

# The Citywide Congested Corridor Project

## White Plains Road from East Tremont Street to East 233<sup>rd</sup> Street Borough of the Bronx Final Report

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A Member of the New York  
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## EXECUTIVE SUMMARY

The Citywide Congested Corridors Project (CCCP) is a study undertaken by the New York City Department of Transportation (NYCDOT) of selected roadways across the five boroughs which experience congestion, with the goals of improving mobility and safety for all street users (i.e., pedestrians, cyclists, transit users and motorists), air quality and the quality of life. White Plains Road in the Bronx has been selected as one of the congested corridors. This report presents the recommended improvement measures for the White Plains Road corridor, based on the analysis of existing and future conditions presented in previous technical memoranda.

The study area of the White Plains Road corridor extends from East Tremont Avenue on the south to East 233<sup>rd</sup> Street on the north.

Operational and safety deficiencies were identified as a result of data collection and analyses, field observations, and consultation with stakeholders, which includes residents, businesses, transportation providers, community board members, elected officials, local government agencies and various interest groups. The following is a summary of the major problems:

- Chronic peak hour congestion along segments of White Plains Road.
- Elevated subway columns which restrict visibility and limit access to curb lanes and bus stops, affecting operations and safety for both motorists and pedestrians.
- Double parking which affects traffic operations and safety.
- Lack of loading/unloading zones.
- Unsafe crosswalks due to conflicts with turning vehicles, crosswalk lengths and blind spots.

Improvement options were formulated, analyzed and presented to the stakeholders. One of the bold options that were considered includes converting White Plains Road to a one-way couplet; with northbound traffic to continue its existing operation between Bronxdale Avenue and Boston Road, and diverting southbound White Plains Road traffic to use the parallel Boston Road/ Uniondale/ Bronx Park East. This option of making White Plains Road one-way northbound between Bronxdale Avenue and Boston Road was ultimately rejected due to community concerns that the re-routed traffic would disrupt operations to Boston Road and White Plains Road by increasing the recirculation of southbound traffic. The improvements that were ultimately selected were further refined through the analysis and community outreach process. Most of the recommended short-term improvements have been implemented between 2010 and 2012; others will be implemented in 2013 or 2014. A capital project has been initiated for long-term improvements.

The major elements of the recommended improvements are:

- Signal phasing, timing and offset improvements.
- Installation of pedestrian countdown signals to improve pedestrian safety while crossing White Plains Road and at the cross streets of all major intersections. This measure has been implemented at all signalized intersections throughout the White Plains Road study corridor except at the Bronxdale Avenue and Pelham Parkway (North Mainline, South Mainline and South Service Road) intersections.

- Replace the traditional single-space parking meters with muni-meters along White Plains Road to increase parking capacity. This measure has been implemented throughout the White Plains Road study corridor except along the northbound curbside between Bronxdale Avenue and Brady Street (in front of Staples).
- Painting of the overhead subway superstructure and columns to keep up with maintenance needs, reduce visual clutter, and improve safety and appearance in order to reflect a more vibrant quality of life. This measure has been implemented throughout the White Plains Road study corridor.
- To reduce crossing distance, curb extensions have been built at the intersections of White Plains Road & Unionport Road/Baker Avenue, and White Plains Road & Sagamore Street. They are planned for long term implementation at White Plains Road & Morris Park Avenue, White Plains Road & Allerton Avenue, and White Plains Road & East 222<sup>nd</sup> Street.
- To provide pedestrian refuge, raised median islands have been built at the intersections of White Plains Road & Thwaites Place, White Plains Road & Sagamore Street and White Plains Road (Northbound) & East Gun Hill Road.
- To make Unionport Road one-way southbound by closing the northbound lanes between Van Nest Avenue and Mead Street in order to improve pedestrian safety and potentially expand Van Nest Park.
- To reduce congestion and improve safety by banning left turns at the eastbound approach of the White Plains Road & Boston Road (North) intersection.
- To reduce congestion by separating left turning vehicles from right turning vehicles, and by installing a left-turn bay for the eastbound approach at the White Plains Road & Pelham Parkway North Service Road intersection.
- To reduce congestion by separating right turning vehicles from the through vehicles, the following turn bays have been proposed:
  - Right-turn bay for westbound approach at White Plains Road & Morris Park Avenue.
  - Right-turn bay for westbound approach at White Plains Road & East 233<sup>rd</sup> Street intersection.
- Install a new traffic signal at the existing unsignalized intersection of White Plains Road & Boston Road (South) intersection.
- Other markings that are being installed to define roadway usage or enhance pedestrian and vehicular safety include:
  - Pavement markings (for subway column obstructions).
  - Stop bars set back 10 feet from crosswalks.

The recommended improvements address the most pressing issues that were identified through the study process and extensive community outreach, and are projected to improve operations and safety for all street users (i.e., pedestrians, cyclists, transit riders and motorists).

Southbound travel speeds along White Plains Road are projected to improve by 6.2%, 7.1%, and 3.5%, during weekday AM, midday and PM peak hours, respectively, during the year 2017 with improvements. Northbound travel speeds are projected to improve about 3.4 % only during the weekday PM peak hours. For all intersection approaches on the corridor, including the roadways that cross White Plains Road, the number of marginally unacceptable (LOS mid-D to E) or unacceptable (LOS F) approaches is projected to be reduced from 12 to 7 during the

weekday AM peak hour, from 3 to 1 during the weekday midday peak hour, from 10 to 4 during the weekday PM peak hour, and from 7 to 2 during the Saturday midday peak hour. Under the 2017 with improvements condition, air quality is projected to improve with fewer emissions from vehicles. Emission rate improvements are projected to be about 20.8%, 6.3%, 13.3% and 13.6 % for the weekday AM, midday, PM and Saturday midday peak hours, when compared to the project's 2017 without improvements condition.

The corridor will be monitored to assess the effectiveness of the improvements in 2014.



# INTRODUCTION

## 1. INTRODUCTION

The Citywide Congested Corridors Project (CCCP) is a study undertaken by the New York City Department of Transportation (NYCDOT) of selected roadways across the five boroughs which experience congestion, with the goals of improving mobility and safety for all street users, air quality and the quality of life. The study is consistent with the City's goal of building "Complete Streets" that accommodate all street users including pedestrians, cyclists, transit users and motorists. It is funded by the federal Congestion Mitigation and Air Quality (CMAQ) Improvement program.

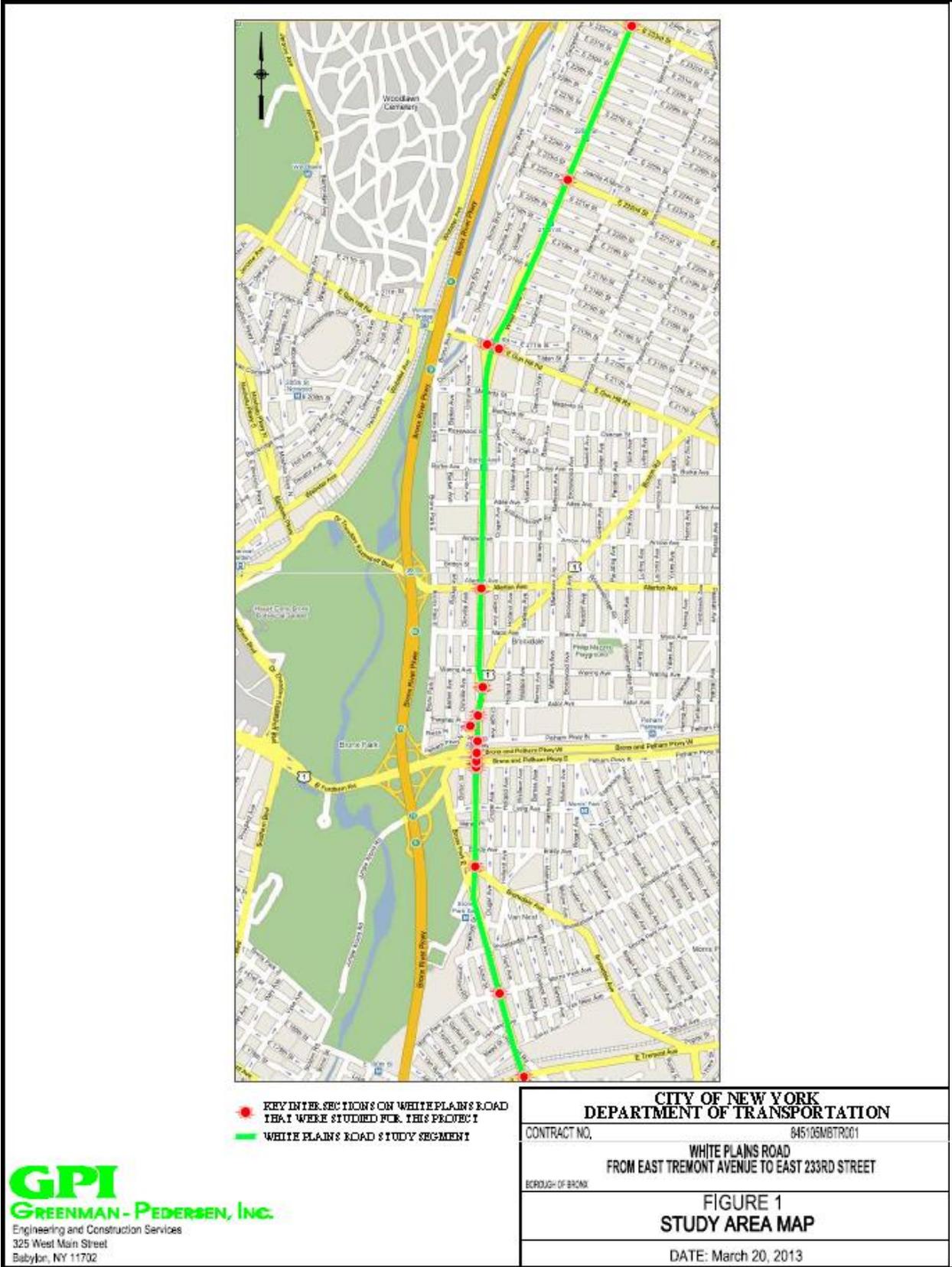
Through an evaluation process, NYCDOT has identified White Plains Road in the Bronx as one of the congested corridors to be studied under the CCCP. The study area is the 3.8 mile long segment of White Plains Road from East Tremont Avenue to the south to East 233<sup>rd</sup> Street to the north. It traverses the communities of Parkchester, Van Nest, Pelham Parkway, Bronxdale, Olinville, Williamsbridge and Wakefield in Community Boards 11 and 12. Figure 1 shows the Study Area Map. The study area consists of diverse neighborhoods with heavy concentrations of retail, commercial and residential land uses. In recent years, increased traffic and pedestrian activities on White Plains Road have created operational and safety deficiencies that require development and implementation of a congestion mitigation program.

Within the study segment, the curb-to-curb width of White Plains Road varies between 60 and 80 feet. There are elevated subway lines that provide convenient mass transit between the Bronx, Manhattan and Brooklyn. Between East Tremont Avenue and Bronxdale Avenue, White Plains Road typically consists of two-travel lanes in each direction, accompanied by curbside parking lanes. Between Bronxdale Avenue and East 233<sup>rd</sup> Street, roadway utilization is effectively limited to one travel lane in each direction due to the columns supporting the elevated subway lines running above White Plains Road. Within this segment, White Plains Road typically consists of one-travel lane in each direction with curbside parking lanes and a narrow curb lane between the parking lanes and the subway columns. The longitudinal center-to-center distance between these subway columns is approximately 50 feet and they are located along both sides of White Plains Road about 15 feet laterally from the edge of the roadway within the curb-to-curb width. The subway columns restrict the curb lane from being utilized as a continuous travel lane. As a result, bus movement along the curb lane is not possible and passenger pick-up/drop-off occurs within the travel lanes. Figure 2 illustrates a typical cross-sectional detail of White Plains Road.

Also included in this study is a short segment of Boston Road between White Plains Road (North intersection) and White Plains Road (South intersection). Both White Plains Road and Boston Road run north-south in this area. Just north of Pelham Parkway, White Plains Road crosses Boston Road. Due to the skewed roadway layouts, northbound White Plains Road traffic merges into Boston Road and continues on Boston Road for approximately 500 feet before it diverges left and continues again as White Plains Road. As a result of this configuration, this portion of Boston Road is not only subjected to its own traffic volume but also the merging volume that is pass-through traffic from White Plains Road.

This Final Report documents the evaluation of recommended improvements, which is the conclusion of a planning process that included extensive community outreach, analysis of existing and future without improvements conditions, the development of improvement measures, and the analysis of future with improvements conditions.

# 1 INTRODUCTION



# 1 INTRODUCTION



*Figure 2: Typical view of White Plains Road Study Area depicting elevated subway columns & travel lanes*



# INTRODUCTION

The community outreach effort was a critical component of the study process. NYCDOT and its consultant held multiple meetings with project advisory committee (PAC) members as well as the community at-large to present the extent of the study area, selection of study intersections, collection of operational and safety data, and analysis of the existing and future without improvements conditions; identify safety and operational deficiencies; and obtain feedback to fine tune the improvement measures. These meetings consisted of various stakeholders including residents, businesses, transportation providers, community board members, elected officials, local government agencies and various interest groups. Input from these meetings was incorporated in the development of the various improvement options and the selection of the recommended improvements.

Additionally, the following technical memoranda were issued as the study process developed:

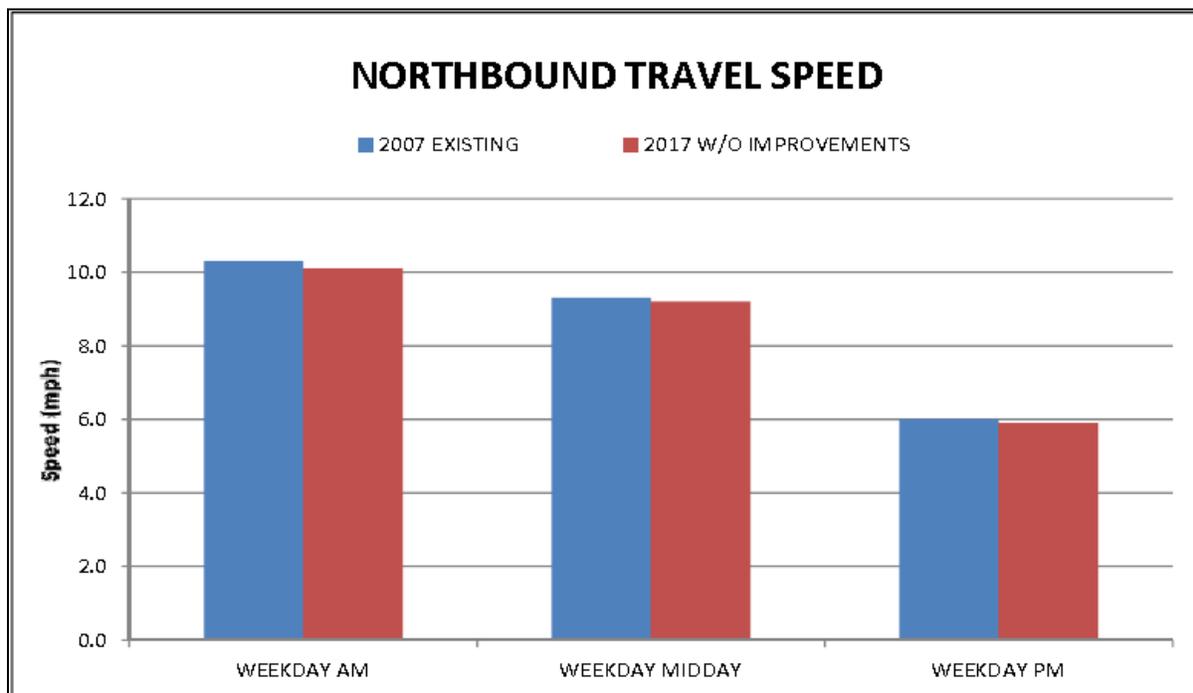
- *Technical Memorandum No. 1: Data Compilation, April 30, 2008*
- *Technical Memorandum No. 2: Existing And Future Without Improvements Conditions, Data Compilation, June 18, 2009.*

## 2. EXISTING AND FUTURE WITHOUT IMPROVEMENTS CONDITIONS

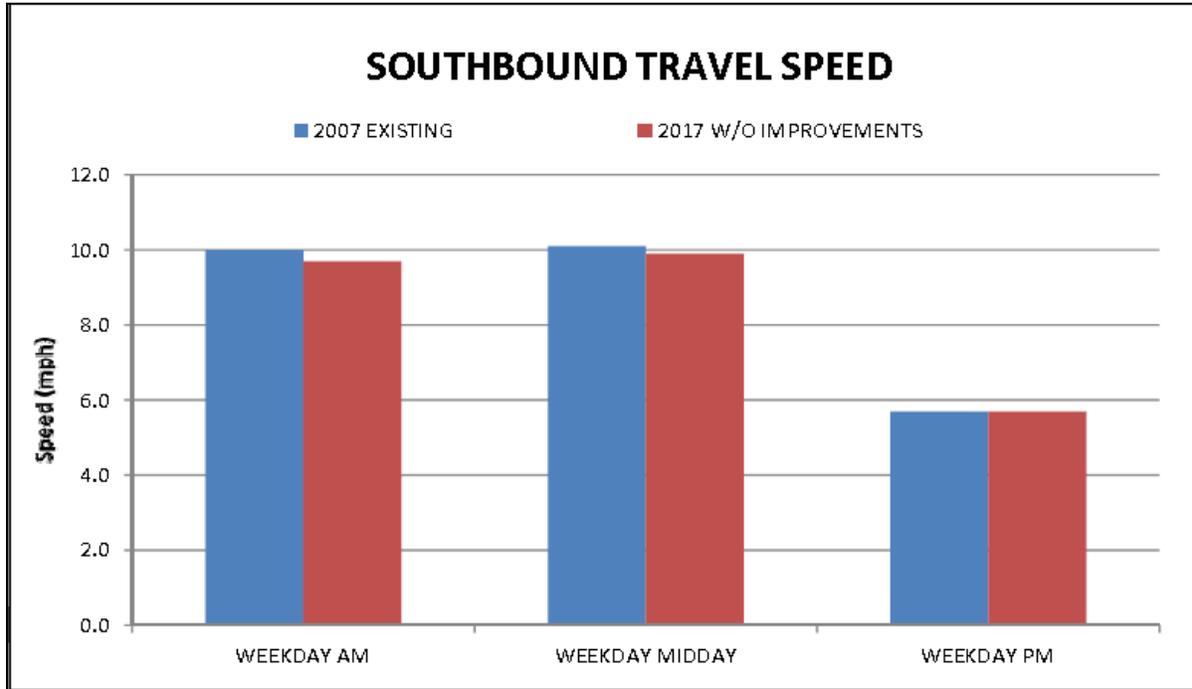
A combination of heavy traffic volumes, pedestrian volumes and geometric constraints makes this corridor challenging to provide safe and efficient operations for all street users. Detailed information regarding the comprehensive assessment and analysis of existing and future without improvements traffic conditions along White Plains Road was presented in TM No. 2: *Existing And Future Without Improvements Conditions*, dated June 18, 2009. Key findings are presented in this section.

### 2.1 TRAFFIC OPERATIONS

White Plains Road generally operates under congested traffic conditions during the weekday AM, midday, and PM peak periods. Existing and projected future without improvement travel speeds for the northbound and southbound directions are presented in Figures 3 and 4, respectively. The existing travel speeds are averages from actual travel time trials conducted in 2007. The future without improvement travel speeds were projected for the year 2017 using Synchro traffic modeling software, using growth rates given in the *City Environmental Quality Review (CEQR) Technical Manual*. No major projects that would affect traffic in the study area were identified by the Department of City Planning.



*Figure 3: Northbound Peak Period Average Travel Speeds for White Plains Road from East Tremont Avenue to East 233<sup>rd</sup> Street*



*Figure 4: Southbound Peak Period Average Travel Speeds for White Plains Road from East Tremont Avenue to East 233rd Street*

Existing travel speeds during the three peak periods of study varied between 5.7 and 10.3 mph. Congested conditions are projected to worsen in the future without any improvements. Figure 5 illustrates congestion in the northbound direction during the weekday midday peak period, where 2017 future without improvements travel speed is projected to average 9.2 mph. For both the northbound and southbound directions, the PM peak travel speeds are worse than other peak hours, averaging under 6 mph for both directions.



*Figure 5: Typical Midday Peak Hour along White Plains Road*

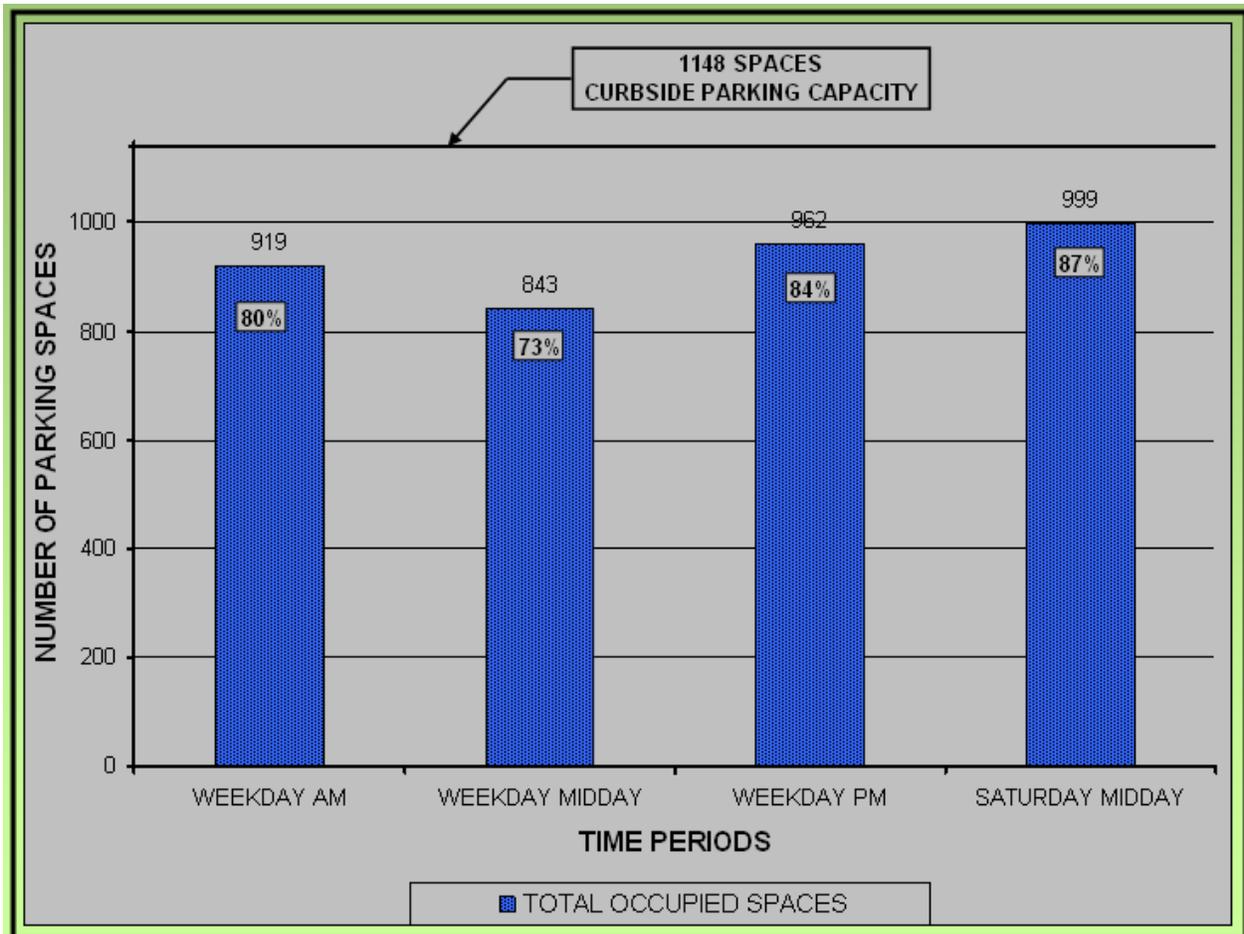
# 2

# EXISTING CONDITION

## 2.2 PARKING

On-street parking utilization within the 48 block project study area is close to capacity during the weekday AM, PM and Saturday midday peak hours (See Figure 6). Of the available legal 1148 curbside parking spaces within the study area, about 80% to 87% are noted to be occupied during these peak hours. Block by block parking assessments have further indicated that during the PM peak about 17 out of the 48 blocks surveyed are operating above their available parking capacity (See Table 1). In addition, there are approximately 390 off-street parking spaces within the study area. Depending upon the time of the day, the off-street parking utilization is also more than 80% during weekdays and about 70% during weekends (Saturday) (See Table 2).

Illegally parked vehicles during these peak hours further exacerbate roadway safety and operations. The lack of loading zones makes it difficult for trucks to make deliveries (See Figure 7). High parking utilization that is noted to be concentrated along various blocks (mainly busy retail blocks) also results in increased congestion due to the circulation of traffic on White Plains Road as motorists attempt to find vacant parking spaces near their desired destination point.



*Figure 6: White Plains Road Peak Hour Curbside Parking Utilization*

**TABLE 1****WHITE PLAINS ROAD PM PEAK HOUR – CURBSIDE PARKING – SUMMARY OF LOCATIONS OVER CAPACITY**

<b>BLOCK LOCATION</b>		<b>AVAILABLE PARKING SPACES</b>	<b>LEGALLY PARKED CARS</b>	<b>ILLEGALLY PARKED CARS</b>	<b>PARKING OCCUPANCY PERCENTAGE</b>
<b>FROM</b>	<b>TO</b>				
Mead Street	Vannest Avenue	4	3	2	125%
Morris Park Avenue	Rhineland Avenue	36	35	20	153%
Bronxdale Avenue	Brady Avenue	13	11	6	131%
Lydig Avenue	Pelham Parkway SSR	53	41	18	111%
Pelham Parkway NSR	Boston Road	9	9	0	100%
Boston Road	Waring Avenue	14	10	11	150%
Mace Avenue	Allerton Avenue	42	41	4	107%
Lester Street	Burke Avenue	12	11	6	142%
Magenta Street	East Gun Hill Road	55	41	14	100%
E 217th Street	E 218th Street	13	9	4	100%
E 219th Street	E 220th Street	13	11	8	146%
E 224th Street	E 225th Street	17	16	2	106%
E 226th Street	E 227th Street	16	12	4	100%
E 227th Street	E 228th Street	15	13	2	100%
E 229th Street	E 230th Street	12	8	7	125%
E 231st Street	E 232nd Street	16	15	10	156%
E 232nd Street	E 233rd Street	14	13	8	150%

**TABLE 2**  
**WHITE PLAINS ROAD - PEAK HOUR OFF-STREET PARKING UTILIZATION**

LOCATION NUMBER	PARKING FACILITY LOCATION	FACILITY TYPE	TOTAL PARKING SPACES	PEAK HOUR OCCUPIED PARKING SPACES			
				AM PEAK	MIDDAY PEAK	PM PEAK	SAT PEAK
1A	N of Unionport Rd @ Bronx Park E & Bronxdale Ave.	Public/Free Parking Lot	46	29	46	46	42
1B	S of Unionport Rd @ Bronx Park E & Bronxdale Ave.	Public/Free Parking Lot	27	20	27	27	23
2A	Brady Ave. & Maran PL	Municipal Parking Lot Paid Parking - Red Zone	68	47	60	50	31
2B	Brady Ave. & Maran PL	Municipal Parking Lot Paid Parking - Green Zone	23	19	23	22	13
3	Pelham Parkway NS Rd @ Boston Rd & Barker Ave.	Public/Free Parking Lot	42	40	42	42	38
4	E 212nd St. & E 213rd St.	Public/Free Parking Lot	24	24	24	24	24
5	Ray's Parking - White Plains Parking Lot* on Magenta St & Bartholdi St	Private /Paid Parking Lot	60	67	69	68	55
6	E & N Parking Lot** on Britton St & Arnov Ave.	Private /Paid Parking Lot	100	70	57	52	50
<b>OFF - STREET PARKING TOTAL</b>			<b>390</b>	<b>316</b>	<b>348</b>	<b>331</b>	<b>276</b>

Notes:

1. Parking Location Nos. 1A and 1B are located on the roadside in between Bronx Park East and Bronxdale Avenue/Unionport Road.
2. Parking Location Nos. 2A and 2B are located within the same boundary/lot.
3. Red Zone, Location No. 2A represents space for paid parking by permits.
4. Green Zone, Location No. 2B represents space for paid public parking.
5. Parking Location No. 4 is located under the train tracks.
6. \* In Parking Lot Location No. 5, the cars that were observed parked were more than the posted capacity of the lot (the advertised capacity is 60).
7. \*\* Depending upon the type of vehicles parked, the parking space could vary between 50 to 100 vehicles (as posted on the parking lot advertisement).



*Figure 7: Typical Illegal Double Parking Activity noted along White Plains Road*

### 2.3 SAFETY

A crash inventory conducted within the study area during a three-year period has indicated a total of 303 reportable crashes (Figure 8). Among these crashes, 200 were vehicle-to-vehicle crashes, 74 involved pedestrians and 17 involved bicycles. The greatest number of intersection crashes occurred at the intersection of White Plains Road and Pelham Parkway North Mainline. At this intersection, there were a total of 24 crashes within the three year study period. Similarly, the East Tremont Avenue intersection with White Plains Road had a total of 23 crashes within the same period. There were two fatal crashes, one just outside the study area near East Tremont Avenue and the other at the intersection of Allerton Avenue, involving a pedestrian. The top contributing factors for these crashes, based on police reports, were vehicle malfunction, driver inattention, failure to yield right of way, and pedestrian error/confusion.

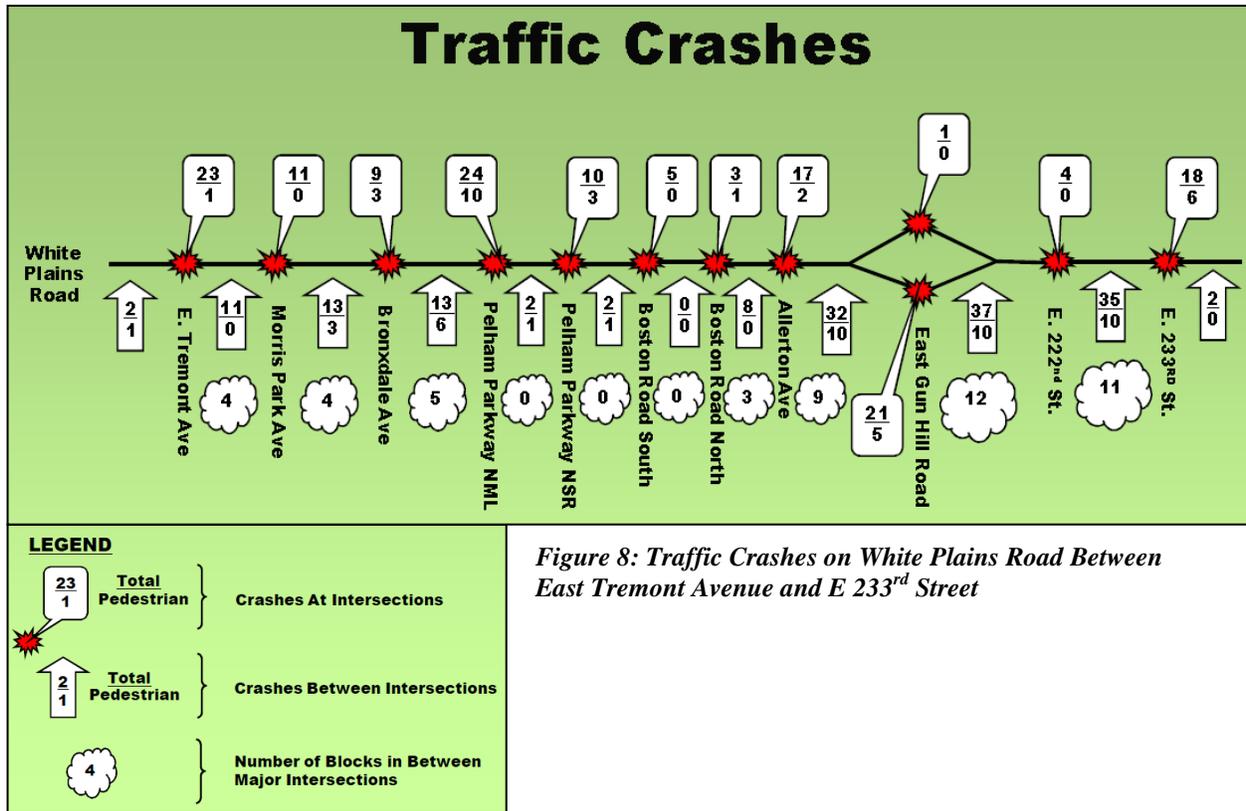


Figure 8: Traffic Crashes on White Plains Road Between East Tremont Avenue and E 233<sup>rd</sup> Street

## 2.4 PEDESTRIANS

An existing condition pedestrian assessment was conducted at all the study intersections shown in Figure 1. The crosswalk and street corner analysis at these intersections has shown no negative capacity impacts resulting from pedestrian activity along White Plains Road. Thus, from a pedestrian capacity standpoint (during peak hours of traffic operations) comfortable pedestrian LOS exists at all analyzed locations within the study area. However, it is important to note that due to the presence of the elevated subway columns, there are many intersection corners where the pedestrians are not visible to vehicular traffic while emerging to cross the intersection. These blind spots make pedestrians vulnerable to vehicular and pedestrian conflicts (see Figures 9 & 10). The subway columns also prohibit buses from using the curb lanes, so passengers are often picked-up or dropped-off within the travel lanes, creating unsafe conditions for these pedestrians. Additionally, there are wide pedestrian crossings at the signalized intersections along the study corridor which further exposes pedestrians to traffic operations and increases the potential for vehicle-pedestrian conflicts.



*Figure 9: Pedestrian Activity at White Plains Road and Pelham Parkway North Service Road, Northeast Corner*



*Figure 10: Typical Pedestrian Activity at White Plains Road Sidewalks*

## 2.5 MASS TRANSIT

White Plains Road is well connected to mass transit service. Operating within the White Plains Road study area are 18 bus lines (BX39, BX22, BX41, BX8, BX40/42, BX21, BX12, BL60, BL61, BL62, BX25/26, BX28, BX30, BX55, BX31, BL42, BXM10, BXM10, & BXM11) and two subway lines (Nos. 2 and 5). There are four major subway-bus transfer points within the study area. During peak commuting hours, the subway-bus transfer points are subject to significant traffic and pedestrian activity. Since the positioning of elevated subway columns on White Plains Road does not allow buses to continuously use the curb lanes in either direction, passengers are often picked-up or dropped-off within the travel lane (sometimes behind these elevated subway columns). This creates unsafe conditions and adds the potential for pedestrian-vehicle conflicts. Additionally, since the roadway segment is limited to the use of only one effective moving lane at a majority of roadway segments (due to the elevated subway columns), these mid-travel lane bus stops block the continuous flow and create additional delays to traffic operations (See Figures 11 thru 13).



*Figure 11: Southbound Bus Picking-Up/Dropping-Off Passengers within Travel Lanes While Northbound Bus Maneuvers Between Columns to Access Bus Stop On White Plains Road*



*Figure 12: Typical Bus Stop Activity along White Plains Road*



*Figure 13: Bus Passengers Waiting Within Travel Lanes For Pick-Up At A Subway-Bus Transfer Point On White Plains Road*

## 2.6 AIR QUALITY

Motorized traffic activity is demonstrated to be one of the significant sources contributing to air contamination. The pollutants emitted by motor vehicles include carbon monoxide (CO), volatile organic compounds (VOC), and oxides of nitrogen (NOX), among others. All of these are detrimental to human health.

Traffic congestion increases the emission rates of these contaminants in the air mix. Traffic analysis conducted for White Plains Road has shown that the congested traffic conditions during the weekday AM, weekday midday, weekday PM and Saturday midday peak hour contribute to the high air quality emission rates of CO, VOC and NOX (Table 3). During these four peak hours, the CO emission rates range between 17.25 to 28.74 kilograms per hour, the VOC emission rates range between 4.00 to 6.66 kilograms per hour, and NOX emission rates range between 3.36 to 5.59 kilograms per hour. In the 2017 future without improvements condition, the CO emission rates for the weekday AM, weekday midday, weekday PM and Saturday midday peak hours are projected to degrade to the range of about 18.48 to 33.03 kilograms per hour, VOC emission rates are projected to degrade to the range of about 4.28 to 7.65 kilograms per hour, and NOX are projected to degrade to the range of about 3.60 to 6.43 kilograms per hour. Thus, any recommendations proposed for this project to reduce traffic congestion are expected to improve the air quality of the study area. Please note that the future projected emission rates do not account for improved emission standards or alternative fuels for new vehicles.

TABLE 3

**WHITE PLAINS ROAD PEAK HOUR – NETWORK AIR QUALITY SUMMARY - EXISTING CONDITION  
(2007)**

PEAK HOUR	CONTAMINANTS	EXISTING CONDITION 2007 SYNCHRO EMISSION RATES (Kilograms Per Hour)	FUTURE WITHOUT IMPROVEMENTS 2017 SYNCHRO EMISSION RATES (Kilograms Per Hour)	EMISSION RATES COMPARISON % BETWEEN 2007 EXISTING VERSUS 2017 FUTURE WITHOUT IMPROVEMENTS
WEEKDAY AM PEAK HOUR	NOX	5.59	6.43	-15.0%
	VOC	6.66	7.65	-14.9%
	CO	28.74	33.03	-14.9%
WEEKDAY MIDDAY PEAK HOUR	NOX	3.36	3.60	-7.1%
	VOC	4.00	4.28	-7.0%
	CO	17.25	18.48	-7.1%
WEEKDAY PM PEAK HOUR	NOX	5.19	5.81	-11.9%
	VOC	6.18	6.93	-12.1%
	CO	26.66	29.88	-12.1%
SATURDAY MIDDAY PEAK HOUR	NOX	4.51	4.99	-10.6%
	VOC	5.37	5.94	-10.6%
	CO	23.16	25.64	-10.7%

Note:

1. Negative (-) percentages represent degradation in air quality when compared to existing conditions.

### 3. IMPROVEMENTS

In a geometrically constrained roadway network such as White Plains Road, with heavily built-up surroundings and limited right-of-way, the most significant traffic operational benefits could be achieved by optimizing the traffic network, taking advantage of locations where geometrical “spot improvements” could be implemented, and applying traffic operational management strategies. Without the luxury of adding additional travel lanes or turn lanes in the constrained area, attention was focused on implementing efficient traffic control strategies and effective use of the available roadway in order to sustain growth and improve traffic and pedestrian operations and safety.

As such, alternatives that were included in the screening and assessment process were confined to utilizing the available curb-to-curb widths of White Plains Road. The improvements fall into seven broad categories:

- Traffic Signal Timing and Offsets
- Pavement Markings
- Traffic Signage
- Pedestrian Countdown Signals
- Parking
- Painting of Overhead Subway Superstructure
- Intersection-Specific Improvements

Sections 3.1 through 3.7 describe these improvements in detail. Section 3.8 briefly describes improvements that were considered but not recommended. Section 3.9 briefly describes studies which were beyond the scope of this report that could be further initiated to improve traffic operations.

#### 3.1 TRAFFIC SIGNAL TIMING AND OFFSETS

During the traffic assessment, community walk-throughs and various field visits, it was noted that the existing traffic signal timing and offsets along White Plains Road did not provide for smooth traffic flow. Much of this is due to the fact that there are many major roadways that cross White Plains Road which are also subjected to significant traffic activity during peak hours. These roadways also require good progression, and the challenge was to improve traffic capacity and progression on White Plains Road while maintaining, or even improving, flow on the cross roadways. Synchro software was used to improve the network as a whole. Table 4 presents the recommended signal phasing, timing and offset improvements to be implemented in 2013.

# 3 IMPROVEMENTS

**TABLE 4  
SIGNAL PHASING, TIMING AND OFFSET CHANGES  
OFFSET REFERENCED TO START OF GREEN ON MAJOR STREET  
MAJOR STREET LISTED FIRST**

LOCATION	PEAK HOUR	PHASING	TIMING
White Plains Road & East Tremont Avenue	AM	--	Cycle 120, White Plains -1 to 47, E Tremont +1 to 73
	MIDDAY	--	--
	PM	--	Cycle 120, White Plains -1 to 47, E Tremont +1 to 73
	SATURDAY	--	--
White Plains Road & Morris Park Avenue	AM	--	--
	MIDDAY	--	--
	PM	--	--
	SATURDAY	--	--
White Plains Road & Bronxdale Avenue	AM	--	--
	MIDDAY	--	--
	PM	--	--
	SATURDAY	--	--
White Plains Road & Pelham Parkway SSR	AM	--	--
	MIDDAY	--	--
	PM	--	Cycle 120, White Plains -1 to 66, Pelham Parkway SSR +1 to 54
	SATURDAY	--	Cycle 120, White Plains -1 to 66, Pelham Parkway SSR +1 to 54
White Plains Road & Pelham Parkway South Mainline	AM	--	--
	MIDDAY	--	--
	PM	--	Cycle 120, White Plains -1 to 66, Pelham Parkway SSR +1 to 54
	SATURDAY	--	Cycle 120, White Plains -1 to 66, Pelham Parkway SSR +1 to 54
White Plains Road & Pelham Parkway North Mainline	AM	--	--
	MIDDAY	--	--
	PM	--	--
	SATURDAY	--	--
White Plains Road & Pelham Parkway NSR	AM	--	--
	MIDDAY	--	--
	PM	--	--
	SATURDAY	--	--

# 3 **IMPROVEMENTS**

**TABLE 4 (CONT'D)  
SIGNAL PHASING, TIMING AND OFFSET CHANGES  
OFFSET REFERENCED TO START OF GREEN ON MAJOR STREET  
MAJOR STREET LISTED FIRST**

LOCATION	PEAK HOUR	PHASING	TIMING
White Plains Road & Boston Road (South)	AM	From Stop to signal control	Cycle 90, White Plains Road 35, Boston Road 55
	MIDDAY	From Stop to signal control	Cycle 90, White Plains Road 37, Boston Road 53
	PM	From Stop to signal control	Cycle 120, White Plains Road 52, Boston Road 68
	SATURDAY	From Stop to signal control	Cycle 120, White Plains Road 52, Boston Road 68
Boston Road & Thwaites Place	AM	--	Cycle 90, Boston Road -2 to 52, Thwaites Place +2 to 38
	MIDDAY	--	Cycle 90, Boston Road -4 to 50, Thwaites Place +4 to 40
	PM	--	Cycle 120, Boston Road +15 to 65, Thwaites Place -15 to 55
	SATURDAY	--	Cycle 120, Boston Road +15 to 65, Thwaites Place -15 to 55
White Plains Road & Allerton Avenue	AM	--	--
	MIDDAY	--	--
	PM	--	--
	SATURDAY	--	--
White Plains Road NB & East Gun Hill Road	AM	--	--
	MIDDAY	--	--
	PM	--	--
	SATURDAY	--	--
White Plains Road SB & East Gun Hill Road	AM	--	--
	MIDDAY	--	--
	PM	--	--
	SATURDAY	--	--
White Plains Road & East 222nd Street	AM	--	Cycle 60, White Plains +2 to 36, E 222nd Street -2 to 24
	MIDDAY	--	--
	PM	--	--
	SATURDAY	--	--
White Plains Road & East 233rd Street	AM	--	--
	MIDDAY	--	--
	PM	--	--
	SATURDAY	--	--

### 3.2 PAVEMENT MARKINGS

A pavement marking plan has been prepared for implementation in order to define roadway lane usage, especially due to the presence of columns supporting the elevated subway lines on White Plains Road. A typical detail of this plan is presented in Figure 14. Implementation of this pavement marking plan will provide positive guidance to the traveling public by delineating the travel lane and directing traffic away from the obstruction. This pavement marking plan will also help improve pedestrian safety. This pavement marking plan has already been implemented along some parts of White Plains Road.

Furthermore, most of the pavement markings at key intersections, including crosswalks and stop bars, are worn out and thus are poorly visible. These pavement markings will be refurbished to help enhance pedestrian and vehicular safety along White Plains Road.

### 3.3 TRAFFIC SIGNAGE

Due to the presence of columns supporting the elevated subway lines, buses cannot utilize the curbside lane at a vast majority of bus stop locations along White Plains Road. As a result of this limitation, passengers are frequently seen standing hidden behind the subway columns (in the middle of the curb lane) and are picked-up and dropped-off by buses stopping in the White Plains Road travel lane. This not only creates traffic delays but exposes pedestrians to traffic and creates unsafe pedestrian conditions. While it is not possible to remove the subway columns to accommodate buses using the curb lane, it is possible to improve safety at these bus stop locations by providing positive guidance to the motorists. This could be achieved by the following considerations:

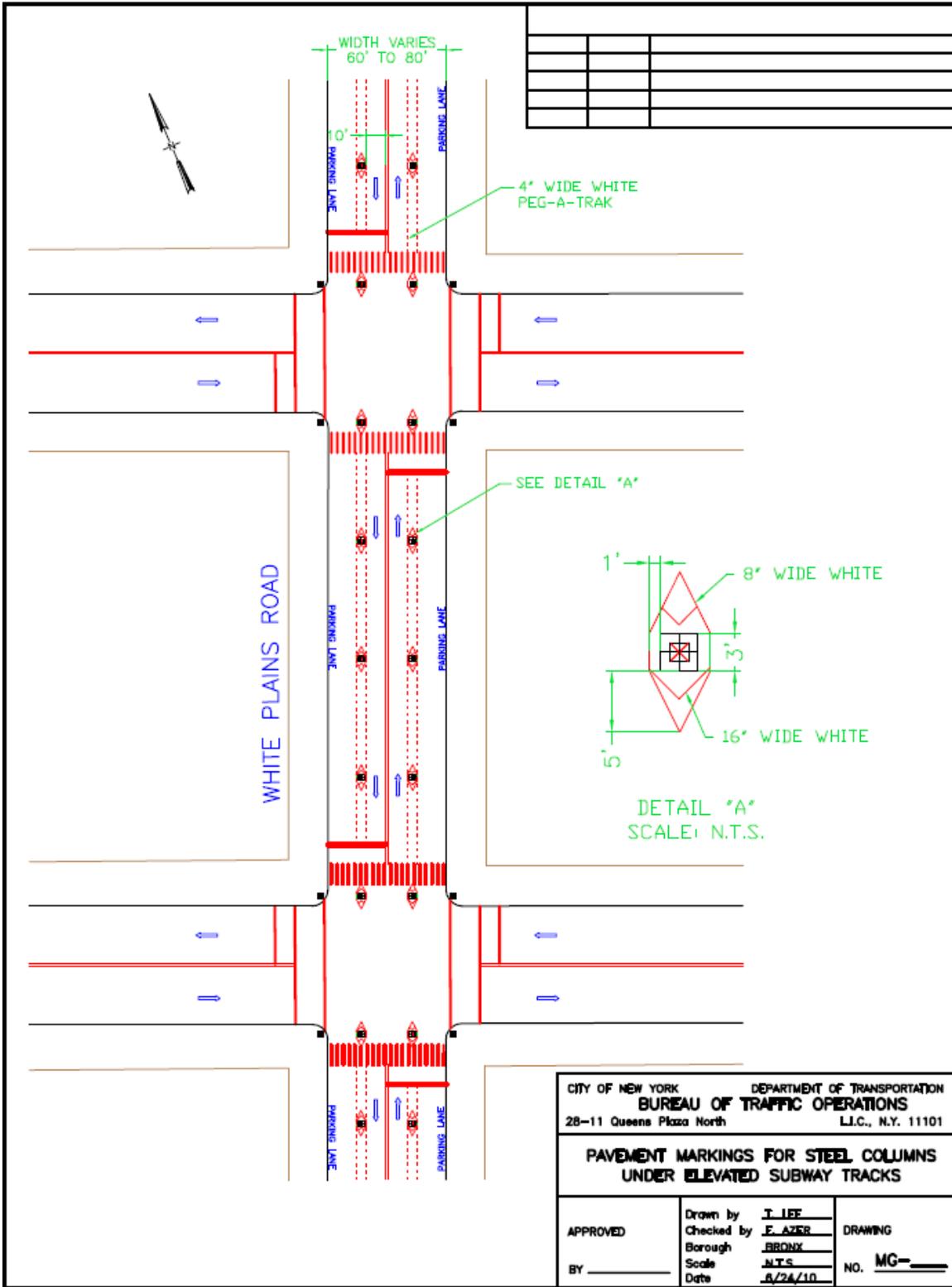
- The bus stop signs that are presently installed on subway columns (in between the roadways) along the corridor are not truly visible to motorists due to the visual clutter. Larger bus stop signs are being considered to improve motorists' awareness of the bus stops and allow motorists to anticipate passenger pick-up and drop-off activities as well as blind spots associated with bus stops where passengers might be standing and waiting for the buses.
- Object marker (OM-3) signs will be installed on the subway columns to highlight these roadway obstructions.

Application of these measures is anticipated to improve traffic operations for all street users and will help in reducing pedestrian-vehicle conflicts.

### 3.4 PEDESTRIAN COUNTDOWN SIGNALS

The curb-to-curb width along the study segment of White Plains Road varies between 60 feet and 80 feet. Safe pedestrian maneuvering at pedestrian crossings is further complicated by the presence of subway columns which at times create blind spots for the traveling motorist as well as crossing pedestrians. To increase pedestrian safety, pedestrian countdown signals are planned for all intersections along the study corridor. According to the three-year crash inventory, a total of 31 pedestrian crashes (21% of the overall intersection crashes) occurred at the key intersections. This measure will help reduce these crashes by providing positive guidance and displaying the remaining pedestrian clearance interval to facilitate safe pedestrian crossing.

# 3 IMPROVEMENTS



*Figure 14: Typical Pavement Markings for Street Columns under Elevated Subway Tracks - White Plains Road*

# 3

# IMPROVEMENTS

This recommendation has already been implemented at all signalized intersections throughout the White Plains Road study corridor except at the Bronxdale Avenue and Pelham Parkway (North Mainline, South Mainline and South Service Road) intersections. This recommendation will be implemented at these locations in the future. Figure 15 depicts a typical pedestrian countdown signal that is installed at the White Plains Road (Southbound) and East Gun Hill Road intersection.



*Figure 15: Pedestrian Countdown Signals along the White Plains Road Study Corridor*

# **B IMPROVEMENTS**

## **3.5 PARKING**

Parking-related recommendations include the replacement of the traditional single-space parking meters with muni-meters. The muni-meter is a proven effective technology to fit more vehicles within the same curbside parking space. Under the traditional one space per meter system, the space allotted (usually 18 to 20 feet) accommodates larger vehicles; thus space is wasted when smaller cars park. Some studies report as much as 15% extra capacity when converting to muni-meters. In addition, parking can be paid by credit card or pre-paid parking card, eliminating the incidence of having to “run for change.” (This measure has already been implemented throughout the White Plains Road study corridor (see Figures 16 and 17) except along the northbound curbside between Bronxdale Avenue and Brady Street (in front of Staples).)



*Figure 16: Traditional Single-Space Parking Meter (During Removal)*



*Figure 17: A Typical Muni-Meter Installation*

## **3.6 PAINTING OF OVERHEAD SUBWAY SUPERSTRUCTURE**

In order to improve safety, provide visually cleaner and well-maintained esthetics, and improve the target value of existing traffic signage and traffic control devices along White Plains Road, the overhead subway superstructure and its columns have been repainted. The subway columns were repainted with white reflectorized paint (yellow reflectorized paint at columns depicting bus stops) so that they are well-defined and can be distinguished by the travelling motorist. This measure will facilitate safe traffic operations and will also add valuable life to the steel superstructure by preventing its exposure to corrosion. This measure has been implemented throughout the White Plains Road study corridor. See Figures 18 and 19 for before and after conditions.

# B

# IMPROVEMENTS



*Figure 18: White Plains Road at Bronxdale Road intersection (Before Condition) - Worn-out paint on subway columns and subway steel structure*



*Figure 19: White Plains Road at Bronxdale Road intersection (After Condition) - New paint applied on subway columns and subway steel structure in 2011/2012 for positive delineation and safer traffic operations*

**3.7 INTERSECTION-SPECIFIC IMPROVEMENTS**

Table 5 summarizes the intersection-specific recommendations. These recommendations are aimed at improving mobility and safety for pedestrians, cyclists and transit users, as well as improving conditions for motorists. The pages that follow give detailed descriptions of these improvements.

**TABLE 5  
INTERSECTION-SPECIFIC RECOMMENDATIONS**

INTERSECTION	Revise Signal Phasing, Timing and/or Offset	Restripe Crosswalk(s)	Restripe Stop Bar(s)	Provide Peg-a-Trac Markings	Provide Left-Turn Bay	Provide Right-Turn Bay	Facilitate left/right-turns by removing parking	Ban Left Turns	Install Pedestrian Refuge Island	Install Curb Extensions	Install or Replace Pedestrian Ramps	Install New Traffic Signal	Install/Relocate Bus Shelter	Install Traffic Signs	Traffic Pattern Changes	Recommend One-Way traffic operation	Relocate Bus Stops	Close Roadway
White Plains Road & East Tremont Avenue	2	2	2	2			2	2					1, 2	2				
White Plains Road b/w East Tremont Avenue & Baker Avenue/Unionport Road		2	1							1	1			1, 2				
White Plains Road & Mead Street/Unionport Road		1, 2	1, 2								2			2	1	1		1
White Plains Road & Morris Park Avenue	2	2	2			2				3	3		1					
White Plains Road & Sagamore Street	1	1	1							1	1							
White Plains Road & Bronxdale Avenue	2	1	1															
White Plains Road & Pelham Parkway South Service Road	2	2	2															
White Plains Road & Pelham Parkway South Mainline	2	2	2															
White Plains Road & Pelham Parkway North Mainline	2	2	2															
White Plains Road & Pelham Parkway North Service Road	2	2	2		2		2											
Boston Road & Thwaites Place	2	1	1						1		1							
White Plains Road & Boston Road (South)	3	3	3									3						
White Plains Road & Boston Road (North)		2	2					2						2				
White Plains Road & Allerton Avenue	2	2	2							4	4							
White Plains Road NB & East Gun Hill Road	2, 5	5	5					5	5		5				5		5	
White Plains Road SB & East Gun Hill Road	2, 5	5	5					5							5		5	
White Plains Road & East 222nd Street	2	2	2							3	3							
White Plains Road & East 233rd Street	2	2	2			2	2											

**Notes:**

1. Improvement has been implemented in 2011 or 2012.
2. Improvement will be implemented in 2013.
3. Improvement will be implemented in 2014.
4. Improvement will be implemented under NYCDOT's Safe Routes to Transit Project.
5. Improvement is being implemented under MTA's Gun Hill Road Intermodal Project.

### 3.7.1 White Plains Road and East Tremont Avenue

#### Problems:

- Poor traffic operations exist during the weekday AM and Saturday peak hours. During the weekday AM peak, the northbound left-turn and through lane group is congested. During the Saturday peak hour, the entire southbound approach is congested.
- A total of 23 crashes occurred during a three-year study period at this intersection, of which 1 involved a pedestrian. Pedestrian confusion, drivers' inattention, and failure to yield right-of-way were cited as some of the contributing factors for these crashes.

#### Improvements:

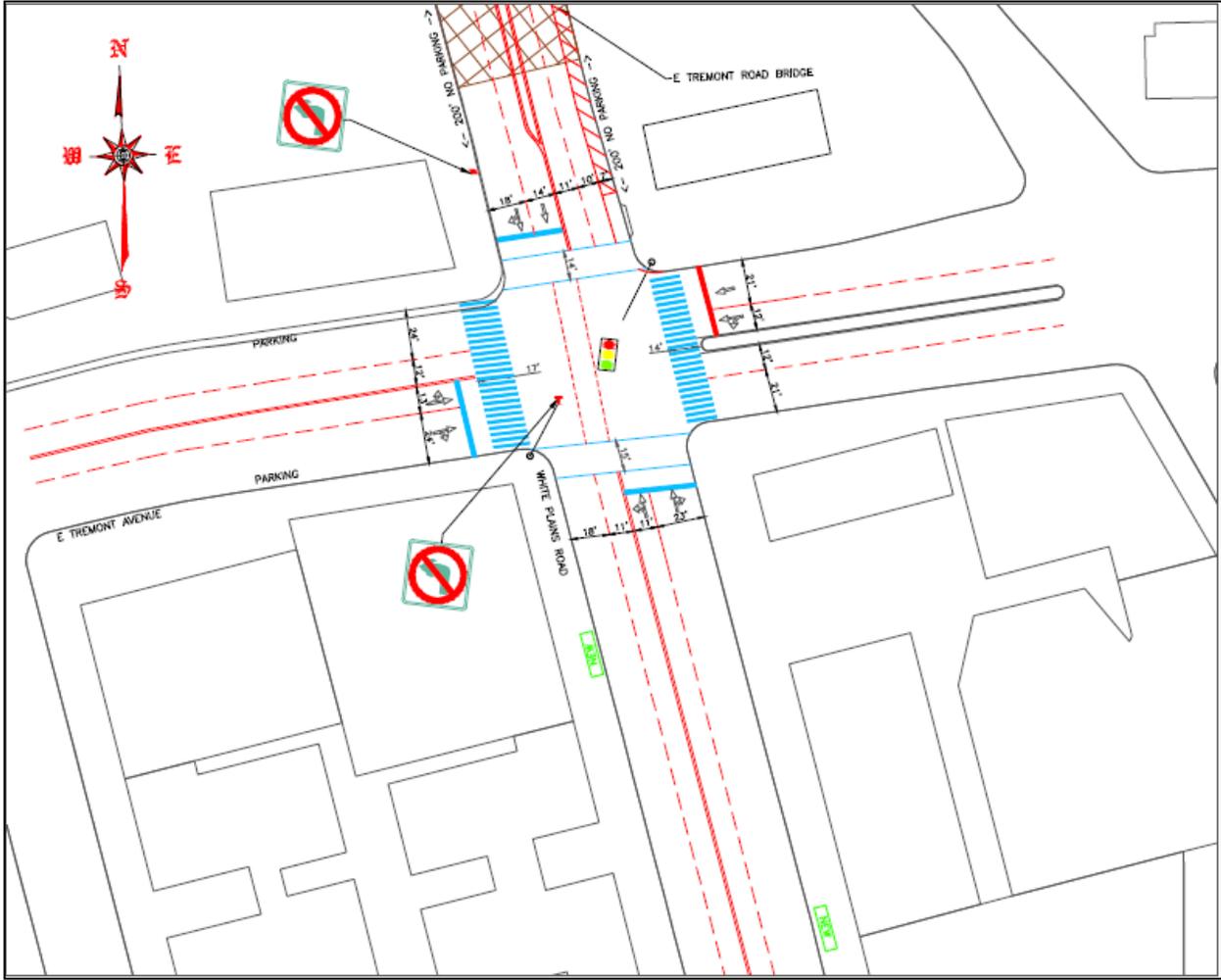
- Green time will be reallocated as shown in Table 4.
- Crosswalks, stop bars and lane lines will be restriped.
- Stop bars will be provided 10 feet from crosswalks.
- Southbound left turns will be prohibited by installing "No Left Turn" signs.
- Peg-A-Track striping will be installed for positive guidance across a wide intersection box in the southbound direction.
- A new bus shelter will be installed on the far side of the southbound approach along White Plains Road. A second proposed bus shelter, located midblock northbound between East Tremont Street and Guerlain Street, has already been installed, as shown in Figure 20.
- Remove parking for approximately 200 feet along both curbsides on the north leg of the intersection to facilitate turning movements and increase pedestrian visibility.

Improvements for this location are presented in Figure 21.



*Figure 20: Recently installed bus shelter at White Plains Road and East Tremont Avenue (northbound approach)*

# B IMPROVEMENTS



**Legends:**

	Existing School Crosswalk		Proposed High Visibility Crosswalk		Proposed Striping		Proposed Pedestrian Refuge Island (Raised Median)
	Proposed Pedestrian Ramp		Proposed Stopbar as per Recommended Standard		Relocate Bus Stop		Proposed Traffic Sign
	Restripe School Crosswalk		Remove Existing Parking (Daylighting)		Existing Bus Stop Location		Existing Signalized Intersection
	Restripe High Visibility Crosswalk		Resurface Pavement		Existing Bus Stop and Shelter		Proposed Metered Parking
	Restripe Standard Pedestrian Crosswalk		Pavement Marking Symbol		New Bus Stop Shelter		Proposed Curb Extension (Neckdown)
			Direction of Travel		Proposed Quick Curb		Proposed Recommendations already implemented

**Figure 21: White Plains Road and East Tremont Avenue Improvements**

### 3.7.2 White Plains Road segment b/w East Tremont Avenue and Baker Avenue & Unionport Road/Baker Avenue

#### Problems:

- Due to the steep grade of this segment of White Plains Road (which accommodates a railroad bridge located between East Tremont Avenue and Baker Avenue), existing traffic signals at the adjacent White Plains Road and East Tremont Avenue intersection are not clearly visible to motorists traveling towards the intersection in the southbound direction.
- A long, skewed crosswalk and unsafe vehicular-pedestrian conflict point exist at the White Plains Road and Unionport Road intersection, as drivers making the northbound right-turn often fail to slow down because of the large radius at this uncontrolled crossing.

#### Improvements:

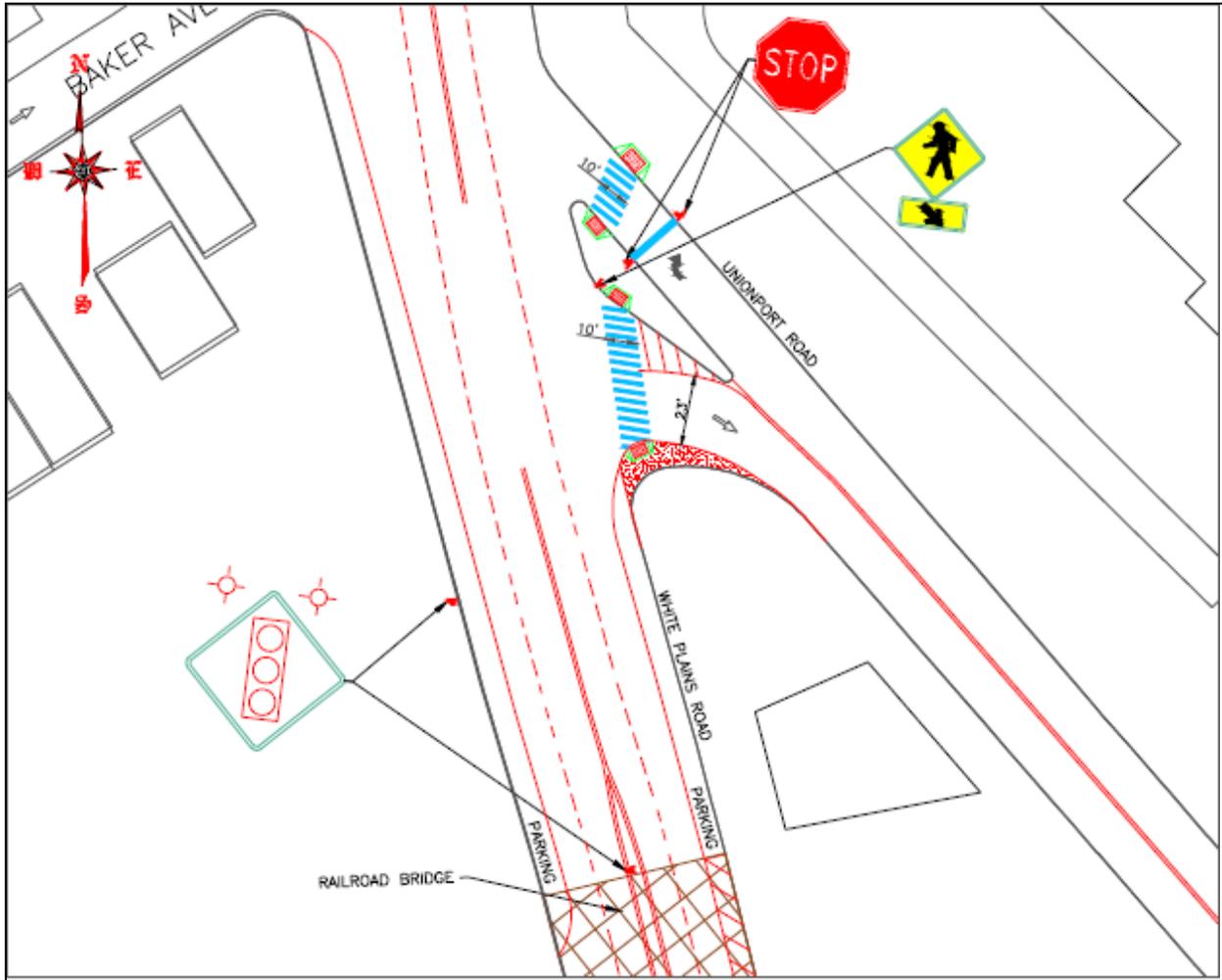
- Crosswalks, stop bars and lane lines will be restriped.
- Stop bars have been provided 10 feet from crosswalks.
- “Signal Ahead” signs with flashing beacons will be installed on southbound White Plains Road in advance of the bridge due to the limited sight distance on this approach.
- New traffic signs (stop signs and pedestrian warning signs) will be installed on the Unionport Road leg of this intersection.
- Curb extension has been installed on the southeast corner of this intersection (see Figure 22).
- Pedestrian ramps have been installed on the northeast and southeast corners and on the east median island of the White Plains Road and Unionport Road intersection.

Improvements for this location are presented in Figure 23.



*Figure 22: Curb extension installed on the southeast corner of White Plains Road and Unionport Road intersection*

# 3 IMPROVEMENTS



**Legends:**

	Existing School Crosswalk		Proposed High Visibility Crosswalk		Proposed Striping		Proposed Pedestrian Refuge Island (Raised Median)
	Proposed Pedestrian Ramp		Proposed Stopbar as per Recommended Standard		Relocate Bus Stop		Proposed Traffic Sign
	Restripe School Crosswalk		Remove Existing Parking (Daylighting)		Existing Bus Stop Location		Existing Signalized Intersection
	Restripe High Visibility Crosswalk		Resurface Pavement		Existing Bus Stop and Shelter		Proposed Metered Parking
	Restripe Standard Pedestrian Crosswalk		Pavement Marking Symbol		New Bus Stop Shelter		Proposed Curb Extension (Neckdown)
			Direction of Travel		Proposed Quick Curb		Proposed Recommendations already implemented

**Figure 23: White Plains Road segment between East Tremont Avenue and Baker Avenue & Unionport Road/Baker Avenue Improvements**

# **B IMPROVEMENTS**

### **3.7.3 White Plains Road and Mead Street**

**Problems:**

- Van Nest Park is subject to significant pedestrian activity including small children. Vehicle-pedestrian conflicts exist in the vicinity of the park.

**Improvements:**

- Unionport Road has been made one-way southbound between Van Nest Avenue and Mead Street by closing off the northbound lanes in this segment (see Figure 24). This will improve pedestrian safety and allow for the potential expansion of the park area.
- Crosswalks and stop bars have been restriped at the intersection of Unionport Road and Baker Avenue.
- Stop bars will be provided 10 feet from the crosswalk at the Unionport Road and Baker Avenue intersection.
- Stop signs have been installed at the intersection of Unionport Road and Baker Avenue.
- Pedestrian ramps will be installed on the northeast and northwest corners of the White Plains Road and Baker Avenue intersection.

Note: During the early stages of this project, the closure of Mead Street between White Plains Road and Unionport Road was recommended to improve pedestrian safety and allow for the potential expansion of the park area; however, after its temporary implementation (on a trial basis) and the resulting neighborhood concerns, the roadway was reopened.

Improvements for this location are presented in Figure 25.



***Figure 24: Unionport Road closure looking southbound between Van Nest Avenue and Mead Street***



# B

# IMPROVEMENTS

## 3.7.4 White Plains Road and Morris Park Avenue

### Problems:

- Poor traffic operations exist during the weekday AM peak hour. During this peak, the westbound approach is congested.
- A total of 11 crashes occurred during a three-year study period at this intersection; none involved pedestrians. Drivers' inattention and vehicle malfunction were cited as some of the contributing factors for these crashes.

### Improvements:

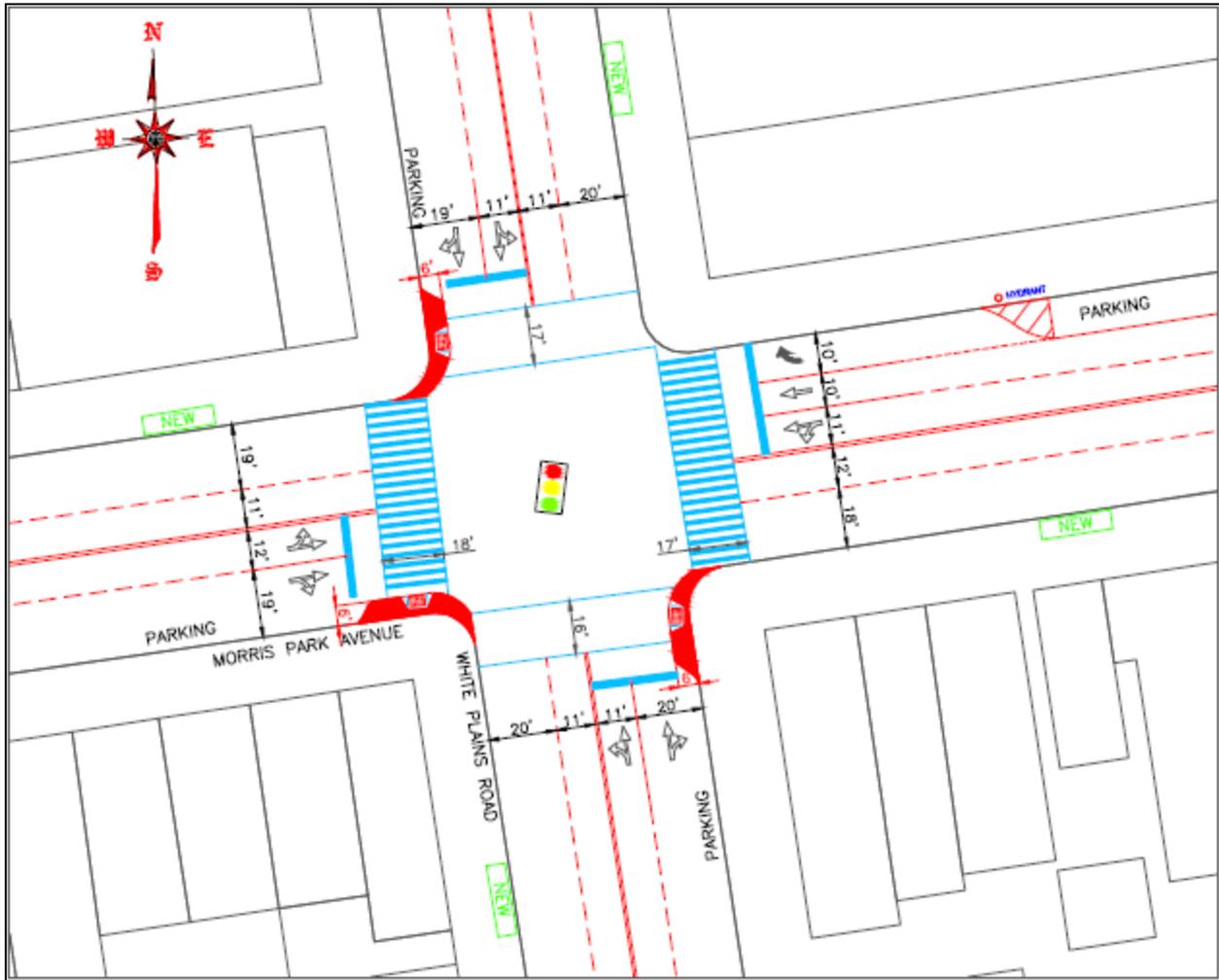
- Green time will be reallocated as shown in Table 4.
- Crosswalks, stop bars and lane lines will be restriped.
- Stop bars will be provided 10 feet from crosswalks.
- Westbound approach will be reconfigured by removing approximately three parking spaces and creating three westbound lanes including a right pocket lane, through and through/left turn shared lane.
- Curb extensions and pedestrian ramps will be installed on the northwest, southeast and southwest corners of this intersection.
- Four new bus shelters have been installed at this intersection (see Figure 26).

Improvements for this location are presented in Figure 27.



*Figure 26: One of the recently installed bus shelters at White Plains Road and Morris Park Avenue.*

# B IMPROVEMENTS



## Legends:

	Existing School Crosswalk		Proposed High Visibility Crosswalk		Proposed Striping		Proposed Pedestrian Refuge Island (Raised Median)
	Proposed Pedestrian Ramp		Proposed Stopbar as per Recommended Standard		Relocate Bus Stop		Proposed Traffic Sign
	Restripe School Crosswalk		Remove Existing Parking (Daylighting)		Existing Bus Stop Location		Existing Signalized Intersection
	Restripe High Visibility Crosswalk		Resurface Pavement		Existing Bus Stop and Shelter		Proposed Metered Parking
	Restripe Standard Pedestrian Crosswalk		Pavement Marking Symbol		New Bus Stop Shelter		Proposed Curb Extension (Neckdown)
			Direction of Travel		Proposed Quick Curb		Proposed Recommendations already implemented

Figure 27: White Plains Road and Morris Park Avenue Improvements

### 3.7.5 White Plains Road and Sagamore Street

#### Problems:

- Large turning radius due to existing sidewalk layout.
- Flush median resulting in long crosswalk across White Plains Road with the potential for vehicular-pedestrian conflicts at this skewed intersection.

#### Improvements:

- Curb extension at southeast corner of Sagamore Street and Birchall Avenue has been installed.
- Raised island separating the channelized right-turn slip onto Cruger Avenue from southbound White Plains Road has been installed (see Figure 28).
- Raised island with greenstreets landscaping has been installed at the triangle formed by White Plains Road, Cruger Avenue and Sagamore Streets (see Figure 29).
- Curb extension at northwest corner of Sagamore Street and Cruger Avenue is planned.
- Crosswalks, stop bars and lane lines have been restriped.
- New pedestrian ramps have been installed.
- Stop bars have been provided 10 feet from crosswalks.

Improvements for this location are presented in Figure 30.

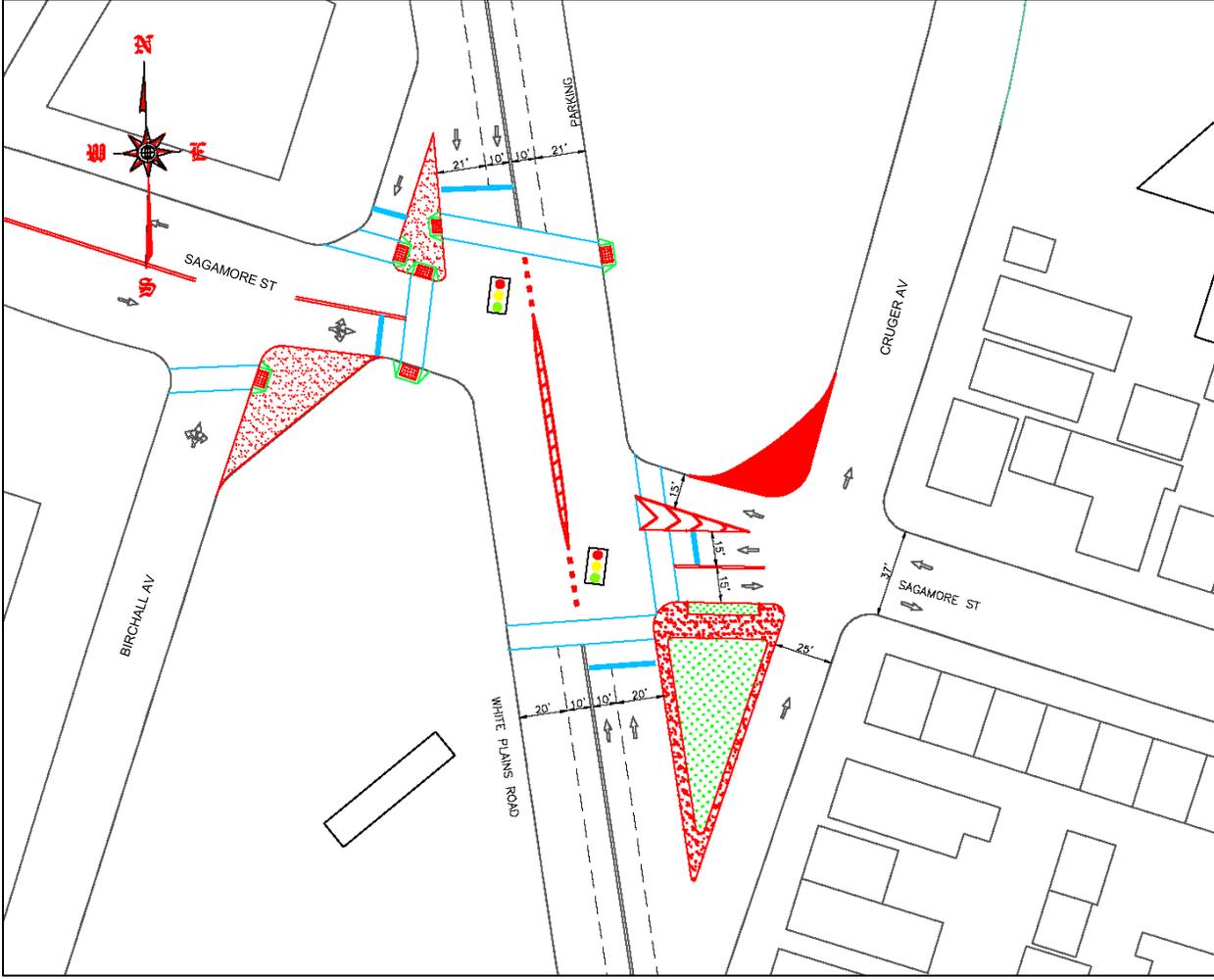


*Figure 28: Recently installed raised island between the southbound right turn bay and the southbound approach at the White Plains Road and Sagamore Street intersection*



*Figure 29: Recently installed raised green island at White Plains Road and Sagamore Street intersection*

# 3 IMPROVEMENTS



**Legends:**

	Existing School Crosswalk		Proposed High Visibility Crosswalk		Proposed Striping		Proposed Pedestrian Refuge Island (Raised Median)
	Proposed Pedestrian Ramp		Proposed Stopbar as per Recommended Standard		Relocate Bus Stop		Proposed Traffic Sign
	Restripe School Crosswalk		Remove Existing Parking (Daylighting)		Existing Bus Stop Location		Existing Signalized Intersection
	Restripe High Visibility Crosswalk		Resurface Pavement		Existing Bus Stop and Shelter		Proposed Metered Parking
	Restripe Standard Pedestrian Crosswalk		Pavement Marking Symbol		New Bus Stop Shelter		Proposed Curb Extension (Neckdown)
			Direction of Travel		Proposed Quick Curb		Proposed Recommendations already implemented

**Figure 30: White Plains Road and Sagamore Street Improvements**

### **3.7.6 White Plains Road and Pelham Parkway North Service Road**

#### **Problems:**

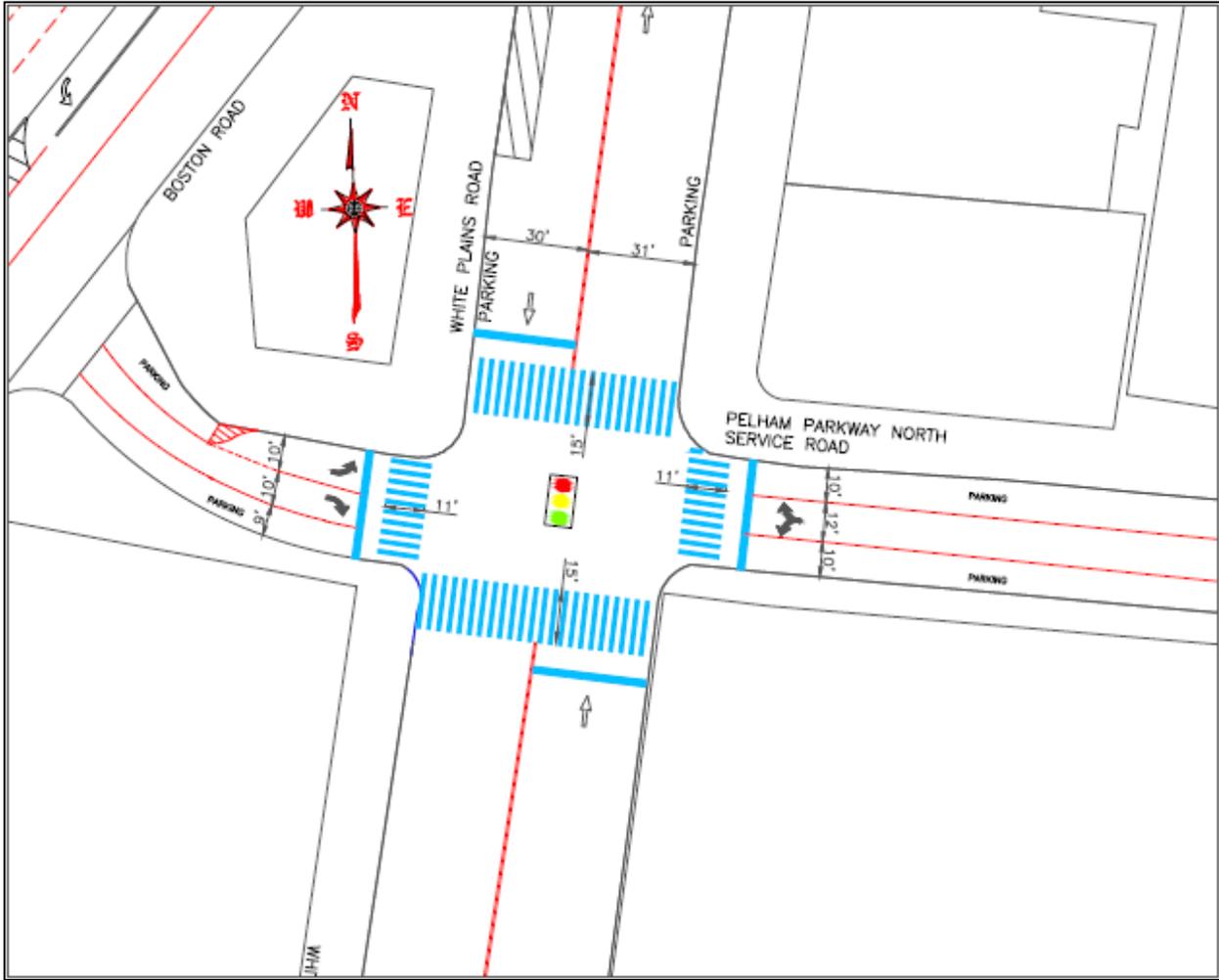
- Poor traffic operations exist during the weekday AM, PM and Saturday peak hours. During these peak hours, the westbound approach is congested.
- A total of 10 crashes occurred during the three-year study period, of which 3 involved pedestrians. Pedestrian confusion, drivers' inattention, unsafe speed and failure to yield right-of-way were cited as some of the contributing factors for these crashes.

#### **Improvements:**

- Green time will be reallocated as shown in Table 4.
- Eastbound left turn pocket lane will be provided by removing curbside parking.
- Crosswalks, stop bars and lane lines will be restriped.
- Stop bars will be provided 10 feet from crosswalks.

Improvements for this location are presented in Figure 31.

# 3 IMPROVEMENTS



**Legends:**

	Existing School Crosswalk		Proposed High Visibility Crosswalk		Proposed Striping		Proposed Pedestrian Refuge Island (Raised Median)
	Proposed Pedestrian Ramp		Proposed Stopbar as per Recommended Standard		Relocate Bus Stop		Proposed Traffic Sign
	Restripe School Crosswalk		Remove Existing Parking (Daylighting)		Existing Bus Stop Location		Existing Signalized Intersection
	Restripe High Visibility Crosswalk		Resurface Pavement		Existing Bus Stop and Shelter		Proposed Metered Parking
	Restripe Standard Pedestrian Crosswalk		Pavement Marking Symbol		New Bus Stop Shelter		Proposed Curb Extension (Neckdown)
	Direction of Travel		Proposed Quick Curb		Proposed Recommendations already implemented		

**Figure 31: White Plains Road and Pelham Parkway North Service Road Improvements**

### 3.7.7 White Plains Road and Boston Road (South Intersection) & Thwaites Place

#### Problems:

- The north-westbound stop-controlled approach of White Plains Road is operating poorly during the weekday AM, PM and Saturday peak hours at this unsignalized Boston Road (South) intersection.
- A total of 5 crashes occurred during the three-year study period; none involved pedestrians. Causes of these crashes were not reported.

#### Improvements:

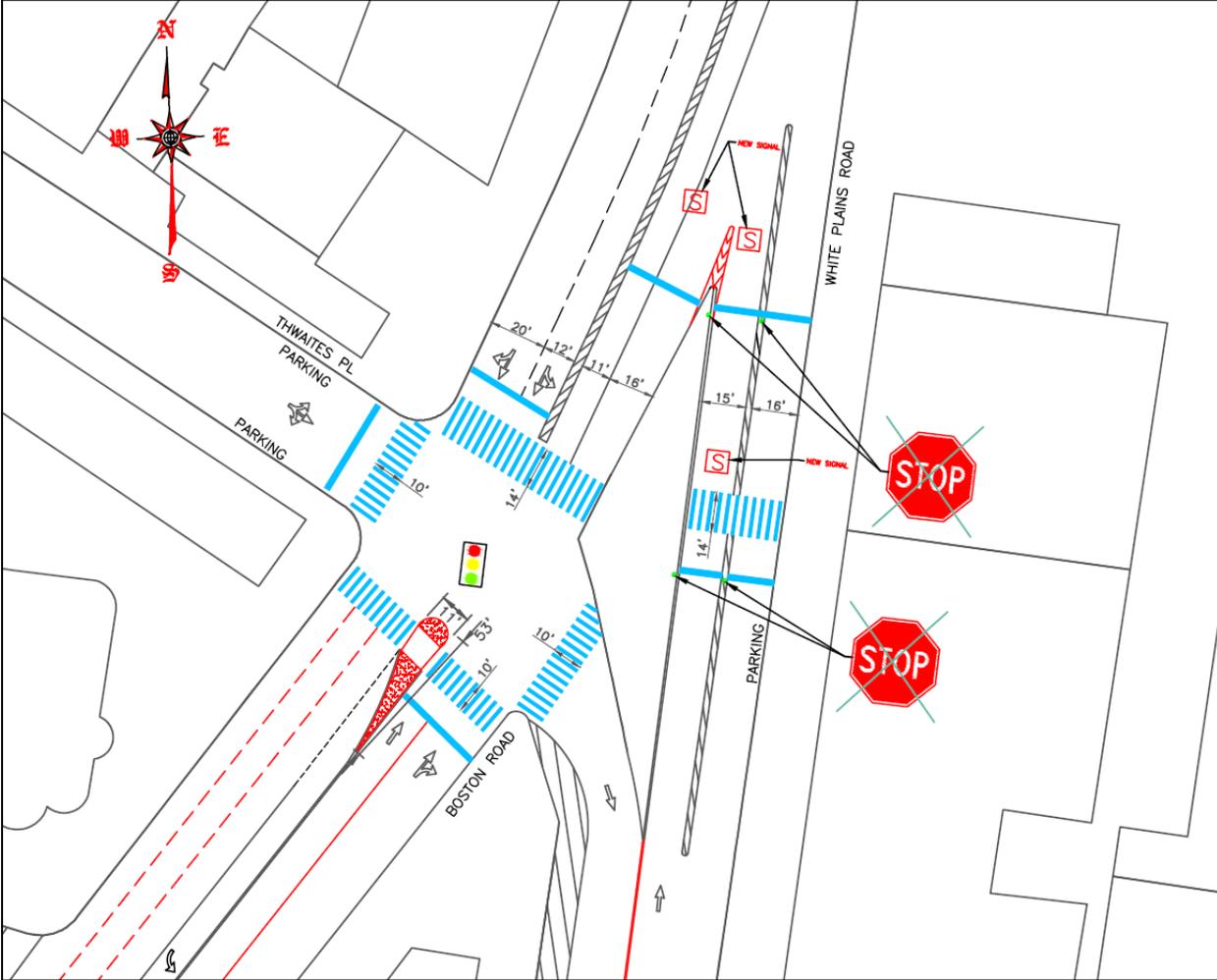
- A new traffic signal will be installed at the existing unsignalized intersection of White Plains Road and Boston Road (South). This new signal should be installed in coordination with the existing adjacent Thwaite Place traffic signal.
- Stop-control operation in front of the CTown Store will also be removed and a new signal head will be installed that is in coordination with the proposed new signal at the Boston Road (South) intersection.
- Green time will be allocated as shown in Table 4.
- Crosswalks, stop bars and lane lines will be restriped.
- Stop bars will be provided 10 feet from crosswalks.
- A new median island has been installed on the south side of the Boston Road and Thwaites Place intersection (see Figure 32).
- Gore area striping will be extended.

Improvements for this location are presented in Figure 33.



*Figure 32: New median island installed at south side of Boston Road and Thwaites Place intersection*

# 3 IMPROVEMENTS



**Legends:**

	Existing School Crosswalk		Proposed High Visibility Crosswalk		Proposed Striping		New Signal		Proposed Pedestrian Refuge Island (Raised Median)
	Proposed Pedestrian Ramp		Proposed Stopbar as per Recommended Standard		Relocate Bus Stop		Proposed Traffic Sign		Existing Signalized Intersection
	Restripe School Crosswalk		Remove Existing Parking (Daylighting)		Existing Bus Stop Location		Existing Signalized Intersection		Existing Bus Stop and Shelter
	Restripe High Visibility Crosswalk		Resurface Pavement		New Bus Stop Shelter		Proposed Metered Parking		Proposed Curb Extension (Neckdown)
	Restripe Standard Pedestrian Crosswalk		Pavement Marking Symbol		Proposed Quick Curb		Proposed Recommendations already implemented		
			Direction of Travel						

**Figure 33: White Plains Road and Boston Road (South Intersection) & Thwaites Place Improvements**

### **3.7.8 White Plains Road and Boston Road (North Intersection)**

#### **Problems:**

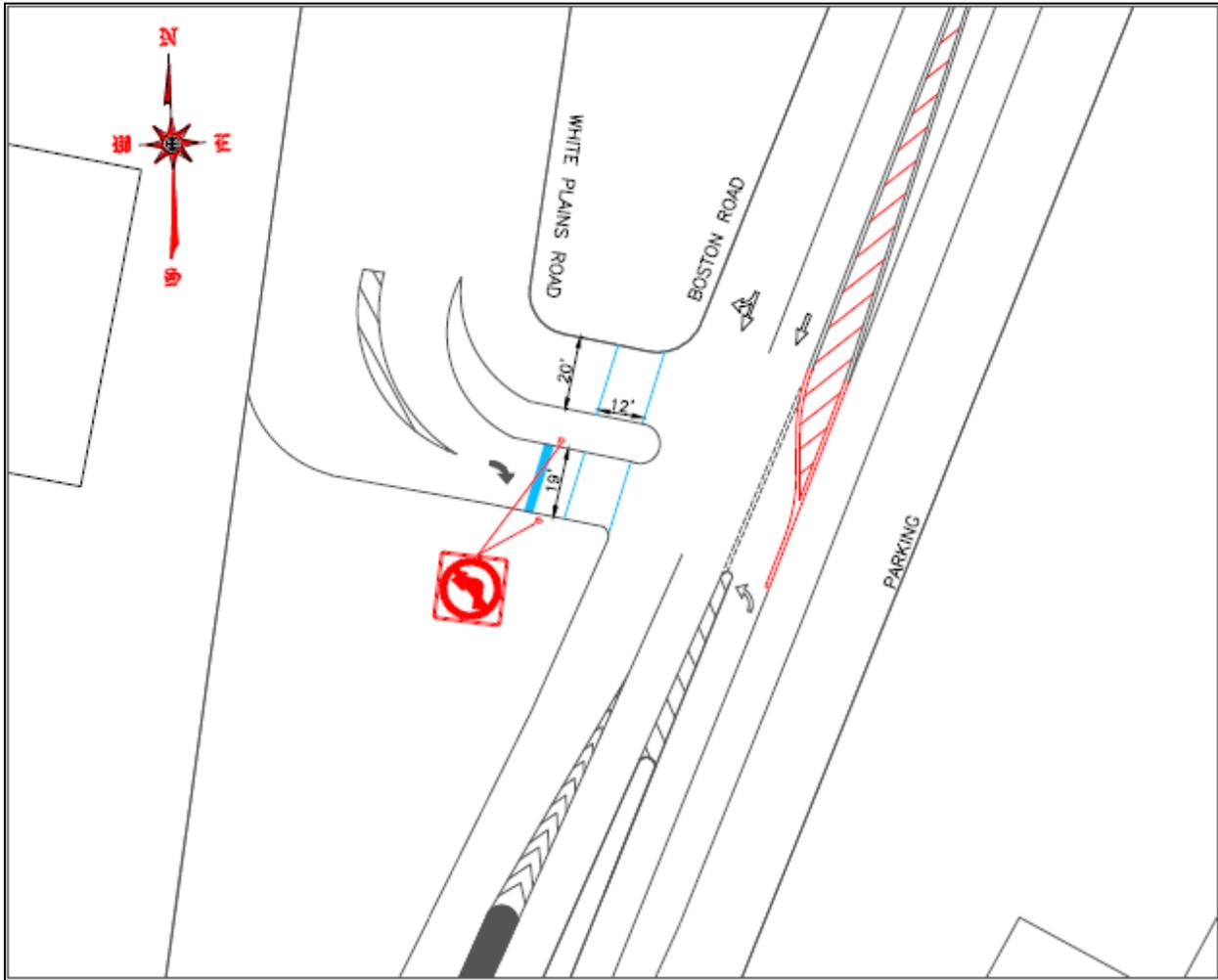
- The eastbound stop-controlled approach of White Plains Road is operating poorly during all peak periods (the weekday AM, midday, PM and Saturday peak hours).
- A total of 3 crashes occurred during the three-year study period, of which 1 involved a pedestrian. Causes of these crashes were not reported.

#### **Improvements:**

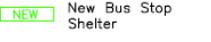
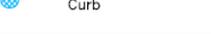
- Left turns from the eastbound approach of White Plains Road will be prohibited by installing “No Left Turn” signs.
- Crosswalk and stop bar will be restriped.
- Stop bar will be located 10 feet from the crosswalk.
- Median channelization will be extended to improve the left turn delineation on the northbound Boston Road approach.

Improvements for this location are presented in Figure 34.

# 3 IMPROVEMENTS



**Legends:**

	Existing School Crosswalk		Proposed High Visibility Crosswalk		Proposed Striping		Proposed Pedestrian Refuge Island (Raised Median)
	Proposed Pedestrian Ramp		Proposed Stopbar as per Recommended Standard		Relocate Bus Stop		Proposed Traffic Sign
	Restripe School Crosswalk		Remove Existing Parking (Daylighting)		Existing Bus Stop Location		Existing Signalized Intersection
	Restripe High Visibility Crosswalk		Resurface Pavement		Existing Bus Stop and Shelter		Proposed Metered Parking
	Restripe Standard Pedestrian Crosswalk		Pavement Marking Symbol		New Bus Stop Shelter		Proposed Curb Extension (Neckdown)
	Direction of Travel		Proposed Quick Curb		Proposed Recommendations already implemented		

**Figure 34: White Plains Road and Boston Road (North Intersection) Improvements**

### 3.7.9 White Plains Road and Allerton Avenue

#### Problems:

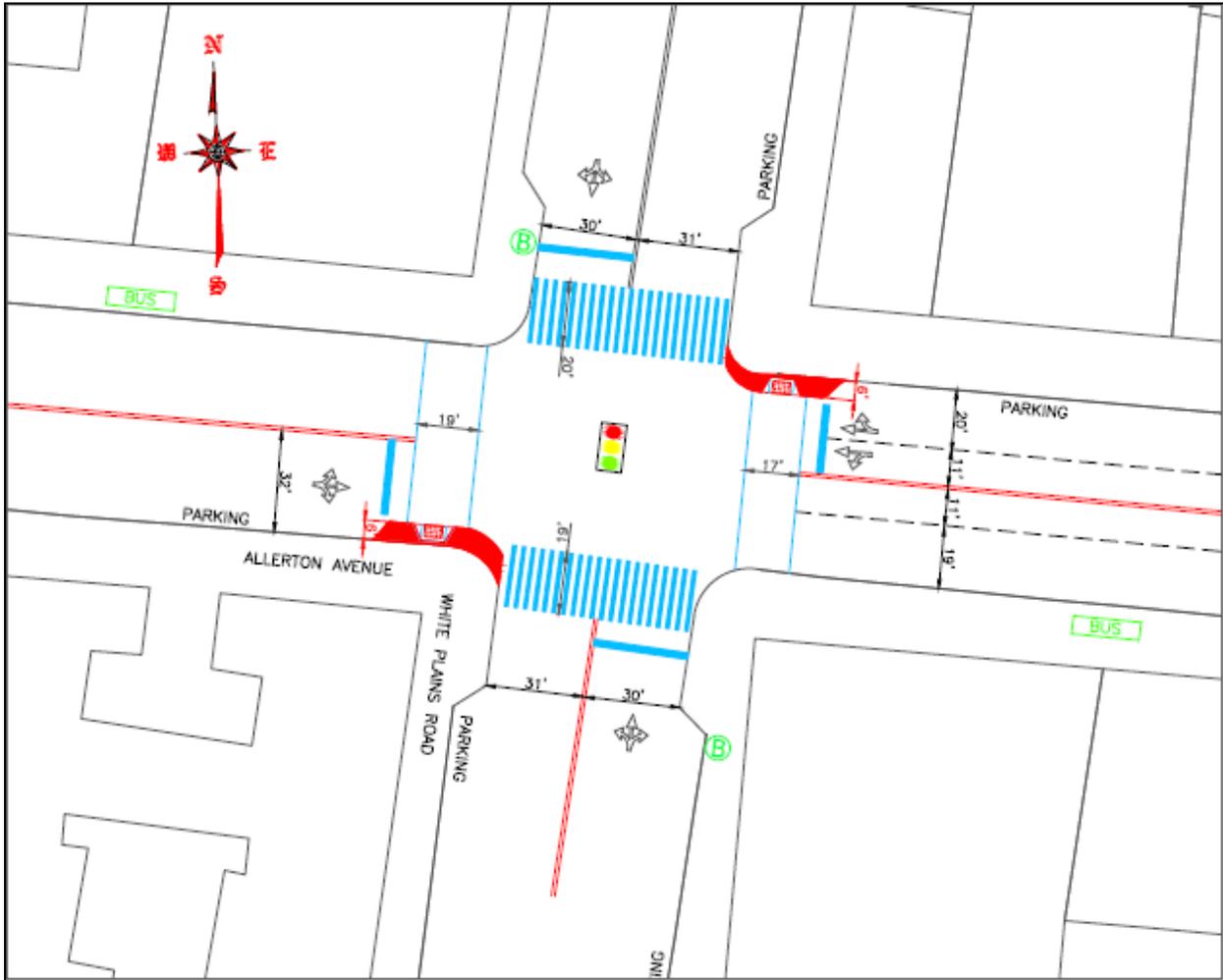
- A total of 17 crashes occurred during the three-year study period, of which 2 involved pedestrians. One of the pedestrian crashes resulted in a fatality. Pedestrian confusion, vehicular malfunction, and failure to yield right-of-way were cited as some of the contributing factors for these crashes.

#### Improvements:

- Green time will be allocated as shown in Table 4.
- Curb extensions and new pedestrian ramps will be installed on Allerton Avenue at the northeast and southwest corners of the intersection (This recommendation was proposed under the “Safe Routes to Transit Project”). It should be noted that single curb extensions (Case A) already exist at all four corners on White Plains Road. With the installation of the new curb extensions on Allerton Avenue, the northeast and southwest corners will now have double curb extensions (Case B).
- Crosswalks, stop bars and lane lines will be restriped.
- Stop bars will be provided 10 feet from crosswalks.

Improvements for this location are presented in Figure 35.

# B IMPROVEMENTS



**Legends:**

	Existing School Crosswalk		Proposed High Visibility Crosswalk		Proposed Striping		Proposed Pedestrian Refuge Island (Raised Median)
	Proposed Pedestrian Ramp		Proposed Stopbar as per Recommended Standard		Relocate Bus Stop		Proposed Traffic Sign
	Restripe School Crosswalk		Remove Existing Parking (Daylighting)		Existing Bus Stop Location		Existing Signalized Intersection
	Restripe High Visibility Crosswalk		Resurface Pavement		Existing Bus Stop and Shelter		Proposed Metered Parking
	Restripe Standard Pedestrian Crosswalk		Pavement Marking Symbol		New Bus Stop Shelter		Proposed Curb Extension (Neckdown)
	Direction of Travel		Proposed Quick Curb		Proposed Recommendations already implemented		

*Figure 35: White Plains Road and Allerton Avenue Improvements*

### ***3.7.10 White Plains Road (Northbound and Southbound) and East Gun Hill Road***

#### ***Problems:***

- Poor traffic operations exist during the weekday PM peak hour at the White Plains Road (Southbound) and East Gun Hill Road intersection. During the weekday PM peak, the southbound left-turn and through lane group is congested.
- A total of 21 crashes occurred during the three-year study period at the White Plains Road (Northbound) and East Gun Hill Road intersection, of which 5 involved pedestrians. Unsafe speed, drivers' inattention, and vehicle malfunction were cited as some of the contributing factors for these crashes.
- Only 1 crash occurred during the three-year study period at the White Plains Road (Southbound) and East Gun Hill Road intersection, and it did not involve a pedestrian. Vehicle malfunction was cited as a contributing factor for this crash.

#### ***Improvements:***

Note: All major geometric changes at these intersections will take place under the "Gun Hill Road Intermodal Project", (Contract No. A-36078). A majority of the work under this project has already been completed (see Figure 36).

- Left turns will be restricted from the east, west and north approaches to the White Plains Road (Northbound) and East Gun Hill Road intersection.
- A raised median island will be installed on the north, south and west approaches to the White Plains Road (Northbound) and East Gun Hill Road intersection.
- Green time will be reallocated as shown in Table 4.
- Crosswalks, stop bars and lane lines have been restriped.
- Stop bars have been provided 10 feet from crosswalks.
- Peg-A-Track striping will be installed in the eastbound direction for positive guidance across the wide intersection box at the White Plains Road (Northbound) and East Gun Hill Road intersection.

Improvements for this location are presented in Figure 37.



***Figure 36: Median island and bus ramp work completed under the Gun Hill Road Intermodal Project***

# 3 IMPROVEMENTS

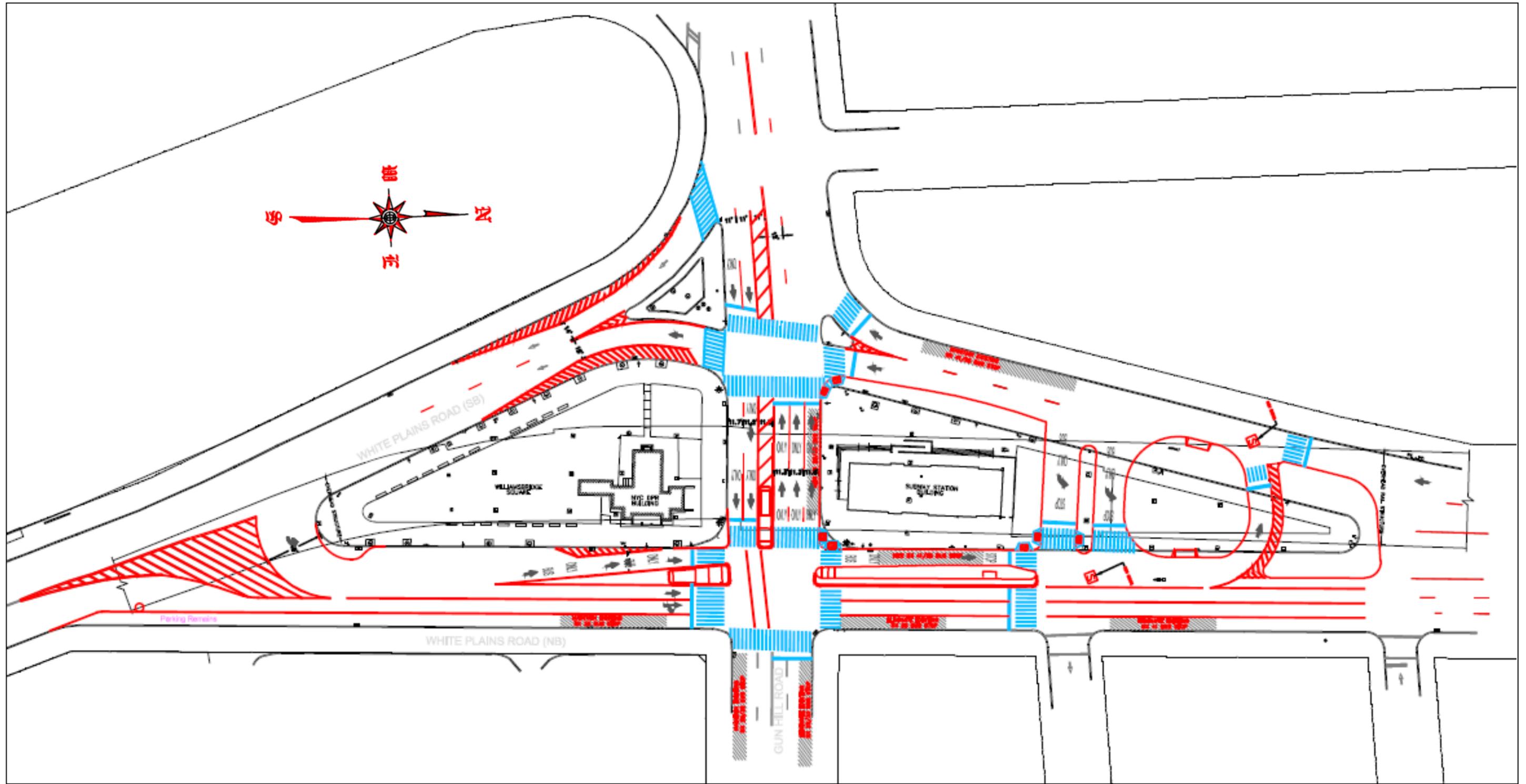


Figure 37: White Plains Road (Northbound and Southbound) and East Gun Hill Road Improvements

### 3.7.11 White Plains Road and East 222<sup>nd</sup> Street

#### **Problems:**

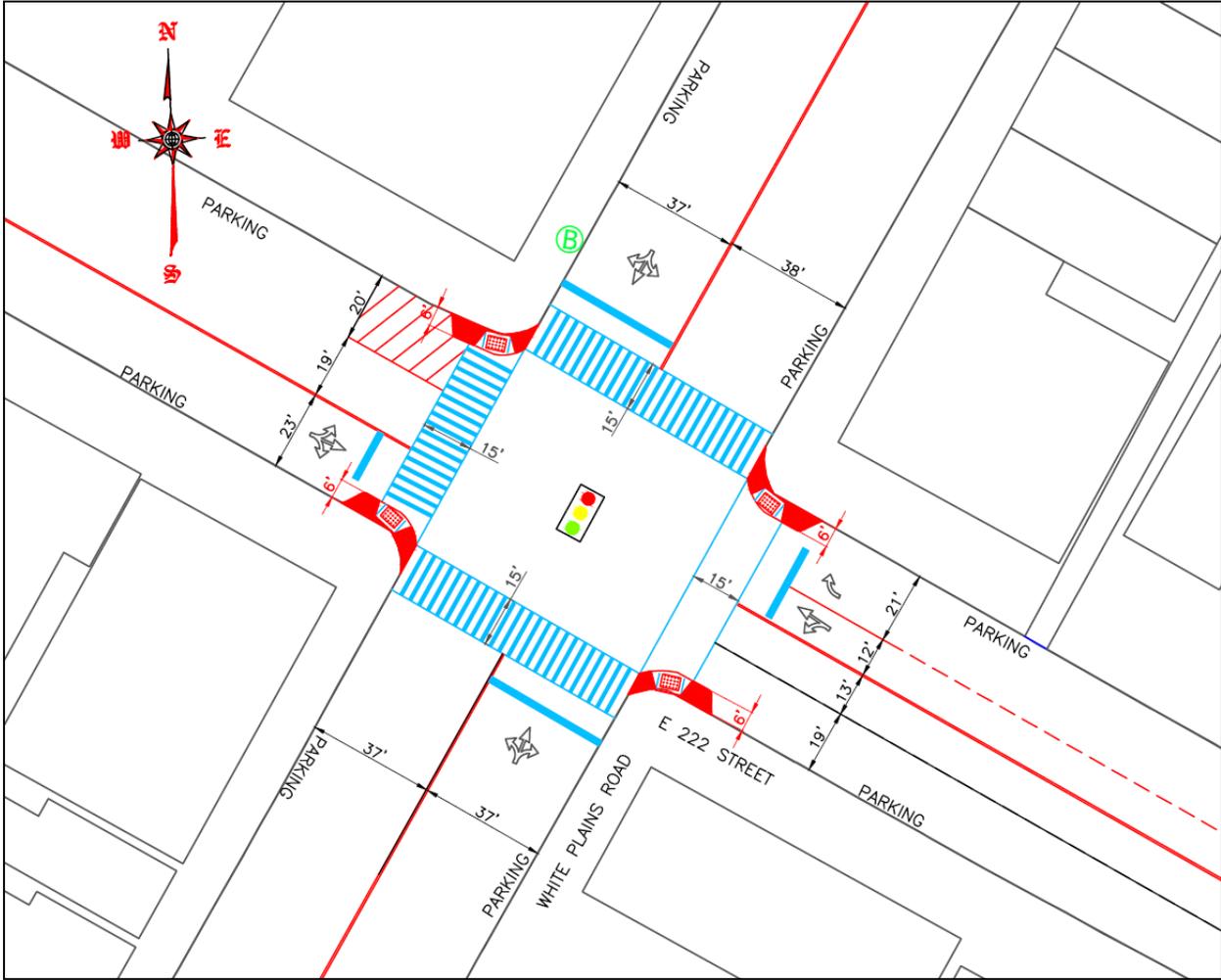
- Poor traffic operations exist during the weekday AM peak hour. During this peak hour, the westbound left and through lane group is congested.
- A total of 4 crashes occurred during the three-year study period; none involved pedestrians. Some of the contributing factors for these crashes included improper lane use and driving while intoxicated.

#### **Improvements:**

- Green time will be reallocated as shown in Table 4.
- Curb extensions and new pedestrian ramps will be installed on East 222<sup>nd</sup> Street at all four corners of the intersection. (Curb extensions will not be recommended on White Plains Road due to the presence of the elevated subway columns, as they would interfere with turning traffic operations in this area.)
- Crosswalks, stop bars and lane lines will be restriped.
- Stop bars have been provided 10 feet from crosswalks.

Improvements for this location are presented in Figure 38.

# B IMPROVEMENTS



**Legends:**

	Existing School Crosswalk		Proposed High Visibility Crosswalk		Proposed Striping		Proposed Pedestrian Refuge Island (Raised Median)
	Proposed Pedestrian Ramp		Proposed Stopbar as per Recommended Standard		Relocate Bus Stop		Proposed Traffic Sign
	Restripe School Crosswalk		Remove Existing Parking (Daylighting)		Existing Bus Stop Location		Existing Signalized Intersection
	Restripe High Visibility Crosswalk		Resurface Pavement		Existing Bus Stop and Shelter		Proposed Metered Parking
	Restripe Standard Pedestrian Crosswalk		Pavement Marking Symbol		New Bus Stop Shelter		Proposed Curb Extension (Neckdown)
			Direction of Travel		Proposed Quick Curb		Proposed Recommendations already implemented

**Figure 38: White Plains Road and East 222nd Street Improvements**

**3.7.12 White Plains Road and East 233<sup>rd</sup> Street****Problems:**

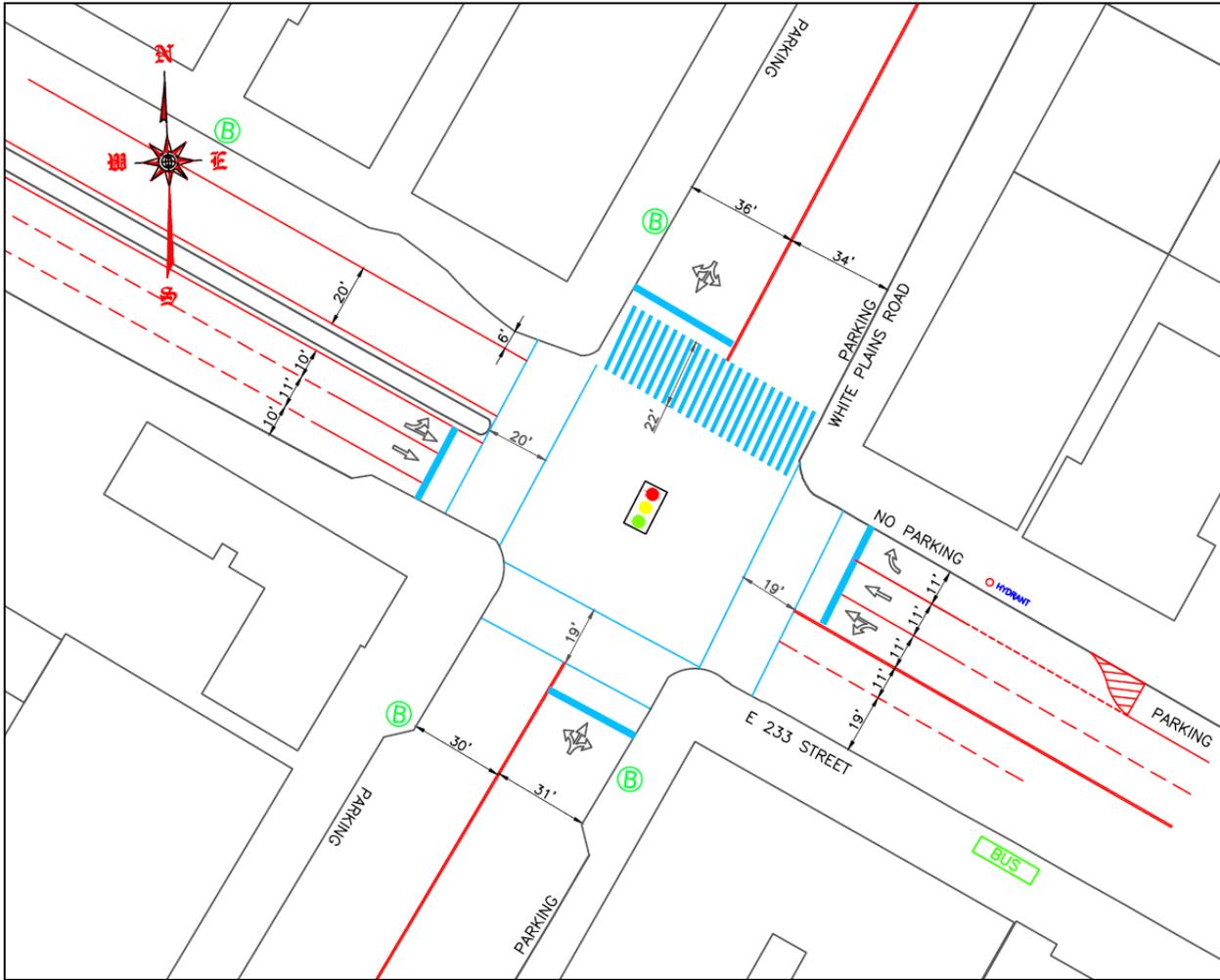
- Poor traffic operations exist during the weekday PM and Saturday peak hours. The eastbound approach is congested during the PM peak, while the westbound approach is congested during the Saturday peak.
- A total of 18 crashes occurred during the three-year study period, of which 6 involved pedestrians. Failure to yield right-of-way, improper turning, pedestrian confusion, drivers' inattention, and disregard of traffic control device were cited as some of the contributing factors for these crashes.

**Improvements:**

- A permanent right turn pocket lane will be installed by removing parking from the westbound approach. (Note: The AM peak already has a "no curbside parking" regulation in place to allow the parking lane to function as a right turn lane during this time period.)
- Crosswalk, stop bar and lane lines will be restriped.
- Stop bars will be provided 10 feet from the crosswalk.

Improvements for this location are presented in Figure 39.

# B IMPROVEMENTS



**Legends:**

	Existing School Crosswalk		Proposed High Visibility Crosswalk		Proposed Striping		Proposed Pedestrian Refuge Island (Raised Median)
	Proposed Pedestrian Ramp		Proposed Stopbar as per Recommended Standard		Relocate Bus Stop		Proposed Traffic Sign
	Restripe School Crosswalk		Remove Existing Parking (Daylighting)		Existing Bus Stop Location		Existing Signalized Intersection
	Restripe High Visibility Crosswalk		Resurface Pavement		Existing Bus Stop and Shelter		Proposed Metered Parking
	Restripe Standard Pedestrian Crosswalk		Pavement Marking Symbol		New Bus Stop Shelter		Proposed Curb Extension (Neckdown)
	Direction of Travel		Proposed Quick Curb		Proposed Recommendations already implemented		

**Figure 39: White Plains Road and East 233rd Street Improvements**

### 3.8 IMPROVEMENT OPTIONS NOT SELECTED

The following proposal was initially considered but not selected for implementation:

- **Converting White Plains Road to One-Way Northbound (between Bronxdale Avenue and Boston Road).** One of the bold options considered includes converting White Plains Road to a one-way couplet, with northbound traffic to continue its existing operation between Bronxdale Avenue and Boston Road, while diverting southbound White Plains Road traffic to use the parallel Boston Road/Uniondale/Bronx Park E. This option of making White Plains Road one-way northbound between Bronxdale Avenue and Boston Road was not pursued further due to community concerns and opposition. During public meetings, the community voiced concerns that the re-routed traffic would create constraints on Boston Road/Uniondale/Bronx Park E and hurt business along White Plains Road. It would also result in capacity constraints at various intersections along the proposed route.

### 3.9 FUTURE STUDY RECOMMENDATION

The following study could be initiated to further improve traffic operations on White Plains Road:

*Truck Delivery Zone Window Study:* Due to the lack of off-street loading docks and on-street loading space along White Plains Road, delivery trucks are frequently double-parked, as shown in Figure 40. This creates unsafe traffic operating conditions for through vehicles as well as for drivers searching for parking spaces. It is recommended that a study be conducted in collaboration with the local businesses to help set up truck delivery zone windows along the project corridor. This study will determine the number of deliveries, the frequency and duration, and the daily commercial delivery trends in order to develop a delivery window program for loading and unloading use. This study will help in designing truck delivery zones and the number of spaces needed to provide a balanced truck delivery operation. The delivery window program would be sensitive to the typical weekday parking demand of customers and that of daily truck delivery needs. Implementation of these delivery zone windows will be made in conjunction with the local community boards, and will further help to improve traffic operations along White Plains Road.



*Figure 40: Typical Situation Resulting From Lack of Truck Delivery Zones Along White Plains Road*

# 4 EVALUATION

## 4. EVALUATION

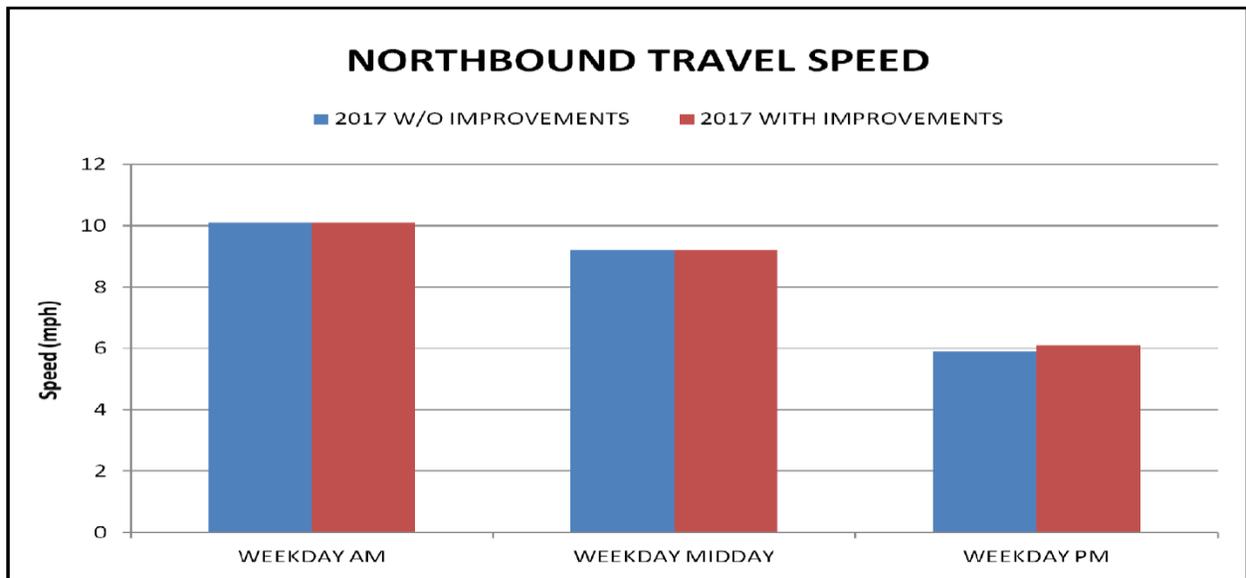
While much of the project is focused on improving mobility and safety for pedestrians, cyclists transit users, and motorists, the purpose of this section is to quantify the improvements to traffic operations and air quality.

### 4.1 TRAFFIC OPERATIONS

Table 6 and Figures 41 and 42 present the comparative analysis of projected travel speeds on White Plains Road between East Tremont Road and East 233<sup>rd</sup> Street under the 2017 future without improvements and the 2017 future with improvements scenarios. For the northbound direction, a projected improvement of about 3.4% is anticipated only during the weekday PM peak hours. (Note: No speed improvement is anticipated in this direction during the weekday AM and midday peak hours. This is mainly due to the offset optimization requirements and constraints associated with the closely spaced intersections in the vicinity of White Plains Road, Pelham Parkway and Boston Road and the competing heavy cross street traffic operations.) In the southbound direction, the projected improvement is 6.2%, 7.1% and 3.5%, respectively, for the weekday AM, midday and PM peak hours.

**TABLE 6  
PROJECTED TRAVEL SPEEDS ON WHITE PLAINS ROAD BETWEEN EAST TREMONT AVENUE  
AND EAST 233<sup>RD</sup> STREET**

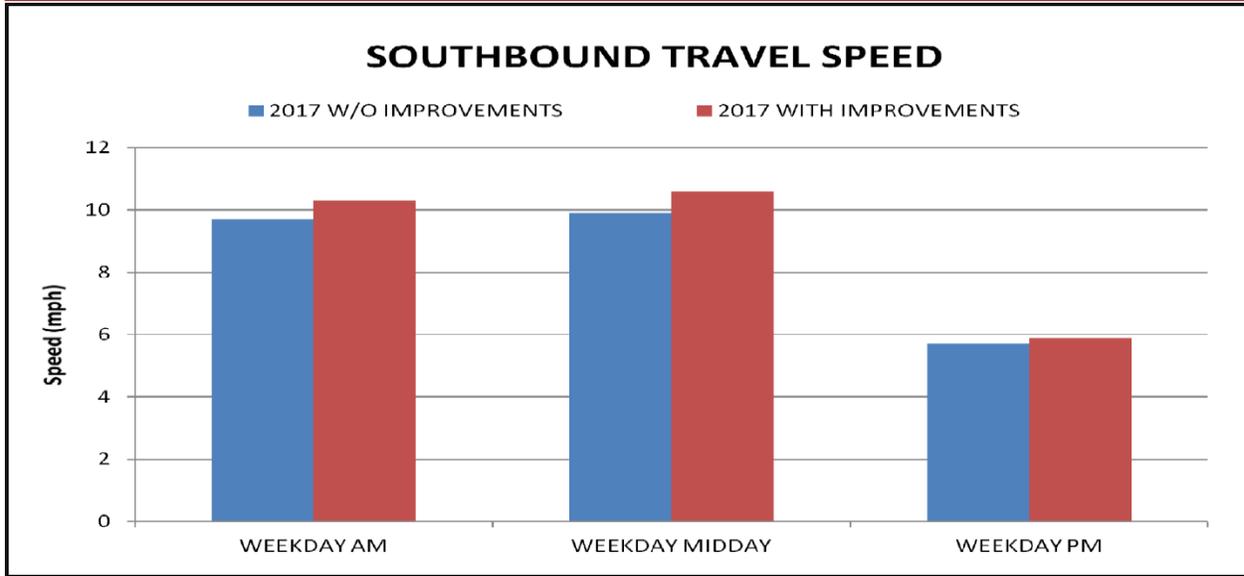
	NORTHBOUND			SOUTHBOUND		
	2017 W/O IMPROVEMENTS (MPH)	2017 WITH IMPROVEMENTS (MPH)	CHANGE %	2017 W/O IMPROVEMENTS (MPH)	2017 WITH IMPROVEMENTS (MPH)	CHANGE %
WEEKDAY AM	10.1	10.1	0.0%	9.7	10.3	6.2%
WEEKDAY MIDDAY	9.2	9.2	0.0%	9.9	10.6	7.1%
WEEKDAY PM	5.9	6.1	3.4%	5.7	5.9	3.5%



**Figure 41: Northbound Peak Period Travel Speeds for White Plains Road from East Tremont Avenue to East 233<sup>rd</sup> Street**

# 4

# EVALUATION



**Figure 42: Southbound Peak Period Travel Speeds for White Plains Road from East Tremont Avenue to East 233<sup>rd</sup> Street**

As noted earlier, some of the improvements in traffic operations are realized on the roadways that cross White Plains Road. To give a picture of the overall improvement in the study area, Tables 7 through 10 present a classification of Level of Service (LOS) for all intersection approaches (eastbound, westbound, northbound and southbound) within the study area, including the roadways that cross White Plains Road, under the 2017 future without improvements and the 2017 future with improvements scenarios. Intersection approaches are classified into three categories: LOS A, B, C up to mid-D (acceptable for urban areas); LOS mid-D to E (marginally unacceptable); and LOS F (unacceptable). Under the future with improvements scenario, the number of marginally unacceptable or unacceptable approaches (LOS mid-D to F) is projected to be reduced from 12 to 7 during the weekday AM peak hour, from 3 to 1 during the weekday midday peak hour, from 10 to 4 during the weekday PM peak hour, and from 7 to 2 during the Saturday midday peak hour. The number of unacceptable lane groups (LOS F) is projected to be reduced from 4 to 0 during the weekday AM peak hour, from 1 to 0 during the weekday midday peak hour, from 7 to 2 during the weekday PM peak hour, and from 3 to 0 during the Saturday midday peak hour.

It was not possible to provide an acceptable LOS during the PM peak hour at the intersection of White Plains Road and Pelham Parkway South Service Road due to the competing northbound and eastbound traffic volumes. At this intersection, the White Plains Road and Pelham Parkway South Service Road traffic demand is at saturation, and it was not possible to bring LOS to acceptable levels, given the geometric constraints coupled with the traffic volume demand at adjacent, closely-spaced signalized intersections. Optimization of signal timings and offsets, however, has helped in reducing unacceptable LOS delays by 3% to 5%, when compared to the corresponding 2017 future without improvements condition.

# 4

# EVALUATION

**TABLE 7  
SIGNALIZED AND UNSIGNALIZED INTERSECTION APPROACHES CLASSIFIED BY LOS  
WHITE PLAINS ROAD BETWEEN EAST TREMONT AVENUE AND EAST 233<sup>RD</sup> STREET  
WEEKDAY AM PEAK HOUR**

SIGNALIZED INTERSECTION	2017 WITHOUT IMPROVEMENTS			2017 WITH IMPROVEMENTS		
	ACCEPTABLE LOS A, B, C to Mid-D	MARGINALLY UNACCEPTABLE LOS Mid-D to E	UNACCEPTABLE LOS F	ACCEPTABLE LOS A, B, C to Mid-D	MARGINALLY UNACCEPTABLE LOS Mid-D to E	UNACCEPTABLE LOS F
East Tremont Avenue	3	3		5	2	
Morris Park Avenue	3	1		4	1	
Bronxdale Avenue	6			6		
Pelham Parkway SSR	2	2		3	1	
Pelham Parkway South Mainline	3			3		
Pelham Parkway North Mainline	2		2	3	1	
Pelham Parkway NSR	3		1	4	1	
Boston Road (South)	*	*	*	3		
Allerton Avenue	4			4		
East Gun Hill Road (NB)	4			4		
East Gun Hill Road (SB)	5			5		
East 222nd Street	6	1		7		
East 233rd Street	7			7		
<b>UNSIGNALIZED INTERSECTION</b>						
Boston Road & Pelham Parkway NSR	4			4		
Boston Road (North)	3		1	3	1	
Boston Road (South)	2	1		**	**	**
<b>TOTALS</b>	<b>57</b>	<b>8</b>	<b>4</b>	<b>65</b>	<b>7</b>	<b>0</b>

**Notes:**

- \* = Intersection operates as an unsignalized intersection under the Existing and Future Without Improvement Condition
- \*\* = Intersection recommended to be signalized under the Future With Improvement Condition

The total number of approaches for each intersection may differ between the 2017 without Improvements and the 2017 with Improvements conditions due to proposed geometric changes or proposed lane assignment changes.

The intersection of Boston Road and Thwaites Place was only introduced at the request of the NYCDOT after the 2017 without Improvements analysis was completed. Thus no comparative analysis was conducted.

# 4

# EVALUATION

**TABLE 8  
SIGNALIZED AND UNSIGNALIZED INTERSECTION APPROACHES CLASSIFIED BY LOS  
WHITE PLAINS ROAD BETWEEN EAST TREMONT AVENUE AND EAST 233<sup>RD</sup> STREET  
WEEKDAY MIDDAY PEAK HOUR**

SIGNALIZED INTERSECTION	2017 WITHOUT IMPROVEMENTS			2017 WITH IMPROVEMENTS		
	ACCEPTABLE LOS A, B, C to Mid-D	MARGINALLY UNACCEPTABLE LOS Mid-D to E	UNACCEPTABLE LOS F	ACCEPTABLE LOS A, B, C to Mid-D	MARGINALLY UNACCEPTABLE LOS Mid-D to E	UNACCEPTABLE LOS F
East Tremont Avenue	5	1		6	1	
Morris Park Avenue	4			5		
Bronxdale Avenue	6			6		
Pelham Parkway SSR	3	1		4		
Pelham Parkway South Mainline	3			3		
Pelham Parkway North Mainline	4			4		
Pelham Parkway NSR	4			5		
Boston Road (South)	*	*	*	3		
Allerton Avenue	4			4		
East Gun Hill Road (NB)	4			4		
East Gun Hill Road (SB)	5			5		
East 222nd Street	7			7		
East 233rd Street	6			7		
<b>UNSIGNALIZED INTERSECTION</b>						
Boston Road & Pelham Parkway NSR	4			4		
Boston Road (North)	3		1	4		
Boston Road (South)	3			**	**	**
<b>TOTALS</b>	65	2	1	71	1	0

Notes:

\* = Intersection operates as an unsignalized intersection under the Existing and Future Without Improvement Condition

\*\* = Intersection recommended to be signalized under the Future With Improvement Condition

The total number of approaches for each intersection may differ between the 2017 without Improvements and the 2017 with Improvements scenarios due to proposed geometric changes or proposed lane assignment changes.

The intersection of Boston Road and Thwaites Place was only introduced at the request of the NYCDOT after the 2017 without Improvements analysis was completed. Thus no comparative analysis was conducted.

# 4

# EVALUATION

**TABLE 9  
SIGNALIZED AND UNSIGNALIZED INTERSECTION APPROACHES CLASSIFIED BY LOS  
WHITE PLAINS ROAD BETWEEN EAST TREMONT AVENUE AND EAST 233<sup>RD</sup> STREET  
WEEKDAY PM PEAK HOUR**

SIGNALIZED INTERSECTION	2017 WITHOUT IMPROVEMENTS			2017 WITH IMPROVEMENTS		
	ACCEPTABLE LOS A, B, C to Mid-D	MARGINALLY UNACCEPTABLE LOS Mid-D to E	UNACCEPTABLE LOS F	ACCEPTABLE LOS A, B, C to Mid-D	MARGINALLY UNACCEPTABLE LOS Mid-D to E	UNACCEPTABLE LOS F
East Tremont Avenue	5	1		6	1	
Morris Park Avenue	4			5		
Bronxdale Avenue	6			6		
Pelham Parkway SSR	2		2	2		2
Pelham Parkway South Mainline	3			3		
Pelham Parkway North Mainline	3	1		4		
Pelham Parkway NSR	3		1	5		
Boston Road (South)	*	*	*	3		
Allerton Avenue	4			4		
East Gun Hill Road (NB)	4			4		
East Gun Hill Road (SB)	4		1	5		
East 222nd Street	7			7		
East 233rd Street	4	1	1	6	1	
<b>UNSIGNALIZED</b>						
Boston Road & Pelham Parkway NSR	4			4		
Boston Road (North)	3		1	4		
Boston Road (South)	2		1	**	**	**
<b>TOTALS</b>	<b>58</b>	<b>3</b>	<b>7</b>	<b>68</b>	<b>2</b>	<b>2</b>

**Notes:**

\* = Intersection operates as an unsignalized intersection under the Existing and Future Without Improvement Condition

\*\* = Intersection recommended to be signalized under the Future With Improvement Condition

The total number of approaches for each intersection may differ between the 2017 without Improvements and the 2017 with Improvements scenarios due to proposed geometric changes or proposed lane assignment changes.

The intersection of Boston Road and Thwaites Place was only introduced at the request of the NYCDOT after the 2017 without Improvements analysis was completed. Thus no comparative analysis was conducted.

# 4

# EVALUATION

**TABLE 10  
SIGNALIZED AND UNSIGNALIZED INTERSECTION APPROACHES CLASSIFIED BY LOS  
WHITE PLAINS ROAD BETWEEN EAST TREMONT AVENUE AND EAST 233<sup>RD</sup> STREET  
SATURDAY PEAK HOUR**

SIGNALIZED INTERSECTION	2017 WITHOUT IMPROVEMENTS			2017 WITH IMPROVEMENTS		
	ACCEPTABLE	MARGINALLY UNACCEPTABLE	UNACCEPTABLE	ACCEPTABLE	MARGINALLY UNACCEPTABLE	UNACCEPTABLE
	LOS A, B, C to Mid-D	LOS Mid-D to E	LOS F	LOS A, B, C to Mid-D	LOS Mid-D to E	LOS F
East Tremont Avenue	6			7		
Morris Park Avenue	4			5		
Bronxdale Avenue	6			6		
Pelham Parkway SSR	3	1		3	1	
Pelham Parkway South Mainline	3			3		
Pelham Parkway North Mainline	3		1	4		
Pelham Parkway NSR	3		1	5		
Boston Road (South)	*	*	*	3		
Allerton Avenue	4			4		
East Gun Hill Road (NB)	4			4		
East Gun Hill Road (SB)	5			5		
East 222nd Street	7			7		
East 233rd Street	4	1	1	6	1	
<b>UNIGNALIZED INTERSECTION</b>						
Boston Road & Pelham Parkway NSR	4			4		
Boston Road (North)	3	1		4		
Boston Road (South)	2	1		**	**	**
<b>TOTALS</b>	<b>61</b>	<b>4</b>	<b>3</b>	<b>70</b>	<b>2</b>	<b>0</b>

**Notes:**

\* = Intersection operates as an unsignalized intersection under the Existing and Future Without Improvement Condition

\*\* = Intersection recommended to be signalized under the Future With Improvement Condition

The total number of approaches for each intersection may differ between the 2017 without Improvements and the 2017 with Improvements scenarios due to proposed geometric changes or proposed lane assignment changes.

The intersection of Boston Road and Thwaites Place was only introduced at the request of the NYCDOT after the 2017 without Improvements analysis was completed. Thus no comparative analysis was conducted.

# 4

# EVALUATION

## 4.2 AIR QUALITY

Table 11 presents the comparative analysis of projected emissions in the study area under the 2017 future without improvements and 2017 future with improvements scenarios. The proposed recommendations are projected to improve air quality within the White Plains Road study area. The overall air quality emission rates will decrease between 6.3% and 20.8% when compared to the corresponding future without improvement conditions. The maximum percentage reduction is anticipated to be in the weekday AM peak hour where the reduction in emission rates will be:

- NOX – 5.09 Kilograms Per Hour
- VOC – 6.07 Kilograms Per Hour
- CO – 26.18 Kilograms Per Hour

**TABLE 11**  
**WHITE PLAINS ROAD STUDY AREA – PEAK HOUR AIR QUALITY COMPARISON BETWEEN**  
**FUTURE WITHOUT IMPROVEMENT AND FUTURE WITH IMPROVEMENT 2017**

PEAK HOUR	CONTAMINANTS	FUTURE WITHOUT IMPROVEMENTS 2017 SYNCHRO EMISSION RATES (Kilograms Per Hour)	FUTURE WITH IMPROVEMENTS 2017 SYNCHRO EMISSION RATES (Kilograms Per Hour)	EMISSION RATES COMPARISON % BETWEEN 2017 WITH IMPROVEMENTS VERSUS 2017 WITHOUT IMPROVEMENTS
WEEKDAY AM PEAK HOUR	NOX	6.43	5.09	20.8%
	VOC	7.65	6.07	20.7%
	CO	33.03	26.18	20.7%
WEEKDAY MIDDAY PEAK HOUR	NOX	3.60	3.37	6.4%
	VOC	4.28	4.01	6.3%
	CO	18.48	17.31	6.3%
WEEKDAY PM PEAK HOUR	NOX	5.81	5.04	13.3%
	VOC	6.93	6.01	13.3%
	CO	28.88	25.91	13.3%
SATURDAY MIDDAY PEAK HOUR	NOX	4.99	4.31	13.6%
	VOC	5.94	5.13	13.6%
	CO	25.64	22.14	13.7%

# 4 EVALUATION

It is important to note that the air quality emission rates for the 2017 future with improvements scenarios are also anticipated to be better than the 2007 existing condition air quality emission rates during the weekday AM, PM and Saturday midday peak hours. For the weekday midday peak hours, the air quality emission rates for the 2017 future with improvements scenarios will be about the same as the 2007 existing conditions (see Table 12 for details).

**TABLE 12  
WHITE PLAINS ROAD STUDY AREA – PEAK HOUR AIR QUALITY COMPARISON BETWEEN  
EXISTING CONDITION 2007 AND FUTURE WITH IMPROVEMENT 2017**

PEAK HOUR	CONTAMINANTS	EXISTING CONDITION 2007 SYNCHRO EMISSION RATES (Kilograms Per Hour)	FUTURE WITH IMPROVEMENTS 2017 SYNCHRO EMISSION RATES (Kilograms Per Hour)	EMISSION RATES COMPARISON % BETWEEN 2017 WITH IMPROVEMENTS VERSUS 2007 EXISTING CONDITION
WEEKDAY AM PEAK HOUR	NOX	5.59	5.09	8.9%
	VOC	6.66	6.07	8.9%
	CO	28.74	26.18	8.9%
WEEKDAY MIDDAY PEAK HOUR	NOX	3.36	3.37	-0.3%
	VOC	4.00	4.01	-0.2%
	CO	17.25	17.31	-0.3%
WEEKDAY PM PEAK HOUR	NOX	5.19	5.04	2.9%
	VOC	6.18	6.01	2.8%
	CO	26.66	25.91	2.8%
SATURDAY MIDDAY PEAK HOUR	NOX	4.51	4.31	4.4%
	VOC	5.37	5.13	4.5%
	CO	23.16	22.14	4.4%

Note:

1. Negative (-) percentages represent degradation in air quality when compared to existing conditions.

## 5. IMPLEMENTATION

The implementation of improvements has been divided up between short-term and long-term improvements.

The corridor-wide improvements implemented in 2011 or 2012 include installation of pedestrian countdown signals; installation of muni-meters in place of single-space parking meters; painting of overhead subway superstructure; and installation of pavement markings to delineate subway columns. Other short-term intersection specific improvements that have already been implemented include installation of curb extensions, pedestrian ramps, signing, crosswalk and stop bar striping at White Plains Road and Unionport Road; closure of the northbound lanes on Unionport Road between Van Nest Avenue and Mead Street, making Unionport Road one-way southbound; installation of stop signs, pedestrian ramps, crosswalk and stop bar at the intersection of Unionport Road and Baker Avenue; installation of sidewalk median and curb extensions at the White Plains Road near Sagamore Street; and the installation of a median island and pedestrian ramps at the Boston Road at Thwaites Place intersection.

Short term improvements scheduled for implementation in 2014 include the signal timing and offset changes at various intersections; installation of traffic signs restricting left turns at the White Plains Road and East Tremont Road intersection, and at the White Plains Road and Boston Road North intersection; installation of right turn pockets at White Plains Road and Morris Park Avenue and at White Plains Road and East 233<sup>rd</sup> Street; installation of curb extension at Cruger Avenue and Sagamore Street; and installation of left turn pockets at the White Plains Road and Pelham Parkway North Service Road intersection.

Additionally, improvements at the White Plains Road and East Gun Hill Road intersections (both northbound and southbound) are in the process of being implemented under the MTA's Gun Hill Road Intermodal Project (Contract No. A-36078), and the installation of curb extensions at the White Plains Road and Allerton Avenue intersection will be done under the NYCDOT's Safe Routes to Transit Project.

A capital project has been initiated, which will include the following long-term improvements: curb extensions at the White Plains Road and Morris Park Avenue intersection and at the White Plains Road and East 222<sup>nd</sup> Street intersection; installation of a new traffic signal at the White Plains Road and Boston Road (South) intersection; installation of one new bus shelter at the White Plains Road and East Tremont Road intersection; and the installation of muni-meters on White Plains Road (especially between Bronxdale Avenue and Brady Street in front of Staples). Implementation of these improvements is scheduled for 2014.



# CONCLUSION

## 6. CONCLUSION

In the development of improvements, every attempt was made to include as many multimodal elements as practically possible because of the conflicting needs of street users. Many of the improvements are geared towards traffic flow, parking, deliveries, air quality and safety. Following the Complete Streets concept, emphasis is also placed upon cyclists, pedestrians (residents, workers, students and shoppers), and transit users.

Improvement measures have been developed, evaluated and proposed for implementation within the confines of the existing curb-to-curb width of White Plains Road. Community feedback was instrumental in identifying problems and refining solutions. It is anticipated that the improvements will benefit all street users along the White Plains Road corridor.

For the recommended improvements to yield optimal benefits, stepped-up enforcement of traffic laws and regulations may be required. Although traffic enforcement is not under the jurisdiction of NYCDOT, agency coordination and cooperation involving NYCDOT, NYPD, MTA and other key agencies will be critical to ensuring that the maximum benefits are achieved from implementation.

The corridor will be monitored beginning in 2014.