

## **7.0 PEDESTRIAN AND BICYCLE ANALYSIS**

### **7.1 Pedestrian Level of Service Analysis**

This section of the analysis will determine and measure existing pedestrian volumes, pedestrian flow patterns and level of service. The pedestrian analysis includes the capacity of sidewalks, intersection corners (where pedestrians queue for a green light, enabling them to cross the street), and crosswalks.

Pedestrian counts were conducted in October of 2003 at 13 locations selected along the major pedestrian corridors in the study area. The criteria used to select these locations were based on:

- a. The level of pedestrian activity on the sidewalks generated by the type of land use in the adjacent area such as major employment centers, major institutions, commercial/retail activity, large residential developments.
- b. The location of major subway stations and bus transfer stops.

The locations are:

- St Nicholas Avenue and 135th Street
- Adam C. Powell Boulevard and 135th Street
- Lenox Avenue and 135th Street
- Amsterdam Avenue and 138th Street
- St Nicholas Avenue and 125th Street
- Adam C. Powell Boulevard and 125th Street
- Lenox Avenue and 125th Street
- Park Avenue and 125th Street
- Lexington Avenue and 125th Street
- Broadway and 116th Street
- Amsterdam Avenue and 116th Street
- Lenox Avenue and 116th Street
- Lexington Avenue and 116th Street

## Level of Service Analysis and Methodology

Pedestrian volumes for the LOS analysis were collected in 15-minute increments during the peak hours of the day: in the morning (7:45 - 8:45 AM), midday (12:15 - 1:15PM) and in the evening (4:45 - 5:45PM).

The highest 15-minute volumes were counted at Lexington Avenue and 125<sup>th</sup> Street, Lexington and 116<sup>th</sup> Street, Broadway and 116<sup>th</sup> Street, Lenox Avenue and 125<sup>th</sup> Street and St Nicholas Avenue and 125<sup>th</sup> Street. (see details in Table 7-2).

Lexington Avenue and 125<sup>th</sup> Street had the highest 15-minute volumes at the northwest corner in the morning with 437 pedestrians on Lexington Avenue and 380 pedestrians on 125<sup>th</sup> Street. This includes the number of subway and bus riders using the walkway.

The pedestrian level of service (LOS) analysis was done by applying the methodologies presented in the Highway Capacity Manual Software “HiCAP 2000-US Customary Unit Version”. The pedestrian LOS is measured as the pedestrian flow rate per minute per foot of width (p/min/ft). This indicates the quality of pedestrian movement and comfort, and is defined in a density-comfort relationship reported in Table 7-1. The level of service on street corners and crosswalks is measured in terms of square feet of space per pedestrian, as indicated in Table 7-1.

**Table 7-1: Level of Service Definitions for Pedestrians**

LOS	Description	Space (ft <sup>2</sup> /p)	Flow Rate (p/min/ft)	Speed (ft/s)	v/c Ratio
A	Unrestricted	> 60	< or = 5	> 4.25	< or = 0.21
B	Slightly restricted	> 40-60	> 5-7	> 4.17-4.25	> 0.21-0.31
C	Restricted but fluid	> 24-40	> 7-10	> 4.00-4.17	> 0.31-0.44
D	Restricted; necessary to continuously alter walking stride and direction	> 15-24	> 10-15	> 3.75-4.00	> 0.44-0.65
E	Severely restricted	> 8-15	> 15-23	> 2.50-3.75	> 0.65-1.0
F	Forward progress only by shuffling; no reverse movement possible	< or = 8	variable	< or = 2.50	variable

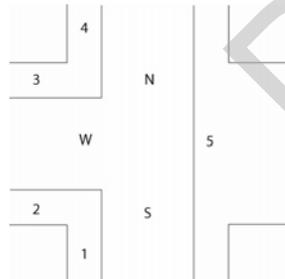
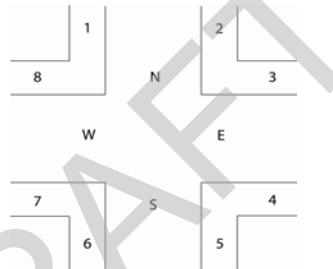
Source: Highway Capacity Manual, Transportation Research Board, National Research Council, Washington, D.C. 2000

### A. Sidewalk Analysis

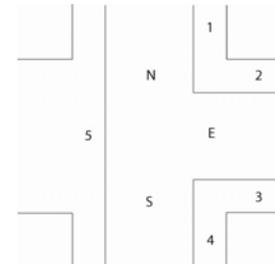
The sidewalk midblock analysis determines both the walkway's average flow rate LOS as well as the platoon LOS, which usually occurs when transit vehicles release a large group of pedestrians in a short period of time. Exhibit 7-1 below is a schematic diagram showing the numbering system for the analyzed location or walkways. The T-shaped intersections have a different numbering system (see other two figures below).

According to the LOS analysis that was done for the sidewalks of the 13 locations mentioned previously, these facilities operate at LOS A during all three peak periods. Table 7-2 shows a summary of the LOS results.

**Exhibit 7-1: Intersection Schematic Showing Walkways**



Intersection Schematic for:  
Broadway/116<sup>th</sup> Street  
Amsterdam Avenue/138<sup>th</sup> Street



Intersection Schematic for:  
Amsterdam Avenue/116<sup>th</sup> Street  
St Nicholas Avenue/135<sup>th</sup> Street

**Table 7-2: Sidewalks Level of Service (1 of 4)**

Intersection		AM				MD			PM		
		15 Min Vol. Two-Way	Effective Walkway Width	Pedestrian Flow Rate		15 Min Vol.	Pedestrian Flow Rate		15 Min Vol.	Pedestrian Flow Rate	
				p/m/f	LOS		p/m/f	LOS		p/m/f	LOS
Walkway											
St Nicholas Avenue @ 135th Street (T-Shape Intersection)	1	60	20	0.2	A	34	0.1	A	20	0.1	A
	2	76	20	0.3	A	33	0.1	A	34	0.1	A
	3	77	20	0.3	A	26	0.1	A	19	0.1	A
	4	72	20	0.2	A	31	0.1	A	14	0	A
	5	199	20	0.7	A	93	0.3	A	133	0.4	A
AC Powell Boulevard @ 135th Street	1	41	25	0.1	A	41	0.1	A	20	0.1	A
	2	54	25	0.1	A	27	0.1	A	42	0.1	A
	3	88	20	0.3	A	52	0.2	A	15	0.1	A
	4	31	20	0.1	A	21	0.1	A	13	0	A
	5	68	25	0.2	A	69	0.2	A	51	0.1	A
	6	60	25	0.2	A	10	0	A	24	0.1	A
	7	23	20	0.1	A	28	0.1	A	28	0.1	A
	8	48	20	0.2	A	26	0.1	A	34	0.1	A
Lenox Avenue @ 135th Street	1	139	35	0.3	A	77	0.1	A	95	0.2	A
	2	209	35	0.4	A	337	0.6	A	323	0.6	A
	3	95	20	0.3	A	77	0.3	A	65	0.2	A
	4	145	20	0.5	A	115	0.4	A	133	0.4	A
	5	104	35	0.2	A	196	0.4	A	133	0.3	A
	6	157	35	0.3	A	114	0.2	A	72	0.1	A
	7	37	20	0.1	A	69	0.2	A	50	0.2	A
	8	69	20	0.2	A	33	0.1	A	52	0.2	A
Amsterdam Avenue @138th Street (T-Shape Intersection)	1	38	20	0.1	A	26	0.1	A	59	0.2	A
	2	76	13	0.4	A	125	0.6	A	143	0.7	A
	3	12	13	0.1	A	93	0.5	A	26	0.1	A
	4	92	20	0.3	A	70	0.2	A	67	0.2	A
	5	71	20	0.2	A	180	0.6	A	152	0.5	A

**Table 7-2: Sidewalks Level of Service (2 of 4)**

Intersection	Walkway	AM				MD			PM		
		15 Min Vol. Two-Way	Effective Walkway Width	Pedestrian Flow Rate		15 Min Vol.	Pedestrian Flow Rate		15 Min Vol.	Pedestrian Flow Rate	
				p/m/f	LOS		p/m/f	LOS		p/m/f	LOS
St Nicholas Avenue @ 125th Street	1	143	20	0.5	A	48	0.2	A	132	0.4	A
	2	132	20	0.4	A	133	0.4	A	275	0.9	A
	3	134	15	0.6	A	168	0.7	A	304	1.4	A
	4	164	15	0.7	A	237	1.1	A	378	1.7	A
	5	187	20	0.6	A	189	0.6	A	290	1	A
	6	127	20	0.4	A	94	0.3	A	148	0.5	A
	7	118	15	0.5	A	162	0.7	A	163	0.7	A
	8	149	15	0.7	A	148	0.7	A	175	0.8	A
AC Powell Boulevard @ 125th Street	1	68	25	0.2	A	61	0.2	A	91	0.2	A
	2	29	25	0.1	A	55	0.1	A	49	0.1	A
	3	47	15	0.2	A	130	0.6	A	149	0.7	A
	4	79	15	0.4	A	165	0.7	A	217	1	A
	5	113	25	0.3	A	90	0.2	A	40	0.1	A
	6	100	25	0.3	A	47	0.1	A	89	0.2	A
	7	92	15	0.4	A	243	1.1	A	200	0.9	A
	8	184	15	0.8	A	187	0.8	A	285	1.3	A
Lenox Avenue @ 125th Street	1	252	35	0.5	A	57	0.1	A	242	0.5	A
	2	150	35	0.3	A	211	0.4	A	216	0.4	A
	3	194	15	0.9	A	229	1	A	310	1.4	A
	4	140	15	0.6	A	277	1.2	A	183	0.8	A
	5	194	35	0.4	A	112	0.2	A	239	0.5	A
	6	55	35	0.1	A	151	0.3	A	128	0.2	A
	7	100	15	0.4	A	194	0.9	A	363	1.6	A
	8	177	15	0.8	A	210	0.9	A	308	1.4	A

**Table 7-2: Sidewalks Level of Service (3 of 4)**

Intersection	Walkway	AM				MD			PM		
		15 Min Vol. Two-Way	Effective Walkway Width	Pedestrian Flow Rate		15 Min Vol.	Pedestrian Flow Rate		15 Min Vol.	Pedestrian Flow Rate	
				p/m/f	LOS		p/m/f	LOS		p/m/f	LOS
Park Avenue @ 125 <sup>th</sup> Street	1	23	12	0.1	A	24	0.1	A	22	0.1	A
	2	151	12	0.8	A	158	0.9	A	59	0.3	A
	3	273	20	0.9	A	245	0.8	A	231	0.8	A
	4	237	15	1.1	A	165	0.7	A	243	1.1	A
	5	21	12	0.1	A	54	0.2	A	39	0.2	A
	6	30	12	0.1	A	22	0.1	A	16	0.1	A
	7	110	20	0.4	A	147	0.5	A	166	0.6	A
	8	103	20	0.3	A	145	0.5	A	162	0.5	A
Lexington Avenue @ 125 <sup>th</sup> Street	1	437	12.5	2.3	A	183	1	A	314	1.7	A
	2	219	12.5	1.2	A	212	1.1	A	201	1.1	A
	3	122	12	0.7	A	171	1	A	109	0.6	A
	4	235	20	0.8	A	275	0.9	A	327	1.1	A
	5	127	12.5	0.7	A	164	0.9	A	123	0.7	A
	6	316	12.5	1.7	A	216	1.2	A	356	1.9	A
	7	285	20	1	A	201	0.7	A	308	1	A
	8	380	20	1.3	A	350	1.2	A	345	1.2	A
Broadway @ 116 <sup>th</sup> Street (T-Shape Intersection)	1	305	24	0.8	A	353	1	A	373	1	A
	2	48	20	0.2	A	110	0.4	A	89	0.3	A
	3	84	20	0.3	A	80	0.3	A	85	0.3	A
	4	346	24	1	A	278	0.8	A	320	0.9	A
	5	562	18	2.1	A	830	3.1	A	889	3.3	A
Amsterdam Avenue @ 116 <sup>th</sup> Street (T-Shape Intersection)	1	35	20	0.1	A	128	0.4	A	116	0.4	A
	2	36	20	0.1	A	384	1.3	A	110	0.4	A
	3	49	20	0.2	A	63	0.2	A	46	0.2	A
	4	94	20	0.3	A	175	0.6	A	122	0.4	A
	5	293	20	1	A	484	1.6	A	483	1.6	A

**Table 7-2: Sidewalks Level of Service (4 of 4)**

Intersection	Walkway	AM				MD			PM		
		15 Min Vol. Two-Way	Effective Walkway Width	Pedestrian Flow Rate		15 Min Vol.	Pedestrian Flow Rate		15 Min Vol.	Pedestrian Flow Rate	
				p/m/f	LOS		p/m/f	LOS		p/m/f	LOS
Lexington Avenue @ 116th Street	1	223	18.5	0.8	A	92	0.3	A	122	0.4	A
	2	76	18.5	0.3	A	114	0.4	A	105	0.4	A
	3	160	15	0.7	A	151	0.7	A	319	1.4	A
	4	192	15	0.9	A	196	0.9	A	242	1.1	A
	5	138	18.5	0.5	A	104	0.4	A	159	0.6	A
	6	195	18.5	0.7	A	155	0.6	A	199	0.7	A
	7	98	15	0.4	A	121	0.5	A	150	0.7	A
	8	83	15	0.4	A	102	0.5	A	90	0.4	A
Lenox Avenue @ 116th Street	1	149	35	0.3	A	80	0.2	A	90	0.2	A
	2	162	35	0.3	A	128	0.2	A	195	0.4	A
	3	57	15	0.3	A	72	0.3	A	96	0.4	A
	4	58	15	0.3	A	76	0.3	A	122	0.5	A
	5	98	35	0.2	A	50	0.1	A	124	0.2	A
	6	87	35	0.2	A	55	0.1	A	117	0.2	A
	7	66	15	0.3	A	76	0.3	A	93	0.4	A
	8	89	15	0.4	A	100	0.4	A	129	0.6	A

## B. Corner Analysis

The analysis of street corners is more complex as it involves sidewalk flows, pedestrian crossings, and other queued pedestrians waiting for the traffic signal to change. Analysis of the existing corners indicates that all corners operate at LOS A for all peak periods as shown in Table 7-3 below.

**Table 7-3: Corners Level of Service**

Intersection	Corner	AM		MD		PM	
		SF/P	LOS	SF/P	LOS	SF/P	LOS
St Nicholas Avenue @ 135th Street (T-Shape Intersection)	Northeast	466.6	A	1027.4	A	827	A
	Southeast	520.2	A	1400.6	A	958.8	A
AC Powell Boulevard @ 135th Street	Northwest	684.3	A	1076.2	A	1822.5	A
	Northeast	524	A	1116.7	A	1145.1	A
	Southeast	513.4	A	1253	A	966.4	A
	Southwest	721.3	A	1686.7	A	1628.7	A
Lenox Avenue @ 135th Street	Northwest	1215.7	A	1215.3	A	1175.8	A
	Northeast	765.9	A	527	A	644.1	A
	Southeast	634.5	A	481.6	A	603.8	A
	Southwest	755.5	A	891.4	A	1055.9	A
Amsterdam Avenue @ 138th Street (T-Shape Intersection)	Northwest	536.7	A	370.3	A	429.2	A
	Southwest	322.8	A	254.9	A	247.8	A
St Nicholas Avenue @ 125th Street	Northwest	307.2	A	304.1	A	267.7	A
	Northeast	333.1	A	234.6	A	168.3	A
	Southeast	286.3	A	208.9	A	147.4	A
	Southwest	410.9	A	342.4	A	248.2	A
AC Powell Boulevard @ 125th Street	Northwest	311.6	A	273.7	A	267	A
	Northeast	448.8	A	329.9	A	296.2	A
	Southeast	681.2	A	242.6	A	220.7	A
	Southwest	552.6	A	234.3	A	256.8	A
Lenox Avenue @ 125th Street	Northwest	443.9	A	478.8	A	290.7	A
	Northeast	419.1	A	408.2	A	313.4	A
	Southeast	466.1	A	329.4	A	338.1	A
	Southwest	643.6	A	354	A	364.5	A
Park Avenue @ 125th Street	Northwest	190.6	A	200.5	A	212.9	A
	Northeast	129.7	A	129.1	A	179.9	A
	Southeast	209.6	A	188.3	A	136	A
	Southwest	246.7	A	235.1	A	147.3	A
Lexington Avenue @ 125th Street	Northwest	122.8	A	221.5	A	156.5	A
	Northeast	212.9	A	189.6	A	207.7	A
	Southeast	218	A	204	A	185.5	A
	Southwest	142.1	A	202.3	A	142.5	A
Broadway @ 116th Street (T-Shape Intersection)	Northwest	249.7	A	198	A	196.4	A
	Southwest	231.5	A	161.5	A	188.3	A
Amsterdam Avenue @ 116th Street (T-Shape Intersection)	Northeast	862.9	A	173.6	A	282.7	A
	Southeast	776.9	A	226.9	A	412.3	A

Intersection		AM		MD		PM	
		SF/P	LOS	SF/P	LOS	SF/P	LOS
Lexington Avenue @ 116th Street	Northwest	199.5	A	219.1	A	168.8	A
	Northeast	210.4	A	177.7	A	140.3	A
	Southeast	197.2	A	192	A	142.9	A
	Southwest	157.2	A	228.8	A	168.5	A
Lenox Avenue @116th Street	Northwest	946.1	A	869	A	622.5	A
	Northeast	805.8	A	738.6	A	516.1	A
	Southeast	878.2	A	840.5	A	571.7	A
	Southwest	1030.5	A	900.3	A	678.8	A

### C. Crosswalk Analysis

Similar to the corner analysis, the crosswalk analysis is more complex than the sidewalk analysis, taking into account the sidewalk flows, pedestrian crossings, and other queued pedestrians waiting for the traffic signal to change. Analysis of the existing crosswalks indicates that they are operating at LOS A during the three peak periods, except for two crosswalks which operate at LOS B. They are: the south crosswalk at the intersection of Park Avenue and 125<sup>th</sup> Street (evening peak period) and the south crosswalk at the intersection of Broadway and 116<sup>th</sup> Street (midday peak period). See Table 7-4 below.

**Table 7-4: Crosswalks Level of Service**

Intersection		AM		MD		PM	
		Crosswalk Space		Crosswalk Space		Crosswalk Space	
		SF/P	LOS	SF/P	LOS	SF/P	LOS
St Nicholas Avenue @ 135th Street (T-Shape Intersection)	North	133.66	A	316.73	A	219.78	A
	East	962.24	A	2753.56	A	2557.18	A
	South	156.87	A	417.32	A	325.74	A
AC Powell Boulevard @ 135th Street	North	261.39	A	407.33	A	909.35	A
	East	327.01	A	934.54	A	878.68	A
	South	282.45	A	608.73	A	719.38	A
	West	447.81	A	1094.30	A	1608.23	A
Lenox Avenue @ 135th Street	North	245.99	A	495.38	A	258.19	A
	East	342.40	A	134.55	A	220.01	A
	South	141.41	A	308.60	A	239.29	A
	West	550.21	A	370.19	A	609.80	A
Amsterdam Avenue @ 138th Street (T-Shape Intersection)	North	1307.28	A	143.64	A	253.27	A
	South	202.87	A	88.70	A	107.07	A
	West	507.42	A	1145.60	A	717.31	A
St Nicholas Avenue @ 125th Street	North	255.43	A	131.18	A	180.27	A
	East	735.69	A	355.07	A	298.03	A
	South	382.17	A	191.50	A	153.53	A
	West	596.65	A	527.19	A	424.30	A
AC Powell Boulevard @ 125th Street	North	122.63	A	111.62	A	98.99	A
	East	1601.58	A	410.18	A	383.06	A
	South	339.33	A	90.92	A	95.95	A
	West	402.72	A	288.68	A	307.43	A
Lenox Avenue @ 125th Street	North	177.29	A	153.91	A	82.37	A
	East	245.35	A	188.81	A	205.60	A
	South	215.34	A	101.80	A	126.47	A
	West	363.56	A	234.86	A	235.27	A
Park Avenue @ 125th Street	North	64.89	A	71.69	A	85.21	A
	East	303.36	A	198.82	A	202.16	A
	South	85.64	A	89.46	A	54.00	B
	West	694.02	A	550.56	A	303.34	A
Lexington Avenue @ 125th Street	North	237.42	A	171.95	A	188.45	A
	East	186.32	A	205.38	A	174.75	A
	South	164.89	A	164.96	A	184.99	A
	West	211.06	A	300.40	A	186.48	A
Broadway @ 116th Street (T-Shape Intersection)	North	313.25	A	142.09	A	142.99	A
	South	196.53	A	51.12	B	83.27	A
	West	128.89	A	127.95	A	125.56	A
Amsterdam Avenue @ 116th Street (T-Shape Intersection)	North	283.60	A	84.88	A	98.26	A
	East	835.28	A	106.84	A	258.29	A
	South	225.81	A	173.45	A	176.47	A
Lexington Avenue @ 116th Street	North	146.64	A	127.44	A	171.52	A
	East	217.95	A	179.04	A	158.83	A
	South	110.99	A	146.59	A	91.41	A
	West	211.07	A	269.92	A	256.60	A
Lenox Avenue @ 116th Street	North	134.73	A	119.05	A	77.90	A
	East	402.94	A	431.33	A	265.51	A
	South	145.06	A	121.08	A	94.40	A

## 7.2 Pedestrian Corridors and Volumes

Pedestrian corridors in the study area have been identified and they are in general linked to subway stations and major bus transfer points, employment centers, retail/commercial centers and high density residential areas. The corridors within the study area are either along a street or an avenue and have 15-minute peak period volumes of 20 pedestrians or more.

These corridors are: 125th Street, sections of 116th Street, 135th Street and 138<sup>th</sup> Street which are east-west streets. Other corridors, north-south avenues, are on Lenox Avenue, Adam C. Powell Boulevard, sections of Broadway, Amsterdam Avenue and Lexington Avenue (See Exhibit 7-2).

125th Street is a major corridor for pedestrian traffic. Most of the pedestrians on 125<sup>th</sup> Street are concentrated between Morningside Avenue and Third Avenue where the commercial/retail activities such as clothing chain stores, big box retail stores, fast food restaurants, local restaurants, etc. are concentrated. According to a sample of pedestrian volumes collected during the three peak periods of a typical weekday, 15-minute pedestrian peak volumes range on average from 100 to 300 in the core area of 125<sup>th</sup> Street (see Table 7-5 below).

**Table 7-5: 15-Minute Peak Pedestrian Volumes on 125<sup>th</sup> Street**

Locations	AM Peak Period		MD Peak Period		PM Peak Period	
	North Sidewalk	South Sidewalk	North Sidewalk	South Sidewalk	North Sidewalk	South Sidewalk
West of St Nicholas Ave.	149	118	148	162	175	163
East of St Nicholas Ave.	134	164	168	237	304	378
West of AC Powell Blvd.	184	92	187	243	285	200
East of AC Powell Blvd.	47	79	130	165	149	217
West of Lenox Ave.	177	100	210	194	308	363
East of Lenox Ave.	194	140	229	277	310	183
West of Park Ave.	103	110	145	147	162	166
East of Park Ave.	273	237	245	165	231	243
West of Lexington Ave.	380	285	350	201	345	308
East of Lexington Ave.	122	235	171	275	109	327

Other corridors considered as secondary pedestrian corridors are along avenues such as Lenox Avenue with a mixture of residential and commercial/retail activity (local stores, laundromats/dry cleaners, grocery stores, pharmacies, household items stores etc). 15-minute peak pedestrian volumes on these corridors range on average from 60 to 375 pedestrians. Parts of Lexington Avenue where there are major bus/subway transfer stations (125<sup>th</sup> and 116<sup>th</sup> Streets) also have this level of peak pedestrian volumes. Adam C. Powell Boulevard on the other hand has much lower volumes with 15 to 100 pedestrians on average per 15-minute peak, these are close to the volumes on the east-west streets, see Table 7-6a below.

**Table 7-6a: 15-Minute Pedestrian Peak Volumes on the Avenues**

Locations	AM Peak Period		MD Peak Period		PM Peak Period	
	West Sidewalk	East Sidewalk	West Sidewalk	East Sidewalk	West Sidewalk	East Sidewalk
Lenox Ave, north of 135th St	139	209	77	337	95	323
Lenox Ave, south of 135th St	157	104	114	196	72	133
Lenox Ave, north of 125th St	252	150	57	211	242	216
Lenox Ave, south of 125th St	55	194	151	112	128	239
Lenox Ave, north of 116th St	149	162	80	128	90	195
Lenox Ave, south of 116th St	87	98	55	50	117	124
AC Powell Blvd, north of 135th St	41	54	41	27	20	42
AC Powell Blvd, south of 135th St	60	68	10	69	24	51
AC Powell Blvd, north of 125th St	68	29	61	55	91	49
AC Powell Blvd, south of 125th St	100	113	47	90	89	40
Lexington Ave, north of 125th St	437	219	183	212	314	201
Lexington Ave, south of 125th St	316	127	216	164	356	123
Lexington Ave, north of 116th St	223	76	92	114	122	105
Lexington Ave, south of 116th St	195	138	155	104	199	159

The other east-west streets represent a third category of pedestrian corridors where 15-minute peak volumes range on average from 20 to 125 pedestrians, except on 116<sup>th</sup> Street at Lexington Avenue where 15-minute peak volumes are higher and reach 319 in the evening. The streets which fall under this category are 135<sup>th</sup> and 116<sup>th</sup> Streets. For more details see Table 7-6b.

**Table 7-6b: 15-Minute Peak Pedestrian Volumes on the Streets**

Locations	AM Peak Period		MD Peak Period		PM Peak Period	
	North Sidewalk	South Sidewalk	North Sidewalk	South Sidewalk	North Sidewalk	South Sidewalk
135th St, west of Lenox Ave	69	37	33	69	52	50
135th St, east of Lenox Ave	95	145	77	115	65	133
135th St, west of AC Powell Blvd.	48	23	26	28	34	28
135th St, east of AC Powell Blvd.	88	31	52	21	15	13
116th St, west of Lenox Avenue	89	66	100	76	129	93
116th St, east of Lenox Avenue	57	58	72	76	96	122
116th St, west of Lexington Avenue	83	98	102	121	90	150
116th St, east of Lexington Avenue	160	192	151	196	319	242

Areas with major institutions such as universities and hospitals have on the east-west streets 15-minute peak sidewalk volumes that are close to the pedestrian volumes found in the third category of pedestrian corridors (except on 116<sup>th</sup> Street at Amsterdam Avenue where the volumes get to 384 pedestrians in the midday). On the avenues the 15-minute peak volumes are much higher with volumes reaching 889 pedestrians on Broadway at 116<sup>th</sup> Street. These institutions are located at 116<sup>th</sup> Street/Amsterdam Avenue/Broadway, 138<sup>th</sup> Street/Amsterdam Avenue and 135<sup>th</sup> Street/Lenox Avenue.

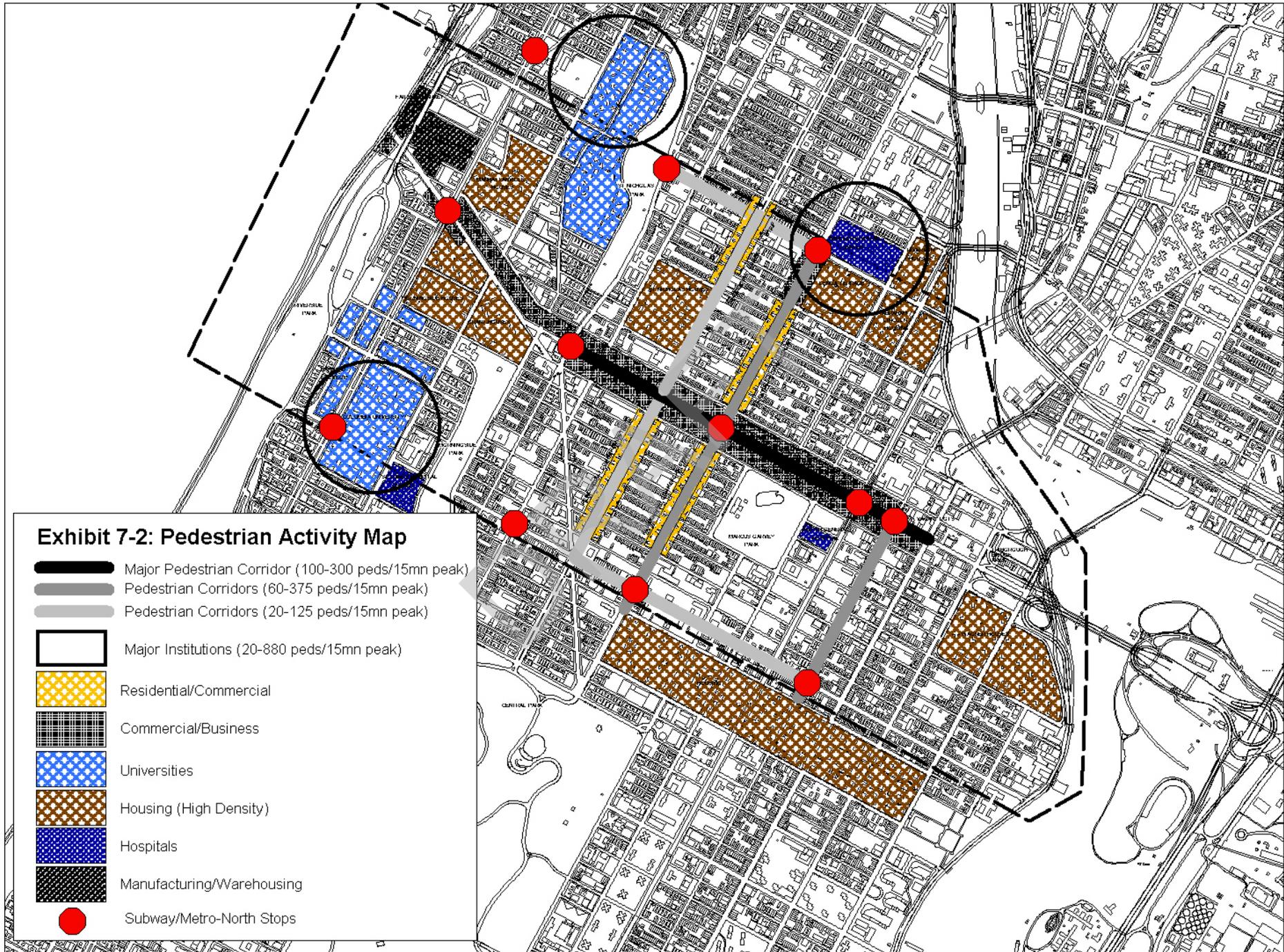
**Table 7-7a: 15-minute Peak Pedestrian Volumes near Major Institutions**

Locations	AM Peak Period		MD Peak Period		PM Peak Period	
	North Sidewalk	South Sidewalk	North Sidewalk	South Sidewalk	North Sidewalk	South Sidewalk
116th St, west of Broadway	84	48	80	110	85	89
116th St, east of Amsterdam Avenue	36	49	384	63	110	46
138th St, west of Amsterdam	12	76	93	125	26	143
135th St, east of St Nicholas Avenue	76	77	33	26	34	19
135th St, west of Lenox Ave	69	37	33	69	52	50
135th St, east of Lenox Ave	95	145	77	115	65	133

**Table 7-7b: 15-minute Peak Pedestrian Volumes near Major Institutions**

Locations	AM Peak Period		MD Peak Period		PM Peak Period	
	West Sidewalk	East Sidewalk	West Sidewalk	East Sidewalk	West Sidewalk	East Sidewalk
Broadway, north of 116th St	346		278		320	
Broadway, south of 116th St	305	562	353	830	373	889
Amsterdam Ave, north of 116th St		35		128		116
Amsterdam Ave, south of 116th St	293	94	484	175	483	122
Amsterdam Ave, north of 138th St	92		70		67	
Amsterdam Ave, south of 138th St	38	71	26	180	59	152
St Nicholas Ave, north of 135th St		60		34		20
St Nicholas Ave, south of 135th St	199	72	93	31	133	14
Lenox Ave, north of 135th St	139	209	77	337	95	323
Lenox Ave, south of 135th St	157	104	114	196	72	133

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### **7.3 Quality of Pedestrian Environment**

The sidewalks, corners and crosswalks are the focus of the pedestrian analysis. In addition to the level of service analysis the walkways are surveyed and analyzed in terms of use and in terms of the quality of the pedestrian environment.

#### **A. Sidewalk Dimensions**

##### Along the Avenues

The walkways along the avenues within the study area are located in a section of Manhattan where the sidewalks are wide in general in comparison to other parts of Manhattan where the sidewalks are generally less than 20 feet wide.

The widths range from 20 to 25 feet in West Harlem. In the central area of Harlem they are even wider and go up to 35 feet in width on Lenox Avenue.

However, on Madison Avenue, Park Avenue and Third Avenue they are in general 13 to 15 feet wide and those on Lexington Avenue are 18.5 feet wide (See Appendix B).

##### Along the Streets

In general the widths of the east-west sidewalks are 13 to 15 feet wide. But a few of these sidewalks are much wider such as those on:

- 125<sup>th</sup> Street and most of 116<sup>th</sup> Street which measure 20 feet wide,
- 122<sup>nd</sup> Street is 19 feet wide west of Amsterdam Avenue, and
- part of 116<sup>th</sup> Street is 25 feet wide between Amsterdam Avenue and Morningside Drive.

#### **B. Use of Sidewalks**

In the study area street vendors take up sidewalk space with displays, however they are mainly concentrated along 125<sup>th</sup> Street between Morningside and Third Avenues. The highest number of vendors based on site visits done in April of 2004, tend to congregate on the south side of 125<sup>th</sup> Street between St Nicholas and Lenox Avenues. The sidewalks of 125<sup>th</sup> Street between Morningside and Third Avenues are 20 feet wide. The street vendors take up approximately 5 feet in width reducing the sidewalk width to 15 feet approximately. They are often located adjacent to the curb where a 5-foot strip of street furniture currently exists. However several

vendors setup in front of the retail stores reducing the effective sidewalk width at that particular location to 10 feet.

A different type of street vendor is located on 125<sup>th</sup> Street between Madison Avenue and Park Avenue. These vendors sell used items and clothing similar to what one would find at a yard sale and have their items displayed directly on the sidewalk. They usually take up more of the sidewalk space compared to the other street vendors (from 5 to 10 feet approximately which is about half the width of the sidewalk).

Street vendors are important to the street life and the experience of 125<sup>th</sup> Street however sufficient space must be made available for pedestrian circulation.



125<sup>th</sup> Street near Frederick Douglass Blvd



125<sup>th</sup> Street and Lenox Avenue

### C. Use of Corners

Some corners are cluttered with newspaper boxes and other street furniture such as trash cans etc. which can contribute to corner congestion and reduce the corner space available for circulation.

A survey was done at those corners where pedestrian volumes were counted and/or at corners near a subway station entrance/exit and a bus stop. The following corners were cluttered with some newspaper boxes or street furniture:

- 135<sup>th</sup> Street and Lenox Avenue- Northwest corner (clutter of newspaper boxes)
- Broadway and 125<sup>th</sup> Street – Northeast corner (clutter of newspaper boxes)

- St Nicholas Avenue and 125<sup>th</sup> Street – Northwest corner (newspaper stand placed adjacent to the subway entrance, reducing the sidewalk width of St Nicholas Avenue at the subway entrance to 4-5 feet)



Broadway and 125<sup>th</sup> Street – NE corner



St Nicholas Avenue and 125<sup>th</sup> Street



125<sup>th</sup> Street and Frederick D. Boulevard

Other locations have cluttered corners. They are:

- 125<sup>th</sup> Street and Amsterdam Avenue – Northwest corner (clutter of newspaper boxes),
- 125<sup>th</sup> Street and Frederick D. Boulevard – Northeast corner (clutter of newspaper boxes).

The following locations were found to have a grouping of newspaper boxes on the sidewalk; however, they were not blocking the pedestrian walkway and could be brought together into one centralized system. They are:

- 125<sup>th</sup> Street and Adam C. Powell Boulevard – On Adam C. Powell Boulevard, near the northeast corner,
- 125<sup>th</sup> Street and Park Avenue – South median, between the staircases that lead to the elevated Metro-North platform.



125<sup>th</sup> Street and Adam C. Powell Blvd

#### **D. Pedestrian Street Lighting**

In terms of street lighting for pedestrians, the core area of the 125<sup>th</sup> Street commercial corridor between Frederick D. Boulevard and Fifth Avenue has better lighting levels. The luminaries which are a mixture of “cobra heads” and type “BB- Brooklyn Bridge” are attached to the street lamp posts at about 14 feet high. Approximately six luminaries are placed on each side of the street on each block (blocks on average are 800 feet long).

However other sidewalks and/or the areas under the elevated structures listed below are less well lit:

- Henry Hudson Parkway (close to the waterfront);
- Amtrak Rail Lines (close to the waterfront);
- Riverside Drive (12th Avenue);
- IRT Elevated Subway Line (Broadway);
- MetroNorth Rail Line (Park Avenue); and
- West Harlem between Marginal Street and Broadway

## **E. Midblock Neckdowns**

### Description

Midblock crossings for pedestrians which include neckdowns (extension of sidewalk into the roadbed taking up parking space) exist on 125<sup>th</sup> Street between:

- Frederick Douglass Boulevard and Adam C. Powell Boulevard;
- Adam C. Powell Boulevard and Lenox Avenue; and
- Lenox Avenue and Fifth Avenue.

They were put in by the New York City Department of Transportation (NYCDOT) at the request of the community in the early nineties. The New York City Economic Development Corporation (NYCEDC) worked in collaboration with local organizations and businesses to get them implemented. The reason for these midblock crossings according to NYCEDC:

- a) These blocks are long (800 feet) compared to the other blocks along 125<sup>th</sup> Street and pedestrians wanting to cross midblock had to walk to the end of the block before crossing to walk back to the midblock location on the other side.
- b) Often pedestrians would jaywalk midblock on 125<sup>th</sup> Street to avoid the long walk. This is considered dangerous, risky and against the traffic regulations,
- c) Several pedestrian accidents had occurred at the midblock locations (see Table 7-9a: “Pedestrian Accidents at Midblock Locations”), and
- d) According to the 125<sup>th</sup> Street BID, several businesses were complaining that shoppers could not easily access their stores on the other side, and that the situation possibly affects their businesses.

With these midblock crossings pedestrians have a safe and clearly defined crossing facility which promotes a more pedestrian friendly environment in the area. Each neckdown is approximately 110 feet long and 8 feet wide. In addition the midblock pedestrian crossings are clearly defined with a ladder crosswalk which measures approximately 30 feet wide. According to NYCEDC at the time they thought of discouraging double parking by suggesting the placement of fire hydrants at the neckdowns, however only one neckdown between Lenox Avenue and Fifth Avenue has a fire hydrant.

### Analysis of Midblock Neckdowns

An analysis of the midblock crossings has been done in terms of current use by pedestrians and in terms of pedestrian accidents that occurred at midblock locations prior to and after the installation of the neckdowns.

#### a. Midblock Neckdowns - Use and Volumes

Pedestrian volumes at the neckdowns were collected over a period of two days: on April 27, 2004 (1:00 - 2:00PM) and on June 15, 2004 (2:30 - 4:00PM).

The first count was done to assess the volume of pedestrians crossing midblock at the neckdowns:

- 1<sup>st</sup> Block: Between Frederick Douglass Boulevard and Adam C. Powell Boulevard a total of 205 pedestrians crossed in one hour.
- 2<sup>nd</sup> Block: Adam C. Powell Boulevard and Lenox Avenue a total of 271 pedestrians crossed in one hour.
- 3<sup>rd</sup> Block: Lenox Avenue and Fifth Avenue a total of 172 pedestrians crossed in one hour.

These counts reveal that on average 5 pedestrians cross per cycle during the midday peak period.

The second count was done to determine the percentage of school children using these midblock crossings. Here are the results (see table 7-8 below):

- 1<sup>st</sup> Block: Between Frederick Douglass Boulevard and Adam C. Powell Boulevard, 16% of the total users were school children.
- 2<sup>nd</sup> Block: Between Adam C. Powell Boulevard and Lenox Avenue, 25% of the total users were school children.
- 3<sup>rd</sup> Block: Between Lenox Avenue and Fifth Avenue, 11% of the total users were school children.

**Table 7-8: Midblock Pedestrian Volumes**

Locations	Collected on April 27, 2004*	Collected on June 15, 2004**	
	Adults	School Children	Total Pedestrians
Midblock Neckdown Volumes between Frederick D. Blvd and Adam C Powell Blvd	205	39	239
Midblock Neckdown Volumes between Adam C Powell Blvd and Lenox Ave	271	107	418
Midblock Neckdown Volumes between Lenox Ave and Fifth Ave	172	19	171

\*Counts done from 1:00 to 2:00PM.

\*\* Counts done from 2:30 to 4:00PM

**b. Midblock Neckdowns - Pedestrian Accidents**

Accident data for the midblock locations are provided here in this section in addition to the “Accidents/Safety Analysis” section of this document (section 8.0) in order to better analyze accident trends prior to and after the installation of the neckdowns.

As we analyze and compare midblock pedestrian accidents for the years prior to and after the installation of the midblock crossings, the number of pedestrian accidents per location did decrease with the installation of the neckdowns. See Tables 7-9a and 7-9b below for more details.

**Table 7-9a: Pedestrian Accidents at Midblock Locations (without neckdowns)**

Locations	1987	1988	1989	1990
<b>Frederick D. Boulevard and AC Powell Boulevard</b>	6	2	2	4
<b>AC Powell Boulevard and Lenox Avenue</b>	4*	1	0	5
<b>Lenox Avenue and Fifth Avenue</b>	3**	4	3	4

\*Two pedestrians were hit at the same time by one vehicle during an accident on Sept. 11, 1987.

\*\*Two pedestrians were hit at the same time by one vehicle during an accident on Dec. 22, 1987.

**Table 7-9b: Pedestrian Accidents at Midblock Locations**

<b>Locations</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
<b>Frederick D. Boulevard and AC Powell Boulevard</b>	0	1	0	2	2
<b>AC Powell Boulevard and Lenox Avenue</b>	0	3*	2	3***	0
<b>Lenox Avenue and Fifth Avenue</b>	0	1	4**	2	1

\*Two pedestrians were hit at the same time by one vehicle during an accident on Feb 27, 1998.

\*\*Two pedestrians were hit at the same time by one vehicle during an accident on Jan 30, 1999.

\*\*\*Three pedestrians were hit at the same time by one vehicle during an accident on Jan 12, 2000.

#### **7.4 Pedestrian Accidents – Description of Accident Locations**

Another aspect of the pedestrian analysis is to look into pedestrian safety issues and to study pedestrian accident locations within the area of study.

In section 8.0 of this document: “Accidents/Safety Analysis”, locations with the highest number of pedestrian accidents for the years 1998, 1999, and 2000 were determined and analyzed in order to identify safety issues and to address traffic accident problems. The accident history of the study area was also examined in section 8.0 to see if there were any patterns in the accidents.

However, the pedestrian analysis section of this study will further analyze each location to see if there are any other factors or conditions that could have contributed to the pedestrian accidents.

- Pedestrian Accidents for the Year 1998

For the year 1998 the highest pedestrian accident location was Lexington Avenue and 125<sup>th</sup> Street where six pedestrian accidents occurred. The locations of Amsterdam Avenue/125<sup>th</sup> Street, Lenox Avenue/125<sup>th</sup> Street, Second Avenue/116<sup>th</sup> Street followed with five pedestrian accidents each.

- Pedestrian Accidents for the Year 1999

For the year 1999 the highest pedestrian accident location was Lexington Avenue and 125<sup>th</sup> Street where eight pedestrian accidents occurred. The location of Amsterdam Avenue and 125<sup>th</sup> Street followed with six pedestrian accidents.

- Pedestrian Accidents for the Year 2000

For the year 2000 the highest pedestrian accident location was Amsterdam Avenue and 125<sup>th</sup> Street where nine pedestrian accidents occurred. The location of Lexington Avenue and 125<sup>th</sup> Street followed with five pedestrian accidents.

**Description of the Pedestrian Accident Locations:**

125<sup>th</sup> Street and Lexington Avenue (refer to Exhibit 7-3 for a diagram of this intersection)

Lexington Avenue is a one-way street. It has two southbound moving lanes and two parking lanes. One of the buses on Lexington Avenue (M35 Bus), which stops north of 125<sup>th</sup> Street, takes a large number of people to and from Randall's/Ward's Island regularly, causing large crowds on the sidewalk at the northwest corner of the intersection. Sidewalk volumes (15-minute peak volumes) near the M35 bus stop in the morning peak hour reach 437, in the midday: 183 pedestrians and in the evening: 314 pedestrians. The sidewalks on Lexington Avenue are 18.5 feet wide.

According to the community and based on field visits the northwest corner of Lexington Avenue and 125<sup>th</sup> Street is characterized with a poor quality of pedestrian visual environment especially at the bus stop of the M35 where many people are loitering or idling about on a daily basis. The community is concerned about the appearance of this intersection and also about potential impacts of proposed developments to this intersection which is already crowded.

125<sup>th</sup> Street has two moving lanes and a parking lane in each direction. The M60 bus stops on 125<sup>th</sup> Street near Lexington Avenue. The M60 bus is a preferred Manhattan route to/from LaGuardia Airport. Passengers often enter the subway station as they get off the westbound M60 bus. Sidewalk volumes (15-minute peak volumes) at this location are 380 in the morning, 350 in the midday and 345 in the evening. Also contributing to the crowding conditions at this intersection are the subway station exits for the 4, 5 and 6 trains. The exits at all four corners

let subway riders off on Lexington Avenue, which has a narrower sidewalk compared to 125<sup>th</sup> Street which has a 20 foot wide sidewalk.

At this intersection conflicts can occur between motorists and pedestrians when vehicles are making a left or a right turn while pedestrians are crossing in the north-south or east-west direction. When traffic on Lexington Avenue has the green light two turning movements take place. In the morning peak hour, vehicular turning volumes from Lexington Avenue are 92 (LT) and 115 (RT), midday peak hour turning volumes are 82 (LT) and 88 (RT) and the evening peak hour volumes are 89 (LT) and 67 (RT). The 15-minute peak volumes of pedestrians in the east and west crosswalks are 117 and 135 in the morning, 83 and 123 during the midday, and 134 and 144 in the evening.

When the light changes to green for traffic on 125<sup>th</sup> Street, two turning movements take place. In the morning during the peak hour, volumes for turning vehicles are 190 (EB-RT) and 76 (WB-LT), during the midday 154 (EB-RT) and 80 (WB-LT), and during the evening 155 (EB-RT) and 65 (WB-LT). Pedestrians crossing in the south crosswalk would most likely be affected by vehicles making turns from 125<sup>th</sup> Street. The 15-minute peak volumes of pedestrians in the south crosswalks are 119 in the morning, 121 in the midday and 107 in the evening (See pedestrian volumes in Appendix B).

125<sup>th</sup> Street and Amsterdam Avenue (refer to Exhibit 7-4 for a diagram of this intersection)

125<sup>th</sup> Street gets wider west of Morningside Avenue and measures 70 feet. It includes a left turn bay in each direction in addition to the parking lane and the two travel lanes. The sidewalks are 15 feet wide.

Amsterdam Avenue is a 20 foot wide street and has two moving lanes and a parking lane in each direction of traffic. To shorten the crossing distance for those crossing 125<sup>th</sup> Street a curb extension has been put in place with bollards at the southwest corner of the intersection. The sidewalks of Amsterdam Avenue have a width of 20 feet.

Pedestrian volumes in this section of 125<sup>th</sup> Street are lighter compared to the core area of 125<sup>th</sup> Street where 15-minute peak pedestrian volumes range on average from 100 to 300 during the three peak periods of the day. (See pedestrian volumes in Appendix B).

As vehicles make a turn at this location conflicts can occur between motorists and pedestrians as they are crossing at the intersection. The following is a listing of all vehicular turning movements collected during the peak hours of the day at the intersection of 125<sup>th</sup> Street and Amsterdam Avenue:

<b>Movements</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>
Westbound Traffic (right turn)	103	83	115
Westbound Traffic (left turn)	77	59	68
Eastbound Traffic (right turn)	119	89	84
Eastbound Traffic (left turn)	60	81	81
Northbound Traffic (right turn)	179	203	210
Northbound Traffic (left turn)	106	60	123
Southbound Traffic (right turn)	76	54	58
Southbound Traffic (left turn)	224	220	229

125<sup>th</sup> Street and Lenox Avenue (refer to Exhibit 7-5 for a diagram of this intersection)

125<sup>th</sup> Street is a major arterial in the study area and has two travel lanes and a parking lane in the eastbound and westbound direction of traffic. It is a 60 foot wide street and the sidewalks are 20 feet wide.

Lenox Avenue which is an 80-foot wide avenue includes a parking lane, two travel lanes and a left turn bay in each direction. A median approximately 4 feet wide is located in the middle of Lenox Avenue, however, it ends just before the crosswalk at the approach of the intersection and offers no refuge for pedestrians crossing Lenox Avenue. Pedestrians crossing this avenue especially the elderly hardly make it in time to the other side of the street before the “Don’t Walk” light starts flashing. The green time for pedestrians crossing Lenox Avenue is 24 seconds and the “Don’t Walk Flashing” period is 21 seconds (cycle length = 90 seconds). The following volumes give an idea of how many pedestrians cross Lenox Avenue at this intersection on a typical weekday: in the morning we have 131 pedestrians in the north crosswalk and 109 in the south crosswalk, in the midday the north crosswalk has 150 pedestrians and the south crosswalk 226, in the evening the north crosswalk has 274 pedestrians and the south crosswalk has 183. These are 15-minute peak volumes (See pedestrian volumes in Appendix B).

Subway station entrances are located near all four corners of this intersection and are placed adjacent to the curb line. They unload passengers onto the sidewalks of Lenox Avenue which are 35 feet wide. Pedestrian volumes on the sidewalks of Lenox Avenue are:

<b>Movements</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>
West sidewalk (north of intersection)	252	57	242
West sidewalk (south of intersection)	55	151	128
East sidewalk (north of intersection)	150	211	216
East sidewalk (south of intersection)	194	112	239

At this intersection left and right turns are made from both streets where conflicts occur between motorists and pedestrians. However, the left turns from both Lenox Avenue and 125<sup>th</sup> Street are prohibited during the peak hours.

The following volumes represent how this intersection is used by vehicles:

<b>Movements</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>
Westbound Traffic (right turn)	109	100	122
Westbound Traffic (left turn)	Not permitted	30	Not permitted
Eastbound Traffic (right turn)	41	62	64
Eastbound Traffic (left turn)	Not permitted	27	Not permitted
Northbound Traffic (right turn)	120	90	125
Northbound Traffic (left turn)	Not permitted	Not permitted	Not permitted
Southbound Traffic (right turn)	69	107	114
Southbound Traffic (left turn)	Not permitted	Not permitted	Not permitted

Pedestrian crosswalk volumes at 125<sup>th</sup> Street and Lenox Avenue: in the morning the west crosswalk has 76 pedestrians and the east crosswalk has 111, in the midday the west crosswalk has 116 pedestrians and the east crosswalk has 144, in the evening the west crosswalk has 116 pedestrians and the east crosswalk has 132. These are 15-minute peak volumes. Volumes of pedestrians crossing Lenox Avenue are indicated in the previous paragraph (See pedestrian volumes in Appendix B).

116<sup>th</sup> Street and Second Avenue (refer to Exhibit 7-6 for a diagram of this intersection)

116<sup>th</sup> Street is a two-way street with two travel lanes and a parking lane in each direction. This street has a width of 60 feet with sidewalks 20 feet wide. Second Avenue has four southbound travel lanes and two parking lanes. It is 60 feet wide and the sidewalks measure 20 feet. During vehicular turns pedestrians are sometimes in conflict with motorists at this intersection. The right and left turn volumes from Second Avenue during the morning peak hour are

respectively 144 and 150 vehicles, during the midday peak hour 112 and 117 vehicles, during the evening peak hour 96 and 180 vehicles. Vehicles traveling on 116<sup>th</sup> Street can turn at Second Avenue. The turning volumes are as follows; 94 (EB-RT), and 141 (WB-LT) in the morning peak hour, 96 (EB-RT) and 83 (WB-LT) in the midday peak hour, and 155 (EB-RT) and 121 (WB-LT) in the evening peak hour.

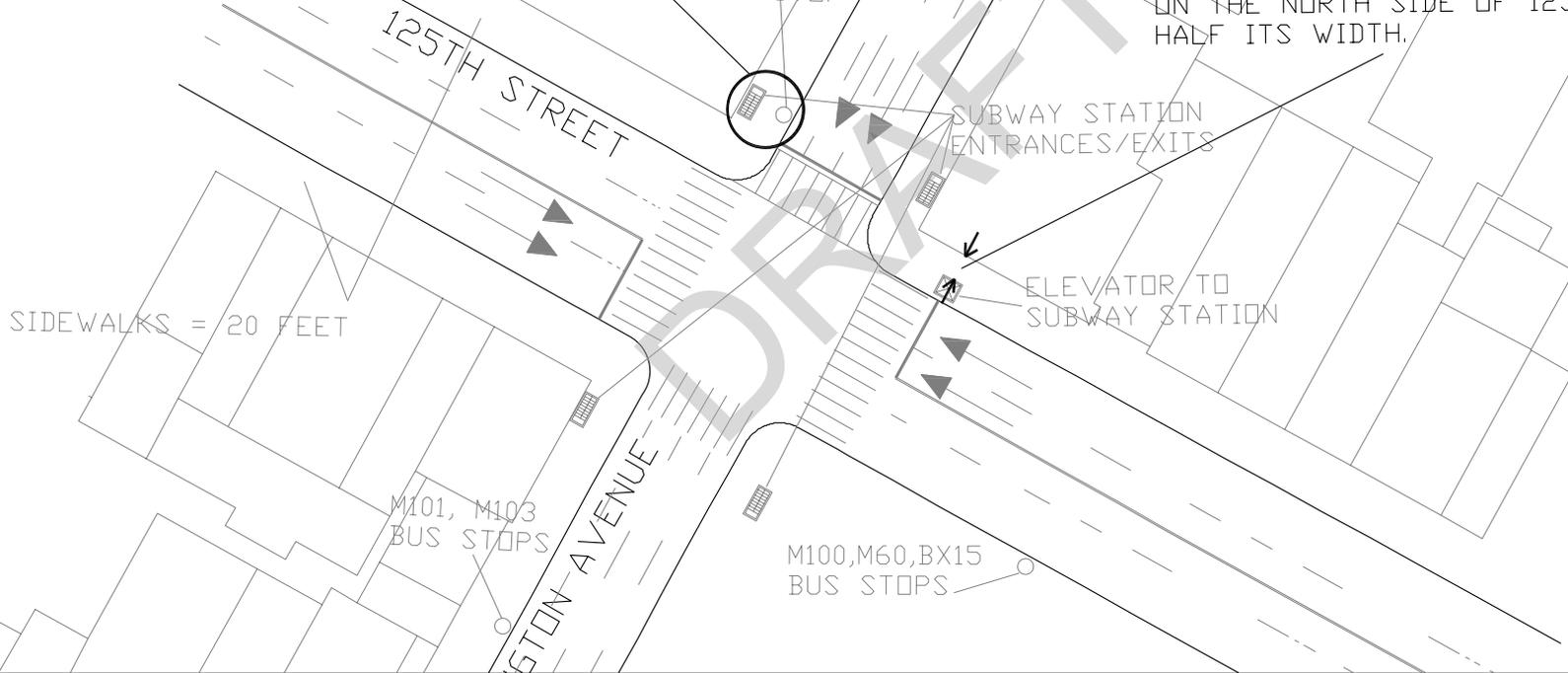
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THE M35 BUS TRANSPORTS A LARGE NUMBER OF PEOPLE TO AND FROM WARD'S ISLAND AND THE BUS STOP IS LOCATED AT THE NORTHEAST CORNER ON LEXINGTON AVENUE. IT IS OFTEN CROWDED AND PEDESTRIAN CIRCULATION IS DIFFICULT AT THE CORNER.

IN ADDITION BUS PASSENGERS ARE SEEN LOITERING AT THE CORNER AND REDUCING SPACE AVAILABLE FOR PEDESTRIAN CIRCULATION.

SIDEWALKS = 18.5 FEET

CONSTRUCTION OF AN ELEVATOR TO ACCESS THE SUBWAY STATION LIMITS THE WIDTH OF THE SIDEWALK AVAILABLE FOR PEDESTRIANS ON THE NORTH SIDE OF 125TH STREET TO HALF ITS WIDTH.



Location: 125th Street and Lexington Avenue  
Existing Conditions (Pedestrian Analysis)

Harlem/Morningside Transportation Study

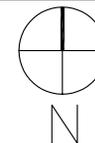
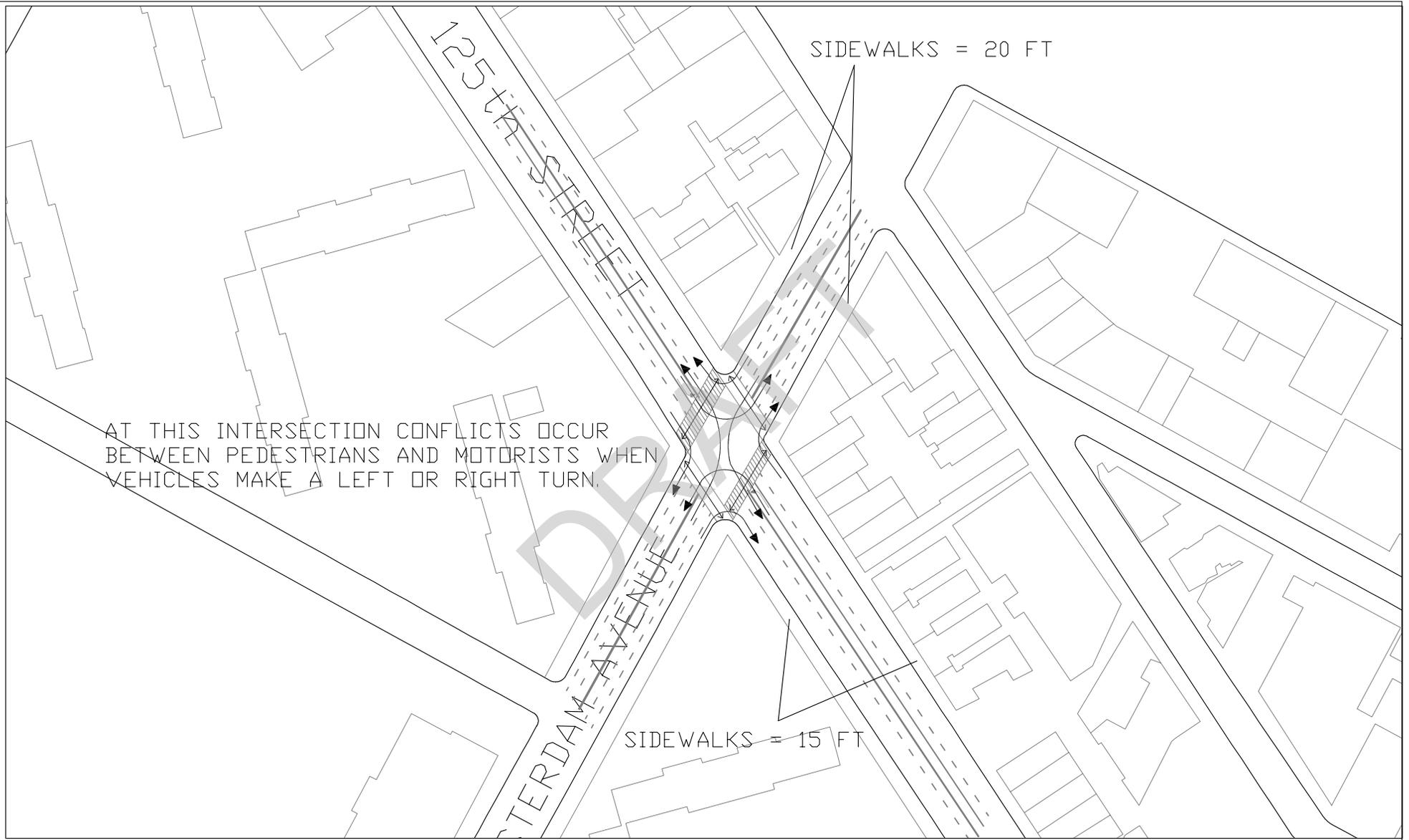


Exhibit: 7-3

Note: NOT TO SCALE



Location: 125th Street and Amsterdam Avenue  
Existing Conditions (Pedestrian Analysis)

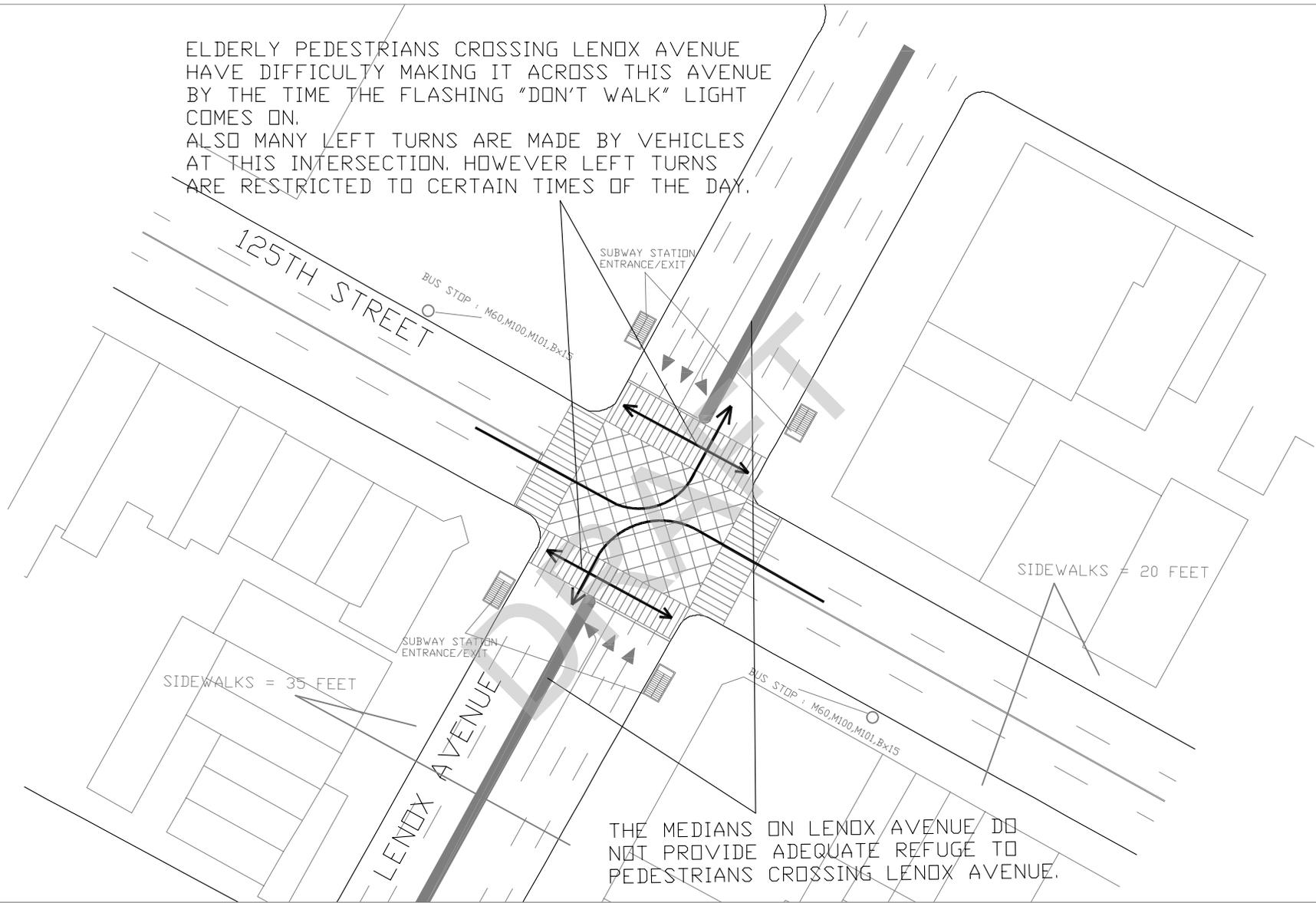
Harlem/Morningside Transportation Study



Exhibit: 7-4

Note: NOT TO SCALE

ELDERLY PEDESTRIANS CROSSING LENOX AVENUE HAVE DIFFICULTY MAKING IT ACROSS THIS AVENUE BY THE TIME THE FLASHING "DON'T WALK" LIGHT COMES ON. ALSO MANY LEFT TURNS ARE MADE BY VEHICLES AT THIS INTERSECTION. HOWEVER LEFT TURNS ARE RESTRICTED TO CERTAIN TIMES OF THE DAY.



THE MEDIANS ON LENOX AVENUE DO NOT PROVIDE ADEQUATE REFUGE TO PEDESTRIANS CROSSING LENOX AVENUE.

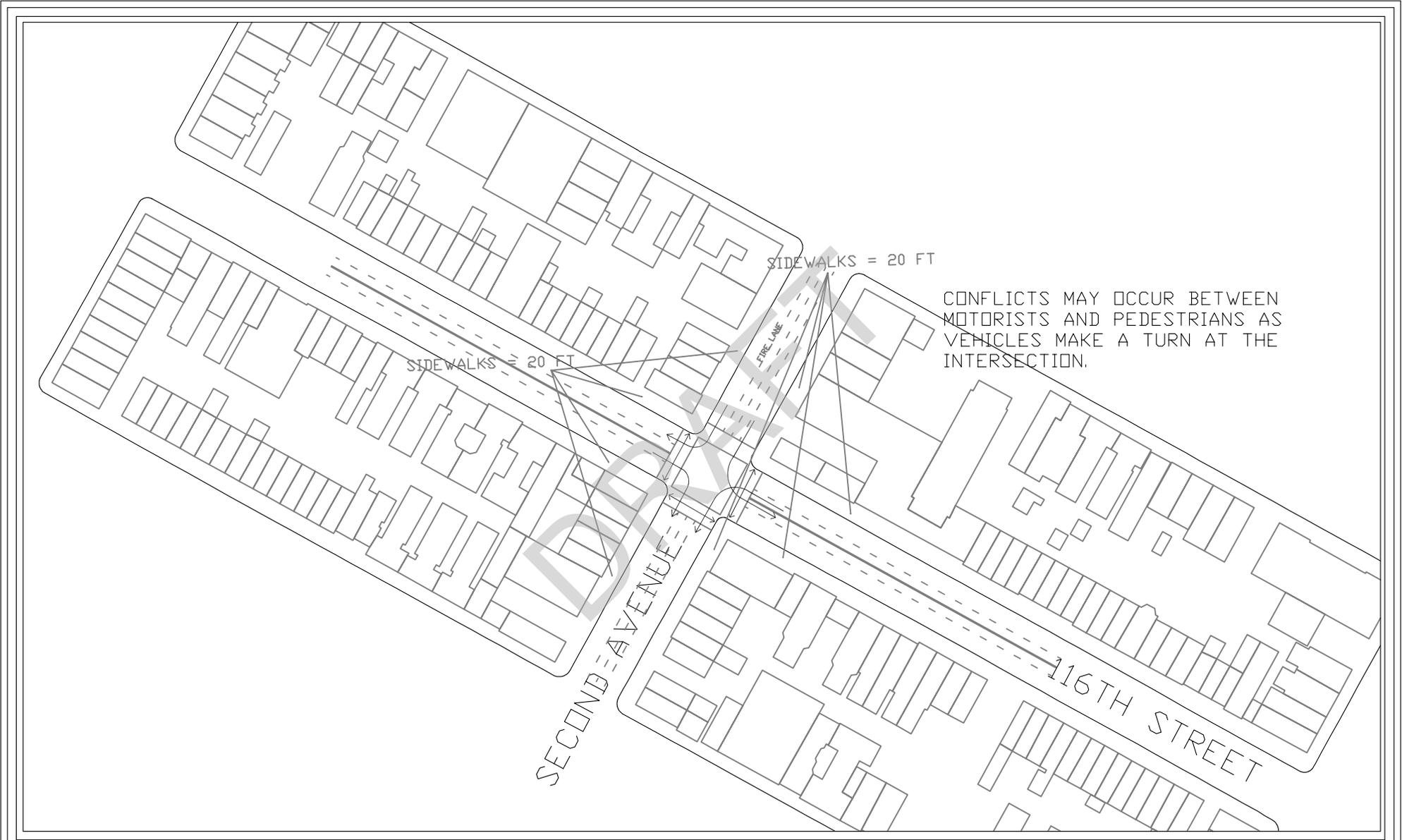
Location: 125th Street and Lenox Avenue  
Existing Conditions (Pedestrian Analysis)

Harlem/Morningside Transportation Study



Exhibit: 7-5

Note: NOT TO SCALE



Location: 116th Street and Second Avenue  
Existing Conditions (Pedestrian Analysis)

Harlem/Morningside Transportation Study



Exhibit: 7-6

Note: NOT TO SCALE

## 7.5 Community Concerns in terms of Pedestrian Safety

In addition there are a few locations within the study area which are of concern to the community in terms of pedestrian circulation and safety. They are:

- 125<sup>th</sup> Street and Broadway
- 125<sup>th</sup> Street and St Nicholas Avenue
- 135<sup>th</sup> Street and Madison Avenue

125<sup>th</sup> Street and Broadway (refer to Exhibits 7-7a and 7-7b for diagrams of this intersection).

125<sup>th</sup> Street has two moving lanes, a parking lane and a left turn bay in each direction. It is 70 feet wide with 15-foot wide sidewalks. Broadway has two northbound and two southbound moving lanes during the construction.

The reconstruction/renovation work by the MTA at the 125<sup>th</sup> Street train station has been completed and the intersection operates with four lanes northbound and three lanes southbound. The entrances to the elevated train station are located at the southwest and southeast corners of the intersection.

Pedestrian conflicts at this intersection are due first of all to vehicles from Broadway and from 125<sup>th</sup> Street making left and right turns at this intersection. Motorists do not always yield the right-of-way to pedestrians. The following volumes indicate the number of peak hour vehicular turns that take place at the intersection on a typical day:

<b>Movements</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>
Westbound Traffic (right turn)	108	72	92
Westbound Traffic (left turn)	75	44	56
Eastbound Traffic (right turn)	75	103	124
Eastbound Traffic (left turn)	51	70	85
Northbound Traffic (right turn)	167	131	150
Northbound Traffic (left turn)	225	256	308
Southbound Traffic (right turn)	20	34	41
Southbound Traffic (left turn)	171	197	227

The community is concerned that pedestrians crossing Broadway seem not to have enough time to cross comfortably. There is a median in the middle of Broadway that extends into the crosswalks; however the refuge for pedestrians could be improved. The green time for pedestrians crossing Broadway is 8 seconds while the “Don’t Walk Flashing” period lasts 21 seconds. In addition Broadway is one of the largest arterials in the study area and measures 102 feet north of 125<sup>th</sup> Street and 114 feet south of 125<sup>th</sup> Street.

These perceptions are stated in the West Harlem Master Plan done by EDC with their consultant “The Sam Schwartz Company”.

Finally, according to the 197-a plan of Community Board 9 a recommendation was made to consider increasing pedestrian safety at several intersections which included 125<sup>th</sup> Street and Broadway.

125<sup>th</sup> Street and St Nicholas Avenue (refer to Exhibit 7-8 for a diagram of this intersection)

On 125<sup>th</sup> Street, there are two travel lanes, one parking lane and a left-turn bay to accommodate left turning vehicles in each direction. This major traffic corridor is 60 feet wide.

St Nicholas Avenue is 60 feet wide. There are in each direction of traffic: a parking lane, a bicycle lane and a travel lane. St Nicholas Avenue also has dedicated left turn bays at this intersection. These left turns often create conflicts with pedestrians, however left turns from St Nicholas Avenue are limited depending on the time of the day. Here are the peak-hour turning volumes for the intersection:

<b>Movements</b>	<b>AM</b>	<b>MD</b>	<b>PM</b>
Westbound Traffic (left turn)	49	29	29
Eastbound Traffic (left turn)	108	125	178
Northbound Traffic (left turn)	Not permitted	23	Not permitted
Southbound Traffic (left turn)	Not permitted	52	Not permitted

The pedestrian volumes crossing St Nicholas Avenue as vehicles turn from 125<sup>th</sup> Street on a typical day are: 71 pedestrians in the north crosswalk and 48 in the south crosswalk during the 15-minute peak pedestrian volumes of the morning, 137 pedestrians in the north crosswalk and

95 in the south crosswalk during the midday, 100 pedestrians in the north crosswalk and 118 in the south crosswalk during the evening (See pedestrian volumes in Appendix B).

At the time of the field visit a portion of the south sidewalk at the southwest corner and part of the parking lane was closed for construction on the sidewalk of 125<sup>th</sup> Street which measures 20 feet wide. The MTA is putting in a new elevator at that corner to increase access to the subway station below ground. Therefore the sidewalk at that location is reduced to about five to six feet wide and creates a temporary bottleneck. The 15-minute peak pedestrian volumes on the sidewalk of 125<sup>th</sup> Street at the southwest corner on a typical day are: 118 pedestrians in the morning, 162 pedestrians in the midday and 163 pedestrians in the evening (See pedestrian volumes in Appendix B).

At the northwest corner adjacent to the subway entrance there is a newspaper/magazine stand (approximately 5 feet by 7 feet). It narrows the 20 feet wide sidewalk on St Nicholas Avenue and creates congestion for pedestrians exiting or entering the subway and for those walking on the sidewalk. Here are the 15-minute peak pedestrian volumes on the sidewalks of St Nicholas Avenue at the northwest corner: 143 pedestrians in the morning, 48 pedestrians in the midday and 132 pedestrians in the evening (See pedestrian volumes in Appendix B).

There is a subway entrance/exit for the 8<sup>th</sup> Avenue subway line (A, C, B, D) at each corner of this intersection which allows passengers in and out of the subway station from St Nicholas Avenue. One of the concerns expressed by the community is that it is difficult to figure out after exiting the subway station how to navigate into the surrounding area from this intersection.

#### 135<sup>th</sup> Street and Madison Avenue (refer to Exhibit 7-9 for a diagram of this intersection)

At this intersection pedestrians crossing at 135<sup>th</sup> Street and Madison Avenue from/to the northwest corner to/from the northeast encounter many eastbound cars making left turns from 135<sup>th</sup> Street and westbound cars from the Harlem River Drive turning right onto the Madison Avenue Bridge.

At the end of 135<sup>th</sup> Street at Madison Avenue there is a ramp that takes motorists to the Harlem River Drive. It includes a pedestrian/bicycle path that provides access to the Harlem River Park. This path is located on the north side of the ramp. Access to the Madison Avenue Bridge is also possible from this intersection and has a path for pedestrians and cyclists on the south side of the bridge. However, there are no signs at this intersection indicating the existence of this path.

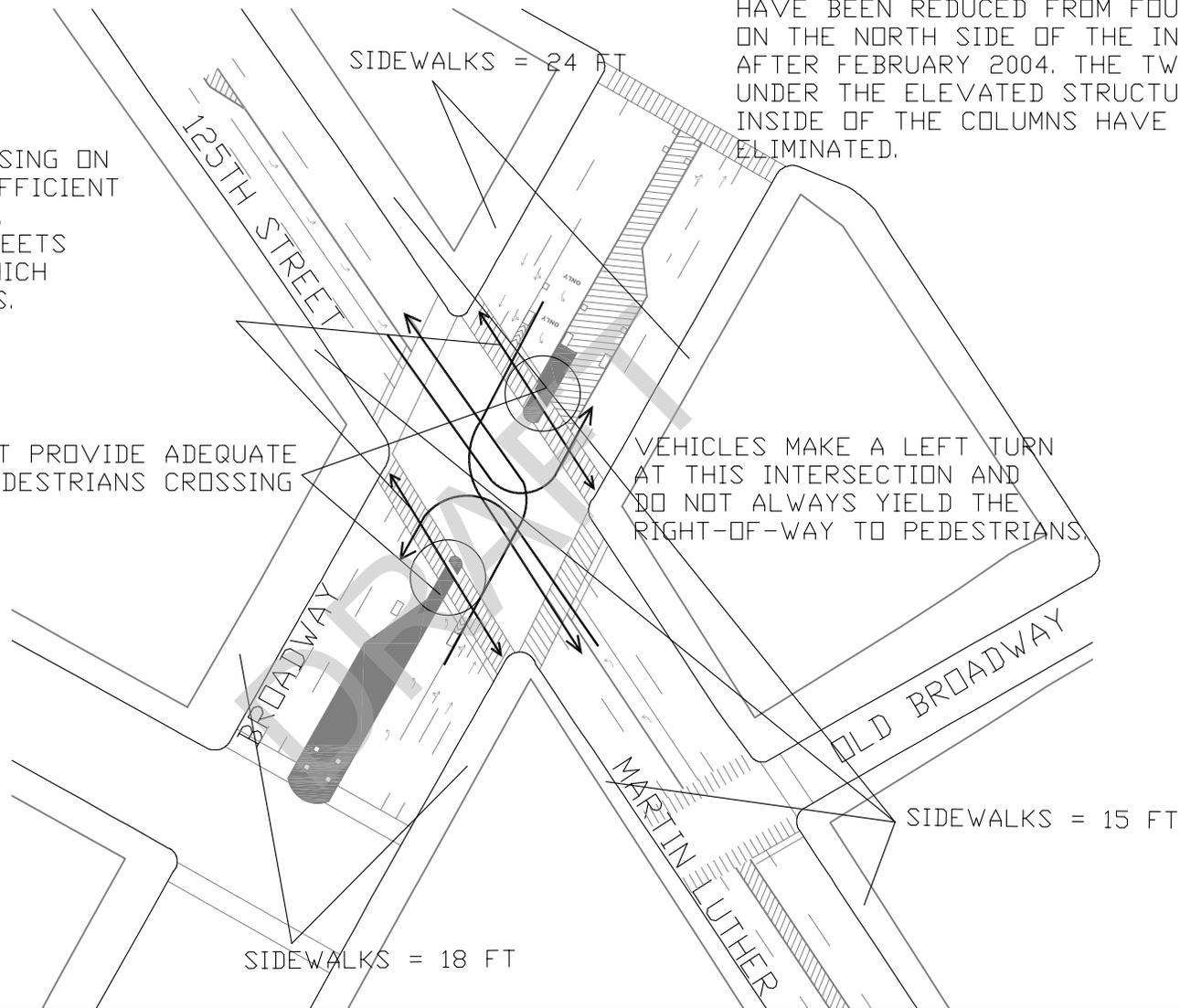
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ELDERLY PEDESTRIANS CROSSING ON BROADWAY DO NOT HAVE SUFFICIENT TIME TO CROSS THE STREET. IN ADDITION, TWO WIDE STREETS INTERSECT AT AN ANGLE WHICH CREATES LONGER CROSSWALKS.

MEDIANS DO NOT PROVIDE ADEQUATE REFUGE FOR PEDESTRIANS CROSSING BROADWAY.

CURRENTLY THE NUMBER OF TRAVEL LANES HAVE BEEN REDUCED FROM FOUR TO TWO ON THE NORTH SIDE OF THE INTERSECTION AFTER FEBRUARY 2004. THE TWO LANES UNDER THE ELEVATED STRUCTURE ON THE INSIDE OF THE COLUMNS HAVE BEEN ELIMINATED.

VEHICLES MAKE A LEFT TURN AT THIS INTERSECTION AND DO NOT ALWAYS YIELD THE RIGHT-OF-WAY TO PEDESTRIANS.



Location: 125th Street and Broadway  
Existing Conditions (Pedestrian Analysis)

Harlem/Morningside Transportation Study



Exhibit: 7-7a

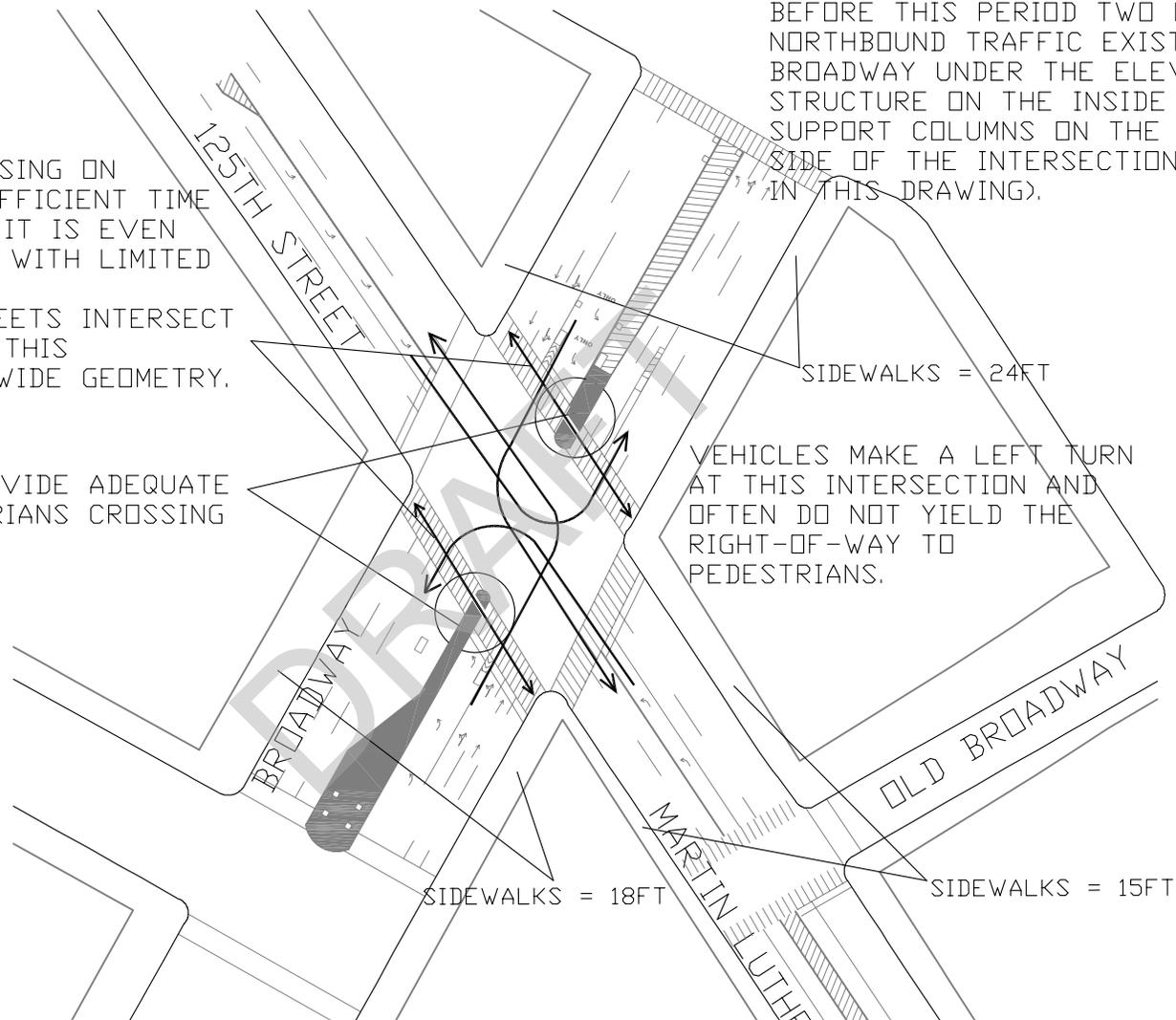
Note: NOT TO SCALE

ELDERLY PEDESTRIANS CROSSING ON BROADWAY DO NOT HAVE SUFFICIENT TIME TO CROSS THE STREET AND IT IS EVEN MORE DIFFICULT FOR THOSE WITH LIMITED MOBILITY.  
 IN ADDITION TWO WIDE STREETS INTERSECT AT AN ANGLE WHICH GIVES THIS INTERSECTION AN UNUSUAL WIDE GEOMETRY.

MEDIANS DO NOT PROVIDE ADEQUATE REFUGE FOR PEDESTRIANS CROSSING BROADWAY.

THE NUMBER OF TRAVEL LANES HAVE CHANGED ON THE NORTH SIDE OF THE INTERSECTION SINCE FEBRUARY 2004. BEFORE THIS PERIOD TWO LANES OF NORTHBOUND TRAFFIC EXISTED ON BROADWAY UNDER THE ELEVATED STRUCTURE ON THE INSIDE OF THE SUPPORT COLUMNS ON THE NORTH SIDE OF THE INTERSECTION (AS SHOWN IN THIS DRAWING).

VEHICLES MAKE A LEFT TURN AT THIS INTERSECTION AND OFTEN DO NOT YIELD THE RIGHT-OF-WAY TO PEDESTRIANS.



Location: 125th Street and Broadway  
 Existing Conditions Prior to March 2004  
 (Pedestrian Analysis)  
 Harlem/Morningside Transportation Study



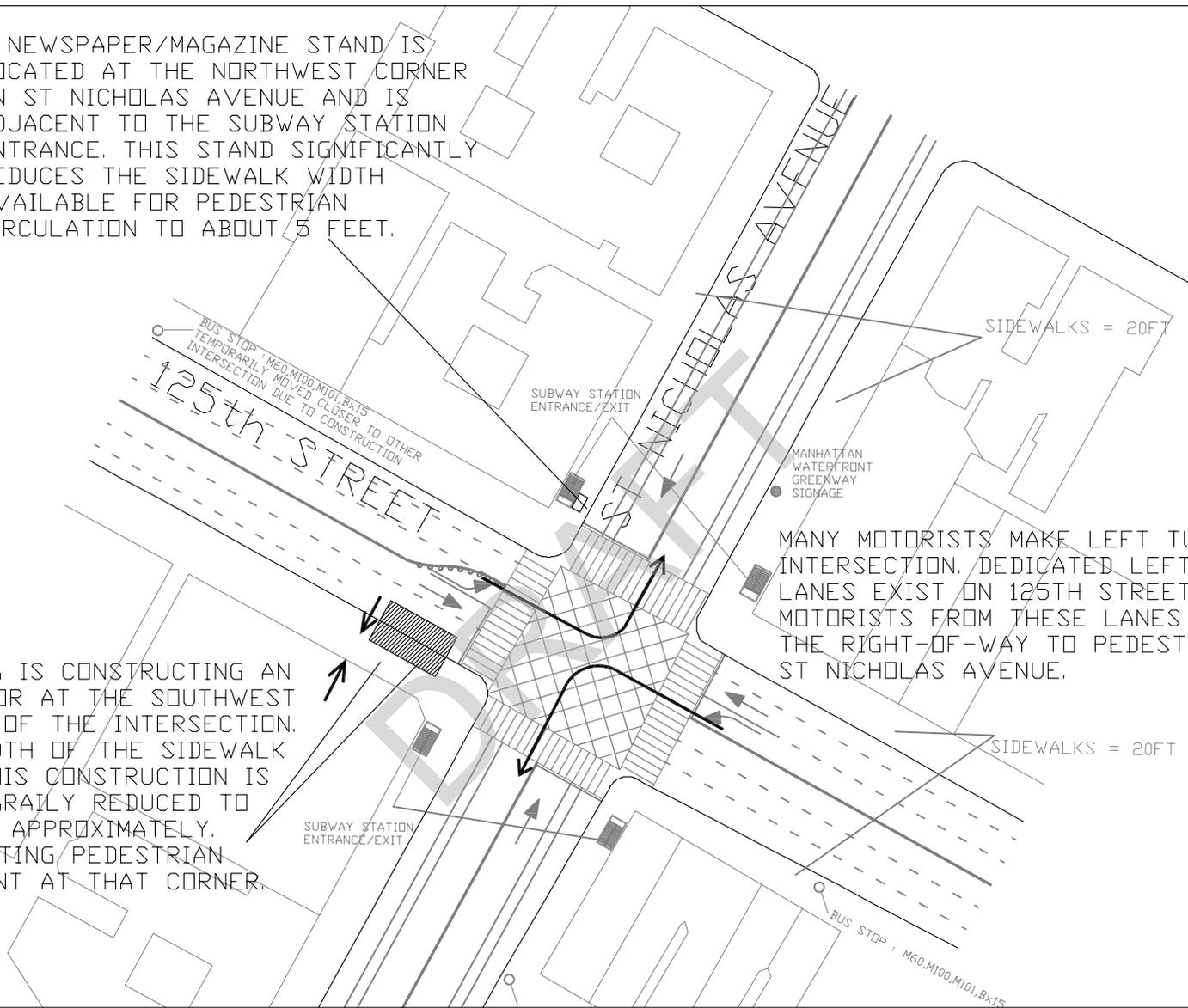
Exhibit: 7-7b

Note: NOT TO SCALE

A NEWSPAPER/MAGAZINE STAND IS LOCATED AT THE NORTHWEST CORNER ON ST NICHOLAS AVENUE AND IS ADJACENT TO THE SUBWAY STATION ENTRANCE. THIS STAND SIGNIFICANTLY REDUCES THE SIDEWALK WIDTH AVAILABLE FOR PEDESTRIAN CIRCULATION TO ABOUT 5 FEET.

THE MTA IS CONSTRUCTING AN ELEVATOR AT THE SOUTHWEST CORNER OF THE INTERSECTION. THE WIDTH OF THE SIDEWALK WITH THIS CONSTRUCTION IS TEMPORARILY REDUCED TO 10 FEET APPROXIMATELY, RESTRICTING PEDESTRIAN MOVEMENT AT THAT CORNER.

MANY MOTORISTS MAKE LEFT TURNS AT THIS INTERSECTION. DEDICATED LEFT TURN LANES EXIST ON 125TH STREET AND OFTEN MOTORISTS FROM THESE LANES FAIL TO YIELD THE RIGHT-OF-WAY TO PEDESTRIANS CROSSING ST NICHOLAS AVENUE.



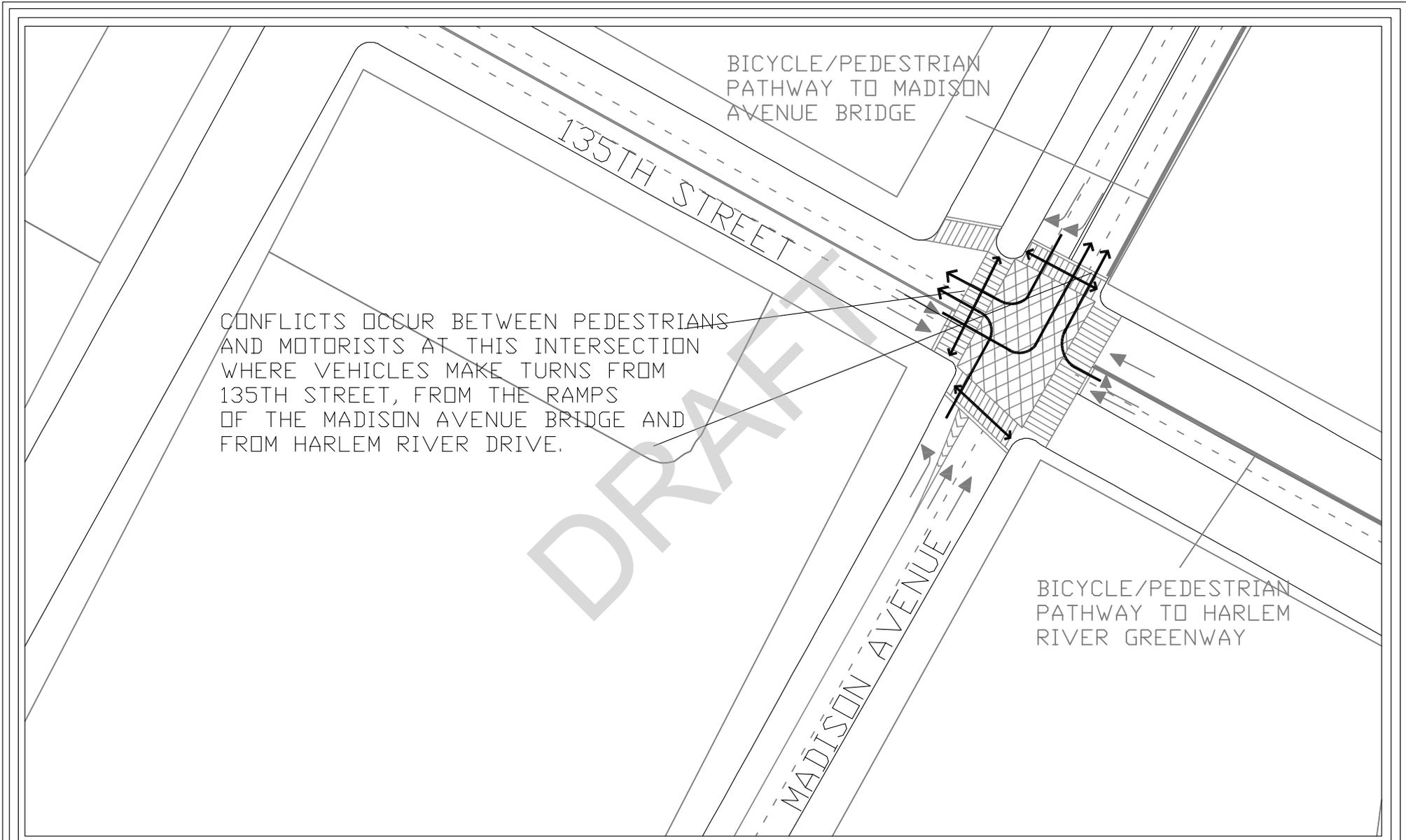
Location: 125th Street and St Nicholas Avenue  
Existing Conditions (Pedestrian Analysis)

Harlem/Morningside Transportation Study



Exhibit: 7-8

Note: NOT TO SCALE



Location: Madison Avenue Bridge - 135th Street/Madison Avenue  
 Existing Conditions (Pedestrian Analysis)

Harlem/Morningside Transportation Study



Exhibit: 7-9

Note: NOT TO SCALE

## **7.6 Bicycle Lanes and Paths - Network System and Use**

A network of bicycle lanes and greenway paths exist within the area of study (See Exhibit: 7-10 below). An inventory of existing bicycle routes has been done and is described below. It includes information such as where the facility starts and ends within the study area, the width of the facility etc.

### On-Street Facilities

There are two on-street facilities which run north-south. One travels through the western section of Harlem on St Nicholas Avenue from 118<sup>th</sup> Street to 135<sup>th</sup> Street. Bicycle lanes on Frederick Douglass Boulevard and Adam Clayton Powell Boulevard link with St Nicholas Avenue in the southern portion of the study area. The other north-south on-street bicycle facility runs on First Avenue from 116<sup>th</sup> to 125<sup>th</sup> Streets in East Harlem.

Recently, two east-west on-street bicycle lanes were implemented on 120<sup>th</sup> Street and on 119<sup>th</sup> Street. They are part of the Manhattan Waterfront Greenway Plan and connect the East River Greenway to the St Nicholas Avenue bicycle lane.

These bicycle lanes are 5 feet wide except for the First Avenue bicycle lane which is 4 feet wide and was striped in 1981. At the time the “1978 Bikeway Planning and Policy Guidelines for New York City”, was released two years prior to the AASHTO guidelines, recommended a minimum bicycle lane width of 3 feet 6 inches, and a recommended width of 4 feet. The First Avenue lane was based on this guideline (Source: “New York City Bicycle Master Plan”, page 37). The AASHTO guidelines recommend a width of 5 feet for a bicycle lane.

In addition, St Nicholas Avenue and Adam C. Powell Boulevard, which are two-way streets, have a bicycle lane in each direction (see Table 7-10a).

### Off-Street Facilities

The off-street greenway paths are located along the waterfront: On the west side of the study area there is the Hudson River Greenway and on the east side the East River Greenway. Both are also part of the Manhattan Waterfront Greenway and are used by pedestrians and cyclists.

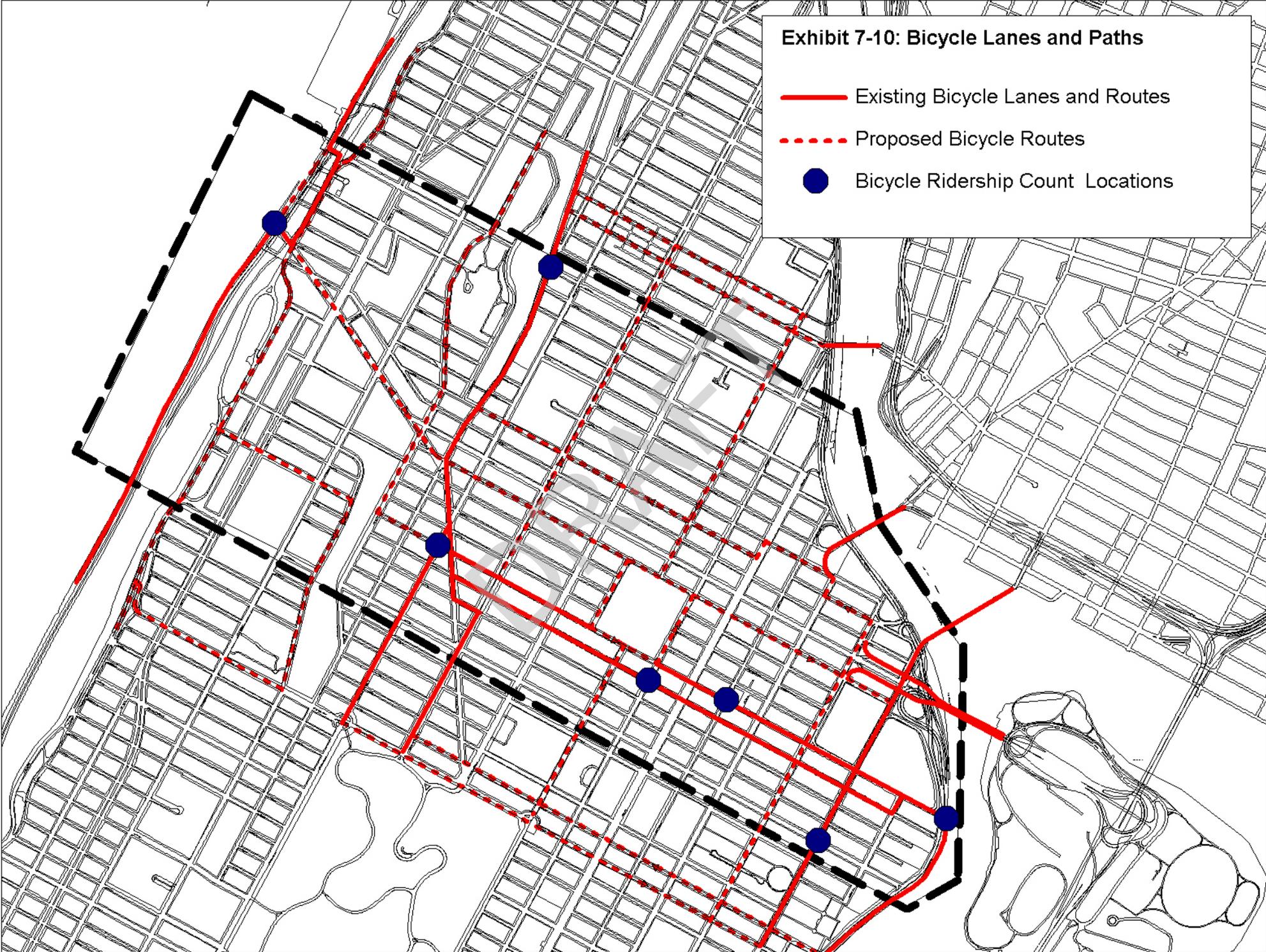
Within the area of study the East River Greenway exists only from 116<sup>th</sup> Street to 126<sup>th</sup> Street. North of 126<sup>th</sup> Street it is a proposed greenway path. The existing path is approximately 8 -12 feet wide. On the west side the Henry Hudson Greenway travels along the waterfront from

116<sup>th</sup> Street to 125<sup>th</sup> Street. The multi-use greenway path is approximately 8 feet wide and is commonly called the “Cherry Walk Bicycle Trail”. From 125<sup>th</sup> Street to 135<sup>th</sup> Street there is a gap in the greenway path and a temporary on-street signed bicycle route is in place on 12<sup>th</sup> Avenue to provide a connection for users (see Table 7-10b).

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**Exhibit 7-10: Bicycle Lanes and Paths**

- Existing Bicycle Lanes and Routes
- - - Proposed Bicycle Routes
- Bicycle Ridership Count Locations



**Table 7-10a: Inventory of On-Street Bicycle Lanes**

<u>Bicycle Lane</u>	<u>From Street</u>	<u>To Street</u>	<u>Lane Width</u>	<u>Bicycle Lane Buffer Width (if any)</u>	<u>Observations</u>
St Nicholas Avenue	135th Street	118th Street	5 ft	No Buffer	A bicycle lane in each direction (north-south)
AC Powell Boulevard	118th Street	116th Street	5 ft	No Buffer	A bicycle lane in each direction (north-south)
Frederick Douglass Blvd	121st Street	116th Street	5 ft	No Buffer	Northbound traffic, lane on west side of street
First Avenue	125th Street	116th Street	4ft	No Buffer	Northbound traffic, lane on west side of street
120th Street	St Nicholas Avenue	East River Greenway	5 ft	No Buffer	Eastbound traffic, lane on northside of street
119th Street	St Nicholas Avenue	Pleasant Avenue	5 ft	No Buffer	Westbound traffic, lane on southside of street

**Table 7-10b: Inventory of Greenway Paths**

<u>Greenway Path</u>	<u>From Street</u>	<u>To Street</u>	<u>Total Path Width</u>	<u>Bicycle Path Width</u>	<u>Pedestrian Path Width (if designated)</u>	<u>Buffer Width</u>	<u>Observations</u>
East River Greenway	116th Street	126th Street	8 - 12ft	8 - 12ft	8 - 12ft	No Buffer	Shared-use path
East River Greenway	126th Street	135th Street	N/A	N/A	N/A	N/A	Recommended path
Henry Hudson Greenway	116th Street	125th Street	8ft (multi-use)	4ft	4ft	No Buffer	Named "Cherry Walk Bicycle Trail"
Henry Hudson Greenway	125th Street	135th Street	N/A	N/A	N/A	N/A	Recommended path
Marginal Street - Temporary path (under the Hudson River Parkway)	125th Street	135th Street	N/A	N/A	N/A	N/A	On-street signed bicycle route

## 7.7 Bicycle Ridership Volumes

Bicycle ridership volumes were collected in September and in October of 2003 in an effort to survey user volumes of the bicycle facilities within the area of study. The volumes were collected during the following three peak hours of the day:

- Morning Peak Period: 7:45 – 8:45 AM
- Midday Peak Period: 12:15 -1:15 PM
- Evening Peak Period: 4:45 – 5:45 PM.

The highest volumes were observed to be on the bicycle facilities located on First Avenue, St Nicholas Avenue and Frederick D. Boulevard. The volumes in the morning peak hour range from 15 to 32 cyclists, in the midday peak hour from 19 to 27 cyclists and in the evening peak hour from 26 to 36 cyclists. The other two facilities which run on 119<sup>th</sup> and 120<sup>th</sup> Streets have an average volume of 8 cyclists in the morning and the midday peak hour and an average of 14 cyclists in the evening peak hour. This is due to the fact that the bicycle facilities on 119<sup>th</sup> and 120<sup>th</sup> Streets were only implemented in the summer of 2003 and were not known by many users.

The bicycle volumes along the greenways were also collected. On average the volume of cyclists on the East River was about 13 for each peak hour while on the Hudson River Greenway the average volume per peak hour was about 58.

In comparison to other locations along the Manhattan waterfront greenway that are surveyed, every year these volumes are much lower due to a trend of a much lower bicycle ridership in Upper Manhattan compared to Lower Manhattan where bicycle volumes range from 100 to 200 and to Midtown Manhattan where bicycle ridership range from 155 to 270 during the peak hours of the day (see Table 7-11).

**Table 7-11: Bicycle Ridership Volumes ( 1- hour count)**

<b>On-Street Locations</b>	<b>Total Cyclists 7:45 - 8:45 AM</b>	<b>Total Cyclists 12:15 - 1:15 PM</b>	<b>Total Cyclists 4:45 - 5:45 PM</b>
First Avenue at 116th Street	15	27	36
St Nicholas Avenue at 135th Street	32	22	26
Frederick Douglass Blvd at 120th Street	26	19	29
119th Street at Madison Avenue	4	9	14
120th Street at Lexington Avenue	12	10	15

<b>Greenway Locations</b>	<b>Total Cyclists 7:45 - 8:45 AM</b>	<b>Total Cyclists 12:15 - 1:15 PM</b>	<b>Total Cyclists 4:45 - 5:45 PM</b>
East River Park at 116th Street	10	18	11
Route 9A at 125th Street	54	46	74

**Table 7-11: Bicycle Ridership Volumes (2- hour counts)**

<b>Greenway Locations</b>	<b>Total Cyclists 7:30 - 9:30 AM</b>	<b>Total Cyclists 12:00 - 2:00 PM</b>	<b>Total Cyclists 4:30 - 6:30 PM</b>
East River Park at 116th Street	13	35	29
Route 9A at 125th Street	91	83	136

### **7.8 Proposed Bicycle Lanes and Routes**

An ongoing effort is to continue the development of a network of bicycle lanes in the city and within the area of study. This can further encourage the use of bicycles and provide an environmentally safe way of getting around the city.

Several streets in the study area consistent with the city-wide bicycle master plan have been proposed for the installation of new bicycle lanes and routes. They include 124th Street, 127th Street, Riverside Drive, Morningside Drive, Convent Avenue, Adam Clayton Powell Boulevard, Fifth Avenue, and Second Avenue (Refers to Exhibit 7-10).

A feasibility analysis is underway in order to determine the possibility of implementing these proposed bicycle facilities.

## **7.9 Bicycle Accidents – Description of Accident Locations**

As it was done for the pedestrian analysis, bicyclists' safety issues are taken into consideration and locations with the highest number of bicycle accidents per year that are specified in section 8.0: “Accidents/Safety Analysis” of the document are further analyzed here:

- Bicycle Accidents for the Year 1998

For the year 1998, the location with the highest number of bicycle accidents was Lexington Avenue and 125<sup>th</sup> Street with three bicycle accidents.

- Bicycle Accidents for the Year 1999

For the year 1999, the location with the highest number of bicycle accidents was Adam C. Powell Boulevard and 116<sup>th</sup> Street with three bicycle accidents.

- Bicycle Accidents for the Year 2000

For the year 2000, the location with the highest number of bicycle accidents was Lenox Avenue and 135<sup>th</sup> Street with two bicycle accidents.

### **Description of the Bicycle Accident Locations:**

125<sup>th</sup> Street and Lexington Avenue (refer to Exhibit 7-11 for a diagram of the intersection).

Lexington Avenue is a 38 foot wide one-way street. It has two southbound moving lanes and two parking lanes. 125th Street on the other hand is a two-way street with two moving lanes and a parking lane in each direction. It is 60 feet wide. There are no bicycle facilities on these streets.

At this intersection conflicts can occur between motorists and bicyclists when vehicles are making a left or a right turn while cyclists are crossing in the north-south or east-west direction. When traffic on Lexington Avenue has the green light two turning movements take place. In the morning the peak hour vehicular turning volumes are 92 and 115, midday peak hour turning volumes are 77 and 88 and the evening peak hour volumes are 89 and 67. When the street traffic light changes to green for 125<sup>th</sup> Street traffic, two turning movements take place: a left turn and a right turn. The peak hour vehicular turning volumes for 125<sup>th</sup> Street are 190 and 75 in the morning, 156 and 80 during the midday and 145 and 69 in the evening.

116<sup>th</sup> Street and Adam C. Powell Boulevard/ St Nicholas Avenue (refer to Exhibit 7-12 for a diagram of the intersection).

Vehicular traffic on St Nicholas Avenue, north of 116<sup>th</sup> Street, travels only in the southbound direction. This section of St Nicholas Avenue easily accommodates two travel lanes and vehicles are allowed to park on the north side of St Nicholas Avenue perpendicular to the curb (diagonal parking). South of 116<sup>th</sup> Street, vehicles travel northbound. St Nicholas Avenue at this intersection measures 55 feet wide. Adam C. Powell Boulevard is a 100-foot wide two-way street with a 10-foot wide median in the middle of the roadway. 116<sup>th</sup> Street is a two-way street with two lanes of moving lanes in each direction. It is 60 feet wide.

There is an existing on-street bicycle lane on Adam C. Powell Boulevard, one in each direction. These bicycle lanes are 5 feet wide and adjacent to the parking lane. Conflicts occur between motorists and cyclists traveling on Adam C. Powell Boulevard as motorists make a turn onto 116<sup>th</sup> Street or St Nicholas Avenue. In the morning peak hour the number of vehicle turns made from Adam C. Powell Boulevard are 72 and 99 (SB turns), 35 and 115 (NB turns), in the midday peak hour the number of vehicle turns are 57 and 79 (SB turns), 22 and 49 (NB turns), in the evening peak hour the number of vehicle turns are 72 and 79 (SB turns), 20 and 37 (NB turns).

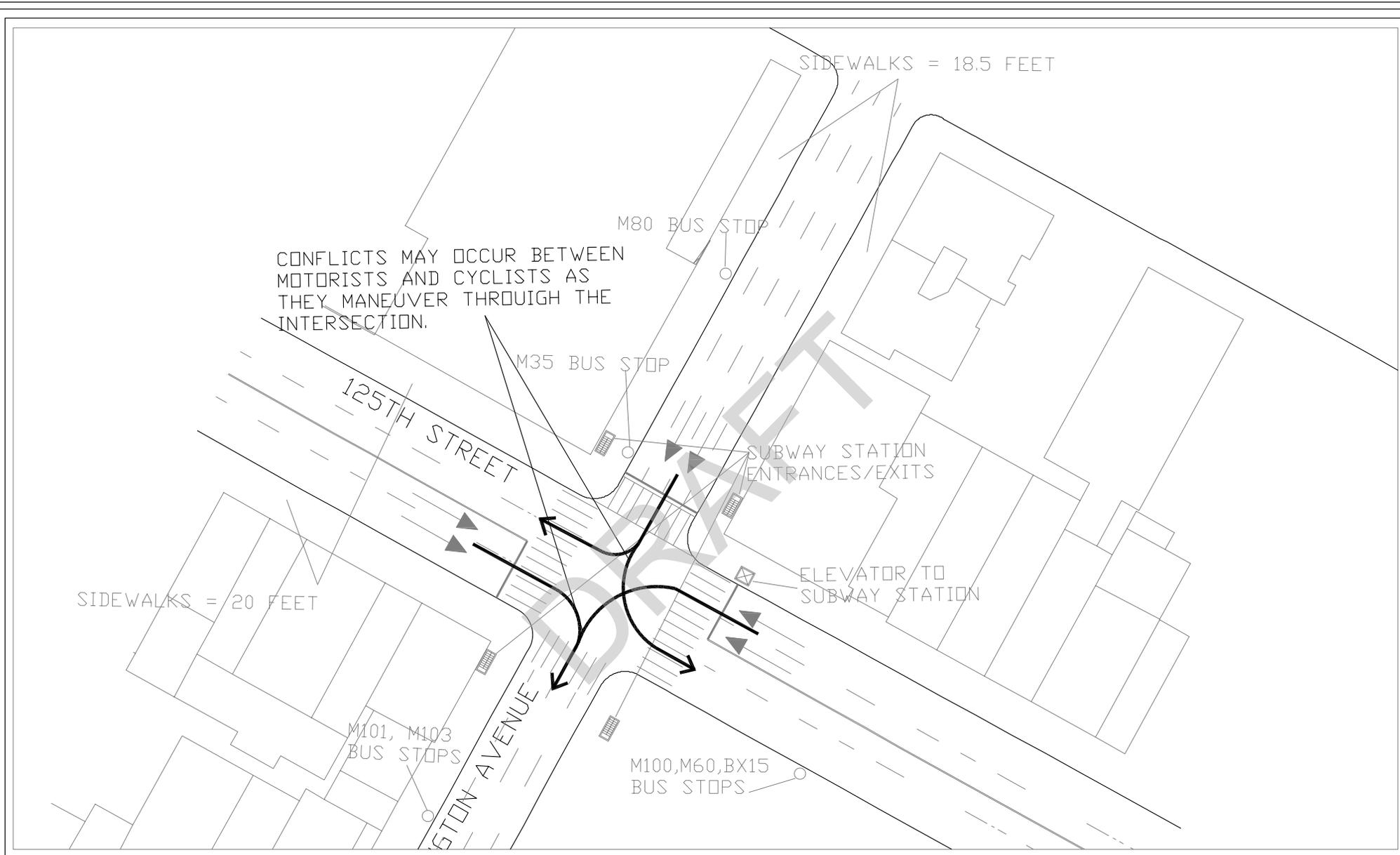
Bicycle ridership volumes were collected in September of 2003 near this location at 113<sup>th</sup> Street on Adam C. Powell Boulevard to determine ridership volumes on a typical day during the peak hours: in the morning peak hour 14 cyclists were counted, 28 cyclists in the midday peak hour and 36 cyclists in the evening peak hour. There is also a connection to the St Nicholas Avenue bicycle lane at 118<sup>th</sup> Street for cyclists traveling on Adam C. Powell Boulevard.

135<sup>th</sup> Street and Lenox Avenue (refer to Exhibit 7-13 for a diagram of the intersection).

135<sup>th</sup> Street is 60 feet wide with two moving lanes and a parking lane in each direction. Lenox Avenue has in each direction of traffic, two moving lanes, one parking lane and a left-turn bay. In the middle of Lenox Avenue there is a 4 foot wide median. Lenox Avenue is a wide avenue and measures 80 feet.

There are no bicycle facilities on these streets and no connections provided from these streets to the bicycle network. However, cyclists travel through this intersection and conflicts can occur between motorists and cyclists.

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Location: 125th Street and Lexington Avenue  
 Existing Conditions (Bicycle Analysis)

Harlem/Morningside Transportation Study

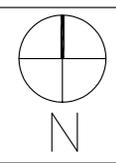
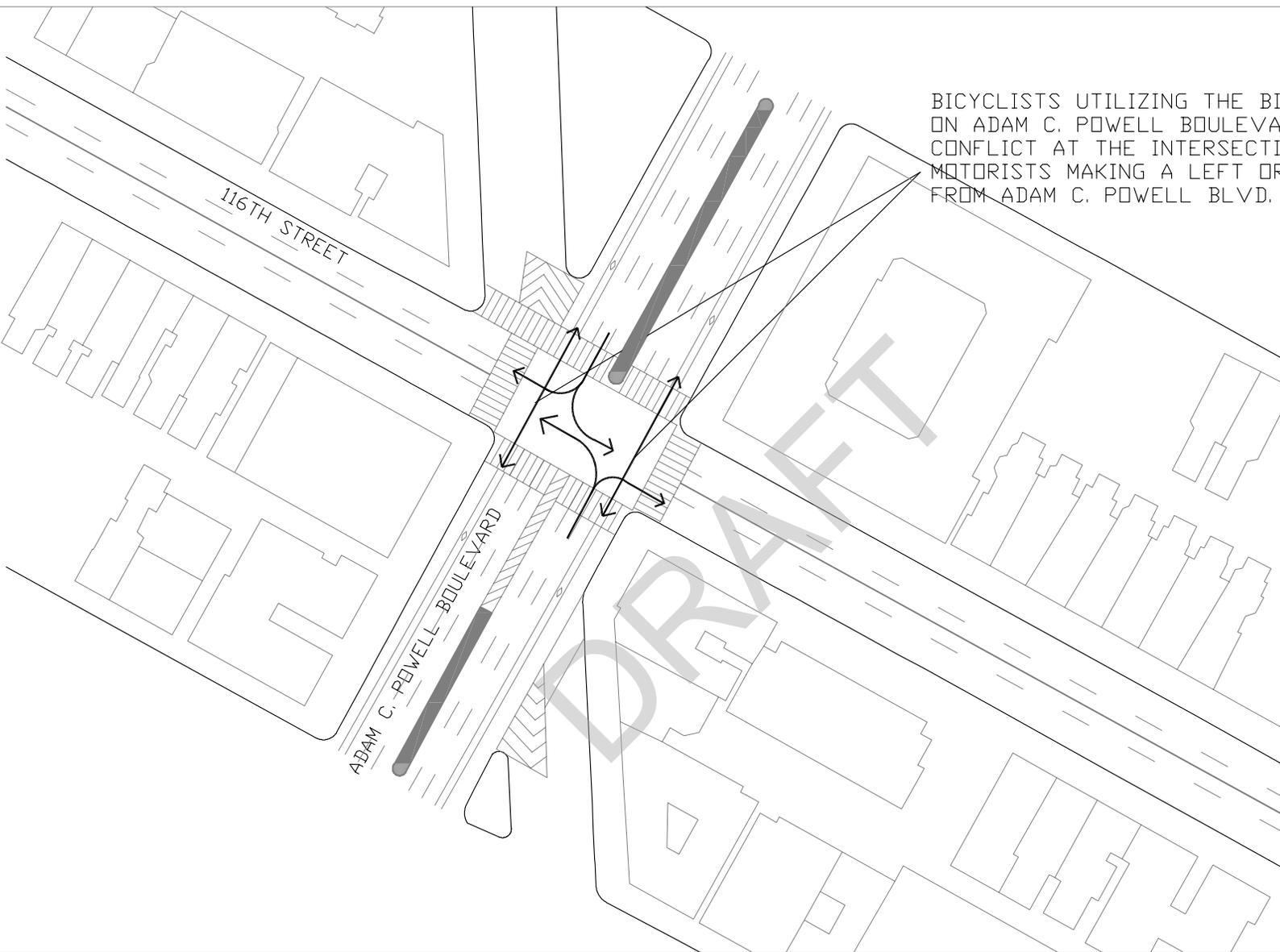


Exhibit: 7-11

Note: NOT TO SCALE



BICYCLISTS UTILIZING THE BICYCLE LANE ON ADAM C. POWELL BOULEVARD ARE IN CONFLICT AT THE INTERSECTION WITH MOTORISTS MAKING A LEFT OR RIGHT TURN FROM ADAM C. POWELL BLVD.

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Location: 116th Street and St Nicholas Ave./Adam C. Powell Blvd.  
Existing Conditions (Bicycle Analysis)

Harlem/Morningside Transportation Study

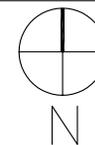
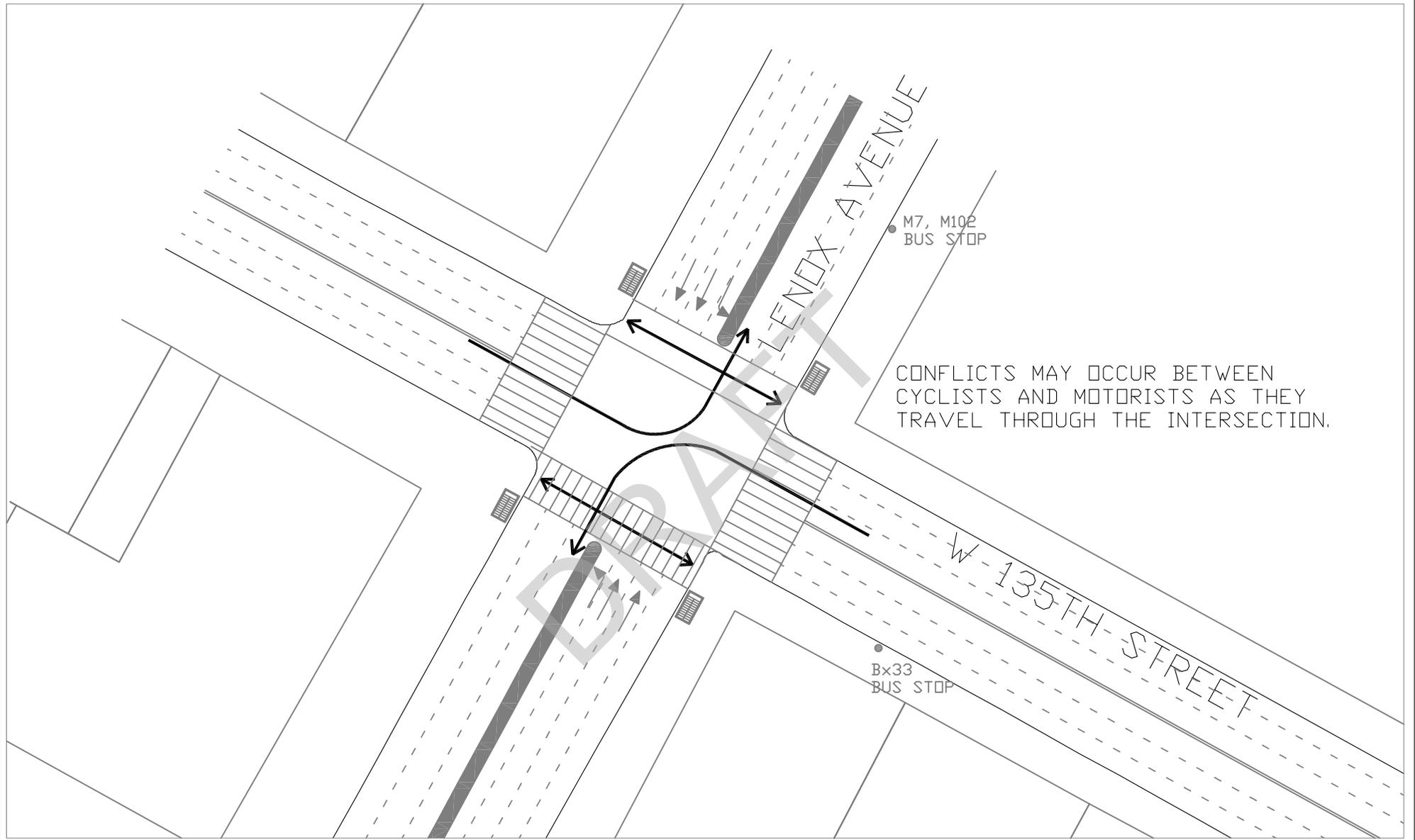


Exhibit: 7-12

Note: NOT TO SCALE



Location: 135th Street and Lenox Avenue  
 Existing Conditions (Bicycle Analysis)

Harlem/Morningside Transportation Study



Exhibit: 7-13

Note: NOT TO SCALE

## 7.10 Bridge Access to Bicyclists and Pedestrians

In addition locations at or near bridge entrances on the East River were also studied and analyzed in terms of access to bicyclists and pedestrians. They are:

- Madison Avenue Bridge: Fifth Avenue and 138<sup>th</sup> Street
- Madison Avenue Bridge and Harlem River Park: Madison Avenue and 135<sup>th</sup> Street
- Third Avenue Bridge: Third Avenue and 128<sup>th</sup> Street
- Triborough Bridge: A Bridge Access Study is to be done by the NYCDOT Transportation Division. We are studying and analyzing existing conditions on and to the Triborough Bridge and to Randall's Island for bicyclists and pedestrians.
- Willis Avenue Bridge

Madison Avenue Bridge (refer to Exhibits 7-14a and 7-14b for a diagram of the intersection).

- Access from 138<sup>th</sup> Street and Fifth Avenue

A pedestrian/bicycle path on the Madison Avenue Bridge can be accessed from 138<sup>th</sup> Street at Fifth Avenue. This path runs on the north side of the bridge.

A connection to the Madison Avenue bridge has been proposed in the New York City Bicycle Master Plan by recommending the installation of dedicated bicycle routes on 138<sup>th</sup> Street (eastbound) and 139<sup>th</sup> Street (westbound). These proposed routes will also link cyclists to the St Nicholas Avenue bicycle lane.

- Access from 135<sup>th</sup> Street and Madison Avenue (includes accessing Harlem River Park)

At the end of 135<sup>th</sup> Street at Madison Avenue, a ramp leading to the Harlem River Drive includes a pedestrian/bicycle path that provides access to the Harlem River Park. This path is located on the north side of the ramp. Access to the Madison Avenue Bridge also exists for pedestrians and cyclists on the south side of the bridge. However, no signs at this intersection indicate the existence of a path on the bridge for pedestrians and cyclists.

A link to this location has been recommended in the New York City Bicycle Master Plan for cyclists traveling in the north-south direction. It is proposed for Fifth Avenue from Marcus Garvey Park to 135<sup>th</sup> Street.

Third Avenue Bridge – Access from 128<sup>th</sup> Street and Third Avenue (refer Exhibit 7-15 for a diagram of the intersection).

Entrance to the bicycle/pedestrian path of the Third Avenue Bridge is located at the northwest corner of 128<sup>th</sup> Street and Third Avenue. This path is located on the south side of the bridge's exit ramp.

To get on the Third Avenue Bridge pathway from the south side of the intersection, the cyclist or pedestrian needs to use a pedestrian overpass (pedestrian bridge) from the southwest corner of the intersection to get to the north side of the intersection. This overpass is not handicapped accessible and a cyclist has to dismount his bicycle to get across. The overpass was built for school children and pedestrians in order to create a safer crossing of 128<sup>th</sup> Street.

This intersection is regulated by stop signs; however vehicles exiting the bridge are not required to stop at the intersection. These vehicles speed off the bridge and rarely stop or slow down as they get on 128<sup>th</sup> Street. Before the reconstruction of the bridge, cyclists were seen often crossing 128<sup>th</sup> Street at street level where conflicts would occur between motorists and cyclists at the intersection. The volumes of vehicles exiting from the Third Avenue Bridge are 1,630 during the morning peak hour, 850 during the midday peak hour, and 1,650 during the evening peak hour.

A connection to the Third Avenue Bridge has been proposed in the New York City Bicycle Master Plan by recommending the installation of a bicycle lane or route on Third Avenue between the bridge and the closest proposed east-west bicycle route.

Currently, during the reconstruction of the bridge pedestrians and cyclists have to use a temporary path on the north side of the Third Avenue Bridge, accessible from the intersection of Lexington Avenue and 129<sup>th</sup> Street.

Triborough Bridge - 125<sup>th</sup> Street and Second Avenue (refer to Exhibit 7-16 for a diagram of the intersection).

125<sup>th</sup> Street is a two-way arterial with two travel lanes and a parking lane in each direction. Second Avenue is a 60-foot wide avenue. At this location it has four southbound travel lanes and restricted parking regulations at the curb. South of 124<sup>th</sup> Street it becomes a 105-foot wide

avenue until 120<sup>th</sup> Street with a service road on the east side. In the New York City Bicycle Master Plan, a bicycle lane has been proposed on Second Avenue to connect cyclists from/to the Triborough Bridge pathways from/to Midtown Manhattan. Also in the east-west direction on-street bicycle lanes have been proposed on 124<sup>th</sup> Street and on 127<sup>th</sup> Street.

Entrances to the Triborough Bridge bicycle and pedestrian pathways exist at 126<sup>th</sup> Street/Second Avenue and 124<sup>th</sup> Street/Second Avenue. There are no signs at the approaches indicating that these paths exist on the bridge and can be accessed from those locations. Also, more crosswalks can be provided to make connections to the path from 124<sup>th</sup> Street or 126<sup>th</sup> Street. In addition, cyclists wanting to ride on the bridge using the bicycle/pedestrian pathways have to dismount from their bicycles in order to cross the bridge. Signs have been posted by the MTA Bridges and Tunnels Authority.

Willis Avenue Bridge - 125<sup>th</sup> Street and First Avenue (refer to Exhibit 7-17 for a diagram of the intersection).

The intersection of 125<sup>th</sup> Street and First Avenue has an unusual geometry. At this intersection First Avenue comes to an end and vehicles can access secondary streets which lead either to the Harlem River Drive, 126<sup>th</sup> Street or 125<sup>th</sup> Street.

At this intersection is the entrance to the Willis Avenue Bridge. First Avenue traffic (five lanes) feeds directly into the bridge entrance, while those who wish to bypass the bridge can stay in an eastern lane on First Avenue so as to enter a side road that turns left under the bridge onto 126<sup>th</sup> Street. There is a bicycle lane on First Avenue on the west side of the road; however, the bicycle lane ends suddenly at 124<sup>th</sup> Street. Vehicles making left turns from First Avenue are often in conflict with cyclists and do not always yield to cyclists trying to get on the Willis Avenue Bridge. Also, there are no signs or pavement markings informing motorists of the presence of bicyclists at the intersection.

After its intersection with First Avenue, 125<sup>th</sup> Street curves south to provide access to the FDR southbound lanes. There is also a Department of Sanitation (DOS) hauling road, which runs under the Triborough Bridge and is used to access the salt piles that currently sit on the shore

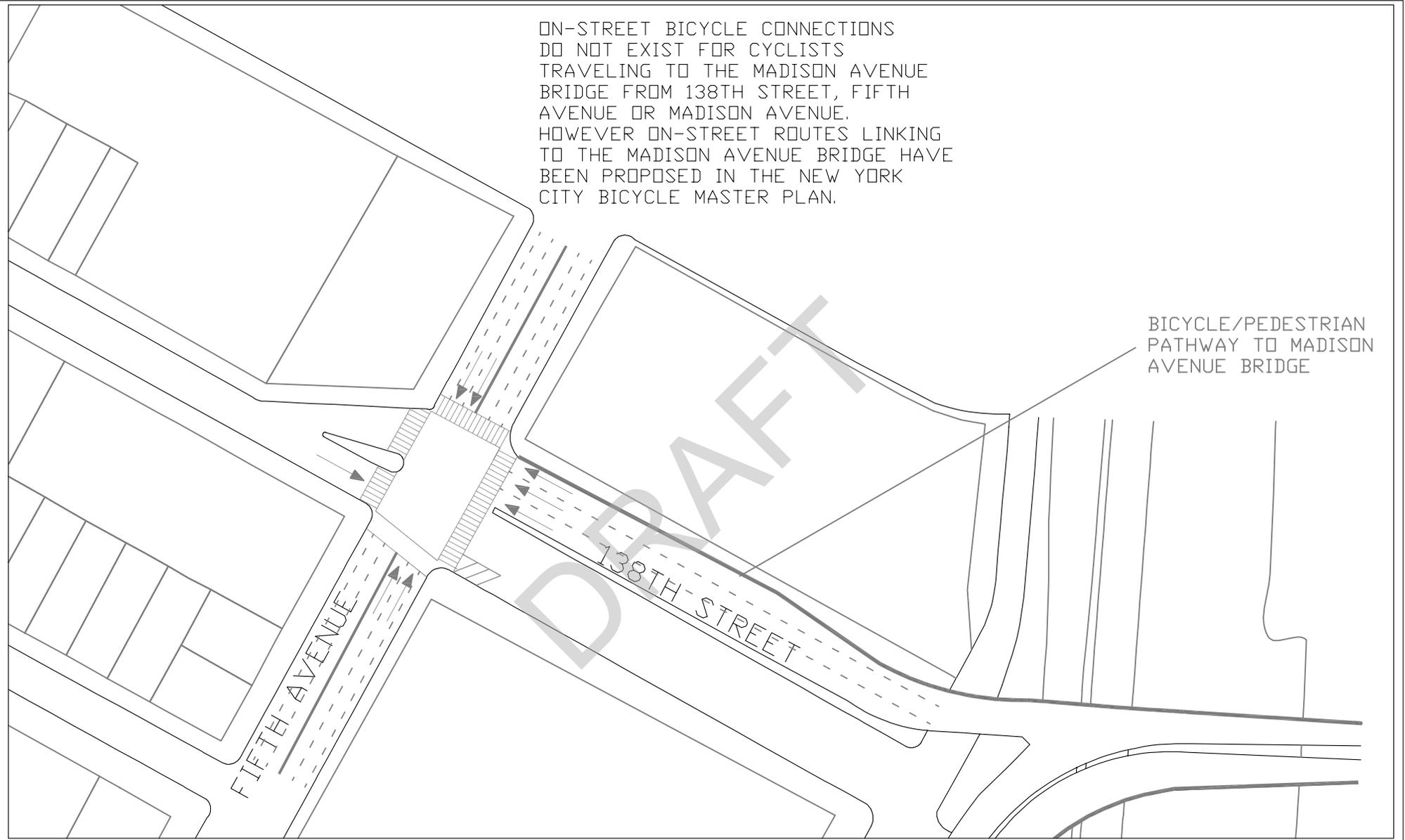
of the Harlem River. On the western side of the Willis Avenue Bridge is a southbound road from which cars can only turn onto 125th Street.

A new Willis Avenue Bridge is planned to be built in the near future just south of the existing bridge. It will include a bicycle/pedestrian path on the north side of the bridge and still will be accessible from 125<sup>th</sup> Street and First Avenue.

DRAFT

ON-STREET BICYCLE CONNECTIONS  
DO NOT EXIST FOR CYCLISTS  
TRAVELING TO THE MADISON AVENUE  
BRIDGE FROM 138TH STREET, FIFTH  
AVENUE OR MADISON AVENUE.  
HOWEVER ON-STREET ROUTES LINKING  
TO THE MADISON AVENUE BRIDGE HAVE  
BEEN PROPOSED IN THE NEW YORK  
CITY BICYCLE MASTER PLAN.

BICYCLE/PEDESTRIAN  
PATHWAY TO MADISON  
AVENUE BRIDGE



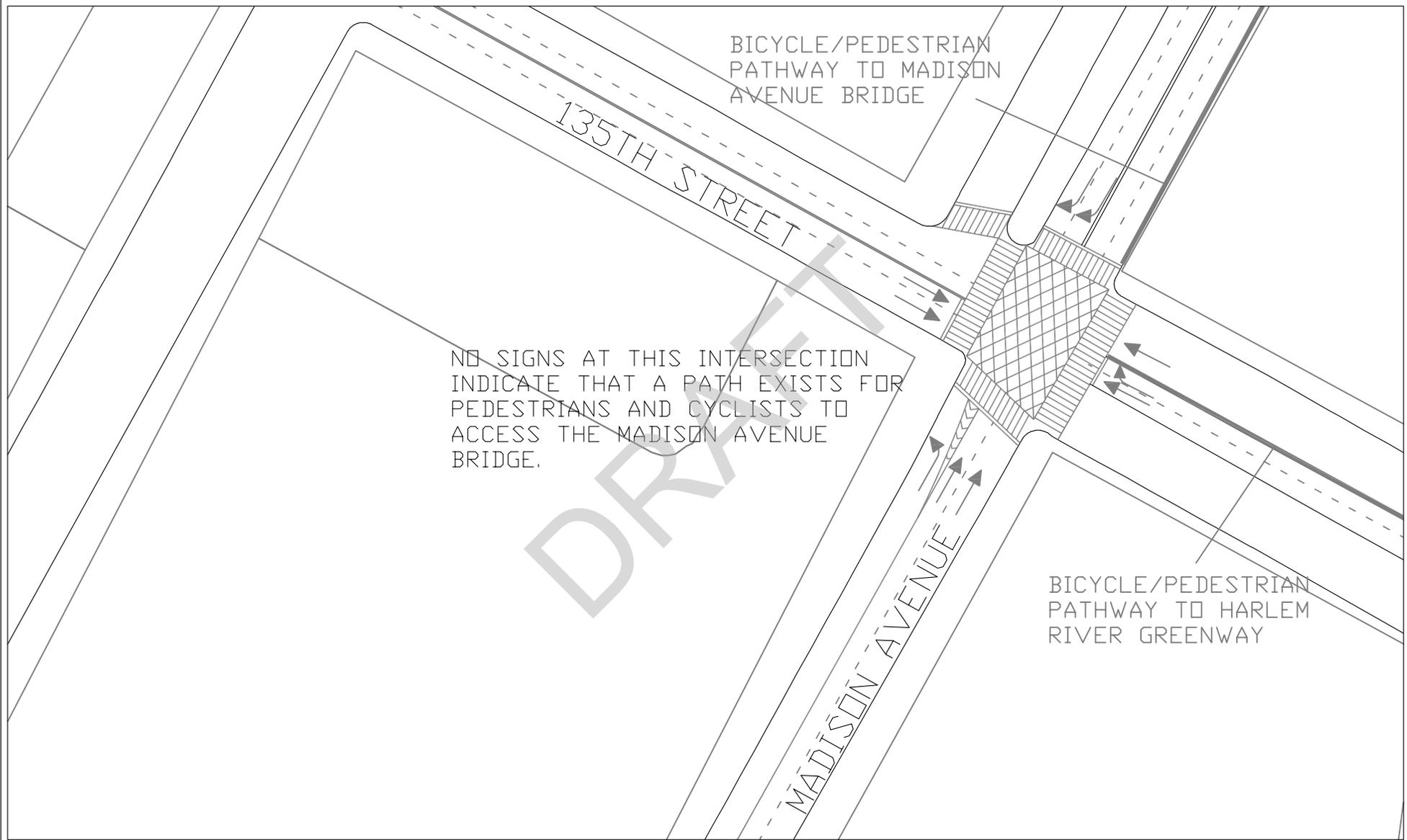
Location: Madison Avenue Bridge at 138th Street/Fifth Avenue  
Existing Conditions (Bicycle Analysis)

Harlem/Morningside Transportation Study



Exhibit: 7-14a

Note: NOT TO SCALE



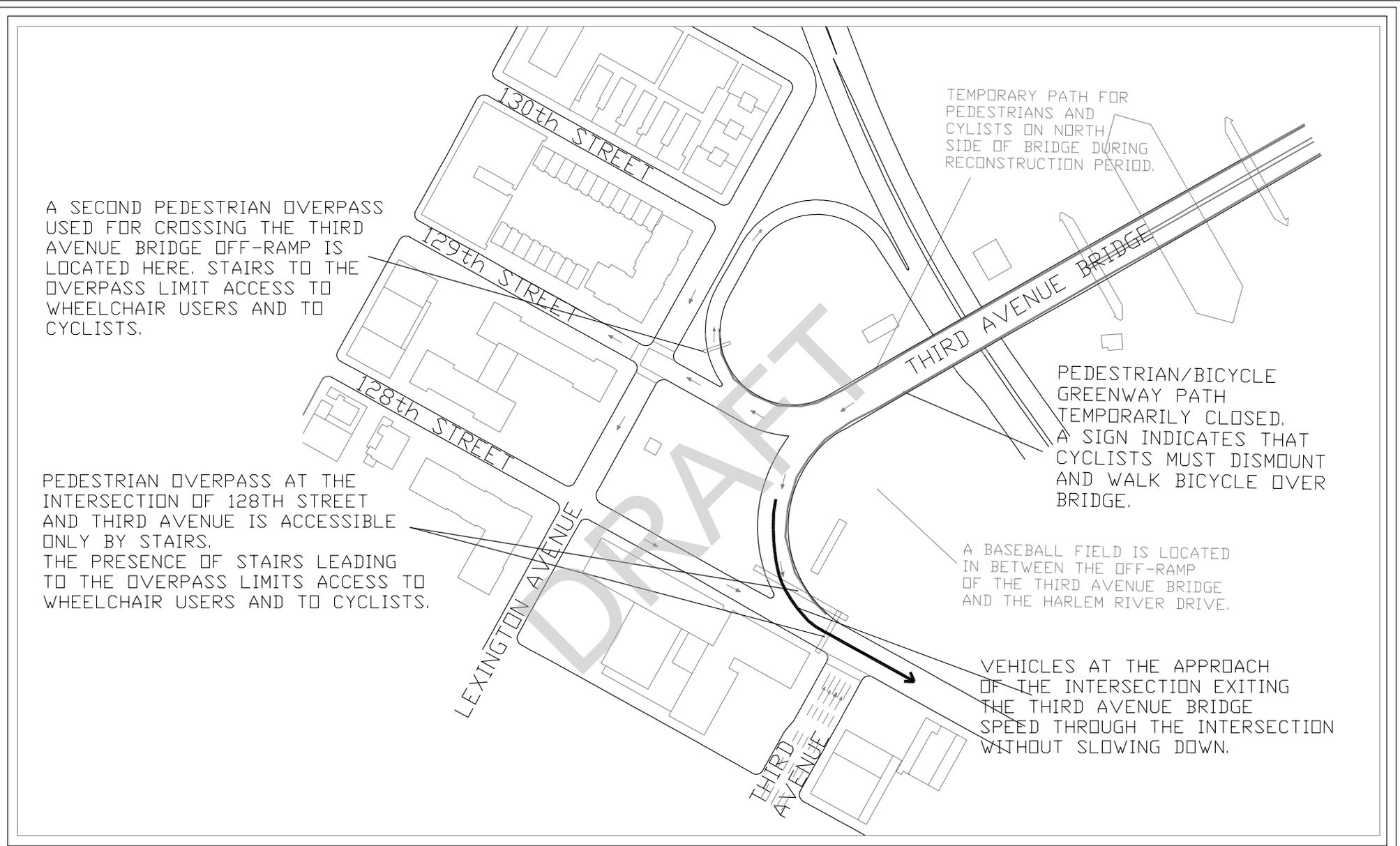
Location: Madison Avenue Bridge - 135th Street/Madison Avenue  
Existing Conditions (Bicycle Analysis)

Harlem/Morningside Transportation Study



Exhibit: 7-14b

Note: NOT TO SCALE



A SECOND PEDESTRIAN OVERPASS USED FOR CROSSING THE THIRD AVENUE BRIDGE OFF-RAMP IS LOCATED HERE. STAIRS TO THE OVERPASS LIMIT ACCESS TO WHEELCHAIR USERS AND TO CYCLISTS.

PEDESTRIAN OVERPASS AT THE INTERSECTION OF 128TH STREET AND THIRD AVENUE IS ACCESSIBLE ONLY BY STAIRS. THE PRESENCE OF STAIRS LEADING TO THE OVERPASS LIMITS ACCESS TO WHEELCHAIR USERS AND TO CYCLISTS.

TEMPORARY PATH FOR PEDESTRIANS AND CYCLISTS ON NORTH SIDE OF BRIDGE DURING RECONSTRUCTION PERIOD.

PEDESTRIAN/BICYCLE GREENWAY PATH TEMPORARILY CLOSED. A SIGN INDICATES THAT CYCLISTS MUST DISMOUNT AND WALK BICYCLE OVER BRIDGE.

A BASEBALL FIELD IS LOCATED IN BETWEEN THE OFF-RAMP OF THE THIRD AVENUE BRIDGE AND THE HARLEM RIVER DRIVE.

VEHICLES AT THE APPROACH OF THE INTERSECTION EXITING THE THIRD AVENUE BRIDGE SPEED THROUGH THE INTERSECTION WITHOUT SLOWING DOWN.

Location: 128th Street and Third Avenue (Third Avenue Bridge)  
Existing Conditions (Bicycle Analysis)

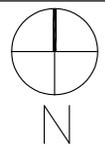


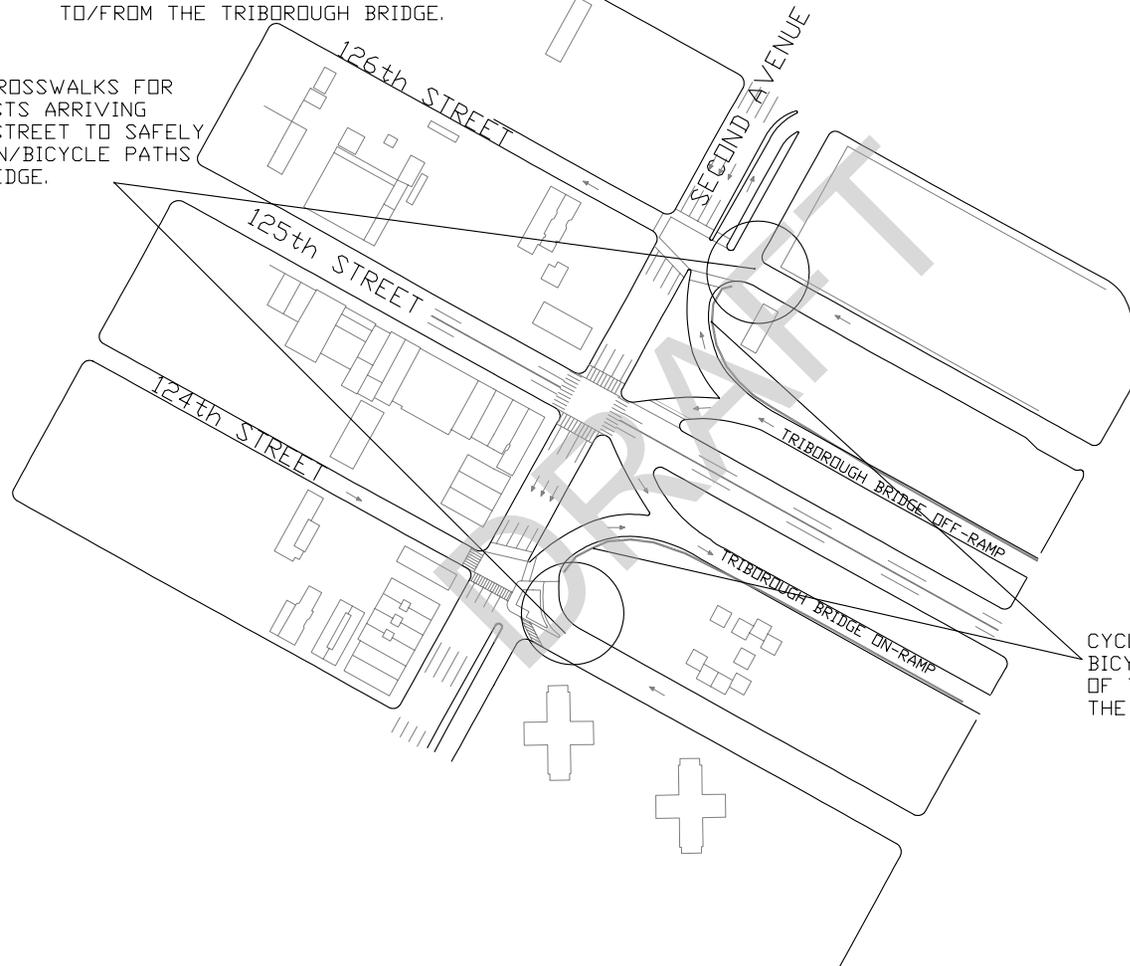
Exhibit: 7-15

Harlem/Morningside Transportation Study

Note: NOT TO SCALE

NO CONNECTION OR FACILITY PROVIDED  
ON SECOND AVENUE OR THE EAST-WEST  
STREETS FOR CYCLISTS TRAVELING  
TO/FROM THE TRIBOROUGH BRIDGE.

THERE IS A LACK OF CROSSWALKS FOR  
PEDESTRIANS OR CYCLISTS ARRIVING  
FROM 126TH OR 124TH STREET TO SAFELY  
ACCESS THE PEDESTRIAN/BICYCLE PATHS  
OF THE TRIBOROUGH BRIDGE.



CYCLISTS HAVE TO DISMOUNT FROM THEIR  
BICYCLES IN ORDER TO USE EITHER ONE  
OF THE PEDESTRIAN/BICYCLE PATHS OF  
THE TRIBOROUGH BRIDGE.

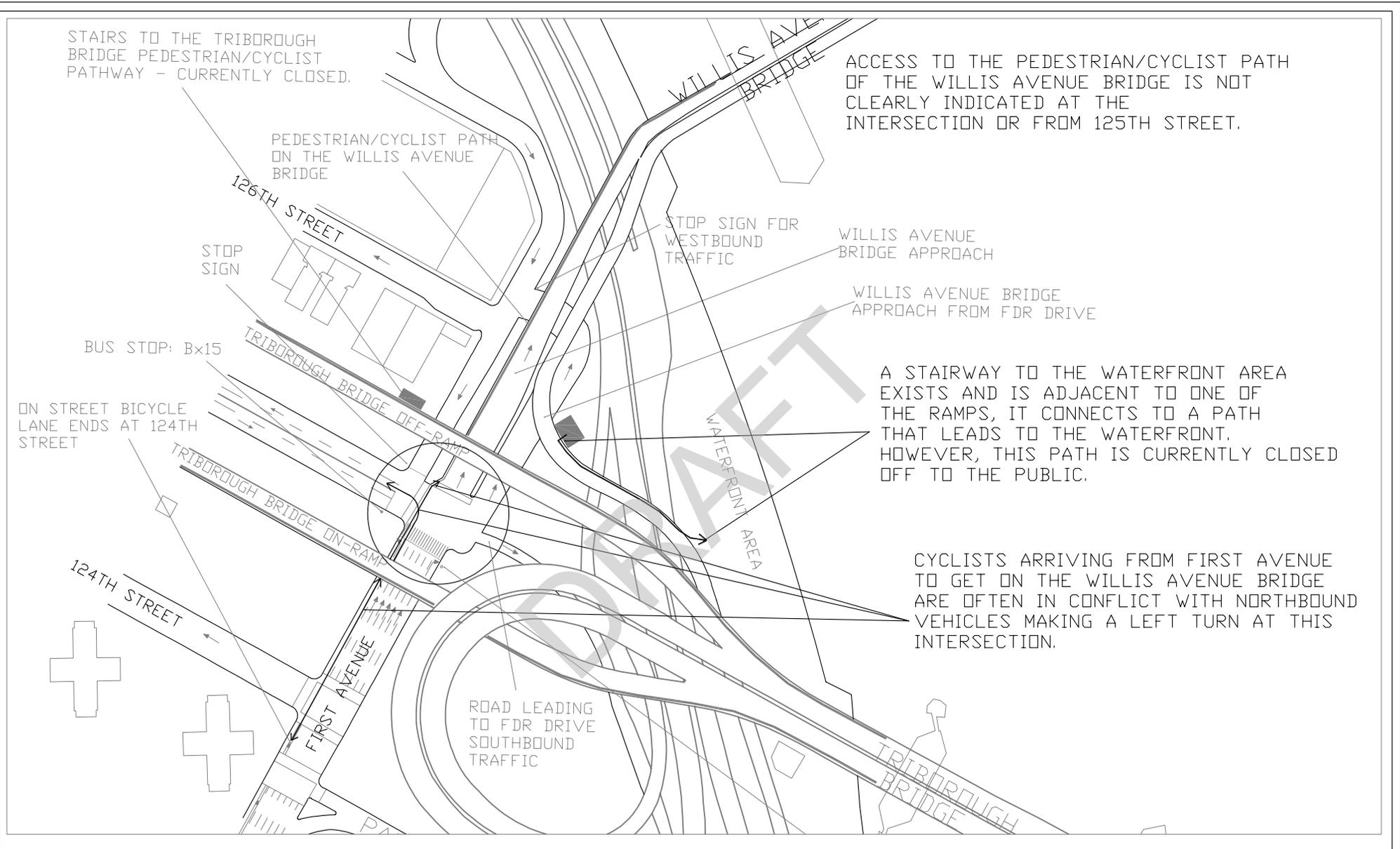
Location: 125th Street and Second Avenue  
Existing Conditions (Bicycle Analysis)

Harlem/Morningside Transportation Study



Exhibit: 7-16

Note: NOT TO SCALE



Location: 125th Street and First Avenue  
Existing Conditions (Bicycle Analysis)

Harlem/Morningside Transportation Study



Exhibit: 7-17

Note: NOT TO SCALE

## 7.11 Waterfront Access

In this report we will also explore ways to improve bicycle and pedestrian access to the waterfront area at the eastern and at the western end of 125<sup>th</sup> Street. Projects planned for these areas will also be taken into consideration as we study the existing conditions and develop recommendations.

### East River Waterfront Area (East Side)

Accessing the waterfront is limited and difficult at the end of 125<sup>th</sup> Street with the presence of the “spaghetti” of ramps leading to the Triborough and Willis Avenue Bridges, the FDR Drive and the Harlem River Drive. Currently, the only way possible to access the waterfront is by using a stairway which is adjacent to the Willis Avenue Bridge ramp and leads to the bridge’s pedestrian pathway. During a field visit in March of 2004, it was observed that the bridge’s path to the waterfront was in disrepair, with a fence in poor condition and blocks of fallen concrete in the pathway. The southern end of this pathway leads to the waterfront and is currently closed to the public due to the salt piles stored on the waterfront and the bridge repair underway by the New York City Department of Transportation.



Fence of pathway in poor condition



Pathway leads to waterfront

In terms of the salt piles, a ULURP application has been filed by the New York City Department of Sanitation with the New York City Department of City Planning in order to be able to move the salt piles to a nearby park the Louis Guvillier Park and have it stored in a structure that will be constructed for this purpose.

The waterfront area north of the Triborough Bridge will be closed for 12 years and used as a construction staging area until the year 2016 due to the Harlem River Bridges reconstruction undertaken by NYCDOT. This will limit access to the waterfront for the residents. During this bridge reconstruction period the community including Community Board 11 expressed their desire to have some kind of interim waterfront access. NYCDOT for safety reasons cannot permit it and the waterfront will remain closed to the public. Once the repairs are completed by NYCDOT the waterfront site will be turned over to the New York City Department of Parks and Recreation who will then work on developing the greenway path and the waterfront area for recreational purposes.

#### Hudson River Waterfront (West Side)

On the west side, access to the waterfront from 125<sup>th</sup> Street is limited. There is no information available on 125<sup>th</sup> Street on how to get to the waterfront and the greenway path. Also, the sidewalks on 125<sup>th</sup> Street west of Broadway leading to the waterfront are narrower and deserted compared to the rest of 125<sup>th</sup> Street where the sidewalks are wider and more inviting. The median on Broadway at 125<sup>th</sup> Street which is on the way to the waterfront is poorly designed and can be improved for pedestrians.

Accessing the waterfront from a secondary street, St Clair Place is also difficult due to the lack of sidewalks on the south side of St Clair Place near 12<sup>th</sup> Avenue. It is currently dirt and grass. There are no crosswalks along St Clair Place west of 12<sup>th</sup> Avenue, except for the south crosswalk which exists at Marginal Street. This crosswalk unfortunately is in poor condition. During field visits it was also observed that curb cuts do not exist or have deteriorated along St Clair Place.

The New York City Economic Development Corporation has published a Master Plan, the “West Harlem Master Plan” that proposes to transform the West Harlem Piers/Waterfront area into a park and a recreational area which includes a fishing pier, a plaza, restaurants, market square etc. This plan hopefully will bring open space to the area, reconnect the neighborhood to the waterfront and attract investment in West Harlem.

Streetscape improvements have also been proposed in this master plan for 125<sup>th</sup> Street, 12<sup>th</sup> Avenue and the Broadway viaduct that can improve local streets and create a more hospitable connection to the waterfront. It includes:

- extending the park like character of the waterfront to Broadway,
- incorporating an on-street bicycle lane,
- improving street lighting,
- adding new lighting that can transform the 12<sup>th</sup> Avenue viaduct into a luminous gateway, and
- possible closing or narrowing of Marginal Street, between 132<sup>nd</sup> and 133<sup>rd</sup> Streets.

A Request for Proposal has already been released in July of 2004 for submission of consulting services for the planning and design of 125<sup>th</sup> Street in terms of streetscape and intermodal improvements.

Columbia University plans to expand their campus in the Manhattanville neighborhood on West Harlem and has recommended street improvements which reinforce EDC’s plans. They are the following:

- install new street lighting, furniture and trees,
- widen sidewalks,
- provide “neckdowns”,
- establish a bicycle-pedestrian path, and
- improve underside of the IRT viaduct