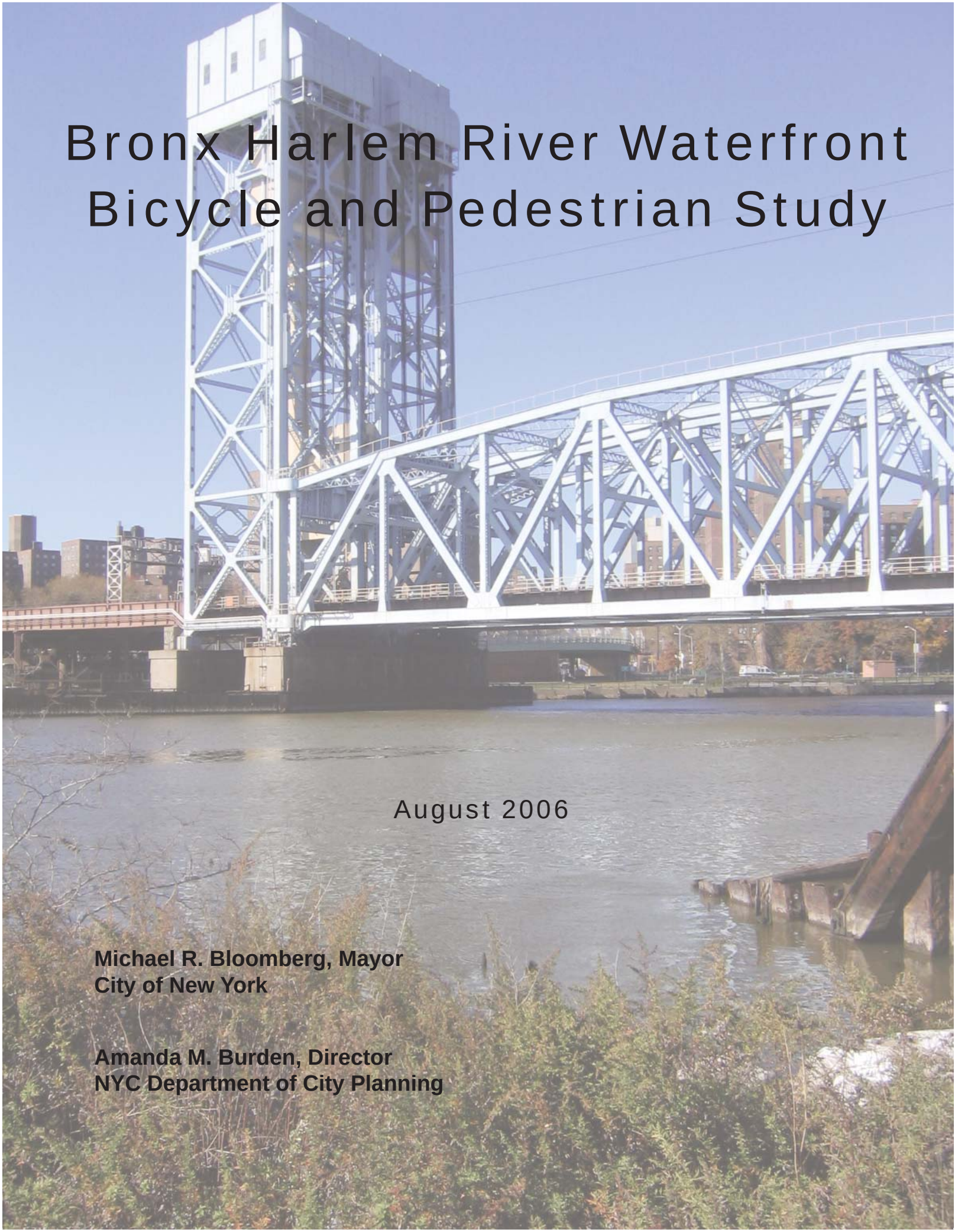

Bronx Harlem River Waterfront Bicycle and Pedestrian Study

August 2006

Michael R. Bloomberg, Mayor
City of New York

Amanda M. Burden, Director
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Chapter 1. Introduction

Project Description

The waterfront along the Harlem River in the South Bronx has the potential to be a valuable destination for non-motorized commuting and recreation. There is currently no publicly accessible open space along the waterfront in the South Bronx, and no continuous system of bicycle and pedestrian pathways connecting the waterfront to upland destinations. With many developments and improvements planned for the Bronx Harlem River waterfront and for the South Bronx in general (including the Gateway Center at the Bronx Terminal Market, a new Yankee Stadium, a South Bronx greenway through Hunts Point and mixed use rezoning in Port Morris), the creation of safe and attractive bicycle and pedestrian routes to local destinations and to the waterfront is becoming increasingly important.

The Bronx Harlem River Waterfront Bicycle and Pedestrian Study focuses on a section of the southwest Bronx, approximately 2.3 miles long, which runs along the Harlem River waterfront from the Macombs Dam Bridge to the Triborough Bridge. The study area has been divided into 5 sections to facilitate organized data gathering and route identification (see Figure 1).

The goals of this study are to develop recommendations for the establishment of publicly accessible bicycle and pedestrian facilities throughout the study area, to provide access to the Harlem River waterfront, and to plan for the connection of recommended routes to current and future non-motorized routes and to surrounding destinations. The Department of City Planning (DCP) has consulted closely with a Technical Advisory Committee (TAC) comprised of representatives from local community groups, civic organizations and state and local governmental organizations. The recommendations of this study have been informed by extensive field work, meetings with the TAC, and feedback from the community.

The funding for this project is provided by the New York Metropolitan Transportation Council through the Unified Planning Work Program.

The steps taken to complete this project include:

1. The establishment of a technical advisory committee (TAC) to provide input, review work and comment on results at various points in the study process.
2. The gathering of data through a literature review and observation of study area existing conditions. Base data gathered includes land ownership, jurisdiction, land use, zoning, and street layout (direction, width and physical conditions) of study area locations. Input from key organizations and constituents has been solicited to supplement base data. Projects adjoining the site have been identified and any relevant information has been analyzed. Field work consisted of various forms of data gathering including measurement of street geometry, counts of non-motorized and motorized traffic, photography of study area, and map generation.
3. Analyzing potential routes for each study area and conceptually designing recommendations. Route alternatives have been identified and evaluated by the DCP in consultation with the TAC. Long- and short-term route designs have been developed based on accessibility, connectivity, directness and continuity.
4. The development of a schematic design of the

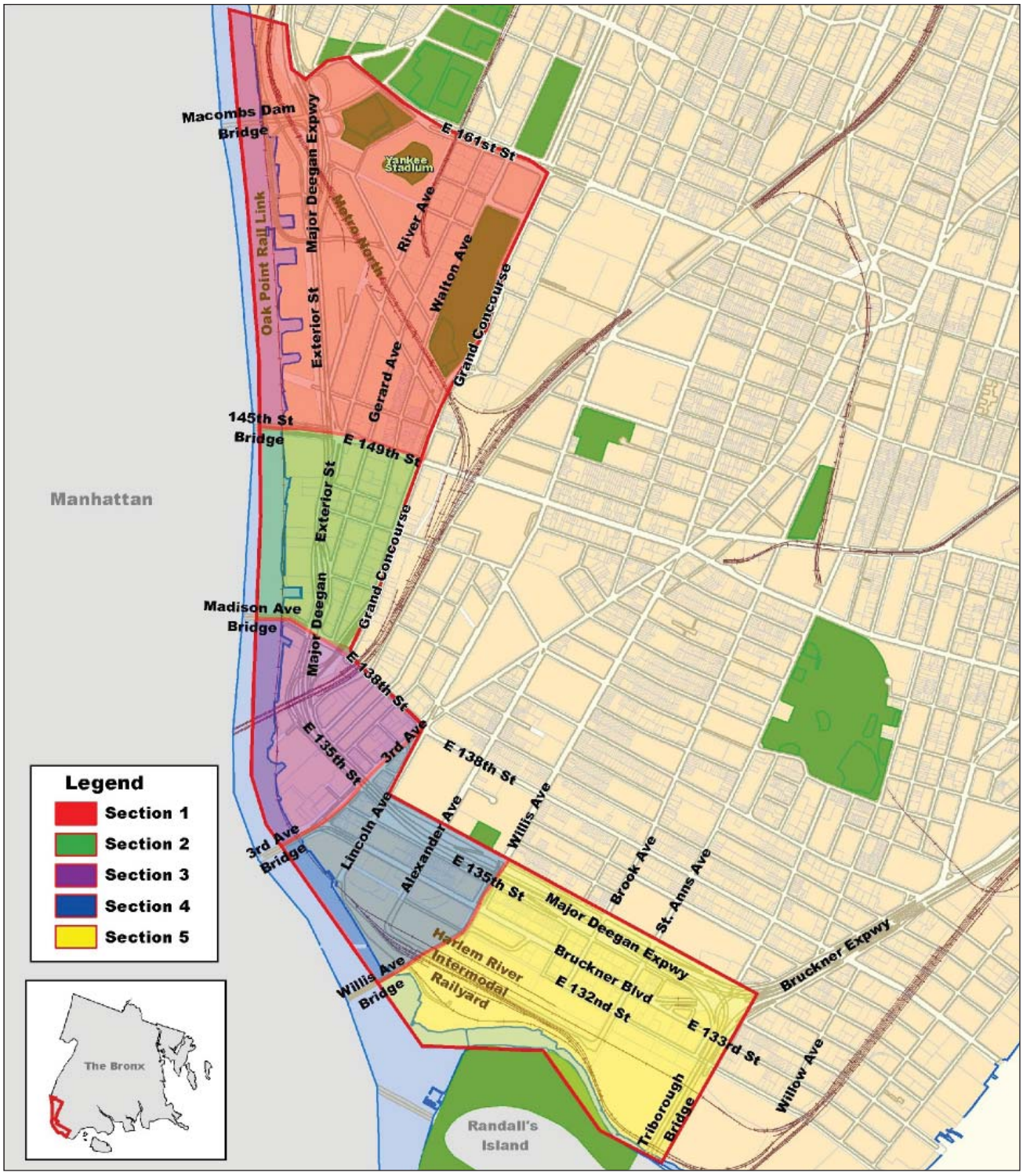


Figure 1. Map of the study area divided in sections

preferred conceptual recommendations. This planning document includes design guidelines identifying typical bicycling and pedestrian path details.

5. The completion of a master plan to outline the finalized plans and recommendations for the selected routes, as detailed above.

Planning Framework

When planning bicycle and pedestrian facilities, it is important to follow guidelines set by The American Association of State Highway and Transportation Officials (AASHTO). For sidewalks, AASHTO recommends a minimum clear width of 4 feet, which does not include the width of any attached curb. In addition, along busy arterials, AASHTO states that the desirable clear width of the sidewalk is 6 to 8 feet, while in a Central Business District (CBD), the desirable clear width of the sidewalk is 10 feet. In AASHTO's *Guide for the Development of Bicycle Facilities* (1999), a minimum width of 10 feet for a bi-directional shared use path is recommended. The guide also suggests that a three-foot wide graded (1:6 slope) area should be established adjacent to a shared-use path in order to provide separation from obstructions such as trees and poles. Also, in areas such as New York City where most on-street bicycle lanes are striped between parking lanes and vehicular travel lanes, the minimum desirable bicycle lane width is 5 feet.

Potential bicycle routes are evaluated using the following criteria:

- Accessibility to origins and destinations.
- Connectivity with bicycle network, public waterfronts, parks, esplanades, points of interest and retail corridors.
- Safety of route: minimize conflicts with vehicular traffic, provide lanes of sufficient width.
- Directness of route: consider constraints including geography, minimizing impacts on natural areas, and community and governmental satisfaction.
- Continuity of cycling conditions: from grade and pavement conditions to scenic qualities.

Pedestrian, Bicycle and Waterfront Planning in the Bronx

The need for the Bronx Harlem River Waterfront Bicycle and Pedestrian Study is apparent in the conclusions and recommendations of past planning projects undertaken in New York City. Specifically:

- The Bronx Harlem River Waterfront Bicycle and Pedestrian Study is part of a larger effort to enact the recommendations of the 1993 Greenway Plan for New York City, which identifies a potential 350 mile network of off-street bicycle and pedestrian paths throughout New York City, and the recommendations of the 1997 New York City Bicycle Master Plan, which further identifies a potential 550 mile citywide on-street network of bicycle facilities. The NYC Cycling Map, which includes existing and proposed bicycle routes citywide, is updated and published yearly as a result of planning and route implementation informed by the above documents (see Figure 2).

- The DCP's 1993 *Plan for the Bronx Waterfront*, part of the overall *New York City Comprehensive Waterfront Plan*, specifically identifies potential greenway/bikeway connectors along Bruckner Boulevard, St. Anns Avenue, Third Avenue, East 138th Street and Grand Concourse in the study area, as well as potential pedestrian waterfront access points at the ends of St. Anns Avenue and Lincoln Avenue.

- The 1997 *New Waterfront Revitalization Program* states, as part of its several policy recommendations, the need to "provide public access to and along New York City's coastal waters," and to "preserve and develop waterfront open space on publicly owned land at suitable locations."

- Two reports by the Bronx Borough President's Office outline the need for extensive greenway and waterfront planning in the borough. The 1993 *Bronx Greenway Plan* identifies the importance of greenway planning as "an

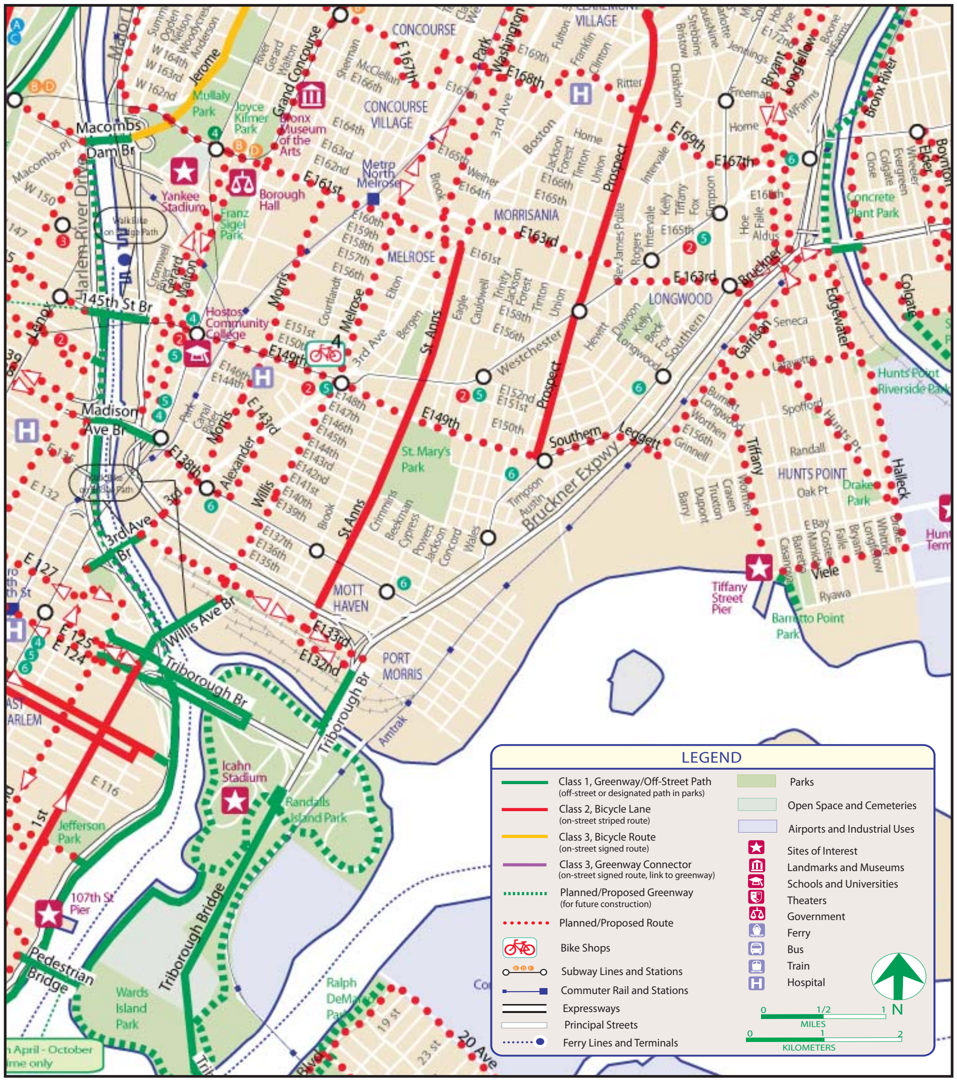
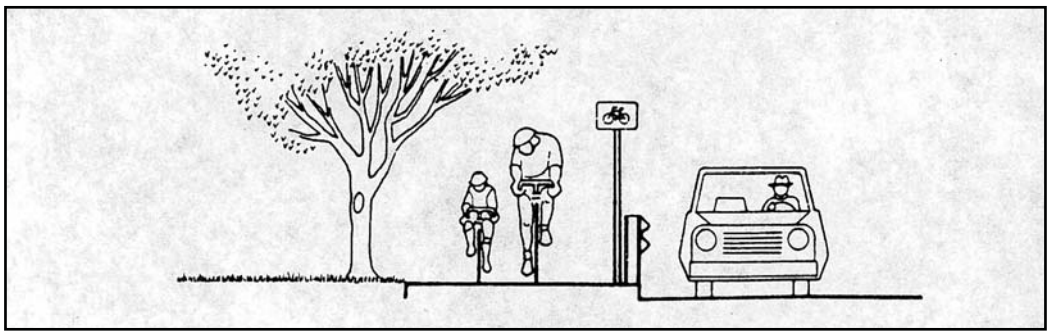


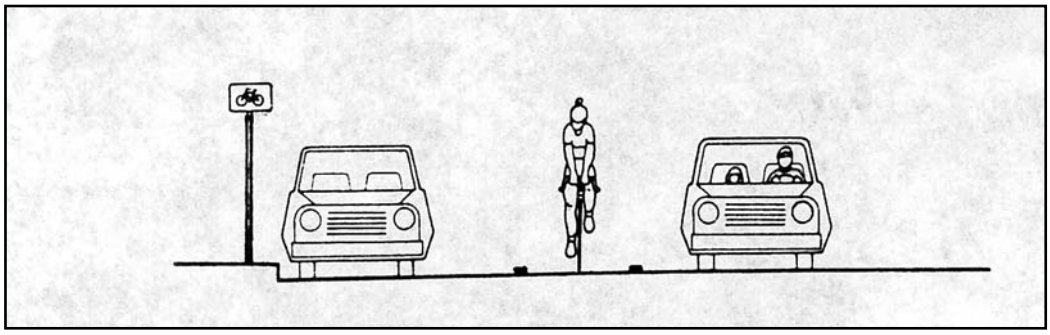
Figure 2. Study area section of the 2006 New York City Cycling Map

opportunity to improve our quality of life. By promoting a greener and more pedestrian- and bicycle-friendly environment, it will help bring us out of our cars and into our parks, along the waterfront, and past famous landmarks and institutions." The 2004 *Bronx Waterfront Plan* has as one of its strategic objectives to "establish/ improve public access to the waterfront," and identifies specific sections of the study area as sites of recommended public access and waterfront improvement.

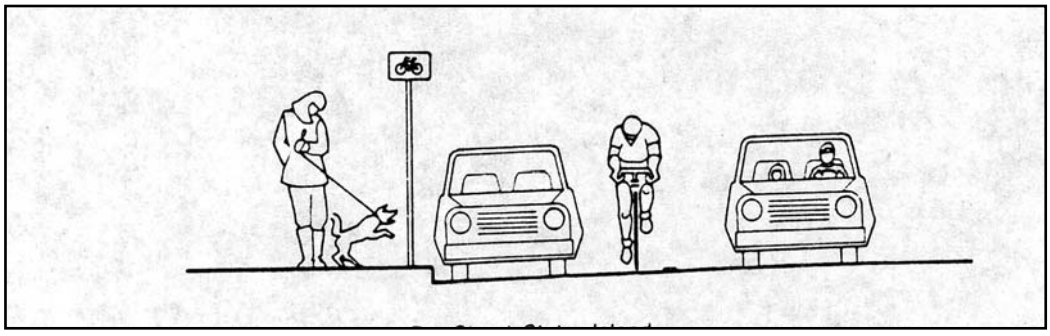
Bikeway Classifications:



Class 1: Multi-use path separated from roadway and delineated by pavement markings and regulatory signage. Bicycle paths are usually shared with multiple users, including pedestrians, runners and skaters. Example: Hudson River Greenway, Manhattan.



Class 2: On-street bicycle lane. Part of the roadway and delineated by pavement markings and regulatory signage. The lane, which can be shared with in-line skaters, is usually located next to curb lane parking, and may include a marked buffer zone. Example: St. Anns Avenue, The Bronx.



Class 3: Signed bicycle route. Shared use of the roadway, typically designated with informational signs. Example: Avenue I, Brooklyn.

Source: New York City Bicycle Master Plan, 1997.

Chapter 2. Existing Conditions

Overview

The study area runs along the Bronx Harlem River waterfront from the Macombs Dam Bridge to the Triborough Bridge, which is approximately 2.3 miles. Initially, it is bounded by East 161st Street to the north, Grand Concourse to the east and the Harlem River to the west. Moving south to the Madison Avenue Bridge, the boundary line then extends along East 138th Street to the east, continues south along 3rd Avenue, and finally follows East 135th Street east until it reaches the Triborough Bridge. We have separated the study area into five sections, each of which spans the space between two of the six bridges within the study area (see Figure 1).

The predominant land uses in the study area are industrial and manufacturing, and transportation and utility, uses which concentrate along the waterfront. Large parking facilities and some vacant lots are also present in this area. Residential uses cluster in the northeastern area, around the intersection of East 161st Street and Grand Concourse, and in a few southeastern blocks in the Port Morris Special Mixed Use District. There are a small number of commercial lots, mainly located close to the blocks of residential use. Figures 3 and 4 show the zoning and land use maps of the study area, respectively.

The study area has extensive motor vehicle transportation access. The Major Deegan Expressway runs along the study area and has on/off ramps at East 161st Street, East 138th Street, Park Avenue, Willis Avenue and Brook Avenue, as well as an off-ramp at East 149th Street. Six bridges in the study area serve as vehicular and pedestrian connections between Manhattan and the Bronx. These bridges are, from north to south: the Macombs Dam Bridge, the 145th Street Bridge, the Madison Avenue Bridge, the 3rd Avenue Bridge, the Willis Avenue Bridge and the Triborough Bridge. The Macombs Dam Bridge was designated an official New York City landmark in 1992. The Metro North Hudson and Harlem lines run through the study area, but they have no stations inside the area. They connect to Manhattan across the Park Avenue Railroad Bridge, which is located between the Madison Avenue and the 3rd Avenue Bridges. The area is also well served by public transportation. It can be accessed by subway on the 2, 4, 5, 6, B and D lines, and by bus on the Bronx 1, 6, 13, 15, 17, 19, 33 lines (see Figure 5).

One major destination in the study area is Yankee Stadium, which is located at the study area's northern edge. Also located at the northern edge is the Bronx Borough Hall and Court House, and Hostos Community College stands a few blocks further south. The Bronx Terminal Market was, until recently, a major industrial destination. The main open spaces are located in the north of the study area, and include Macombs Dam Park, next to Yankee Stadium, and Franz Sigel and Joyce Kilmer parks, next to the Bronx Borough Hall and Court House (see Figure 6). The remainder of the study area is underserved by parks and open space.

Current features of the overall study area are:

- No waterfront access except at a derelict strip immediately west of the Bronx Terminal Market (BTM).
- No bicycle facilities except one upland class 2 bike lane along St. Anns Avenue that runs between East 135th Street (see Photo 1) and East 161st Street, and one class 3 signed route along

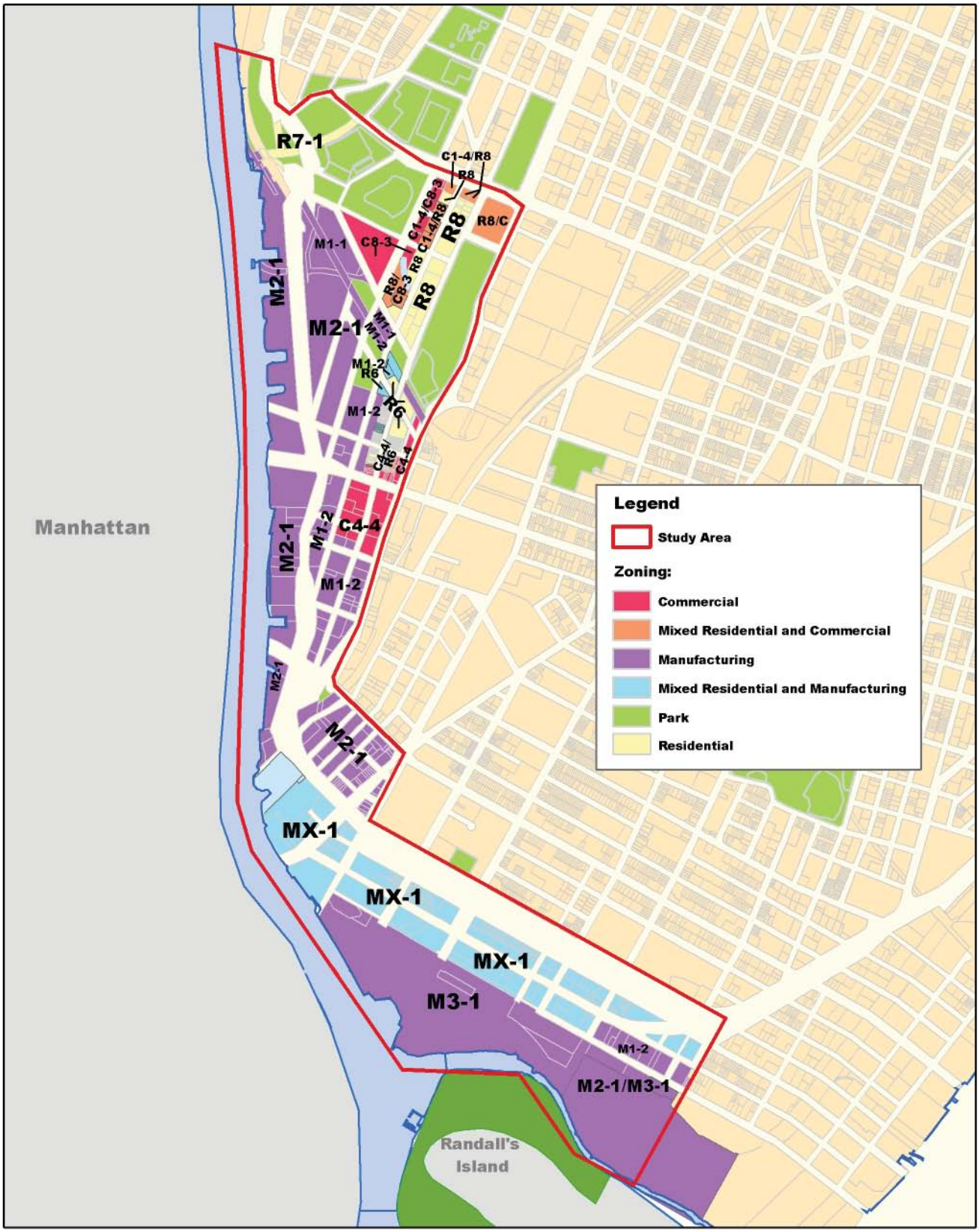


Figure 3. Study area zoning map

Figure 4. Study area land use map

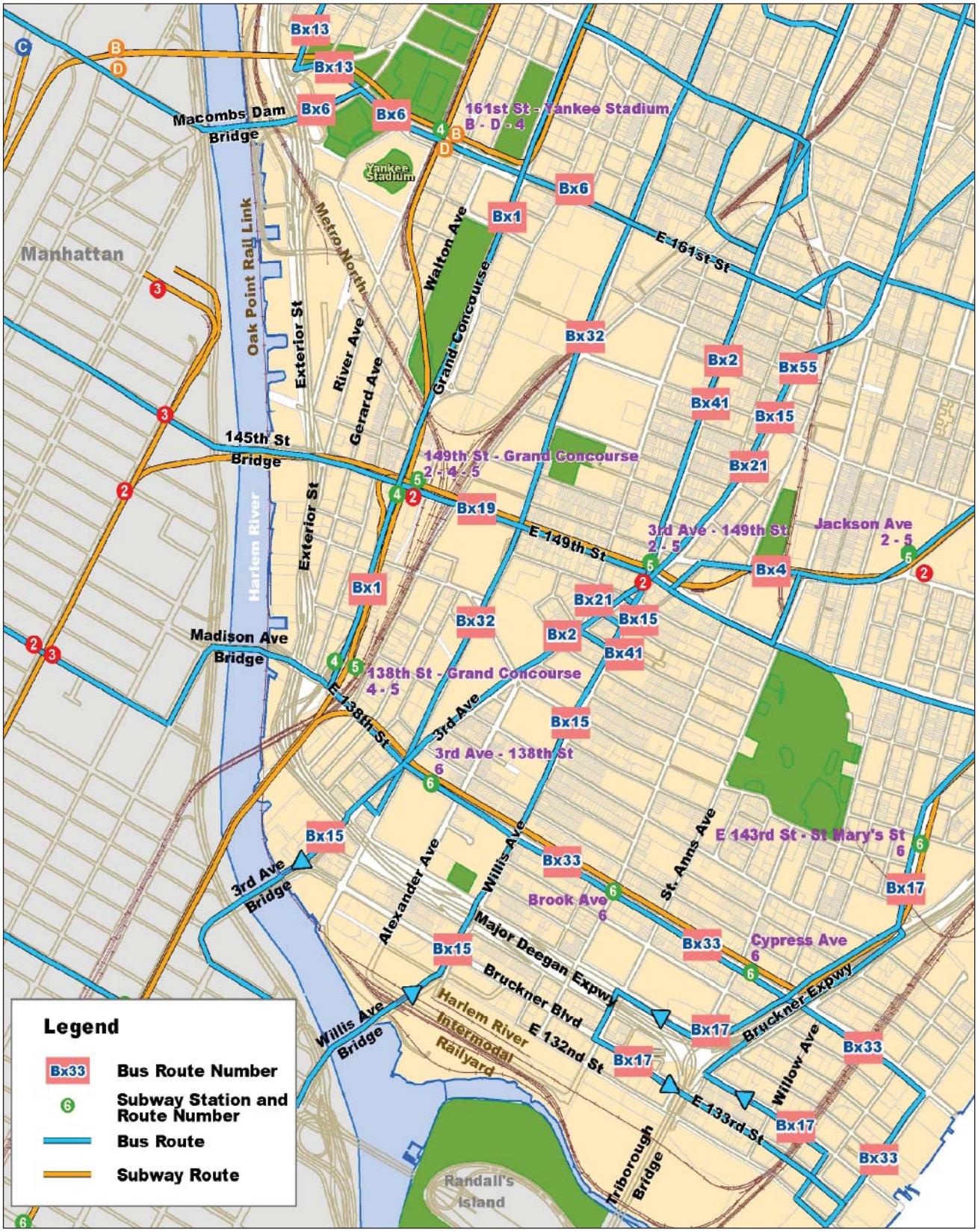
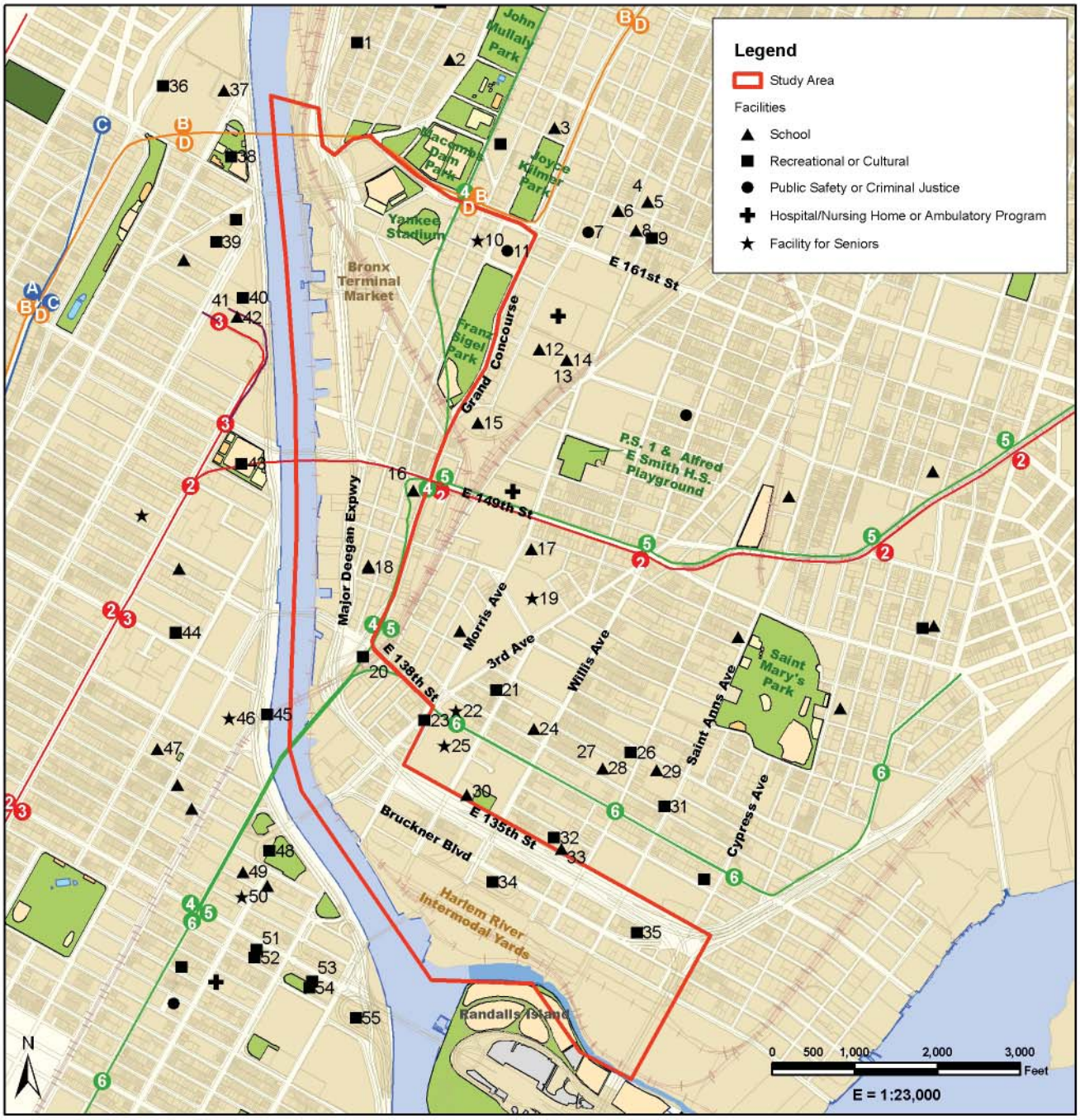


Figure 5. Study area transportation map



1-Summit Avenue Park
2-P.S. 73-Bronx School
3-All Hallows Institute
4-P.S. 35 Franz Siegel School
5-JHS 166 Roberto Clemente School
6-Bronx School for Law Government and Justice
7-Bronx Criminal / Family Court
8-Saint Angela Merici School
9-Melrose Library
10-Hope of Israel Senior Citizen Center
11-Bronx County Courthouse
12-P.S. 156 Benjamin Banneker School
13-P.S. 31 William Lloyd Garrison School
14-J.H.S. 151 Henry Lou Gehrig School
15-Cardinal Hayes High School
16-Hostos Community College (CUNY)
17-P.S. 18 John Peter Zenger School
18-Health Opportunities Secondary School
19-Patterson Houses
20-Grass Strip (Memorial)
21-Mott Haven Library
22-Borinquen CT Senior Center
23-Graham Square Park (Triangle)
24-P.S. 49 Willis Avenue School
25-Mitchell Houses
26-Brook Park
27-P.S. 220 Mott Haven Village School
28-IS 222
29-P.S. 30 Wilton School
30-P.S. 154 Jonathan D. Hyatt School
31-Padre Plaza
32-Peoples Park Exchange
33-P.S. 43 Jonas Bronck School
34-Pulaski Park
35-134th St Playground
36-Highbridge Park
37-P.S. 46 Arthur Tappan School
38-PS 156 Holcombe Rucker Playground
39-Macombs Bridge Library
40-Frederick Johnson Park
41-P.S. 200 James M. Smith School
42-Frederick Douclass Academy
43-Col Charles Young Playground
44-P.S. 197 John B. Russwurm School
45-Harlem River Dr
46-Lincoln Senior Center
47-P.S. 133 Fred R. Moore School
48-Harlem River Park
49-P.S. 30 R. Hernandez/L. Hugues School
50-U.B.A. Beatrice Lewis Senior Center
51- 125th St Library
52-Dream Street Park
53-Triboro Bridge Park
54-Wagner Houses Pool
55-Louis Cuvillier Park

Figure 6. Community facilities map

Jerome Avenue, running north of the Macombs Dam Bridge. There are also bicycle/pedestrian paths on all study area bridges (see Photo 2).

– The Oak Point Link runs as an elevated rail line in the Harlem River along the waterfront throughout the study area. It connects the Hudson East Shore Line on the west side of the Bronx with the Oak Point Yard on the south side of the Bronx, and it passes through the Harlem River Yard. The link runs for approximately 1.8 miles on a fixed trestle, parallel to the Metro North line rail tracks, and comes on land at the Park Avenue and Lincoln Avenue street ends and the Harlem River Yard (see Photo 3). The Oak Point Link is owned by the New York State Department of Transportation.
– The Major Deegan Expressway runs along or close to the waterfront throughout the study area, either elevated or at ground level (see Photo 4).
– There is a ferry which runs to the Yankee Stadium parking lots north of the former Bronx Terminal Market from Weehawken, NJ and Manhattan during Yankee game times.

Some major future planned changes in and around the study area are:

– The Yankee Stadium redevelopment project.
– The Gateway Center/Bronx Terminal Market redevelopment project.
– The Regatta Park Greenway just north of Section 1.
– The South Bronx Greenway just east of Section 5.

One major change recently approved in the study area is the rezoning of the Port Morris neighborhood, between Park Avenue and Willow Avenue, from the

Photo 1. Saint Anns Avenue bicycle lanes

Photo 2. 145th Street Bridge bicycle and pedestrian paths

Photo 3. Oak Point Link from 145th Street Bridge

Photo 4. Major Deegan Expressway at Park Avenue

waterfront to East 134th Street in Section 3 and part of Section 4 and roughly north of the Harlem River Intermodal Rail Yard to East 134th Street in most of Section 4 and all of Section 5. These changes will be discussed in their relevant study area sections below.

Land Use

Land use throughout the study area is primarily industrial and manufacturing in nature; these uses are particularly intense along the Harlem River waterfront. There are pockets of residential and commercial-oriented lots near Yankee Stadium in Section 1. Lots near the waterfront along sections 3 through 5 are experiencing residential influx as a result of the Port Morris residential/manufacturing mixed use rezoning. The following is a description of the particular land uses of each section in the study area.

Section 1: Land Use

The waterfront along Section 1 is zoned for manufacturing uses. Land use here includes Yankee Stadium parking lots, the High Bridge rail yards used by the Metropolitan Transportation Authority (MTA), and the recently vacated Bronx Terminal Market. There is a recently approved plan to rezone a portion of the former Bronx Terminal Market for commercial uses, as part of the Gateway Center development project. In addition, the establishment of new parkland for city owned property between the Macombs Dam Bridge and the 145th Street bridge has recently been approved. There are areas of commercial zoning north of East 153rd Street and along the east side of River Avenue and east of River Avenue. In addition, there are areas of residential zoning east of River Avenue. The proportion of total building area by land use in Section 1 breaks down as: 10% Office, 2.4% Retail, 1.6% Garage, 22% Storage, 2.4% Factory, 25.7% Other (commercial and manufacturing), and 35% Residential (see Figure 4).

Section 2: Land Use

Most of Section 2 is zoned manufacturing, with some commercial zoning for lots along East 149th Street, east of Gerard Avenue. The proportion of total building area by land use in Section 2 breaks down as: 5.5% Office, 0.2% Retail, 7.9% Garage, 51.3% Storage, 14.2% Factory, 20.9% Other (commercial and manufacturing), and 0%Residential (see Figure 4).

The waterfront lots between East 144th Street and East 149th Street are occupied by a few businesses with parking lots and frontage on Exterior Street. There is a large school bus parking lot on the waterfront, with a driveway from Exterior Street around East 146th Street.

In addition, there are large unused lots along the waterfront north of the Madison Avenue Bridge. The lot immediately north of the bridge is planned to have a large storage center built on it by a company which also has a large storage facility along the waterfront in Section 3.

Section 3: Land Use

Between the Madison Avenue Bridge and the Park Avenue street end, the waterfront is zoned manufacturing, and is dominated by "The Padded Wagon," a large moving and self-storage company. Southeast of the Park Avenue street end, the zoning is mixed-use residential and manufacturing, as per the recent Port Morris rezoning.

The proportion of total building area by land use in Section 3 breaks down as: 2.8% Office, 2.0% Retail, 6.1% Garage, 76.6% Storage, 9.3% Factory, 2.8% Other (commercial and manufacturing), and 0.4% Residential (see Figure 4).

Section 4: Land Use

The area east of Lincoln Avenue and immediately north of the waterfront along Section 4 is occupied by the Harlem River Intermodal Rail Yard, and is zoned manufacturing. The lots along the 3rd Avenue Bridge west of Lincoln Avenue, and the lots above East 132nd Street east of Lincoln Avenue are zoned mixed-use residential and manufacturing, as per the Port Morris rezoning.

The proportion of total building area by land use in Section 4 breaks down as: 4.3% Office, 0.8% Retail, 3% Garage, 8% Storage, 11.7% Factory, 0.2% Other (commercial and manufacturing), and 72.1% Residential (see Figure 4).

Section 5: Land Use

The area east of the Willis Avenue Bridge and immediately north of the waterfront along Section 5 is occupied by the Harlem River Intermodal Rail Yard, and is zoned manufacturing. There is one lot south of East 132nd Street and east of the Willis Avenue Bridge which is zoned mixed-use residential and manufacturing, as per the Port Morris rezoning. Pulaski Park, a 1.43 acre park which includes basketball courts, handball courts and an asphalt playing field, is located on the south side of Bruckner Boulevard, just east of Willis Avenue. The lots between Willis Avenue and St. Anns Avenue, from East 132nd to East 134th Streets, are all part of the re-zoning as well; so are the lots between St. Anns Avenue and Willow Avenue, from Bruckner Blvd/ East 133rd Street to East 134th Street. The two large lots between St. Anns Avenue and Willow Avenue, East 132nd Street to Bruckner Blvd./East 133rd Street, are zoned manufacturing. Much of the land use between St. Anns Avenue and Willow Avenue along East 132nd Street is industrial, and it attracts heavy truck traffic, with numerous cars parked along the sidewalks, which are subsequently impassable by foot.

The proportion of total building area by land use in Section 5 breaks down as: 2.2% Office, 0.4% Retail, 2.3% Garage, 22.5% Storage, 8.2% Factory, 0.4% Other (commercial and manufacturing), and 64.1% Residential (see Figure 4).

Major Projects and Future Plans

(Please see Chapter 3: "Future Developments" for a more detailed discussion of the Yankee Stadium and Bronx Terminal Market/Gateway Center projects)

In Section 1, Yankee Stadium is planned to be moved from its current site into Macombs Dam Park, just north of East 161st Street, with the Department of Parks and Recreation as the project's lead agency. The details of this project are described in Chapter 3.

In addition, a portion of the former Bronx Terminal Market (BTM) site is planned to be redeveloped into a retail complex named the Gateway Center. The city agency lead on this project is the Economic Development Corporation (EDC). The details of this project are described in Chapter 3.

The proposed redevelopment of the BTM site into a shopping center includes the improvement of the 149th Street and Exterior Street intersection, including the intersection crossings at the foot of the 145th Street Bridge.

The Department of Parks and Recreation is developing a plan for the Regatta Park Greenway along the Bronx Harlem River waterfront from the Macombs Dam Bridge to East 225th Street. A portion of this greenway is recommended to run along Sedgwick Avenue, just north of Section 1.

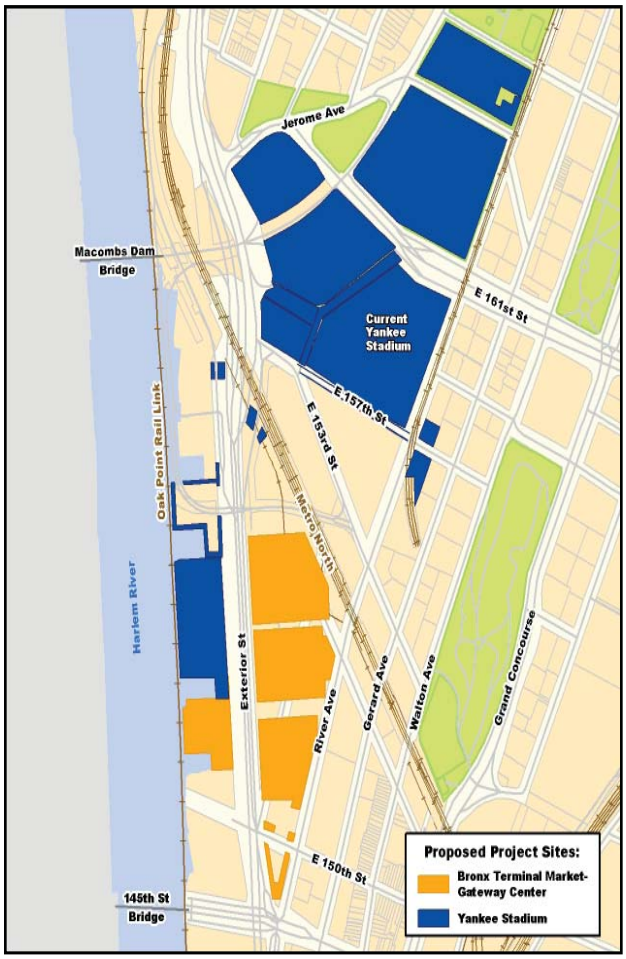


Figure 7. Potential major future developments, Section 1

The New York City Department of Transportation has undertaken reconstructive work on the 145th Street Bridge, which is scheduled to last until 2007.

The Department of Design and Construction (DDC) is developing a plan to redesign East 149th Street between River Avenue and A.J. Griffin Place, east of the Grand Concourse.

Further south, the recent approval of the Port Morris Special Mixed Use District extension has rezoned former commercial and manufacturing lots into a mixed-use district which allows residential use and community facilities. The mixed-use district now extends between Park Avenue and Willow Avenue, from the waterfront to East 134th Street in Section 3 and part of Section 4 and roughly north of the Harlem River Intermodal Rail Yard to East 134th Street in most of Section 4 and all of Section 5. This rezoning will change the demographic character of neighborhoods adjacent to the waterfront in Sections 3 to 5. An expected influx of residents into the area will presumably be accompanied by a greater need for quality pedestrian and bicycle facilities.

There is interest in the community in building a park and providing public access at the street-end of Park Avenue in Section 3, shown in Photo 28. The site is currently owned by the Department of Citywide Administrative Services (DCAS). The Oak Point Link runs on land at this particular point, cutting off the spit of land (possible public access site) from the street end. However, trains apparently only run on the rail link two times per day. This site is isolated from upland connections, as is a large portion of Section 3, because of the Major Deegan Expressway, which runs at-grade or slightly elevated just east of the waterfront throughout the section.

There is a plan being developed for the South Bronx Greenway, undertaken by EDC and Sustainable South Bronx/The Point, which has a proposed segment along East 132nd Street on the east side of Section 5. In addition, there is a proposal as part of the greenway plan to establish a shared use path under the Amtrak viaduct east of the Triborough Bridge (at East 132nd Street) to connect to a proposed bicycle and pedestrian bridge to Randall's Island.

Section by Section

The following is a description of the entire study area, section by section. Please refer to the maps (see Figures 8, 10, 13, 15 and 18) in each section description, as well as the overall study area map (see Figure 1) for section boundaries.

Section 1: Macombs Dam Bridge to 145th Street Bridge

Section 1: Streets, Current Waterfront Access and Bicycle and Pedestrian Facilities

The southern bicycle/pedestrian path of the Macombs Dam Bridge is 7' 4" wide, but varies in width. Currently, the only non-motorized access between this path and the Bronx Terminal Market is a bike/pedestrian ramp that runs perpendicular to the Macombs Dam Bridge path from its eastern end, where it intersects with a southbound Major Deegan Expressway on/off-ramp; the path runs alongside the off-ramp between the bridge exit and the Bronx Terminal Market (see Photo 5). The bicycle/pedestrian ramp is steeply graded, and appears to be primarily meant for use by people who have parked in the lots north of the BTM site (which are only open during Yankee games), who would use the ramp to get to Yankee Stadium. It is a narrow path, and would not be ideal for bicycling. The southern bicycle/pedestrian path of the Macombs Dam Bridge also connects to East 161st Street and a sidewalk along a service road (the Deegan service road) on the eastern side of the Deegan. The northern bicycle/pedestrian path connects to East 161st Street, Jerome Avenue and the Deegan service road sidewalk.

Viable upland connections are limited north of the Macombs Dam Bridge because of heavy traffic on arterial roads such as Jerome Avenue, leading to and away from the bridge and the Deegan. In addition, north of Jerome Avenue and east of Sedgwick, the landscape experiences a dramatic increase in elevation, which makes cycling to the area difficult and prevents direct connections between Sedgwick and the elevated local streets to its east until University Avenue/ Martin Luther King Boulevard (there are a few steep staircases along Sedgwick that allow access for pedestrians to local streets east).

At the intersection of Sedgwick and Jerome Avenues, there is a large median which directs the traffic coming from Jerome Avenue north to the Deegan, as well as the traffic coming north from the Macombs Dam Bridge and the Deegan service road, east onto Jerome Avenue. There is no crosswalk at this portion of the intersection. After crossing this intersection towards the south, there is a sidewalk on the east side of the Deegan service road which leads to and away from the Macombs Dam Bridge bicycle and pedestrian paths, down to the intersection of East 157th Street and the Deegan service road. The sidewalk is adjacent to an unused grassy open space, owned by the New York City Department of Parks and Recreation (Parks), which leads under the Macombs Dam Bridge viaducts to Macombs Dam Park (see Photo 6). With alteration (widening of sidewalk, use of open space), this sidewalk could be transformed into a shared-use path segment. Its current width varies from around 9 feet on either side of the bridge to around 7'6" under the bridge. Since it is adjacent to unused open space, it seems a good candidate for widening to accommodate a shared-use path.

As mentioned above, connections between the Macombs Dam Bridge bicycle and pedestrian paths and the Deegan service road sidewalk can be achieved at either Jerome Avenue, where a path loops around the bridge vehicular on-ramp and connects to and from the northern bridge path, or further south, where the path loops around a bridge vehicular off-ramp to connect to and from the southern bridge path. As the Deegan service road sidewalk loops around to connect to the southern bridge path, it

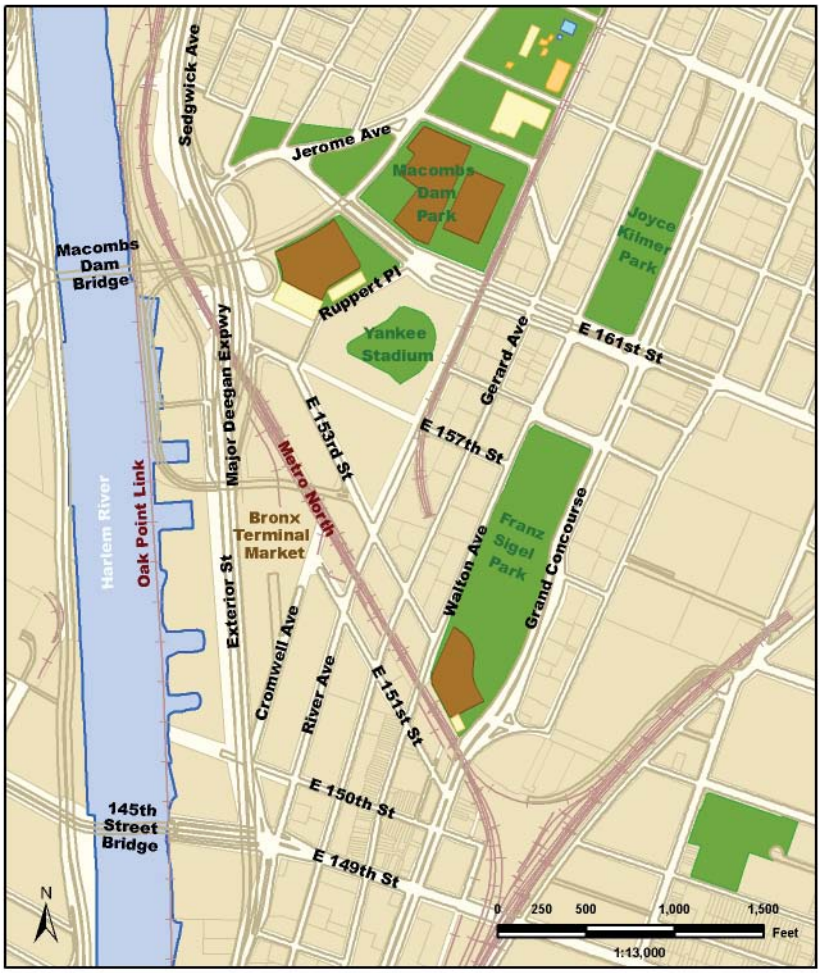


Figure 8. Section 1 map

retains its width of around 9 feet until it connects to the bridge path itself. At this point, the path narrows to around 7'6". A crosswalk connects the southern and northern bridge paths.

Exterior Street north of East 149th Street, which runs through the Bronx Terminal Market and under the Major Deegan Expressway, is currently a wide two-way cobblestone street with no lane markings and no sidewalks (see Photo 7). There is moderately heavy traffic and fast moving truck traffic related to BTM deliveries. There are also trucks parked perpendicularly to Exterior Street which block portions of the road and force pedestrians to walk in traffic lanes. Currently, there are plans to improve this road for automotive traffic (repaving, lane striping, etc.) and to establish sidewalks as part of the Gateway Center development. There is no upland connection from Exterior Street north of East 150th Street. Plans for the future Gateway Center show a pedestrian connection along Interior Street, which would run from Exterior Street to River Avenue between East 150th Street and East 151st Street. Interior Street would be an access road for vehicles to the parking garages in the mall. Exterior Street ends (and resumes north of our study area around the High Bridge) at the northern end of the Bronx Terminal Market. At this point, land use is dominated by on-ramps and off-ramps to the Major Deegan, and by parking lots run by the Parks Department that are in use only on Yankee game days. Photo 8 shows the current Bronx Terminal Market waterfront.

Photo 5. Bicycle/pedestrian ramp between the Macombs Dam Bridge and the Bronx Terminal Market

Photo 6. Major Deegan Expressway service road near Macombs Dam Bridge

Photo 7. Exterior Street at Bronx Terminal Market

Photo 8. Bronx Terminal Market waterfront

East 157th Street begins at its intersection with the Deegan service road as a short two-way segment with a 42 foot wide roadbed, a 10' 5" wide north sidewalk and an 8' 2" wide south sidewalk. This street merges into East 153rd Street at around Ruppert Place, just west of Yankee Stadium, and appears again just east of the stadium, where it extends two blocks – from River to Walton Avenues – as a two-way street with parking on both sides. The roadbed along this segment is 34 feet wide and the sidewalks are 13 feet wide each.

Ruppert Place is situated between Yankee Stadium's west wall and a small Macombs Dam Park annex. It runs two ways between East 157th Street and East 161st Street, its roadbed is 21' 7" wide, and it has a 4 foot wide sidewalk along its west side. Along its east side is a very wide sidewalk used as access to and from Yankee Stadium. During the baseball season, there are security barriers at both ends of Ruppert Place, which prevent its use as a permanent public street.

East 153rd Street between East 157th Street and River Avenue runs two ways, with a 21' 9" wide vehicular travel lane in each direction, an 8 foot wide sidewalk on the south side, and a 9' 4" wide sidewalk on the north side. There is no parking on either side of this segment. East 153rd Street has relatively light traffic, except on game days. About ¾ of the way between the Deegan service road and River Avenue, there is a Deegan on/off-ramp on the west side of East 153rd Street. There is an existing walk signal to cross the on/off-ramp at this intersection; however, there is no intersection striping, and cars entering or exiting the Deegan here drive quite fast. East 153rd Street becomes narrower between River and Walton Avenues, with a 17 foot vehicular travel lane in each direction, a 12' 7" wide sidewalk on the south side, a sidewalk on the north side which varies in width between 10 feet and 15 feet, and parking on both sides.

Situated east of Yankee Stadium and the Bronx Terminal Market, River Avenue runs two ways, with one vehicular travel lane in each direction. The southbound lane is 20 feet wide, and the northbound lane is 19' 8" wide. The sidewalk on the west side of the street is 18 feet wide, and the sidewalk on the

Photo 9. Gerard Avenue between East 153rd Street and East 157th Street

Photo 10. Walton Avenue between East 153rd Street and East 157th Street

Photo 11. East 149th Street end and 145th Street Bridge underpass

east side is 17' 5" wide. The traffic along this segment of River Avenue is moderate, except for Yankee game times, when the traffic can be quite heavy.

Gerard and Walton Avenues lie east of River Avenue and could be used as a north/south pair between East 153rd Street and East 149th Street. Gerard Avenue, which is the street immediately east of River Avenue, runs northbound with one vehicular travel lane which is 34 feet wide. Gerard Avenue's eastern sidewalk is 12' 9" wide, and its western sidewalk is 13' 3" wide. Cars park on both sides of the street, as shown in Photo 9. Walton Avenue runs one way southbound, and has one vehicular travel lane which is 34 feet wide along this segment. Its western sidewalk ranges in width between 7' 8" (at points between East 149th Street and East 150th Street) and 12' 8" (at all other points). There is parking on both sides of the street, as shown in Photo 10. Both Gerard and Walton have light traffic along these segments.

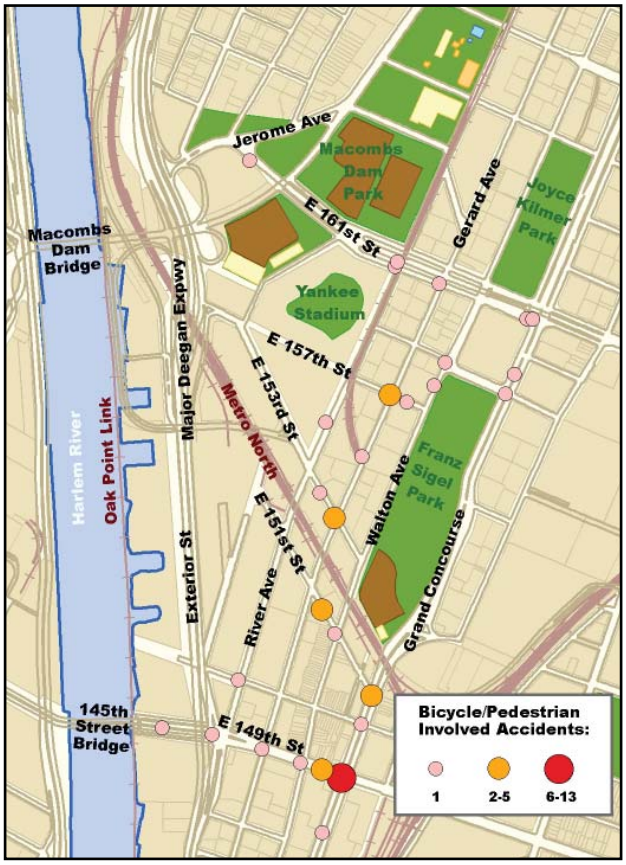


Figure 9. Section 1 bicycle and pedestrian involved accidents, 2001-2003

East 149th Street has two extension segments running along either side of the 145th Street Bridge, as shown in Photo 11. The southern extension is blocked by a jersey barrier about 1/3 of the way down toward the waterfront. Beyond this barrier, there is a chain link fence blocking access to the waterfront. There is very little space between the waterfront and the Oak Point Link along this part of the study area. The waterfront at the end of the northern extension is also blocked by a chain link fence. The two extension segments are connected under the bridge by an area which was under construction at the time of this writing. The southern segment consists of a 17' 7" wide road and 4' 9" wide sidewalks.

Some possible upland connections include East 150th and East 151st Streets. Sections of both these streets are planned to be de-mapped (between Exterior Street and River Avenue) as part of the Gateway Center development project. East 150th Street between River and Gerard Avenues runs one-way westbound. Sanitation trucks park along both sides of this segment. Between Gerard and Walton Avenues, East 150th Street has one vehicular travel lane, which is 30 feet wide. There is parking on both sides of this street between River Avenue and Grand Concourse. East 150th Street between Walton Avenue and Grand Concourse has one vehicular travel lane, which is 29' 10" wide.

East 151st Street between River Avenue and Grand Concourse has two vehicular travel lanes, with the westbound lane measuring 16' 9" wide and the eastbound lane measuring 17' 5" wide. Both East 150th and East 151st Streets have light traffic.

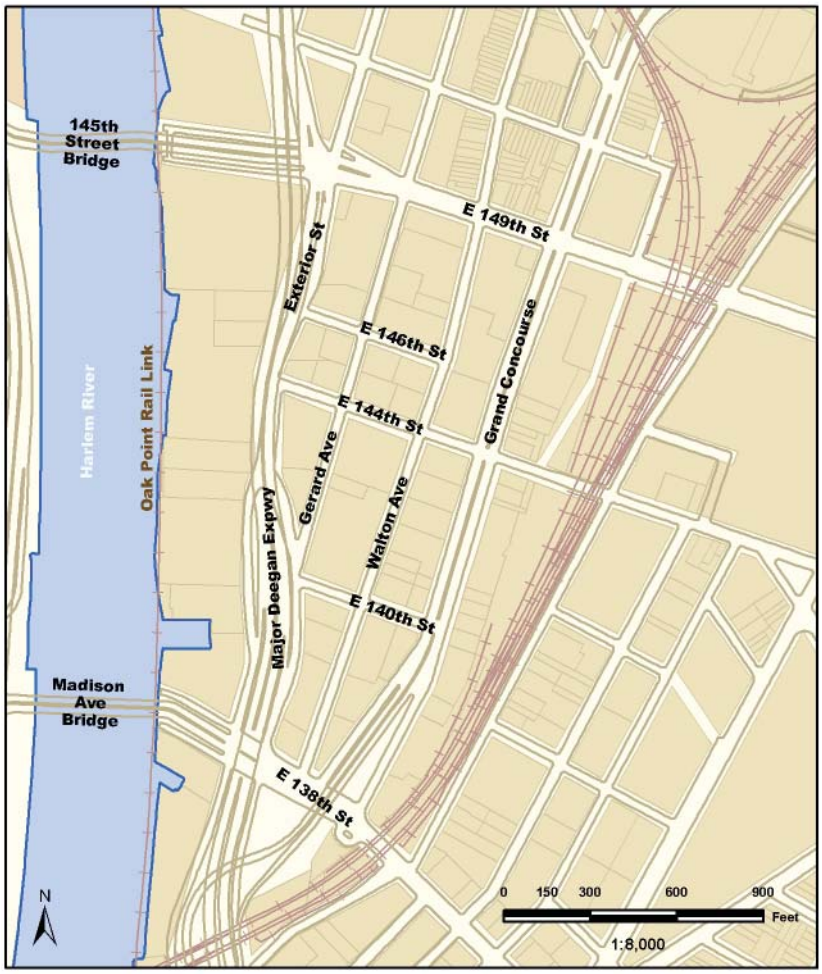


Figure 10. Section 2 map

Section 2: 145th Street Bridge to Madison Avenue Bridge

Section 2: Streets, Current Waterfront Access and Bicycle and Pedestrian Facilities

The intersection crossings at the foot of the 145th Street Bridge are barely visible, and accessing the bicycle/pedestrian paths on either side of the bridge requires crossing busy traffic at the intersection of Exterior Street and East 149th Street. The bridge paths exit into the middle of this busy intersection, as seen in Photos 12 and 13. Both the northern and southern bridge bicycle/pedestrian paths are 8' 8" wide.

Exterior Street south of East 149th Street initially consists of a one way street pair straddling an off-ramp from the elevated Deegan. The southbound segment of Exterior Street between East 149th Street and East 146th Street (to the west of the Deegan

Photo 12. 145th Street Bridge access

ramp) has one vehicular travel lane which is 29' 9" wide, with a sidewalk along its west side which is 10' 7" wide and a sidewalk along its east side of variable width, currently strewn with garbage. The northbound segment of Exterior Street between East 149th Street and East 146th Street (to the east of the Deegan ramp) consists of one vehicular travel lane which is 29' 5" wide. There is a sidewalk along the east side of the street, which is approximately 11 feet wide. On the west side of the street is a wall that

Photo 13. Aerial photograph of access to the 145th Street Bridge

abuts the Deegan off-ramp. These one way segments are divided between East 149th Street and East 146th Street by a wide cobblestone median of variable width, but approximately 46 feet wide on average. This median is currently used for vehicle parking and is covered with garbage. Each one way segment of Exterior Street has moderately heavy traffic, typically consisting of large trucks driving northbound toward East 149th Street and the Bronx Terminal Market or southbound toward East 138th Street and the Madison Avenue Bridge.

The one way segments of Exterior Street join south of East 146th Street. South of East 146th Street, to about East 141st Street, Exterior Street is a wide two way thoroughfare running under the elevated Deegan with no lane markings, characterized by fast truck traffic (see Photo 14). The roadbed along this segment is 58 feet wide with a 21' 7" wide sidewalk running along its east side, and a 19' 8" wide sidewalk running along its west side. South of East 141st Street, Exterior Street splits into one-way pairs again and emerges from under the Deegan overpass

Photo 14. Exterior Street between East 146th Street and East 140th Street

as the Deegan descends to become at grade. The southbound segment of Exterior Street here consists of one unmarked vehicular travel lane 29' 6" wide, with a 10' 2" wide sidewalk running along its west side, and a sidewalk of varying width, which is 14' 4" wide at its widest point running along its east side, adjacent to a wall abutting the Deegan off-ramp. This segment of Exterior Street merges with an off-ramp from the southbound Deegan south of East 140th Street and subsequently becomes significantly more heavily trafficked as it approaches East 138th Street and the entrance to the Madison Avenue Bridge (see Photos 15 and 16). After merging with the Deegan off-ramp, the southbound Exterior Street segment becomes striped as three vehicular travel lanes, one being a right-hand turn lane for access onto the bridge or onto the East 138th Street extension, one segment of which runs along the north side of the bridge. There is regulated parking on the west side of the above southbound Exterior Street segment until it merges with the Deegan off-ramp.

Photo 15. Major Deegan Expressway and southbound Exterior Street intersection at East 138th Street.

Northbound Gerard Avenue has a lane which merges onto the northbound Deegan at approximately 200 feet north of its intersection with East 138th Street, and another lane which continues north as Gerard Avenue, subsequently becoming much less trafficked (see Figure 11). At the junction of Gerard Avenue and the northbound Exterior Street branch (just north of East 140th Street), both Gerard Avenue and Exterior Street are relatively calm in terms of traffic. The sidewalk on the east side of Gerard Avenue widens to 14' 7" as it approaches East 140th Street. The entire section of Gerard Avenue between East 138th Street and East 140th Street has no parking. Just north of East 140th Street, Exterior Street begins its northbound lane as a branch off Gerard Avenue. This segment of Exterior Street runs one way northbound with one vehicular travel lane and parking on its east side. The segment ends when the northbound and southbound Exterior Street vehicular travel lanes merge as one

Photo 16. Aerial photograph of access to the Madison Avenue Bridge

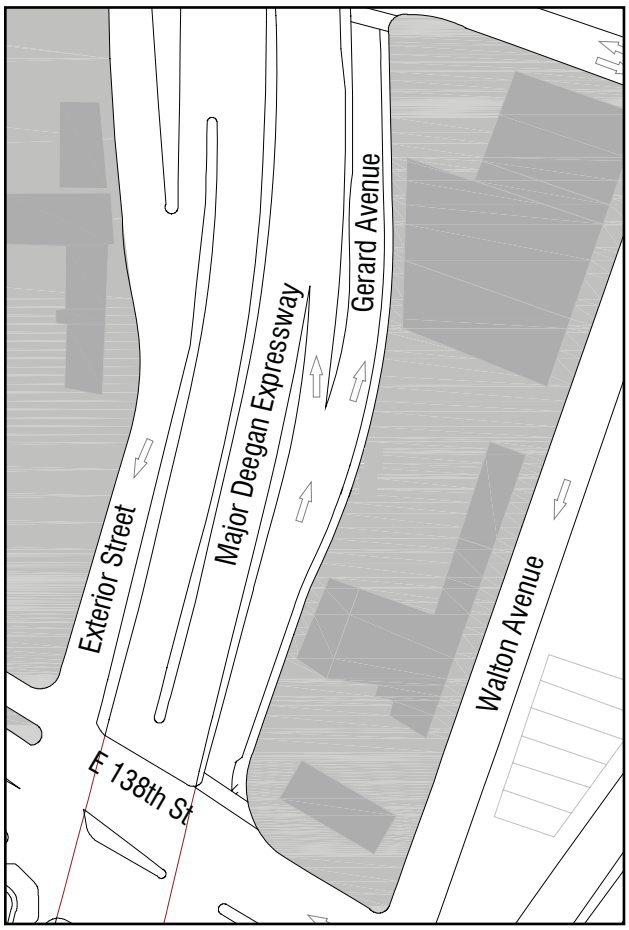


Figure 11. Intersection of Gerard Avenue and E. 138th Street

lane under the Deegan overpass (described above). This occurs at about East 141st Street. Between East 140th Street and East 141st Street, the northbound Exterior Street branch has a 29' 7" wide roadbed with a 6 foot wide sidewalk along its east side, and a 4 foot wide sidewalk along its west side (adjacent to a Deegan overpass wall). The east sidewalk is quite overgrown with weeds from an adjacent lot.

North of the northbound Exterior Street branch described above, Gerard Avenue runs one way northbound, with a 33' 7" wide roadbed. There is a 14 foot wide sidewalk running along Gerard's east side, and one along its west side which is 13' 7" wide. There is parking on both sides of the street. The first several yards of the western sidewalk along this segment is overgrown with weeds. This configuration of Gerard Avenue is the same between the Exterior Street branch and East 149th Street.

Walton Avenue between East 138th Street and East 149th Street runs one way southbound. The segment of Walton Avenue between East 138th Street and East 146th Street consists of one vehicular travel lane, and a roadbed which is 33'6" wide. Both its western and eastern sidewalks are 13 feet wide. Between East 146th Street and East 149th Street, Walton Avenue's western sidewalk widens to 19 feet.

East 144th Street provides an upland connection between Exterior Street and the Grand Concourse. This segment of East 144th Street consists of an unmarked two-way vehicular travel lane with a 33' 7" wide roadbed. The southern sidewalk is 12' 8" wide while the northern sidewalk is 13 feet wide. There is parking along the north side of the street.

Photo 17. Madison Avenue Bridge underpass

Photo 18. East 138th Street end

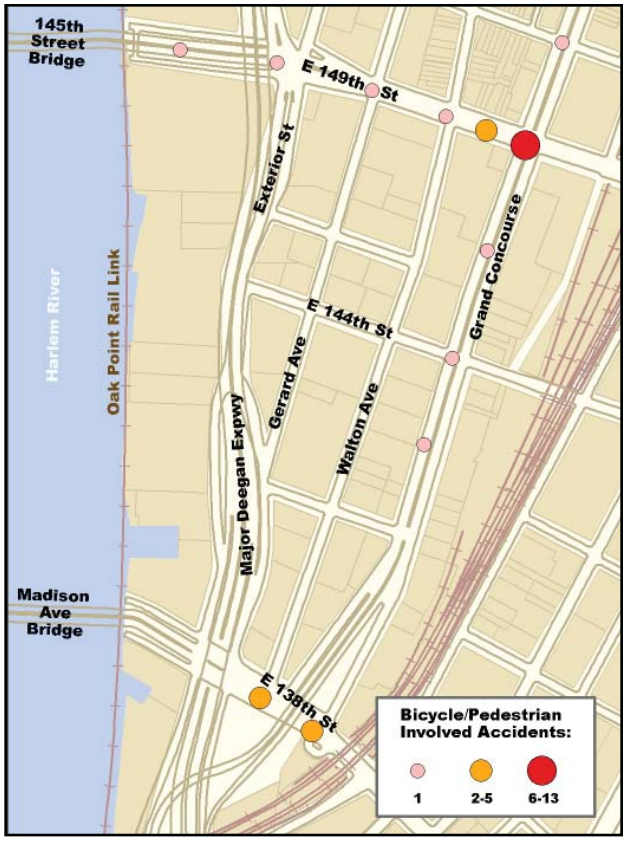


Figure 12. Section 2 bicycle and pedestrian involved accidents, 2001-2003

East 138th Street divides into two segments between Exterior Street and the Harlem River waterfront, running along either side of the Madison Ave Bridge. Photo 18 shows the northern segment, which consists of a 22 foot wide roadbed, a 9' 9" wide northern sidewalk and a 5' 5" wide southern sidewalk. The southern extension's roadbed is 19 feet wide, with a 5' 8" wide northern sidewalk and a 9' 7" wide southern sidewalk. The southern segment is used for parking by an adjacent used car sales business, apparently due to lack of space in its own parking lot. The two segments of East 138th Street are connected under the Madison Avenue Bridge by a 9' 10" wide road. There are jersey barriers with chain link fencing on top on the west side of this road, preventing access to the water and the Oak Point Link. There is little space between the street end and the Oak Point Link here.

Section 3: Madison Avenue Bridge to 3rd Avenue Bridge

Section 3: Streets, Current Waterfront Access and Bicycle and Pedestrian Facilities

South of East 138th Street, East 135th Street is the continuation of the southbound Exterior Street segment. The northwest-bound and southeast-bound segments of East 135th Street are divided by the Deegan in Section 3 (see Photo 19). The southeast-bound segment is relatively busy with vehicular traffic between the Madison Avenue Bridge and the Park Avenue street end because of a Deegan entrance just north of the Park Avenue street end. This segment of East 135th Street (which is on the waterfront on the west side of East 135th Street and is across the street from the Deegan on-ramp) has two southeast-bound travel lanes separated by a dashed white line.

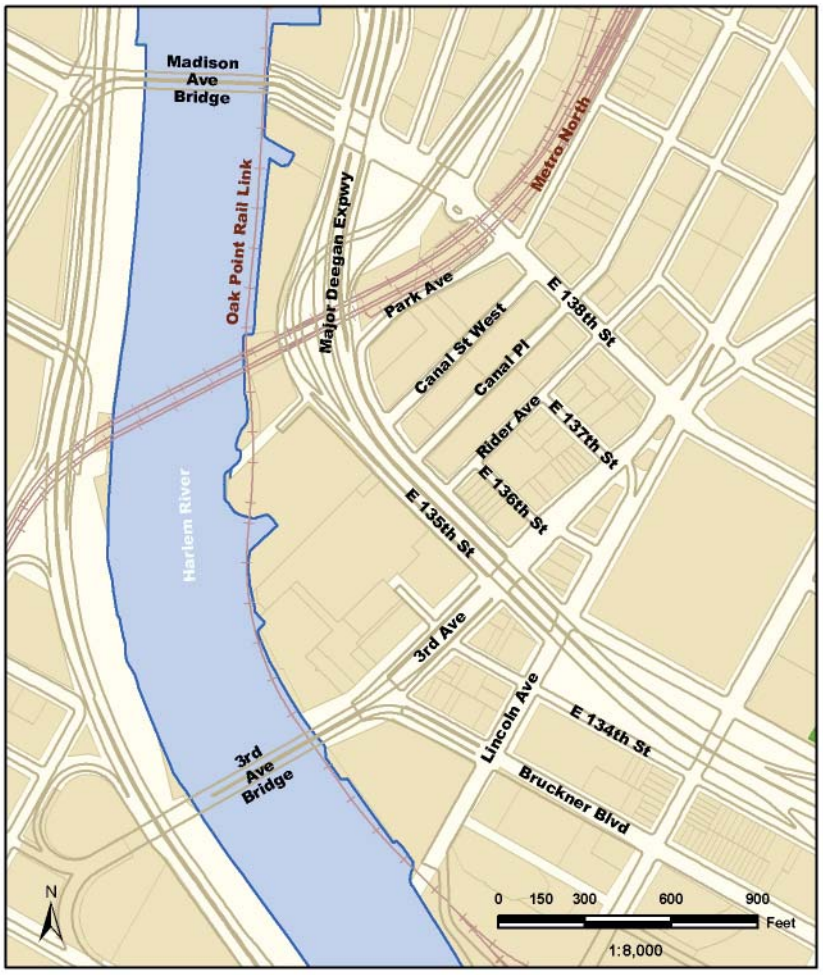


Figure 13. Section 3 map

Each vehicular travel lane is 15 feet wide. There is a sidewalk along its west side that is 10' 4" wide, and a sidewalk along its east side, adjacent to the elevated Deegan wall, which is 10' 7" wide (see Photo 20). As East 135th Street approaches the Deegan on-ramp, the street widens and another travel lane is dedicated to traffic merging onto the Deegan. Most of the observed traffic between East 138th Street and the Deegan on-ramp was merging or waiting to merge onto the expressway.

The segment of southeast bound East 135th Street between the Deegan on-ramp and the 3rd Avenue Bridge is 32 feet wide. There are three vehicular travel lanes on this segment. The southwestern-most lane is a right-turn only lane when it approaches 3rd Avenue. There is a narrow 5' 2" sidewalk along the west side of this segment. A large storage facility named "Storage Deluxe," with frontage on East 135th Street on this segment has erected a fence separating its property from the sidewalk, and this fence line is continued

Photo 19. Aerial photograph of streets south of the Madison Avenue Bridge

Photo 20. East 135th Street under Metro North Bridge

along an adjacent empty lot, then is extended by a fence along the "Bridge Building Supply Company" building, which is situated on the corner of East 135th Street and 3rd Avenue.

There is an underpass at the southern end of Rider Avenue, northwest of 3rd Avenue, which runs under the elevated Deegan between the southeast and northwest bound segments of East 135th Street. This underpass has potential to be used as a safe upland connection for bicyclists and pedestrians. However, it has been recently fenced off on both sides, as seen in Photo 21, most likely to prevent its use as a shelter. Rider Avenue between East 135th Street and East 138th Street is a two way street with no lane markings and parking on both sides of the street. It has a

Photo 21. Major Deegan Expressway underpass at Rider Avenue

30' 7" wide roadbed. The east sidewalk is partially covered by weeds. Rider Avenue is relatively lightly trafficked between East 138th Street and East 135th Street. However, its southwest end is the location of the back of a United Parcel Service (UPS) facility whose front is on Canal Place to the west. The next street to the west, Canal Street West, is less busy and runs two ways with no lane markings. Both sidewalks along Canal Street West are in poor condition, and the east sidewalk is only partially paved (see Photo 22).

Photo 22. Canal Street West between East 135th Street and East 138th Street, looking northeast

Access to and from the 3rd Avenue Bridge's bicycle and pedestrian paths is available on both sides of the bridge along 3rd Avenue's extension southwest of East 135th Street (see Photo 23). Each bridge path is 7' 7" wide. There is no signage for the 3rd Avenue Bridge's bicycle/pedestrian paths at the bridge's entrance from 3rd Avenue (see Photo 24). The southeastern bridge path can be accessed by climbing a flight of stairs, recently completed as part of the bridgework related to the construction of the Bruckner Boulevard on-ramp (see Photo 25). In addition, although the northwestern bridge path can be accessed via a ramp from 3rd Avenue and East 135th Street, there is a staircase currently being constructed further southwest of the ramp entrance, and it appears that this will be used as an entrance/exit to the northwestern path. These stairs would not be ideal for bicycle or wheelchair access to the bridge

Photo 23. 3rd Avenue Bridge bicycle and pedestrian crossings

paths, and this study would recommend maintaining the northwestern path ramp and adding a ramp on the southeastern side of the bridge for entrance to and exit from the bike and pedestrian path.

The southeast-bound segment of East 135th Street has been described above. The northwest-bound segment of East 135th Street runs between 3rd Avenue and Park Avenue and consists of one vehicular travel lane, with a roadbed which is 30' 4" wide, and parking

Photo 24. Aerial photograph of access to the 3rd Avenue Bridge

Photo 25. 3rd Avenue Bridge stairs to access bicycle and pedestrian paths

on the northeast side of the street. There is a sidewalk on the northeast side that is 10' 4" wide. There is no sidewalk on the southwest side of the street, as this side runs up to a wall supporting the elevated Deegan. East 135th Street merges into Park Avenue as it winds northward toward East 138th Street (see Photo 26). Park Avenue between East 135th Street and East 138th Street runs one way northbound. Park Avenue's roadbed is 39 feet wide, with a single vehicular travel lane and parking on both sides of the street. Toward 138th Street, much of the parking on both sides of the street consists of postal trucks and truck trailers. Along the western side of the street, there is a 6' 5" wide sidewalk; along the eastern side, there is a 10' 2" wide sidewalk. The northern

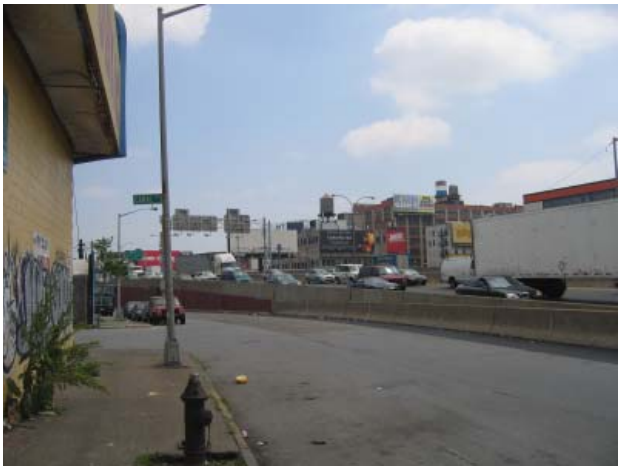


Photo 26. East 135th Street between Park Avenue and Canal Street West

Photo 27. Aerial photograph of 3rd Avenue between E. 135th Street and E. 138th Street

sidewalk is unpaved as it nears East 138th Street, and is partially covered by weeds.

3rd Avenue north of East 135th Street runs one way southbound with four through vehicular traffic lanes to the 3rd Avenue Bridge, of which the western lane divides into a through lane and a wide turn lane at East 135th Street, the turn lane being for right turns onto East 135th Street (see Photo 27). The roadbed on this segment of 3rd Avenue is 100' 4" wide, with each travel lane being (from east to west): 27' 3" wide; 11' 3" wide; 11' 7" wide; and 50' 3" wide, with the western lane dividing into a 12' 5" wide through lane and a 37' 10" wide turn lane at East 135th Street. The west and east sidewalks are 14' 6" wide each. Cars and trucks frequently double- and triple-park on both sides along this segment of 3rd Avenue, between East 135th and East 138th Streets. Traffic is fast and relatively heavy along this segment.

As mentioned on page 15, there is interest in the community in building a park and providing public access at the street-end of Park Avenue, which is adjacent to the Harlem River west of East 135th Street. (see Photo 28). The Oak Point Rail Link comes on land at this location, and there is a spit of land with direct waterfront access just west of the Oak Point Rail Link tracks.

Photo 28. Park Avenue Street end

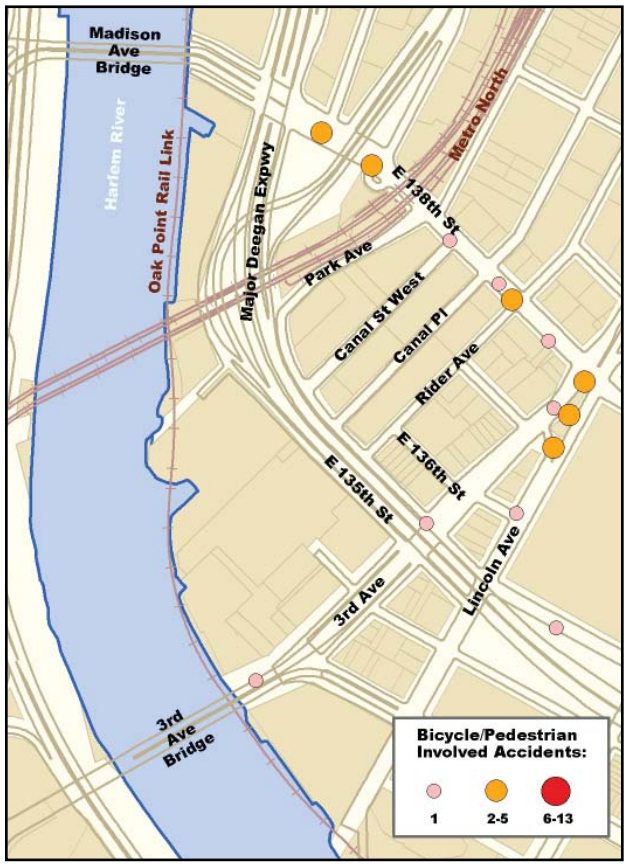


Figure 14. Section 3 bicycle and pedestrian involved accidents, 2001-2003

One possible upland connection, Morris Avenue north of East 139th Street, runs 2 ways. Between East 138th Street and East 142nd Street, Morris Avenue has 2 unmarked vehicular travel lanes in each direction, and the opposing-flow directions are separated by a double yellow line. The northbound lanes are 32' 4" wide together, and the southbound lanes are also 32' 4" wide. The west sidewalk is 24' 9" wide, while the east sidewalk is 14' 10" wide. There is parking on both sides of the street. There is moderate traffic on this segment (see Photo 29).

North of East 142nd Street, Morris Avenue narrows to one vehicular lane in each direction. The northbound lane is 25 feet wide, and the southbound lane is approximately the same. The west sidewalk narrows to 10 feet, while the east sidewalk remains about 14' 10" wide. This segment of Morris Avenue gets quite busy in both directions approaching the intersection of East 149th Street.

Photo 29. Morris Avenue between East 139th Street and East 140th Street

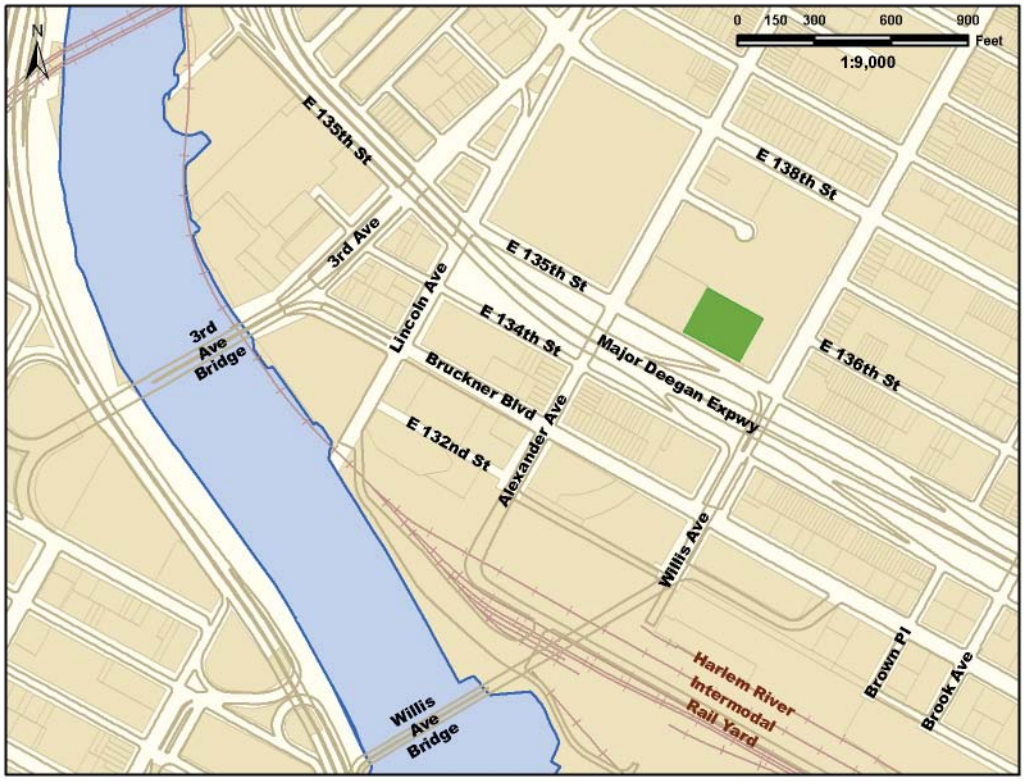


Figure 15. Section 4 map

Section 4: 3rd Avenue Bridge to Willis Avenue Bridge

Section 4: Streets, Current Waterfront Access and Bicycle and Pedestrian Facilities

Between 3rd Avenue and Lincoln Avenue, the southeast bound segment of East 135th Street has one wide (28' 10")vehicular travel lane, an 8 foot wide sidewalk along its south side, and a fenced parking lot with no sidewalk along its north side. The lot is maintained by "J & East Parking."

The service roads below the 3rd Avenue Bridge are being paved and restored, as of this writing. The two sides of the 3rd Avenue extension, which run alongside the bridge to the fenced-off waterfront, are relatively calm in terms of traffic. There is a considerable amount of paved space under the 3rd Avenue Bridge which connects the 3rd Avenue and Bruckner Boulevard extensions, and which is currently used primarily for parking (see Photo 30). The extension of 3rd Avenue along the northwest side of the 3rd Avenue Bridge runs one way southwest-bound. Its roadbed is 21' 8" wide, and there are cars parked on its northwest side. There is a 20 foot wide sidewalk on the northwest side of the street, which narrows to 14' 5" west of East 134th Street. There is a 2' 7" wide sidewalk on the southeast side, which runs adjacent to a bridge

Photo 30. Paved space under 3rd Avenue Bridge

wall. Along the southeast side of the bridge, the 3rd Avenue extension runs one way northeast-bound, and has a 20 foot wide roadbed with parking along its northwest side. There is a 14 foot wide sidewalk along its southeast side and a 3' 5" sidewalk along its northwest side, adjacent to the bridge wall.

Between the 3rd Avenue extension and Lincoln Avenue, the Bruckner Boulevard extensions are a quiet, one-way pair straddling the 3rd Avenue Bridge on-ramp. The northeast side of the pair runs one way northwest bound, and has a 19' 7" wide roadbed with parking along its southwest side. There is a 9' 6" wide sidewalk along its northeast side and a very narrow sidewalk along its southwest side, adjacent to the bridge wall. The southwest side of the pair runs one way southeast bound. This side has a 29' 3" wide roadbed, with a south sidewalk which is 6 feet wide. The north side has no sidewalk. There is no parking allowed at any time on the south side of the southwest Bruckner Boulevard extension. This segment of Bruckner Boulevard has a wide (about 20' 4") parking area designed for perpendicular parking adjacent to the south sidewalk for "Bell Atlantic Parking." There is no separation between the lot and the sidewalk.

Southeast of Lincoln Avenue, Bruckner Boulevard's vehicular traffic volumes increase in both directions because of the connectivity of this important arterial road. At Lincoln Avenue, the increased traffic volume on Bruckner Boulevard is also partially due to the nearby entrance to the 3rd Avenue Bridge (at Bruckner Boulevard and Lincoln Avenue) as well as due to local traffic turning onto Bruckner Boulevard from Lincoln Avenue. This segment of Bruckner Boulevard runs two ways, with two striped vehicular travel lanes in each direction. The total width of the roadbed is 72 feet, divided into 29' 3" for the eastbound lanes and 42' 9" for the westbound lanes. The northwest-bound Bruckner Boulevard segment has a right-turn lane onto Lincoln Avenue, which appears to be relatively busy. The Bruckner through lanes here are used for access to the 3rd Avenue Bridge ramp and the 3rd Avenue Bridge extension, across Lincoln Avenue (see Figure 16).

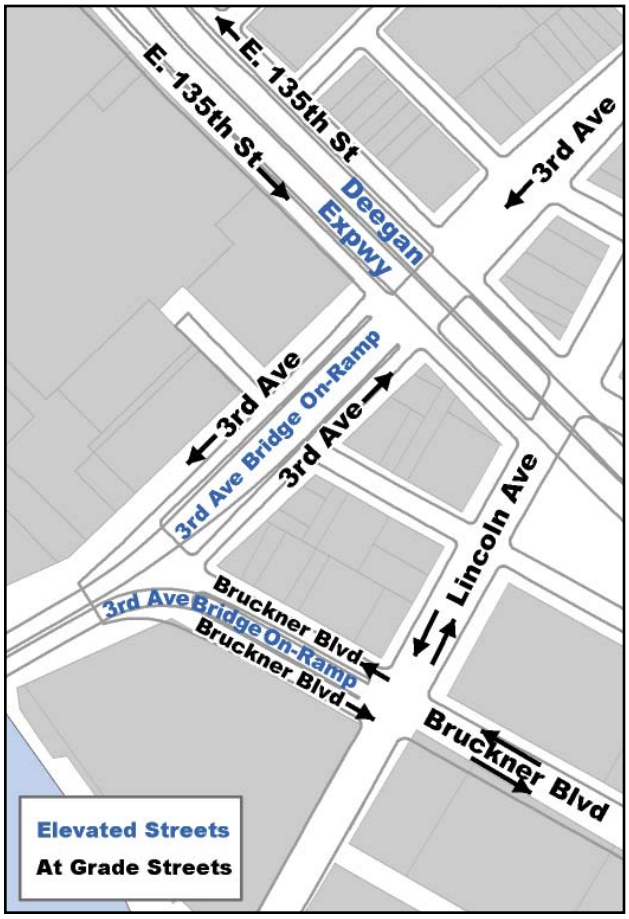


Figure 16. Streets around the 3rd Avenue Bridge

The Bruckner Boulevard Antique and Art District extends between Lincoln Avenue and approximately Willis Avenue, two long blocks to the east. The sidewalks in this district are pleasant to walk along, lined with numerous trees, benches, and antique and furniture stores (see Photo 31). The northern sidewalk's width is 15' 9", while the southern sidewalk is 15 feet wide. Although Bruckner Boulevard is relatively busy here, it would be desirable for the recommended route to run through this asset to the neighborhood, especially considering the recent Port Morris rezoning, which will presumably bring more local residential foot and bicycle traffic into the neighborhood in the near future.

There are plenty of trees and streetlights on both sides of Bruckner Blvd. east of 3rd Avenue. On the south side of the street, the trees taper off around the exit from the Willis Avenue Bridge (near Brown Place) in Section 5, while on the north side, the trees taper off around Willis Avenue.

Photo 31. Bruckner Boulevard Antique and Art District

Lincoln Avenue between East 135th Street and East 134th Street runs two vehicular travel lanes in two directions (north and south), with the opposing lanes divided by a double yellow line. The southbound lanes are undivided, and measure 30' 5" wide together. The northbound lanes are divided by a dashed white line, with the westernmost lane measuring 11 feet wide, and the easternmost lane measuring 19 feet wide. The western sidewalk is 20' 4" wide, while the eastern sidewalk is 19' 10" wide.

South of East 134th Street, the west sidewalk along Lincoln Avenue narrows to 15' 5" wide. The two southbound vehicular travel lanes are separated by a white dashed line along this segment, with the westernmost lane measuring 24 feet wide, and the easternmost lane measuring 11' 5" wide. There are frequently cars double parked along the western side of Lincoln Avenue between East 135th and East 134th Streets.

Lincoln Avenue between Bruckner Boulevard and East 132nd Street runs two ways, with no vehicular lane markings and parking on both sides. Parking on the east side of Lincoln Avenue is perpendicular. The roadbed on Lincoln Avenue is 60 feet wide, with sidewalks that are 20 feet wide on both sides. About halfway down the block toward East 132nd Street, a large driveway curb cut leads cars to a parking area on the west sidewalk for "Atlantic Bell Managers." This parking area does not diminish the width of the sidewalk, however, because it is recessed further west from the established building line to its north. At the southern end of Lincoln Avenue to the east is the entrance to the Harlem River Intermodal Rail Yard, a large multi-modal freight and waste transfer center owned by the New York State Department of Transportation and leased to the Galesi Group, a private development company doing business as Harlem River Yard Ventures. At this spot, Waste Management has a waste transfer station, and the entrance is adjacent to the Lincoln Avenue street end (see Photo 32). Frequent truck traffic and objectionable smells characterize this particular spot. To the northwest of the street end there is a bus parking lot, with consequent bus traffic entering and exiting the facility.

Photo 32. Lincoln Avenue street end

There is a service road south of East 132nd Street which runs through the Harlem River Yard site parallel to East 132nd Street between Willis Avenue and just west of the Triborough Bridge (see Photo 33). The lightly used service road is currently in private use by the tenants of the Harlem River Yard, and is blocked by fencing at its upland access point at Willis Avenue and by a guarded gate at its upland access point at St. Anns Avenue. Public use of this service road could provide a unique opportunity to develop a bicycle/pedestrian travel segment undisturbed by automotive traffic. Photo 34 shows the fence at the end of Willis Avenue that blocks public access to the service road. The fence also blocks access to the currently vacant former New Haven Railroad Passenger building, whose lot is included in the Port Morris rezoning.

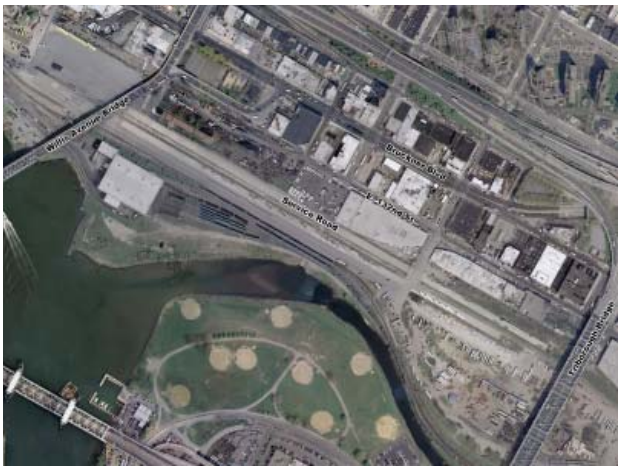


Photo 33. Harlem River Intermodal Rail Yard

Photo 34. Willis Avenue street end

Although East 132nd Street appears as a city street on current zoning and city maps, it is fenced off and blocked by a dumping area and parking lot between Lincoln and Alexander Avenues, used by businesses with frontage on Bruckner Boulevard. East 132nd Street between Alexander Avenue and Willis Avenue appears to be used currently only by area employees for parking or access to jobs near the waterfront. There is also a significant amount of dumped garbage along this segment, including items such as furniture. The cars parked on this segment simply park around the trash. It is an unimproved two-way cobblestone and dirt road, and is 53 feet wide with no sidewalks on either side. The north side of the street is used for perpendicular car parking, and the south side is used for parallel car parking. Cars line the entire length

Photo 35. East 132nd Street between Alexander Avenue and Willis Avenue

of the street on both sides (see Photo 35). If this segment were to be used as a bicycle and pedestrian path, there would need to be extensive rehabilitation of the street and addition of sidewalks on either side.

East 134th Street between Lincoln and Alexander Avenues runs one way eastbound, with parking on both sides of the street. The roadbed on this segment is 30' 7" wide. The sidewalk on the south side of the street is 15 feet wide. There is no sidewalk on the north side of this street segment, just a fence separating the street from a grassy slope up to the elevated Deegan. This segment of East 134th Street is not very busy with traffic, although it leads up to an on-ramp to the Deegan further east.

East 135th Street between Lincoln and Alexander Avenues runs one way westbound, with four lanes of traffic. The roadbed on this segment is 49' 3" wide, with the northernmost lane being 13' 3" wide, and the other three being 12 feet wide each. The northern sidewalk is 14' 4" wide. There are quite a few trees along the north sidewalk, but few streetlights. There is no southern sidewalk, just a fence separating the street from an incline leading up to the elevated Deegan. There is no parking on either side of the street. This segment of East 135th Street is very busy with vehicles coming off the Willis Avenue Bridge and the Deegan. East 135th Street narrows to 3 vehicular lanes west of Lincoln Avenue and further narrows to 2 lanes west of 3rd Avenue, and maintains its busy

traffic through these segments. The north sidewalk also narrows to 7' 6" west of Lincoln Avenue.

Alexander Avenue runs two ways between its street end at East 132nd Street and Bruckner Boulevard. There is one vehicular travel lane in each direction, north and south, with the opposing lanes separated by a double yellow line. Each vehicular travel lane is 25' 6" wide. There is a 25' 3" wide sidewalk along each side of this segment. There are no apparent parking regulations on either side, and the east sidewalk has cars parked on and across it along this entire segment. There is a security gate and a sign which reads "road closed" at the end of Alexander Avenue, which is an entrance to the Harlem River Yards.

East 136th Street east of 3rd Avenue has one eastbound vehicular travel lane, with a 34 foot wide roadbed. The south and north sidewalks along this segment are 12' 7" wide each. Buses frequently park and idle on both sides of this street, and the Bx21 and Bx32 buses have stops here.

Where East 137th Street intersects with Lincoln Avenue and 3rd Avenue, there is a well maintained park named Graham Triangle, with trees, flowers, benches and a monument in the middle.

A short segment of East 137th Street connects 3rd Avenue to the calmer Lincoln Avenue at the south end of Graham Triangle. This segment of East 137th Street has one southeast-bound vehicular travel lane which is not heavily trafficked, is quite wide (25' 9"), is adjacent to the wide Graham Triangle on its north side, and has a wide sidewalk on its south side.

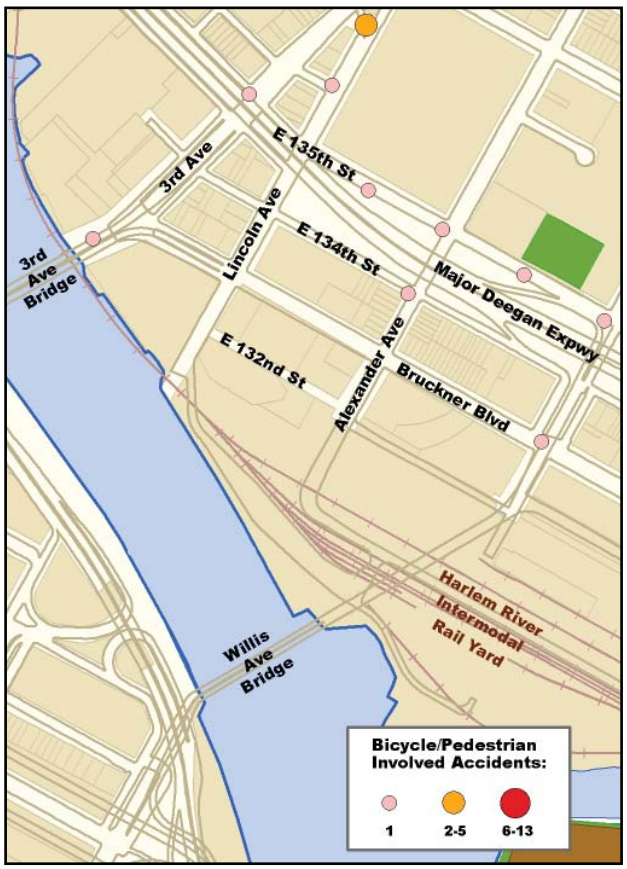


Figure 17. Section 4 bicycle and pedestrian involved accidents, 2001-2003

Figure 18. Section 5 map

Section 5: Willis Avenue Bridge to Triborough Bridge

Section 5: Streets, Current Waterfront Access and Bicycle and Pedestrian Facilities

Currently, access to the Willis Avenue Bridge's northwest bicycle and pedestrian path is accessible via a ramp at the intersection of Willis Avenue and East 134th Street on the northwest side of the bridge. There is also a staircase leading to the path from the northwest Willis Avenue extension at Bruckner Boulevard. The northwest and southeast bridge paths are 7 feet wide, but vary in width. The southeast bridge path is accessible from a ramp which runs alongside a bridge off-ramp and intersects with Bruckner Boulevard about 2/3 of the way between Willis Avenue and Brown Place.

Vehicles run one way northeast-bound on the Willis Avenue Bridge, then exit onto the northwest-bound East 135th Street lanes toward a Deegan on-ramp, or onward onto East 135th Street. There is no marked crosswalk across the northwest intersection of East 135th Street and the Willis Avenue bridge off-ramp, or across the Willis Avenue Bridge off-ramp itself (see Photos 36 and 37). There is a signalized crossing across the southeast intersection of East 135th Street and Willis Avenue.

Southeast of the intersection of East 135th Street and Willis Avenue, there are traffic lanes for vehicles

Photo 36. Willis Avenue Bridge bicycle and pedestrian crossings

driving along East 135th Street. At the bridge off-ramp, there are separated lanes for vehicles exiting the bridge and those driving along East 135th Street (separated by raised concrete). In order to cross both these lanes, a bicyclist or pedestrian must currently cross at the crosswalk across East 135th Street on the southeast side of Willis Avenue. However, this side does not connect to any bridge path (because the southeast side bridge path exits at Bruckner Boulevard before Brown Place), so in order to get on the northwest side bridge path, one must cross the lanes exiting the Willis Avenue Bridge (which are not stop controlled and are fast moving) from the southeast side of Willis Avenue somewhere between East 135th Street and East 134th Street. As mentioned above, there are no crosswalks to accommodate this movement. In other words, there are currently no safe crossings dedicated to bicyclists and pedestrians who wish to cross East 135th Street at the foot of the Willis Avenue Bridge to access the bridge's northwest bicycle/pedestrian path, the only path accessible at this intersection. According to the New York City Department of Transportation, the Willis Avenue Bridge is scheduled to be replaced by a newly constructed bridge just southeast of its current location. Construction of the new bridge is scheduled to begin in March, 2007, with an anticipated completion date in March, 2012. A new bicycle/pedestrian path on the northwest side of the bridge is part of the new construction plan. Therefore, any recommendations for the improvement of current Willis Avenue Bridge bicycle and pedestrian access can be considered short-term in nature.

Between the Willis Avenue Bridge off-ramp and Brown Place, Bruckner Boulevard runs two ways, with two vehicular travel lanes in each direction. The roadbed is about 69' 4" wide, separated approximately in half by a double yellow line which delineates the opposing travel lane pairs. There is a sidewalk on each side of the street, and each is 15 feet wide. There is a frequent stream of vehicular traffic exiting directly (without any stop control) from the Willis Avenue Bridge and entering Bruckner Boulevard.

Bruckner Boulevard becomes quite busy around Brown Place. Brown Place between Bruckner Boulevard and East 132nd Street runs two ways, with no vehicular lane markings. The roadbed is 29' 8" wide, with a 15 foot sidewalk on its west side and a 14' 9" sidewalk on its east side. The eastern sidewalk is only half paved, but the lack of paving may be due to construction. This segment of Brown Place is relatively lightly trafficked. Brown Place is

Photo 37. Aerial photograph of access to the Willis Avenue Bridge

Photo 38. Brook Avenue between East 137th Street and East138th Street

cut off north of Bruckner Boulevard by the Deegan Expressway.

Brook Avenue between Bruckner Boulevard and East 132nd Street is a two-way street with opposing vehicular travel lanes separated by a double yellow line. There is parking on both sides of the street. The roadbed on this segment of Brook Avenue is 43' 9" wide, with the northbound lane being 21' 9" wide and the southbound lane being 22 feet wide. The western sidewalk is 18 feet wide, while the eastern sidewalk is 7' 4" wide. The eastern sidewalk is only partially paved. Brook Avenue might be a possible upland connection (it is wide, has low traffic, etc.), although it runs one way southbound further north of this two-way segment (see Photo 38).

In Section 5, East 132nd Street has two-way vehicular traffic with no lane markings and a 35' 7" wide roadbed. The northern sidewalk along East 132nd Street between Brown Place and St. Anns Avenue is 12'6" wide, while the southern sidewalk is 9' 9" wide. There is a large U.S. Postal Service (USPS) facility on the south side of East 132nd Street between Brown Place and St. Anns Avenue. One component of this facility is a large parking lot which is frequently used by postal trucks and USPS employees. East of St. Anns Avenue, truck traffic becomes quite heavy on East 132nd Street due to the intense industrial and manufacturing nature of the surrounding land use. East 132nd Street has cars parked on the sidewalks on both sides of the street between St. Anns and Willow Avenues, almost completely blocking them, as seen in Photo 39. This, combined with relatively heavy truck and car traffic, makes walking down the street intimidating. Frequent use of driveways by delivery trucks along this segment also make it hard to recommend a shared-use path here.

St. Anns Avenue between Bruckner Boulevard and East 132nd Street has two-way vehicular traffic, with one lane in each direction, separated by a double yellow line. The roadbed is 50'6" wide, with the northbound lane measuring 26 feet wide and the southbound lane measuring 24'6" wide. There is parking on both sides of St. Anns Avenue. This segment is relatively busy compared with Brown Place or Brook Avenue south of Bruckner Boulevard, as this segment appears to be the primary route for access to and egress from the aforementioned USPS facility.

The bicycle lanes on each side of St. Anns Avenue begin north of East 135th Street. They run in the direction of traffic on both sides of the street, and are only 4' 5" wide (see Photo 1 on page 12). St. Anns Avenue runs two ways north of East 135th Street, with one vehicular lane in each direction, separated by a double yellow line. The street dimensions on St. Anns Avenue north of East 135th Street are relatively tight. The roadbed is 42' 6" wide, with a 7 foot wide parking lane on the west side; a 7' 6" wide parking lane on the east side; 4' 5" bicycle lanes on both sides; and 9' 10" wide travel lanes on both sides.

Photo 39. East 132nd Street between St. Anns Avenue and Cypress Avenue

Photo 40. Triborough Bridge pedestrian access

There is a sharp incline on East 137th Street, west of its intersection with St. Anns Avenue. There is also a sharp incline on East 138th Street, east of its intersection with St. Anns Avenue.

Bruckner Boulevard splinters off east of St. Anns Place (which is east of St. Anns Avenue), with the less busy, southern branch called East 133rd Street, and the northern branch continuing as the Bruckner Expressway. The East 133rd Street roadbed is 39' 7" wide, with 10 foot wide sidewalks on both sides of the street. The street runs one way eastbound until Willow Avenue, where it becomes two-way. East of Cypress Avenue, East 133rd Street runs along a quiet residential neighborhood.

Cypress Avenue between East 132nd Street and Bruckner Boulevard, on the west side of the Triborough Bridge, runs one way southbound, with a 44 foot wide roadbed, an 18 foot wide west sidewalk and a 14' 6" east sidewalk adjacent to a pedestrian and bike access ramp to the bridge. Cypress Avenue on the other side of the bridge runs one way northbound with an 18' 8" wide roadbed, a 9' 2" wide east sidewalk and a 2' 8" west sidewalk adjacent to stairs that provide access to the bridge. There is no standing allowed at any time on either side of this segment.

As mentioned above, access to the Triborough Bridge bicycle and pedestrian paths is provided on either side of Cypress Avenue. On the east side, the access consists of a set of stairs (not bikeable) that lead to a 9' 10" wide bridge sidewalk (see Photo 40). On the west side, there is a ramp with sharp switchbacks.

East 134th Street east of the Bruckner service road has a wide, 42 foot wide roadbed, and 18 foot wide sidewalks. It is very quiet all the way to Locust Street, with minimal traffic moving on its two-way roadbed. Cars park on both sides of the street.

There is an Amtrak bridge running adjacent to the New York Post building on East 132nd Street, between Willow and Walnut Avenues. The New York Post has erected a barbed-wire fence to the west of the bridge's eastern support columns. There is a dirt road running under the bridge between East 132nd Street and the waterfront, as shown in Photo 41. There are plans to use the area under this bridge for the South Bronx Greenway, as a connection to a planned bicycle/pedestrian bridge to Randall's Island. This plan, developed by the New York City Economic Development Corporation (EDC) in consultation with Sustainable South Bronx and The Point, includes a bicycle and pedestrian route segment along East 132nd Street, between Willow Avenue and St. Anns Avenue. This could be a point of connection to this study's planned route.

Photo 41. Path under Amtrak Bridge towards Randall's Island

Willis Avenue might not be appropriate as an upland connection due to its fast, heavy traffic. North of the Willis Avenue Bridge exits, Willis Avenue is a very busy 2-way street, with 2 marked vehicular travel lanes in each direction, and opposing-flow directions separated by a double yellow line. The northbound lanes are (east to west) 18' 5" and 11' 3" wide. The southbound lanes are (east to west) 11' 5" and 18' 2" wide. The east and west sidewalks are both 20 feet wide. There is parking on both sides of the street. In addition, the Bx15 bus runs along both sides of the street.

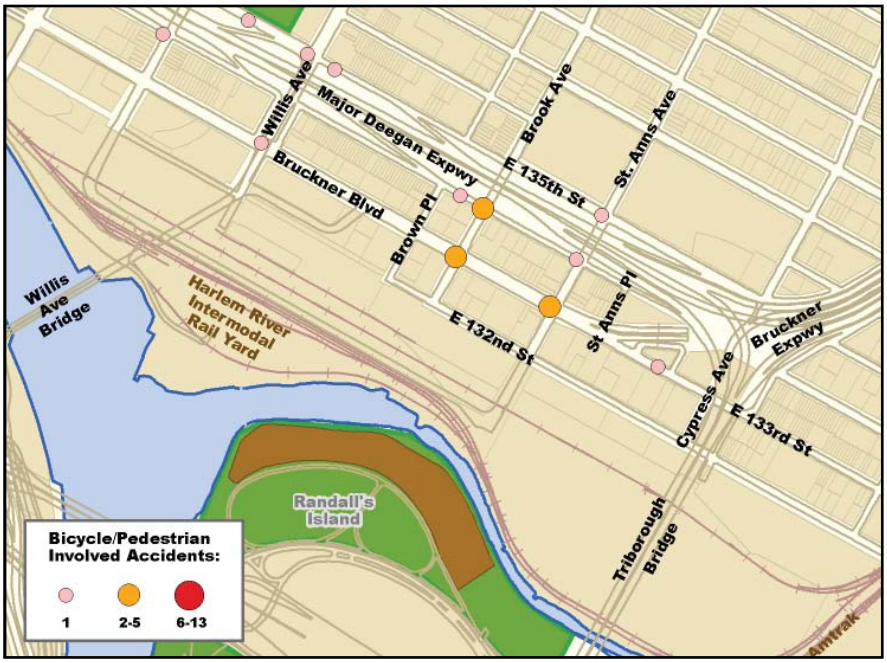


Figure 19. Section 5 bicycle and pedestrian involved accidents, 2001-2003

Chapter 3. Future Developments

The Gateway Center at Bronx Terminal Market

The Gateway Center at Bronx Terminal Market is a planned retail complex and hotel that will be developed in the area bounded by East 149th Street, River Avenue, Exterior Street and the Metro-North railroad tracks. The main components of the project are: approximately 957,700 gross square feet (gsf) of multi-story retail establishments; 2,835 parking spaces in a multi-level parking garage and at grade parking, and a 250-room hotel.

According to the Gateway Center at Bronx Terminal Market Project Final Environmental Impact Statement (FEIS) dated December 7, 2005, the main changes that would be of concern to this project are:

- The current southern BTM building located between East 149th Street, Exterior Street, River Avenue and East 150th Street will be renovated and reused as one-story retail (Retail E.1.).
- Opposite this building across the current East 150th Street, a one-story retail building will be constructed (Retail Building E.2.). Surface parking with approximately 12 spaces is provided adjacent to Retail Building E.2. at the site of the current East 150th Street.
- Retail Building B/F will be a four-story structure located north of Retail Building E.2. It will have parking on the ground floor for approximately 256 vehicles.
- A six-story parking garage will be constructed north of Retail Building B/F, with a capacity of 2,342 spaces. This building will have retail on the ground level of Exterior Street (Retail Building C) and River Avenue (Retail Building D). One entrance will be located at River Avenue at East 151st Street.
- Retail Building A will be a three-story structure located north of the parking garage.
- A hotel, a banquet facility and approximately 225 parking spaces will be constructed at the northern end of the site, south of the Metro-North tracks.
- Pedestrian access to the retail center will be provided at East 151st Street and East 150th Street from both sides between River Avenue and Exterior Street, at East 149th Street and Exterior Street, at other points along River Avenue between East 151st Street and East 149th Street, and along Exterior Street between East 149th Street and its north end.
- East 150th Street will be closed between River Avenue and Exterior Street.
- Cromwell Avenue will be demapped between East 150th Street and its northern terminus.
- East 151st Street will be closed west of River Avenue.
- Exterior Street between East 149th Street and its northern terminus will be improved substantially. These enhancements will include "widening to two travel lanes per direction, a dedicated southbound left-turn lane into the parking garage on the east side of Exterior Street, pavement resurfacing, crosswalks at exits and entrances to parking areas, traffic signals at parking garage driveways, lane striping, signage, upgraded lighting" and streetscaping.
- River Avenue between East 149th Street and East 151st Street will be re-striped to provide

two travel lanes in each direction, shared turn/through lanes and crosswalks at East 150th Street and East 151st Street, and a crosswalk at the proposed garage exit. Streetscaping will also be improved.

- Major traffic mitigation measures will be implemented at the intersection of East 149th Street, Exterior Street, the northbound Major Deegan Expressway exit ramp, the 145th Street Bridge approach and River Avenue. They include widening the expressway's off-ramp, restriping and/or channelizing traffic, and signal phasing and timing modifications.
- A new waterfront public open space will be developed by the City at Pier 4 on a portion of the BTM area west of Exterior Street. It will be approximately 2 acres in size.
- The project will displace approximately 2,100 existing Yankee Stadium parking spaces (including on-street parking).

Traffic Analysis

The Gateway Center at BTM FEIS analyzed traffic at 21 intersections in the project area and along sections of the Major Deegan Expressway. Existing, no build and build conditions were studied. The proximity of the project to Yankee Stadium was taken into account in the traffic analysis, differentiating game and non-game days, and pre-game and post-game peaks during game days. The traffic analysis assumes that the number of trips generated by the Gateway Center will be lower on game days' peak hours, because Gateway Center patrons will choose other times of the day to visit the facility.

The traffic analysis concluded that the following intersections will experience significant adverse traffic impacts (*) as a result of the construction of the Gateway Center: Grand Concourse and East 149th Street, Grand Concourse and East 161st Street, River Avenue and East 150th Street, River Avenue and East 151st Street, River Avenue and East 153rd Street, River Avenue and East 161st Street, Jerome Avenue and East 161st Street, and Jerome Avenue and Ogden Avenue. Sections of the Major Deegan Expressway that will also experience significant traffic impacts include the intersection of the northbound ramp and service road and East 157th Street, the approach to Exit 4 at East 149th Street, and the southbound approach to the exit ramp at East 161st Street. According to the Gateway Center at BTM FEIS:

> "The detailed analyses of mitigation measures indicated that these significant adverse impacts on the local street network can be mitigated by standard traffic engineering improvements such as signal phasing and timing modifications, parking prohibitions, lane re-striping and intersection channelization improvements, and pavement markings".

There is one major intersection where significant adverse traffic impacts can not be mitigated with the above mentioned measures: at the intersection of East 149th Street, Exterior Street, the northbound Major Deegan Expressway exit ramp, the 145th Street Bridge approach and River Avenue. As mentioned above, major traffic mitigation measures will be implemented at this multi-legged intersection.

The impact of increased traffic at these locations has been considered in the development of the Bronx Harlem River Bicycle and Pedestrian Study's recommendations.

Regarding pedestrians, the Gateway Center at BTM FEIS states that the project would result in a significant adverse impact only to the north crosswalk at East 149th Street and River Avenue, decreasing its pedestrian level of service (LOS) from A to D. The redesign of this intersection will mitigate this LOS decrease. The retail center will obviously increase pedestrian volumes in the area, but with the exception of the previous intersection, the sidewalks' level of service will not deteriorate.

**Note:* A significant traffic impact is defined in the City of New York CEQR Technical Manual as: for a No Build LOS A, B, or C conditions that deteriorate to unacceptable LOS D, E or F in the future Build condition. For future No Build LOS A, B, or C conditions that deteriorate to LOS D, mitigation to mid-LOS D is required.

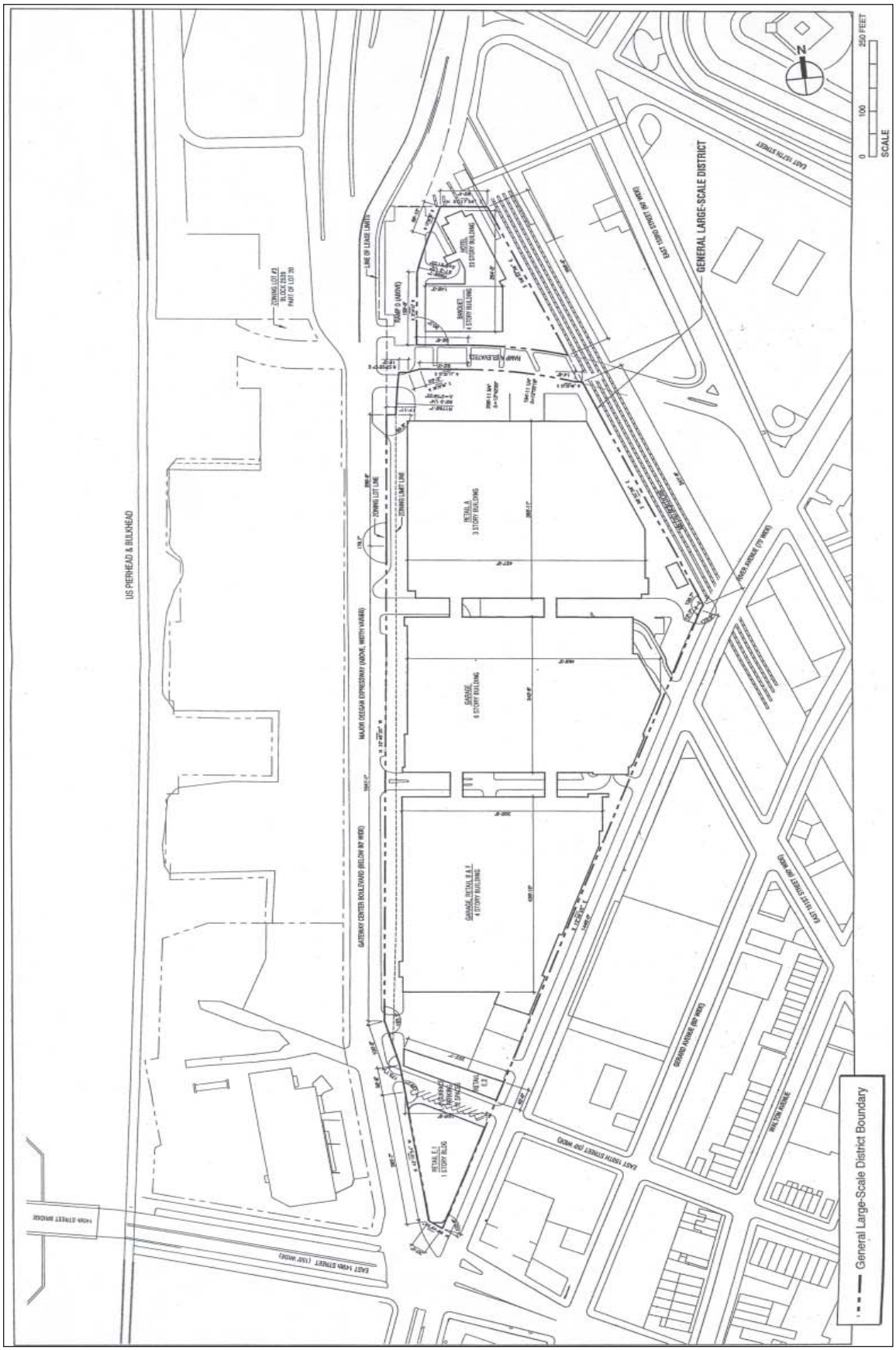


Figure 20. The Gateway Center at Bronx Terminal Market Plan, Gateway Center at Bronx Terminal Market Final Environmental Impact statement; AKRF, Inc. with Wachtel & Masyr, LLP, Eng-Wong Taub & Associates, Langan Engineering and Environmental Services, Sive, Paget & Riesel, P.C. December 2005.

The Yankee Stadium Project

The Yankee Stadium project proposes the construction of a new Yankee Stadium one block north of its current location at East 161st Street and River Avenue. The new stadium will include four new parking garages and new and replacement recreational park facilities near the proposed stadium. The proposed new stadium will have a capacity of 54,000 spectators, reducing by 2,928 the capacity of the current stadium. Its construction is planned to be completed in 2009.

According to the Yankee Stadium Project Final Environmental Impact Statement (FEIS) dated February 10, 2006, the main changes that would be of concern to this project are:

- The four new parking garages will provide approximately 4,735 spaces; approximately 1,030 parking spaces in existing lots will be displaced by the project, but 376 spaces would be added in existing and expanded surface parking lots. As a result, a total of 10,310 parking spaces will be available for Yankee patrons in the proposed project, with a net increase of 3,315 off-street spaces. Currently, there are 6,995 dedicated parking spaces for Yankee Stadium patrons, but the construction of the Gateway Center will reduce this number to 6,229 spaces.
- Secure bicycle parking would be provided at one of the four proposed parking garages. The new parking garages in our study area are:
  - Parking Garage A, located between East 157th Street, East 161st Street, the Macombs Dam Bridge Approach and the site of the current stadium. Garage A will have a capacity of approximately 1,700 spaces, and vehicles will be able enter/exit at two locations along East 157th Street and one on the Macombs Dam Bridge Approach. This garage will be partially below-grade and it will have new recreational facilities above the structure;
  - Parking Garage C, bounded by East 161st Street, Jerome Avenue, the Major Deegan Expressway and the Macombs Dam Bridge Approach. Garage C will have a capacity of approximately 1,120 spaces, and two-way access will be provided at one location at East161st Street and two locations along the Macombs Dam Bridge Approach. The garage will have new recreational facilities on its rooftop.
  - Parking Garage D, located on East 151st Street between River and Gerard avenues, with approximately 949 spaces, and two-way access points both at River and Gerard avenues.
- The proposed new structures would eliminate existing parkland areas, but new and replacement parks and recreational facilities are planned to be constructed, resulting in a net increase of approximately 4.63 acres of accessible recreational facilities in the area. These facilities include:
  - The recreational facilities established on top of the parking garages mentioned above.
  - New parkland at the site of the current stadium, at two existing surface parking lots on River Avenue and East 157th Street, and west of Exterior Street at Piers 1, 2 and 3 adjacent to the waterfront (at the site of the BTM).
  - An esplanade connecting this new waterfront park to the ferry landing and to Exterior Street.
- Ruppert Place will be demapped and permanently closed to vehicular traffic. It will be a pedestrian only street/plaza named Ruppert Plaza, and will provide a link between the proposed new stadium and the adjacent parking garages and recreational facilities.
- East 157th Street between River Avenue and Ruppert Place will be re-opened to vehicular traffic. This will create a new intersection consisting of East 157th Street, East 153rd Street and a Parking Garage A driveway. The second driveway to Parking Garage A along East 157th Street is proposed just east of this intersection.
- A new, 60-foot-wide, at-grade, permanent crosswalk will be established at the intersection of the future Ruppert Plaza and East 161st Street. This crosswalk location will be reconfigured

1- Parking Garage A and Sports Facilities
2- Re-aligned Ruppert Plaza
3- Heritage Field and Open Space
4- Parking Garage C and Sports Facilities
5- Passive Park Space
6- Passive Park Space
7- Parking Garage B and Open Space
8- Sports Facilities and Esplanade
9- Esplanade
10- Parking Lot 13 A
11- Parking Lot 13 A Expansion
12- Parking Lot B
13-Parking Garage D

Figure 21. The Yankee Stadium Project plan, Yankee Stadium Project Final Environmental Impact Statement; AKRF, Inc. with Eng-Wong Taub & Associates, Sive, Paget & Riesel, P.C., Vollmer Associates, LLP. ; February 2006.

to provide a safe street crossing distance for pedestrians, and a new traffic signal will be introduced.

- An improved crossing will be provided at the Macombs Dam Bridge Approach intersections with the East 161st Street service roads. A new signal at the eastbound service road intersection, a new south crosswalk (20 feet wide), a widened north crosswalk (20 feet wide) and a widened continuous east crosswalk (10 feet wide) will be incorporated into the crossing. Also, there will be a physical widening of the east side of the bridge structure of approximately 5 feet.
- Along East 161st Street, a prominent plaza connecting the two main stadium entrances will be provided. This plaza will be separated from the East 161st St westbound service road by a 12 to 17-foot-wide sidewalk. The above-mentioned pedestrian crossing along the new Ruppert Plaza would connect at the midpoint of the sidewalk.
- The existing pedestrian bridge over the Metro-North tracks between Ruppert Place and the BTM will be completely reconstructed and would be open year-round. It would accommodate both pedestrians and bicyclists and it would be made Americans with Disabilities Act (ADA) compliant. The new bridge would be 25 feet wide; on the eastern end, a new, main 25 foot wide ramp would span over East 157th Street to Ruppert Plaza, while a 15 foot wide corridor would connect with the second level of Garage 8 (located between East 153rd Street, East 157th Street and River Avenue). Pedestrian improvements – unique paving, signage, lighting – will be added to the western side of the bridge.
- Pedestrian improvements along River Avenue down to Parking Garage D at East 151st Street will be implemented, such as replacement of sidewalks in poor condition, addition of new trees and improvement of street lighting.

Traffic Analysis

According to the Yankee Stadium Project FEIS, there would be significant vehicular traffic impact on several streets in the study area by 2009, the projected build date. Specifically, traffic volumes would increase during peak hours before and after Yankee games at the northbound Major Deegan exit at East 157th Street, along the northbound Major Deegan Service road between East 157th and Jerome Avenue, and along Jerome Avenue between the service road and East 161st Street. In addition, traffic volumes would increase during Yankee game-day peak hours at the Deegan on-ramp/exit at East 153rd Street between Ruppert Place and River Avenue, and at East 161st Street near Jerome Avenue. The impact of increased traffic at these locations has been considered in the development of the Bronx Harlem River Bicycle and Pedestrian Study's recommendations.

In terms of the Yankee project's impact on bicyclists, according to the FEIS:

> "secure bicycle parking would be provided at one of the new proposed garages. The proposed project would not preclude the provision of bicycle routes or lanes that are in existence or the City may consider in the future, and the infrastructure and operational measures that would be incorporated as part of the proposed project…would not alter the general roadway characteristics in the area."

Significant impacts on pedestrian Levels of Service (LOS) during pre- and post-game peak hours for the projected 2009 build date are identified for 4 intersection crossings in the FEIS, all at River Avenue and East 161st Street. The FEIS introduces mitigation for the impact on pedestrian LOS, including crosswalk widening and continuing utilization of an existing Yankee game-day traffic management plan. However, because of its current and projected high traffic volumes, this intersection is not included in the recommendations of the Bronx Harlem River Waterfront Bicycle and Pedestrian Study.

The Yankee FEIS also recommends signalizing the

intersection crossing at East 153rd and East 157th Streets to accommodate pedestrians crossing the entrance to the Yankee Stadium parking garage A, which is planned to go here. This signalized intersection would enhance this study's recommended bicycle/pedestrian facility along East 157th/East 153rd streets (see Recommendations chapter).

Chapter 4. Recommendations

Overview

The study area currently lacks any formal waterfront access, and its only bicycle facilities are two striped lanes on either side of St. Anns Avenue between East 135th Street and East 149th Street and bicycle/pedestrian paths on its bridges. Recently approved developments, including the new Yankee Stadium and Gateway Center projects, as well as approved and planned zoning changes create both the opportunity and need for enhanced bicycle and pedestrian access throughout the study area.

This chapter introduces recommendations for new bicycle and pedestrian facilities and identifies areas of opportunity, where access can be attained through the improvement of planned or existing facilities. The recommendations are divided into five sections, according to the study area sections outlined in the Existing Conditions chapter.

Section 1, stretching from the Macombs Dam Bridge to the 145th Street Bridge, runs along an area that is planned to undergo large-scale changes in the near future. In this section, both the new Yankee Stadium and Gateway Center projects have been approved by the New York City Council. Because of the planned changes, the preferred waterfront route, which runs adjacent to the Major Deegan Expressway and along Exterior Street, is recommended for the long term, after construction is slated to occur. There is a corresponding upland preferred route, which can be implemented sooner and can be maintained after construction has been completed as a complementary route to the long term waterfront route. The upland route would preferably run as a pair of one-way striped lanes along Gerard and Walton avenues, connected to the waterfront area by recommended facilities along East 157th Street or East 153rd Street.

In Section 2, from the 145th Street Bridge to the Madison Avenue Bridge, the preferred route would continue along Gerard and Walton avenues. A route closer to the waterfront is not currently feasible here. However, a long term route along Exterior Street is a possibility if proposed zoning changes occur in this section, and if the street bed and sidewalks are consequently improved in terms of calmer traffic and more biking and walking-conducive geometry.

Section 3, from the Madison Avenue Bridge to the 3rd Avenue Bridge, currently has a waterfront that is cut off from upland connections by the Major Deegan Expressway. Because of community interest in a potential street-end open space along the waterfront at Park Avenue (where the Oak Point Link comes onto land), an upland bicycle and pedestrian connection to this section is particularly important. The recommendations to this end include a bicycle and pedestrian overpass, spanning over the Major Deegan Expressway at Park Avenue; the re-opening of a bicycle and pedestrian underpass at Rider Avenue; and a bi-directional shared-use path along East 135th Street between East 138th Street and Park Avenue. Complementary upland connections north of the Major Deegan Expressway along Park Avenue, Rider Avenue, 3rd Avenue, East 135th Street and East 138th Street are also included in the recommendations for this section.

Section 4, from the 3rd Avenue Bridge to the Willis Avenue Bridge, includes recommendations for a bicycle path along the Bruckner Boulevard Antique and Art District, as well as for a street-end open space at Lincoln Avenue and for the re-opening of privately used or underutilized segments of East 132nd Street and the establishment of public bicycle and

pedestrian facilities there.

Section 5, from the Willis Avenue Bridge to the Triborough Bridge, is a particularly heavily trafficked area, with intense industrial and manufacturing land use south of the Major Deegan, and a lack of viable bicycle and pedestrian options along or close to the waterfront. Because of the existing conditions in Section 5, the preferred route would include the use of a service road along the privately leased Harlem River Railyard as a wide, shared-use greenway between Willis Avenue and Cypress Avenue. The use of this road would have to be negotiated with the New York State Department of Transportation, who owns the site, and the current leaseholders. In addition to the service road, recommendations in this section include facilities along Bruckner Boulevard, Willis Avenue, St. Anns Avenue, East 133rd Street and East 134th Street.

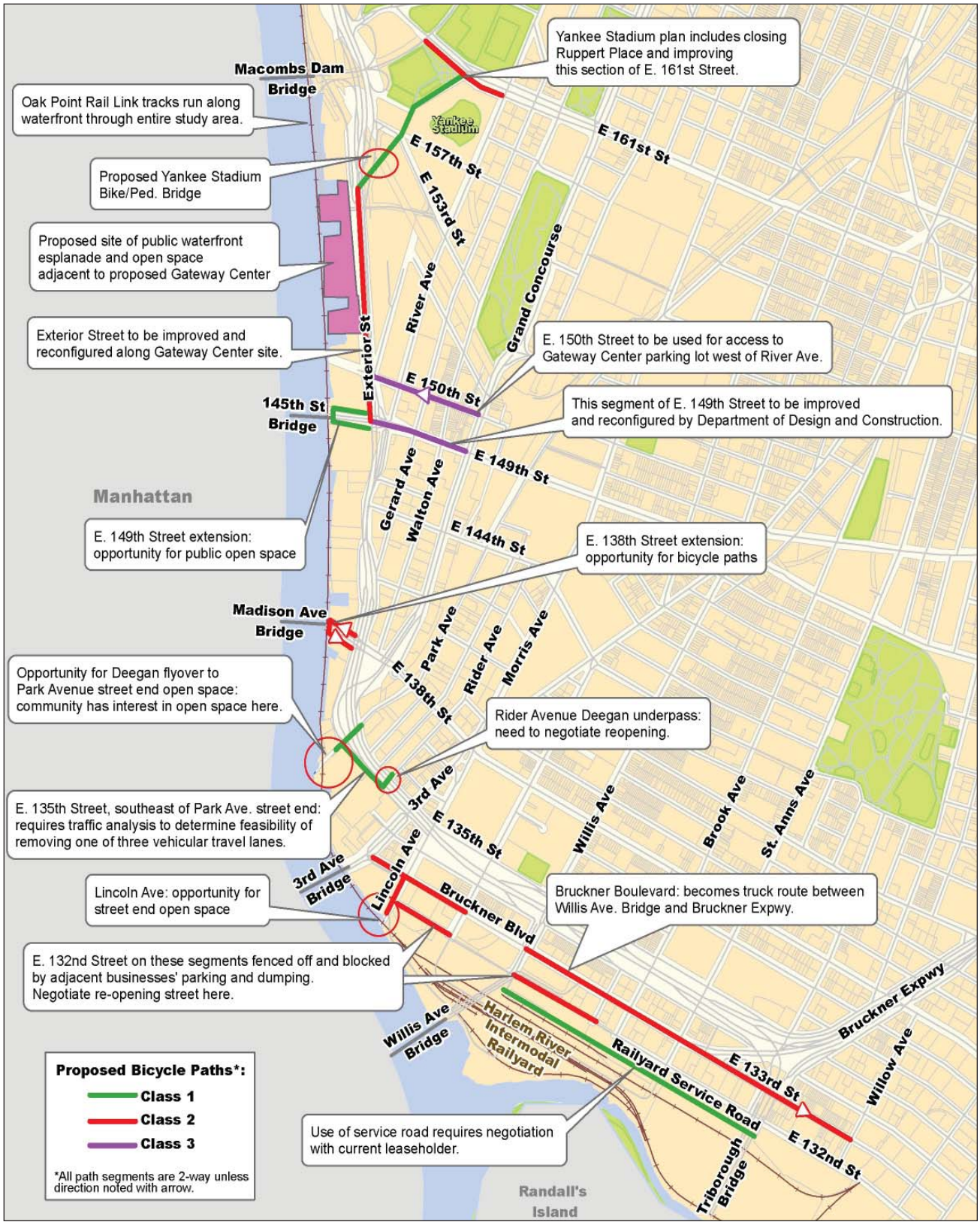


Figure 22. Map of opportunities and constraints along preferred and alternate routes

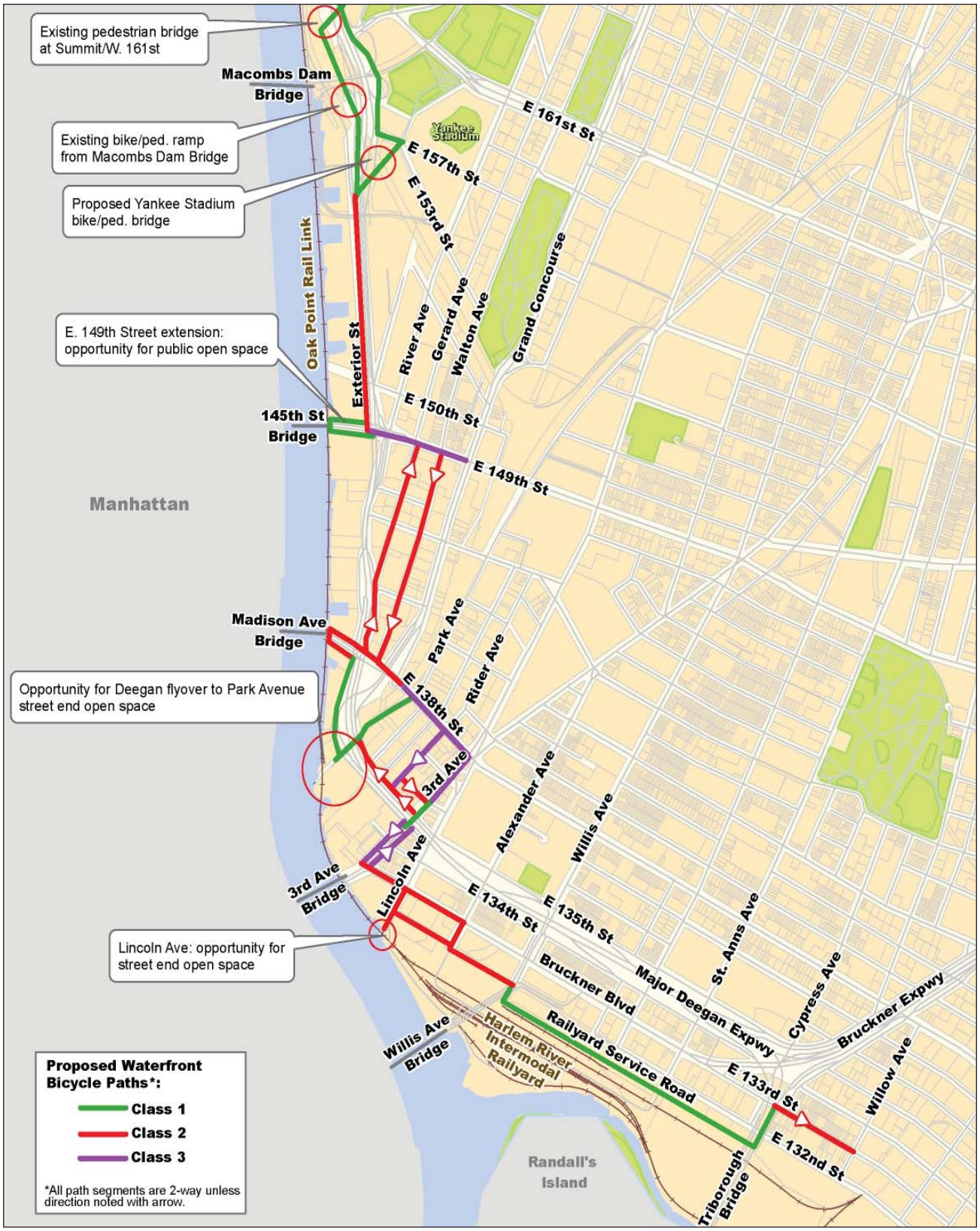


Figure 23. Map of preferred waterfront route

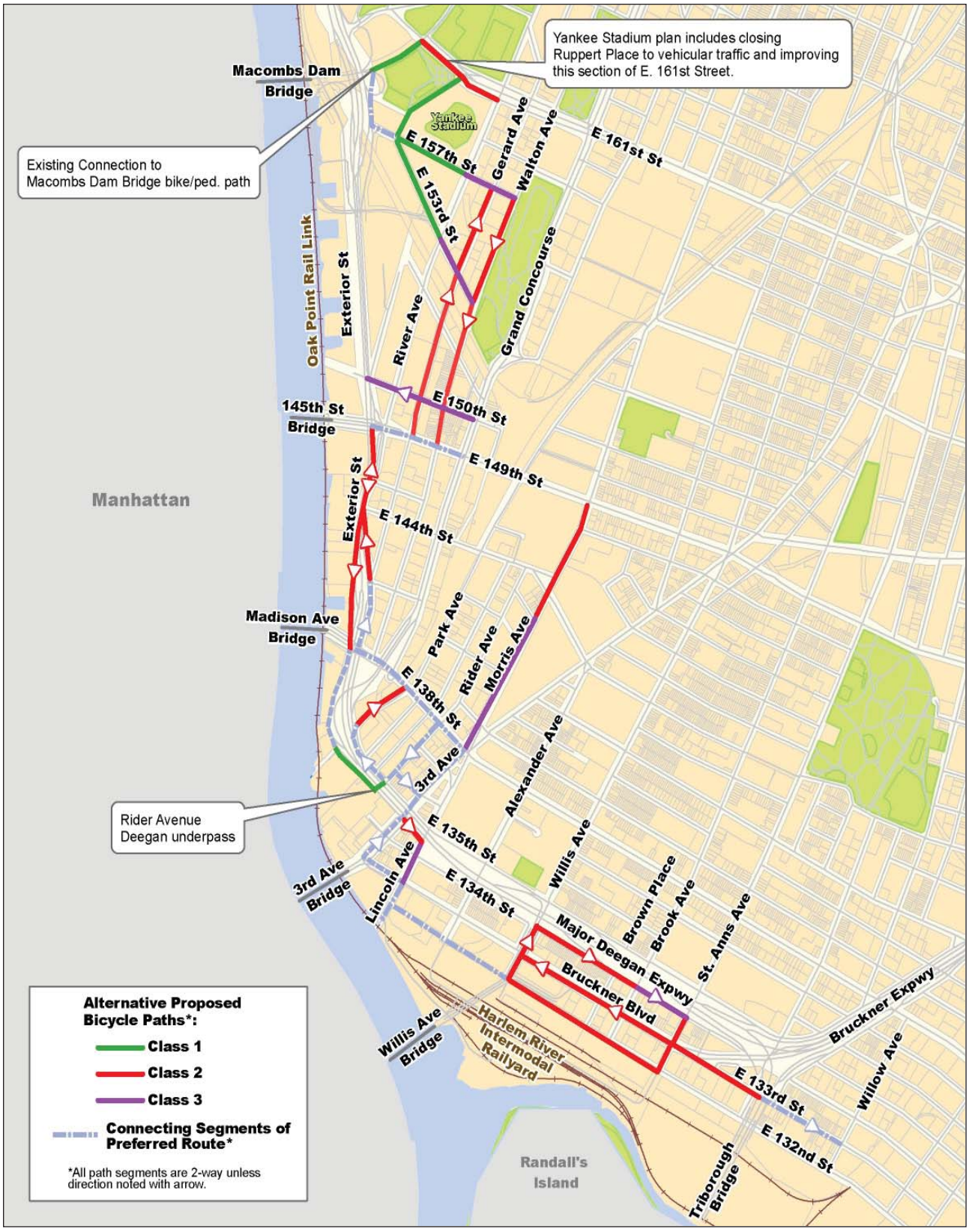


Figure 24. Map of upland routes, alternate routes and additional connections

Section 1: Macombs Dam Bridge to 145th Street Bridge

Two major developments planned for this section, the Gateway Center at the site of the current Bronx Terminal Market (BTM), and the relocation of Yankee Stadium north of East 161st Street, will positively impact the waterfront. The New York City Council approved the Gateway Center project on February 1, 2006. The demolition of existing BTM buildings is scheduled to begin in June 2006, and the completion of the Gateway Center is targeted for Fall 2009.

The Yankee Stadium plan was approved by the City Council on April 5, 2006. Construction is to begin in 2006 and to be completed in 2010, according to the project's Final Environmental Impact Statement (FEIS). The proposed new stadium would open in 2009, and all the proposed parking garages would be operational at that time.

This plan identifies a short-term route that features upland connections while the projects are under construction, the other a long-term route that incorporates improved waterfront access and paths to be built by each of these developments. It also identifies alternate routes and treatments, including improved street-ends.

Preferred Long-term Waterfront Route

In this long-term scenario, the Gateway Center shopping mall has been completed and Yankee Stadium has been relocated north of East 161st Street. There are new waterfront parks and a waterfront

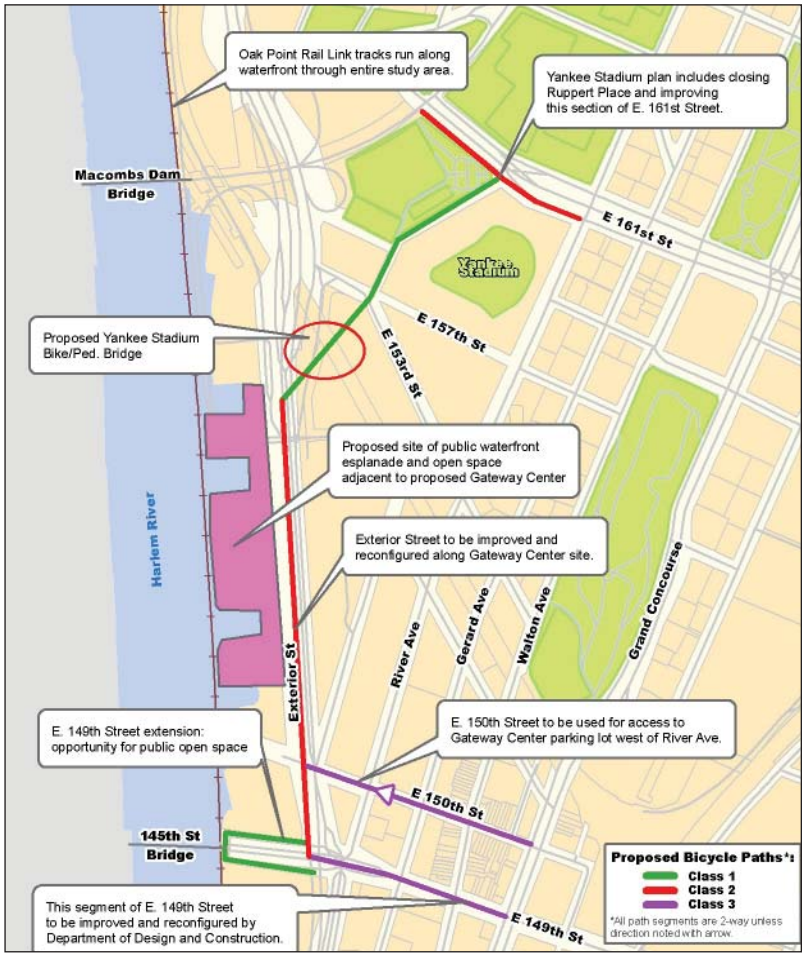


Figure 25. Map of opportunities and constraints along Section 1

esplanade, and there is a newly constructed pedestrian and bicycle bridge over the Metro North tracks that run north and east of the Gateway Center site.

Jerome Avenue and Sedgwick Avenue Intersection

The preferred route runs north and south as a bi-directional shared-use path beginning at the intersection of Jerome Avenue and the northbound Major Deegan Expressway service road. This path would continue the Regatta Park Greenway proposed by the New York City Department of Parks and Recreation ("Parks") south along Sedgwick Avenue to its intersection with Jerome Avenue, where a triangular traffic median channels traffic north and east. Vehicular traffic at this intersection is fast and frequent, right turns are not controlled, and no crosswalks are marked. Given the potential conflict between path users and automobiles, a bicyclist/pedestrian-activated traffic signal should be installed and a wide crosswalk should be marked at the intersection.

However, a traffic signal and crosswalk may not be feasible, considering that the intersection is designed to channel traffic with minimal delay. (A warrant analysis and/or traffic study would be required to assess any impacts of the proposal.) Minus a redesigned intersection, it is recommended that bicyclists and pedestrians cross Jerome Avenue at an existing crosswalk just east of Ogden Avenue to connect to and from a recommended path along the Major Deegan Service Road sidewalk (see description below) via the sidewalk that connects to the northern Macombs Dam Bridge bicycle and pedestrian path. A crosswalk should also be marked at the beginning of the on-ramp loop to the Macombs Dam Bridge in order to achieve the above connection.

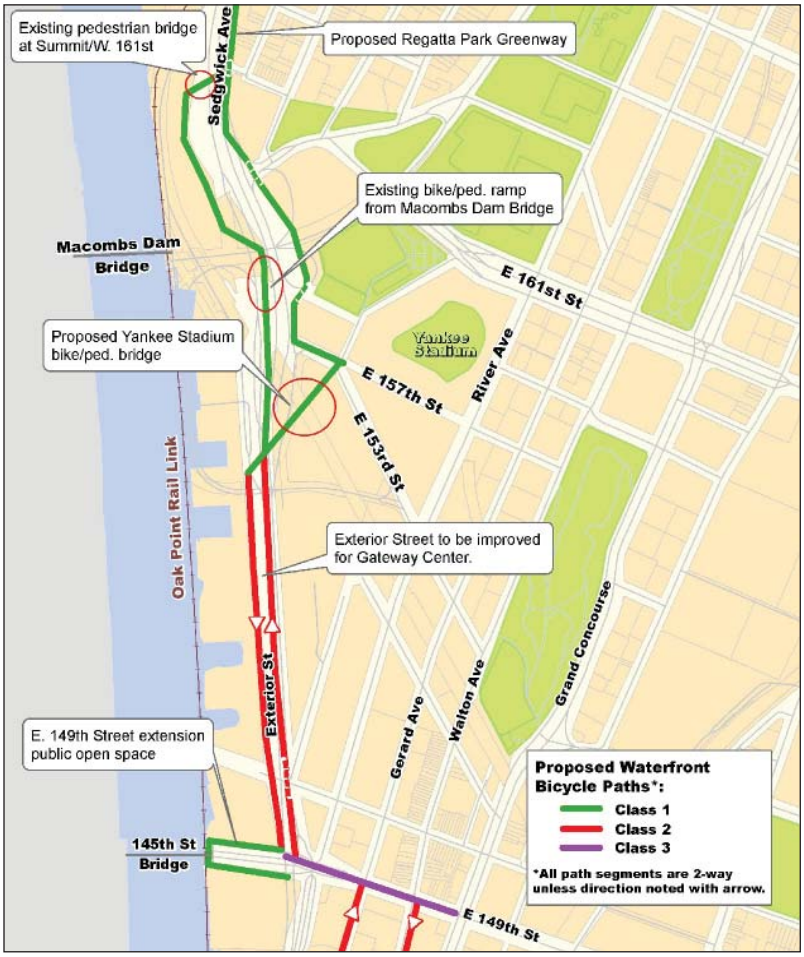


Figure 26. Section 1 map with preferred waterfront route

Traffic signs instructing vehicular traffic to yield to pedestrians should be installed on the concrete median facing the Deegan Service Road and Jerome Avenue approaches. According to the Manual on Uniform Traffic Control Devices 2000 (MUTCD), appropriate signs include: "Yield Here to Peds" (MUTCD Code: R1-5), "Yield Here to Pedestrians" (MUTCD Code: R1-5a), "In-Street Ped Crossing" (MUTCD Code:R1-6), and "Turning Traffic Must Yield To Pedestrians" (Code: R10-15).

Major Deegan Expressway Service Road Sidewalk

South of the intersection of Jerome and Sedgwick Avenues, the Sedgwick Avenue sidewalk continues along the east side of the Deegan service road to East 157th Street. The Deegan service road sidewalk (between Jerome Avenue and a Macombs Dam Bridge off-ramp just south of the bridge) is from seven to ten feet wide and has numerous obstacles on or immediately adjacent to the sidewalk; mainly trees, utility poles and the bridge support structure. A wrought-iron fence separates the sidewalk from an adjacent unused grassy open space owned by the New York City Department of Parks and Recreation (see Photo 6, page 17).

The American Association of State Highway and Transportation Officials (AASHTO) recommends a minimum width of 10 feet for a bi-directional shared use path (1999 *Guide for the Development of Bicycle Facilities*). The guide suggests that a three-foot wide graded (1:6 slope) area should be established adjacent to a shared-use path in order to provide separation from obstructions such as trees and poles. Due to the presence of obstacles and bridge structures, therefore, a bi-directional path along the Deegan service road cannot be established by redesigning the existing sidewalk.

A path of sufficient width could be established by removing (or relocating) the wrought- iron fence and designating the existing sidewalk as the northbound leg of the bi-directional shared-use path. The path would be six feet wide, in accordance with AASHTO standards for one-way shared use paths, with a three-foot wide graded (1:6 slope) buffer on its east side and a raised barrier on its west side. The southbound segment would be established approximately 10 feet east of the Major Deegan service road sidewalk's eastern edge to avoid bridge supports adjacent to the sidewalk (see Figure 27).

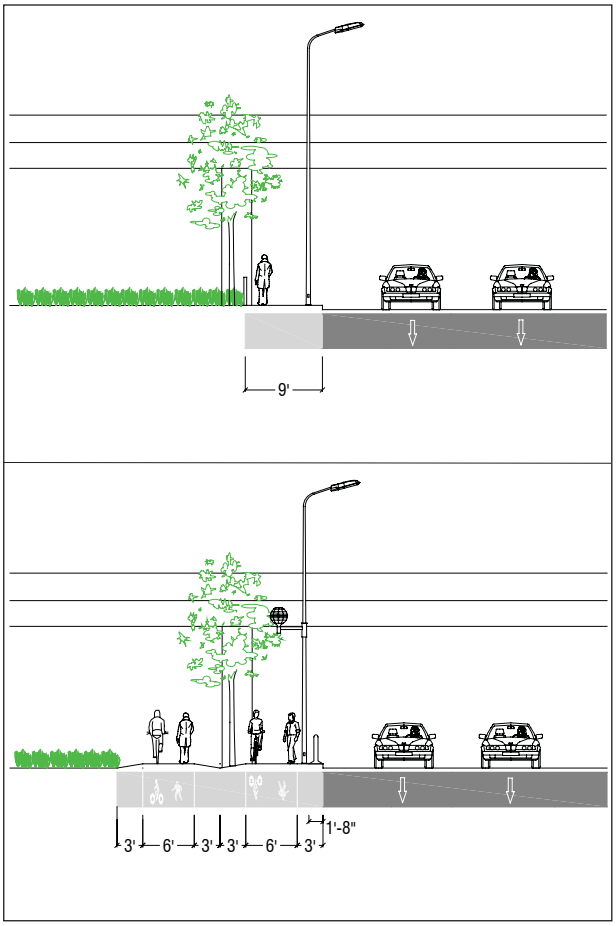


Figure 27. Major Deegan Expressway Service Road sidewalk, existing and recommended cross section (facing south)

South of the Macombs Dam Bridge, the separate one-way segments would merge into a single path at a new bicycle/pedestrian-activated traffic signal and crosswalk, which is recommended to ensure safe passage across the Macombs Dam Bridge off-ramp, where cars are not currently controlled as they exit the bridge. A warrant analysis may be necessary to determine the feasibility of a signalized crosswalk at this location. If the addition of a signalized crosswalk is deemed infeasible, the crossing could simply be equipped with a sign instructing motorists on the bridge off-ramp to yield to bicyclists and

pedestrians (see *Jerome Avenue and Sedgwick Avenue Intersection)*.

The Deegan Expressway service road sidewalk south of the bridge off-ramp is adjacent to the proposed Yankee Stadium Parking Garage A site. It widens to almost 10 feet, is not as obstructed as the sidewalk north of the off-ramp, nor is it fenced off from its adjacent open space, which, however, descends relatively steeply approximately five feet east of the sidewalk. For this segment, the existing sidewalk should be widened and designed as a bi-directional shared-use path, separated from traffic by a raised barrier. The path should include a three-foot wide graded (1:6 slope) buffer along its east side.

Alternate Route

Ruppert Place and East 161st Street

A possible alternative to the proposed path along the Major Deegan Expressway service road sidewalk would be a bi-directional shared use path on Ruppert Place from East 157th Street to East 161st Street. As per the Yankee Stadium project proposal, the current Ruppert Place will be demapped and transformed into Ruppert Plaza, a pedestrian-only plaza that will provide the main access route to the new stadium from the parking garages south of East 161st Street. A shared-used path should be implemented along this segment to take advantage of the absence of motor vehicles and the light pedestrian traffic at all times other than game time. Pedestrians and bicyclists would then connect to the East 161st Street local roads leading to the Macombs Dam Bridge approach via a crosswalk at East 161st Street and Ruppert Plaza to be installed as part of the Yankee Stadium Project.

Connection to the Macombs Dam Bridge

The north sidewalk on the Macombs Dam Bridge is currently designated as a bike route. Pedestrians and bicyclists would use the existing north and south bridge sidewalks, which loop along the bridge's vehicular on- and off-ramps to connect directly to the Deegan service road sidewalk between Jerome Avenue and East 157th Street.

East 157th Street to East 153rd Street

The bi-directional route continues along East 157th Street to its intersection with East 153rd Street. The sidewalk along the north side of East 157th Street is 10' 6" wide, but is lined with trees, and therefore may not be suitable for conversion to a shared-use path (see Photo 42). In order to maintain a connection to the path along the Deegan service road sidewalk, it is recommended to add eight feet of recaptured and unnecessary roadbed to the existing sidewalk along this segment of East 157th Street, and to redesign it as a bi-directional multi-use path separated from traffic by a raised barrier extending to the intersection of East 157th Street and Ruppert Place.

The roadbed along this segment of East 157th Street is 42 feet wide, with one eastbound travel lane and two unmarked westbound lanes to accommodate traffic turning right onto the Deegan service road, and no permitted curbside parking. The reassignment of eight feet of roadbed would maintain three 11-foot vehicular travel lanes, and would not impact traffic, even heavy traffic generated by Yankee games.

Photo 42. East 157th Street between Major Deegan Expressway Service Road and East 153rd Street

East 157th Street to Exterior Street via a New Pedestrian and Bicycle Bridge at Yankee Stadium

As mentioned in the Future Developments chapter, the existing pedestrian bridge over the Metro-North railroad tracks at Ruppert Place would be reconstructed as part of the Yankee Stadium project. This bridge would provide the community with permanent access to Exterior Street, the ferry landing at the Harlem River and the planned waterfront parks and esplanade. The bridge would be open to the public year-round; would accommodate both pedestrians and bicyclists; and would comply with the access requirements of the Americans with Disabilities Act (ADA). The northeast side of the bridge would connect to Ruppert Plaza via a ramp; however, the Yankee Stadium FEIS does not specify whether a ramp or an elevator would be provided at the southwest end of the bridge.

Macombs Dam Bridge Ramp to Exterior Street

An existing bicycle/pedestrian inclined ramp leads from the Macombs Dam Bridge's southerly pedestrian path to the BTM and its major north-south road, Exterior Street. This segment provides an additional link between the Macombs Dam Bridge and Exterior Street and the future Gateway Center (see Photo 5, page 17).

Waterfront Esplanade

The bicycle and pedestrian bridge would connect to a new shared-use route along the planned waterfront esplanade. The path would run adjacent to the waterfront bordering the public open space as proposed in the Yankee Stadium project. This recommended greenway would continue along the waterfront public open space that the City of New

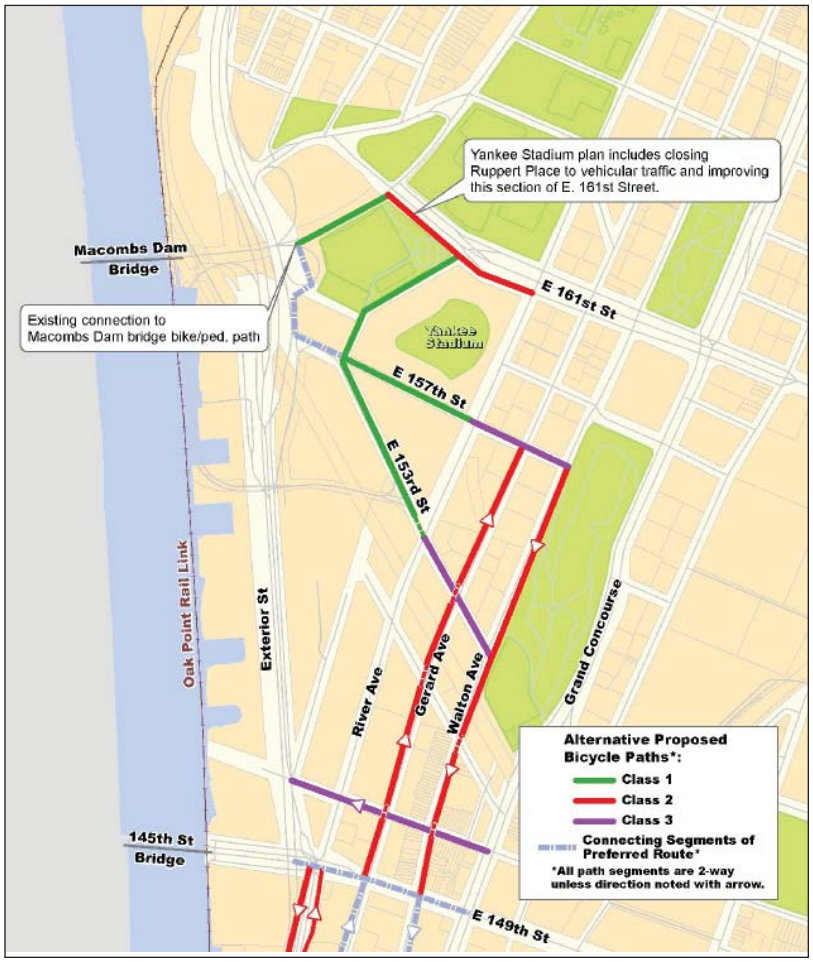


Figure 28. Section 1 map with preferred upland and alternate routes

York is going to develop at Pier 4, as specified in the Gateway Center FEIS (see Future Developments chapter), then connect to the recommended path along Exterior Street.

Exterior Street

As previously described, Exterior Street will be improved substantially as part of the Gateway Center project. The proposed widening and reconfiguration of the street should include the striping of Class 2 on-street bike lanes from its northern end to East 149th Street. This route would be parallel to the previously described waterfront esplanade route, but would be better suited for commuting riders. At the southern end these lanes would connect to the East 149th Street bike route and the 145th Street Bridge pedestrian and bicycle paths via the improved intersection of Exterior Street, East 149th Street and River Avenue.

East 149th Street street-ends

East 149th Street runs along both sides of the 145th Street Bridge, where the street ends connect under the bridge as they dead-end at the river (see Photo 11, page 18). The area around the bridge is currently used as a staging site for the 145th Street Bridge rehabilitation and a chain link fence blocks access to the waterfront.

In the future, these service roads should be redesigned to promote public access to the waterfront and to create a street-end park/open space. The drawings for the planned Gateway Center include the extension of Exterior Street's western curblines to the 145th Street Bridge sidewalks' curblines, and describe these new curblines as "mountable curbs." It is recommended to prohibit motor vehicle traffic along the East 149th Street extensions, except for emergency and maintenance vehicles. The street ends could be repaved at the curb line level to eliminate the roadbed and the different grade levels. Adequate infrastructure and street lighting would be introduced, as well as trees, vegetation and benches. This linear open space could also include recreational facilities such as domino and chess tables, bocce courts, skate parks and open play areas (see Figure 29). If the street width can accommodate them, the site could also include a playground, dog run, or similar recreational facilities.

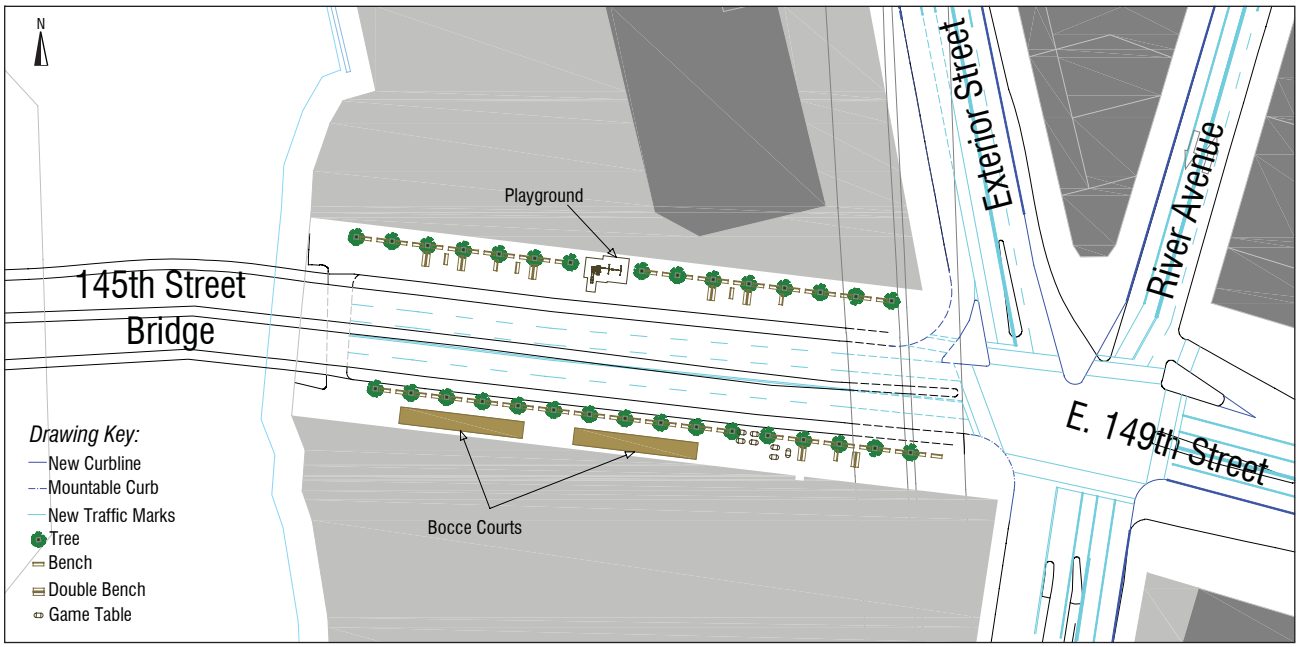


Figure 29. East 149th Street street-ends footprint

Additional Connections

West 161st Street Pedestrian Overpass
A bi-directional shared-use path could be created to connect the planned Regatta Park Greenway to the Macombs Dam Bridge. Starting at Summit Playground [part of Macombs Dam Park, which is elevated above Sedgwick Avenue at West 161st Street] the path would cross over the Major Deegan Expressway via an existing under-utilized pedestrian bridge (see Photo 43), to the remnants of an existing paved path on Parks owned property on the west side of the Deegan, then connect to an unused, paved ramp that leads to the Macombs Dam Bridge bicycle and pedestrian path.

The re-use and extension of the existing trash-strewn pedestrian bridge over the Deegan Expressway was recommended in the Department of City Planning's *Plan for the Bronx Waterfront* (1993) to provide access from the Highbridge community to the waterfront. The narrow pedestrian bridge would require rehabilitation. A paved path traverses the Parks-owned land, which was used as a staging area for the rehabilitation of the Macombs Dam Bridge, completed in 2004. An easement permitting use of the Parks property as a shared-use path may be required. In addition, a means of connecting the elevated path at West 161st Street and Summit Avenue to the Sedgwick path below Summit Playground would need to be determined.

Photo 43. West 161st Street pedestrian overpass

Preferred Upland Route

East 157th Street to Gerard Avenue and Walton Avenue
The preferred upland route would connect to the previously described Major Deegan Expressway service road sidewalk and East 157th Street segment, and continue on East 157th Street between Ruppert Place and Gerard and Walton avenues.

East 157th Street between Ruppert Place and River Avenue is currently a pedestrian-only plaza that provides access to Yankee Stadium and connects it with the adjacent parking garage on the south side of this block. The Yankee Stadium project would re-open East 157th Street between Ruppert Plaza and River Avenue to vehicular traffic. Therefore, it is recommended that the redesigned street be wide enough to accommodate the striping of six-foot wide Class 2 bike lanes. To the west the bike lanes would connect to the recommended Class 1 path along East 153rd Street between the Deegan service road and Ruppert Plaza; to the east, they would connect to the Class 3 route on East 157th Street leading to the proposed bicycle lanes on Gerard and Walton avenues (see below). As part of the Yankee Stadium project, the two existing surface parking lots at the northeast and southeast corners of East 157th Street and River Avenue would be converted into parkland.

East 157th Street between River Avenue and Walton Avenue is insufficiently wide to stripe bike lanes, therefore, the street should be signed as a two-way Class 3 bike route. Six-foot high "shared lane" bicycle route pavement markings, which have been successfully used by the New York City Department of Transportation (NYCDOT) to designate bicycle facilities in other parts of New York City, should be marked in addition to Class 3 route signs as highly visible reminders to motorists to share the road with bicyclists.

Alternate Route

East 153rd Street to Gerard Avenue and Walton Avenue
As an alternative to East 157th Street, the route could continue along two-way East 153rd Street

as Class 1 lanes. New crosswalk striping and signage at the intersection of East 153rd Street and East 157th Street would direct cyclists to protected six-foot bicycle lanes adjacent to the sidewalk and separated from traffic by a raised barrier.

A Class 1 path is required due to the heavy vehicular traffic before and after Yankee games along this segment of East 153rd Street. East 153rd Street is very wide between Ruppert Place and River Avenue, with a single travel lane in each direction; parking is not allowed on either side of the street. Eight feet of roadbed in each direction could be reassigned for bicycle use, leaving 13-foot wide travel lanes that would not adversely impact vehicular traffic.

A southbound Deegan viaduct on- and off-ramp is located on the south side of East 153rd Street between Ruppert Place and River Avenue. Entering and exiting traffic is light except before and after Yankee games (see Photo 44). While an existing walk signal controls the crossing at the on-/off-ramp, the intersection is not marked by a crosswalk. A crosswalk and peg-a-tracking (dashed lines marking the bike lane through the intersection) should be striped here to facilitate safe bicycle and pedestrian movement.

East 153rd Street narrows between River and Walton Avenues and the 34-foot wide roadbed is not wide enough to establish two bicycle lanes and maintain an adequate roadbed width for vehicular traffic and parking. Therefore, East 153rd Street between River Avenue and Walton Avenue should be signed as a two-way Class 3 signed route. Six-foot high "shared lane" bicycle route pavement markings described above for the previous segment should be marked in addition to Class 3 route signs to enhance bicyclist safety.

This route is the preferred alternative under construction conditions in the short term scenario.

Photo 44. East 153rd Street between East 157th Street and River Avenue

Gerard Avenue and Walton Avenue

The proposed alternate routes on East 157th Street and East 153rd Street would both continue to northbound Gerard Avenue and southbound Walton Avenue, where Class 2 bike lanes would be striped as far south as East 138th Street, as recommended in the NYC Bicycle Master Plan. (East 157th Street and East 153rd Street both connect to Franz Siegel Park, but the park disrupts access to the Grand Concourse.) Each bike lane would be six feet wide and striped between the parking and travel lanes according to AASHTO standards.

Between East 157th Street and East 149th Street, northbound Gerard Avenue and southbound Walton Avenue are both 34 feet wide, each with one travel lane and two parking lanes (see Photos 9 and 10, page 18). A six-foot wide bike lane should be striped on each street (on the side of the street from which passengers, rather than drivers, exit parked vehicles, to reduce the instance of "dooring"), which would leave two eight-foot parking lanes and a 12-foot vehicular travel lane (see Figures 30 and 31). Stricter enforcement of parking regulations is recommended on Gerard Avenue between East 150th and East 151st streets, where an automobile repair shop parks cars being repaired on the east sidewalk and double-parks them on the street along with its tow trucks.

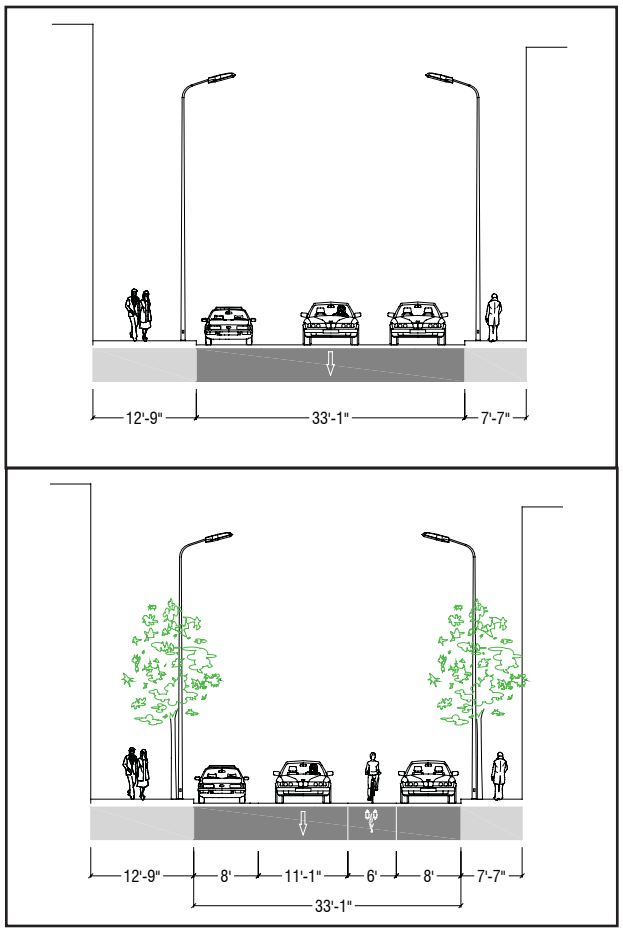


Figure 30. Section 1: Gerard Avenue existing and recommended cross section (facing south)

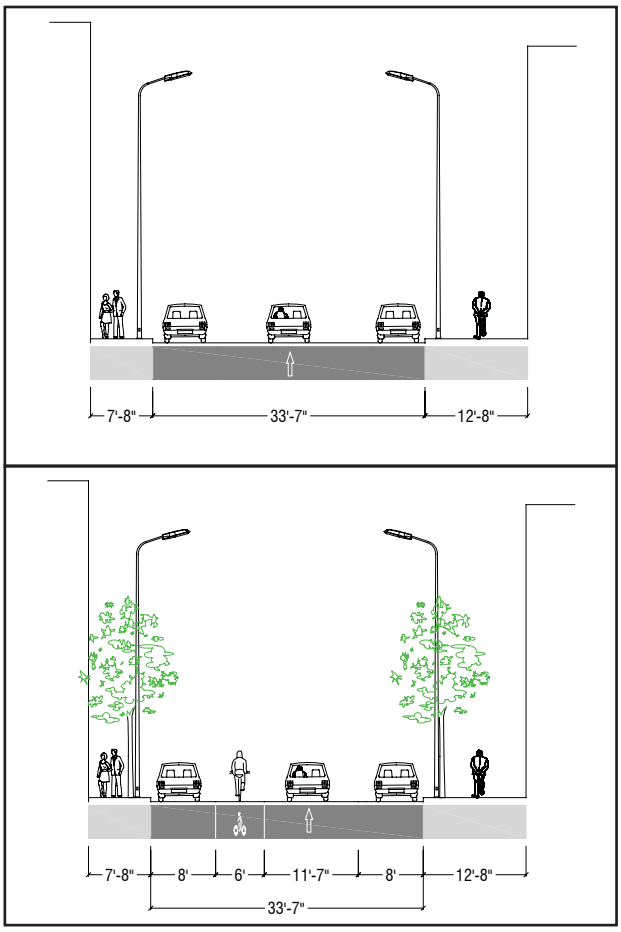


Figure 31. Section 1: Walton Avenue existing and recommended cross section (facing south)

East 149th Street

The route would continue on East 149th Street to connect the Gerard and Walton Avenue bike lanes and the existing 145th Street Bridge pedestrian and bicycle paths.

The New York City Department of Design and Construction (DDC) is reconstructing East 149th Street from River Avenue to A.J. Griffin Place (east of the Grand Concourse). A roadway median, which is planned to be built along East 149th Street to facilitate the safety of crossing pedestrians, would leave no room along the street segment for a Class 1 or Class 2 bicycle lane; instead, DDC recommends a Class 3 signed route. To further enhance the safety of bicyclists along this busy stretch of East 149th Street, we recommend the use of NYCDOT's "shared lane" bicycle route pavement markings (as outlined above for East 157th Street).

Alternate Route

East 150th Street between Exterior Street and the Grand Concourse

East 150th Street is recommended as an alternate westbound upland connection between Exterior Street and the Grand Concourse. Between River Avenue and the Grand Concourse, this street is narrow, with one westbound travel lane and two curbside parking lanes. In addition, sanitation trucks park along East 150th Street between River Avenue and Gerard Avenue, and sometimes between Gerard Avenue and Walton Avenue. Therefore, a Class 3 route should be

signed here.

In the future, according to the Gateway Center FEIS, East 150th Street between River Avenue and Exterior Street will be closed to through traffic and used for access to an adjacent parking lot. Permission for public bicycle use of this segment of East 150th Street would have to be negotiated with the Gateway Center developers.

Section 2: 145th Street Bridge to Madison Avenue Bridge

Preferred Route

Gerard Avenue and Walton Avenue
Class 2 bike lanes should be striped along Gerard Avenue and Walton Avenue between East 138th Street and East 149th Street.

The through traffic lane on Gerard Avenue between East 138th and East 140th streets narrows to only 30 feet to accommodate an adjacent northbound on-ramp to the Deegan Expressway, but parking is not allowed on either side of the street. The eastern sidewalk varies in width from 10 to 15 feet; there is no sidewalk on the western side.

Gerard Avenue between East 140th and East 149th streets is similar in geometry and traffic to Section 1. The street is one-way northbound with one vehicular travel lane, two parking lanes, and wide sidewalks, which between East 146th Street and East 149th Street are in poor condition or only partially paved. Between Gerard Avenue and Exterior Street, the north sidewalk of East 146th Street is not paved, and the south sidewalk is only partially paved. These sidewalks should be repaved.

Gerard Avenue between East 138th and East 149th streets is sufficiently wide to accommodate a six-foot Class 2 bike lane. The lane between East 138th and East 140th streets would need to be striped on the east side of Gerard Avenue to avoid the approach to the northbound highway on-ramp. A three-foot buffer separating the bike path and sidewalk from automobile traffic should also be striped on these two blocks due to the moderately heavy traffic approaching the Deegan on-ramp (see Figures 33 and 34). Riders would need to cross the street just north of East 140th Street to continue from the bike lane on the east side of the street to the west side.

Walton Avenue between East 149th and East 138th Streets is also very similar to its segment along Section 1. The one-way southbound street has a single moving lane, metered or alternate side of the

Figure 32. Section 2 map with preferred route

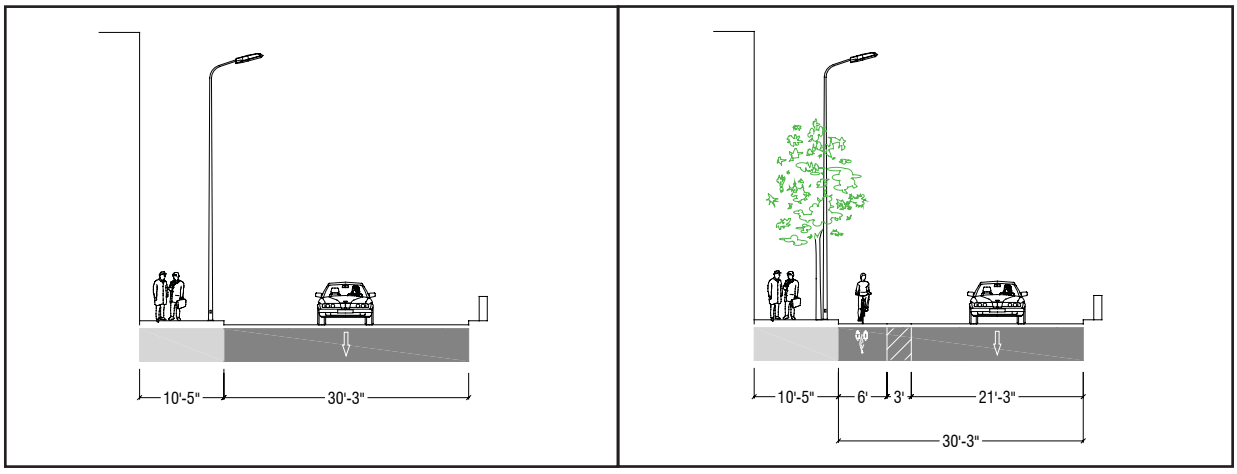


Figure 33. Gerard Avenue between East 140th and East 138th streets, existing and recommended cross section (facing south)

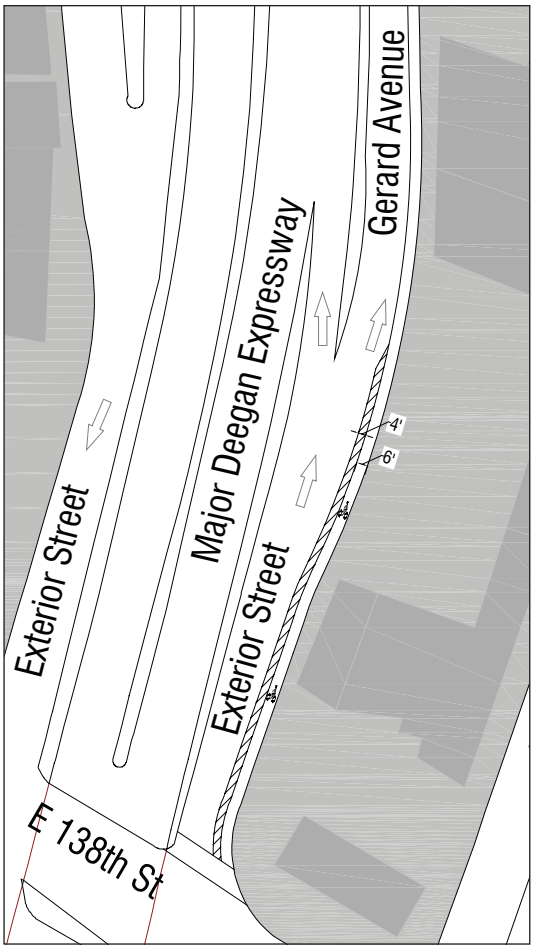


Figure 34. Gerard Avenue between East 140th and East 138th streets, recommended footprint

street parking along both curbs, and relatively light traffic.

A southbound Class 2 bicycle lane should be striped on the east side of Walton Avenue as far south as East 138th Street. One potential problem along this segment is an uphill grade change between East 144th Street and East 140th Street. While the incline is noticeable, it should not prove to be a major obstacle for most bicyclists.

Both Walton and Gerard Avenues between East 138th Street and East 140th Street lack street trees, which should be planted to green these streets. This may be accomplished through opportunities presented by a Memorandum of Understanding, signed by the New York City Council in 2004 (to gain permission from New York State to build a water filtration plant under the Mosholu Golf Course in Van Cortlandt Park), that requires city investment in the Bronx's parks and in the overall increase and improvement of the borough's tree life.

According to the New York State Department of Environmental Conservation at **http://www.dec.state.ny.us/website/environmentdec/2004b/bronxparks930.html**:

> "A comprehensive program to 'green' [the Bronx] will include the creation of new greenstreets, improvement and expansion of horticultural plantings in parks and playgrounds, and the addition of street trees in under-served neighborhoods. Parks will also upgrade and expand the Bronx Greenhouse and Nursery.
>
> The state also will establish a comprehensive urban forestry program, administered by the New York State Energy Research and Development Authority (NYSERDA) and the Department of Environmental Conservation (DEC). Ten million dollars will be utilized for this program, which will further the greening of the Bronx, improve air quality, reduce ambient air temperatures, and help reduce energy costs and heat 'island' effect by planting thousands of trees in parks, playgrounds, streets and other targeted areas of the borough."

Alternate Route

Exterior Street

The use of Exterior Street between East 149th and East 138th streets as an alternative to the Gerard and Walton Avenues one-way pair of bicycle lanes is not recommended for the short term. Traffic circulation is disorganized and trucks park perpendicularly to the street to load and unload, making pedestrian and bicycle circulation very dangerous. In addition,

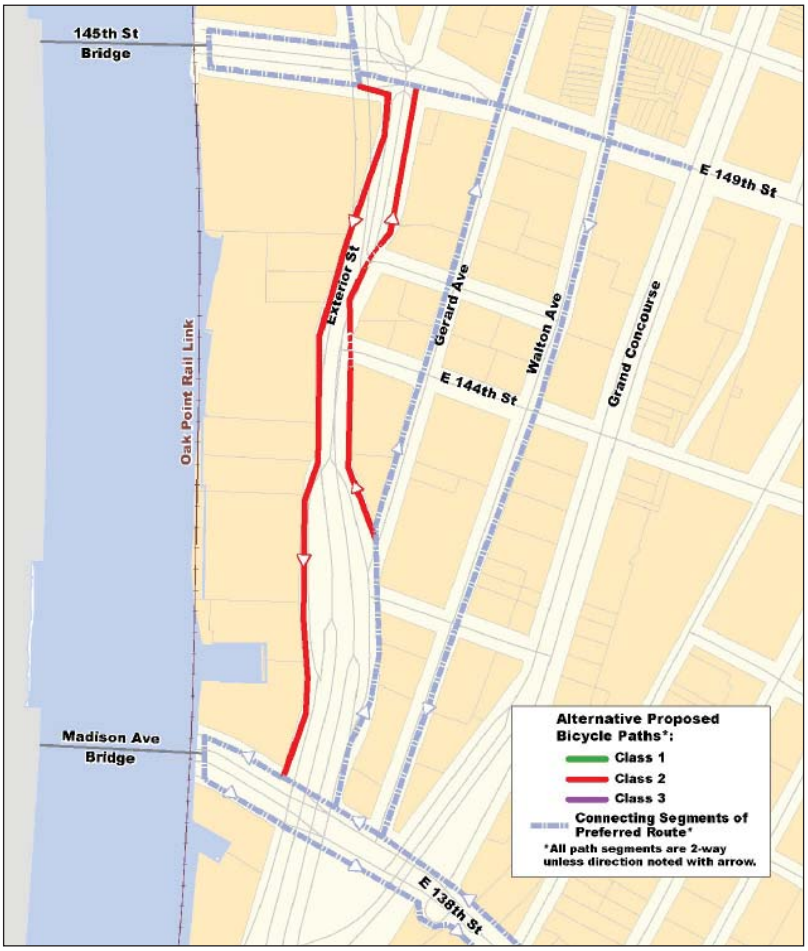


Figure 35. Section 2 map with alternate route

sidewalks along this segment of Exterior Street are missing or need repaving.

According to the *Bronx Harlem River Study* (NYC DCP, Bronx Office, 2005) the vacant and underutilized lots located between the Major Deegan Expressway and the waterfront along Section 2 may be rezoned in the future, which could create new opportunities for waterfront access. At the time of this writing, DCP's Port Morris North rezoning study, which would include this area, is in its early stages.

Should the area be rezoned and Exterior Street improved in the future, then this segment could be redesigned as the continuation of the preferred long-term route along Exterior Street as described in Section 1. In the short term, the sidewalks along this segment should be repaved.

East 138th Street

Six-foot wide Class 2 bike lanes with adjacent 3-foot wide buffers should be installed on East 138th Street between Exterior Street and the Grand Concourse. The southbound lane on Walton Avenue would connect to the eastbound lane on East 138th Street via an existing crosswalk. A crosswalk should be marked at East 138th Street and Gerard Avenue to allow westbound cyclists riding on East 138th Street to continue north on the Gerard Avenue bike lane.

Connection to the Madison Avenue Bridge

The current design of the crosswalk at the foot of the Madison Avenue Bridge leaves bicyclists and pedestrians under-protected from vehicular traffic. Vehicles turning right onto the bridge cut the corner at the entrance to the north-side bicycle and pedestrian path on the bridge, and the path on the south side is clipped by vehicles exiting the bridge and turning south onto East 135th Street (see Photo 16, page 22).

Pedestrian and bicycle safety would be enhanced by building a raised median on the east side of the crosswalks at the end of both bridge bike/pedestrian paths to create a holding area for crossing bicyclists and pedestrians, and to channel traffic to prevent vehicles from cutting corners and clipping bike/pedestrian space (see Figure 36). The addition of a leading pedestrian interval (LPI) might also be considered for the traffic signals controlling the southwest bridge crossing to protect pedestrians and bicyclists from turning vehicles. According to the "Pedestrian Safety Guide and Countermeasure Selection System:"

> At signalized intersections, right and left turning vehicles present a danger to pedestrians crossing during the WALK interval…One practical solution to this problem is to program the traffic signals to allow the pedestrian to begin crossing before the vehicle traffic on the parallel street is given the green light. This is commonly referred to as a leading pedestrian interval (LPI).

Further analysis would be required to assess the impacts of an LPI on vehicular traffic at this intersection.

East 138th Street street-ends

The westerly end of East 138th Street continues on both sides of the Madison Avenue Bridge, where two dead-end streets are connected under the bridge by a 10-foot wide roadbed (see Photos 17 and 18, page 23). It is unclear whether these narrow street

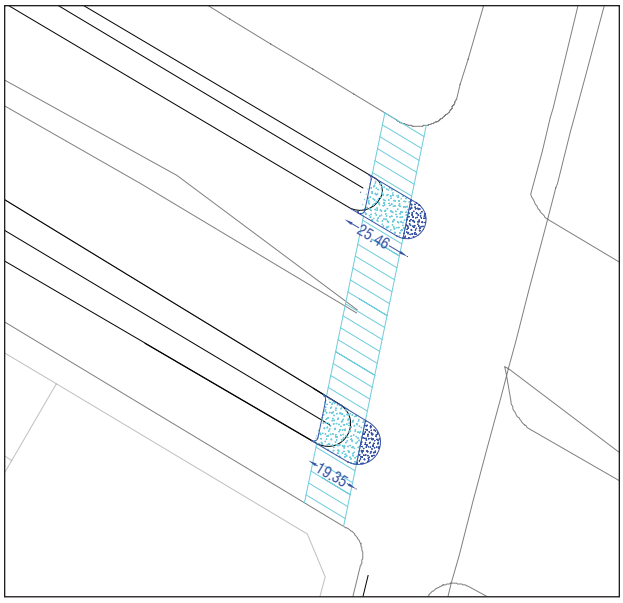


Figure 36. Madison Avenue Bridge median extensions footprint

extensions are one-way or two-way; in either case, they have very light traffic, and are essentially used as parking lots. While parking is permitted on the north side of the northerly street and on the south side of the southerly street, cars also park illegally on the north sidewalk of the southerly street.

The northerly roadbed is insufficiently wide to permit a bicycle lane and still maintain travel and parking lanes. However, the northern sidewalk along this segment is 10 feet wide, and could be redesigned as a shared-use sidewalk, or the street could be signed as a Class 3 route.

The southerly segment of the East 138th Street extension is even narrower than the northerly segment. Cars parked illegally on the north sidewalk appear to belong primarily to a used auto dealer, who uses the street as an extension of its waterfront property, which is overflowing with cars. The south sidewalk could be reconfigured as a shared-use sidewalk, or the street designated as a Class 3 route. In either case, preserving the public nature of the street should be encouraged by enforcing parking regulations on the street.

These street end segments could provide a tranquil

way for bicyclists or pedestrians to cross the Madison Avenue Bridge/East 138th Street intersection and access an area near the waterfront (whose access is blocked here by the Oak Point Rail Link). However, the development of a street-end open space similar to the one recommended at East 149th Street was deemed infeasible: the need for vehicular access to the businesses south of the Madison Avenue Bridge impedes the use of the southern service road as open space, and on-street parking would have to be eliminated in order to reuse the northern service road.

Section 3: Madison Avenue Bridge to 3rd Avenue Bridge

Section 3 is characterized by a lack of trees along its sidewalks. A generous planting of trees along the proposed routes below, especially along East 138th Street, Park Avenue, Rider Avenue, 3rd Avenue and East 135th Street, is recommended. Funds from the above-mentioned NYSERDA program to "green" the Bronx could be pursued for this purpose.

Preferred Route

East 138th Street to 3rd Avenue
Six-foot wide Class 2 bike lanes should be installed on East 138th Street between Exterior Street and the Grand Concourse to continue the preferred route as described in Section 2. The lanes would connect to a separated bi-directional path along Park Avenue, and then to a new bike/pedestrian bridge over the Major Deegan that would join the northern segment of Park Avenue to its southern street end.

Two-way East 138th Street between Exterior Street and the Grand Concourse is very wide, with three travel lanes (only two of them striped) in each direction separated by a striped seven-foot median; parking is allowed only on the south side of the street between Walton Avenue and the Grand Concourse. The Bx33 bus line runs along East 138th Street and stops on both sides of the street at East 138th Street and the Grand Concourse.

As seen in Figure 39, there is sufficient width to stripe six-foot wide Class 2 bike lanes on both sides of the street. However, the eastbound bus stop on the south side of the street at Grand Concourse should be relocated to the east by approximately 130 feet, where there is an unused, semicircular roadbed set back from the curb line with a wide sidewalk along its south side. Placing the bus stop at this location would allow the bike lane to curve around the bus stop to increase bicyclist safety (see Figure 40) while maintaining the wide sidewalk along the semicircle's south side. Special signage and striping is recommended along the west-bound bike lane as it passes the bus stop on the north side of the street

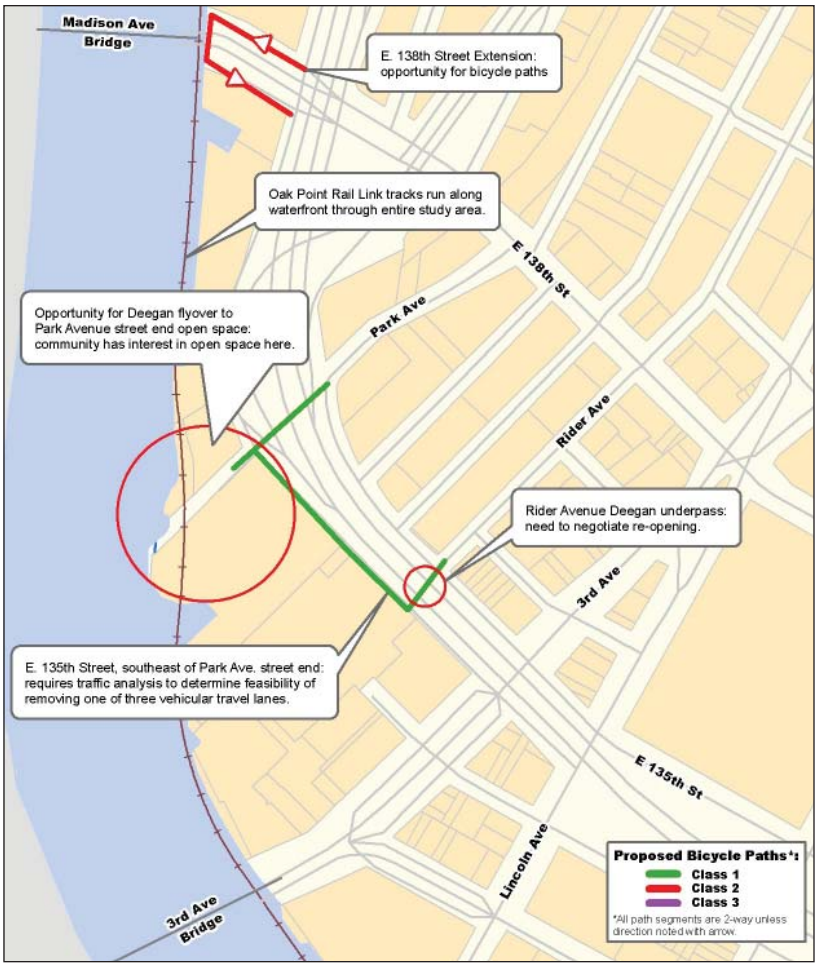


Figure 37. Map of opportunities and constraints along Section 3

at Grand Concourse. A raised median should be constructed at the Grand Concourse crosswalks to create a safe holding area for crossing pedestrians.

East 138th Street between the Grand Concourse and 3rd Avenue narrows so considerably that there is insufficient roadbed to permit striping bike lanes; this portion of the route would continue as a signed Class 3. Should the street be improved in the future, then sidewalk space could be borrowed to implement opposite side of the street, Class 2 bike lanes along these blocks.

Park Avenue bi-directional path

The facilities along East 138th Street would connect to a recommended bi-directional Class 1 path on the west side of Park Avenue between East 138th Street and the Major Deegan Expressway, where access is blocked by jersey barriers and unused land. This segment of Park Avenue varies in width, but has one wide northbound travel lane, with parking on both sides of the street. The westerly sidewalk varies in width between 6 and 16 feet, while the easterly sidewalk is 10 feet wide.

The westerly sidewalk should be redesigned as a shared-use path and widened as necessary to create a 16-foot wide Class 1 path, with two five-foot wide bike lanes plus a six-foot wide pedestrian path. The reallocation of up to ten feet of roadbed for a shared-use sidewalk would not impact traffic on Park Avenue, which would retain two eight-foot wide parking lanes and a 13-foot wide vehicular travel lane (see Figure 41).

Figure 38. Section 3 map with preferred route

Alternate Route

Park Avenue northbound

A northbound six-foot wide Class 2 bicycle lane should be striped on the west side of Park Avenue, should the shared-use path along Park Avenue and the bike/pedestrian bridge over the Deegan (see below)prove infeasible. The facility would connect to the proposed lane on the south side of the northerly segment of East 135th Street (described below) and to the Class 2 lanes recommended on East 138th Street.

New Pedestrian and Bicycle Overpass to Park Avenue street-end

The Park Avenue bi-directional path would connect to a new bicycle and pedestrian overpass at the end of Park Avenue that would span the Major Deegan Expressway and connect to the Park Avenue street-end (see description below) on the south side of the Deegan. The overpass would be 16 feet wide to accommodate pedestrians and cyclists (see Figure 44). According to the New York State Department of Transportation, the minimum standard vertical clearance for a pedestrian structure over the Major Deegan Expressway is 17 feet, with a desirable clearance of 17 and one-half feet. The ramps to and from the bicycle and pedestrian overpass would comply with the access requirements of the American Disabilities Act (ADA). (Generally, the ADA requires a maximum run of 30 feet for ramps

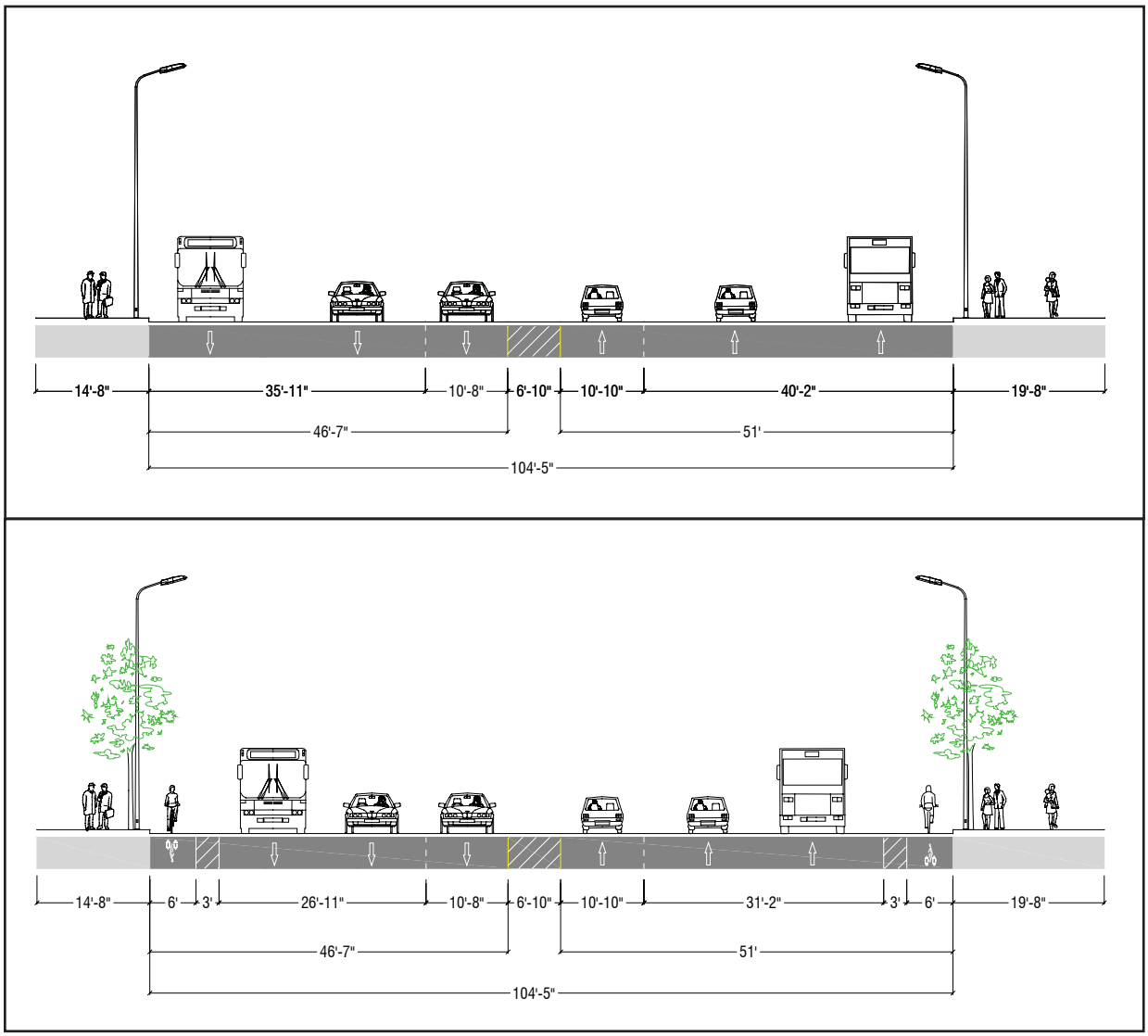


Figure 39. East 138th Street between Walton Avenue and Park Avenue, existing and recommended cross section (facing west)

with slopes between 6.25 and 8.33 percent, a five-foot long flat landing at either end of a ramp, and a five-foot wide landing if there is a directional change in the alignment at the landing.)

The preferred design for the overpass (as shown in Figure 43) features a 233-foot long ramp along Park Avenue north of the Deegan Expressway, a deck with two bays with spans of 143 feet and 110 feet, respectively, and a 257-foot long ramp along the Park Avenue street end south of the Major Deegan. The southerly ramp would be initially perpendicular to the bridge deck, span over East 135th Street, and then switch back toward Park Avenue. This design is intended to maximize the distance between the end of the southerly ramp and the railroad crossing. A possible design alternative for the overpass is shown in Figure 45.

Park Avenue street-end

The Park Avenue street-end southwest of East 135th Street is one of the two places in the study area with direct access to the waterfront, since the Oak Point Rail Link is located on shore at this particular spot (see Photo 28, page 28). The local South Bronx community has long advocated for the development of this street-end as public open space, which would include water-related recreational facilities such as a

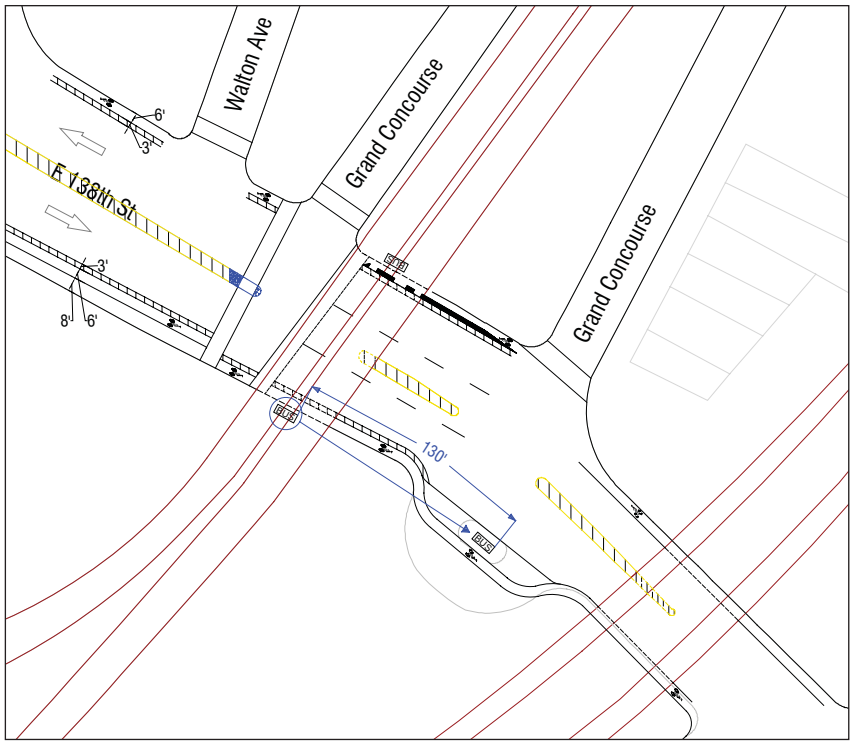


Figure 40. Bus stop relocation at East 138th Street

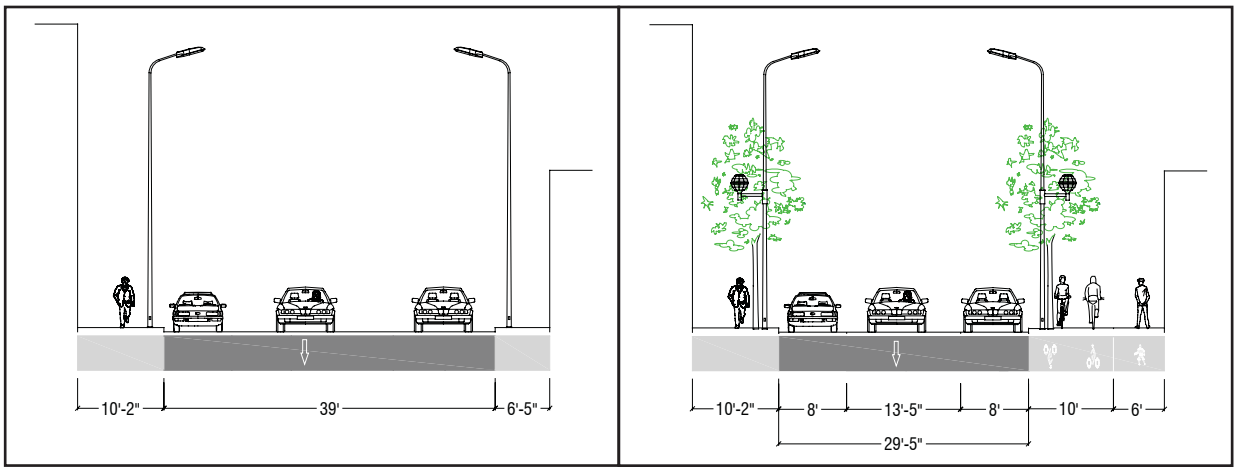


Figure 41. Park Avenue between East 138th Street and East 135th Street, existing and recommended cross section (facing south)

canoe launch and opportunities for education about Harlem River aquatic life. Recently, a collaborative effort between Friends of Brook Park and New Yorkers for Parks resulted in an initial design for parkland and areas of public access on this spit of land which extends from the end of Park Avenue into the Harlem River (see Figure 46). This design concept would involve the use of a mapped street segment (Park Avenue). However, this street segment is a dead end and is isolated from upland connections by the Deegan Expressway, and is therefore rarely used.

One problem is that local residents accessing the waterfront must cross the at-grade Oak Point Rail Link tracks. However, reportedly only two trains per day cross this site. Crossing the tracks without any type of warning or barrier, even with limited rail activity, poses a risk for pedestrians and bicyclists. Currently, there is a sign that alerts people approaching the tracks from Park Avenue that the area beyond the street end is a railroad crossing. The TD recommends the installation of a crossing gate to safely warn bicyclists and pedestrians of oncoming trains. According to the *New York City Waterfront Revitalization Program* (1999):

> Municipally-owned waterfront sites should be used for water-dependent uses, and/or should be developed to promote public access, where safety and security concerns can be addressed…. Priority shall be given to the development of mapped parklands and appropriate open space where the opportunity exists to meet

Figure 42. Section 3 map with alternate route

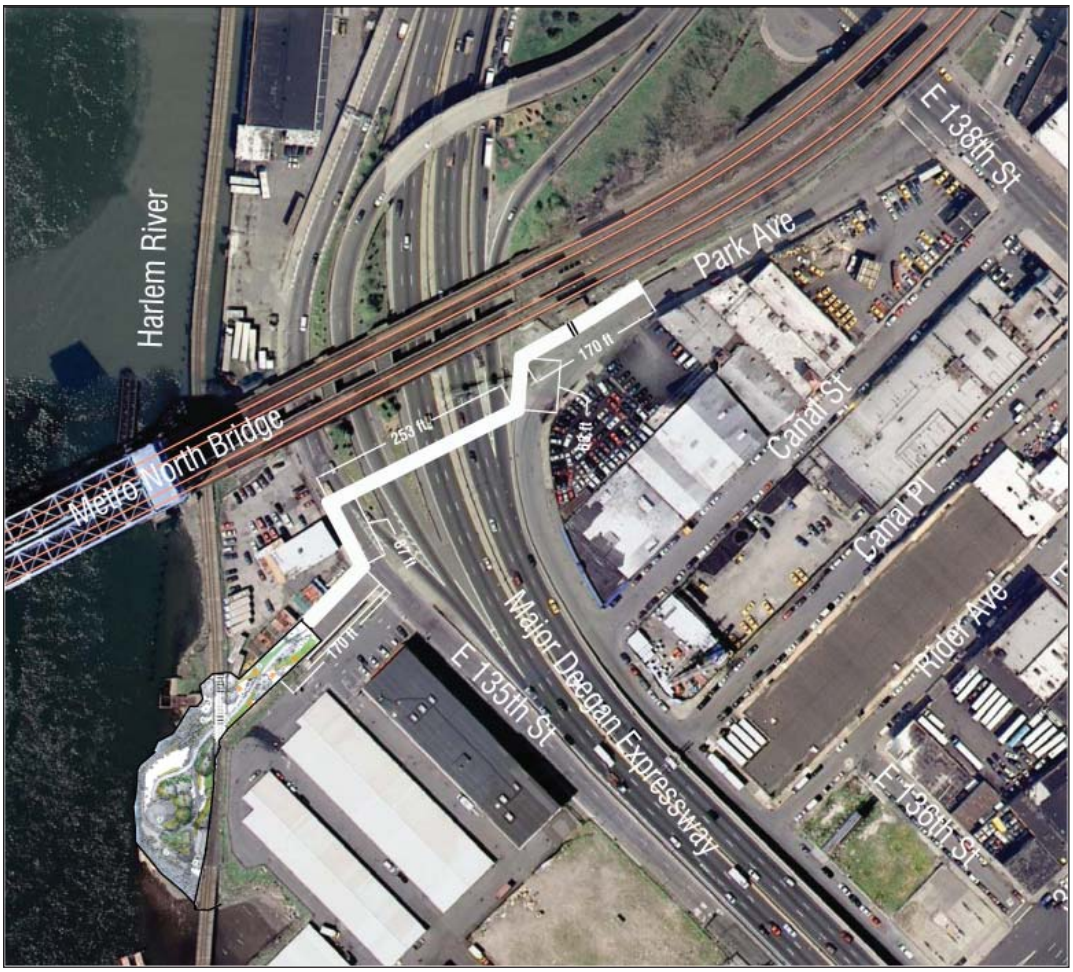


Figure 43. Major Deegan Expressway pedestrian and bicycle overpass at Park Avenue, footprint

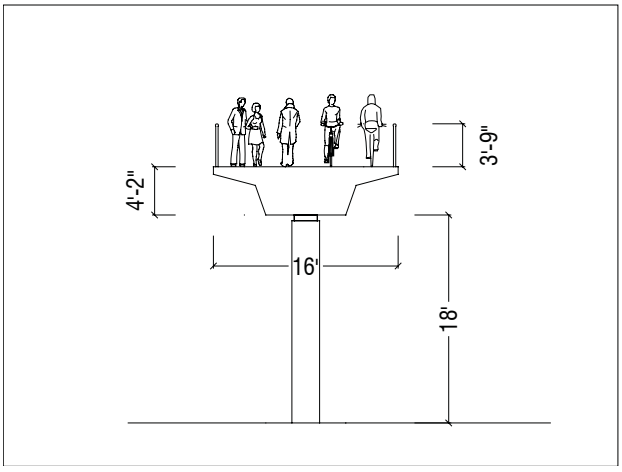


Figure 44. Major Deegan Expressway pedestrian and bicycle overpass at Park Avenue, cross section

Figure 45. Major Deegan Expressway pedestrian and bicycle overpass at Park Avenue, alternative footprint

> the recreational needs of…communities without adequate waterfront park space and/or facilities, (and) because safety is an important concern, waterfront areas must be visually and physically connected to centers of activity, with frequent, direct and safe paths to supervised areas or public streets.

New Yorkers for Parks, a parks advocacy group, is seeking discussions with CSX (who operate the trains which run along the Oak Point Rail Link) to install a train-activated security gate or signal here.

East 135th Street (southerly street segment) between East 138th Street and Park Avenue

East 135th Street between East 138th Street and 3rd Avenue is divided into two segments by the elevated Major Deegan Expressway. The northerly street segment is one-way northwest-bound, while the southerly segment is one-way southeast-bound. The establishment of a Deegan bicycle/pedestrian overpass at Park Avenue to connect to the planned street end open space would require long-term planning and implementation. In the short term, the preferred connection to the street end at Park Avenue would be via a Class 1 bi-directional path, separated from traffic by a raised barrier, designated on the sidewalk along the southerly segment of East 135th Street between East 138th Street and Park Avenue (see Photo 20, page 25). A Class 1 path is preferable due to heavy traffic entering and exiting the Deegan (see Existing Conditions). The roadbed of East 135th Street could be narrowed by up to six feet and the space reallocated to the existing sidewalk for use as a 16-foot wide multi-use path. The installation of the path would not impact traffic, since the street would retain two 12-foot travel lanes and on-street parking is not permitted.

Figure 46. Park Avenue street-end design by New Yorkers for Parks

Alternate Route

Rider Avenue Underpass to the Park Avenue Street-End

Alternate means of access to the proposed

Park Avenue street-end open space would be required should a bicycle and pedestrian bridge over the Major Deegan prove infeasible. An existing tunnel under the Major Deegan at Rider Avenue could provide an alternate connection to the waterfront. As mentioned in the Existing Conditions chapter, the Rider Avenue underpass is currently fenced off to pedestrian and bicycle traffic, and its re-opening would have to be negotiated with the New York State Department of Transportation (see Photo 21, page 25).

The proposal to reuse this underpass would also require the installation of a crosswalk and a bicyclist/pedestrian-activated traffic signal at the intersections of Rider Avenue and both segments of East 135th Street, and the removal of a travel lane from the southerly section of East 135th Street in order to create a two-way multi-use path providing access to the Park Avenue street-end. This recommendation would allow the third travel lane on East 135th Street to remain southeast of the Rider Avenue underpass.

While a traffic analysis would be required to assess the impacts of removing a travel lane, the proposed action appears to be feasible. East 135th Street between the Park Avenue street-end and 3rd Avenue has three 10/11-foot travel lanes and no on-street parking. Cars on East 135th Street begin to queue in the curb lane to turn right onto 3rd Avenue or the bridge only after they are southeast of the Rider Avenue underpass. Traffic between the Deegan on-ramp at Park Avenue and the 3rd Avenue intersection is relatively light, and northwest of Rider Avenue traffic rarely backs up due to congestion. The route would continue on East 135th Street, which has wider sidewalks northwest of Park Avenue, to East 138th Street (this segment is described below).

Rider Avenue

To accommodate southbound riders, the recommended route on East 138th Street would connect to Rider Avenue. However, the narrow two-way street is not of adequate width to stripe a bike lane. In addition, United Parcel Service (UPS) delivery trucks frequently cross the Rider Avenue sidewalk to enter the back of a UPS building at the corner of Rider and East 135th Street. A Class 3 route should be signed along Rider Avenue between East 138th and East 135th Streets, and "shared lane" pavement markings should be striped to enhance the visibility of the bicycle route. Should the street be improved in the future, then sidewalk space could be borrowed to implement opposite side of the street, Class 2 bike lanes along Rider Avenue.

East 136th Street

Rider Avenue ends at East 135th Street, cut off by the Deegan Expressway. To connect to 3rd Avenue, riders would continue east on a new bicycle lane striped on the south side of East 136th Street, which would connect to a bi-directional shared-use path along the west side of 3rd Avenue. Marking a five-foot wide eastbound Class 2 lane would not have an adverse impact on traffic or parking, since the street would be left with two seven-foot parking lanes and an 11-foot travel lane. The partially-paved southern sidewalk along this segment of East 136th Street should be repaved.

East 135th Street (northerly street segment)

The northerly segment of East 135th Street has a lane of vehicular traffic and parking along the north side. There is no sidewalk on the south side of the street, which abuts a wall supporting the Deegan Expressway (see Photo 26, page 27). A one-way Class 2 bicycle lane should be striped along the northerly segment of East 135th Street between 3rd and Park avenues. The lane should be marked on the south side of the street to facilitate its connection to the recommended shared-use path along Park Avenue described above. The street would be divided into an eight-foot parking lane, a new six-foot wide bicycle lane with a three-foot buffer, and a 13-foot travel lane (see Figure 47). In addition, the northern sidewalk on East 135th Street between Canal Place and Canal Street West should be paved.

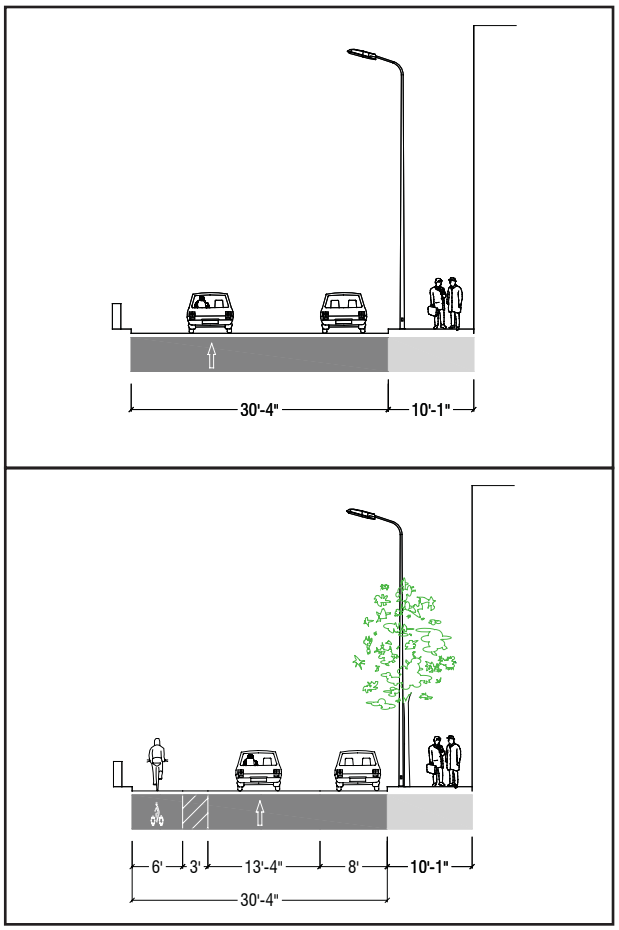


Figure 47. Section 3: East 135th Street northerly street segment, existing and recommended cross section (facing west)

3rd Avenue

The route on East 135th and East 136th streets would connect to a bi-directional shared-use path along the west side of 3rd Avenue, which is one-way southbound and heavily trafficked. 3rd Avenue between East 136th Street and the northerly segment of East 135th Street is very wide, with five vehicular travel lanes (including one right-turn lane), alternate side of the street parking, and wide sidewalks on both sides of the street.

A 12-foot wide bi-directional shared-use path should be established along the west side of 3rd Avenue. The path would be protected from moving vehicles by a raised barrier in order to physically separate contra-flow bicyclists from automobile traffic. Vehicular traffic would not be impacted, since the street would retain five 12-foot wide moving lanes and parking lanes along each curb (see Figure 48).

The intersection of 3rd Avenue and the northerly segment of East 135th Street has no signals for its crosswalk, despite its busy traffic. The intersection should be improved by installing missing pedestrian crossing signals.

3rd Avenue between the northerly and southerly street segments of East 135th Street is divided by columns supporting the elevated Deegan Expressway. The outer lanes act as lightly-traveled service roads. The westerly lane channels traffic to the 3rd Avenue extension on the west side of the bridge. The heavily-traveled center lanes carry traffic to and over the bridge.

The 3rd Avenue bi-directional Class 1 path should continue along the westerly 3rd Avenue service road to direct bicyclists and pedestrians to and from the 3rd Avenue Bridge multi-use paths and to the recommended paths along the 3rd Avenue street extensions (see description below). The westerly service road is sufficiently wide, with a single travel lane, to permit the reallocation of 10 feet of the street for use as a bi-directional bicycle path adjacent to the sidewalk. This configuration would leave an 11-foot vehicular travel lane, which is adequate to accommodate the light traffic volumes on the street.

For the blocks between East 136th and East 138th streets, 3rd Avenue is insufficiently wide to permit the installation of bicycle lanes. The street is less than 60 feet wide, with four southbound lanes of vehicular traffic, and two of the moving lanes are frequently partially blocked by parked buses. Both sides of 3rd Avenue are designated as "bus layover areas" for New York City Transit (NYCT) buses. Use of the sidewalk as a multi-use path is not feasible given an abutting Shell Gas Station. A Class 3 route, with "shared lane" markings (see Section 1 description for E. 157th Street) should be signed for this block.

Four bicycle and pedestrian accidents were reported at 3rd Avenue and East 138th Street between 2001

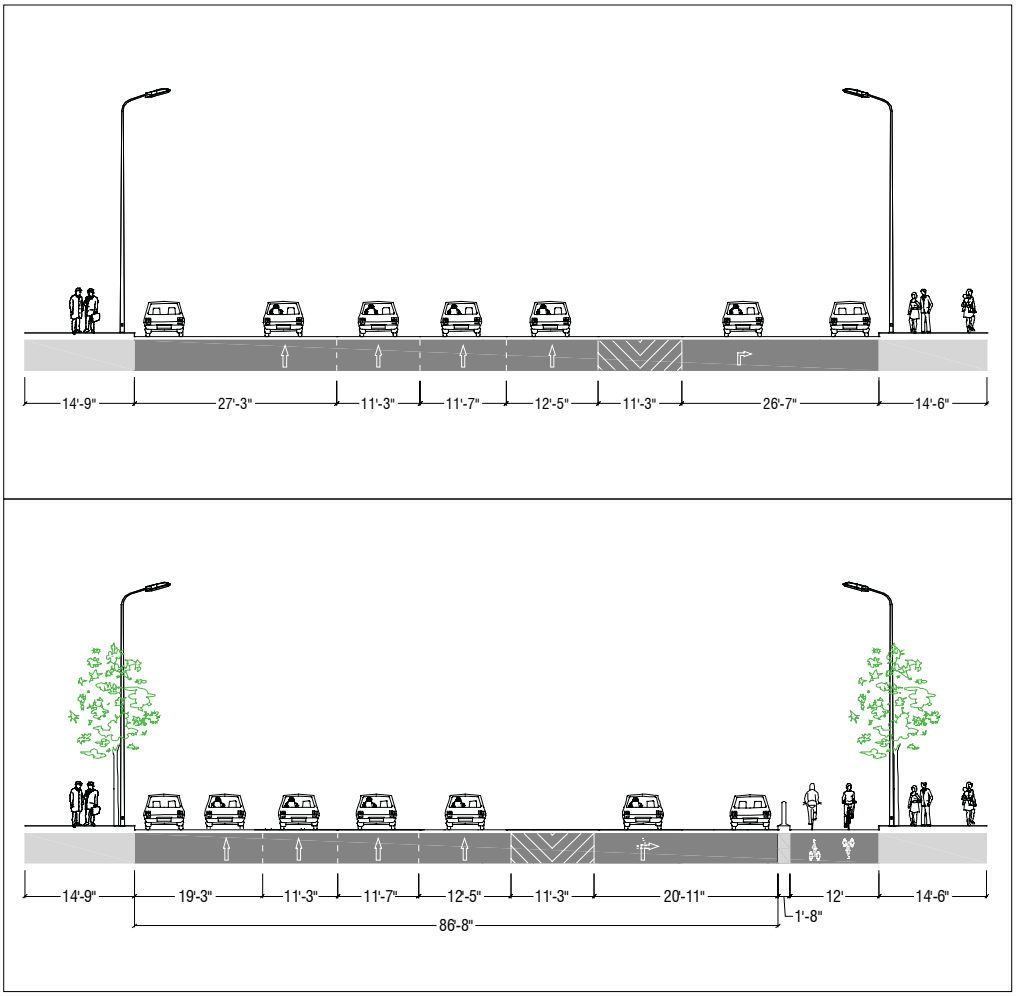


Figure 48. 3rd Avenue between East 136th Street and East 135th Street, existing and recommended cross section (facing south)

and 2003 (see Existing Conditions accident map). Additional bicycle and pedestrian safety improvements for this intersection should be studied.

Additional Connections

Morris Avenue

Two-way Morris Avenue provides an upland connection for cyclists and pedestrians. The street has relatively moderate traffic and direct access to busy arterials and cultural and retail destinations to the north of the study area.

Class 3 signs should be installed on Morris Avenue between East 138th Street and East 142nd Street. The street has two travel lanes and a parking lane in each direction, and is not wide enough to permit the marking of bicycle lanes (see Photo 29, page 28). Should Morris Avenue be reconstructed in the future, the reallocation of sidewalk space (the westerly sidewalk is almost 25 feet wide, the easterly sidewalk is 15 feet wide) for use as on-street bicycle lanes should be considered.

Between East 142nd Street and East 149th Street, Morris Avenue narrows to less than 50 feet. The street is still two-way, but has only one vehicular travel lane (and a parking lane) in each direction. The street could be striped with a six-foot bicycle lane in each direction without impacting traffic, since an 11-foot travel lane and an eight-foot parking lanes in each direction would be retained.

Section 4: 3rd Avenue Bridge to Willis Avenue Bridge

Preferred Route

3rd Avenue extensions between East 135th Street and Bruckner Boulevard

Class 3 bike routes should be signed on the extensions of 3rd Avenue on either side of the 3rd Avenue Bridge between East 135th Street and Bruckner Boulevard. The 3rd Avenue street extensions are wide enough only for one travel and one parking lane and cannot accommodate a striped bicycle lane. The easterly sidewalk between East 134th Street and Bruckner Boulevard is in poor condition and should be repaved. Should the street be improved in the future, then sidewalk space could be borrowed to implement Class 2 bike lanes along these segments.

Connection to the 3rd Avenue Bridge

Pedestrian and bicycle access to the 3rd Avenue Bridge is possible from a westerly ramp from East 135th street and via the recently-constructed stairs at both 3rd Avenue street extensions, which do not provide direct access to the waterfront (see Photo 25, page 27).

Crosswalks and pedestrian walk signals should be installed at East 135th Street and the entrances to the 3rd Avenue Bridge (see Photos 23 and 24, page 26). Signs indicating the entrances to the bridge bicycle and pedestrian paths should be added at the foot of the bridge and at the intersections of 3rd Avenue and East 135th Street on either side of the elevated Major Deegan Expressway.

Between 3rd Avenue and Lincoln Avenue, there are two one-way extensions of Bruckner Boulevard on

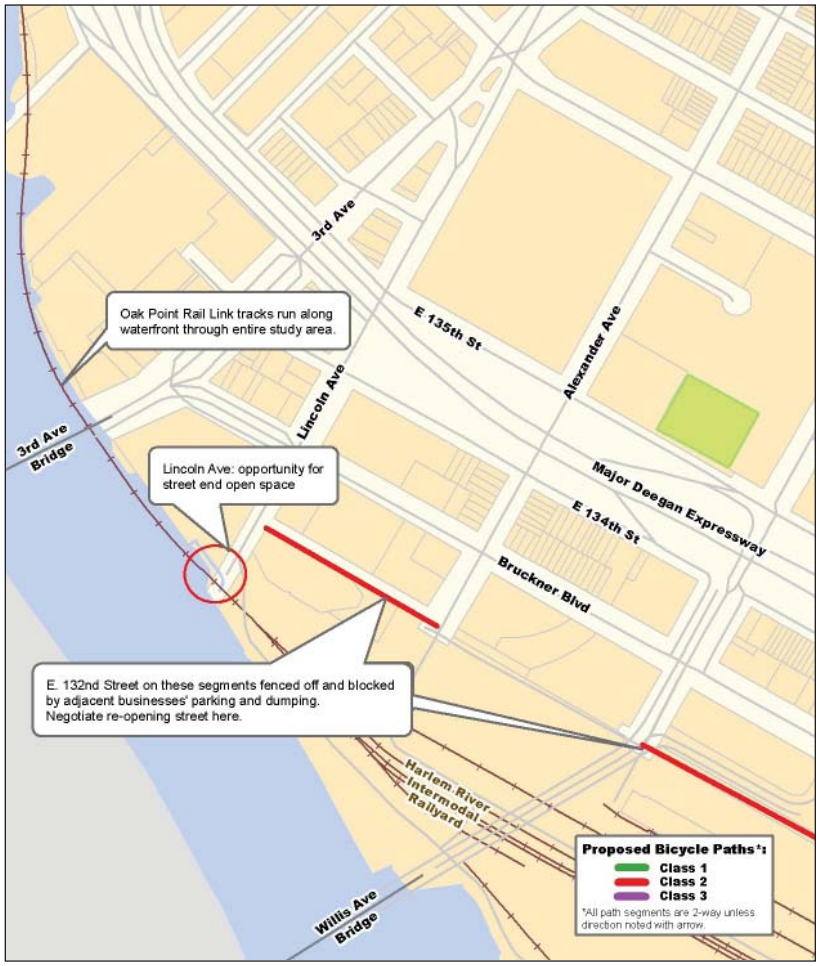


Figure 49. Map of opportunities and constraints along Section 4

either side of an on-ramp to the 3rd Avenue Bridge. Each is lightly trafficked and has sufficient width to stripe a six-foot wide Class 2 path to connect the Bruckner Boulevard paths (described below) to the 3rd Avenue paths (described above).

Bruckner Boulevard between the 3rd Avenue Bridge and Alexander Avenue

The route would continue through the pleasant Bruckner Antique and Art District on two-way Bruckner Boulevard between 3rd Avenue and Alexander Avenue. Five-foot wide Class 2 bicycle lanes should be striped in each direction where possible.

Bruckner Boulevard between Lincoln Avenue and Alexander Avenue is wide, with two eastbound lanes and three westbound lanes (narrowing to two lanes), separated by a striped median, with curbside parking permitted in each direction (see Photo 31, page 31). There is insufficient space for a continuous bicycle lane on the south side of the street for a short stretch east of Lincoln Avenue unless approximately six on-street parking spaces are eliminated along a 110-foot segment of the street (see Figures 51 and 52). The bike lanes could be striped along the rest of the block while retaining two (11-foot wide) moving lanes and an eight-foot wide parking lane in each direction.

Bruckner Boulevard between Alexander Avenue and Willis Avenue narrows to 60 feet, leaving no space to stripe a bike lane and still retain two vehicular traffic lanes and a parking lane in each direction.

Alternate Route

East 135th Street southerly street extension between 3rd and Lincoln avenues

An alternative to the recommended southbound route on the westerly extension of 3rd Avenue would be to reclaim unnecessary roadbed to stripe a one-way six-foot Class 2 bike lane and buffer on the south side of East 135th Street from 3rd Avenue to Lincoln Avenue. This segment runs one way eastbound and has one vehicular travel

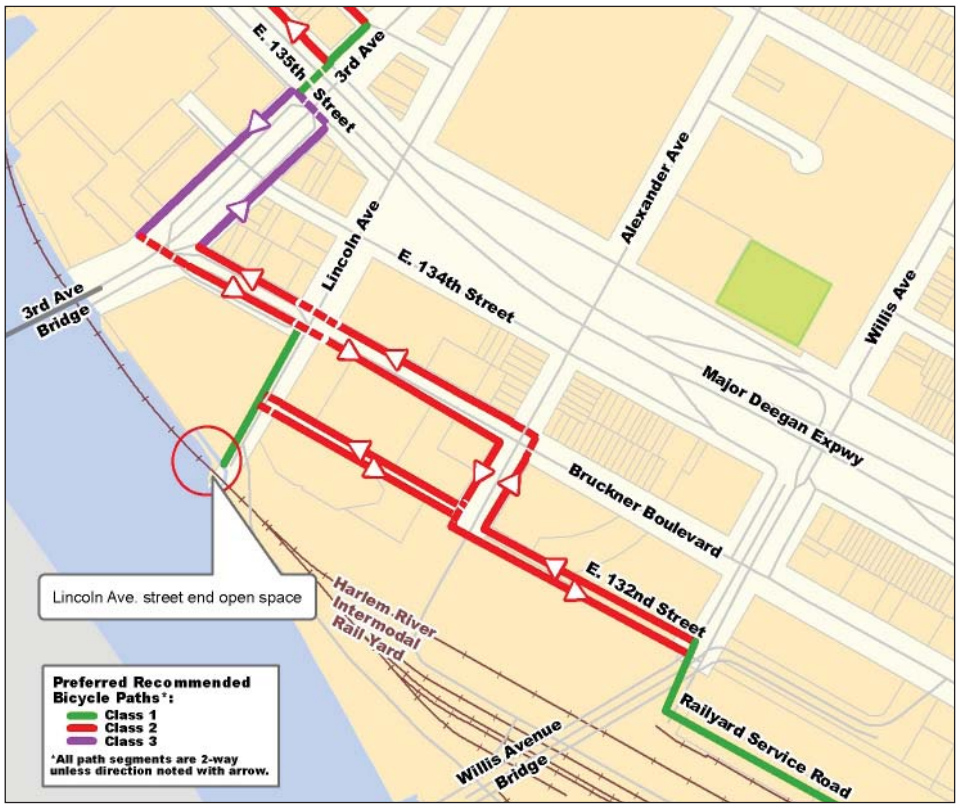


Figure 50. Section 4 map with preferred route

lane, with no parking allowed on either side of the street. The bicycle lane would connect to the proposed path along Bruckner Boulevard and the proposed Lincoln Avenue street- end (as described below) via a southbound Class 3 lane on Lincoln Avenue.

Lincoln Avenue between East 135th Street and Bruckner Boulevard

Lincoln Avenue, a two- way street with two traffic lanes in each direction and parking on both sides, is not sufficiently wide to accommodate bicycle lanes between East 135th Street and Bruckner Boulevard. A Class 3 bicycle route could be signed on Lincoln Avenue to connect East 135th Street and Bruckner Boulevard.

East 132nd Street via Lincoln Avenue or Alexander Avenue

The route would leave Bruckner Boulevard due to the increase in heavy truck traffic between the Willis Avenue Bridge and the Bruckner Expressway in Section 5. Cyclists would ride one block south on Lincoln Avenue or Alexander Avenue to reach East 132nd Street. On Lincoln Avenue the route would continue as a Class 3 bike route or as the shared use sidewalk described below. On Alexander Avenue six-foot wide Class 2 bicycle lanes would be installed in both directions, which would leave two eight-foot parking lanes and an 11-foot travel lane, which would be adequate for traffic.

The route could continue on East 132nd Street between Lincoln and Alexander or St. Anns avenues

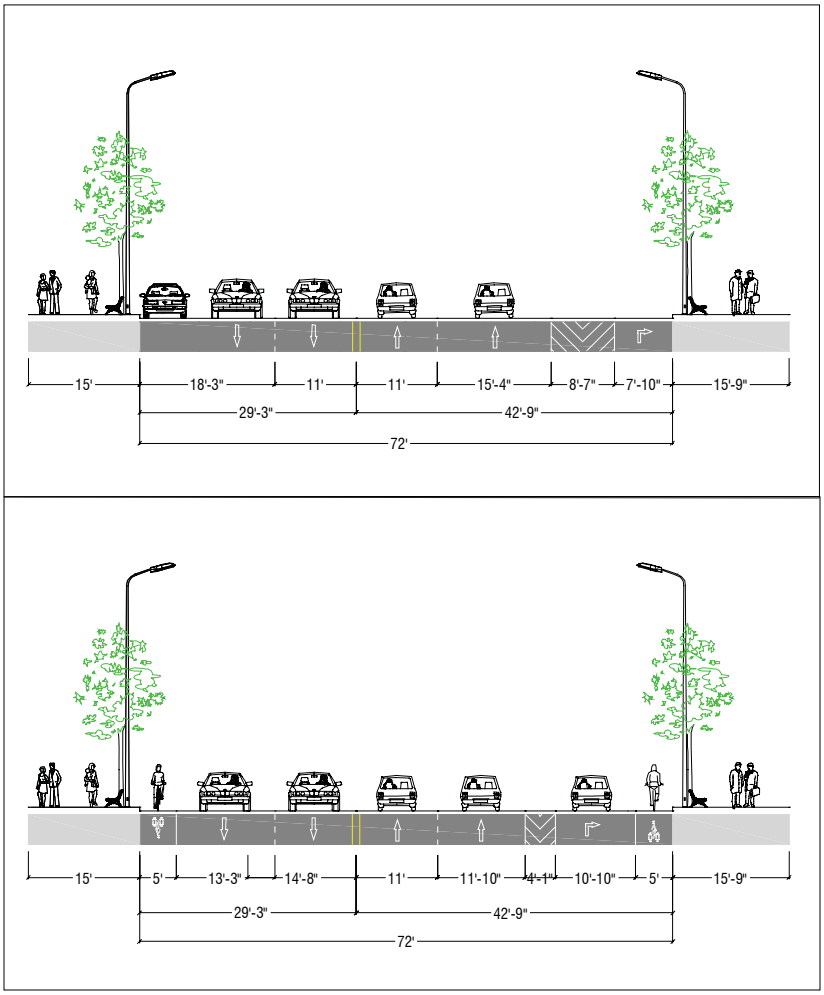


Figure 51. Bruckner Boulevard at Lincoln Avenue, existing and recommended cross section (facing west)

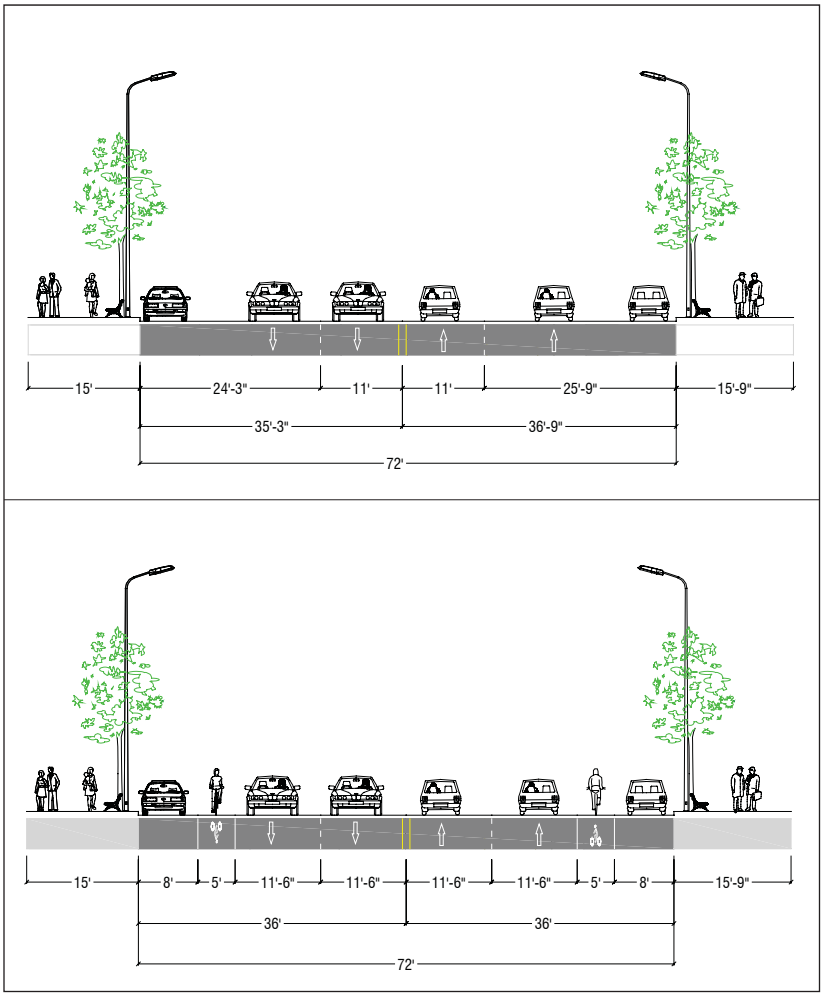


Figure 52. Bruckner Boulevard between Lincoln Avenue and Alexander Avenue, existing and recommended cross section (facing west)

(see Figure 54). However, East 132nd Street along this segment is mapped but unbuilt (according to the official New York City map) and much of the right-of-way is owned by the adjacent private property owners, fenced, and used mainly for parking (see Photo 35, page 32). While the City of New York could acquire these portions of the right-of-way in order to continue the route on East 132nd Street, it is unlikely that the City would build a new street solely for the purposes of establishing a bike way.

Lincoln Avenue street-end

Lincoln Avenue terminates at the waterfront and is a potential candidate for improvement as street-end open space. Lincoln Avenue and Park Avenue are the only streets in the study area that provide direct access to the waterfront, since the Oak Point Rail Link tracks are on land at these locations (see Photo 32, page 31). The Lincoln Avenue street end might be a difficult site to develop as a public open space, however, because of its proximity to the entrances to the Harlem River Intermodal Railyard and Waste Management's waste transfer station. Truck traffic and objectionable smells characterize the site. School buses and Bell Atlantic vehicles frequently use the street to reach two separate adjacent parking lots. In addition, the connection to the alternate path along East 132nd Street would be difficult because East 132nd Street is blocked between Lincoln and Alexander Avenues (see below).

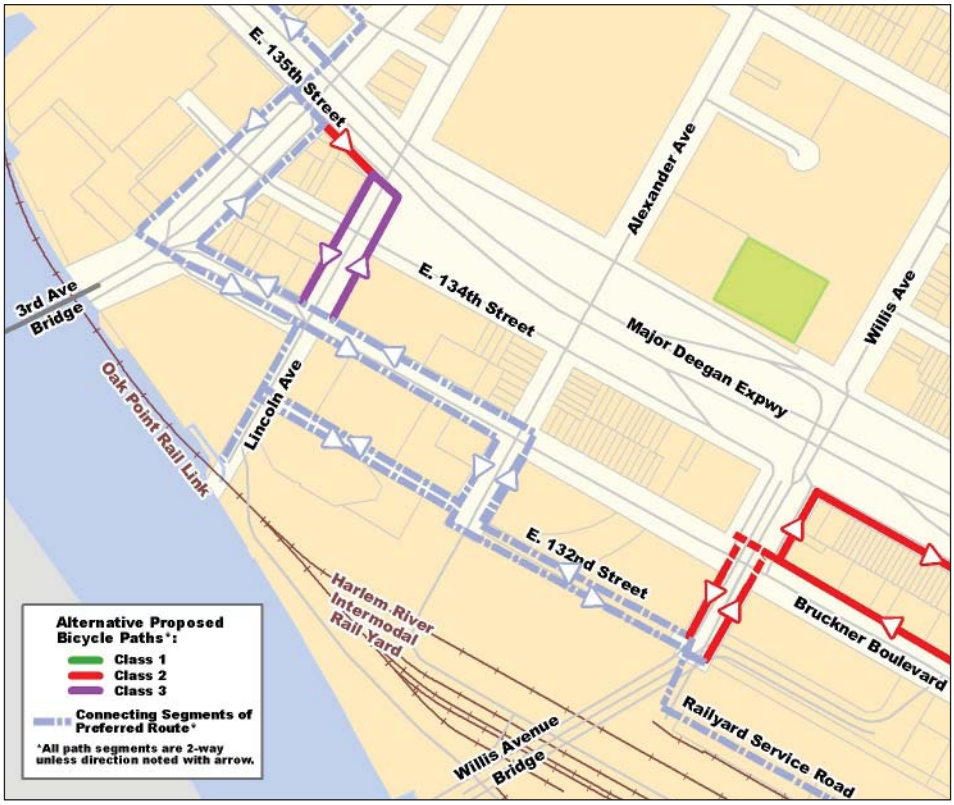


Figure 53. Section 4 map with alternate route

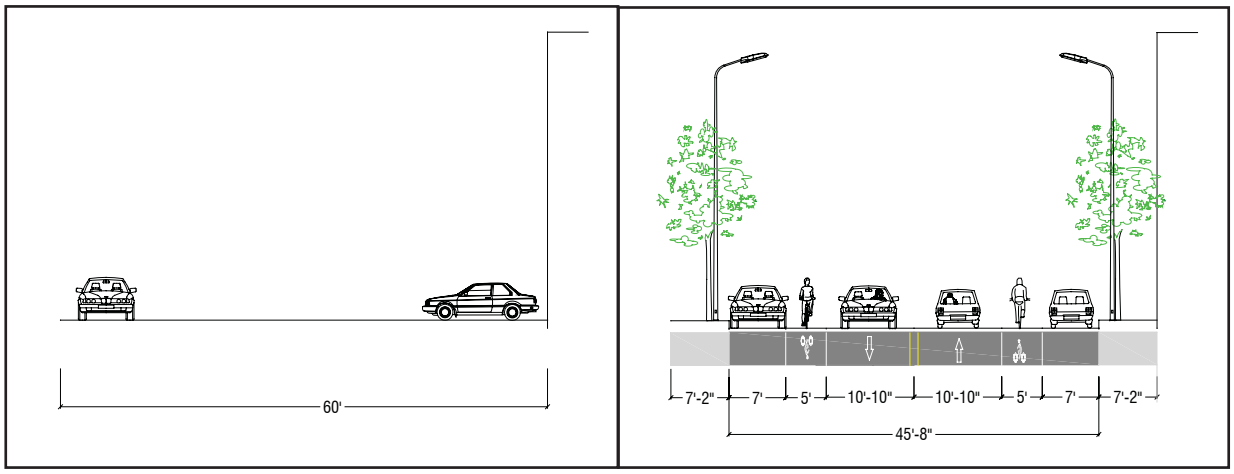


Figure 54. East 132nd Street between Alexander Avenue and Willis Avenue, existing and recommended cross section (facing west)

A possible reconfiguration of the street (see Figure 55) is designed to address the aforementioned problems. Excess roadbed at the street end would be recaptured and repaved as sidewalk, and a new triangular median would split the roadway in two directions to channel traffic to and from the Harlem River Intermodal Yard and the school bus parking lot. This street improvement would require re-establishing the curb line along the westerly sidewalk of Lincoln Avenue and moving a Bell Atlantic fence approximately 20 feet to align it with the property line. Any use of the land adjacent to the water at this site would also require the installation of a gate at the railroad crossing to allow for safe crossing of the tracks.

Direct access to the waterfront and its proximity to the renewed Bruckner Boulevard Antique and Art District could make the Lincoln Avenue street-end useful in spite of the waste transfer facility and its characteristic smells. The street-end could be used as an educational open space with a waste and recycling theme - a kiosk, informational panels, and tables and benches could be installed and used by the community and nearby schools as an outdoor workshop.

The Class 3 signed bike route on Lincoln Avenue would direct bicyclists to the street-end from the recommended route on Bruckner Boulevard, or a shared-use sidewalk could be designated on the 20-foot wide westerly sidewalk.

Connection to the Willis Avenue Bridge

The existing Willis Avenue Bridge is scheduled to be replaced by a new span and re-designed approaches on both its Manhattan and Bronx sides (see Photos 36 and 37, pages 34 and 35). Construction is scheduled to begin in 2007. The new bridge will have a 10-foot wide pedestrian and bicycle path on its northwest side only; stairs will connect this path with to the Bruckner Boulevard south sidewalk. At East 134th Street, the path will cross the bridge and continue

Figure 55. Lincoln Avenue street-end design

as a flyover over the Major Deegan Expressway, and land at East 135th Street.

Bicyclists riding to the bridge from Bruckner Boulevard would use the recommended northbound Class 2 bike lane along Willis Avenue between Bruckner Boulevard and East 134th Street (described below), and then walk their bike on the sidewalk over the Major Deegan Expressway connecting to the ramp.

Section 5: Willis Avenue Bridge to Triborough Bridge

Preferred Route

Planning a continuous and functional bicycle and pedestrian route using existing public surface streets presents significant problems in Section 5. Much of the waterfront is used for heavy industry, and the streets in this section are busy with traffic. East 132nd Street between Brown Place and the Triborough Bridge is heavy with fast truck traffic, and its sidewalks between St. Anns Avenue and the Triborough Bridge are blocked by parked cars during the day (see Photo 39, page 36). Bruckner Boulevard carries noticeably more traffic between the Willis Avenue Bridge and Saint Anns Avenue, and East 135th Street essentially functions as a service road for the Major Deegan Expressway.

Therefore, the preferred route in Section 5 would require the public use of a Harlem River Yard service road, which could be redesigned as a separated bi-directional Class 1 path between Willis Avenue and Cypress Avenue (approximately ½ mile), with upland connections at Brown Place, Brook Avenue and St. Anns Avenue.

Harlem River Railyard Service Road

The Harlem River Railyard is a multi-modal transportation center established by the Galesi Group, a private developer doing business as Harlem River Yard Ventures, Inc. In 1991 the New York State Department of Transportation leased the property for 99 years to Harlem River Yard Ventures (see Photo 33, page 32).

The public use of a 52-foot wide service road parallel to and immediately south of East 132nd Street would provide a unique opportunity to develop a bicycle/pedestrian path almost undisturbed by vehicular traffic (see Figure 57). The route between the Willis Avenue and Triborough bridges would offer welcome relief for bicyclists and pedestrians, who currently must choose between streets with busy traffic or streets with manufacturing and industrial land uses.

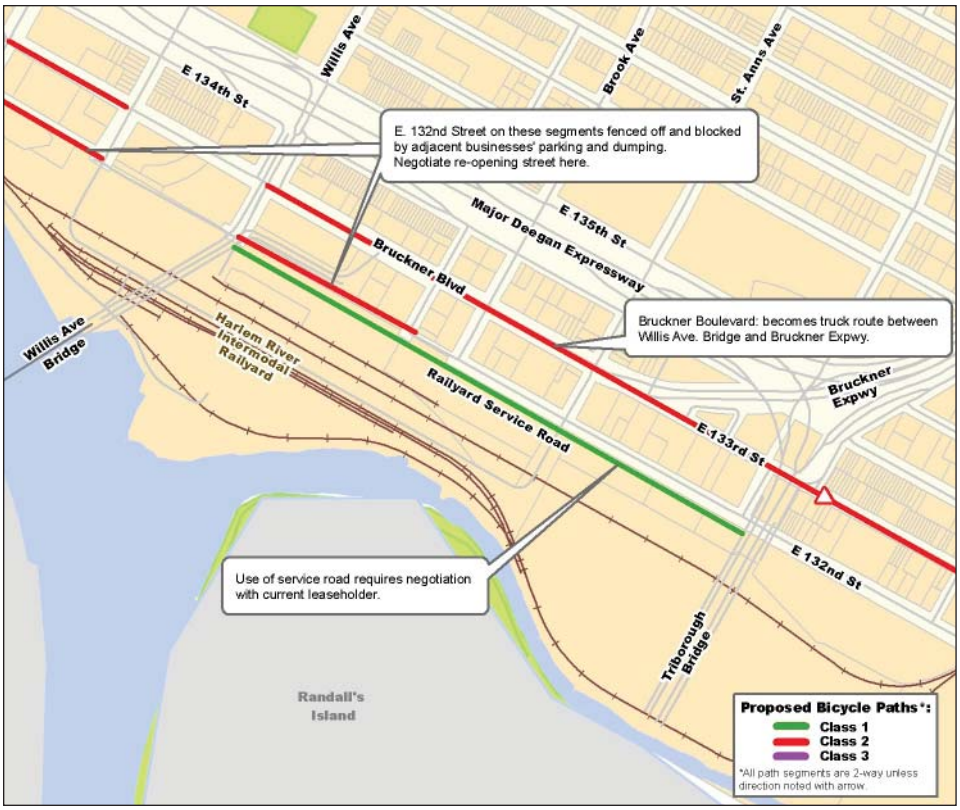


Figure 56. Opportunities and constraints along Section 5

The service road could be reached via Willis Avenue, which has very light traffic between Bruckner Boulevard and East 132nd Street. Five-foot wide bicycle lanes could be striped on Willis Avenue without impacting the travel or parking lanes, or the very wide (24 to 26 feet) sidewalks could be redesigned for shared-use.

Connection to the Triborough Bridge

Cypress Avenue currently terminates at East 132nd Street, and the street would need to be extended to the south through the Harlem River Railyard to the service road in order to connect the route to the Triborough Bridge (see Photo 33, page 32). The City would need to negotiate use of a property easement with the State and the Galesi Group, and then construct a multi-use path within the easement, an unlikely scenario given the time and cost.

East of the Triborough Bridge

East 132nd, East 133rd, and East 134th streets between the Triborough Bridge and the East River are wide, two-way roads with relatively light traffic. Land uses change from heavy manufacturing to light industrial uses, including a large New York Post publishing

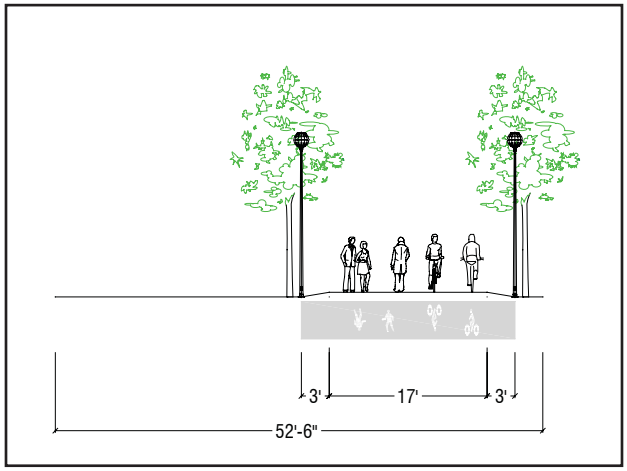


Figure 57. Harlem River Railyard Service Road cross section

facility along East 132nd Street. These are interspersed with residential blocks on East 133rd Street.

The Hell Gate Bridge carries Amtrak trains over Randall's Island and then east of the study area. Under the bridge is a dirt road that leads to the Bronx Kill from East 132nd Street (between Willow and Walnut avenues) (see Photo 41, page 37).

The New York City Economic Development Corporation (EDC) is working with Sustainable South Bronx (SSB) and other local organizations to develop a South Bronx Greenway along the Hunts Point waterfront. The plan seeks to construct a shared-use path on the road under the bridge connecting to a new bicycle/pedestrian bridge over the Bronx Kill to Randall's Island. East 132nd, East 133rd or East 134th Street should be further studied to ensure that the route recommended in this study connects with proposed South Bronx Greenway routes.

Alternate Route

The use of the Harlem River Rail Yard service road as a multi-use path is a long-term proposal that would require negotiation with the leaseholders and New York State DOT. If unsuccessful negotiations render the greenway path along the Harlem River Yard Service Road infeasible, a study more focused on traffic calming, enforcing parking regulations, and beautifying this area is recommended. In the short-term, riders may use the following cautionary routes on existing streets as described below.

Westbound Bruckner Boulevard and Eastbound East 134th Street between Willis and St. Anns Avenues

Bruckner Boulevard east of the Willis Avenue Bridge and the Bruckner Antique and Art District becomes less attractive than west of the bridge, with heavier traffic, narrower

Figure 58. Section 5 map with preferred route

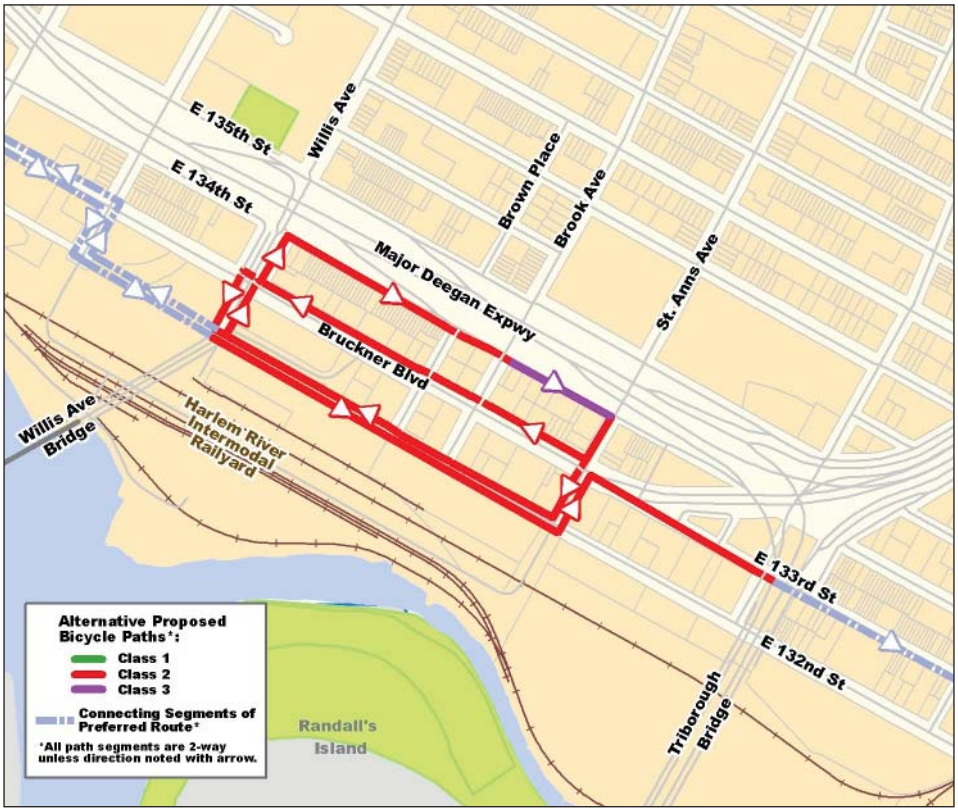


Figure 59. Section 5 map with alternate route

sidewalks and fewer trees. Traffic exiting the Willis Avenue Bridge along this segment makes eastbound Bruckner Boulevard potentially dangerous for cyclists, as the bridge exit ramp empties out onto the eastbound Bruckner lanes between Willis Avenue and Brown Place.

To avoid the eastbound Bruckner Boulevard lanes, the eastbound route should continue on East 134th Street, where a Class 2 bicycle lane should be striped between Willis Avenue and St. Anns Avenue (see Figure 61). East 134th Street is a residential one-way street and carries much less traffic than Bruckner Boulevard. The installation of a six-foot wide Class 2 bicycle lane on the south side of East 134th Street would leave one travel and one parking lane and would not adversely impact the flow of vehicular traffic, although the route may have to continue as a Class 3 signed route between Brook Avenue and St. Anns Avenue, where parking on both sides of the street does not leave enough roadbed to continue the Class 2 bike lane and maintain an adequate vehicular travel lane.

Willis Avenue between Bruckner Boulevard and East 134th Street has two segments, one on each side of the Willis Avenue bridge. A one-way northbound Class 2 striped bicycle lane should be striped on the easterly segment of Willis Avenue to connect Bruckner Boulevard and East 134th Street. A six-foot wide Class 2 bicycle lane striped on the east side of the street would leave a 22-foot wide travel lane and a parking lane along this segment, and would not affect the low levels of vehicular traffic.

The eastbound bicycle lane would be paired with a westbound lane along the north side of Bruckner Boulevard between St. Anns and Willis avenues, where traffic is not as daunting for cyclists as it is along the south side of Bruckner Boulevard (see Figure 60). However, cyclists would need to exercise particular caution, given that Bruckner Boulevard is designated as a truck route between the Willis Avenue Bridge and the Bruckner Expressway.

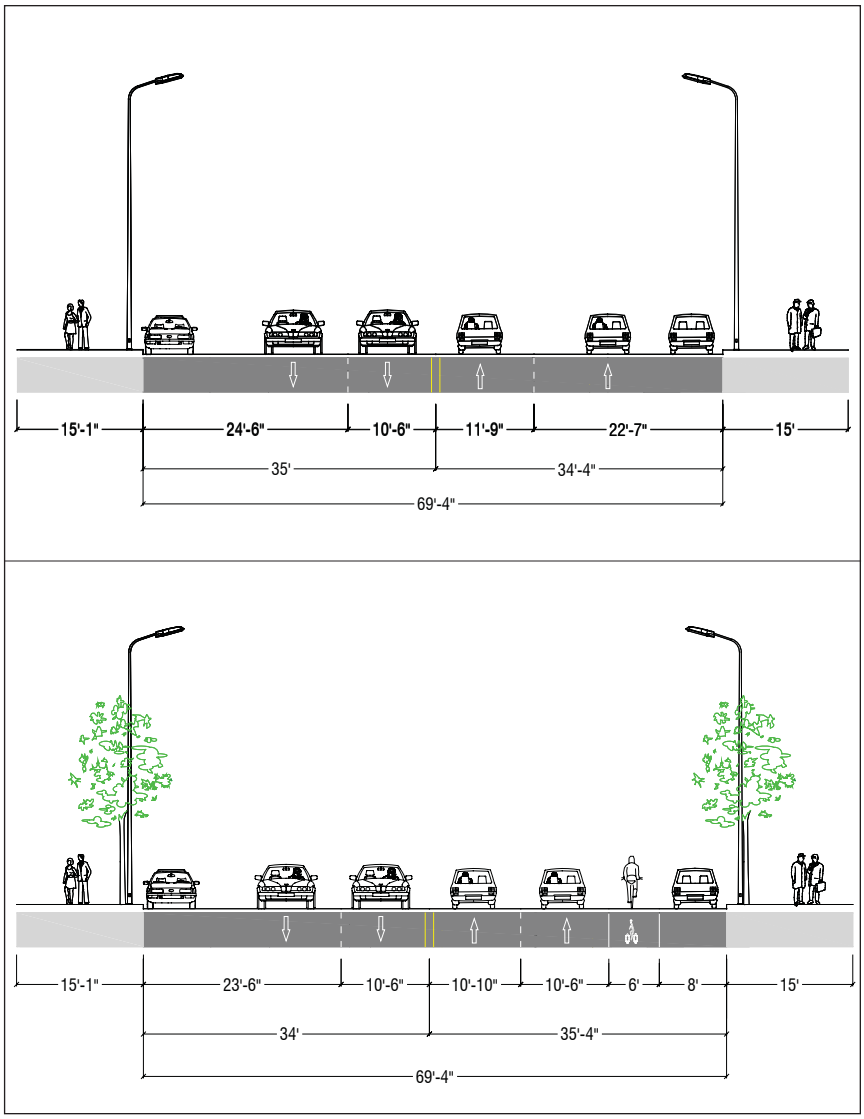


Figure 60. Bruckner Boulevard between Willis Avenue and St. Anns Avenue, existing and recommended cross section (facing west)

St. Anns Avenue between East 135th Street and Bruckner Boulevard

Existing Class 2 bicycle lanes (the only bike facilities in the study area aside from bridge paths) are striped on either side of St. Anns Avenue between East 135th and East 161st streets (see Photo 1, page 12). It is recommended to extend these lanes south to Bruckner Boulevard to connect to the eastbound path on East 134th Street and the westbound path on Bruckner Boulevard. Striping six-foot wide Class 2 bicycle lanes on either side of St. Anns Avenue between Bruckner Boulevard and East 135th Street would maintain 11-foot travel lanes and eight-foot parking lanes in each direction.

East 133rd Street between St. Anns Avenue and Cypress Avenue

East of St. Anns Avenue, Bruckner Boulevard briefly becomes one-way eastbound as it diverges from the Bruckner Expressway and subsequently becomes East 133rd Street near the Triborough Bridge. Here, East 133rd Street is 40 feet wide, with a single vehicular travel lane and parking

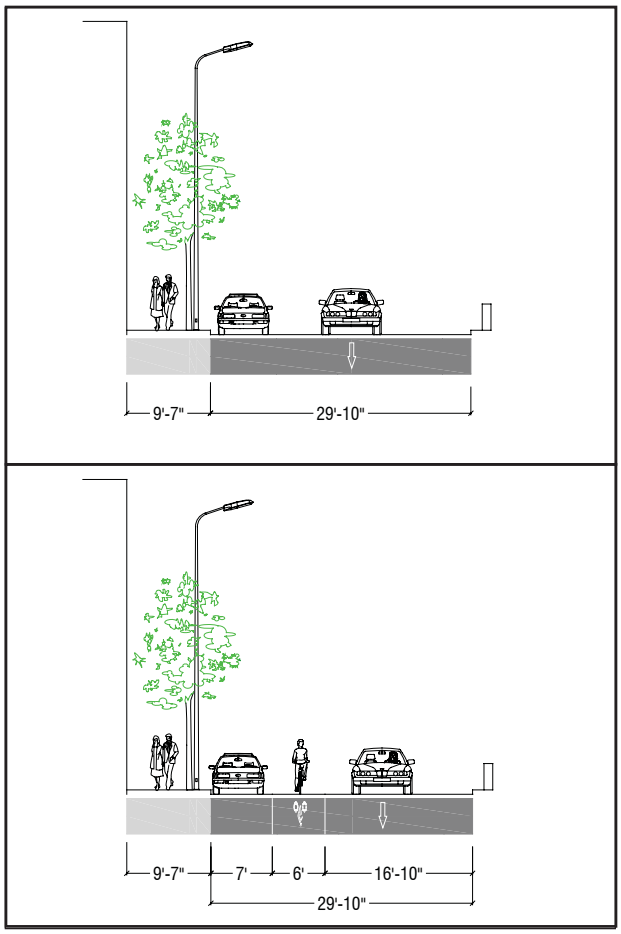


Figure 61. East 134th Street between Willis Avenue and Brown Place, existing and recommended cross section (facing west)

along both sides of the street, and carries light traffic as it traverses a pleasant residential neighborhood.

Bruckner Boulevard/East 133rd Street would comprise the eastbound component of a bi-directional paired route. A six-foot wide lane with a three-foot buffer could be striped on-street without impacting traffic or parking. However, a westbound route to match is difficult to identify. As noted below, East 132nd Street is not a promising option, as it carries busy industrial-related traffic and parked cars litter its sidewalks west of Willow Avenue. Also, East 134th Street dead-ends at the Bruckner Expressway.

Given the above problems, a bi-directional route could be established on East 133rd Street, which has sufficient roadbed to permit a two-way bicycle path. Typically, however, two-way bicycle facilities are not recommended on one-way streets; in addition, the Bx17 bus runs along this segment of the street. If this action is infeasible, the following potential (although unlikely) alternate westbound route on East 132nd Street is suggested for further study.

Alternate Route

East 132nd Street between Willis Avenue and St. Anns Avenue

A possible long-term alternate would continue the bi-directional route on East 132nd Street east of Willis Avenue, thereby precluding the need to use busy Bruckner Boulevard. As mentioned above, East 132nd Street is a mapped but unbuilt street blocked between Willis Avenue and Brown Place by a privately-owned dumping/parking area. As in Section 4, the City could seek to purchase the right-of-way from the private owners and construct a public street (or a greenway within the right-of-way), although the prohibitive cost of such construction makes this option highly unlikely.

East 132nd Street between St. Anns Avenue and Willow Avenue

Parked cars completely block the sidewalks on East 132nd Street between St. Anns Avenue and Willow Avenue (see Photo 39, page 36). This, combined with relatively heavy truck and car traffic, makes walking or biking down the street intimidating. Significant traffic calming measures as well as re-establishment of the sidewalks along East 132nd Streets should be implemented prior to any continuation of the bicycle route here.

Next Steps

The Transportation Division will develop its final recommendations for this study after meeting with the Technical Advisory Committee (TAC) and addressing their comments and concerns. Subsequently, it is expected that negotiations with current landowners and leaseholders will be necessary in order to develop the required consensus for implementation of the recommendations. For example, negotiations are expected to be necessary for such recommendations as the use of Parks-owned land adjacent to the Major Deegan service road in Section 1; the removal of a travel lane along East 135th Street to accommodate a shared-use path in Section 3 (NYC Department of Transportation); the establishment of a bicycle and pedestrian overpass in Section 3 (New York State Department of Transportation); and the use of a service road along the Harlem River Intermodal Railyard in sections 4 and 5 (Harlem River Yard Ventures, current railyard leaseholder and New York State Department of Transportation, owner of the land).

If, after negotiation with stakeholders, the implementation of certain recommendations in this study is deemed feasible, it will subsequently be necessary to undertake focused analyses based on field observations (bicycle and pedestrian counts, traffic analyses, etc.) in order to develop a specific implementation plan. Further funding will be required and sought for implementation.

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