

S U B W A Y

S 1 D E W A L K

INTERFACE

RECOMMENDATIONS

JANUARY 2004

On-Street Pedestrian Improvements at Ten Bronx Subway Stations



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SUBWAY-SIDEWALK INTERFACE PROJECT

TECHNICAL MEMORANDUM V RECOMMENDATIONS

BRONX EDITION

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January 2004

Project PIN Number: X 501.01.121

The preparation of this report was financed in part through funds from the U.S. Department of Transportation, Federal Highway Administration. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The contents of this report reflect the views of the author, who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

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1. INTRODUCTION

The Subway-Sidewalk Interface Project is a joint project sponsored by the New York City Department of City Planning (NYCDCP) and the New York City Department of Transportation (NYCDOT). The project is funded through a matching city-federal grant under the Transportation Equity Act for the 21st Century (TEA-21), Congestion Mitigation and Air Quality (CMAQ) program.

Pedestrian circulation improvements linked to mass transit access offer the opportunity to reduce vehicular congestion and improve air quality. The Subway-Sidewalk Interface Project focuses on the areas where the subways meet the street, the nexus of the surface and subsurface circulation systems. The project aims to improve pedestrian and vehicular circulation around the entrances to subway stations in order to encourage mass transit use. The project will implement improvements that relieve congestion and improve security and safety. The type of improvements that may be implemented include signage, lighting, signal timing adjustments, pavement markings, corner clearances, and curb line changes where necessary. Thirty sites throughout the Bronx, Brooklyn and Queens have been selected.

Subway Stations Selected for the Subway-Sidewalk Interface Project

The Bronx	Brooklyn	Queens
231 st Street (1)	7 th Avenue (Q)	30 th Avenue (N-W)
233 rd Street (2-5)	36 th Street (M-N-R-W)	33 rd Street (7)
Burnside Avenue (4)	Bay Parkway (M-W)	40 th Street (7)
Fordham Road (B-D)	Bedford Avenue (L)	71 st /Continental Avenues (E-F-G-R-V)
Gun Hill Road (5)	Church Avenue (2-5)	90 th Street (7)
Gun Hill Road (2-5)	Jay Street Borough Hall (A-C-F)	179 th Street/Jamaica (F)
Parkchester/East 177 th Street (6)	Kings Highway (Q)	Metropolitan Avenue (M)
Pelham Parkway (5)	Nostrand Avenue (A-C)	Rockaway Park/Beach 116 (A-S)
Pelham Parkway (2-5)	Sheepshead Bay (Q)	Ozone Park/Lefferts Boulevard (A)
Third Avenue/149 th Street (2-5)	Myrtle/Wyckoff Avenues (M-L)	Woodhaven Boulevard (G-R-V)
	Utica Avenue (3-4)	

1.1 THE RECOMMENDATIONS TECHNICAL MEMORANDUM

Technical Memorandum V, Recommendations, is the latest in a series of technical documents that have been released to the public via the Technical Advisory Committee.

The recommendations contained in this document are suggested methods for addressing the issues, and taking advantage of the opportunities, that were presented in *Technical Memorandum IV, Issues and Opportunities*. Issues were identified through field observations, on-site meetings with community board district managers, discussions with the Technical Advisory Committee, and data analysis. The recommendations may or may not address all of the issues at each station, and may require further analysis to determine feasibility. The objective of this memorandum is to suggest improvement techniques for discussion and further study.

Some of the recommendations proposed in this report do not fall under the jurisdiction of NYCDOT and will require coordination with other operational agencies, such as NYC Transit and the NYC Department of Parks and Recreation. Any recommendations for improvements to property that is not under the jurisdiction of NYCDOT is subject to approval by the relevant agencies and would be maintained by those agencies.

The report is arranged in the following manner. Section one is the introduction to the report. Section two lists the recommendations that may be implemented system-wide and by station type. Section three presents the coordination and implementation issues. Section four lists the techniques and treatments recommended at the specific sites, some of which are currently used by New York City. Section five presents the site-specific recommendations at each of the project sites.

2. SYSTEM-WIDE AND STATION TYPE RECOMMENDATIONS

While many recommended techniques are proposed on a site-specific basis, other recommendations have been considered at all stations or at all stations of a certain type. The following sections provide standard sets of recommendations for each type of station, although not every listed technique is appropriate for all stations of that type.

2.1 SYSTEM-WIDE

The following set of recommendations involves standard concepts for all thirty subway stations. Subway stations are areas of high pedestrian activity. These recommendations are intended to facilitate circulation by providing pedestrians with appropriate orientation signage and safer, clutter-free routes. Some recommendations are intended to alert motorists to the heavy pedestrian activity and encourage them to use caution.

- Install subway signs surrounding each station,
- Highlight concrete risers near subway stairwells with orange or yellow thermoplastic,
- Install bicycle parking at stations that are heavily used by cyclists and which are located along bicycle routes,
- Install Light Emitting Diode (LED) lighting on all traffic signals, and
- Install universal pedestrian signals.

2.2 ELEVATED STATIONS

Most of the elevated stations, with the exception of the 33rd and 40th Street stations, share issues related to the elevated structures such as blocked visibility, drainage, insufficient lighting, and sanitation. The following recommendations are aimed at reducing the negative impacts of the elevated structures:

- Improve lighting beneath the elevated structures,
- Paint columns a light, reflective color,
- Install netting or bird repellent to prevent sanitation problems that result from



231st Street. Passengers load onto the bus beneath the elevated structure.

- birds perching in the elevated structure,
- Widen crosswalks that have columns embedded within them where geometry permits in order to improve safety and the sightline of motorists,
- Drain run-off directly into the storm sewer system, and
- Develop treatments to address passengers loading onto buses in the street.

2.3 INTERMODAL STATIONS

Intermodal stations, which provide connections to commuter trains and numerous bus lines, are often heavily used and located in commercial areas. The following recommendations aim to make the congestion at these stations more manageable, reduce confusion, and properly direct pedestrians to their destinations.

- Install bus signage within the stations to direct subway passengers to the correct exits and the appropriate bus stops on the street level,
- Display subway, bicycle, and neighborhood maps on bus shelters,
- Install concrete bus pads that delineate bus stops,
- Explore and implement bus actuated signals if feasible at appropriate locations, and
- Assign appropriate curb use for taxis and passenger loading, and install appropriate signage for such uses where warranted and feasible.



Myrtle/Wyckoff Avenues. Buses and livery cars load and unload passengers on Palmetto Street.

2.4 STATIONS WITH ENTRANCES IN BUILDINGS OR ON TRAFFIC ISLANDS



Beach 116th Street. The entrance is located within a building and can be difficult for unfamiliar passengers to find.

through NYCDPR's Greenstreets Program or under a maintenance agreement with a local community organization.

Many of the stations located within buildings or on traffic islands have irregular street geometry, which results in particular issues at individual stations. It is therefore difficult to recommend standard treatments for these types of stations. However, the following recommendations are applicable to most of these stations due to the recurrence of certain issues:

- Provide crosswalks and traffic controls at all crossing points leading to the stations entrances, if warranted, and
- Provide landscaping or other amenity upgrades at traffic islands as funding permits. Any landscaping, amenities, special pavement treatments, or other upgraded elements on property under NYCDOT jurisdiction must be made

Stations	System-wide	Elevated	Intermodal	Building/ Island	Additional Design		Major Design
					Traffic Control Devices and Signals	Curb Realignments	
231st Street (1)	X	X	X			X	
233rd Street (2-5)	X	X	X			X	
Burnside Avenue (4)	X	X	X			X	
Fordham Road (B-D)	X					X	
Gun Hill Road (5)	X			X	X	X	
Parkchester/East 177th Street (6)	X	X	X	X	X	X	X
Pelham Parkway (5)	X			X	X	X	
Pelham Parkway (2-5)	X	X	X		X	X	
Third Avenue/149th Street (2-5)	X		X	X	X	X	X

* The Third Avenue station does not have any entrances located on traffic islands, however, there are traffic islands in the nearby and many of the issues at this type of station exist at Third Avenue.

2.5 ADDITIONAL RECOMMENDATIONS

Some of the stations require additional recommendations that are not included in the standard sets of recommendations by station type. These recommendations involve curb realignments, signal timing changes, or some other type of innovative technique or treatment.

In the Bronx, two stations will require major re-design work in order to improve them. This work may include channelizing traffic differently, creating a bus terminal, or implementing an enforcement program to control traffic violations. Both of these sites are intermodal stations, located on commercial streets which generate a heavy amount of pedestrian activity. The chart on page four outlines the different type of recommendations listed for each of the stations in this report.

3. COORDINATION AND IMPLEMENTATION ISSUES

The following section describes coordination and implementation issues that have affected station recommendations. Section 3.1 describes implementation issues caused by ongoing projects, while section 3.2 lists the current policies that should be enforced in targeted areas.

3.1 ONGOING PROJECTS

This report does not make recommendations for two stations due to other projects that supercede the Subway Sidewalk Interface Project. In the Bronx, NYC Transit is conducting the Gun Hill Road Intermodal Study at the Gun Hill Road, White Plains Road station. Plans for the project include a reconstruction of the station, park, and roadway, and bus improvements. In Brooklyn, the Weeksville, Utica Avenue Transportation Study, recently released by NYCDOT has recommended numerous improvements at the Utica Avenue station. In addition, at NYCDOT's request, the Bay Parkway station replaced the Utica Avenue station.

NYCDOT is conducting overlapping projects at some other stations; however, these projects will not completely supercede the work of this Project. These study areas would benefit from the broad improvements that have been recommended for the different station types. The following is a list of those study areas and projects:

Bronx:

- Pelham Parkway, Dyre, reconstruction of Pelham Parkway
- Pelham Parkway, WPR, reconstruction of Pelham Parkway

Queens:

- 71st and Continental Avenues, Queens Boulevard Pedestrian Safety Study, Phase I
- Woodhaven Boulevard, Queens Boulevard Pedestrian Safety Study, Phase II
- 33rd Street, Queens Boulevard Pedestrian Safety Study, Phase II
- 40th Street, Queens Boulevard Pedestrian Safety Study, Phase II

Brooklyn:

- Jay Street/Borough Hall, Downtown Brooklyn Traffic Calming Project
- Jay Street/Borough Hall, Marriott Expansion

3.2 ENFORCEMENT OF CURRENT POLICY

Currently, policies are in effect in New York City which could significantly improve the streets and sidewalks for pedestrians. Targeted enforcement of these policies in specific locations where viola-

tions are egregious would significantly improve circulation for pedestrians and motorists. This report highlights some of those locations and recommends programs that would assist officials with enforcement. The following is a list of current policies recommended for system-wide enforcement:

- Enforcement of vendor rules
- Enforcement of traffic rules
- Enforcement of Local Law 23, a new policy regulating the placement of newspaper boxes
- Enforcement of clear corner policy

4. TECHNIQUES AND TREATMENTS

This section describes the techniques and treatments recommended to improve individual sites analyzed in this report. This section may be used as a glossary of terms for the station reports since a brief explanation of each technique and treatment is provided.

Amenities Upgrade

Landscaping:

Well-maintained trees, shrubs and other plants, alone or combined with specialized urban design treatments, may improve pedestrian circulation as well as improve the environment for pedestrians. Improved landscaping is recommended at many of the traffic islands within the study areas when a maintenance agreement between a community group or NYCDPR's Greenstreets Program and NYCDPR is feasible.

Street Furniture:

Well-designed and appropriately-placed street furniture amenities, such as benches and trash cans, improve pedestrian circulation and conditions. In some cases, upgrades from the standard city designs are recommended.

Bicycle Facilities

Bicycle Lanes:

A bicycle lane is an on-street path indicated by striping, pavement markings and signs. It is also referred to as a Class II bicycle riding facility and is used by cyclists for commuting, commercial delivery and recreational purposes. The following AASHTO (American Association of State Highway Transportation Officials) guidelines are often used when implementing on-street bicycle lanes:

- It is recommended that bicycle lanes adjacent to parking lanes be a minimum of five feet wide.
- A bicycle lane should be placed between the parking lane and the travel lane. It should not be placed between the curb and the parking lane where visibility is reduced, particularly at intersections.
- A buffer between the bicycle lane and the travel lane is recommended in order to provide greater protection from motor vehicles.

Bicycle lanes are only recommended on streets that are included as recommended routes in the *New York City Bicycle Master Plan*.

Bicycle Parking:

NYCDOT's current standard for bicycle parking is a rack constructed of unpainted, galvanized steel and formed into a continuous curve. The rack, an inverted (upside-down) U, can accommodate two

bicycles or a double loop for five bicycles. NYCDOT has implemented the installation of these racks through the City Racks Program. A new bicycle rack design was approved in 2002. The new design has a square-tube pipe instead of the current round tube pipe, with a black finish instead of the current galvanized unpainted finish. These new racks are the same size as the existing “U” city racks. Bicycle parking is recommended at locations heavily used by cyclists and on streets included in the *New York City Bicycle Master Plan*.



Bicycle Parking.

Channelization

Lane Arrow Markings:

Lane arrow markings are used to help the road user select the appropriate lane in advance of reaching a queue of waiting vehicles. Arrow markings may be used to convey either guidance or mandatory messages.

Lane Dividers:

Lane dividers define the channelization of a roadway and guide motorists to the appropriate traffic lanes. The following list describes the different types of lane dividers and how they are used.

- A solid white line prohibits or discourages crossing.
- A double yellow line consists of two solid lines separated by a discernible space. A double line indicates maximum or special restrictions.
- A broken line consists of normal line segments separated by gaps. A broken line indicates a permissive condition.
- A dotted line consists of noticeably shorter line segments separated by shorter gaps than used for a broken line. The width of a dotted line shall be at least the same as the width of the line it extends. A dotted line provides guidance. (Manual on Uniform Traffic Control Devices [MUTCD], pps. 3A-3, 3A-4)

Speed Humps:

Speed humps are carefully profiled humps creating vertical constraints on speed. They are commonly placed at intervals ranging from 80 to 130 meters along the street (ITE Journal, *Traffic Calming*, August 1997, p. 37). This traffic calming device is recommended at locations where motorists should drive at a slow speed due to high volumes of pedestrian activity.

Speed Tables:

Speed tables are similar to speed humps but are constructed with a flat top which typically doubles as a pedestrian crosswalk. This technique is typically used in heavily trafficked pedestrian areas (ITE Journal, *Traffic Calming*, August 1997, p. 37). This traffic calming device is recommended in locations where motorists should drive at a slow speed due to high volumes of pedestrian activity.

Stop Lines:

Stop lines are solid white lines extending across approach lanes, indicating the point at which a vehicular stop is intended or required to be made (MUTCD, p 3B-32). Stop lines should be used to indicate

the point behind which vehicles are required to stop in compliance with a STOP sign, traffic control signal, or some other traffic control device (MUTCD, p. 3B-34).

Traffic Flow:

In order to improve vehicular circulation in some study areas, a change in traffic flow is recommended either by closing a street and rerouting traffic, prohibiting a turn, or changing the direction of traffic. Peg-a-tracking, a series of dotted lines that guide traffic through an intersection, is also recommended in some locations to improve the traffic flow through an intersection.

Tubular Markers:

Primarily orange, tubular markers are similar to bollards but are made of a material that may be struck without causing damage to the impacting vehicle. They are typically a temporary traffic control device and may be used effectively to divide lanes of traffic and delineate the edge of a pavement drop-off where the use of larger objects is not possible (MUTCD, p. 6F-45). This channelization device is recommended to divide bicycle lanes from other traffic lanes.

Vehicular Signage Upgrade:

Vehicular signage providing directional information to motorists may need to be upgraded at some locations where the signage is presently unclear or misleading.

Crosswalks**Bike Box:**

Bike boxes involve striping a bicycle lane through a crosswalk, thereby permitting cyclists to queue in, or adjacent to, the crosswalk at a red light. This technique:

- Gives cyclists a head start at signalized intersections,
- Increases the feeling of safety among cyclists,
- Eliminates nuisance from exhaust fumes while cars are stationary, and
- Reduces conflict between cyclists and motorists prior to, and during crossing an intersection.

This technique is recommended at locations along streets that are heavily used by cyclists and included in the *New York City Bicycle Master Plan*.

Crosswalk Design:

In some instances, a different crosswalk design may be recommended in place of the current design. The following is a list of the different crosswalk designs:

- **Standard Crosswalks:** The standard crosswalk is defined by two parallel lines that run perpendicular to the curb.
- **High Visibility Crosswalks:** The pedestrian area of a high visibility crosswalk is defined by lines which are painted perpendicular to the direction of pedestrian movement.
- **Ladder Crosswalks:** This is a combination of the standard and high visibility crosswalks, where lines running from curb to curb are connected by perpendicular lines. This configuration is sometimes called a “school” crosswalk.
- **Barnes Dance Crosswalk:** This type of crosswalk is designed in the pattern of an “X” and permits pedestrians to cross a street on a diagonal. This crosswalk will only be installed where the signal timing has an all-pedestrian phase.

- **Colored Thermoplastic:** Tinting the thermoplastic indicates to motorists that the area they are approaching is unique and they must proceed with caution. This technique is used in Europe.

Crosswalk Widening:

This report will recommend widening crosswalks where additional capacity is needed at locations with high volumes of pedestrian activity.

New Crosswalk:

In some locations, field observations prompted the recommendation for a warrant analysis in order to examine the need for a crosswalk at locations where no traffic controls exist.

Curb Realignment

Curb Cuts:

Curb cuts provide access to the sidewalk and street for wheelchair-bound people and people with strollers and carriages. Every street corner by law must have a curb cut in order to improve access to the sidewalk network for all users.

Neckdowns:

In order to increase effective sidewalk width, a neckdown extends the sidewalk area into the roadbed, typically into a parking lane. Neckdowns add pedestrian space for bus stops, subway stairs and elevators, queuing capacity for waiting pedestrians, pedestrian ramps, street furniture and fire hydrant access. Neckdowns also slow vehicular turning movements, decrease the pedestrian crossing distance, and prevent vehicles from loading and unloading passengers in the crosswalk (Mixed-Use Zone, NYCDOT, 1995). The following types of neckdowns are recommended:



Neckdown.

- *Transit Neckdowns* increase pedestrian queuing space around subway entrances.
- *Bus Neckdowns* allow buses to load and unload passengers in the travel lane.
- *Mid-block Neckdowns* shorten the crossing distance for pedestrians.
- *Bike Parking Neckdowns* provide additional space for bicycle parking.

Sidewalk Network Connection:

Building a sidewalk where none exists helps to improve the pedestrian network.

Sidewalk Widening:

Widening a sidewalk increases pedestrian queuing space and improves the level of service along the sidewalk. Additional pedestrian queuing space is typically needed in areas adjacent to subway entrances where pedestrian volumes are observed to be high. If there is excess roadbed adjacent to the sidewalk it may be widened without conducting a traffic analysis. A traffic analysis is necessary when removing a travel or parking lane in order to widen the sidewalk.

Increase Radius:

Increasing the radius of a corner may sometimes facilitate improved traffic flow, particularly for buses. This is recommended where buses have difficulty turning only if ample sidewalk space is available and pedestrian levels of service are not compromised as a result of the reduced sidewalk space.

Curb Use***For Hire Vehicles (FHV) Stands and Signs:***

A FHV stand provides dedicated curbside space for luxury limousine, black cars or livery vehicles to pick up and drop off passengers. These stands would relieve vehicular congestion because FHVs commonly occupy travel lanes while waiting for passengers.

Currently, there are no NYCDOT signs that indicate FHV-only stands. There is an ongoing test on West 41st Street between Sixth and Seventh avenues that offers a staging area for FHVs, announced by regulatory signs prohibiting other vehicles from parking in these spots.

Parking Regulations Change:

Changes in parking regulations are recommended in locations where parked vehicles block pedestrian circulation and visibility, or where current regulations are inappropriate.

Passenger Loading Zone:

Passenger loading zones, also known as Kiss-n-Ride zones, are popular throughout the U.S., providing easily-accessed short-term standing zones for loading and unloading passengers. These zones are typically located near transit facilities where passengers are dropped off or picked up by drivers.

Taxi Stands and Signs:

Taxi stands and signs provide direction for pedestrians and taxi drivers alike, indicating the curbside dedicated for hailing cabs. Taxi stands are an identifiable, orderly, efficient, and quick means of securing a taxi that benefit both the driver and the passenger. Improving the effectiveness of taxi stands should reduce congestion and pedestrian-vehicular conflicts, while improving convenience and safety for passengers and taxi drivers. This report recommends the establishment of taxi stands at stations that have high volumes of passengers loading and unloading from taxis.

Truck Loading Zone:

Stations located in commercial areas with heavy truck loading activity require zones specifically assigned to the purpose of loading and unloading merchandise from trucks. This report recommends establishing truck loading zones, or changing the regulations of existing loading zones, at some of these stations. Standard NYCDOT policy has been used to determine where these truck loading zones should be located.

Enforcement***Clear Corners:***

According to Executive Order No. 22 of 1995, "Sidewalk Corner Clearance," structures and objects should not be placed in the corner (area created by extending the building lines to the curb) and corner quadrant (area ten feet from either side of the corner). As each agency replaces structures or objects under city ownership, such structures should be moved outside of the corner and corner quadrant. This report identifies specific locations where this policy should be implemented or enforced.

Local Law 23:

Local Law 23 legislates the placement of newsracks. The law states that newsracks may not be placed within 15 feet of a fire hydrant, in a driveway, within two feet of a curbcut, within close proximity to a subway station entrance, within a bus stop, within a crosswalk area, in or within five feet of a corner area, or on any sidewalk with less than eight feet of unobstructed pedestrian passage. This report recommends the application of these policies where corners are cluttered with street furniture.

Traffic Laws:

NYCDOT has very detailed guidelines for compliance with traffic rules (NYCDOT Traffic Rules, 10-6-00). In some locations pedestrian and vehicular circulation may be dramatically improved through strict enforcement of existing traffic laws.

Vendor Rules:

According to the Rules of the City of New York (RCNY), sidewalk stands may not extend farther than one-third of the width of the sidewalk. A sidewalk stand license application may be denied if pedestrian movement, public safety or convenience would be significantly impeded by the presence of the stand (2952 RCNY, 7-31-99). These guidelines have been developed to ensure that, while serving the public, newsstands do not unduly interfere with pedestrian circulation or unduly conflict with street furniture or the design relationship with their surroundings (2953 RCNY, 7-31-99).

Lighting Upgrade**Beneath Elevated Structure:**

The cobra head luminaire is in use beneath many of the elevated structures throughout the city. The lighting may be improved by using a higher wattage or by reducing the space between the luminaires. According to NYCDOT's *Catalogue of Street Lighting Equipment*, the Brooklyn Bridge (BB) luminaire is the most appropriate for elevated structures.

Pedestrian Scale Lighting:

At some locations standard cobra head luminaires facing the street do not provide sufficient lighting for the sidewalks. At these locations pedestrian scale lighting is recommended to increase the lighting for pedestrians. Such lighting is a cobra head attached to existing lampposts that face the sidewalk and are placed lower than the standard cobra head luminaire.

Medians/Islands**Channelization Median:**

Such medians are often painted and are either located in the middle of the roadway or adjacent to a sidewalk. If the median delineates excess roadbed and is adjacent to a sidewalk, it may be recommended that a curb be constructed in order to increase pedestrian queuing space.

Pedestrian Refuge Island:

These islands provide an area for pedestrian refuge within the roadway. They may be painted or raised; however, raised pedestrian refuge islands provide safety benefits that painted islands may not. This report recommends that such medians be extended into the crosswalk to maximize pedestrian refuge space.

NYCT Subway Operations

Drainage:

At many elevated stations stormwater run-off drains from the elevated structure onto the street accumulates and ponds, creating obstructions for pedestrians and motorists. This report recommends that the run-off be drained directly into the sewer system from the elevated structure. This effort may be accomplished as NYCT plans their station rehabilitations and major capital improvements.

Globe Placement:

An illuminated sphere is sometimes displayed outside a subway entrance to make the entrance visibly recognizable to pedestrians and transit users. Illuminated green globes mark entrances that are open 24 hours a day, and illuminated red globes mark entrances with limited access. It is recommended that some additional entrances be marked with globes.



Concrete Riser.

Highlight Concrete Riser:

The concrete riser at the top or base of subway stairwells should be highlighted with bright orange or yellow thermoplastic, or with a concrete coloring additive. It is important for pedestrians to pay attention to these objects while entering or exiting the subway. NYC Transit is currently testing the use of a coloring additive on concrete risers.

Netting or Bird Repellent:

Netting is sometimes placed beneath elevated structures to prevent birds from perching within the structure and creating sanitation problems on the street below. An alternative to the installation of netting is the application of a non-toxic bird repellent gel directly to the elevated structure. The gel must be reapplied once a year; however, it is less costly than the netting. A third option is to use a low-voltage electronic bird repellent. This option is currently being used at some stations and is included in station renovation projects.

Operation Hours:

The institution of the MetroCard now allows station entrances to be open longer hours without much additional cost to the MTA. In some locations this report recommends the installation of high wheel entrances at subway stations to allow Metrocard access into the stations at all hours.

Paint Elevated Structure:

The elevated structures should be painted a light, reflective color in order to reflect the light and reduce shadows.

Station Entrance Placement:

At some locations the entrance of the station is not placed in the optimal location. This report identifies a very few sites where it is recommended to move the entrances. This type of recommendation is very capital intensive and has only been suggested if an opportunity exists to do it with little difficulty.

NYCT Bus Operations

Bus Pad:

This device is distinctively paved and is used to mark the bus stop in the roadway. Usually concrete is

used along the curb lane at the bus stop.

Bus Shelters:

Shelters provide a waiting area, as well as weather protection, for bus passengers and serve as visible indicators of bus stops. It is recommended that narrow shelters recently adopted by DOT be installed in some cases, to ensure that pedestrian traffic is not impeded on the sidewalks.

Bus Stop Relocation:

It is recommended that some bus stops be relocated to reduce pedestrian and vehicular traffic movements from interfering with each other and improve the flow of traffic.

Bus Terminal:

Intermodal stations frequently provide connections to numerous bus lines; however, many of those buses are located in scattered locations around the station, making intermodal transfers difficult for pedestrians. A bus terminal would provide a central location for all buses to queue so that pedestrians may locate their buses quickly and easily. Bus terminals are recommended at only non-centralized intermodal sites that have heavy bus usage.

Standard Bus Signage:

New circular, reflective signs that list the routes servicing the bus stop have been installed. It is recommended that these new signs be installed in additional locations.

Orientation Signage

Destination Orientation:

Some of the stations within this study are located in close proximity to tourist sites or other major destinations that attract people who are unfamiliar with the station. These pedestrians, unlike the regular commuter, are not familiar with the local area and would benefit from destination orientation signage.



Standard Bus Signage.

Transit Orientation:

Some subway stations have signs near their exits that indicate the locations of bus stops. This signage is important for pedestrians making intermodal trips because they help pedestrians locate the appropriate exit, thereby limiting their contact with vehicles. This report recommends additional locations for this type of signage.

Additionally, in order to ease transfers at intermodal stations, subway, bicycle, and neighborhood maps should be installed at bus shelters near large intermodal subway stations. The neighborhood maps are especially beneficial since they indicate the exact location of all subway entrances.

Subway Signs:

This report recommends the installation of signs that will offer information about the location of subway entrances in the area. These signs would be designed to be integrated into the standard street signage and would be placed within a specified radius of subway entrances. The design and placement of these signs would be subject to NYCDOT review.

Traffic Control Signals

All Pedestrian Phase:

This signal timing technique allows pedestrians from all intersection approaches to cross the street at the same time. During this phase vehicular traffic is completely stopped. This type of signal cycle is recommended at locations that have very heavy pedestrian congestion.

Bus-Actuated Signal:

There are several possibilities for achieving signal priority for buses. A bus approaching a traffic signal may extend or advance the cycle to green, through transponders or other electronic communications, to proceed through the intersection if needed to maintain the bus schedule. Another option is for a bus equipped with an automatic vehicle location (AVL) system and advanced radio communications to allow an operations center to determine bus adherence to the schedule and trigger traffic signals when needed. Bus-actuated signals are recommended for certain large intermodal stations or along bus routes that have heavy vehicular congestion, in order to help buses run more efficiently.

Computerized Signal:

Computerizing traffic signals allows the signal timing to be changed from a central location as opposed to dispatching a technician on-site. In addition to allowing variable phasing throughout the day at complicated intersections with numerous approaches, computerized signals allow the timing to be calculated more accurately, thereby providing optimal traffic flow through the intersection. This report recommends that these signals be installed at locations with numerous signals and heavy vehicular congestion.

Cyclist Signal:

If signals are installed where visibility is low, a separate signal may be used for cyclists (MUTCD, pg. 9D.02). At junctions with bike lanes, a separate cyclist signal may be established in order to give cyclists a pre-green signal before vehicles. This would help reduce the number of accidents between motorists and cyclists. Separate cyclist signals may also be used to reduce the green time for cyclists in order to facilitate the flow of turning vehicles (Collection of Cycle Concepts, pg. 86). Cyclist signals are only recommended at intersections along streets included in the *New York City Bicycle Master Plan*, or at locations with a high incidence of bicycle accidents.

Extended Pedestrian Crossing Time:

This technique gives pedestrians additional time during the WALK phase to cross the street after vehicles have stopped. This provides an extended RED phase for vehicles at the end of the signal cycle (as opposed to LPI's, which provide an extended RED phase at the beginning of the signal cycle.) This technique also reduces the pedestrian-vehicular conflict at intersections. This report recommends that pedestrian crossing time be extended at locations that have been identified as having insufficient signal timing for pedestrians.

LED Lighting:

Signals using "Light Emitting Diodes (LED)" are brighter and longer-lasting than signals using regular incandescent bulbs. LED lighting makes the signal much easier to see for pedestrians and motorists. Furthermore, LED lights are energy efficient, consuming 90 to 95 percent less power than regular incandescent bulbs. In addition, this lighting method is cost effective due to its ten-year-average life

span, which significantly reduces all labor and operating costs. NYCDOT is currently installing this type of lighting at all traffic signals and this report recommends that the agency continue this effort at all of the project sites.

Leading Pedestrian Interval:

Signals with a Leading Pedestrian Interval (LPI) have a signal split so that the pedestrian WALK phase precedes the vehicular GREEN phase by a few seconds. The extended RED phase for motorists gives pedestrians a chance to establish themselves in the crosswalk before vehicles turn. This significantly reduces the pedestrian-vehicular conflict that consistently occurs in the crosswalks when pedestrians and vehicles compete for the right-of-way. This report recommends LPIs at locations that have heavy pedestrian congestion and if the signal timing permits.

Signal Placement/New Signal:

In some locations field observations prompted the recommendation for a warrant analysis to determine the need for a new signal where none currently exists.

Universal Pedestrian Signal:

Such signals use illuminated symbols of a walking person (symbolizing WALK) and an upraised hand (symbolizing DON'T WALK) (MUTCD, pg. 4E.01). The pedestrian signals at the thirty sites for this study should be changed to the universal design, as NYCDOT has been doing, due to the high volume of pedestrians.



Universal Pedestrian Signal.

231st Street (1,9)

The 231st Street station is an elevated and intermodal station located in a major shopping district near a large high school. The recommendations for this station include the following:

System-wide:

- Install universal pedestrian signals
- Install Light Emitting Diode (LED) lighting on all traffic signals
- Install subway signs surrounding station entrances
- Highlight concrete risers near subway stairwells with orange or yellow thermoplastic
- Install bicycle parking at stations located along bicycle routes

Station type:

- Place netting or non-toxic bird repellent beneath the elevated structure to prevent birds from perching
- Paint the elevated structure a light reflective color
- Drain storm water runoff directly into the sewer
- Improve lighting beneath the elevated structure
- Widen crosswalks that have columns embedded within them as geometry permits

Site-specific:

Three alternatives have been developed for this site. For the preferred alternative, as illustrated in option A, neckdowns extending from the intersection to the elevated support columns would be installed at the bus stops. The neckdowns would add 15 feet of sidewalk space adjacent to the subway entrance. These neckdowns would eliminate the need for pedestrians to wait for buses in the middle of the street. Additionally, they would prevent vehicles from making right turns where the pedestrians typically wait for the buses. Two parking spaces on each side of the intersection would have to be removed in order to accommodate these neckdowns. This alternative is considered a long-term option since it would necessitate the relocation of catch basins.

In the second alternative, as illustrated in option B, pedestrian refuge islands would be installed between the columns of the elevated structure. The right turning lane would be closed off by bollards or guard rails for added pedestrian safety. This alternative provides refuge for pedestrians waiting to board buses that stop in the middle of the street, but it is considered the short-term equivalent of option A since it does not require the removal or relocation of catch basins. NYCDOT is testing this option at Burnside and Jerome avenues.

The third alternative, as illustrated in option C, illustrates the pedestrian refuge island while maintaining the right turn lane. This alternative is also a short-term option and would provide pedestrian refuge space. However, it should only be considered if options A and B are infeasible.



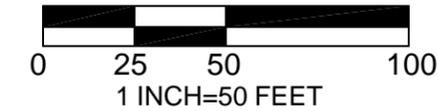
231st Street station. Pedestrians must load onto and discharge from buses in the middle of the street.

Other recommendations included in both alternatives are the installation of bicycle parking beneath the stairwell of the elevated structure, and peg-a-tracking the center lane through the intersection in order to channelize vehicles properly.

Option A

231ST STREET BROADWAY LINE

DEPARTMENT OF CITY PLANNING
 TRANSPORTATION DIVISION
 2 LAFAYETTE, RM 1200
 NEW YORK, NY

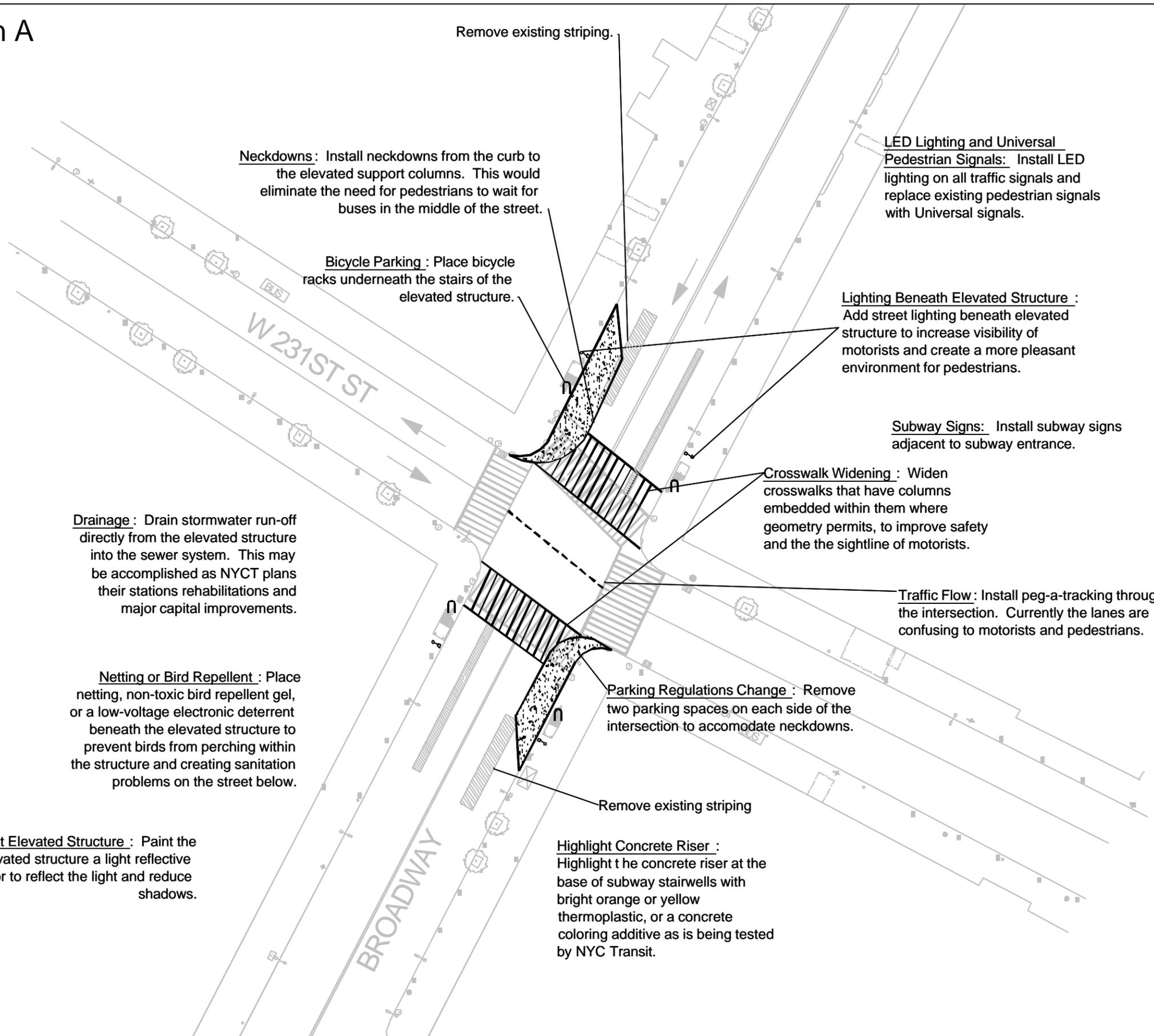


SURVEYED: FEBRUARY 7TH, 2000

MAPPED: APRIL 21ST, 2000

-  SUBWAY ENTRANCE
-  STREET TREE
-  STREET VENDOR
-  MARQUEES / AWNINGS
-  SIGNAGE
-  PEDESTRIAN SIGNAL
-  TRASH CAN
-  DUMPSTER
-  STREET LIGHT
-  PHONES
-  PARKING METER
-  FIRE HYDRANT
-  MAIL BOX
-  HIGH VISIBILITY CROSSWALK
-  BOLLARD

NOTE: TRAFFIC SIGNALS UNDER THE ELEVATED STRUCTURE ARE NOT ON MAP



Neckdowns: Install neckdowns from the curb to the elevated support columns. This would eliminate the need for pedestrians to wait for buses in the middle of the street.

Bicycle Parking: Place bicycle racks underneath the stairs of the elevated structure.

LED Lighting and Universal Pedestrian Signals: Install LED lighting on all traffic signals and replace existing pedestrian signals with Universal signals.

Lighting Beneath Elevated Structure: Add street lighting beneath elevated structure to increase visibility of motorists and create a more pleasant environment for pedestrians.

Subway Signs: Install subway signs adjacent to subway entrance.

Crosswalk Widening: Widen crosswalks that have columns embedded within them where geometry permits, to improve safety and the the sightline of motorists.

Traffic Flow: Install peg-a-tracking through the intersection. Currently the lanes are confusing to motorists and pedestrians.

Parking Regulations Change: Remove two parking spaces on each side of the intersection to accomodate neckdowns.

Drainage: Drain stormwater run-off directly from the elevated structure into the sewer system. This may be accomplished as NYCT plans their stations rehabilitations and major capital improvements.

Netting or Bird Repellent: Place netting, non-toxic bird repellent gel, or a low-voltage electronic deterrent beneath the elevated structure to prevent birds from perching within the structure and creating sanitation problems on the street below.

Paint Elevated Structure: Paint the elevated structure a light reflective color to reflect the light and reduce shadows.

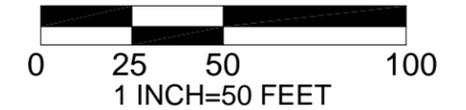
Highlight Concrete Riser: Highlight the concrete riser at the base of subway stairwells with bright orange or yellow thermoplastic, or a concrete coloring additive as is being tested by NYC Transit.



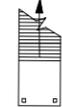
Option B

231ST STREET BROADWAY LINE

DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200
NEW YORK, NY



SURVEYED: FEBRUARY 7TH, 2000
MAPPED: APRIL 21ST, 2000

-  SUBWAY ENTRANCE
-  STREET TREE
-  STREET VENDOR
-  MARQUEES / AWNINGS
-  SIGNAGE
-  PEDESTRIAN SIGNAL
-  TRASH CAN
-  DUMPSTER
-  STREET LIGHT
-  PHONES
-  PARKING METER
-  FIRE HYDRANT
-  MAIL BOX
-  HIGH VISIBILITY CROSSWALK
-  BOLLARD

NOTE: TRAFFIC SIGNALS UNDER THE ELEVATED STRUCTURE ARE NOT ON MAP

Pedestrian Refuge Island: Install concrete islands in between the elevated support columns to provide pedestrian refuge for passengers waiting to board buses. The right turn lane should be closed off with a guard rail or bollards for added pedestrian safety. This option is currently being tested by NYCDOT.

LED Lighting and Universal Pedestrian Signals: Install LED lighting on all traffic signals and replace existing pedestrian signals with Universal signals.

Bicycle Parking: Place bicycle racks underneath the stairs of the elevated structure.

Drainage: Drain stormwater run-off directly from the elevated structure into the sewer system. This effort may be accomplished as NYCT plans their stations rehabilitations and major capital improvements.

Subway Signs: Install subway signs adjacent to subway entrance.

Crosswalk Widening: Widen crosswalks that have columns embedded within them where geometry permits, to improve safety and the the sightline of motorists.

Traffic Flow: Install peg-a-tracking through the intersection. Currently the lanes are confusing to motorists and pedestrians.

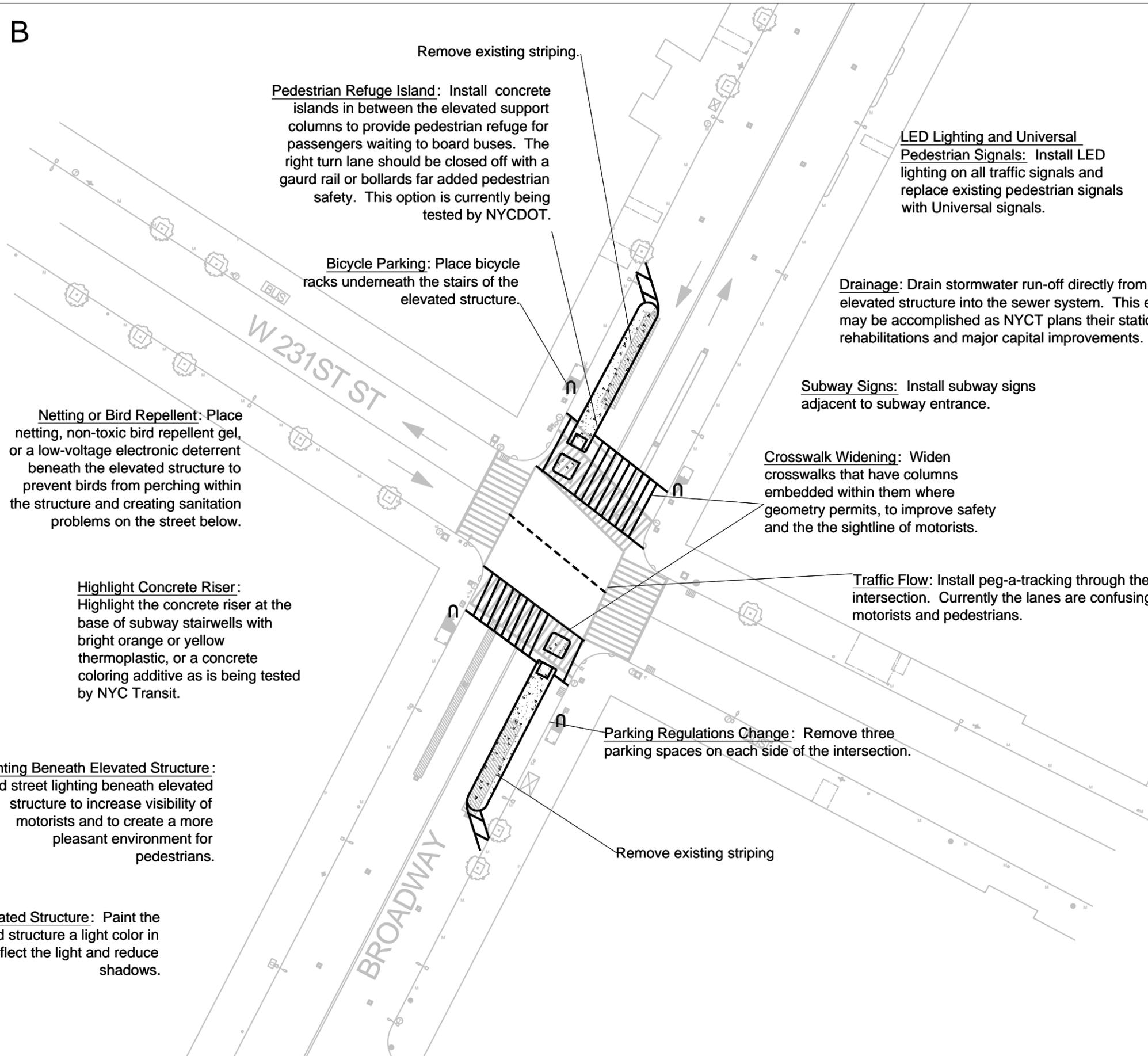
Parking Regulations Change: Remove three parking spaces on each side of the intersection.

Netting or Bird Repellent: Place netting, non-toxic bird repellent gel, or a low-voltage electronic deterrent beneath the elevated structure to prevent birds from perching within the structure and creating sanitation problems on the street below.

Highlight Concrete Riser: Highlight the concrete riser at the base of subway stairwells with bright orange or yellow thermoplastic, or a concrete coloring additive as is being tested by NYC Transit.

Lighting Beneath Elevated Structure: Add street lighting beneath elevated structure to increase visibility of motorists and to create a more pleasant environment for pedestrians.

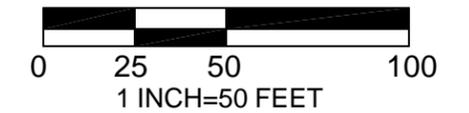
Paint Elevated Structure: Paint the elevated structure a light color in order to reflect the light and reduce shadows.



Option C

231ST STREET BROADWAY LINE

DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200
NEW YORK, NY

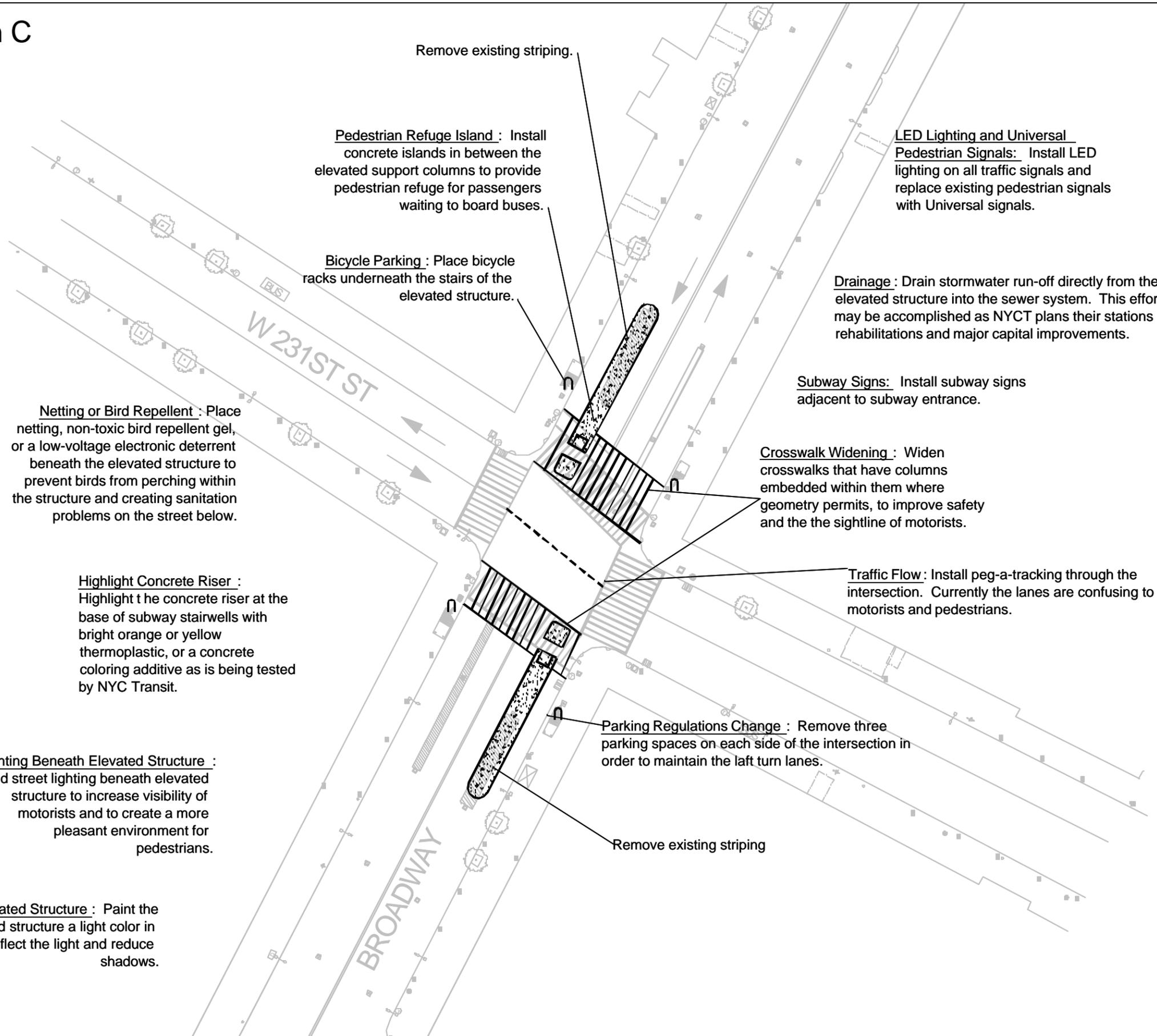


SURVEYED: FEBRUARY 7TH, 2000

MAPPED: APRIL 21ST, 2000

-  SUBWAY ENTRANCE
-  STREET TREE
-  STREET VENDOR
-  MARQUEES / AWNINGS
-  SIGNAGE
-  PEDESTRIAN SIGNAL
-  TRASH CAN
-  DUMPSTER
-  STREET LIGHT
-  PHONES
-  PARKING METER
-  FIRE HYDRANT
-  MAIL BOX
-  HIGH VISIBILITY CROSSWALK
-  BOLLARD

NOTE: TRAFFIC SIGNALS
UNDER THE ELEVATED
STRUCTURE ARE NOT ON MAP



Remove existing striping.

Pedestrian Refuge Island : Install concrete islands in between the elevated support columns to provide pedestrian refuge for passengers waiting to board buses.

Bicycle Parking : Place bicycle racks underneath the stairs of the elevated structure.

LED Lighting and Universal Pedestrian Signals: Install LED lighting on all traffic signals and replace existing pedestrian signals with Universal signals.

Drainage : Drain stormwater run-off directly from the elevated structure into the sewer system. This effort may be accomplished as NYCT plans their stations rehabilitations and major capital improvements.

Subway Signs: Install subway signs adjacent to subway entrance.

Crosswalk Widening : Widen crosswalks that have columns embedded within them where geometry permits, to improve safety and the the sightline of motorists.

Traffic Flow : Install peg-a-tracking through the intersection. Currently the lanes are confusing to motorists and pedestrians.

Parking Regulations Change : Remove three parking spaces on each side of the intersection in order to maintain the left turn lanes.

Remove existing striping

Netting or Bird Repellent : Place netting, non-toxic bird repellent gel, or a low-voltage electronic deterrent beneath the elevated structure to prevent birds from perching within the structure and creating sanitation problems on the street below.

Highlight Concrete Riser : Highlight the concrete riser at the base of subway stairwells with bright orange or yellow thermoplastic, or a concrete coloring additive as is being tested by NYC Transit.

Lighting Beneath Elevated Structure : Add street lighting beneath elevated structure to increase visibility of motorists and to create a more pleasant environment for pedestrians.

Paint Elevated Structure : Paint the elevated structure a light color in order to reflect the light and reduce shadows.



233rd Street (2,5)

The 233rd Street station is both elevated and intermodal and has many of the typical issues associated with similar stations. The recommendations for improvements to this station are as follows:

System-wide:

- Install Light Emitting Diode (LED) lighting on all traffic signals
- Install universal pedestrian signals
- Install subway signs surrounding station entrances
- Highlight concrete risers near subway stairwells with orange or yellow thermoplastic
- Clear corners and apply Local Law 23 where necessary

Station type:

- Place netting or non-toxic bird repellent beneath the elevated structure to prevent birds from perching
- Paint the elevated structure a light reflective color
- Drain storm water runoff directly into the sewer
- Improve lighting beneath the elevated structure
- Widen crosswalks that have columns embedded within them as geometry permits

Site-specific:

One of the biggest problems at this intersection is the loading and unloading of bus passengers in the street. The installation of five foot wide concrete islands, or pedestrian refuge medians, between the columns closest to the intersection would provide adequate pedestrian refuge space for passengers waiting for the bus. It would also keep the right turn lane intact. There is precedent for this treatment at the intersection of Westchester and Morrison avenues in the Bronx.

The median along 233rd Street stops short of the crosswalk. The median should be extended into the crosswalk to provide a pedestrian refuge for those who cannot cross the street in one signal cycle.

The southeast corner of the intersection is cluttered with street furniture and newspaper boxes that constrict pedestrian movement. The Clear Corners policy and Local Law 23 should be applied in order to optimize pedestrian circulation at this location.

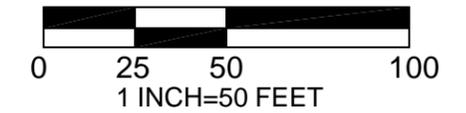


233rd Street station entrance.

233rd STREET

WHITE PLAINS ROAD

DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200
NEW YORK, NY



SURVEYED : MAY 5, 2000

MAPPED : JULY 7, 2000

-  SUBWAY ENTRANCE
-  STREET TREE
-  EMERGENCY CALL BOX
-  MARQUEES / AWNINGS
-  DRIVEWAY / CURB CUTS
-  STREET VENDOR
-  MANHOLE
-  GRATE
-  PEDESTRIAN SIGNAL
-  TRAFFIC SIGNAL
-  STREET LIGHT
-  TRASH CAN
-  COLUMN
-  FENCE
-  SIGNAGE
-  PARKING METER
-  FIRE HYDRANT
-  PHONE
- NEWS PAPER BOX
- BOLLARD
- UTILITY POLE

Pedestrian Refuge Median: Create a pedestrian refuge median (5ft x45ft) between the elevated support columns to accommodate pedestrians who wait for the bus in the middle of the street. This would continue to allow vehicles to turn right.

Paint Elevated Structure : Paint the elevated structure a light color to reflect the light and reduce shadows.

Pedestrian Refuge Island: Extend the 233rd Street median into the west crosswalk as turning radii permits. This will provide a pedestrian refuge.

Highlight Concrete Riser : Highlight the concrete riser at the base of subway stairwells with bright orange or yellow thermoplastic, or a concrete coloring additive as is being tested by NYC Transit.

Lighting Beneath Elevateds : Add street lighting beneath elevated structure to increase visibility of motorists and create a more pleasant environment for pedestrians.

LED Lighting and Universal Pedestrian Signals: Install LED lighting on all traffic signals and replace existing pedestrian signals with universal signals.

Crosswalk Widening : Widen crosswalks that have columns embedded within them to improve safety and the sightline of motorists.

Subway Signs : Install subway signs surrounding the station entrance.

Drainage : Drain stormwater run-off directly from the elevated structure into the sewer system. This effort may be accomplished as NYCT plans their stations rehabilitations and major capital improvements.

Clear Corners and Local Law 23: Remove street furniture and newspaper boxes from the corner quadrant in accordance with Executive Order 22 and Local Law 23.

Netting or Bird Repellent : Place netting, non-toxic bird repellent gel, or a low-voltage electronic deterrent beneath the elevated structure to prevent birds from perching within the structure and creating sanitation problems on the street below.



Burnside Avenue (4)

The Burnside Avenue station is both elevated and intermodal and the standard recommendations for this station type include the following system-wide improvements:

- Install Light Emitting Diode (LED) lighting on all traffic signals
- Install universal pedestrian signals
- Install subway signs surrounding station entrances
- Highlight concrete risers near subway stairwells with orange or yellow thermoplastic

Station-type:

- Increase lighting beneath the elevated structure
- Paint the elevated structure a light reflective color
- Place netting or non-toxic bird repellent beneath the elevated structure to prevent birds from perching
- Drain storm water runoff directly into the sewer



Burnside Avenue station, southern entrances.

Site-specific:

Three alternatives have been drafted to address the issue of buses loading passengers in the middle of the street. The preferred alternative is to build a bus neckdown extending all the way to the columns as described at 231st Street and Broadway in Option A.

Option B calls for the installation of concrete pedestrian refuge medians, between the columns closest to the intersection and closing off the right turning lane with bollards or guard rails. This is a short-term alternative to option A since it does not require the removal of catch basins.

Option C illustrates the concrete pedestrian refuge islands without closing off the right turn lane. There is precedent for this treatment at the intersection of Westchester and Morrison avenues in the Bronx, as shown at 231st Street. This option should only be considered if options A and B are infeasible.

Option A

Lighting Beneath Elevateds : Add street lighting beneath elevated structure to increase visibility of motorists and create a more pleasant environment for pedestrians.

Subway Signs: Install subway signs adjacent to subway entrance.

Bus Stop Relocation, Bus Neckdown: Move the bus stop closer to the intersection and install a neckdown where pedestrians wait for the bus. This neckdown would extend approximately 15 feet into the street to meet the column.

LED Lighting and Universal Pedestrian Signals: Install LED lighting on all traffic signals and replace existing pedestrian signals with Universal signals.

Clear Corners : Remove unnecessary street furniture and move the pedestrian and street light post out of the pedestrian path.

Vehicular Signage Upgrade : Clean existing signs indicating the clearance of the elevated structure.

Netting or Bird Repellent : Place netting, non-toxic bird repellent gel, or a low-voltage electronic deterrent beneath the elevated structure to prevent birds from perching within the structure and creating sanitation problems on the street below.

Highlight Concrete Riser : Highlight the concrete riser at the base of subway stairwells with bright orange or yellow thermoplastic, or a concrete coloring additive as is being tested by NYC Transit.

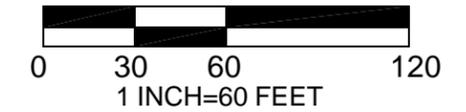
Drainage : Drain stormwater run-off directly from the elevated structure into the sewer system. This effort may be accomplished as NYCT plans their station rehabilitations and major capital improvements.

Bus Neckdown: Install a neckdown where pedestrians wait for the bus. The neckdown should be extended to the subway entrance to accommodate pedestrians transferring between modes at this intersection. This neckdown would extend approximately 15 feet into the street to meet the column.

Paint Elevated Structure : Paint the elevated structure a light color in order to reflect the light and reduce shadows.

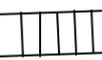
BURNSIDE AVE JEROME AVE LINE

DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200
NEW YORK, NY, 10007

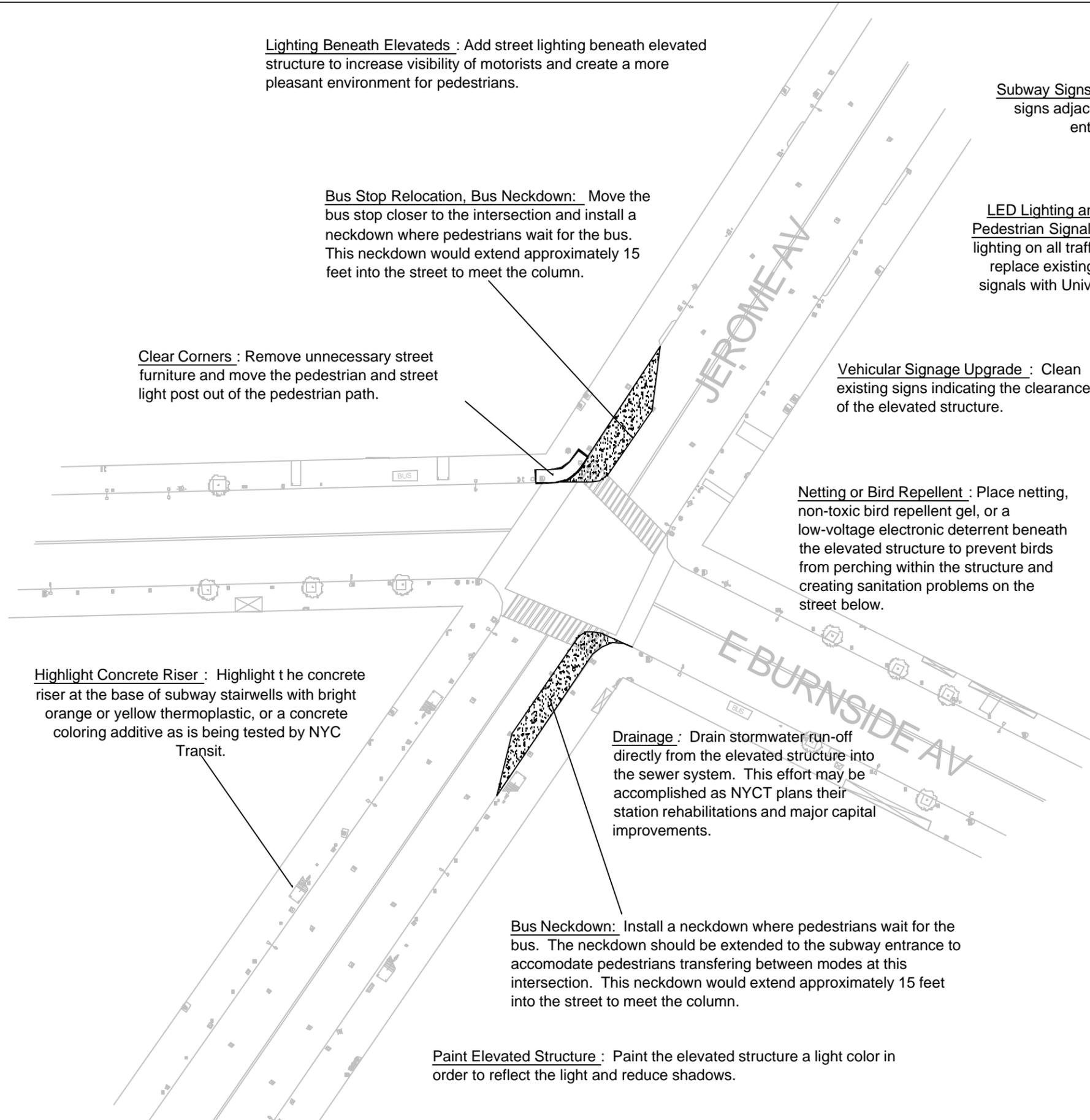


SURVEYED: FEBRUARY 8TH, 2000

MAPPED: FEBRUARY 13TH, 2000

-  SUBWAY ENTRANCE
-  STREET TREE
-  STREET VENDOR
-  PARKING SIGNAGE
-  PEDESTRIAN SIGNAL
-  TRASH CAN
-  DUMPSTER
-  STREET LIGHT
-  PARKING METER
-  FIRE HYDRANT
-  MAIL BOX
-  HIGH VISIBILITY CROSSWALK
-  PHONE
-  BOLLARD
-  AWNING
-  CURB CUT
-  **BUS** BUS SHELTER
-  MANHOLE
-  COLUMN

Note: All traffic signals are attached to the elevated structure



Option B

Lighting Beneath Elevateds : Add street lighting beneath elevated structure to increase visibility of motorists and create a more pleasant environment for pedestrians.

Bus Stop Relocation, Pedestrian Refuge Median: Move the bus stop closer to the intersection and create a pedestrian refuge between the elevated support columns. This will accommodate pedestrians who wait for the bus in the middle of the street. The right turn lane should be closed off with a guard rail or bollards far added pedestrian safety. This option is currently being tested by NYCDOT.

Parking Regulations Change : Eliminate parking adjacent to the pedestrian refuge median to accomodate right turning vehicles.

Clear Corners : Remove unnecessary street furniture and move the pedestrian and street light post out of the pedestrian path.

Highlight Concrete Riser : Highlight the concrete riser at the base of subway stairwells with bright orange or yellow thermoplastic, or a concrete coloring additive as is being tested by NYC Transit.

Netting or Bird Repellent : Place netting, non-toxic bird repellent gel, or a low-voltage electronic deterrent beneath the elevated structure to prevent birds from perching within the structure and creating sanitation problems on the street below.

Parking Regulations Change : Parking adjacent to the pedestrian refuge median must be eliminated.

Pedestrian Refuge Median: Create a pedestrian refuge median between the elevated support columns to accommodate pedestrians who wait for the bus in the middle of the street. The right turn lane should be closed off with a guard rail or bollards far added pedestrian safety. This option is currently being tested by NYCDOT.

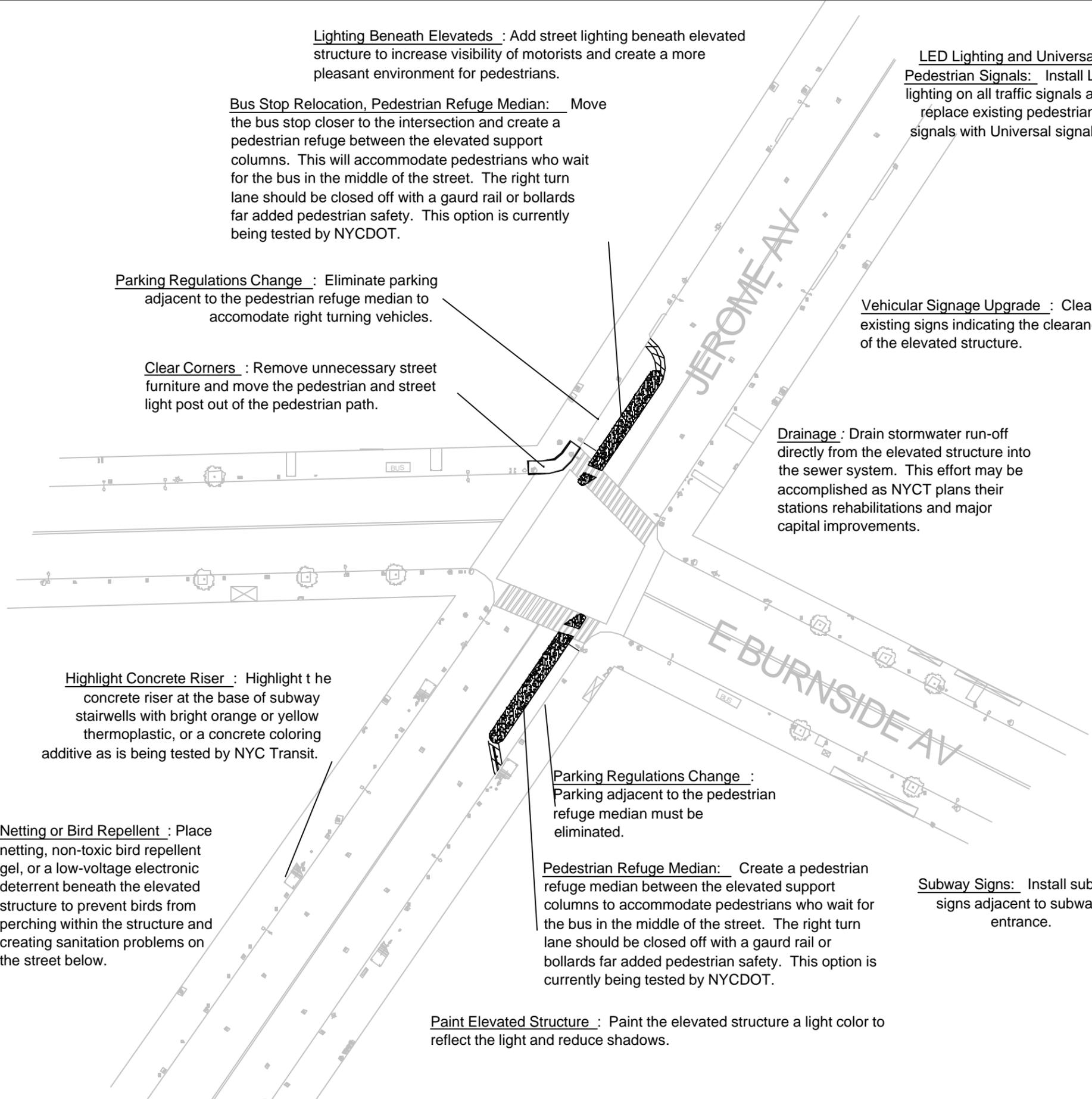
Paint Elevated Structure : Paint the elevated structure a light color to reflect the light and reduce shadows.

LED Lighting and Universal Pedestrian Signals: Install LED lighting on all traffic signals and replace existing pedestrian signals with Universal signals.

Vehicular Signage Upgrade : Clean existing signs indicating the clearance of the elevated structure.

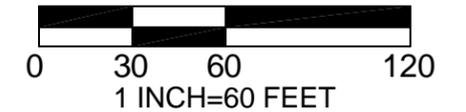
Drainage : Drain stormwater run-off directly from the elevated structure into the sewer system. This effort may be accomplished as NYCT plans their stations rehabilitations and major capital improvements.

Subway Signs: Install subway signs adjacent to subway entrance.



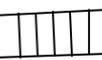
BURNSIDE AVE JEROME AVE LINE

DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200
NEW YORK, NY, 10007



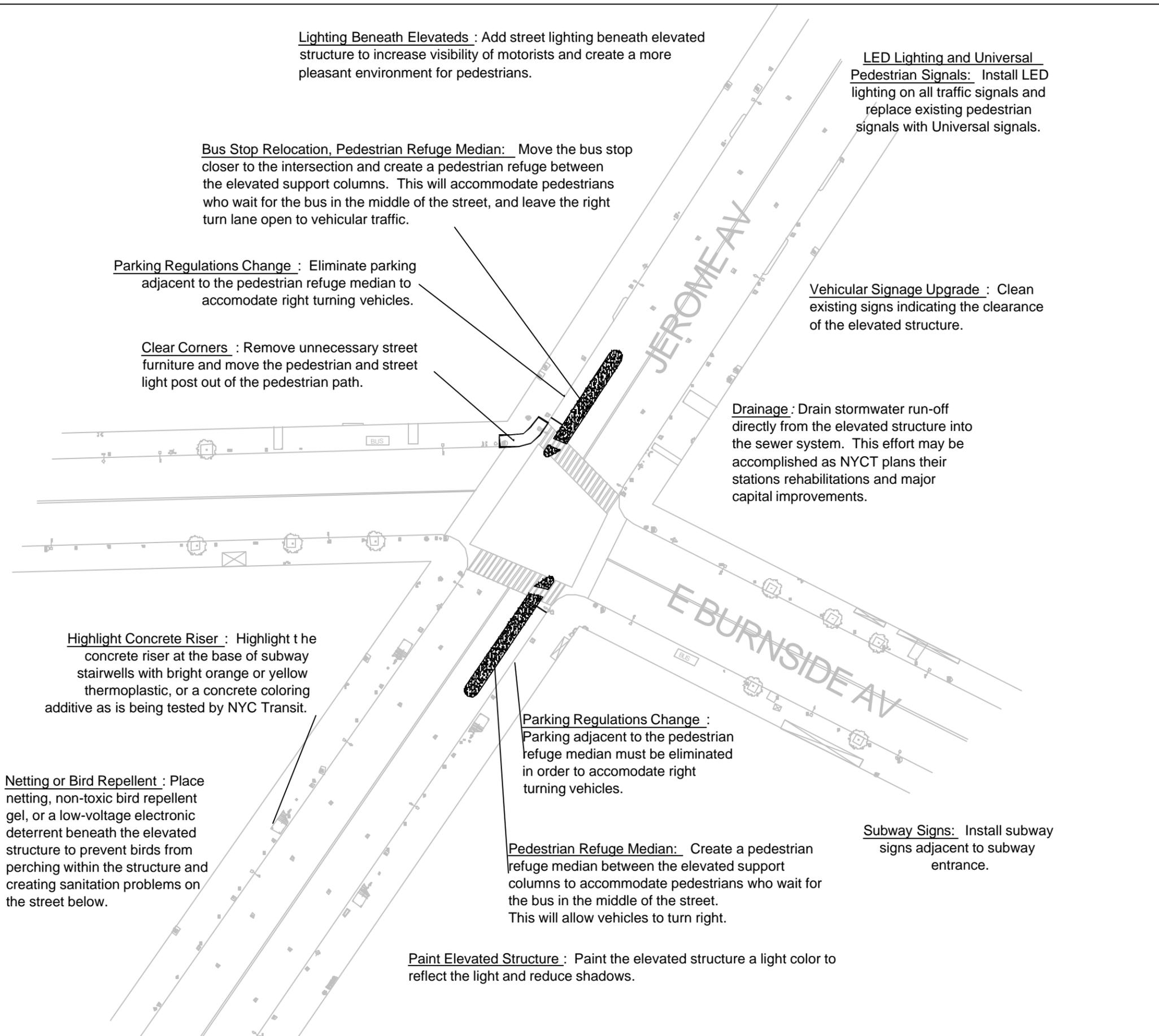
SURVEYED: FEBRUARY 8TH, 2000

MAPPED: FEBRUARY 13TH, 2000

-  SUBWAY ENTRANCE
-  STREET TREE
-  STREET VENDOR
-  PARKING SIGNAGE
-  PEDESTRIAN SIGNAL
-  TRASH CAN
-  DUMPSTER
-  STREET LIGHT
-  PARKING METER
-  FIRE HYDRANT
-  MAIL BOX
-  HIGH VISIBILITY CROSSWALK
-  PHONE
-  BOLLARD
-  AWNING
-  CURB CUT
-  **BUS** BUS SHELTER
-  MANHOLE
-  COLUMN

Note: All traffic signals are attached to the elevated structure

Option C



Lighting Beneath Elevateds : Add street lighting beneath elevated structure to increase visibility of motorists and create a more pleasant environment for pedestrians.

Bus Stop Relocation, Pedestrian Refuge Median: Move the bus stop closer to the intersection and create a pedestrian refuge between the elevated support columns. This will accommodate pedestrians who wait for the bus in the middle of the street, and leave the right turn lane open to vehicular traffic.

Parking Regulations Change : Eliminate parking adjacent to the pedestrian refuge median to accomodate right turning vehicles.

Clear Corners : Remove unnecessary street furniture and move the pedestrian and street light post out of the pedestrian path.

Drainage : Drain stormwater run-off directly from the elevated structure into the sewer system. This effort may be accomplished as NYCT plans their stations rehabilitations and major capital improvements.

Highlight Concrete Riser : Highlight the concrete riser at the base of subway stairwells with bright orange or yellow thermoplastic, or a concrete coloring additive as is being tested by NYC Transit.

Netting or Bird Repellent : Place netting, non-toxic bird repellent gel, or a low-voltage electronic deterrent beneath the elevated structure to prevent birds from perching within the structure and creating sanitation problems on the street below.

Parking Regulations Change : Parking adjacent to the pedestrian refuge median must be eliminated in order to accomodate right turning vehicles.

Pedestrian Refuge Median: Create a pedestrian refuge median between the elevated support columns to accommodate pedestrians who wait for the bus in the middle of the street. This will allow vehicles to turn right.

Paint Elevated Structure : Paint the elevated structure a light color to reflect the light and reduce shadows.

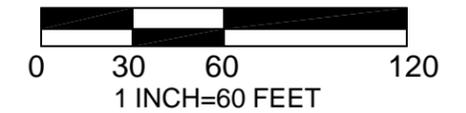
LED Lighting and Universal Pedestrian Signals: Install LED lighting on all traffic signals and replace existing pedestrian signals with Universal signals.

Vehicular Signage Upgrade : Clean existing signs indicating the clearance of the elevated structure.

Subway Signs: Install subway signs adjacent to subway entrance.

BURNSIDE AVE JEROMEAVE LINE

DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200
NEW YORK, NY, 10007



SURVEYED: FEBRUARY 8TH, 2000

MAPPED: FEBRUARY 13TH, 2000

-  SUBWAY ENTRANCE
-  STREET TREE
-  STREET VENDOR
-  PARKING SIGNAGE
-  PEDESTRIAN SIGNAL
-  TRASH CAN
-  DUMPSTER
-  STREET LIGHT
-  PARKING METER
-  FIRE HYDRANT
-  MAIL BOX
-  HIGH VISIBILITY CROSSWALK
-  PHONE
-  BOLLARD
-  AWNING
-  CURB CUT
-  **BUS** BUS SHELTER
-  MANHOLE
-  COLUMN

Note: All traffic signals are attached to the elevated structure

East 177th Street/Parkchester (6)

The East 177th Street/Parkchester station fits all three station types. It is an elevated, intermodal station with an entrance located on a traffic island. As such it has most of the issues associated with these types of stations. The system-wide recommendations for this site include the following:

- Install Light Emitting Diode (LED) lighting on all traffic signals
- Install universal pedestrian signals
- Install subway signs surrounding station entrances

Station type:

- Install additional lighting on the west side of the circle
- Paint the elevated structure a light reflective color
- Place netting or non-toxic bird repellent beneath the elevated structure to prevent birds from perching
- Drain stormwater runoff directly into the sewer

Site-specific:

Additional recommendations for this site involve realigning the curbs at the west side of the station so that Hugh J. Grant Circle is geometrically more circular, and channelizes traffic into a series of right turn- only lanes. Previously identified excess road space on the western side of the traffic circle would be recaptured for pedestrian use, and a new crosswalk and traffic signal would be installed along the desire path at the western side of the circle. The new curb line changes at Hugh J. Grant Circle would make vehicular movements more predictable and safer for pedestrians.

One of the identified issues at this site was the tight turning radius for buses turning right onto the Cross Bronx Expressway from Hugh J. Grant Circle. As a result buses veer into the left lane to make the turn. To eliminate this practice we propose shaving the curb line to allow buses to make a wider turn.

This station also has a lack of space to load and unload passengers. As a result, a potentially dangerous practice of passenger loading occurs on the inside travel lane. At one time, many people temporarily parked on the paved area located on the eastern side of the circle to patronize the nearby vendors or load and unload passengers. This practice halted when the entrance was chained off to the public. The recommendations for this site include opening this area to the public and formalizing the parking area with eight parking spots that would be limited to 15 minute parking for people with physical disabilities. The parking spaces would be located beneath the elevated structure where landscaping is not possible due to the lack of sunlight. In addition, the parking area would be beneficial to the elderly and people with disabilities who have difficulty crossing the 60-foot roadbed.

Other recommendations include computerizing the traffic signals surrounding Hugh J. Grant Circle.

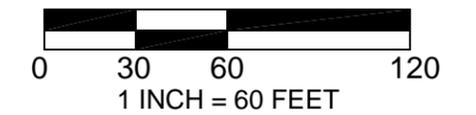


East 177th Street/Parkchester station. Pedestrians cross Hugh J. Grant Circle, a 60-foot wide roadbed.

Due to the complexity of the channelization in the traffic circle it is difficult to achieve optimal progression unless the signals are controlled from a central location.

PARKCHESTER 177th ST PELHAM

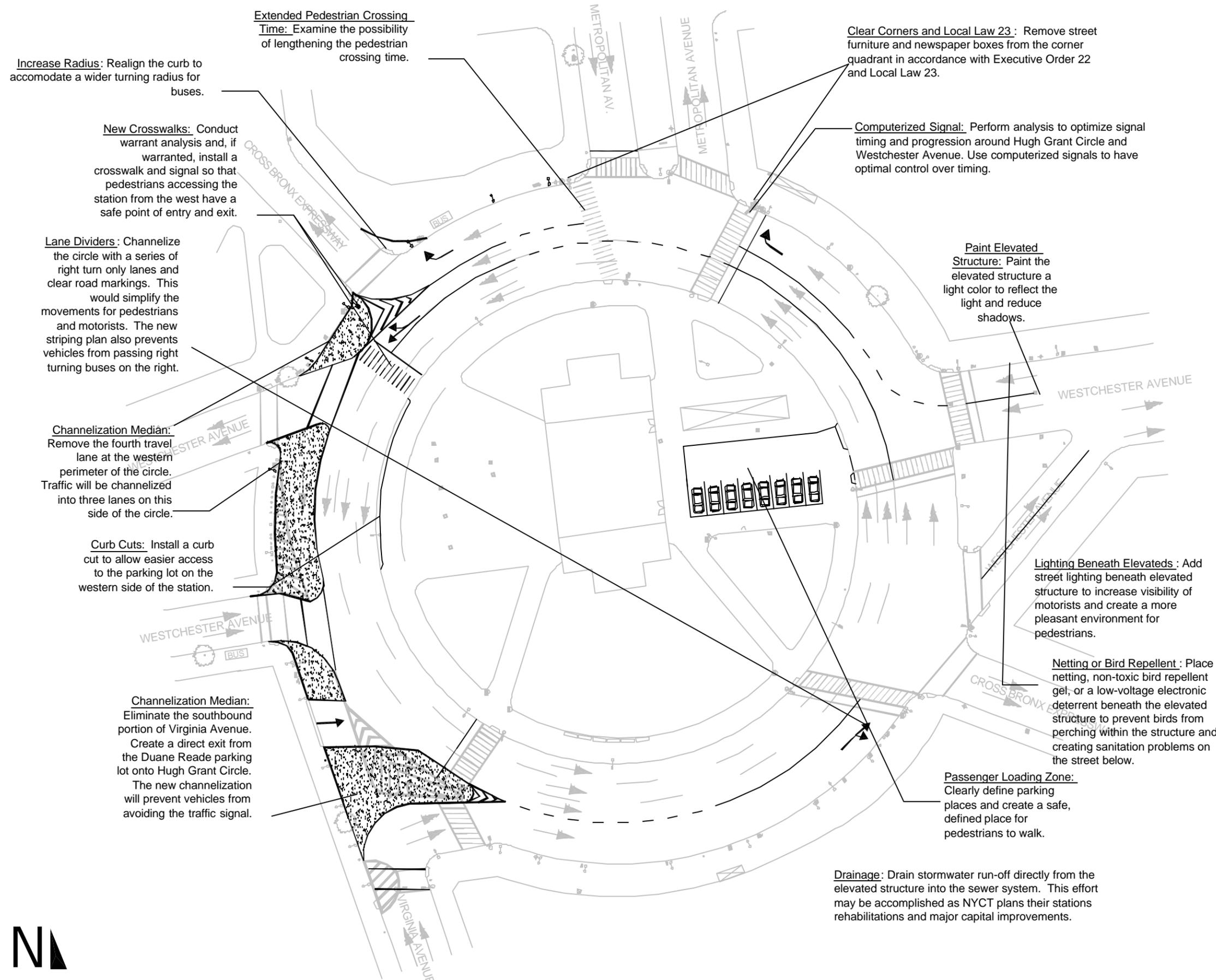
DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200
NEW YORK, NY



SURVEYED : JULY 18, 2000

MAPPED : JULY 31, 2000

-  BUS SHELTER
-  NEWS PAPER BOX
-  STREET TREE
-  EMERGENCY CALL BOX
-  DRIVEWAY / CURB CUTS
-  STREET VENDOR
-  PEDESTRIAN SIGNAL
-  TRAFFIC SIGNAL
-  STREET LIGHT
-  TRASH CAN
-  COLUMN
-  SIGNAGE
-  PARKING METER
-  FIRE HYDRANT
-  PHONE
-  MAIL BOX
-  BOLLARD
-  BIKE RACK



Fordham Road (B, D)

The following recommendations for the Fordham Road station will improve the transfer trips at this intermodal station and address the pedestrian safety concerns along the Grand Concourse.

System-wide:

- Install subway signs adjacent to the subway entrance
- Install bicycle parking near the subway entrance
- Highlight concrete riser
- Install Light Emitting Diode (LED) lighting on all traffic signals
- Install universal pedestrian signals

Station type:

- Upgrade the traffic island
- Install crosswalks at all crossing points leading to the station entrance
- Provide subway, neighborhood, and bicycle maps on bus shelters
- Install bus signage within the stations directing pedestrians to correct exits
- Install bus pads at bus stops



Distinctive crosswalks traversing the Grand Concourse.

Site-specific:

The Grand Concourse is a unique safety corridor and all recommendations made in this report will require review by NYCDOT. In particular, the Grand Concourse service roads and the north side of East 188th Street will require additional investigation to ensure that all recommendations are consistent with NYCDOT's Traffic Safety Improvements Report released in June 2003.

The narrow medians along the Grand Concourse do not provide sufficient pedestrian refuge space for those pedestrians who cannot cross the Grand Concourse in one signal cycle. The wide travel lanes provide an opportunity to increase the medians by four feet while maintaining the same number of travel lanes. Additionally, neckdowns extending into the parking lanes at East 188th Street should be installed (as turning radii permit) in order to give pedestrians the opportunity to cross the Grand Concourse in a shorter time period.

Typically we would recommend to realign the crosswalks on the south side of East 188th Street to emphasize the regularity of the street geometry; however the crosswalks are distinctive and would be too costly to replace.

The medians at the East Fordham Road intersection should be further enhanced with landscaping (as funding permits) and several bicycle parking racks, as the Grand Concourse is a recommended bicycle route in the *NYC Bicycle Master Plan*. Additionally, bollards should be installed along the medians to prevent vehicles from parking at this location.

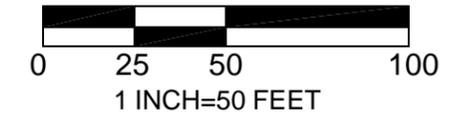
The station entrances at East Fordham Road are underutilized because they are not open 24 hours a day. High wheels should be installed at the Fordham Road entrances in order to make them accessible to MetroCard users 24 hours a day. This would ease intermodal transfers and would increase utilization of the station entrances. NYC Transit is currently considering extending the hours of operation at this station entrance.

Lastly, the Grand Concourse slopes down north of East 188th Street thereby creating a sight distance problem for motorists traveling southbound on the Grand Concourse. A sign should be installed north of the crest of the hill cautioning motorists that there is a pedestrian crossing ahead.

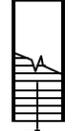
Drawing 1

FORDHAM ROAD GRAND CONCOURSE LINE

DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200



SURVEYED: JUNE 13TH, 2000
MAPPED: JULY 6TH, 2000

-  SUBWAY ENTRANCE
-  STREET TREE
-  MARQUEES / AWNINGS
-  DRIVEWAY / CURB CUTS
-  STREET VENDOR
-  PEDESTRIAN SIGNAL
-  TRAFFIC SIGNAL
-  STREET LIGHT
-  TRASH CAN
-  DUMPSTER
-  RAISED CONCRETE SLAB
-  SIGNAGE
-  PARKING METER
-  FIRE HYDRANT
-  PHONE
-  MAIL BOX
-  BOLLARD

Highlight Concrete Riser : Highlight the concrete riser at the base of subway stairwells with bright orange or yellow thermoplastic, or a concrete coloring additive as is being tested by NYC Transit.

Landscaping: Enhance the median as pedestrian space with the installation of landscaping amenities as funding permits. In addition, bollards should be placed on the perimeter of the medians to prevent vehicles from parking at this location.

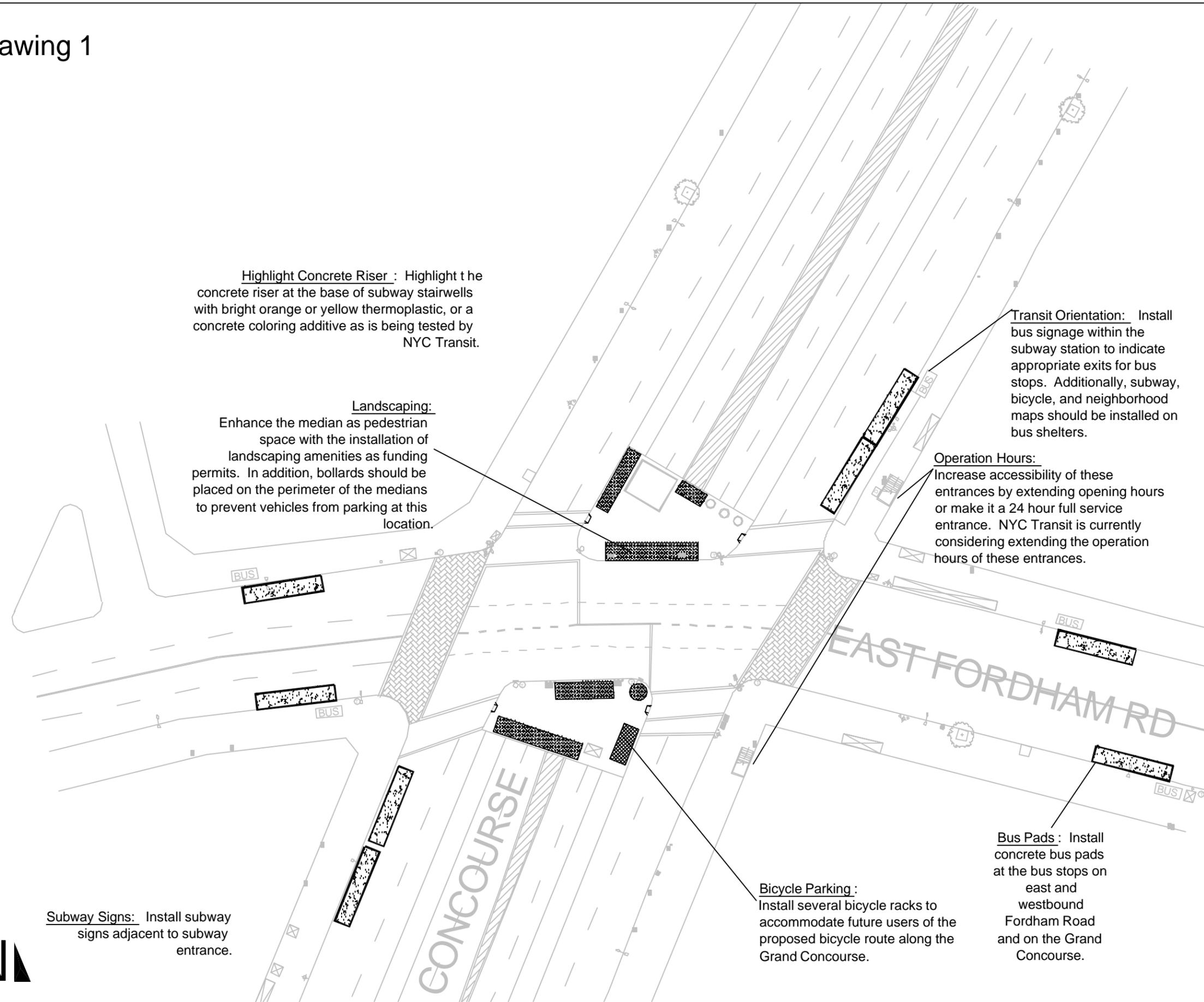
Transit Orientation: Install bus signage within the subway station to indicate appropriate exits for bus stops. Additionally, subway, bicycle, and neighborhood maps should be installed on bus shelters.

Operation Hours: Increase accessibility of these entrances by extending opening hours or make it a 24 hour full service entrance. NYC Transit is currently considering extending the operation hours of these entrances.

Bicycle Parking : Install several bicycle racks to accommodate future users of the proposed bicycle route along the Grand Concourse.

Bus Pads : Install concrete bus pads at the bus stops on east and westbound Fordham Road and on the Grand Concourse.

Subway Signs: Install subway signs adjacent to subway entrance.

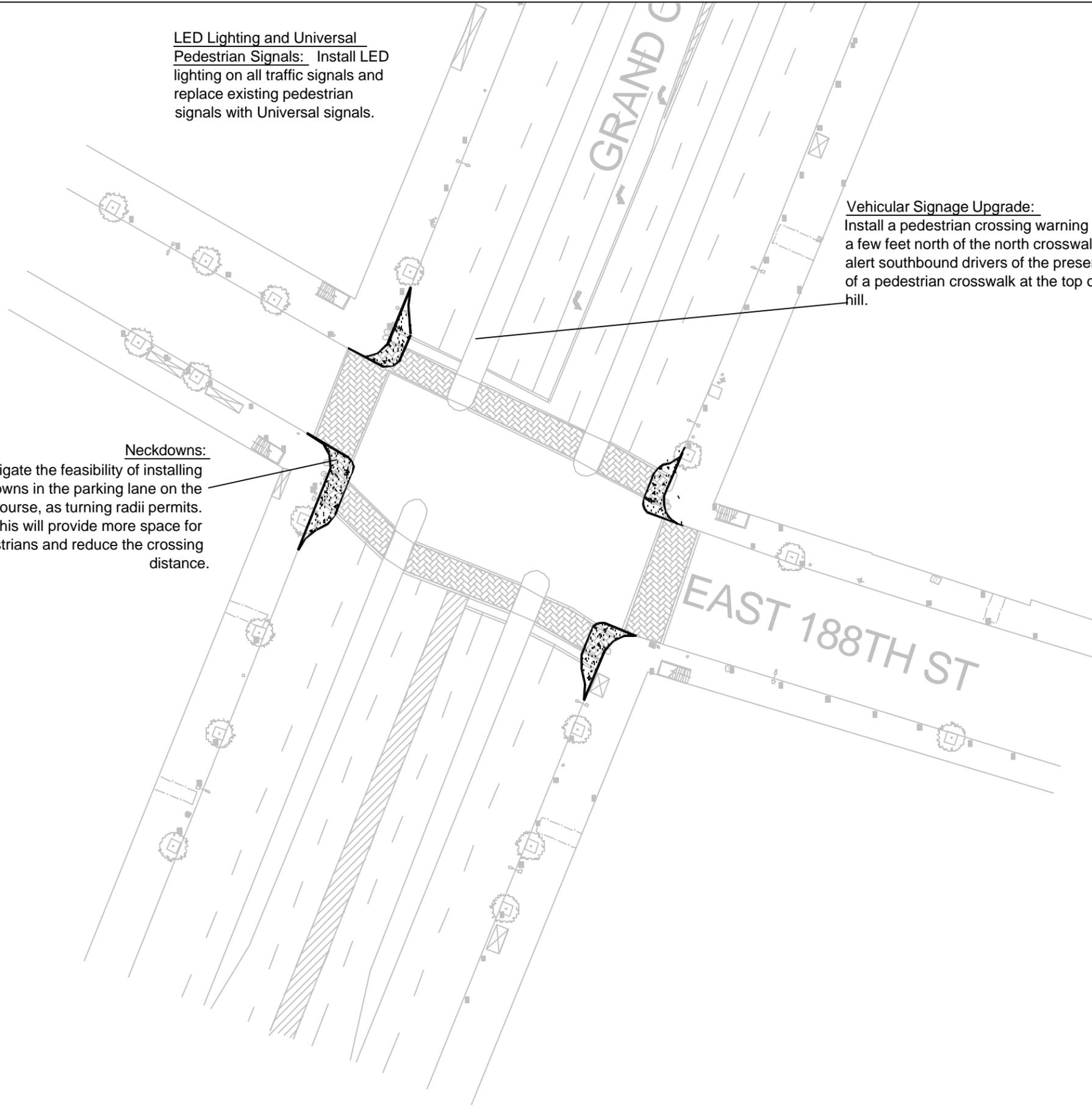


Drawing 2

LED Lighting and Universal Pedestrian Signals: Install LED lighting on all traffic signals and replace existing pedestrian signals with Universal signals.

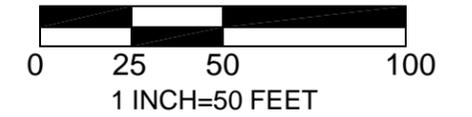
Vehicular Signage Upgrade: Install a pedestrian crossing warning sign a few feet north of the north crosswalk to alert southbound drivers of the presence of a pedestrian crosswalk at the top of the hill.

Neckdowns: Investigate the feasibility of installing neckdowns in the parking lane on the Grand Concourse, as turning radii permits. This will provide more space for pedestrians and reduce the crossing distance.



FORDHAM ROAD GRAND CONCOURSE LINE

DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200
NEW YORK, NY



SURVEYED: JUNE 13TH, 2000
MAPPED: JULY 6TH, 2000

-  SUBWAY ENTRANCE
-  STREET TREE
-  MARQUEES / AWNINGS
-  DRIVEWAY / CURB CUTS
-  STREET VENDOR
-  PEDESTRIAN SIGNAL
-  TRAFFIC SIGNAL
-  STREET LIGHT
-  TRASH CAN
-  DUMPSTER
-  RAISED CONCRETE SLAB
-  SIGNAGE
-  PARKING METER
-  FIRE HYDRANT
-  PHONE
-  MAIL BOX
-  BOLLARD



Gun Hill Road - Dyre (5)

The Gun Hill Road station is located inside a building. The mid-block entrance to the building creates a desire line for pedestrians, which encourages jaywalking. The streets surrounding the station also have concerns with stop signs and channelization. The following recommendations will address these issues.

System-wide

- Install Light Emitting Diode (LED) lighting on all traffic signals
- Install universal pedestrian signals
- Install subway signs surrounding station entrances

Station type:

- Provide crosswalks and traffic controls at all crossing points leading to the station entrances

Site-specific:

In order to minimize jaywalking from the station entrance, the westbound Bx28 bus stop should be moved west so that it is closer to the crosswalk. This would encourage pedestrians to use the crosswalk when crossing the street and would increase safety during intermodal transfers. Other improvements at this site include installing a ladder crosswalk traversing Sexton Place and a stop line traversing Gun Hill Road, west of Sexton Place. Since there currently is no crosswalk at this intersection, a warrant analysis would be required. Installing a crosswalk at this location would facilitate improved intermodal transfers.

In order to improve channelization and recapture the excess roadbed at Gun Hill Road and Seymour Avenue, the east corner of the intersection should be extended farther into the intersection. The existing painted traffic island at this intersection should be realigned to follow the new curb line change. A concrete median should be installed over the portion of the new median that overlaps the crosswalk.

On the southeast side of the study area a concrete median should be installed over the painted traffic triangle at Gun Hill Road and Knapp Street. This will provide a safe refuge for pedestrians who are unable to cross both Fenton Avenue and Gun Hill Road in one signal cycle. Additionally, the feasibility of prohibiting the right turn off Gun Hill Road onto De Witt Place should be examined. If this is feasible the traffic triangle could be realigned all the way to the sidewalk curb. A new crosswalk should be added prior to the stop sign on Morgan Avenue and lane dividers should be installed to improve the channelization of vehicles through this intersection. Lastly, the corner adjacent to Morgan Avenue and De Witt Place should be widened so that the curb is aligned with the traffic triangle.



Gun Hill Road, Dyre Avenue station. The entrance is located in a building.

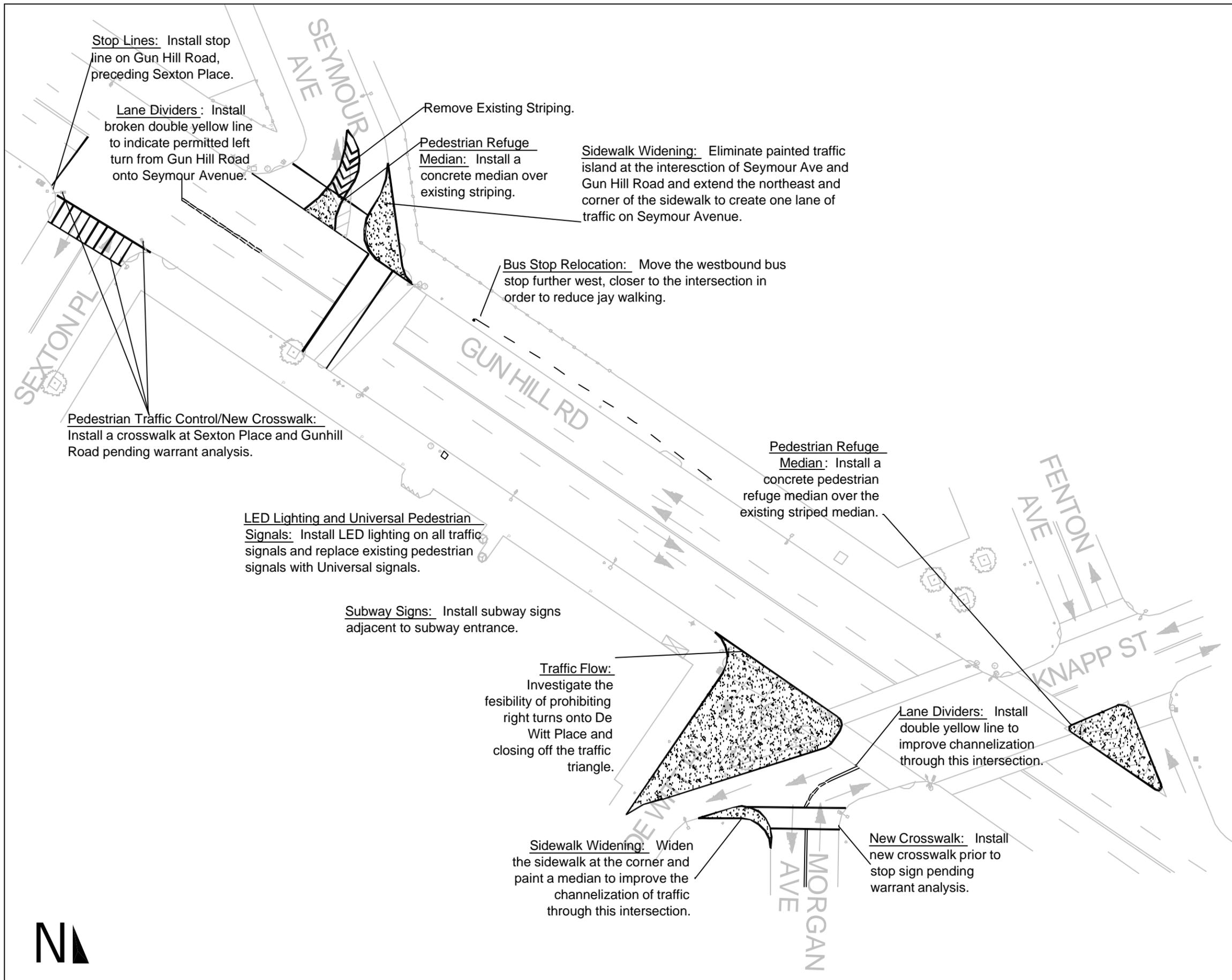
GUN HILL ROAD DYRE AVENUE LINE

DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200
NEW YORK, NY 10007



SURVEYED: SEPTEMBER 11, 2000
MAPPED: SEPTEMBER 13, 2000

-  SUBWAY ENTRANCES
-  STREET TREE
-  NEWSPAPER BOX
-  DRIVEWAY / CURB CUTS
-  STREET VENDOR
-  CALL BOX
-  PARKING METER
-  PEDESTRIAN SIGNAL
-  TRAFFIC SIGNAL
-  STREET LIGHT
-  FENCE
-  GRASS
-  TRASH CAN
-  SIGNAGE
-  FIRE HYDRANT
-  PHONE
-  MAIL BOX
-  BOLLARD



Pelham Parkway, Dyre Avenue (5)

This historic station was once part of the New York, Westchester and Boston Railway built in 1912. The railroad closed in 1937, and the stations within city limits were incorporated into the IRT system. The median upon which this subway station is situated had not been mapped on the city's tax maps, and therefore, was overlooked and left in poor condition. The Subway-Sidewalk Interface team sought additional funds from the Great American Station Foundation for the renovation of this historic building.



Gun Hill Road, Dyre Avenue station. The station entrance is located in a building and on a traffic island.

This station has an entrance located in a building on a traffic island, and as such, the standard recommendations for this station type will be applied. These recommendations are as follows:

System-wide:

- Install subway signs adjacent to the subway entrance
- Install bicycle parking near the subway entrance
- Install bicycle lanes along routes designated in the *NYC Bicycle Master Plan*

Station type:

- Upgrade the traffic island as funding permits
- Install crosswalks at all crossing points leading to the station entrance
- Provide subway, neighborhood, and bicycle maps on bus shelters

Site-specific:

NYCDOT's design for the reconstruction of Pelham Parkway in 2006 include the recommendations made in this report.

Two recommendations for this site address the intersection at Laconia Avenue, Esplanade, and Pelham Parkway just south of the entrance. A warrant analysis recommended at the intersection and, if warranted, stripe crosswalks at every crossing, thereby improving the intermodal transfers from the subway to the bus stop located on Pelham Parkway. Additionally, the median at this intersection should be extended into the crosswalk to provide sufficient pedestrian refuge space.

A warrant analysis should also be conducted at the intersection of Yates Avenue, Astor Avenue, and Esplanade and, if warranted, crosswalks should be striped at all crossings. The northern side of the intersection of Yates Avenue and Esplanade should also be realigned. Extending this curb into the intersection would align the crosswalks and provide additional pedestrian refuge. The crossing at Laconia Avenue and Esplanade should be striped to improve pedestrian movement.

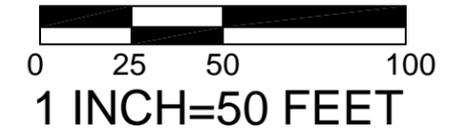
Laconia Avenue is a designated route in the *NYC Bicycle Master Plan* and, as such, a traffic analysis should be conducted to determine the feasibility of installing a Class II bicycle lane and buffer along the street. The bicycle lane would provide an excellent connection to the greenway along the Pelham Parkway median.

While this station is not listed as intermodal because it does not connect to three or more bus lines or a commuter rail, there is a bus stop near the station entrance that is difficult for pedestrians to access. In order to transfer from the subway to the nearby bus stop on Pelham Parkway pedestrians must first cross a number of traffic medians and uncontrolled intersections. It is for this reason that we are recommending the installation of subway, neighborhood, and bicycle maps on bus shelters, even though this is a treatment we typically recommended for intermodal stations.

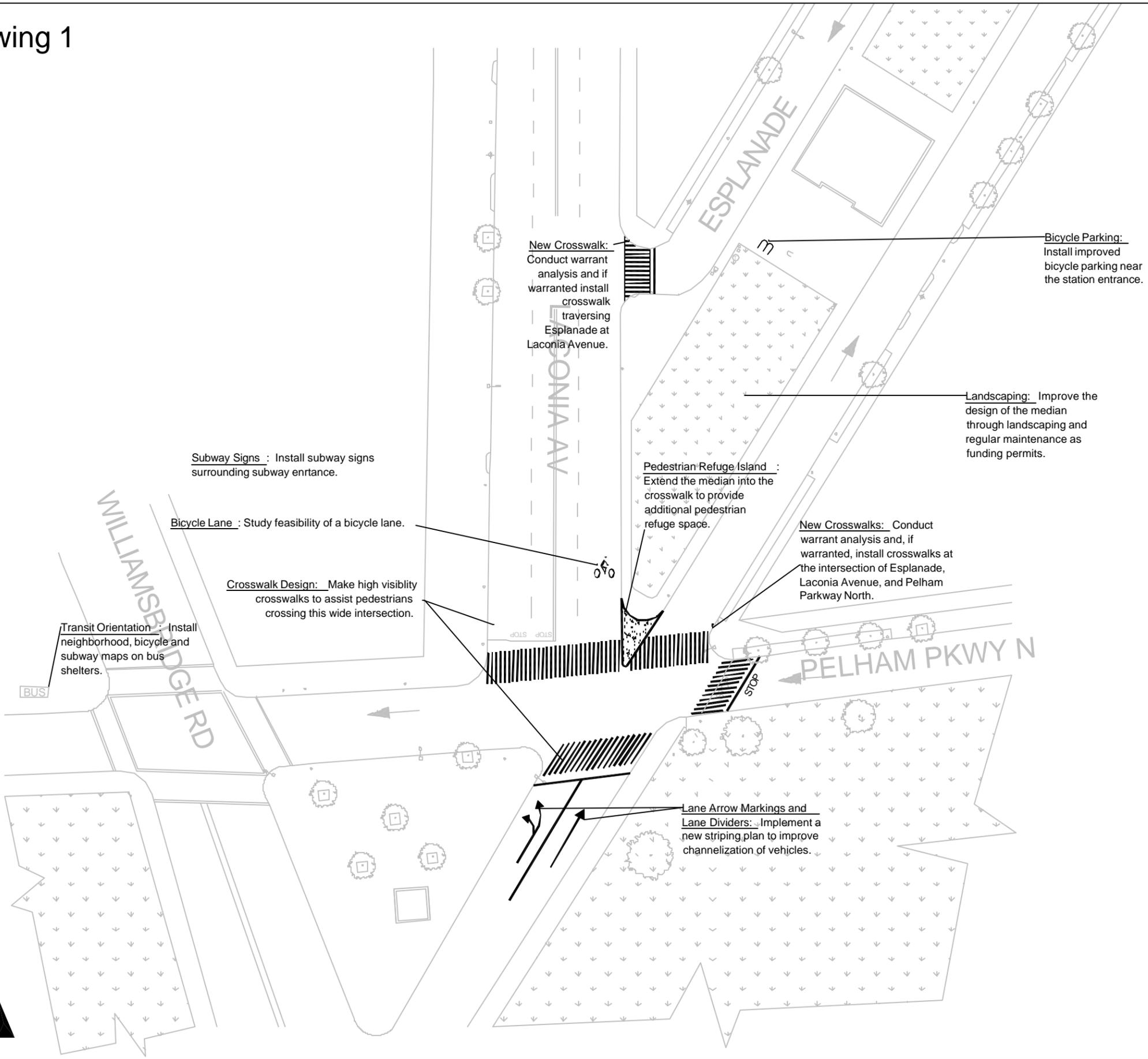
Drawing 1

PELHAM PARKWAY DYRE LINE

DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200
NEW YORK, NY



DRWN 03/06/00 - ADJ 4/11/01



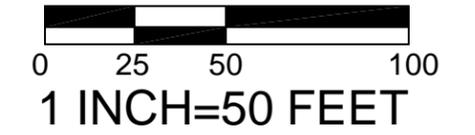
-  SUBWAY ENTRANCE
-  STREET TREE
-  MARQUEES / AWNINGS
-  DRIVEWAY / CURB CUTS
-  STREET VENDOR
-  PEDESTRIAN SIGNAL
-  TRAFFIC SIGNAL
-  STREET LIGHT
-  TRASH CAN
-  DUMPSTER
-  SIGNAGE
-  PARKING METER
-  FIRE HYDRANT
-  PHONE
-  MAIL BOX
-  BOLLARD
-  BICYCLE PARKING



Drawing 2

PELHAM PARKWAY DYRE LINE

DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200
NEW YORK, NY

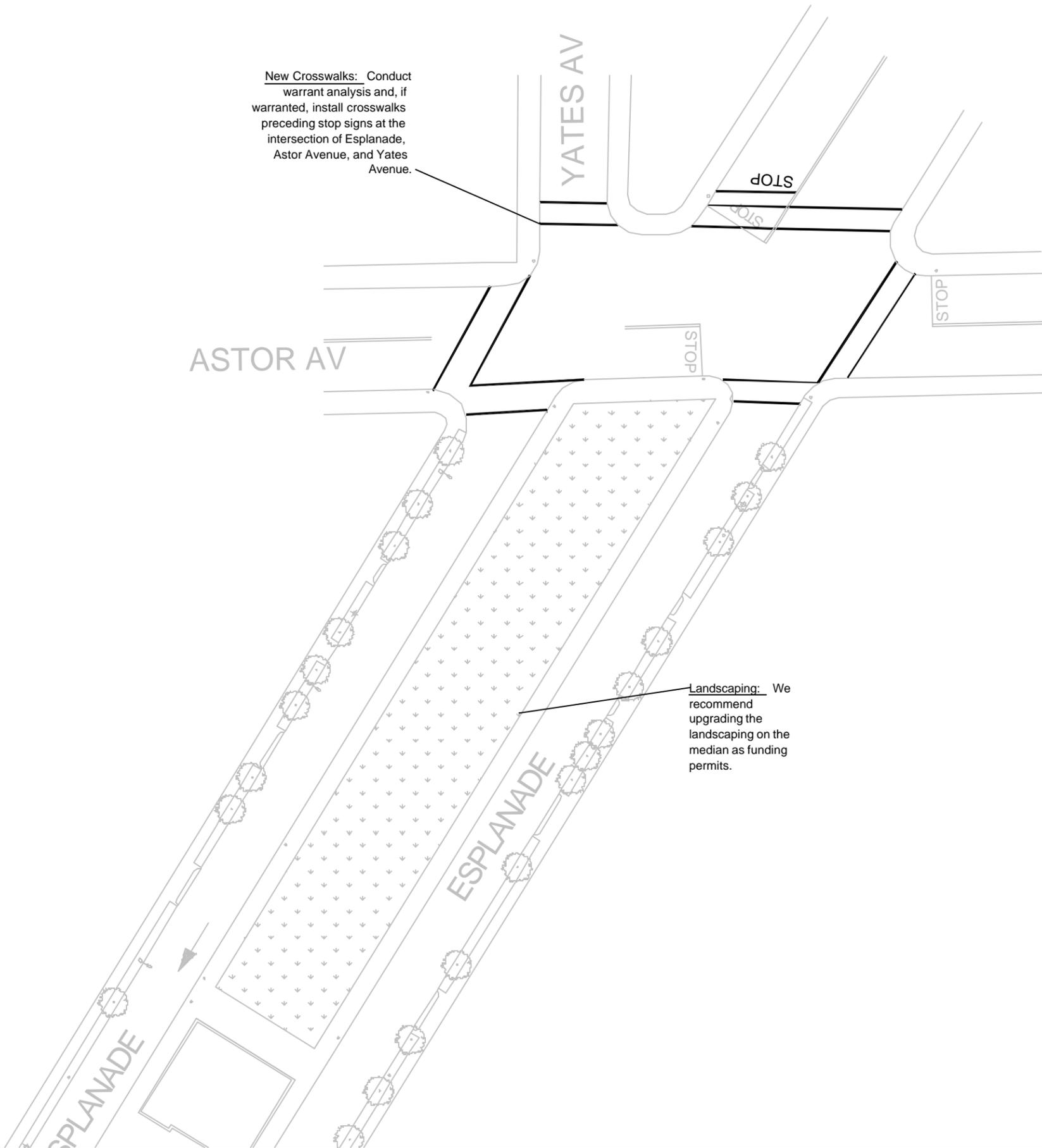


DRWN 03/06/00 - ADJ 4/11/01

New Crosswalks: Conduct warrant analysis and, if warranted, install crosswalks preceding stop signs at the intersection of Esplanade, Astor Avenue, and Yates Avenue.

Landscaping: We recommend upgrading the landscaping on the median as funding permits.

-  SUBWAY ENTRANCE
-  STREET TREE
-  MARQUEES / AWNINGS
-  DRIVEWAY / CURB CUTS
-  STREET VENDOR
-  PEDESTRIAN SIGNAL
-  TRAFFIC SIGNAL
-  STREET LIGHT
-  TRASH CAN
-  DUMPSTER
-  SIGNAGE
-  PARKING METER
-  FIRE HYDRANT
-  PHONE
-  MAIL BOX
-  BOLLARD
-  BICYCLE PARKING



Pelham Parkway, White Plains Road (2,5)

Pelham Parkway, White Plains Road is an elevated and intermodal station. As such, it has most of the issues associated with these types of stations. The standard recommendations being applied to this site to address the issues are as follows:

System-wide:

- Install Light Emitting Diode (LED) lighting on all traffic signals
- Install universal pedestrian signals
- Install subway signs surrounding station entrances
- Highlight concrete risers near subway stairwells with orange or yellow thermoplastic

Station type:

- Place netting or non-toxic bird repellent beneath the elevated structure to prevent birds from perching
- Paint the elevated structure a light reflective color
- Drain storm water runoff directly into the sewer
- Improve lighting beneath the elevated structure
- Widen crosswalks with columns embedded within them as geometry permits
- Display subway, neighborhood, and bicycle maps on bus shelters

Site-Specific:

NYCDOT's design for the reconstruction of Pelham Parkway in 2006 include the recommendations made in this report.

The neckdown on the southeast corner of White Plains Road and the Pelham Parkway South Service Road does not extend all the way to the corner. As a result pedestrians step into the roadway to see oncoming traffic. Extending the neckdown to the corner would add pedestrian refuge space and allow pedestrians to see oncoming traffic before crossing White Plains Road.

The intersection of Pelham Parkway North and White Plains Road should be redesigned. The curb lines are ambiguous on the northern and southern sides of the intersection and should be realigned as to clearly recapture the excess roadbed as part of the greenway. Traffic along Pelham Parkway North would be channelized into four travel lanes. A lane divider should be installed to mark the new travel lane.

The intersection of the Pelham Parkway North Service Road and White Plains Road is currently stop controlled and does not have crosswalks. Compounding this problem is the discontinuous traffic flow on the Pelham Parkway North Service Road. Crosswalks and a signal have been installed at this intersection by NYCDOT prior to the release of this report.



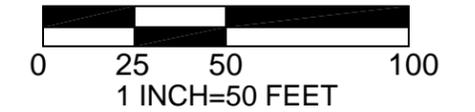
Pelham Parkway Greenway. The greenway is interrupted by White Plains Road, which poses a challenge for cyclists.

Cyclists riding along the Pelham Parkway greenway have difficulty crossing White Plains Road. The south crosswalk at the intersection of White Plains and the Pelham Parkway North Service Road should be widened to improve the safety of cyclists navigating this intersection.

Drawing 1

PELHAM PARKWAY WHITE PLAINS ROAD

DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200
NEW YORK, NY



SURVEYED: MARCH 14, 2000

MAPPED: JUNE 13, 2000

Drainage : Drain stormwater run-off directly from the elevated structure into the sewer system. This effort may be accomplished as NYCT plans their stations rehabilitations and major capital improvements.

Paint Elevated Structure : Paint the elevated structure a light color in order to reflect the light and reduce shadows.

Crosswalk Widening : Widen crosswalks that have columns embedded within them where geometry permits, to improve safety and the sightline of motorists.

Subway Signs : Install subway signs surrounding subway entrance.

Lane Dividers : Install lane dividers to delineate new travel lane.

Remove existing striping.

Neckdown : Extend neckdown to increase circulation space at the corner.

Lighting Beneath Elevateds : Add street lighting beneath elevated structure to increase visibility of motorists and create a more pleasant environment for pedestrians.

Netting or Bird Repellent : Place netting, non-toxic bird repellent gel, or a low-voltage electronic deterrent beneath the elevated structure to prevent birds from perching within the structure and creating sanitation problems on the street below.

Sidewalk widening : Recapture unnecessary roadbed for the greenway. The roadspace is excess and should be landscaped.

Transit Orientation : Install neighborhood, bicycle and subway maps on bus shelters.

Sidewalk Network Connection : Connect discontinuous sidewalk to greenway to provide improved access to the bus stop.

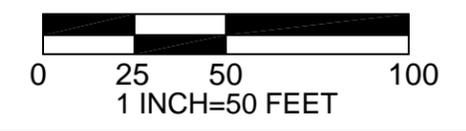
-  SUBWAY ENTRANCE
-  STREET TREE
-  STREET VENDOR
-  NEWSPAPER BOX
-  BUS SHELTER
-  PEDESTRIAN SIGNAL
-  GRATE
-  PARK BENCH
-  FENCE
-  TRAFFIC SIGNAL
-  STREET LIGHT
-  TRASH CAN
-  DUMPSTER
-  SIGNAGE
-  PARKING METER
-  FIRE HYDRANT
-  PHONE
-  MAIL BOX
-  BOLLARD
-  GRASS
-  BIKE RACK



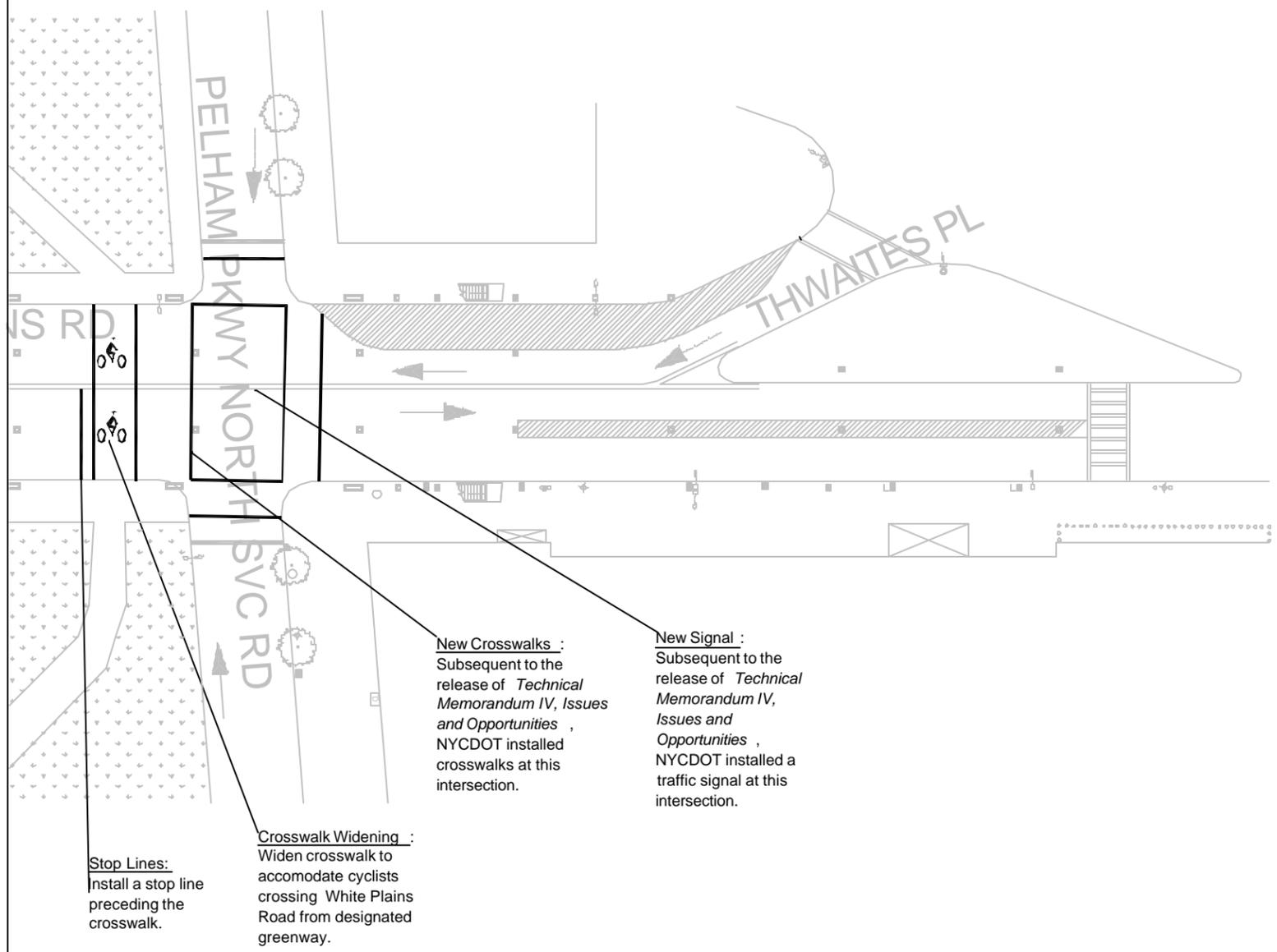
Drawing 2

PELHAM PARKWAY WHITE PLAINS ROAD

DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200
NEW YORK, NY



SURVEYED: MARCH 14, 2000
MAPPED: JUNE 13, 2000



New Crosswalks :
Subsequent to the release of *Technical Memorandum IV, Issues and Opportunities*, NYCDOT installed crosswalks at this intersection.

New Signal :
Subsequent to the release of *Technical Memorandum IV, Issues and Opportunities*, NYCDOT installed a traffic signal at this intersection.

Stop Lines:
Install a stop line preceding the crosswalk.

Crosswalk Widening :
Widen crosswalk to accommodate cyclists crossing White Plains Road from designated greenway.

-  SUBWAY ENTRANCE
-  STREET TREE
-  STREET VENDOR
-  NEWSPAPER BOX
-  BUS SHELTER
-  PEDESTRIAN SIGNAL
-  GRATE
-  PARK BENCH
-  FENCE
-  TRAFFIC SIGNAL
-  STREET LIGHT
-  TRASH CAN
-  DUMPSTER
-  SIGNAGE
-  PARKING METER
-  FIRE HYDRANT
-  PHONE
-  MAIL BOX
-  BOLLARD
-  GRASS
-  BIKE RACK



Third Avenue/East 149th Street (2,5)

The Third Avenue/East 149th Street station, also known as the Hub, is an intermodal station. While the station entrance is not on a traffic island, pedestrians must cross Willis Avenue or Third Avenue to reach a traffic island in order to make intermodal transfers. As a result, the station shares some of the same issues with such stations. The standard system-wide treatments being applied to this site are:

- Highlight concrete risers with bright thermoplastic
- Install bicycle racks at Roberto Clemente Plaza
- Install subway signs surrounding station entrances
- Install Light Emitting Diode (LED) lighting on all traffic signals
- Install universal pedestrian signals

Station-type:

- Install bus signage within the stations directing pedestrians to correct exits
- Install bus, neighborhood, and bicycle maps on bus shelters

Site-specific:

Roberto Clemente Plaza is not well-integrated into the intersection. The plaza is not easy to reach for pedestrians making intermodal transfers, nor is it aesthetically pleasing. Redesigning the intersection provides an opportunity to connect the plaza to the rest of the streetscape. The recommendations for this site include three redesign alternatives.

The preferred option (option A), and the most aggressive alternative, would close Willis Avenue to traffic and realign the curb to include Roberto Clemente Plaza. In addition, a bus only lane would be included in the design in order to provide seamless intermodal transfers between the subway and buses. A level of service analysis must be conducted in order to determine the feasibility of redirecting northbound Willis Avenue traffic to East 148th Street.

If this option were considered, the Bx55 and Bx15 buses, which travel along Willis Avenue, would have to be rerouted. Currently the Bx55 travels down Third Avenue and loops around Roberto Clemente Plaza and turns left onto Willis Avenue. Alternatively the bus could travel down Third Avenue and loop around at 146th Street, or the bus could turn left onto Brook Avenue, turn left onto 149th Street and then turn right onto Third Avenue. The northbound Bx15, which travels on Willis Avenue, could turn left onto 147th Street and then turn right onto Third Avenue.

The second option (option B), involves extending the curb along Willis Avenue, where the street meets Third Avenue, so that it aligns with Roberto Clemente Plaza. A stop sign and crosswalk should be



Third Avenue/East 149th Street station. Pedestrians cross Willis Avenue from Roberto Clemente Plaza without crosswalks.

installed at Willis Avenue to provide a direct connection from the subway entrance to Roberto Clemente Plaza.

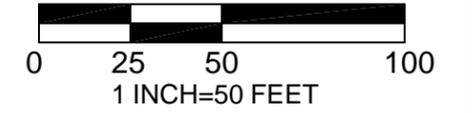
The third option (option C), is to install stop signs and stripe crosswalks traversing Willis Avenue, which leads to the plaza. A warrant analysis must be conducted in order to determine if the stop signs and crosswalks are warranted. The installation of stop signs and crosswalks would improve access to the plaza at locations where desire lines already exist. In addition, the signal timing at 149th Street and Willis Avenue should be adjusted so that traffic on Willis Avenue has a separate green phase from traffic on Third Avenue.

All three alternatives also include studying the feasibility of implementing a leading pedestrian interval for pedestrians crossing East 149th Street. This crossing was observed to have particularly high numbers of pedestrians who would benefit from extended crossing time.

Option A

3rd AVE 149th STREET SOUTH BRONX CBD

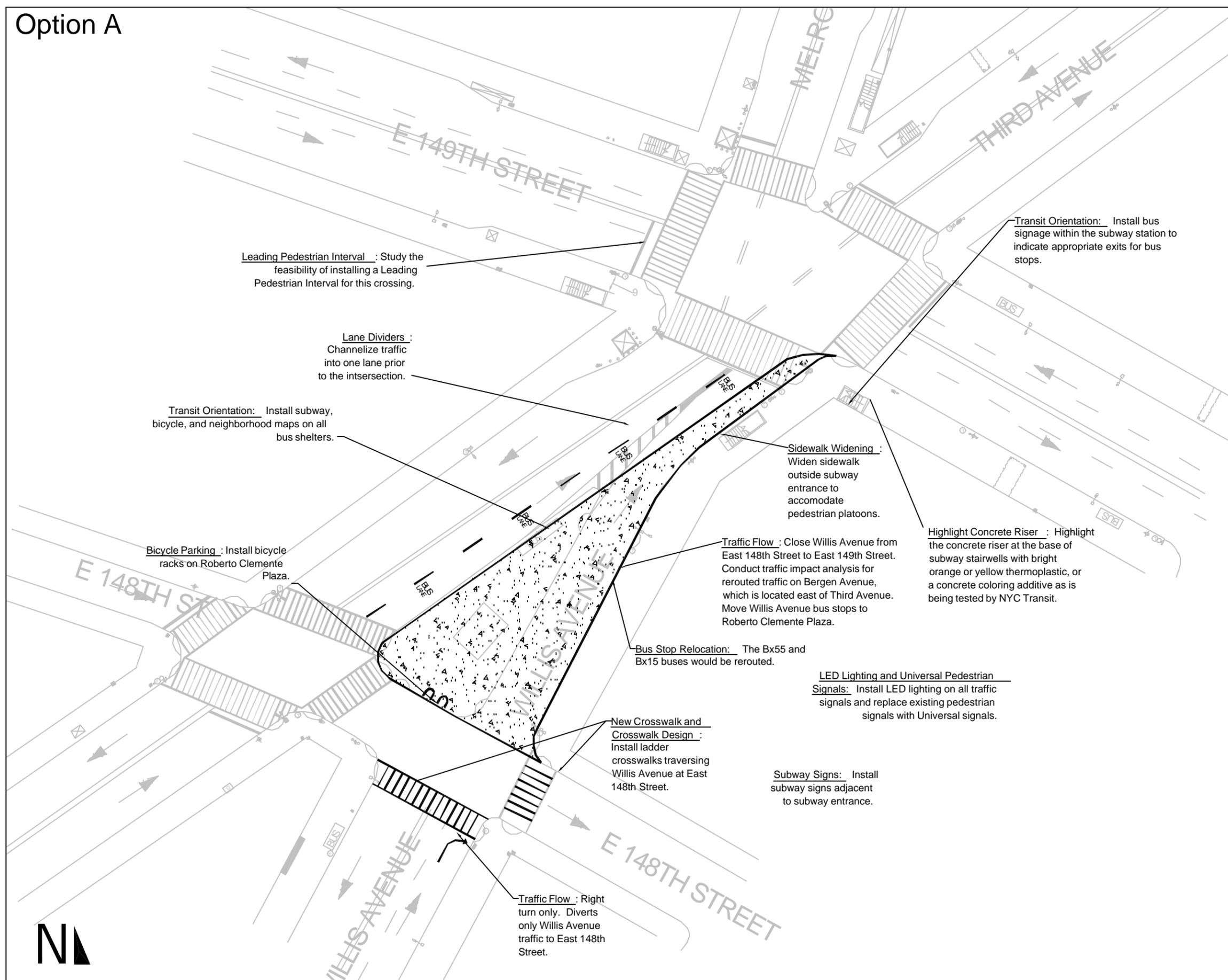
DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200
NEW YORK, NY



SURVEYED : JUNE 1, 2000

MAPPED : JULY 17, 2000

-  SUBWAY ENTRANCE
-  EMERGENCY CALL BOX
-  MARQUEES / AWNINGS
-  BUS SHELTER
-  CURB CUTS
-  STREET VENDOR
-  PEDESTRIAN SIGNAL
-  TRAFFIC SIGNAL
-  STREET LIGHT
-  ELEVATOR
-  TRASH CAN
-  DUMPSTER
-  SIGNAGE
-  PARKING METER
-  FIRE HYDRANT
-  PHONE
-  MAIL BOX
-  BOLLARD
-  NEWS PAPER BOX



Leading Pedestrian Interval : Study the feasibility of installing a Leading Pedestrian Interval for this crossing.

Lane Dividers : Channelize traffic into one lane prior to the intersection.

Transit Orientation: Install subway, bicycle, and neighborhood maps on all bus shelters.

Bicycle Parking : Install bicycle racks on Roberto Clemente Plaza.

Sidewalk Widening : Widen sidewalk outside subway entrance to accommodate pedestrian platoons.

Traffic Flow : Close Willis Avenue from East 148th Street to East 149th Street. Conduct traffic impact analysis for rerouted traffic on Bergen Avenue, which is located east of Third Avenue. Move Willis Avenue bus stops to Roberto Clemente Plaza.

Bus Stop Relocation: The Bx55 and Bx15 buses would be rerouted.

Highlight Concrete Riser : Highlight the concrete riser at the base of subway stairwells with bright orange or yellow thermoplastic, or a concrete coloring additive as is being tested by NYC Transit.

LED Lighting and Universal Pedestrian Signals: Install LED lighting on all traffic signals and replace existing pedestrian signals with Universal signals.

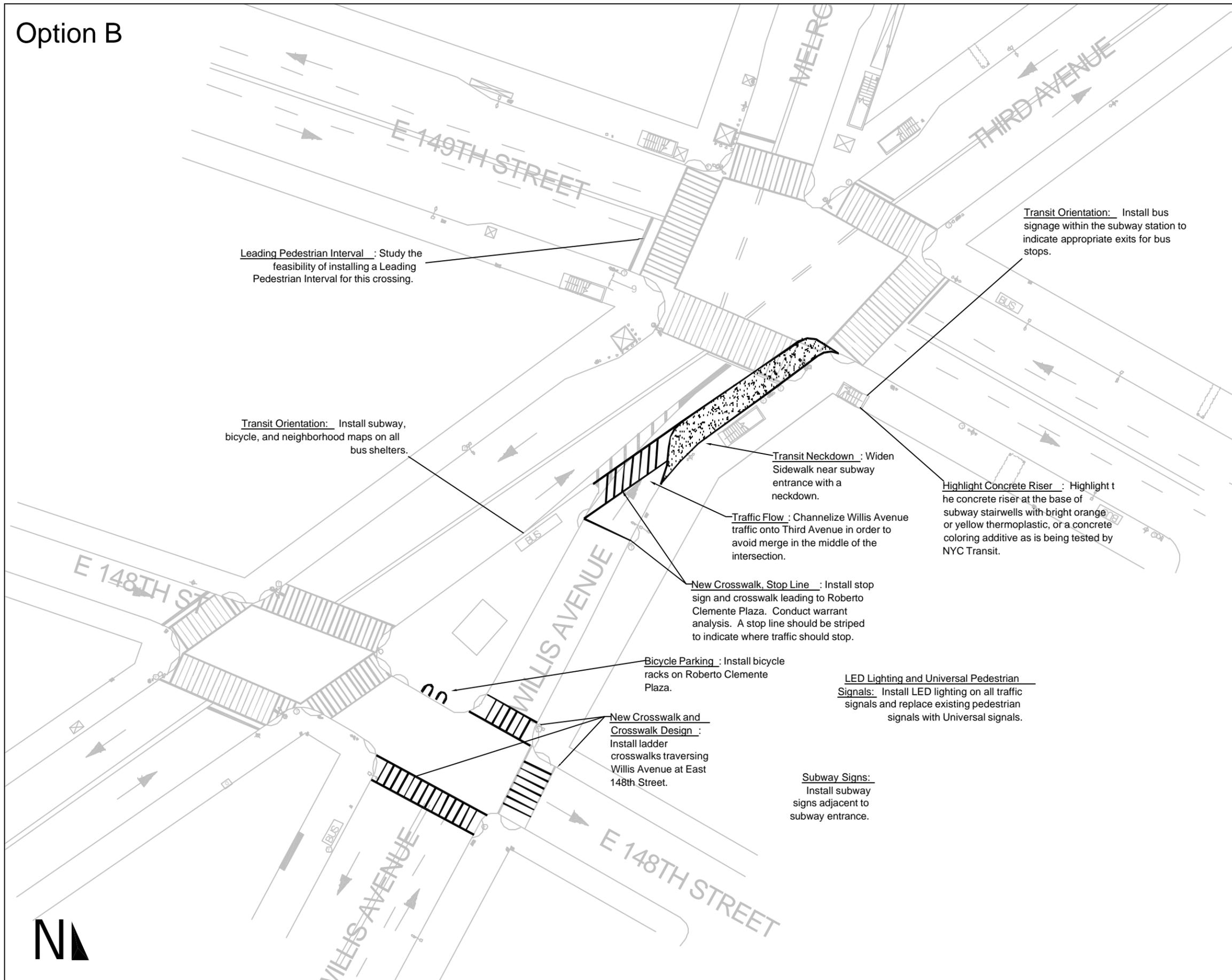
Subway Signs: Install subway signs adjacent to subway entrance.

New Crosswalk and Crosswalk Design : Install ladder crosswalks traversing Willis Avenue at East 148th Street.

Traffic Flow : Right turn only. Diverts only Willis Avenue traffic to East 148th Street.

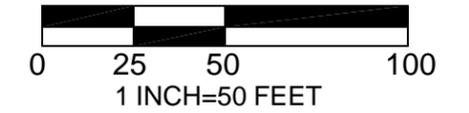


Option B



3rd AVE 149th STREET SOUTH BRONX CBD

DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200
NEW YORK, NY



SURVEYED : JUNE 1, 2000

MAPPED : JULY 17, 2000

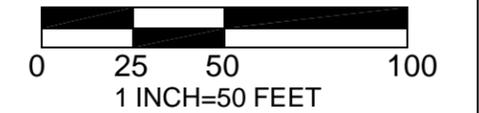
-  SUBWAY ENTRANCE
-  EMERGENCY CALL BOX
-  MARQUEES / AWNINGS
-  BUS SHELTER
-  CURB CUTS
-  STREET VENDOR
-  PEDESTRIAN SIGNAL
-  TRAFFIC SIGNAL
-  STREET LIGHT
-  ELEVATOR
-  TRASH CAN
-  DUMPSTER
-  SIGNAGE
-  PARKING METER
-  FIRE HYDRANT
-  PHONE
-  MAIL BOX
-  BOLLARD
-  NEWS PAPER BOX



Option C

3rd AVE 149th STREET SOUTH BRONX CBD

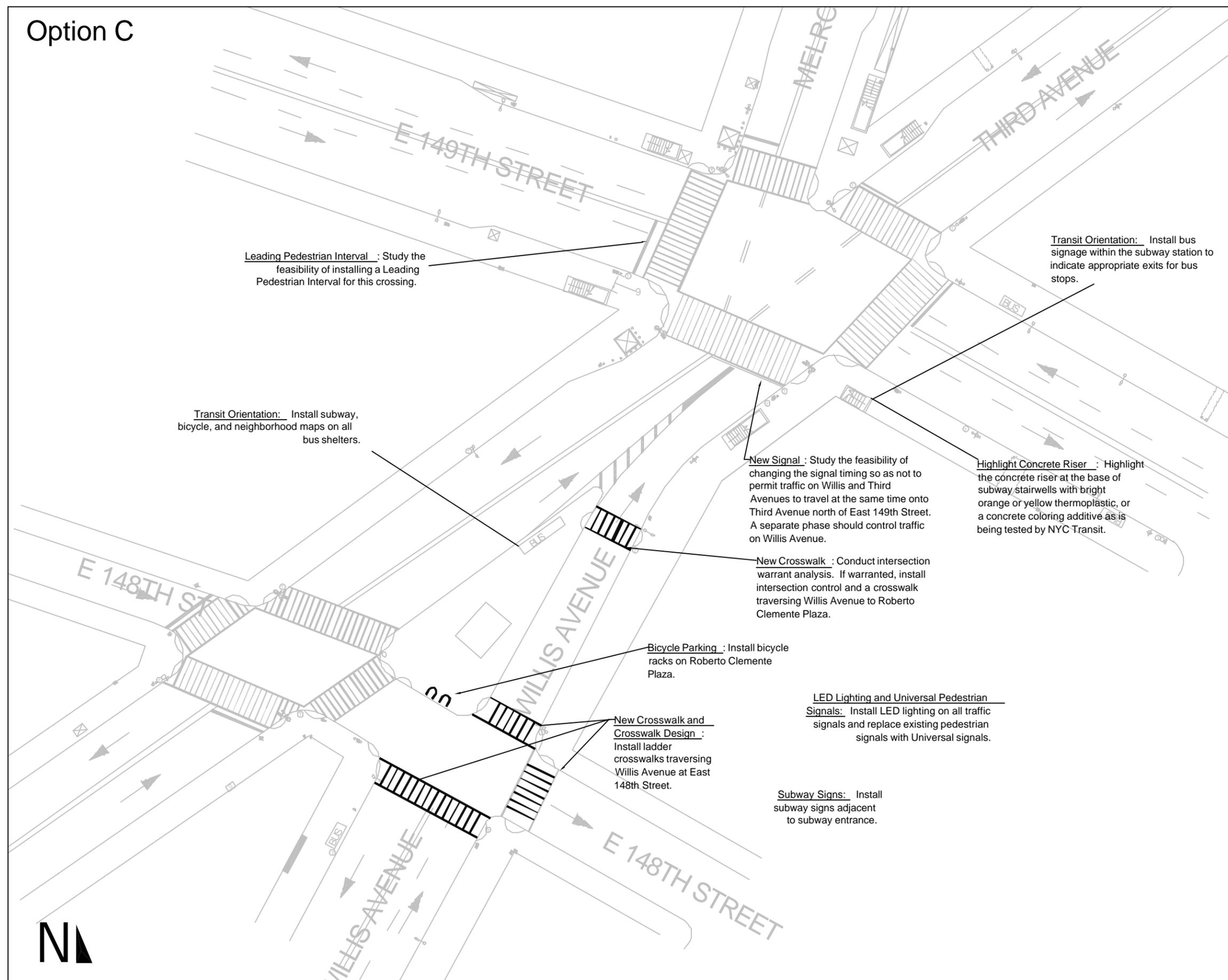
DEPARTMENT OF CITY PLANNING
TRANSPORTATION DIVISION
2 LAFAYETTE, RM 1200
NEW YORK, NY



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Leading Pedestrian Interval : Study the feasibility of installing a Leading Pedestrian Interval for this crossing.

Transit Orientation : Install subway, bicycle, and neighborhood maps on all bus shelters.

Transit Orientation : Install bus signage within the subway station to indicate appropriate exits for bus stops.

New Signal : Study the feasibility of changing the signal timing so as not to permit traffic on Willis and Third Avenues to travel at the same time onto Third Avenue north of East 149th Street. A separate phase should control traffic on Willis Avenue.

Highlight Concrete Riser : Highlight the concrete riser at the base of subway stairwells with bright orange or yellow thermoplastic, or a concrete coloring additive as is being tested by NYC Transit.

New Crosswalk : Conduct intersection warrant analysis. If warranted, install intersection control and a crosswalk traversing Willis Avenue to Roberto Clemente Plaza.

Bicycle Parking : Install bicycle racks on Roberto Clemente Plaza.

New Crosswalk and Crosswalk Design : Install ladder crosswalks traversing Willis Avenue at East 148th Street.

LED Lighting and Universal Pedestrian Signals : Install LED lighting on all traffic signals and replace existing pedestrian signals with Universal signals.

Subway Signs : Install subway signs adjacent to subway entrance.



Credits

NYC Department of City Planning

Amanda M. Burden, Director

Richard Barth, Executive Director

Sandy Hornick, Deputy Executive Director of Strategic Planning

Transportation Division

Jack Schmidt, Director

Kevin Olinger, Deputy Director

Scott Wise, Pedestrian, Bicycle and Greenway Projects Team Leader

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Rex Hodgson, Queens Site Manager

Miriam Herzfeld

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Purnima Kapur, Director

Nestor Danyluk, Borough Planner

NYC Department of Transportation

Iris Weinshall, Commissioner

Michael Primeggia, Deputy Commissioner of Traffic Operations

Anne-Marie Turner, Chief of Highway Design

Joseph Palmieri, Bronx Borough Commissioner

Planning Division

Dan Orlando, Chief of Alternative Modes

Holly Haff, Project Liaison