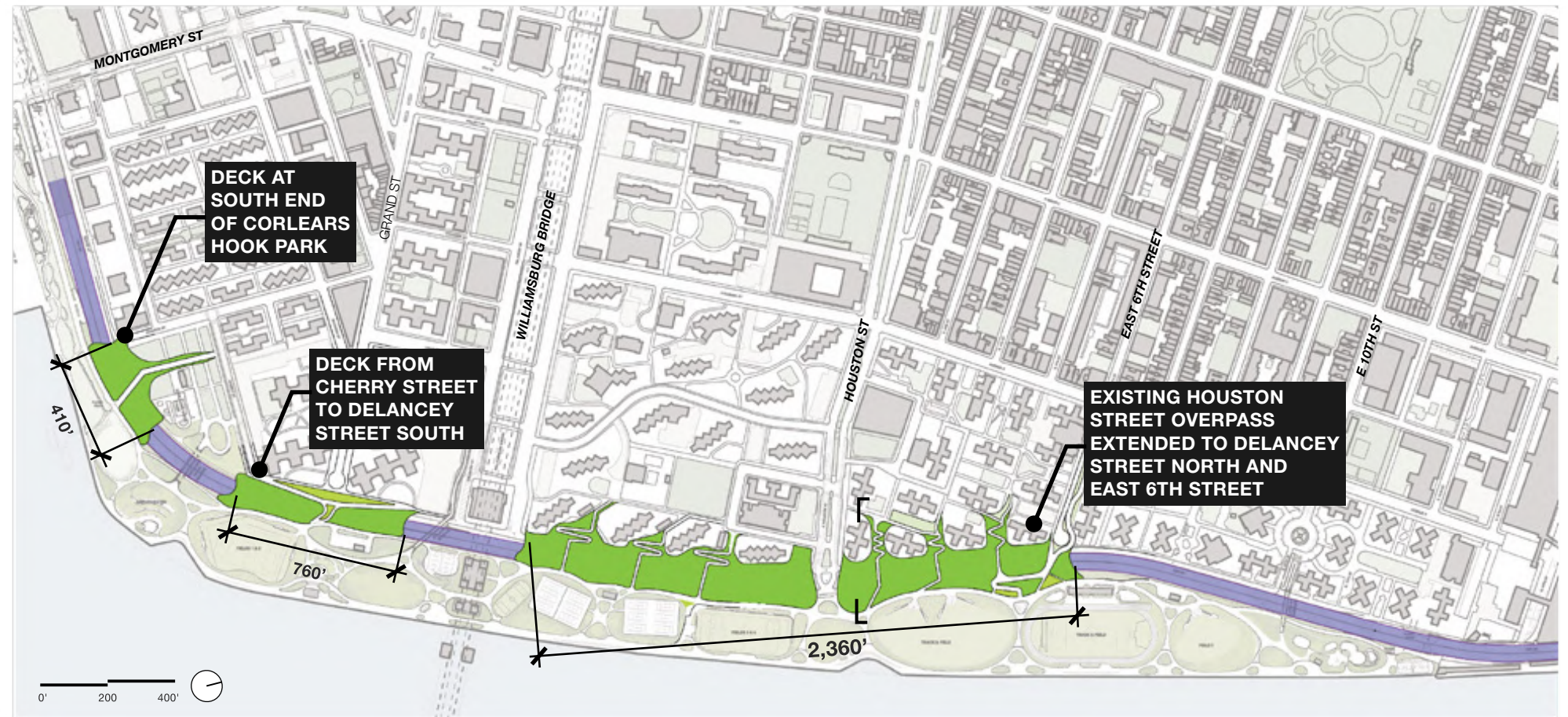
Deck-Over | Trench and Partial Deck-Over (Longer Sections)

IMPROVEMENT CONCEPT 3 | APPROACH C

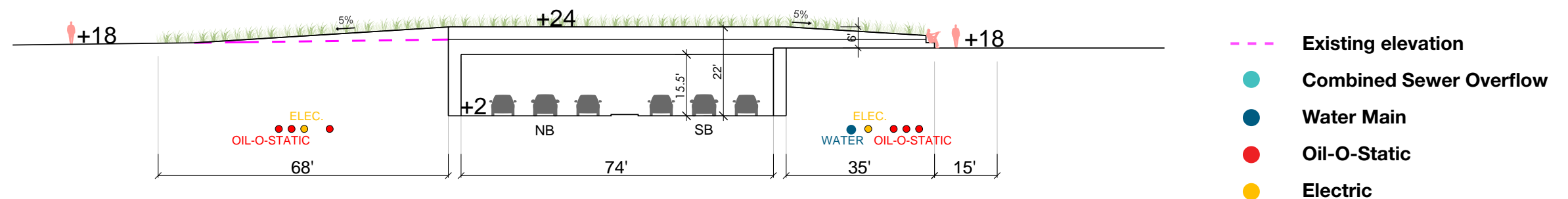
CHALLENGES + CONSIDERATIONS

- **Pro:** No impacts to new ESCR bridges.
- **Pro:** Limits impacts to existing adjacent areas on both sides of the highway as compared to Approaches A and B.
- **Pro:** Construction challenges (significant excavation, drainage considerations).
- **Con:** Requires closure of several FDR Drive on / off ramps.

This concept explores trenching the FDR Drive corridor and constructing partial decks.



SECTION DIAGRAM



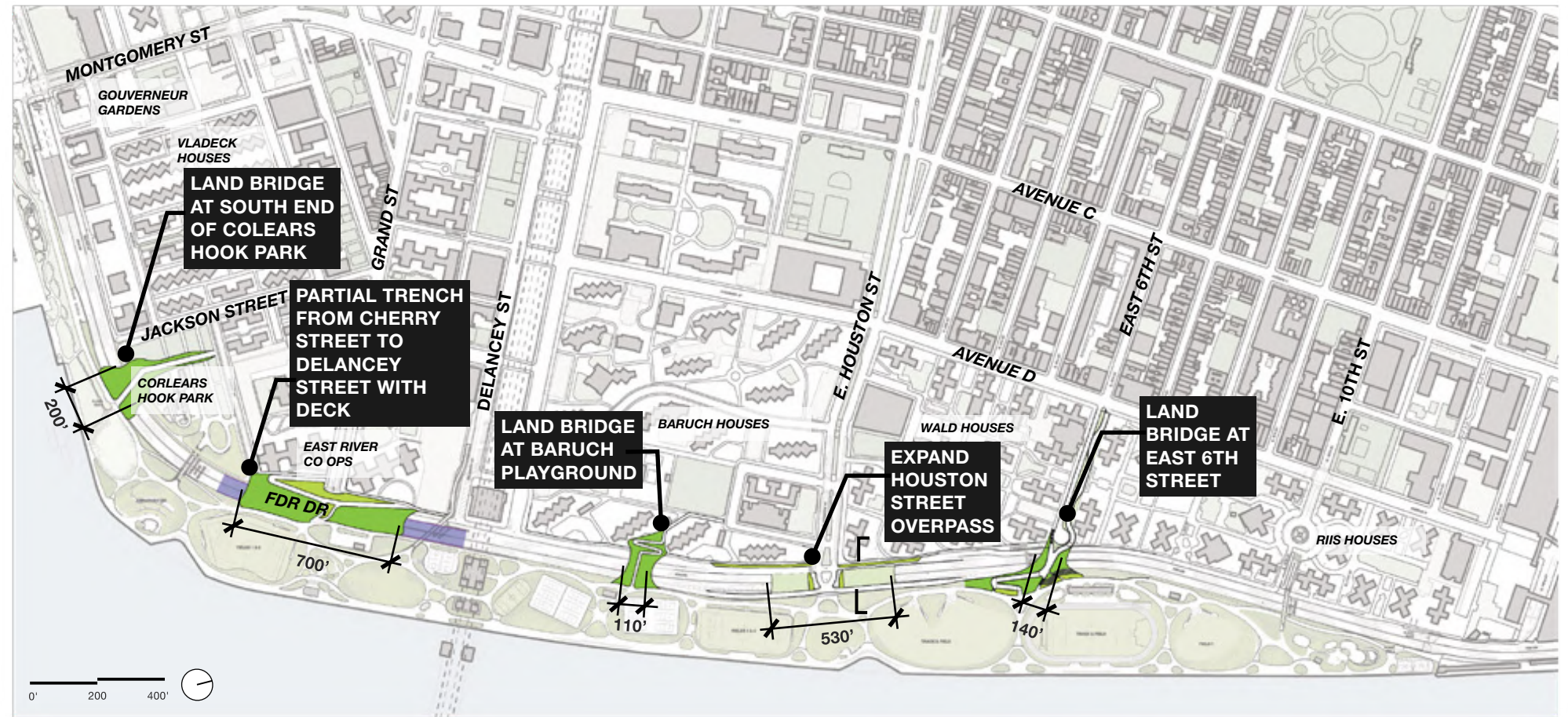
Deck-Over | Trench and Partial Deck-Over (Shorter Sections)

IMPROVEMENT CONCEPT 3 | APPROACH D

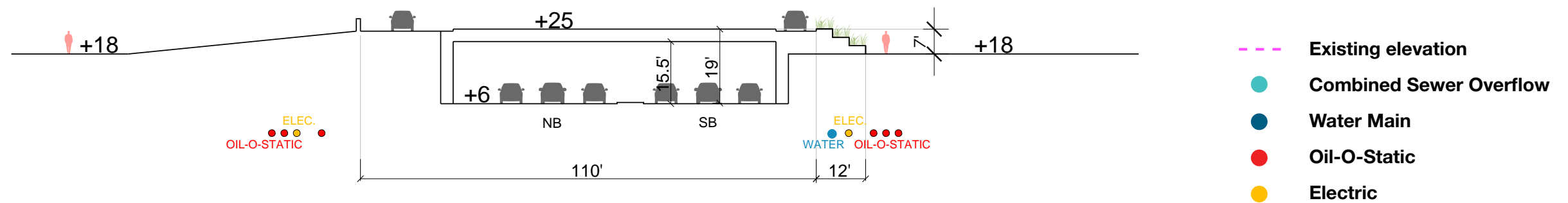
CHALLENGES + CONSIDERATIONS

- **Pro:** No impacts to new ESCR bridges.
- **Pro:** Limits impacts to existing adjacent areas on both sides of the highway as compared to Approaches A, B, and C.
- **Pro:** Does less to mitigate air quality and noise impacts of FDR Drive than Approaches A, B, and C.
- **Con:** Requires closure of several FDR Drive on / off ramps.

This concept would involve constructing partial decks and land bridges to create both new and improved connections to East River Park and the waterfront.



SECTION DIAGRAM



Deck-Over | Precedent Projects

IMPROVEMENT CONCEPT 3

These projects illustrate a range of scales of decking over highways for additional open space.

The land bridge over I-44 in downtown St. Louis, MO connects the city to the Mississippi River waterfront. Measuring 285' in length, this deck is comparable to decking over the section of FDR Drive at Houston Street.

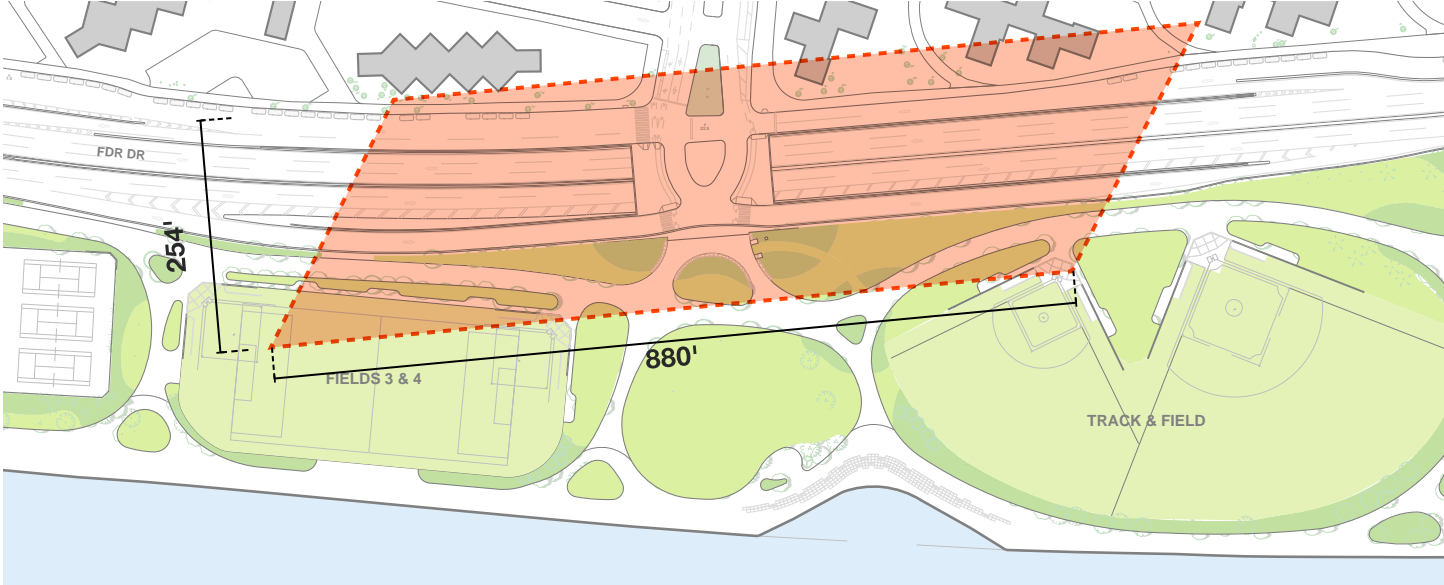
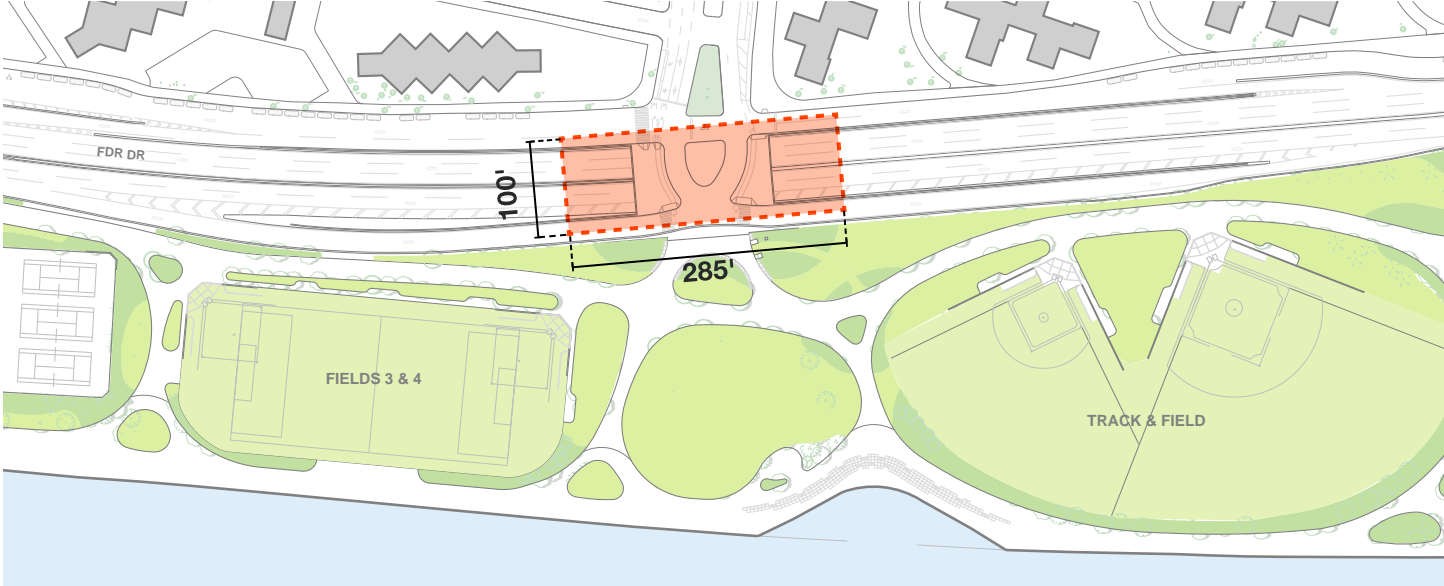
The Southern Gateway Deck Park spans 5.5 acres over I-35 in Dallas, TX. This deck is about the size of two soccer fields.



Gateway Arch Park, St. Louis, Missouri



Southern Gateway Deck Park, Dallas, Texas



Deck-Over | Precedent Projects

IMPROVEMENT CONCEPT 3

Klyde Warren Park in Dallas, TX is a 5 acre park over Woodall Rodgers Freeway. This deck was constructed over a highway that is at a lower elevation than the surrounding urban context. A deck this size would cover an area comparable to the FDR from Houston Street to East 8th Street.

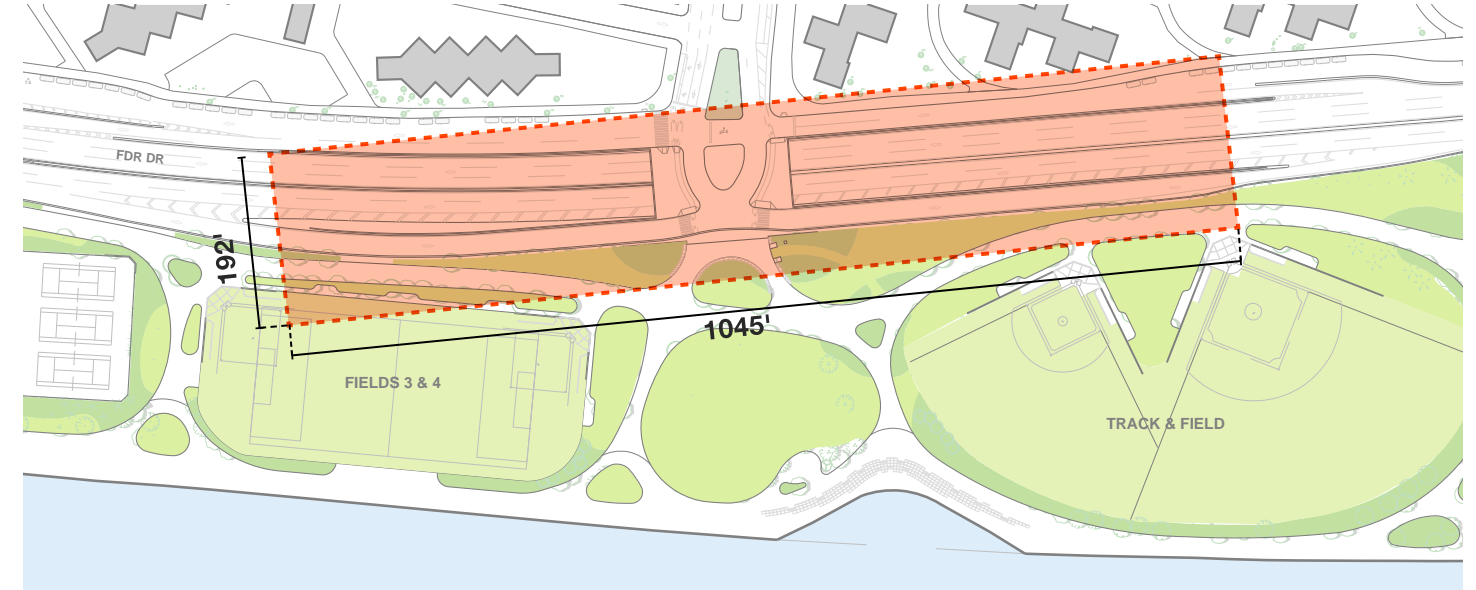


Klyde Warren Park, Dallas, Texas

The length of Central Artery / Tunnel Project in Boston, MA (the “Big Dig”) is approximately the same length as the FDR Drive from Montgomery Street to East 14th Street. This project created 300 acres of open space and development parcels and cost an estimated \$24 billion adjusted for inflation in 2012 dollars.



The Big Dig, Boston, Massachusetts

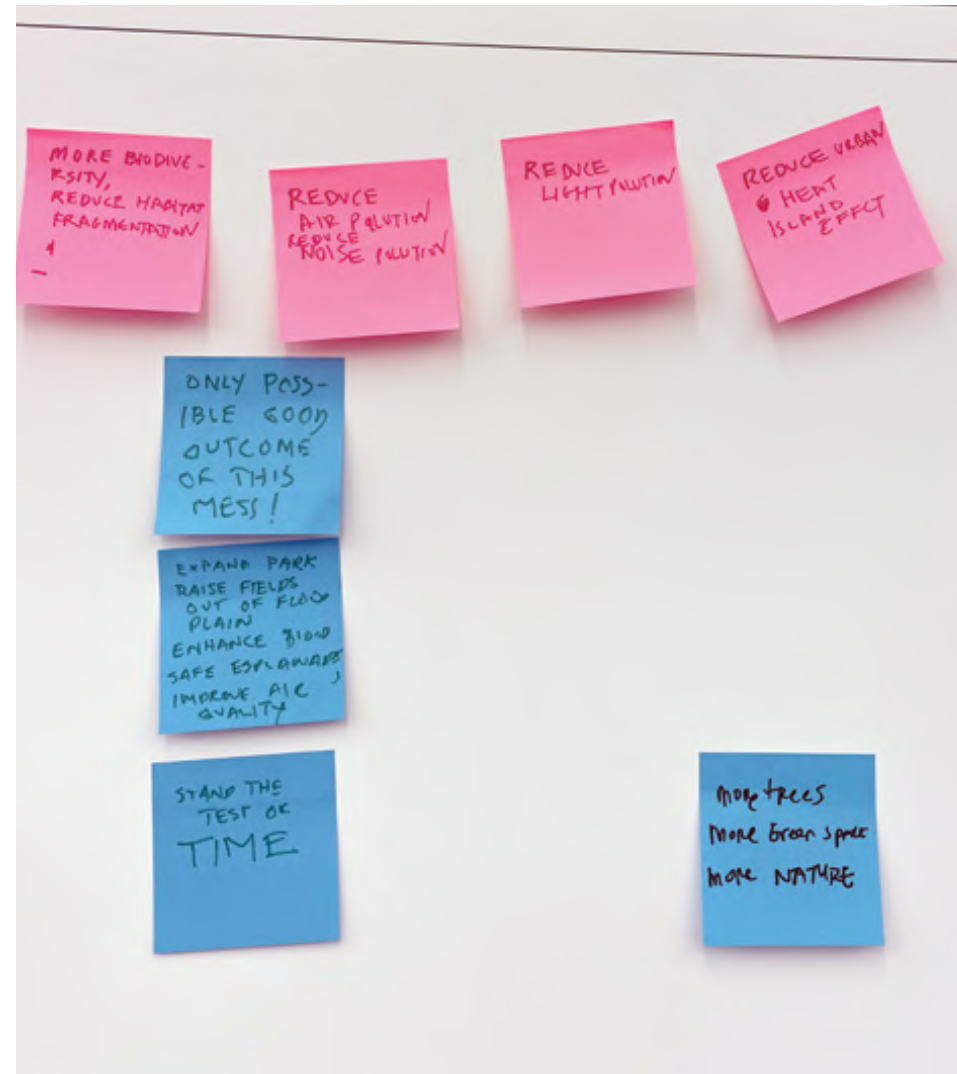


Deck-Over | Community Feedback

IMPROVEMENT CONCEPT 3

WHAT THE TEAM HEARD

- Some attendees of Public Workshop 2 believe the deck improvement concept would negatively impact adjacent residents by blocking views on lower floors, creating safety concerns, and invading privacy.
- Some attendees expressed support for this concept as the best option for air and noise mitigation, as well as reducing light pollution.
- Attendees who supported this concept discussed the benefits of creating continuous open space and reducing habitat fragmentation.
- Overall, attendees acknowledged that this concept faces many constraints that complicate its feasibility, constructability, and cost, and that NYC DOT will not be advancing this concept further in the study.



Survey Responses

“There are certain places – like around 14th Street where the greenway is very narrow, or at Corlears Hook Park, where this makes sense. Otherwise this doesn’t seem feasible given that there are buildings very close to the road.”

“Ask NYCHA residents if they are willing to have deck spread onto their property.”

“I would love to see this, but understand why it is not happening. Perhaps this idea can be incorporated elsewhere in the city.”

“The primary aspect of this study that appealed to me was reduction in noise and pollution, I understand that it may not be feasible for a variety of reasons.”

“I like that it rejoins the community to the waterfront without the large impenetrable barrier of the FDR getting in the way.”

Feedback on the deck-over improvement concept received during Public Workshop 2 (left) and from the second survey (right).

Deck-Over | Community Feedback

IMPROVEMENT CONCEPT 3



Public Workshop 2 attendees discuss the deck-over improvement concept.

Boulevard

IMPROVEMENT CONCEPT 4

OVERVIEW

This concept studied reconstructing FDR Drive as a boulevard, connecting each street from the neighborhood to East River Park and the waterfront via signalized crosswalks. The concept referenced the roadway layout of West Street in Manhattan.

The concept studied potential locations for crosswalks, new medians, and reclaimed space created from elimination of the FDR Drive service road. In addition, the concept evaluated traffic implications and pedestrian improvements of this approach.

Technical Criteria

- Three 11' wide lanes in each direction.
- 10' landscape median.



West Street, Manhattan, 2015



West Side Highway, Manhattan, 1977

Boulevard

IMPROVEMENT CONCEPT 4

FEASIBILITY ANALYSIS

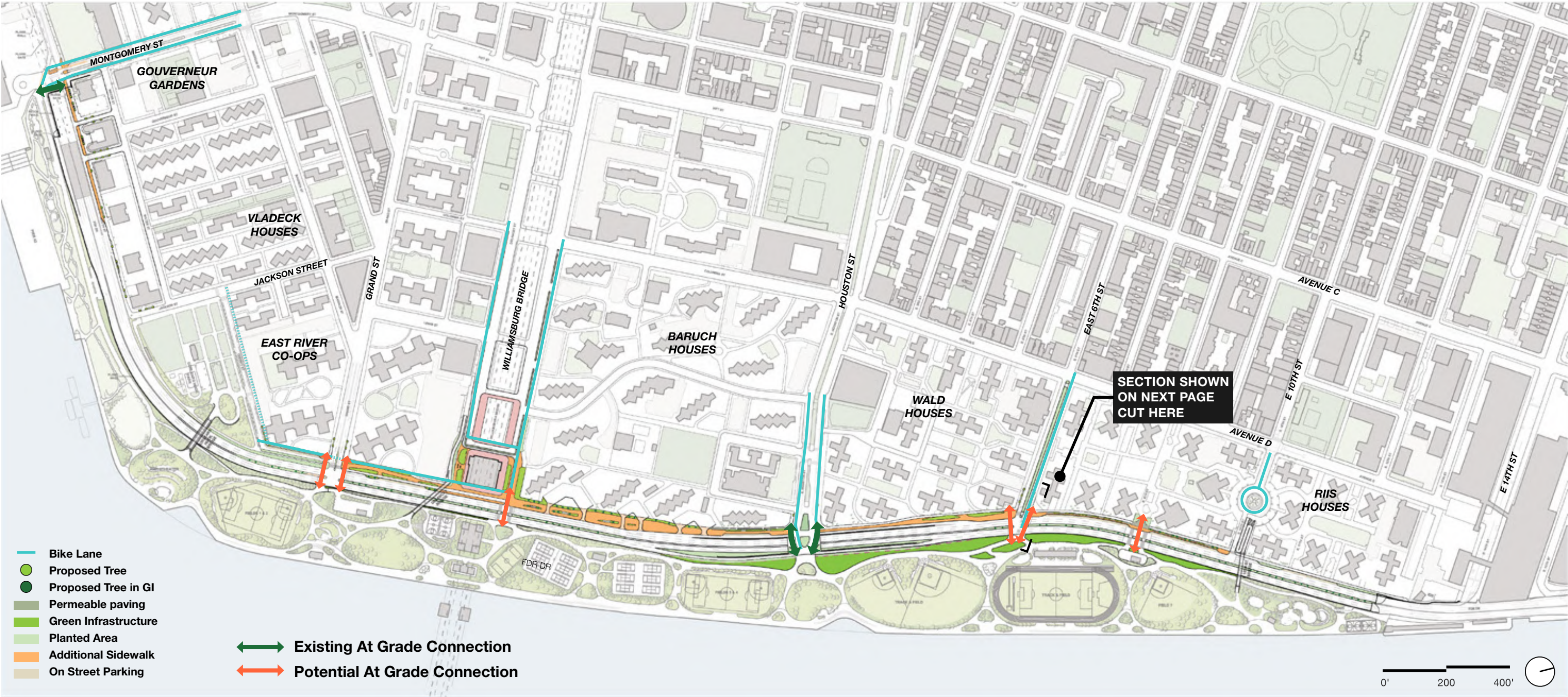
- **Traffic congestion:** Detailed traffic analysis is not within the scope of this study. However, maintenance of the same number of lanes with the introduction of signalized intersections would be expected to increase congestion on this roadway, with the potential to divert additional traffic to local streets.
- **Air quality:** While detailed air quality analysis is not within the scope of this study, a boulevard scheme could be expected to contribute to poor air quality because of increased starts and stops of vehicular traffic along the corridor.
- **Vehicular crashes:** Introduction of intersections exposing pedestrians and bicycles to vehicles would be expected to increase collisions and potentially injuries or deaths.
- **Roadway safety:** Transitioning to an at-grade roadway for only one-mile section between two segments of limited access highway would present speed and safety considerations. Studying this option further would require consideration of the entire FDR Drive corridor from the Battery to East 15th Street.



This diagram shows the scale comparison between FDR Drive from The Battery to East 15th Street and West Street.

Boulevard

IMPROVEMENT CONCEPT 4

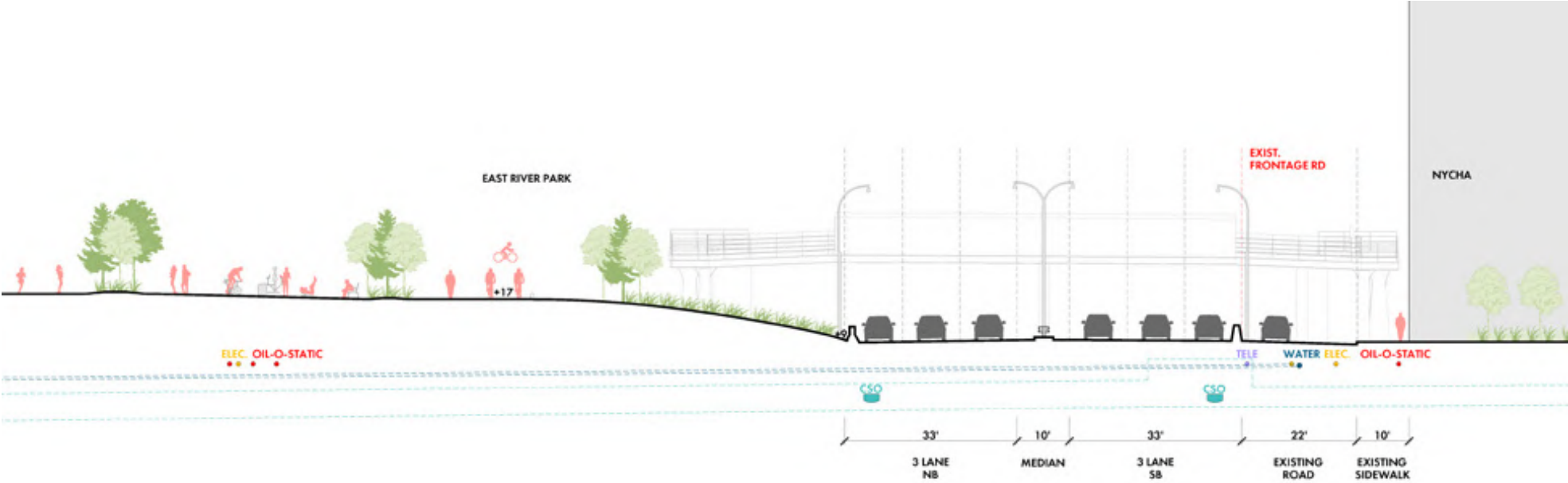


This plan shows the potential locations for crosswalks, new medians, pedestrian space, and landscaping.

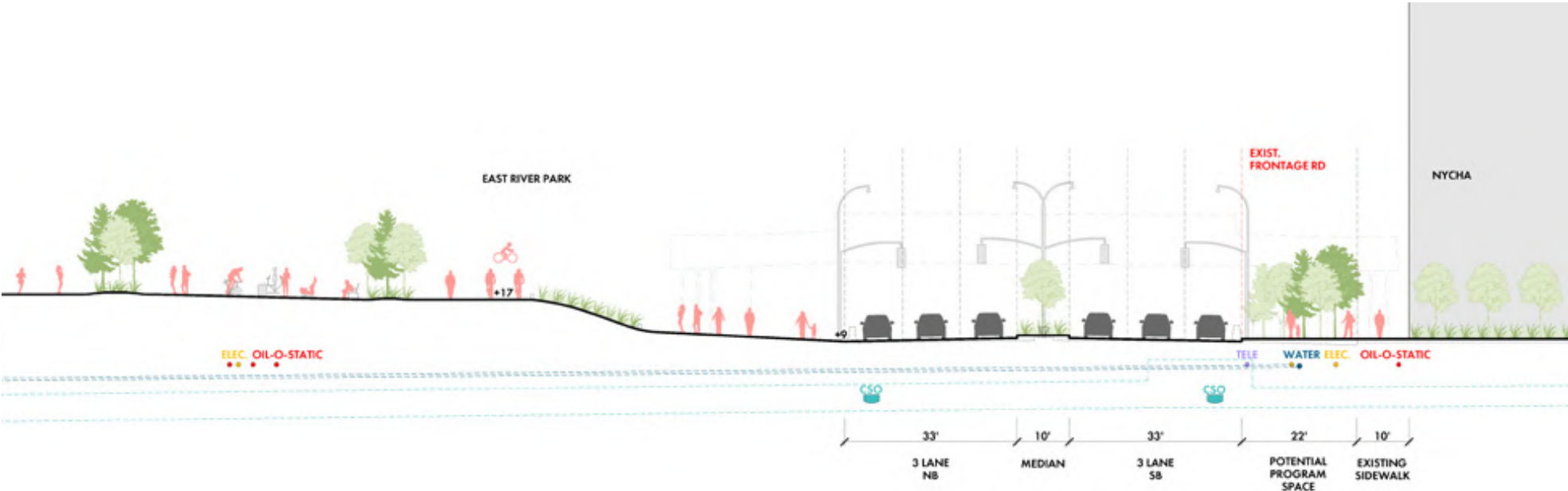
Boulevard

IMPROVEMENT CONCEPT 4

EXISTING



PROPOSED



East 6th Street pedestrian bridge could be removed with the replacement of at-grade signalized crossing.

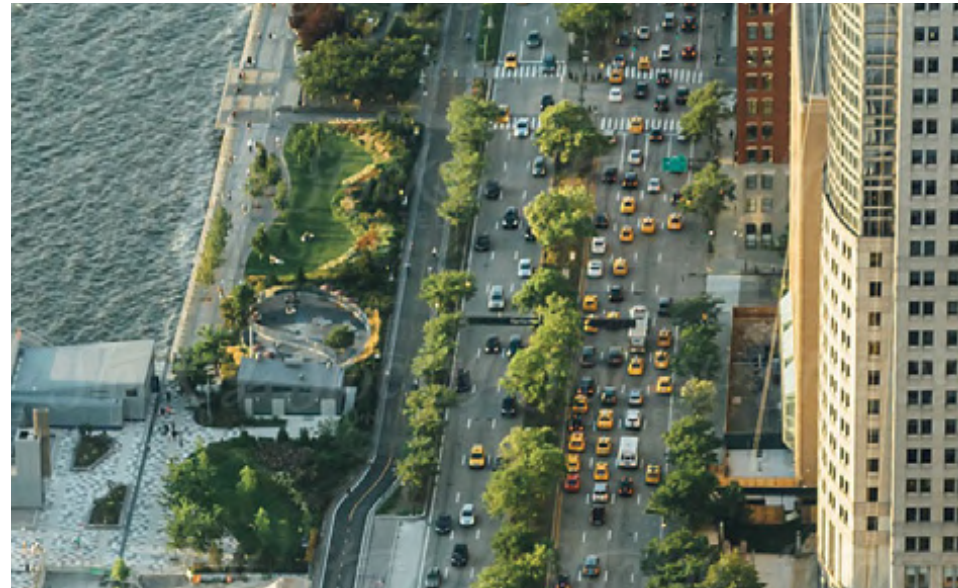
Boulevard | Precedent Projects

IMPROVEMENT CONCEPT 4

These projects describe a range of approaches for creating an at-grade boulevard with extensive green buffer.

The West Side Highway in Manhattan features wide sidewalks, tree-lined medians, and refuge space for pedestrians on center medians greatly enhance crosstown pedestrian flow. The Hudson River Greenway is a separated two-lane bikeway.

Sheridan Boulevard in the Bronx features three lanes going in each direction with a green median running down the center. A two-way bikeway leads to Starlight Park and the Bronx River Greenway



West Street, Manhattan



Sheridan Boulevard, Bronx

Boulevard | Precedent Projects

IMPROVEMENT CONCEPT 4

The Embarcadero in San Francisco, CA is a tree lined boulevard with two banks of thoroughfare traffic, three lanes going in each direction, and a streetcar line running down the center.

Riverfront Parkway in Chattanooga, Tennessee has one lane going in each direction, pedestrian improvements include attractive sidewalks, gutters, plants, and trees, as well as pedestrian crossings.



The Embarcadero, San Francisco, California



Riverfront Parkway, Chattanooga, Tennessee

Boulevard | Community Feedback

IMPROVEMENT CONCEPT 4

WHAT THE TEAM HEARD

- Attendees at Public Workshop 2 voiced concerns that at-grade connections would increase noise and air pollution and that at-grade crossings create dangerous conditions for pedestrians.
- Attendees expressed interest for the team to study a dedicated mass transit lane on the FDR in each direction.
- Many attendees expressed a desire to reduce overall traffic and the number of traffic lanes on FDR.
- Attendees were concerned about whether this improvement concept would integrate flood protection.

EXISTING AT GRADE CONNECTION
POTENTIAL AT GRADE CONNECTION

Set up Dangerous Grade Crossings
No!!! INCREASES AIR & NOISE POLLUTION

CONSIDERATIONS

Access Benefits: Additional at-grade street crossings to East River Park and the waterfront with signalized intersections on the FDR Drive

Open Space Benefits: Opportunities for sidewalk and median trees and plantings

Estimated Cost: \$75 - 150 million

Construction: Approximately 5-7 years total with 2 years of construction

EAST RIVER PARK
OIL-O-STATIC POWER LINES
WATER MAIN
COMBINED SEWER

Survey Responses

“I’m hesitant about this plan.”

“The improved bicycle and pedestrian navigation both to and through the park would be a huge benefit, with the addition of making it feel safer given the slower speed of traffic.”

“Of all the feasible outcomes, this is the most ideal. This plan provides the most important thing, which is access. There are no steep ramps, no gates or fences, just a street like most others where everyone can cross. The inclusion of bus lanes is an exceptional thing to see as well.”

“It’s for the best there will be no at-grade crossings.”

“I LOVE the at grade crossing design for the FDR. Bike lanes, bus lanes, real accessibility directly to the waterfront. All of it is truly wonderful.”

Feedback on the deck-over improvement concept received during Public Workshop 2 (left) and from the second survey (right).

Conclusion

FEASIBILITY STUDY OUTCOMES

EVALUATION CRITERIA

The project team developed draft evaluation criteria to use in comparing improvement concepts and refined the criteria based on community feedback in Round I of engagement. The criteria covered the primary themes of the study as well as additional factors related to feasibility of implementation and included:

- Circulation and mobility for pedestrians and bikes
- Parking and circulation for vehicles
- Open space
- Environment and health
- Resilience and stormwater management
- Community support, equity, and innovation
- Implementation
- Disruption to improvements from ESCR

To assess the relative strengths and weaknesses of each concept in achieving the study’s vision and goals, the project team scored each improvement concept from very low to very high. A “very high” score means that the improvement concept would be successful in addressing the study goals relative to the other approaches within that criterion and “very low” means that the improvement concept would be relatively ineffective at addressing the study goals within that criterion. The chart on the following pages shows the comparative scoring for each improvement concept and is reflective of community feedback and analysis completed through Round II of the engagement process. The project team did not use the evaluation criteria as the primary basis for decision-making related to the study, however they were helpful to articulate alignment of each of the improvement concepts with study

goals to inform next steps in the study. Key highlights of the evaluation criteria assessments include:

- Pedestrian Bridges and Trench and Decking concepts scored the highest for circulation and mobility improvements for pedestrian and bikes for providing additional connections to the park for pedestrians and bikes that are separated from vehicular traffic. This physical separation creates a sense of safety important for many community members, especially seniors.
- Upland Enhancements scored the highest for parking and circulation mobility for vehicles. While these improvements could lead to a slight reduction in parking, this option presents minimal impacts on vehicular circulation. The Decking options, in contrast, would have significant impacts to vehicular circulation by eliminating entrances and exits to the FDR Drive.
- Upland Enhancements and the Boulevard would provide opportunities to improve open space. The Decking options would provide the most open space opportunities, but are not feasible for other reasons.
- The open space opportunities presented by the Upland Enhancements and the Boulevard would also have a benefit for environment and health and would create opportunities for resilience and stormwater management.
- In terms of community support, Pedestrian Bridges was the highest ranked concept on the first community survey. There was mixed feedback on the Boulevard concept, with a general interest, but also

- concern about introducing more pedestrian and vehicle interaction.
- Upland Enhancements and Pedestrian Bridges scored the highest in terms of both implementation and minimizing disruption to ESCR.

CONCLUSION

Based on the analysis conducted during this phase, community engagement, and the evaluation scoring, the study team did not advance the Deck-over and Boulevard concepts into more detailed analyses and final recommendations. The Deck-over concept was determined to be infeasible and undesirable at this time due to the impacts that would result on investments currently underway through the East Side Coastal Resiliency project as well as space constraints tied to the proximity of residential buildings to the FDR Drive. While these feasibility studies identified potential design features for the Boulevard concept, such as locations of possible at-grade crossings and design standards for lanes and medians, the concept was not advanced further through this study because such a transformation would need to be studied in the larger context of the FDR Drive corridor, such as all the way south to the Battery Park underpass.

The project team heard from the community that the types of improvements in the Upland Enhancements and Pedestrian Bridges concepts are desirable to improve pedestrian safety, decrease impervious surface along the FDR Drive corridor, and to enhance the experience of getting to the valuable waterfront park spaces. Section 5 presents specific recommended improvements to achieve these goals across the FDR Drive corridor.

Concept Evaluation

FEASIBILITY STUDIES EVALUATION MATRIX

	UPLAND ENHANCEMENTS	PEDESTRIAN BRIDGES	TRENCH & DECK-OVER ALTERNATIVES	BOULEVARD
CIRCULATION & MOBILITY FOR PEDESTRIANS AND BIKES	<p>MEDIUM</p> <p>This concept focuses on small-scale street improvements that can improve pedestrian circulation and bike circulation by simplifying crossings and providing more space for pedestrians and bikes. The concept focuses on improving existing connections across FDR Drive, but not on creating new ones.</p>	<p>HIGH</p> <p>This concept explores potentially up to four new pedestrian bridges that will improve connectivity for pedestrians and bikers to East River Park and the waterfront by decreasing walking and biking time to access a bridge. This will increase availability of safe crossings with grade separation from vehicles.</p>	<p>HIGH</p> <p>The mobility improvements from this concept include significantly increasing access to East River Park and the waterfront through more frequent connections. This concept would provide more space for pedestrians and bikes, to minimize conflicts when crossing FDR Drive.</p>	<p>MEDIUM</p> <p>By allowing for removal of the FDR Drive service road, a boulevard scheme would provide significant new pedestrian space, create new crossing locations, and simplify several existing crossings. However, at-grade crossings introduce new interaction between pedestrians, bikes, and vehicles.</p>
PARKING AND CIRCULATION FOR VEHICLES	<p>HIGH</p> <p>While some of the tools in this concept involve reducing parking or reducing travel lanes to provide more space for the pedestrian realm, the impacts are expected to be more minimal as compared to the other concepts.</p>	<p>MEDIUM</p> <p>Some of the new pedestrian bridges may have impacts to vehicle travel lanes and parking to be able to provide space for the bridge landings within the neighborhood. Changes to vehicle travel lanes are not expected to have significant traffic impacts.</p>	<p>VERY LOW</p> <p>This concept would have significant impacts to vehicle circulation by eliminating FDR Drive on and off ramps and removing the FDR Drive service road, in all sub-alternatives except for Approach D. The deck-over would also eliminate parking in NYCHA lots and the street along the FDR Drive service road.</p>	<p>LOW</p> <p>Although more detailed study would be needed, as well as study of the broader FDR Drive corridor, creation of at-grade crossings would be expected to increase vehicle congestion and potentially increase risk of collisions.</p>
OPEN SPACE	<p>MEDIUM</p> <p>This concept is focused on finding opportunities for trees and green infrastructure, as well as spaces such as pedestrian plazas and widened sidewalks, to improve the existing connections to East River Park and the waterfront. Compared to other concepts, there is less new open space created with this concept.</p>	<p>LOW</p> <p>Although there could be opportunities for landscaping and greenery around the landings of pedestrian bridges, in general, constructing new pedestrian bridges does not create new open space. However, the goal of new pedestrian bridges is to improve access to existing open space.</p>	<p>VERY HIGH</p> <p>The deck-over would provide the most new programmable open space and connection to the waterfront of the concepts explored, with the highest amounts for the continuous deck sub-alternatives and lower amounts for the partial decks.</p>	<p>MEDIUM</p> <p>Transforming the use of space for vehicles within the FDR Drive corridor creates opportunities for new open space that could be programmable or landscaped with trees, plantings, and green infrastructure.</p>

Concept Evaluation

FEASIBILITY STUDIES EVALUATION MATRIX

	UPLAND ENHANCEMENTS	PEDESTRIAN BRIDGES	TRENCH & DECK-OVER ALTERNATIVES	BOULEVARD
ENVIRONMENT AND HEALTH	MEDIUM Since this concept has a low level of impact on vehicle travel and congestion, there are fewer benefits for noise and air quality. However, new trees and vegetation will provide some carbon capture and air quality benefits.	LOW There is minimal impact on air quality, noise, and vehicle congestion. There is also a minimal increase in green space that may enhance air quality.	HIGH The continuous deck-over has the highest potential to mitigate noise and air quality impacts from FDR Drive of the concepts explored for this study. However, highway ventilation systems serving the tunnel could potentially scale back those benefits.	MEDIUM While new green spaces would be provided, congestion from the boulevard is expected to worsen air quality along the road. Increased congestion will also contribute to increased noise and greenhouse gas emissions due to more vehicle starts and stops.
RESILIENCE AND STORMWATER MANAGEMENT	MEDIUM The type of landscape areas and green infrastructure included in this concept provides distributed opportunities for stormwater management, but space constraints limit the ability to provide large-scale resilience benefits with these types of green infrastructure strategies.	LOW Despite opportunity for plantings and green infrastructure, the concept will have low benefits for stormwater storage and resilience.	MEDIUM This concept reduces impervious surfaces and provides opportunities for new green spaces to reduce stormwater runoff. There could be opportunities for more large-scale stormwater management, though this could be challenging on a deck structure. Trenching the highway may introduce new resilience challenges by lowering the roadway elevation.	MEDIUM This concept has the potential to reduce impervious surfaces through increased green space and provides space for potential new stormwater management.
COMMUNITY SUPPORT / EQUITY / INNOVATION	MEDIUM Community feedback has demonstrated support for more landscape, plantings, and reclaiming space from vehicles. Community members have also expressed concerns around maintenance of such improvements.	HIGH Pedestrian bridges were the highest ranked concept for study based on a community survey, and community members shared feedback about the desire to see more frequent connections across FDR Drive. Community members emphasized the need to have safe separation of pedestrians from bikers on the bridges.	MEDIUM This concept responds to desires from some community members to deck over the FDR and mitigate its negative impacts. There could be significant benefits to disadvantaged communities in recreational access, environmental, and health improvements. However, there are negative impacts associated with construction, and some community members voiced concerns about the disruption that such a major project would have on the neighborhood.	HIGH There was mixed community feedback on this concept, with a general interest in it being studied and in reducing travel lanes in FDR Drive, but also concern about a shift to only at-grade crossings that introduce more pedestrian and vehicle interaction.

Concept Evaluation

FEASIBILITY STUDIES EVALUATION MATRIX

	UPLAND ENHANCEMENTS	PEDESTRIAN BRIDGES	TRENCH & DECK-OVER ALTERNATIVES	BOULEVARD
IMPLEMENTATION	<p>VERY HIGH</p> <p>This concept includes low impact solutions primarily within the existing right-of-way. With many precedent examples for these types of solutions, implementation is relatively feasible and low complexity as compared to the other concepts.</p>	<p>HIGH</p> <p>Design and construction of pedestrian bridges will involve a higher level of coordination between NYC DOT, NYC Parks, and other stakeholders due to siting of the bridges across jurisdictions, but implementation is feasible in the near- to medium-term.</p>	<p>VERY LOW</p> <p>There are significant constructability concerns related to both surface and subsurface constraints and impacts to existing spaces adjacent to the FDR Drive. Coordination and approvals for design and construction itself would take many years and involve significant disruption for the nearby neighborhoods.</p>	<p>LOW</p> <p>The concept would be expected to be less challenging than a deck-over concept, but a significant amount of coordination and approvals would be needed to make such a major transformation to the FDR Drive corridor.</p>
DISRUPTION TO ESCR	<p>VERY HIGH</p> <p>This concept does not impact ESCR improvements to East River Park or pedestrian bridges.</p>	<p>HIGH</p> <p>This concept has no impacts to ESCR pedestrian bridges. However, some park spaces that are being improved through ESCR would need to be reconfigured to accommodate bridge improvements.</p>	<p>LOW</p> <p>The full deck-over will impact all existing pedestrian bridges, while the partial deck-over will avoid existing pedestrian bridges. East River Park spaces will need to be regraded to accommodate slopes to the top of the deck, which is approximately 4' to 6' higher than ESCR bridges.</p>	<p>MEDIUM</p> <p>No ESCR improved pedestrian bridges will be impacted. Integration of the crossings into East River Park would require some reconfiguration of park space.</p>

SECTION 5

Recommended Improvement Concepts

Recommended Improvement Concepts

SUMMARY

PURPOSE

This study has developed conceptual plans for street enhancements and new pedestrian bridges to improve the public realm along the FDR Drive corridor from Montgomery to East 14th Street. This section presents the community feedback and considerations that led to each of the recommendations and highlights key features within each focus area. The recommendations were created by refining the outcomes of the feasibility studies, incorporating community feedback from Round 2 of engagement, collecting additional feedback from city agencies, and performing additional high-level transportation and siting analyses.

SCOPE

Based on the outcomes of the preliminary feasibility studies, the team advanced the upland enhancements and pedestrian bridges improvement concepts to develop refined conceptual plans. Focus group discussions with the communities living immediately adjacent to the FDR Drive contributed to refinements to the recommendations, such as by confirming the need to maintain vehicle access for pick-ups and drop-offs along the FDR Drive service road near Delancey Street.

The scope for development of recommendations included:

- Delineating siting for street improvements, roadway reconfigurations, plantings, and bridge landings, including determining new conceptual geometries for sidewalks and bike lanes, lane widths, and pedestrian bridge widths. Where appropriate, the recommendations are divided into possible near-term street improvements that can be done with striping, painting, and placement of temporary bollards vs. long-term improvements such as adding or changing sidewalks.
- Identifying needs for continued coordination between NYC DOT, NYC Parks, NYCHA, NYC DEP, and other ongoing projects in the study area. There is a 5-year construction moratorium following capital improvements from city agencies, meaning that after a project (such as ESCR) is built, 5 years must pass before another project can disrupt the area. This requirement will have implications for several of the recommended improvements concepts because of the construction of Pier 42 Park and ESCR that will be completed in 2024 and 2026, respectively.
- Updating cost estimates for the refined concepts. Note that while the report presents possible near-term street improvements in some areas that would require minimal construction, the cost estimates provided are for the more construction intensive long-term recommendations for each area. Detailed construction cost estimates are provided in the Appendix. The cost ranges provided in this section of the report adjust the detailed cost estimates by adding 30% of the subtotal for design and permitting and calculating ranges from -20% to +30% to reflect the early stage of the design process.

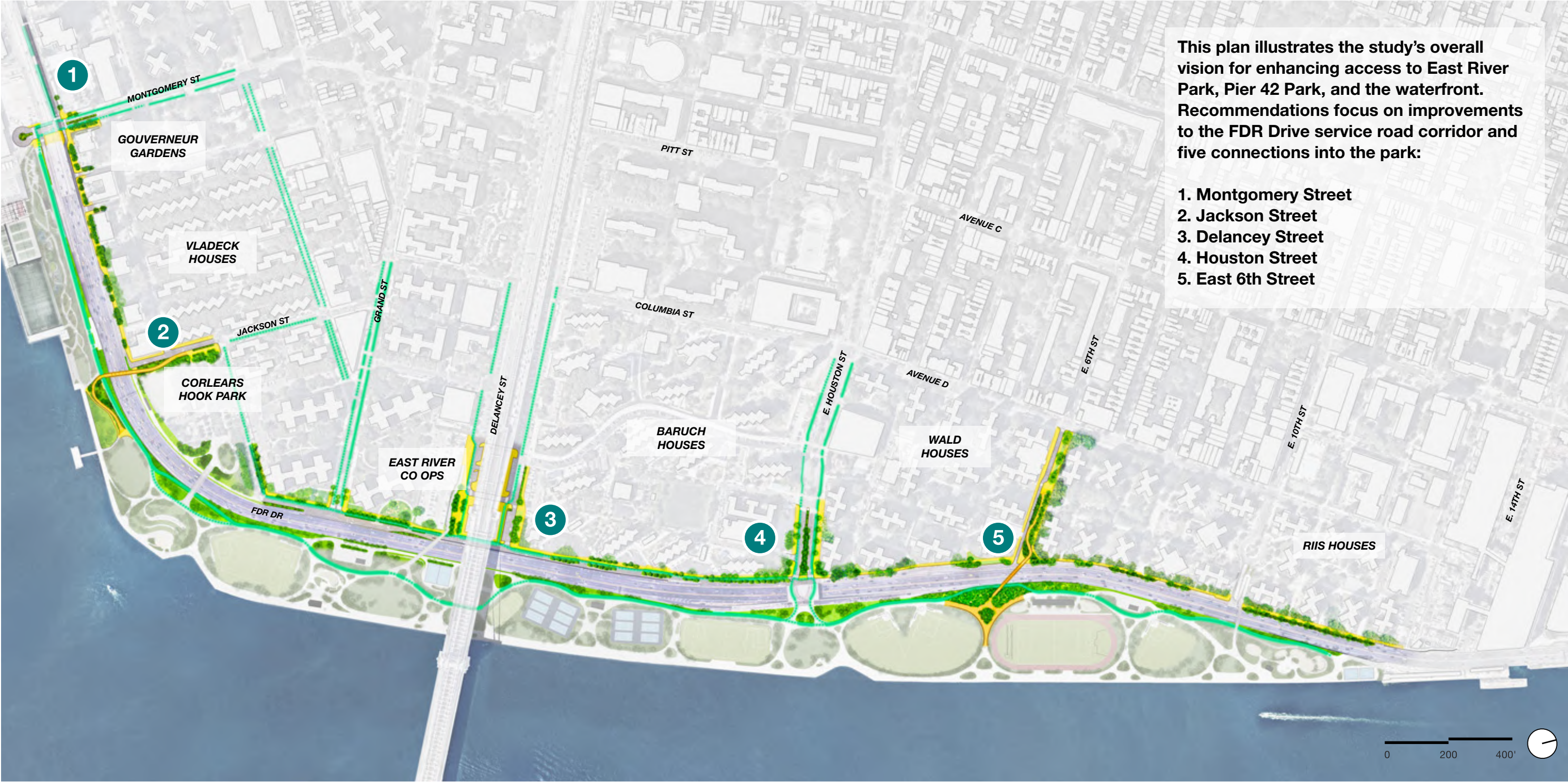
Recommendations Summary

The study recommends street enhancements at three connections and new pedestrian bridges at two locations (one new connection and one replacing an existing connection). Key highlights include:

- Street enhancements at Montgomery Street to improve the pedestrian experience of accessing Basketball City and Pier 42 park.
- A new universally accessible pedestrian bridge at Jackson Street that would serve as a more direct route to the ferry and integrate into Pier 42 park.
- A new shared street and pedestrian plaza space on Delancey Street, combined with roadway reconfigurations to reclaim space along FDR Drive for pedestrian and bike use by updating the merge between the FDR Drive service road and the Grand Street off ramp.
- Street enhancements at Houston Street including a new north-south crosswalk to increase pedestrian connectivity.
- Replacement of the existing East 6th Street pedestrian bridge with a new universally accessible bridge that connects to paths in East River Park.

Recommended Improvement Concepts

OVERALL VISION



Study Area | Existing Condition

PRE-ESCR

THE FDR CORRIDOR FROM MONTGOMERY STREET TO EAST 14TH STREET IS ON THE CUSP OF MAJOR CHANGES



The study area includes the FDR Drive corridor and adjacent areas from Montgomery Street to East 14th Street.

Study Area | Future Condition

ESCR 2016 – 2026

THREE MAJOR PUBLIC REALM PROJECTS WILL SIGNIFICANTLY CHANGE THE CONTEXT OF STUDY AREA



Pier 42 park, Brooklyn Bridge Montgomery Street Coastal Resiliency, and East Side Coastal Resiliency are each currently under construction, and will bring a series of public realm improvements.

Opportunity Areas

PUBLIC REALM ACCESS IMPROVEMENTS POST-ESCR

GAP ANALYSIS AND OPPORTUNITY AREAS

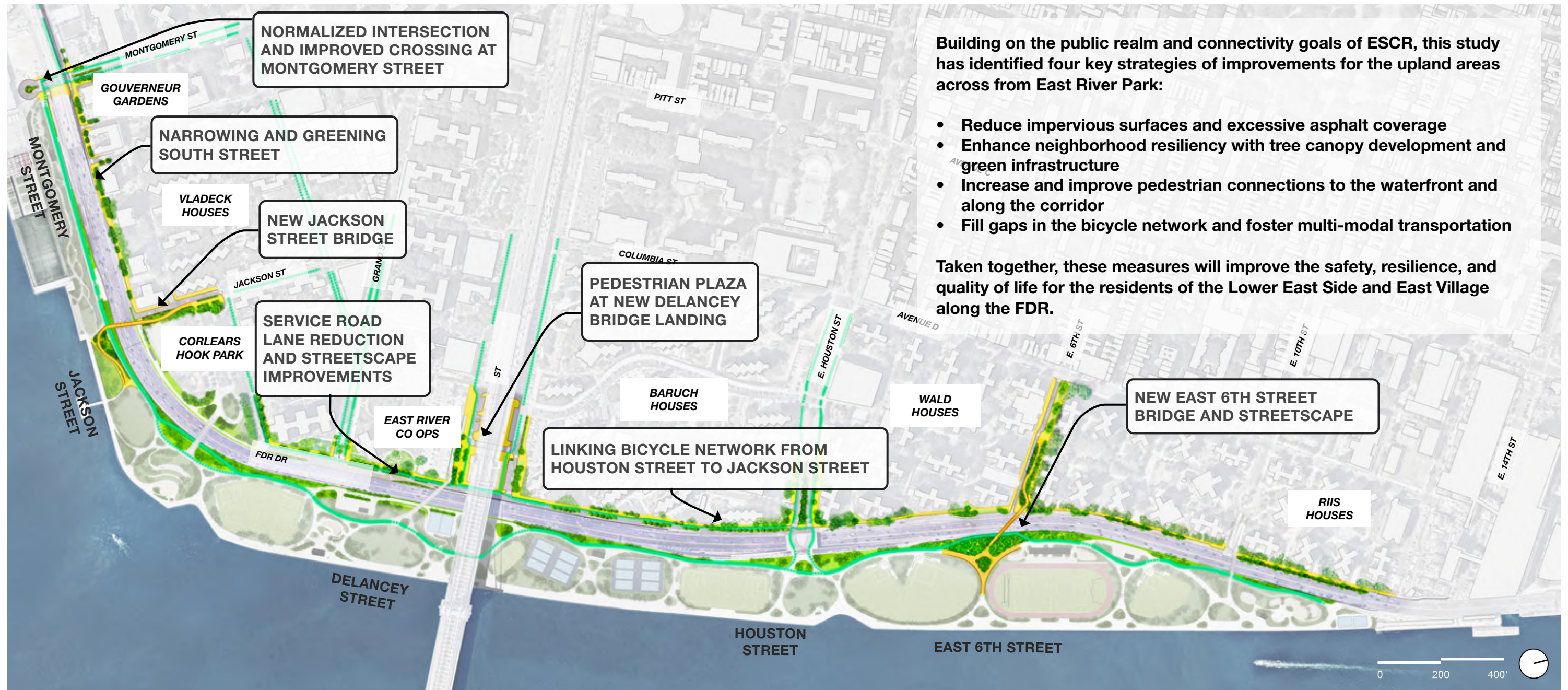


This study assumed completion of the BMCR, ESCR, and Pier 42 park projects as the “existing conditions” for recommendations and sought to identify potential improvements that could address gaps in those projects.

Recommended Improvement Concepts

PROPOSED RECOMMENDATION OVERVIEW

OVERALL PLAN VISION



This map shows the overall proposed recommendations throughout the FDR corridor from Montgomery Street to East 6th Street.

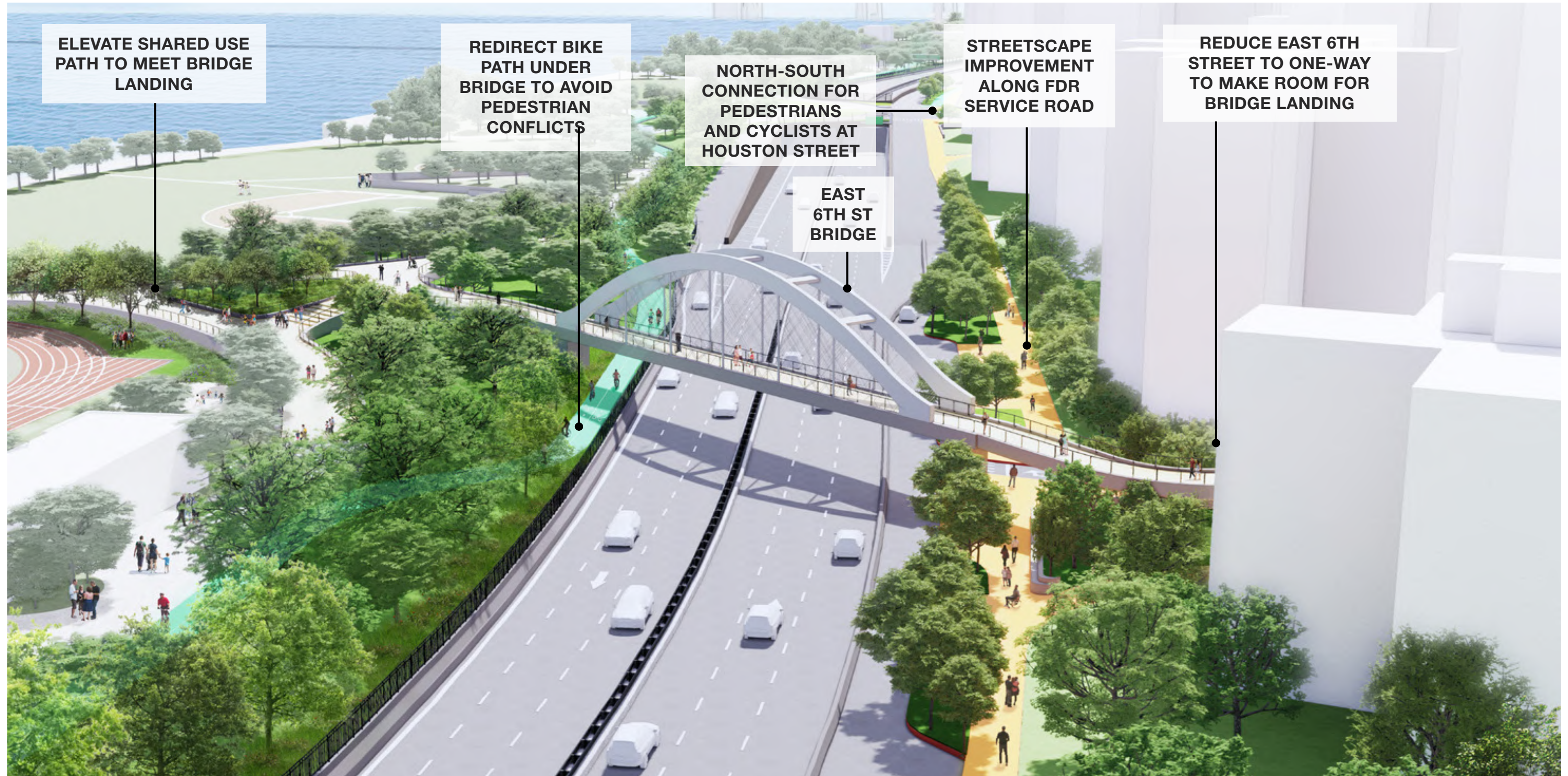
Montgomery Street to Delancey Street Improvements

IMPROVEMENT PACKAGES 1, 2, AND 3



Houston Street to East 6th Street Improvements

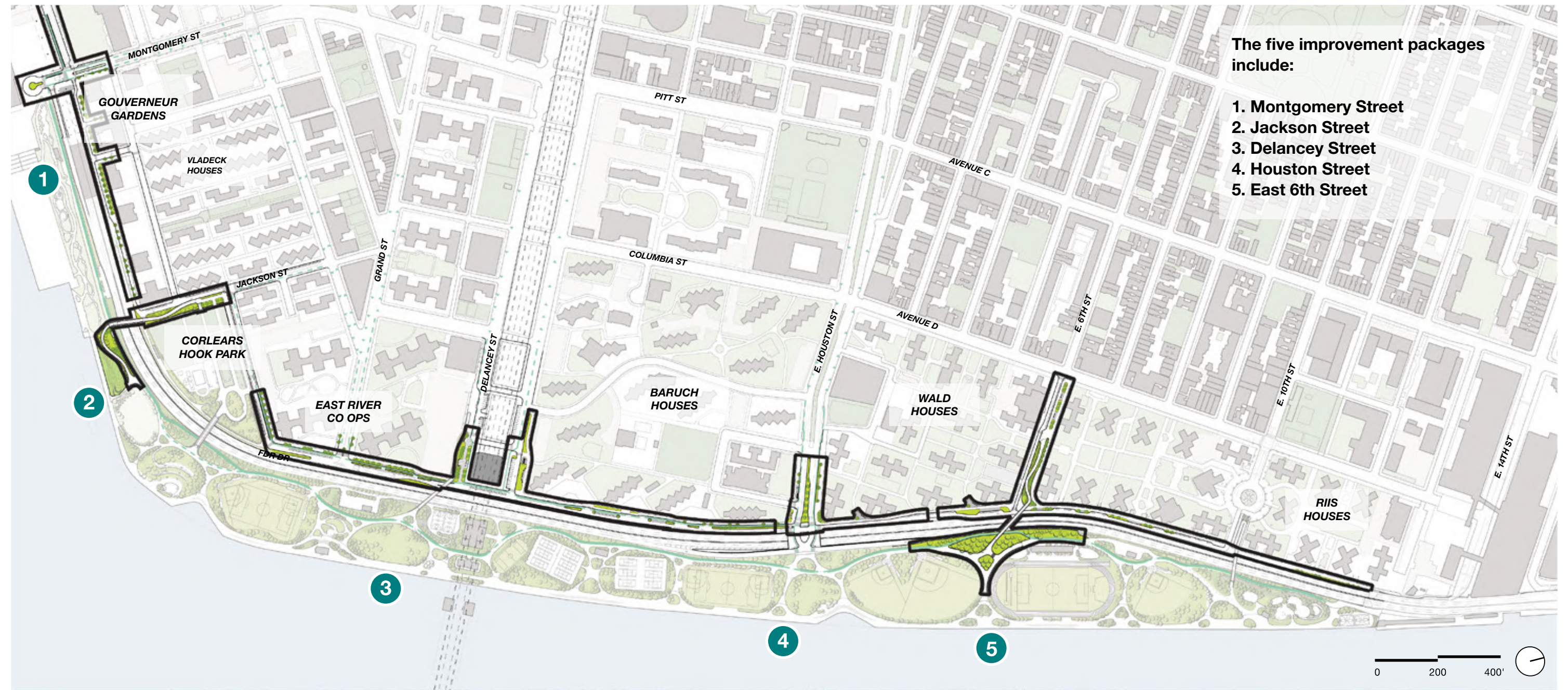
IMPROVEMENT PACKAGES 4 AND 5



Recommended Improvement Concepts

STUDY PROCESS

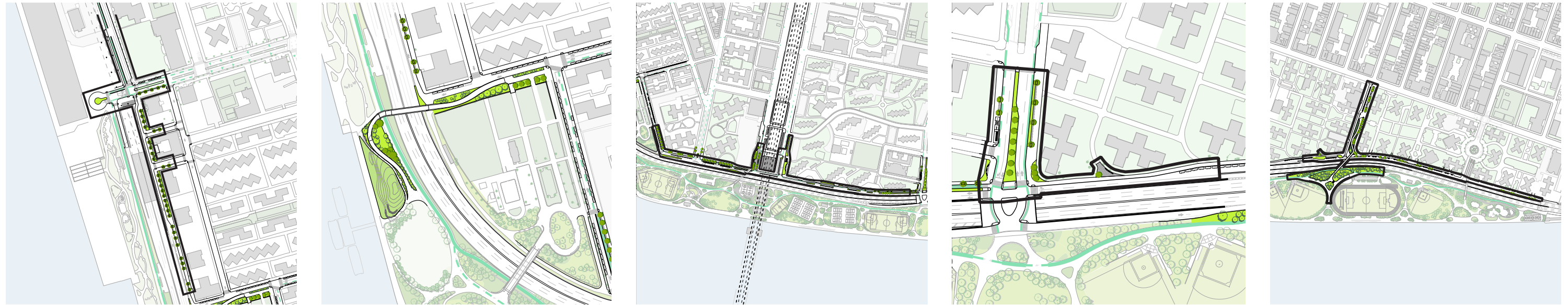
OVERALL ILLUSTRATIVE PLAN AND IMPROVEMENT PACKAGES



This plan shows the overall proposed recommendations throughout the FDR corridor from Montgomery Street to East 14th Street.

Recommended Improvement Concepts

IMPROVEMENT PACKAGES



1 – MONTGOMERY	2 – JACKSON STREET	3 – DELANCEY STREET	4 – HOUSTON STREET	5 – EAST 6TH STREET
SCOPE OF WORK <ul style="list-style-type: none"> Green infrastructure Streetscape improvement Bike connection improvement 	SCOPE OF WORK <ul style="list-style-type: none"> New pedestrian bridge Streetscape improvement 	SCOPE OF WORK <ul style="list-style-type: none"> Green infrastructure Streetscape improvement Bike connection improvement Shared street / pedestrian plaza 	SCOPE OF WORK <ul style="list-style-type: none"> Streetscape improvement Bike connection improvement 	SCOPE OF WORK <ul style="list-style-type: none"> Pedestrian bridge replacement Green infrastructure Streetscape improvement
COST: \$12M – \$20M	COST: \$34M – \$56M	COST: \$27M – \$44M	COST: \$4M – \$6M	COST: \$73M – \$119M
NEXT STEPS <ul style="list-style-type: none"> Coordinate access improvements with Pier 42 and Basketball City projects. Further study of potential effects on traffic of closing the slip lane under the FDR viaduct. Identification of maintenance partner or funding. 	NEXT STEPS <ul style="list-style-type: none"> Coordination with Pier 42 project for the riverside landing. Further study of potential effects on traffic of conversion of segment of Jackson Street to one-way. Identification of maintenance partner or funding. 	NEXT STEPS <ul style="list-style-type: none"> More detailed traffic analysis to confirm proposed roadway changes. More detailed analysis of parking, stormwater management opportunities, and coordination with NYC DEP. Identification of maintenance partner or funding. 	NEXT STEPS <ul style="list-style-type: none"> Detailed transportation analysis to understand potential effects of new crosswalk on traffic on the FDR Drive exit ramp. Identification of maintenance partner or funding. 	NEXT STEPS <ul style="list-style-type: none"> Coordination with ESCR project for park-side landing. Further study of potential effects on traffic of conversion of East 6th Street to one-way. Identification of maintenance partner or funding.

All cost estimates are preliminary and include design and construction costs.

Montgomery Street | Project Package

IMPROVEMENT PACKAGE 1

Scope of Work

- Add curb extensions at street corners to improve pedestrian safety and create opportunities for new street trees and green infrastructure.
- Reconfiguration of traffic heading east on South Street onto the FDR northbound on-ramp to normalize intersection and improve traffic safety.
- Provide improved lighting under the elevated FDR viaduct.
- Improved greenway connections.
- Green infrastructure and new street trees.

Cost: \$12-\$20M*

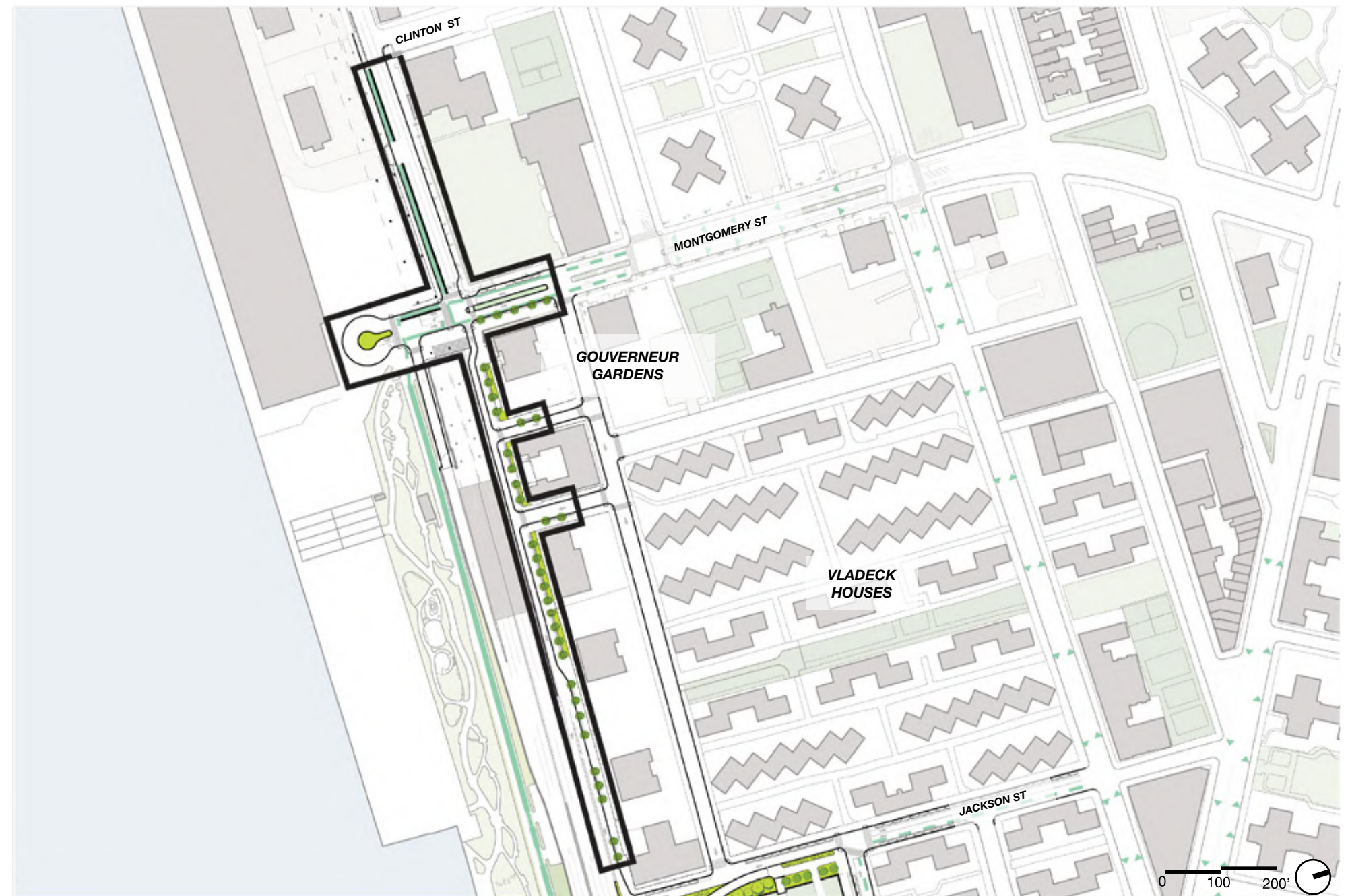
Construction Duration: ~1 Year*

Next Steps

- Coordinate with EDC and Basketball City on plans for improved access to Basketball City.
- Coordinate with NYC Parks on access to Pier 42.
- Identify maintenance partner and funding for street trees and green infrastructure.
- Further study of proposed traffic realignment, slip lane closure, and curb adjustment, including review of signal timing.
- Refine lighting approach for the overpass and identify maintenance partners.

* Costs and construction duration are for long-term recommendations, including costs for construction and design / permitting. Detailed cost estimates are included in the Appendix.

PLAN DIAGRAM



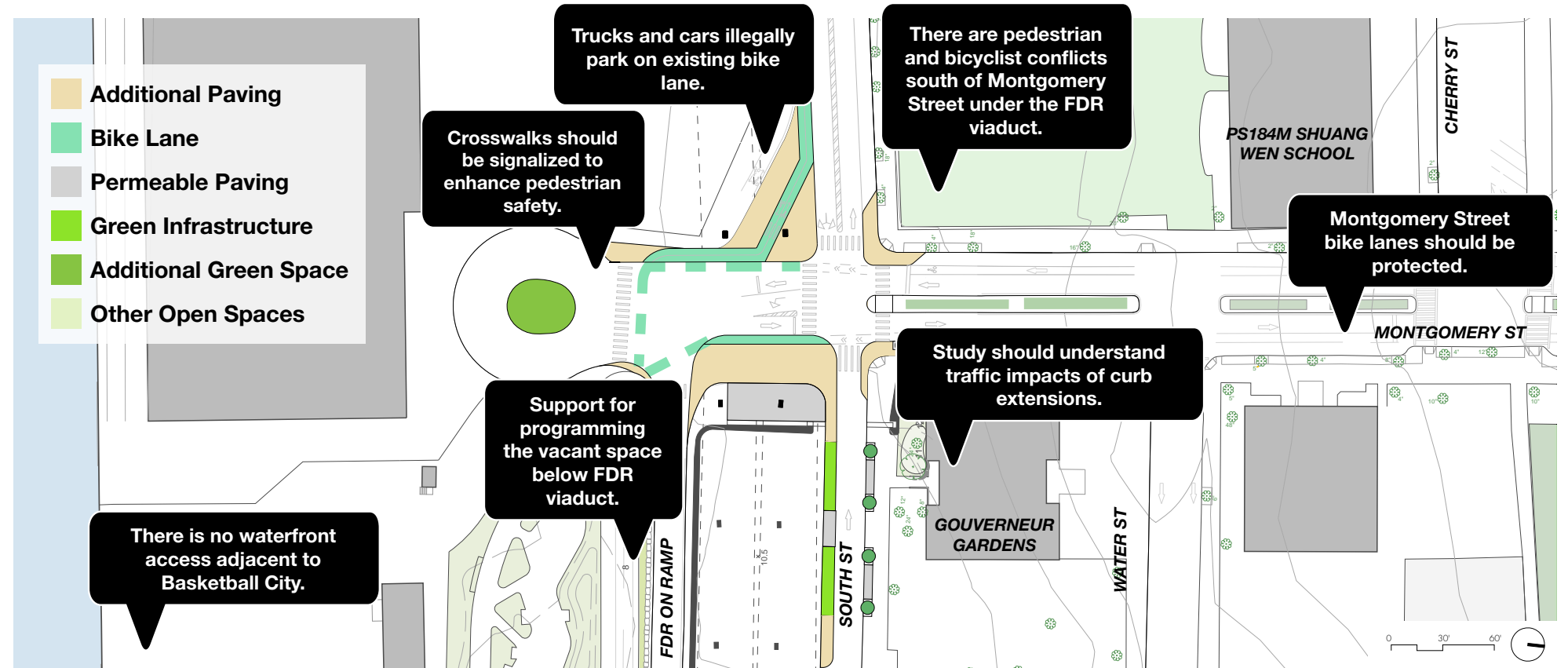
This plan shows Montgomery Street proposed project boundary from Clinton Street to Jackson Street.

Montgomery Street | Community Input

IMPROVEMENT PACKAGE 1

WHAT THE TEAM HEARD

- Difficult crossing traffic for pedestrians.
- Poorly lit.
- Street flooding at intersection of Montgomery Street and FDR Drive.
- Study potential programming and lighting for space below the FDR Drive viaduct.



Community feedback on draft recommendations.



Montgomery Street and South Street



Montgomery Street and FDR on ramp

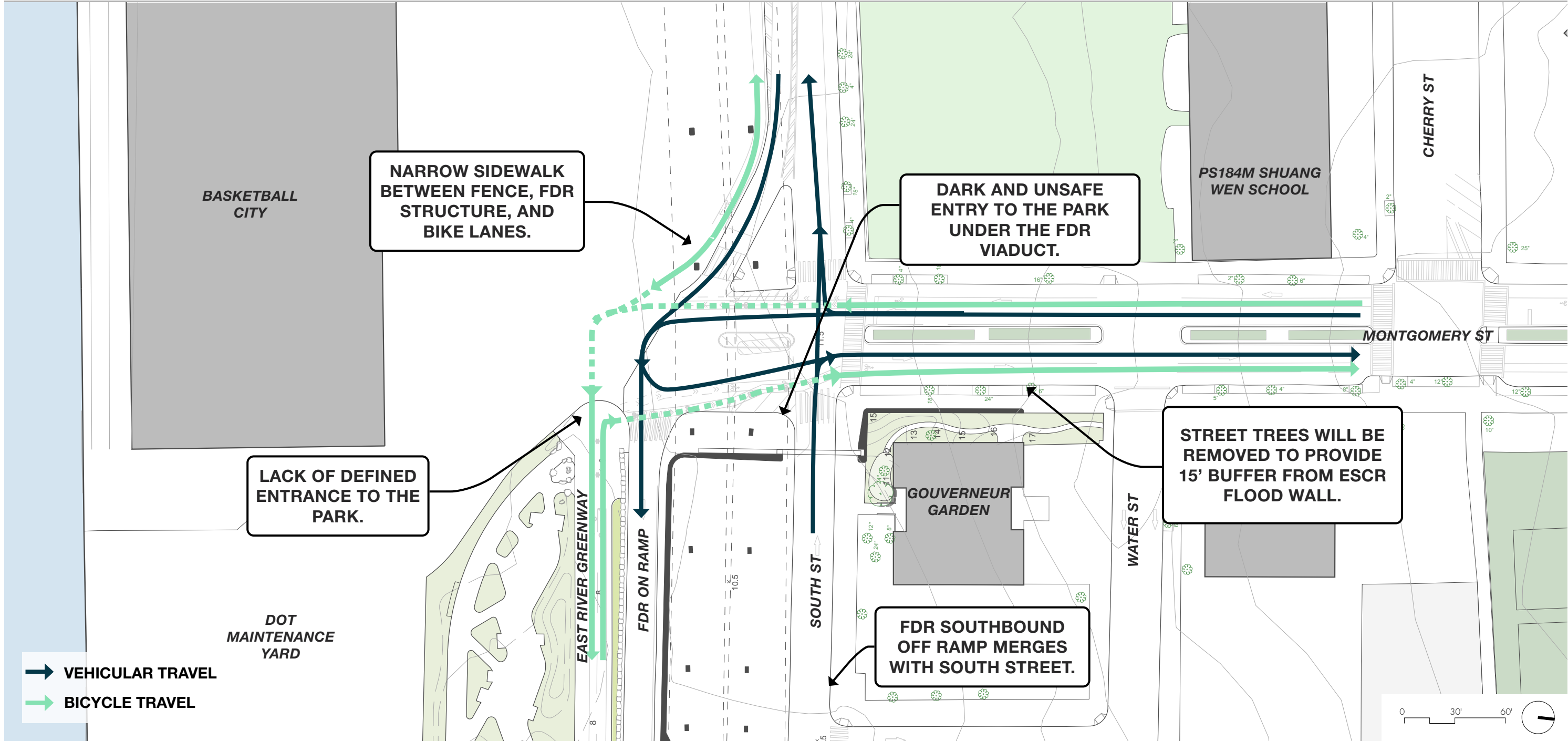


Montgomery Street Crossing under FDR viaduct

Montgomery Street | Existing Conditions

IMPROVEMENT PACKAGE 1

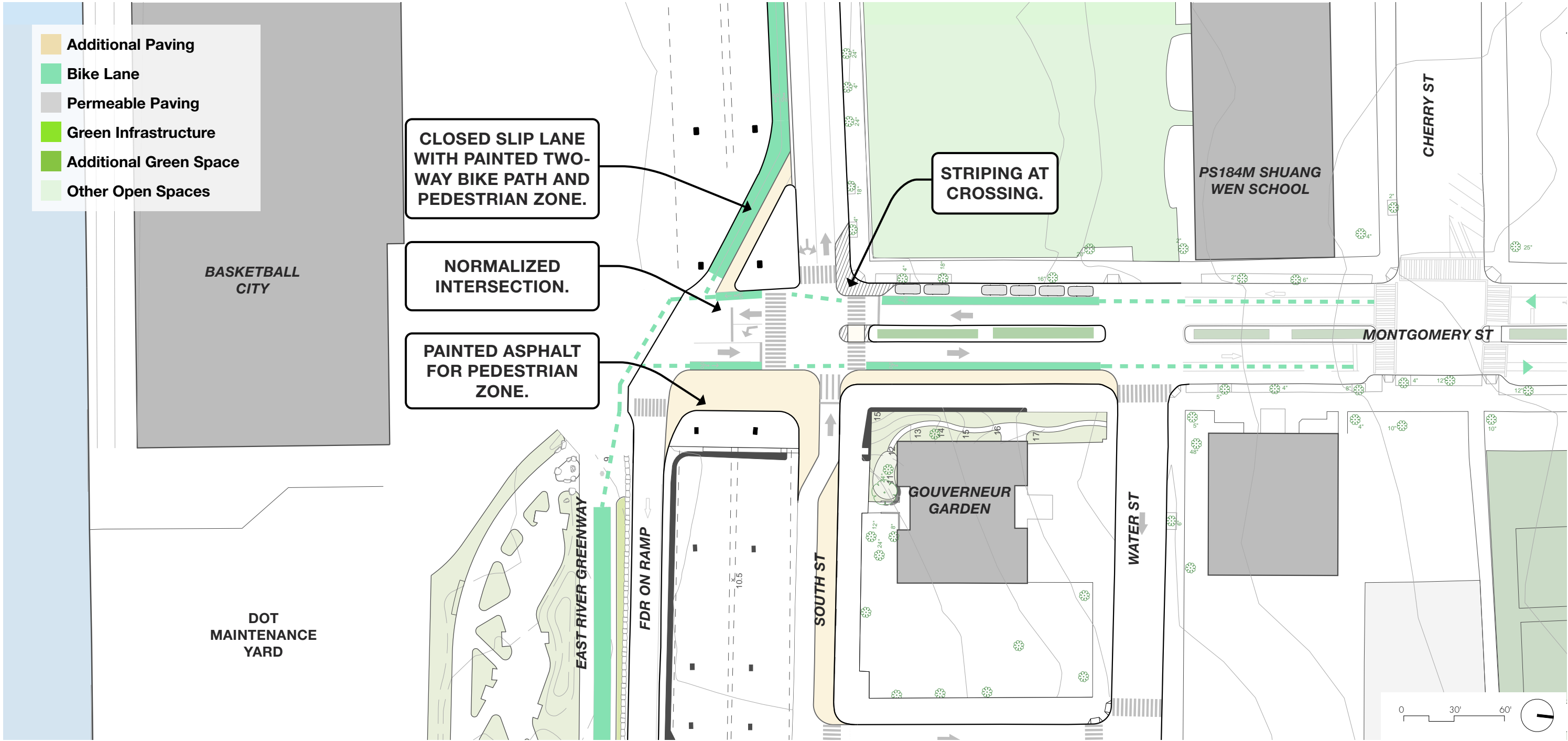
STUDY AREA PLAN



Montgomery Street | Street Enhancements (Phase 1)

IMPROVEMENT PACKAGE 1

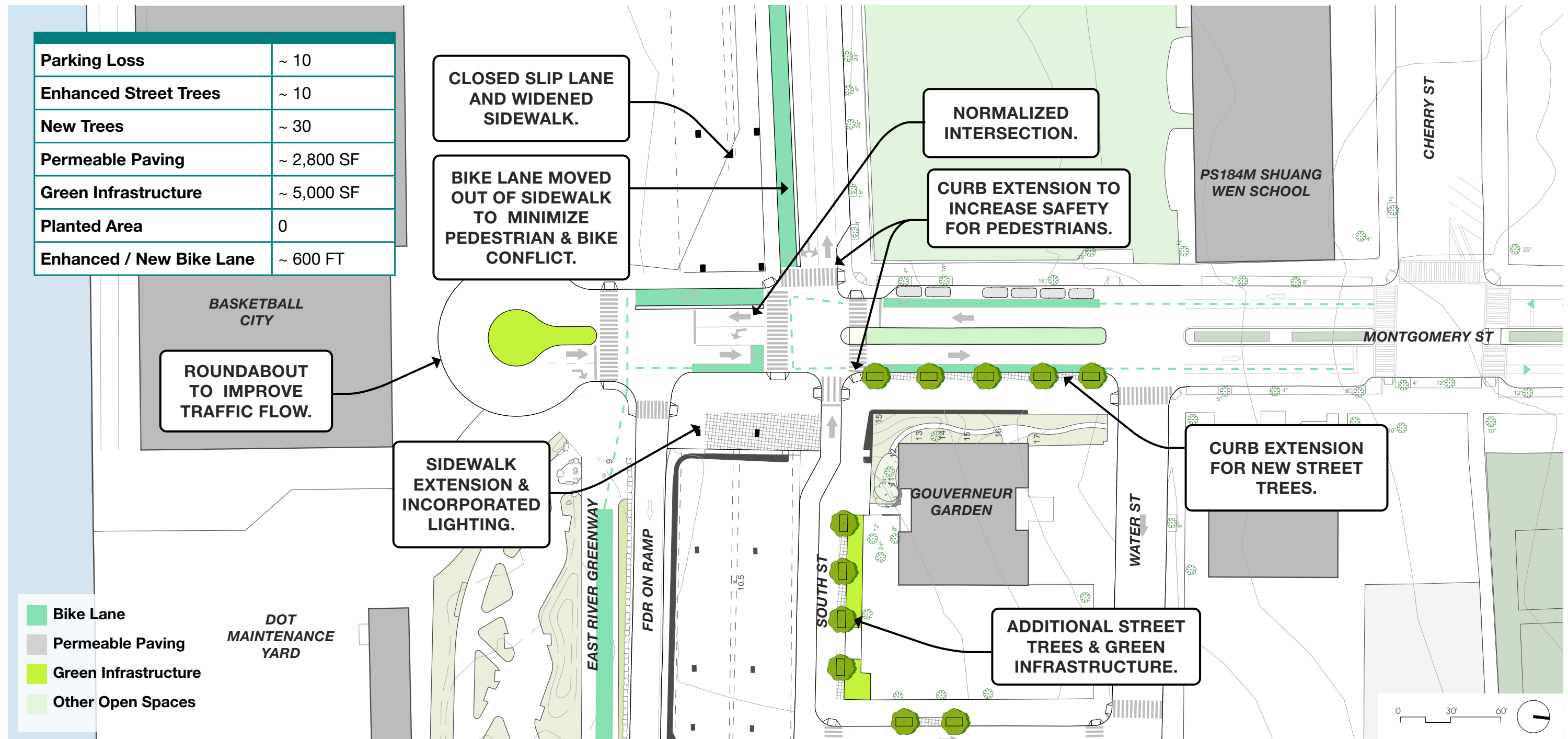
NEAR-TERM RECOMMENDATIONS



Montgomery Street | Project Proposal

IMPROVEMENT PACKAGE 1

LONG-TERM RECOMMENDATIONS



Montgomery Street | Project Proposal

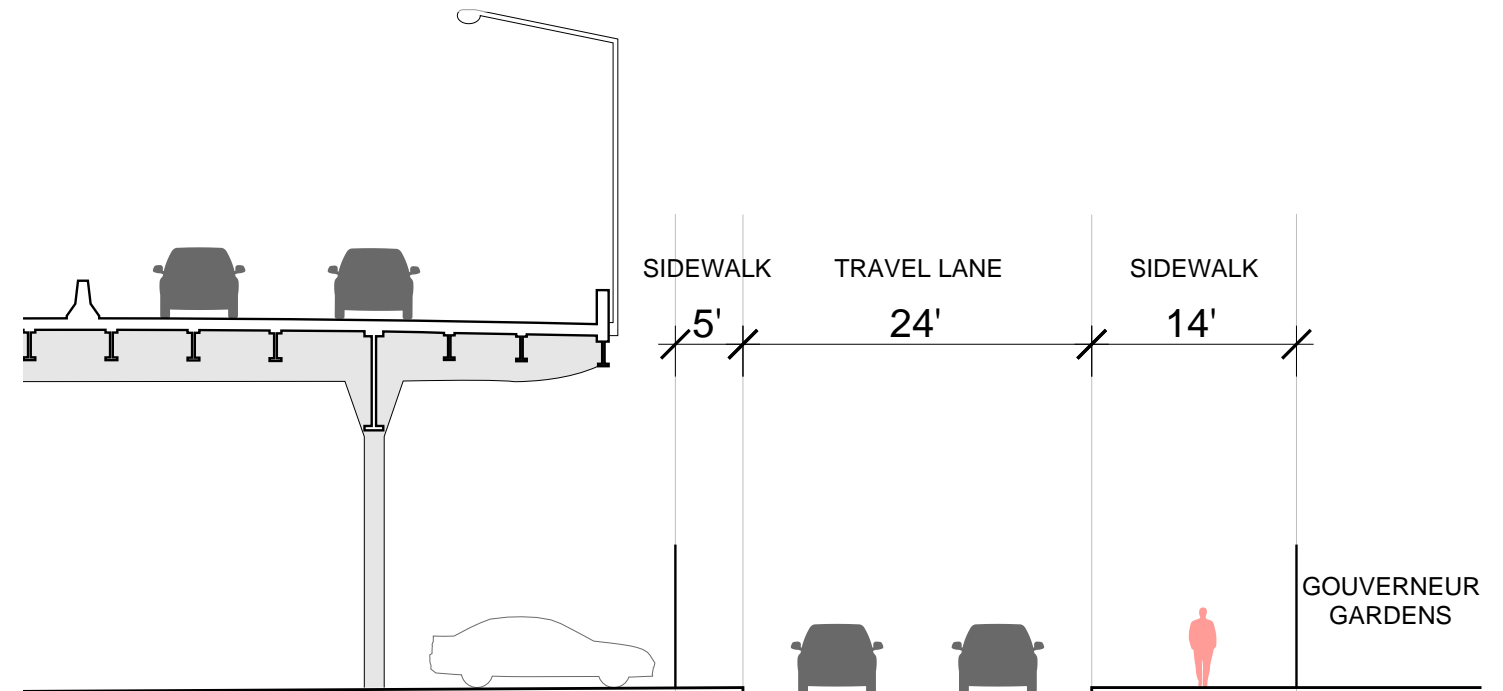
IMPROVEMENT PACKAGE 1

SUMMARY

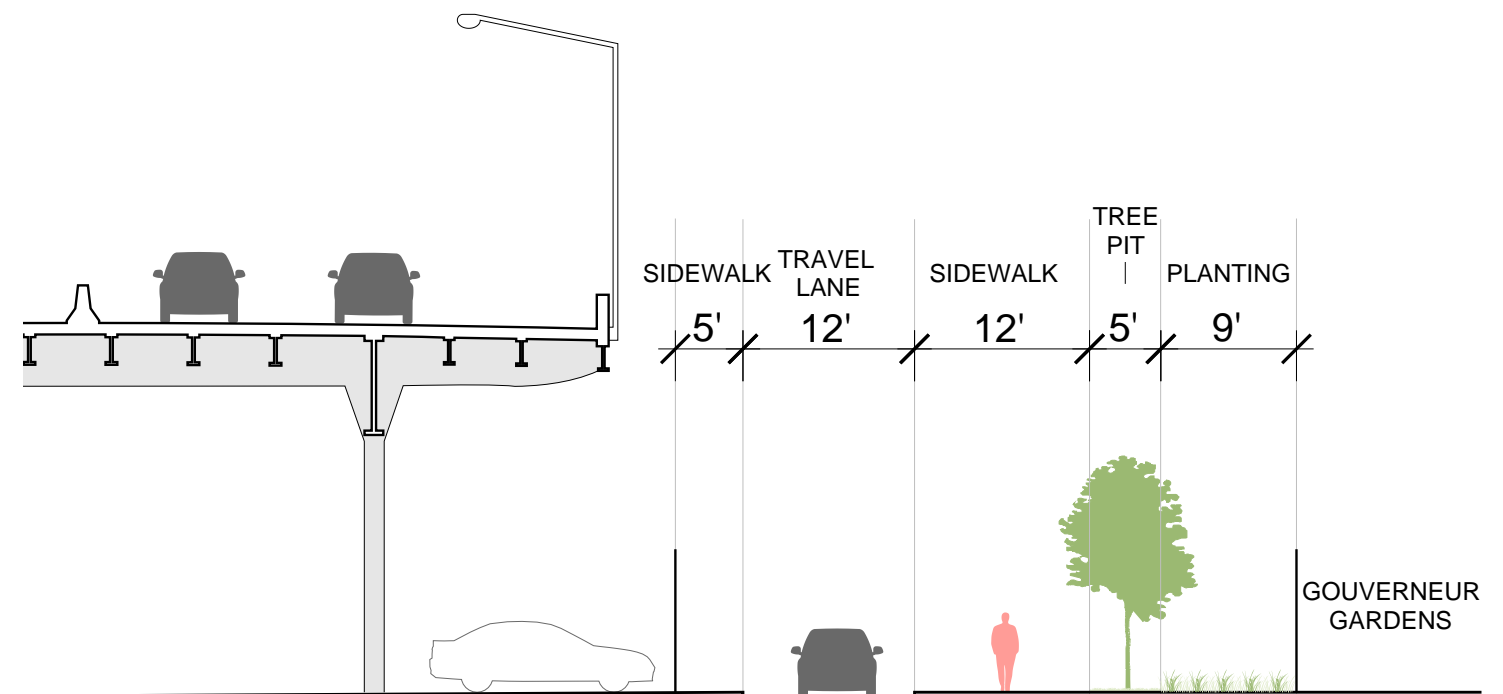
- The Montgomery Street / South Street intersection is a busy area that provides access to a variety of waterfront activities in Pier 42 park and Basketball City. Extending the curbs along South Street will create more space for pedestrians, improving the safety for using this crossing into Pier 42. Extended curbs will also create space for new street trees and green infrastructure.
- Closing the slip lane from South Street to the FDR on-ramp is an opportunity to improve the bicycle connection to the greenway and minimize conflicts between bicycles and pedestrians, though the traffic implications require additional study.
- Improved lighting under the FDR Drive viaduct will improve the perception of safety for pedestrians and bikes. This lighting could be implemented in multiple ways, as a continuation of the overhead lighting being used for the Brooklyn Bridge Montgomery Coastal Resilience Project to the south; by treating the curb extension areas as NYC Parks “Greenstreets” and installing NYC Parks standard fixtures that would be maintained by NYC DOT; or by installing NYC DOT “EI-Space” lighting prototypes.
- The alignment of the access and roundabout to Basketball City requires coordination with NYC EDC.

SOUTH ST SECTION AT GOUVERNEUR GARDENS

EXISTING



PROPOSED

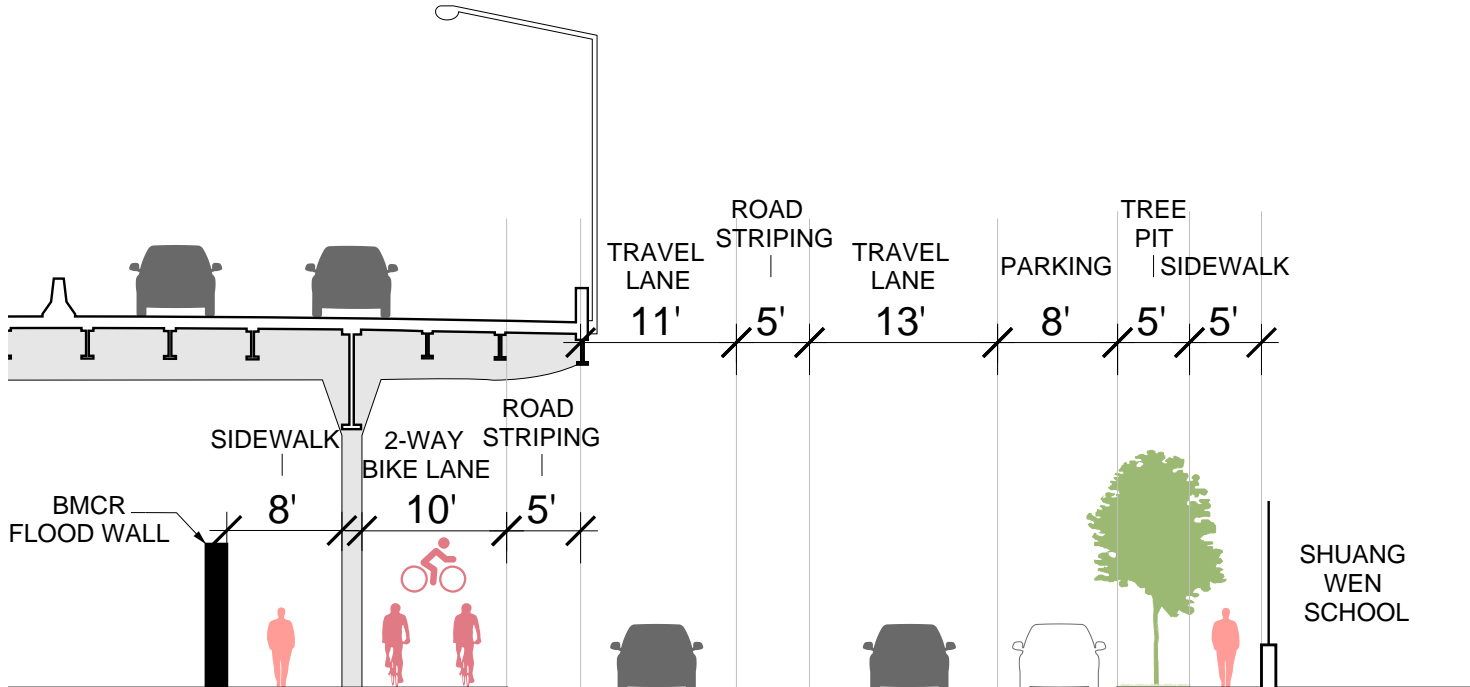


Montgomery Street | Project Proposal

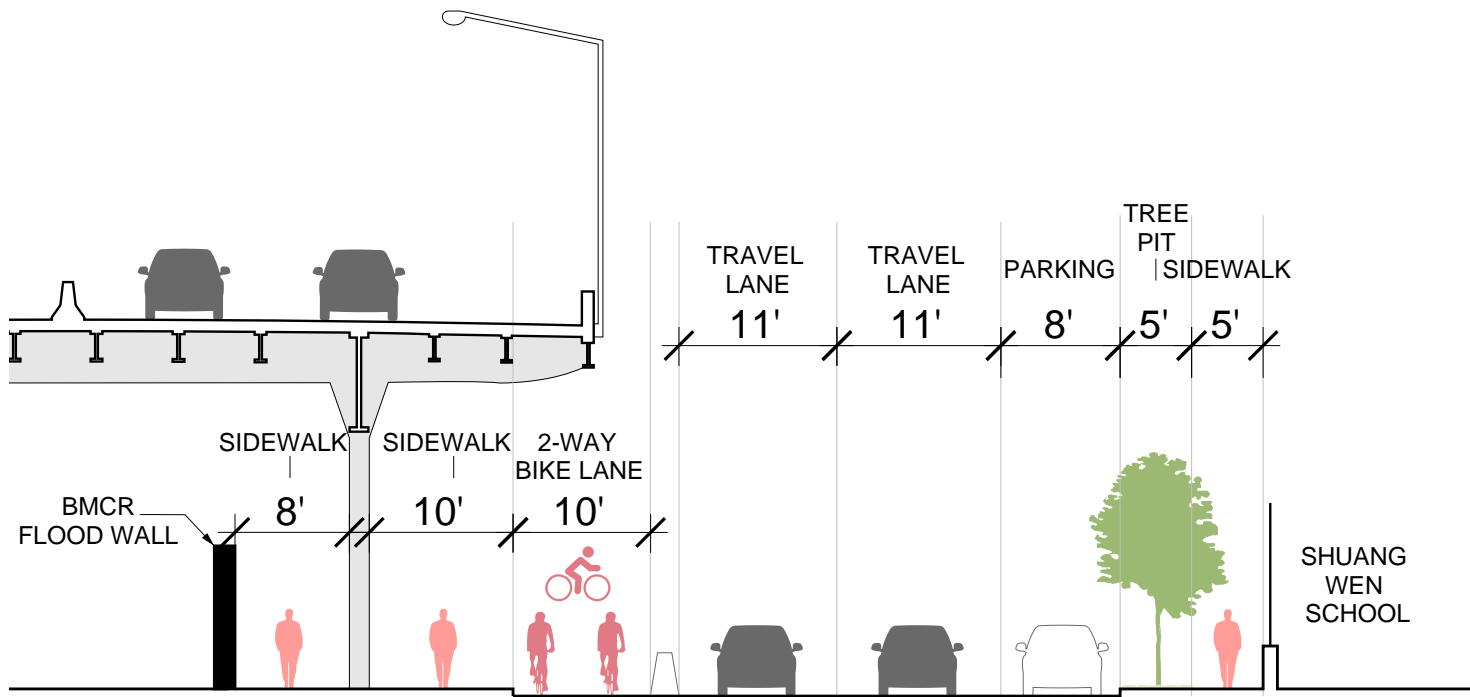
IMPROVEMENT PACKAGE 1

SOUTH ST SECTION AT SHUANG WEN SCHOOL

EXISTING



PROPOSED



Montgomery Street | Survey Findings

IMPROVEMENT PACKAGE 1

WHAT DO YOU LIKE OR DISLIKE ABOUT THIS? WHAT QUESTIONS OR CONCERNS DO YOU HAVE? (67 RESPONSES)

Loss of Street parking

- 11 out of 67 respondents had concerns about the loss of street parking.
- *“I think it is a good idea minus removing parking for more trees.”*

TRANSFORMING EXISTING VEHICULAR SPACE

- 12 out of 67 respondents advocated for transforming existing vehicular space.
- *“Like most people in the East Village, I don’t own a car, so trading parking spots for public space is a strong positive. More street trees are always appreciated.”*

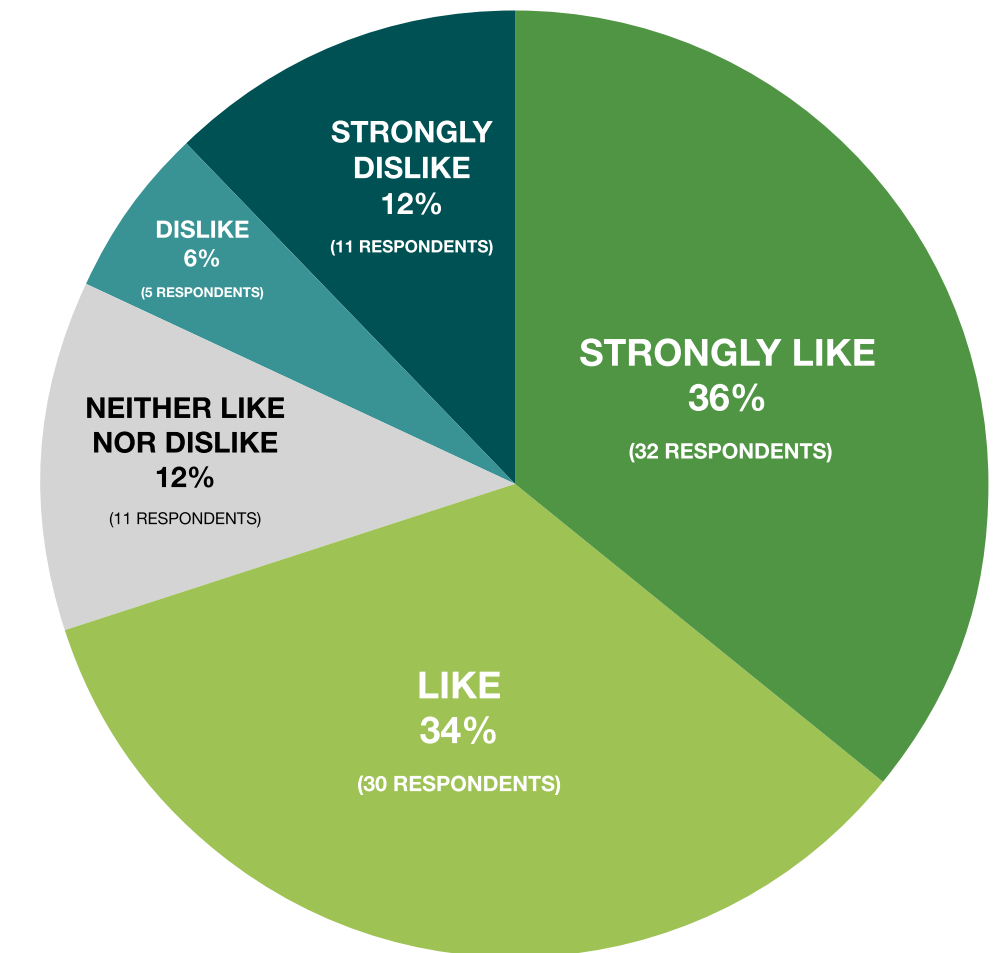
PEDESTRIAN AND BICYCLE SAFETY

- 30 out of 67 respondents support improvements that would enhance pedestrian safety at this intersection, and 8 out of 64 mentioned the importance of bicycle safety.
- *“This is a particularly challenging area for cyclists and walkers and the improvements noted should help.”*

GREEN SPACE AND TREES

- 17 out of 67 respondents advocated for more trees and green space.
- *““We need more trees for shade and air and they also function to make safer pathways for bikes and pedestrians. Win-win.”*

WHAT DO YOU THINK ABOUT THIS IMPROVEMENT CONCEPT? (89 RESPONSES)



Jackson Street

IMPROVEMENT PACKAGE 2

Scope of Work

- Construct a new universal access bridge from Jackson Street to Pier 42.
- New bridge requires Jackson Street to be narrowed to accommodate the width of the bridge.
- New street trees and green space along sidewalk.

Cost: \$34M – \$56M*

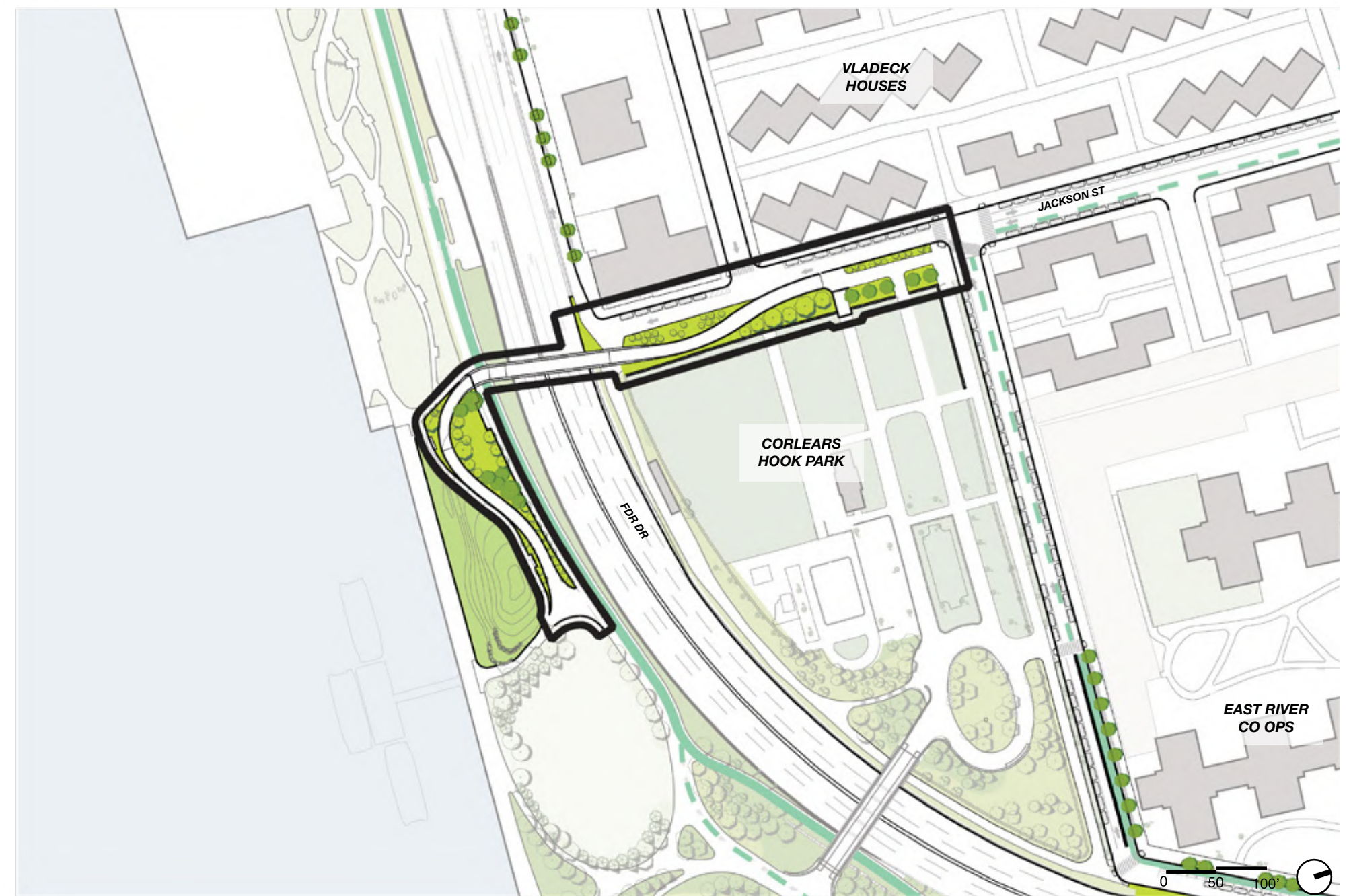
Construction Duration: ~3 Years*

Next Steps

- Since Pier 42 park has been recently reconstructed, the potential new pedestrian bridge at Jackson Street is a recommendation for a longer-term improvement. The park-side landing would need to be coordinated with the layout of Pier 42 park.
- Further study would be needed on the potential effects on traffic and parking of converting a segment of Jackson Street to one-way.
- Future implementation would need to involve identification of maintenance partners.
- Coordination with NYC DEP, Con-Ed and others on design and layout of bridge in relation to underground utilities.

* Costs and construction duration are for long-term recommendations, including costs for construction and design / permitting. Detailed cost estimates are included in the Appendix.

PLAN DIAGRAM



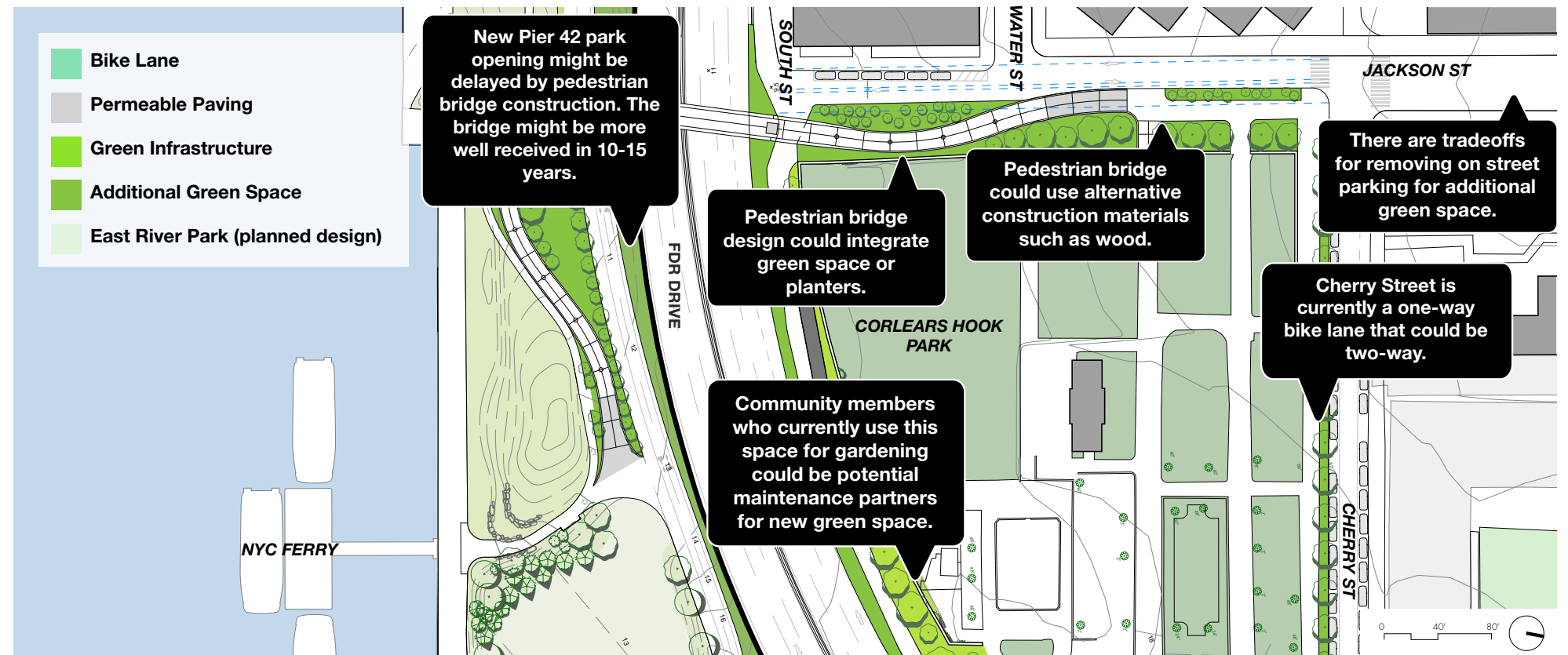
This plan shows Jackson Street proposed project boundary.

Jackson Street | Community Input

IMPROVEMENT PACKAGE 2

WHAT THE TEAM HEARD

- Desire for additional access points to Pier 42 separated from car traffic.
- Desire for shade and canopy.
- Flooding at intersection of South Street and Jackson Street.
- Consider park users as potential maintenance partners.



Community feedback on draft recommendations.

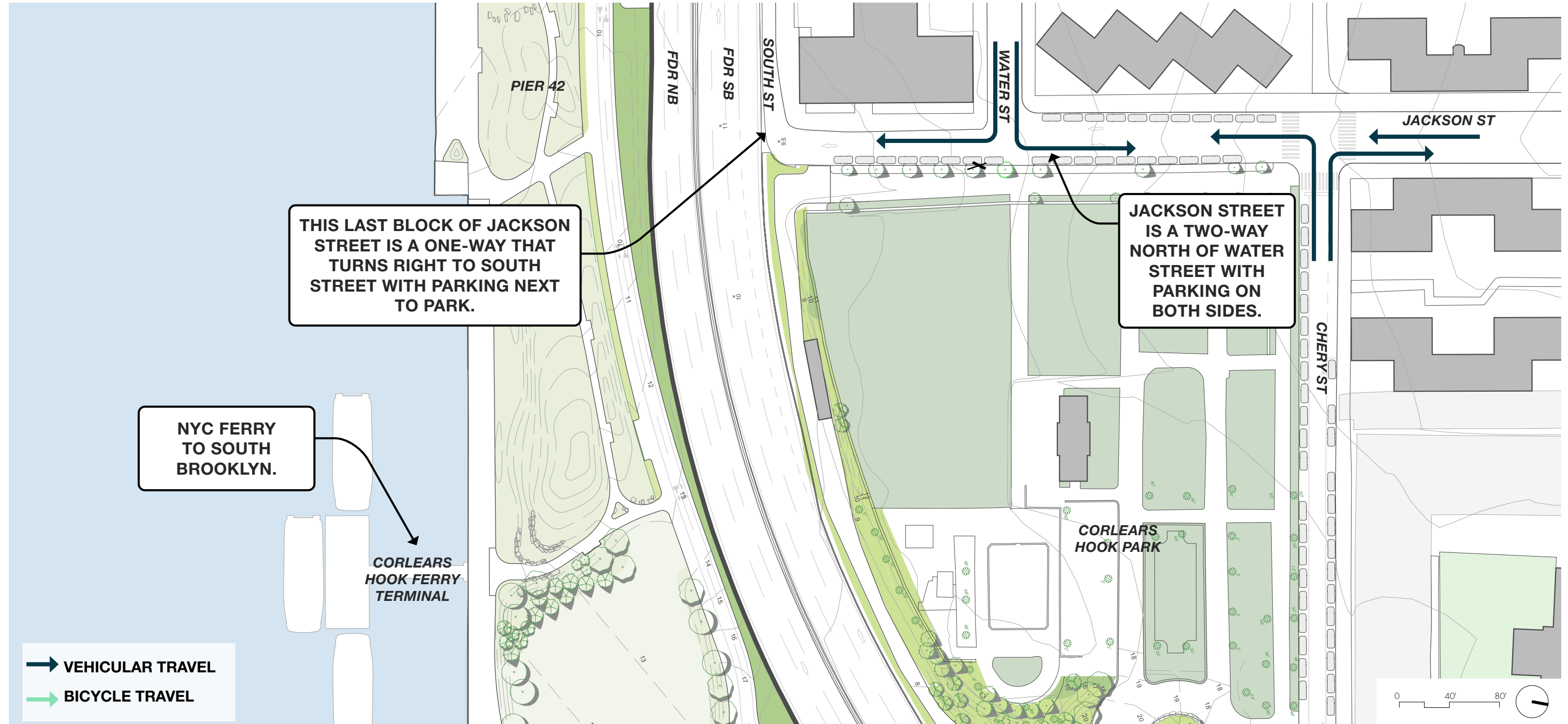


Jackson Street between Water Street and South Street.

Jackson Street | Existing Condition

IMPROVEMENT PACKAGE 2

STUDY AREA PLAN



Jackson Street | Project Proposal

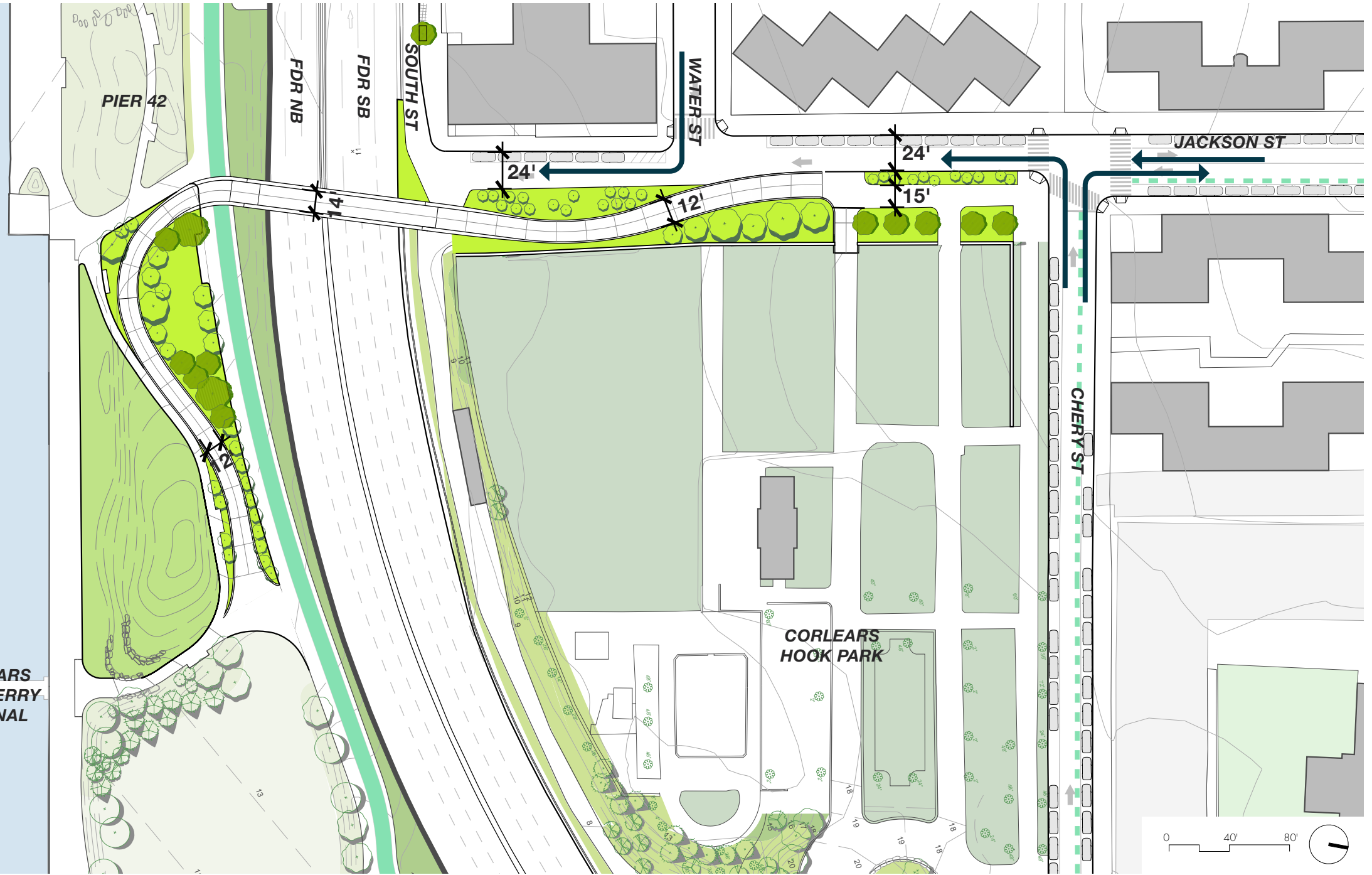
IMPROVEMENT PACKAGE 2

PREFERRED POTENTIAL IMPROVEMENT CONCEPT

Parking Loss	~ 10
Removed Street Trees	~ 5
New Trees	~ 10
Permeable Paving	0
Green Infrastructure	0
Planted Area	~ 9,600 SF
Enhanced / New Bike Lane	0

-  Bike Lane
-  Permeable Paving
-  Green Infrastructure
-  Additional Green Space
-  East River Park (planned design)
-  Vehicular Travel

CORLEARS
HOOK FERRY
TERMINAL



Jackson Street | Alternative Concept

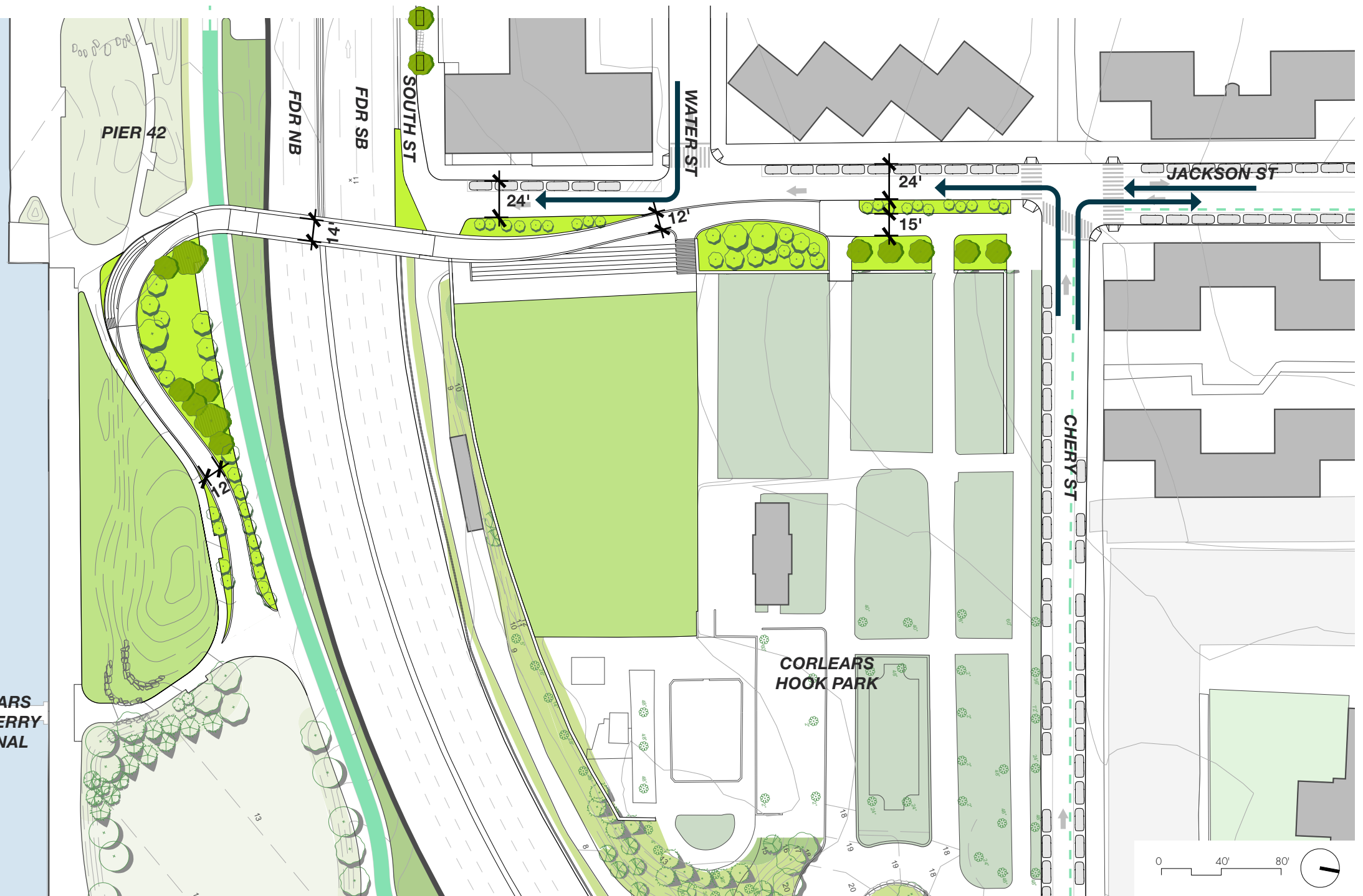
IMPROVEMENT PACKAGE 2

INTEGRATED WITH CORLEARS HOOK PARK BALLFIELD

Parking Loss	~ 10
Removed Street Trees	~ 5
New Trees	~ 10
Permeable Paving	0
Green Infrastructure	0
Planted Area	~ 7,300 SF
Enhanced / New Bike Lane	0

-  Bike Lane
-  Permeable Paving
-  Green Infrastructure
-  Additional Green Space
-  East River Park (planned design)
-  Vehicular Travel

CORLEARS
HOOK FERRY
TERMINAL

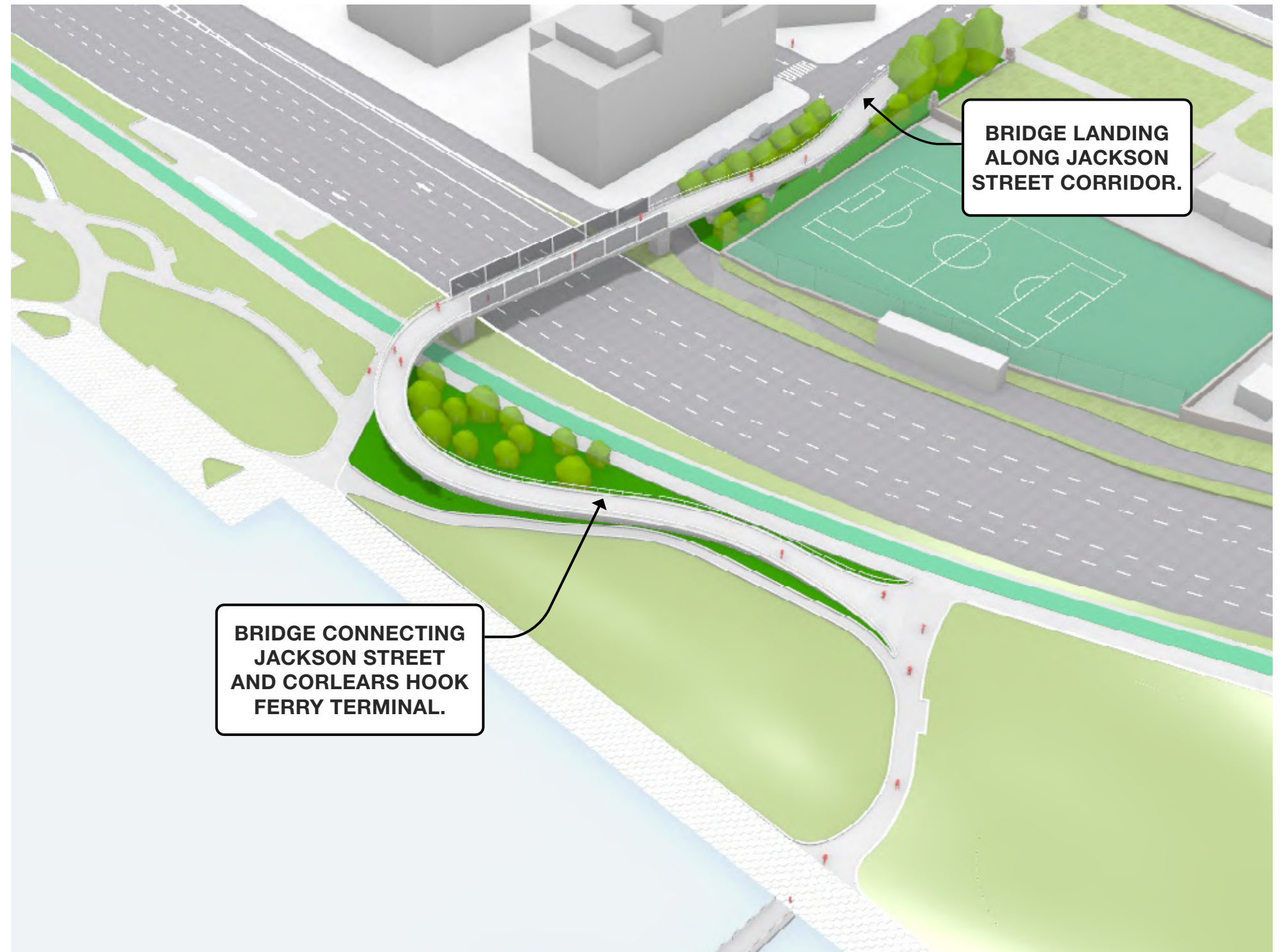


Jackson Street | Project Proposal

IMPROVEMENT PACKAGE 2

SUMMARY

- Adding a new pedestrian bridge at this location would significantly reduce what is currently the largest gap in waterfront access (1,500 feet of no access from Montgomery Street to Corlears Hook Bridge) and provide a more direct route to the ferry landing than will be provided by the new Corlears Hook Bridge.
- In order to make space for a new bridge along Jackson Street, the street would need to be narrowed and made one-way between Jackson and Cherry Streets, and parking spaces may be lost. Additional study of these traffic considerations is needed if this project is advanced.
- Additional coordination would be needed to confirm design of the park-side landing and ensure it integrates into the reconstructed Pier 42 park.



Jackson Street | Survey Findings

IMPROVEMENT PACKAGE 2

WHAT DO YOU LIKE OR DISLIKE ABOUT THIS? WHAT QUESTIONS OR CONCERNS DO YOU HAVE? (67 RESPONSES)

Loss of Street parking

- 14 out of 67 respondents had concerns about the loss of street parking.
- *“Parking is already at minimum in that area. The ramp is a good idea but the local residents shouldn’t have to give up their street parking.”*

TRANSFORMING EXISTING VEHICULAR SPACE

- 7 out of 67 respondents advocated for transforming existing vehicular space.
- *“I strongly support reducing free car parking spots that create clutter, pollution, and unpleasant streetscape.”*
- *“It seems like access to the water and park would improve. Street parking should be the lowest priority.”*

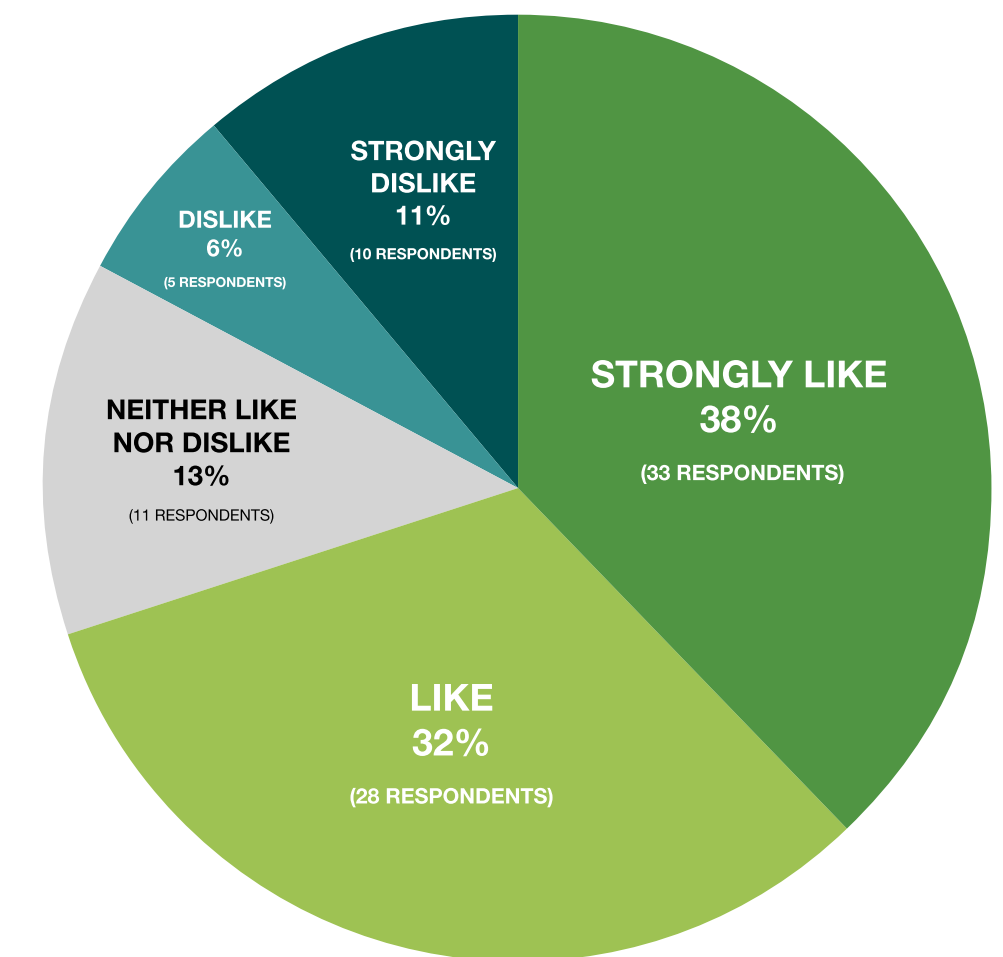
FERRY ACCESS

- 8 out of 67 respondents support increased ferry access.
- *“I take the NYC ferry to and from work and this bridge would make it easier for me to get to the ferry!”*
- *“Improved ferry access would be fantastic and is much needed.”*

ACCESS TO EAST RIVER PARK

- 20 out of 67 respondents mentioned their support of the proposed new park connection.
- *“Another bridge to cross over into East River Park would be great!”*
- *“In the future, I’d love to see even more pedestrian access points to the park.”*

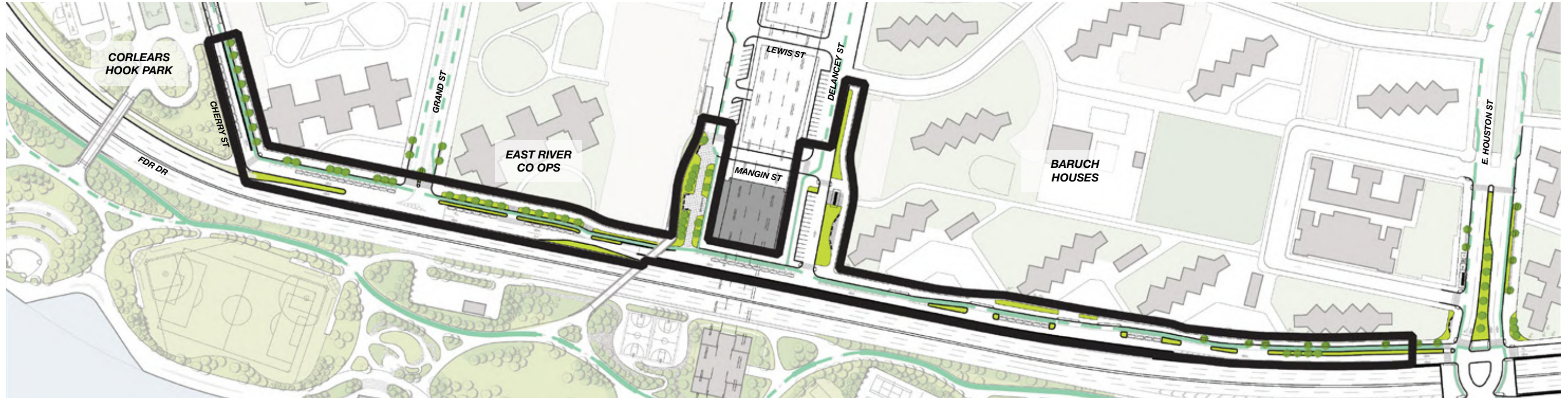
WHAT DO YOU THINK ABOUT THIS IMPROVEMENT CONCEPT? (87 RESPONSES)



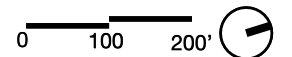
Delancey Street

IMPROVEMENT PACKAGE 3

PLAN DIAGRAM



This plan shows Delancey Street project boundary from Cherry Street to Houston Street.



Scope of Work

- Convert Delancey St. south from Mangin Street to FDR Drive service road to a shared street, maintaining limited vehicle access for emergencies, deliveries, and drop-off.
- Create plaza at entrance to new Delancey Street bridge with opportunities for green infrastructure.
- Narrow FDR Drive Service Road and reduce FDR Drive off-ramp to one lane to create more space for pedestrians and bikes, and create space for street trees and green infrastructure.
- Add two-way bike path from Corlears Hook Park to Mangin Street.

Cost: \$27M to \$44M*

Construction Duration: ~1 - 1.5 Years*

Next Steps

- More detailed traffic analysis to confirm proposed roadway changes.
- More detailed analysis of stormwater management opportunities and coordination with NYC DEP.
- Identification of maintenance funding and partner.
- Develop approach for improving lighting under the Williamsburg Bridge

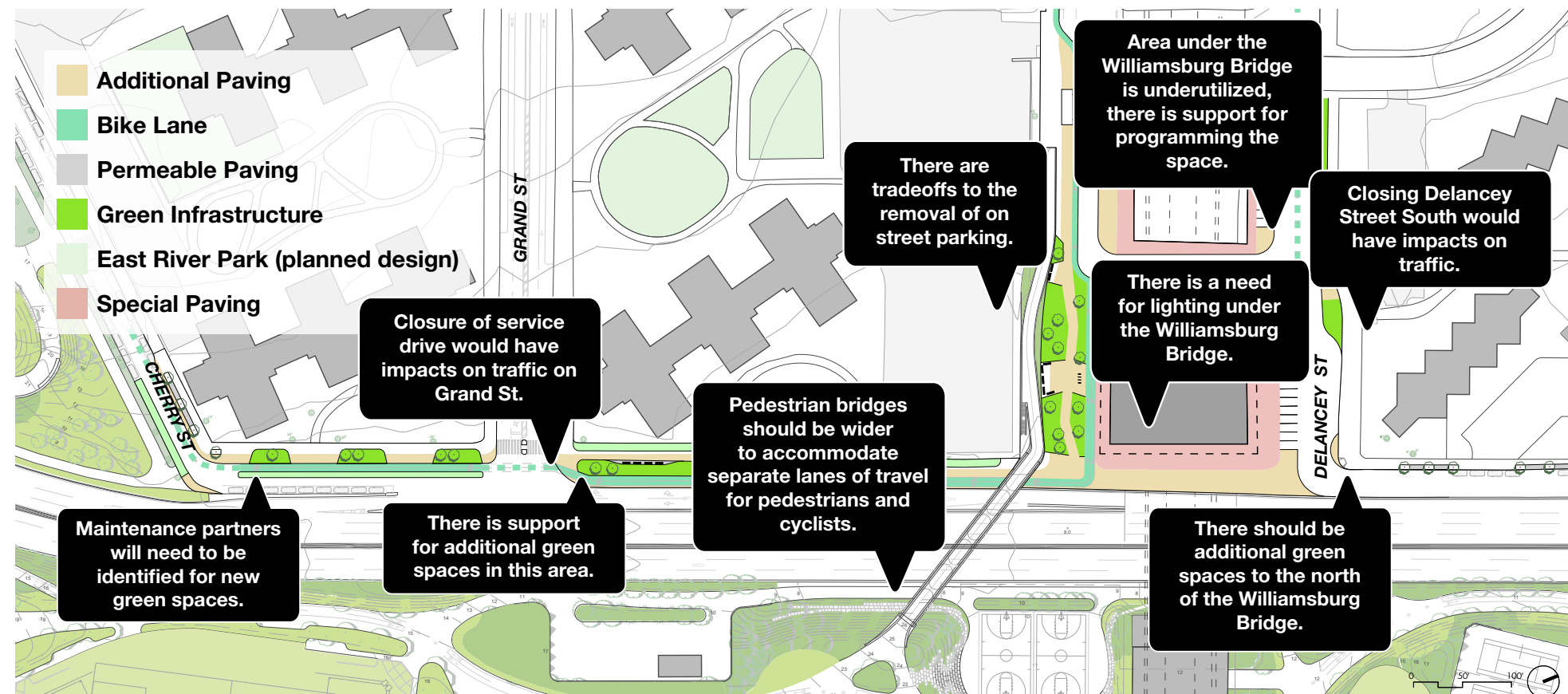
* Costs and construction duration are for long-term recommendations, including costs for construction and design / permitting. Detailed cost estimates are included in the Appendix.

Delancey Street | Community Input

IMPROVEMENT PACKAGE 3

WHAT THE TEAM HEARD

- Study traffic impacts caused by closure of Delancey Street and FDR Drive service road.
- Lack of north / south crossing below Williamsburg Bridge.
- Lack of continuous bike route.
- Street flooding along Delancey and Grand Streets.
- Study widening of future pedestrian bridges to accommodate separate lanes for pedestrians and cyclists.
- Study potential programming and lighting to space below the Williamsburg Bridge.



Community feedback on draft recommendations.

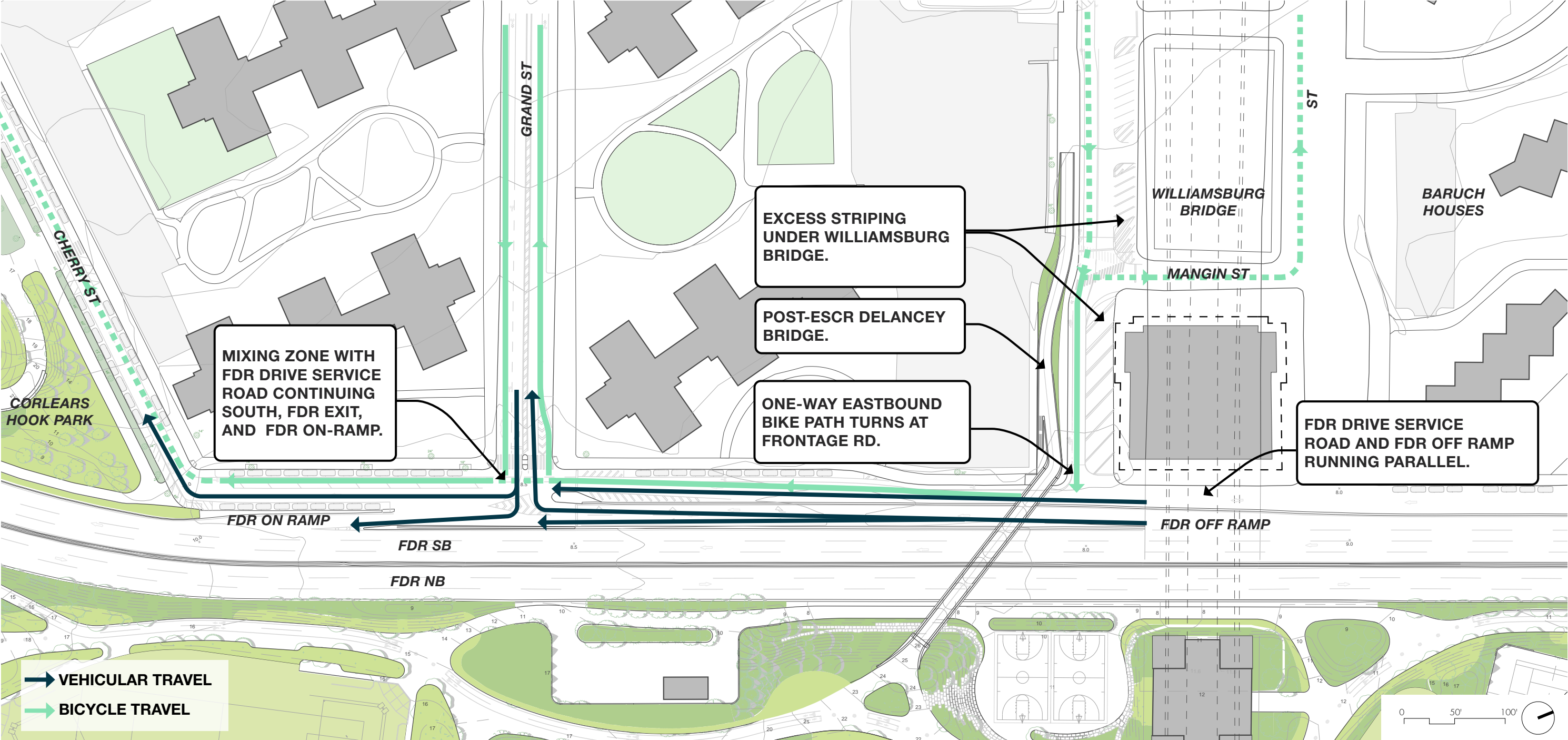


Cherry Street, Grand Street, and Delancey Street.

Delancey Street | Existing Conditions

IMPROVEMENT PACKAGE 3

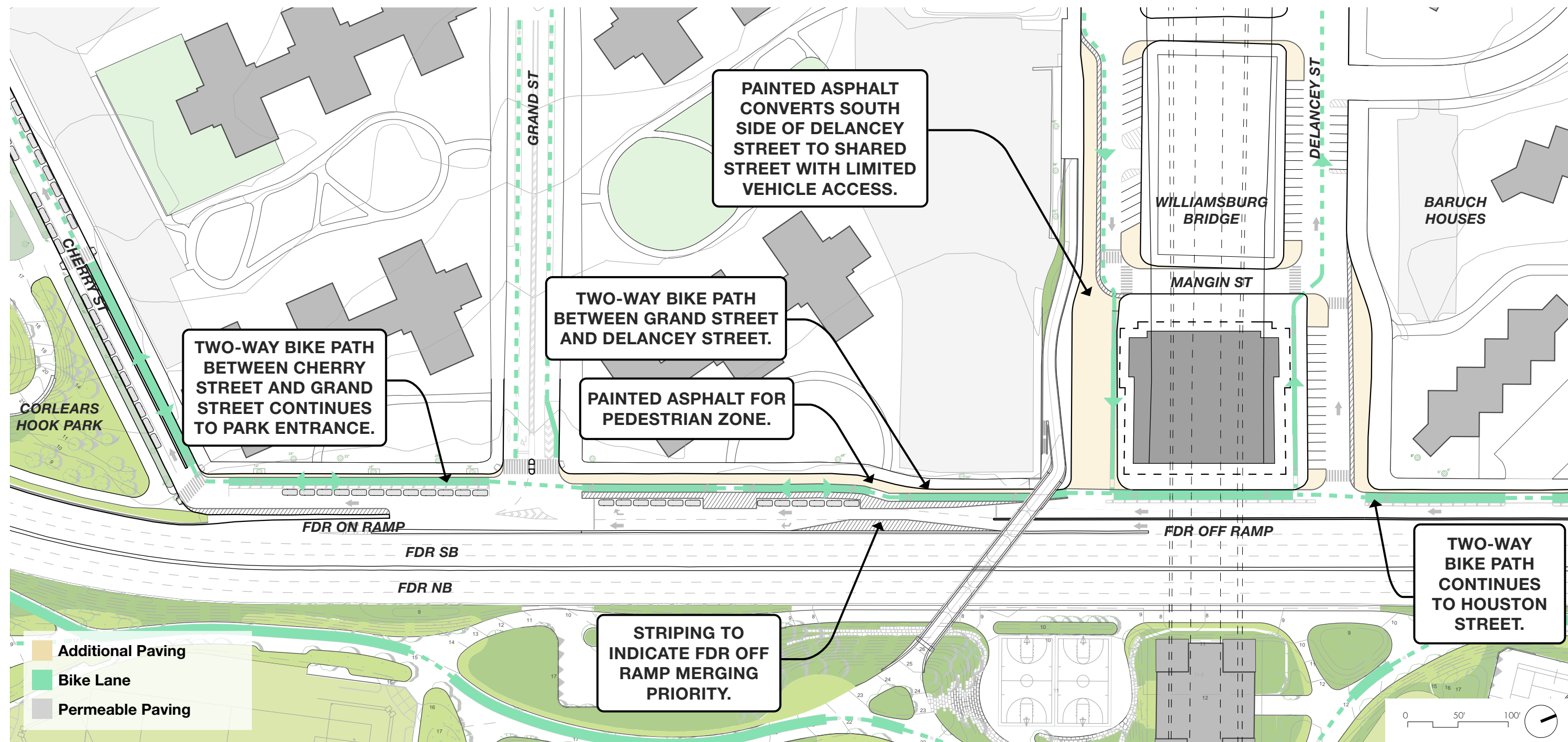
STUDY AREA PLAN



Delancey Street | Street Enhancements (Phase 1)

IMPROVEMENT PACKAGE 3

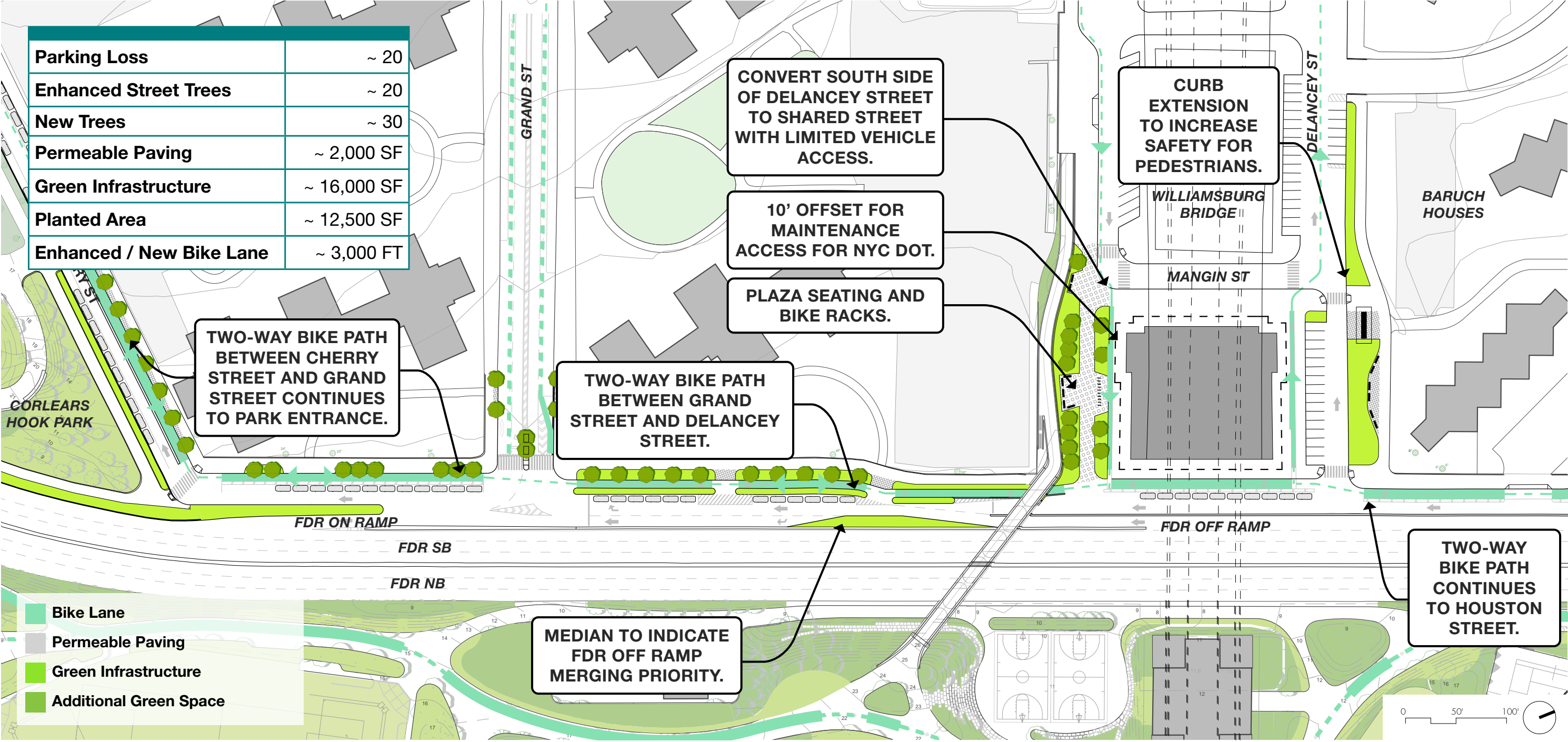
NEAR TERM RECOMMENDATIONS



Delancey Street | Project Proposal

IMPROVEMENT PACKAGE 3

ROAD DIET AND STREETScape IMPROVEMENT CONCEPT



Delancey Street | Project Proposal

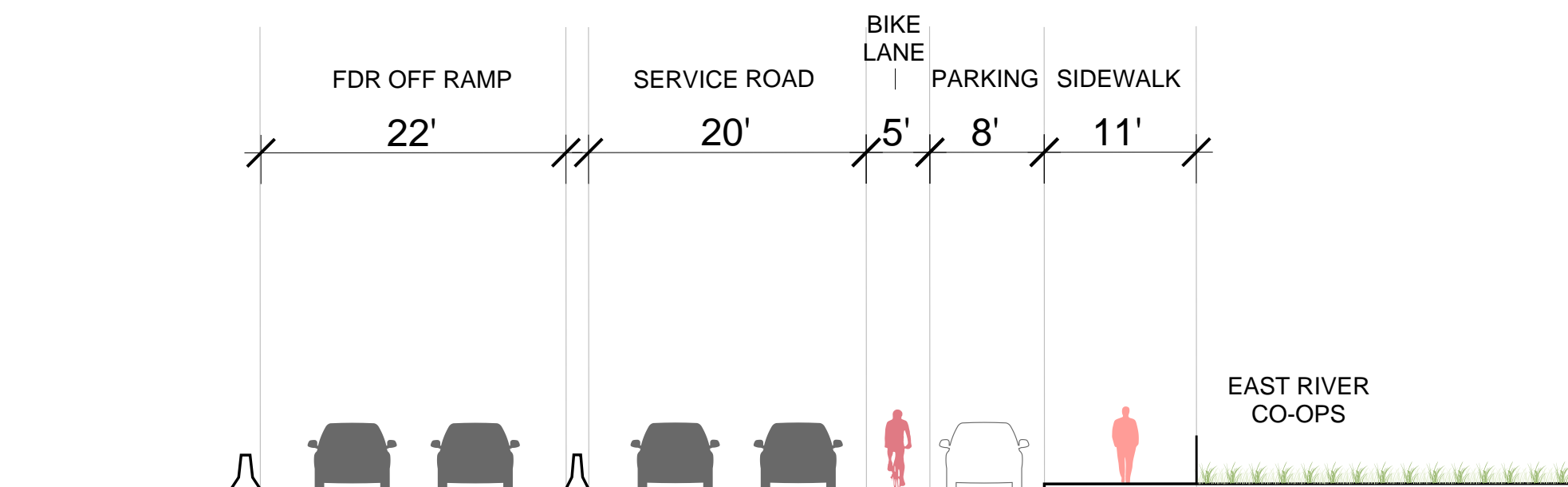
IMPROVEMENT PACKAGE 3

SUMMARY

- Converting the south side of Delancey Street to a shared street with limited vehicular access creates the opportunity for a new pedestrian plaza adjacent to the new Delancey Street bridge (currently under construction). This also allows for reducing the width of the FDR Drive service road between Delancey and Grand Streets. This will allow for improvements to the streetscape along FDR Drive and create a continuous two-way bike path from Cherry Street to Houston Street.
- Additional analysis is needed to confirm the viability and safety of these changes for traffic and of the potential loss of parking spaces.
- The new plaza is also an opportunity to provide stormwater storage and green infrastructure to reduce flooding in this area. These improvements require additional study and coordination with NYC DEP.
- Funding for maintenance of new green spaces and street trees will need to be identified. A maintenance partner will also need to be identified.

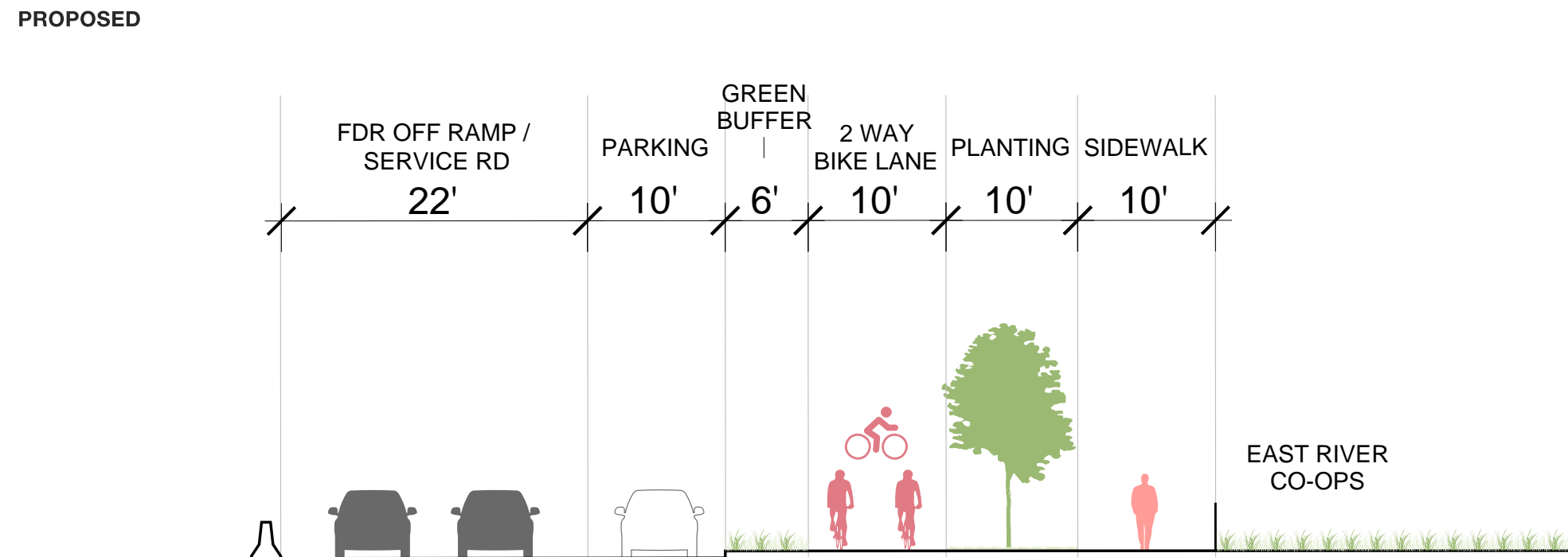
FDR DRIVE SECTION AT EAST RIVER CO-OPS

EXISTING



Delancey Street | Project Proposal

IMPROVEMENT PACKAGE 3



Delancey Street | Survey Findings

IMPROVEMENT PACKAGE 3

WHAT DO YOU LIKE OR DISLIKE ABOUT THIS? WHAT QUESTIONS OR CONCERNS DO YOU HAVE? (63 RESPONSES)

LOSS OF STREET PARKING

- 11 out of 63 respondents had concerns about the loss of street parking.
- *“Elimination of street parking and car travel lanes will create problems for residents.”*

TRANSFORMING EXISTING VEHICULAR SPACE

- 10 out of 63 respondents advocated for transforming existing vehicular space.
- *“I strongly support the removal of the service road and creation of bike and pedestrian space in its place.”*
- *“Like: More pedestrian and bike space, more green space, less space devoted to cars.”*

PEDESTRIAN SAFETY AND BIKE LANES

- 9 out of 63 respondents support improvements that would enhance pedestrian safety at this intersection, and 12 out of 64 advocated for safe routes for cyclists.
- *“The entirety of Delancey Street needs to be re-purposed to be more pedestrian friendly. I strongly support this.”*

- *“The bikeway is a much needed piece but it’s so short. Can’t you extend in both directions?”*
- *“Improved ferry access would be fantastic and is much needed.”*

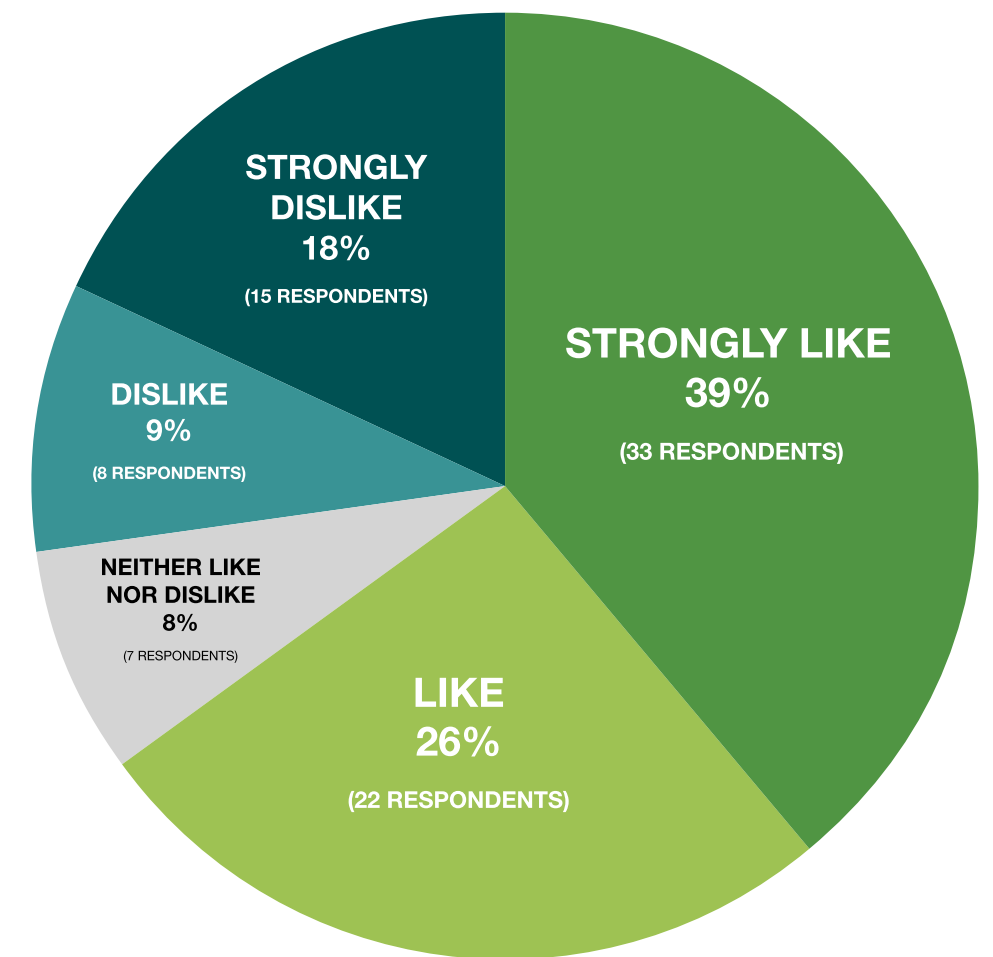
TRAFFIC IMPACTS

- 15 out of 63 respondents were concerned about traffic impacts.
- *“I like the idea of more pedestrian traffic and more light and pathways. But need to take into consideration car traffic. I know that traffic to the Williamsburg Bridge on Grand street needs to be addressed.”*
- *“Change in traffic patterns will create an inconvenience and congestion.”*

GREEN SPACE AND TREES

- 13 out of 63 respondents advocated for more trees and green space.
- *“We need as many trees planted as possible in order to improve air quality.”*
- *“I really think this area could benefit from additional green space.”*

WHAT DO YOU THINK ABOUT THIS IMPROVEMENT CONCEPT? (85 RESPONSES)



Houston Street

IMPROVEMENT PACKAGE 4

Scope of Work

- Improved pedestrian safety through new north-south crosswalk across Houston Street.
- Curb extensions and bump-outs to improve pedestrian safety and provide space for new street trees and green infrastructure.
- Improved connectivity of bike lane network.

Cost: \$4M – \$6M*

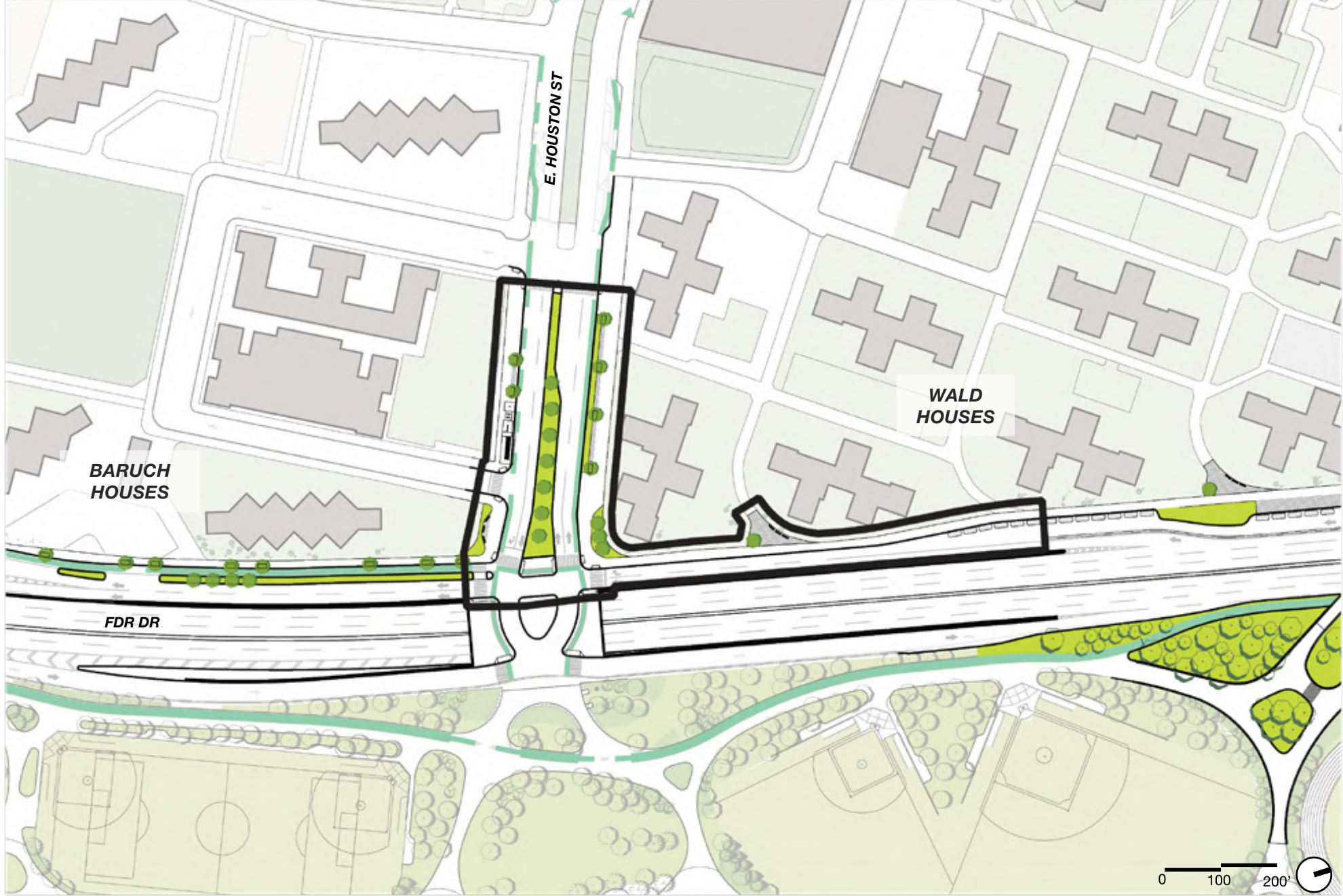
Construction Duration: <6 Months*

Next Steps

- More detailed traffic analysis of potential impacts to traffic on FDR off-ramp from the new crosswalk.
- Identification of funding and partner for maintenance.

* Costs and construction duration are for long-term recommendations, including costs for construction and design / permitting. Detailed cost estimates are included in the Appendix.

PLAN DIAGRAM



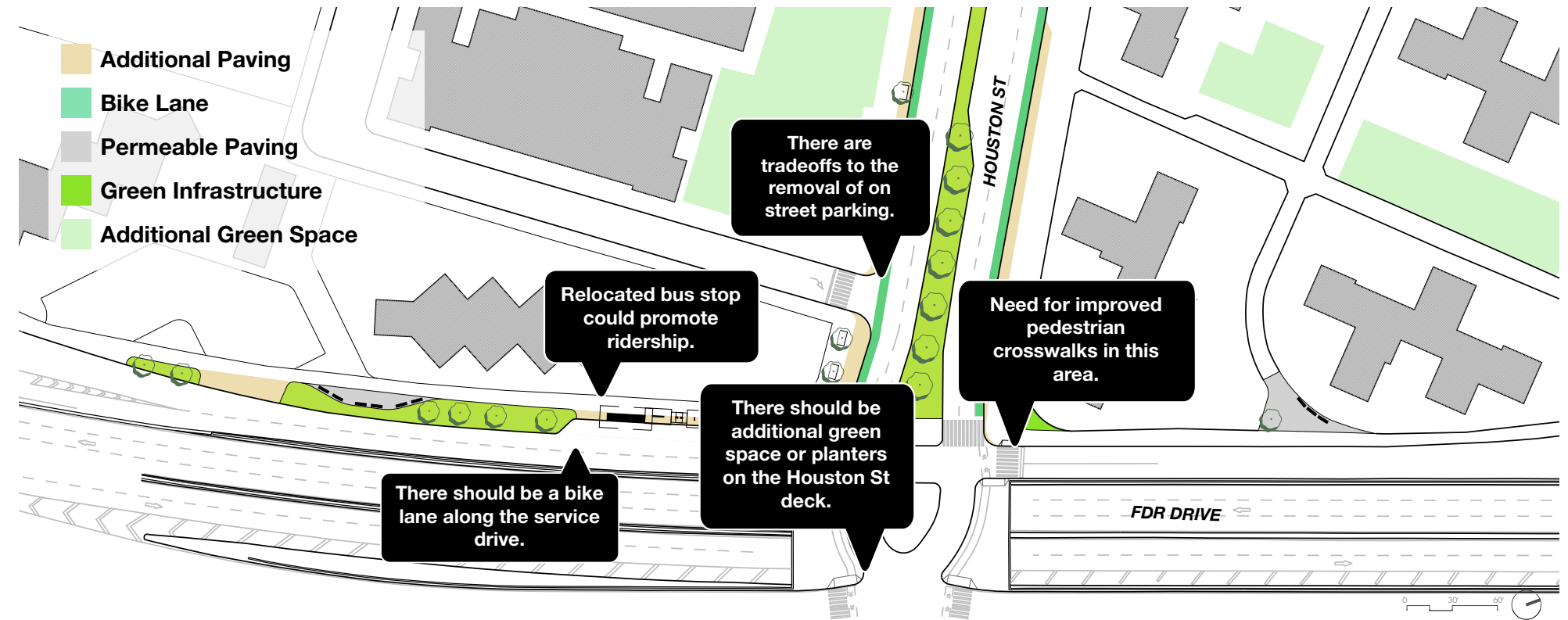
This plan shows Houston Street proposed project boundary.

Houston Street | Community Input

IMPROVEMENT PACKAGE 4

WHAT THE TEAM HEARD

- Explore trade-offs of removal of on street parking.
- Study potential for additional green spaces.
- Explore potential maintenance partners.
- Desire for improved at-grade crossing.
- Conflict between vehicles exiting the FDR and pedestrians crossing to park.



Community feedback on draft recommendations.



East Houston Street and FDR Drive.



East Houston Street and FDR Drive.

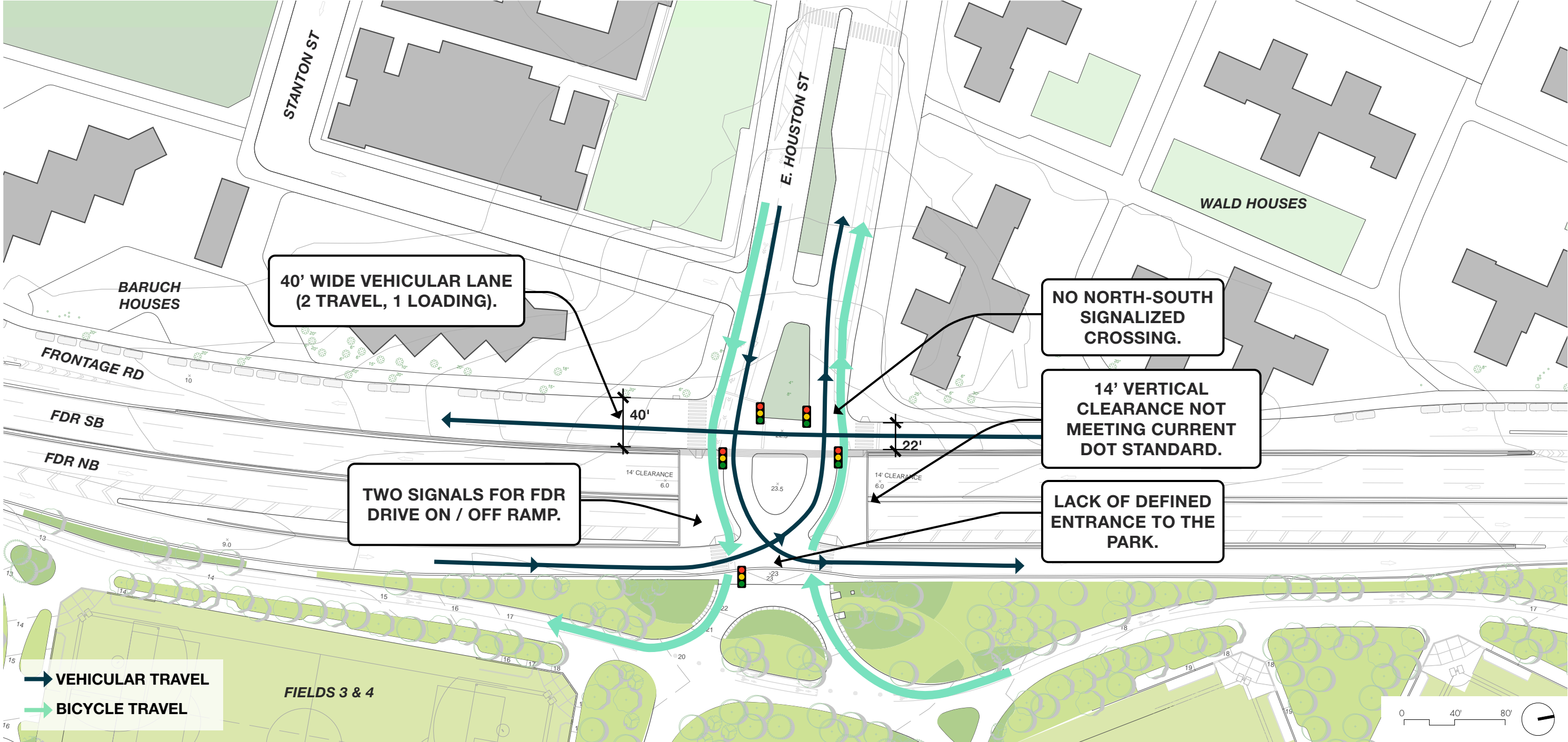


East Houston Street and Mangin Street.

Houston Street | Existing Conditions

IMPROVEMENT PACKAGE 4

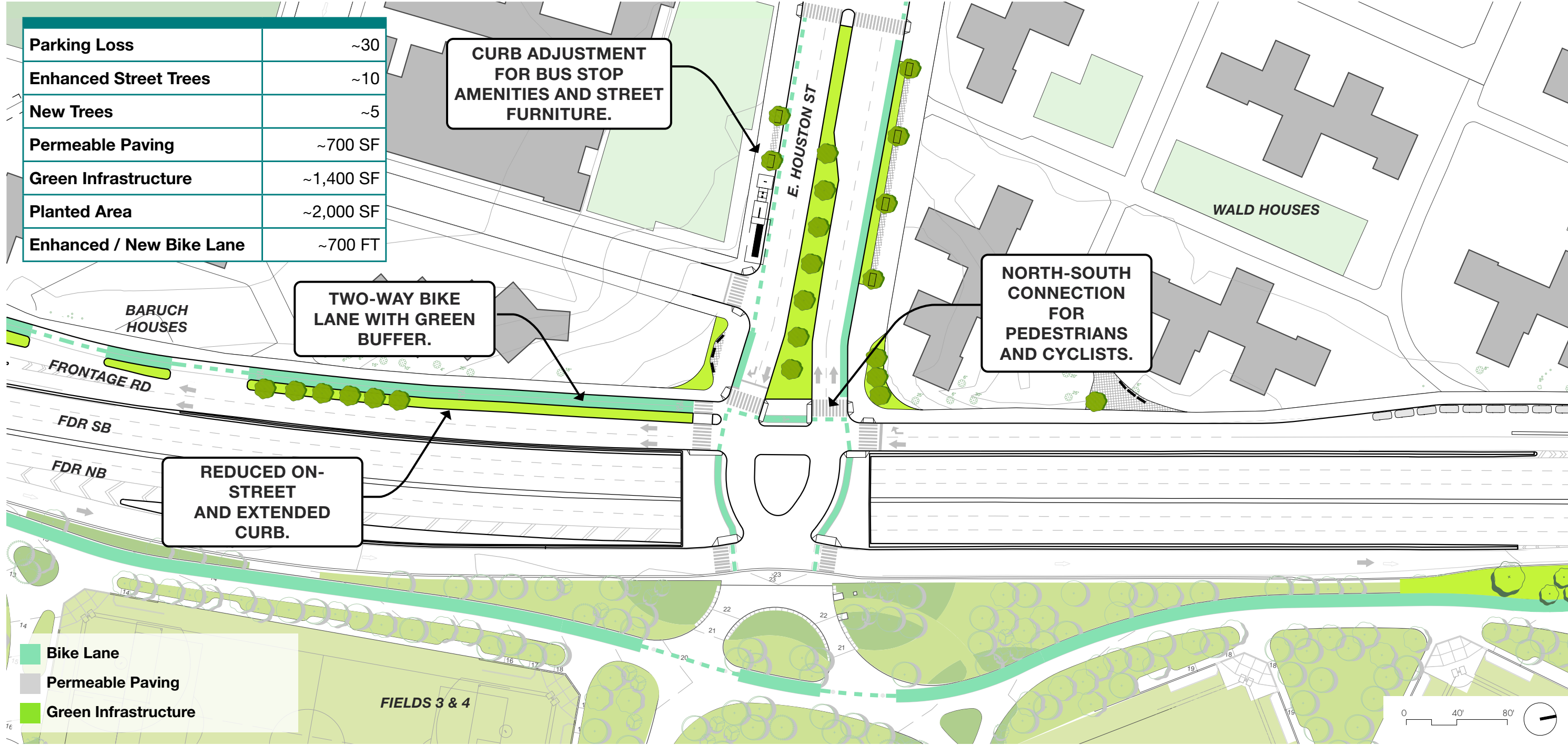
STUDY AREA PLAN



Houston Street | Project Proposal

IMPROVEMENT PACKAGE 4

RECOMMENDATIONS



Houston Street | Survey Findings

IMPROVEMENT PACKAGE 4

WHAT DO YOU LIKE OR DISLIKE ABOUT THIS? WHAT QUESTIONS OR CONCERNS DO YOU HAVE? (52 RESPONSES)

Loss of Street parking

- 9 out of 52 respondents had concerns about the loss of street parking.
- *“This is the fourth mention of parking lane removal needed by low income residents.”*
- *“The elimination of street parking will create problems for residents living in the area.”*

TRANSFORMING EXISTING VEHICULAR SPACE

- 4 out of 52 respondents advocated for transforming existing vehicular space.
- *“Anything that enhances the pedestrian and mass transit experience in this area is desperately needed. This seems like a common sense approach.”*
- *“Like: more ped space. Wish the design went further in limiting cars.”*

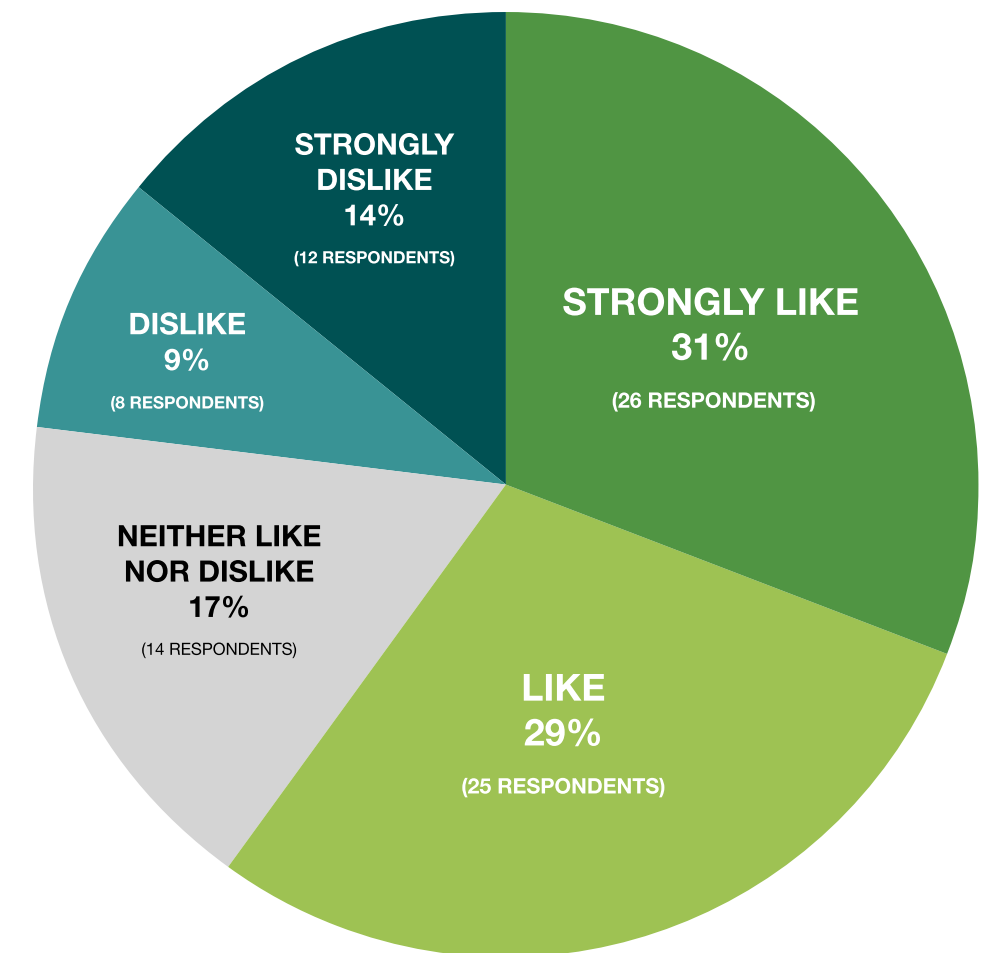
PEDESTRIAN SAFETY

- 24 out of 52 respondents mentioned the importance of pedestrian safety.
- *“I like the improved pedestrian crosswalk in particular.”*
- *“Would address the dangers crossing between Houston Street and East River Park.”*

Green space and trees

- 9 out of 52 respondents advocated for more green space and trees.
- *“I would like to see more greenery / make it feel less like you’re walking along a highway.”*
- *“I like the additional green space, trees, etc .”*

WHAT DO YOU THINK ABOUT THIS IMPROVEMENT CONCEPT? (77 RESPONSES)



East 6th Street

IMPROVEMENT PACKAGE 5

PLAN DIAGRAM



This plan shows East 6th Street proposed project boundary from East 6th Street to E.14th Street.

Scope of Work

- Replace existing East 6th Street pedestrian bridge with a new universally accessible bridge that creates a more inviting entrance to the park and provides more space for pedestrians and bikes.
- Convert East 6th Street to one-way vehicular travel to increase space for bridge landing.

Cost: \$73M – \$119M*

Construction Duration: ~3 - 4 Years*

Next Steps

- Since East River Park is currently under reconstruction, the potential new pedestrian bridge at East 6th Street is a recommendation for a longer-term improvement. The park-side landing would need to be coordinated with the ESCR layout.
- Further study of potential effects on traffic of conversion of East 6th Street to one-way.
- Identification of funding and partner for maintenance of new open space.

* Costs and construction duration are for long-term recommendations, including costs for construction and design / permitting. Detailed cost estimates are included in the Appendix.

East 6th Street | Community Input

IMPROVEMENT PACKAGE 5

WHAT THE TEAM HEARD

- Study pedestrian bridge geometry.
- Study widening of pedestrian bridge to accommodate separate lanes for pedestrians and cyclists due to concerns over safety due to conflicts between pedestrians and cyclists.
- Explore potential maintenance partners.
- Explore trade-offs of removal of on-street parking.
- Desire for improved pedestrian bridge that is wider and greener than the existing bridge.



Community feedback on draft recommendations.



East 6th Street and FDR Drive.



East 6th Street bridge city-side landing.

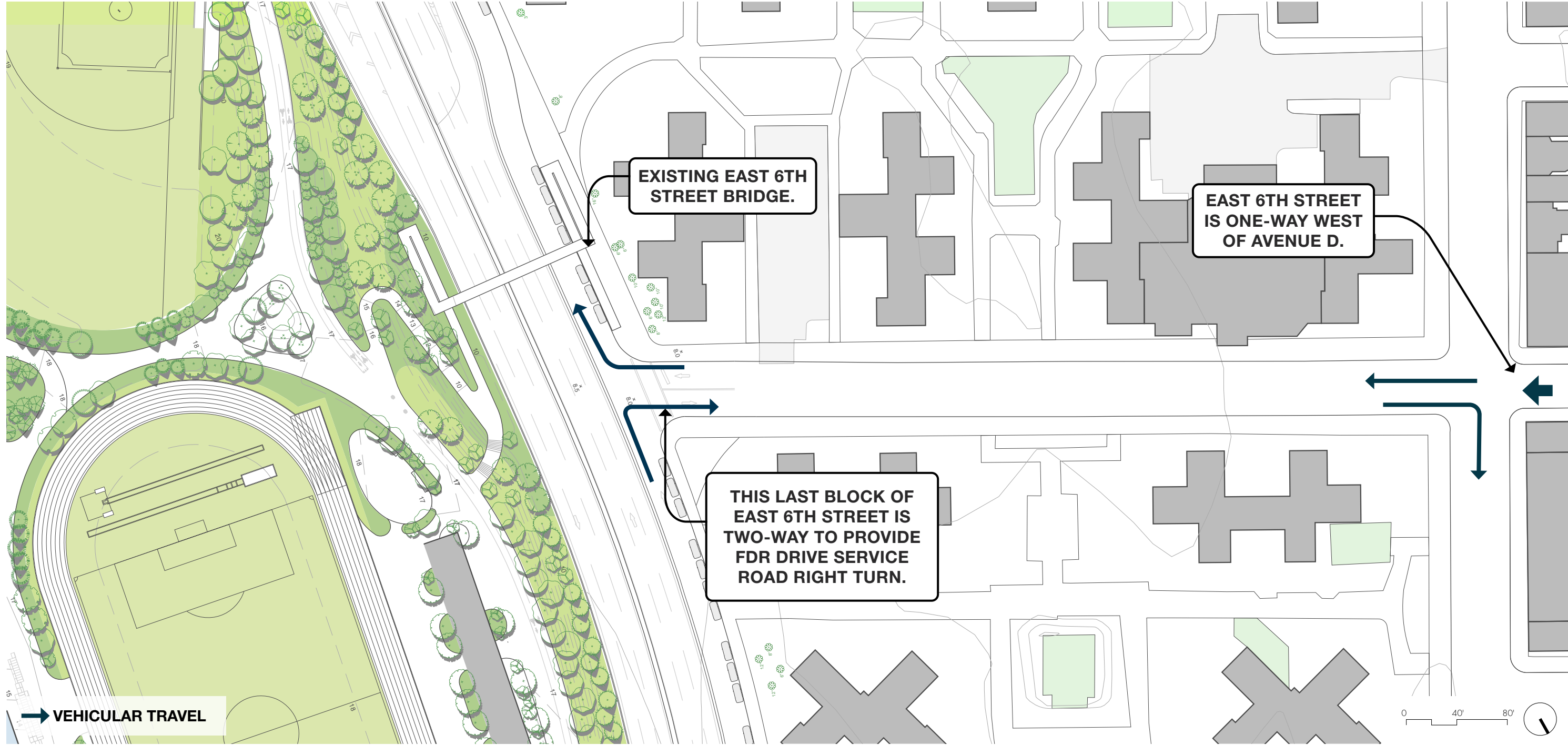


East 6th Street Bridge park-side landing.

East 6th Street | Existing Conditions

IMPROVEMENT PACKAGE 5

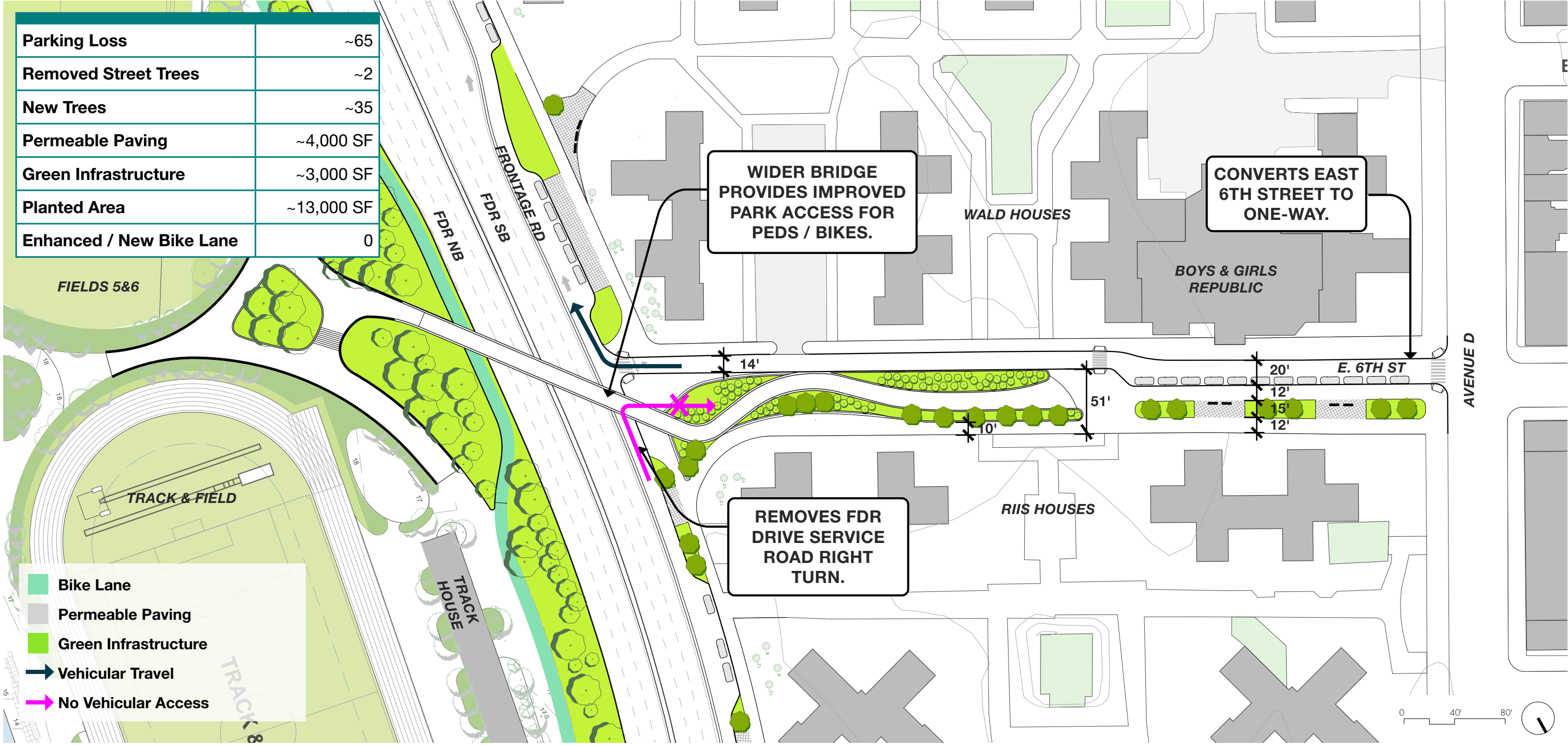
STUDY AREA PLAN



East 6th Street | Project Proposal

IMPROVEMENT PACKAGE 5

BRIDGE AND STREETScape IMPROVEMENT CONCEPT



Parking Loss	~65
Removed Street Trees	~2
New Trees	~35
Permeable Paving	~4,000 SF
Green Infrastructure	~3,000 SF
Planted Area	~13,000 SF
Enhanced / New Bike Lane	0

East 6th Street | Alternative Concepts

IMPROVEMENT PACKAGE 5

ALTERNATIVE CONCEPT A: MAXIMIZED PARKING



ALTERNATIVE CONCEPT B: STRAIGHT RAMP

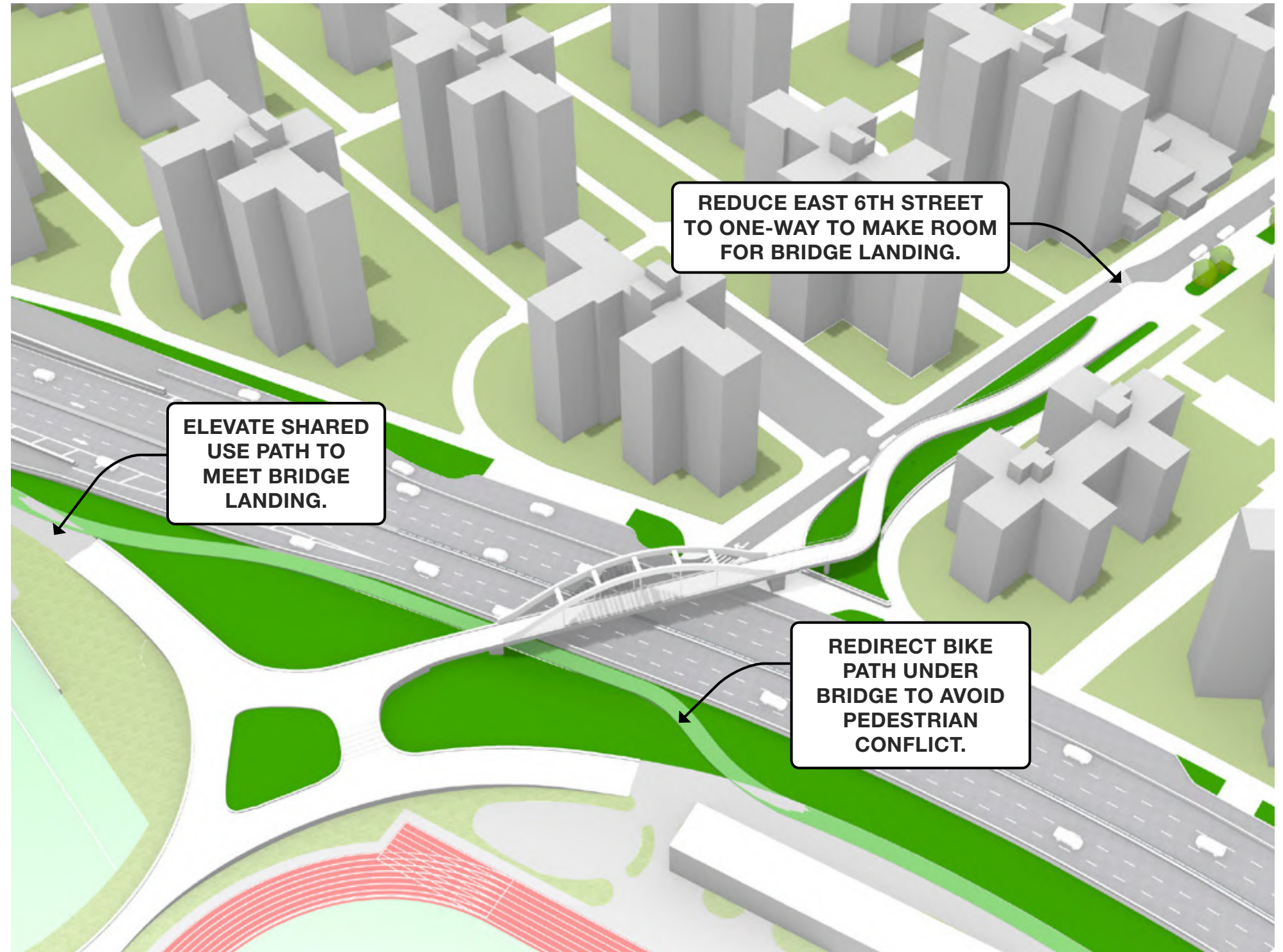


East 6th Street | Project Proposal

IMPROVEMENT PACKAGE 5

SUMMARY

- The current East 6th Street pedestrian bridge is outdated and does not provide universal access. According to the 2021 DOT Bridges & Tunnels Annual Condition Report the bridge is in “fair condition” and will require portions of the bridge to be reconstructed in 2031. In order to provide a new, wider bridge with a universally accessible slope, an alignment within the roadway is necessary. This requires making East 6th Street one-way, and the removal of some parking spaces.
- The traffic implications of these changes will require additional analysis. Removing the current pedestrian bridge will also create more space along the service road for streetscape improvements.
- Funding and partners for the maintenance of these new green spaces will need to be identified. The bridge alignment shown is designed to integrate into the new design for East River Park, though additional coordination with NYC Parks is necessary to confirm the design of how the bridge will land in the park.
- The bridge design shown here is similar to what is being used for the new bridges as part of ESCR, but a different type of structure could be used.



East 6th Street | Survey Findings

IMPROVEMENT PACKAGE 5

WHAT DO YOU LIKE OR DISLIKE ABOUT THIS? WHAT QUESTIONS OR CONCERNS DO YOU HAVE? (56 RESPONSES)

Loss of Street parking

- 10 out of 56 respondents had concerns about the loss of street parking.
- *“Parking is important here as we have been affected by bus lanes taking the entire Avenue D.”*

TRANSFORMING EXISTING VEHICULAR SPACE

- 9 out of 56 respondents advocated for transforming existing vehicular space.
- *“Converting the street to one-way and narrowing it will make it much safer to ride a bicycle on, will reduce the amount of vehicles traveling, reduce air portion, noise pollution, and stress.”*

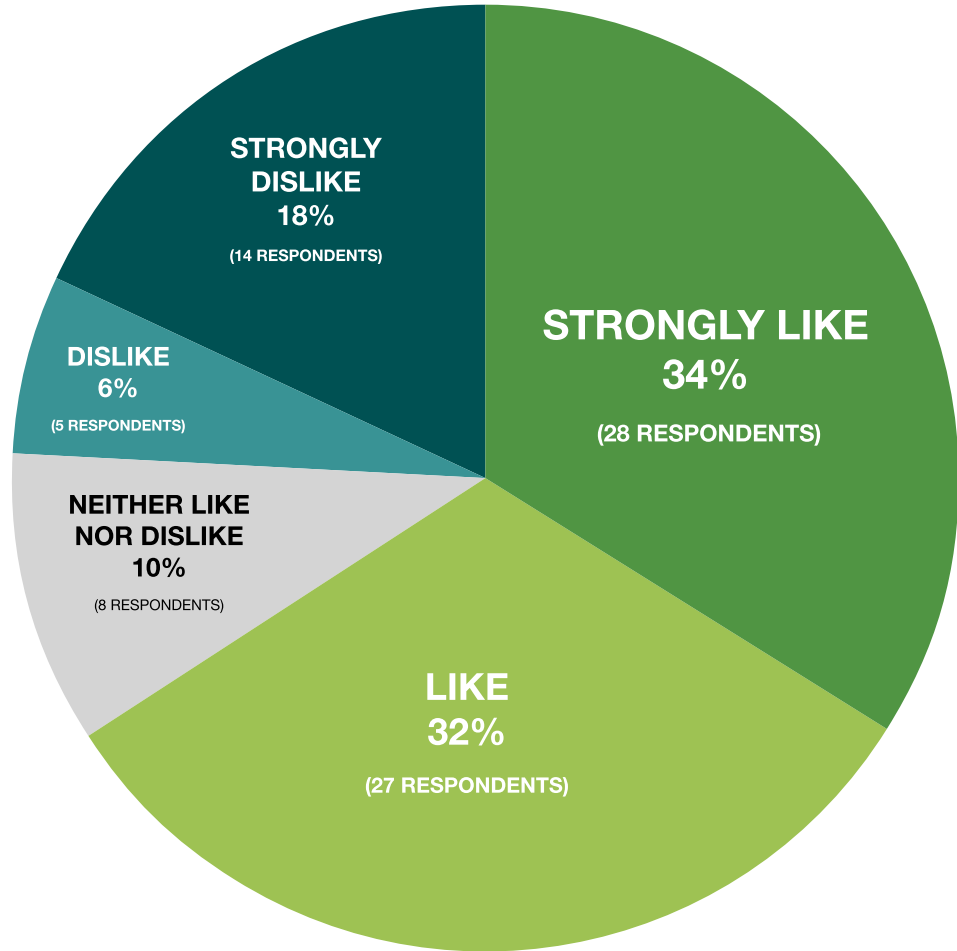
TRAFFIC IMPACTS

- 7 out of 56 respondents were concerned about traffic impacts.
- *“Making this street into a one-way will do more harm than good on traffic conditions.”*

GREEN SPACE AND TREES

- 10 out of 56 respondents advocated for more green space and trees.
- *“More plants and trees would be wonderful and would make the turnaround a great place for families to hang out.”*

WHAT DO YOU THINK ABOUT THIS IMPROVEMENT CONCEPT? (83 RESPONSES)



SECTION 6

Conclusions + Next Steps

Conclusions

SUMMARY AND NEXT STEPS

The East Side Coastal Resiliency (ESCR) project is transforming the largest park in the East Village and Lower East Side neighborhoods while preparing the area for future coastal storms and improving critical connections to East River Park. Despite these changes, the FDR Drive corridor remains a persistent physical separation between the community and the park. The highway also creates other undesirable conditions by prioritizing the right-of-way of vehicles accessing and exiting the parkway and contributes to stormwater runoff with significant amounts of impervious surface.

Responding to community feedback about these challenges and the commitments made for ESCR, this study explored the feasibility of community-driven recommendations to improve access and mobility to open space in these neighborhoods. The recommendations focus on improving the public realm along the FDR Drive corridor, enhancing conditions for pedestrians, and creating a more inviting and green experience for New Yorkers to access East River Park and the waterfront. The study yielded conceptual plans for a new pedestrian bridge to provide access to Pier 42 and the waterfront at Jackson Street as well as an updated, universally accessible pedestrian bridge at 6th Street. Recommendations also include green infrastructure, pedestrian plazas, plantings, trees, traffic calming measures, bike lane improvements, and other transportation network enhancements that reduce conflicts between pedestrians, cyclists, and vehicles and reclaim space from roadways to offer more greenery and pedestrian areas. Through new and improved connections along the FDR Drive corridor, the study puts forth recommendations to build off the other transformative projects that are in progress with localized mobility and greenery enhancements.

NEXT STEPS

This study is not tied to capital funding for implementation, and the recommendations will guide future planning led by DOT with support from NYC Parks and other partners. The recommendations provided in this report are conceptual in nature and will require additional detailed analyses to advance implementation, such as:

- Detailed transportation analyses to confirm viability and safety of recommended changes to roadway configurations and geometries.
- Detailed design, such as geotechnical analyses and structural design for pedestrian bridges, design for green infrastructure improvements, confirmation of potential utility conflicts and siting, and refinement of placement of roadway and sidewalk features.
- Additional coordination between DOT, NYC Parks, and other partners such as NYCHA for jurisdictional approvals and to identify maintenance partners for the various improvements.
- Securing funding for implementation, which may involve pursuing federal grant funding for transportation and green infrastructure improvements. (See next page)
- Assessing potential environmental impacts and securing permits.
- Additional community engagement as the designs and construction timetables are developed.

Conclusions

POTENTIAL FUNDING OPPORTUNITIES

These recommendations will guide future planning led by DOT with support from NYC Parks and other partners. This study is not tied to capital funding for implementation. The recommendations provided in this report are conceptual in nature and will require additional detailed analyses to advance implementation, such as:

- Detailed transportation analyses to confirm viability and safety of recommended changes to roadway configurations and geometries.
- Detailed design, such as geotechnical analyses and structural design for pedestrian bridges, design for green infrastructure improvements, confirmation of potential utility conflicts and siting, and refinement of placement of roadway and sidewalk features.
- Additional coordination between DOT, NYC Parks, and other partners such as NYCHA for jurisdictional approvals and to identify maintenance partners for the various improvements.
- Securing funding for implementation, which may involve pursuing federal grant funding for transportation and green infrastructure improvements.
- Assessing potential environmental impacts and securing permits.
- Additional community engagement as designs and construction timetables are developed.

FEDERAL TRANSPORTATION GRANT PROGRAMS

With the passage of the Bipartisan Infrastructure Law in 2021, there are historic amounts of federal funding available for many of the types of mobility improvements explored through this study. The law provides a total of \$550 billion in new spending over five years for roads, bridges, transit, rail, airports, ports, waterways, electric vehicles, and more. However, these programs are also highly competitive across the country, as the actual need far exceeds even this historic investment. While

across the country, these programs provide hundreds of billions of dollars, a given project in New York City should expect to receive much less. In addition, most funding programs require a local match. A few key programs that are well aligned with the goals of this study include the following:

Surface Transportation Block Grant Program

The Surface Transportation Block Grant Program (STBGP) is the largest and most flexible grant program for transportation projects. It provides funding to states and local governments through formula funds granted to states and can be used for a wide range of projects, such as highways, bridges, tunnels, transit, bike and pedestrian facilities, safety improvements, and environmental mitigation. The Bipartisan Infrastructure Law increases the funding for STBGP by \$40 billion over five years, bringing the total to \$110 billion. In Fiscal Year 2024 New York State was allocated \$578 million.

Rebuilding American Infrastructure with Sustainability and Equity Grants

The Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grants, formerly known as BUILD and TIGER Grants, are discretionary grants that support projects that have a significant local or regional impact. The RAISE Grants fund projects that improve safety, mobility, accessibility, environmental quality, and economic competitiveness. The Bipartisan Infrastructure Law provides \$7.5 billion for RAISE Grants over five years, an increase of \$3.75 billion from the previous level. For fiscal year 2024, the maximum grant award for capital and planning grants is \$25 million.

Reconnecting Communities and Neighborhoods Program

The Reconnecting Communities and Neighborhoods Program encompasses the Reconnecting Communities Pilot (RCP) and Neighborhood Access and Equity (NAE) discretionary grant programs, which have similar goals of advancing community-centered transportation connection projects, with a focus on benefits to disadvantaged communities. RCP supports projects that remove, retrofit, or mitigate transportation infrastructure that creates barriers to community connectivity, mobility, and access. The Reconnecting Communities Program funds projects that address the negative impacts of highways, railroads, or other transportation facilities that divide neighborhoods, limit economic opportunities, or harm the environment and public health. The Bipartisan Infrastructure Law provides \$1 billion for the Reconnecting Communities Program over five years. The NAE program funds projects that improve walkability, safety, and affordable transportation access and was provided \$3.2 billion through the Inflation Reduction Act. In fiscal year 2023, there was no maximum award amount for capital projects under RCP or NAE.

Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation Program

The Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Competitive Grants are discretionary grants that support projects that improve the resilience and reliability of transportation infrastructure to extreme weather and natural disasters. The PROTECT Grants fund projects that enhance the preparedness, response, and recovery of transportation systems to floods, wildfires, earthquakes, hurricanes, and other hazards. The Bipartisan Infrastructure Law provides \$6.25 billion for PROTECT Grants over five years. In fiscal year 2023, \$848 million was available with no maximum award sizes.

APPENDIX 1

Cost Estimates

Cost Estimates

SHEET 1 OF 4

ITEM #	ITEM DESCRIPTION	UNIT	UNIT RATE	Montgomery Street Improvement		Jackson Street				Grand and Delancy Street Improvement		Baruch Bridge		Houston Street Improvements		6th Street Bridge		8th Street Bridge	
				Alternative 1 : Baseline		Alternative 1 : Baseline		Alternative 2 : Integration with Sport Field		Alternative 1 : Baseline						Alternative 1 : Convert 6th St to One-way			
				QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST
1	Modifications to East River Park (Landscape and Grading)	SF	\$ 125.00		\$ -	15150	\$ 1,893,750.00	17200	\$ 2,150,000.00		\$ -	23000	\$ 2,875,000.00		\$ -		\$ -	23500	\$ 2,937,500.00
2	Modifications to North of FDR (Street side)	SF	\$ 150.00		\$ -		\$ -		\$ -		\$ -	15000	\$ 2,250,000.00		\$ -	1400	\$ 210,000.00	16500	\$ 2,475,000.00
3	Removal of existing bridge, ramps and stairs	EA	\$ 1,200,000.00		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	1	\$ 1,200,000.00		\$ -
4	Sidewalk/Pavement Modification	SF	\$ 50.00	46600	\$ 2,330,000.00	20000	\$ 1,000,000.00	20000	\$ 1,000,000.00	41000	\$ 2,050,000.00	20800	\$ 1,040,000.00	11800	\$ 590,000.00	52000	\$ 2,600,000.00	19000	\$ 950,000.00
5	New open space (pavement)	SF	\$ 100.00	12000	\$ 1,200,000.00	15000	\$ 1,500,000.00	15000	\$ 1,500,000.00	37800	\$ 3,780,000.00	14100	\$ 1,410,000.00	4500	\$ 450,000.00	46000	\$ 4,600,000.00	11300	\$ 1,130,000.00
6	New porous paving	SF	\$ 120.00	2800	\$ 336,000.00		\$ -		\$ -	2000	\$ 240,000.00	450	\$ 54,000.00		\$ -	4000	\$ 480,000.00	770	\$ 92,400.00
7	New Green Space (non-GI)	SF	\$ 70.00		\$ -	10100	\$ 707,000.00	7600	\$ 532,000.00	12500	\$ 875,000.00	4500	\$ 315,000.00	3400	\$ 238,000.00	13000	\$ 910,000.00	2000	\$ 140,000.00
8	New GI	SF	\$ 200.00	5000	\$ 1,000,000.00		\$ -		\$ -	16000	\$ 3,200,000.00		\$ -		\$ -	3000	\$ 600,000.00	2500	\$ 500,000.00
9	Street Tree Enhancement	EA	\$ 2,500.00	11	\$ 27,500.00		\$ -		\$ -	20	\$ 50,000.00	8	\$ 20,000.00	8	\$ 20,000.00		\$ -		\$ -
10	New Street Tree	EA	\$ 3,500.00	30	\$ 105,000.00	13	\$ 45,500.00	8	\$ 28,000.00	32	\$ 112,000.00		\$ -	4	\$ 14,000.00	34	\$ 119,000.00	7	\$ 24,500.00
11	Impacted Street Tree (includes removal and restitution cost)	EA	\$ 6,000.00		\$ -	18	\$ 108,000.00	23	\$ 138,000.00		\$ -	35	\$ 210,000.00		\$ -	35	\$ 210,000.00	10	\$ 60,000.00
12	Removal of street trees	EA	\$ 2,500.00		\$ -		\$ -		\$ -		\$ -		\$ -	1	\$ 2,500.00	2	\$ 5,000.00	6	\$ 15,000.00
13	Enhanced Bike Lane	LF	\$ 350.00	600	\$ 210,000.00		\$ -		\$ -	3000	\$ 1,050,000.00		\$ -	700	\$ 245,000.00		\$ -		\$ -
14	Ramps (Parkside)	SF				4550		4550				4760						4760	
	Bollards	EA	\$ 1,600.00		\$ -	3	\$ 4,800.00	3	\$ 4,800.00		\$ -	3	\$ 4,800.00		\$ -		\$ -	3	\$ 4,800.00
	Light poles	EA	\$ 9,600.00		\$ -	4	\$ 41,600.00	4	\$ 41,600.00		\$ -	5	\$ 43,520.00		\$ -		\$ -	5	\$ 43,520.00
	2" Lighting Conduits and wiring	LF	\$ 64.00		\$ -	1300	\$ 83,200.00	1300	\$ 83,200.00		\$ -	1360	\$ 87,040.00		\$ -		\$ -	1360	\$ 87,040.00
	Pedestrian railing	LF	\$ 203.41		\$ -	650	\$ 132,216.69	650	\$ 132,216.69		\$ -	680	\$ 138,319.00		\$ -		\$ -	680	\$ 138,319.00
	Concrete parapet	LF	\$ 120.00		\$ -	650	\$ 78,000.00	650	\$ 78,000.00		\$ -	680	\$ 81,600.00		\$ -		\$ -	680	\$ 81,600.00
	Protective sealing of structural concrete deck	SF	\$ 1.00		\$ -	4550	\$ 4,550.00	4550	\$ 4,550.00		\$ -	4760	\$ 4,760.00		\$ -		\$ -	4760	\$ 4,760.00
	Concrete slab 12"	SF	\$ 62.22		\$ -	4550	\$ 283,111.11	4550	\$ 283,111.11		\$ -	4760	\$ 296,177.78		\$ -		\$ -	4760	\$ 296,177.78
	Reinforcement	LB	\$ 2.00		\$ -	16852	\$ 33,703.70	16852	\$ 33,703.70		\$ -	17630	\$ 35,259.26		\$ -		\$ -	17630	\$ 35,259.26
	Architectural finish / formliner for exposed concrete	SF	\$ 12.00		\$ -	6175	\$ 74,100.00	6175	\$ 74,100.00		\$ -	6460	\$ 77,520.00		\$ -		\$ -	6460	\$ 77,520.00
	Select granular fill, Geomembrane, Sand Backfill and EPS Geofoam	SF	\$ 46.58		\$ -	4550	\$ 211,928.81	4550	\$ 211,928.81		\$ -	4760	\$ 221,710.14		\$ -		\$ -	4760	\$ 221,710.14
	HP 12x84 Piles including testing and mobilization	LF	\$ 74.20		\$ -	6992	\$ 518,837.88	6992	\$ 518,837.88		\$ -	7315	\$ 542,784.24		\$ -		\$ -	7315	\$ 542,784.24
	Concrete footing	CY	\$ 496.00		\$ -	289	\$ 143,288.89	289	\$ 143,288.89		\$ -	302	\$ 149,902.22		\$ -		\$ -	302	\$ 149,902.22
	Reinforcement	LB	\$ 2.00		\$ -	21667	\$ 43,333.33	21667	\$ 43,333.33		\$ -	22667	\$ 45,333.33		\$ -		\$ -	22667	\$ 45,333.33
	Concrete wall (assume average 1.5' thk)	CY	\$ 1,280.00		\$ -	343	\$ 439,111.11	343	\$ 439,111.11		\$ -	359	\$ 459,377.78		\$ -		\$ -	359	\$ 459,377.78
	Reinforcement	LB	\$ 2.00		\$ -	42882	\$ 85,763.89	42882	\$ 85,763.89		\$ -	44861	\$ 89,722.22		\$ -		\$ -	44861	\$ 89,722.22
	Tie beam	CY	\$ 1,280.00		\$ -	31	\$ 39,685.75	31	\$ 39,685.75		\$ -	32	\$ 41,517.40		\$ -		\$ -	32	\$ 41,517.40
	Reinforcement	LB	\$ 2.00		\$ -	3100	\$ 6,200.90	3100	\$ 6,200.90		\$ -	3244	\$ 6,487.09		\$ -		\$ -	3244	\$ 6,487.09
	Demo Existing Pavement	SF	\$ 8.00		\$ -	5559	\$ 44,472.00	5559	\$ 44,472.00		\$ -	5814	\$ 46,512.00		\$ -		\$ -	5814	\$ 46,512.00
	Excavation/Backfill/Haul-off	CY	\$ 160.00		\$ -	1235	\$ 197,653.33	1235	\$ 197,653.33		\$ -	1292	\$ 206,720.00		\$ -		\$ -	1292	\$ 206,720.00
	Temporary Steel Sheeting	SF	\$ 29.20		\$ -	9750	\$ 284,700.00	9750	\$ 284,700.00		\$ -	10200	\$ 297,840.00		\$ -		\$ -	10200	\$ 297,840.00
	Dewatering	LS	\$ 50,000.00		\$ -	1	\$ 50,000.00	1	\$ 50,000.00		\$ -	1	\$ 50,000.00		\$ -		\$ -	1	\$ 50,000.00
	Workzone Traffic Control	CDAY	\$ 3,200.00		\$ -	140	\$ 448,041.18	140	\$ 448,041.18		\$ -	146	\$ 468,304.39		\$ -		\$ -	146	\$ 468,304.39
	Parkside Green Bridge Landing, elevated shared path and park modifications	SF	\$ 250.00		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	50800	\$ 12,700,000.00		\$ -

Cost Estimates

SHEET 2 OF 4

ITEM #	ITEM DESCRIPTION	UNIT	UNIT RATE	Montgomery Street Improvement		Jackson Street				Grand and Delancy Street Improvement		Baruch Bridge		Houston Street Improvements		6th Street Bridge		8th Street Bridge			
				Alternative 1 : Baseline		Alternative 1 : Baseline		Alternative 2 : Integration with Sport Field		Alternative 1 : Baseline						Alternative 1 : Convert 6th St to One-way					
				QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST
15	Ramps (Cityside)	SF			4860		4860		4860		6860		6860			5110		5880		5880	
	Bollards	EA	\$ 1,600.00	\$ -	3	\$ 4,800.00	3	\$ 4,800.00	\$ -	3	\$ 4,800.00	\$ -	3	\$ 4,800.00	\$ -	3	\$ 4,800.00	3	\$ 4,800.00	3	\$ 4,800.00
	Light poles	EA	\$ 9,600.00	\$ -	4	\$ 34,560.00	4	\$ 34,560.00	\$ -	7	\$ 62,720.00	\$ -	5	\$ 46,720.00	\$ -	5	\$ 46,720.00	6	\$ 53,760.00	6	\$ 53,760.00
	2" Lighting Conduits and wiring	LF	\$ 64.00	\$ -	1080	\$ 69,120.00	1080	\$ 69,120.00	\$ -	1960	\$ 125,440.00	\$ -	1460	\$ 93,440.00	\$ -	1460	\$ 93,440.00	1680	\$ 107,520.00	1680	\$ 107,520.00
	Pedestrian railing	LF	\$ 203.41	\$ -	540	\$ 109,841.56	540	\$ 109,841.56	\$ -	980	\$ 199,342.08	\$ -	730	\$ 148,489.51	\$ -	730	\$ 148,489.51	840	\$ 170,864.64	840	\$ 170,864.64
	Concrete parapet	LF	\$ 120.00	\$ -	540	\$ 64,800.00	540	\$ 64,800.00	\$ -	980	\$ 117,600.00	\$ -	730	\$ 87,600.00	\$ -	730	\$ 87,600.00	840	\$ 100,800.00	840	\$ 100,800.00
	Protective sealing of structural concrete deck	SF	\$ 1.00	\$ -	4860	\$ 4,860.00	4860	\$ 4,860.00	\$ -	6860	\$ 6,860.00	\$ -	5110	\$ 5,110.00	\$ -	5110	\$ 5,110.00	5880	\$ 5,880.00	5880	\$ 5,880.00
	Concrete slab 12"	SF	\$ 62.22	\$ -	4860	\$ 302,400.00	4860	\$ 302,400.00	\$ -	6860	\$ 426,844.44	\$ -	5110	\$ 317,955.56	\$ -	5110	\$ 317,955.56	5880	\$ 365,866.67	5880	\$ 365,866.67
	Reinforcement	LB	\$ 2.00	\$ -	18000	\$ 36,000.00	18000	\$ 36,000.00	\$ -	25407	\$ 50,814.81	\$ -	18926	\$ 37,851.85	\$ -	18926	\$ 37,851.85	21778	\$ 43,555.56	21778	\$ 43,555.56
	Architectural finish / formliner for exposed concrete	SF	\$ 12.00	\$ -	5130	\$ 61,560.00	5130	\$ 61,560.00	\$ -	9310	\$ 111,720.00	\$ -	6935	\$ 83,220.00	\$ -	6935	\$ 83,220.00	7980	\$ 95,760.00	7980	\$ 95,760.00
	Select granular fill, Geomembrane, Sand Backfill and EPS Geofoam	SF	\$ 46.58	\$ -	4860	\$ 226,367.91	4860	\$ 226,367.91	\$ -	6860	\$ 319,523.43	\$ -	5110	\$ 238,012.35	\$ -	5110	\$ 238,012.35	5880	\$ 273,877.23	5880	\$ 273,877.23
	HP 12x84 Piles including testing and mobilization	LF	\$ 74.20	\$ -	5809	\$ 431,034.55	5809	\$ 431,034.55	\$ -	10542	\$ 782,247.88	\$ -	7853	\$ 582,694.85	\$ -	7853	\$ 582,694.85	9036	\$ 670,498.18	9036	\$ 670,498.18
	Concrete footing	CY	\$ 496.00	\$ -	240	\$ 119,040.00	240	\$ 119,040.00	\$ -	436	\$ 216,035.56	\$ -	324	\$ 160,924.44	\$ -	324	\$ 160,924.44	373	\$ 185,173.33	373	\$ 185,173.33
	Reinforcement	LB	\$ 2.00	\$ -	18000	\$ 36,000.00	18000	\$ 36,000.00	\$ -	32667	\$ 65,333.33	\$ -	24333	\$ 48,666.67	\$ -	24333	\$ 48,666.67	28000	\$ 56,000.00	28000	\$ 56,000.00
	Concrete wall (assume average 1.5' thk)	CY	\$ 1,280.00	\$ -	285	\$ 364,800.00	285	\$ 364,800.00	\$ -	517	\$ 662,044.44	\$ -	385	\$ 493,155.56	\$ -	385	\$ 493,155.56	443	\$ 567,466.67	443	\$ 567,466.67
	Reinforcement	LB	\$ 2.00	\$ -	35625	\$ 71,250.00	35625	\$ 71,250.00	\$ -	64653	\$ 129,305.56	\$ -	48160	\$ 96,319.44	\$ -	48160	\$ 96,319.44	55417	\$ 110,833.33	55417	\$ 110,833.33
	Tie beam	CY	\$ 1,280.00	\$ -	33	\$ 42,389.61	33	\$ 42,389.61	\$ -	47	\$ 59,833.89	\$ -	35	\$ 44,570.15	\$ -	35	\$ 44,570.15	40	\$ 51,286.20	40	\$ 51,286.20
	Reinforcement	LB	\$ 2.00	\$ -	3312	\$ 6,623.38	3312	\$ 6,623.38	\$ -	4675	\$ 9,349.05	\$ -	3482	\$ 6,964.09	\$ -	3482	\$ 6,964.09	4007	\$ 8,013.47	4007	\$ 8,013.47
	Demo Existing Pavement	SF	\$ 8.00	\$ -	4624	\$ 36,992.00	4624	\$ 36,992.00	\$ -	8364	\$ 66,912.00	\$ -	6239	\$ 49,912.00	\$ -	6239	\$ 49,912.00	7174	\$ 57,392.00	7174	\$ 57,392.00
	Excavation/Backfill/Haul-off	CY	\$ 160.00	\$ -	1028	\$ 164,408.89	1028	\$ 164,408.89	\$ -	1859	\$ 297,386.67	\$ -	1386	\$ 221,831.11	\$ -	1386	\$ 221,831.11	1594	\$ 255,075.56	1594	\$ 255,075.56
	Temporary Steel Sheeting	SF	\$ 29.20	\$ -	8100	\$ 236,520.00	8100	\$ 236,520.00	\$ -	14700	\$ 429,240.00	\$ -	10950	\$ 319,740.00	\$ -	10950	\$ 319,740.00	12600	\$ 367,920.00	12600	\$ 367,920.00
	Dewatering	LS	\$ 50,000.00	\$ -	1	\$ 50,000.00	1	\$ 50,000.00	\$ -	1	\$ 50,000.00	\$ -	1	\$ 50,000.00	\$ -	1	\$ 50,000.00	1	\$ 50,000.00	1	\$ 50,000.00
	Workzone Traffic Control	CDA	\$ 3,200.00	\$ -	124	\$ 395,738.86	124	\$ 395,738.86	\$ -	210	\$ 670,936.50	\$ -	157	\$ 502,076.41	\$ -	157	\$ 502,076.41	180	\$ 576,374.85	180	\$ 576,374.85

Cost Estimates

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ITEM #	ITEM DESCRIPTION	UNIT	UNIT RATE	Montgomery Street Improvement		Jackson Street			Grand and Delancy Street Improvement		Baruch Bridge		Houston Street Improvements		6th Street Bridge		8th Street Bridge	
				Alternative 1 : Baseline		Alternative 1 : Baseline		Alternative 2 : Integration with Sport Field	Alternative 1 : Baseline						Alternative 1 : Convert 6th St to One-way			
				QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY
16	Bridge																	
	Pedestrian Bridge	SF				2280		2280			2610				2550		2355	
	Deep Foundation for Bridge abutments incl. excavation and dewatering	LS	\$ 550,000.00	\$ -	1	\$ 550,000.00	1	\$ 550,000.00	\$ -	1	\$ 550,000.00	\$ -	1	\$ 550,000.00	1	\$ 550,000.00	1	\$ 550,000.00
	Abutment Stem Wall	LS	\$ 225,000.00	\$ -	1	\$ 225,000.00	1	\$ 225,000.00	\$ -	1	\$ 225,000.00	\$ -	1	\$ 225,000.00	1	\$ 225,000.00	1	\$ 225,000.00
	Bridge Deck																	
	Pedestrian railing	LF	\$ 203.41	\$ -	240	\$ 48,818.47	240	\$ 48,818.47	\$ -	348	\$ 70,786.78	\$ -	340	\$ 69,159.50	314	\$ 63,870.83		
	2" Lighting Conduits incl. wiring	LF	\$ 64.00	\$ -	480	\$ 30,720.00	480	\$ 30,720.00	\$ -	696	\$ 44,544.00	\$ -	680	\$ 43,520.00	628	\$ 40,192.00		
	Light poles	EA	\$ 9,600.00	\$ -	2	\$ 15,360.00	2	\$ 15,360.00	\$ -	2	\$ 22,272.00	\$ -	2	\$ 21,760.00	2	\$ 20,096.00		
	Tie Girder	TONS	\$ 7,000.00	\$ -	21.72	\$ 152,040.00	21.72	\$ 152,040.00	\$ -	31.494	\$ 220,458.00	\$ -	30.77	\$ 215,398.00	28.417	\$ 198,919.00		
	Floor Beams (W12x45)	TONS	\$ 7,000.00	\$ -	6.413	\$ 44,887.50	6.413	\$ 44,887.50	\$ -	7.341	\$ 51,384.38	\$ -	7.172	\$ 50,203.13	6.623	\$ 46,364.06		
	Lower Lateral Bracing (L8X8X1/2)	TONS	\$ 7,000.00	\$ -	5.39	\$ 37,699.20	5.39	\$ 37,699.20	\$ -	6.31	\$ 44,167.20	\$ -	6.31	\$ 44,167.20	6.02	\$ 42,134.40		
	Arch Rib	TONS	\$ 12,000.00	\$ -	12.6	\$ 151,200.00	12.6	\$ 151,200.00	\$ -	18.27	\$ 219,240.00	\$ -	17.85	\$ 214,200.00	16.485	\$ 197,820.00		
	Upper Lateral Arch Rib Bracing	TONS	\$ 12,000.00	\$ -	2.7	\$ 32,400.00	2.7	\$ 32,400.00	\$ -	3.5	\$ 42,000.00	\$ -	3.5	\$ 42,000.00	2.8	\$ 33,600.00		
	Structural Strands	LF	\$ 50.00	\$ -	720	\$ 36,000.00	720	\$ 36,000.00	\$ -	1056	\$ 52,800.00	\$ -	1056	\$ 52,800.00	960	\$ 48,000.00		
	Architectural Mesh	SF	\$ 15.00	\$ -	5760	\$ 86,400.00	5760	\$ 86,400.00	\$ -	8352	\$ 125,280.00	\$ -	8160	\$ 122,400.00	7536	\$ 113,040.00		
	Welded Plates	EA	\$ 3,000.00	\$ -	30	\$ 90,000.00	30	\$ 90,000.00	\$ -	44	\$ 132,000.00	\$ -	44	\$ 132,000.00	40	\$ 120,000.00		
	Concrete slab 12"	SF	\$ 62.22	\$ -	2280	\$ 141,866.67	2280	\$ 141,866.67	\$ -	2610	\$ 162,400.00	\$ -	2550	\$ 158,666.67	2355	\$ 146,533.33		
	Reinforcement	LB	\$ 2.00	\$ -	8444	\$ 16,888.89	8444	\$ 16,888.89	\$ -	9667	\$ 19,333.33	\$ -	9444	\$ 18,888.89	8722	\$ 17,444.44		
	Waterproofing	SF	\$ 6.40	\$ -	2280	\$ 14,592.00	2280	\$ 14,592.00	\$ -	2610	\$ 16,704.00	\$ -	2550	\$ 16,320.00	2355	\$ 15,072.00		
	Concrete parapet	LF	\$ 120.00	\$ -	240	\$ 28,800.00	240	\$ 28,800.00	\$ -	348	\$ 41,760.00	\$ -	340	\$ 40,800.00	314	\$ 37,680.00		
	Architectural finish / formliner for exposed concrete	SF	\$ 12.00	\$ -	2400	\$ 28,800.00	2400	\$ 28,800.00	\$ -	3480	\$ 41,760.00	\$ -	3400	\$ 40,800.00	3140	\$ 37,680.00		
	Protective sealing of structural concrete deck	SF	\$ 1.00	\$ -	2280	\$ 2,280.00	2280	\$ 2,280.00	\$ -	2610	\$ 2,610.00	\$ -	2550	\$ 2,550.00	2355	\$ 2,355.00		
	Armorless Bridge Joint System	LF	\$ 242.40	\$ -	114	\$ 27,633.60	114	\$ 27,633.60	\$ -	130.5	\$ 31,633.20	\$ -	127.5	\$ 30,906.00	117.75	\$ 28,542.60		
	Crane incl. staging, mobilization and crew	LS	\$ 50,000.00	\$ -	1	\$ 50,000.00	1	\$ 50,000.00	\$ -	1	\$ 50,000.00	\$ -	1	\$ 50,000.00	1	\$ 50,000.00		
	Dewatering	LS	\$ 50,000.00	\$ -	1	\$ 50,000.00	1	\$ 50,000.00	\$ -	1	\$ 50,000.00	\$ -	1	\$ 50,000.00	1	\$ 50,000.00		
	Workzone Traffic Control	SF	\$ 220.00	\$ -	2280	\$ 501,600.00	2280	\$ 501,600.00	\$ -	2610	\$ 574,200.00	\$ -	2550	\$ 561,000.00	2355	\$ 518,100.00		
	Drainage	LF	\$ 150.00	\$ -	120	\$ 18,000.00	120	\$ 18,000.00	\$ -	174	\$ 26,100.00	\$ -	170	\$ 25,500.00	157	\$ 23,550.00		
	Utility Relocation	LF	\$ 500.00	\$ -	100	\$ 50,000.00	100	\$ 50,000.00	\$ -	100	\$ 50,000.00	\$ -	100	\$ 50,000.00	100	\$ 50,000.00		

Cost Estimates

SHEET 4 OF 4

ITEM #	ITEM DESCRIPTION	UNIT	UNIT RATE	Montgomery Street Improvement		Jackson Street				Grand and Delancy Street Improvement		Baruch Bridge		Houston Street Improvements		6th Street Bridge		8th Street Bridge	
				Alternative 1 : Baseline		Alternative 1 : Baseline		Alternative 2 : Integration with Sport Field		Alternative 1 : Baseline						Alternative 1 : Convert 6th St to One-way			
				QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST
17	Stairs	EA				2		2				2				2			
	Footing at Column D Landing																		
	HP 12x84 Piles including testing and mobilization	LF	\$ 74.20	\$ -	320	\$ 23,744.00	320	\$ 23,744.00	\$ -	320	\$ 23,744.00	\$ -	320	\$ 23,744.00	\$ -	320	\$ 23,744.00	\$ -	
	Concrete footing	CY	\$ 496.00	\$ -	5	\$ 2,314.67	5	\$ 2,314.67	\$ -	5	\$ 2,314.67	\$ -	5	\$ 2,314.67	\$ -	5	\$ 2,314.67	\$ -	
	Reinforcement	LB	\$ 2.00	\$ -	700	\$ 1,400.00	700	\$ 1,400.00	\$ -	700	\$ 1,400.00	\$ -	700	\$ 1,400.00	\$ -	700	\$ 1,400.00	\$ -	
	Excavation/Backfill/Haul-off	CY	\$ 160.00	\$ -	15	\$ 2,370.37	15	\$ 2,370.37	\$ -	15	\$ 2,370.37	\$ -	15	\$ 2,370.37	\$ -	15	\$ 2,370.37	\$ -	
	Demo Existing Pavement	SF	\$ 16.00	\$ -	50	\$ 800.00	50	\$ 800.00	\$ -	50	\$ 800.00	\$ -	50	\$ 800.00	\$ -	50	\$ 800.00	\$ -	
	Temporary Steel Sheeting	SF	\$ 29.20	\$ -	960	\$ 28,032.00	960	\$ 28,032.00	\$ -	960	\$ 28,032.00	\$ -	960	\$ 28,032.00	\$ -	960	\$ 28,032.00	\$ -	
	Footing at Intermediate Support																		
	HP 12x84 Piles including testing and mobilization	LF	\$ 74.20	\$ -	640	\$ 47,488.00	640	\$ 47,488.00	\$ -	640	\$ 47,488.00	\$ -	640	\$ 47,488.00	\$ -	640	\$ 47,488.00	\$ -	
	Concrete footing	CY	\$ 496.00	\$ -	8	\$ 3,968.00	8	\$ 3,968.00	\$ -	8	\$ 3,968.00	\$ -	8	\$ 3,968.00	\$ -	8	\$ 3,968.00	\$ -	
	Reinforcement	LB	\$ 2.00	\$ -	1200	\$ 2,400.00	1200	\$ 2,400.00	\$ -	1200	\$ 2,400.00	\$ -	1200	\$ 2,400.00	\$ -	1200	\$ 2,400.00	\$ -	
	Excavation/Backfill/Haul-off	CY	\$ 160.00	\$ -	24	\$ 3,792.59	24	\$ 3,792.59	\$ -	24	\$ 3,792.59	\$ -	24	\$ 3,792.59	\$ -	24	\$ 3,792.59	\$ -	
	Demo Existing Pavement	SF	\$ 16.00	\$ -	160	\$ 2,560.00	160	\$ 2,560.00	\$ -	160	\$ 2,560.00	\$ -	160	\$ 2,560.00	\$ -	160	\$ 2,560.00	\$ -	
	Temporary Steel Sheeting	SF	\$ 29.20	\$ -	1280	\$ 37,376.00	1280	\$ 37,376.00	\$ -	1280	\$ 37,376.00	\$ -	1280	\$ 37,376.00	\$ -	1280	\$ 37,376.00	\$ -	
	Footing at Column A Landing																		
	HP 12x84 Piles including testing and mobilization	LF	\$ 74.20	\$ -	480	\$ 35,616.00	480	\$ 35,616.00	\$ -	480	\$ 35,616.00	\$ -	480	\$ 35,616.00	\$ -	480	\$ 35,616.00	\$ -	
	Concrete footing	CY	\$ 496.00	\$ -	8	\$ 3,822.51	8	\$ 3,822.51	\$ -	8	\$ 3,822.51	\$ -	8	\$ 3,822.51	\$ -	8	\$ 3,822.51	\$ -	
	Reinforcement	LB	\$ 2.00	\$ -	1156	\$ 2,312.00	1156	\$ 2,312.00	\$ -	1156	\$ 2,312.00	\$ -	1156	\$ 2,312.00	\$ -	1156	\$ 2,312.00	\$ -	
	Excavation/Backfill/Haul-off	CY	\$ 160.00	\$ -	24	\$ 3,911.11	24	\$ 3,911.11	\$ -	24	\$ 3,911.11	\$ -	24	\$ 3,911.11	\$ -	24	\$ 3,911.11	\$ -	
	Demo Existing Pavement	SF	\$ 16.00	\$ -	165	\$ 2,640.00	165	\$ 2,640.00	\$ -	165	\$ 2,640.00	\$ -	165	\$ 2,640.00	\$ -	165	\$ 2,640.00	\$ -	
	Temporary Steel Sheeting	SF	\$ 29.20	\$ -	1360	\$ 39,712.00	1360	\$ 39,712.00	\$ -	1360	\$ 39,712.00	\$ -	1360	\$ 39,712.00	\$ -	1360	\$ 39,712.00	\$ -	
	Column A																		
	Circular Pile	CY	\$ 1,280.00	\$ -	5	\$ 6,051.26	5	\$ 6,051.26	\$ -	5	\$ 6,051.26	\$ -	5	\$ 6,051.26	\$ -	5	\$ 6,051.26	\$ -	
	Reinforcement	LB	\$ 2.00	\$ -	1182	\$ 2,363.77	1182	\$ 2,363.77	\$ -	1182	\$ 2,363.77	\$ -	1182	\$ 2,363.77	\$ -	1182	\$ 2,363.77	\$ -	
	Column B																		
	Circular Pile	CY	\$ 1,280.00	\$ -	3	\$ 3,258.37	3	\$ 3,258.37	\$ -	3	\$ 3,258.37	\$ -	3	\$ 3,258.37	\$ -	3	\$ 3,258.37	\$ -	
	Reinforcement	LB	\$ 2.00	\$ -	636	\$ 1,272.80	636	\$ 1,272.80	\$ -	636	\$ 1,272.80	\$ -	636	\$ 1,272.80	\$ -	636	\$ 1,272.80	\$ -	
	Stairs																		
	Concrete	CY	\$ 1,280.00	\$ -	46	\$ 58,880.00	46	\$ 58,880.00	\$ -	46	\$ 58,880.00	\$ -	46	\$ 58,880.00	\$ -	46	\$ 58,880.00	\$ -	
	Reinforcement	LB	\$ 2.00	\$ -	13800	\$ 27,600.00	13800	\$ 27,600.00	\$ -	13800	\$ 27,600.00	\$ -	13800	\$ 27,600.00	\$ -	13800	\$ 27,600.00	\$ -	
	Concrete parapet	LF	\$ 120.00	\$ -	160	\$ 19,200.00	160	\$ 19,200.00	\$ -	160	\$ 19,200.00	\$ -	160	\$ 19,200.00	\$ -	160	\$ 19,200.00	\$ -	
	Pedestrian railing	LF	\$ 203.41	\$ -	160	\$ 32,545.65	160	\$ 32,545.65	\$ -	160	\$ 32,545.65	\$ -	160	\$ 32,545.65	\$ -	160	\$ 32,545.65	\$ -	
	Architectural finish / formliner for exposed concrete	SF	\$ 12.00	\$ -	640	\$ 7,680.00	640	\$ 7,680.00	\$ -	640	\$ 7,680.00	\$ -	640	\$ 7,680.00	\$ -	640	\$ 7,680.00	\$ -	
	Protective sealing of structural concrete deck	SF	\$ 1.00	\$ -	1280	\$ 1,280.00	1280	\$ 1,280.00	\$ -	1280	\$ 1,280.00	\$ -	1280	\$ 1,280.00	\$ -	1280	\$ 1,280.00	\$ -	
	Dewatering	LS	\$ 20,000.00	\$ -	1	\$ 20,000.00	1	\$ 20,000.00	\$ -	1	\$ 20,000.00	\$ -	1	\$ 20,000.00	\$ -	1	\$ 20,000.00	\$ -	
	Workzone Traffic Control	CDAY	\$ 3,200.00	\$ -	30	\$ 96,000.00	30	\$ 96,000.00	\$ -	30	\$ 96,000.00	\$ -	30	\$ 96,000.00	\$ -	30	\$ 96,000.00	\$ -	
	Stairs on City-side @ 8th Street	SF	\$ 250.00	\$ -		\$ -		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -	1900	\$ 475,000.00
	TOTAL DIRECT COSTS			\$	5,208,500	\$	14,323,033	\$	14,416,783	\$	11,357,000	\$	19,820,320	\$	1,559,500	\$	30,622,476	\$	19,049,318
	DESIGN AND CONSTRUCTION CONTINGENCY (@ 33%)			\$	1,718,805	\$	4,726,601	\$	4,757,538	\$	3,747,810	\$	6,540,706	\$	514,635	\$	10,105,417	\$	6,286,275
	MOBILIZATION @ 6%			\$	415,638	\$	1,142,978	\$	1,150,459	\$	906,289	\$	1,581,662	\$	124,448	\$	2,443,674	\$	1,520,136
	GENERAL REQUIREMENTS / CONDITIONS (@15%)			\$	1,101,441	\$	3,028,892	\$	3,048,717	\$	2,401,665	\$	4,191,403	\$	329,787	\$	6,475,735	\$	4,028,359
	SUB-TOTAL COSTS			\$	8,444,385	\$	23,221,503	\$	23,373,497	\$	18,412,763	\$	32,134,091	\$	2,528,371	\$	49,647,302	\$	30,884,088
	CONTRACTOR'S OVERHEAD (@ 10%)			\$	844,438	\$	2,322,150	\$	2,337,350	\$	1,841,276	\$	3,213,409	\$	252,837	\$	4,964,730	\$	3,088,409
	CONTRACTOR'S PROFIT (@ 10%)			\$	844,438	\$	2,322,150	\$	2,337,350	\$	1,841,276	\$	3,213,409	\$	252,837	\$	4,964,730	\$	3,088,409
	CURRENT ESTIMATED CONSTRUCTION COST			\$	10,133,262	\$	27,865,804	\$	28,048,197	\$	22,095,316	\$	38,560,909	\$	3,034,045	\$	59,576,763	\$	37,060,906
	ESCALATION			\$	1,823,987	\$	5,015,845	\$	5,048,675	\$	3,977,157	\$	6,940,964	\$	546,128	\$	10,723,817	\$	6,670,963
	TOTAL ESTIMATED CONSTRUCTION COST			\$	11,957,249	\$	32,881,649	\$	33,096,872	\$	26,072,473	\$	45,501,873	\$	3,580,173	\$	70,300,580	\$	43,731,869

APPENDIX 2

Permitting

Permitting

REGULATORY REQUIREMENTS: REFINED CONCEPTS

Given the scope of the proposed work, it is anticipated the project will require a number of authorizations from New York City and New York State agencies/departments. Regulatory entities with jurisdiction over natural, cultural, and other resources in the project area are anticipated to include the following:

CITY
<ul style="list-style-type: none"> • NYC Department of Environmental Protection (NYC DEP) • NYC City Planning Commission • NYC Department of City Planning (NYC DCP) • NYC Department of Transportation (NYC DOT) • NYC Landmarks Preservation Commission (NYCLPC) • NYC Department of Parks & Recreation (Parks) • NYC Department of Small Business Services (NYC DSBS) • NYC Public Design Commission (PDC) • New York City Housing Authority (NYCHA)

STATE
<ul style="list-style-type: none"> • New York State Department of Environmental Conservation (NYS DEC) • New York State Department of State (NYS DOS) • New York State Department of Transportation (NYS DOT) • New York State Historic Preservation Office (NY SHPO)

A preliminary matrix of key permits, approvals, and supporting consultations that are anticipated to be needed from New York State and New York City agencies and departments for the project to move forward into construction are identified in the table to the right.

Regulating Agency	Authorization	Agency Coordination	Regulated Activity	Driving Concept		Notes
				Upland Enhancements ¹	Pedestrian Bridges ²	
City of New York						
NYC DOT, Acting as Lead Agency	CEQR Negative Declaration (EA) or Findings Statement (EIS)	NYC LPC, NYC DCP Coordination	Proposed Project	X	X	CEQR applies to certain projects that require City approval, funding, and/or direct action
NYC DEP – BEPA	Stormwater Pollution Prevention Plan Approval; Stormwater Construction Permit	NYC DOT Coordination	Disturb 20,000 sq. ft. Add 5,000 sq. ft. new impervious surface	X	X	Most of the improvement concepts are estimated to disturb at least 20,000 sq. ft.
NYC DCP	WRP Consistency Concurrence	NYS DOS Consistency Determination	Activity in NYC within Coastal Zone	X	X	All revised concept elements are sited in the NYC Coastal Zone
NYC LPC	Consult – Landmarks Law & Rules of the NYC LPC Title 63, Rules of the City of New York	NY SHPO Consultation	Presence of historic resources in vicinity of work requiring City (NYC PDC) approval	X	X	Baruch Houses is National/State Register eligible Building District; also, buildings in the area are eligible for listing
NYC PDC	Preliminary & Final Approval	NYC LPC, NYC DOT Coordination	NYC Capital Project	N/A*	X	*Capital Projects include structural undertakings, such as bridges
NYC Parks	Tree Work Permit; Construction Permit	N/A	Work within 50 ft. of NYC street trees; planting street trees	X	TBD*	*The need for NYC Parks permits re: pedestrian bridges will derive from final design & street tree proximity
NYC DSBS	Plan Approval	Prompts CEQR	Construction within a designated Marginal Street, Wharf, or Place	N/A*	X	*Applies to major waterfront features like pedestrian bridges, outside upland enhancement scope
NYC DOT	Plan Approval; Construction Permit	NYCDEP, NYC DPR coordination	Work within City streets, sidewalks	X	X	Coordination between NYC & NYSDOT may be needed for traffic control/planning

Permitting

REGULATORY REQUIREMENTS: REFINED CONCEPTS

Regulating Agency	Authorization	Agency Coordination	Regulated Activity	Driving Concept		Notes
				Upland Enhancements ¹	Pedestrian Bridges ²	
State of New York						
NYS DOT	Highway Work Permit	Prompts SEQR/CEQR	Work within roadbed/ROW under State jurisdiction, such as FDR Drive	N/A	X	Coordination between NYC & NYS DOT may be needed for traffic control / planning
NYS DEC – NHP	Consult - Natural Heritage Program (NHP)	NYSDEC Regional Permits Office	Activity that may affect State protected species	X	X	Consultation results inform Tidal Wetlands Permit application
NYS DOS	NYS Coastal Management Program (CMP) Consistency Determination	NYC DCP WRP Consistency Concurrence	Activity within the NYS Coastal Zone Boundary	X	X	Both NYS DOS and NYC DCP Consistency Concurrence will be required
NY SHPO	Consult - Section 106, National Historic Preservation Act & Section 14.09, NYS Historic Preservation Act	NYC LPC Section 106 Consultation	Presence of historic resources in vicinity of work requiring State approval	X	X	Baruch Houses is National/State Register eligible Building District; also, eligible buildings in area

The refined project packages – Montgomery Street, Jackson Street, Delancey Street, Houston Street, and East 6th Street – include a combination of upland enhancements and proposed pedestrian bridges to meet project goals and incorporate community feedback. As demonstrated by the above table, the planned enhancements and bridge work will require many of the same regulatory authorizations, with the majority of approvals by City agencies and departments with jurisdiction. Approvals and other actions by agencies or departments of the Federal government may be required if construction of the recommended improvements were to apply for and receive funding awarded by a department or agency of the Federal government. Overall, it is expected that construction of the pedestrian bridges will require the more significant regulatory lift, due to the structural nature of the work and greater anticipated disturbance. At this time, no regulatory obstacles that would prevent or significantly hinder implementation of the refined concepts are foreseen.

¹ Upland Enhancements Concept includes mobility and greening interventions within the existing ROW to increase vegetated/landscaped spaces, improve circulation, and provide additional green infrastructure benefits.

² Pedestrian Bridges Concept entails expansion of ESCR’s network of accessible pedestrian bridges by adding additional bridges and reconstructing existing bridges to the ESCR standard.

NYC DOT | NYC PARKS
**EAST VILLAGE / LOWER EAST SIDE
WATERFRONT ACCESS STUDY**

MARCH 2024

