



Jamaica Bay Greenway

Implementation Plan

Acknowledgments

This plan is the culmination of years of work by a wide array of organizations and would not have been possible without their input.

Brooklyn Community Boards 5, 15, and 18

Queens Community Boards 10 and 14

Jamaica Bay Greenway Coalition

National Park Service

NYC Parks

Implementation Plan prepared by the Office of Bicycle and Pedestrian Programs, NYC Department of Transportation with support from the Regional Plan Association.

Funding for this plan provided by the Federal Highway Administration, Public Lands Highway Discretionary Funding.

Contents

Jamaica Bay Greenway Implementation Plan Executive Summary / 4

Destinations along the Jamaica Bay Greenway / 5
Jamaica Bay Greenway Selected Routes Overview / 6

Chapter 1 Introduction / 8

Outreach and Engagement Process / 10
Ongoing Parallel Work and Previous Studies / 11
Summary of the Implementation Process / 13
Agencies Involved / 14

Chapter 2 Existing Conditions and Route Alternatives / 16

Marine Park & Sheepshead Bay / 18
Waterfront and Recreational Amenities / 18
Focus Areas / 18
Focus Area 1: Plumb Beach Network Link / 20
Focus Area 2: Marine Park Connector / 22
Focus Area 3: Flatbush Ave Enhancements / 25
Selected Routes: Marine Park & Sheepshead Bay / 27

Canarsie & Spring Creek / 28
Waterfront and Recreation Amenities / 28
Focus Areas / 29
Focus Area 1: Paerdegat Network Link / 30
Focus Area 2: Canarsie Pier East Extension / 32
Focus Area 3: Spring Creek Neighborhood Greenway / 35
Focus Area 4: Gateway Network Link / 38
Selected Routes: Canarsie & Spring Creek / 41

Howard Beach & Ozone Park / 44
Waterfront and Recreational Amenities / 44
Focus Areas / 45

Focus Area 1: Conduit Greenway Extension / 46
Focus Area 2: Belt to Bridge Connector / 49
Focus Area 3: Addabbo Bridge Improvements / 51
Selected Routes: Howard Beach & Ozone Park / 53

Rockaway & Broad Channel / 54
Waterfront and Recreational Amenities / 54
Focus Areas / 54
Focus Area 1: Broad Channel
Greenway Enhancements / 56
Focus Area 2: Arverne Edgemere Extension / 58
Focus Area 3: Nassau County Connector / 60
Focus Area 4: Bridge to Beach Connector / 62
Focus Area 5: Jacob Riis Park to Boardwalk / 65
Selected Routes: Rockaway & Broad Channel / 67

Chapter 3 Phasing and Implementation Plan / 68

Planning Area: Marine Park & Sheepshead Bay / 70
Planning Area: Canarsie & Spring Creek / 74
Planning Area: Howard Beach & Ozone Park / 78
Planning Area: Rockaway & Broad Channel / 82

JAMAICA BAY GREENWAY

Implementation Plan Executive Summary

The New York City Department of Transportation (DOT) is committed to providing walking and bicycling facilities throughout New York City that are safe options for commuting and recreation. New York City's Greenways run through parks and along streets, providing high-quality bicycle and pedestrian corridors that form a key component of the City's transportation infrastructure. DOT is responsible for the planning, design, and implementation of greenways on city streets.

The Jamaica Bay Greenway is a planned 28-mile network of pedestrian and bicycle paths connecting numerous diverse and distinct communities along the Jamaica Bay waterfront to destinations such as Rockaway Beach, Marine Park, Canarsie Pier, Floyd Bennett Field, Fort Tilden, Riis Beach and the Jamaica Bay Wildlife Refuge. More than 11 miles of the greenway route exist – serving roughly 100,000 local and regional visitors annually. When completed, separate multi-use paths and on-street bicycle markings will create a loop route around Jamaica Bay, allowing cyclists and walkers to commute, exercise and explore the Bay's natural beauty from Sheepshead Bay in southern Brooklyn to Howard Beach in Queens to the Rockaway Peninsula.

The Jamaica Bay Greenway Implementation Plan details 26 feasible capital projects that span four study areas around Jamaica Bay. Seventeen of the projects are defined as a New or Enhanced Greenway Routes, which means the project is on DOT jurisdiction and has the potential for short and long term improvement designs. The remaining nine projects are defined as Future Enhancement Projects, which means the project identifies a preferred route, but likely requires a longer timeline and/or the approval of one or more other agencies or property owners. Generally, DOT is not proposing a specific design for Future Enhancement Projects. An estimated cost of construction is provided for each project. These capital projects –and other improvements and activities that engage neighboring communities, create new green spaces, and connect pedestrians and bicyclists to the waterfront – will be implemented over time and as funds become available.

Canarsie & Spring Creek 9.30.14



Marine Park & Sheepshead Bay 6.3.15



Howard Beach & Ozone Park 10.7.14



This plan was developed through a comprehensive public engagement and community planning process. Building on prior Jamaica Bay Greenway advocacy efforts, DOT and Regional Plan Association (RPA) publicized the planning process through presentations to dozens of community-based organizations, greenway tours to highlight the potential for a completed greenway, direct mailings to over 1,000 individuals and organizations, email notifications to local stakeholders, flier distribution to local businesses, social media posts, and press releases to local media outlets. DOT and RPA held three rounds of community-planning workshops in four study areas around the Bay: Marine Park & Sheepshead Bay, Canarsie & Spring Creek, Howard Beach & Ozone Park, and Rockaway & Broad Channel. The first round of workshops served to identify priority ideas and destinations. The second round discussed the opportunities and challenges of different route alternatives. The third and final round presented selected route designs for community feedback. The community input from this process has informed both the selected routes and proposed designs detailed in this plan.

Destinations along the Jamaica Bay Greenway

The Greenway connects some of the most popular, exciting recreational destinations in New York City:

Plumb Beach is a popular destination for fishing, kite-surfing, and sunbathing.

Floyd Bennett Field is home to a wide array of activities including camping, community gardens, and an historic airfield. A series of paths within the park are suitable for walking, jogging, and biking.

Marine Park is a major local recreation destination, as well as the name of the surrounding neighborhood. The park is home to a popular jogging and cycling loop.

Canarsie Pier offers space for barbecuing, picnics, fishing, kayaking, and swimming. More than 16,000 visitors to Canarsie Pier arrive each year by foot or bicycle.

Canarsie Park consists of two large, noncontiguous parcels of parkland, both of which serve as local parks and regional ball field centers.

The Jamaica Bay Wildlife Refuge is a park and natural area affording incredible views of the waterfront and city skyline, as well as a nature center with information about birds and wildlife.

Visitors to **Rockaway Beach & Boardwalk** can enjoy the sand and water, the variety of concessions, and the City's only surfing beach. Rockaway Beach is also home to a variety of playgrounds and other outdoor activities.

Fort Tilden is a former military base which currently offers pristine beaches and trails along with ball fields, art space, picnic areas, and a large community garden.

Jacob Riis Park is a popular beach offering swimming, sunbathing, picnicking and kite flying. Facilities for baseball, basketball and volleyball are also available, along with a pitch and putt golf course via the Brooklyn Golf Center.

Riis Beach Boardwalk



Canarsie Pier



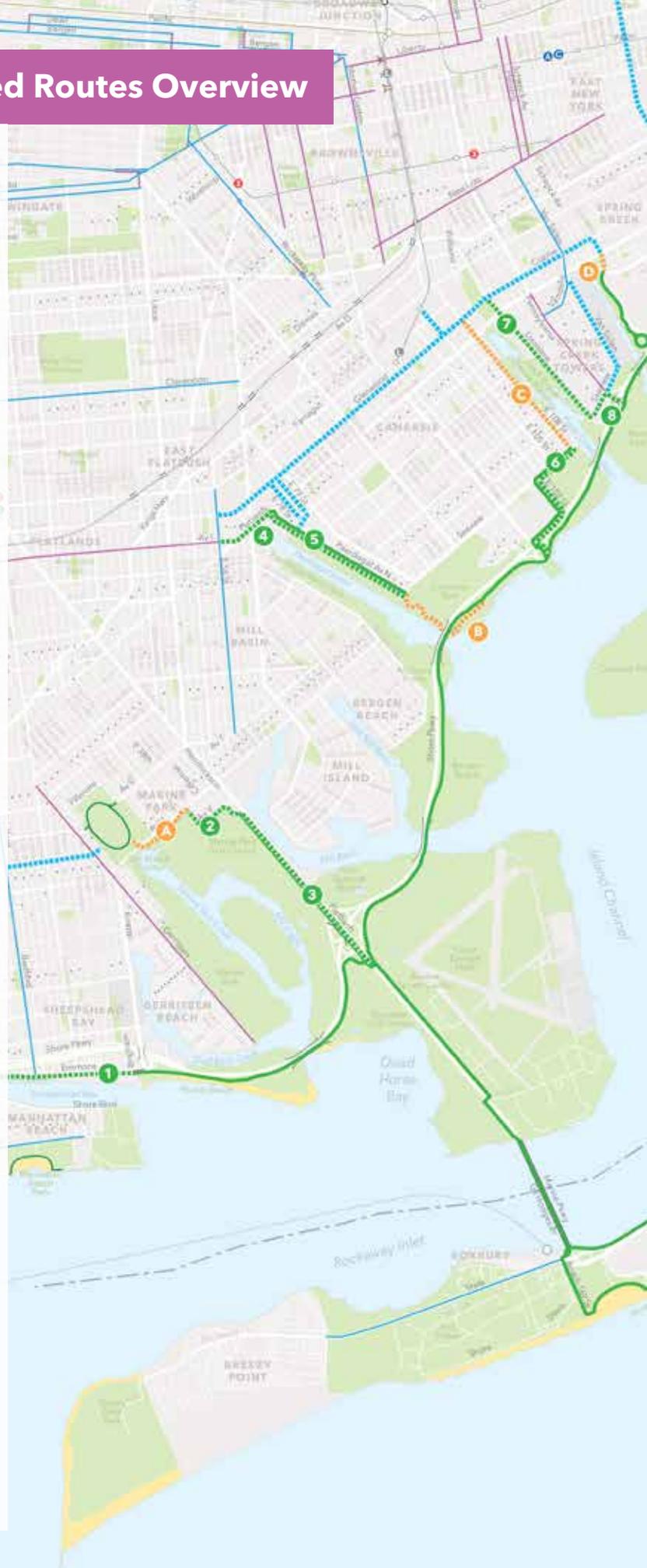
Floyd Bennett Field

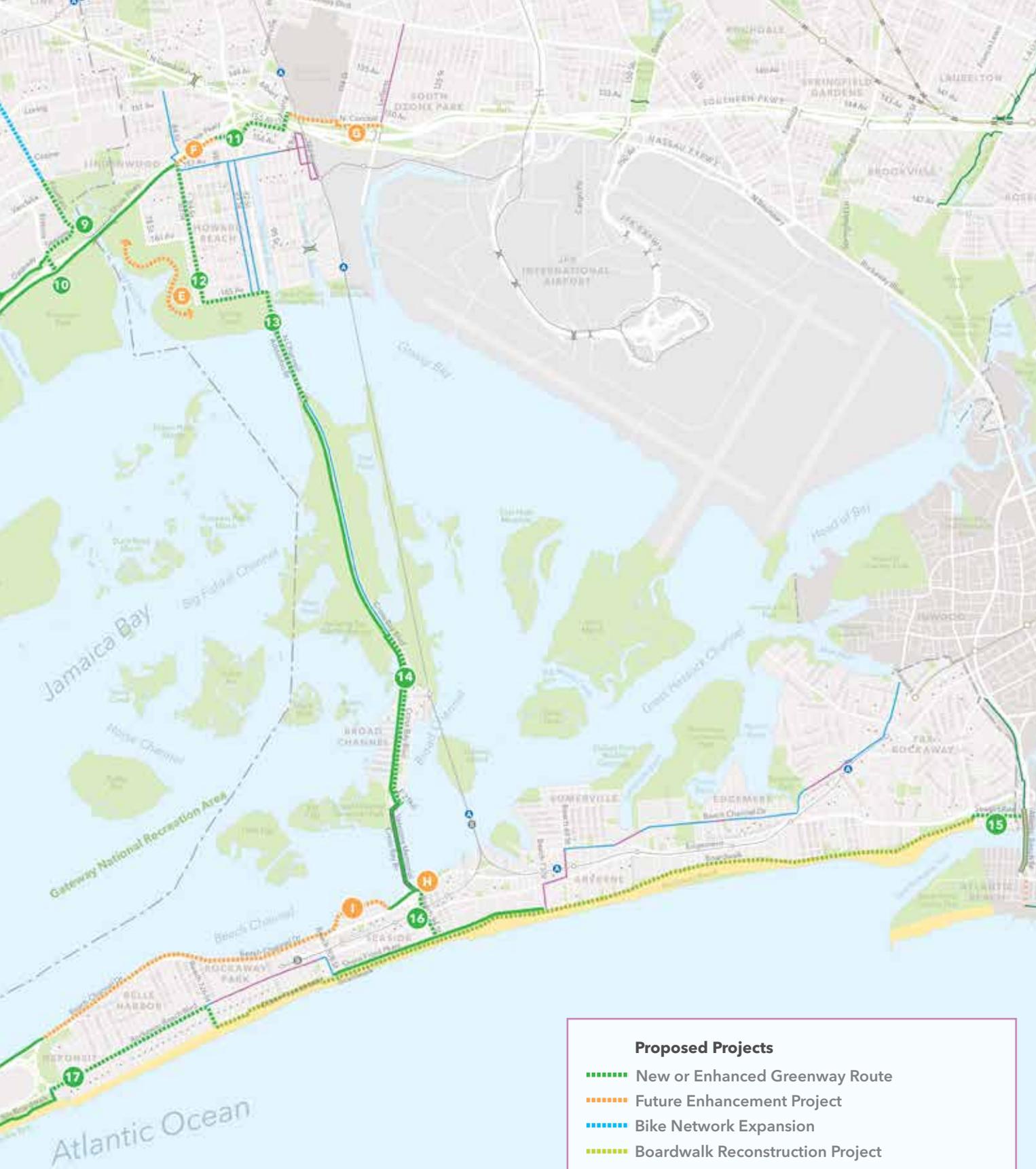


Jamaica Bay Greenway Selected Routes Overview

	Proposed Projects	Length (ft)	Cost
1	Plumb Beach Network Link	4,800 ft	\$\$\$\$
2	Marine Park Connector	2,500 ft	\$\$\$\$
3	Flatbush Ave Enhancements	6,500 ft	\$\$\$\$
A	Marine Park Path	1,900 ft	
4	Paerdegat Network Link	2,000 ft	\$\$\$\$
5	Paerdegat Ave N Enhancements	5,000 ft	\$\$\$\$
6	Canarsie Pier East Extension	4,600 ft	\$\$\$\$
7	Spring Creek Towers Neighborhood Greenway	4,500 ft	\$\$\$\$
8	Pennsylvania Ave Overpass	600 ft	\$\$\$\$
9	Gateway Network Link	3,500 ft	\$\$\$\$
10	Erskine St Overpass	700 ft	\$\$\$\$
B	Canarsie West Trail Connector	3,150 ft	
C	E 108th St Streetscape Improvements	500 ft	
D	Gateway Dr Extension	500 ft	
11	Conduit Greenway Extension	3,500 ft	\$\$\$\$
12	Belt to Bridge Connector	7,500 ft	\$\$\$\$
13	Addabbo Bridge Enhancements	4,500 ft	\$\$\$\$
E	Spring Creek Park Path	TBD	
F	Shore Pkwy Greenway Extension	1,600 ft	
G	North Conduit Extension	3,500 ft	
14	Broad Channel Greenway Enhancements	6,200 ft	\$\$\$\$
15	Nassau County Connector	1,800 ft	\$\$\$\$
16	Bridge to Beach Connector	1,900 ft	\$\$\$\$
17	Jacob Riis Park to Boardwalk	7,400 ft	\$\$\$\$
H	Beach 94th St Safety Improvements	Intersection	
I	Bayside Path	14,200 ft	

- Project is on DOT jurisdiction, with potential short term and long term designs.
- Project requires coordination with agencies other than DOT.





Proposed Projects

- New or Enhanced Greenway Route
- Future Enhancement Project
- Bike Network Expansion
- Boardwalk Reconstruction Project

Existing Network

- Jamaica Bay Greenway
- Greenway
- Striped Bike Lane
- Shared Bike Lane

North

 0 ————— 1 mile

CHAPTER 1

Introduction



Jamaica Bay Greenway at Floyd Bennett Field

New York City Department of Transportation (DOT) has committed to growing the network of bicycle, pedestrian, and greenways facilities throughout the city; over 1,000 miles of bicycle facilities have been built, including 380 miles of protected lanes and paths. Many of these connect more than 60 miles of planned or completed waterfront public spaces. Greenways provide a safe, convenient, and fun space for active recreation and non-motorized transportation. The completion of the Jamaica Bay Greenway is a critical step toward expanding the greenway infrastructure in the city and completing an interconnected Brooklyn-Queens waterfront greenway system.

Jamaica Bay is a nearly 26,000-acre area located in New York City that encompasses parts of south Brooklyn, eastern Queens and Nassau County, and is formed by the 11-mile Rockaway Peninsula. The area contains a diverse ecological landscape, including tidal marshes, grasslands, coastal woodlands, sand dunes, and open waters. The Bay is a recreational and historical asset for New York City containing over 10,000 acres of open-space and parkland, including city and state parks, and portions of Gateway National Recreation Area managed by the National Park Service (NPS).

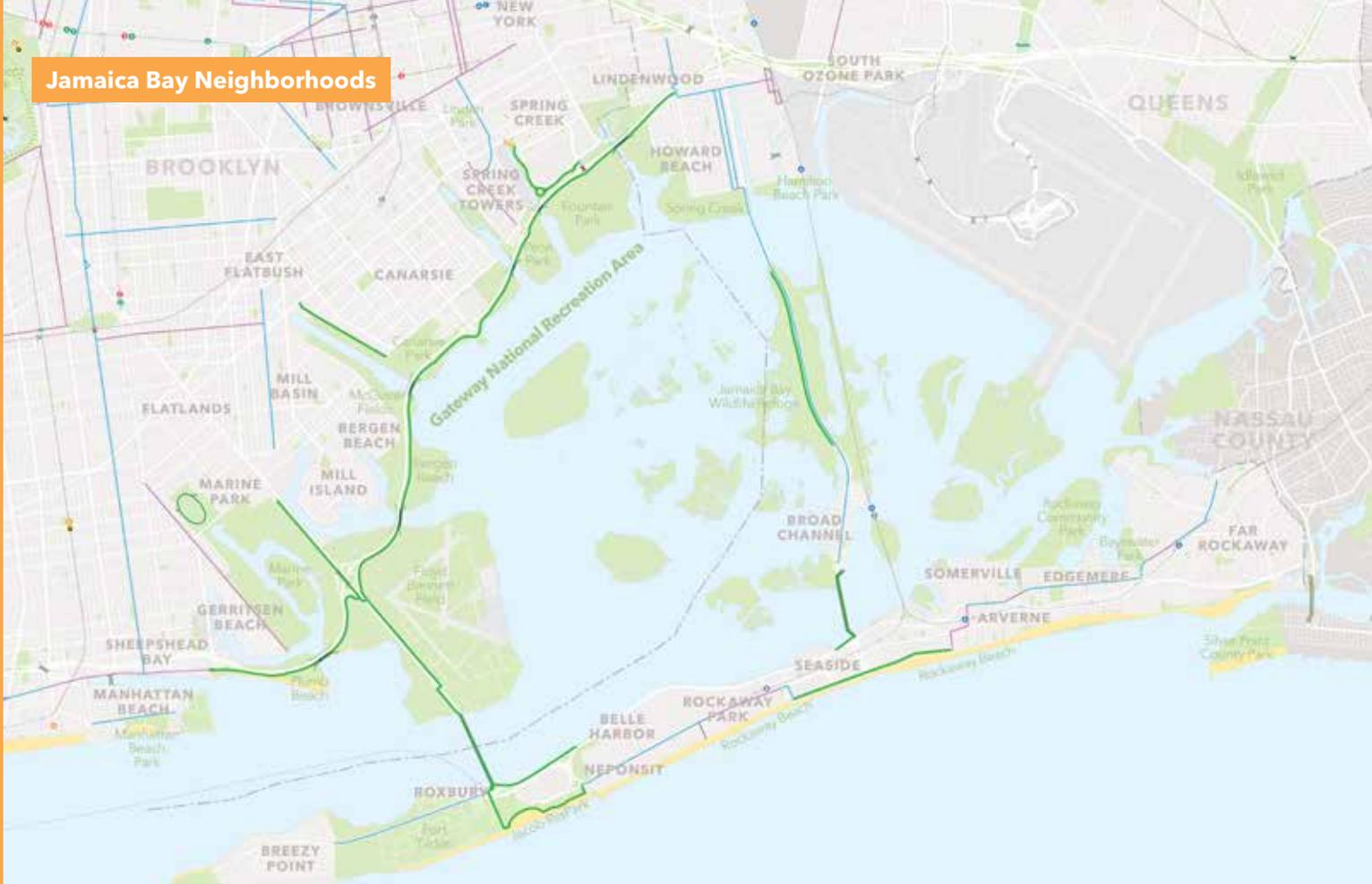
The Jamaica Bay Greenway is a planned 28-mile network of pedestrian and bicycle paths connecting numerous diverse and distinct communities along the Jamaica Bay waterfront to destinations such as Rockaway Beach, Marine Park, Canarsie Pier, Floyd Bennett Field, Fort Tilden, Riis Beach and the Jamaica Bay Wildlife Refuge. The Greenway passes through five community boards in the boroughs of Brooklyn and Queens (CB 5, 15, and 18 in Brooklyn, CB 10 and 14 in Queens). More than 11 miles of the Greenway route already exist and serve roughly 100,000 local and regional visitors annually. The route is composed of various types of off-street multi-use paths and on-street bicycle and pedestrian infrastructure. When completed, multi-use paths and on-street bicycle markings will create a loop route around Jamaica Bay, allowing cyclists and walkers to commute, exercise and explore the bay's natural beauty from Sheepshead Bay

in southern Brooklyn to Howard Beach in Queens to the Rockaway Peninsula. Recently, more than two miles of protected path have been added to connect the Canarsie neighborhood in Brooklyn to the Greenway, and other segments are now in the design phase. As the City and NPS continue to invest in the Jamaica Bay as a recreational destination and economic driver for South Brooklyn and Queens, a cohesive, user-friendly greenway system is a critical resource for accessing all the Bay has to offer.

Project Goals

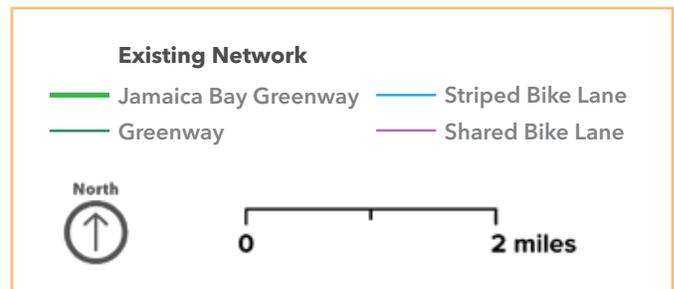
- Create a continuous and connected path, improving access to the Jamaica Bay waterfront.
- Connect residents and visitors to existing recreational opportunities afforded by the Jamaica Bay network of parks and beaches.
- Provide convenient and safe connections to greenway paths from the local street network.
- Expand transportation choices and enhance active recreation to accommodate the broadest range of users and uses.
- Create efficient new commuting options that connect waterfront neighborhoods to the rest of the city.
- Create more inviting streetscapes with new trees and vegetation to improve quality of life and clean the air.
- Identify a series of capital projects around Jamaica Bay that improve connectivity and link route gaps.
- Act as a guide for the scoping, design and construction of capital projects.

Jamaica Bay Neighborhoods



Outreach and Engagement Process

In 2014, DOT and Regional Plan Association (RPA) began public engagement for the Jamaica Bay Greenway Implementation Plan. The process was publicized through direct mailings to over 1,000 individuals and organizations, email blasts to local stakeholders, flier distribution to local businesses, social media posts, press releases to local media outlets, presentations to dozens of community-based organizations, and hosting additional greenway tours to highlight the potential for a completed greenway. In addition, DOT and RPA held three rounds of community-planning workshops in four study areas around the Bay: Marine Park & Sheepshead Bay, Canarsie & Spring Creek, Howard Beach & Ozone Park, and Rockaway & Broad Channel. The first round of workshops served to identify priority ideas and destinations. The second round discussed the opportunities and challenges of different route alternatives. The third and final round presented selected route designs for community feedback. The community input from this process has helped identify potential routes and challenges and inform the final selected routes detailed in this plan.



Since 2011, RPA has worked with DOT, NPS, New York City Department of Parks and Recreation (NYC Parks) and several community organizations to conduct a comprehensive engagement process to encourage community members to experience the greenway and identify communities' needs, desires and ideas for improving greenway access. Over the course of two years partner organizations and agencies have presented to civic associations, community-based organizations and community boards; hosted dozens of public awareness events and greenway tours; distributed informational pamphlets; and held quarterly public forum meetings to discuss issues related to the greenway.

Ongoing Parallel Work and Previous Studies

The Jamaica Bay Greenway route traverses a complex jurisdictional geography. The route includes property managed by DOT, New York City Department of Parks and Recreation (NYC Parks), National Park Service (NPS), Metropolitan Transit Authority (MTA), and private stakeholders. While the Jamaica Bay Greenway Implementation Plan focuses on the DOT right-of-way specifically, the planning process and route selection is impacted by numerous previous and on-going plans, planning processes, and capital projects, including: Woodhaven-Cross Bay Bicycle Corridor Study (2009. NYCDPC), Jamaica Bay Greenway Missing Links Study (2010. NPS, Volpe), Reconstruction of Seven Bridges of the Shore Pkwy (DOT), Gateway National Recreation Area General Management Plan (2014. NPS), Rockaway Beach Boardwalk Reconstruction (NYCEDC, NYC Parks), Rockaway Parks Conceptual Plan (2014. NYC Parks) Spring Creek Salt Marsh and Coastal Upland Restoration (NYC Parks, USACE), Spring Creek Hazard Mitigation Project (NYSDEC, NPS). The most relevant projects are discussed in greater depth below.

Jamaica Bay Greenway Missing Links Study (VOLPE, NPS)

In 2009, The Volpe National Transportation Systems Center (VOLPE) in partnership with NPS, conducted the Jamaica Bay Greenway Missing Links Study (released in 2010), which focused primarily on bicycle and pedestrian improvements throughout Broad Channel and the Rockaway Peninsula. The report offered a range of long-term and short-term recommendations, from reconfiguring Beach Channel Dr with a multi-use path between the Marine Pkwy and Cross Bay Blvd bridges, to adding bicycle roll-up ramps on subway platform staircases, to consistent signage throughout the area (VOLPE 2010). The study highlighted improvements to the Greenway as an important priority to improve access to the Gateway National Recreation Area and strengthen mobility throughout the park's dispersed attraction areas. The report also called on partners like RPA to begin to convene a coalition of stakeholders to advocate for improved greenway infrastructure and increased access to the park. In 2011, RPA and National Park Service Rivers, Trails and Conservation Assistance (RTCA) program began to organize the Jamaica Bay Greenway Coalition—an informal group of partner organizations that advocate for improved greenway infrastructure around the Bay. In the summer of 2013, RPA, RTCA, and community partners held numerous public events, and three community workshops to begin to identify important destinations and community needs, desires, concerns related to

Canarsie & Spring Creek 4.8.14



Canarsie & Spring Creek 6.10.15



Rockaway & Broad Channel 10.16.14



Marine Park & Sheepshead Bay 06.03.15



the Greenway. In the fall of 2013, RPA summarized the findings of this process into summary reports.

Reconstruction of Seven Bridges on the Shore Pkwy (DOT, NYC Parks)

DOT began reconstruction of seven bridges on the Shore Pkwy in 2012. The Jamaica Bay Greenway utilizes four of these bridges including: Gerritsen Inlet, Mill Basin, Paerdegat Basin and Fresh Creek Basin Bridges. Pedestrian and bicycle paths will be maintained at all times during construction. In addition to eliminating substandard conditions, addressing safety and improving highway drainage, pedestrian and bicycle paths are being upgraded on some bridges. Upgrades include a 12 foot bike path on the Fresh Creek Basin Bridge, and a barrier-protected pedestrian and bicycle path on the Paerdegat Basin Bridge. The new bridge designs also include improved landscaping on the bridge approaches and elements that maintain a consistent historical character, which is being implemented by NYC Parks. Construction work is expected to be completed in 2017. Landscaping work will continue until 2019.

Rockaway Boardwalk Reconstruction (NYC Parks, NYCEDC)

The Jamaica Bay Greenway route is complemented by the Rockaway Beach Boardwalk, which is currently undergoing a phased reconstruction. More than \$140 million has been invested to repair and restore Rockaway Beach from the damage caused by Hurricane Sandy. NYC Parks and NYC EDC are leading the construction of the new, protective and more resilient boardwalk that features various coastal protection structures. The new boardwalk will also include designated bike lanes and provide a continuous walking path from Beach 19 St to Beach 126 St. The entire boardwalk reconstruction is scheduled to be completed by the summer of 2017.

Spring Creek Hazard Mitigation Project (NYC Parks, USACE) and Spring Creek Hazard Mitigation Project (NYSDEC, NPS)

Spring Creek is one of many open spaces adjacent to the Jamaica Bay Greenway. In response to damage sustained in the park and upland communities during Hurricane Sandy, NYC Parks and NPS are advancing two restorations projects: the Spring Creek Salt Marsh and Coastal Upland Restoration in Spring Creek Park, and the Spring Creek Hazard Mitigation in the Spring Creek section of Gateway National Recreation Area.

In Spring Creek Park, NYC Parks has proposed a restoration of approximately 11 acres of intertidal marsh along the Spring Creek tributary to Jamaica Bay, and 16 acres of maritime habitat in the surrounding upland area. The project is currently in the design phase, and



Howard Beach & Ozone Park 10.7.14



Rockaway & Broad Channel 10.16.14



Wildlife Refuge Bike and Hike



Ride to Floyd Bennett Field

includes the regarding and planting of coastal habitat that will contribute to reduced future storm damage. In the later, New York State Department of Environmental Conservation (NYSDEC) and NPS have received a \$50 million FEMA Hazard Mitigation Grant to restore the Spring Creek Section of Gateway National Recreation Area and protect upland communities from coastal flooding. The project is scheduled to be completed by 2017.

The restored Spring Creek areas will provide open space for passive recreation and environmental education opportunities to nearby neighborhoods and visitors alike. Included in the Jamaica Bay Implementation Plan is a recommendation to consider the construction of an off-street multi-use path through the restored Spring Creek section of Gateway National Recreation Area.

Summary of the Implementation Process

This plan describes the details of 26 feasible capital projects that span four study areas around Jamaica Bay. An estimated cost of construction is provided for each project. These capital projects will be implemented over time and as funds become available. More than \$2.5 million in federal funding has been secured for the Greenway. DOT will also pursue short-term improvements along the selected route using in-house crews and existing resources to improve the greenway, when feasible. All projects will be reviewed by the appropriate Community Boards before implementation.



Epic Ride



Wildlife Refuge Bike and Hike



Rockaway Art Ride

Agencies Involved

In addition to special approvals and agency reviews, some or all of the following standard NYC agency reviews will be required:

New York City Department of Transportation (DOT):

In-house development and reviews of each project will be conducted by appropriate divisions.

New York City Department of Design and Construction (DDC): Design and administration of the construction of the capital projects identified, for which individual scopes of work have been developed by DOT.

New York City Department of Parks and Recreation (NYC Parks): Review and approval of all proposed changes that will impact existing street trees and Greenstreet plantings of which DPR has assumed maintenance responsibility.

New York City Department of Environmental Protection (DEP): Review and approval of all proposed Greenway designs that may affect existing drainage structures and/or proposed storm water flow rates and/or proposed storm water drainage facilities relating to the Greenways, water mains, and related work.

National Park Service (NPS): Review and approval of all proposed Greenway designs that may affect NPS adjacent NPS properties, like Penn and Fountain Parks, Spring Creek, and Canarsie Pier.

New York State Department of Transportation (NYSDOT): Review and approval of design impacts on NYSDOT right-of-way.

New York City Housing Preservation & Development (HPD): Review and approval of design impacts on adjacent HPD development properties.

Public Design Commission (PDC): Review requirements for non-standard items, features or amenities.

Community Board: Review and comment on proposed Greenway designs within each Community District prior to seeking PDC approval.

Private Utility Companies: Review and approval of Greenway design impacts on:

- Cable, telephone, fiber-optical, and other data services
- Above- and below-ground electrical services
- Gas and steam lines

CHAPTER 2

Existing Conditions and Route Alternatives



Jamaica Bay Greenway at Jamaica Bay Wildlife Refuge

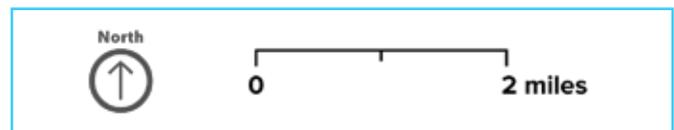


This chapter documents existing conditions around Jamaica Bay, presents an analysis of alternatives for improvement, and describes a set of preferred routes for future Greenway improvement within identified focus areas.

For planning purposes, the study area has been divided into four planning areas:

- Marine Park & Sheepshead Bay
- Canarsie & Spring Creek
- Howard Beach & Ozone Park
- Rockaway & Broad Channel

Within each planning area, several focus areas have been identified where there is potential to create a route that will increase access to a particular recreational or waterfront destination, and where workshop participants identified a need for pedestrian and bicycle access improvements. A set of alternative routes and treatments was explored in each case.



Final recommendations for new or enhanced Greenway routes for each focus area have been made based on community feedback, field observations, previous studies and plans, and preliminary traffic engineering analysis. Where there has been community interest and a gap in connectivity, recommendations are also made for potential future bicycle network expansion.



Marine Park & Sheepshead Bay

This study area consists of the neighborhoods of Sheepshead Bay, Marine Park, Mill Basin, and Bergen Beach.



Waterfront and Recreational Amenities

The Jamaica Bay Greenway runs through Marine Park along Flatbush Ave and through Sheepshead Bay on Emmons Ave. While these routes exist, enhancements are needed on both sections.

Besides the Greenway itself, Plumb Beach, Floyd Bennett Field, and Marine Park were identified in community workshops as the most important recreational destinations in this study area.

- **Plumb Beach** is a popular destination for fishing, kite-surfing, and sunbathing.
- **Floyd Bennett Field** is home to a wide array of activities including camping, community gardens, and an historic airfield. A series of paths within the park are suitable for walking, jogging, and biking.
- **Marine Park** is both a neighborhood and a major local recreational destination. Marine Park is home to a popular jogging and cycling loop, which is not currently connected to the Jamaica Bay Greenway or other nearby cycling facilities.



Plumb Beach



Floyd Bennett Field

Focus Areas

Three focus areas were identified in the Marine Park & Sheepshead Bay study area through the workshop process for further analysis. Alternatives for development within each focus area were discussed at a community workshop on April 2, 2014.



Marine Park

Marine Park & Sheepshead Bay Focus Areas



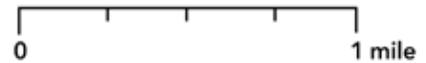
- **Focus Area 1: Plumb Beach Network Link** explores possible enhancements to connect to the Plumb Beach segment of the existing Jamaica Bay Greenway.
- **Focus Area 2: Marine Park Connector** presents alternatives for extending the Greenway from Flatbush Ave to the Marine Park Greenway Loop.
- **Focus Area 3: Flatbush Ave Enhancements** looks at ways to improve the existing route along Flatbush Ave between Floyd Bennett Field and the Greenway terminus at Ave V.

Project Alternatives

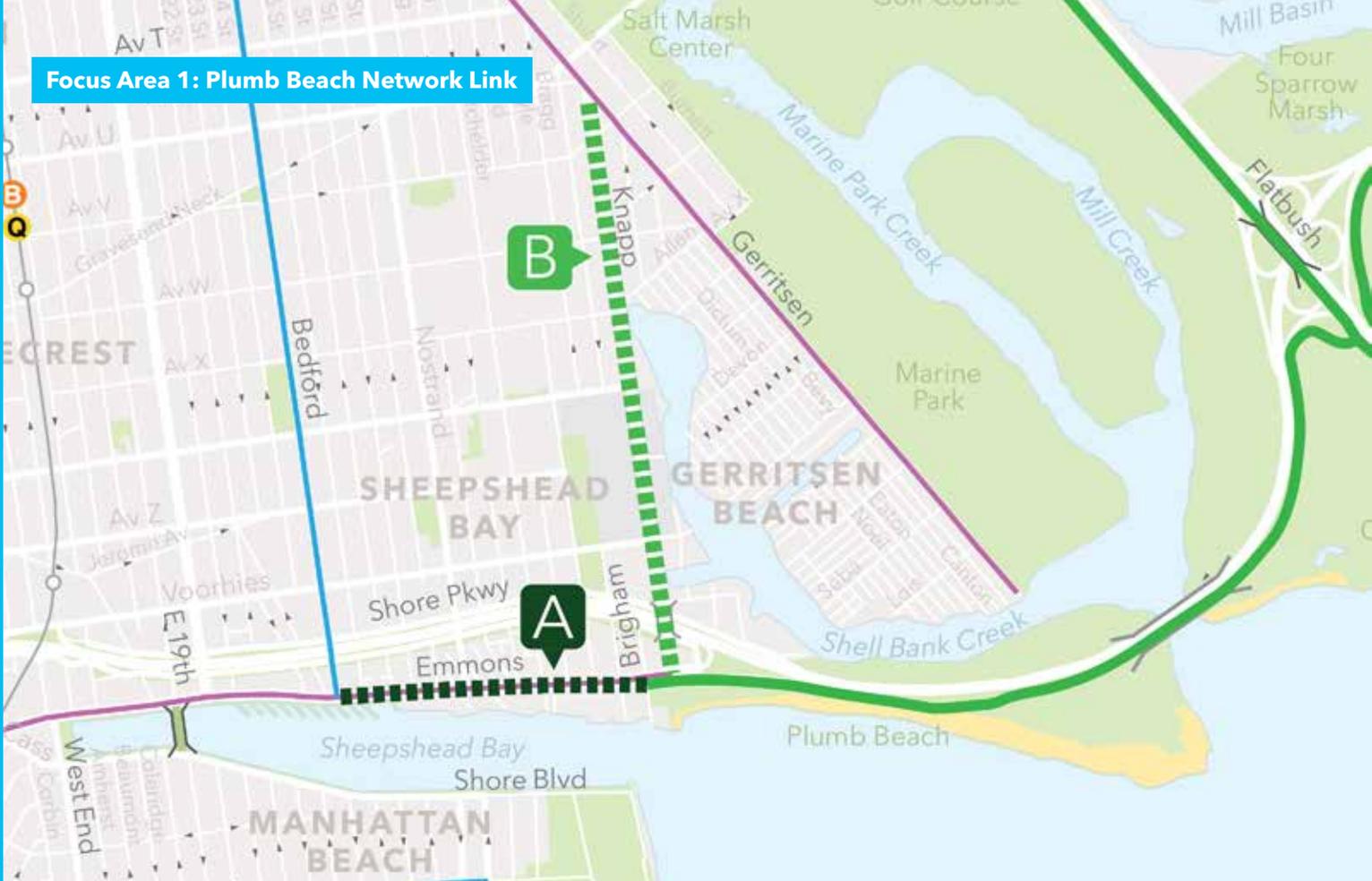
- Route A ••••• Route B
- Combined Route

Existing Network

- Jamaica Bay Greenway — Striped Bike Lane
- Greenway — Shared Bike Lane



Focus Area 1: Plumb Beach Network Link



Focus Area 1: Plumb Beach Network Link

Existing Conditions

Emmons Ave from Bedford Ave to the Greenway entrance at Brigham St is a designated bike route; however, no markings or signage guide visitors to the Greenway. In addition, cyclists share road space with vehicles heading towards the Shore Pkwy on-ramp, and, in some cases, must cross highway traffic.

The purpose of improvements in this focus area:

- Connect the existing Greenway entrance at Brigham St to surrounding neighborhoods with a marked, comfortable path
- Enhance neighborhood access to the Sheepshead Bay waterfront
- Connect to the existing bicycle network

Project Alternatives

Route A Route B

Existing Network

Jamaica Bay Greenway Striped Bike Lane
Greenway Shared Bike Lane



0 0.5 mile



Entrance to Jamaica Bay Greenway at Brigham St

Route Options

Option A: Waterfront Path on Emmons Ave

Option A would create a two-way protected bicycle path along the Sheepshead Bay waterfront, enhancing the existing connection from the Brigham St Greenway entrance to the existing bike network at Bedford Ave. Vehicles frequently double-park at restaurants along the route, creating back-ups and forcing cyclists to change lanes. Benefits of the proposed reconfiguration of the route include enhanced wayfinding, waterfront views, and the opportunity for a physical barrier between people on foot or bicycle and moving traffic.

Option B: Marine Park Connection on Knapp St

Option B would install a combination of shared and standard bike lanes on Knapp St, connecting the existing Brigham Ave Greenway entrance to Marine Park and Gerritsen Beach. This route was included as a potential bicycle path in the 1997 Bicycle Master Plan. Due to vehicle volumes and available road space, a protected or separated path is not feasible on Knapp St.

Selected Route

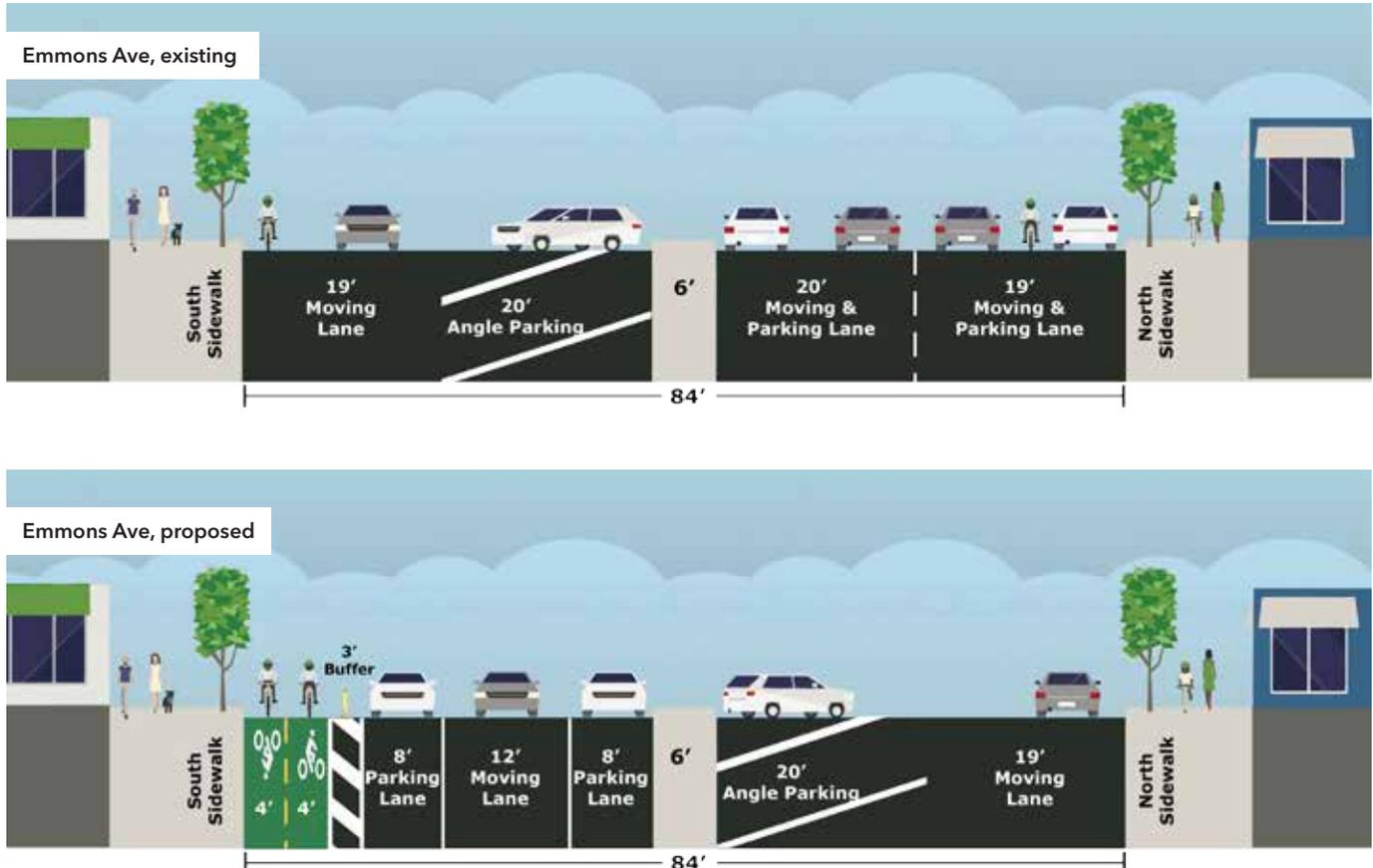
Waterfront Path on Emmons Ave

Emmons Ave is the preferred route for connections to Plumb Beach. Emmons Ave offers access to the waterfront, connection to the bike network, and the opportunity to create a protected path. Intersection improvements at Knapp St and Emmons Ave are also recommended.

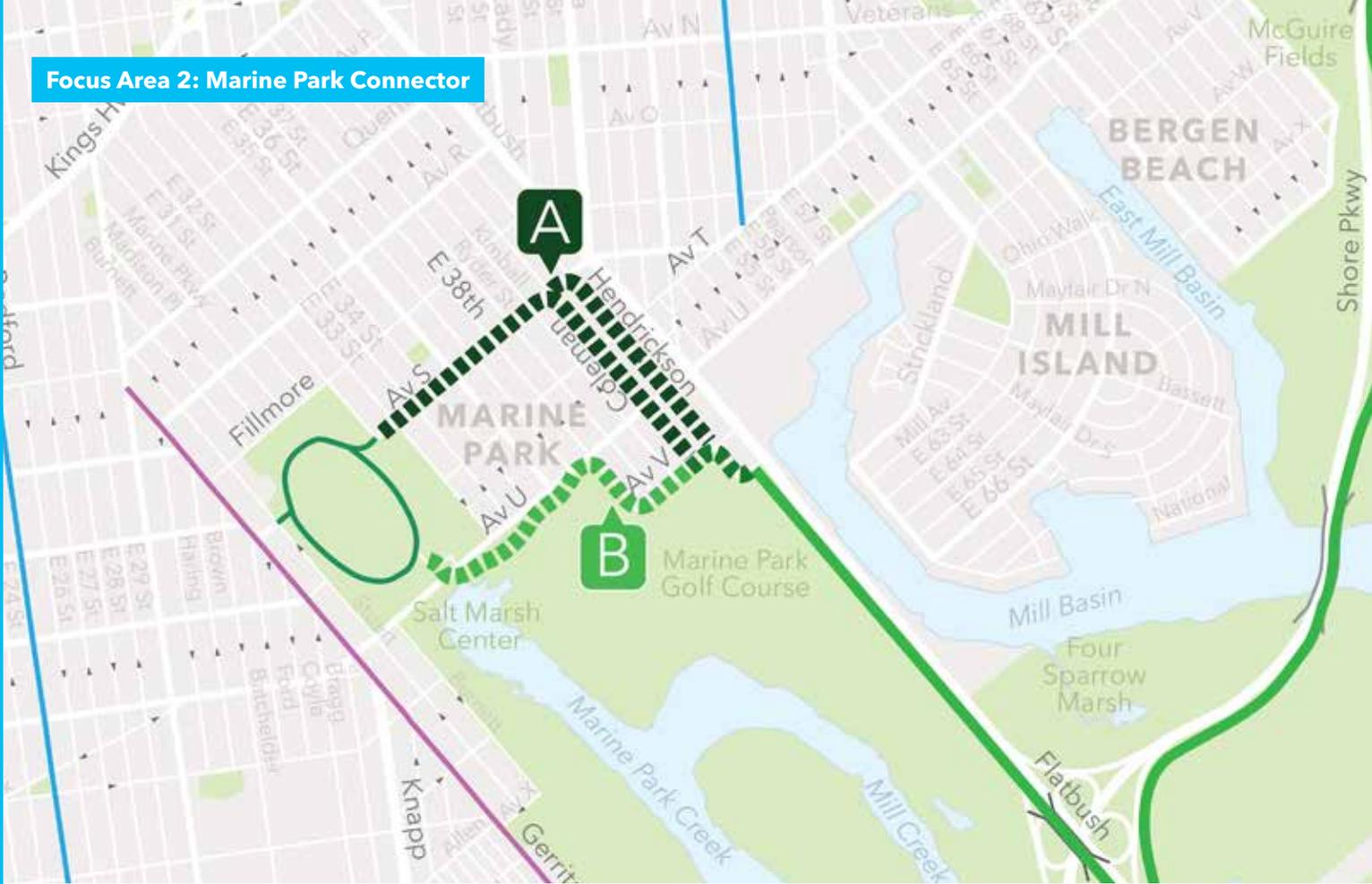
Facility Design

Proposed improvements include:

- Installation of a two-way protected path on Emmons Ave to Brigham St
- Installation of back-in angle parking along the north side of the median, where feasible
- Intersection improvements to accommodate path access to and from Knapp St



Focus Area 2: Marine Park Connector



Focus Area 2: Marine Park Connector

Existing Conditions

Marine Park is Brooklyn’s largest city park. The main section of the park, between Fillmore Ave and Ave U, is currently home to a popular cycling and jogging loop.

The purpose of improvements in this focus area is to:

- Connect the Flatbush Ave Greenway terminus to the Marine Park loop
- Improve wayfinding and safety from Marine Park to Floyd Bennett Field

Route Options

Option A: On-Street Connection

Option A creates an on-street connection between the Marine Park loop and the Greenway entrance on Flatbush Ave. This connection would consist of marked shared lanes on Ave S linking to a one-way pair, parallel to Flatbush Ave, on Coleman St and Hendrickson St. This connection would encourage people on bikes to use lower volume side streets in place of Flatbush

Project Alternatives

- Route A (dashed green line)
- Route B (dotted green line)
- Combined Route (solid green line)

Existing Network

- Jamaica Bay Greenway (solid green line)
- Greenway (solid green line)
- Striped Bike Lane (blue line with stripes)
- Shared Bike Lane (pink line)

North ↑

0 ————— 0.5 mile



Ave, as well as creating a marked, comfortable link between the neighborhood’s center and the Greenway entrance. Disadvantages of this option include limited opportunities to create enhanced walking or jogging paths and facility design that would require people on bikes to mix with traffic.

Option B: Parkside Path

Option B creates a path through a portion of Marine Park parallel to Ave U, then follows the park edge along city streets to Hendrickson Pl. This route has the potential to be designed as a two-way protected path. However, some parking loss would be required to achieve that design.

Selected Route

Parkside Path

A route through Marine Park and then next to the park along E 38th St, Ave V, Hendrickson St, and Hendrickson Pl, is the preferred route due its greater potential to create a path separated from traffic and community support.

Several routes connecting to Bedford Ave were also discussed for potential expansion of the Bicycle Network. Among those discussed, a potential route along Ave T to Bedford Ave or Ocean Pkwy was generally preferred.

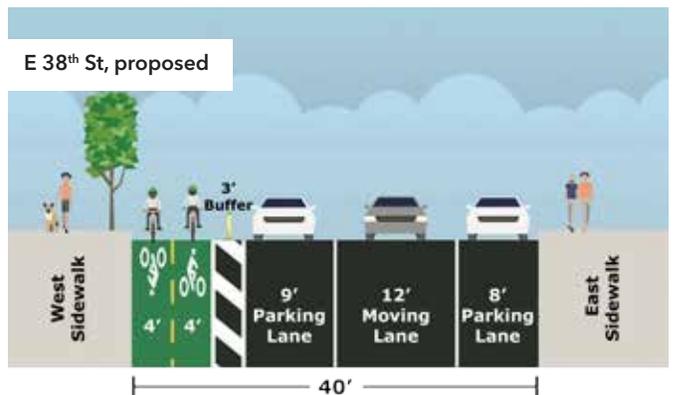
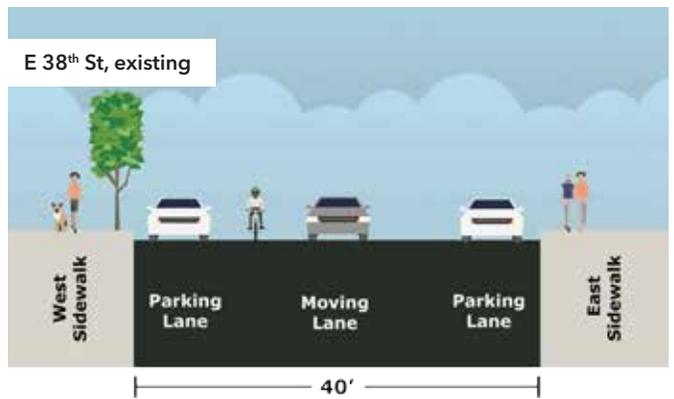
Facility Design

Proposed improvements include:

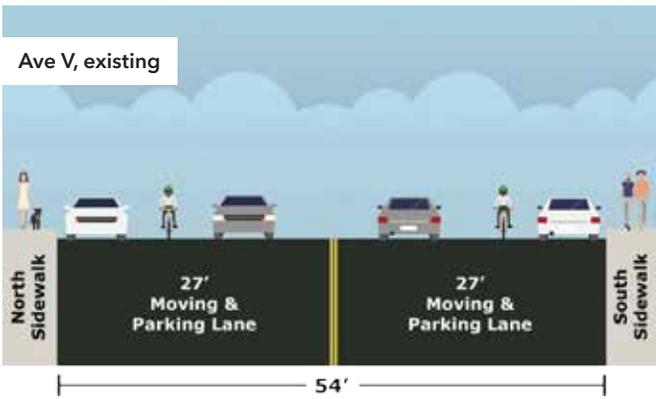
- Installation of two-way, protected path, following the edge of Marine Park from E 38th St at Ave U to Hendrickson Pl and Flatbush Ave.

Future Enhancement Project

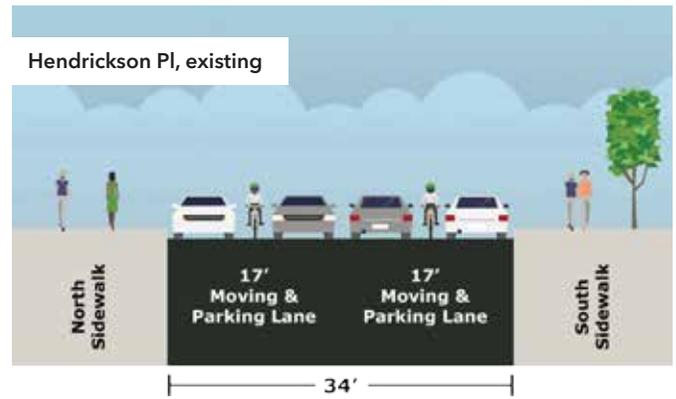
A widened path through Marine Park connecting to the Marine Park loop at the Salt Marsh Nature Center is recommended as a Future Enhancement Project.



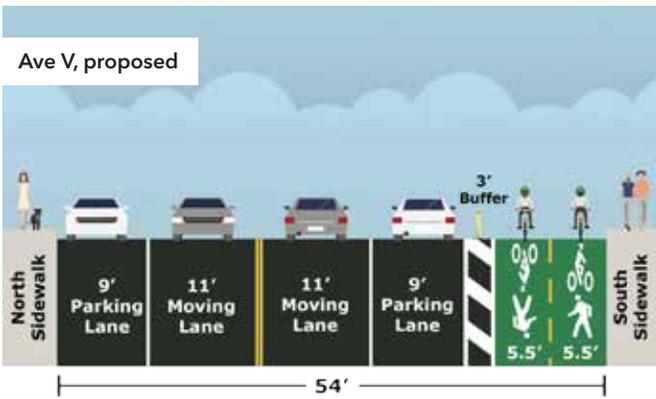
Ave V, existing



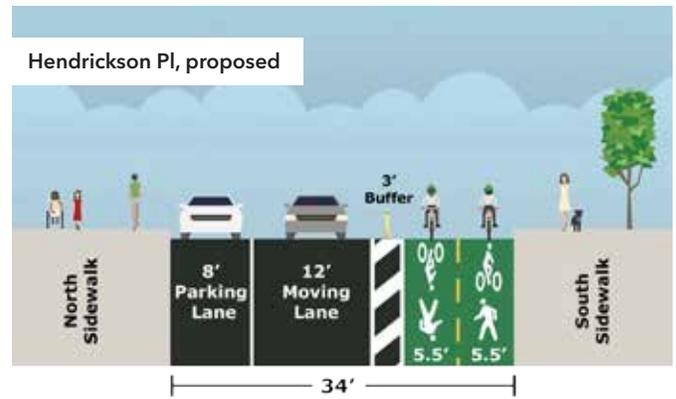
Hendrickson Pl, existing



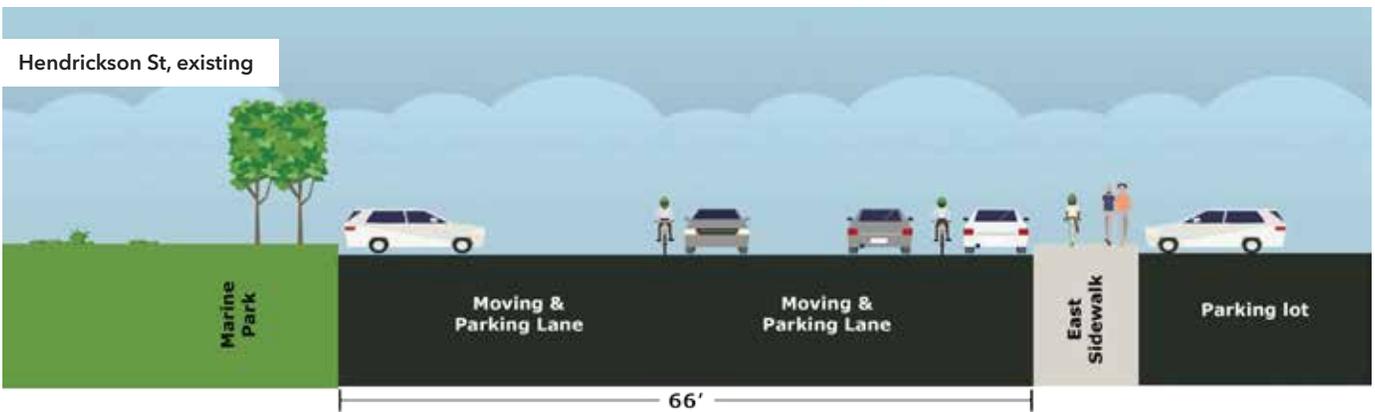
Ave V, proposed



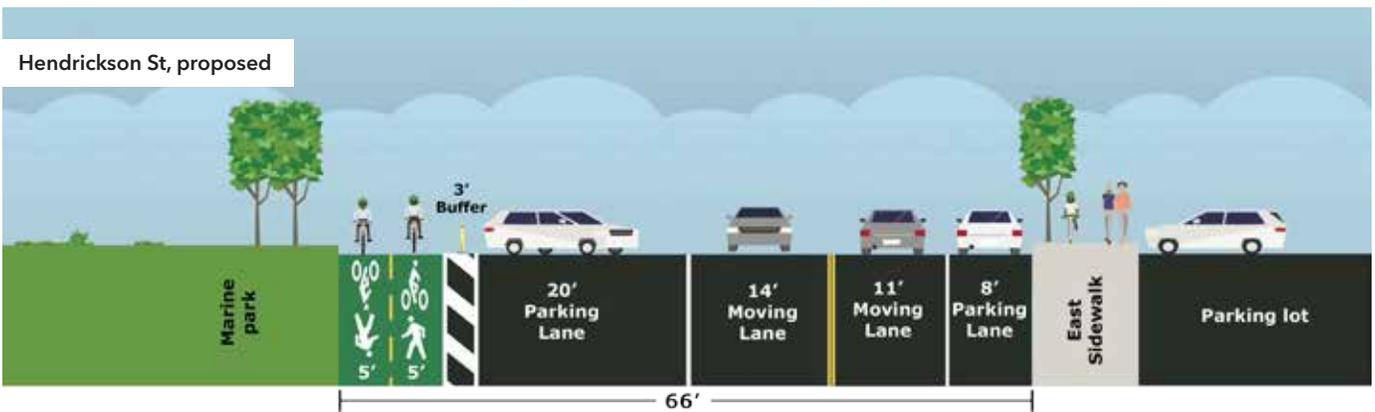
Hendrickson Pl, proposed



Hendrickson St, existing



Hendrickson St, proposed





Focus Area 3: Flatbush Ave Enhancements

Existing Conditions

The existing Greenway route along Flatbush Ave begins at Hendrickson Pl. Cyclists are directed to use the sidewalk between Hendrickson Pl and the Greenway entrance at Floyd Bennett Field. Greenway users walking and biking must cross on- and off-ramps to the Shore Pkwy. Currently, there are no signs or markings indicating that pedestrians or cyclists may cross. In addition, the sidewalk itself is in poor condition.

The purpose of improvements along Flatbush Ave is to:

- Enhance safety at ramp crossings
- Enhance wayfinding to the Greenway entrance
- Enhance access to Floyd Bennett Field and continuing connections along the existing Greenway path

Project Alternatives

Route A Route B

Existing Network

Jamaica Bay Greenway Striped Bike Lane
Greenway Shared Bike Lane



0 0.5 mile



Entrance to Jamaica Bay Greenway at Hendrickson Pl

Route Options

Option A: Existing Route

Option A enhances the existing route, while highlighting ramp crossing with markings and signage. Enhancement of the existing route could include reconstruction of the sidewalk to include asphalt path, similar to the Brooklyn Waterfront Greenway along Columbia St. This option cannot be implemented without a capital project.

Option B: Re-Route Path through Marine Park Golf Course

Option B involves creating a new route, which would connect the Marine Park bicycle path loop through the Marine Park Golf Course. This option was considered as a Future Enhancement Project, as it involves NYC Parks land.

Selected Improvements

Flatbush Ave

Enhancing the existing route is preferred. This route was selected based on its accessibility from surrounding neighborhoods and visibility from the roadway.

Facility Design

- Repair or reconstruct the sidewalk on Flatbush Ave between Hendrickson Pl and Floyd Bennett Field.
- Install markings and signage to enhance visibility at Shore Pkwy ramp crossings.

Shore Pkwy ramp crossings, facing north

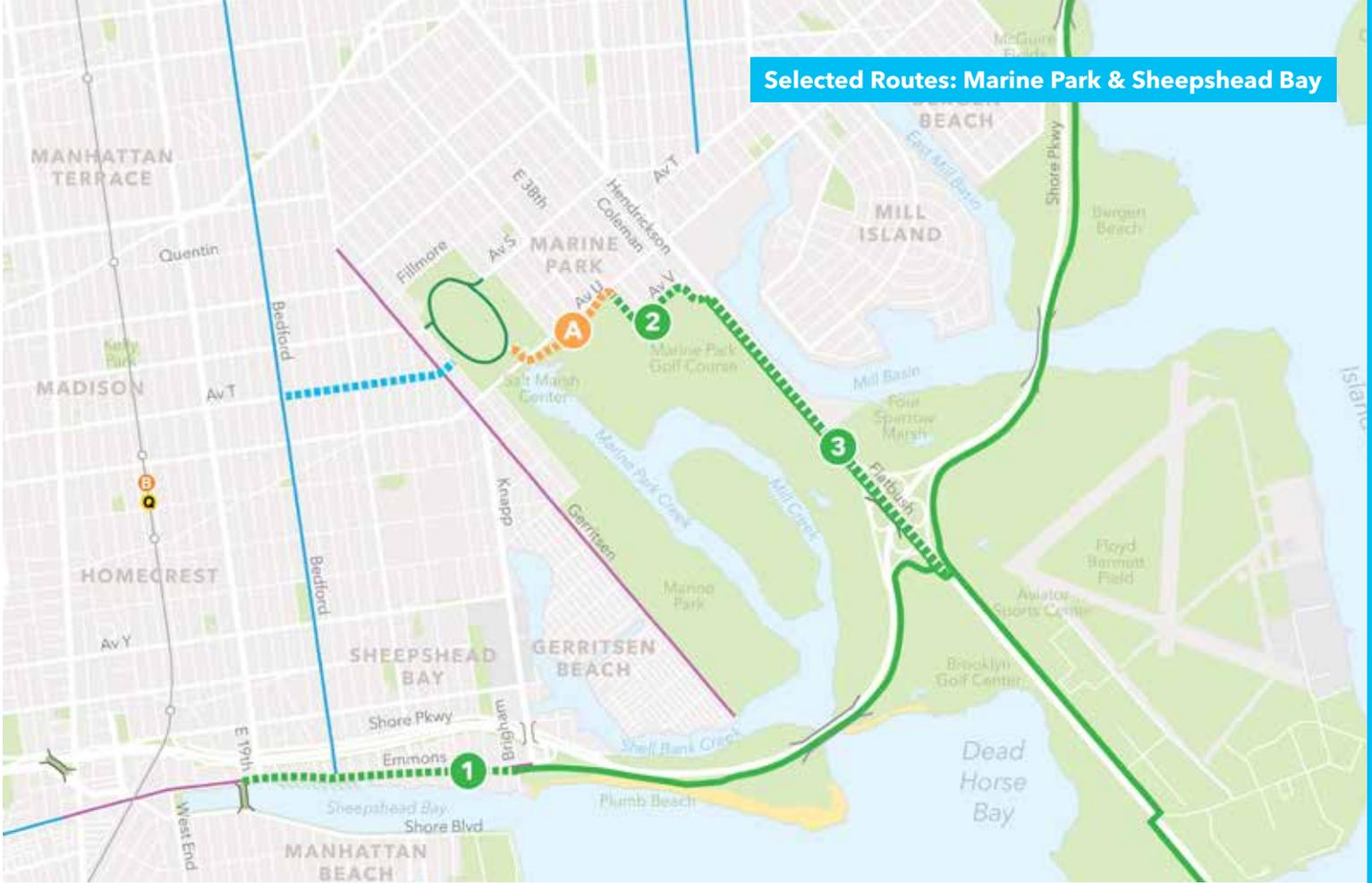


Shore Pkwy ramp crossings, potential configuration



Flatbush Ave, potential configuration





Selected Routes: Marine Park & Sheepshead Bay

Planned Greenway Projects

1: Plumb Beach Network Link

- Emmons Ave (E 19th St to Brigham St)

2: Marine Park Connector

- E 38th St (Ave U to Ave V)
- Ave V (E 38th St to Hendrickson St)
- Hendrickson St (Ave V to Hendrickson Pl)
- Hendrickson Pl (Hendrickson St to Flatbush Ave)

3: Flatbush Ave Enhancements

- Flatbush Ave (Ave V to Shore Pkwy Off Ramp)

Future Enhancement Projects

A: Marine Park Path

- Ave U (Salt Marsh Center to E 38th St)

Proposed Projects

- New or Enhanced Greenway Route
- Future Enhancement Project
- Bike Network Expansion

Existing Network

- Jamaica Bay Greenway
- Greenway
- Striped Bike Lane
- Shared Bike Lane

North

Future Bicycle Network Expansions

- Ave T (Bedford Ave to Stuart St)

Canarsie & Spring Creek

This study area consists of the neighborhoods of Canarsie, Starrett City, Spring Creek, and portions of East New York and Flatlands.



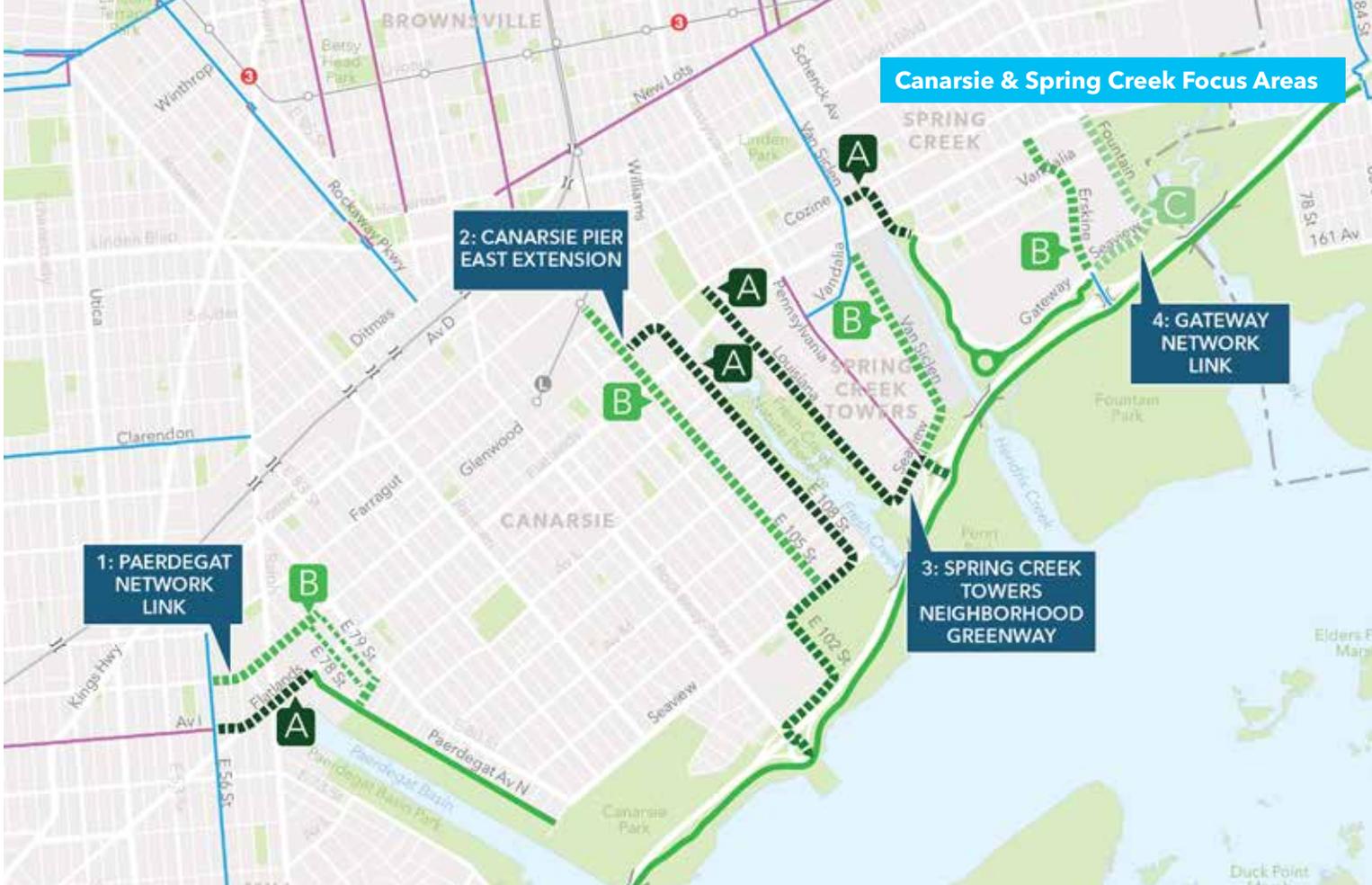
Waterfront and Recreation Amenities

The existing Greenway, which runs along the waterfront edge of the Canarsie & Spring Creek study area, is largely complete. However, it is physically separated from adjacent neighborhoods by the Shore Pkwy and can be difficult to access by foot or bicycle. Increasing access to the Shore Pkwy Greenway segment of the Jamaica Bay Greenway and the waterfront edges which exist on three sides of Canarsie, Spring Creek, and Starrett City, was the primary goal for this study area.

Workshop participants highlighted a number of Greenway destinations, including Canarsie Pier, future Penn and Fountain Parks, Canarsie Park, Fresh Creek waterfront, and the Gateway Center.

- **Canarsie Pier** is a major recreational destination. It offers space for barbecuing, picnics, fishing, kayaking, and swimming. More than 16,000 visitors to Canarsie Pier arrive each year by foot or bicycle. The Pier is part of the Gateway National Recreation Area, which also includes the future Penn and Fountain Parks. The Pier is accessible via the existing Shore Pkwy segment of the Jamaica Bay Greenway.
- **Canarsie Park** consists of two large, noncontiguous parcels of parkland, both of which serve as local parks and regional ball field centers.
- **Fresh Creek Nature Preserve** divides the neighborhoods of Starrett City and Canarsie. This waterfront park is currently only accessible on the Starrett City side.
- **Gateway Center** includes a major shopping center, ball fields, and a portion of the existing Jamaica Bay Greenway, from Vandalia St to Fountain Ave. An existing bridge overpass connects this neighborhood to the Shore Pkwy segment of the Greenway, but workshop participants identified this connection as uncomfortable and a potential site for improvements.

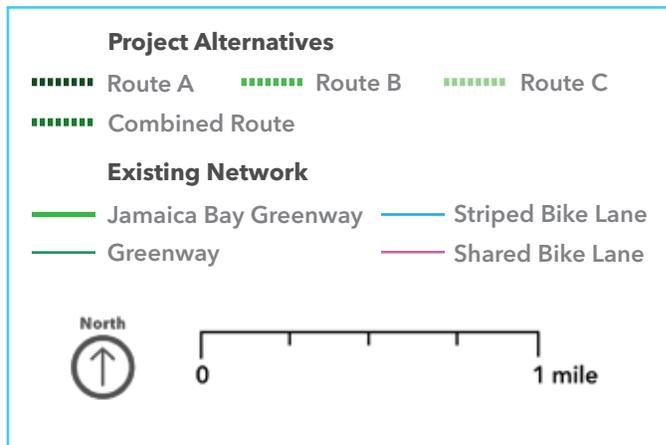


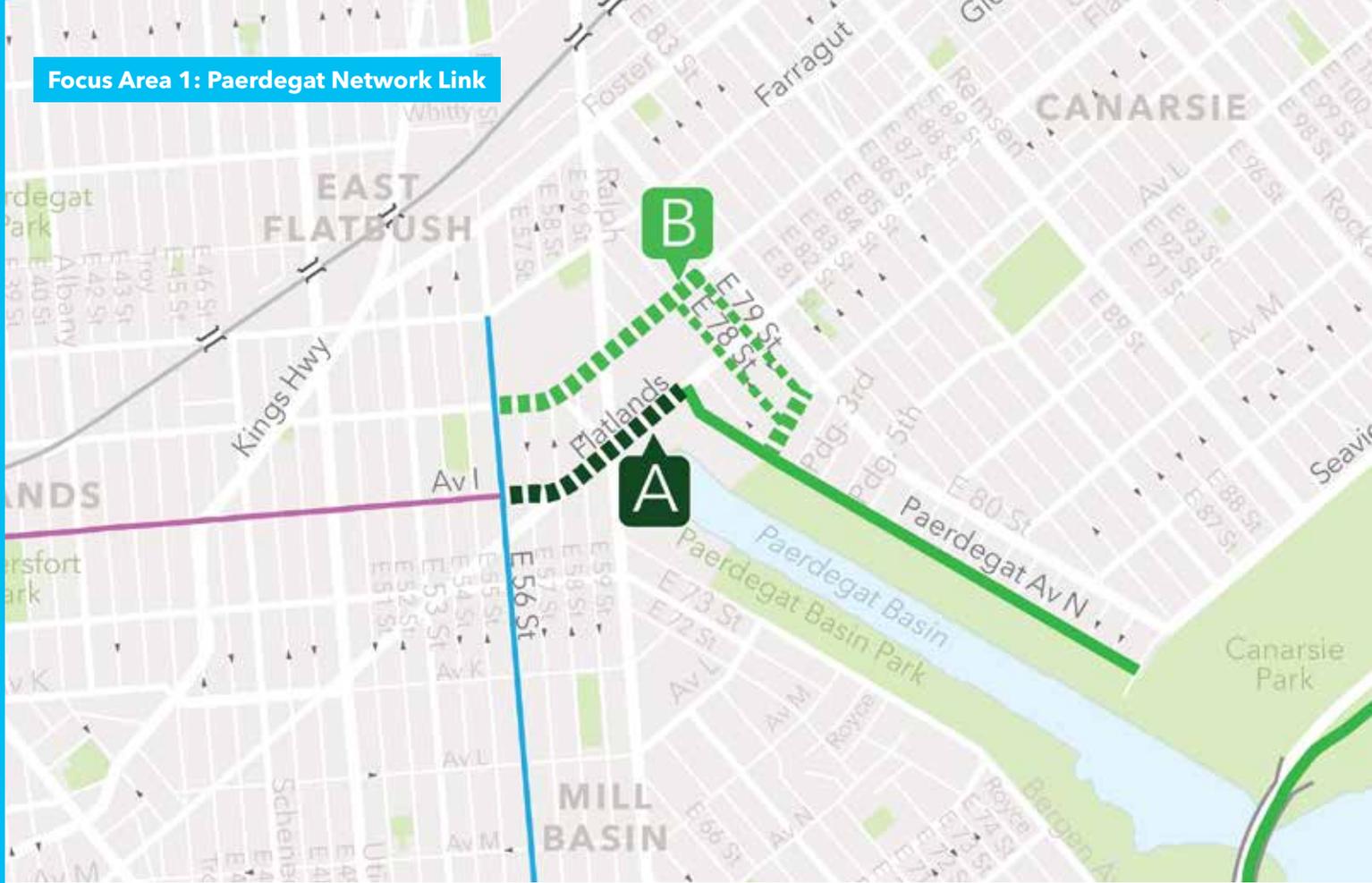


Focus Areas

Within the Canarsie & Spring Creek study area, four focus areas were selected for further analysis. Alternatives for possible Greenway development were reviewed at a community workshop on April 8, 2014.

- **Focus Area 1: Paerdegat Network Link** explores possible connections to the Greenway, Canarsie Pier, and Canarsie Park on the west side of Canarsie.
- **Focus Area 2: Canarsie Pier East Extension** looks at ways to connect to Canarsie Pier and the L train on the east side of Canarsie.
- **Focus Area 3: Spring Creek Towers Neighborhood Greenway** extends the Jamaica Bay Greenway into this East New York neighborhood along a waterfront edge.
- **Focus Area 4: Gateway Network Link** enhances neighborhood connections to the Greenway through Gateway Center.





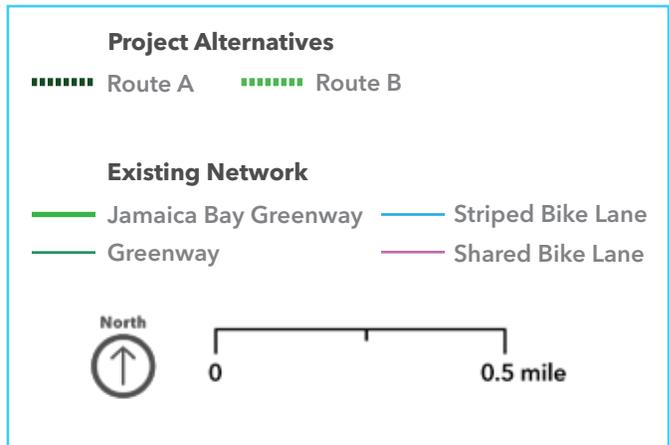
Focus Area 1: Paerdegat Network Link

Existing Conditions

In 2014 DOT installed a two-way Greenway path from Flatlands Ave to Seaview Ave, along the Paerdegat Basin Park. This path has significantly improved neighborhood connections to Canarsie Park; however, this segment of path does not directly connect to the Jamaica Bay Greenway or the nearby existing bicycle route network. Flatlands Ave is a major barrier to accessing the Greenway and the waterfront for residents on foot or bicycle.

The goal of improvements in this focus area is to:

- Connect the existing Greenway segment along Paerdegat Ave North to the Greenway and Canarsie Pier
- Enhance neighborhood connections to Canarsie Park, the Jamaica Bay Greenway, and the waterfront
- Connect to the existing bicycle network



Route Options

Option A: Direct Route along Flatlands Ave

Option A creates a bicycle connection between the end of the existing Greenway (at E 76th St and Flatlands Ave) and the beginning of the existing bicycle network (at Ave I and E 56th St) along Flatlands Ave. This route option provides the most direct route for cyclists, and creates the opportunity to improve pedestrian crossings along the route, as well. However, Flatlands Ave is a heavily trafficked street and a bus route with limited opportunity to install improvements for cyclists in the short term.

Option B: Connection through Neighborhood Streets

Option B directs Greenway users to quieter neighborhood streets, creating a connection to the bicycle network along Paerdegat 1st Ave from Paerdegat Ave N to E 79th St, E 78th St and E 79th St (two-way pair), and Glenwood Rd to the existing bicycle lane on E 56th St. This route, while less direct, has the advantage of significantly lower vehicular volumes. The route could be improved with shortened crossings across Flatlands Ave, wayfinding, as well as on-street markings for cyclists.

Selected Route

Direct Route along Flatlands Ave

A route along Flatlands Ave and Ave I to connect to the bicycle network at E 56th St and Ave I was selected due to the directness of the connection, full use of the existing path along E 76th St, and feedback from workshop participants. An extension of the proposed Glenwood Rd bicycle facilities eastward to connect to the L train should also be explored as a future network expansion project.

Facility Design

The existing Greenway route along Paerdegat Ave N is recommended as a future capital project. This could include installation of trees and buffer space between the path and the parking lane, as well as building out

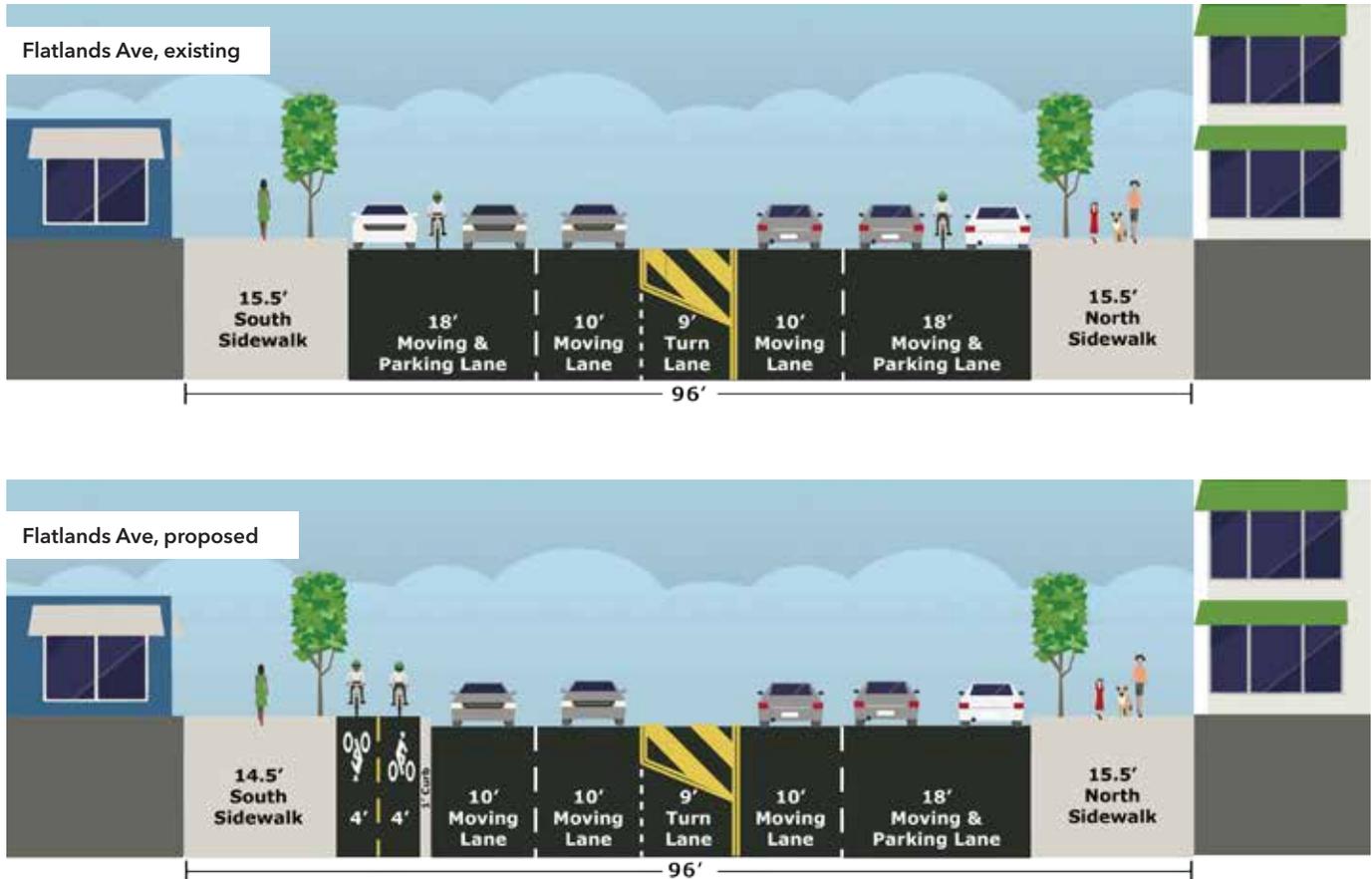
concrete pedestrian areas that are currently marked in paint.

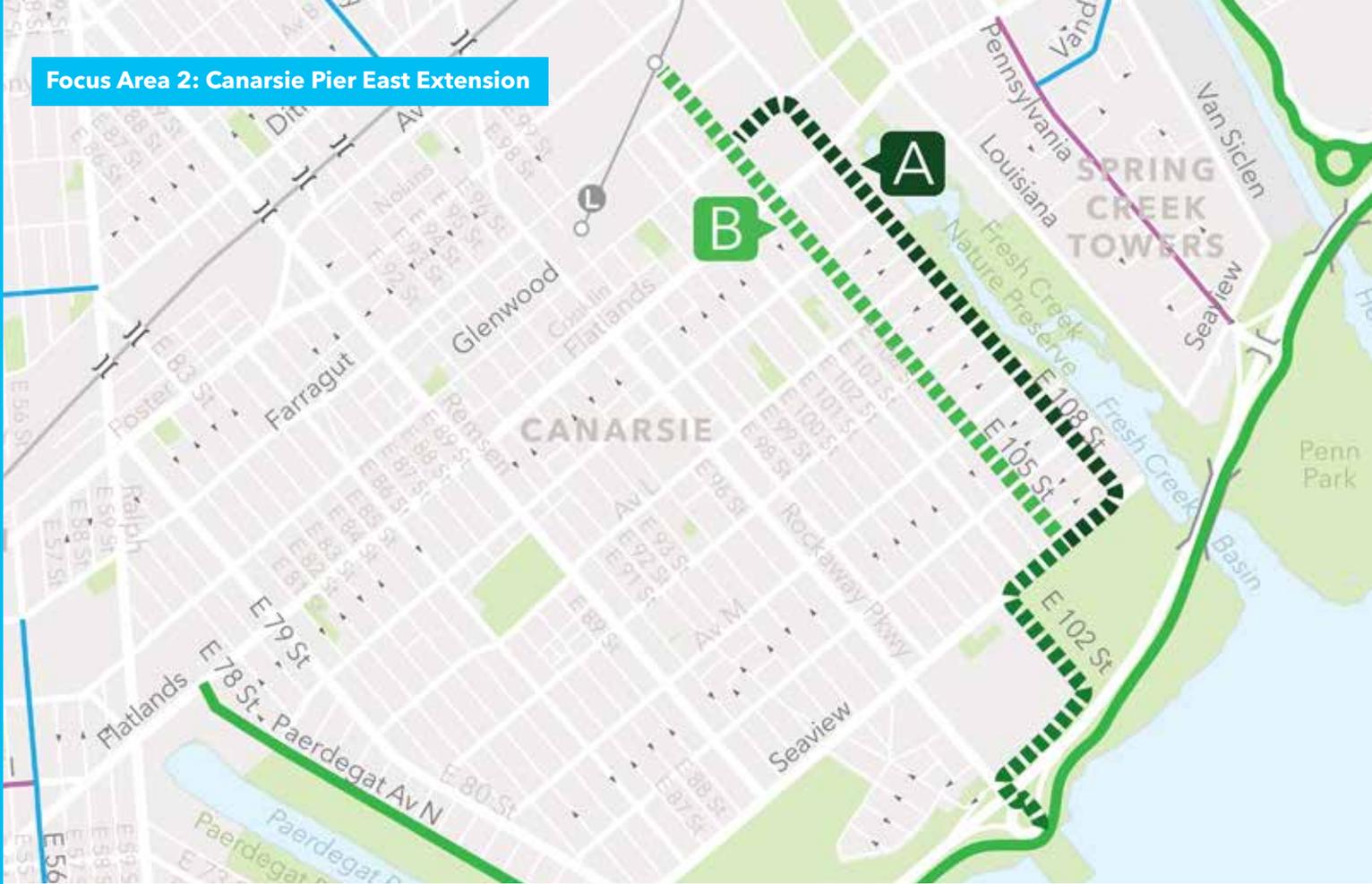
Street improvements are proposed as follows:

- Two-way path and intersection improvements along Flatlands Ave between E 76th St and Ave I
- Standard bicycle lanes on Ave I between Flatlands Av and E 56th St

Future Enhancement Project

A connection to the Greenway through Canarsie Park is a planned NYC Parks capital project. This path will increase residents' access to both the Greenway and Canarsie Pier.



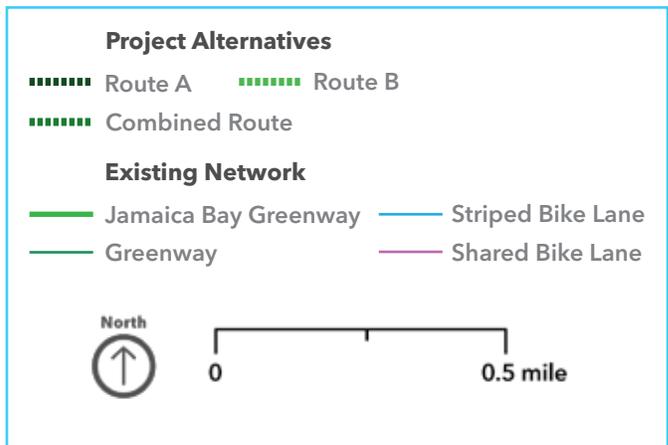


Focus Area 2: Canarsie Pier East Extension

Existing Conditions

Canarsie Pier is a major destination for picnics and barbecues, fishing, boating, and more. Requests to improve pedestrian and cyclist access to the Pier were among the most commonly received comments during the planning process. While the Pier is easily accessible to pedestrians and cyclists from the Shore Pkwy segment of the Jamaica Bay Greenway, access from the adjacent neighborhood requires crossing on- and off-ramps to the Shore Pkwy.

Prior to this planning process, there was no neighborhood cycling route connecting Canarsie to the Pier. Based on feedback received during the planning process, DOT installed a pathway through Canarsie Circle extending to E 102nd St on Shore Pkwy. Additionally, a path was installed on Seaview Ave between E 102nd St and E 108th St. Several options as how best to extend the Greenway to the neighborhood edge were discussed at public meetings.



The purpose of improvements in this focus area is to:

- Improve pedestrian and cycling access to Canarsie Pier and the Jamaica Bay Greenway, especially from the east side of Canarsie
- Enhance park edges, including Canarsie Park

Alternatives Considered

Rockaway Pkwy north of Shore Pkwy was not considered as an option in this focus area due to large vehicular volumes and previous community feedback.

Option A: Canarsie Pier East Extension

Option A continues the Greenway route north along E 108th St. A number of design options are possible along this route; however, community feedback was strongly in favor of maintaining two-way traffic on this road. Advantages of this route include its proximity to the waterfront and lack of turn conflicts. Disadvantages include lack of space to install standard bicycle lanes while maintaining two-directional traffic.

Option B: E 105th St

Option B creates a bicycle connection between the L train station at E 105th St and Greenway route on Seaview Ave. Advantages of this route include its direct link to transit as well as space to install standard bicycle lanes.

Selected Route

Canarsie Pier East Extension

A route along the edge of the neighborhood, alongside Canarsie Park East and the Fresh Creek Nature Preserve, was selected due to limited turn conflicts and proximity to the park.

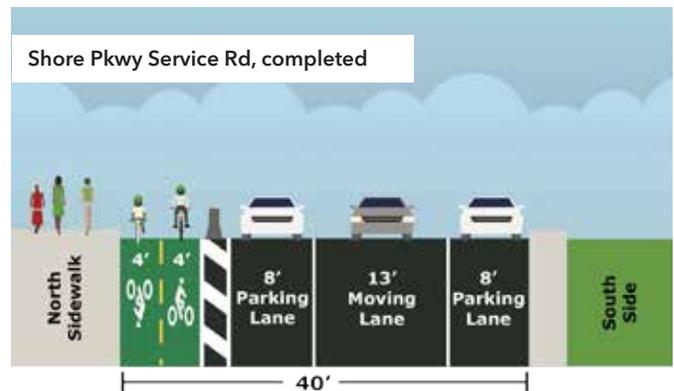
Facility Design

DOT will seek to enhance the existing route along Rockaway Pkwy, Shore Pkwy, E 102nd St, and Seaview Ave with a capital project.

DOT will also work with NY Rising to install streetscape improvements on E 108th St.

Future Enhancement Project

DOT will continue to work with NYC Parks to enhance the Canarsie Park edge along E 102nd St and Seaview Ave.



Seaview Ave, facing east



E 102nd St, facing north



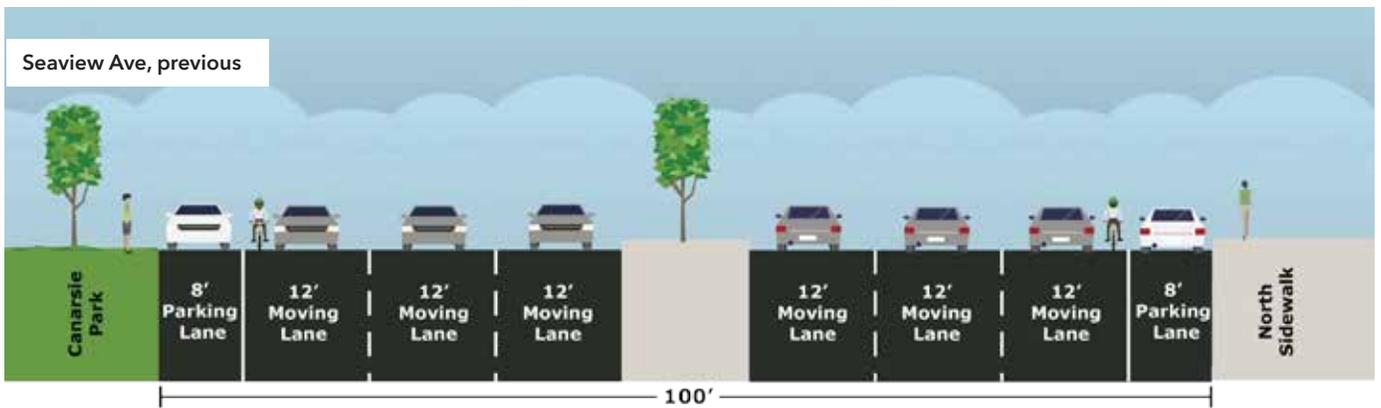
Shore Pkwy, facing east



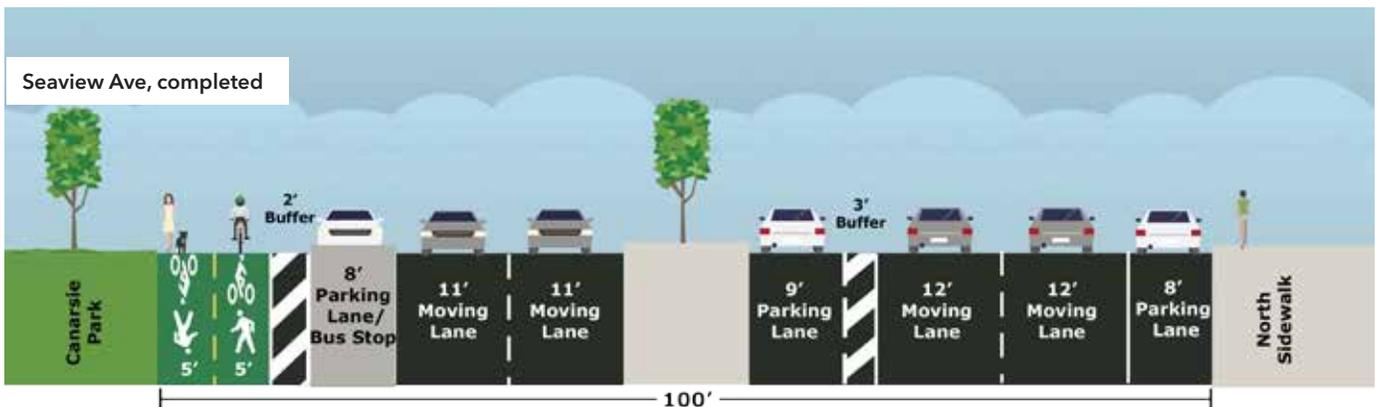
Canarsie Circle, facing south

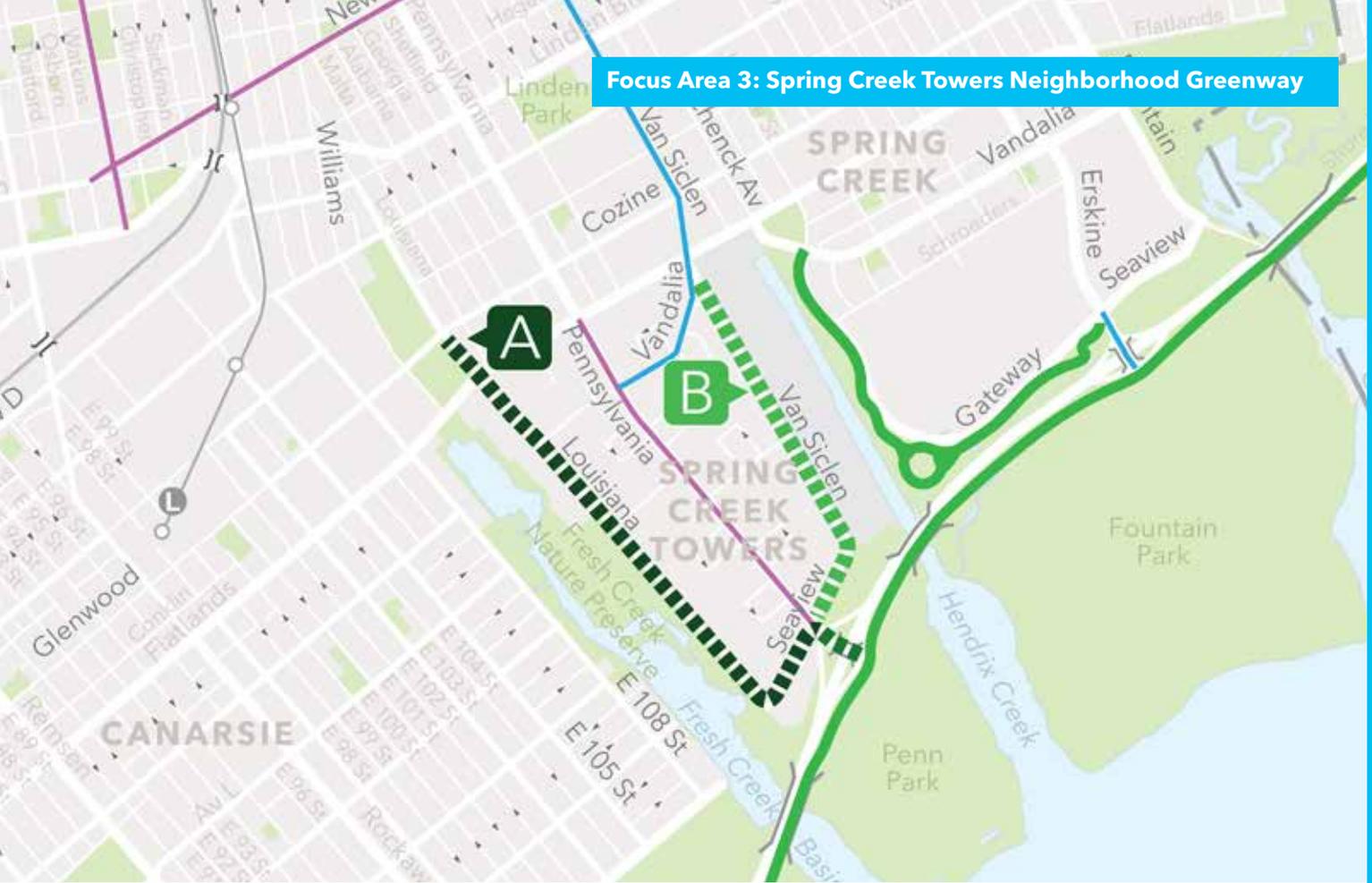


Seaview Ave, previous



Seaview Ave, completed



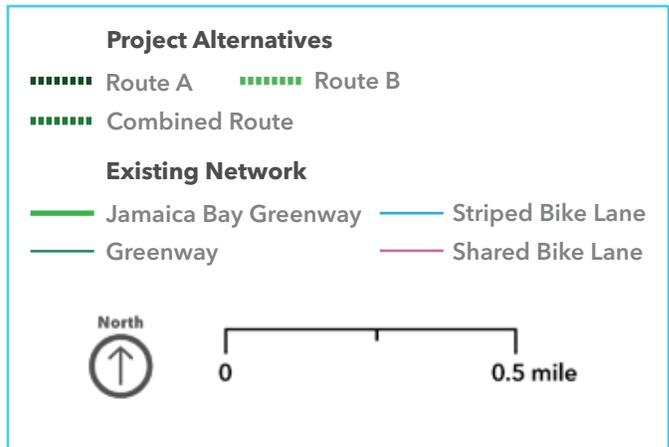


Focus Area 3: Spring Creek Towers Neighborhood Greenway

Existing Conditions

Like Canarsie, the Spring Creek Towers neighborhood is surrounded on three sides by water, creating an opportunity to provide neighborhood access to the Greenway by extending the existing Shore Pkwy segment of the Jamaica Bay Greenway into the neighborhood along a waterfront edge.

Currently, there is no dedicated bicycle or pedestrian access to the existing Shore Pkwy segment of the Greenway from Spring Creek Towers. Visitors must cross uncontrolled intersections with Shore Pkwy on- and off-ramps on Pennsylvania Ave in order to reach the Greenway. While there is a sidewalk on the bridge, there are no crosswalks or pedestrian signals connecting these sidewalks across Seaview Ave. Bicycle lanes extend into Spring Creek on Van Sicten Ave, connecting to the main bicycle network in East New York, and wide parking lanes serve as a bicycle facility on Pennsylvania Ave; however,



these treatments do not cross Seaview Ave to access the Greenway.

The purpose of improvements in the Spring Creek Neighborhood Greenway is to:

- Enhance neighborhood access to the existing segment of the Jamaica Bay Greenway and future Fountain and Penn Park
- Provide a local link to extend the Greenway path into the Spring Creek neighborhood

Route Options

The existing Greenway can only be accessed by crossing the Shore Pkwy on the Pennsylvania Ave overpass. Therefore, this segment of Pennsylvania Ave is included in both route options. Traffic calming has been requested on both Louisiana Ave and Van Siclen Ave.

Option A: Louisiana Ave Waterfront Path

Option A creates a path along the Fresh Creek Nature Preserve park edge on Louisiana Ave, extending the Greenway into the Spring Creek Neighborhood as far as Flatlands Ave. This route has the advantage of waterfront views and direct access into the Nature Preserve, as well as access to the ball fields in Spring Creek Park. A two-way path design on this route would require parking loss.

Option B: Direct Connection to Bicycle Network, Van Siclen Ave

Option B takes advantage of the relatively wide street of Van Siclen Ave. North of Vandalia Ave, Van Siclen Ave is a marked bicycle lane connecting to East New York and the bicycle path network. However, Van Siclen Ave does not provide direct connection to neighborhood parks, or offer waterfront views.

Selected Route

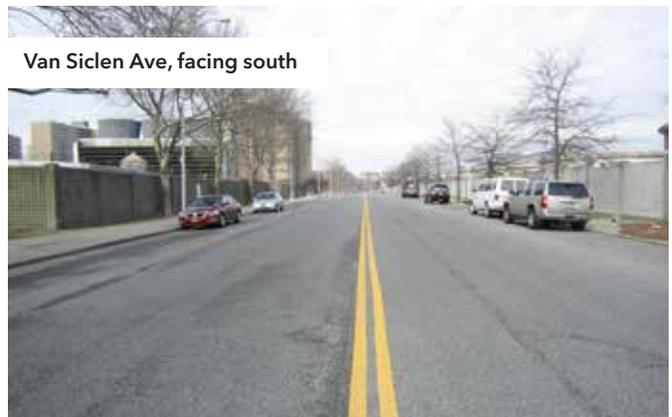
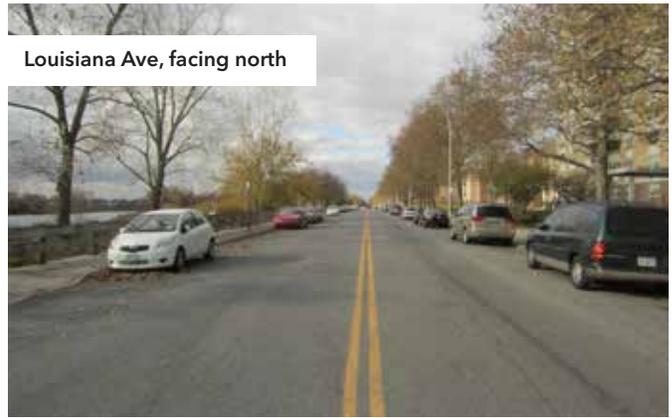
Option A: Louisiana Ave Waterfront Path

This route is preferred based on community feedback, direct access to parks, and proximity to the waterfront. A bicycle connection on Van Siclen as part of a future bicycle lane expansion project is also recommended.

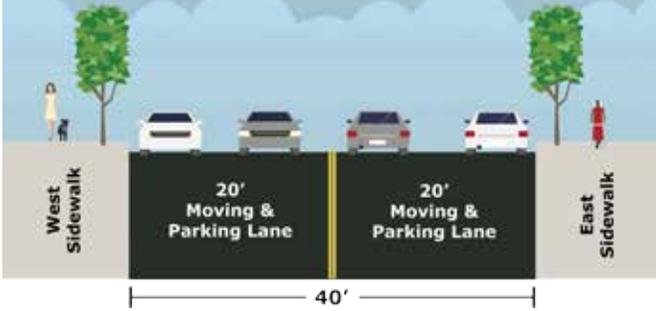
Facility Design

A two-way pedestrian and bicycle path is proposed to be installed on Louisiana Ave from Flatlands Ave to Seaview Ave, Seaview Ave from Louisiana Ave to Pennsylvania Ave, and Pennsylvania Ave from Seaview Ave to the Jamaica Bay Greenway entrance. An enhanced pedestrian crossing is also proposed on Pennsylvania Avenue.

Future on-street bicycle connection can also be explored on Van Siclen Ave as part of a community requested traffic calming project, as well as on Glenwood Rd and Cozine Ave as part of a future bicycle network expansion.



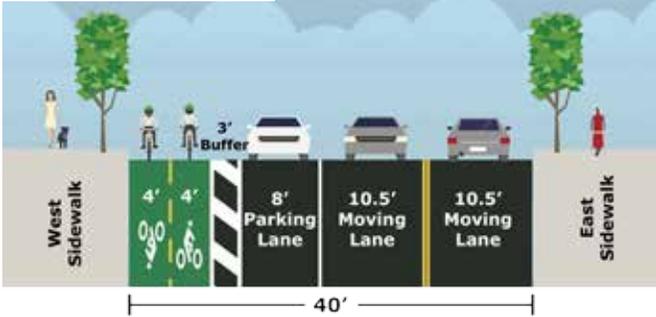
Louisiana Ave, existing



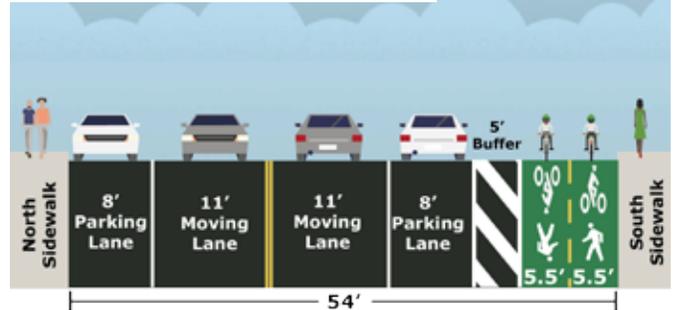
Seaview Ave at Louisiana Ave, existing



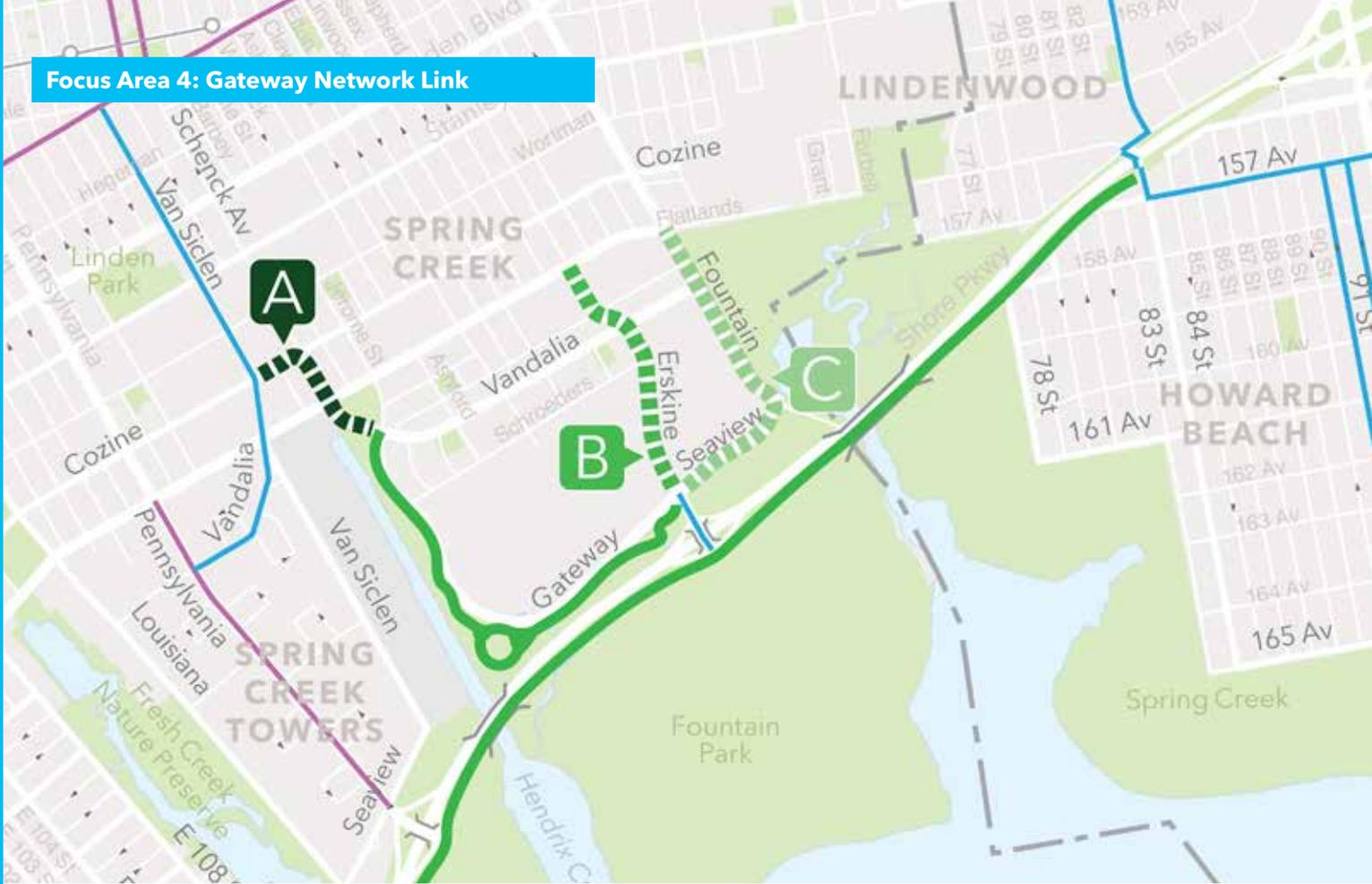
Louisiana Ave, proposed



Seaview Ave at Louisiana Ave, proposed



Focus Area 4: Gateway Network Link



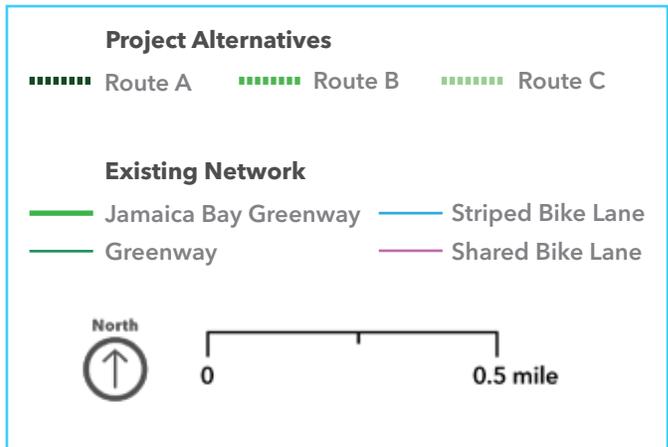
Focus Area 4: Gateway Network Link

Existing Conditions

Gateway Center in East New York was frequently cited in community workshops as a desirable Greenway destination and access point. There is an existing, off-street multi-use path that extends from Vandalia Ave along Gateway Dr to Erskine St, where it connects to an on-street bike lane, over the Erskine St overpass to the site of the future Fountain Park.

The purpose of improvements in this focus area is to:

- Integrate the Gateway Dr path into the Jamaica Bay Greenway system
- Enhance access to Gateway Center for visitors coming from other neighborhoods
- Provide future access to the planned Fountain and Penn Parks



Route Options

Enhancements to the Erskine St overpass, which connects the existing Gateway Dr protected path to the Shore Pkwy Greenway, are included in all three options.

Option A: Network Connections

Option A installs an on-street bicycle connection on Schenck Ave to Cozine Ave/Glenwood Rd, connecting to other proposed greenway extensions and the L train station at E 105th St. Schenck Ave and Cozine Rd are not suitable for a two-way cycling path, due to many intersecting streets.

Option B: Neighborhood Greenway Link

Option B installs an additional Greenway spur, internal to the Spring Creek development, on Erskine St. This path would create additional access to Gateway Center and the Greenway.

Option C: Fountain Ave Greenway Extension

Option C takes advantage of the edge conditions afforded by Spring Creek park and by excess road capacity along Seaview Ave and Fountain Ave to install a fully protected, two-way path from Erskine St to Flatlands Ave. This path would provide access to the Greenway for residents and visitors coming from the east side of East New York, as well as providing additional bike access for the popular Aquaduck Flea Market.

Selected Route

Fountain Ave Greenway Extension

Fountain Ave is preferred for a Greenway treatment because of the opportunity to create a two-way, fully separated path, access to parks and the waterfront, and proximity to densely populated neighborhoods.

During the planning process, an unrelated project resulted in the planned closure of Schenck Ave south of Flatlands Ave, which disqualified Option A from final consideration. As part of the same project, the multi-use path along Gateway Dr is expected to be extended to Flatlands Ave at Jerome St. It is recommended that an on-street bike lane on Cozine Ave and Jerome Ave be explored in the future in order to connect this path extension to the existing bike network.

Facility Design

A two-way path is proposed to be installed on Seaview Ave from Erskine St to Fountain Ave, and on Fountain Ave from Seaview Ave to Flatlands Ave. Fountain Ave has significant excess capacity compared to its volume of traffic; excess roadway space can be converted to a fully separated Greenway path as part of a capital build out. Bus bulbs are also recommended at bus stops in a capital build out design.

Cozine Ave, potential configuration



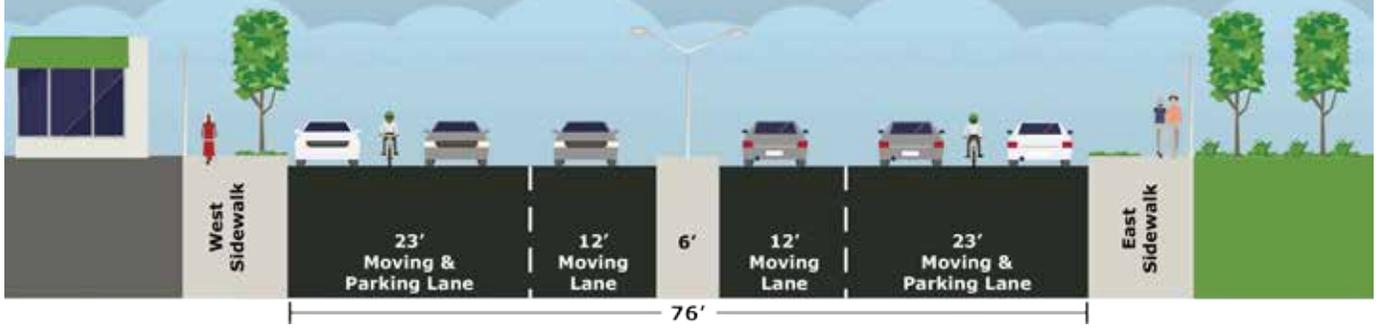
Erskine St, facing south



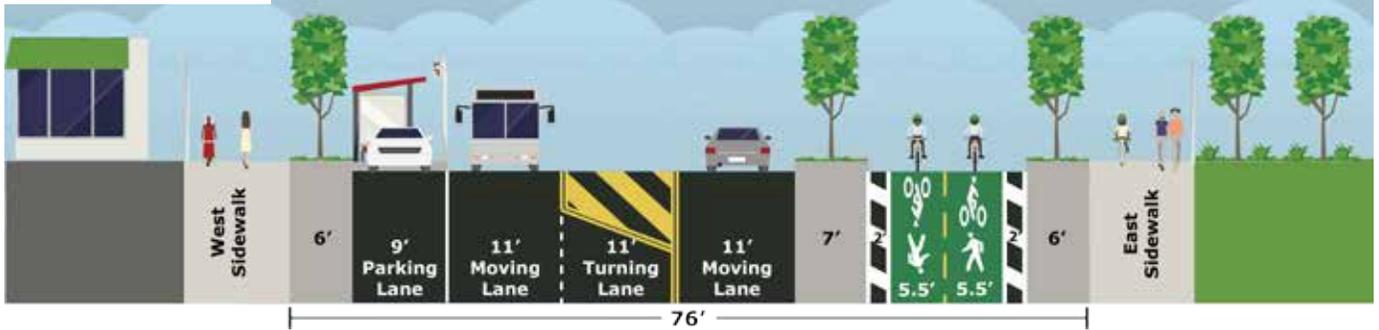
Fountain Ave, facing north



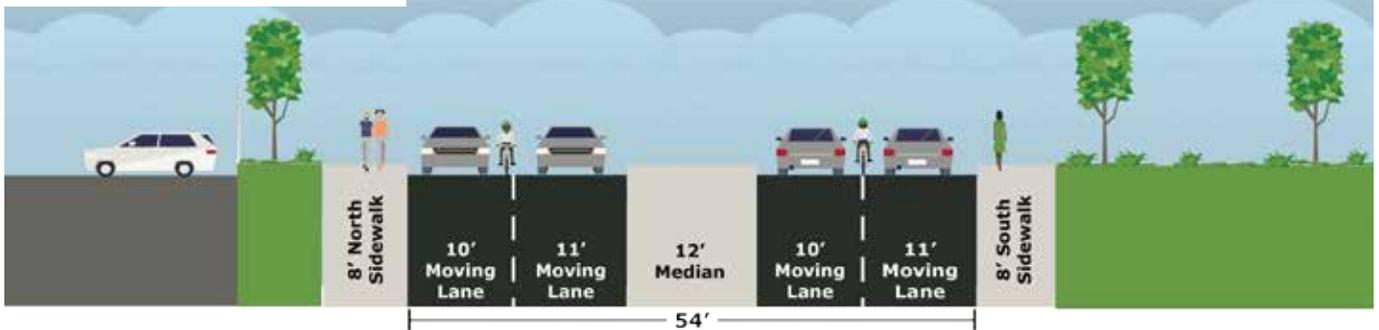
Fountain Ave, existing



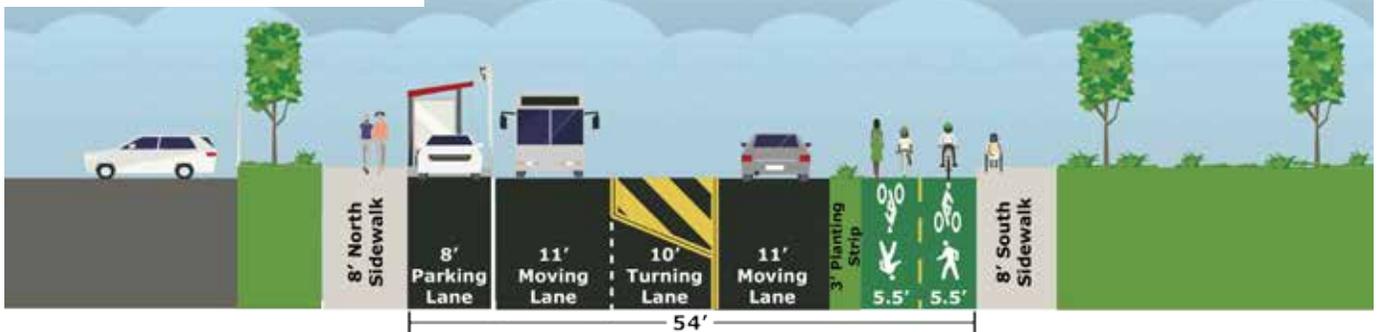
Fountain Ave, proposed

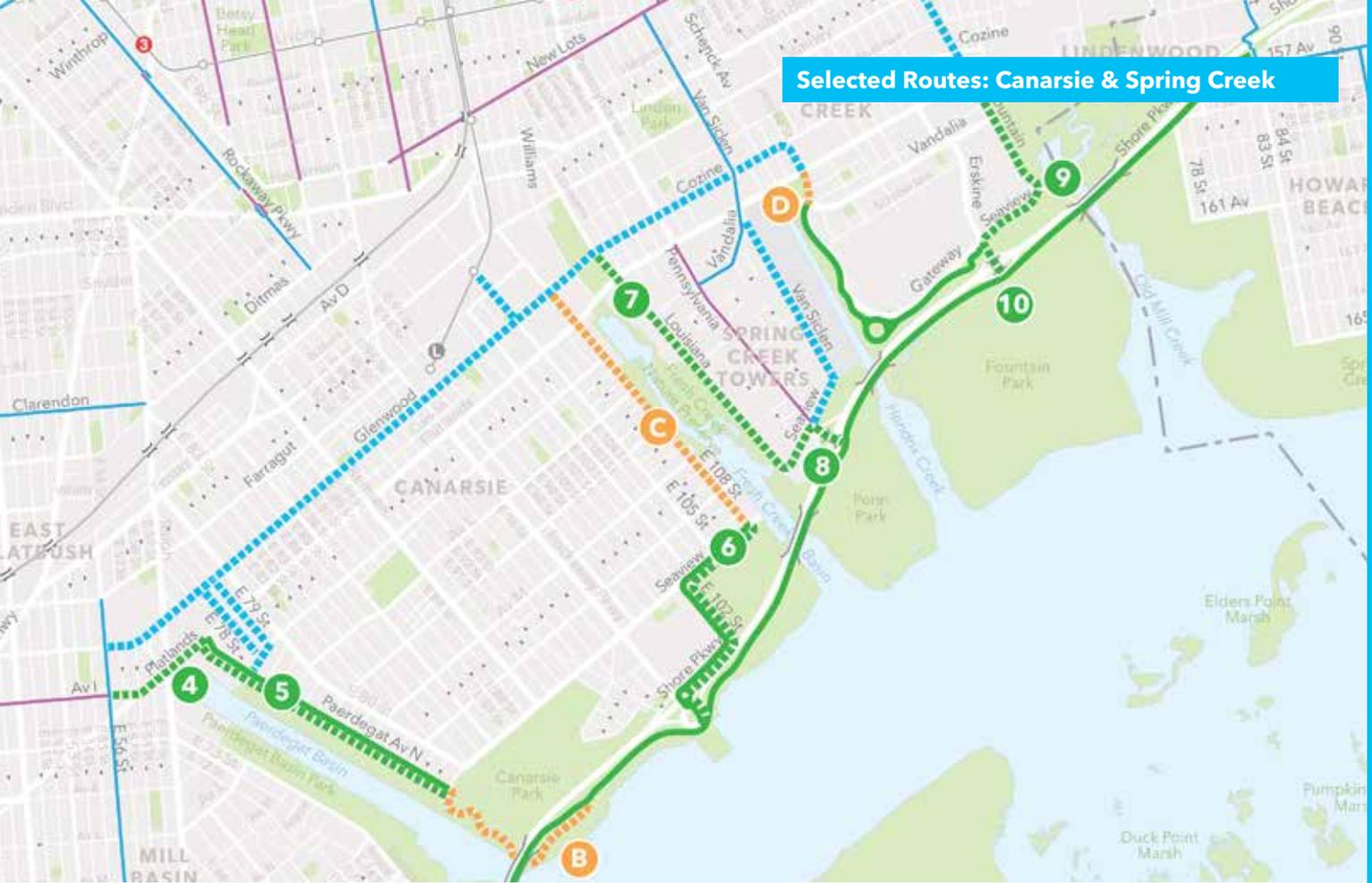


Seaview Ave at Fountain Ave, existing



Seaview Ave at Fountain Ave, proposed





Selected Routes: Canarsie & Spring Creek

Planned Greenway Projects

4: Paerdegat Network Link

- E 76th St (Flatlands Ave to Paerdegat Ave N)

5: Paerdegat Ave N Enhancement

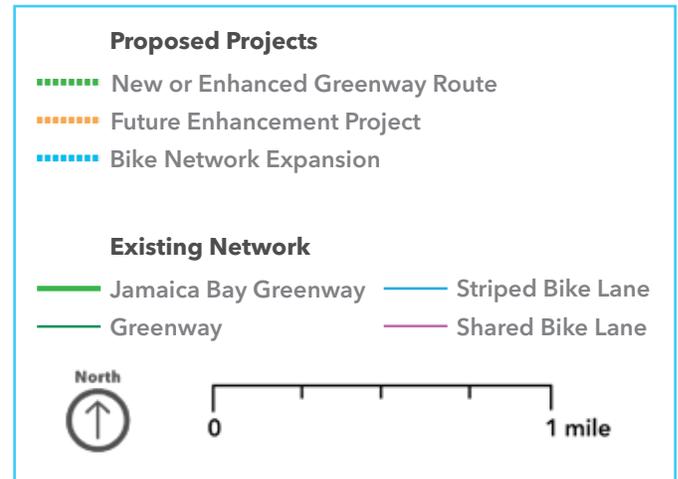
- Paerdegat Ave N (Paerdegat 1st St to Seaview Ave)

6: Canarsie Pier East Extension

- Rockaway Pkwy (Canarsie Circle to Seaview Ave)
- Shore Pkwy (Rockaway Pkwy to E 102nd St)
- E 102nd St (Shore Pkwy to Seaview Ave)
- Seaview Ave (E 102nd St to E 108th St)

7: Spring Creek Neighborhood Greenway

- Louisiana Ave (Cozine Ave to Seaview Ave)
- Seaview Ave (Louisiana Ave to Pennsylvania Ave)



8: Pennsylvania Ave Overpass

9: Gateway Network Link

- Fountain Ave (Flatlands Ave to Seaview Ave)
- Seaview Ave (Erskine St to Fountain Ave)

10: Erskine St Overpass

Future Enhancement Projects

B: Canarsie West Trail Connector

- Multi-use path through Canarsie Park, west of Rockaway Pkwy

C: E 108th St Streetscape Improvements

- E 108th St Shared markings and pedestrian improvements

D: Gateway Dr Extension

- Multi-use path (Vandalia Ave to Flatlands Ave)

Future Bicycle Network Expansions

- Glenwood Rd (E 56th St to Louisiana Ave)
- Cozine Ave (Louisiana Ave to Fountain Ave)
- E 78th St/ E 79th St (Glenwood Rd to Paerdegat 1st St)
- Paerdegat 1st St (Paerdegat Ave N to E 79th St)
- E 105th St (Glenwood Rd to E 105th St L Station)
- Schenck Ave (Cozine Ave to Gateway Dr)
- Fountain Ave (connections to Highland Park)
- Van Siclen Ave (Vandalia Ave to Seaview Ave)
- Seaview Ave (Van Siclen Ave to Pennsylvania Ave)

Howard Beach & Ozone Park

This study area consists of the neighborhoods of Howard Beach, Lindenwood, and Ozone Park.



Waterfront and Recreational Amenities

The eastern terminus of the Shore Pkwy segment of the Jamaica Bay Greenway is currently located at Shore Pkwy and 84th St, where it meets on-street bicycle routes connecting to the Addabbo Bridge. A short segment of off-street path along North Conduit Ave from Lefferts Blvd to 114th St connects a soccer field, cricket pitch, ball field, and playground, but this section of pathway is not currently connected to the main Jamaica Bay Greenway path.

The Jamaica Bay Wildlife Refuge and continuing Greenway connections in the Rockaways were identified as the most important Greenway destinations in this study area. Linking the Jamaica Bay Greenway to the Conduit path was also identified as an important goal.

- **Conduit Ave** is a high speed, limited access roadway with park space in the median in certain locations. A plan to connect the median green spaces with a path has been proposed for many years.
- The **Jamaica Bay Wildlife Refuge** is a park and natural area affording incredible views of the waterfront and city skyline, as well as a nature center with information about birds and wildlife.
- **Spring Creek** is a large parcel in the Gateway National Recreation Area currently undergoing a separate planning process as part of the Department of Interior's flood mitigation and wildfire prevention project.

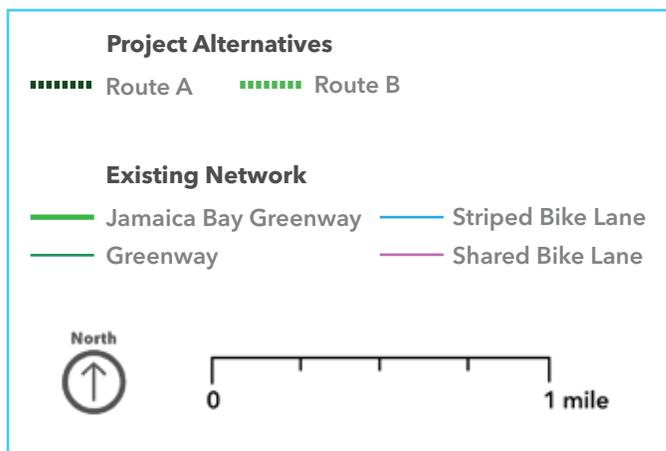




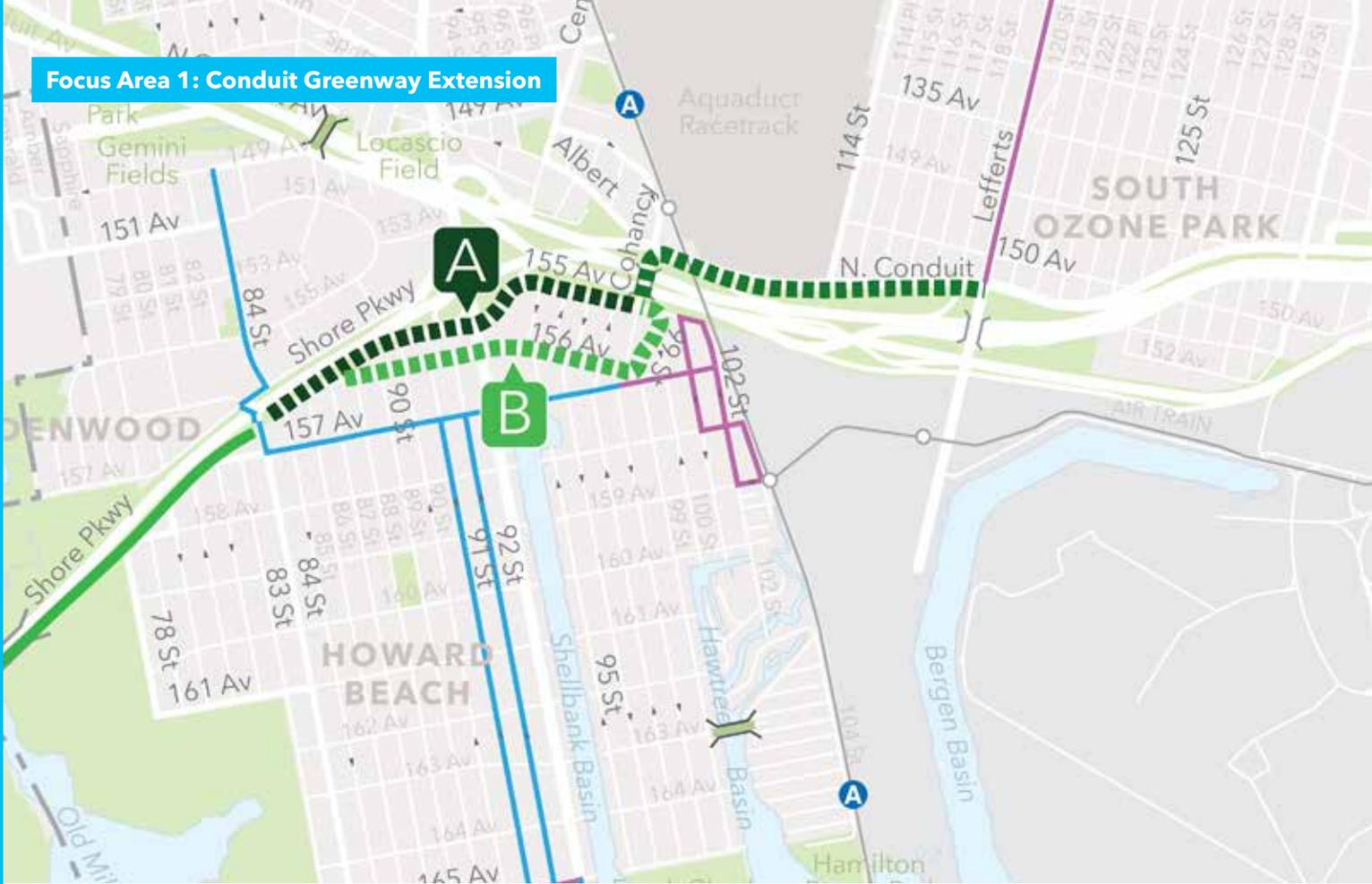
Focus Areas

Within the Howard Beach & Ozone Park study area, three major focus areas were identified through the workshop process for further analysis. Alternatives for development within each focus area were discussed at a community workshop on October 7, 2014.

- **Focus Area 1: Conduit Greenway Extension** consists of options for extending the Greenway route east to connect to Conduit Ave and Ozone Park.
- **Focus Area 2: Belt to Bridge Connector** presents three alternatives for connecting the existing off-street path along the Shore Pkwy segment of the Greenway to the Addabbo Bridge.
- **Focus Area 3: Addabbo Bridge Enhancements** explores options for improving the existing route across the Addabbo Bridge into Broad Channel.



Focus Area 1: Conduit Greenway Extension



Focus Area 1: Conduit Greenway Extension

Existing Conditions

Conduit Ave is a limited access, high-speed roadway, with directional traffic separated by a wide, grassy median. Several parks occupy the median, accessible at limited intersections with signalized crosswalks. The wide roadway is a barrier between the neighborhoods of Ozone Park and Howard Beach. A plan to connect these green spaces with a path has been proposed. A short segment of existing pathway runs alongside several parks in the median, but it does not connect to other bicycle facilities or the Greenway and can only be accessed by a crosswalk at one end.

The neighborhoods of Ozone Park and South Ozone Park are extremely close, but not currently connected to the Jamaica Bay Greenway. Similarly, the adjacent neighborhoods of Lindenwood and Howard Beach do not afford easy access to the Conduit Ave parks. Any path connecting these neighborhoods must cross Shore Pkwy on Cohancy St.

Project Alternatives

- Route A
- Route B
- Combined Route

Existing Network

- Jamaica Bay Greenway
- Greenway
- Striped Bike Lane
- Shared Bike Lane



0 0.5 mile



The purpose of improvements in this focus area is to:

- Connect the existing pathway on Conduit to the Jamaica Bay Greenway to create a continuous path between Ozone Park and Howard Beach.
- Create a strong pedestrian and bicycle connection between the Jamaica Bay Greenway, Howard Beach, and Ozone Park.
- Improve walking and bicycling access to the Conduit Ave Parks.

Route Options

Option A: Two-Way Edge Path, 155th Ave

Option A creates a two-way path along 155th Ave from 90th St to Cohancy St, where it would cross the bridge and connect to a new two-way path on N Conduit Ave. 155th Ave borders the green buffer that separates Shore Pkwy from Howard Beach, creating an “edge condition” with no intersecting streets along most of its length. The section between 90th St and Cross Bay Blvd has limited space and riders would feel pressure from traffic entering and exiting the Shore Pkwy. Because of multiple jurisdictions and interaction with traffic from Shore Pkwy, this route may require more time and resources to fully construct.

Option B: Buffered Bike Lanes, 156th Ave

Option B re-routes the existing, on-street facility on 157th Ave one block north, to take advantage of lower vehicular volume and allow for installation of buffered bike lanes. This route is entirely on DOT right-of-way, so it could be installed much more quickly and cheaply than Option A. However, because of many intersections, the majority of this route could not be installed as a protected path.

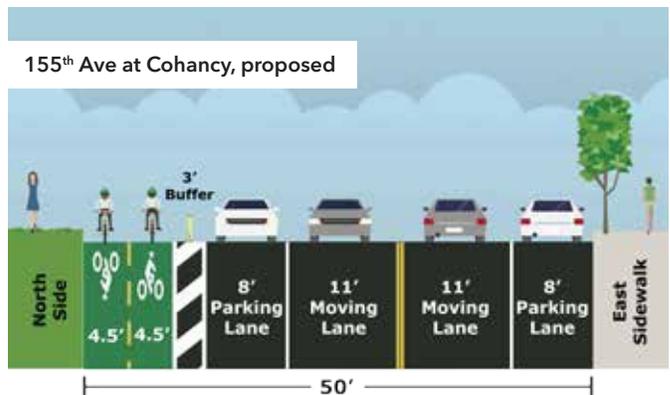
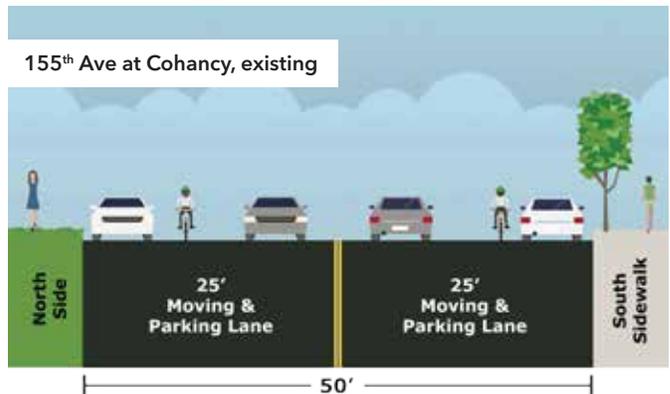
Selected Route

Two-Way Edge Path, 155th Ave

155th Ave is the preferred route, because it offers a continuous, separated or protected path from the Shore Pkwy segment of the Jamaica Bay Greenway to Cohancy St, and is the community preference. Option B should be considered as a possible short-term solution.

Facility Design

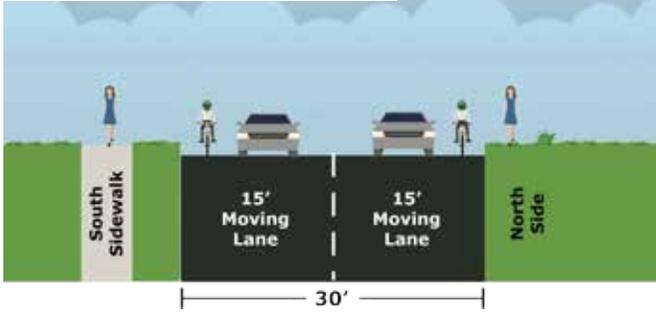
A two-way protected path is proposed on 155th Ave from 90th St to Cohancy St, continuing on the overpass to N Conduit Ave. Additionally, a two-way, curb-separated path on N Conduit Ave from Cohancy St to 114th St would be installed, along with a new signalized crossing from the existing path on the south side of N Conduit Ave to 118th St.



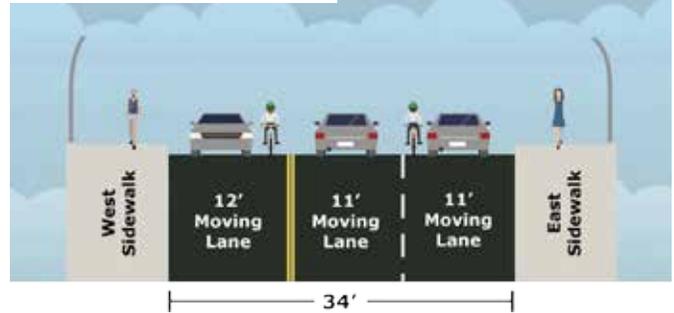
Future Enhancement Project

- DOT will work with NYC Parks to extend the Shore Pkwy portion of the Jamaica Bay Greenway from its current terminus at 84th St to Cross Bay Blvd.
- Additionally, DOT will work with NYC Parks and NYSDOT to extend the Conduit Ave path from terminus at 118th St across Lefferts Blvd to connect the park to the playground.

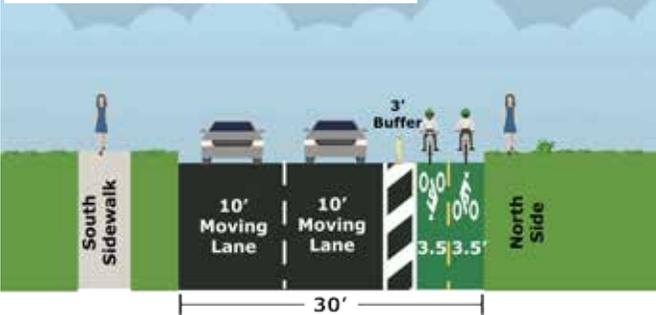
Shore Pkwy at 155th Ave, existing



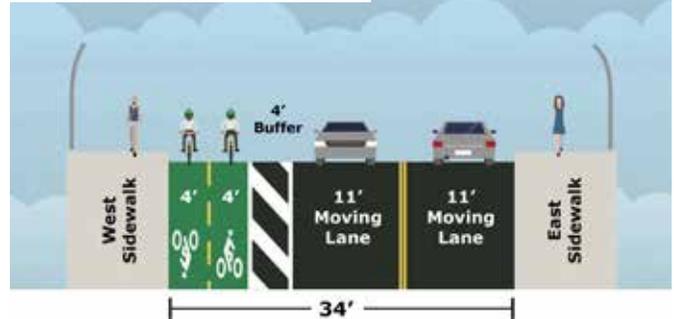
Cohancy St Overpass, existing



Shore Pkwy at 155th Ave, proposed



Cohancy St Overpass, proposed





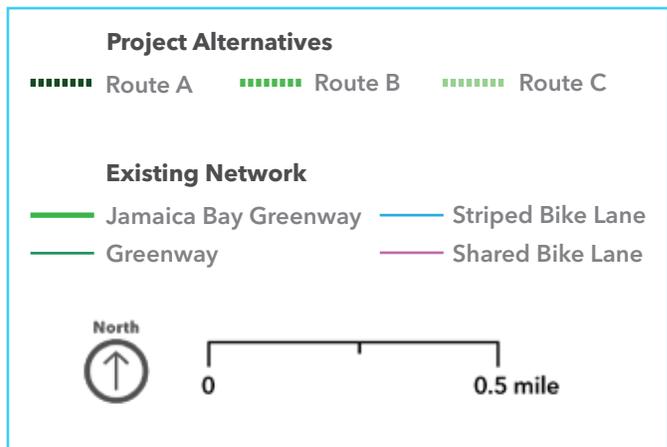
Focus Area 2: Belt to Bridge Connector

Existing Conditions

The existing off-street portion of Jamaica Bay Greenway terminates at the eastern end at 84th St and Shore Pkwy. On-street marked bicycle lanes connect the Greenway to the Addabbo Bridge, which connects to the Jamaica Bay Wildlife Refuge. This route is indirect and can be confusing to path users not familiar with the area. In addition, there are limited facilities for Greenway users on foot.

The purpose of greenway improvements in this focus area is to:

- Improve wayfinding, safety, and user comfort for Greenway users in Howard Beach.
- Improve access to the Howard Beach waterfront and the Jamaica Bay Wildlife Refuge.
- Improve access to the Jamaica Bay Greenway for Ozone Park and South Ozone Park residents.



Route Options

Option A: Direct Route, 84th St

Option A is to install on-street bicycle markings, connecting the entrance to the Jamaica Bay Greenway along the Shore Pkwy to Spring Creek Park at 165th Ave. This route would guide cyclists to a wide, two-way street and provide a more direct path to the Addabbo Bridge. Because of many intersections along 84th St, this portion of the route cannot be designed as a separated two-way path. A two-way path could, however, be installed along Spring Creek Park on 165th Ave.

Option B: Parkside Path, 78th St, 161st Ave, & 83rd St

Option B is to install a two-way protected path along Spring Creek Park from 78th St to the Addabbo Bridge. This route offers the opportunity to provide a continuous off-street or protected path from the Shore Pkwy to the Addabbo Bridge, along a park edge. This path requires a new access point from the Jamaica Bay Greenway at 78th St.

Option C: Explore Path through Spring Creek Park

Option C is to create an off-street path from Shore Pkwy to the Addabbo Bridge through Spring Creek Park. No specific route or design is proposed, as this option would take place as part of a future National Park Service planning process, after the completion of ongoing flood- and fire-hazard mitigation projects.

Selected Route

Option A: 84th St and 165th Ave

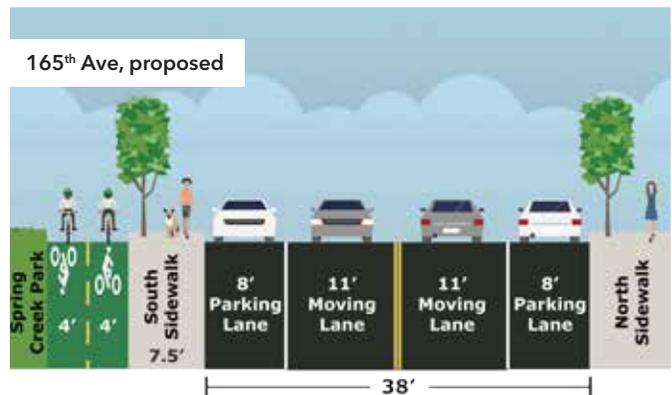
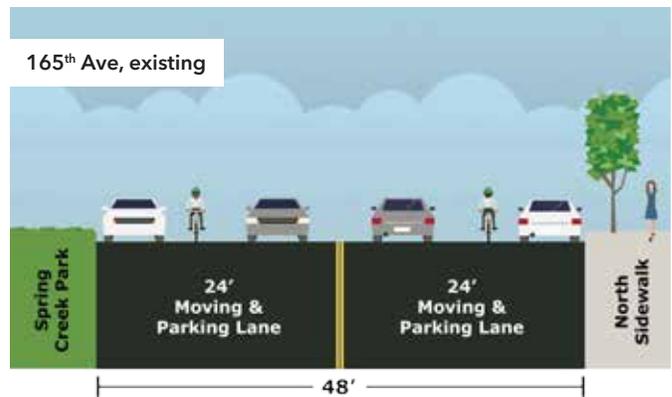
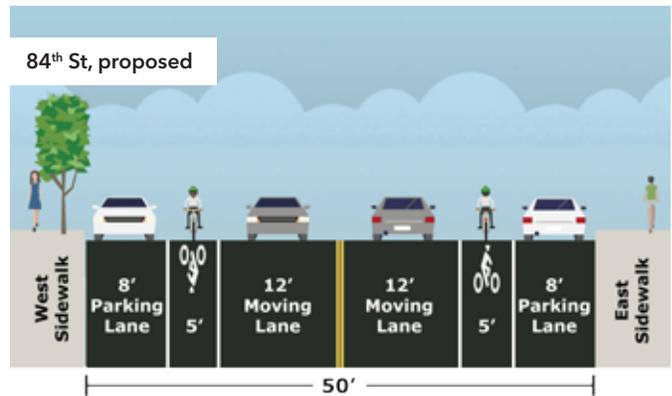
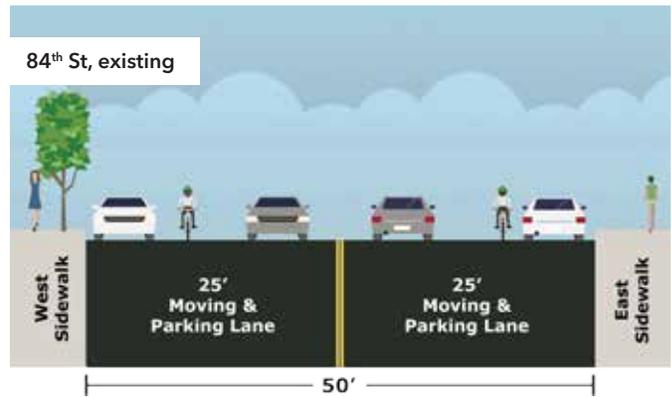
The preferred route is along 84th St between the Greenway and 165th Ave, and along 165th Ave between 84th St and Cross Bay Blvd. This route is preferred based on its direct access from the existing Greenway entrance and community preference.

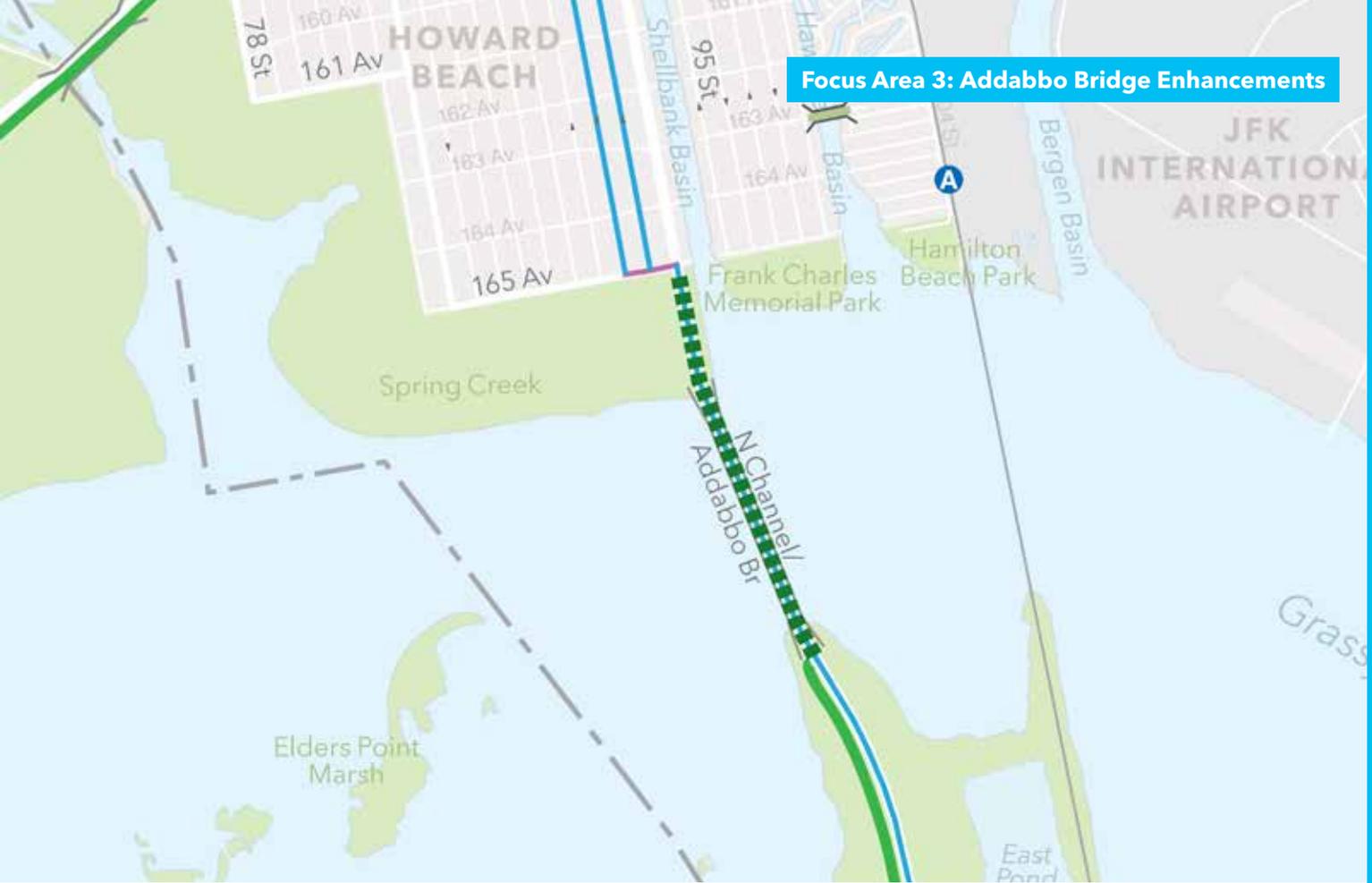
Facility Design

On-street bicycle markings are proposed on 84th St from Shore Pkwy to 165th Ave. Additionally, a two-way protected path is proposed on 165th Ave from 84th St to Cross Bay Blvd.

Future Enhancement Project

Exploration of a future connection from the Shore Pkwy segment of the Greenway through Spring Creek Park is recommended as a Future Enhancement Project. This route could allow through-riders to bypass residential streets in Howard Beach while enjoying a National Park and waterfront views.





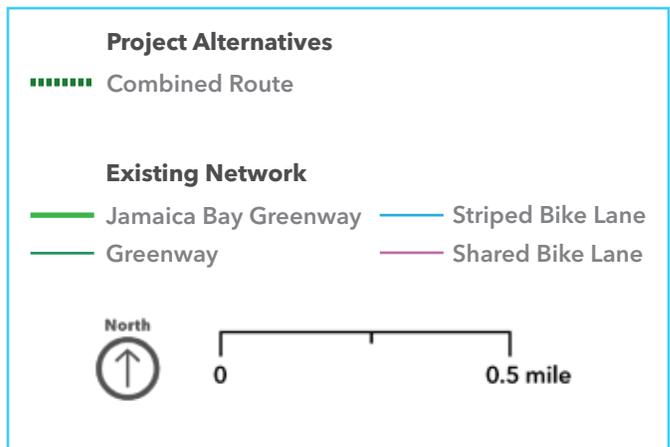
Focus Area 3: Addabbo Bridge Enhancements

Existing Conditions

The Addabbo Bridge connects Howard Beach to Broad Channel and the Jamaica Bay Wildlife Refuge. On both sides of the bridge there are pedestrian paths separated from vehicle traffic by a chain link fence and concrete barriers that create a confusing organization of path space. On-street bicycle routes are marked in both directions. On the Howard Beach approach to the bridge, parking is allowed on both sides of the street. Vehicular traffic across the bridge travels at very high speeds, making on-road cycling uncomfortable for novice cyclists or children. In addition, northbound cyclists coming from Jamaica Bay Wildlife Refuge must cross the street at both ends of the bridge to stay on the Greenway route.

The purpose of improvements in this focus area is to:

- Enhance connection between Howard Beach and the Jamaica Bay Wildlife Refuge.
- Improve route directness for northbound cyclists.



Alternatives Considered

Option A: Enhance Existing Route

Option A rearranges the existing lane space on the approach to bridge to create protected bicycle paths in both directions. This option may encourage fewer cyclists to ride on the sidewalk and would increase comfort for cyclists on the roadway. However, northbound cyclists would still be required to cross the street at both ends of the bridge in order to stay on the Greenway route.

Option B: Direct Two-Way Path

Option B creates a two-way protected path on the west side of the bridge. This option would eliminate the need for northbound cyclists to cross the street on both ends of the bridge, and would create a continuous protected path across the bridge from the Jamaica Bay Wildlife Refuge to Spring Creek Park.

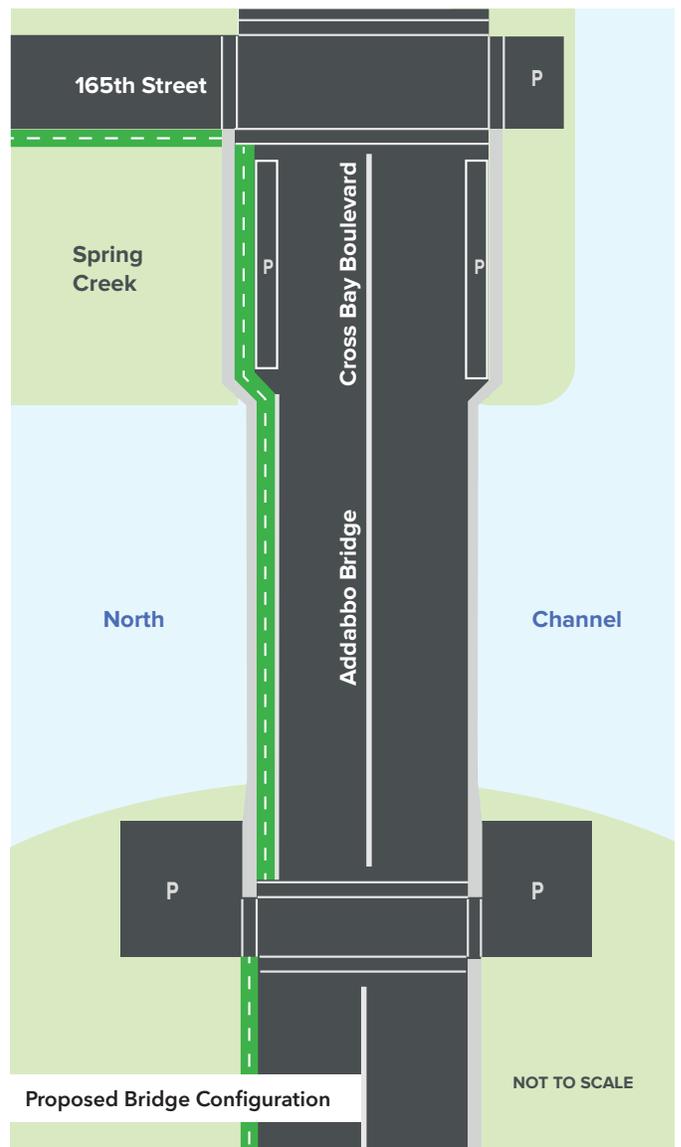
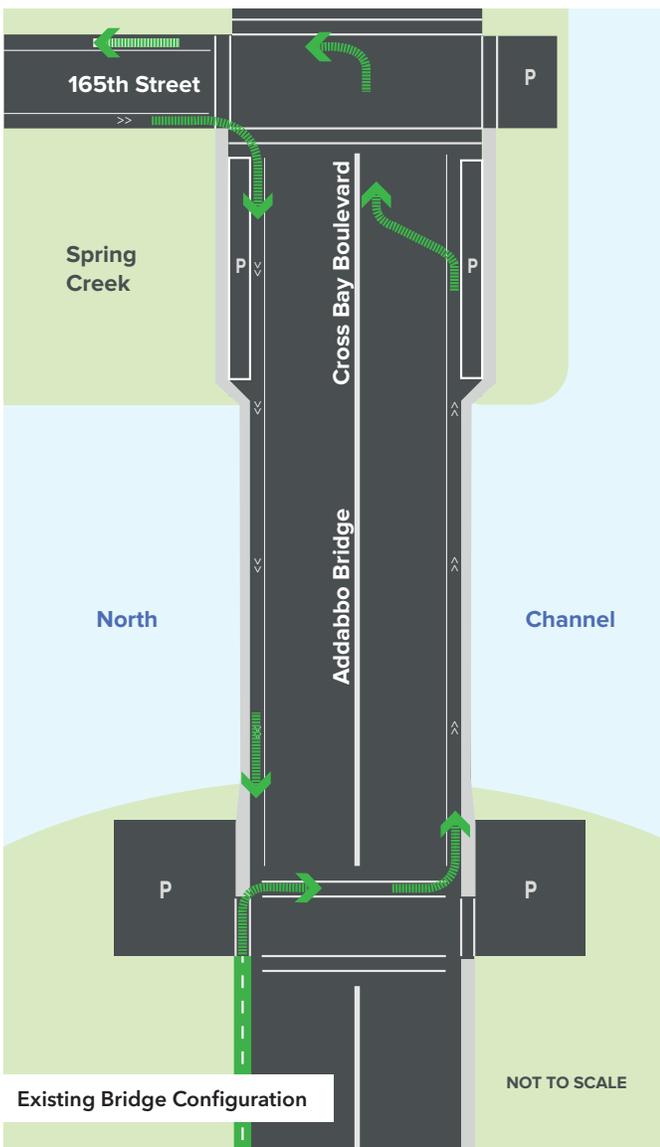
Selected Route

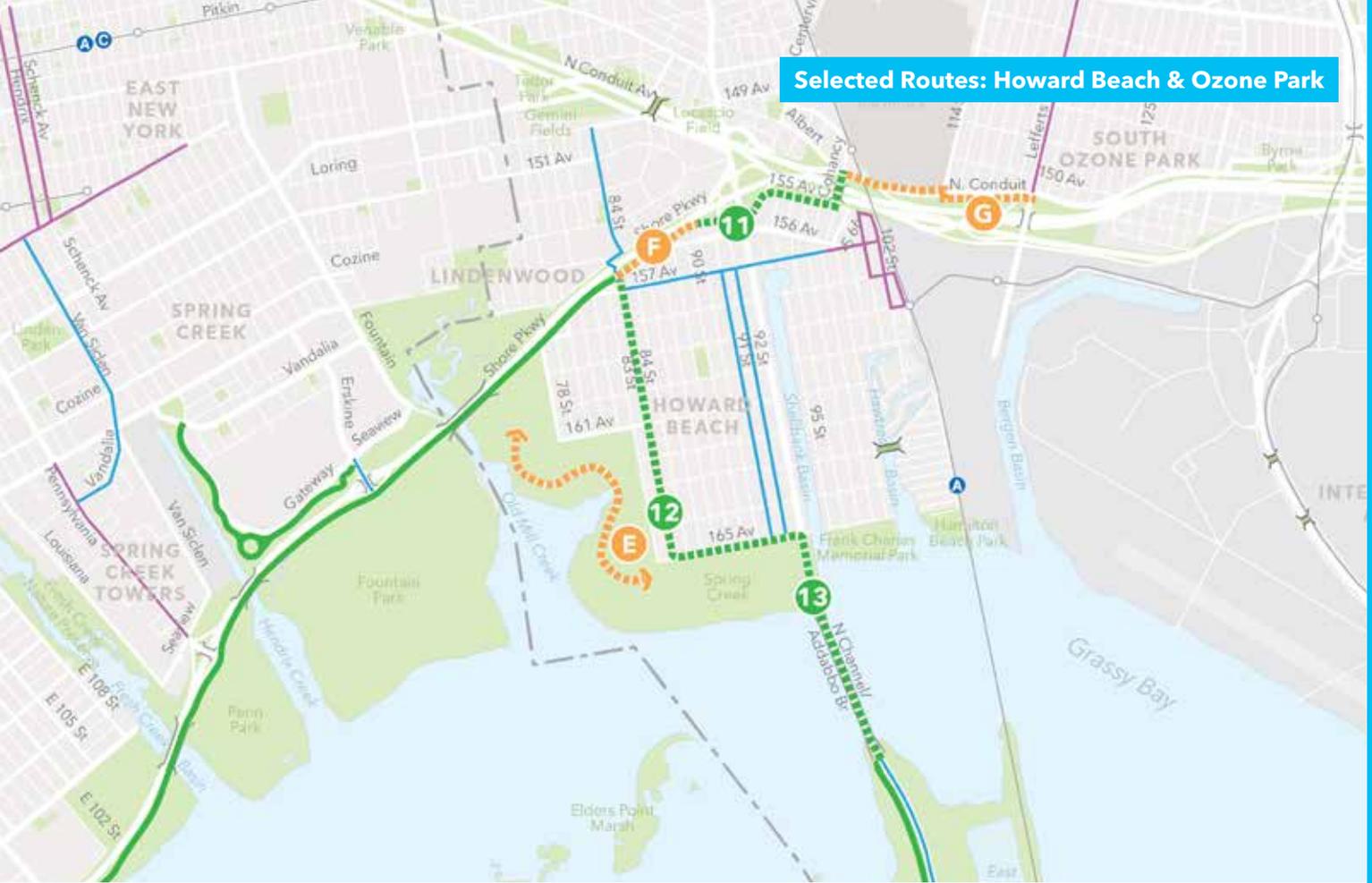
Direct Two-Way Path

A protected two-way path on the west side of the bridge, is the preferred improvement on the Addabbo Bridge. This option was selected because it creates a direct, continuous path between the Jamaica Bay Wildlife Refuge and Howard Beach.

Facility Design

A two-way, parking protected path is proposed on Cross Bay Blvd from 165th Ave to the Addabbo Bridge. On the Addabbo Bridge, a barrier-protected two-way path is proposed from Howard Beach to the Jamaica Bay Wildlife Refuge entrance at the Jamaica Bay Wildlife Refuge.





Selected Routes: Howard Beach & Ozone Park

Planned Greenway Projects

11: Conduit Greenway Extension

- Cohancy St (N Conduit Ave to 155th Ave)
- 155th Ave (Shore Pkwy to Cohancy St)
- Shore Pkwy (90th St to 155th Ave)

12: Belt to Bridge Connector

- 84th St (Shore Pkwy to 165th Ave)
- 165th Ave (84th St to Cross Bay Blvd)

13: Addabbo Bridge Enhancements

- Cross Bay Blvd (165th Ave to Greenway Entrance)

Proposed Projects

- New or Enhanced Greenway Route
- Future Enhancement Project

Existing Network

- Jamaica Bay Greenway
- Striped Bike Lane
- Greenway
- Shared Bike Lane



Future Enhancement Projects

E: Spring Creek Park Path

- Work with NPS and DOI to construct a multi-use path through Spring Creek Park

F: Shore Pkwy Greenway Extension

- Shore Pkwy (90th St to 155th Ave)

G: North Conduit Extension

- N Conduit Ave (Cohancy St to Lefferts Blvd)

Rockaway & Broad Channel

This study area consists of the neighborhoods of Belle Harbor, Neponsit, Rockaway Park, Seaside, Somerville, Arverne, Edgemere, Bayswater, Far Rockaway, and Broad Channel.



Waterfront and Recreational Amenities

The Rockaway Peninsula lies between Jamaica Bay and the Atlantic Ocean, offering recreational amenities on both bay and ocean sides. Broad Channel is a small community connected by bridges to Howard Beach and Rockaway Park.

Major destinations in the Rockaways and Broad Channel include:

- **The Jamaica Bay Wildlife Refuge** is a park and natural area affording incredible views of the waterfront and city skyline, as well as a nature center with information about birds and wildlife.
- Visitors to **Rockaway Beach & Boardwalk** can enjoy the sand and water, a variety of concessions, and the city's only surfing beach. Rockaway Beach is also home to a variety of playgrounds and other outdoor activities.
- **Fort Tilden** is a former military base which currently offers pristine beaches and trails along with ball fields, art space, picnic areas, and a large community garden.
- **Jacob Riis Park** is a popular beach offering swimming, sunbathing, picnicking and kite flying. Facilities for baseball, basketball and volleyball are also available, along with a pitch and putt golf course via the Brooklyn Golf Center.

Focus Areas

Alternatives for development within each focus area were discussed at a community workshop on October 16, 2014. Within the Rockaway & Broad Channel study area, five focus areas were identified through the workshop process for further analysis:



Rockaway & Broad Channel Focus Areas



- **Focus Area 1: Broad Channel Greenway Enhancements** examines alternative enhancements to the segment between the Jamaica Bay Wildlife Refuge and the Cross Bay Bridge.
- **Focus Areas 2 and 3:** The stretch between Shore Front Pkwy and Far Rockaway was examined as two focus areas: **Arverne Edgemere Extension** and **Nassau County Connector**.
- **Focus Area 4: Bridge to Beach Connector** looks at route alternatives for connecting the Cross Bay Bridge to Rockaway Beach.
- **Focus Area 5: Jacob Riis Park to Boardwalk** explores possible Greenway enhancements between Shore Front Pkwy and Jacob Riis Park.

Project Alternatives

Route A Route B Route C

Existing Network

Jamaica Bay Greenway Striped Bike Lane
Greenway Shared Bike Lane

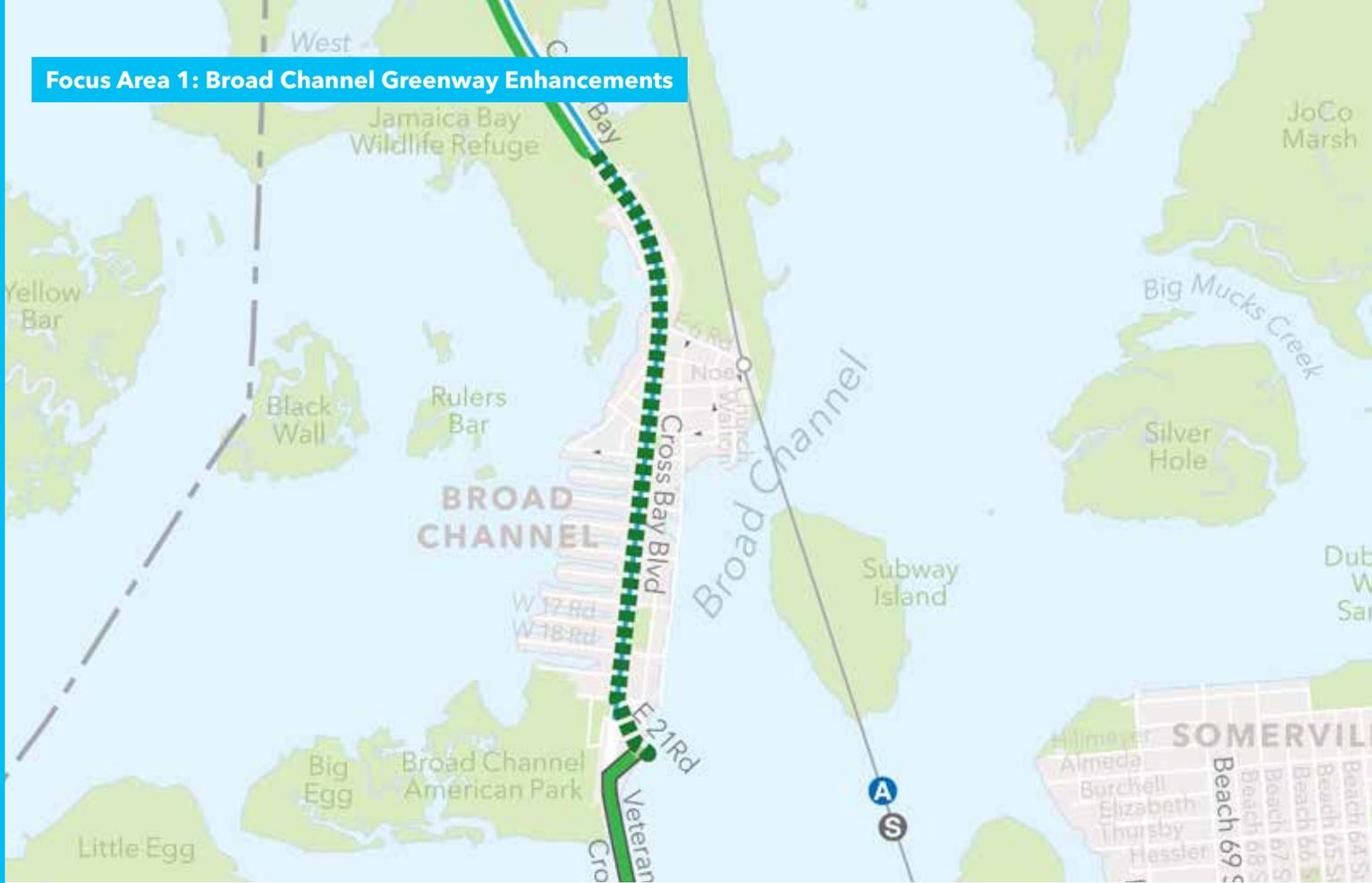


0 1 mile

Rockaway Boardwalk



Focus Area 1: Broad Channel Greenway Enhancements



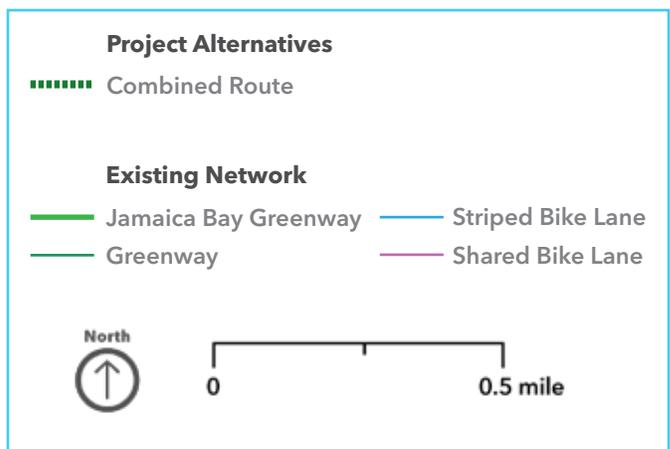
Focus Area 1: Broad Channel Greenway Enhancements

Existing Conditions

The existing section of the Jamaica Bay Greenway in Broad Channel is a two-way path connecting the Addabbo Bridge through the Jamaica Bay Wildlife Refuge, ending roughly 1,000 feet south of the Visitor's Center. There is no crossing available for northbound cyclists to enter the Greenway at its southern terminus. The remaining route through Broad Channel is a mixture of bicycle markings and striped bicycle lanes. Heavy traffic, including buses and trucks, and high vehicle speeds make the on-street portion of the route on Cross Bay Blvd uncomfortable for novice riders or children.

The purpose of improvements in this focus area is to:

- Enhance the existing route through Broad Channel along Beach Channel Dr.
- Enhance wayfinding to the Cross Bay Bridge.



Route Options

Cross Bay Blvd is the only through-street in Broad Channel, therefore it is the only possible route in this section of the Greenway. However, several potential enhancements to the existing configuration were considered in the planning process.

Selected Route

Cross Bay Blvd

In the short-term, existing conditions will be largely maintained while current flood mitigation capital projects are ongoing. The community's primary concern in this area is to maintain the availability of high-tide parking on the median. This parking is not currently allowed, but is accepted during emergency events. The currently ongoing capital work in the area to raise the streets should resolve the issue of high-tide parking. On-street bicycle markings are proposed on E 21 Rd and Van Brunt Rd to guide Greenway users to the path entrance on the Cross Bay Bridge.





Focus Area 2: Arverne Edgemere Extension

Existing Conditions

This focus area includes Arverne, Edgemere, and Somerville. There are existing east-west bicycle facilities on Beach Channel Dr between Beach 69th St and the Nassau County line at Hassock St. These facilities are a mixture of shared, striped, and buffered bicycle lanes.

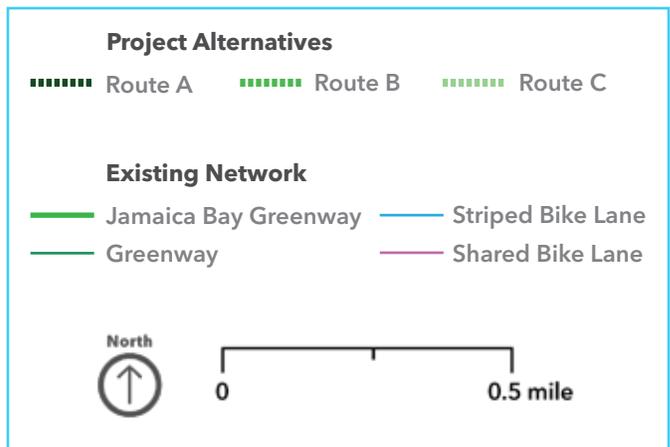
The purpose of improvements in this focus area is to:

- Enhance wayfinding and north-south connections between Cross Bay Bridge, esplanade, and Rockaway Beach and Boardwalk.

Route Options

Option A: Enhance Existing On-Street Routes

Beach Channel Dr is a heavily trafficked bus and truck route. Bicycle facilities on Beach Channel Dr are a mixture of shared, standard, and buffered bicycle lanes. Beach Channel Dr runs 1,500 feet north of and parallel to the Boardwalk between Beach 69th St and Beach 35th St. In sections where the route consists of shared lane



Beach Channel Dr, facing west

markings, the facility can be enhanced by removing parking on one side and installing standard and buffered bike lanes.

Option B: Rockaway Fwy Path

Rockaway Fwy lacks pedestrian facilities, but as it runs underneath the elevated A train, is also a major pedestrian route. Because of the pillars holding up the A train, options to modify the roadway are severely constrained. Along this segment, the roadway runs parallel to Edgemere Ave, closely enough that the two roadways could function together with westbound traffic on Rockaway Fwy and eastbound traffic on Edgemere Ave. This configuration would allow a path to be installed in between the pillars.

Option C: Designate Boardwalk as Greenway

The Boardwalk west of Beach 60th St is currently closed. It is being reconstructed as part the Rockaway Boardwalk Reconstruction project and is scheduled for completion by 2017. The new design will include bicycle lanes. However, existing regulations prohibit cycling at peak times.

Selected Route

Designate Boardwalk as Greenway

The boardwalk is considered to be a high-quality recreational and transportation corridor, and therefore serves as the Greenway. Walking, jogging, skating and bicycling have been popular activities on the Boardwalk since its construction. Currently, bike riding is prohibited on weekends and holidays from Memorial Day weekend to Labor Day between 10 am and 6 pm, as per NYC Parks policy.

Facility Design

Ongoing reconstruction of the Boardwalk includes bicycle lanes. DOT will continue to work with NYC Parks to address bicycle access and safety issues.

Edgemere Ave and Rockaway Fwy



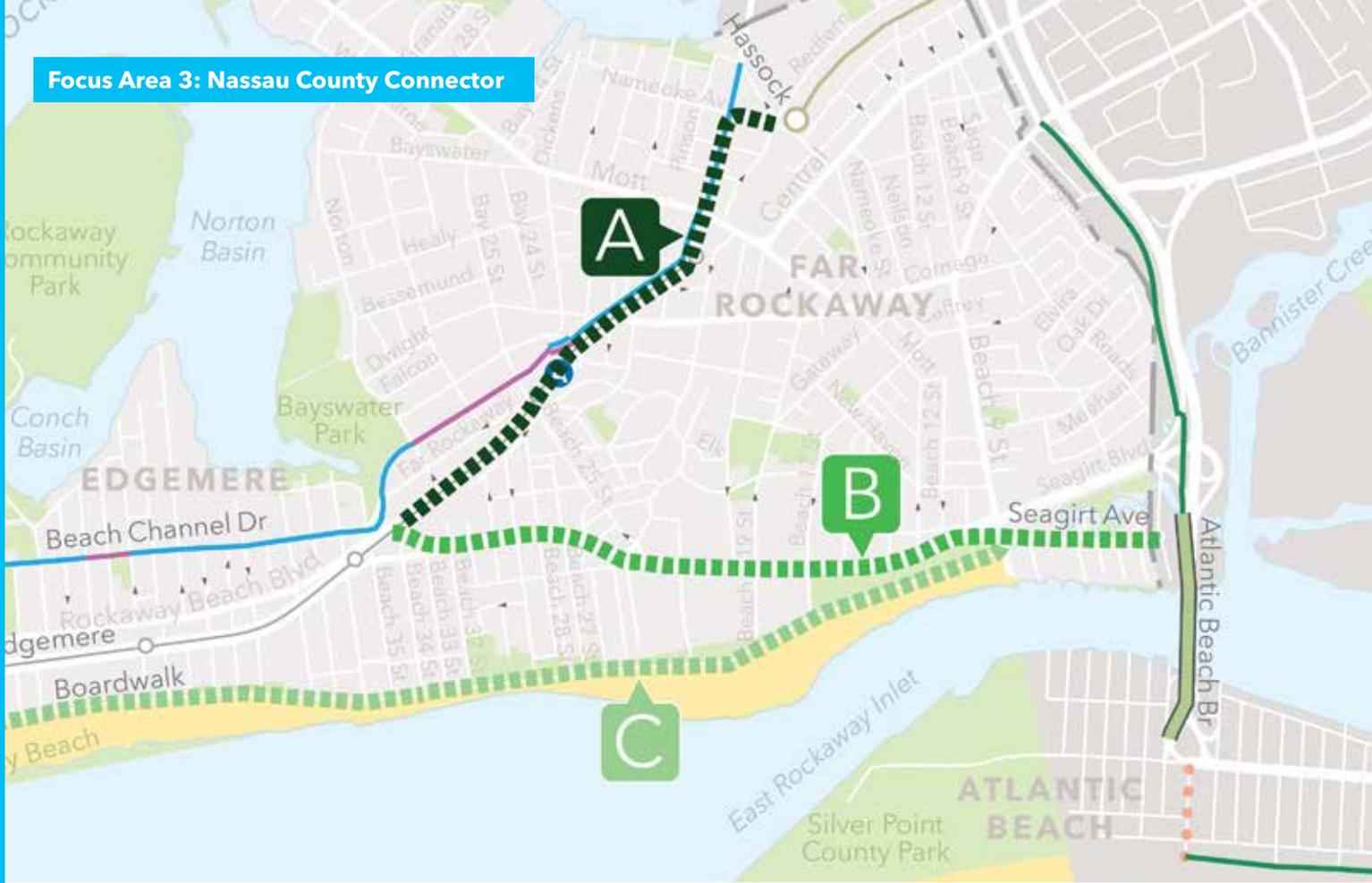
Rockaway Boardwalk



Reconstructed Rockaway Boardwalk path



Focus Area 3: Nassau County Connector



Focus Area 3: Nassau County Connector

Existing Conditions

There are a combination of shared lane and standard bike lanes between Beach 35th St and Far Rockaway on Beach Channel Dr. While the Boardwalk can act as a Greenway, it is currently closed to cyclists on weekends and holidays from Memorial Day to Labor Day between 10 AM and 6 PM as per NYC Parks policy. Therefore, alternative routes were presented for consideration at a community workshop on October 16, 2014.

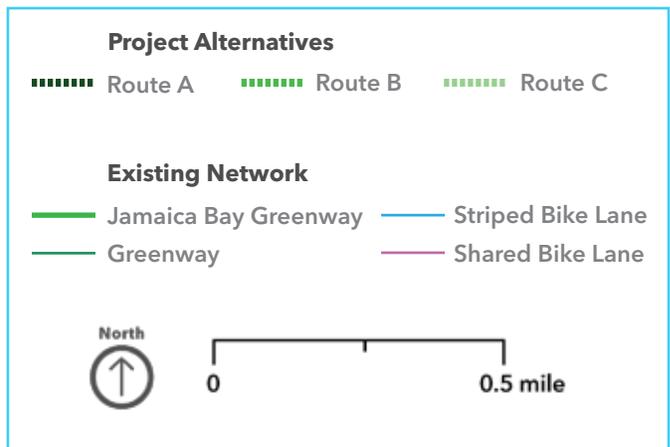
The purpose of improvements in this focus area is to:

- Enhance bicycle and pedestrian access to the waterfront and Boardwalk.

Route Options

Option A: Rockaway Fwy

Rockaway Fwy lacks pedestrian facilities, but as it runs underneath the elevated A train, is also a major pedestrian route. Because of the pillars holding up the A train, options to modify the roadway are severely constrained. Along this segment, a path with a mountable



curb could be installed to accommodate pedestrians, with standard bicycle lanes installed on the street.

Option B: Seagirt Blvd

Seagirt Blvd is a wide roadway with a wide, landscaped median. It is the only direct east-west road in Far Rockaway. Extra roadway capacity could be converted into a parking protected bicycle lane along the median, with additional pedestrian crossing space at median tips. This design would calm traffic, while also providing a Greenway route alternative to the Boardwalk. At Beach 9th St, the route would turn down Seagirt Ave to connect to the Nassau Expressway Greenway just beyond Beach 2nd St.

Option C: Designate Boardwalk as Greenway

The Boardwalk between Beach 35th St and Beach 9th St is currently open. It is slated for reconstruction as part the Rockaway Boardwalk Reconstruction project by 2017. The new design will include bicycle lanes. However, existing regulations prohibit cycling at peak times.

Selected Route

Designate Boardwalk as Greenway

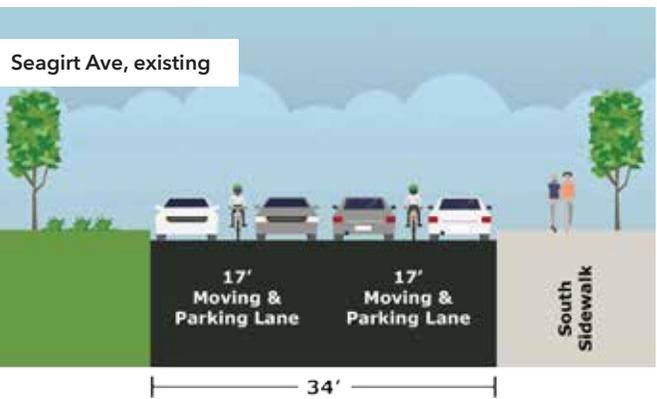
The Boardwalk has long been a popular route for waterfront recreation. Walking, jogging, skating, and cycling have been popular activities on the Boardwalk since its construction. The Boardwalk is considered to be a high-quality recreational and transportation corridor, and therefore serves as the Greenway.

Facility Design

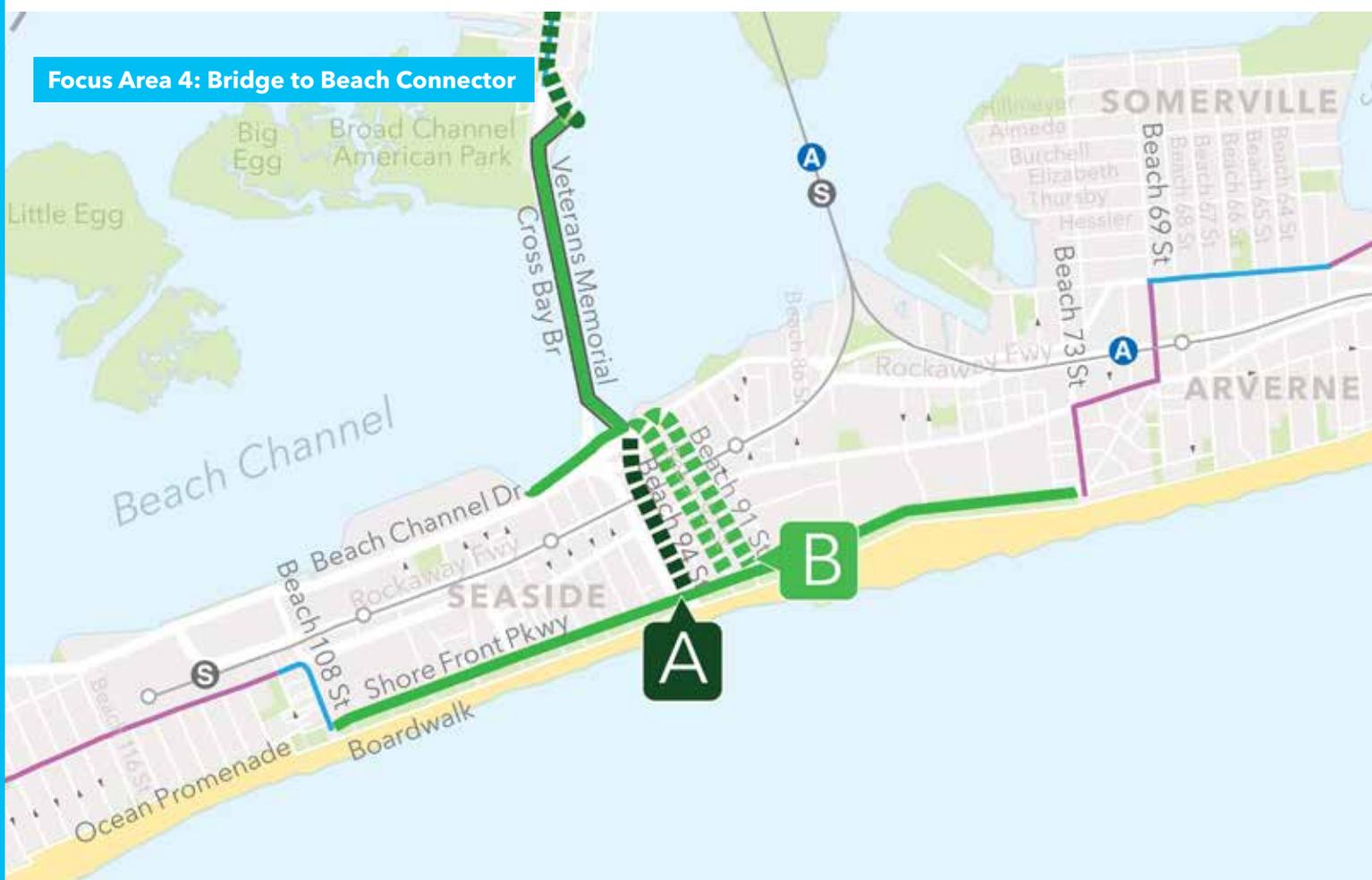
DOT will continue to work with NYC Parks to ensure that the Boardwalk is accessible to cyclists during peak season. Where the Boardwalk ends at Beach 9th St, shared lane bicycle facilities and pedestrian facilities will be installed on Seagirt Ave to connect to the County line.

Future Traffic Calming Project

Rockaway Fwy and Seagirt Blvd should be evaluated for future traffic calming projects and pedestrian enhancements. Bicycle lanes may be considered as part of future traffic calming projects.



Focus Area 4: Bridge to Beach Connector



Focus Area 4: Bridge to Beach Connector

Existing Conditions

The Cross Bay Bridge connects Broad Channel to Rockaway Park. An existing pedestrian ramp on the east side of the bridge allows Greenway users to cross the bridge. No pedestrian connection across Beach Channel Dr exists at the base of the bridge on the Rockaway side. In addition, no bicycle facilities connect the Bridge to Rockaway Beach.

The purpose of improvements in this focus area is to:

- Connect Broad Channel and Rockaway Beach.
- Connect the Jamaica Bay Esplanade underneath the Cross Bay Bridge to the neighborhood.

Route Options

Option A: Direct Connection, Beach 94th St

Option A installs a two-way route on Beach 94th St, creating a direct connection between the bridge ramp and Cross Bay Bridge Esplanade and Rockaway Beach. This would place cyclists on a main road, while also

Project Alternatives

Route A Route B

Existing Network

Jamaica Bay Greenway Striped Bike Lane
Greenway Shared Bike Lane



0 0.5 mile



allowing for separation from most traffic. This option requires the installation of a signal at Beach 92nd St, Beach 94th St and Beach Channel Dr as well as geometric changes to the intersection. The design would also include additional parking on Beach 94th St.

Option B: One Way Pair, Beach 91st St and Beach 92nd St

This route installs shared bicycle lane markings on a one-way pair of residential streets. Disadvantages of this route include difficulty in crossing due to low visibility across Rockaway Fwy and no opportunity to provide separation from traffic.

Selected Route

Beach 94th St

A direct connection on a portion of Beach 94th St was strongly preferred by the community. However, two-way cycling traffic on Beach 94th St north of Rockaway Fwy was not preferred. The preferred route for southbound cyclists is instead to detour to an existing southbound street. Options for the southbound cycling connection include Beach 91st St to Rockaway Fwy and connecting from the Esplanade to Beach 95th St. The northbound route on Beach 94th St was selected based on its directness, ease of wayfinding, access to public uses such as the Queens Public Library, and partial separation from traffic.

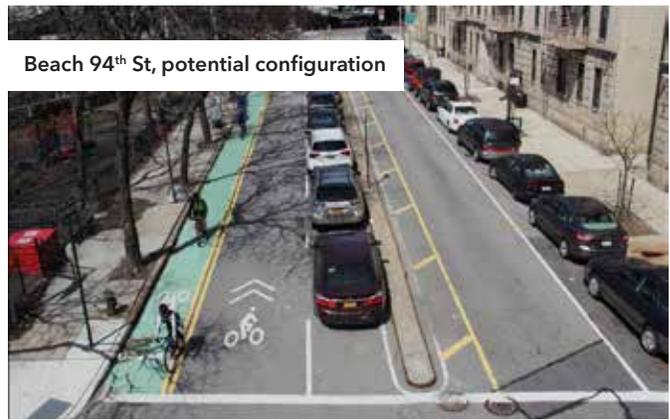
Facility Design

Planned improvements include:

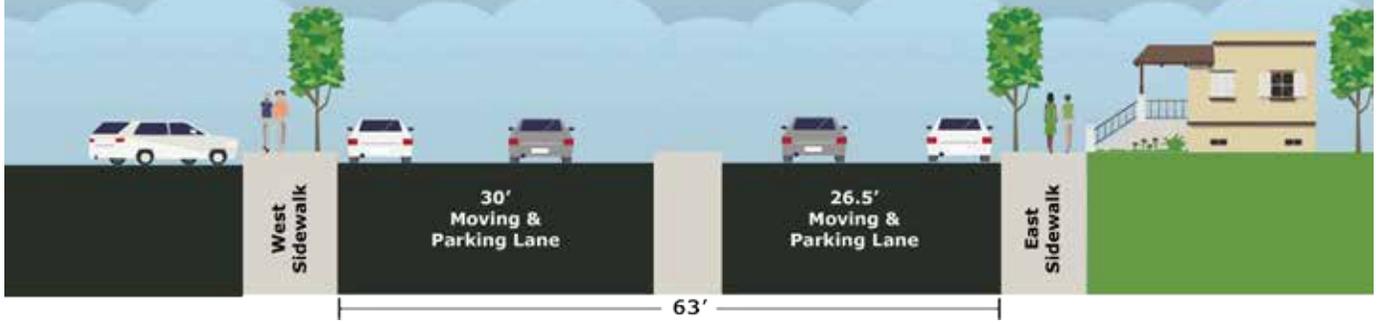
- Installation of a signal and crosswalk at Beach 92nd St and Beach Channel Dr.
- Northbound shared bicycle markings on Beach 94th St, between Shore Front Pkwy and Beach Channel Dr.
- Southbound contraflow bike lane along the median on Beach 94th St between Rockaway Fwy and Shore Front Pkwy.
- Southbound shared use markings on Beach 94th St or Beach 91st St.
- Safety improvements at the intersection of Rockaway Fwy and Beach 94th St.

Future Enhancement Project

Capital build-out of safety improvements at Beach 94th St and Beach Channel Dr should be pursued as a Future Enhancement Project.

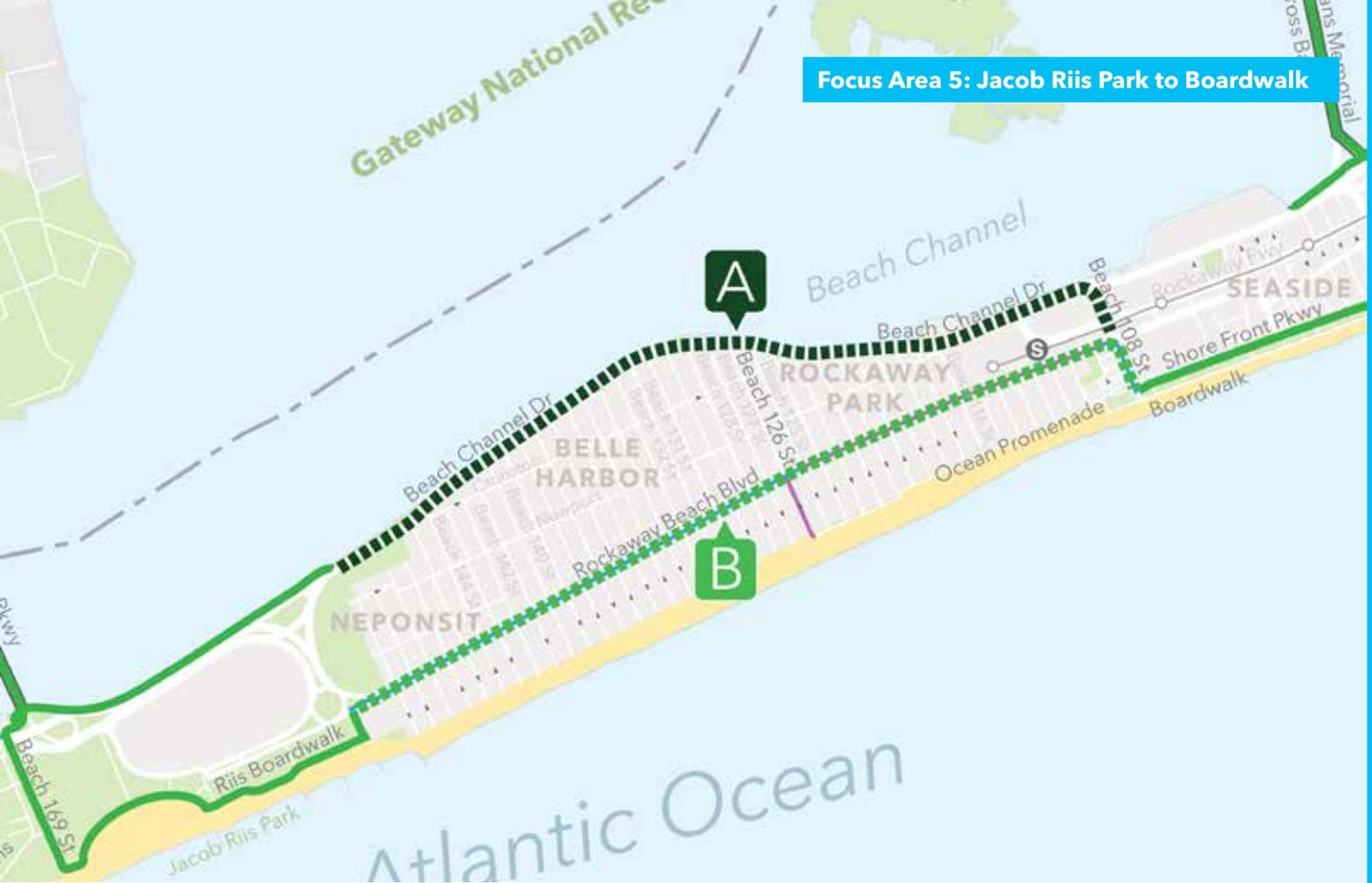


Beach 94th St, existing



Beach 94th St, proposed



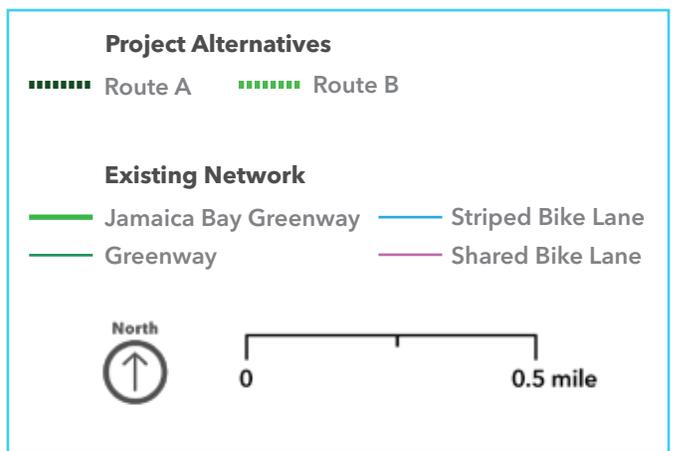


Focus Area 5: Jacob Riis Park to Boardwalk

Existing Conditions

The current Greenway route from Rockaway Park to Jacob Riis Park utilizes on-street bike lanes on Rockaway Beach Blvd. West of Beach 125th St, this facility consists of buffered bicycle lanes. East of Beach 125th St, it is shared bicycle markings. Prior to damage from Hurricane Sandy, an alternative route existed along the Ocean Promenade Walkway, connecting to the Rockaway Boardwalk. This route will be reconstructed as part of Phase III of the Rockaway Boardwalk reconstruction project under EDC and NYC Parks.

Jacob Riis Park is accessible from the Jamaica Bay Greenway across the Marine Park Bridge. An esplanade along the Bay extends one-mile east from the bridge. This scenic route is enjoyed by joggers, cyclists, fishermen, and others. However, there is no connection to the esplanade from the neighborhood on its eastern end. Instead, the esplanade terminates at an uncontrolled stretch of high-speed, high-volume roadway.



Beach Channel Dr, facing west

The purpose of improvements in this focus area is to:

- Enhance the Greenway connection between the Jacob Riis Boardwalk and the Shore Front Pkwy Greenway.
- Connect the Jamaica Bay Esplanade to Neponsit and Belle Harbor.

Route Options

Option A: Create Bayside Esplanade, Beach Channel Dr

Option A creates a protected path along the Jamaica Bay waterfront by reallocating roadway width. This option would provide spectacular views of the Bay and Manhattan skyline. It would also provide a direct connection from the east to the existing Jamaica Bay Esplanade, with continuing connections to Jacob Riis Park, Fort Tilden, and the Marine Pkwy Bridge. This design would require the removal of one lane of traffic on a portion of Beach Channel Dr where excess roadway capacity exists.

Option B: Enhance Existing Route, Rockaway Beach Blvd

Option B enhances the existing route along Rockaway Beach Blvd. The most difficult section of the existing route is between Beach 116th St and Beach 111th St. Along this commercial stretch, Rockaway Beach Blvd is 34' wide and accommodates two-way shared vehicular and bicycle traffic and one lane of parking. Sidewalks are also extremely narrow along this stretch, with less than 5' of usable space on each side.

Selected Route

Enhance Existing Route, Rockaway Beach Blvd

Enhancing the existing route along Rockaway Beach Blvd was selected based on community preference to maintain four lanes on Beach Channel Dr, as well as the opportunity to connect to the Boardwalk at Beach 126th St when it is reopened. While this route does not offer waterfront views, it maximizes access to the Boardwalk and Jacob Riis Park.

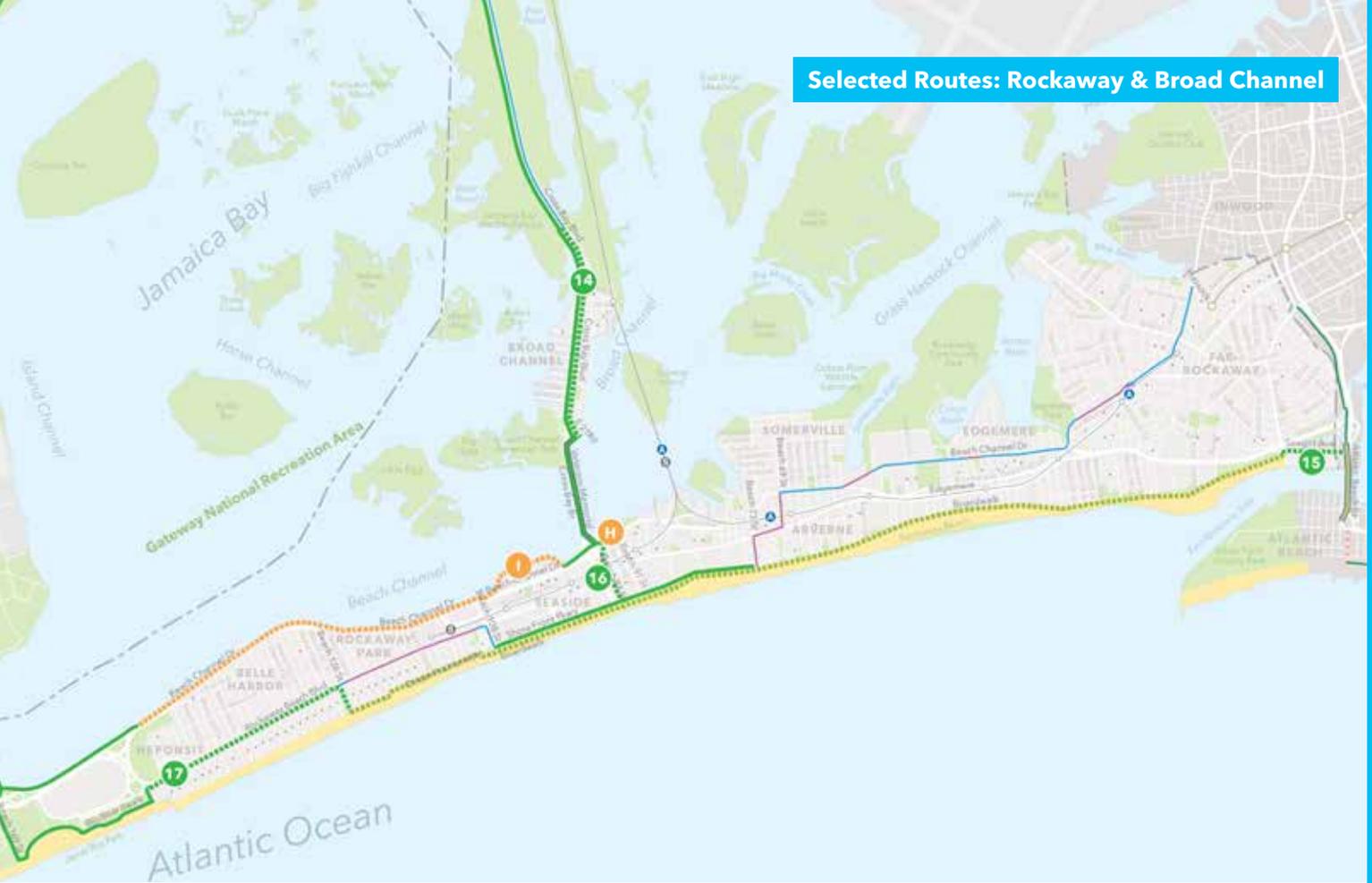
Facility Design

In the short-term, the route will be maintained in its existing configuration. Where feasible, additional pedestrian safety improvements such as lead pedestrian interval signals and high-visibility crosswalks should be installed. Additional network connections should be investigated to connect to the Jamaica Bay Esplanade with a new signal at Beach 144th St.



Future Enhancement Project

Additional pedestrian improvements along Beach Channel Dr are recommended as a Future Enhancement Project. Community feedback received during the planning process included support for installation of a Greenway along sections of the roadway where no lane removal would be required between Beach 116th St and Beach 123rd St.



Selected Routes: Rockaway & Broad Channel

Planned Greenway Projects

14: Broad Channel Greenway Enhancements

- Cross Bay Blvd
- E 21 Rd/Van Brunt Rd

15: Nassau County Connector

- Beach 9th St (Boardwalk to Seagirt Ave)
- Seagirt Ave, between Beach 9th St and Beach 2nd St

16: Bridge to Beach Connector

- Beach 94th St between Beach Channel Dr and Rockaway Fwy
- Beach 94th St between Rockaway Fwy and Shore Front Pkwy

17: Jacob Riis Park to Boardwalk

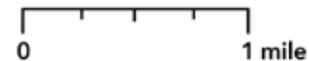
- Rockaway Beach Blvd, between Jacob Riis Park and Beach 126th St.
- Beach 126th St, between Rockaway Beach Blvd and Ocean Promenade

Proposed Projects

- New or Enhanced Greenway Route
- Future Enhancement Project
- Bike Network Expansion
- Boardwalk Reconstruction Project

Existing Network

- Jamaica Bay Greenway
- Greenway
- Striped Bike Lane
- Shared Bike Lane



Future Enhancement Projects

H: Beach 94th St Safety Improvements

- Work with MTA to improve pedestrian crossing at Beach Channel Dr and Beach 92nd St

I: Bayside Path

- Work with NYC Parks, DOE and private property owners to construct continuous multi-use path along waterfront

CHAPTER 3

Phasing and Implementation Plan



Jamaica Bay Greenway

The previous chapter describes the preferred location and design of nearly 20 miles of new or enhanced Greenway route. This chapter presents the route as a series of projects for phased implementation as funding becomes available.

A total of 17 projects on DOT right of way and nine Future Enhancement Projects (FEP) have been identified as part of the Jamaica Bay Greenway Implementation Plan. FEPs are long term projects on jurisdiction outside of DOT that require coordination with other agencies. Routes designated as Future Bike Network Expansion are beyond the scope of this Plan, but are included for further consideration. A number of factors defined these projects, including:

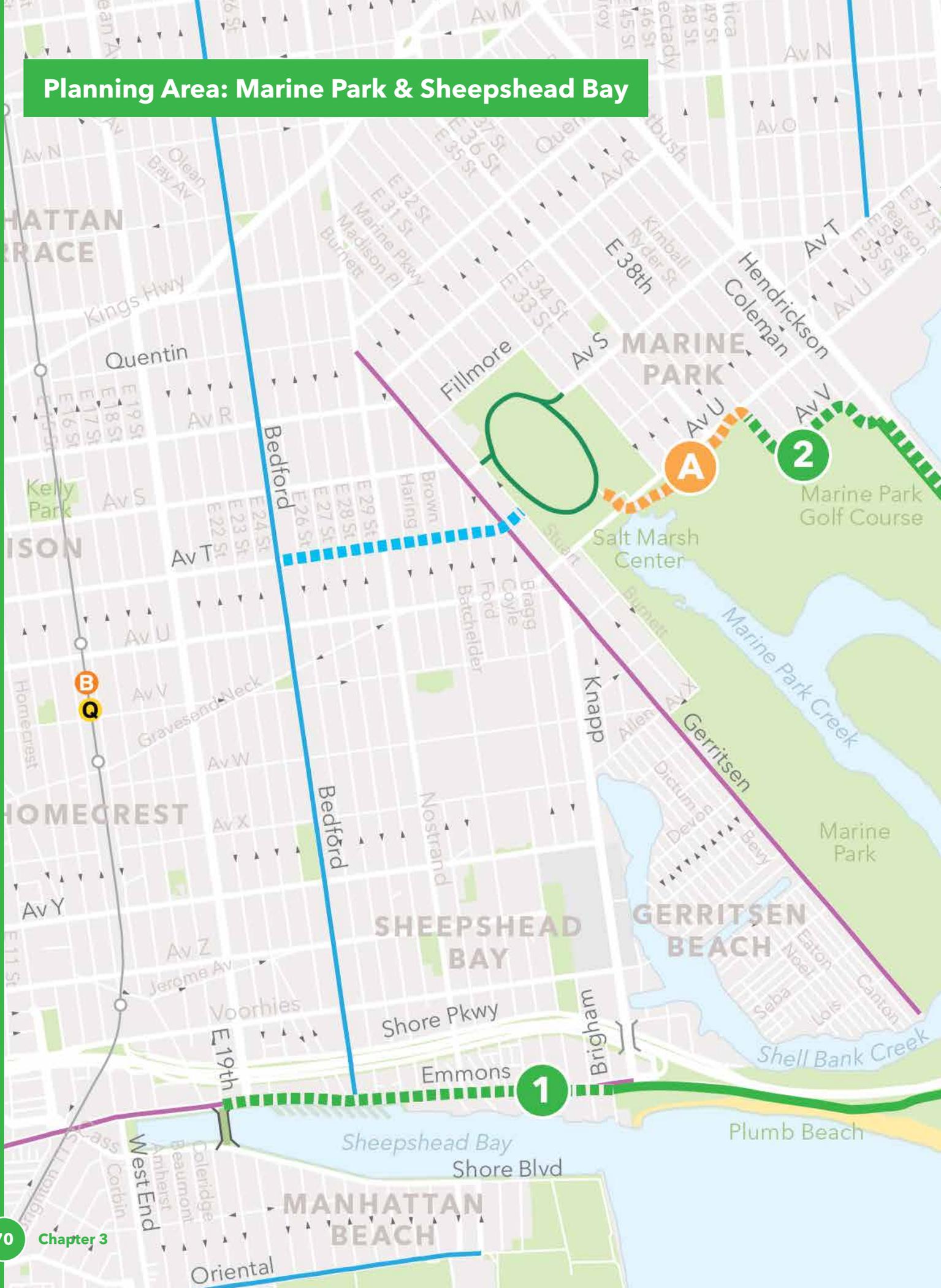
- Feedback gathered at 12 community workshops.
- Individual neighborhood needs and constraints.
- Opportunities to increase traffic safety.
- Street geometry, grid orientation and physical barriers to implementation.
- Political and agency jurisdiction.
- Realistic roadway reconstruction expectations.
- The presence of other recently completed projects and proposed new capital projects by DOT or other agencies on or adjacent to the route.

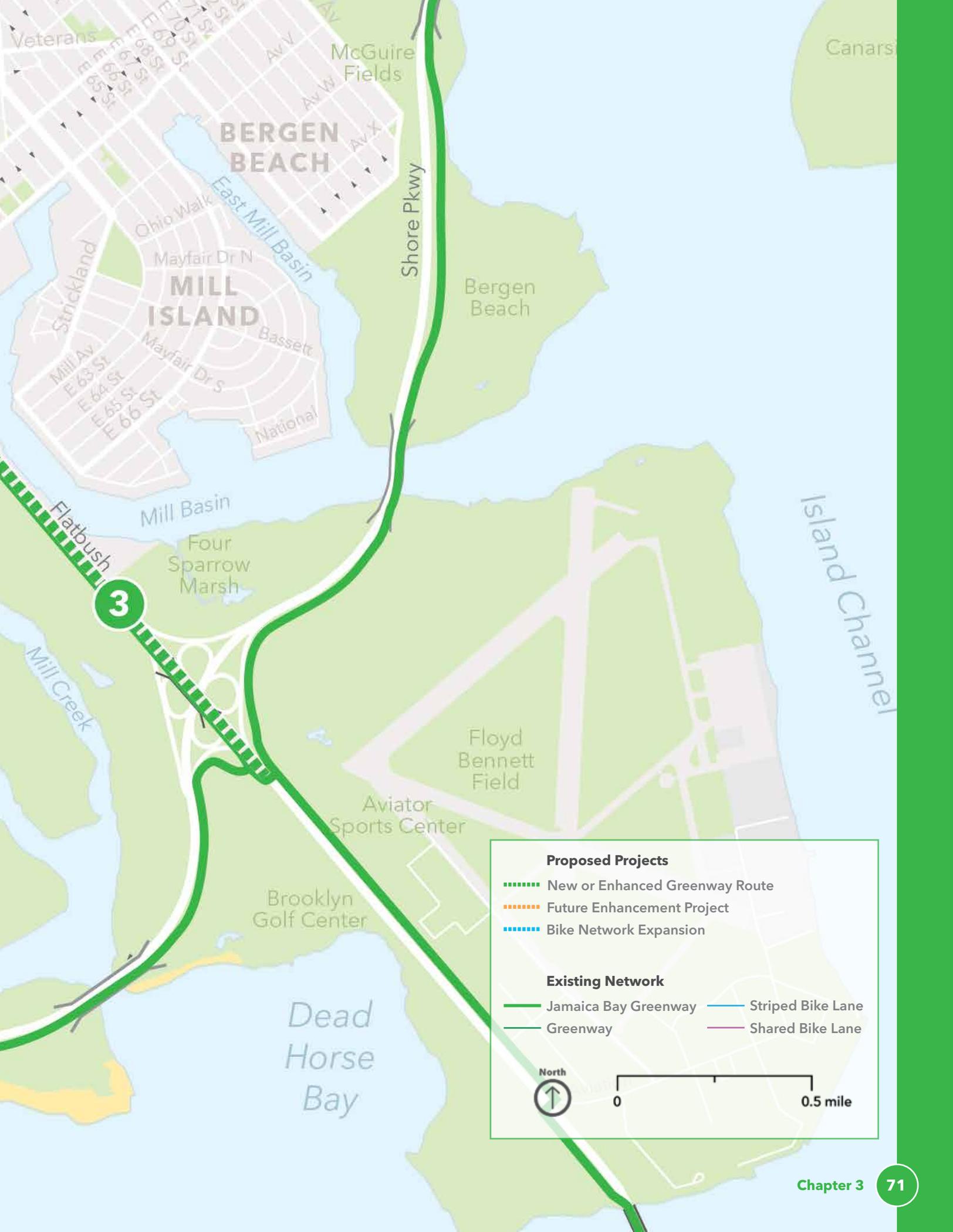
Projects are listed and shown on the tables and maps on the following pages. Physical project limits, including start and end points, and the approximate length of affected streets, are specified.

DOT reserves the right to change proposed project limits and routes. To assist in phasing the implementation of these projects, tables include the following information for each project:

- Estimated construction cost.
- Jurisdiction if other than DOT.
- Overview of short term and/or long term design.
- A description of the work proposed.
- A listing of other recently completed projects and proposed new capital projects by DOT or other agencies within or adjacent to the route.

Planning Area: Marine Park & Sheephead Bay





Planning Area: Marine Park & Sheepshead Bay

Project				Length	Cost	Jurisdiction
ID	Location	Begin	End	Approx Linear Feet	Estimated (\$1,000,000)	Other than DOT
1	Plumb Beach Network Connection			4,800	\$9.09	
	Emmons Ave	East 19th St (Ocean Ave Pedestrian Bridge)	Brigham St	-	-	-
2	Marine Park Connector			2,500	\$4.7	
	East 38th St	Ave U	Ave V	800	-	-
	Ave V	East 38th St	Hendrickson St	1,000	-	-
	Hendrickson St	Ave V	Hendrickson Pl	400	-	-
	Hendrickson Pl	Hendrickson St	Flatbush Ave	300	-	-
3	Flatbush Ave Enhancements			6,500	\$12.3	
	Flatbush Ave	Hendrickson Pl	Shore Pkwy Greenway	-	-	-
A	Marine Park Path			1,900	N/A	
	Marine Park	Ave U Entrance	East 38th St	-	-	NYC Parks

Overview of Greenway Design

Description of Work

Related Projects

Short Term

Long Term

Recently Completed or Proposed

Parking protected 2-way bicycle path.

Grade separated, two-way bicycle path and separate pedestrian path on the south side of the street.

Widen sidewalk to accommodate a two-way bicycle path and separate pedestrian path.

2015 NYC Parks Capital Project: Brigham St Park. Currently in design.

Parking protected multi-use path.

Grade separated, two-way bicycle path and separate pedestrian path adjacent to Marine Park.

Widen sidewalk to accommodate a two-way bicycle path and separate pedestrian path.

-

Enhanced pedestrian and bicycle route with improved ramp crossings.

Grade-separated, multi-use path on the west side of the street.

Widen sidewalk to accommodate a two-way bicycle path and separate pedestrian path. Reconstruct curbcuts and crossings at Shore Pkwy off-ramps.

-

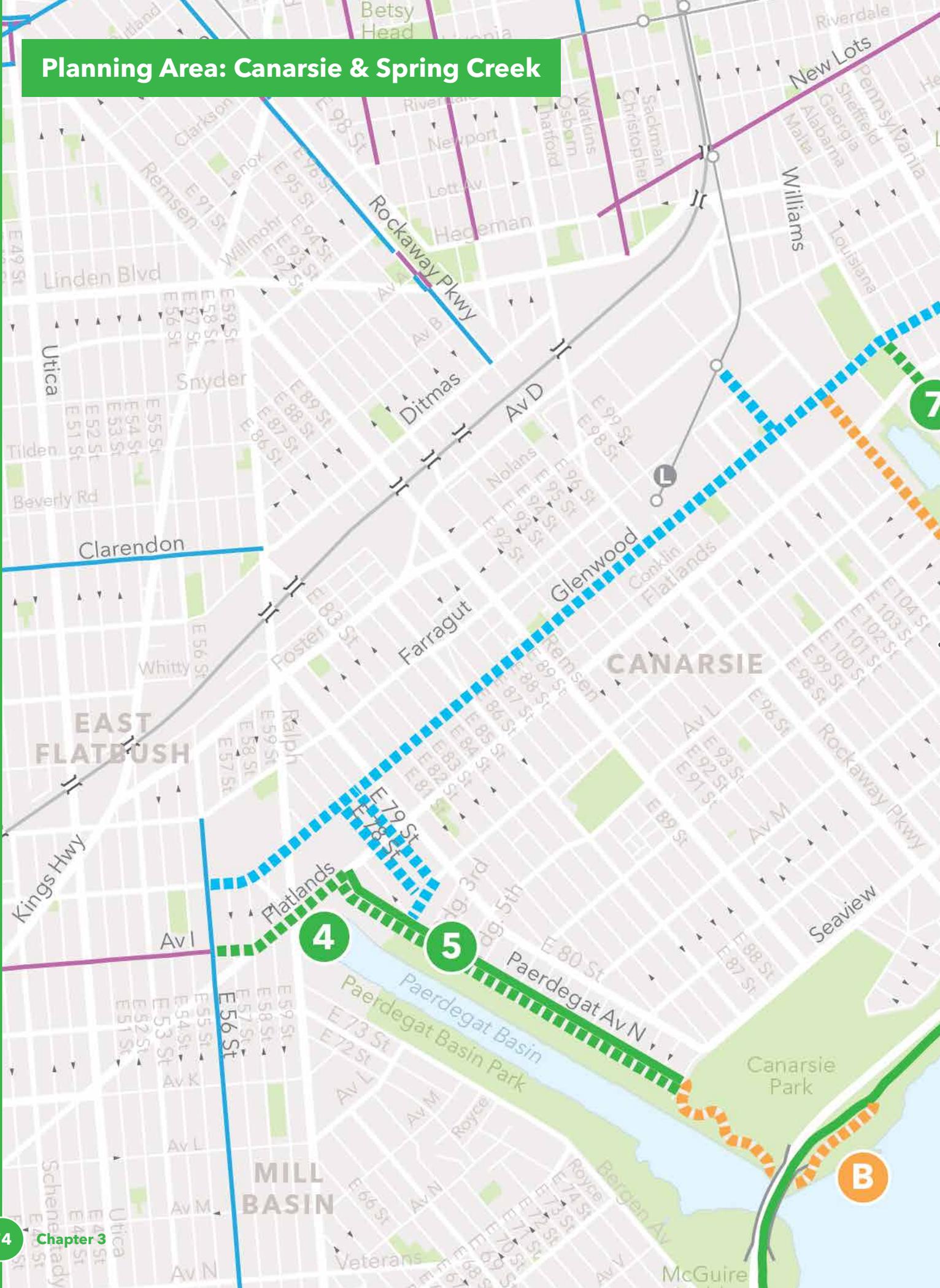
-

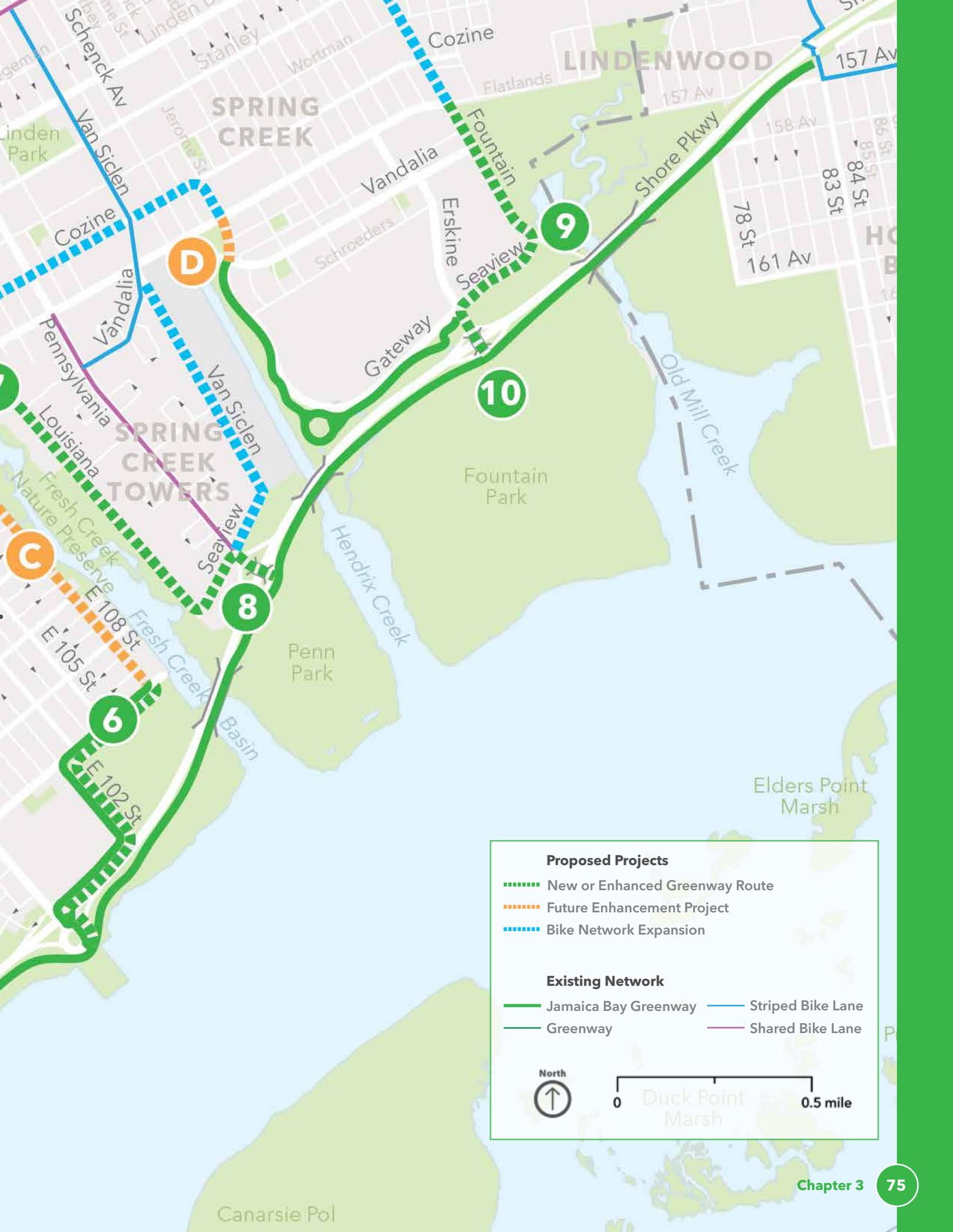
Grade separated, multi-use path through or adjacent to Marine Park.

Work with NYC Parks to widen the existing path to accommodate a multi-use path through or adjacent to Marine Park.

2015 NYC Parks Capital Project: Marine Park Gerritsen Ave Pedestrian Path (B057-415M).

Planning Area: Canarsie & Spring Creek





Proposed Projects

- New or Enhanced Greenway Route
- Future Enhancement Project
- Bike Network Expansion

Existing Network

- Jamaica Bay Greenway
- Striped Bike Lane
- Greenway
- Shared Bike Lane

North

 0 ————— 0.5 mile
 Duck Point Marsh

Planning Area: Canarsie & Spring Creek

Project				Length	Cost	Jurisdiction
ID	Location	Begin	End	Approx Linear Feet	Estimated (\$1,000,000)	Other than DOT
4	Paerdegat Network Link			2,000	\$3.79	
	Ave I	East 56th St	Flatlands Ave	500	-	-
	Flatlands Ave	Ave I	Paerdegat Ave N	1,500	-	-
5	Paerdegat Ave N			5,000	\$9.47	
	East 76th St	Flatlands Ave	Paerdegat Ave N	200	-	-
	Paerdegat Ave N	East 76th St	Seaview Ave	4,800	-	-
6	Canarsie Pier East Connector			4,600	\$8.71	
	Seaview Ave	East 102nd St	E 108th St	1,500	-	-
	East 102nd St	Shore Pkwy	Seaview Ave	1,300	-	-
	Shore Pkwy Service Rd	Rockaway Pkwy	East 102nd St	1,300	-	-
	Rockaway Pkwy Circle	Shore Pkwy Greenway	Shore Pkwy Service Rd	500	-	-
7	Spring Creek Towers Neighborhood Greenway			4,500	\$8.52	
	Seaview Ave	Louisiana Ave	Pennsylvania Ave	900	-	-
	Louisiana Ave	Flatlands Ave	Seaview Ave	4,500	-	-
8	Pennsylvania Ave Overpass			600	\$1.14	
	Pennsylvania Ave	Seaview Ave	Shore Pkwy Greenway	-	-	-
9	Gateway Network Link			3,500	\$3.32	
	Fountain Ave	Flatlands Ave	Seaview Ave	2,100	-	-
	Seaview Ave	Erskine St	Fountain Ave	1,400	-	-
10	Erskine St Overpass			700	\$.040	
	Erskine Loop	Gateway Dr/Seaview Ave	Shore Pkwy segment of Greenway	-	-	-
B	Canarsie West Trail Connector			3,150	N/A	
	Canarsie Park	Seaview Ave	Shore Pkwy segment of Greenway	-	-	NYC Parks
C	E 108th St Streetscape Improvements			500	N/A	
	East 108th St	Glenwood Rd	Seaview Ave	-	-	NYC Parks, NY Rising, NYCDEP
D	Gateway Dr Extension			500	N/A	
	Gateway Dr	Vandalia Ave	Flatlands Ave	-	-	HPD, NYC Parks

Overview of Greenway Design

Description of Work

Related Projects

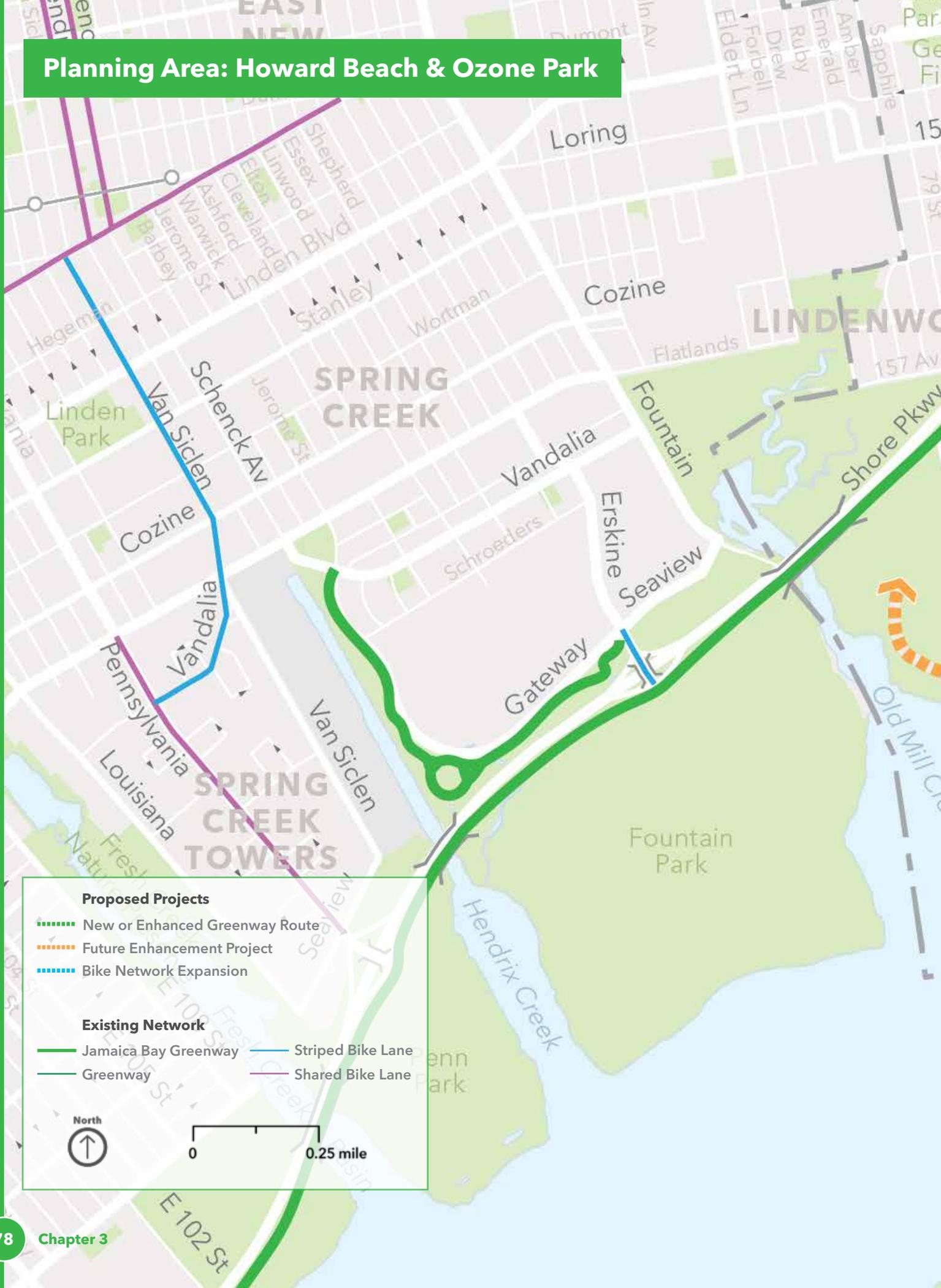
Short Term

Long Term

Recently Completed or Proposed

Short Term	Long Term	Description of Work	Related Projects
Standard bicycle lanes.	-	Install bicycle markings and wayfinding signage.	-
Bicycle stamps on south sidewalk.	Concrete neckdowns at the intersection of Flatlands Ave.	Build out concrete neckdowns at targeted intersections.	-
-	Barrier-protected, multi-use path on west side of the street.	Build out pedestrian neckdowns to create barrier-protected, multi-use path.	2014 DOT St Improvement Project: Parking-protected, multi-use path on the west side of the street.
-	Grade-separated, multi-use path adjacent to Canarsie Park, east of Rockaway Pkwy..	Reconstruct sidewalk to accommodate multi-use path and bus stop bulb outs.	2015 DOT Street Improvement Project: Parking protected, multi-use path and grade-separated bus stop on south side of the street.
-	New sidewalk and on-street bicycle markings.	Construct wide sidewalks.	2015 DOT Street Improvement Project: On-street, shared bicycle markings.
-	Grade-separated, multi-use path adjacent to Canarsie Park, east of Rockaway Pkwy.	Reconstruct sidewalk to accommodate multi-use path.	2015 DOT Street Improvement Project: Separated, two-way bicycle path.
Parking protected, two-way bicycle path.	Grade separated, two-way bicycle path and separate pedestrian path on the west side of the street.	Widen sidewalk to accommodate a two-way bicycle path and separate pedestrian path.	Future NPS Park: Penn Park.
-	Grade-separated bicycle path.	Widen sidewalk on overpass to accommodate a two-way bicycle path and separate pedestrian path.	Future NPS Park: Penn Park.
Median-separated, two-way bicycle path. Bus stop bulb outs.	-	Redesign roadway to include two-way bicycle path. Construct bus stop bulb outs.	Future NPS Park: Fountain Park.
-	Protected bicycle path.	Install concrete barriers or sidewalk markings to designate bicycle route.	Future NPS Park: Fountain Park.
-	Off-street path in Canarsie Park, west of Rockaway Pkwy.	Work with NYC Parks to construct a multi-use path through Canarsie Park, west of Rockaway Pkwy, connecting to Paerdegat Ave N and Greenway.	2015 NYC Parks Capital Project: Canarsie West Trail Connector (BG-915M). Currently in design.
-	Streetscape improvements and flood mitigation as feasible.	Work with NYC Parks, DEP and NY Rising to install pedestrian improvements.	Governor's Office of Storm Recovery Canarsie NY Rising.
-	Off-street path alongside Gateway Dr extension.	Work with HPD and NYC Parks to extend Gateway Dr multi-use path from Vandalia Ave to Flatlands Ave adjacent to new road.	2015 HPD & HDC Development: Gateway Elton I-III.

Planning Area: Howard Beach & Ozone Park



Proposed Projects

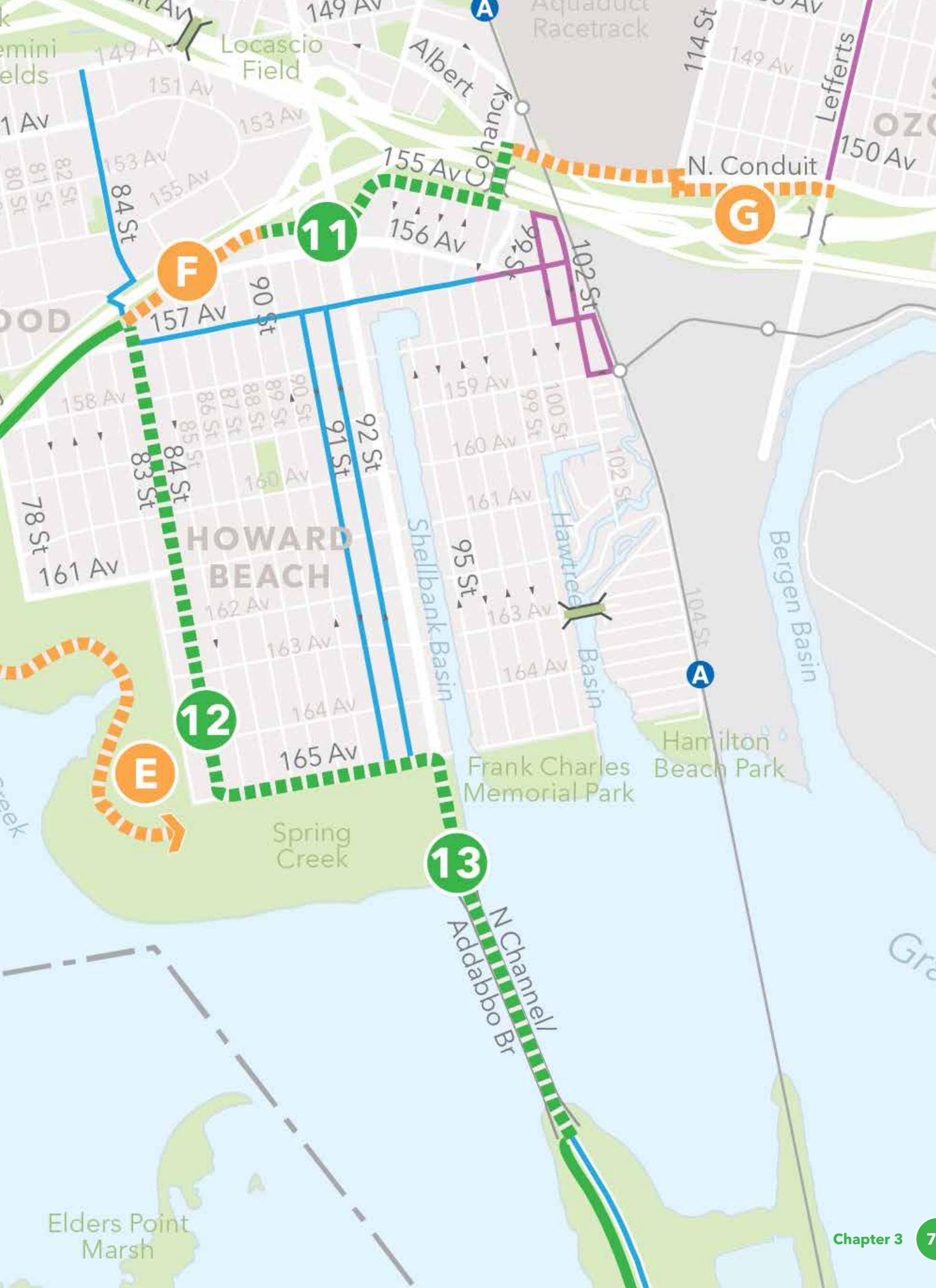
- ▬▬▬▬▬ New or Enhanced Greenway Route
- ▬▬▬▬▬ Future Enhancement Project
- ▬▬▬▬▬ Bike Network Expansion

Existing Network

- ▬ Jamaica Bay Greenway
- ▬ Striped Bike Lane
- ▬ Greenway
- ▬ Shared Bike Lane



0 0.25 mile



Planning Area: Howard Beach & Ozone Park

Project				Length	Cost	Jurisdiction
ID	Location	Begin	End	Approx Linear Feet	Estimated (\$1,000,000)	Other than DOT
11	Conduit Greenway Extension			3,500	\$6.63	
	Shore Pkwy Service Rd	89th St	155th Ave	1,700	-	-
	155th Ave	Shore Pkwy Service Rd	Cohancy St	1,200	-	-
	Cohancy St Bridge	155th Ave	Conduit Ave N	600	-	-
12	Belt to Bridge Connector			7,500	\$7.11	
	84th St	Shore Pkwy Greenway	165th Ave	5,200	-	-
	165th Ave	84th St	Cross Bay Blvd	2,300	-	-
13	Addabbo Bridge Improvements			4,500	\$6.93	
	Cross Bay Blvd	165th Ave	Addabbo Bridge	1,300	-	-
	Addabbo Bridge	-		3,200	-	-
E	Spring Creek Park Path			Undetermined	N/A	
	Spring Creek Park	Connection to Shore Pkwy Greenway	Connection to Addabbo Bridge Path	-	-	NPS, DOI
F	Shore Pkwy Greenway Extension			1,600	N/A	
	Shore Pkwy Service Rd	84th St	89th St	-	-	NYC Parks
G	North Conduit Extension			3,500	N/A	
	North Conduit	Cohancy St	116th St	2,700	-	NYC Parks, NYS DOT
	Conduit Ave N Path	116th St	Lefferts Blvd	800	-	

Overview of Greenway Design

Description of Work

Related Projects

Short Term

Long Term

Recently Completed or Proposed

Parking-protected two-way bicycle path and separate pedestrian path.

Grade-separated, two-way bicycle path and separated pedestrian path along the park edge.

Construct new sidewalk to accommodate bicycle and pedestrian path.

-

Separated, two-way bicycle route on bridge.

Install concrete barriers or sidewalk markings to designate bicycle route.

On-street bicycle lanes and wayfinding signage; targeted pedestrian improvements.

-

Install bicycle lane markings and wayfinding signage. Build or paint pedestrian neckdowns at designated intersections.

-

Parking protected, multi-use path on south side of the street.

Grade-separated, two-way bicycle path and separated pedestrian path on south side of the street.

Construct new sidewalk and grade-separated, multi-use path.

Protected, two-way bicycle path on west bridge and approach.

-

Redesign street to create parking protected two-way bicycle path. Install concrete barriers.

-

-

Construct a multi-use path through Spring Creek Park.

Work with NPS and DOI to construct a multi-use path through Spring Creek Park.

-

-

Widen and enhance existing path.

Work with NYC Parks to widen and enhance existing path from Shore Pkwy Greenway to 90th St.

-

-

Widen and enhance existing path, extend to Lefferts Blvd. Bridge to Conduit Park.

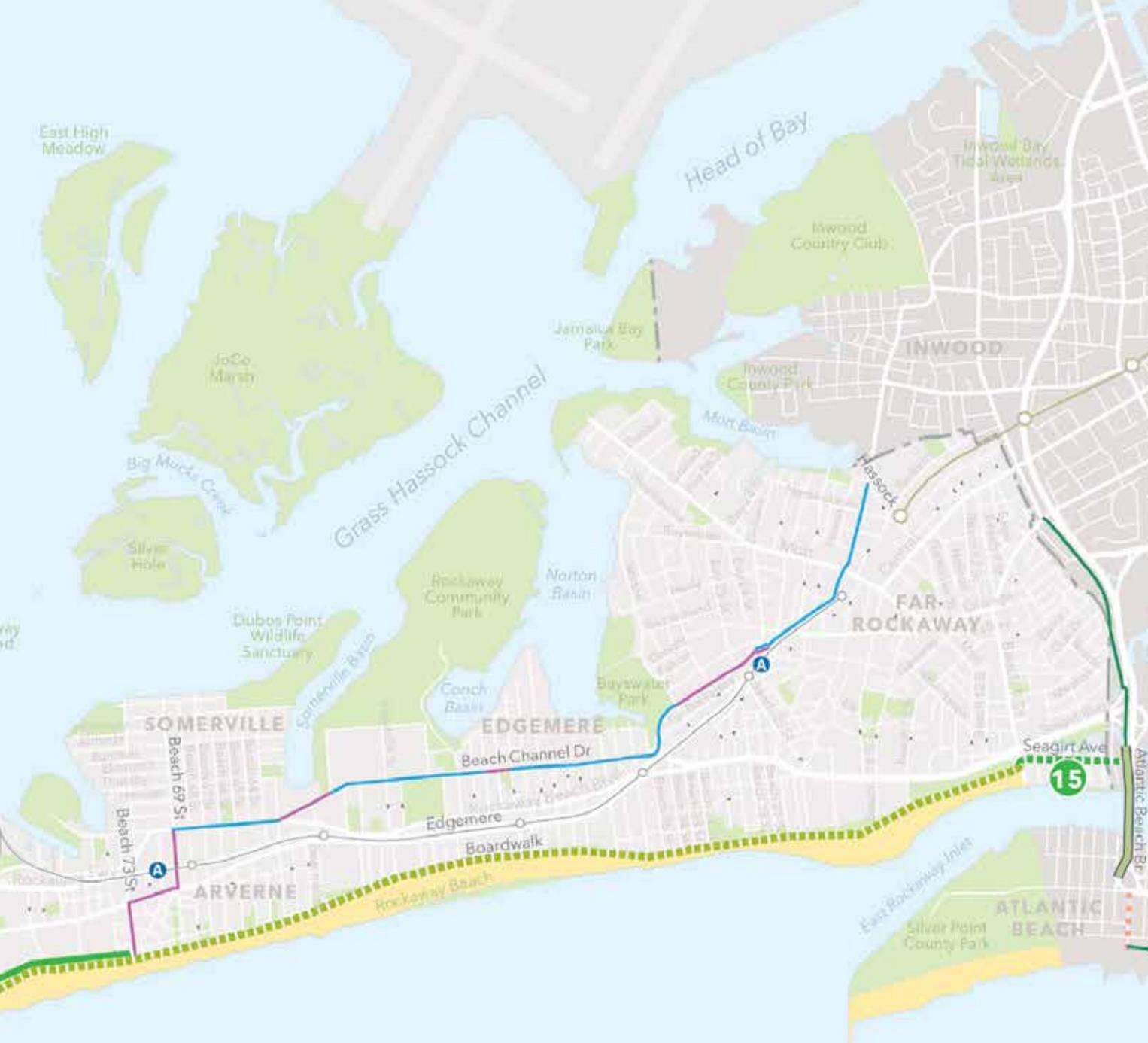
Work with NYC Parks and NYS DOT to widen and enhance existing path from Cohancy St Bridge to Conduit Park.

-

Planning Area: Rockaway & Broad Channel



Must walk bike per MTA Policy. NYC DOT will continue to work with MTA to address safe access issues. →



Proposed Projects

- New or Enhanced Greenway Route
- Future Enhancement Project
- Bike Network Expansion

Existing Network

- Jamaica Bay Greenway
- Greenway
- Striped Bike Lane
- Shared Bike Lane

North

 0 ————— 1 mile

Planning Area: Rockaway & Broad Channel

Project				Length	Cost	Jurisdiction
ID	Location	Begin	End	Approx Linear Feet	Estimated (\$1,000,000)	Other than DOT
14	Broad Channel Greenway Enhancements			6,200	\$11.74	
	Cross Bay Blvd	Jamaica Bay Wildlife Refuge (north of E 6th Rd)	East 21st Rd	-	-	-
15	Nassau County Connector			1,800	\$3.41	
	Beach 9th St	Boardwalk	Seagirt Ave	200	-	-
	Seagirt Ave	Beach 9th St	Nassau Expressway Greenway	1,600	-	-
16	Bridge to Beach Connector			1,900	\$0.020	
	Beach 94th St	Beach Channel Dr	Rockaway Fwy	700	-	-
	Beach 94th St	Rockaway Fwy	Shore Front Pkwy	1,200	-	-
17	Jacob Riis Park to Boardwalk			7,400	\$0.080	
	Rockaway Beach Blvd	Jacob Riis Park Promenade	Beach 126th St	-	-	-
H	Beach 94th St Safety Improvements			Intersection	N/A	
	Beach 94th St	Beach Channel Dr	Beach 92nd St	-	-	MTA
I	Bayside Path			14,200	N/A	
	Beach Channel Dr	Beach 149th St	Beach 98th St	-	-	NYC Parks, Dept of Ed, Private

Overview of Greenway Design

Description of Work

Related Projects

Short Term

Long Term

Recently Completed or Proposed

-	Enhanced medians and additional parking. Enhanced bicycle facilities.	Reconstruct median, install bicycle facility and wayfinding signage.	Capital reconstruction on Cross Bay Blvd
On-street, shared use markings and wayfinding signage.	Sidewalks on both sides of street.	Install shared lane markings and wayfinding signage. Construct new sidewalks.	NYC Parks Rockaway Parks Conceptual Plan Project: Beach 9th St - Beach 26th St.
On-street, shared lane markings, bicycle lane, and wayfinding signage. On-street, shared lane markings, contraflow bicycle lane, and wayfinding signage.	-	Install bicycle lane markings and wayfinding signage.	NYC Parks Rockaway Parks Conceptual Plan Project: Beach 94th St - Beach 95th St Corridor.
On-street bicycle lanes and wayfinding signage.	-	Maintain or upgrade existing route. Install wayfinding signage.	-
-	Work with MTA to improve pedestrian crossing at Beach Channel Dr and Beach 92nd St.	Install traffic signal at Beach Channel Dr and Beach 92nd St.	-
-	Work with NYC Parks, DOE and private property owners to construct continuous multi-use path along waterfront.	Work with Construct continuous multi-use path along waterfront.	NYC Parks Rockaway Parks Conceptual Plan Project: Beach 108th St Esplanade.



Regional Plan Association