

II. PROJECT IDENTIFICATION, EVOLUTION, CONDITIONS AND NEEDS, AND OBJECTIVES

A. Project Identification

1. Project Type (Miscellaneous)

Other: Construction of a new multi-use path and new park amenities, including overlooks, a non-motorized boat dock, amphitheater, and sitting areas.

Roadway work: Intersection reconstruction and safety improvements including installation of new signing and striping and upgraded signal equipment.

Bridge work: Construction of four new bridges and improvements to four existing bridges.

2. Project Location/Description

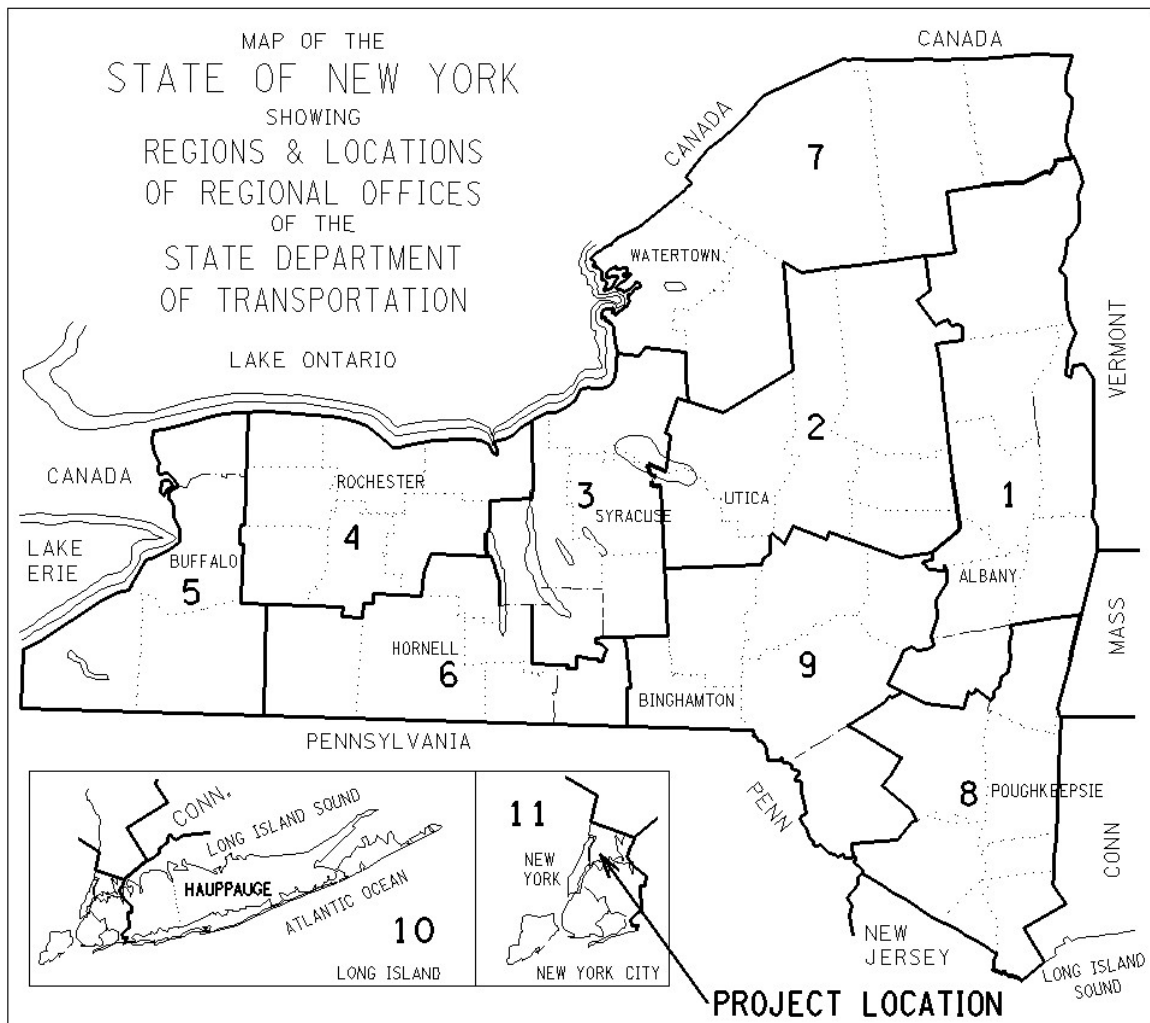
This portion of the Bronx River Greenway will provide a 1.8km (1.14mi) path for people bicycling and walking between Westchester Avenue and East Tremont Avenue in Bronx County, NY. The southern terminus of this project will be located on the south side of Westchester Avenue adjacent to the western bank of the Bronx River. The northern terminus will be located on the north side of East Tremont Avenue near the west bank of the Bronx River. This project will also include some work to the adjacent intersections and roadways. The project is located entirely within New York City.

The following bridges are located within the project limits:

Table II-1 Project Bridges

<i>BIN</i>	<i>FEATURE CARRIED & CROSSED</i>	<i>NOTE</i>
2-26990-0	Greenway over Bronx River (BR #1)	Proposed
2-24124-0	Greenway over Amtrak/CSX (BR #2)	Proposed w/existing abutments
2-26947-0	Greenway over Bronx River (BR #3)	Proposed
2-06672-0	E. 174 th St. over RR, BR, I-895, & W. Farms Rd.	Greenway passes under
2-26948-0	Greenway over BR (BR #4)	Proposed
1-06641-9	I-95 over RR, BR, I-895, & W. Farms Rd.	Greenway passes under
2-24239-9	I-895 over BR	Greenway passes under
2-24214-9	E. Tremont Ave. over BR	Greenway on south sidewalk

Bridge Identification Numbers (BINs) are tabularized from south to north. A regional map is included as Figure II-1. A larger scale project map is included as Figure II-2.



**Regional Map
Figure II-1**

B. Project Evolution

In 1974, local residents dissatisfied with the condition of the Bronx River formed Bronx River Restoration Project, Inc. (BRRP). A master plan developed from this effort, and a constituency to improve the Bronx River was building.

In the early 1990s, a small amount of targeted funding for Transportation Enhancements was made available to the New York State Department of Environmental Conservation (NYSDEC) through the Federal Intermodal Surface Transportation Efficiency Act (ISTEA). The purpose of these funds was to acquire property along the Bronx River for community access and waterfront restoration and to construct basic pathways along the Bronx River south of E. Tremont Avenue. NYSDEC acquired two properties with the Enhancements grant funds, a property within Soundview Park and the privately owned lot within Concrete Plant Park.

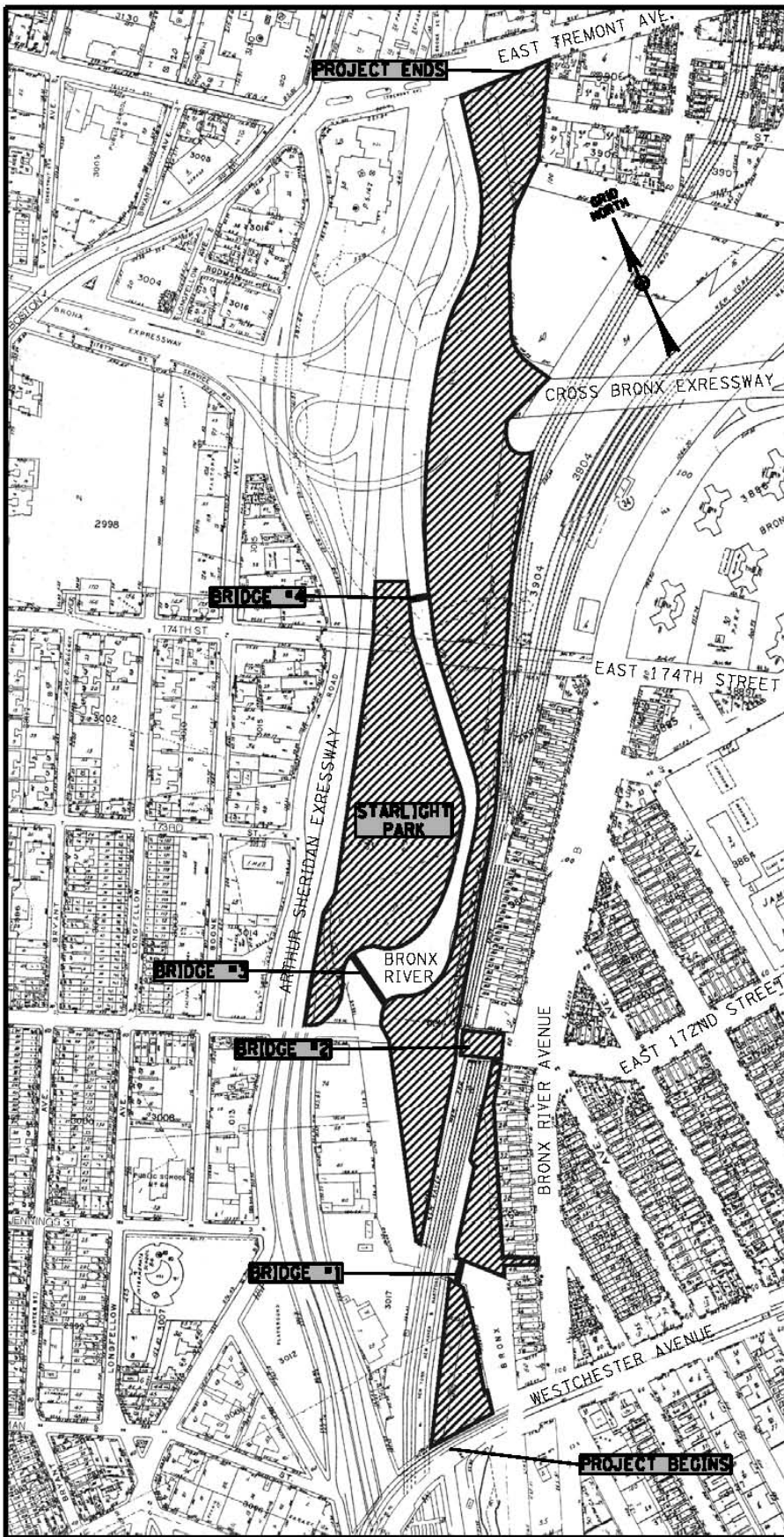


Figure II-2
PROJECT LOCATION MAP

**BRONX RIVER GREENWAY
 WESTCHESTER AVE. TO E. TREMONT AVE.
 BRONX COUNTY, NEW YORK**

 **PROJECT SITE AREA**

In 1998, a partnership between the New York City Department of Parks and Recreation (NYCDPR) and the US Department of Agriculture yielded a program called Partnership for Parks. Leadership within this organization coordinated government and community organizations together into the Bronx River Working Group (BRWG).

Simultaneously, Governor Pataki's office developed an Environmental Initiative to integrate environmental and community benefits into all NYSDOT projects. The rehabilitation of I-895 (Arthur Sheridan Expressway) presented an ideal opportunity to improve the adjacent corridor of the Bronx River.

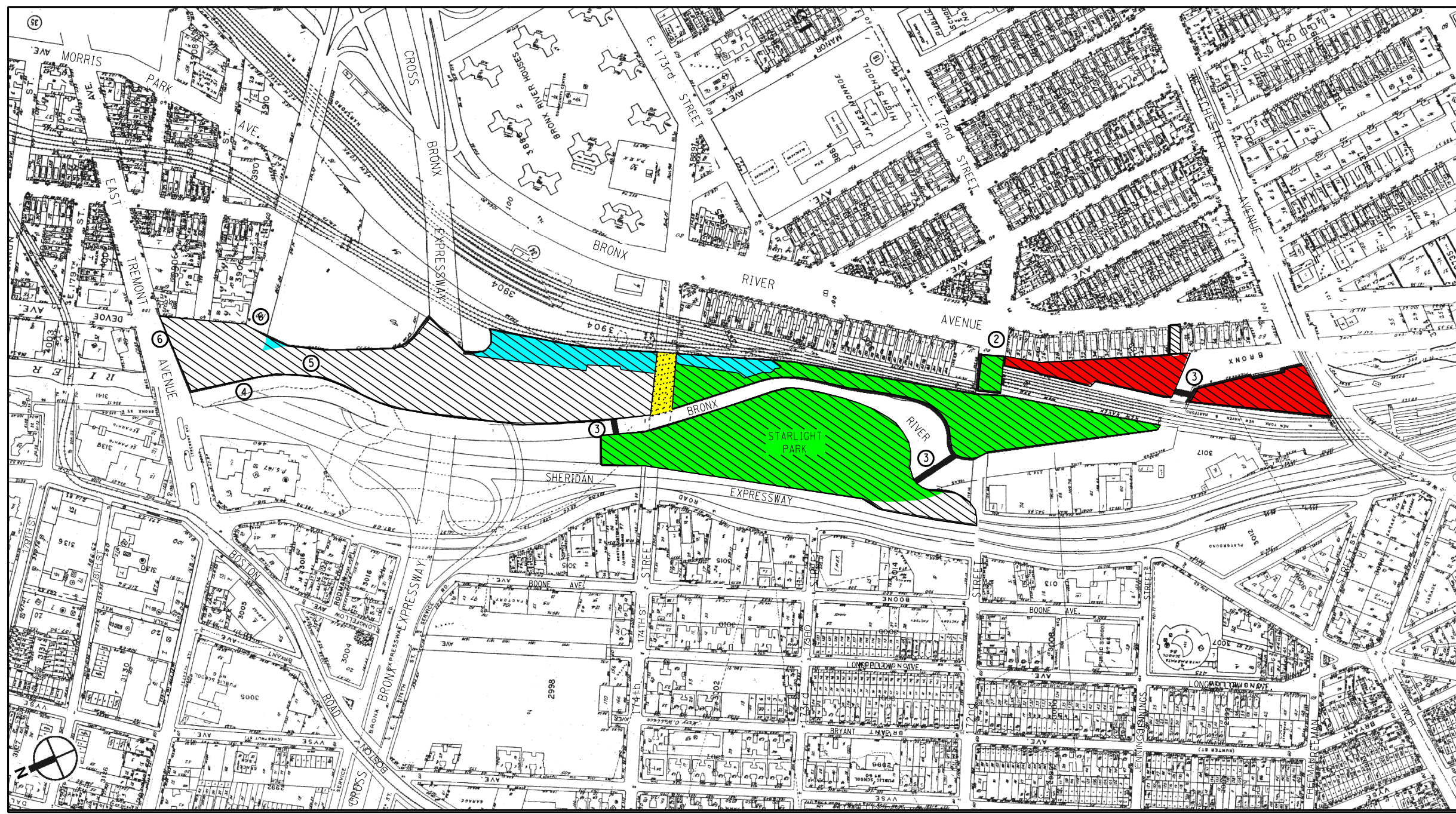
NYSDOT partnered with the BRWG to identify problems and opportunities along the Bronx River corridor adjacent to I-895 an area of the Bronx River essentially inaccessible to the public for many decades. They developed a scope for a portion of the Bronx River Greenway beginning at East 172nd Street across a bridge over Amtrak/CSX, and up the east bank of the Bronx River to East Tremont Avenue with a second bridge to access the south end of Starlight Park. Several challenges and opportunities were identified through NYSDOT's community outreach with the BRWG (Refer to Figure II-3 for the location of these project issues):

- A consensus was reached that the Bronx River Greenway should continue along the River to Hunts Point and Soundview Park. But the Hunts Point Access Environmental Impact Statement (HPAEIS), a project to improve access to the Hunts Point Market and improve safety and capacity on the Bruckner Expressway, required extensive coordination. East 172nd Street was left as the southern terminus of the Project, but investigations were performed by NYSDOT to explore continuing the path to the maximum extent feasible and to complete the path as a component of the HPAEIS project.
- The existing superstructure for BIN 2-24124-0 was removed by New York City Department of Transportation (NYCDOT) as part of a project to improve bridge clearances along Amtrak's Northeast Corridor tracks. This bridge superstructure needs to be replaced, but with a much greater vertical clearance than the prior structure. This requires modification of East 172nd Street between Bronx River Avenue and Amtrak to provide suitable grades.
- Various members of the community surrounding East 174th Street expressed the need for access to the east bank of Bronx River at the northern end of Starlight Park. A second bridge north of East 174th Street was selected over the alternative of a ramp coming down from the East 174th Street viaduct on the east side of the Bronx River to allow the creation of a one (1) kilometer path loop between the north and south starlight park bridges as a recreational and fitness resource for the Park.
- The design of BIN 2-24239-9 (I-895 over the Bronx River) facilitates passage of the multiuse path under I-895, but the current geometry of a combined sewer overflow (CSO) provides an obstacle to continuing the multiuse path north from that location. Crossing I-895 at street level was considered difficult, so NYSDOT proposed to relocate the CSO rather than invest the funds to build a bridge over I-895. NYCDEP coordinated with NYSDOT to design a storage tank that included this CSO relocation.

FED ROAD REG. NO.	STATE	CONTRACT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.			
P.I.N. X027.05		B.I.N.		
BRONX COUNTY				
BRONX RIVER GREENWAY				

DESIGN SUPERVISOR
 JOB MANAGER
 DESIGNED BY
 CHECKED BY
 ESTIMATED BY
 DRAFTED BY
 CHECKED BY

FILE NAME = DGN\SYTIME0123456
 DATE/TIME USER = DGN\USER



- PROJECT SITE AREA
- PORTION OF SITE OWNED BY N.Y.S.D.O.T.
- PORTION OF SITE OWNED BY N.Y.C.D.O.T.
- PORTION OF SITE OWNED BY N.Y.C. PARKS DEPT.
- PORTION OF SITE OWNED BY M.T.A.
- PORTION OF PROPERTY TO BE ACQUIRED

- ① SOUNDVIEW PARK (APPROX. 1/2 MILE FROM SOUTHERN PROJECT LIMIT)
- ② BRIDGE SUPERSTRUCTURE REMOVED @ EAST 172ND STREET
- ③ NEW BRIDGES CROSSING OVER THE BRONX RIVER
- ④ EXISTING COMBINED SEWER OUTFALL (CSO)
- ⑤ PROPOSED LOCATION OF POTENTIAL CSO STORAGE TANK
- ⑥ NORTHERN INTERSECTION RECONSTRUCTIONS

ALL DIMENSIONS ARE IN m UNLESS OTHERWISE NOTED
AS BUILT REVISIONS

SIGNATURE _____ DATE _____

**PROJECT OWNERSHIP AND
PROJECT EVOLUTION ISSUES**



**STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION**

DOCUMENT NAME PROPERTY_MAP.DGN	REGION 11	DATE FEB 2005	DRAWING NO. FIGURE 11-3
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- Street crossings at the northern end of the Project have very long crossing distances, unfavorable signal timing, and a lack of pedestrian refuge treatments. NYSDOT made a proposal that NYCDOT reconstruct the intersections of East Tremont Avenue with Devoe Avenue and of Devoe Avenue with I-895 and East 177th Street to improve safety for people driving, walking, and riding bicycles. NYCDOT instead agreed to fund the city street reconstruction, but allow NYSDOT to perform the necessary design and coordination work due to the complexity of this project.

Several interagency partnerships have developed as a result to coordinate construction and exchange land areas essential to the project goals of multiple agencies.

In the spring of 1999 Governor Pataki canoed down a portion of the Bronx River and announced the independent Bronx River Greenway project to the public and press. Subsequently, then Mayor Rudolph Giuliani and Congressman Jose Serrano made similar financial commitments to various other areas of the Bronx River Greenway and environmental restoration of the Bronx River.

More recently, as a result of greater clarification of work with the Hunts Point Access Environmental Impact Statement, NYSDOT extended its project limits to the south side of Westchester Avenue. This necessitated eminent domain acquisition of two commercial properties, construction of another bridge over the Bronx River, several acres of park development, construction of several retaining walls, extensive earthwork, and further environmental restoration of the Bronx River. This addition boosted estimated construction costs to their current level.

NYSDOT is currently working with the Bronx River Alliance, a not-for-profit organization created from combining the now defunct Bronx River Working Group and Bronx River Restoration, to refine the project design prior to the development of contract documents.

C. Conditions and Needs

1. Transportation Conditions and Engineering Considerations

a. Functional Classification and National Highway System

This project is a multiuse path, and as such has no National Highway System functional classification.

Within the project limits, East 177th Street, East Tremont Avenue, East 174th Street, and Westchester Avenue are all classified as urban arterials. Devoe Avenue, Bronx River Avenue, and East 172nd Street are classified as urban local streets.

Both the Arthur Sheridan Expressway (I-895) and the Cross Bronx Expressway (I-95) are classified as interstate highways and are part of the National Highway System (NHS).

b. Ownership and Maintenance Jurisdiction

Table II-2 Ownership and Maintenance

<i>TRANSPORTATION FACILITY</i>	<i>OWNERSHIP</i>	<i>MAINTENANCE JURISDICTION</i>
Bronx River Greenway	NYCDPR / NYSDOT	NYCDPR
I-895	NYSDOT	NYSDOT / NYCDOT
I-95	NYSDOT	NYSDOT / NYCDOT
Westchester Avenue	NYCDOT	NYCDOT
East 172 nd Street	NYCDOT	NYCDOT / NYCDPR
Bronx River Avenue	NYCDOT	NYCDOT
East 177 th Street	NYCDOT	NYCDOT
West Farms Bus Depot	MTA / NYC	MTA
East Tremont Avenue	NYCDOT	NYCDOT / NYCDPR

The subject limits of the Bronx River Greenway are to be owned partly by New York State Department of Transportation (NYSDOT), New York City Department of Transportation (NYCDOT), and New York City Department of Parks and Recreation (NYCDPR). See Figure II-3 for a map of the project ownership.

The Metropolitan Transportation Authority (MTA) has a combination of property rights regarding its West Farms Bus Depot facility at the intersection of I-895 and East 177th Street. This facility is on a combination of property owned outright by MTA, on property that is part of a Master Lease Agreement with New York City, and on property with permanent easement rights obtained from NYSDOT.

Two parcels within the proposed project area are currently privately owned: Apex Auto on the east bank of the river and the New York City Marshall’s Impound Lot (also known as PDJ Simone) on the west bank of the river. The State intends to acquire both parcels in their entirety in fee.

The New York City Department of Environmental Protection (NYCDEP) has permanent easement rights for their existing and proposed sewer facilities and maintains maintenance jurisdiction of these facilities.

By means of a recently signed Memorandum of Understanding (MOU), NYCDPR has agreed to maintain the entire area classified as the Bronx River Greenway, regardless of whether the property is owned by NYCDPR, by NYSDOT, or by NYCDOT. Additionally, NYCDPR has agreed to accept ownership of properties that NYSDOT deems unessential to the operation of NYSDOT highway corridors that are part of the Bronx River Greenway corridor.

c. Culture, Terrain and Climatic Conditions

The adjacent land area primarily consists of commercial, industrial, and transportation facilities and high density urban residential areas. There is also a mix of parkland, lower density residential areas, community facilities and vacant parcels throughout the study area. See Figure II-4 for a map of area land uses.

The terrain is generally flat to rolling, but includes a low-lying corridor containing the Bronx River. The area is subject to occasional severe weather including heavy rainfall, snow, and icing conditions.

d. Control of Access of the Greenway and Park Area

The project site is bounded by the Bronx River and a number of highway and railroad facilities. It is currently generally inaccessible to the public and isolated from the surrounding residential neighborhoods.

e. Existing Section

There is no existing section for the Greenway trail. The anticipated right-of-way width within the project area varies from approximately 7 m (21 ft) just south of 172nd Street to over 100 m (310 ft) at its widest point (between 174th Street and the Cross Bronx Expressway).

Table II-3, on the following page, lists the critical design elements and the corresponding existing values for the adjacent roadways affected by the Greenway project, including Westchester Avenue, East Tremont Avenue, Devoe Avenue, and East 177th Street.

f. Abutting Highway Segments and Future Plans for Abutting Highway Segments

This portion of the Bronx River Greenway will connect with the proposed multi-use path at the current Concrete Plant Park south of Westchester Avenue. This path is currently in the planning stages and is being developed by the NYCDPR. To the north, the NYCDPR is planning the West Farms portion of the Bronx River Greenway, connecting northward to existing or proposed paths ultimately extending into Westchester County.

In addition to these future park and bikeway portions, several current and future road and highway projects are located within or directly adjacent to the project area:

1) I-895 (Arthur Sheridan Expressway)

I-895 (Arthur Sheridan Expressway) is a divided highway connecting I-278 (Bruckner Expressway) with I-95 (Cross Bronx Expressway) and East 177th Street. Rehabilitation of I-895 has recently been completed from just north of I-278 to just north of East 174th Street.

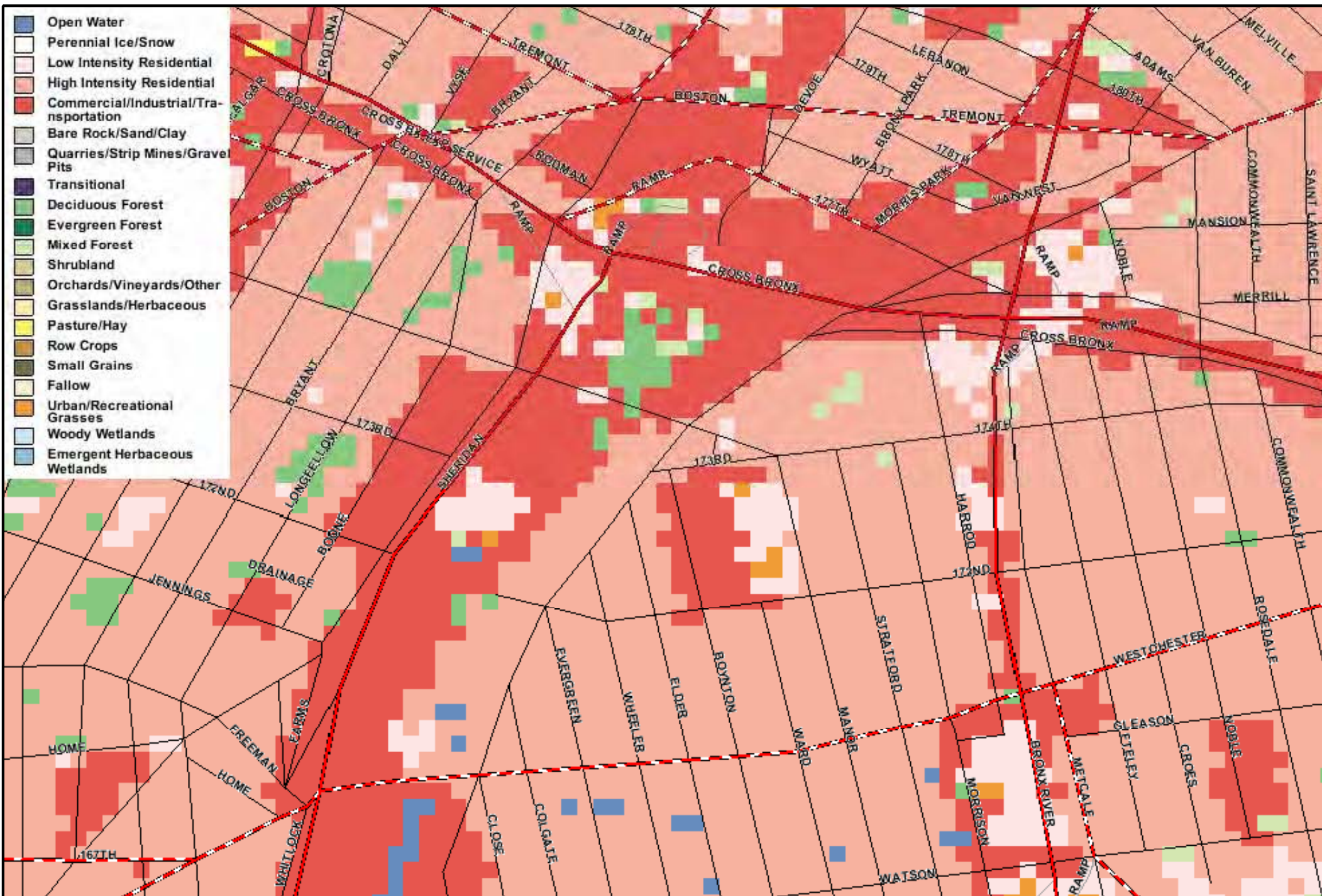


Figure II-4
Land Use Map

At the south end of the project area, the Hunts Point Access Environmental Impact Statement (HPAEIS) is evaluating alternatives related to improving truck access into Hunts Point Market and improving the safety and capacity of I-278. All alternatives currently being evaluated include the reconstruction of the Bruckner / Sheridan interchange.

North of E. 174th Street, I-895 has a ramp from northbound (NB) I-95 to southbound (SB) I-895, and a ramp from NB I-895 to SB I-95. The ramp from NB I-95 to SB I-895 was replaced during the rehabilitation of I-895. The ramp from NB I-895 (BIN 1-06641-A) to NB I-95 is scheduled for complete replacement in 2007 under Project Identification Number (PIN) X726.80.

Beyond I-95, I-895 continues to its northern terminus at the intersection with East 177th Street and Devoe Avenue.

2) I-95 (Cross Bronx Expressway from Bronx River Avenue to West Farms Avenue)

I-95 is a major north/south interstate, servicing the entire eastern seaboard of the United States. The subject portion of the Bronx River Greenway passes under BIN 1-06641-9, a viaduct over Amtrak, the West Farms Bus Depot, the Bronx River Greenway, the Bronx River, I-895, and West Farms Road. This viaduct, in addition to the ramp from NB I-895 to SB I-95 (BIN 1-06641-A), are in need of rehabilitation. Major construction anticipated for these bridges may affect the path alignment of the Bronx River Greenway during construction. Maintenance and protection of traffic for the Greenway is anticipated, in compliance with NYSDOT policy.

g. Speeds and Delay

Because the Greenway has not yet been constructed, no existing speed or delay information is available for the bikeway.

A The 48 km/h (30 mph) city street speed prevails on the roadways affected by this project. Speeds are lower during peak periods when high volumes cause congestion and delays.

h. Traffic Volumes

Currently there is no pathway, so there are no people bicycling and walking along this portion of the Bronx River Greenway. Existing traffic volumes in the study area were generated based on automated and manual traffic count data provided by NYSDOT. Manual turning movement and vehicle classification counts were performed by Allee King Rosen and Fleming, Inc. in June 2001 at selected locations in the study area. Field surveys were also conducted to determine traffic signal timings, phasing and cycle lengths, street and curbside signage, pavement markings, and lane dimensions. In addition, pedestrian counts were performed at the intersections of East Tremont Avenue at Boston Road / West Farms Road and Devoe Avenue / East 177th Street, to determine the current walking activity levels in the study area. Figure II-5 shows the existing traffic volumes (2001) for the weekday AM and PM peak hours.

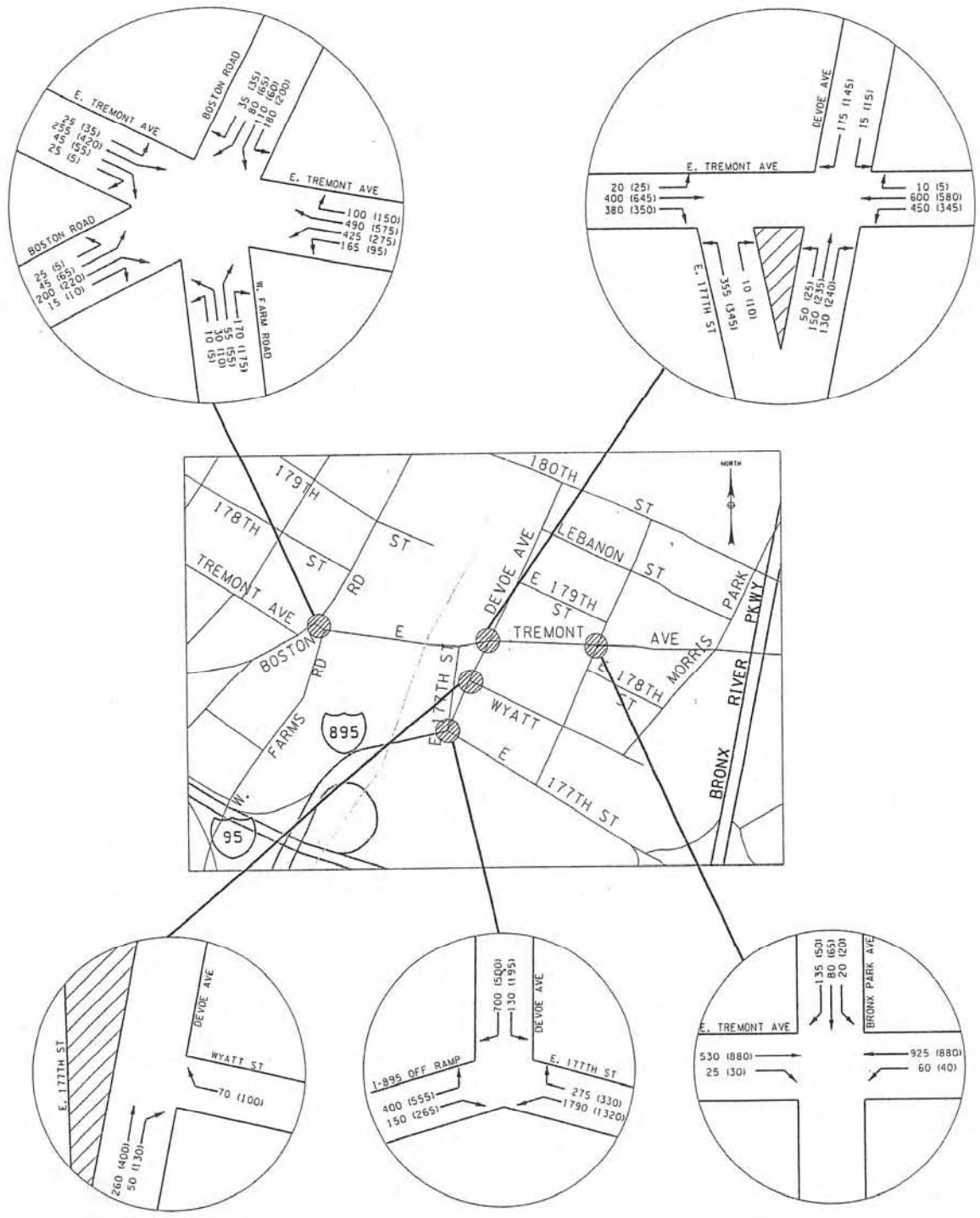


Figure II-5 : Year 2001 Traffic Volumes AM (PM) Peak Hours - Existing Condition

The original Estimated Time of Completion (ETC) for the project was 2006. Due to delays in the project schedule the ETC is now 2009 and the Design year is 2029 (ETC + 20). Traffic projections for the years 2006 and 2026 were developed by applying an expected annual background growth rate of 0.5% over the existing (2001) traffic counts (as recommended in the *2000 CEQR Technical Manual*). This rate results in a net growth of approximately 4 percent for the year 2006 and 14 percent for the year 2026 volumes shown in Figures II-6 and II-7, respectively. The additional background growth for the three years added to the project schedule will have a minimal affect on the traffic volume projections.

i. Level of Service

The level of service for signalized and unsignalized intersections is defined in terms of delay, specifically the average stopping delay per vehicle. The average stopping delay is defined as the duration of interval when a vehicle comes to a stop at the queue until it resumes motion. A capacity analysis of the following five intersections was performed using Synchro-5 traffic modeling and optimization software which applies the methodologies presented in the 2000 Highway Capacity Manual:

- Boston Road / West Farms Road / East Tremont Avenue (signalized)
- East Tremont Avenue / Devoe Avenue (signalized)
- East Tremont Avenue / Bronx Park Avenue (signalized)
- Devoe Avenue / Wyatt Street (unsignalized)
- Devoe Avenue / East 177th Street / I-895 access ramp (signalized)

Average delay per vehicle and level of service were evaluated for each intersection. Official signal timings, obtained from NYCDOT, were used in the analysis. Results of the weekday AM and PM peak hours for the signalized intersections affected by the Greenway project, including the delay, and level of service for each approach and lane group are presented in Table II-4. The original Estimated Time of Completion (ETC) for the project was 2006. Due to delays in the project schedule the ETC is now 2009 and the Design year is 2029 (ETC + 20). A sensitivity analysis of the traffic modeling found that the services levels projected for 2009 and 2029 were similar to the delays and service levels recorded in Table II-4. While the project proposes to build a new signalized intersection at Westchester Avenue, it will be for a mid-block crosswalk. Under the current conditions, Westchester Avenue operates under free flow conditions at this location. Additional traffic information can be found in Appendix B.

The results of the capacity analysis indicate that three out of the five intersections (East Tremont Avenue / Devoe Avenue, East Tremont Avenue / Bronx Park Avenue, and Devoe Avenue / Wyatt Street) operate at an acceptable LOS D or better during peak hours. However, the intersection of East Tremont Avenue at Devoe Avenue/I-895 access ramp and East Tremont Avenue at Boston Road/West Farms Road operate at an overall failing LOS F. A description of the contributing factors to the poor service levels at these two intersections is provided below.

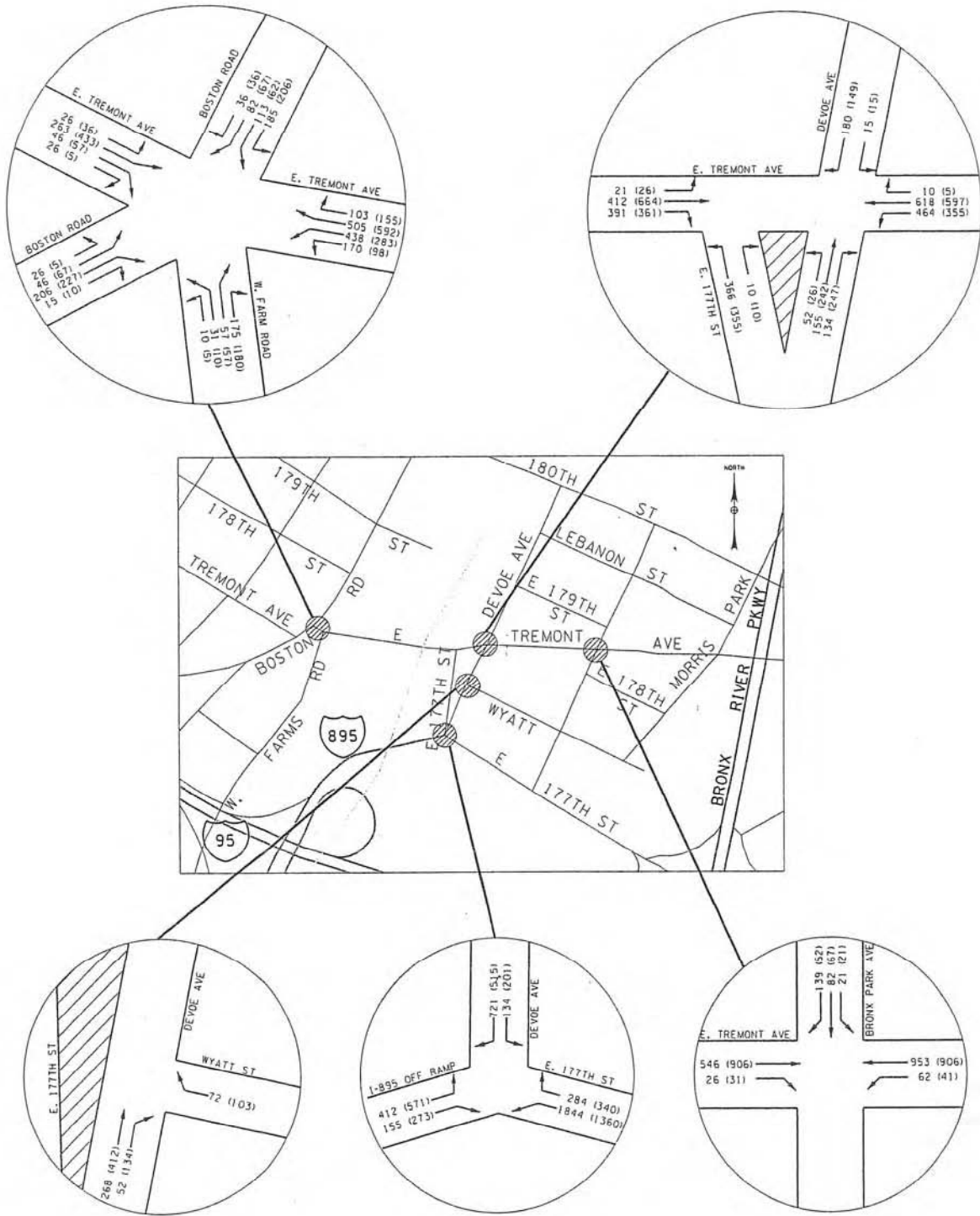


Figure II-6 : Year 2006 Traffic Volumes AM (PM) Peak Hours - Existing Condition

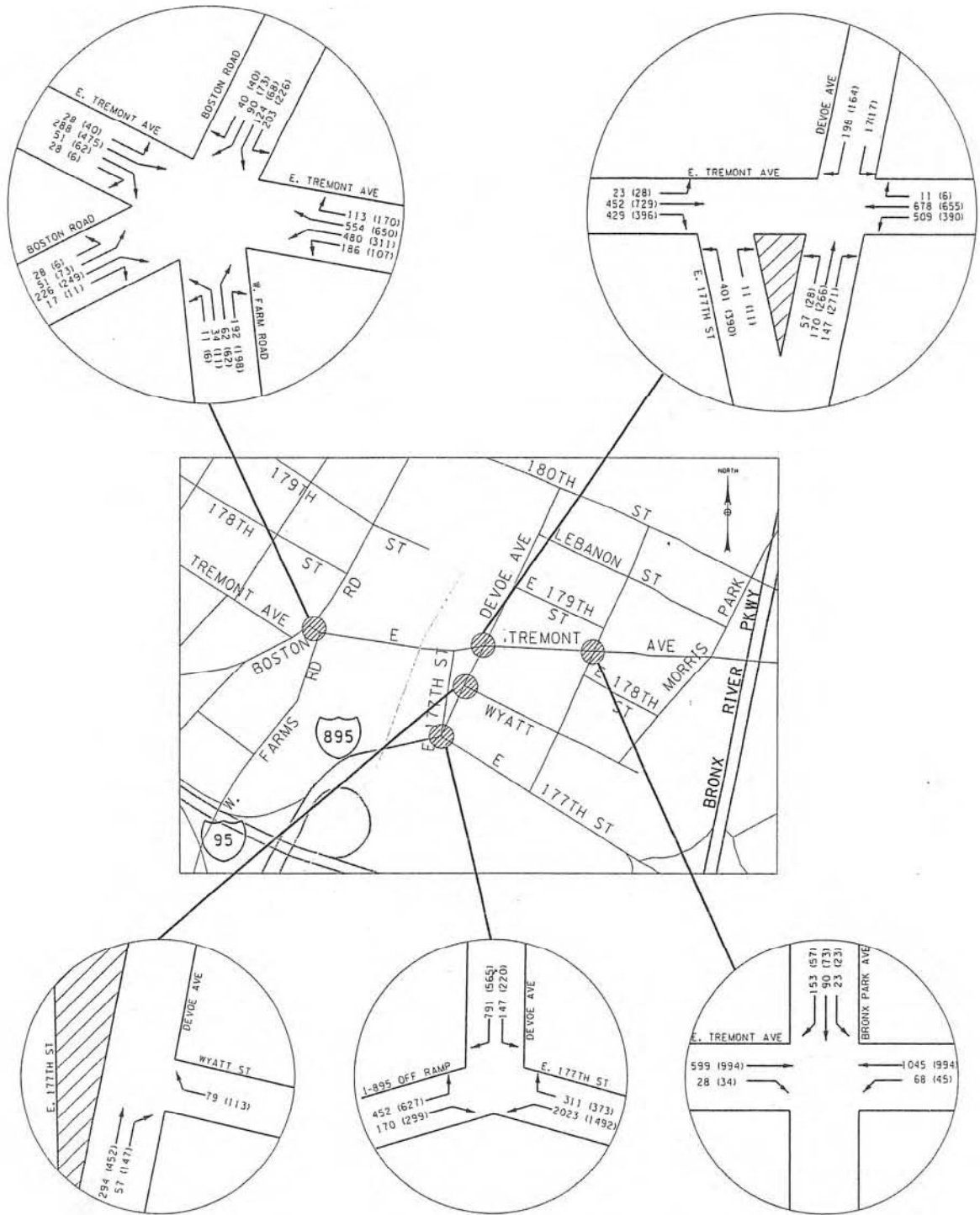
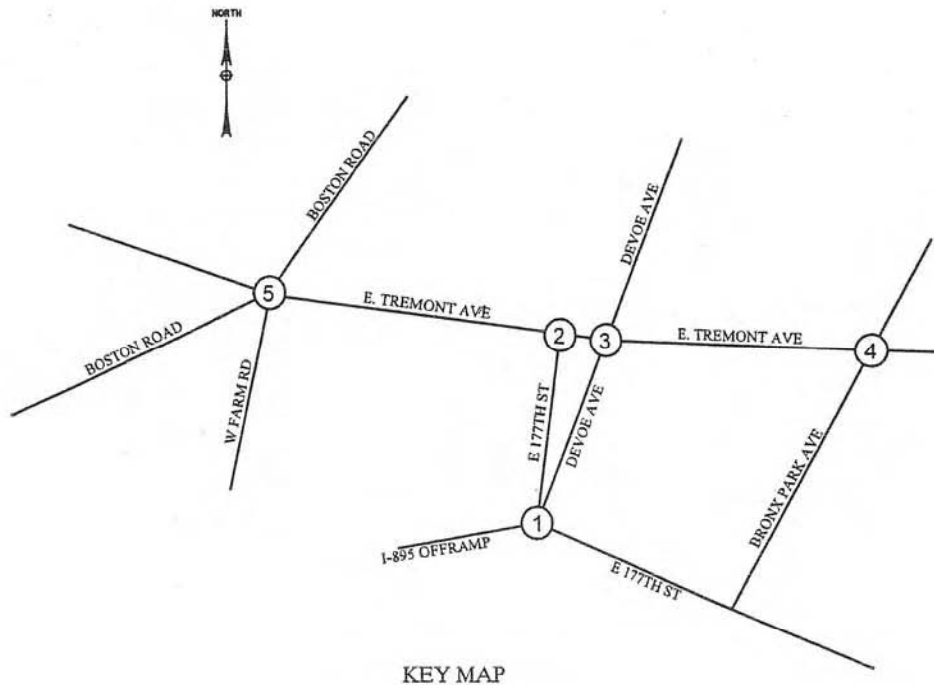


Figure II- 7 : Year 2026 Traffic Volumes AM (PM) Peak Hours - Existing Condition

Table II- 4: Bronx River Greenway Abutting Highway
Level of Service Analysis (Existing Condition)

ID	Intersection	Approach		2001				2006(ETC)				2026(ETC+20)			
				AM		PM		AM		PM		AM		PM	
				Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
1	E. 177th St & I-895 Offramp	I-895 Off Ramp	EB	32.5	C	46.7	D	33.1	C	50.1	D	35.6	D	66.2	E
		E. 177th St.	WB	568.6	F	305.6	F	596.2	F	324.2	F	686.8	F	386.1	F
		E. 177th St.	SB	79.5	F	33.6	D	89.8	F	36.6	D	128.6	F	40.0	D
		Intersection		365.2	F	179.5	F	384.3	F	190.1	F	448.3	F	227.1	F
2	E. Tremont Ave & E. 177 St	E. Tremont Ave	EB	30.6	C	37.2	D	30.8	C	37.5	D	31.5	C	38.4	D
		E. Tremont Ave	WB	22.9	C	14.4	B	26.3	C	15.1	B	51.4	D	184.0	B
		E. 177th St.	NB	12.0	B	11.8	B	12.3	B	11.9	B	13.0	B	12.3	B
		Intersection		22.6	C	21.1	C	24.8	C	21.6	C	40.5	D	23.7	C
3	E. Tremont Ave & Devoe Ave	E. Tremont Ave	EB	4.1	A	4.1	A	4.1	A	4.1	A	3.9	A	4.2	A
		E. Tremont Ave	WB	51.0	D	52.5	D	51.6	D	52.9	D	53.7	D	54.2	D
		Devoe Ave	NB	19.0	B	28.2	C	19.3	B	29.5	C	20.7	C	34.8	C
		Devoe Ave	SB	35.8	D	31.0	C	37.2	D	31.9	C	42.9	D	35.2	D
		Intersection		34.2	C	31.2	C	34.7	C	31.7	C	36.6	D	33.7	C
4	E. Tremont Ave & Bronx Park Ave	E. Tremont Ave	EB	25.4	C	27.2	C	25.5	C	27.4	C	25.7	C	28.5	C
		E. Tremont Ave	WB	17.1	B	16.3	B	17.5	B	16.6	B	18.9	B	17.8	B
		Bronx Park Ave	SB	28.1	C	26.4	C	28.2	C	26.4	C	28.6	C	26.6	C
		Intersection		21.2	C	22.0	C	21.4	C	22.3	C	22.3	C	23.4	C
5	E. Tremont Ave & Boston Rd	E. Tremont Ave	EB	49.9	D	132.6	F	51.0	D	144.5	F	55.4	E	186.7	F
		E. Tremont Ave	WB	83.3	F	64.0	E	90.9	F	66.5	E	122.5	F	79.5	E
		Boston Rd	SW	172.6	F	245.9	F	194.1	F	273.7	F	269.3	F	386.0	F
		Boston Rd	NE	95.0	F	108.3	F	103.1	F	117.6	F	133.2	F	154.4	F
		W. Farms Rd	NB	52.6	D	53.5	D	53.6	D	54.6	D	57.0	E	59.0	E
		Intersection		91.2	F	108.3	F	99.5	F	117.1	F	131.2	F	152.3	F



East 177th Street at Devoe Avenue

This signalized intersection is situated at the northern terminus of I-895. There are five approaches at this intersection: westbound and eastbound East 177th Street, northbound and southbound East 177th Street, northbound and southbound I-895, northbound Devoe Avenue, and the northbound and southbound driveway for the West Farms Bus Depot. The signal at this intersection is segregated into three phases with the exclusive left and through phase for the eastbound approach from I-895 in conjunction with the southbound right turn from East 177th Street to southbound I-895. The overall cycle length at this intersection is 120 seconds.

The signalized intersection analysis reveals that most approaches are performing at LOS D or better with delays less than 35 seconds during the AM and PM peak periods. The southbound left/through approach from East 177th Street was experiencing LOS E with delay of 46.2 seconds. The poor level of service experienced by this approach may be due to insufficient green time and conflicting turning movements with the buses exiting the West Farms Bus Depot. The bus depot was recently reconstructed.

East Tremont Avenue at Boston Road and West Farms Road

Tremont Avenue intersects both Boston Road and West Farms Road at this intersection. Only the northbound approach from Boston Road operates at LOS D or better during the peak hour periods. The remaining approaches operate at LOS E or F, with delays in excess of two minutes on the busy southwest Boston Road approach. The intersection is also a major crossing for people walking as a number of bus lines converge just to the east of this intersection and there are several schools and retail shops in the surrounding neighborhood.

j. Non-Standard Features and Non-Conforming Features

(1) Non-Standard Features

This portion of the bike path does not exist and therefore, there are no existing non-standard features associated with the Greenway.

Along the adjacent roadways, the following non-standard features are present:

- Non-standard stopping sight distance of 43.72 m (144 ft) in the eastbound direction along Westchester Avenue is caused by the columns supporting the overhead structure and the horizontal curve geometry. The standard stopping sight distance is 60 m (200 ft).
- Portions of East Tremont Avenue have a pavement cross slope of over 3%. The maximum standard cross slope is 2.0%.
- Portions of East 177th Street have a pavement cross slope of over 2.5%. The maximum standard cross slope is 2.0%.

Non-standard justification forms documenting these conditions have been included in Appendix A of this report.

(2) Non-Conforming Features

There are no existing non-conforming features associated with the Greenway or with the adjacent roadways affected by the Greenway construction.

k. Safety Considerations, Accident History and Analysis

The proposed portion of the Bronx River Greenway has three at-grade crossings with the local street network: Westchester Avenue, East 177th Street, and E. Tremont Avenue. Accident data from the period between March 1999 and August 2001 has been collected and analyzed. Accident rates were developed for the signalized intersections within the project area (because AADT data was not available, for accident rate calculation purposes it was assumed that the average of the AM and PM peak hours is 8% of the AADT). Accident diagrams and data are shown in Appendix C.

The accident rates for these links and intersections have been compared with the statewide accident averages for similar facilities and intersection types as listed in the NYSDOT's *Average Accident Rates for State Highways (6/1/00 to 5/31/02)*. Several locations were identified that exhibit high accident rates in comparison to the statewide averages.

E. Tremont Avenue / West Farms Road / Boston Road (1.02 ACC/MEV)

This is a five leg intersection located just west of the northern terminus of the project. The State average for accidents at this type of intersection is 0.60 accidents per million entering vehicles (ACC/MEV). The actual rate calculated for the period between March 1999 and August 2001 is nearly twice the state average with rear end and overtaking accidents accounting for half of all incidents. Within the two and half year analysis period, there were a total of six pedestrian accidents at this intersection. Four involved pedestrians crossing Boston Road with the remaining two pedestrian incidents on West Farms Road and East Tremont Avenue.

Tremont Avenue / Devoe Avenue / East 177th Street (1.87 ACC/MEV)

This is a four leg intersection located at the northern end of the project. The State average for accidents at this type of intersection is 0.60 accidents per million entering vehicles (ACC/MEV). The actual rate calculated for the period between March 1999 and August 2001 is more than three times the state average with rear end and overtaking accidents accounting for two-thirds of all incidents. There were no reported pedestrian accidents and there was one accident involving a bicycle crossing the southbound approach to Devoe Avenue. This may be due to the lack of pedestrian attractors at this intersection during the analysis period.

East 177th Street / Devoe Avenue / Ramp to I-895 (1.18 ACC/MEV)

This is a three leg intersection located near the northern end of the project. The State average for accidents at this type of intersection is 0.35 accidents per million entering vehicles (ACC/MEV). The actual rate calculated for the period between March 1999 and August 2001 is more than three times the state average with rear end and overtaking accidents accounting for ninety percent of all incidents. There

were no reported pedestrian and/or bicycle accidents at this intersection during the two and half year analysis period.

Accident information along Westchester Avenue between Boone Avenue and Bronx River Avenue was taken from the NYSDOT Safety Information and Management System. Accident rates at each of the intersections within this portion were calculated and compared with the statewide accident averages for similar facilities and intersection types. Two intersections, Westchester Avenue/Boone Avenue and Westchester Avenue/Bronx River Avenue, have accident rates that exceed the corresponding statewide averages. The predominant contributing factor for accidents at the Boone Avenue intersection was driver inattention, which may be attributable to the peak period congestion in this area. There were also a number of improper passing and lane usage incidents at this location. At Bronx River Avenue there was no predominant factor attributable to the high number of accidents at this location. However, unsafe speed and failure to obey traffic control devices were cited as factors on several accidents.

l. Pavement and Shoulder Conditions

There is no existing pavement along this portion of the Greenway alignment. The pavement condition along the adjoining roadways is in varying states of disrepair. Some portions are experiencing severe deterioration with rutting, scaling, large cracks and potholes located throughout the roadway limits. Sections of the pavement are worn and may not have adequate skid resistance.

m. Guiderail, Median Barrier and Impact Attenuator

Guiderail, median barriers, and impact attenuators are located along the access ramp to I-895. The City streets do not have these roadside appurtenances.

n. Traffic Control Devices

No traffic control devices are located along the alignment of the proposed Greenway. Traffic signals are located at the following intersections on the adjacent roadways:

- Boston Road / West Farms Road / East Tremont Avenue
- East Tremont Avenue / East 177th Street
- East Tremont Avenue / Devoe Avenue
- East Tremont Avenue / Bronx Park Avenue
- Devoe Avenue / East 177th Street / I-895 access ramp
- Bronx River Avenue / East 172nd Street
- Westchester Avenue / Boone Farms Road
- Westchester Avenue / Bronx River Avenue

The remaining intersections in the project area are stop or yield controlled.

o. Structures

The following existing structures are located within the project limits:

Table II-5 Existing Bridge Structures

<i>BIN</i>	<i>FEATURE CARRIED</i>	<i>FEATURE CROSSED</i>	<i>GENERAL CONDITION</i>	<i>NOTE</i>
1-06641-9	I-95	Amtrak/CSX, West Farms Bus Depot, I-895, Bronx River & West Farms Rd.	4	Greenway to pass beneath
2-06672-0	E. 174 th St.	Amtrak/CSX , Bronx River & West Farms Rd.	5	Greenway to pass beneath
2-24124-0	N/A	Amtrak/CSX at E. 172 nd St.	N/A	No existing bridge. Existing abutments to be used for proposed Greenway bridge
2-24214-9	E. Tremont Ave.	Bronx River	5	Greenway to cross the Bronx River on existing south sidewalk
2-24239-9	I-895	Bronx River	7	Greenway to pass beneath existing bridge
7-70240-1	Amtrak / CSX	Bronx River	4	River restoration work
7-70240-2	Amtrak / CSX	Bronx River	4	River restoration work

The condition ratings were taken from the latest available biennial inspections. Bridges with a general condition of 5 or better are considered to be in acceptable condition.

p. Hydraulics of Bridges and Culverts

The vertical clearance of the existing bridge crossings over the Bronx River are at or above the 100 year flood elevation and the existing apertures are hydraulically sufficient for the Bronx River flow. The hydraulics of the existing structures will not be modified as part of this project.

q. Drainage Systems

The land surrounding the proposed Bronx River Greenway is undeveloped and generally drains through sheet flow towards the Bronx River. Some ponding is present during large rainfall events. The adjacent roadways contain closed highway drainage systems that are owned by NYCDOT and maintained by NYCDEP. The highway drainage pipes outlet into a combined sewer system that is owned and maintained by the NYCDEP. There is no known flooding or drainage problems that adversely affects traffic operations.

r. Soil and Foundation Conditions

Published information indicates the site is underlain by bedrock of the Hartland Formation, which extends from Connecticut to the Bronx. The formation is reported to contain several variations of gneiss and schist. Subsurface information is available from boring logs taken from the MTA Bus Depot project (MTA Contract No. C-31325). The borings indicate that the soil type along the south side of East 177th Street varies from brown coarse/fine sand, gravel cobbles and small boulders near Devoe Avenue at approximately -7.6 m (-25 ft) to gneiss bedrock near the Amtrak right-of-way at approximately -13.7 m (-45 ft) from the roadway surface. A subsurface exploration program with over 50 soil borings has been completed and the results will be used during Phase V & VI Design to detail the foundations of the bridge structures and retaining walls.

s. Utilities

The majority of the project area is not currently serviced by any utilities, except for those utilities provided at the north end of Edgewater Road for services to Starlight Park. Adjacent areas with utilities that may be affected by the Greenway construction include:

- Overhead electric at the proposed path crossing of Westchester Avenue;
- High voltage overhead electric along the west and east sides of the Amtrak / CSX tracks between Westchester Avenue and East 172nd Street;
- High voltage overhead electric along catenaries for Amtrak trains where the bridge will be constructed over the tracks;
- Overhead electric at East 172nd Street owned/maintained by Con Edison; and
- Overhead electric within West Farms Square – surrounding the intersections of I-895/East 177th Street/Devoe Avenue and of Devoe Avenue/East Tremont Avenue.

t. Railroads and Buses

The Amtrak Northeast Corridor line passes through the project area, providing high speed passenger train service between New York City and Boston. There is also a CSX rail line within Amtrak's right-of-way to the east of Amtrak's passenger train tracks that provides freight service to the Oak Point freight yard and Harlem River Intermodal Rail yard in the Bronx.

Several Metropolitan Transit Authority trains and busses service the project vicinity. The following bus and subway lines are located within or adjacent to the project limits:

Table II-6 Public Transportation Routes

<i>ROUTE</i>	<i>BUS or SUBWAY</i>	<i>STATION / LOCATION</i>	<i>SERVICE TO</i>	<i>NOTE</i>
No. 2	Subway	E. 174 th St. / West Farms Square	7 th Ave. Express to Wakefield / 241 st St., Bronx & Flatbush Ave., Brooklyn	
No. 5	Subway	E. 174 th St. / West Farms Square	Lexington Ave. express to Nereid or Dyre Ave., Bronx & Flatbush Ave., Brooklyn	Only local (off peak) trains stop at E. 174 th St. / West Farms Sq.
No. 6	Subway	Whitlock Ave. & Elder Ave. at Westchester Ave.	Lexington Ave. local to Parkchester, Bronx & Brooklyn Bridge, Manhattan	Both are local stops
Bx 4	Bus	Westchester Ave.	Westchester Ave., 3 rd Ave. to Commerce Ave.	
Bx 11	Bus	E. 172 nd St.	Claremont Pkwy / E. 170 th St.	Route passes east of project at 172 nd St.
Bx 21	Bus	E. Tremont Ave.	Morris Park / Boston Road	Lays over on E. Tremont Ave. in West Farms Square
Bx 27	Bus	Westchester Ave.	Westchester Ave. / Soundview Ave.	
Bx 36	Bus	E. 174 th St.	E. 174 th St. / E. 180 th St.	
Bx 40	Bus	E. Tremont Ave.	E. Tremont Ave. / Pennyfield Ave.	Lays over on E. Tremont Ave. in West Farms Square
Bx 42	Bus	E. Tremont Ave.	E. Tremont Ave. / Harding Ave.	Lays over on E. Tremont Ave. in West Farms Square
Q 44	Bus	E. Tremont Ave. / Devoe Ave.	Cross Bronx Expressway / Bronx – Queens	Lays over on E. Tremont Ave. in West Farms Square

u. Visual Environment

The 25-acre project site consists of paved areas; compacted, unvegetated areas, and areas densely vegetated with species typical of recently disturbed landscapes (first colonizers, many of them non-native and invasive.) The dominant tree is Norway maple; the dominant shrub is Japanese knotweed; the dominant perennial is mugwort. Views to the Bronx River are blocked in many areas by dense vegetation.

The Nos. 2, 5, and 6 elevated subway line structure forms a dominant visual element crossing the southern end of the site (on viaduct above Westchester Avenue). The area is served by numerous motorized transportation corridors including the East 174th Street viaduct, the I-95 viaduct, and a circular entrance ramp viaduct from northbound I-895 to southbound I-95. Also dominant from the site is the Arthur Sheridan Expressway which runs south-north, paralleling the southern portion of the site to the west before crossing the site near the northern end. The site is also bordered by an active railroad corridor (Amtrak's Northeast Corridor passenger line and CSX freight line) which forms the western border of the site south of East 172nd Street and forms the eastern border of the site from East 172nd Street to the parking lot of the MTA West Farms bus depot. Included on the property are several abandoned railroad structures and never-completed highway ramp piers.

The surrounding area includes Starlight Park and industrial, commercial and high density residential buildings 2 to 6 stories high. Most development within the Project Site and Amtrak Right-of-way at the south end of the project corridor consists of non-descript low-rise industrial buildings housing auto related uses, including Apex Auto used part seller and a New York City Marshall tow pound. More automobile-related low rise buildings are adjacent to the project site on the north side of East 174th St., including an auto body shop and a rim and tire shop. Some early 20th Century brick residential row houses and apartment buildings are located in the neighborhood directly to the east of the project site along Bronx River Avenue. The recently completed West Farms Bus Depot and accessory parking areas dominate the adjacent landscape near the northern end of the Project Site. At the northern end of the project site along Devoe Avenue, an old brick post office and brick apartment buildings with commercial space at ground level create the eastern limit of the project. Current uses are vacant deli/grocery, café, and sports bar.

The Bronx River is a visual resource in the study area, but people walking currently have highly obscured views of it. The I-895, Amtrak right-of-way, and abutting industrial development currently block access to most portions of the Bronx River within the project limits. Views of the river in areas accessible by walking are only obtainable from the small Bronx River Park just north of East Tremont Avenue and from bridges carrying East Tremont Avenue, East 174th Street, and Westchester Avenue over the Bronx River.

A complete visual resources assessment can be found in Appendix D, which contains the project's Environmental Assessment. Appendix G contains

visualizations of the proposed project along with Photographs of existing conditions.

v. Provisions for Pedestrians and Bicyclists

The existing pedestrian facilities in the project area are limited to sidewalks of varying widths running along East Tremont Avenue, Devoe Avenue, 177th Street, 172nd Street, Bronx River Avenue and Westchester Avenue. Many of these sidewalks do not conform to Americans with Disabilities Act (ADA) requirements and the crosswalks are worn.

There are currently no designated facilities for bicycling in the area with the exception of a recommended on-street route on Bronx River Avenue between Westchester Avenue and 174th Street which continues west along 174th Street to Boston Road. This route is not signed but is shown on the NYC Cycling Map.

w. Planned Development for Area

For city planning purposes, New York City is broken up into a series of Community Districts (CDs). A map showing the districts in the project vicinity is included as Figure II-8. The planned developments in and adjacent to the project area which are described in this section will result in a net increase in vehicular and pedestrian traffic in the vicinity of the proposed greenway.

Community District 3 encompasses the Crotona Park section of the Bronx. The northeastern region of CD 3 lies within this project's study area. The region is defined by the Cross Bronx Expressway to the north and the Arthur Sheridan Expressway to the east.

Residential development in this district includes construction of private homes and full rehabilitation of existing dwellings.

Commercial development in this district is spearheaded by the Mid-Bronx Development group and the Melrose Commons Urban Renewal Plan. The Mid-Bronx Development group is actively developing commercial properties. The Melrose Commons plan was approved by the Department of City Planning in 1994. Significant housing developments have already taken place with a combined total of more than 1500 dwelling units. A Pathmark store has also been constructed along Boston Road between East 174th Street and the Cross Bronx Expressway.

Industrial development in this district includes both new construction of an industrial park, as well as marketing of vacant industrial facilities in an existing industrial park. The Mid-Bronx Industrial Park is being planned for an area bordered by East 174th Street, Boone Avenue, Vyse Avenue, and the south service road of the Cross Bronx Expressway. The nearby Bathgate Industrial Park, which is situated on East 173rd Street, Third Avenue, Washington Avenue, and the Cross Bronx Expressway, is also marketing many of its vacant facilities.

Community District 6 encompasses the West Farms section of the Bronx. The southeastern region of CD 6 lies within the project study area. This region is defined by the Bronx River Parkway to the east and the Cross Bronx Expressway

to the south. The northern terminus of the Arthur Sheridan Expressway, East 177th Street, Devoe Avenue and Tremont Avenue are included in CD 6 within the project study area.

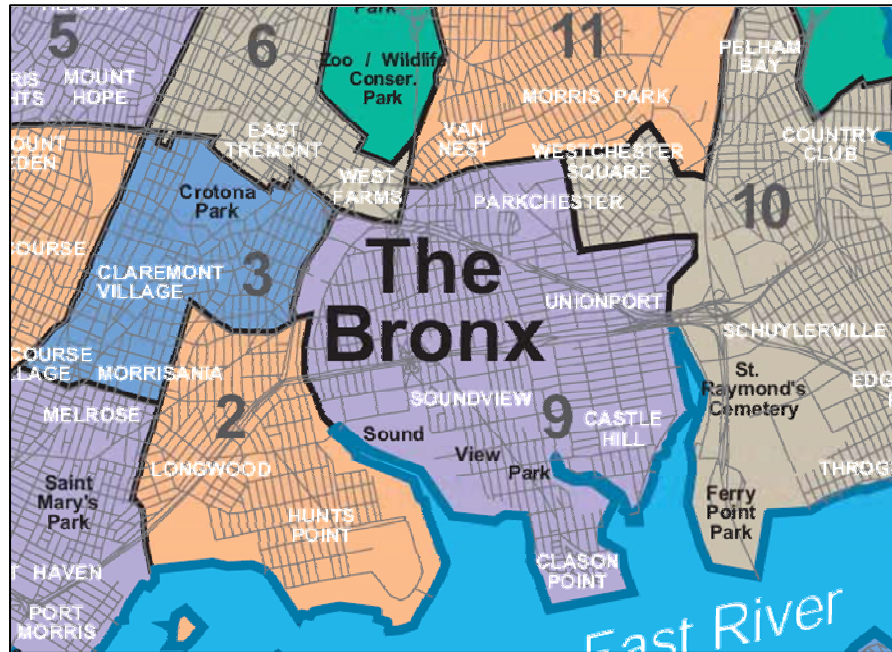


Figure II-8
Bronx Community District Map

Residential development in this district includes new construction for private ownership, rehabilitation of existing homes for continued residential use, and public assistance housing projects. Commercial development in this district is concentrated in the East Tremont Revitalization Project. The ETRP includes road improvements, storefront revitalization and sidewalk repairs in this commercial strip. Additional public projects include reconstruction of the Tremont Children Health Clinic and reconstruction of the Mary Mitchell Youth Center.

Industrial development in this area is limited to the marketing of the existing vacant land in the portion of the Bathgate Industrial Park which lies in CD 6 for continued industrial use.

Community District 9 encompasses the Bronx River section of the Bronx. The northwestern region of CD 9 lies within this project's study area. This region is defined by the Cross Bronx Expressway, the Bronx River Parkway and the Arthur Sheridan Expressway.

Residential development in this district includes two housing developments in the Soundview and Castle Hill areas and limited, moderate rehabilitation of existing multi-family dwellings. These two developments plan to establish approximately 1,900 units of condominium apartments. An existing building was rehabilitated as a public school last year.

No significant commercial or industrial development is currently planned in this district.

x. System Elements and Conditions

The Bronx River corridor through Bronx County in the South Bronx currently provides few existing facilities for cycling and walking separated from the busy vehicle travel lanes and has minimal recreational opportunities for the area residents. Future developments will result in increased vehicular and pedestrian traffic, further increasing congestion in the project vicinity.

The entirety of the Bronx River Greenway Corridor will provide valuable transportation links and options to the communities it passes through and for regional cycling. The proposed project will eventually provide a vital link along the Bronx River Greenway Corridor extending from the East River to beyond the Westchester County border, servicing the Bronx Zoo and Bronx Botanical Garden. There are also plans currently evolving to link the southern end of the Bronx River Greenway to Randalls Island and Manhattan by means of the South Bronx Greenway.

National cycling touring and resulting tourism will also benefit with the East Coast Greenway Alliance's potential use of this project as a component in their proposed network of paths from Florida to Maine.

Although it would become a link in the larger network, the project provides significant utility independent of the entire Bronx River Greenway corridor, including nearly car-free passage for cycling and walking between the Bronx River and West Farms neighborhoods and their associated transit services, schools, and shopping.

y. Environmental Integration

The proposed location of the Bronx River Greenway adjacent to the Bronx River will provide the opportunity for a number of environmental enhancements. These enhancements could include:

- Conversion of paved area into green space;
- Improved public access to the waterfront;
- Intertidal wetland reclamation;
- Construction of boat docks to give local residents greater connection to the water;
- Increase in native vegetation, including low level marsh, high level marsh, meadow, and woodland habitats;
- Removal of invasive species;
- Provision for New York City Department of Environmental Protection (NYCDEP) combined sewage outfall (CSO) improvement in the future;

- Provision for New York City Department of Parks and Recreation (NYCDPR) boathouse and restrooms;
- Construction of sitting areas, informal performance spaces, play equipment, ball fields and informal play lawns;
- Planting of shade trees; and
- Traffic calming at grade crossings;

2. Needs

a. Project Level Needs

Pavement Needs – The pavement on the adjacent sections of roadway, which are affected by the Greenway construction, are in various states of disrepair. The project will correct these deficiencies at intersection reconstructions and crossing areas.

Safety Needs – People bicycling currently utilize the on-street route on Bronx River Avenue between Westchester Avenue and East 174th Street, which continues west along East 174th Street to Boston Road. People walking and bicycling currently cross congested streets at unmarked and unsigned locations. The provision of an off-road facility will provide a safer location for non-motorized travel in this highly congested area with above average accident rates.

The intersections at Devoe Avenue / East 177th Street / I-895, East Tremont Avenue / West Farms Road / Boston Road, East Tremont Avenue / Devoe Avenue, and East Tremont Avenue / East 177th Street exhibit accident rates significantly above the Statewide Averages for similar facilities. The northern end of the Greenway will travel through this congested portion of the City street system. Safety can be improved through geometric improvements that shorten crossing distances, add pedestrian refuge islands, allocate sufficient space and facilities to people cycling, add traffic control devices at mid-block and existing free-right-turn locations, and providing signal timing sufficient for crossings.

Capacity Needs – The capacity deficiencies of the overall roadway network were analyzed in Section II.C.1.i. Numerous locations within the project study area currently experience constrained capacity (LOS E or worse). The existing constrained conditions are expected to worsen if no improvements are implemented to the existing roadway network.

Bridge Structural Needs – The existing bridges affected by this project are in acceptable condition and no structural needs are to be addressed. A detailed description and condition of each existing bridge structure is presented in Section II.C.1.o.

Environmental Needs – Several elements of this project will provide practical opportunities to address environmental initiative actions. These are listed in greater detail in section II.C.1.y.

b. Corridor or Area Needs

Modal Interrelationship – The proposed Greenway will provide a safer and more visually pleasing route for access via walking and bicycling to area businesses, bus stops, subway stations and recreational facilities.

System Needs – When completed, the Bronx River Greenway is proposed to be adopted as a portion of the East Coast Greenway, a bicycling route from Maine to Florida consisting of a series of locally maintained trails.

Social Demands and Economic Development – Various neighboring community districts have ongoing plans to promote economic growth and to redevelop local housing. Such development is likely to stimulate additional local traffic, both vehicular and pedestrian. This will result in increased congestion in the area necessitating improvements to intersections and pedestrian capacity.

c. Transportation Plans

This project is listed in the NYC Bicycle Master Plan and on the New York Metropolitan Transportation Committee Transportation Improvement Plan (TIP).

D. Project Objectives

The primary objectives of this project are:

- To provide a safe and desirable route for people walking, running, bicycling and skating between Westchester Avenue and East Tremont Avenue.
- To provide a greater flexibility in mobility for local residents to transit, school, shopping, work and recreation.

The secondary objectives of this project are:

- To provide continuity to greenway networks (Bronx River Greenway, New York City’s Greenway System and the East Coast Greenway).
- To improve traffic operations and address high accident rates at the intersections of Devoe Avenue with East Tremont Avenue and Devoe Avenue with East 177th Street.
- To reduce congestion and improve air quality by providing an alternative means to the automobile for people to get to school, shopping, recreation and work.
- To promote improved health and fitness.