

Safe Streets for Seniors

West Midtown, Manhattan

FINAL REPORT

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Janette Sadik-Khan, Commissioner



Safe Streets for Seniors
WEST MIDTOWN

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1 PROJECT DESCRIPTION

1 PROJECT DESCRIPTION

Since 1990 the number of pedestrian fatalities in New York City has decreased by 56%. Moreover, prior to 1950, pedestrians accounted for three-fourths of all traffic fatalities and since then, that percentage has decreased to account for about one-half of all traffic fatalities. Despite these statistical improvements, pedestrians continue to be the largest at risk mode – with older adults more likely to suffer serious injuries or fatalities from traffic crashes than other pedestrians. The rate of pedestrian fatalities for every 100,000 persons in the City has decreased by nearly half since 1991 – to 2.0 from 3.8 – while the rate of senior pedestrian fatalities per 100,000 seniors has decreased even more sharply – to 6.6 from 13.1. Nevertheless, while seniors make up only 12% of the population in New York City, they still comprise 39% of pedestrian fatalities. The recognition of the disproportional representation of the senior population among severe pedestrian injuries and fatalities led to the development of the Department of Transportation’s Safe Streets for Seniors (SSS) Program.

The purpose of this project is to address senior pedestrian safety issues at 25 Senior Pedestrian Focus Areas (SPFAs) in the five boroughs of New York City and to develop and implement mitigation measures to improve the safety of seniors and other pedestrians within the 25 SPFAs. DOT identified SPFAs to include the top senior pedestrian crash (severe injury and fatality) areas within each borough. Four of the SPFAs are located in the Bronx, seven in Brooklyn, five in Queens, eight in Manhattan and one in Staten Island. The SPFAs have been selected based on the density of senior pedestrian crashes resulting in fatalities or severe injuries in a five-year period. DOT conducted in-house studies for five pilot SPFAs and is utilizing consultant services to perform a comprehensive study of pedestrian safety conditions at intersections and along corridors within 20 selected SPFAs.

The project evaluates the crash history and existing traffic conditions and controls (e.g., roadway geometry, signal timing) at selected intersections and corridors within each SPFA in order to develop short- and long-term measures to reduce pedestrian crashes specifically for seniors, and improve safety and traffic operations for all users. The DOT makes specific safety recommendations consisting of low-cost as well as capital engineering and design improvements for these 20 areas. In addition, the DOT conducts data analysis as needed, prepares engineering and design schematics and related services, as necessary, for capital improvements.

In this report, the West Midtown SPFA located in Manhattan has been studied and improvements have been recommended.

2 BACKGROUND

Land use in the West Midtown Study area is a mix of commercial and residential buildings. There are four senior centers located in or near the study area: Project Find Coffee House Senior Center at 551 9th Avenue between W 40th Street and W 41st Street; Murray Hill SRO at 11 E 29th Street between 5th Avenue and Madison Avenue; Project Find Woodstock Senior Center at 127 W 43rd Street between 6th Avenue and Broadway; and Encore Senior Center at 239 W 49th Street between Broadway and 8th Avenue.

There are ten schools located within the study area (list of school names and addresses shown in Exhibit 5).

Bicycle Facilities

The 2010 NYC Cycling Map shows “existing” and “planned/proposed” bicycle facilities throughout the city. In the vicinity of the West Midtown Study Area, there are existing Class 1 bike route along Broadway and part of 9th Avenue, and Class 2 bike route along 8th Avenue and 6th Avenue. There are also planned/proposed bike routes on part of 9th Avenue, W 30th Street, W 31st Street, W 39th Street, W 40th Street, W 48th Street and W 51st Street. Refer to Exhibit 2 for details.

Truck Routes

There are several local truck routes in the vicinity of the study area including those along 9th Avenue, 8th Avenue, 7th Avenue, 6th Avenue, W 23rd Street, W 30th Street, W 31st Street, W 34th Street and W 42nd Street (Exhibit 3).

Bus Lines and Subway

Eight bus lines operate within the study area including (Exhibit 4):

- M11: Operates along 9th Avenue
- M20: Operates along 8th Avenue and 7th Avenue
- M7: Operates along 7th Avenue and 6th Avenue
- M5: Operates along 6th Avenue
- M23: Operates along W 23rd Street
- M34: Operates along W 34th Street
- M42: Operates along W 42nd Street
- M50: Operates along W 49th Street and W 50th Street
- M16: Operates along 9th Avenue, 8th Avenue and W 34th Street
- M4: Operates along W 32nd Street, W 34th Street and 7th Avenue
- M104: Operates along 7th Avenue and 8th Avenue
- Q32: Operates along W 32nd Street, W 34th Street and 7th Avenue

The **A**, **C**, **E**, **1**, **2**, **3**, **N**, **Q**, **R**, **B**, **D**, **F**, **M**, **7** and **S** subway lines run along 8th Avenue, 7th Avenue, Broadway, 6th Avenue and 42nd Street, respectively, through the study area (Exhibit 4). Subway stations for the lines are located at the following intersections:

- 8th Avenue and W 23rd Street, W 34th Street, W 42nd Street, W 50th Street
- 7th Avenue and W 23rd Street, W 28th Street, W 34th Street, W 42nd Street, W 50th Street
- Broadway and W 28th Street, W 34th Street, W 42nd Street, W 49th Street
- 6th Avenue and W 34th Street
- W 42nd Street and Broadway/Times Square

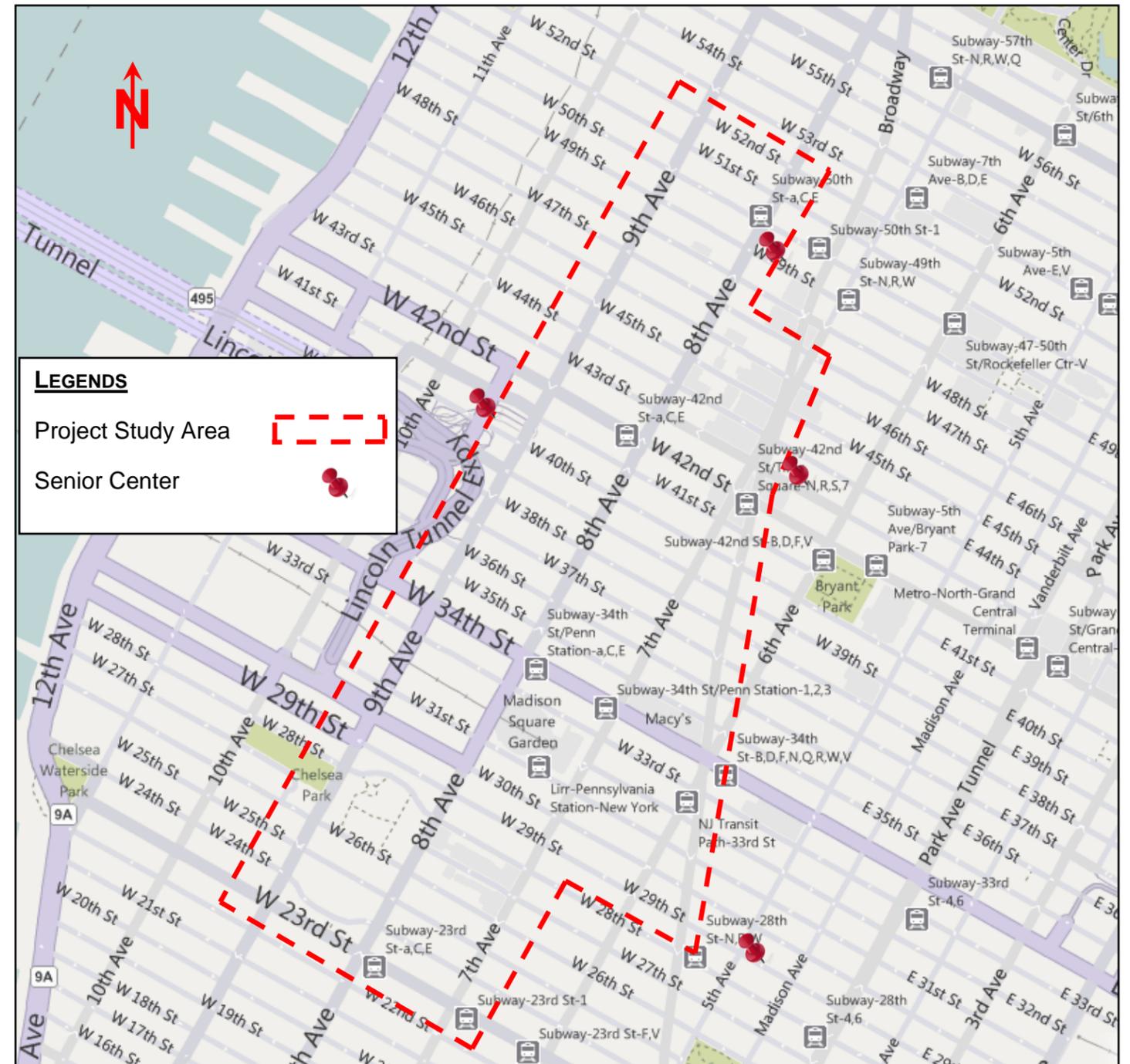


EXHIBIT 1 – AREA MAP

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BACKGROUND

EXHIBIT 2 – BIKE MAP



EXHIBIT 3 – TRUCK MAP

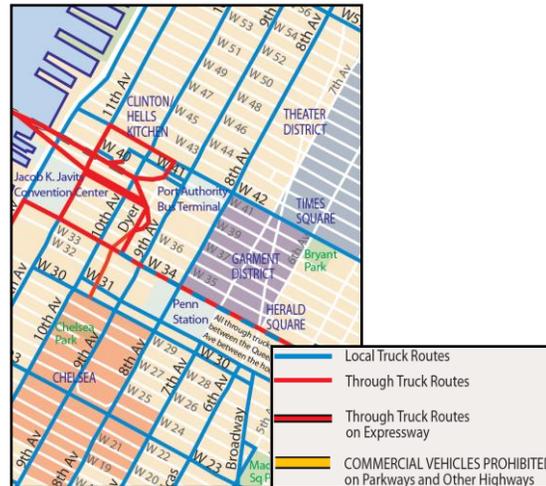


EXHIBIT 4 – TRANSIT MAP



EXHIBIT 5 – LIST OF SCHOOLS IN THE STUDY AREA

SCHOOL NAME	ADDRESS
The Kids Korner	247 West 24 th Street, New York, NY 10011
McCarton School	331 West 25 th Street, New York, NY 10001
P.S. 33 Chelsea School	281 9 th Avenue, New York, NY 10001
M.S. 260 Clinton School	425 W 33rd Street, New York, NY 10001
Holy Cross School	332 West 43 rd Street, New York, NY 10036
School of the International Center of Photography	1114 Avenue of the Americas at 43 rd Street, New York, NY 10036
Jacqueline Kennedy Onassis High School	120 West 46 th Street, New York, NY 10036
Junior High School 17	328 West 48 th Street, New York, NY 10019
High School of Graphic Communication Arts	439 West 49th Street, New York, NY 10019
P. S. 35	317 West 52nd Street, New York, NY 10019

3

EXISTING CONDITIONS

3 EXISTING CONDITIONS

3.1 ABOUT THE STUDY AREA

The West Midtown Study Area consists of four major north-south corridors: 9th Avenue, 8th Avenue, 7th Avenue and Broadway (Photo No. 1). Three major west-east corridors are also located within the study area: W 23rd Street, W 34th Street and W 42nd Street. Six of these major corridors carry truck routes (Exhibit 2), while all of the major corridors carry at least one New York City Transit route (Exhibit 4). Many of the senior residents interviewed showed concern about W 34th Street, W 23rd Street, 8th Avenue and 7th Avenue. The combination of heavy traffic volumes, operational factors and geometric factors make these corridors difficult for senior pedestrians to safely cross.



Photo No. 1 : 7th Avenue and W 31st Street

3.2 FIELD OBSERVATIONS AND SENIOR PEDESTRIANS CONCERNS

There were numerous issues that were repeatedly observed during the field visits and/or conveyed by senior pedestrians during interviews. Those issues are listed here:

- Insufficient pedestrian crossing time
- Missing or non-standard ADA pedestrian ramps
- Turning vehicles not yielding to pedestrians
- Insufficient pedestrian signs

4

TRAFFIC OPERATIONS

4 TRAFFIC OPERATIONS

4.1 CRASH SUMMARY

Crash data was obtained from the New York City Department of Transportation (NYCDOT) for the West Midtown study area from 2001 through 2006. This data provides some detail relating the circumstances and cause of each crash. Table 1 and Exhibit 6 show a summary of crashes.

TABLE 1: DMV SIX YEAR CRASH SUMMARY (2001-2006)

INTERSECTION		SENIOR PEDESTRIAN CRASHES	SENIOR PEDESTRIAN FATALITIES
9 th Avenue	W 23 rd Street	1	0
9 th Avenue	W 26 th Street	1	0
9 th Avenue	W 28 th Street	1	0
9 th Avenue	W 33 rd Street	1	0
9 th Avenue	W 35 th Street	1	0
9 th Avenue	W 37 th Street	1	0
9 th Avenue	W 39 th Street	1	0
9 th Avenue	W 41 st Street	2	1
9 th Avenue	W 42 nd Street	3	0
9 th Avenue	W 45 th Street	1	0
9 th Avenue	W 49 th Street	1	0
9 th Avenue	W 52 nd Street	1	0
8 th Avenue	W 25 th Street	1	0
8 th Avenue	W 27 th Street	1	0
8 th Avenue	W 31 st Street	1	0
8 th Avenue	W 42 nd Street	2	0
8 th Avenue	W 43 rd Street	1	0
8 th Avenue	W 50 th Street	1	0
7 th Avenue	W 25 th Street	1	0
7 th Avenue	W 31 st Street	1	0
7 th Avenue	W 32 nd Street	1	0
7 th Avenue	W 34 th Street	2	0
7 th Avenue	W 39 th Street	1	0
7 th Avenue	W 44 th Street	1	0
7 th Avenue	W 47 th Street	1	0
Broadway	W 30 th Street	1	0
Broadway	W 38 th Street	1	0
Broadway	W 42 nd Street	1	0
TOTAL		33	1

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TRAFFIC OPERATIONS

4.2 TRAFFIC VOLUMES

In order to analyze conditions for vehicles and pedestrians, traffic volume data was collected at key locations (see Table 2).

The results of the ATR, TMC and pedestrian counts are included in Appendices A, B, and C and the Technical Supplement.

TABLE 2: TRAFFIC VOLUME DATA			
LOCATION	ATR ¹	TMC ²	PED COUNTS
9 th Avenue & W 33 rd Street		x	x
9 th Avenue & W 41 st Street	x	x	x
9 th Avenue & W 42 nd Street	x	x	x
9 th Avenue & W 46 th Street	x		
9 th Avenue & W 47 th Street		x	x
9 th Avenue & W 48 th Street	x		
9 th Avenue & W 52 nd Street		x	x
8 th Avenue & W 31 st Street		x	x
8 th Avenue & W 33 rd Street		x	x
8 th Avenue & W 34 th Street		x	x
8 th Avenue & W 40 th Street		x	x
8 th Avenue & W 41 st Street	x		
8 th Avenue & W 42 nd Street	x	x	x
8 th Avenue & W 43 rd Street		x	x
8 th Avenue & W 47 th Street		x	x
8 th Avenue & W 48 th Street	x		
8 th Avenue & W 52 nd Street	x		
7 th Avenue & W 31 st Street		x	x
7 th Avenue & W 42 nd Street		x	x
7 th Avenue & W 47 th Street		x	x
Broadway & W 42 nd Street		x	x

Notes:

1. Twenty-four hour Automatic Traffic Recorder (ATR)
2. Turning Movement Counts (TMC's)

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TRAFFIC OPERATIONS

4.3 SIGNAL TIMING: PEDESTRIAN INTERVAL

According to MUTCD 2009 (Manual on Uniform Traffic Control Devices) Section 4E.06, a minimum of seven (7) seconds is allocated for a walk interval, in addition to a pedestrian clearance time based on a walking speed of 3.5 feet per second. All signalized intersections within the study area were modified to provide a clearance interval of 3 feet per second to accommodate the slower walking speeds of seniors.

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ILLUSTRATING THE SOLUTION

5 ILLUSTRATING THE SOLUTION

5.1 EXECUTIVE SUMMARY AND GENERAL RECOMMENDATIONS

TABLE 3: SUMMARY OF SPECIFIC RECOMMENDATIONS

Locations	New Left Turn Bay	Refuge Island	Curb Extension / Neckdown	Add Pedestrian Ramp	High-visibility Crosswalk	Standard Crosswalk	Stripe Stop Bar	Stripe Parking Lane / Buffer	Stripe Angle Parking	Stripe Channelization / Lane line	Do Not Block the Box	Stripe Bike Lane	Stripe Bus Lane	Daylighting	Yield to Peds / Cross With Care Sign	Leading Pedestrian Interval (LPI)
9 th Avenue & W 24 th Street							x	x							x	
9 th Avenue & W 25 th Street			x	x				x								
9 th Avenue & W 26 th Street			x	x				x	x							
9 th Avenue & W 28 th Street								x		x					x	
9 th Avenue & W 29 th Street			x	x			x									
9 th Avenue & W 30 th Street				x												
9 th Avenue & W 33 rd Street															x	x
9 th Avenue & W 35 th Street				x	x		x								x	
9 th Avenue & W 36 th Street							x								x	
9 th Avenue & W 37 th Street				x	x		x								x	
9 th Avenue & W 38 th Street				x											x	
9 th Avenue & W 39 th Street				x	x		x								x	
9 th Avenue & W 40 th Street					x											
9 th Avenue & W 41 st Street																x
9 th Avenue & W 42 nd Street																x
9 th Avenue & W 44 th Street						x										
9 th Avenue & W 45 th Street				x	x		x									
9 th Avenue & W 46 th Street							x									
9 th Avenue & W 47 th Street															x	
9 th Avenue & W 48 th Street	x ¹							x ¹				x ¹				
9 th Avenue & W 49 th Street		x ¹			x		x	x ¹		x ¹		x ¹			x	
9 th Avenue & W 50 th Street	x ¹	x ¹			x		x	x ¹		x ¹		x ¹			x	
9 th Avenue & W 51 st Street		x ¹						x ¹		x ¹		x ¹				

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ILLUSTRATING THE SOLUTION

TABLE 3: SUMMARY OF SPECIFIC RECOMMENDATIONS

Locations	New Left Turn Bay	Refuge Island	Curb Extension / Neckdown	Add Pedestrian Ramp	High-visibility Crosswalk	Standard Crosswalk	Stripe Stop Bar	Stripe Parking Lane / Buffer	Stripe Angle Parking	Stripe Channelization / Lane line	Do Not Block the Box	Stripe Bike Lane	Stripe Bus Lane	Daylighting	Yield to Peds / Cross With Care Sign	Leading Pedestrian Interval (LPI)
9 th Avenue & W 52 nd Street	x ¹	x ¹						x ¹				x ¹			x	
8 th Avenue & W 23 rd Street	x ¹	x ¹						x ¹		x ¹		x ¹				
8 th Avenue & W 24 th Street		x ¹		x				x ¹		x ¹		x ¹				
8 th Avenue & W 25 th Street	x ¹	x ¹						x ¹		x ¹		x ¹			x	
8 th Avenue & W 26 th Street		x ¹		x				x ¹		x ¹		x ¹				
8 th Avenue & W 27 th Street		x ¹						x ¹		x ¹		x ¹				
8 th Avenue & W 28 th Street		x ¹						x ¹		x ¹		x ¹				
8 th Avenue & W 29 th Street	x ¹	x ¹		x				x ¹		x ¹		x ¹				
8 th Avenue & W 30 th Street		x ¹		x				x ¹		x ¹		x ¹			x	
8 th Avenue & W 31 st Street	x ¹	x ¹						x ¹		x ¹		x ¹			x	x
8 th Avenue Midblock at USPS		x ¹			x ¹		x ¹	x ¹				x ¹				
8 th Avenue & W 33 rd Street	x ¹	x ¹						x ¹		x ¹		x ¹			x	x
8 th Avenue & W 34 th Street	x ¹	x ¹						x ¹		x ¹		x ¹			x	x
8 th Avenue & W 35 th Street	x ¹	x ¹						x ¹		x ¹		x ¹				
8 th Avenue & W 36 th Street		x ¹						x ¹		x ¹		x ¹		x		
8 th Avenue & W 37 th Street	x ¹	x ¹		x	x			x ¹		x ¹		x ¹			x	
8 th Avenue & W 38 th Street		x ¹			x			x ¹		x ¹		x ¹				
8 th Avenue & W 39 th Street	x ¹			x	x			x ¹		x ¹		x ¹				
8 th Avenue & W 40 th Street								x ¹		x ¹	x	x ¹				
8 th Avenue & W 41 st Street										x ¹	x	x ¹				
8 th Avenue & W 42 nd Street		x ¹		x				x ¹		x ¹		x ¹	x ¹			x
8 th Avenue & W 43 rd Street		x ¹						x ¹		x ¹		x ¹	x ¹			x
8 th Avenue & W 44 th Street		x ¹						x ¹		x ¹		x ¹	x ¹			
8 th Avenue & W 45 th Street	x ¹	x ¹						x ¹		x ¹		x ¹	x ¹		x	
8 th Avenue & W 46 th Street		x ¹			x			x ¹		x ¹		x ¹	x ¹			

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ILLUSTRATING THE SOLUTION

TABLE 3: SUMMARY OF SPECIFIC RECOMMENDATIONS

Locations	New Left Turn Bay	Refuge Island	Curb Extension / Neckdown	Add Pedestrian Ramp	High-visibility Crosswalk	Standard Crosswalk	Stripe Stop Bar	Stripe Parking Lane / Buffer	Stripe Angle Parking	Stripe Channelization / Lane line	Do Not Block the Box	Stripe Bike Lane	Stripe Bus Lane	Daylighting	Yield to Peds / Cross With Care Sign	Leading Pedestrian Interval (LPI)
8 th Avenue & W 47 th Street	x ¹	x ¹						x ¹		x ¹		x ¹	x ¹			
8 th Avenue & W 48 th Street		x ¹		x				x ¹		x ¹		x ¹	x ¹			
8 th Avenue & W 49 th Street	x ¹	x ¹				x	x	x ¹		x ¹		x ¹	x ¹			
8 th Avenue & W 50 th Street		x ¹						x ¹		x ¹		x ¹	x ¹		x	
8 th Avenue & W 51 st Street	x ¹							x ¹		x ¹		x ¹	x ¹			
8 th Avenue & W 52 nd Street		x ¹						x ¹		x ¹		x ¹	x ¹			
7 th Avenue & W 23 rd Street			x	x												
7 th Avenue & W 24 th Street			x	x												
7 th Avenue & W 25 th Street			x	x												
7 th Avenue & W 26 th Street			x	x												
7 th Avenue & W 27 th Street			x	x												
7 th Avenue & W 28 th Street			x	x												
7 th Avenue & W 29 th Street			x	x												
7 th Avenue & W 30 th Street			x	x											x	
7 th Avenue & W 31 st Street			x	x											x	x
7 th Avenue & W 32 nd Street			x	x											x	
7 th Avenue & W 33 rd Street			x	x												
7 th Avenue & W 34 th Street			x	x											x	
7 th Avenue & W 35 th Street			x	x											x	
7 th Avenue & W 36 th Street			x	x												
7 th Avenue & W 37 th Street			x	x										x		
7 th Avenue & W 38 th Street			x	x												
7 th Avenue & W 39 th Street			x	x												
7 th Avenue & W 40 th Street			x	x	x										x	
7 th Avenue & W 41 st Street			x	x												

5

ILLUSTRATING THE SOLUTION

TABLE 3: SUMMARY OF SPECIFIC RECOMMENDATIONS

Locations	New Left Turn Bay	Refuge Island	Curb Extension / Neckdown	Add Pedestrian Ramp	High-visibility Crosswalk	Standard Crosswalk	Stripe Stop Bar	Stripe Parking Lane / Buffer	Stripe Angle Parking	Stripe Channelization / Lane line	Do Not Block the Box	Stripe Bike Lane	Stripe Bus Lane	Daylighting	Yield to Peds / Cross With Care Sign	Leading Pedestrian Interval (LPI)
7 th Avenue & W 42 nd Street			x	x												x
7 th Avenue & W 43 rd Street			x	x											x	
7 th Avenue & W 44 th Street			x	x											x	
7 th Avenue & W 45 th Street			x	x												
7 th Avenue & W 46 th Street															x	
7 th Avenue & W 47 th Street			x	x											x	
Broadway & W 29 th Street				x												
Broadway & W 30 th Street			x	x											x	
Broadway & W 31 st Street				x												
Broadway & W 32 nd Street			x	x												
Broadway & W 33 rd Street			x	x												
Broadway & W 34 th Street			x													
Broadway & W 35 th Street			x	x												
Broadway & W 38 th Street				x											x	
Broadway & W 39 th Street				x												
Broadway & W 42 nd Street				x												
Broadway & W 43 rd Street															x	
Broadway & W 44 th Street				x											x	
Broadway & W 46 th Street															x	
Broadway & W 47 th Street			x	x											x	

Notes:

x - Recommendations proposed by study of Safe Street for Seniors – West Midtown

x¹ - Recommendations proposed under other NYCDOT projects

General Recommendations

- Place stop bars ten feet in advance of all crosswalks
The NYCDOT standard for placement of a stop bar is ten feet in advance of any marked pedestrian crosswalk, including school and high-visibility crosswalks. This positioning helps to maximize pedestrian visibility and to minimize the potential for pedestrian/vehicle conflicts. Therefore, it is recommended that stop bars be placed ten feet in advance of all crosswalks.

- Provide additional crossing time where feasible
A number of senior residents interviewed indicated that there was not enough time to cross many of the streets. Therefore, all of the signals, where possible, will be retimed to allow more crossing time for pedestrians.

- Green projects where feasible
All medians, pedestrian plazas and curb extensions will be part of the Greenstreets program where feasible. The Greenstreets program is a citywide program to convert paved vacant traffic islands and medians into green spaces filled with shade trees, flowering trees, shrubs and groundcover.

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ILLUSTRATING THE SOLUTION

5.2 9TH AVENUE

Within the study area, 9th Avenue is a southbound one-way arterial from W 23rd Street to W 52nd Street (Photo No. 2). 9th Avenue is a 68-foot wide street with four moving lanes and parking on both sides. Under a recent NYCDOT improvement project, a new bike lane, with an island and parking between the moving lane and the bike lane, has been provided along the east curbside of 9th Avenue from W 23rd Street to W 31st Street. 9th Avenue is a local truck route. W 23rd Street, W 30th Street, W 31st Street and W 42nd Streets are also local truck routes which intersect 9th Avenue within study area. W 34th Street, however, is a through truck route and also a limited local truck route within study area. Two bus lines run along the 9th Avenue corridor within the study area: bus M11 and bus M16. W 23rd Street, W 34th Street, W 42nd Street, W 49th Street and W 50th Street also carry the following bus routes: M23, M34, M42 and M50. It should be noted that Holy Cross School is located near the 9th Avenue corridor. Proposed recommendations for this project concur with previously proposed School Safety recommendations.



Photo No. 2: 9th Avenue & W 33rd Street (looking south)

Neckdowns are recommended at the following locations to shorten the crossing distance and slow turning traffic:

- Southeast corner of 9th Avenue and W 25th Street
- Northeast corner of 9th Avenue and W 26th Street (Photo No. 3)
- Southeast corner of 9th Avenue and W 29th Street

As a part of 9th Avenue bicycle lane project NYCDOT is recommending pedestrian islands at the following locations. This measure will help in slowing down turning vehicle speed and will also provide refuge for senior pedestrians:

- North and south crosswalks at 9th Avenue and W 49th Street (NYCDOT Improvements)
- South crosswalk at 9th Avenue and W 50th Street (NYCDOT Improvements)
- North and south crosswalks at 9th Avenue and W 51st Street (NYCDOT Improvements)
- South crosswalk at 9th Avenue and W 52nd Street (NYCDOT Improvements)



Photo No. 3: 9th Avenue & W 26th Street (looking east)

5

ILLUSTRATING THE SOLUTION

In addition to the above noted pedestrian islands; channelized striping, parking lanes striping and a new bike lane with buffer is also being recommended along the east curbside of 9th Avenue as part of the 9th Avenue bicycle lane project. This new setup will also include provision of left turn bays at alternate intersections to facilitate one-way intersecting street operations. This setup will start along 9th Avenue just north of W 48th Street and will continue north beyond W 52nd Street (the study limit of this project).

Turning movement counts for the AM, Midday and PM peak hours were performed at the intersections of: 9th Avenue and W 33rd Street; 9th Avenue and W 41st Street; 9th Avenue and W 42nd Street; 9th Avenue and W 47th Street; and 9th Avenue and W 52nd Street. The vehicle/pedestrian conflicts at the intersections of 9th Avenue and W 33rd Street, 9th Avenue and W 41st Street, and 9th Avenue and W 42nd Street were found to be significantly high (see Appendices B and C). Therefore, it is proposed that Leading Pedestrian Intervals (LPI) be installed on all crosswalks at these intersections.

It is recommended that standard crosswalks be replaced by high visibility crosswalks at various intersections along 9th Avenue. New stop bars as well as new pedestrian ramps should also be provided at various intersections. In addition, it is recommended that 'Yield to Pedestrian' signs be provided at certain intersections along the 9th Avenue corridor, and that 'Signal Ahead' signs be provided for eastbound traffic between 9th Avenue and 8th Avenue on both W 24th Street and W 28th Street.

All improvements proposed along 9th Avenue are shown in Exhibits 9, 10 and 11.

5

ILLUSTRATING THE SOLUTION

5.3 8TH AVENUE

Within the study area, 8th Avenue is a northbound one-way arterial from W 23rd Street to W 52nd Street (Photo No. 4). 8th Avenue is a 68-foot wide street with four moving lanes and parking on both sides. Throughout the study area, 8th Avenue has a one-way northbound Class 2 bike lane. It should be noted that NYCDOT is in progress of implementing a protected bike lane along the west side of 8th Avenue from W 23rd Street to W 34th Street. 8th Avenue is also a local truck route, as are W 23rd Street, W 30th Street, W 31st Street and W 42nd Streets which intersect 8th Avenue within the study area. W 34th Street is a through truck route and also a limited local truck route that also intersects 8th Avenue.



Photo No. 4: 8th Avenue & W 47th Street (looking south)

Three bus lines run along the 8th Avenue corridor within the study area: bus M20, bus M16 and bus M104. W 23rd Street, W 34th Street, W 42nd Street, W 49th Street and W 50th Street also carry the following bus routes: M23, M34, M42 and M50. 8th Avenue also carries subway lines **A**, **C** and **E**. W 42nd Street, which intersects 8th Avenue within the study area, carries subway lines **7** and **S**. It should be noted that Holy Cross School is located near the 8th Avenue corridor. Proposed recommendations for this project concur with previously proposed School Safety recommendations and with NYCDOT recommendations proposed in conjunction with the 8th Avenue bike lane improvements.

Pedestrian islands are being recommended at the following locations as a part of 8th Avenue bicycle lane project to slow down turning traffic and to provide refuge for senior pedestrians:

- North crosswalk at 8th Avenue and W 23rd Street (NYCDOT Improvements) (Photo No. 5)
- North and south crosswalks at 8th Avenue and W 24th Street (NYCDOT Improvements)
- North crosswalk at 8th Avenue and W 25th Street (NYCDOT Improvements)
- North and south crosswalks at 8th Avenue and W 26th Street (NYCDOT Improvements)
- North and south crosswalks at 8th Avenue and W 27th Street (NYCDOT Improvements)
- North and south crosswalks at 8th Avenue and W 28th Street (NYCDOT Improvements)
- North crosswalk at 8th Avenue and W 29th Street (NYCDOT Improvements)



Photo No. 5: 8th Avenue & W 23rd Street (looking south)

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ILLUSTRATING THE SOLUTION

- North and south crosswalks at 8th Avenue and W 30th Street (NYCDOT Improvements)
- North crosswalk at 8th Avenue and W 31st Street (NYCDOT Improvements)
- Midblock crosswalk at 8th Avenue between W 31st Street and W 33rd Street (NYCDOT Improvements)
- North crosswalk at 8th Avenue and W 33rd Street (NYCDOT Improvements)
- North crosswalk at 8th Avenue and W 34th Street (NYCDOT Improvements)
- North crosswalk at 8th Avenue and W 35th Street (NYCDOT Improvements)
- North and south crosswalks at 8th Avenue and W 36th Street (NYCDOT Improvements)
- North crosswalk at 8th Avenue and W 37th Street (NYCDOT Improvements)
- North and south crosswalks at 8th Avenue and W 38th Street (NYCDOT Improvements)
- North crosswalk at 8th Avenue and W 43rd Street (NYCDOT Improvements)
- North and south crosswalks at 8th Avenue and W 44th Street (NYCDOT Improvements)
- North crosswalk at 8th Avenue and W 45th Street (NYCDOT Improvements)
- North and south crosswalks at 8th Avenue and W 46th Street (NYCDOT Improvements)
- North crosswalk at 8th Avenue and W 47th Street (NYCDOT Improvements)
- North and south crosswalks at 8th Avenue and W 48th Street (NYCDOT Improvements)
- North crosswalk at 8th Avenue and W 49th Street (NYCDOT Improvements)
- North and south crosswalks at 8th Avenue and W 50th Street (NYCDOT Improvements)
- North and south crosswalks at 8th Avenue and W 52nd Street (NYCDOT Improvements)

In addition to the above noted pedestrian islands; channelized striping, parking lanes striping and a new bike lane with buffer is also being recommended along the west curbside of 8th Avenue as part of the 8th Avenue bicycle lane project. This new setup will also include provision of left turn bays at alternate intersections to facilitate one-way intersecting street operations. This 8th Avenue bicycle lane setup will continue along 8th Avenue throughout this project study limit (i.e., between W 23rd Street and W 52nd Street).

Turning movement counts for the AM, Midday and PM peak hours were performed at the intersections of: 8th Avenue and W 31st Street; 8th Avenue and W 33rd Street; 8th Avenue and W 34th Street; 8th Avenue and W 40th Street; 8th Avenue and W 42nd Street; 8th Avenue and W 43rd Street; and 8th Avenue and W 47th Street. The vehicle/pedestrian conflicts at the intersections of 8th Avenue and W 31st Street, 8th Avenue and W 33rd Street, 8th Avenue and W 34th Street, 8th Avenue and W 42nd Street, and 8th Avenue and W 43rd Street were found to be significantly high (see Appendices B and C). Therefore, it is proposed that Leading Pedestrian Intervals (LPI) be installed on all crosswalks at these intersections.

It is recommended that standard crosswalks be replaced by high visibility crosswalks at various intersections along 8th Avenue. New stop bars as well as new pedestrian ramps should also be provided at various intersections. In addition, it is recommended that 'Yield to Pedestrian' signs be provided at certain intersections along the 8th Avenue corridor.

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ILLUSTRATING THE SOLUTION

It is also recommended that a new bus lane be provided from W 42nd Street to W 52nd Street along the east side of 8th Avenue (NYCDOT Improvements). It is further recommended that new 'Do Not Block Box' striping be installed at the intersections of 8th Avenue and W 40th Street and 8th Avenue and W 41st Street.

All improvements proposed along 8th Avenue are shown in Exhibits 12, 13 and 14.

5

ILLUSTRATING THE SOLUTION

5.4 7TH AVENUE

Within the study area, 7th Avenue is a southbound one-way arterial from W 23rd Street to W 47th Street (Photo No. 6). The corridor is 59-foot wide with four moving lanes and parking on both sides. 7th Avenue is a local truck route from W 23rd Street to W 30th Street. W 23rd Street, W 30th Street, W 31st Street and W 42nd Streets are also local truck routes which intersect 7th Avenue within study area. W 34th Street is a through truck route and also a limited local truck route that intersects 7th Avenue. Three bus lines run along the 7th Avenue corridor within the study area: bus M7, bus M20 and bus M104. W 23rd Street, W 34th Street, W 42nd Street, W 49th Street and W 50th Street also carry the following bus



Photo No. 6: 7th Avenue & W 42nd Street (looking south)

routes: M23, M34 and M42. 7th Avenue also carries subway lines 1, 2 and 3. W 42nd Street, which intersects 7th Avenue within the study area, carries subway lines 7 and S.

Neckdowns are recommended at the following locations to shorten the crossing distance and slow turning traffic:

- Northeast and southeast corners of 7th Avenue and W 23rd Street
- Northeast and southeast corners of 7th Avenue and W 24th Street
- Northeast and southeast corners of 7th Avenue and W 25th Street
- Northeast and southeast corners of 7th Avenue and W 26th Street
- Northeast and southeast corners of 7th Avenue and W 27th Street
- Northeast and southeast corners of 7th Avenue and W 28th Street
- Northeast and southeast corners of 7th Avenue and W 29th Street
- Northeast and southeast corners of 7th Avenue and W 30th Street
- Northeast and southeast corners of 7th Avenue and W 31st Street
- Northeast and southeast corners of 7th Avenue and W 32nd Street
- Northeast and southeast corners of 7th Avenue and W 33rd Street
- Northeast and southeast corners of 7th Avenue and W 34th Street
- Northeast and southeast corners of 7th Avenue and W 35th Street
- Northeast and southeast corners of 7th Avenue and W 36th Street
- Northeast and southeast corners of 7th Avenue and W 37th Street
- Northeast and southeast corners of 7th Avenue and W 38th Street
- Northeast and southeast corners of 7th Avenue and W 39th Street

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ILLUSTRATING THE SOLUTION

- Southeast corner of 7th Avenue and W 40th Street
- Northeast corner of 7th Avenue and W 41st Street
- Southeast corner of 7th Avenue and W 42nd Street
- West side of 7th Avenue from W 42nd Street to W 43rd Street
- West side of 7th Avenue from W 43rd Street to W 44th Street
- Northwest corner of 7th Avenue and W 44th Street
- Southwest corner of 7th Avenue and W 45th Street
- Northeast corner of 7th Avenue and W 47th Street

Daylighting is recommended at the northwest corner of 7th Avenue and W 37th Street intersection in order to improve pedestrian visibility to the drivers.

Turning movement counts for the AM, Midday and PM peak hours were performed at the intersections of: 7th Avenue and W 31st Street; 7th Avenue and W 42nd Street; and 7th Avenue and W 47th Street. The vehicle/pedestrian conflicts at the intersections of 7th Avenue and W 31st Street and 7th Avenue and W 42nd Street were found to be significantly high (see Appendices B and C). Therefore, it is proposed that Leading Pedestrian Intervals (LPI) be installed on all crosswalks at these intersections.

It is recommended that at the intersection of 7th Avenue and W 40th Street, standard crosswalks be replaced by high visibility crosswalks on its north and south legs. New pedestrian ramps and 'Yield to Pedestrian' signs should also be provided at various intersections along 7th Avenue.

All improvements proposed along 7th Avenue are shown in Exhibits 15, 16 and 17.

5

ILLUSTRATING THE SOLUTION

5.5 BROADWAY

Within the study area, Broadway is a southbound one-way roadway from W 29th Street to W 47th Street (Photo No. 7). Broadway is 42-foot wide from W 29th Street to W 33rd Street and 59 feet wide from W 35th Street to W 42nd Street, with one and two moving lanes respectively, left turn bays at various locations, parking on both sides and a protected Class 1 bike lane on the east side of the roadway. Broadway is a local truck route between W 29 Street and W 31st Street. W 30th Street, W 31st Street and W 42nd Streets are also local truck routes which intersect Broadway within the study area. W 34th Street is a through truck route and also a limited local truck route that intersects Broadway. W 34th Street and W



Photo No. 7: Broadway & W 38th Street (looking north)

42nd Street carry bus routes M34 and M42. Broadway carries subway lines **N**, **Q** and **R**. W 42nd Street, which intersects Broadway within the study area, also carries subway lines **7** and **S**.

Important to note is the fact that lane configuration and traffic pattern on Broadway has been recently modified by the NYCDOT in order to include a Class 1 bike lane within the existing corridor curb-to-curb width. Additionally, pedestrian plazas are also created by the closure of Broadway from W 47th Street to W 42nd Street and from W 35th Street to W 33rd Street. These measures have provided significant public space for pedestrian activity without traffic operational conflicts.

Under this study, neckdowns are recommended at the following locations to shorten the crossing distance and slow turning traffic:

- Northwest corner of Broadway and W 30th Street
- Northeast corner of Broadway and W 33rd Street

Additionally, curb extensions are also recommended for the entire block length at the following locations:

- West side of Broadway from W 32nd Street to W 33rd Street
- West side of 6th Avenue from W 34th Street to W 35th Street
- South side of W 35th Street from Broadway to 6th Avenue
- East side of Broadway from W 47th Street to W 48th Street

It is recommended that new pedestrian ramps and 'Yield to Pedestrian' signs be provided at various intersections along the Broadway corridor. It is further recommended that 'Cross with Care' signs be provided at the intersections of Broadway and W 43rd Street and Broadway and W 44th Street.

All improvements proposed along Broadway are shown in Exhibits 18 and 19.

5

ILLUSTRATING THE SOLUTION

5.6 W 24TH STREET, W 25TH STREET, W 26TH STREET & W 28TH STREET (FROM 8TH AVE TO 9TH AVE)

Recommendations for above noted streets are proposed between 8th Avenue and 9th Avenue (Photo No. 8 and Photo No. 9). W 24th Street is a one-way, one lane eastbound roadway; W 25th Street is a one-way, one lane westbound roadway, W 26th Street is a one-way, one lane eastbound roadway and W 28th Street is a one-way two lane eastbound roadway. The widths of these local streets vary between 45-foot and 50-foot. Parking is allowed along both sides of these streets.



Photo No. 8: 8th Avenue & W 26th Street (looking west)

During various field visits, opportunity to narrow travel lane was observed on all these cross streets between 9th Avenue and 8th Avenue. To narrow the travel lane, parking lanes and hatched buffer be striped as follows:

- On W 24th Street, 8.5-foot wide parking lane with 10-foot wide hatched buffer be striped along both curb sides. This will make way for one 13-foot wide eastbound travel lane. (Note: This recommendation has already been implemented by the NYCDOT as a part of W 24th Street improvement project).
- On W 25th Street, 10-foot wide parking lane with 7-foot wide hatched buffers be striped along both curb sides. This will make way for 11-foot wide westbound travel lane.
- On W 26th Street, 10-foot wide parking lane with 8-foot wide hatched buffer be striped along south curb side and 20-foot wide 'back-in angle parking stalls' be striped along north curb side. This will make way for 12-foot wide eastbound travel lane. A left-turn bay should also be striped at eastbound 8th Avenue and W 26th Street.
- On W 28th Street, 9-foot wide parking lane with 3-foot wide hatched buffer be striped along both curb sides. This will make way for two 12-foot wide eastbound travel lanes. The left moving lane will become a left turn only lane as it intersects the 8th Avenue intersection.



Photo No. 9: 9th Avenue & W 28th Street (looking east)

It is anticipated that the proposed striping modifications would help in calming traffic operations along these local streets. It would also help in accommodating additional parking spaces (especially along W 26th Street due to the proposed 'back-in angle parking configuration).

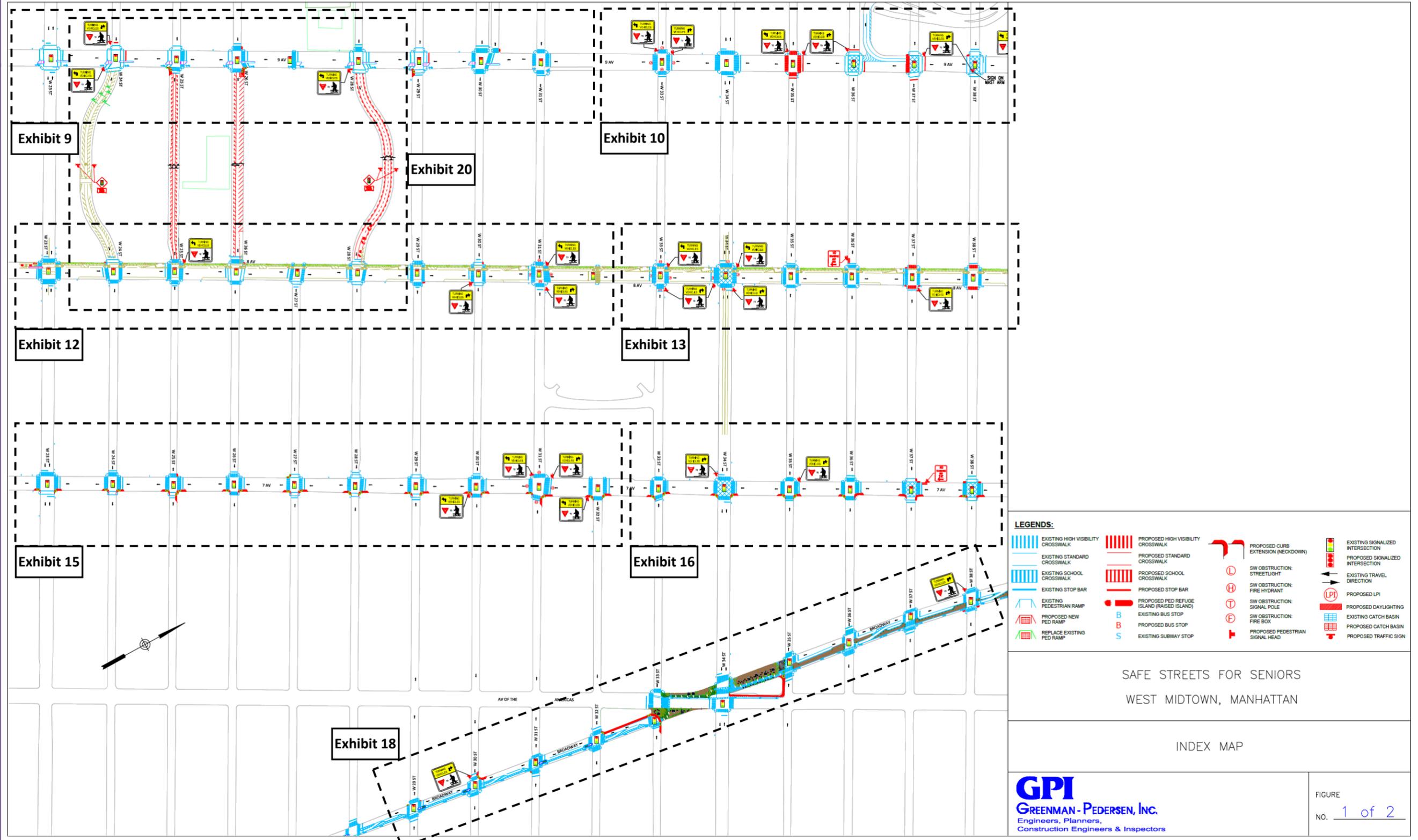
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ILLUSTRATING THE SOLUTION

Due to the curve roadway alignment it is further recommended that 'Signal Ahead' signs be provided between 9th Avenue and 8th Avenue on W 28th Street in order to warn drivers of the upcoming traffic signal which is not continuously visible from a safe distance.

All improvements proposed from 8th Avenue to 9th Avenue are shown in Exhibit 20.

EXHIBIT 7 – RECOMMENDATION INDEX 1



LEGENDS:

	EXISTING HIGH VISIBILITY CROSSWALK		PROPOSED HIGH VISIBILITY CROSSWALK		PROPOSED CURB EXTENSION (NECKDOWN)		EXISTING SIGNALIZED INTERSECTION
	EXISTING STANDARD CROSSWALK		PROPOSED STANDARD CROSSWALK		SW OBSTRUCTION: STREETLIGHT		PROPOSED SIGNALIZED INTERSECTION
	EXISTING SCHOOL CROSSWALK		PROPOSED SCHOOL CROSSWALK		SW OBSTRUCTION: FIRE HYDRANT		EXISTING TRAVEL DIRECTION
	EXISTING STOP BAR		PROPOSED STOP BAR		SW OBSTRUCTION: SIGNAL POLE		PROPOSED LPI
	EXISTING PEDESTRIAN RAMP		PROPOSED PED REFUGE ISLAND (RAISED ISLAND)		SW OBSTRUCTION: FIRE BOX		PROPOSED DAYLIGHTING
	PROPOSED NEW PED RAMP		EXISTING BUS STOP		PROPOSED BUS STOP		EXISTING CATCH BASIN
	REPLACE EXISTING PED RAMP		EXISTING SUBWAY STOP		EXISTING SUBWAY STOP		PROPOSED CATCH BASIN
					PROPOSED PEDESTRIAN SIGNAL HEAD		PROPOSED TRAFFIC SIGN

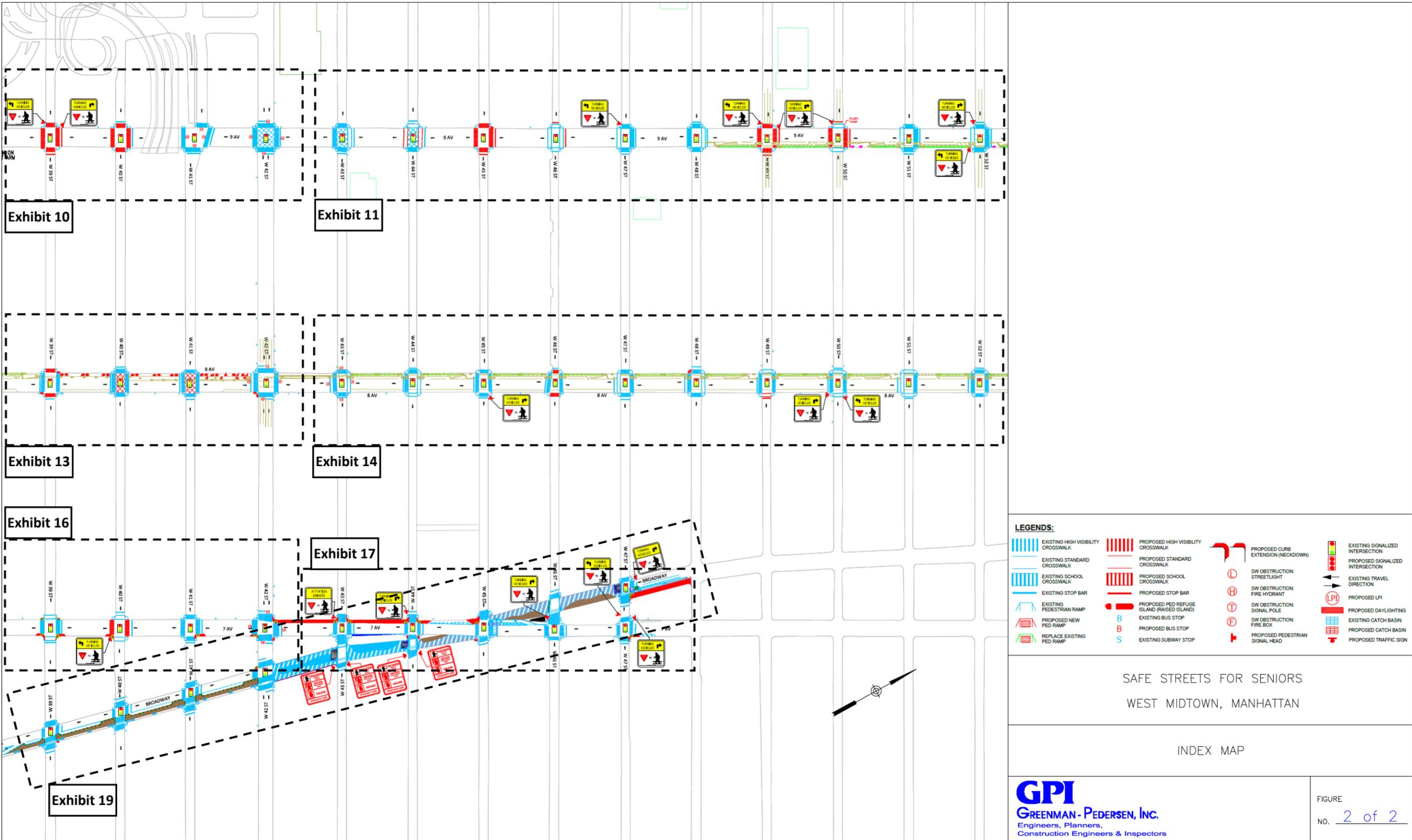
SAFE STREETS FOR SENIORS
WEST MIDTOWN, MANHATTAN

INDEX MAP

GPI
GREENMAN - PEDERSEN, INC.
Engineers, Planners,
Construction Engineers & Inspectors

FIGURE
NO. 1 of 2

EXHIBIT 8 – RECOMMENDATION INDEX 2



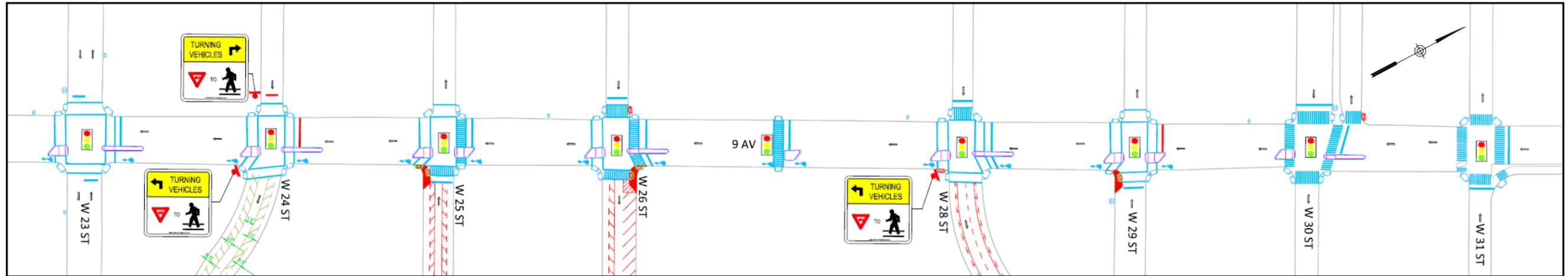
SAFE STREETS FOR SENIORS
WEST MIDTOWN, MANHATTAN

INDEX MAP

GPI
GREENMAN - PEDERSEN, INC.
Engineers, Planners,
Construction Engineers & Inspectors

FIGURE
NO. 2 of 2

EXHIBIT 9 – 9TH AVENUE (FROM W 23RD STREET TO W 31ST STREET)



LEGENDS:

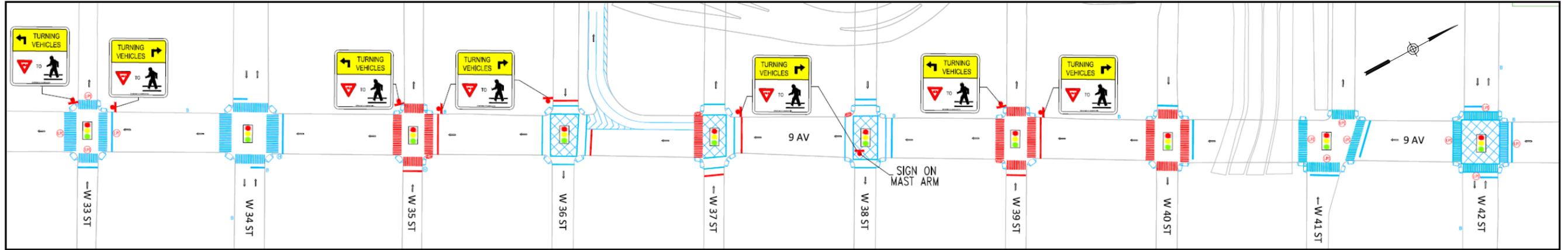
EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	EXISTING CATCH BASIN
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	PROPOSED CATCH BASIN
REPLACE EXISTING PED RAMP	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

- Recommended improvements include:**
- Time all signals for seniors and where feasible, the crossing time will be extended
 - Install new advanced stop bars as shown in the illustration
 - Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
 - Install new “Yield to Pedestrian” signs at the intersections shown in the illustration
 - Install neckdowns or a curb extensions

- Pedestrian concerns in this area:**
- Non-standard pedestrian ramps
 - Turning vehicles not yielding to pedestrians
 - Signal timing (insufficient crossing time)

- Additional Information**
- This study area was visited on January 26th and 27th, February 5th and 9th, July 27th and September 10th, 2010.
 - Parking regulations for the project area have been collected and are shown in Appendix D

EXHIBIT 10 – 9TH AVENUE (FROM W 33RD STREET TO W 42ND STREET)



LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP	PROPOSED CATCH BASIN	PROPOSED TRAFFIC SIGN
	EXISTING SUBWAY STOP		

Recommended improvements include:

- Time all signals for seniors and where feasible, the crossing time will be extended
- Install new high visibility crosswalks as shown in the illustration
- Install new advanced stop bars as shown in the illustration
- Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
- Install new “Yield to Pedestrian” signs at the intersections shown in the illustration
- Consider the installation of a Leading Pedestrian Interval (LPI) at the intersections of: 9th Avenue and W 33rd Street; 9th Avenue and W 41st Street; and 9th Avenue and W 42nd Street (for all four crosswalks)

Pedestrian concerns in this area:

- Non-standard pedestrian ramps
- Turning vehicles not yielding to pedestrians
- Signal timing (insufficient crossing time)

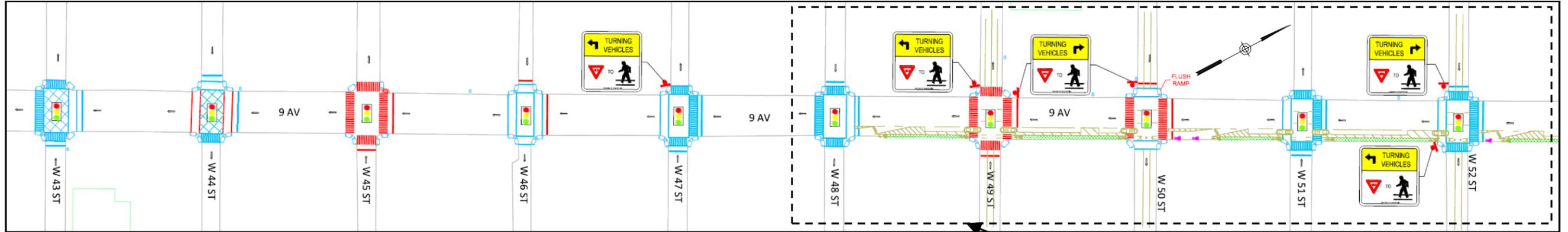
Traffic Analysis

- ATR counts were analyzed at (see Appendix A):
 - 9th Avenue and W 41st Street
 - 9th Avenue and W 42nd Street
- Turning movement and pedestrian counts were analyzed at (see Appendices B and C):
 - 9th Avenue and W 33rd Street
 - 9th Avenue and W 41st Street
 - 9th Avenue and W 42nd Street

Additional Information

- This study area was visited on January 26th and 27th, February 5th and 9th, July 27th and September 10th, 2010.
- Parking regulations for the project area have been collected and are shown in Appendix D

EXHIBIT 11 – 9TH AVENUE (FROM W 43RD STREET TO W 52ND STREET)



BIKE LANE, LEFT TURN BAY, BUFFER AND MEDIAN ISLAND IMPROVEMENTS UNDER 9TH AVENUE IMPROVEMENT PROJECT BY NYCDOT (SHOWN IN ■ COLOR)

LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP		PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

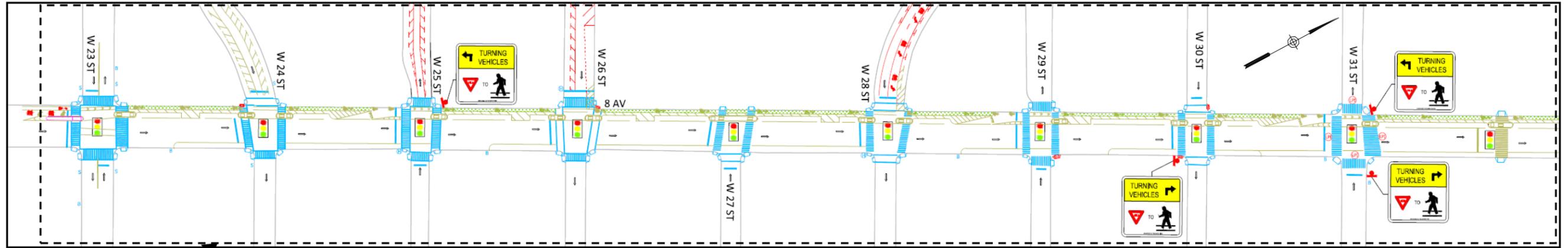
- Recommended improvements include:**
- Time all signals for seniors and where feasible, the crossing time will be extended
 - Install new high visibility crosswalks as shown in the illustration
 - Install new advanced stop bars as shown in the illustration
 - Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
 - Install new pedestrian refuge islands (NYCDOT Improvement)
 - Install new bike lanes along with buffer and parking lanes (NYCDOT Improvement)
 - Install new "Yield to Pedestrian" signs at the intersections shown in the illustration

- Pedestrian concerns in this area:**
- Non-standard pedestrian ramps
 - Turning vehicles not yielding to pedestrians
 - Signal timing (insufficient crossing time)

- Traffic Analysis**
- ATR counts were analyzed at (see Appendix A):
 - 9th Avenue and W 46th Street
 - 9th Avenue and W 48th Street
 - Turning movement and pedestrian counts were analyzed at (see Appendices B and C):
 - 9th Avenue and W 47th Street
 - 9th Avenue and W 52nd Street

- Additional Information**
- This study area was visited on January 26th and 27th, February 5th and 9th, July 27th and September 10th, 2010.
 - Parking regulations for the project area have been collected and are shown in Appendix D

EXHIBIT 12 – 8TH AVENUE (FROM W 23RD STREET TO W 32ND STREET)



BIKE LANE, LEFT TURN BAY, BUFFER AND MEDIAN ISLAND IMPROVEMENTS UNDER 8TH AVENUE IMPROVEMENT PROJECT BY NYCDOT (SHOWN IN GREEN COLOR)

LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

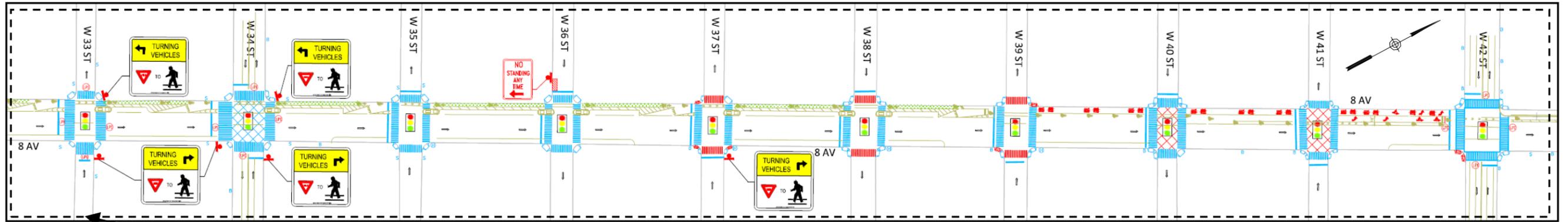
- Pedestrian concerns in this area:**
- Non-standard pedestrian ramps
 - Turning vehicles not yielding to pedestrians
 - Signal timing (insufficient crossing time)

- Traffic Analysis**
- Turning movement and pedestrian counts were analyzed at (see Appendices B and C):
 - 8th Avenue and W 31st Street

- Recommended improvements include:**
- Time all signals for seniors and where feasible, the crossing time will be extended
 - Install new high visibility crosswalks as shown in the illustration (NYCDOT Improvement)
 - Install new advanced stop bars as shown in the illustration (NYCDOT Improvement)
 - Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
 - Install new “Yield to Pedestrian” signs at the intersections shown in the illustration
 - Consider the installation of a Leading Pedestrian Interval (LPI) at the intersection of 8th Avenue and W 31st Street (for all four crosswalks)
 - Install new pedestrian refuge islands (NYCDOT Improvement)
 - Install new bike lanes along with buffer and parking lanes (NYCDOT Improvement)

- Additional Information**
- This study area was visited on January 26th and 27th, February 5th and 9th, July 27th and September 10th, 2010.
 - Parking regulations for the project area have been collected and are shown in Appendix D

EXHIBIT 13 – 8TH AVENUE (FROM W 33RD STREET TO W 42ND STREET)



BIKE LANE, LEFT TURN BAY, BUFFER AND MEDIAN ISLAND IMPROVEMENTS UNDER 8TH AVENUE IMPROVEMENT PROJECT BY NYCDOT (SHOWN IN ■ COLOR)

LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP	PROPOSED CATCH BASIN	PROPOSED TRAFFIC SIGN
	EXISTING SUBWAY STOP		

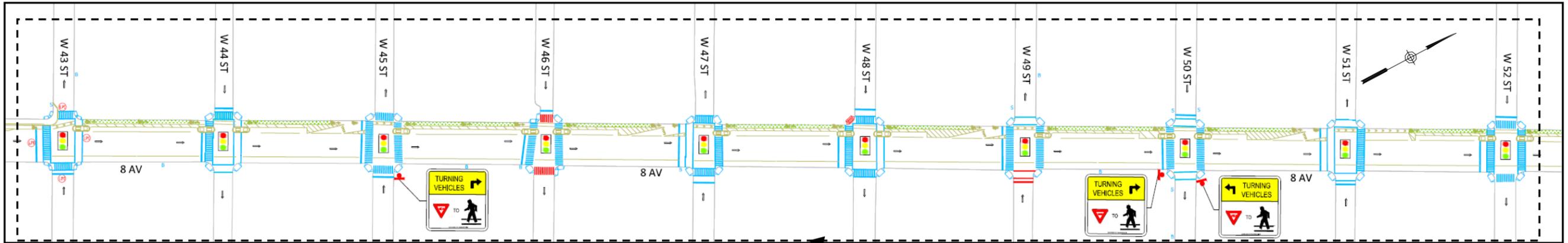
- Pedestrian concerns in this area:**
- Non-standard pedestrian ramps
 - Turning vehicles not yielding to pedestrians
 - Signal timing (insufficient crossing time)

- Additional Information**
- This study area was visited on January 26th and 27th, February 5th and 9th, July 27th and September 10th, 2010.
 - Parking regulations for the project area have been collected and are shown in Appendix D

- Recommended improvements include:**
- Time all signals for seniors and where feasible, the crossing time will be extended
 - Install new high visibility crosswalks as shown in the illustration
 - Install new 'Do Not Block Box' striping at the intersections shown in the illustration
 - Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
 - Install new "Yield to Pedestrian" signs at the intersections shown in the illustration
 - Remove the first parking space along the south side of W 36th Street at 8th Avenue in advance of the west crosswalk
 - Consider the installation of a Leading Pedestrian Interval (LPI) at the intersections of 8th Avenue and W 33rd Street, 8th Avenue and W 34th Street, and 8th Avenue and W 42nd Street (for all four crosswalks)
 - Install new pedestrian refuge islands (NYCDOT Improvement)
 - Install new bike lanes along with buffer and parking lanes (NYCDOT Improvement)

- Traffic Analysis**
- ATR counts were analyzed at (see Appendix A):
 - 8th Avenue and W 41st Street
 - 8th Avenue and W 42nd Street
 - Turning movement and pedestrian counts were analyzed at (see Appendices B and C):
 - 8th Avenue and W 33rd Street
 - 8th Avenue and W 34th Street
 - 8th Avenue and W 40th Street
 - 8th Avenue and W 42nd Street

EXHIBIT 14 – 8TH AVENUE (FROM W 43RD STREET TO W 52ND STREET)



LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	EXISTING CATCH BASIN
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	PROPOSED CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	PROPOSED TRAFFIC SIGN
	EXISTING SUBWAY STOP		

BUS LANE IMPROVEMENTS UNDER 8TH AVENUE IMPROVEMENT PROJECT BY NYCDOT (SHOWN IN COLOR)

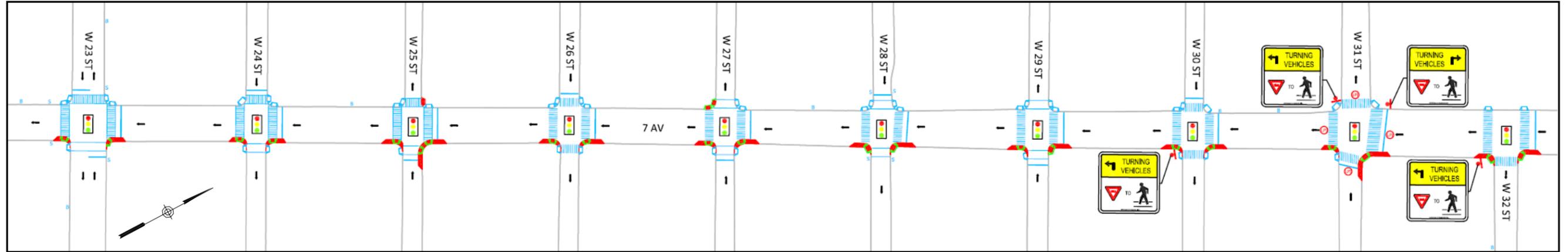
- Pedestrian concerns in this area:**
- Non-standard pedestrian ramps
 - Turning vehicles not yielding to pedestrians
 - Signal timing (insufficient crossing time)

- Traffic Analysis**
- ATR counts were analyzed at (see Appendix A):
 - 8th Avenue and W 48th Street
 - 8th Avenue and W 52nd Street
 - Turning movement and pedestrian counts were analyzed at (see Appendices B and C):
 - 8th Avenue and W 43rd Street
 - 8th Avenue and W 47th Street

- Recommended improvements include:**
- Time all signals for seniors and where feasible, the crossing time will be extended
 - Install new high visibility crosswalks as shown in the illustration
 - Install new advanced stop bars as shown in the illustration
 - Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
 - Install new “Yield to Pedestrian” signs at the intersections shown in the illustration
 - Consider the installation of a Leading Pedestrian Interval (LPI) at the intersection of 8th Avenue and W 43rd Street (for all four crosswalks)
 - Install new Bus Lane as shown in the illustration (NYCDOT Improvement)
 - Install new pedestrian refuge islands (NYCDOT Improvement)
 - Install new bike lanes along with buffer and parking lanes (NYCDOT Improvement)

- Additional Information**
- This study area was visited on January 26th and 27th, February 5th and 9th, July 27th and September 10th, 2010.
 - Parking regulations for the project area have been collected and are shown in Appendix D

EXHIBIT 15 – 7TH AVENUE (FROM W 23RD STREET TO W 32ND STREET)



LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP		PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

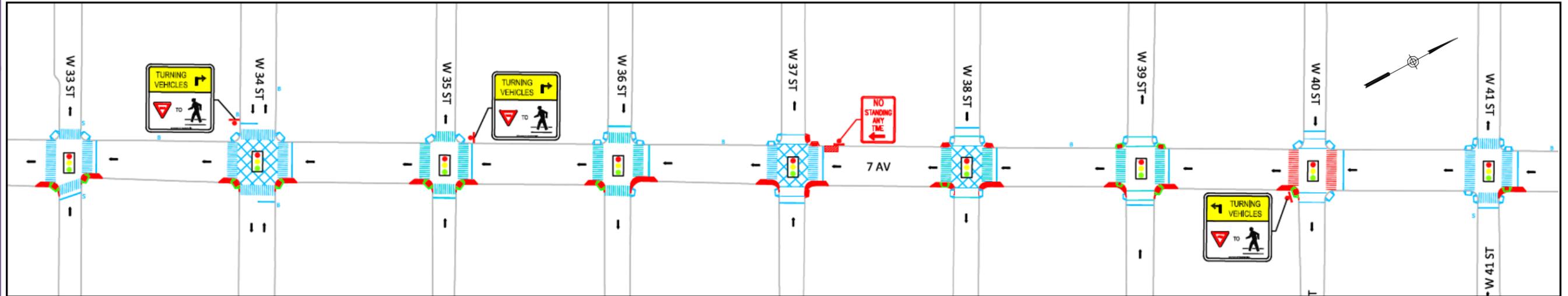
- Recommended improvements include:**
- Time all signals for seniors and where feasible, the crossing time will be extended
 - Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
 - Install new “Yield to Pedestrian” signs at the intersections shown in the illustration
 - Install neckdowns or curb extensions
 - Consider the installation of a Leading Pedestrian Interval (LPI) at the intersection of 7th Avenue and W 31st Street (for all four crosswalks)

- Pedestrian concerns in this area:**
- Non-standard pedestrian ramps
 - Turning vehicles not yielding to pedestrians
 - Signal timing (insufficient crossing time)

- Additional Information**
- This study area was visited on January 26th and 27th, February 5th and 9th, July 27th and September 10th, 2010.
 - Parking regulations for the project area have been collected and are shown in Appendix D

- Traffic Analysis**
- Turning movement and pedestrian counts were analyzed at (see Appendices B and C):
- 7th Avenue and W 31st Street

EXHIBIT 16 – 7TH AVENUE (FROM W 33RD STREET TO W 41ST STREET)

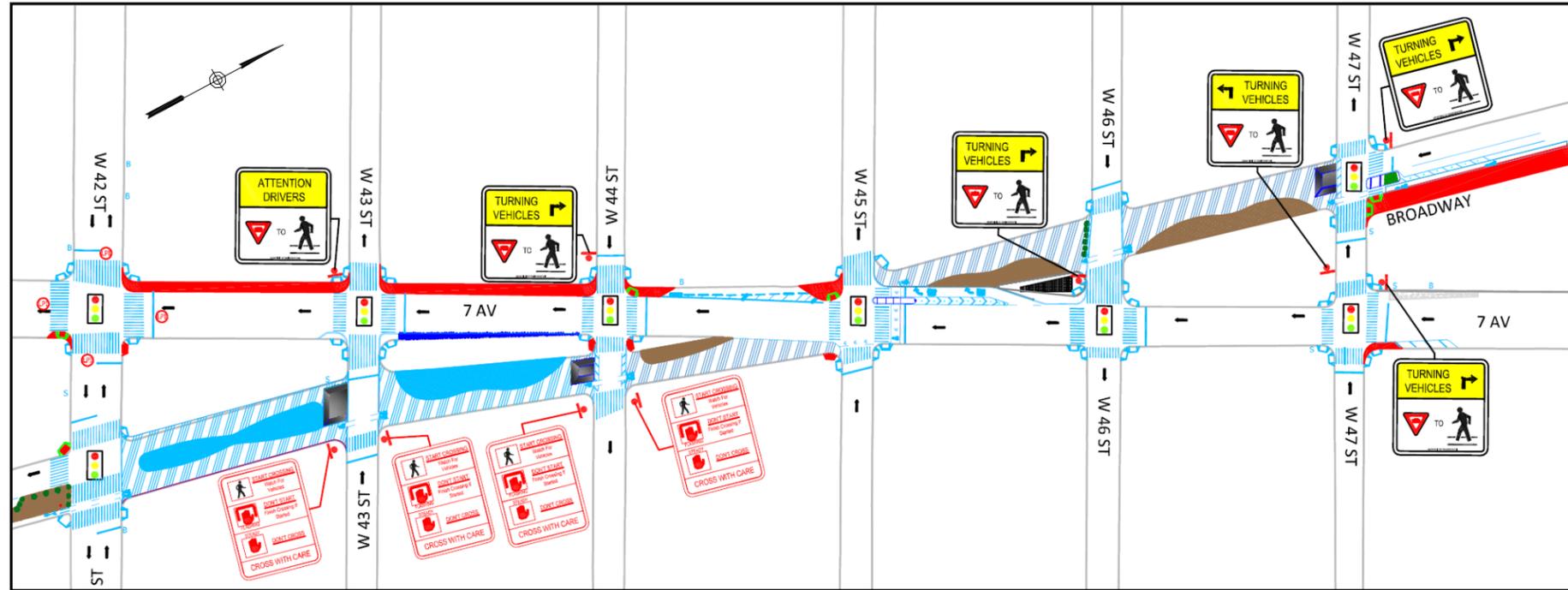


- Recommended improvements include:**
- Time all signals for seniors and where feasible, the crossing time will be extended
 - Install new high visibility crosswalks as shown in the illustration
 - Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
 - Install new "Yield to Pedestrian" signs at the intersections shown in the illustration
 - Install neckdowns or curb extensions
 - Remove the first parking space along the west side of 7th Avenue at W 37th Street in advance of the north crosswalk

- Pedestrian concerns in this area:**
- Non-standard pedestrian ramps
 - Turning vehicles not yielding to pedestrians
 - Signal timing (insufficient crossing time)

- Additional Information**
- This study area was visited on January 26th and 27th, February 5th and 9th, July 27th and September 10th, 2010.
 - Parking regulations for the project area have been collected and are shown in Appendix D

EXHIBIT 17 – 7TH AVENUE (FROM W 42ND STREET TO W 47TH STREET)



LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	SW OBSTRUCTION: FIRE BOX	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

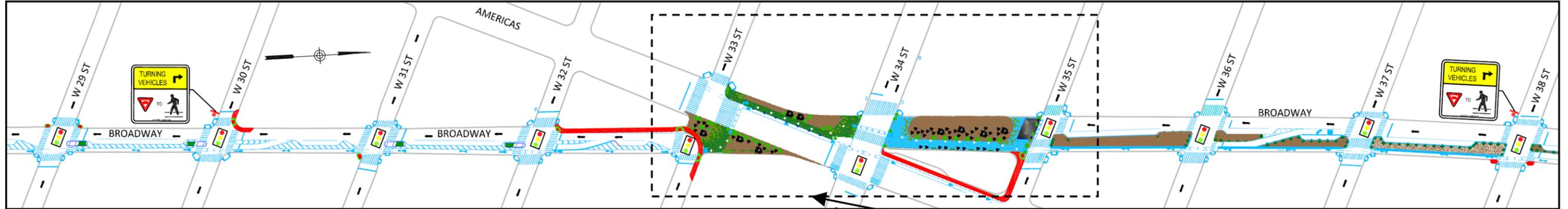
- Pedestrian concerns in this area:**
- Non-standard pedestrian ramps
 - Turning vehicles not yielding to pedestrians
 - Signal timing (insufficient crossing time)

- Additional Information**
- This study area was visited on January 26th and 27th, February 5th and 9th, July 27th and September 10th, 2010.
 - Parking regulations for the project area have been collected and are shown in Appendix D

- Recommended improvements include:**
- Time all signals for seniors and where feasible, the crossing time will be extended
 - Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
 - Install new “Yield to Pedestrian” signs at the intersections shown in the illustration
 - Install neckdowns or curb extensions
 - Consider the installation of a Leading Pedestrian Interval (LPI) at the intersection of 7th Avenue and W 42nd Street (for all four crosswalks)

- Traffic Analysis**
- Turning movement and pedestrian counts were analyzed at (see Appendices B and C):
 - 7th Avenue and W 42nd Street
 - 7th Avenue and W 47th Street

EXHIBIT 18 – BROADWAY (FROM W 29TH STREET TO W 38TH STREET)



LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP		PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

BROADWAY CLOSURE TO VEHICULAR TRAFFIC FROM W 33RD STREET TO W 35TH STREET IMPLEMENTED BY NYCDOT IN 2009

Recommended improvements include:

- Time all signals for seniors and where feasible, the crossing time will be extended
- Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
- Install new "Yield to Pedestrian" signs at the intersections shown in the illustration
- Install neckdowns or curb extensions

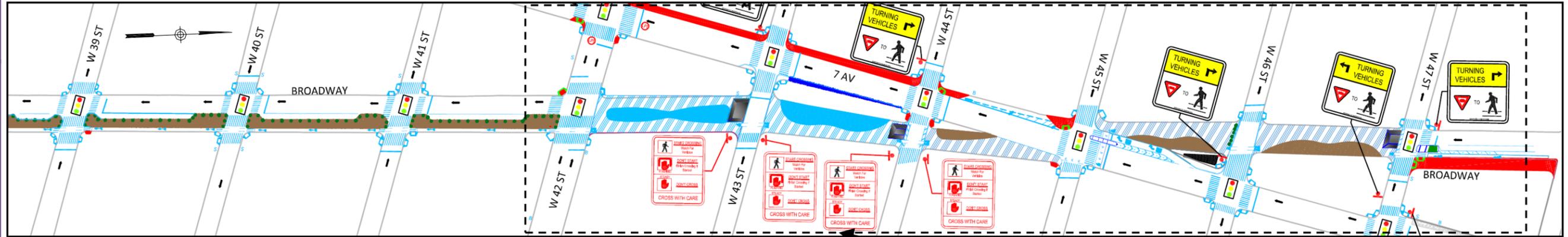
Pedestrian concerns in this area:

- Non-standard pedestrian ramps
- Turning vehicles not yielding to pedestrians
- Signal timing (insufficient crossing time)

Additional Information

- This study area was visited on January 26th and 27th, February 5th and 9th, July 27th and September 10th, 2010.
- Parking regulations for the project area have been collected and are shown in Appendix D

EXHIBIT 19 – BROADWAY (FROM W 39TH STREET TO W 47TH STREET)



LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP		PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

BROADWAY CLOSURE TO VEHICULAR TRAFFIC FROM W 42ND STREET TO W 47TH STREET IMPLEMENTED BY NYCDOT IN 2009

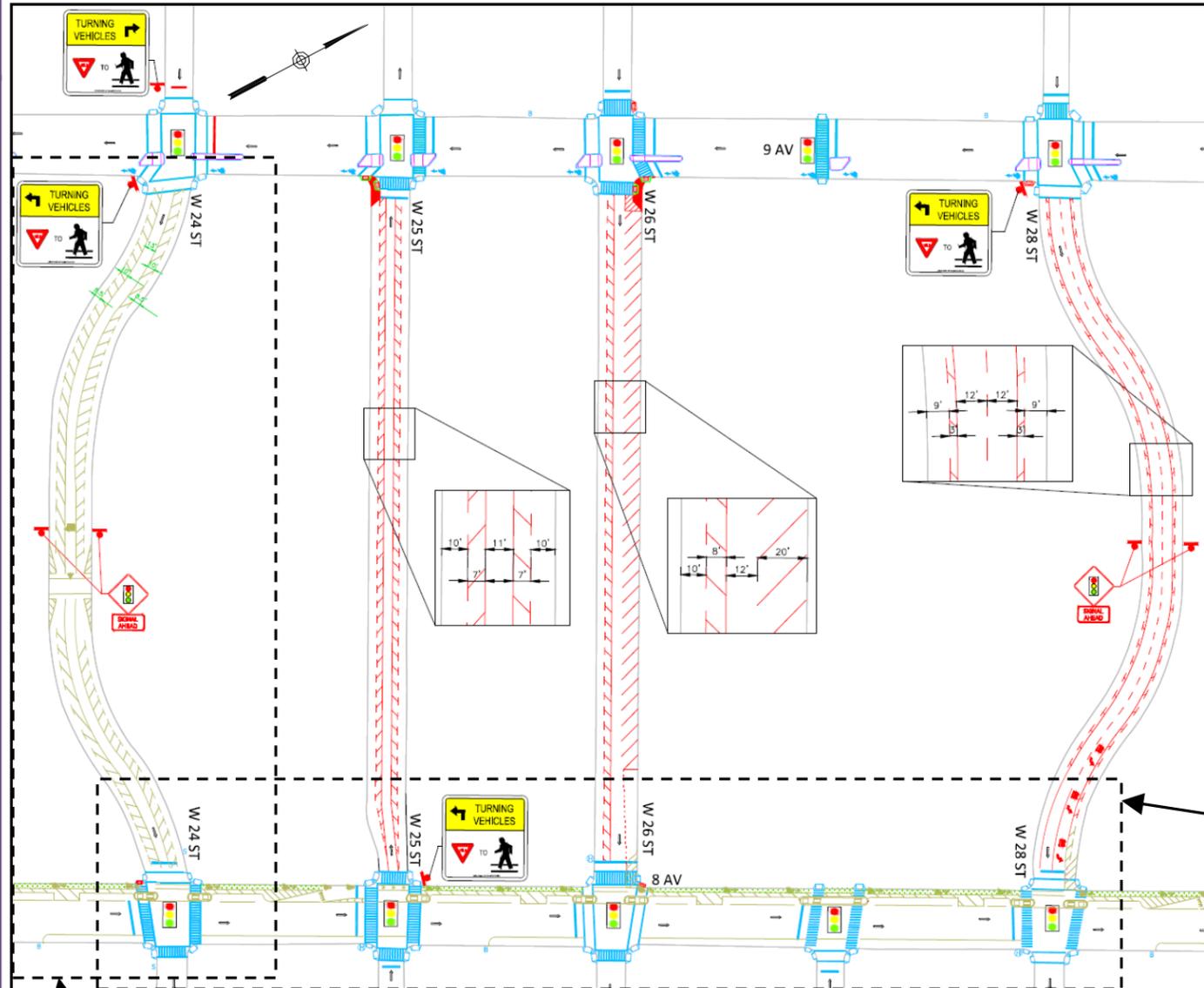
- Recommended improvements include:**
- Time all signals for seniors and where feasible, the crossing time will be extended
 - Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
 - Install new “Yield to Pedestrian” signs at the intersections shown in the illustration
 - Install neckdowns or curb extensions
 - Install new “Cross with Care” signs at the intersections shown in the illustration

- Pedestrian concerns in this area:**
- Non-standard pedestrian ramps
 - Turning vehicles not yielding to pedestrians
 - Signal timing (insufficient crossing time)

- Traffic Analysis**
- Turning movement and pedestrian counts were analyzed at (see Appendices B and C):
- Broadway and W 42nd Street

- Additional Information**
- This study area was visited on January 26th and 27th, February 5th and 9th, July 27th and September 10th, 2010.
 - Parking regulations for the project area have been collected and are shown in Appendix D

EXHIBIT 20 – W 24TH ST, W 25TH ST, W 26TH ST AND W 28TH ST (FROM 8TH AVE TO 9TH AVE)



- Recommended improvements include:**
- Reconfigure the roadway geometry for W 24th Street by providing 8.5-foot parking lanes on both sides of the street and a 10-foot buffer between the parking lane and the moving lane on both sides of the roadway (NYCDOT Improvement)
 - Reconfigure the roadway geometry for W 25th Street by providing 10-foot parking lanes on both sides of the street and a 7-foot buffer between the parking lane and the moving lane on both sides of the roadway
 - Reconfigure the roadway geometry for W 26th Street by providing a 10-foot parking lane on the south side and an 8-foot buffer between the parking lane and the moving lane. Provide back-in 45-degree angle parking on the north side of W 26th Street. Install a left turn bay at the intersection of 8th Avenue and W 26th Street
 - Reconfigure the roadway geometry for W 28th Street by providing 9-foot parking lanes on both sides of the street and a 3-foot buffer between the parking lane and the moving lane on both sides of the roadway. Install new lane lines on the roadway to delineate two 12-foot moving lanes. The left moving lane will become a left turn only lane as it intersects 8th Avenue.
 - Install new 'Signal Ahead' signs on W 28th Street facing eastbound traffic

- Additional Information**
- This study area was visited on January 26th and 27th, February 5th and 9th, July 27th and September 10th, 2010.
 - Parking regulations for the project area have been collected and are shown in Appendix D

BIKE LANE, LEFT TURN BAY, BUFFER AND MEDIAN ISLAND IMPROVEMENTS UNDER 8TH AVENUE IMPROVEMENT PROJECT BY NYCDOT (SHOWN IN ■ COLOR)

PARKING LANE, BUFFER AND OTHER IMPROVEMENTS UNDER 24TH STREET IMPROVEMENT PROJECT BY NYCDOT (SHOWN IN ■ COLOR)

LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP		PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

Safe Streets for Seniors

West Midtown, Manhattan

APPENDIX

September 2012



Janette Sadik-Khan, Commissioner



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APPENDIX – A

AUTOMATIC TRAFFIC RECORDER COUNTS (ATR)

Twenty-four hour Automatic Traffic Recorder (ATR) counts were collected in December of 2008, and March and April of 2009. The results are shown in Table 1. Detailed ATR data are presented in the Technical Supplement.

TABLE 1: EXISTING ATR TRAFFIC VOLUMES		
Locations	Direction	ADT* (veh/day)
8 th Avenue between W 40 th Street and W 41 st Street	Northbound	24328
8 th Avenue between W 41 st Street and W 42 nd Street	Northbound	23684
W 42 nd Street at 8 th Avenue	Eastbound	12816
	Westbound	8318
8 th Avenue between W 47 th Street and W 48 th Street	Northbound	36334
8 th Avenue between W 51 st Street and W 52 nd Street	Northbound	33363
9 th Avenue between W 41 st Street and W 42 nd Street	Southbound	36945
9 th Avenue between W 42 nd Street and W 43 rd Street	Southbound	32093
W 42 nd Street at 9 th Avenue	Eastbound	12447
	Westbound	8888
9 th Avenue between W 46 th Street and W 47 th Street	Southbound	35598
9 th Avenue between W 48 th Street and W 49 th Street	Southbound	35951

*Note: ADT is Average Daily Traffic

APPENDIX – B

TURNING MOVEMENT COUNTS (TMC)

Turning Movement Counts (TMC's) in 15-minute increments were collected in November and December of 2008, March and April of 2009, and March of 2010 during the morning (7:00 am to 9:00 am), mid-day (12:00 pm to 2:00 pm) and evening (4:00 pm to 6:00 pm) peak periods. The results of the turning movement counts for all three peak hours are shown in Table 2. Detailed TMC data are presented in the Technical Supplement.

TABLE 2: TURNING MOVEMENT COUNTS														
Intersection	Time	Class	Northbound			Southbound			Eastbound			Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
9 th Avenue and W 33 rd Street	AM*	Total	-	-	-	-	1465	131	-	-	-	51	146	-
	MD*	Total	-	-	-	-	1459	76	-	-	-	76	202	-
	PM*	Total	-	-	-	-	1263	258	-	-	-	131	313	-
9 th Avenue and W 41 st Street	AM	Auto	-	-	-	-	1173	230	-	-	-	48	35	-
		Truck	-	-	-	-	130	56	-	-	-	11	8	-
		Bus	-	-	-	-	50	88	-	-	-	23	44	-
		Total	-	-	-	-	1353	374	-	-	-	82	87	-
	MD	Auto	-	-	-	-	1166	331	-	-	-	64	59	-
		Truck	-	-	-	-	90	56	-	-	-	8	13	-
		Bus	-	-	-	-	34	27	-	-	-	15	31	-
		Total	-	-	-	-	1290	414	-	-	-	87	103	-
	PM	Auto	-	-	-	-	655	182	-	-	-	52	46	-
		Truck	-	-	-	-	26	20	-	-	-	9	7	-
		Bus	-	-	-	-	75	85	-	-	-	7	89	-
		Total	-	-	-	-	756	287	-	-	-	68	142	-
9 th Avenue and W 42 nd Street	AM	Auto	-	-	-	120	1053	43	-	366	50	72	155	-
		Truck	-	-	-	5	145	5	-	41	4	13	9	-
		Bus	-	-	-	16	75	6	-	98	26	21	30	-
		Total	-	-	-	141	1273	54	-	505	80	106	194	-
	MD	Auto	-	-	-	129	1190	72	-	462	107	133	244	-
		Truck	-	-	-	12	164	11	-	32	1	18	25	-
		Bus	-	-	-	11	46	0	-	44	7	7	15	-
		Total	-	-	-	152	1400	83	-	538	115	158	284	-
	PM	Auto	-	-	-	91	1068	72	-	243	52	98	233	-
		Truck	-	-	-	2	61	7	-	10	2	3	10	-
		Bus	-	-	-	15	123	2	-	45	18	60	14	-
		Total	-	-	-	108	1252	81	-	298	72	161	257	-

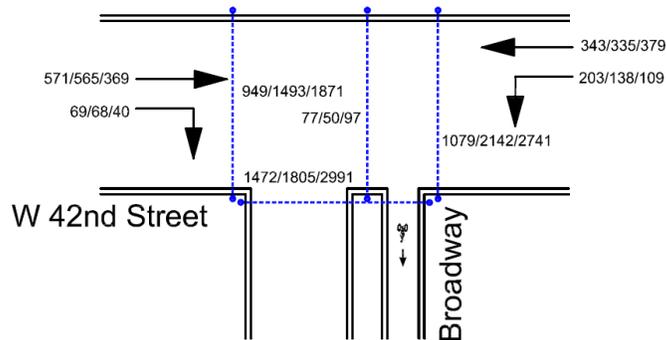
Intersection	Time	Class	Northbound			Southbound			Eastbound			Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
9 th Avenue and W 47 th Street	AM	Auto	-	-	-	-	1138	84	-	-	-	246	129	-
		Truck	-	-	-	-	179	13	-	-	-	31	12	-
		Bus	-	-	-	-	58	4	-	-	-	8	3	-
		Total	-	-	-	-	1375	101	-	-	-	285	144	-
	MD	Auto	-	-	-	-	1304	87	-	-	-	175	130	-
		Truck	-	-	-	-	110	11	-	-	-	26	9	-
		Bus	-	-	-	-	28	0	-	-	-	5	1	-
		Total	-	-	-	-	1442	98	-	-	-	206	140	-
	PM	Auto	-	-	-	-	1135	81	-	-	-	136	203	-
		Truck	-	-	-	-	51	5	-	-	-	6	4	-
		Bus	-	-	-	-	49	0	-	-	-	7	4	-
		Total	-	-	-	-	1235	86	-	-	-	149	211	-
9 th Avenue and W 52 nd Street	AM	Auto	-	-	-	93	1431	-	276	88	-	-	-	-
		Truck	-	-	-	8	176	-	30	3	-	-	-	-
		Bus	-	-	-	0	71	-	0	0	-	-	-	-
		Total	-	-	-	101	1678	-	306	91	-	-	-	-
	MD	Auto	-	-	-	91	1403	-	179	88	-	-	-	-
		Truck	-	-	-	15	165	-	9	5	-	-	-	-
		Bus	-	-	-	0	15	-	1	0	-	-	-	-
		Total	-	-	-	106	1583	-	189	93	-	-	-	-
	PM	Auto	-	-	-	85	1496	-	232	87	-	-	-	-
		Truck	-	-	-	2	68	-	6	0	-	-	-	-
		Bus	-	-	-	1	16	-	1	0	-	-	-	-
		Total	-	-	-	88	1580	-	239	87	-	-	-	-
8 th Avenue and W 31 st Street	AM*	Total	177	1308	-	-	-	-	-	-	-	278	182	
	MD*	Total	167	1298	-	-	-	-	-	-	-	268	253	
	PM*	Total	293	1384	-	-	-	-	-	-	-	338	146	
8 th Avenue and W 33 rd Street	AM*	Total	126	1364	-	-	-	-	-	-	-	71	76	
	MD*	Total	141	1409	-	-	-	-	-	-	-	136	91	
	PM*	Total	227	1303	-	-	-	-	-	-	-	217	91	

Intersection	Time	Class	Northbound			Southbound			Eastbound			Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
8 th Avenue and W 34 th Street	AM*	Total	61	1288	91	-	-	-	-	379	-	-	414	182
	MD*	Total	86	1379	35	-	-	-	-	348	-	-	475	177
	PM*	Total	91	1278	25	-	-	-	-	354	-	-	540	197
8 th Avenue and W 40 th Street	AM*	Total	-	1285	220	-	-	-	5	465	-	-	-	-
	MD*	Total	-	1330	145	-	-	-	150	390	-	-	-	-
	PM*	Total	-	1285	150	-	-	-	40	235	-	-	-	-
8 th Avenue and W 42 nd Street	AM*	Total	30	1358	91	-	-	-	187	364	-	-	313	45
	MD*	Total	61	1192	71	-	-	-	146	348	-	-	414	35
	PM*	Total	61	1111	61	-	-	-	131	333	-	-	338	45
8 th Avenue and W 43 rd Street	AM	Auto	85	1261	-	-	-	-	-	-	-	-	90	141
		Truck	8	94	-	-	-	-	-	-	-	-	12	31
		Bus	69	75	-	-	-	-	-	-	-	-	0	1
		Total	162	1430	-	-	-	-	-	-	-	-	102	173
	MD	Auto	65	1237	-	-	-	-	-	-	-	-	119	114
		Truck	6	74	-	-	-	-	-	-	-	-	11	12
		Bus	38	46	-	-	-	-	-	-	-	-	10	2
		Total	109	1357	-	-	-	-	-	-	-	-	140	128
	PM	Auto	67	1185	-	-	-	-	-	-	-	-	177	163
		Truck	1	25	-	-	-	-	-	-	-	-	11	4
		Bus	52	47	-	-	-	-	-	-	-	-	4	1
		Total	120	1257	-	-	-	-	-	-	-	-	192	168
8 th Avenue and W 47 th Street	AM	Auto	53	1262	-	-	-	-	-	-	-	-	273	201
		Truck	4	116	-	-	-	-	-	-	-	-	25	15
		Bus	1	63	-	-	-	-	-	-	-	-	5	4
		Total	58	1441	-	-	-	-	-	-	-	-	303	220
	MD	Auto	106	1331	-	-	-	-	-	-	-	-	194	113
		Truck	7	76	-	-	-	-	-	-	-	-	15	13
		Bus	0	56	-	-	-	-	-	-	-	-	4	5
		Total	113	1463	-	-	-	-	-	-	-	-	213	131

Intersection	Time	Class	Northbound			Southbound			Eastbound			Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
8 th Avenue and W 47 th Street	PM	Auto	101	1219	-	-	-	-	-	-	-	-	257	182
		Truck	0	20	-	-	-	-	-	-	-	-	7	5
		Bus	2	47	-	-	-	-	-	-	-	-	12	4
		Total	103	1286	-	-	-	-	-	-	-	-	276	191
Broadway and W 42 nd Street	AM	Auto	-	-	-	-	-	-	-	458	61	198	261	-
		Truck	-	-	-	-	-	-	-	25	8	5	16	-
		Bus	-	-	-	-	-	-	-	88	0	0	66	-
		Total	-	-	-	-	-	-	-	571	69	203	343	-
	MD	Auto	-	-	-	-	-	-	-	497	60	134	269	-
		Truck	-	-	-	-	-	-	-	38	8	4	35	-
		Bus	-	-	-	-	-	-	-	30	0	0	31	-
		Total	-	-	-	-	-	-	-	565	68	138	335	-
	PM	Auto	-	-	-	-	-	-	-	319	39	106	281	-
		Truck	-	-	-	-	-	-	-	10	1	2	14	-
		Bus	-	-	-	-	-	-	-	40	0	1	84	-
		Total	-	-	-	-	-	-	-	369	40	109	379	-
7 th Avenue and W 31 st Street	AM*	Total	-	-	-	-	1394	91	-	-	-	96	369	-
	MD*	Total	-	-	-	-	1177	192	-	-	-	162	328	-
	PM*	Total	-	-	-	-	1116	247	-	-	-	152	237	-
7 th Avenue and W 42 nd Street	AM	Total	-	-	-	10	1232	45	-	354	101	10	313	-
	MD	Total	-	-	-	20	1066	51	-	263	157	10	399	-
	PM	Total	-	-	-	10	1086	56	-	313	81	20	328	-
7 th Avenue and W 47 th Street	AM	Auto	-	-	-	-	1056	62	-	-	-	125	198	-
		Truck	-	-	-	-	82	5	-	-	-	19	21	-
		Bus	-	-	-	-	63	0	-	-	-	5	6	-
		Total	-	-	-	-	1201	67	-	-	-	149	225	-
	MD	Auto	-	-	-	-	1150	60	-	-	-	57	74	-
		Truck	-	-	-	-	47	7	-	-	-	7	11	-
		Bus	-	-	-	-	68	0	-	-	-	2	5	-
		Total	-	-	-	-	1265	67	-	-	-	66	90	-

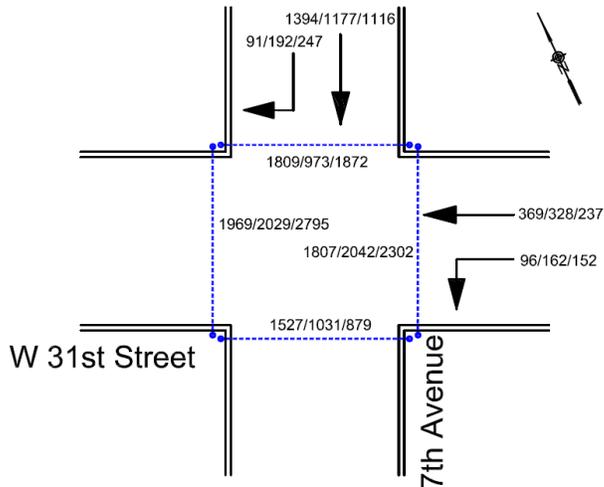
Intersection	Time	Class	Northbound			Southbound			Eastbound			Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
7 th Avenue and W 47 th Street	PM	Auto	-	-	-	-	848	10	-	-	-	58	235	-
		Truck	-	-	-	-	40	1	-	-	-	3	8	-
		Bus	-	-	-	-	113	0	-	-	-	1	3	-
		Total	-	-	-	-	1001	11	-	-	-	62	246	-

*Note: Classification counts not available, shows cumulative of Auto, Truck and Bus.



Intersection of Broadway and West 42nd Street

Note: Counts conducted on Tuesday, 03/16/2010.



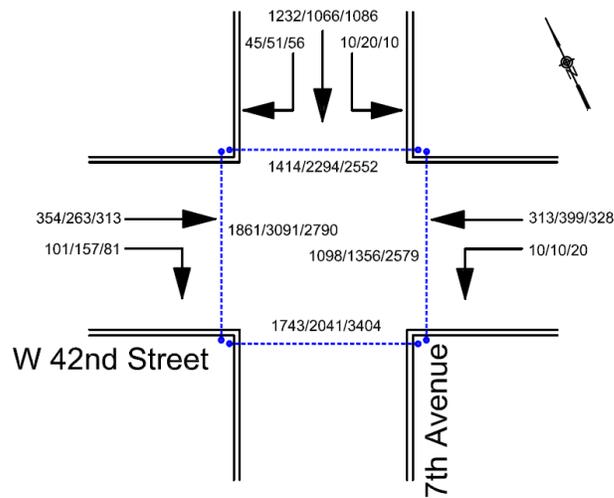
Intersection of 7th Avenue and West 31st Street

Note: Pedestrian counts conducted on Wednesday, 03/17/2010.

Note: Turning Movement counts taken from Western Rail Yard EIS and increased @ 0.5%/year for 2 years.

- LEGENDS:**
- 161/146/224 AM/MD/PM
 - 25/15/53 Conflicting Pedestrians
 - 36/36/66 Turning Movement

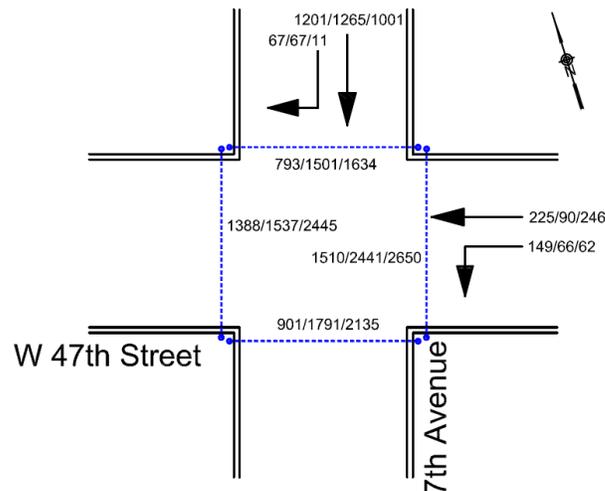
APPENDIX - B
WEST MIDTOWN, MANHATTAN
PEAK HOUR TRAFFIC COUNTS



Intersection of 7th Avenue and West 42nd Street

Note: Pedestrian counts conducted on Tuesday, 03/16/2010.

Note: Turning Movement counts taken from Western Rail Yard EIS and increased @ 0.5%/year for 2 years.

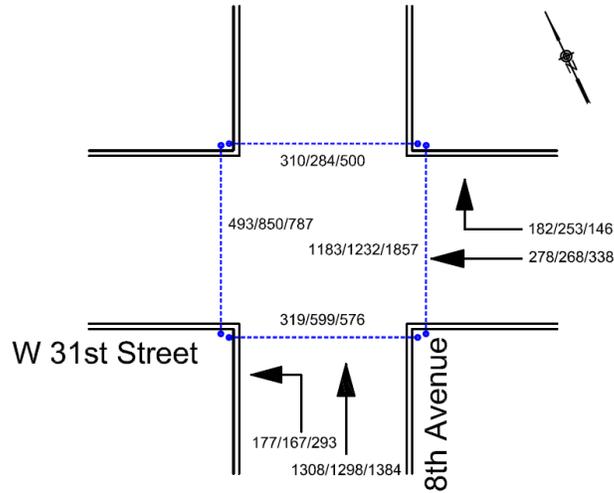


Intersection of 7th Avenue and West 47th Street

Note: Counts conducted on Tuesday, 03/16/2010.

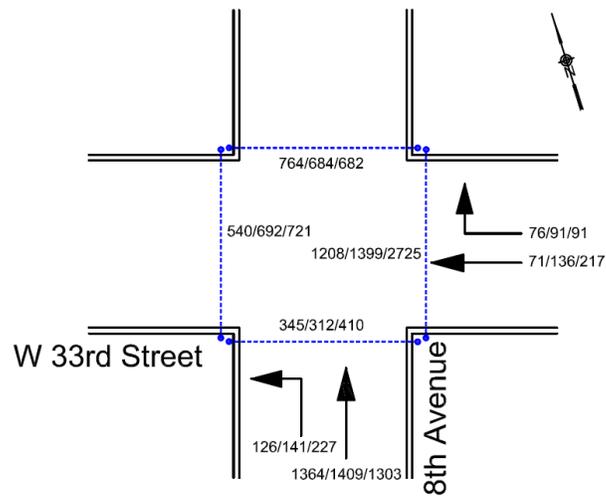
- LEGENDS:**
- 161/146/224 AM/MD/PM
 - 25/15/53 Conflicting Pedestrians
 - 36/36/66 Turning Movement

APPENDIX - B
WEST MIDTOWN, MANHATTAN
PEAK HOUR TRAFFIC COUNTS



Intersection of 8th Avenue and West 31st Street

Note: Counts taken from Western Rail Yard EIS and increased @ 0.5%/year for 2 years.

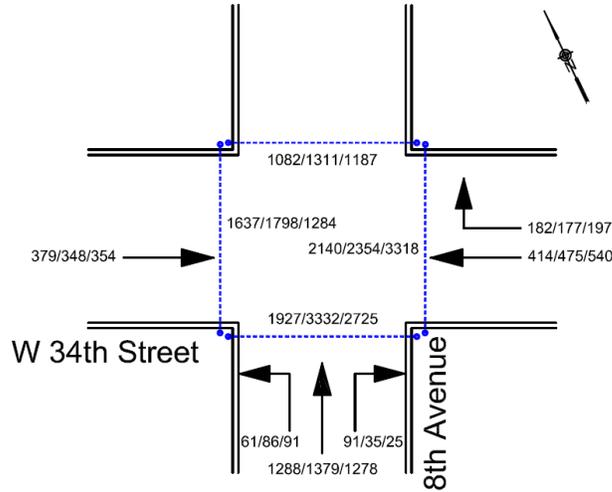


Intersection of 8th Avenue and West 33rd Street

Note: Counts taken from Western Rail Yard EIS and increased @ 0.5%/year for 2 years.

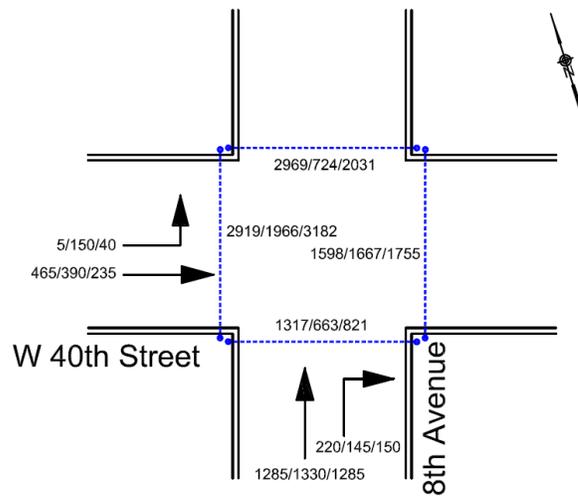
LEGENDS:	161/146/224	AM/MD/PM
	25/15/53	Conflicting Pedestrians
	36/36/66	Turning Movement

APPENDIX - B
WEST MIDTOWN, MANHATTAN
PEAK HOUR TRAFFIC COUNTS



Intersection of 8th Avenue and West 34th Street

Note: Counts taken from Western Rail Yard EIS and increased @ 0.5%/year for 2 years.



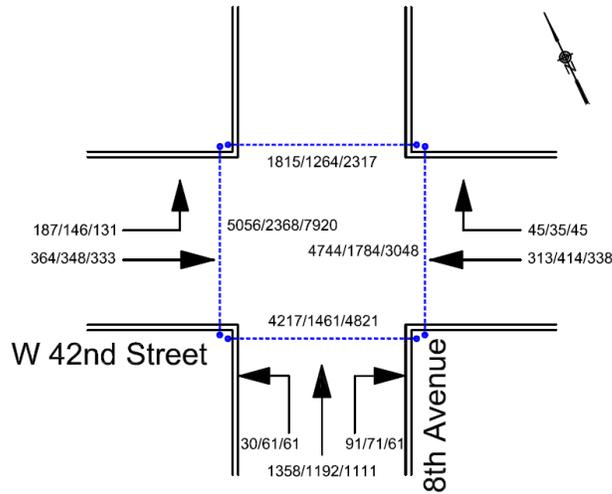
Intersection of 8th Avenue and West 40th Street

Note: Pedestrian counts conducted on Wednesday, 03/17/2010.

Note: Turning Movement counts taken from Western Rail Yard EIS and increased @ 0.5%/year for 2 years.

- LEGENDS:**
- 161/146/224 AM/MD/PM
 - 25/15/53 Conflicting Pedestrians
 - 36/36/66 Turning Movement

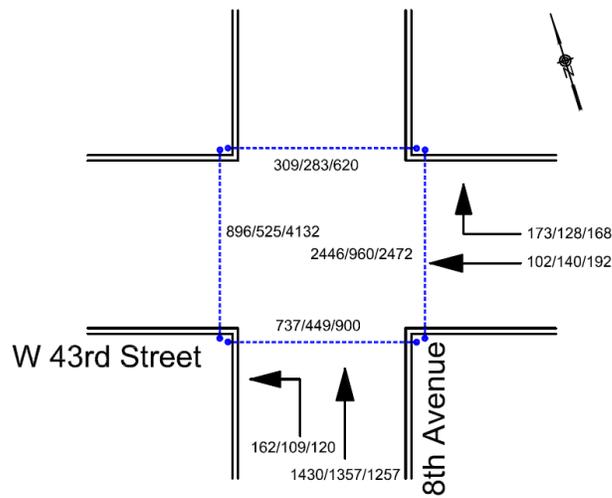
APPENDIX - B
WEST MIDTOWN, MANHATTAN
PEAK HOUR TRAFFIC COUNTS



Intersection of 8th Avenue and West 42nd Street

Note: Pedestrian counts conducted on Wednesday, 04/22/2009.

Note: Turning Movement counts taken from Western Rail Yard EIS and increased @ 0.5%/year for 2 years.



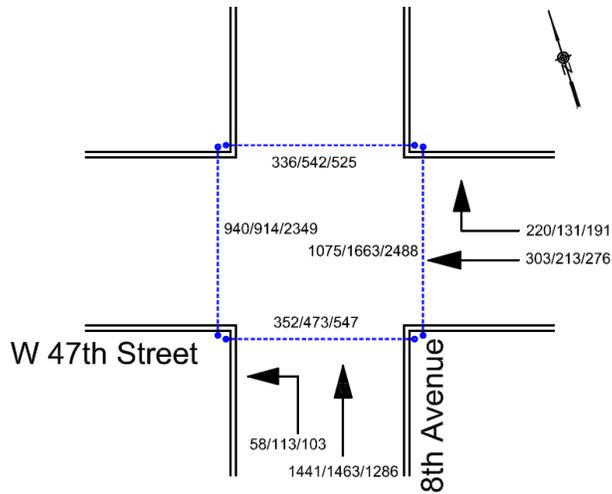
Intersection of 8th Avenue and West 43rd Street

Note: Pedestrian counts conducted on Wednesday, 04/22/2009.

Note: Turning Movement counts conducted on Tuesdays, 04/21/2009.

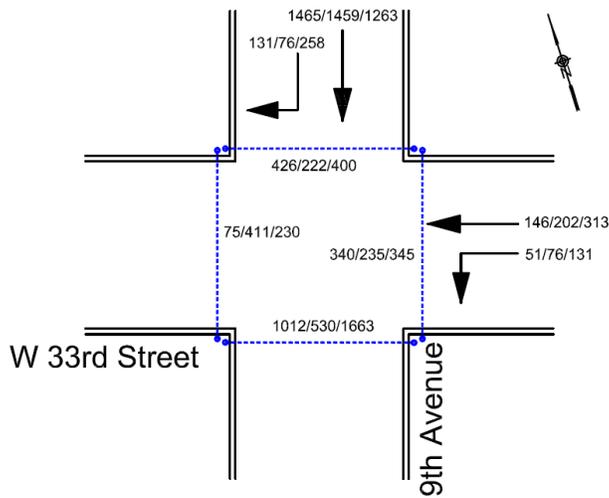
- LEGENDS:**
- 161/146/224 AM/MD/PM
 - 25/15/53 Conflicting Pedestrians
 - 36/36/66 Turning Movement

APPENDIX - B
WEST MIDTOWN, MANHATTAN
PEAK HOUR TRAFFIC COUNTS



Intersection of 8th Avenue and West 47th Street

Note: Counts conducted on Tuesday, 03/16/2010.

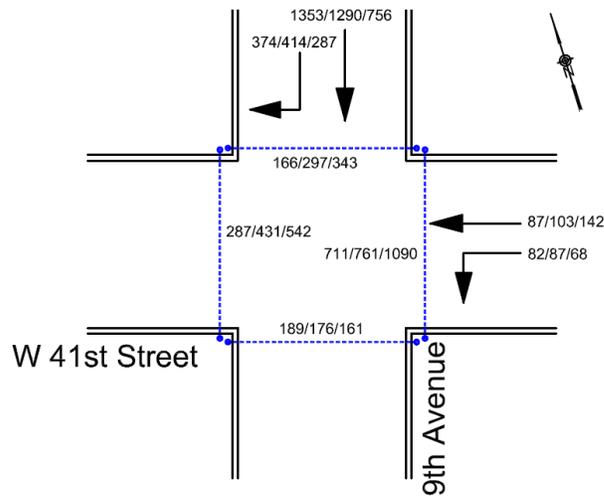


Intersection of 9th Avenue and West 33rd Street

Note: Counts taken from Western Rail Yard EIS and increased @ 0.5%/year for 2 years.

- LEGENDS:**
- 161/146/224 AM/MD/PM
 - 25/15/53 Conflicting Pedestrians
 - 36/36/66 Turning Movement

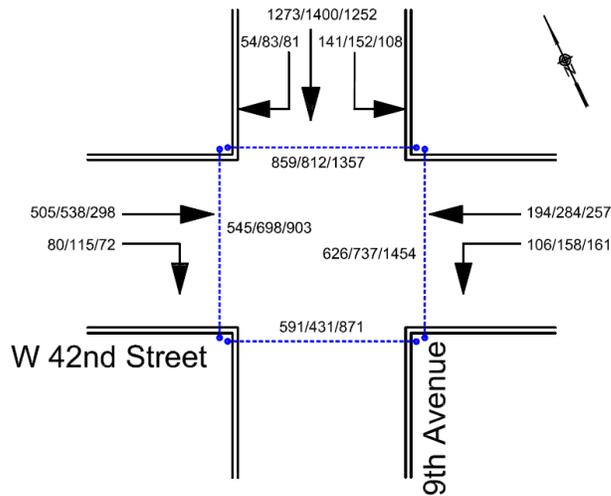
APPENDIX - B
WEST MIDTOWN, MANHATTAN
PEAK HOUR TRAFFIC COUNTS



Intersection of 9th Avenue and West 41st Street

Note: Pedestrian counts conducted on Wednesday, 04/22/2009.

Note: Turning Movement counts conducted on Wednesday, 03/18/2009 and Tuesdays, 04/21/2009.



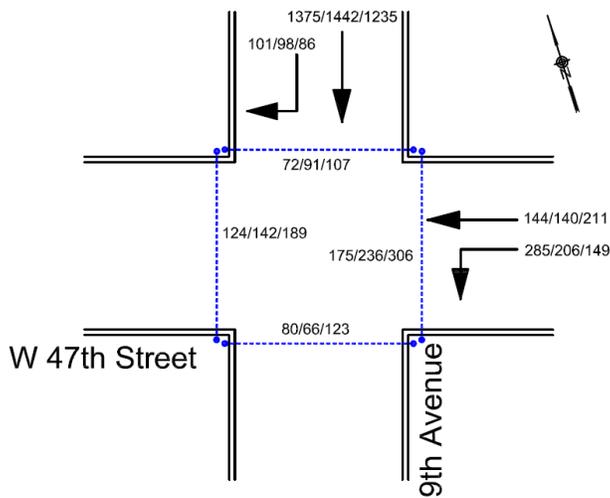
Intersection of 9th Avenue and West 42nd Street

Note: Pedestrian counts conducted on Tuesday, 04/28/2009.

Note: Turning Movement counts taken from Western Rail Yard EIS and increased @ 0.5%/year for 2 years.

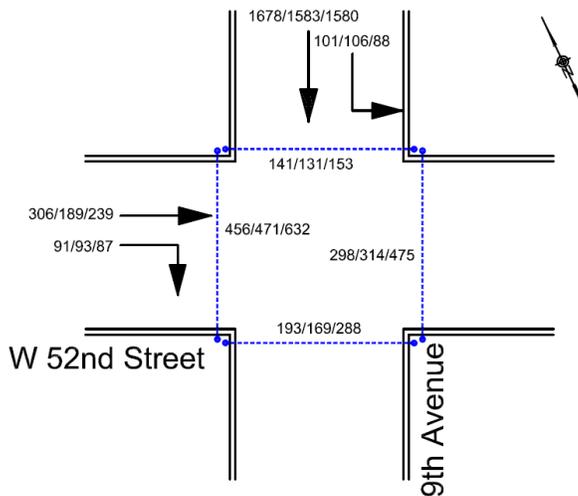
- LEGENDS:**
- 161/146/224 AM/MD/PM
 - 25/15/53 Conflicting Pedestrians
 - 36/36/66 Turning Movement

APPENDIX - B
WEST MIDTOWN, MANHATTAN
PEAK HOUR TRAFFIC COUNTS



Intersection of 9th Avenue and West 47th Street

Note: Counts conducted on Tuesday, 03/16/2010.



Intersection of 9th Avenue and West 52nd Street

Note: Pedestrian counts conducted on Tuesday, 04/28/2009.

Note: Turning Movement counts conducted on Tuesdays, 04/21/2009.

- LEGENDS:**
- 161/146/224 AM/MD/PM
 - 25/15/53 Conflicting Pedestrians
 - 36/36/66 Turning Movement

APPENDIX - B
WEST MIDTOWN, MANHATTAN
PEAK HOUR TRAFFIC COUNTS

APPENDIX – C

PEDESTRIAN COUNTS

Pedestrian counts in 15-minute increments were collected in November and December of 2008, March and April of 2009, and March of 2010 during the morning (7:00 am to 9:00 am), mid-day (12:00 pm to 2:00 pm) and evening (4:00 pm to 6:00 pm) peak periods. The results of the pedestrian counts for all three peak hours are shown in Table 3. Detailed pedestrian count data are presented in the Technical Supplement.

TABLE 3: PEDESTRIAN COUNTS						
Intersection	Time	Crosswalks (Legs)				Totals
		N	S	E	W	
9 th Avenue and W 33 rd Street	AM	426	1012	340	75	1853
	MD	222	530	235	411	1399
	PM	400	1663	345	230	2639
9 th Avenue and W 41 st Street	AM	166	189	711	287	1353
	MD	297	176	761	431	1665
	PM	343	161	1090	542	2136
9 th Avenue and W 42 nd Street	AM	859	591	626	545	2621
	MD	812	431	737	698	2678
	PM	1357	871	1454	903	4585
9 th Avenue and W 47 th Street	AM	72	80	175	124	1531
	MD	91	66	236	142	2092
	PM	107	123	306	189	2703
9 th Avenue and W 52 nd Street	AM	141	193	298	456	1088
	MD	131	169	314	471	1085
	PM	153	288	475	632	1548
8 th Avenue and W 31 st Street	AM	310	319	1183	493	2282
	MD	284	599	1232	850	2936
	PM	500	576	1857	787	3683
8 th Avenue and W 33 rd Street	AM	764	345	1208	540	2857
	MD	684	312	1399	692	3087
	PM	682	410	2725	721	4538
8 th Avenue and W 34 th Street	AM	1082	1927	2140	1637	6786
	MD	1311	3332	2354	1798	8795
	PM	1187	2725	3318	1284	8513

Intersection	Time	Crosswalks (Legs)				Totals
		N	S	E	W	
8 th Avenue and W 40 th Street	AM	2969	1317	1598	2919	8803
	MD	724	663	1667	1966	5020
	PM	2031	821	1755	3182	7789
8 th Avenue and W 42 nd Street	AM	1815	4217	4744	5056	15832
	MD	1264	1461	1784	2368	6877
	PM	2317	4821	3048	7920	18106
8 th Avenue and W 43 rd Street	AM	309	737	2446	896	4388
	MD	283	449	960	525	2217
	PM	620	900	2472	4132	8124
8 th Avenue and W 47 th Street	AM	336	352	1075	940	2703
	MD	542	473	1663	914	3592
	PM	525	547	2488	2349	5909
Broadway and W 42 nd Street	AM	77*	1472	1079	949	3577
	MD	50*	1805	2142	1493	5490
	PM	97*	2991	2741	1871	7700
7 th Avenue and W 31 st Street	AM	1809	1527	1807	1969	7112
	MD	973	1031	2042	2029	6075
	PM	1872	879	2302	2795	7848
7 th Avenue and W 42 nd Street	AM	1414	1743	1098	1861	6116
	MD	2294	2041	1356	3091	8782
	PM	2552	3404	2579	2790	11325
7 th Avenue and W 47 th Street	AM	793	901	1510	1388	4592
	MD	1501	1791	2441	1537	7270
	PM	1634	2135	2650	2445	8864

*Note: These counts represent secondary East crosswalk counts, which is located at median between bike lane and parking lane.

TABLE 4: PEDESTRIAN CROSSING INTERVAL AT SIGNALIZED INTERSECTIONS

Intersection Name	Crossing Distance (Feet)	Pedestrian Interval Actual ¹ (Seconds)	Ped. Interval Req'd (Seconds) ¹			Timing Adjustment? (Yes/No)
			Clearance Time ³ (A)	Walk Interval ² (B)	Pedestrian Interval (A)+(B)	
9th Avenue and West 33rd Street						
Crossing 9 th Avenue	71	35	7	24	31	NO
Crossing West 33 rd Street	34	55	7	12	19	NO
9th Avenue and West 41st Street						
Crossing 9 th Avenue	70	40	7	24	31	NO
Crossing West 41 st Street	60	50	7	20	27	NO
9th Avenue and West 42nd Street						
Crossing 9 th Avenue	71	43	7	24	31	NO
Crossing West 42 nd Street	60	47	7	20	27	NO
9th Avenue and West 47th Street						
Crossing 9 th Avenue	70	35	7	24	31	NO
Crossing West 47 th Street	29	55	7	10	17	NO
9th Avenue and West 52nd Street						
Crossing 9 th Avenue	70	35	7	24	31	NO
Crossing West 52 nd Street	34	55	7	12	19	NO
8th Avenue and West 31st Street						
Crossing 8 th Avenue	70	45	7	24	31	NO
Crossing West 31 st Street	41	45	7	14	21	NO
8th Avenue and West 33rd Street						
Crossing 8 th Avenue	69	52	7	23	30	NO
Crossing West 33 rd Street	32	38	7	11	18	NO
8th Avenue and West 34th Street						
Crossing 8 th Avenue	69	52	7	23	30	NO
Crossing West 34 th Street	53	38	7	18	25	NO
8th Avenue and West 40th Street						
Crossing 8 th Avenue	70	48	7	24	31	NO
Crossing West 40 th Street	35	42	7	12	19	NO
8th Avenue and West 42nd Street						
Crossing 8 th Avenue	70	50	7	24	31	NO
Crossing West 42 nd Street	59	40	7	20	27	NO
8th Avenue and West 43rd Street						
Crossing 8 th Avenue	69	45/40	7	23	30	NO
Crossing West 43 rd Street	33	45/50	7	11	18	NO

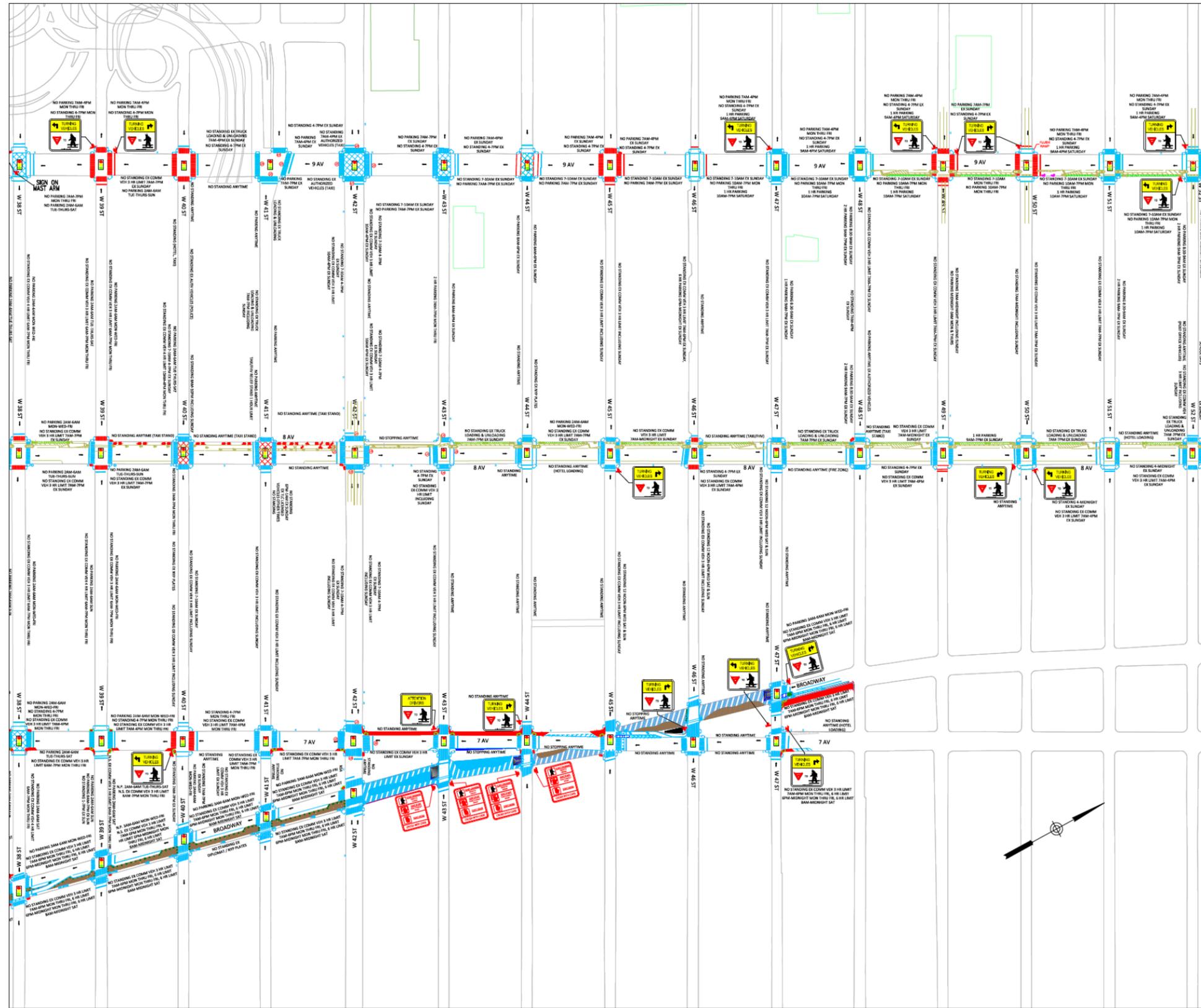
Intersection Name	Crossing Distance (Feet)	Pedestrian Interval Actual ¹ (Seconds)	Ped. Interval Req'd (Seconds) ¹			Timing Adjustment? (Yes/No)
			Clearance Time ³ (A)	Walk Interval ² (B)	Pedestrian Interval (A)+(B)	
8th Avenue and West 47th Street						
Crossing 8 th Avenue	69	45	7	23	30	NO
Crossing West 47 th Street	33	55	7	11	18	NO
Broadway and West 42nd Street						
Crossing Broadway	59	33	7	20	27	NO
Crossing West 42 nd Street	54	33	7	18	25	NO
7th Avenue and West 31st Street						
Crossing 7 th Avenue	72	43	7	24	31	NO
Crossing West 31 st Street	34	47	7	11	18	NO
7th Avenue and West 42nd Street						
Crossing 7 th Avenue	59	39/45	7	20	27	NO
Crossing West 42 nd Street	54	51/45	7	18	25	NO
7th Avenue and West 47th Street						
Crossing 7 th Avenue	59	36	7	20	27	NO
Crossing West 47 th Street	29	54	7	10	17	NO

Notes:

1. The pedestrian interval consists of the pedestrian walk interval plus the pedestrian clearance time. Yellow change interval and red clearance interval are included in pedestrian clearance time.
2. The walk interval should be at least 7 seconds in length to provide pedestrians adequate opportunity to leave the curb or shoulder before the pedestrian clearance time begins.
3. A rate of 3 ft/sec was utilized as the senior pedestrian walking rate to evaluate pedestrian clearance time.

APPENDIX – D

PARKING REGULATIONS



LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	EXISTING SUBWAY STOP		PROPOSED CATCH BASIN
			PROPOSED TRAFFIC SIGN

SAFE STREETS FOR SENIORS
WEST MIDTOWN, MANHATTAN

PROPOSED MEASURES TO IMPROVE SAFETY

GPI
GREENMAN - PEDERSEN, INC.
Engineers, Planners,
Construction Engineers & Inspectors

FIGURE
NO. 2 of 2

APPENDIX – E

ADDITIONAL TRAFFIC DATA & ANALYSIS

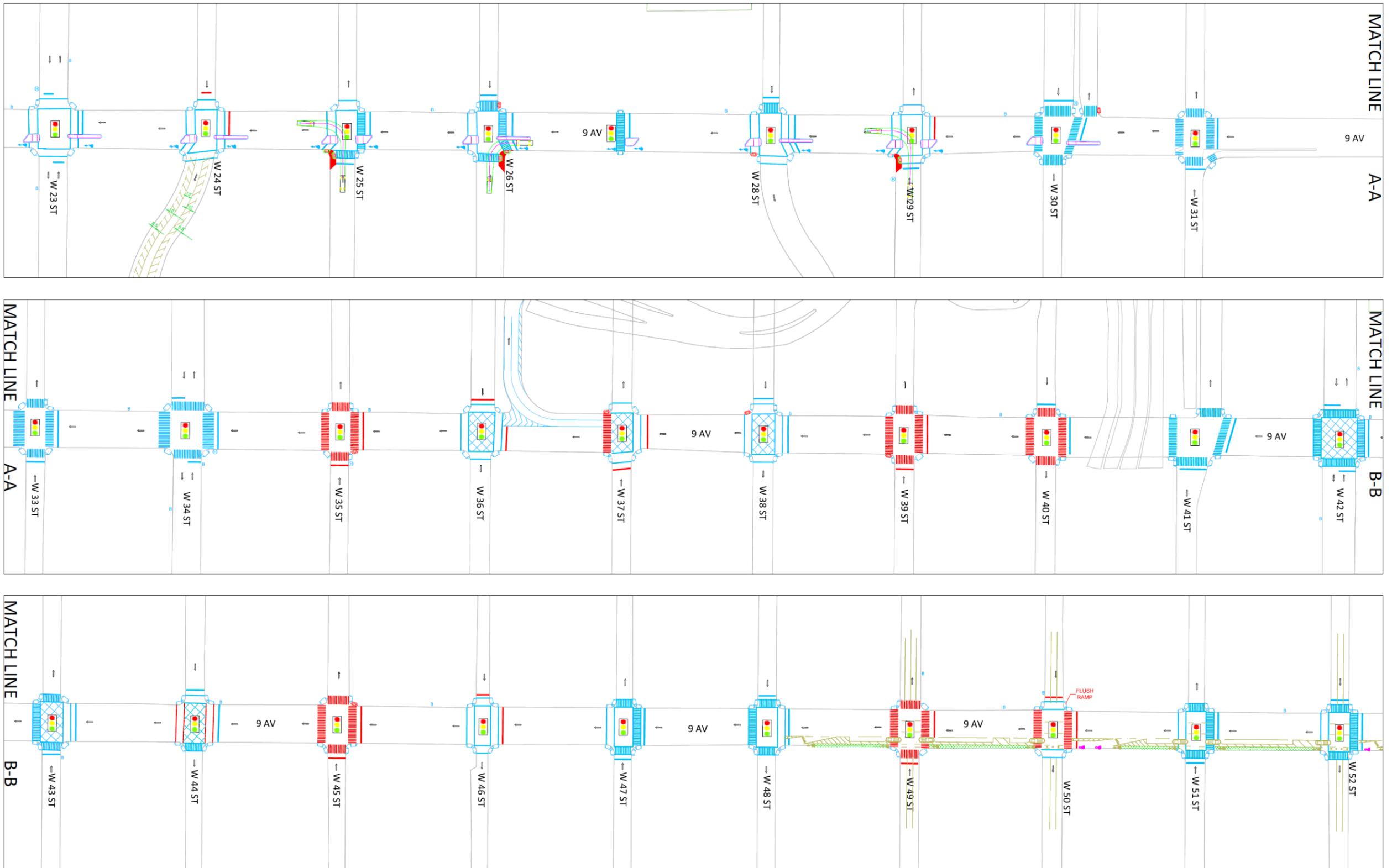
TRAVEL SPEED ANALYSIS



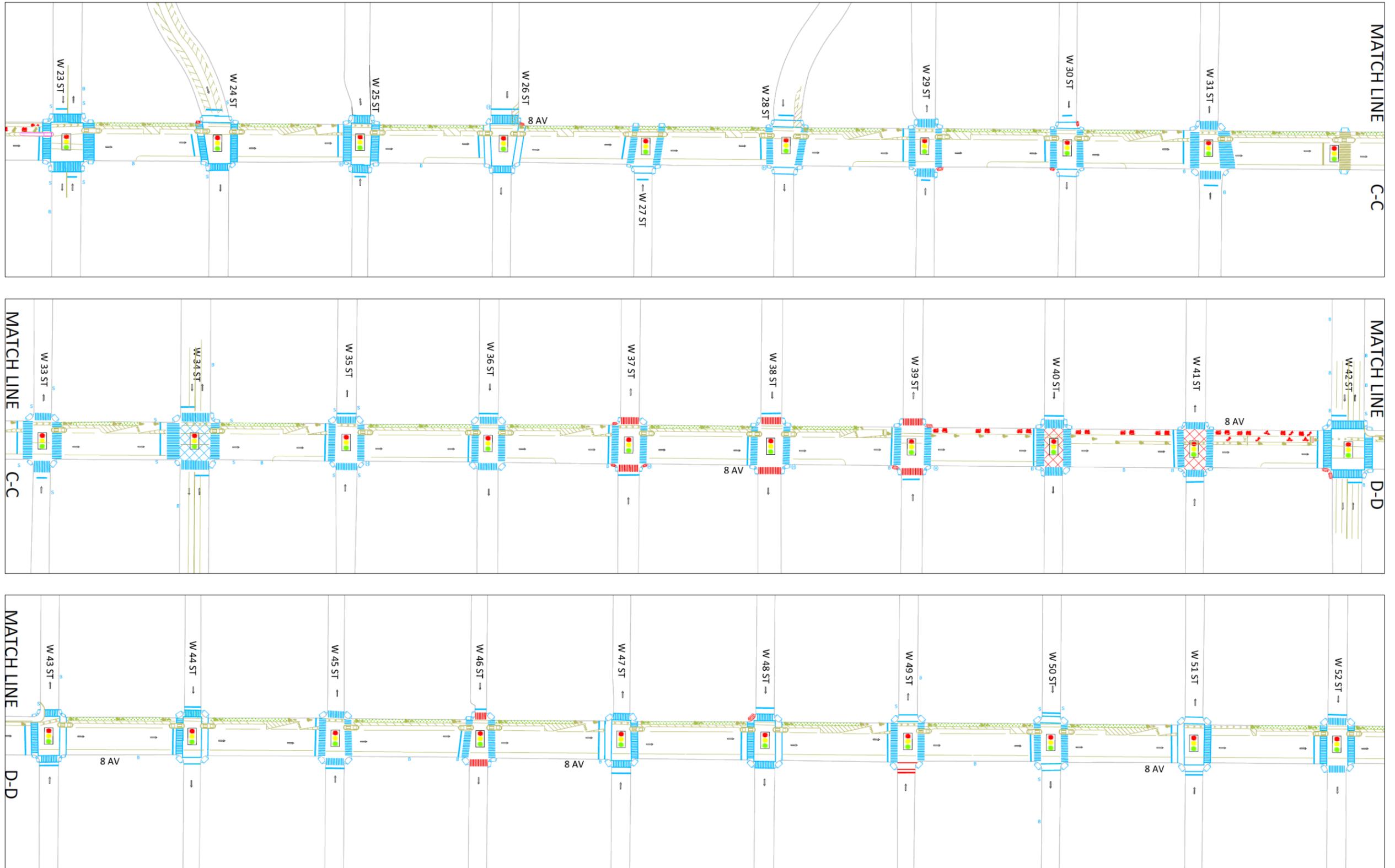
TRAVEL SPEED ANALYSIS



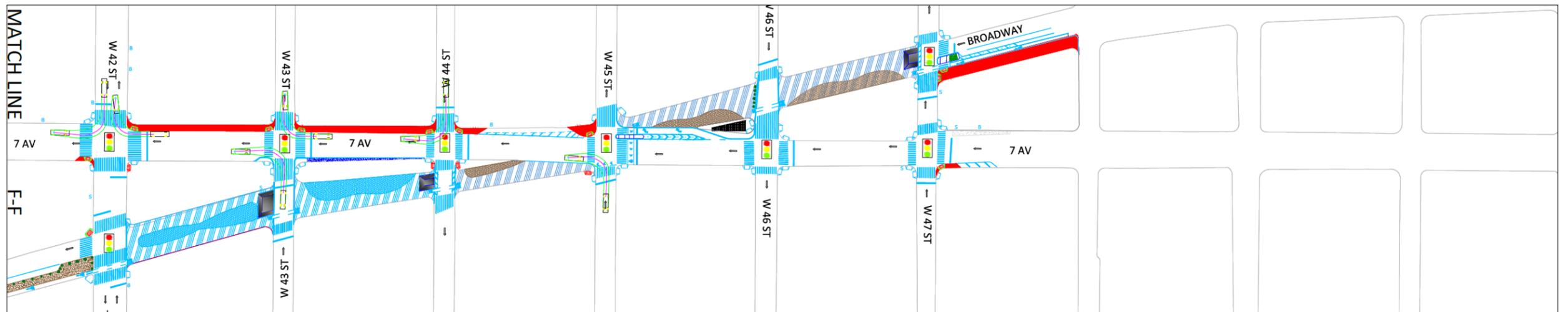
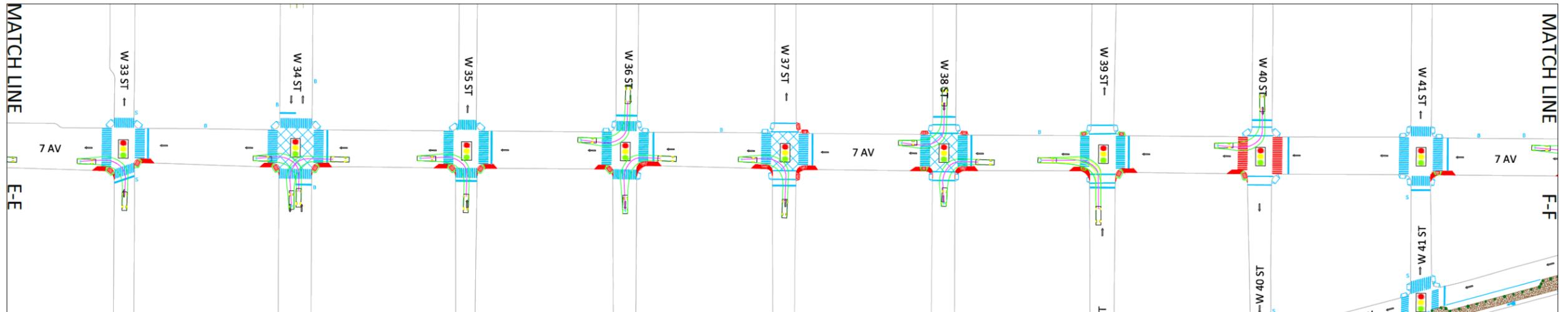
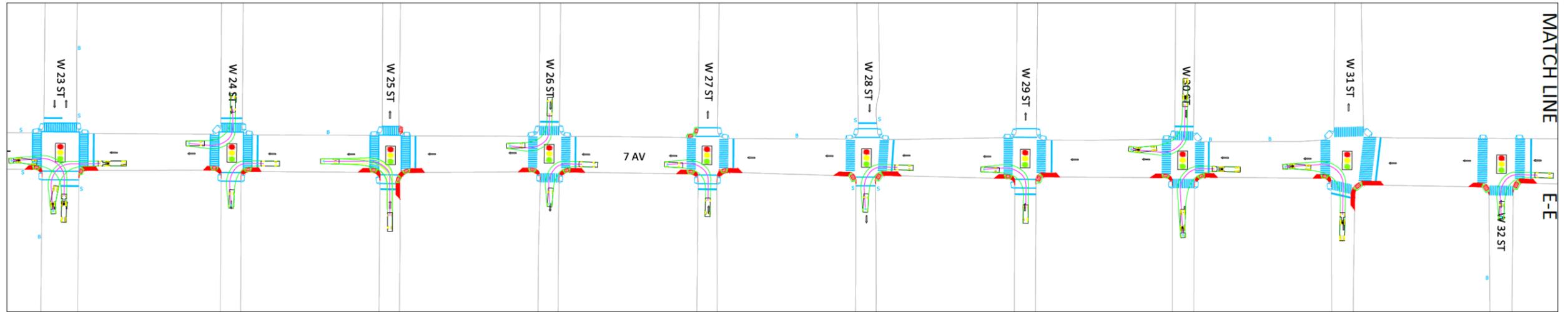
TURNING RADIUS ANALYSIS



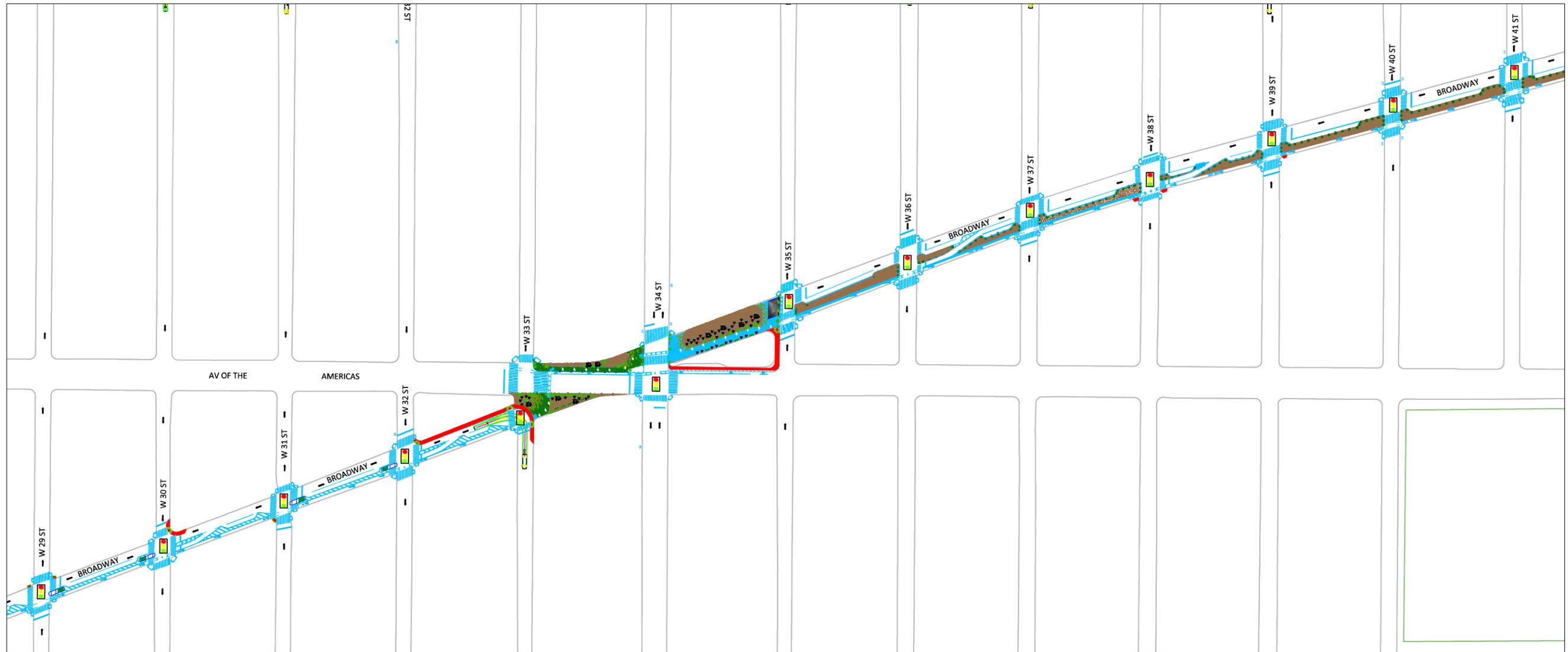
TURNING RADIUS ANALYSIS



TURNING RADIUS ANALYSIS



TURNING RADIUS ANALYSIS

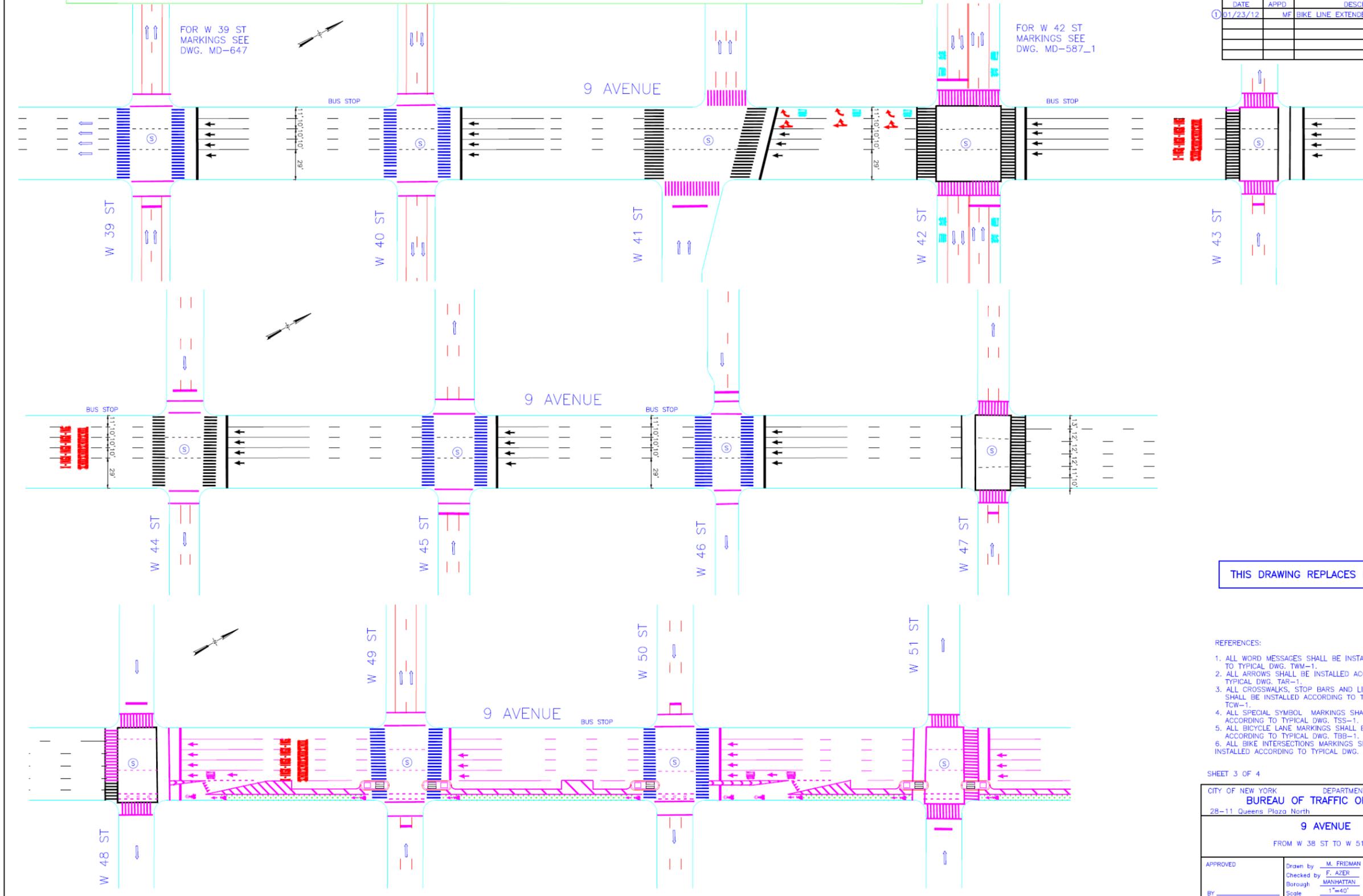


APPENDIX – F

NYCDOT IMPROVEMENTS

AREA WITHIN THE FLOATING PARKING IN FRONT OF EACH FIRE HYDRANT SHALL BE HATCHED 15' TO BOTH SIDES

REVISIONS		
DATE	APPD	DESCRIPTION
01/23/12	MF	BIKE LINE EXTENDED TO 59 ST



THIS DRAWING REPLACES MD-762_3

- REFERENCES:
1. ALL WORD MESSAGES SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TW-1.
 2. ALL ARROWS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TAR-1.
 3. ALL CROSSWALKS, STOP BARS AND LINEAR MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TCW-1.
 4. ALL SPECIAL SYMBOL MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TSS-1.
 5. ALL BICYCLE LANE MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TBB-1.
 6. ALL BIKE INTERSECTIONS MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TBI-1.

SHEET 3 OF 4

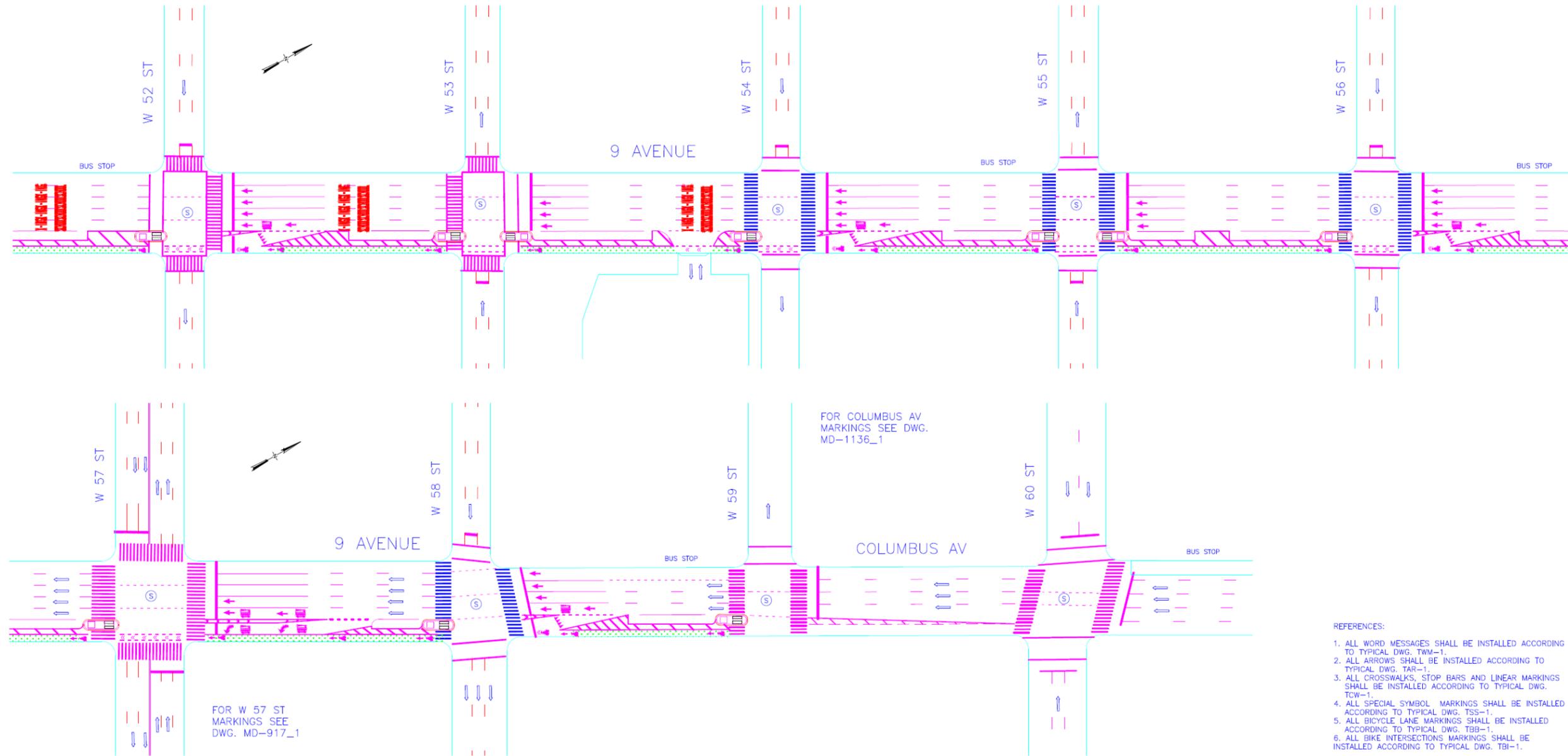
CITY OF NEW YORK DEPARTMENT OF TRANSPORTATION
BUREAU OF TRAFFIC OPERATIONS
 28-11 Queens Plaza North L.I.C., N.Y. 11101

9 AVENUE
 FROM W 38 ST TO W 51 ST

APPROVED	Drawn by M. FRIDMAN	DRAWING NO. MD-762_3A
BY F. AZER, P.E.	Checked by F. AZER	
	Borough MANHATTAN	
	Scale 1"=40'	
Date 6/15/2010		

AREA WITHIN THE FLOATING PARKING IN FRONT OF EACH FIRE HYDRANT SHALL BE HATCHED 15' TO BOTH SIDES

REVISIONS		
DATE	APPD	DESCRIPTION
01/23/12	MF	BIKE LINE EXTENDED TO 59 ST



REFERENCES:

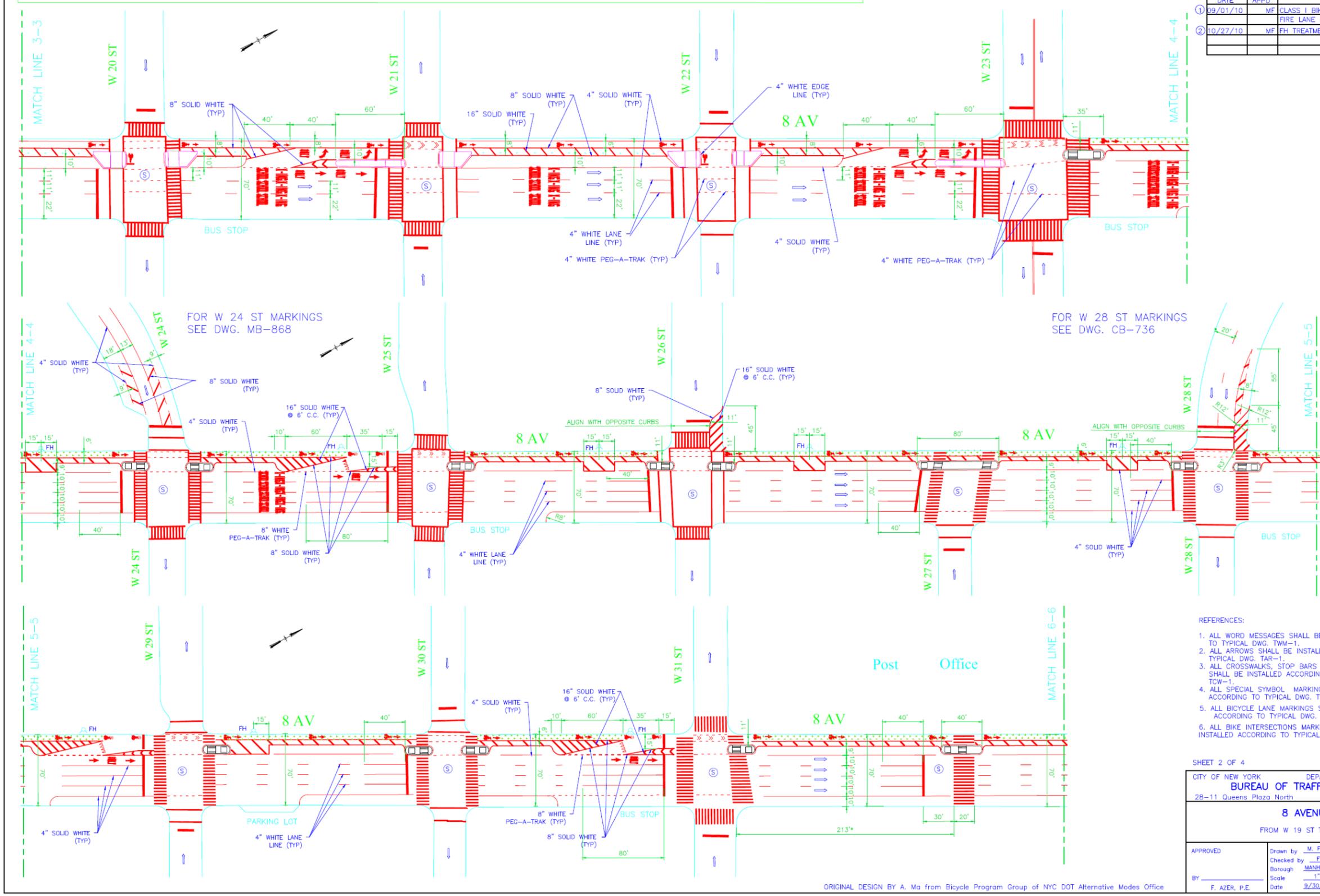
1. ALL WORD MESSAGES SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TW-1.
2. ALL ARROWS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TAR-1.
3. ALL CROSSWALKS, STOP BARS AND LINEAR MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TCW-1.
4. ALL SPECIAL SYMBOL MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TSS-1.
5. ALL BICYCLE LANE MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TBB-1.
6. ALL BIKE INTERSECTIONS MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TBI-1.

SHEET 4 OF 4

CITY OF NEW YORK		DEPARTMENT OF TRANSPORTATION	
BUREAU OF TRAFFIC OPERATIONS			
28-11 Queens Plaza North		L.I.C., N.Y. 11101	
9 AVENUE			
FROM W 52 ST TO W 59 ST			
APPROVED	Drawn by	M. FRIDMAN	DRAWING NO. MD-762_4
BY	Checked by	F. AZER	
F. AZER, P.E.	Borough	MANHATTAN	
	Scale	1"=40'	
	Date	10/29/2010	

AREA WITHIN THE FLOATING PARKING IN FRONT OF EACH FIRE HYDRANT SHALL BE HATCHED 15' TO BOTH SIDES

REVISIONS		
DATE	APPD	DESCRIPTION
09/01/10	MF	CLASS I BIKE LANE EXTENDED TO 34 ST FIRE LANE MESSAGES REMOVED
10/27/10	MF	FH TREATMENT ADDED



- REFERENCES:
1. ALL WORD MESSAGES SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TW-1.
 2. ALL ARROWS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TAR-1.
 3. ALL CROSSWALKS, STOP BARS AND LINEAR MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TCW-1.
 4. ALL SPECIAL SYMBOL MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TSS-1.
 5. ALL BICYCLE LANE MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TBB-1.
 6. ALL BIKE INTERSECTIONS MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TBI-1.

SHEET 2 OF 4

CITY OF NEW YORK DEPARTMENT OF TRANSPORTATION
BUREAU OF TRAFFIC OPERATIONS
 28-11 Queens Plaza North L.I.C., N.Y. 11101

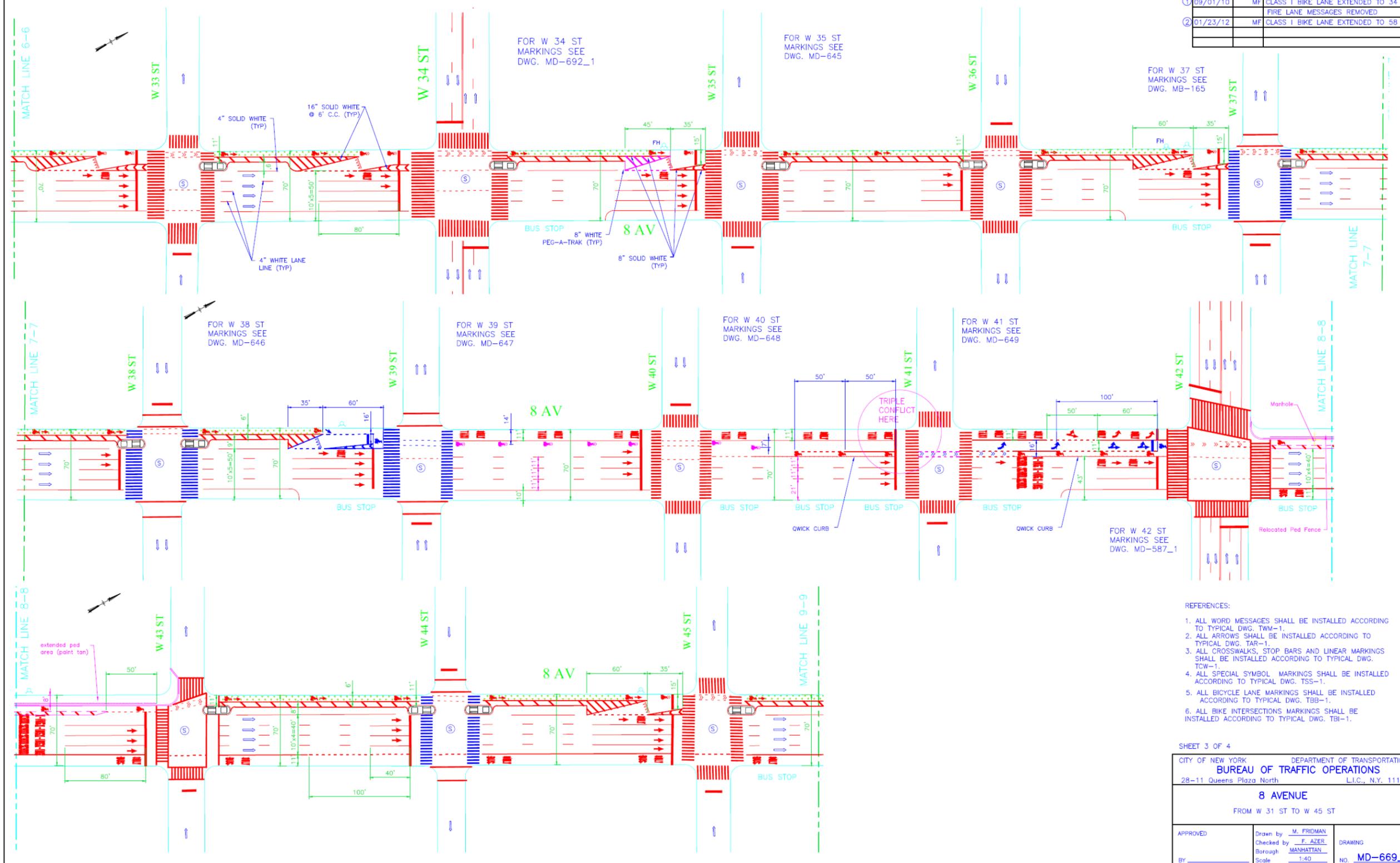
8 AVENUE
 FROM W 19 ST TO W 31 ST

APPROVED	Drawn by M. FRIDMAN	DRAWING NO. MD-669_2
BY _____	Checked by F. AZER	
F. AZER, P.E.	Borough MANHATTAN	
	Scale 1"=40'	
	Date 9/30/2008	

ORIGINAL DESIGN BY A. Ma from Bicycle Program Group of NYC DOT Alternative Modes Office

AREA WITHIN THE FLOATING PARKING IN FRONT OF EACH FIRE HYDRANT SHALL BE HATCHED 15' TO BOTH SIDES

REVISIONS		
DATE	APPD	DESCRIPTION
09/01/10	MF	CLASS I BIKE LANE EXTENDED TO 34 ST FIRE LANE MESSAGES REMOVED
01/23/12	MF	CLASS I BIKE LANE EXTENDED TO 58 ST



- REFERENCES:
1. ALL WORD MESSAGES SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TW-1.
 2. ALL ARROWS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TAR-1.
 3. ALL CROSSWALKS, STOP BARS AND LINEAR MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TCW-1.
 4. ALL SPECIAL SYMBOL MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TSS-1.
 5. ALL BICYCLE LANE MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TBB-1.
 6. ALL BIKE INTERSECTIONS MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TBI-1.

SHEET 3 OF 4

CITY OF NEW YORK DEPARTMENT OF TRANSPORTATION
BUREAU OF TRAFFIC OPERATIONS
 28-11 Queens Plaza North L.I.C., N.Y. 11101

8 AVENUE
 FROM W 31 ST TO W 45 ST

APPROVED	Drawn by M. FRIDMAN	DRAWING
BY F. AZER, P.E.	Checked by F. AZER	
	Borough MANHATTAN	NO. MD-669_3
	Scale 1:40	
	Date 09/01/2010	

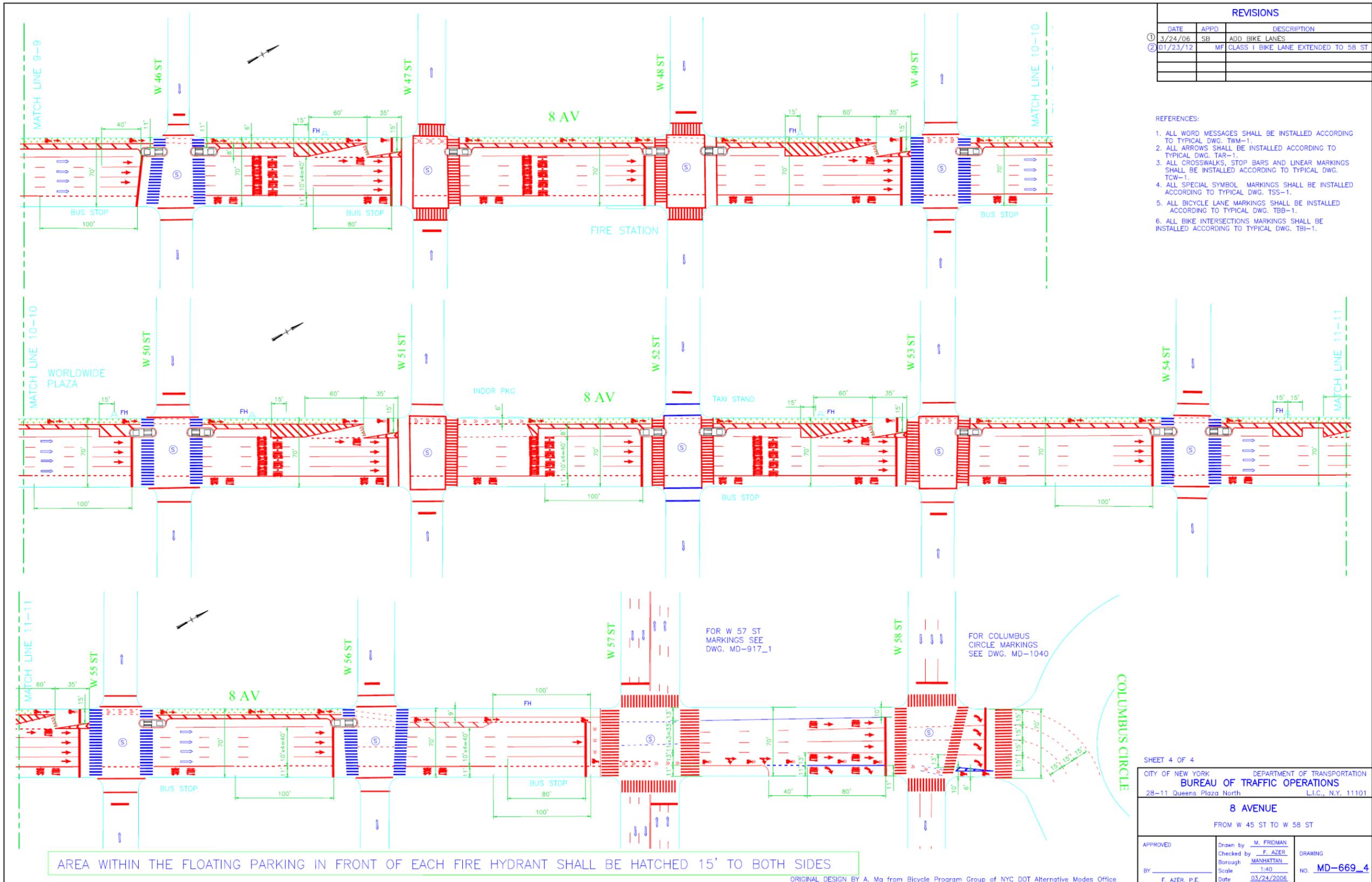
ORIGINAL DESIGN BY A. Ma from Bicycle Program Group of NYC DOT Alternative Modes Office

REVISIONS

DATE	APPD	DESCRIPTION
3/24/06	SB	ADD BIKE LANES
01/23/12	MF	CLASS 1 BIKE LANE EXTENDED TO 58 ST

REFERENCES:

1. ALL WORD MESSAGES SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TWM-1.
2. ALL ARROWS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TAR-1.
3. ALL CROSSWALKS, STOP BARS AND LINEAR MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TCW-1.
4. ALL SPECIAL SYMBOL MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TSS-1.
5. ALL BICYCLE LANE MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TBB-1.
6. ALL BIKE INTERSECTIONS MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TBI-1.



SHEET 4 OF 4

CITY OF NEW YORK DEPARTMENT OF TRANSPORTATION
 BUREAU OF TRAFFIC OPERATIONS
 28-11 Queens Plaza North L.I.C., N.Y. 11101

8 AVENUE
 FROM W 45 ST TO W 58 ST

APPROVED	Drawn by M. FRIDMAN	DRAWING
BY F. AZER, P.E.	Checked by F. AZER	No. MD-669_4
	Borough MANHATTAN	
	Scale 1:40	
	Date 03/24/2006	

AREA WITHIN THE FLOATING PARKING IN FRONT OF EACH FIRE HYDRANT SHALL BE HATCHED 15' TO BOTH SIDES

ORIGINAL DESIGN BY A. Ma from Bicycle Program Group of NYC DOT Alternative Modes Office