Appendix F

Technical Memorandum: Traffic

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Technical Memorandum – Appendix F

To:	Algin 61st Street Rezoning EIS Project File
From:	Stephen Holley, Chi K. Chan, Jade Wang
Subject:	Effect of Reversing West 61st Street to WB Operation per Riverside South Plan
Date:	December 14, 2006
cc:	Jed Candreva, Esq.

This technical memorandum and its supporting analysis has been prepared to provide supporting information relative to a future planned change in the direction of traffic flow on West 61st Street between West End and Amsterdam Avenues. As described below, this change is not anticipated to be implemented until 2011. However, to provide an indication of how this change would affect the projected incremental traffic from the Algin – 61st Street Rezoning project's RWCDS, an analysis that examines 2008 Build conditions with the street direction change in place has been undertaken. Some background information relative to the operation of the study area network is provided for reference and orientation. The results of the street direction change analysis are provided below.

Currently, West 61st Street operates eastbound between West End Avenue and Amsterdam Avenue. It dead-ends at a cul-de-sac east of Amsterdam Avenue on the Fordham University Lincoln Center Campus super-block. Because traffic from this block is forced to head north, the first opportunity to continue east occurs at West 62nd Street. The next opportunity is at West 65th Street along the north side of Lincoln Center. To head west, traffic needs to continue north to West 66th Street to bypass the super-block (bounded by West 61st Street, West 64th Streets, Amsterdam Avenue, and West End Avenue), as well as eastbound West 64th Street and eastbound West 65th Street.

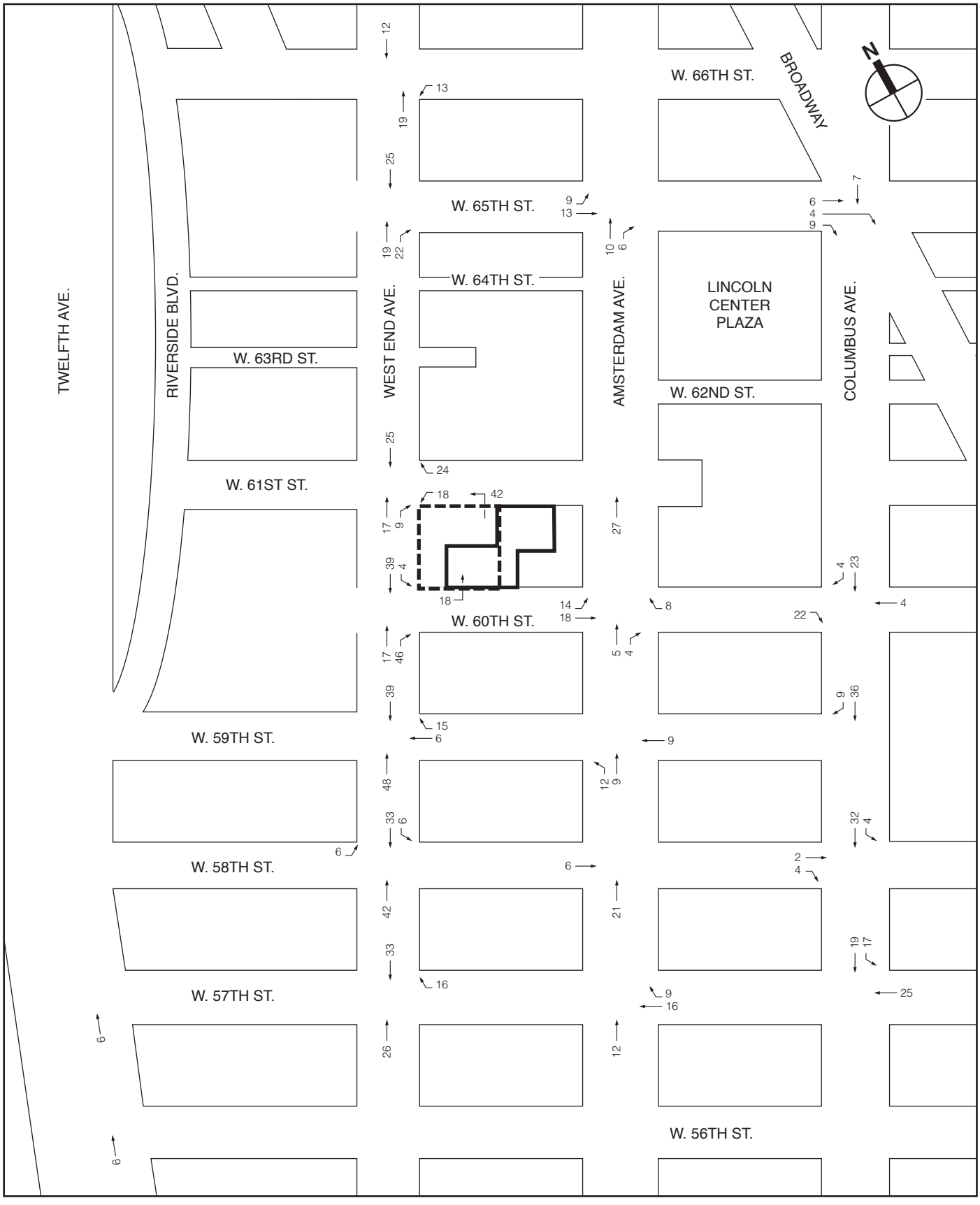
Because there is currently no westbound outlet along Amsterdam Avenue between West 59th and West 66th Streets, traffic patterns in the area are sometimes circuitous. Based on the discussion of mitigation measures proposed in the Riverside South FEIS, this street-direction change would not occur until 2011, three years after the scheduled completion of the Algin 61st Street Rezoning project. (For that reason, the street direction change was not considered in the Algin EIS traffic analyses.) However, in anticipation of this change, an evaluation of its effects on the projected traffic presented in the Algin 61st Street Rezoning DEIS was conducted.

This analysis begins with a reassignment of future No Build traffic volumes for the commuter peak hours. Converting West 61st Street to westbound operation is likely to improve travel path

options and overall traffic circulation in the area. It would also reduce potential conflicts of morning departure traffic with students arriving at P.S. 191 at the intersection of Amsterdam Avenue and West 61st Street. Furthermore, in anticipation of this change of West 61st Street to one-way westbound, maintaining the access (via West 60th Street) and egress (via West 61st Street) locations of the proposed site garage driveways is appropriate, since once the street direction change is implemented, both the entering and exiting traffic of this garage would not traverse the intersection of Amsterdam Avenue and West 61st Street. (This would serve to eliminate any potential conflicts between project vehicles departing the garage and school children at the West 61st Street/ Amsterdam Avenue intersection.)

The figures below show the project-generated traffic volume increments and future 2008 Build traffic volumes during the AM, midday, and PM peak hours, accounting for the street-direction reversal of West 61st Street between Amsterdam and West End Avenues. A detailed HCS analysis, examining the potential effects of the street direction change on study area intersections, for 2008 Build conditions was using the volumes and the new assignments that account for the street direction change.

The analysis results, as summarized in the tables below, indicate that the proposed project's 2008 "Build" conditions, including the street-direction reversal of West 61st Street, would result in 3, 1, and 3 significant adverse traffic impacts during the AM, midday, and PM peak hours, respectively. In contrast, 4, 2, and 5 significant adverse traffic impacts during the AM, midday, and PM peak hours, respectively, were identified in the Algin DEIS (where the street direction remains unchanged). In addition, traffic conditions after West 61st Street is converted to one-way westbound would generally have similar or lower delays than those identified in the DEIS. Therefore, we believe, the analysis clearly demonstrates that the street-direction reversal of West 61st Street would not adversely affect traffic operations in the area and the DEIS proposed mitigation measures would be adequate in addressing the traffic impacts that are expected to remain after the street reversal is implemented.

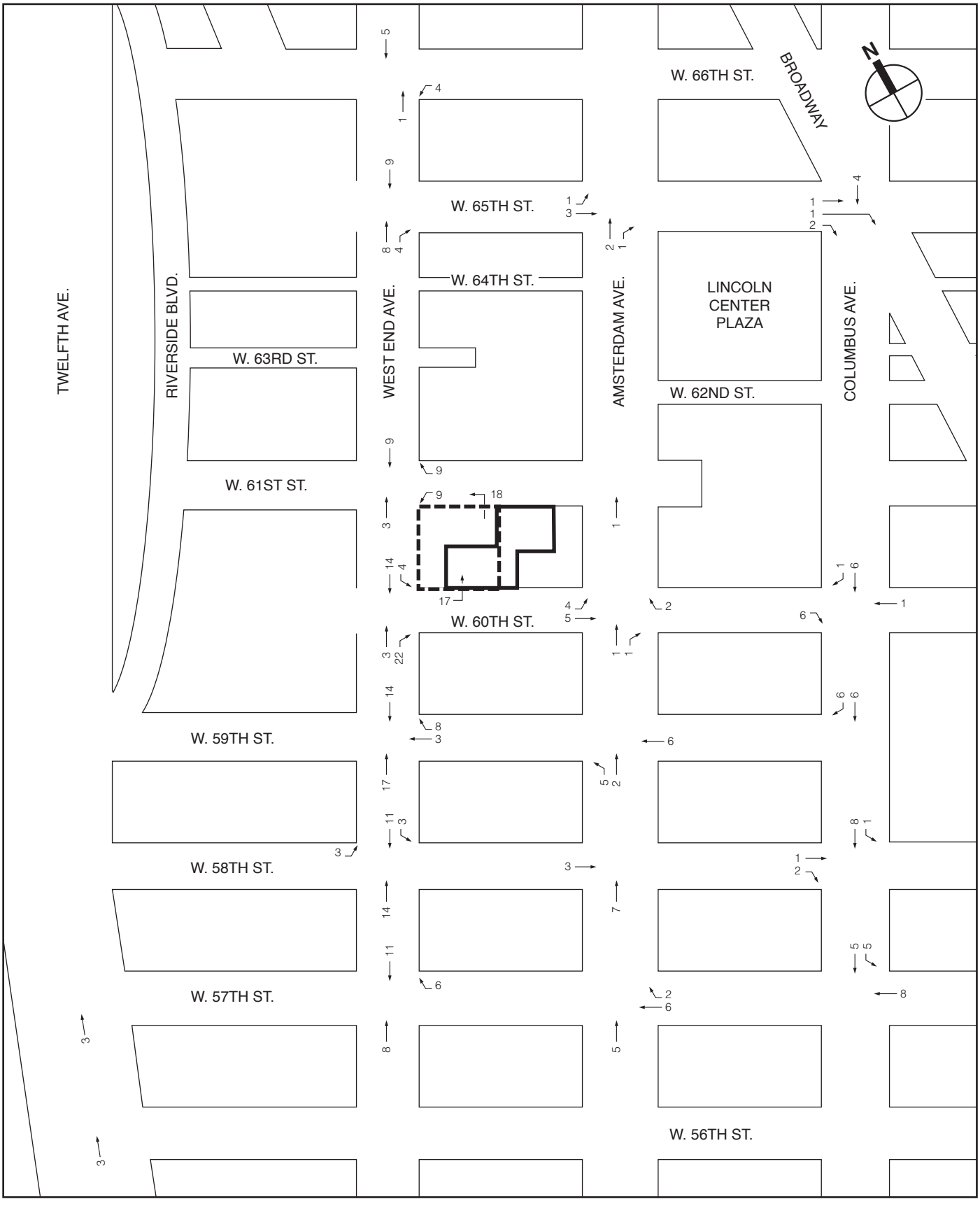


Project Generated Traffic Volumes
AM Peak Hour

Figure 1

West 61st Street Rezoning

12.15.06



NOT TO SCALE

Rezoning Area

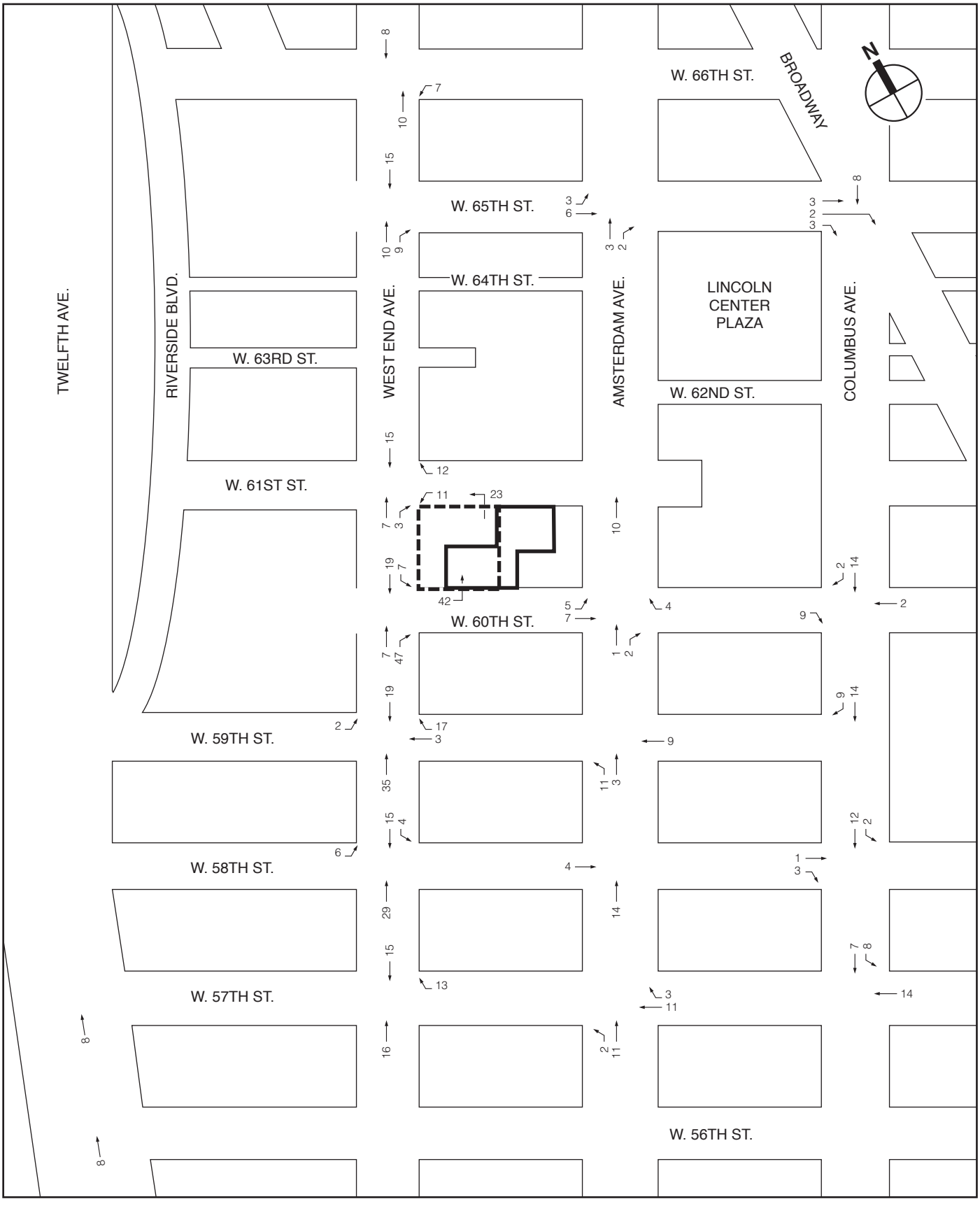
Algin Property Site

Project Generated Traffic Volumes
Midday Peak Hour

Figure 2

West 61st Street Rezoning

12.15.06



NOT TO SCALE

Rezoning Area

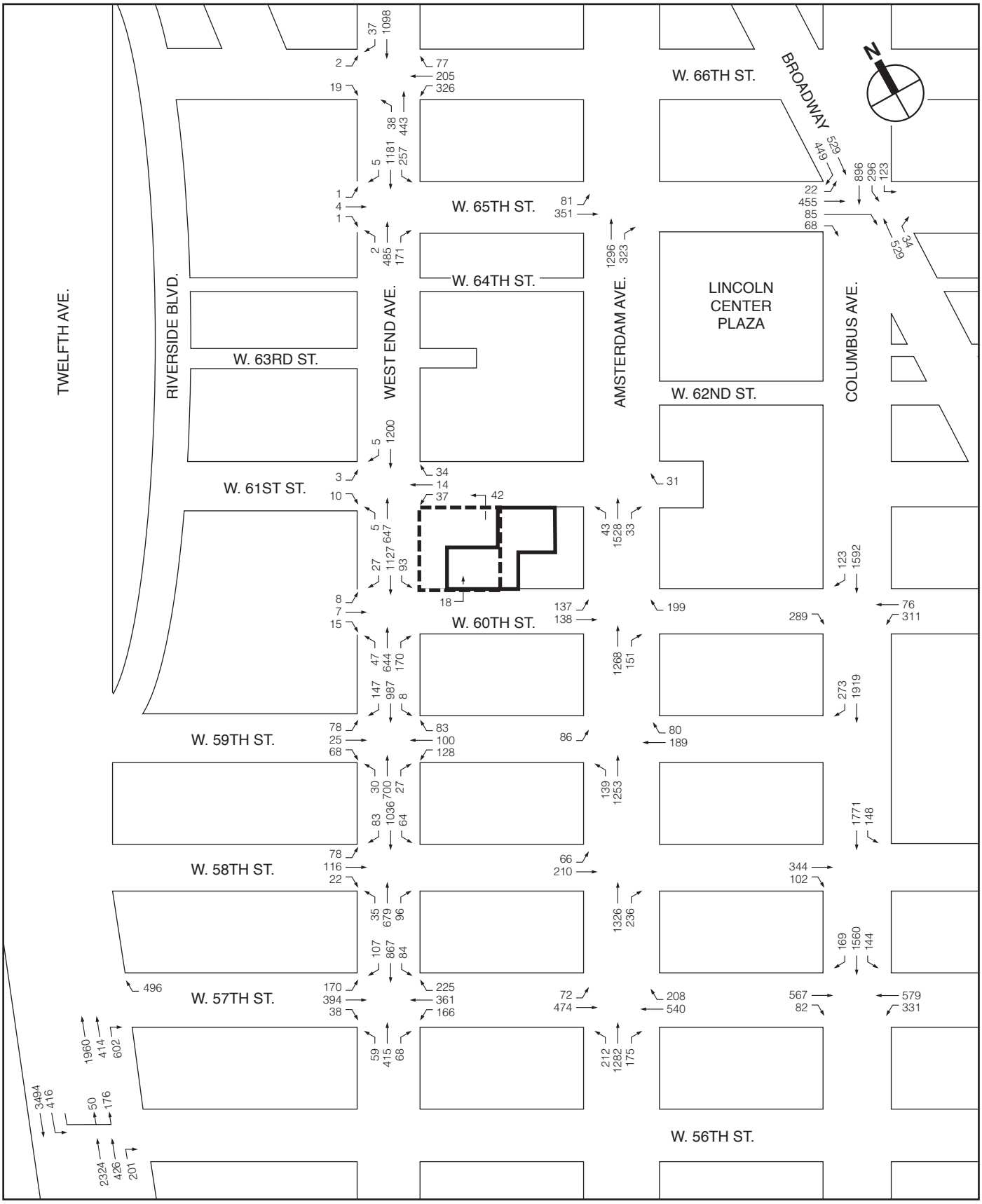
Algin Property Site

Project Generated Traffic Volumes
PM Peak Hour

Figure 3

West 61st Street Rezoning

12.15.06



Rezoning Area

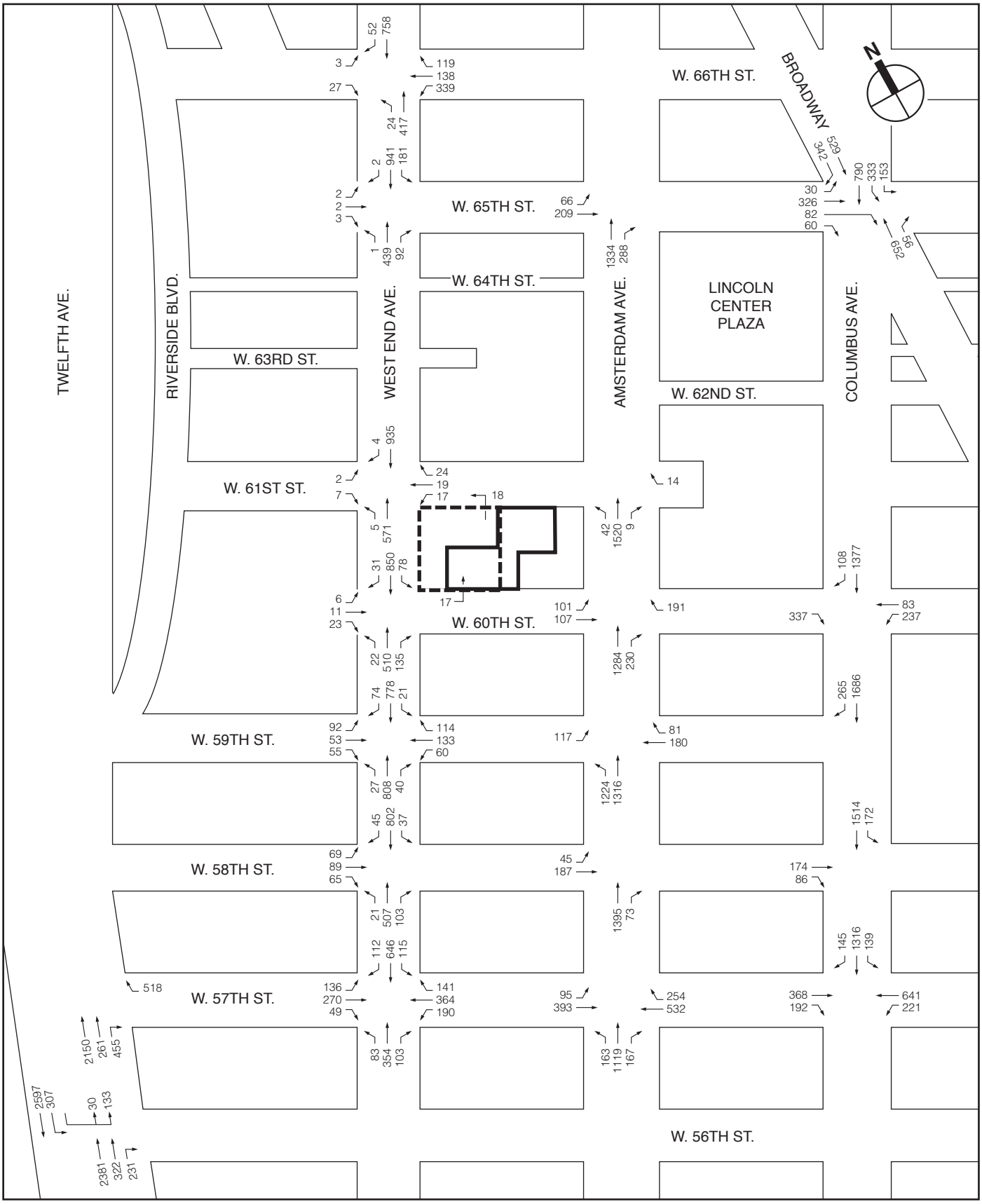
Algin Property Site

2008 Build Traffic Volumes
AM Peak Hour

Figure 4

West 61st Street Rezoning

12.15.06



NOT TO SCALE

Rezoning Area

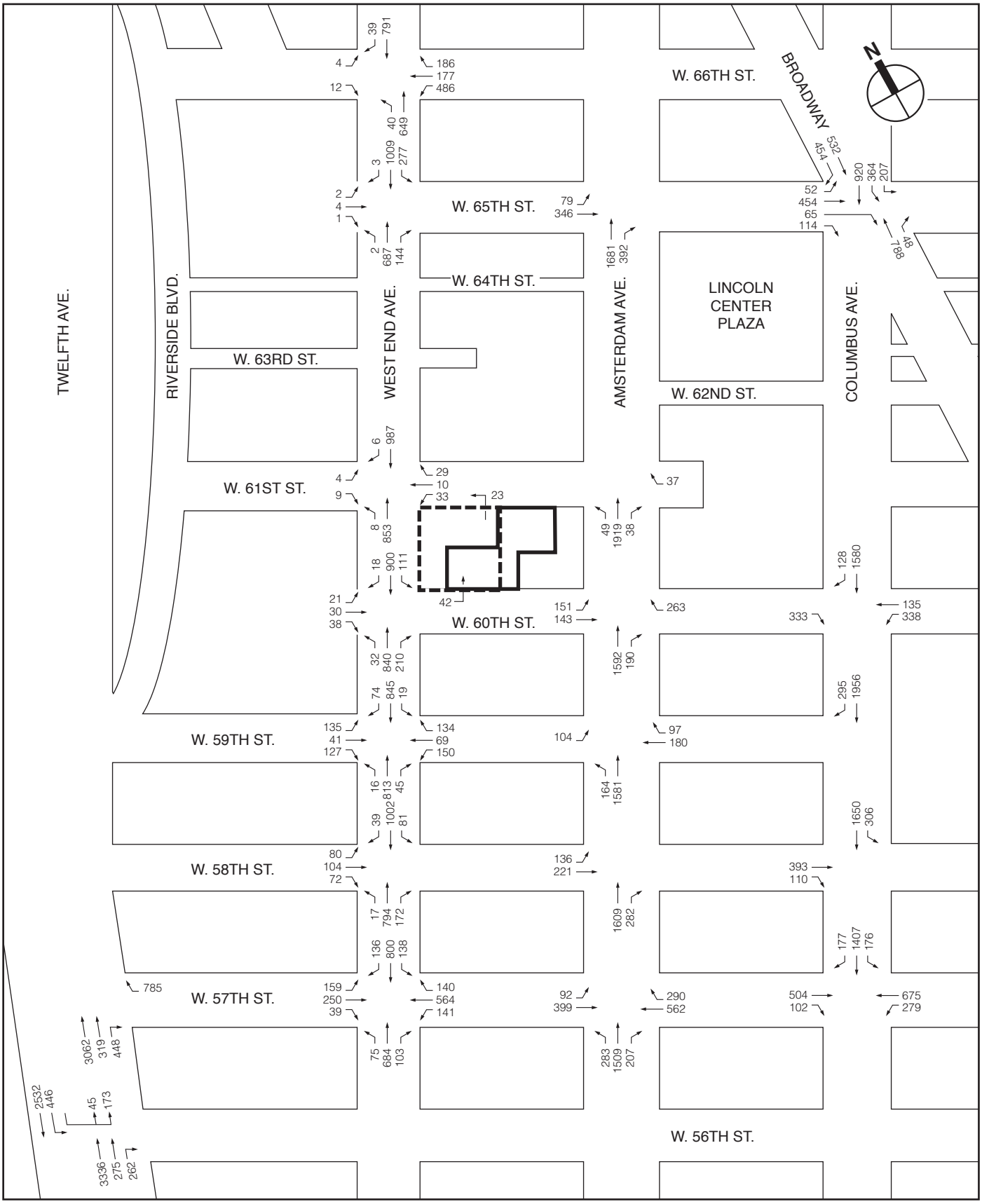
Algin Property Site

West 61st Street Rezoning

2008 Build Traffic Volumes
Midday Peak Hour

Figure 5

12.15.06



Rezoning Area

Algin Property Site

2008 Build Traffic Volumes
PM Peak Hour

Figure 6

West 61st Street Rezoning

	AM Peak Hour												Midday Peak Hour												PM Peak Hour											
	2008 No Build				2008 Build				2008 Build w Diversion				2008 No Build				2008 Build				2008 Build w Diversion				2008 No Build				2008 Build				2008 Build w Diversion			
Analysis Locations	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Columbus Ave & W 57th St																																				
Eastbound	T	0.98	64.9	E	T	0.98	64.9	E	T	0.98	64.9	E	T	0.56	33.0	C	T	0.56	33.0	C	T	0.56	33.0	C	T	0.88	49.0	D	T	0.88	49.0	D	T	0.88	49.0	D
	R	0.59	46.1	D	R	0.59	46.1	D	R	0.59	46.1	D	R	1.16	151.7	F	R	1.16	151.7	F	R	1.16	151.7	F	R	0.72	56.0	E	R	0.72	56.0	E	R	0.72	56.0	E
Westbound	DefL	1.27	169.4	F	DefL	1.27	169.4	F	DefL	1.27	169.4	F													DefL	0.96	61.1	E	DefL	0.96	61.1	E	DefL	0.96	61.1	E
	T	1.16	116.8	F	**T**	**1.22**	**137.4**	**+F**	**T**	**1.22**	**137.4**	**+F**	LT	1.01	56.2	E	LT	1.02	58.5	E	LT	1.02	58.5	E	T	1.15	110.0	F	**T**	**1.18**	**120.1**	**+F**	**T**	**1.18**	**120.1**	**+F**
Southbound	L	0.39	24.7	C	L	0.45	26.0	C	L	0.45	26.0	C													L	0.55	29.0	C	L	0.58	29.9	C	L	0.58	29.9	C
	TR	1.07	71.5	E	**TR**	**1.09**	**78.2**	**+E**	**TR**	**1.08**	**75.5**	**+E**	LTR	1.05	64.9	E	LTR	1.06	68.7	E	LTR	1.06	67.5	E	T	0.78	28.3	C	T	0.79	28.5	C	T	0.79	28.4	C
																									R	0.66	34.6	C	R	0.66	34.6	C	R	0.66	34.6	C
Intersection			86.0	F			92.7	F			91.5	F			64.1	E			66.7	E			66.1	E			51.6	D			53.9	D			53.9	D
Columbus Ave & W 58th St																																				
Eastbound	T	0.83	44.0	D	T	0.83	44.0	D	T	0.83	44.4	D	T	0.48	28.3	C	T	0.48	28.3	C	T	0.49	28.5	C	T	0.91	53.7	D	T	0.91	53.7	D	T	0.91	54.0	D
	R	0.42	29.0	C	R	0.42	29.0	C	R	0.44	29.5	C	R	0.42	29.1	C	R	0.42	29.1	C	R	0.43	29.5	C	R	0.43	29.0	C	R	0.43	29.0	C	R	0.44	29.4	C
Southbound	LT	0.78	12.2	B	LT	0.81	12.7	B	LT	0.80	12.5	B	LT	0.64	9.8	A	LT	0.65	9.9	A	LT	0.64	9.8	A	LT	0.73	11.1	B	LT	0.74	11.2	B	LT	0.74	11.2	B
Intersection			17.3	B			17.6	B			17.6	B			12.6	B			12.7	B			12.7	B			18.7	B			18.8	B			18.8	B
Columbus Ave & W 59th St																																				
Southbound	TR	0.87	16.4	B	TR	0.89	17.7	B	TR	0.87	16.4	B	TR	0.79	13.8	B	TR	0.80	14.1	B	TR	0.78	13.5	B	TR	0.89	17.3	B	TR	0.90	18.1	B	TR	0.88	16.7	B
Intersection			16.4	B			17.7	B			16.4	B			13.8	B			14.1	B			13.5	B			17.3	B			18.1	B			16.7	B
Columbus Ave & W 60th St																																				
Eastbound	R	0.73	36.0	D	R	0.79	40.0	D	R	0.79	40.0	D	R	1.16	132.0	F	**R**	**1.18**	**140.2**	**+F**	**R**	**1.18**	**140.2**	**+F**	R	0.85	44.7	D	R	0.87	47.2	D	R	0.87	47.2	D
Westbound	L	0.56	31.6	C	L	0.56	31.6	C	L	0.56	31.6	C	L	0.52	30.3	C	L	0.52	30.3	C	L	0.52	30.3	C	L	0.72	39.1	D	L	0.72	39.1	D	L	0.72	39.1	D
	LT	0.58	31.4	C	LT	0.59	31.5	C	LT	0.59	31.5	C	LT	0.51	28.9	C	LT	0.52	29.0	C	LT	0.52	29.0	C	LT	0.77	39.3	D	LT	0.77	39.6	D	LT	0.77	39.6	D
Southbound	TR	0.62	10.2	B	TR	0.64	10.4	B	TR	0.64	10.4	B	TR	0.65	10.5	B	TR	0.66	10.6	B	TR	0.66	10.7	B	TR	0.66	10.6	B	TR	0.67	10.7	B	TR	0.67	10.8	B
Intersection			17.1	B			18.0	B			18.1	B			31.1	C			32.4	C			32.6	C			21.3	C			21.8	C			21.9	C
Columbus Ave/Broadway & W 65th St																																				
Eastbound	L	0.11	26.7	C	L	0.11	26.7	C	L	0.11	26.7	C	L	0.15	27.3	C	L	0.15	27.3	C	L	0.15	27.3	C	L	0.24	28.7	C	L	0.24	28.7	C	L	0.24	28.7	C
	TR	0.69	35.5	D	TR	0.71	35.9	D	TR	0.71	35.9	D	TR	0.57	32.5	C	TR	0.58	32.6	C	TR	0.58	32.6	C	TR	0.80	40.4	D	TR	0.81	40.9	D	TR	0.81	40.9	D
	R	0.51	35.1	D	R	0.56	36.9	D	R	0.56	36.9	D	R	0.45	34.8	C	R	0.47	35.2	D	R	0.47	35.2	D	R	0.59	40.4	D	R	0.61	41.3	D	R	0.61	41.3	D
Northbound	TR	0.70	34.8	C	TR	0.70	34.8	C	TR	0.70	34.8	C	TR	0.83	40.3	D	TR	0.83	40.3	D	TR	0.83	40.3	D	TR	1.02	67.8	E	TR	1.02	67.8	E	TR	1.02	67.8	E
Broadway Southbound	T	1.12	99.5	F	T	1.12	99.5	F	T	1.12	99.5	F	T	0.98	58.0	E	T	0.98	58.0	E	T	0.98	58.0	E	T	1.05	75.0	E	T	1.05	75.0	E	T	1.05	75.0	E
Columbus Ave Southbound	LT	1.02	60.1	E	LT	1.02	61.6	E	LT	1.02	61.6	E	LT	0.95	45.5	D	LT	0.95	46.1	D	LT	0.95	46.1	D	LT	1.05	71.0	E	LT	1.06	73.0	E	LT	1.06	73.0	E
Intersection			62.7	E			63.2	E			63.2	E			45.7	D			46.0	D			46.0	D			66.0	E			66.8	E			66.8	E
Amsterdam Ave & W 57th St																																				
Eastbound	LT	0.97	56.7	E	LT	0.99	60.6	E	LT	0.99	60.6	E	LT	0.89	44.0	D	LT	0.89	44.4	D	LT	0.89	44.4	D	LT	1.06	84.5	F	**LT**	**1.07**	**87.9**	**+F**	**LT**	**1.07**	**87.9**	**+F**
Westbound	TR	0.97	51.0	D	**TR**	**1.00**	**59.0**	**+E**	**TR**	**1.00**	**59.0**	**+E**	TR	0.95	48.0	D	TR	0.96	49.6	D	TR	0.96	49.6	D	TR	0.98	53.8	D	TR	1.00	57.6	E	TR	1.00	57.6	E
Northbound	LT	0.79	17.1	B	LT	0.79	17.2	B	LT	0.79	17.2	B	LT	0.57	13.1	B	LT	0.58	13.1	B	LT	0.58	13.1	B	LT	0.72	15.2	B	LT	0.72	15.3	B	LT	0.72	15.3	B
	R	0.46	14.6	B	R	0.46	14.6	B	R	0.46	14.6	B	R	0.52	17.0	B	R	0.52	17.0	B	R	0.52	17.0	B	R	0.60	19.3	B	R	0.60	19.3	B	R	0.60	19.3	B
Intersection			32.0	C			34.8	C			34.8	C			28.5	C			29.0	C			29.0	C			36.4	D			38.0	D			38.0	D
Amsterdam Ave & W 58th St																																				
Eastbound	LT	0.44	25.2	C	LT	0.44	25.2	C	LT	0.45	25.3	C	LT	0.32	23.5	C	LT	0.32	23.5	C	LT	0.32	23.5	C	LT	0.47	25.7	C	LT	0.47	25.7	C	LT	0.47	25.8	C
Northbound	TR	0.74	12.1	B	TR	0.74	12.2	B	TR	0.74	12.2	B	TR	0.58	9.7	A	TR	0.58	9.7	A	TR	0.58	9.7	A	TR	0.79	13.1	B	TR	0.79	13.2	B	TR	0.79	13.2	B
Intersection			14.2	B			14.3	B			14.3	B			11.5	B			11.6	B			11.6	B			15.0	B			15.1	B			15.1	B
Amsterdam Ave & W 59th St																																				
Eastbound	L	0.64	42.5	D	L	0.65	43.8	D	L	0.60	39.6	D	L	0.94	86.9	F	**L**	**0.95**	**90.3**	**+F**	L	0.89	74.0	E	L	0.77	53.7	D	L	0.79	56.5	E	L	0.73	48.0	D
Westbound	T	0.55	28.8	C	T	0.57	29.5	C	T	0.50	27.4	C	T	0.54	28.5	C	T	0.56	29.0	C	T	0.48	26.9	C	T	0.50	27.1	C	T	0.52	27.6	C	T	0.44	25.8	C
	R	0.36	26.0	C	R	0.36	26.0	C	R	0.36	26.0	C	R	0.37	26.2	C	R	0.37	26.2	C	R	0.37	26.2	C	R	0.38	25.9	C	R	0.38	25.9	C	R	0.38	25.9	C
Northbound	LT	0.64	11.3	B	LT	0.66	11.5	B	LT	0.65	11.4	B	LT	0.63	11.0	B	LT	0.63	11.0	B	LT	0.63	11.0	B	LT	0.70	12.1	B	LT	0.71	12.2	B	LT	0.71	12.2	B
Intersection			15.7	B			16.0	B			15.3	B			19.0	B			19.4	B			17.8	B			16.7	B			17.0	B			16.1	B
Amsterdam Ave & W 60th St																																				
Eastbound	LT	0.45	26.1	C	LT	0.50	27.4	C	LT	0.74	37.2	D	LT	0.40	25.1	C	LT	0.41	25.4	C	LT	0.61	31.1	C	LT	0.57	29.1	C	LT	0.59	29.7	C	LT	0.76	37.8	D
Westbound	R	0.48	26.6	C	R	0.51	27.2	C	R	0.59	29.6	C	R	0.66	35.7	D	R	0.66	36.0	D	R	0.79	44.8	D	R	0.45	25.6	C	R	0.46	25.8	C	R	0.53	27.2	C
Northbound	TR	0.61	10.8	B	TR	0.61	10.8	B	TR	0.62	10.9	B	TR	0.66	11.4	B	TR	0.66	11.5	B	TR	0.66	11.5	B	TR	0.72	12.4	B	TR	0.73	12.4	B	TR	0.73	12.6	B
Intersection			14.3	B			14.7	B			17.3	B			15.1	B			15.2	B			17.6	B			15.5	B			15.7	B			17.5	B
Amsterdam Ave & W 61st St																																				
Eastbound	LT	0.52	30.3	C	LT	0.73	40.1	D					LT	0.43	27.7	C	LT	0.51	30.1	C					LT	0.37	25.5	C	LT	0.46	27.4	C				
Westbound	R	0.24	24.1	C	R	0.24	24.1	C	TR	0.24	24.1	C	R	0.07	21.0	C	R	0.07	21.0	C	TR	0.07	21.0	C	R	0.18	22.5	C	R	0.18	22.5	C	TR	0.18	22.5	C
Northbound	TR	0.59	9.9	A	TR	0.60	9.9	A	LTR	0.65	10.6	B	TR	0.55	9.4	A	TR	0.55	9.4	A	LTR	0.59	9.8	A	TR	0.74	11.9	B	TR	0.74	11.9	B	LTR	0.79	13.0	B
Intersection			12.2	B			14.0	B			11.1	B			10.9	B			11.4	B			9.9	A			13.0	B			13.4	B			13.3	B
Amsterdam Ave & W 65th St																																				
Eastbound	L	0.21	20.9	C	L	0.24	21.3	C	L	0.24	21.3	C	L	0.21	20.8	C	L	0.21	20.9	C	L	0.21	20.9	C	L	0.18	20.2	C	L	0.19	20.3	C	L	0.19	20.3	C
	T	0.83	42.0	D	T	0.84	42.9	D	T	0.86	45.3	D	T	0.55	27.3	C	T	0.56	27.4	C	T	0.56	27.6	C	T	0.81	40.1	D	T	0.82	40.5	D	T	0.83	41.5	D
Northbound	TR	0.73	14.2	B	TR	0.75	14.6	B	TR	0.74	14.3	B	TR	0.74	14.4	B	TR	0.75	14.5	B	TR	0.74	14.4	B	TR	0.91	20.5	C	TR	0.92	21.2	C	TR	0.92	20.8	C
Intersection			19.4	B			19.8	B			20.2	C			16.1	B			16.3	B			16.2	B			23.1	C			23.8	C			23.5	C

Notes:
V/C = Volume to Capacity; L = Left Turn; T = Through; R = Right Turn; DefL = Defacto Left Turn; LOS = Level of Service.
+ Significant Adverse Traffic Impact

Analysis Locations	AM Peak Hour												Midday Peak Hour												PM Peak Hour											
	2008 No Build				2008 Build				2008 Build w Diversion				2008 No Build				2008 Build				2008 Build w Diversion				2008 No Build				2008 Build				2008 Build w Diversion			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
West End Ave & W 57th St																																				
Eastbound																									DefL	1.34	218.7	F	DefL	1.34	218.7	F	DefL	1.34	218.7	F
	LTR	1.04	74.6	E	LTR	1.04	74.6	E	LTR	1.04	74.6	E	LTR	0.75	31.4	C	LTR	0.75	31.4	C	LTR	0.75	31.4	C	TR	0.76	35.3	D	TR	0.76	35.3	D	TR	0.76	35.3	D
Westbound	DefL	1.23	173.3	F	DefL	1.23	173.3	F	DefL	1.23	173.3	F	DefL	0.97	82.1	F	DefL	0.97	82.1	F	DefL	0.97	82.1	F												
	T	0.75	32.3	C	T	0.75	32.3	C	T	0.75	32.3	C	T	0.70	30.2	C	T	0.70	30.2	C	T	0.70	30.2	C	LT	0.90	40.9	D	LT	0.90	40.9	D	LT	0.90	40.9	D
	R	0.63	29.5	C	R	0.67	31.6	C	R	0.67	31.6	C	R	0.37	22.4	C	R	0.39	22.8	C	R	0.39	22.8	C	R	0.34	21.7	C	R	0.37	22.4	C	R	0.37	22.4	C
Northbound	L	0.43	23.5	C	L	0.45	24.6	C	L	0.46	25.3	C	L	0.51	24.2	C	L	0.51	24.5	C	L	0.52	24.8	C	L	0.60	33.9	C	L	0.61	34.8	C	L	0.62	35.8	D
	TR	0.39	14.9	B	TR	0.41	15.1	B	TR	0.41	15.1	B	TR	0.44	15.6	B	TR	0.45	15.7	B	TR	0.45	15.7	B	TR	0.68	20.2	C	TR	0.70	20.5	C	TR	0.70	20.5	C
Southbound	L	0.28	15.4	B	L	0.29	15.7	B	L	0.29	15.7	B	L	0.42	18.7	B	L	0.43	18.9	B	L	0.43	18.9	B	L	0.82	50.4	D	L	0.84	54.5	D	L	0.84	54.5	D
	TR	0.72	20.9	C	TR	0.74	21.4	C	TR	0.75	21.7	C	TR	0.59	17.8	B	TR	0.59	17.8	B	TR	0.59	17.9	B	TR	0.74	21.4	C	TR	0.74	21.6	C	TR	0.75	21.8	C
Intersection			43.1	D			43.0	D			43.0	D			26.7	C			26.7	C			26.8	C			39.1	D			39.2	D			39.3	D
West End Ave & W 58th St																																				
Eastbound	LTR	0.56	32.7	C	LTR	0.58	33.1	C	LTR	0.58	33.1	C	LTR	0.64	35.5	D	LTR	0.64	35.8	D	LTR	0.64	35.8	D	LTR	0.72	39.3	D	LTR	0.74	40.2	D	LTR	0.74	40.2	D
Northbound	L	0.38	18.0	B	L	0.40	19.2	B	L	0.41	20.1	C	L	0.10	8.2	A	L	0.10	8.2	A	L	0.10	8.2	A	L	0.11	8.6	A	L	0.11	8.6	A	L	0.11	8.6	A
	T	0.48	10.6	B	T	0.51	11.0	B	T	0.51	11.0	B	T	0.32	8.9	A	T	0.33	9.0	A	T	0.33	9.0	A	T	0.53	11.2	B	T	0.55	11.5	B	T	0.55	11.5	B
	R	0.20	8.5	A	R	0.20	8.5	A	R	0.20	8.5	A	R	0.18	8.3	A	R	0.18	8.3	A	R	0.18	8.3	A	R	0.33	10.0	A	R	0.33	10.0	A	R	0.33	10.0	A
Southbound	L	0.28	11.0	B	L	0.30	11.6	B	L	0.33	12.3	B	L	0.11	8.0	A	L	0.12	8.0	A	L	0.12	8.1	A	L	0.35	12.8	B	L	0.36	13.3	B	L	0.38	13.8	B
	TR	0.89	22.7	C	TR	0.90	24.1	C	TR	0.91	25.0	C	TR	0.59	12.2	B	TR	0.59	12.3	B	TR	0.59	12.4	B	TR	0.69	14.2	B	TR	0.69	14.3	B	TR	0.70	14.5	B
Intersection			19.0	B			19.8	B			20.3	C			14.3	B			14.4	B			14.4	B			15.8	B			16.1	B			16.2	B
West End Ave & W 59th St																																				
Eastbound	LT	0.79	61.5	E	LT	0.81	64.9	E	LT	0.71	50.0	D	LT	0.84	63.9	E	LT	0.85	65.5	E	LT	0.77	53.5	D	LT	1.15	145.8	F	**LT**	**1.18**	**156.3**	**+F**	LT	1.07	114.4	F
	R	0.30	28.4	C	R	0.30	28.4	C	R	0.30	28.4	C	R	0.23	27.1	C	R	0.23	27.1	C	R	0.23	27.1	C	R	0.55	35.2	D	R	0.55	35.2	D	R	0.55	35.2	D
Westbound	LT	1.04	98.2	F	**LT**	**1.06**	**103.2**	**+F**	LT	0.93	69.1	E	LT	0.79	48.4	D	LT	0.80	49.3	D	LT	0.69	40.5	D	LT	1.20	157.6	F	**LT**	**1.22**	**165.2**	**+F**	LT	1.07	112.9	F
	R	0.30	28.1	C	R	0.35	29.2	C	R	0.31	28.4	C	R	0.46	31.8	C	R	0.49	32.7	C	R	0.43	31.1	C	R	0.45	31.4	C	R	0.50	33.1	C	R	0.45	31.4	C
Northbound	L	0.18	9.8	A	L	0.18	9.9	A	L	0.19	10.3	B	L	0.12	8.4	A	L	0.12	8.4	A	L	0.13	8.5	A	L	0.08	7.7	A	L	0.08	7.8	A	L	0.08	7.8	A
	TR	0.46	10.4	B	TR	0.49	10.8	B	TR	0.49	10.8	B	TR	0.37	9.5	A	TR	0.38	9.6	A	TR	0.38	9.6	A	TR	0.60	12.4	B	TR	0.63	12.8	B	TR	0.63	12.8	B
Southbound	L	0.03	7.1	A	L	0.03	7.1	A	L	0.03	7.1	A	L	0.06	7.4	A	L	0.06	7.4	A	L	0.06	7.4	A	L	0.09	8.0	A	L	0.09	8.1	A	L	0.09	8.1	A
	TR	0.71	14.7	B	TR	0.72	15.1	B	TR	0.75	15.8	B	TR	0.56	11.9	B	TR	0.57	11.9	B	TR	0.58	12.1	B	TR	0.55	11.6	B	TR	0.56	11.7	B	TR	0.58	12.0	B
Intersection			26.5	C			27.4	C			22.2	C			21.1	C			21.4	C			19.0	B			38.7	D			40.2	D			30.9	C
West End Ave & W 60th St																																				
Eastbound	LTR	0.08	24.3	C	LTR	0.08	24.3	C	LTR	0.08	24.3	C	LTR	0.10	24.5	C	LTR	0.10	24.5	C	LTR	0.10	24.5	C	LTR	0.22	26.1	C	LTR	0.22	26.1	C	LTR	0.22	26.1	C
Northbound	L	0.31	13.1	B	L	0.32	13.5	B	L	0.34	14.5	B	L	0.10	8.1	A	L	0.10	8.1	A	L	0.10	8.1	A	L	0.15	8.9	A	L	0.15	8.9	A	L	0.16	9.1	A
	TR	0.58	12.2	B	TR	0.63	13.2	B	TR	0.63	13.1	B	TR	0.51	11.2	B	TR	0.53	11.5	B	TR	0.53	11.4	B	TR	0.76	16.4	B	TR	0.81	18.2	B	TR	0.80	17.8	B
Southbound	L	0.20	9.6	A	L	0.25	10.6	B	L	0.43	14.9	B	L	0.18	9.0	A	L	0.20	9.4	A	L	0.30	11.0	B	L	0.45	17.5	B	L	0.55	22.9	C	L	0.74	37.9	D
	TR	0.77	16.5	B	TR	0.78	17.0	B	TR	0.81	18.1	B	TR	0.61	12.6	B	TR	0.61	12.7	B	TR	0.63	12.9	B	TR	0.62	12.9	B	TR	0.63	13.0	B	TR	0.65	13.5	B
Intersection			14.7	B			15.3	B			16.0	B			12.2	B			12.3	B			12.4	B			15.3	B			16.4	B			17.2	B
West End Ave & W 61st St																																				
Eastbound	LTR	0.07	24.4	C	LTR	0.07	24.4	C	LR	0.09	24.6	C	LTR	0.05	24.1	C	LTR	0.05	24.1	C	LR	0.06	24.2	C	LTR	0.07	24.3	C	LTR	0.07	24.3	C	LR	0.09	24.6	C
Westbound									LTR	0.34	29.3	C									LTR	0.23	26.9	C									LTR	0.29	28.1	C
Northbound	L	0.03	7.3	A	L	0.03	7.3	A	L	0.04	7.4	A	L	0.03	7.2	A	L	0.03	7.2	A	L	0.03	7.3	A	L	0.04	7.3	A	L	0.04	7.3	A	L	0.04	7.3	A
	T	0.42	10.0	A	T	0.44	10.1	B	T	0.44	10.2	B	T	0.38	9.5	A	T	0.38	9.5	A	T	0.39	9.6	A	T	0.57	11.9	B	T	0.58	12.0	B	T	0.58	12.0	B
	R	0.09	7.5	A	R	0.11	7.7	A					R	0.10	7.6	A	R	0.10	7.6	A					R	0.09	7.5	A	R	0.09	7.5	A				
Southbound	L	0.29	10.7	B	L	0.30	10.9	B					L	0.20	9.2	A	L	0.20	9.2	A					L	0.31	12.0	B	L	0.31	12.1	B				
	TR	0.69	14.1	B	TR	0.71	14.5	B	TR	0.73	15.1	B	TR	0.64	13.1	B	TR	0.65	13.2	B	TR	0.67	13.6	B	TR	0.58	11.9	B	TR	0.59	12.1	B	TR	0.61	12.4	B
Intersection			12.5	B			12.7	B			14.1	B			11.6	B			11.7	B			12.7	B			11.9	B			12.0	B			12.9	B
West End Ave & W 65th St																																				
Eastbound	LTR	0.02	25.9	C	LTR	0.02	25.9	C	LTR	0.02	25.9	C	LTR	0.02	25.9	C	LTR	0.02	25.9	C	LTR	0.02	25.9	C	LTR	0.02	25.9	C	LTR	0.02	25.9	C	LTR	0.02	25.9	C
Northbound	L	0.01	12.0	B	L	0.01	12.0	B	L	0.01	12.0	B	L	0.00	11.8	B	L	0.00	11.8	B	L	0.00	11.8	B	L	0.01	11.9	B	L	0.01	11.9	B	L	0.01	11.9	B
	TR	0.60	19.1	B	TR	0.62	19.5	B	TR	0.65	20.1	C	TR	0.51	17.3	B	TR	0.51	17.3	B	TR	0.52	17.5	B	TR	0.73	22.4	C	TR	0.74	22.6	C	TR	0.75	23.0	C
Southbound	L	0.75	22.3	C	L	0.77	23.5	C	L	0.78	25.0	C	L	0.47	11.4	B	L	0.47	11.5	B	L	0.48	11.6	B	L	0.94	47.5	D	L	0.94	48.9	D	L	0.95	51.2	D
	TR	0.58	12.3	B	TR	0.70	12.6	B	TR	0.70	12.6	B	TR	0.57	10.4	B	TR	0.57	10.5	B	TR	0.57	10.5	B	TR	0.63	11.3	B	TR	0.64	11.5	B	TR	0.64	11.5	B
Intersection			15.7	B			16.1	B			16.5	B			12.9	B			13.0	B			13.1	B			20.4	C			20.7	C			21.2	C
West End Ave & W 66th St																																				
Eastbound	LR	0.07	20.2	C	LR	0.07	20.2	C	LR	0.07	20.2	C	LR	0.10	20.6	C	LR	0.10	20.6	C	LR	0.10	20.6	C	LR	0.05	20.0	B	LR	0.05	20.0	B	LR	0.05	20.0	B
Westbound	L	0.70	38.0	D	L	0.74	40.2	D	L	0.74	40.2	D	L	0.72	39.1	D	L	0.73	39.6	D	L	0.73	39.6	D	L	0.99	78.8	E	**L**	**1.01**	**82.9**	**+F**	**L**	**1.01**	**82.9**	**+F**
	LT	0.76	38.0	D	LT	0.77	38.9	D	LT	0.77	38.9	D	LT	0.77	39.6	D	LT	0.78	40.0	D	LT	0.78	40.0	D	LT	1.02	81.0	F	LT	1.03	83.0	F	LT	1.03	83.0	F
	R	0.24	22.7	C	R	0.24	22.7	C	R	0.24	22.7	C	R	0.40	25.8	C	R	0.40	25.8	C	R	0.40	25.8	C	R	0.60	31.9	C	R	0.60	31.9	C	R	0.60	31.9	C
Northbound	L	0.50	38.5	D	L	0.50	38.5	D	L	0.50	38.5	D	L	0.18	17.6	B	L	0.18	17.7	B	L	0.18	17.7	B	L	0.31	20.0	B	L	0.31	20.3	C	L	0.31	20.3	C
	T	0.37	17.5	B	T	0.38	17.6	B	T	0.39	17.8	B	T	0.41	17.9	B	T	0.41	18.0	B	T	0.41	18.0	B	T	0.53	18.0	B	T	0.53	18.0	B	T	0.54	18.1	B
Southbound	T	0.93	37.5	D	T	0.94	39.0	D	T	0.94	39.0	D	T	0.65	22.1	C	T	0.65	22.2	C	T	0.65	22.2	C	T	0.72	22.0	C	T	0.73	22.3	C	T	0.73	22.3	C
	R	0.10	15.0	B	R	0.10	15.0	B	R	0.10	15.0	B	R	0.14	15.5	B	R	0.14	15.5	B	R	0.14	15.5	B	R	0.11	13.4	B	R	0.11	13.4	B	R	0.11	13.4	B
Intersection			32.7	C			33.8	C			33.7	C			25.6	C			25.8	C			25.8	C			37.0	D			38.0	D			38.0	D
Route 9A & W 56th St																																				
Northbound (main)	T	0.88	35.1	D	T	0.88	35.2	C	T	0.88	35.2	C	T	0.58	2.9	A	T	0.58	2.9	A	T	0.58	2.9	A	T	0.80	7.3	A	T	0.80	7.3	A	T	0.80	7.3	A
Northbound (service)	TR	0.35	22.7	C	TR	0.35	22.7	C	TR	0.35	22.7	C	TR	0.20	1.8	A	TR	0.20	1.8	A	TR	0.20	1.8	A	TR	0.20	3.1	A	TR	0.20	3.1	A	TR	0.20	3.1	A
Southbound	L	0.48	29.2	C	L	0.48	29.2	C	L	0.48	29.2	C	L	0.85	60.9	E	L	0.85	60.9	E	L	0.85	60.9	E	L	0.96	82.5	F	L	0.96	82.5	F	L	0.96	82.5	F
	T	0.62	1.0	A	T	0.62	1.0	A	T	0.62	1.0	A	T	0.46	0.5	A	T	0.46	0.5	A	T	0.46	0.5	A	T	0.43	0.4	A	T	0.43	0.4	A	T	0.43	0.4	A
Intersection			16.6	B			16.7	B			16.7	B			6.3	A			6.3	A			6.3	A			11.6	B			11.6	B			11.6	B
Route 9A & W 57th St																																				
Westbound	R	0.42	33.4	C	R	0.42	33.4	C	R	0.42	33.4	C	R	0.57	40.0	D	R	0.57	40.0	D	R	0.57	40.0	D	R	1.01	89.0	F	R	1.01	89.0	F	R	1.01	89.0	F
Northbound	T	0.63	18.3	B	T	0.63	18.3	B	T	0.63	18.3	B	T	0.57	6.2	A	T	0.57	6.2	A	T	0.57	6.2	A	T	0.74	6.2	A	T	0.74	6.2	A	T	0.74	6.2	A
Intersection			21.3	C			21.3	C			21.3	C			11.9	B			11.9	B			11.9	B			22.6	C			22.5	C			22.5	C

Notes:
V/C = Volume to Capacity; L = Left Turn; T = Through; R = Right Turn; DefL = Defacto Left Turn; LOS = Level of Service.
+ Significant Adverse Traffic Impact