Chapter 13: Transportation

A. INTRODUCTION

This chapter examines the potential effects of the Proposed Action on the study area transportation systems, and compares the future with the Proposed Action (the With-Action condition) with the future without the Proposed Action (the No-Action condition).

Through the Proposed Action, the Applicant seeks to activate and enhance the area known as Hudson Square by permitting mixed-use development while preserving the area's commercial base and existing built character. The sites owned by the Applicant are currently occupied by office buildings, ground-floor retail, vacant land, and parking facilities. In the With-Action condition, the projected development sites would be redeveloped with residential, office, school, and ground-floor retail uses. Dormitory uses—although not currently envisioned by the Applicant—have also been studied for the purposes of conservative environmental review because they could be developed on sites not under the Applicant's control.

As described in Chapter 1, "Project Description," the analyses presented in this chapter were prepared based on a slight variation of the No-Action and With-Action reasonable worst case development scenario (RWCDS) assumptions. As a result of recent building permits issued for new developments in the Rezoning Area that were not accounted in the Draft Scope of Work for the Environmental Impact Statement (EIS), several changes were made to the No-Action and With-Action RWCDS assumptions. The changes to the RWCDS occurred shortly prior to certification of the Draft EIS, after substantial work had been completed on the transportation analyses. Because the RWCDS analyzed in this chapter analyzes a larger incremental development between the No-Action and With-Action conditions, the analyses are conservative in that they present a larger potential for project-generated impacts. Between the Draft and Final EIS, the transportation and transportation-related analyses will be updated to reflect the final RWCDS.

PRINCIPAL CONCLUSIONS

TRAFFIC

Traffic conditions were evaluated at 22 intersections for the weekday AM, midday, and PM peak hours and at 18 intersections for the Saturday midday peak hour. Under the With-Action condition, there would be the potential for significant adverse impacts at 13 intersections during the weekday AM peak hour, 3 intersections during the weekday midday peak hour, 13 intersections during the PM peak hour, and 5 intersections during the Saturday midday peak hour, as follows:

Weekday AM Peak Hour

- West Street and Clarkson Street – southbound left-turn;
- West Street and West Houston Street – westbound right-turn;

- West Street and Canal Street North – westbound left-turn/right-turn and westbound right-turn;
- Hudson Street and King Street – northbound approach;
- Hudson Street (east and west lanes) and Canal Street – westbound through/right-turn and northbound left-turn/through (west lanes);
- Varick Street (east and west lanes) and West Houston Street – southbound through/right-turn (west lanes);
- Varick Street (east and west lanes) and King Street – southbound through (west lanes);
- Varick Street (east and west lanes) and Charlton Street – southbound through/right-turn (west lanes);
- Varick Street (east and west lanes) and Spring Street – southbound left-turn/through (east lanes);
- Varick Street and Canal Street – westbound approach;
- Avenue of the Americas and West Houston Street – northbound approach;
- Avenue of the Americas and Spring Street – eastbound left-turn; and
- Avenue of the Americas and Canal Street/Laight Street – northbound approach.

Weekday Midday Peak Hour

- West Street and West Houston Street – westbound right-turn;
- Varick Street (east and west lanes) and Spring Street – eastbound right-turn; and
- Varick Street (east and west lanes) and Broome Street – southbound through/right-turn (west lanes) and southbound right-turn (west lanes).

Weekday PM Peak Hour

- West Street and Clarkson Street – southbound left-turn;
- West Street and West Houston Street – westbound right-turn;
- Hudson Street and Charlton Street – westbound approach;
- Hudson Street (east and west lanes) and Canal Street – northbound left-turn/through (west lanes);
- Varick Street (east and west lanes) and West Houston Street – southbound through/right-turn (west lanes);
- Varick Street (east and west lanes) and King Street – southbound through (west lanes);
- Varick Street (east and west lanes) and Charlton Street – westbound approach and southbound through/right-turn (west lanes);
- Varick Street (east and west lanes) and Vandam Street – southbound through/right-turn (west lanes);
- Varick Street (east and west lanes) and Spring Street – eastbound through, eastbound right-turn, and southbound through (west lanes);
- Varick Street (east and west lanes) and Dominick Street – southbound through/right-turn (west lanes);
- Varick Street (east and west lanes) and Broome Street – southbound through/right-turn and southbound right-turn (west lanes); and
- Varick Street and Canal Street – southbound left-turn; and
- Avenue of the Americas and Canal Street/Laight Street – westbound approach.

Saturday Midday Peak Hour

- Varick Street (east and west lanes) and King Street – southbound through (west lanes);
- Varick Street (east and west lanes) and Charlton Street – southbound through/right-turn (west lanes);
- Varick Street (east and west lanes) and Spring Street – eastbound through/right-turn, eastbound right-turn, and southbound left-turn/through (east lanes);
- Varick Street (east and west lanes) and Dominick Street – southbound through/right-turn (west lanes); and
- Varick Street (east and west lanes) and Broome Street – southbound through/right-turn (west lanes) and southbound right-turn (west lanes).

Table 13-1 provides a summary of the above impacted locations by analysis time periods. As detailed in Chapter 20, "Mitigation," some of these significant adverse impacts could be mitigated with standard traffic engineering measures while others could not be mitigated during one or more analysis time periods. Additional intersections may be analyzed between the Draft and Final EIS. These intersections will be selected in consultation with DCP and NYCDOT. The analysis of these additional intersections may identify additional significant adverse traffic impacts, for which mitigation measures would be identified. If feasible measures are not available to fully mitigate these impacts, they would be identified as unmitigated in the Final EIS.

Table 13-1
Summary of Significant Adverse Traffic Impacts

Intersection		AM	Midday	PM	Saturday
EB/WB Street	**NB/SB Street**	**Peak Hour**	**Peak Hour**	**Peak Hour**	**Peak Hour**
Clarkson Street	West Street	SB-L		SB-L	
West Houston Street	West Street	WB-R	WB-R	WB-R	
Canal Street North	West Street	WB-LR WB-R			
King Street	Hudson Street	NB-TR			
Charlton Street	Hudson Street			WB-TR	
Canal Street	Hudson Street	WB-TR NB-LT (west lanes)		NB-LT (west lanes)	
West Houston Street	Varick Street	SB-TR (west lanes)		SB-TR (west lanes)	
King Street	Varick Street	SB-T (west lanes)		SB-T (west lanes)	SB-T (west lanes)
Charlton Street	Varick Street	SB-TR (west lanes)		WB-LT SB-TR (west lanes)	SB-TR (west lanes)
Vandam Street	Varick Street			SB-TR (west lanes)	
Spring Street	Varick Street	SB-LT (east lanes)	EB-R	EB-T EB-R SB-T (west lanes)	EB-TR EB-R SB-LT (east lanes)
Dominick Street	Varick Street			SB-TR (west lanes)	SB-TR (west lanes)
Broome Street	Varick Street		SB-TR (west lanes) SB-R (west lanes)	SB-TR (west lanes) SB-R (west lanes)	SB-TR (west lanes) SB-R (west lanes)
Canal Street	Varick Street	WB-LT		SB-L	
West Houston Street	Avenue of the Americas	NB-LTR			
Spring Street	Avenue of the Americas	EB-L			
Canal Street/Laight Street	Avenue of the Americas	NB-LTR		WB-TR	

Notes: EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left Turn; T = Through; R = Right Turn

TRANSIT

The screening assessment summarized below in Section D, "Level 2 Screening assessment", concluded that a detailed examination of subway and busline-haul conditions is not warranted. However, detailed analyses of station elements at two area subway stations—the Spring Street

station (C/E lines) and the Houston Street station (No.1 line)—were prepared. The analysis results show that the Proposed Action would not result in any significant adverse transit impacts during any analysis peak periods.

PEDESTRIANS

Weekday and Saturday peak period pedestrian conditions were evaluated at key sidewalk, corner reservoir, and crosswalk elements at 11 area intersections. Under the RWCDS, significant adverse impacts were identified for the north crosswalk of Avenue of the Americas and Spring Street and the north crosswalk of Varick Street and Spring Street.

Table 13-2 provides a summary of these impacted locations by analysis time periods. As detailed in Chapter 20, "Mitigation," these significant adverse impacts could be mitigated with crosswalk widenings.

Table 13-2
Summary of Significant Adverse Pedestrian Impacts

Intersection	Pedestrian Element	2022 With-Action			
		AM Peak Hour	Midday Peak Hour	PM Peak Hour	Saturday Peak Hour
Avenue of the Americas and Spring Street	North Crosswalk			X	
Varick Street and Spring Street	North Crosswalk	X		X	

Notes: X = Impacted

VEHICULAR AND PEDESTRIAN SAFETY

Accident data for the study area intersections were obtained from the New York State Department of Transportation (NYSDOT) for the time period between March 31, 2008 and March 31, 2011. During this period, a total of 864 reportable and non-reportable accidents, zero fatalities, 380 injuries, and 92 pedestrian/bicyclist-related accidents occurred at the study area intersections. A rolling total of accident data identifies two study area intersections as high pedestrian accident locations in the 2008 to 2011 period. These intersections are Varick Street at West Houston Street and Avenue of the Americas at West Houston Street.

With the Proposed Action, the intersection of Varick Street and West Houston Street would experience moderate increases in vehicular and pedestrian traffic. The net incremental vehicular and pedestrian levels at this intersection would be above the *CEQR* analysis threshold of 50 peak hour vehicle trips while the net incremental pedestrian levels would be below the *CEQR* analysis threshold of 200 peak hour pedestrian trips. The intersection of Varick Street and West Houston Street would incur significant adverse impacts during the AM and PM peak hours. As described in Chapter 20, "Mitigation," the predicted impacts at this intersection could be fully mitigated during the weekday AM peak hour with standard traffic engineering measures; however, the impact during the weekday PM peak hour could not be fully migitated. Because the incremental vehicle trips at this intersection during the weekday PM peak hour would mostly be on the Varick Street southbound through movement and the incremental increase in pedestrian trips from the Proposed Action at this intersection's crosswalks would not be substantial, the potential for additional vehicular-pedestrian conflicts, which mostly occur with vehicular turning movements through crosswalks, is expected to be minimal. Therefore, the Proposed Action is not anticipated to exacerbate any of the current causes of pedestrian-related accidents. Nonetheless, additional safety measures such as the installation of signs warning turning vehicles to yield to pedestrians in the crosswalk on the southbound and westbound approaches

and the installation of countdown timers at all crosswalks, can be implemented to improve pedestrian safety at this intersection.

With the Proposed Action, the intersection of Avenue of the Americas and West Houston Street would experience moderate increases in vehicular and pedestrian traffic. The net incremental vehicular and pedestrian levels at this intersection would be above the *CEQR* analysis threshold of 50 peak hour vehicle trips while the net incremental pedestrian levels would be below the *CEQR* analysis threshold of 200 peak hour pedestrian trips. The intersection of Avenue of the Americas and West Houston Street would incur significant adverse impacts during the AM peak hour. However, as described in Chapter 20, "Mitigation," the predicted impact at this intersection could be fully mitigated with standard traffic engineering measures. Therefore, the proposed project is not anticipated to exacerbate any of the current causes of pedestrian-related accidents. Nonetheless, additional safety measures, such as the installation of pedestrian safety signs (i.e., School Advance Warning assemblies on the northbound approach) and restriping the west crosswalk into a high-visibility crosswalk, can be implemented to improve pedestrian safety at this intersection.

PARKING

The Proposed Action would displace existing public parking spaces and include new off-street accessory parking spaces. In the With-Action condition, expected future development projects (No-Action and With-Action condition) are expected to displace 10 public parking facilities, for a total displacement of approximately 809 parking spaces. The Proposed Action is expected to include a total of up to 640 off-street accessory parking spaces. Accounting for the displacement of the public parking spaces, the addition of the accessory parking spaces, and the parking demand generated from background growth, No-Action condition, and the Proposed Action, the With-Action public parking supply and utilization analysis shows that there would be a parking shortfall during the weekday midday period within the ¼-mile off-street parking study area. However, based on the magnitude of available and total parking spaces within ½-mile of the rezoning boundaries (minimum of 2,000 out of approximately 9,000 spaces), it is anticipated that the excess demand could be accommodated with a slightly longer walking distance beyond the ¼-mile radius. Furthermore, as stated in the *CEQR Technical Manual*, a parking shortfall resulting from a project located in Manhattan does not constitute a significant adverse parking impact, due to the magnitude of available alternative modes of transportation.

SUMMARY OF MITIGATION ANALYSIS

Most of the significant adverse impacts summarized above could be mitigated with readily implementable measures, such as signal retiming, changes to parking regulations, and crosswalk widening. Out of the 17 impacted traffic intersections, impacts at 11 intersections could not be fully mitigated during one or more analysis peak hours. The two crosswalk impacts could be fully mitigated. The specific measures that would be feasible to mitigate the significant adverse impacts summarized above are further discussed in Chapter 20, "Mitigation." These measures would be subject to the review and approval by the New York City Department of Transportation (NYCDOT).

B. PRELIMINARY ANALYSIS METHODOLOGY

The 2012 *CEQR Technical Manual* describes a two-tier screening procedure for the preparation of a "preliminary analysis" to determine if quantified analyses of transportation conditions are warranted. As discussed below, the preliminary analysis begins with a trip generation analysis

(Level 1) to estimate the volume of person and vehicle trips attributable to the Proposed Action. According to the *CEQR Technical Manual*, if the Proposed Action is expected to result in fewer than 50 peak hour vehicle trips and fewer than 200 peak hour transit or pedestrian trips, further quantified analyses are not warranted. When these thresholds are exceeded, detailed trip assignments (Level 2) are performed to estimate the incremental trips that could be incurred at specific transportation elements and to identify potential locations for further analyses. If the trip assignments show that the Proposed Action would generate 50 or more peak hour vehicle trips at an intersection, 200 or more peak hour subway trips at a station, 50 or more peak hour bus trips in one direction along a bus route, or 200 or more peak hour pedestrian trips traversing a pedestrian element, then further quantified analyses may be warranted to assess the potential for significant adverse impacts on traffic, transit, pedestrians, parking, and vehicular and pedestrian safety.

C. LEVEL 1 SCREENING ASSESSMENT

A Level 1 trip generation screening assessment was conducted to estimate the volume of person and vehicle trips by mode expected to be generated by the Proposed Action during the weekday AM, midday, PM, and Saturday midday peak hours for the RWCDS. These estimates were then compared to the *CEQR Technical Manual* thresholds to determine if a Level 2 screening and/or quantified analyses would be warranted.

BACKGROUND

The proposed development would include residential, office, school, ground-floor retail, and dormitory uses, as well as provisions for parking. It consists of 22 projected development sites (16 are projected new construction sites, 3 are projected enlargement sites on which additional floors could be constructed above the existing structures, and 3 are projected conversion sites) spread across an approximately 18-block Rezoning Area located within Community Board 2. The Rezoning Area's projected enlargement sites are expected to retain their uses in the No-Action condition, but would be enlarged (in some cases with different uses) in the With-Action condition. As described above, the analyses presented in this chapter address a larger development increment between the No-Action and With-Action conditions than currently contemplated. Accordingly, the current development assumptions are expected to yield increments that would be up to approximately 470 fewer person trips and up to approximately 80 fewer vehicle trips during peak hours. With these trips distributed across various analysis locations within the transportation network, the differences at individual intersections, subway stairs, and pedestrian elements would be more modest. However, because these increments are smaller than what have been assumed for the current transportation analysis, the resulting impacts would also be of lesser magnitudes. The current transportation analysis is conservative in that it shows larger potential for project-generated impacts on traffic, transit, pedestrians, and parking.

The transportation analysis is a density-based technical analysis, so only the anticipated development on the projected development sites (including projected new construction, enlargements, and changes of use) form the basis for this impact assessment. The potential development sites that are considered less likely to be developed within the 10-year analysis period are not included in this assessment.

The two RWCDS include various development components that represent "worst-case" conditions for the EIS technical analyses. The two RWCDS both have approximately the same amount of developable square footage. The only difference between the two scenarios is that

Scenario 1 would contain all residential dwelling units (approximately 2,887,000 square feet) and Scenario 2 would contain a mix of residential dwelling units and dormitory space (approximately 2,596,000 and 254,900 square feet, respectively). For a conservative analysis, the scenario with the dormitory space, which would yield a larger number of occupants, was selected for this travel demand analysis.

Overall, in the With-Action condition under RWCDS 2, the projected development sites would contain approximately 3,030 dwelling units, 1,006,800 gross square feet (gsf) of commercial office space, 244,700 gsf of retail use, a public school (pre-kindergarten through fifth grade) of up to 75,000 gsf with approximately 444 seats, 254,900 gsf of dormitory space (773 beds[1]), and 640 new accessory parking spaces. The two With-Action RWCDS are summarized in **Table 13-3**.

Table 13-3
Proposed Rezoning Area—RWCDS

Uses	Scenario 1	Scenario 2
Residential (DUs)	3,376	3,030
Office (gsf)	1,006,748	1,006,748
Retail (gsf) (1)		
Destination Retail	128,096	128,096
Local Retail	116,572	116,572
Total	244,668	244,668
School		
Students	444	444
Staff/Faculty	40	40
gsf	75,000	75,000
Dormitory (beds)	0	773
Accessory Parking Spaces	710	640

Notes: (1) For trip generation purposes, retail space was divided into destination and local retail based primarily on the size of the retail space available at each site.
Sources: NYC DCP MapPLUTO 10v1 (2010) data. AKRF, Inc; SHoP Architects; HR&A Advisors.

The No-Action condition provides a baseline condition that is evaluated and compared with the incremental changes in the With-Action condition for the same analysis year (2022). The No-Action condition uses existing conditions as a baseline and adds to it changes that are known or expected to be in place at various times in the future. It is anticipated that absent the Proposed Action, given the existing M1-6 zoning, the current trend of hotel development would continue in this area. The No-Action condition for this EIS consists of currently planned or ongoing development projects within the Rezoning Area, as well as the development that is expected to occur on certain sites controlled by the Applicant by 2022.

Based on the details presented in Chapter 1, "Project Descriptions," the predicted change in No-Action condition within the Rezoning Area was summarized, as presented in **Table 13-4**. This table summarizes the existing uses and shows that development in the No-Action condition is predicted to have a total of approximately 90 dwelling units, 867,200 gsf of commercial office space, 172,100 gsf of other commercial uses (assumed to include conference center, community theater, catering hall, professional school, and health club), 142,800 gsf of retail use, 800 hotel rooms, and 192 new accessory parking spaces. It also summarizes the development components presented in **Table 13-3** for With-Action (RWCDS 2) and shows the incremental differences of the No-Action and With-Action development totals over existing conditions.

[1] Assumes one dormitory bed per 300 zoning square feet (or one bed per 330 gsf) of dormitory space.

Table 13-4
Existing, No-Action, and With-Action (RWCDS 2) Development Scenarios

Uses	Existing	No-Action	No-Action net Existing	With-Action	With-Action net Existing
Residential (DUs)	29	90	61	3,030	3,001
Office (gsf)	678,053	867,165	189,112	1,006,748	328,695
Other Commercial (gsf)					
Conference Center		50,666	50,666		
Community Theater		13,328	13,328		
Catering Hall		40,000	40,000		
Professional School		46,216	46,216		
Health Club		21,934	21,934		
Total		172,144	172,144		
Retail (gsf) [(1)]					
Destination Retail	31,411	73,345	41,934	128,096	96,685
Local Retail	30,652	69,489	38,837	116,572	85,920
Total	62,063	142,834	80,771	244,668	182,605
School					
Students				444	444
Staff/Faculty				40	40
gsf				75,000	75,000
Dormitory (beds)				773	773
Hotel (rooms)		800	800	0	0
Storage (gsf) [(2)]	95,815	165,815	70,000	0	-95,815
Accessory Parking Spaces	N/A	192	192	640	640

Notes: N/A = Not Available.
(1) For trip generation purposes, retail space was divided into destination and local retail based primarily on the size of the retail space available at each site.
(2) Storage and public parking facilities were conservatively not included in the trip credit calculations.
Sources: NYC Department of Buildings; Trinity Real Estate; NYC DCP MapPLUTO 10v1 (2010) data; AKRF, Inc; SHoP Architects; HR&A Advisors.

As discussed above, there are 22 projected development sites within the Rezoning Area and some of the development sites have existing uses that would be replaced by future developments, albeit differently under the No-Action and With-Action conditions. Hence, the "net Existing" columns presented in **Table 13-4** represents the layer of trips that future No-Action and With-Action conditions would add onto existing levels. The "No-Action net Existing" column represents the net incremental difference between the No-Action and existing uses on the development sites. Likewise, the "With-Action net Existing" column represents the net incremental difference between the With-Action and existing uses on the development sites. These increments were analyzed for their potential trip generation and distribution onto the transportation network as detailed below.

TRANSPORTATION PLANNING ASSUMPTIONS

Travel demand projections were prepared for each of the No-Action and With-Action conditions for the weekday AM, midday, PM, and Saturday midday peak hours. The resulting trip increments (Proposed Action trips minus No-Action trips) were compared with the applicable *CEQR Technical Manual* screening thresholds to determine if additional quantified analyses were warranted. The transportation planning assumptions used in calculating the trip estimates are described below and detailed in **Table 13-5**. These assumptions are based on travel demand factors from established and published sources, including the *CEQR Technical Manual*, U.S. Census data, and other approved studies, including the *NYU Core DEIS*, *Western Rail Yard FEIS*, and *Battery Maritime Building Redevelopment EAS*.

Table 13-5
Transportation Planning Assumptions

Use	Day of the Week	Daily Trip Rate [1] (per Dwelling Unit) Person	Delivery	Peak Hour	Person Trips [1,2] Temporal	In	Out	Total	Delivery Trips [1] Temporal	In	Out	Total
Residential	Weekday											
	Initial	8.075	-	AM	10.0%	15.0%	85.0%	100.0%	12.0%	50.0%	50.0%	100.0%
	Link Credit	0%	-	MD	5.0%	50.0%	50.0%	100.0%	9.0%	50.0%	50.0%	100.0%
	Final	8.075	0.06	PM	11.0%	70.0%	30.0%	100.0%	2.0%	50.0%	50.0%	100.0%
	Saturday											
	Initial	9.6	-									
	Link Credit	0%	-	MD	8.0%	50.0%	50.0%	100.0%	9.0%	50.0%	50.0%	100.0%
	Final	9.6	0.02									

	Peak Hour	Mode of Transportation [3] Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Vehicle Occupancy [2,3] Auto	Taxi	School Bus
Weekday	AM	9.0%	7.0%	55.0%	2.0%	0.0%	27.0%	100.0%	1.11	1.40	-
	MD	9.0%	7.0%	55.0%	2.0%	0.0%	27.0%	100.0%	1.11	1.40	-
	PM	9.0%	7.0%	55.0%	2.0%	0.0%	27.0%	100.0%	1.11	1.40	-
Saturday	MD	9.0%	7.0%	55.0%	2.0%	0.0%	27.0%	100.0%	1.11	1.40	-

Use	Day of the Week	Daily Trip Rate [1] (per 1,000 SF) Person	Delivery	Peak Hour	Person Trips [1,4] Temporal	In	Out	Total	Delivery Trips [1] Temporal	In	Out	Total
Office	Weekday											
	Initial	18	-	AM	12.0%	96.0%	4.0%	100.0%	10.0%	50.0%	50.0%	100.0%
	Link Credit	0%	-	MD	15.0%	48.0%	52.0%	100.0%	11.0%	50.0%	50.0%	100.0%
	Final	18	0.32	PM	14.0%	5.0%	95.0%	100.0%	2.0%	50.0%	50.0%	100.0%
	Saturday											
	Initial	3.9	-									
	Link Credit	0%	-	MD	17.0%	57.0%	43.0%	100.0%	11.0%	50.0%	50.0%	100.0%
	Final	3.9	0.01									

	Peak Hour	Mode of Transportation [4,5] Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Vehicle Occupancy [2] Auto	Taxi	School Bus
Weekday	AM	18.0%	3.0%	60.0%	8.0%	0.0%	9.0%	98.0%	1.19	1.4	-
	MD	2.0%	3.0%	6.0%	6.0%	0.0%	81.0%	98.0%	1.19	1.4	-
	PM	18.0%	3.0%	60.0%	8.0%	0.0%	9.0%	98.0%	1.19	1.4	-
Saturday	MD	2.0%	3.0%	6.0%	6.0%	0.0%	81.0%	98.0%	1.19	1.4	-

Use	Day of the Week	Daily Trip Rate [1] (per 1,000 SF) Person	Delivery	Peak Hour	Person Trips [1,2] Temporal	In	Out	Total	Delivery Trips [1,6] Temporal	In	Out	Total
Destination Retail	Weekday											
	Initial	78.2	-	AM	3.0%	50.0%	50.0%	100.0%	8.0%	50.0%	50.0%	100.0%
	Link Credit	25%	-	MD	9.0%	55.0%	45.0%	100.0%	11.0%	50.0%	50.0%	100.0%
	Final	58.65	0.35	PM	9.0%	47.0%	53.0%	100.0%	2.0%	50.0%	50.0%	100.0%
	Saturday											
	Initial	92.5	-									
	Link Credit	25%	-	MD	11.0%	52.0%	48.0%	100.0%	11.0%	50.0%	50.0%	100.0%
	Final	69.375	0.04									

	Peak Hour	Mode of Transportation [2] Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Vehicle Occupancy [2] Auto	Taxi	School Bus
Weekday	AM	9.0%	4.0%	28.5%	8.0%	0.0%	50.5%	100.0%	2.00	2.00	-
	MD	9.0%	4.0%	20.0%	8.0%	0.0%	59.0%	100.0%	2.00	2.00	-
	PM	9.0%	4.0%	28.5%	8.0%	0.0%	50.5%	100.0%	2.00	2.00	-
Saturday	MD	9.0%	4.0%	20.0%	8.0%	0.0%	59.0%	100.0%	2.00	2.00	-

Use	Day of the Week	Daily Trip Rate [1] (per 1,000 SF) Person	Delivery	Peak Hour	Person Trips [1,7] Temporal	In	Out	Total	Delivery Trips [1] Temporal	In	Out	Total
Local Retail	Weekday											
	Initial	205.0	-	AM	3.0%	50.0%	50.0%	100.0%	8.0%	50.0%	50.0%	100.0%
	Link Credit	25%	-	MD	19.0%	50.0%	50.0%	100.0%	11.0%	50.0%	50.0%	100.0%
	Final	153.75	0.35	PM	10.0%	50.0%	50.0%	100.0%	2.0%	50.0%	50.0%	100.0%
	Saturday											
	Initial	240.0	-									
	Link Credit	25%	-	MD	10.0%	50.0%	50.0%	100.0%	11.0%	50.0%	50.0%	100.0%
	Final	180.0	0.04									

	Peak Hour	Mode of Transportation [7] Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Vehicle Occupancy [7] Auto	Taxi	School Bus
Weekday	AM	2.0%	3.0%	6.0%	6.0%	0.0%	83.0%	100.0%	1.65	1.4	-
	MD	2.0%	3.0%	6.0%	6.0%	0.0%	83.0%	100.0%	1.65	1.4	-
	PM	2.0%	3.0%	6.0%	6.0%	0.0%	83.0%	100.0%	1.65	1.4	-
Saturday	MD	2.0%	3.0%	6.0%	6.0%	0.0%	83.0%	100.0%	1.65	1.4	-

Table 13-5 (cont'd)
Transportation Planning Assumptions

Use		Daily Trip Rate [1,2] (per room)		Peak Hour	Person Trips [1,2]				Delivery Trips [2]			
		Person	Delivery		Temporal	In	Out	Total	Temporal	In	Out	Total
Hotel	Weekday											
	Initial	9.4	-	AM	8.0%	39.0%	61.0%	100.0%	12.2%	50.0%	50.0%	100.0%
	Link Credit	0%	-	MD	14.0%	54.0%	46.0%	100.0%	8.7%	50.0%	50.0%	100.0%
	Final	9.4	0.06	PM	13.0%	65.0%	35.0%	100.0%	1.0%	50.0%	50.0%	100.0%
	Saturday											
	Initial	9.4	-									
	Link Credit	0%	-	MD	9.0%	56.0%	44.0%	100.0%	9.0%	50.0%	50.0%	100.0%
	Final	9.4	0.01									

	Mode of Transportation [2]							Vehicle Occupancy [2]		
Peak Hour	Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Auto	Taxi	School Bus
AM	9.0%	18.0%	24.0%	3.0%	0.0%	46.0%	100.0%	1.40	1.8	-
Weekday MD	8.0%	15.0%	13.0%	3.0%	0.0%	61.0%	100.0%	1.4	1.8	-
PM	9.0%	18.0%	24.0%	3.0%	0.0%	46.0%	100.0%	1.4	1.8	-
Saturday MD	9.0%	18.0%	24.0%	3.0%	0.0%	46.0%	100.0%	1.4	1.8	-

Use		Daily Trip Rate [7] Person (per Student)		Peak Hour	Person Trips [7]				Delivery Trips [7]			
		Person	Delivery		Temporal	In	Out	Total	Temporal	In	Out	Total
School Student	Weekday											
	Initial	2	-	AM	50.0%	100.0%	0.0%	100.0%	-	50.0%	50.0%	100.0%
	Link Credit	0%	-	MD	0.0%	0.0%	0.0%	0.0%	-	50.0%	50.0%	100.0%
	Final	2	-	PM	2.5%	0.0%	100.0%	100.0%	-	50.0%	50.0%	100.0%
	Saturday											
	Initial	0	-									
	Link Credit	0%	-	MD	0.0%	50.0%	50.0%	100.0%	-	50.0%	50.0%	100.0%
	Final	0	-									

	Mode of Transportation [7]							Vehicle Occupancy [7]		
Peak Hour	Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Auto	Taxi	School Bus
AM	6.2%	1.7%	0.0%	0.0%	3.9%	88.2%	100.0%	1.70	1.22	19
Weekday MD	6.2%	1.7%	0.0%	0.0%	3.9%	88.2%	100.0%	1.7	1.22	19
PM	6.2%	1.7%	0.0%	0.0%	3.9%	88.2%	100.0%	1.7	1.22	19
Saturday MD	6.2%	1.7%	0.0%	0.0%	3.9%	88.2%	100.0%	1.7	1.22	19

Use		Daily Trip Rate [7] Person (per Staff) Delivery (per 1,000 SF)		Peak Hour	Person Trips [7]				Delivery Trips [7]			
		Person	Delivery		Temporal	In	Out	Total	Temporal	In	Out	Total
School Staff	Weekday											
	Initial	2	-	AM	5.0%	100.0%	0.0%	100.0%	9.6%	50.0%	50.0%	100.0%
	Link Credit	0%	-	MD	0.0%	0.0%	0.0%	100.0%	11.0%	50.0%	50.0%	100.0%
	Final	2	0.07	PM	2.5%	0.0%	100.0%	100.0%	1.0%	50.0%	50.0%	100.0%
	Saturday											
	Initial	0	-									
	Link Credit	0%	-	MD	0.0%	50.0%	50.0%	100.0%	0.0%	50.0%	50.0%	100.0%
	Final	0	0.00									

	Mode of Transportation [8]							Vehicle Occupancy [7,8]		
Peak Hour	Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Auto	Taxi	School Bus
AM	19.0%	3.0%	61.0%	8.0%	0.0%	9.0%	100.0%	1.19	1.40	-
Weekday MD	19.0%	3.0%	61.0%	8.0%	0.0%	9.0%	100.0%	1.19	1.40	-
PM	19.0%	3.0%	61.0%	8.0%	0.0%	9.0%	100.0%	1.19	1.40	-
Saturday MD	19.0%	3.0%	61.0%	8.0%	0.0%	9.0%	100.0%	1.19	1.40	-

Use		Daily Trip Rate [7] (per Bed)		Peak Hour	Person Trips [7]				Delivery Trips [7]			
		Person	Delivery		Temporal	In	Out	Total	Temporal	In	Out	Total
Dormitory	Weekday											
	Initial	4.75	-	AM	4.0%	35.5%	64.5%	100.0%	10.0%	50.0%	50.0%	100.0%
	Link Credit	0%	-	MD	6.0%	50.5%	49.5%	100.0%	8.0%	50.0%	50.0%	100.0%
	Final	4.75	0.03	PM	11.0%	52.5%	47.5%	100.0%	5.0%	50.0%	50.0%	100.0%
	Saturday											
	Initial	5.65	-									
	Link Credit	0%	-	MD	8.0%	52.5%	47.5%	100.0%	9.0%	50.0%	50.0%	100.0%
	Final	5.65	0.01									

	Mode of Transportation [3]							Vehicle Occupancy [3,7]		
Peak Hour	Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Auto	Taxi	School Bus
AM	9.0%	7.0%	55.0%	2.0%	0.0%	27.0%	100.0%	1.11	1.30	-
Weekday MD	9.0%	7.0%	55.0%	2.0%	0.0%	27.0%	100.0%	1.11	1.30	-
PM	9.0%	7.0%	55.0%	2.0%	0.0%	27.0%	100.0%	1.11	1.30	-
Saturday MD	9.0%	7.0%	55.0%	2.0%	0.0%	27.0%	100.0%	1.11	1.30	-

Table 13-5 (cont'd)
Transportation Planning Assumptions

Use		Daily Trip Rate [7] (per 1,000 SF)			Person Trips [7]				Delivery Trips [7]			
		Person	Delivery	Peak Hour	Temporal	In	Out	Total	Temporal	In	Out	Total
Conference Center Patrons	Weekday											
	Initial	27.2	-	AM	10.5%	91.0%	9.0%	100.0%	7.9%	50.0%	50.0%	100.0%
	Link Credit	0%	-	MD	9.5%	53.0%	47.0%	100.0%	14.7%	50.0%	50.0%	100.0%
	Final	27.2	0.35	PM	10.5%	15.0%	85.0%	100.0%	1.1%	50.0%	50.0%	100.0%
	Saturday											
	Initial	27.2	-									
	Link Credit	0%	-	MD	10.5%	53.0%	47.0%	100.0%	14.7%	50.0%	50.0%	100.0%
	Final	27.2	0.06									
			Mode of Transportation [7]							Vehicle Occupancy [7]		
		Peak Hour	Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Auto	Taxi	School Bus
	Weekday	AM	7.0%	6.0%	25.0%	10.0%	0.0%	52.0%	100.0%	2.30	1.80	-
		MD	7.0%	6.0%	25.0%	10.0%	0.0%	52.0%	100.0%	2.30	1.80	-
		PM	7.0%	6.0%	25.0%	10.0%	0.0%	52.0%	100.0%	2.30	1.80	-
	Saturday	MD	7.0%	6.0%	25.0%	10.0%	0.0%	52.0%	100.0%	2.30	1.80	-
Conference Center Employees		Daily Trip Rate [7] (per 1,000 SF)			Person Trips [7]				Delivery Trips [7]			
		Person	Delivery	Peak Hour	Temporal	In	Out	Total	Temporal	In	Out	Total
	Weekday											
	Initial	10.0	-	AM	14.7%	96.0%	4.0%	100.0%	7.9%	50.0%	50.0%	100.0%
	Link Credit	0%	-	MD	20.0%	55.0%	45.0%	100.0%	14.7%	50.0%	50.0%	100.0%
	Final	10.0	0.00	PM	12.9%	5.0%	95.0%	100.0%	1.1%	50.0%	50.0%	100.0%
	Saturday											
	Initial	10.0	-									
	Link Credit	0%	-	MD	14.7%	55.0%	45.0%	100.0%	14.7%	50.0%	50.0%	100.0%
	Final	10.0	0.00									
			Mode of Transportation [8]							Vehicle Occupancy [7,8]		
		Peak Hour	Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Auto	Taxi	School Bus
	Weekday	AM	19.0%	3.0%	61.0%	8.0%	0.0%	9.0%	100.0%	1.19	1.40	-
		MD	19.0%	3.0%	61.0%	8.0%	0.0%	9.0%	100.0%	1.19	1.40	-
		PM	19.0%	3.0%	61.0%	8.0%	0.0%	9.0%	100.0%	1.19	1.40	-
	Saturday	MD	19.0%	3.0%	61.0%	8.0%	0.0%	9.0%	100.0%	1.19	1.40	-
Community Theater		Daily Trip Rate [11] (per Seat)			Person Trips [11]				Delivery Trips [11]			
		Person	Delivery	Peak Hour	Temporal	In	Out	Total	Temporal	In	Out	Total
	Weekday											
	Initial	2.68	-	AM	0.0%	50.0%	50.0%	100.0%	6.0%	50.0%	50.0%	100.0%
	Link Credit	0%	-	MD	0.0%	50.0%	50.0%	100.0%	6.0%	50.0%	50.0%	100.0%
	Final	2.68	0.01	PM	10.0%	100.0%	0.0%	100.0%	1.0%	50.0%	50.0%	100.0%
	Saturday											
	Initial	2.68	-									
	Link Credit	0%	-	MD	10.0%	50.0%	50.0%	100.0%	0.0%	50.0%	50.0%	100.0%
	Final	2.68	0.01									
			Mode of Transportation [12]							Vehicle Occupancy [11]		
		Peak Hour	Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Auto	Taxi	School Bus
	Weekday	AM	9.0%	4.0%	28.5%	8.0%	0.0%	50.5%	100.0%	2.90	3.00	-
		MD	9.0%	4.0%	28.5%	8.0%	0.0%	50.5%	100.0%	2.90	3.00	-
		PM	9.0%	4.0%	28.5%	8.0%	0.0%	50.5%	100.0%	2.90	3.00	-
	Saturday	MD	9.0%	4.0%	28.5%	8.0%	0.0%	50.5%	100.0%	2.90	3.00	-
Catering Hall		Average Occupancy [13]			Person Trips [13]				Delivery Trips [13,17]			
				Peak Hour	Temporal	In	Out	Total	Temporal	In	Out	Total
	Weekday											
	AM	0	-	AM	0.0%	90.0%	10.0%	100.0%	-	50.0%	50.0%	100.0%
	Midday	233	-	MD	80.0%	90.0%	10.0%	100.0%	-	50.0%	50.0%	100.0%
	PM	446	-	PM	80.0%	90.0%	10.0%	100.0%	-	50.0%	50.0%	100.0%
	Saturday											
	Midday	668	-	MD	80.0%	90.0%	10.0%	100.0%	-	50.0%	50.0%	100.0%
			Mode of Transportation [9,10]							Vehicle Occupancy [9]		
		Peak Hour	Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Auto	Taxi	School Bus
	Weekday	AM	17.4%	6.4%	20.0%	8.4%	0.0%	47.8%	100.0%	2.20	2.30	-
		MD	17.4%	6.4%	20.0%	8.4%	0.0%	47.8%	100.0%	2.20	2.30	-
		PM	17.4%	6.4%	20.0%	8.4%	0.0%	47.8%	100.0%	2.20	2.30	-
	Saturday	MD	17.4%	6.4%	20.0%	8.4%	0.0%	47.8%	100.0%	2.20	2.30	-

Table 13-5 (cont'd)
Transportation Planning Assumptions

Use		Daily Trip Rate [14] (per 1,000 SF)		Peak Hour	Person Trips [14]				Delivery Trips [14]			
		Person	Delivery		Temporal	In	Out	Total	Temporal	In	Out	Total
Professional School	Weekday											
	Initial	26.6	-	AM	7.2%	94.0%	6.0%	100.0%	9.6%	50.0%	50.0%	100.0%
	Link Credit	0%	-	MD	10.7%	46.0%	54.0%	100.0%	11.0%	50.0%	50.0%	100.0%
	Final	26.6	0.29	PM	12.6%	44.0%	56.0%	100.0%	1.0%	50.0%	50.0%	100.0%
	Saturday											
	Initial	10.87	-									
	Link Credit	0%	-	MD	12.6%	57.0%	43.0%	100.0%	0.0%	50.0%	50.0%	100.0%
	Final	10.87	0.29									
			Mode of Transportation [8]							Vehicle Occupancy [8, 14]		
		Peak Hour	Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Auto	Taxi	School Bus
	Weekday	AM	19.0%	3.0%	61.0%	8.0%	0.0%	9.0%	100.0%	1.19	1.40	-
		MD	19.0%	3.0%	61.0%	8.0%	0.0%	9.0%	100.0%	1.19	1.40	-
		PM	19.0%	3.0%	61.0%	8.0%	0.0%	9.0%	100.0%	1.19	1.40	-
	Saturday	MD	19.0%	3.0%	61.0%	8.0%	0.0%	9.0%	100.0%	1.19	1.40	-
Health Club		Daily Trip Rate [1] (per 1,000 SF)			Person Trips [1,15]				Delivery Trips [15]			
		Person	Delivery	Peak Hour	Temporal	In	Out	Total	Temporal	In	Out	Total
	Weekday											
	Initial	44.7	-	AM	4.0%	41.0%	59.0%	100.0%	6.0%	50.0%	50.0%	100.0%
	Link Credit	0%	-	MD	9.0%	54.0%	46.0%	100.0%	11.0%	50.0%	50.0%	100.0%
	Final	44.7	0.19	PM	5.0%	75.0%	25.0%	100.0%	1.0%	50.0%	50.0%	100.0%
	Saturday											
	Initial	26.1	-									
	Link Credit	0%	-	MD	9.0%	54.0%	46.0%	100.0%	7.6%	50.0%	50.0%	100.0%
	Final	26.1	0.01									
			Mode of Transportation [16]							Vehicle Occupancy [16]		
		Peak Hour	Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Auto	Taxi	School Bus
	Weekday	AM	2.0%	2.0%	12.0%	4.0%	0.0%	80.0%	100.0%	1.00	1.00	-
		MD	2.0%	2.0%	12.0%	4.0%	0.0%	80.0%	100.0%	1.00	1.00	-
		PM	2.0%	2.0%	12.0%	4.0%	0.0%	80.0%	100.0%	1.00	1.00	-
	Saturday	MD	2.0%	2.0%	12.0%	4.0%	0.0%	80.0%	100.0%	1.00	1.00	-

Sources and Notes:
1. *CEQR Technical Manual*.
2. *Western Rail Yard FEIS*, 2009.
3. U.S. Census Bureau 2005-2009 American Community Survey 5-Year Estimates.
4. *Western Rail Yard FEIS*, 2009. Walk-only mode adjusted by 2% to account for work at home percentage.
5. 2000 U.S. Census Transportation Planning Package Reverse Journey-to-Work Data. 2% of work at home.
6. Assume the same delivery trip factors as local retail.
7. *NYU Core Draft EIS (DEIS)*, 2011.
8. 2000 U.S. Census Transportation Planning Package Reverse Journey-to-Work Data. Excludes work at home mode.
9. *Battery Maritime Building Redevelopment EAS*, 2008.
10. Modal split factors were adjusted to account for local travel patterns (ferry trips [5%] were added to the bus mode and all the PATH trips [5%] were added to the subway mode).
11. *Brooklyn Bridge Park FEIS*, 2005.
12. *Western Rail Yard FEIS*, 2009. Modal splits assumed the same as the Destination Retail land use.
13. *Domino Sugar Rezoning FEIS*, 2010.
14. *Jamaica Plan Rezoning FEIS*, 2007.
15. *770 Eleventh Avenue Mixed-Use Development Rezoning EIS*, 2009.
16. *Equinox - 344 Amsterdam Avenue EAS*, 2008.
17. Delivery trips not expected to occur during event peak hours.

RESIDENTIAL

For the residential component, trip generation rates of 8.075 daily person trips per dwelling unit per weekday and 9.6 daily person trips per dwelling unit per Saturday, and a temporal distribution of 10 percent for the weekday AM peak hour, 5 percent for the midday peak hour, 11 percent for the PM peak hour, and 8 percent for the Saturday peak hour were obtained from the *CEQR Technical Manual*. A directional distribution of 15 percent "in" during the weekday AM peak hour, 50 percent "in" during the midday peak hour, 70 percent "in" during the PM peak hour, and 50 percent "in" during the Saturday peak hour were also obtained from the *Western Rail Yard Final EIS (FEIS).* Modal split information (9 percent by auto, 7 percent by taxi, 55 percent by subway, 2 percent by bus, 27 percent by walk) and auto occupancy (1.11 persons per auto) for the weekday and Saturday peak hours were obtained from journey–to-work data from the U.S. Census American Community Survey (ACS) 2005-2009. A taxi occupancy rate of 1.40 passengers per taxi was obtained from the *Western Rail Yard FEIS*.

Daily truck trip generation rates of 0.06 trips per dwelling unit for weekday and 0.02 trips per dwelling unit for Saturday were obtained from the *CEQR Technical Manual*. Temporal distribution (12 percent during the weekday AM peak hour, 9 percent during the midday peak hour, 2 percent during the PM peak hour, and 9 percent during the Saturday peak hour) and directional distribution assumptions (50 percent "in" during all peak hours) were also obtained from the *CEQR Technical Manual*.

OFFICE

For office space, daily trip generation rates of 18 person trips per 1,000 square feet per weekday and 3.9 daily person trips per 1,000 square feet per Saturday, and a temporal distribution of 12 percent for the weekday AM peak hour, 15 percent for the midday peak hour, 14 percent for the PM peak hour, and 17 percent for the Saturday peak hour were obtained from the *CEQR Technical Manual*. Directional distributions of 96 percent "in" during the weekday AM peak hour, 48 percent "in" during the midday peak hours, 5 percent "in during the PM peak hour, and 57 percent "in" during the Saturday peak hour were obtained from the *Western Rail Yard FEIS*. Weekday AM and PM peak hour modal splits of 18 percent by auto, 3 percent by taxi, 60 percent by subway, 8 percent by bus, 9 percent by walk, and 2 percent working at home (not an external trip) were obtained from 2000 U.S. Census reverse journey-to-work data. Weekday midday and Saturday peak hour modal splits of 2 percent by auto, 3 percent by taxi, 6 percent by subway, 6 percent by bus, and 81 percent by walk were obtained from the *Western Rail Yard FEIS*, and reflect a substantially higher walk share and slightly higher taxi share typical for the middle of the work day and Saturdays. Auto occupancies (1.19 persons per auto) were obtained from the 2000 U.S. Census' reverse-journey-to work data, and taxi occupancies (1.40 passengers per taxi) were obtained from the *Western Rail Yard FEIS*.

Daily truck trip generation rates of 0.32 trips per 1,000 square feet for weekday and 0.01 trips per 1,000 square feet for Saturday were obtained from the *CEQR Technical Manual*. Temporal distribution (10 percent during the weekday AM peak hour, 11 percent during the midday peak hour, 2 percent during the PM peak hour, and 11 percent during the Saturday peak hour) and directional distribution assumptions (50 percent "in" during all peak hours) were also obtained from the *CEQR Technical Manual*.

DESTINATION RETAIL

For the destination retail component, trip generation rates of 78.2 person trips per 1,000 square feet for weekday and 92.5 trips per 1,000 square feet for Saturday, and a temporal distribution of 3 percent for the weekday AM peak hour, 9 percent for the midday peak hour, 9 percent for the PM peak hour, and 11 percent for the Saturday peak hour were obtained from the *CEQR Technical Manual*. Directional distributions for the weekday AM, midday, and PM, and Saturday peak hours (50, 55, 47, and 52 percent "in", respectively) were obtained from the *Western Rail Yard FEIS*. A modal split of 9 percent by auto, 4 percent by taxi, 28.5 percent by subway, 8 percent by bus, and 50.5 percent by walk during the weekday AM and PM peak hours was also obtained from the *Western Rail Yard FEIS*. The weekday midday and Saturday peak hours would have a similar modal split but with a slightly higher walk share (59 percent) and a slightly lower subway share (20 percent). Vehicle occupancy rates (2.0 persons per auto and taxi) were obtained from the *Western Rail Yard FEIS* as well. A 25 percent linked trip credit was assumed for all destination retail trips. Daily truck trip generation factors for destination retail were assumed to be similar to the local retail trip factors described below.

LOCAL RETAIL

For local retail use, daily person trip generation rates of 205 person trips per 1,000 square feet for weekday and 240 trips per 1,000 square feet for Saturday, and a temporal distribution of 3 percent for the weekday AM peak hour, 19 percent for the midday peak hour, 10 percent for the PM peak hour, and 10 percent for the Saturday peak hour were obtained from the *CEQR Technical Manual*. A directional distribution of 50 percent "in" during all peak hours, a modal split of 2 percent by auto, 3 percent by taxi, 6 percent by subway, 6 percent by bus, and 83 percent by walk, and vehicle occupancy rates of 1.65 persons per auto and 1.4 passengers by taxi during all peak hours were all obtained from the *NYU Core DEIS*. A 25 percent linked trip credit was assumed for all local retail trips.

For truck deliveries, a daily trip generation rate of 0.35 trips per 1,000 square feet for weekday and 0.04 trips per 1,000 square feet for Saturday were obtained from the *CEQR Technical Manual*. Temporal distribution (8 percent during the weekday AM peak hour, 11 percent during the midday peak hour, 2 percent during the PM peak hour, and 11 percent during the Saturday peak hour) and directional distribution assumptions (50 percent "in" during all peak hours) were also obtained from the *CEQR Technical Manual.*

HOTEL

For the hotel component, daily person trip generation rates of 9.4 person trips per room for weekday and Saturday, and a temporal distribution of 8 percent for the weekday AM peak hour, 14 percent for the midday peak hour, 13 percent for the PM peak hour, and 9 percent for the Saturday peak hour were obtained from the *CEQR Technical Manual*. Directional distributions for the weekday AM, midday, and PM, and Saturday peak hours (39, 54, 65, and 56 percent "in", respectively) were obtained from the *Western Rail Yard FEIS.* A modal split of 9 percent by auto, 18 percent by taxi, 24 percent by subway, 3 percent by bus, and 46 percent by walk during the weekday AM, PM, and Saturday midday peak hours and a modal split of 8 percent by auto, 15 percent by taxi, 13 percent by subway, 3 percent by bus, and 61 percent by walk during the weekday midday peak hour, and vehicle occupancy rates of 1.4 persons per auto and 1.8 passengers by taxi during all peak hours were all obtained from the *Western Rail Yard FEIS.*

For truck deliveries, a daily trip generation rate of 0.06 trips per room for weekday and 0.01 trips per room for Saturday were obtained from the *Western Rail Yard FEIS.* Temporal distribution (12.2 percent during the weekday AM peak hour, 8.7 percent during the midday peak hour, 1 percent during the PM peak hour, and 9 percent during the Saturday peak hour) and directional distribution assumptions (50 percent "in" during all peak hours) were also obtained from the *Western Rail Yard FEIS.*

SCHOOL

For the PS/IS school component, daily person trip generation rates of 2 person trips per student and per staff for weekday and 0 person trips per student and per staff for Saturday were obtained from the *NYU Core DEIS*. A temporal distribution of 50 percent for the weekday AM peak hour, 0 percent for the midday peak hour, 2.5 percent for the PM peak hour, and 0 percent for the Saturday peak hour for students and a temporal distribution of 5 percent for the weekday AM peak hour, 0 percent for the midday peak hour, 2.5 percent for the PM peak hour, and 0 percent for the Saturday peak hour for staff were obtained from the *NYU Core DEIS*. Directional distributions for the weekday AM, midday, and PM, and Saturday peak hours (100, 0, 0, and 50 percent "in", respectively) were obtained from the *NYU Core DEIS*. A modal split of 6.2 percent by auto, 1.7 percent by taxi, 0 percent by subway, 0 percent by bus, 3.9 percent by school bus, and

88.2 percent by walk for students and a modal split of 19 percent by auto, 3 percent by taxi, 61 percent by subway, 8 percent by bus, and 9 percent by walk for the staff were obtained from the *NYU Core DEIS* and 2000 U.S. Census reverse journey-to-work data, respectively. Vehicle occupancy rates of 1.7 persons per auto, 1.22 passengers by taxi, and 19 passengers by school bus for the students were all obtained from the *NYU Core DEIS.* Vehicle occupancy rates of 1.19 persons per auto and 1.4 passengers by taxi for the staff were obtained from the *NYU Core DEIS* and 2000 U.S. Census reverse journey-to-work data.

For truck deliveries, a daily trip generation rate of 0.07 trips per 1,000 square feet for weekday and 0.00 trips per 1,000 square feet for Saturday were obtained from the *NYU Core DEIS.* Temporal distribution (9.6 percent during the weekday AM peak hour, 11 percent during the midday peak hour, 1 percent during the PM peak hour, and 0 percent during the Saturday peak hour) and directional distribution assumptions (50 percent "in" during all peak hours) were also obtained from the *NYU Core DEIS.*

DORMITORY

For the dormitory component, trip generation rates of 4.75 person trips per bed for weekday and 5.65 trips per bed for Saturday, and a temporal distribution of 4 percent for the weekday AM peak hour, 6 percent for the midday peak hour, 11 percent for the PM peak hour, and 8 percent for the Saturday peak hour were obtained from the *NYU Core DEIS.* Directional distributions for the weekday AM, midday, and PM, and Saturday peak hours (35.5, 50.5, 52.5, and 52.5 percent "in", respectively) were also obtained from the *NYU Core DEIS.* A modal split of 9 percent by auto, 7 percent by taxi, 55 percent by subway, 2 percent by bus, and 27 percent by walk during the weekday AM, midday and PM peak hours was obtained from journey-to-work data from the U.S. Census ACS 2005-2009. Vehicle occupancy rates (1.11 persons per auto and 1.30 persons per taxi) were obtained from the American Community Survey and the *NYU Core DEIS,* respectively.

Daily truck trip generation rates of 0.03 trips per bed for weekday and 0.01 trips per bed for Saturday were obtained from the *NYU Core DEIS.* Temporal distribution (10 percent during the weekday AM peak hour, 8 percent during the midday peak hour, 5 percent during the PM peak hour, and 9 percent during the Saturday peak hour) and directional distribution assumptions (50 percent "in" during all peak hours) were also obtained from the *NYU Core DEIS.*

CONFERENCE CENTER

To calculate trips generated by the conference center space, rates from the *NYU Core DEIS* were used. This included a weekday trip generation rate of 27.2 daily person trips per 1,000 square feet for patrons and 10.0 daily person trips per 1,000 square feet for employees on weekdays and Saturdays. A temporal distribution of 10.5 percent for patrons and 14.7 percent for employees was used during the weekday AM and Saturday peak hours, 9.5 percent for patrons and 20.0 percent for employees during the weekday midday peak hour, and 10.5 percent for patrons and 12.9 percent for employees during the PM peak hour. Directional splits of 91 percent "in" for patrons and 96 percent for employees during the weekday AM peak hour, 53 percent "in" for patrons and 55 percent for employees during the weekday midday peak hour, 15 percent "in" for patrons and 5 percent for employees during the weekday PM peak hour, and 53 percent "in" for patrons and 55 percent for employees during the Saturday peak hour were used. A modal split of 7 percent by auto, 6 percent by taxi, 25 percent by subway, 10 percent by bus, and 52 percent by walk was applied for patrons, with a vehicle-occupancy of 2.3 persons per auto and 1.8 passengers per taxi. For employees, the modal split was applied from 2000 U.S. Census reverse journey-to-work data, and was 19 percent by auto, 3

percent by taxi, 61 percent by subway, 8 percent by bus, and 9 percent by walk, with vehicle occupancies of 1.19 persons per auto and 1.40 passengers per taxi.

For delivery trips, a weekday trip generation rate of 0.35 daily trips per 1,000 square feet was applied, with a Saturday trip generation rate of 0.06 daily trips per 1,000 square feet. A temporal distribution of 7.9 percent, 14.7 percent, 1.1 percent, and 14.7 percent was applied during the weekday AM, midday and PM, and Saturday peak hours, respectively.

COMMUNITY THEATER

For the community theater use, daily person trip generation rates of 2.68 person trips per seat for weekday and Saturday, and a temporal distribution of 0 percent for the weekday AM peak hour, 0 percent for the weekday midday peak hour, 10 percent for the weekday PM peak hour, and 10 percent for the Saturday peak hour were obtained from the *Brooklyn Bridge Park FEIS*. A directional distribution of 50 percent "in" during all peak hours except weekday PM (which is 100 percent "in") were also obtained from the *Brooklyn Bridge Park FEIS*. A modal split of 9 percent by auto, 4 percent by taxi, 28.5 percent by subway, 8 percent by bus, and 50.5 percent by walk were obtained from the *Western Rail Yard FEIS*, and vehicle occupancy rates of 2.9 persons per auto and 3 passengers by taxi during all peak hours were obtained from the *Brooklyn Bridge Park FEIS*.

For truck deliveries, a daily trip generation rate of 0.01 trips per seat for weekday and Saturday were obtained from the *Brooklyn Bridge Park FEIS*, as was the temporal distribution (6 percent during the weekday AM peak hour, 6 percent during the midday peak hour, 1 percent during the PM peak hour, and 0 percent during the Saturday peak hour) and directional distribution assumptions (50 percent "in" during all peak hours).

CATERING HALL

For the catering hall use, average occupancies of 0, 233, 446, and 668 people were used for the weekday AM, midday, and PM, and Saturday peak hours, respectively, which were taken from the *Domino Sugar Rezoning FEIS*. A temporal distribution of 0 percent for the weekday AM peak hour, and 80 percent for the weekday midday and PM, and Saturday peak hours, and a directional distribution of 90 percent "in" during all peak hours were also obtained from the *Domino Sugar Rezoning FEIS*. A modal split of 17.4 percent by auto, 6.4 percent by taxi, 20 percent by subway, 8.4 percent by bus, and 47.8 percent by walk for all peak periods were obtained from the *Battery Maritime Building Redevelopment EAS*, as were vehicle occupancy rates of 2.2 persons per auto and 2.3 passengers by taxi during all peak hours. Truck deliveries associated with the catering hall use are expected to occur outside of the peak trip generation hours.

PROFESSIONAL SCHOOL

For the professional school use, daily person trip generation rates of 26.6 person trips per 1,000 square feet for weekdays and 10.87 percent for Saturday, and a temporal distribution of 7.2 percent for the weekday AM peak hour, 10.7 percent for the weekday midday peak hour, and 12.6 percent for the weekday PM and Saturday peak hours were obtained from the *Jamaica Plan Rezoning FEIS*. A directional distribution of 94 percent "in" during the weekday AM, 46 percent during the weekday midday, 44 percent during the weekday PM, and 57 percent during the Saturday peak hours were also obtained from the *Jamaica Plan Rezoning FEIS*. A modal split of 19 percent by auto, 3 percent by taxi, 61 percent by subway, 8 percent by bus, and 9 percent by walk were obtained from the U.S. Census 2000 reverse journey-to-work data, and vehicle occupancy rates of 1.19 persons per auto and 1.4 passengers by taxi during all peak hours were obtained from the census reverse journey-to-work data and the *Jamaica Plan Rezoning FEIS*.

For truck deliveries, a daily trip generation rate of 0.29 trips per 1,000 square feet for weekday and Saturday were obtained from the *Jamaica Plan Rezoning FEIS*, as was the temporal distribution (9.6 percent during the weekday AM peak hour, 11 percent during the midday peak hour, 1 percent during the PM peak hour, and 0 percent during the Saturday peak hour) and directional distribution assumptions (50 percent "in" during all peak hours).

HEALTH CLUB

For the health club component, daily person trip generation rates of 44.7 person trips per 1,000 square feet for weekday and 26.1 trips per 1,000 square feet for Saturday, and a temporal distribution of 4 percent for the weekday AM peak hour, 9 percent for the midday peak hour, 5 percent for the PM peak hour, and 9 percent for the Saturday peak hour were obtained from the *CEQR Technical Manual*. A directional distribution of 41 percent "in" during the weekday AM, 54 percent during the weekday midday, 75 percent during the weekday PM, and 54 percent during the Saturday peak hours were obtained from the *770 Eleventh Avenue Mixed-Use Development Rezoning EIS*. For all peak hours, a modal split of 2 percent by auto, 2 percent by taxi, 12 percent by subway, 4 percent by bus, and 80 percent by walk, and vehicle occupancy rates of 1.00 person per auto and 1.00 passenger by taxi during all peak hours were obtained from the *Equinox - 344 Amsterdam Avenue EAS.*

For truck deliveries, a daily trip generation rate of 0.19 trips per 1,000 square feet for weekday and 0.01 trips per 1,000 square feet for Saturday were obtained from the *CEQR Technical Manual*. Temporal distribution (6 percent during the weekday AM peak hour, 11 percent during the midday peak hour, 1 percent during the PM peak hour, and 7.6 percent during the Saturday peak hour) and directional distribution assumptions (50 percent "in" during all peak hours) were obtained from the *770 Eleventh Avenue Mixed-Use Development Rezoning EIS.*

TRAVEL DEMAND PROJECTION SUMMARY

As discussed above and presented in **Table 13-6**, the scenario with the dormitory space (RWCDS 2) would yield a larger number of occupants and would generate a greater number of trips overall. Therefore, it was conservatively selected for this travel demand analysis. **Tables 13-7** to **13-9** summarize the travel demand in the No-Action net existing and With-Action net existing conditions, and the incremental trips between the No-Action and the With-Action conditions. Specifically, the trip estimates summarized in **Table 13-7** corresponds to the incremental uses in the "No-Action net Existing" column presented in **Table 13-4** and is the layer of trips that the future No-Action would add onto existing Levels. Likewise, the trip estimates summarized in **Table 13-8** corresponds to the incremental uses in the "With-Action net Existing" column presented in **Table 13-4** and is the layer of trips that the future With-Action would add onto existing Levels.

Table 13-6
RWCDS Trip Estimates Comparison Summary

RWCDS 1														
		Person Trip							Vehicle Trip					
Peak Hour	In / Out	Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Auto	Taxi	School Bus	Delivery	Total
Weekday AM	In	457	113	1,528	200	17	970	3,285	374	165	1	32	572
	Out	240	178	1,374	78	0	914	2,784	225	165	1	32	423
	Total	697	291	2,902	278	17	1,884	6,069	599	330	2	64	995
Weekday Midday	In	154	153	629	224	0	2,873	4,033	115	158	0	31	304
	Out	150	153	623	225	0	2,922	4,073	114	158	0	31	303
	Total	304	306	1,252	449	0	5,795	8,106	229	316	0	62	607
Weekday PM	In	259	191	1,376	131	0	1,482	3,439	215	190	0	5	410
	Out	566	176	2,098	294	0	1,405	4,539	466	190	0	5	661
	Total	825	367	3,474	425	0	2,887	7,978	681	380	0	10	1,071
Saturday Midday	In	192	153	901	153	0	1,829	3,228	147	154	0	4	305
	Out	186	150	887	144	0	1,730	3,097	144	154	0	4	302
	Total	378	303	1,788	297	0	3,559	6,325	291	308	0	8	607
Peak Hour Totals								28,478					3,280
RWCDS 2														
		Person Trip							Vehicle Trip					
Peak Hour	In / Out	Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Auto	Taxi	School Bus	Delivery	Total
Weekday AM	In	458	114	1,534	200	17	973	3,296	375	159	1	32	567
	Out	227	169	1,296	76	0	876	2,644	214	159	1	32	406
	Total	685	283	2,830	276	17	1,849	5,940	589	318	2	64	973
Weekday Midday	In	158	156	651	224	0	2,884	4,073	119	164	0	31	314
	Out	154	156	644	225	0	2,932	4,111	118	164	0	31	313
	Total	312	312	1,295	449	0	5,816	8,184	237	328	0	62	627
Weekday PM	In	259	191	1,374	131	0	1,481	3,436	215	195	0	6	416
	Out	575	183	2,153	296	0	1,432	4,639	474	195	0	6	675
	Total	834	374	3,527	427	0	2,913	8,075	689	390	0	12	1,091
Saturday Midday	In	197	156	929	154	0	1,843	3,279	151	157	0	4	312
	Out	189	152	905	144	0	1,739	3,129	146	157	0	4	307
	Total	386	308	1,834	298	0	3,582	6,408	297	314	0	8	619
Peak Hour Totals								28,607					3,310

Table 13-7
Travel Demand Summary: No-Action Net Existing Condition

			Person Trip							Vehicle Trip				
Use	Peak Hour	In / Out	Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Auto	Taxi	School Bus	Delivery	Total
Residential	Weekday AM	In	1	1	4	0	0	2	8	1	2	0	0	3
		Out	4	3	23	1	0	12	43	3	2	0	0	5
		Total	5	4	27	1	0	14	51	4	4	0	0	8
	Weekday Midday	In	1	1	7	0	0	3	12	1	1	0	0	2
		Out	1	1	7	0	0	3	12	1	1	0	0	2
		Total	2	2	14	0	0	6	24	2	2	0	0	4
	Weekday PM	In	3	3	21	1	0	10	38	4	2	0	0	6
		Out	1	1	9	0	0	4	15	1	2	0	0	3
		Total	4	4	30	1	0	14	53	5	4	0	0	9
	Saturday Midday	In	2	1	13	1	0	6	23	2	2	0	0	4
		Out	2	1	13	1	0	6	23	2	2	0	0	4
		Total	4	2	26	2	0	12	46	4	4	0	0	8
Office	Weekday AM	In	71	12	235	32	0	35	385	59	1	0	3	63
		Out	2	0	10	1	0	2	15	2	1	0	3	6
		Total	73	12	245	33	0	37	400	61	2	0	6	69
	Weekday Midday	In	4	8	14	14	0	198	238	4	8	0	3	15
		Out	5	8	16	16	0	215	260	4	8	0	3	15
		Total	9	16	30	30	0	413	498	8	16	0	6	30
	Weekday PM	In	5	0	15	2	0	2	24	4	2	0	1	7
		Out	82	13	272	36	0	41	444	68	2	0	1	71
		Total	87	13	287	38	0	43	468	72	4	0	2	78
	Saturday Midday	In	2	2	5	5	0	57	71	2	1	0	0	3
		Out	1	1	3	3	0	43	51	1	1	0	0	2
		Total	3	3	8	8	0	100	122	3	2	0	0	5

Table 13-7 (cont'd)
Travel Demand Summary: No-Action Net Existing Condition

Use	Peak Hour	In / Out	Person Trip							Vehicle Trip				
			Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Auto	Taxi	School Bus	Delivery	Total
Destination Retail	Weekday AM	In	4	2	10	3	0	19	38	2	-1	0	1	2
		Out	4	2	10	3	0	19	38	2	-1	0	1	2
		Total	8	4	20	6	0	38	76	4	-2	0	2	4
	Weekday Midday	In	11	5	25	10	0	72	123	6	3	0	0	9
		Out	9	4	20	8	0	59	100	5	3	0	0	8
		Total	20	9	45	18	0	131	223	11	6	0	0	17
	Weekday PM	In	9	4	30	9	0	53	105	4	2	0	0	6
		Out	10	4	33	9	0	60	116	5	2	0	0	7
		Total	19	8	63	18	0	113	221	9	4	0	0	13
	Saturday Midday	In	15	7	33	13	0	98	166	7	5	0	0	12
		Out	14	6	31	12	0	91	154	7	5	0	0	12
		Total	29	13	64	25	0	189	320	14	10	0	0	24
Local Retail	Weekday AM	In	2	3	6	6	0	74	91	1	1	0	1	3
		Out	2	3	6	6	0	74	91	1	1	0	1	3
		Total	4	6	12	12	0	148	182	2	2	0	2	6
	Weekday Midday	In	11	17	34	34	0	470	566	7	18	0	0	25
		Out	11	17	34	34	0	470	566	7	18	0	0	25
		Total	22	34	68	68	0	940	1,132	14	36	0	0	50
	Weekday PM	In	6	9	18	18	0	247	298	3	8	0	0	11
		Out	6	9	18	18	0	247	298	3	8	0	0	11
		Total	12	18	36	36	0	494	596	6	16	0	0	22
	Saturday Midday	In	7	11	21	21	0	290	350	5	9	0	0	14
		Out	7	11	21	21	0	290	350	5	9	0	0	14
		Total	14	22	42	42	0	580	700	10	18	0	0	28
Hotel	Weekday AM	In	21	42	56	7	0	108	234	15	41	0	3	59
		Out	33	66	88	11	0	169	367	24	41	0	3	68
		Total	54	108	144	18	0	277	601	39	82	0	6	127
	Weekday Midday	In	45	85	74	17	0	347	568	32	64	0	2	98
		Out	39	73	63	15	0	295	485	28	64	0	2	94
		Total	84	158	137	32	0	642	1,053	60	128	0	4	192
	Weekday PM	In	57	114	153	19	0	292	635	41	74	0	0	115
		Out	31	62	82	10	0	157	342	22	74	0	0	96
		Total	88	176	235	29	0	449	977	63	148	0	0	211
	Saturday Midday	In	34	68	91	11	0	174	378	24	48	0	0	72
		Out	27	54	71	9	0	137	298	19	48	0	0	67
		Total	61	122	162	20	0	311	676	43	96	0	0	139
School	Weekday AM	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
	Weekday Midday	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
	Weekday PM	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
	Saturday Midday	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
Dormitory	Weekday AM	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
	Weekday Midday	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
	Weekday PM	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
	Saturday Midday	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0

Table 13-7 (cont'd)
Travel Demand Summary: No-Action Net Existing Condition

			Person Trip							Vehicle Trip				
Use	**Peak Hour**	**In / Out**	**Auto**	**Taxi**	**Subway**	**Bus**	**School Bus**	**Walk**	**Total**	**Auto**	**Taxi**	**School Bus**	**Delivery**	**Total**
Conference Center	Weekday AM	In	23	10	77	19	0	74	203	15	4	0	1	20
		Out	2	1	5	1	0	7	16	0	4	0	1	5
		Total	25	11	82	20	0	81	219	15	8	0	2	25
	Weekday Midday	In	16	6	51	11	0	41	125	11	4	0	1	16
		Out	13	5	43	10	0	36	107	9	4	0	1	14
		Total	29	11	94	21	0	77	232	20	8	0	2	30
	Weekday PM	In	3	1	7	2	0	11	24	2	5	0	0	7
		Out	21	9	69	17	0	70	186	14	5	0	0	19
		Total	24	10	76	19	0	81	210	16	10	0	0	26
	Saturday Midday	In	13	6	44	11	0	44	118	9	5	0	0	14
		Out	11	5	37	10	0	38	101	7	5	0	0	12
		Total	24	11	81	21	0	82	219	16	10	0	0	26
Community Theater	Weekday AM	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
	Weekday Midday	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
	Weekday PM	In	10	5	33	9	0	59	116	4	2	0	0	6
		Out	0	0	0	0	0	0	0	0	2	0	0	2
		Total	10	5	33	9	0	59	116	4	4	0	0	8
	Saturday Midday	In	5	2	17	5	0	29	58	2	1	0	0	3
		Out	5	2	17	5	0	29	58	2	1	0	0	3
		Total	10	4	34	10	0	58	116	4	2	0	0	6
Catering Hall	Weekday AM	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
	Weekday Midday	In	29	11	34	14	0	80	168	13	4	0	0	17
		Out	3	1	4	2	0	9	19	1	4	0	0	5
		Total	32	12	38	16	0	89	187	14	8	0	0	22
	Weekday PM	In	56	21	64	27	0	153	321	25	8	0	0	33
		Out	6	2	7	3	0	17	35	3	8	0	0	11
		Total	62	23	71	30	0	170	356	28	16	0	0	44
	Saturday Midday	In	84	31	96	40	0	230	481	38	10	0	0	48
		Out	9	3	11	4	0	26	53	4	10	0	0	14
		Total	93	34	107	44	0	256	534	42	20	0	0	62
Professional School	Weekday AM	In	16	2	51	7	0	7	83	13	1	0	1	15
		Out	1	0	3	0	0	0	4	1	1	0	1	3
		Total	17	2	54	7	0	7	87	14	2	0	2	18
	Weekday Midday	In	11	2	37	5	0	5	60	10	2	0	1	13
		Out	13	2	43	6	0	6	70	11	2	0	1	14
		Total	24	4	80	11	0	11	130	21	4	0	2	27
	Weekday PM	In	13	2	42	5	0	6	68	11	2	0	0	13
		Out	16	3	53	7	0	8	87	14	2	0	0	16
		Total	29	5	95	12	0	14	155	25	4	0	0	29
	Saturday Midday	In	7	1	22	3	0	3	36	6	1	0	0	7
		Out	5	1	17	2	0	2	27	4	1	0	0	5
		Total	12	2	39	5	0	5	63	10	2	0	0	12
Health Club	Weekday AM	In	0	0	2	1	0	13	16	0	0	0	0	0
		Out	0	0	3	1	0	19	23	0	0	0	0	0
		Total	0	0	5	2	0	32	39	0	0	0	0	0
	Weekday Midday	In	1	1	6	2	0	38	48	1	1	0	0	2
		Out	1	1	5	2	0	32	41	1	1	0	0	2
		Total	2	2	11	4	0	70	89	2	2	0	0	4
	Weekday PM	In	1	1	4	1	0	29	36	1	1	0	0	2
		Out	0	0	1	0	0	10	11	0	1	0	0	1
		Total	1	1	5	1	0	39	47	1	2	0	0	3
	Saturday Midday	In	1	1	3	1	0	22	28	1	1	0	0	2
		Out	0	0	3	1	0	19	23	0	1	0	0	1
		Total	1	1	6	2	0	41	51	1	2	0	0	3

Table 13-7 (cont'd)
Travel Demand Summary: No-Action Net Existing Condition

			Person Trip							Vehicle Trip				
Use	**Peak Hour**	**In / Out**	**Auto**	**Taxi**	**Subway**	**Bus**	**School Bus**	**Walk**	**Total**	**Auto**	**Taxi**	**School Bus**	**Delivery**	**Total**
Total	Weekday AM	In	138	72	441	75	0	332	1,058	106	49	0	10	165
		Out	48	75	148	24	0	302	597	33	49	0	10	92
		Total	186	147	589	99	0	634	1,655	139	98	0	20	257
	Weekday Midday	In	129	136	282	107	0	1,254	1,908	85	105	0	7	197
		Out	95	112	235	93	0	1,125	1,660	67	105	0	7	179
		Total	224	248	517	200	0	2,379	3,568	152	210	0	14	376
	Weekday PM	In	163	160	387	93	0	862	1,665	99	106	0	1	206
		Out	173	103	544	100	0	614	1,534	130	106	0	1	237
		Total	336	263	931	193	0	1,476	3,199	229	212	0	2	443
	Saturday Midday	In	170	130	345	111	0	953	1,709	96	83	0	0	179
		Out	81	84	224	68	0	681	1,138	51	83	0	0	134
		Total	251	214	569	179	0	1,634	2,847	147	166	0	0	313

Table 13-8
Travel Demand Summary: With-Action Net Existing Condition

			Person Trip							Vehicle Trip				
Use	**Peak Hour**	**In / Out**	**Auto**	**Taxi**	**Subway**	**Bus**	**School Bus**	**Walk**	**Total**	**Auto**	**Taxi**	**School Bus**	**Delivery**	**Total**
Residential	Weekday AM	In	33	26	200	7	0	98	364	30	96	0	11	137
		Out	185	145	1,133	42	0	557	2,062	167	96	0	11	274
		Total	218	171	1,333	49	0	655	2,426	197	192	0	22	411
	Weekday Midday	In	54	43	333	12	0	163	605	50	47	0	8	105
		Out	54	43	333	12	0	163	605	50	47	0	8	105
		Total	108	86	666	24	0	326	1,210	100	94	0	16	210
	Weekday PM	In	168	131	1,026	38	0	504	1,867	152	99	0	2	253
		Out	72	56	440	16	0	216	800	64	99	0	2	165
		Total	240	187	1,466	54	0	720	2,667	216	198	0	4	418
	Saturday Midday	In	104	80	634	23	0	311	1,152	93	85	0	3	181
		Out	104	80	634	23	0	311	1,152	93	85	0	3	181
		Total	208	160	1,268	46	0	622	2,304	186	170	0	6	362
Office	Weekday AM	In	123	21	409	55	0	61	669	103	11	0	5	119
		Out	5	1	17	2	0	3	28	4	11	0	5	20
		Total	128	22	426	57	0	64	697	107	22	0	10	139
	Weekday Midday	In	8	13	25	25	0	345	416	7	15	0	6	28
		Out	9	13	28	28	0	374	452	8	15	0	6	29
		Total	17	26	53	53	0	719	868	15	30	0	12	57
	Weekday PM	In	8	1	25	3	0	3	40	6	8	0	1	15
		Out	142	23	472	63	0	71	771	119	8	0	1	128
		Total	150	24	497	66	0	74	811	125	16	0	2	143
	Saturday Midday	In	3	3	8	8	0	100	122	2	3	0	1	6
		Out	2	3	5	5	0	75	90	2	3	0	1	6
		Total	5	6	13	13	0	175	212	4	6	0	2	12
Destination Retail	Weekday AM	In	8	4	24	7	0	43	86	4	1	0	2	7
		Out	8	4	24	7	0	43	86	4	1	0	2	7
		Total	16	8	48	14	0	86	172	8	2	0	4	14
	Weekday Midday	In	25	11	56	23	0	165	280	13	8	0	1	22
		Out	20	9	46	18	0	136	229	11	8	0	1	20
		Total	45	20	102	41	0	301	509	24	16	0	2	42
	Weekday PM	In	22	10	69	19	0	121	241	10	6	0	0	16
		Out	24	10	77	22	0	137	270	12	6	0	0	18
		Total	46	20	146	41	0	258	511	22	12	0	0	34
	Saturday Midday	In	35	15	77	31	0	226	384	17	11	0	0	28
		Out	32	14	71	29	0	209	355	16	11	0	0	27
		Total	67	29	148	60	0	435	739	33	22	0	0	55

Table 13-8 (cont'd)
Travel Demand Summary: With-Action Net Existing Condition

			Person Trip							Vehicle Trip				
Use	**Peak Hour**	**In / Out**	**Auto**	**Taxi**	**Subway**	**Bus**	**School Bus**	**Walk**	**Total**	**Auto**	**Taxi**	**School Bus**	**Delivery**	**Total**
Local Retail	Weekday AM	In	4	6	12	12	0	164	198	2	7	0	2	11
		Out	4	6	12	12	0	164	198	2	7	0	2	11
		Total	8	12	24	24	0	328	396	4	14	0	4	22
	Weekday Midday	In	25	38	75	75	0	1,041	1,254	16	39	0	1	56
		Out	25	38	75	75	0	1,041	1,254	16	39	0	1	56
		Total	50	76	150	150	0	2,082	2,508	32	78	0	2	112
	Weekday PM	In	13	20	40	40	0	548	661	8	19	0	0	27
		Out	13	20	40	40	0	548	661	8	19	0	0	27
		Total	26	40	80	80	0	1,096	1,322	16	38	0	0	54
	Saturday Midday	In	15	23	46	46	0	642	772	10	24	0	0	34
		Out	15	23	46	46	0	642	772	10	24	0	0	34
		Total	30	46	92	92	0	1,284	1,544	20	48	0	0	68
School	Weekday AM	In	29	8	2	0	17	392	448	17	5	1	0	23
		Out	0	0	0	0	0	0	0	16	5	1	0	22
		Total	29	8	2	0	17	392	448	33	10	2	0	45
	Weekday Midday	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
	Weekday PM	In	0	0	0	0	0	0	0	1	0	0	0	1
		Out	1	0	1	0	0	20	22	1	0	0	0	1
		Total	1	0	1	0	0	20	22	2	0	0	0	2
	Saturday Midday	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
Dormitory	Weekday AM	In	5	4	29	1	0	14	53	4	6	0	1	11
		Out	9	7	52	2	0	26	96	8	6	0	1	15
		Total	14	11	81	3	0	40	149	12	12	0	2	26
	Weekday Midday	In	10	8	61	2	0	30	111	9	9	0	1	19
		Out	10	8	60	2	0	29	109	9	9	0	1	19
		Total	20	16	121	4	0	59	220	18	18	0	2	38
	Weekday PM	In	19	15	117	4	0	57	212	17	16	0	1	34
		Out	17	13	106	4	0	52	192	16	16	0	1	33
		Total	36	28	223	8	0	109	404	33	32	0	2	67
	Saturday Midday	In	17	13	101	4	0	50	185	15	14	0	0	29
		Out	15	12	91	3	0	45	166	13	14	0	0	27
		Total	32	25	192	7	0	95	351	28	28	0	0	56
Total	Weekday AM	In	202	69	676	82	17	772	1,818	160	126	1	21	308
		Out	211	163	1,238	65	0	793	2,470	201	126	1	21	349
		Total	413	232	1,914	147	17	1,565	4,288	361	252	2	42	657
	Weekday Midday	In	122	113	550	137	0	1,744	2,666	95	118	0	17	230
		Out	118	111	542	135	0	1,743	2,649	94	118	0	17	229
		Total	240	224	1,092	272	0	3,487	5,315	189	236	0	34	459
	Weekday PM	In	230	177	1,277	104	0	1,233	3,021	194	148	0	4	346
		Out	269	122	1,136	145	0	1,044	2,716	220	148	0	4	372
		Total	499	299	2,413	249	0	2,277	5,737	414	296	0	8	718
	Saturday Midday	In	174	134	866	112	0	1,329	2,615	137	137	0	4	278
		Out	168	132	847	106	0	1,282	2,535	134	137	0	4	275
		Total	342	266	1,713	218	0	2,611	5,150	271	274	0	8	553

Table 13-9
Travel Demand Summary: Net Trip Generation Increments

			Person Trip							Vehicle Trip				
Use	**Peak Hour**	**In / Out**	**Auto**	**Taxi**	**Subway**	**Bus**	**School Bus**	**Walk**	**Total**	**Auto**	**Taxi**	**School Bus**	**Delivery**	**Total**
Residential	Weekday AM	In	32	25	196	7	0	96	356	29	94	0	11	134
		Out	181	142	1,110	41	0	545	2,019	164	94	0	11	269
		Total	213	167	1,306	48	0	641	2,375	193	188	0	22	403
	Weekday Midday	In	53	42	326	12	0	160	593	49	46	0	8	103
		Out	53	42	326	12	0	160	593	49	46	0	8	103
		Total	106	84	652	24	0	320	1,186	98	92	0	16	206
	Weekday PM	In	165	128	1,005	37	0	494	1,829	148	97	0	2	247
		Out	71	55	431	16	0	212	785	63	97	0	2	162
		Total	236	183	1,436	53	0	706	2,614	211	194	0	4	409
	Saturday Midday	In	102	79	621	22	0	305	1,129	91	83	0	3	177
		Out	102	79	621	22	0	305	1,129	91	83	0	3	177
		Total	204	158	1,242	44	0	610	2,258	182	166	0	6	354
Office	Weekday AM	In	52	9	174	23	0	26	284	44	10	0	2	56
		Out	3	1	7	1	0	1	13	2	10	0	2	14
		Total	55	10	181	24	0	27	297	46	20	0	4	70
	Weekday Midday	In	4	5	11	11	0	147	178	3	7	0	3	13
		Out	4	5	12	12	0	159	192	4	7	0	3	14
		Total	8	10	23	23	0	306	370	7	14	0	6	27
	Weekday PM	In	3	1	10	1	0	1	16	2	6	0	0	8
		Out	60	10	200	27	0	30	327	51	6	0	0	57
		Total	63	11	210	28	0	31	343	53	12	0	0	65
	Saturday Midday	In	1	1	3	3	0	43	51	0	2	0	1	3
		Out	1	2	2	2	0	32	39	1	2	0	1	4
		Total	2	3	5	5	0	75	90	1	4	0	2	7
Destination Retail	Weekday AM	In	4	2	14	4	0	24	48	2	2	0	1	5
		Out	4	2	14	4	0	24	48	2	2	0	1	5
		Total	8	4	28	8	0	48	96	4	4	0	2	10
	Weekday Midday	In	14	6	31	13	0	93	157	7	5	0	1	13
		Out	11	5	26	10	0	77	129	6	5	0	1	12
		Total	25	11	57	23	0	170	286	13	10	0	2	25
	Weekday PM	In	13	6	39	10	0	68	136	6	4	0	0	10
		Out	14	6	44	13	0	77	154	7	4	0	0	11
		Total	27	12	83	23	0	145	290	13	8	0	0	21
	Saturday Midday	In	20	8	44	18	0	128	218	10	6	0	0	16
		Out	18	8	40	17	0	118	201	9	6	0	0	15
		Total	38	16	84	35	0	246	419	19	12	0	0	31
Local Retail	Weekday AM	In	2	3	6	6	0	90	107	1	6	0	1	8
		Out	2	3	6	6	0	90	107	1	6	0	1	8
		Total	4	6	12	12	0	180	214	2	12	0	2	16
	Weekday Midday	In	14	21	41	41	0	571	688	9	21	0	1	31
		Out	14	21	41	41	0	571	688	9	21	0	1	31
		Total	28	42	82	82	0	1,142	1,376	18	42	0	2	62
	Weekday PM	In	7	11	22	22	0	301	363	5	11	0	0	16
		Out	7	11	22	22	0	301	363	5	11	0	0	16
		Total	14	22	44	44	0	602	726	10	22	0	0	32
	Saturday Midday	In	8	12	25	25	0	352	422	5	15	0	0	20
		Out	8	12	25	25	0	352	422	5	15	0	0	20
		Total	16	24	50	50	0	704	844	10	30	0	0	40
Hotel	Weekday AM	In	-21	-42	-56	-7	0	-108	-234	-15	-41	0	-3	-59
		Out	-33	-66	-88	-11	0	-169	-367	-24	-41	0	-3	-68
		Total	-54	-108	-144	-18	0	-277	-601	-39	-82	0	-6	-127
	Weekday Midday	In	-45	-85	-74	-17	0	-347	-568	-32	-64	0	-2	-98
		Out	-39	-73	-63	-15	0	-295	-485	-28	-64	0	-2	-94
		Total	-84	-158	-137	-32	0	-642	-1,053	-60	-128	0	-4	-192
	Weekday PM	In	-57	-114	-153	-19	0	-292	-635	-41	-74	0	0	-115
		Out	-31	-62	-82	-10	0	-157	-342	-22	-74	0	0	-96
		Total	-88	-176	-235	-29	0	-449	-977	-63	-148	0	0	-211
	Saturday Midday	In	-34	-68	-91	-11	0	-174	-378	-24	-48	0	0	-72
		Out	-27	-54	-71	-9	0	-137	-298	-19	-48	0	0	-67
		Total	-61	-122	-162	-20	0	-311	-676	-43	-96	0	0	-139

Table 13-9 (cont'd)
Travel Demand Summary: Net Trip Generation Increments

			Person Trip							Vehicle Trip				
Use	**Peak Hour**	**In / Out**	**Auto**	**Taxi**	**Subway**	**Bus**	**School Bus**	**Walk**	**Total**	**Auto**	**Taxi**	**School Bus**	**Delivery**	**Total**
School	Weekday AM	In	29	8	2	0	17	392	448	17	5	1	0	23
		Out	0	0	0	0	0	0	0	16	5	1	0	22
		Total	29	8	2	0	17	392	448	33	10	2	0	45
	Weekday Midday	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
	Weekday PM	In	0	0	0	0	0	0	0	1	0	0	0	1
		Out	1	0	1	0	0	20	22	1	0	0	0	1
		Total	1	0	1	0	0	20	22	2	0	0	0	2
	Saturday Midday	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
Dormitory	Weekday AM	In	5	4	29	1	0	14	53	4	6	0	1	11
		Out	9	7	52	2	0	26	96	8	6	0	1	15
		Total	14	11	81	3	0	40	149	12	12	0	2	26
	Weekday Midday	In	10	8	61	2	0	30	111	9	9	0	1	19
		Out	10	8	60	2	0	29	109	9	9	0	1	19
		Total	20	16	121	4	0	59	220	18	18	0	2	38
	Weekday PM	In	19	15	117	4	0	57	212	17	16	0	1	34
		Out	17	13	106	4	0	52	192	16	16	0	1	33
		Total	36	28	223	8	0	109	404	33	32	0	2	67
	Saturday Midday	In	17	13	101	4	0	50	185	15	14	0	0	29
		Out	15	12	91	3	0	45	166	13	14	0	0	27
		Total	32	25	192	7	0	95	351	28	28	0	0	56
Conference Center	Weekday AM	In	-23	-10	-77	-19	0	-74	-203	-15	-4	0	-1	-20
		Out	-2	-1	-5	-1	0	-7	-16	0	-4	0	-1	-5
		Total	-25	-11	-82	-20	0	-81	-219	-15	-8	0	-2	-25
	Weekday Midday	In	-16	-6	-51	-11	0	-41	-125	-11	-4	0	-1	-16
		Out	-13	-5	-43	-10	0	-36	-107	-9	-4	0	-1	-14
		Total	-29	-11	-94	-21	0	-77	-232	-20	-8	0	-2	-30
	Weekday PM	In	-3	-1	-7	-2	0	-11	-24	-2	-5	0	0	-7
		Out	-21	-9	-69	-17	0	-70	-186	-14	-5	0	0	-19
		Total	-24	-10	-76	-19	0	-81	-210	-16	-10	0	0	-26
	Saturday Midday	In	-13	-6	-44	-11	0	-44	-118	-9	-5	0	0	-14
		Out	-11	-5	-37	-10	0	-38	-101	-7	-5	0	0	-12
		Total	-24	-11	-81	-21	0	-82	-219	-16	-10	0	0	-26
Community Theater	Weekday AM	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
	Weekday Midday	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
	Weekday PM	In	-10	-5	-33	-9	0	-59	-116	-4	-2	0	0	-6
		Out	0	0	0	0	0	0	0	0	-2	0	0	-2
		Total	-10	-5	-33	-9	0	-59	-116	-4	-4	0	0	-8
	Saturday Midday	In	-5	-2	-17	-5	0	-29	-58	-2	-1	0	0	-3
		Out	-5	-2	-17	-5	0	-29	-58	-2	-1	0	0	-3
		Total	-10	-4	-34	-10	0	-58	-116	-4	-2	0	0	-6
Catering Hall	Weekday AM	In	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0	0
	Weekday Midday	In	-29	-11	-34	-14	0	-80	-168	-13	-4	0	0	-17
		Out	-3	-1	-4	-2	0	-9	-19	-1	-4	0	0	-5
		Total	-32	-12	-38	-16	0	-89	-187	-14	-8	0	0	-22
	Weekday PM	In	-56	-21	-64	-27	0	-153	-321	-25	-8	0	0	-33
		Out	-6	-2	-7	-3	0	-17	-35	-3	-8	0	0	-11
		Total	-62	-23	-71	-30	0	-170	-356	-28	-16	0	0	-44
	Saturday Midday	In	-84	-31	-96	-40	0	-230	-481	-38	-10	0	0	-48
		Out	-9	-3	-11	-4	0	-26	-53	-4	-10	0	0	-14
		Total	-93	-34	-107	-44	0	-256	-534	-42	-20	0	0	-62

Table 13-9 (cont'd)
Travel Demand Summary: Net Trip Generation Increments

Use	Peak Hour	In / Out	Person Trip							Vehicle Trip				
			Auto	Taxi	Subway	Bus	School Bus	Walk	Total	Auto	Taxi	School Bus	Delivery	Total
Professional School	Weekday AM	In	-16	-2	-51	-7	0	-7	-83	-13	-1	0	-1	-15
		Out	-1	0	-3	0	0	0	-4	-1	-1	0	-1	-3
		Total	-17	-2	-54	-7	0	-7	-87	-14	-2	0	-2	-18
	Weekday Midday	In	-11	-2	-37	-5	0	-5	-60	-10	-2	0	-1	-13
		Out	-13	-2	-43	-6	0	-6	-70	-11	-2	0	-1	-14
		Total	-24	-4	-80	-11	0	-11	-130	-21	-4	0	-2	-27
	Weekday PM	In	-13	-2	-42	-5	0	-6	-68	-11	-2	0	0	-13
		Out	-16	-3	-53	-7	0	-8	-87	-14	-2	0	0	-16
		Total	-29	-5	-95	-12	0	-14	-155	-25	-4	0	0	-29
	Saturday Midday	In	-7	-1	-22	-3	0	-3	-36	-6	-1	0	0	-7
		Out	-5	-1	-17	-2	0	-2	-27	-4	-1	0	0	-5
		Total	-12	-2	-39	-5	0	-5	-63	-10	-2	0	0	-12
Health Club	Weekday AM	In	0	0	-2	-1	0	-13	-16	0	0	0	0	0
		Out	0	0	-3	-1	0	-19	-23	0	0	0	0	0
		Total	0	0	-5	-2	0	-32	-39	0	0	0	0	0
	Weekday Midday	In	-1	-1	-6	-2	0	-38	-48	-1	-1	0	0	-2
		Out	-1	-1	-5	-2	0	-32	-41	-1	-1	0	0	-2
		Total	-2	-2	-11	-4	0	-70	-89	-2	-2	0	0	-4
	Weekday PM	In	-1	-1	-4	-1	0	-29	-36	-1	-1	0	0	-2
		Out	0	0	-1	0	0	-10	-11	0	-1	0	0	-1
		Total	-1	-1	-5	-1	0	-39	-47	-1	-2	0	0	-3
	Saturday Midday	In	-1	-1	-3	-1	0	-22	-28	-1	-1	0	0	-2
		Out	0	0	-3	-1	0	-19	-23	0	-1	0	0	-1
		Total	-1	-1	-6	-2	0	-41	-51	-1	-2	0	0	-3
Total	Weekday AM	In	64	-3	235	7	17	440	760	54	77	1	11	143
		Out	163	88	1,090	41	0	491	1,873	168	77	1	11	257
		Total	227	85	1,325	48	17	931	2,633	222	154	2	22	400
	Weekday Midday	In	-7	-23	268	30	0	490	758	10	13	0	10	33
		Out	23	-1	307	42	0	618	989	27	13	0	10	50
		Total	16	-24	575	72	0	1,108	1,747	37	26	0	20	83
	Weekday PM	In	67	17	890	11	0	371	1,356	95	42	0	3	140
		Out	96	19	592	45	0	430	1,182	90	42	0	3	135
		Total	163	36	1,482	56	0	801	2,538	185	84	0	6	275
	Saturday Midday	In	4	4	521	1	0	376	906	41	54	0	4	99
		Out	87	48	623	38	0	601	1,397	83	54	0	4	141
		Total	91	52	1,144	39	0	977	2,303	124	108	0	8	240

As presented in **Table 13-9**, the net incremental trip generation from the Proposed Action would result in 2,633, 1,747, 2,538, and 2,303 person trips and 400, 83, 275, and 240 vehicle trips during the weekday AM, midday, and PM, and Saturday midday peak hours, respectively. These trips would be distributed among the project sites comprising the proposed overall development. Since the projected trips would exceed the CEQR analysis thresholds for vehicular traffic, transit, and pedestrians, a Level 2 screening assessment, as detailed below, was undertaken to identify specific locations where additional detailed analyses would be warranted.

D. LEVEL 2 SCREENING ASSESSMENT

A Level 2 screening assessment involves the distribution and assignment of projected trips to the transportation network and the determination of whether specific locations are expected to incur incremental trips exceeding CEQR thresholds. If the results of this analysis show that the Proposed Action would generate 50 or more peak hour vehicle trips through an intersection, 50 or more peak hour bus riders on a bus route in a single direction, 200 or more peak hour subway passengers per station, or 200 or more peak hour pedestrian trips per pedestrian element, further quantified analyses may be warranted to evaluate the potential for significant adverse traffic, transit, pedestrian, and parking impacts. For the Proposed Action, trips projected for the 2022 build year, representing the maximum number of project-generated trips under the RWCDS,

were allocated to the area's roadways, transit facilities, and pedestrian elements. The comparison of these trips to those of the No-Action condition formed the basis for identifying the various study areas for which detailed analyses of potential impacts would be prepared.

TRAFFIC

Trip assignments for both the No-Action and With Action conditions were prepared for the weekday AM, midday, and PM peak hours, as well as the Saturday midday peak hour, as presented in **Figures 13-1 to 13-4** (based on the No-Action net Existing incremental trips summarized in **Table 13-7**) and **13-5 to 13-8** (based on the With-Aciton net Existing incremental trips summarized in **Table 13-8**), respectively. Vehicle trips were assigned to the area intersections based on the most likely routes to and from the project sites, the configuration and direction of the roadway network, prevailing travel patterns, commuter origin-destination summary from the census data, and the expected locations of site access and egress points. All delivery vehicles were assigned onto the traffic network via NYCDOT's designated truck routes.

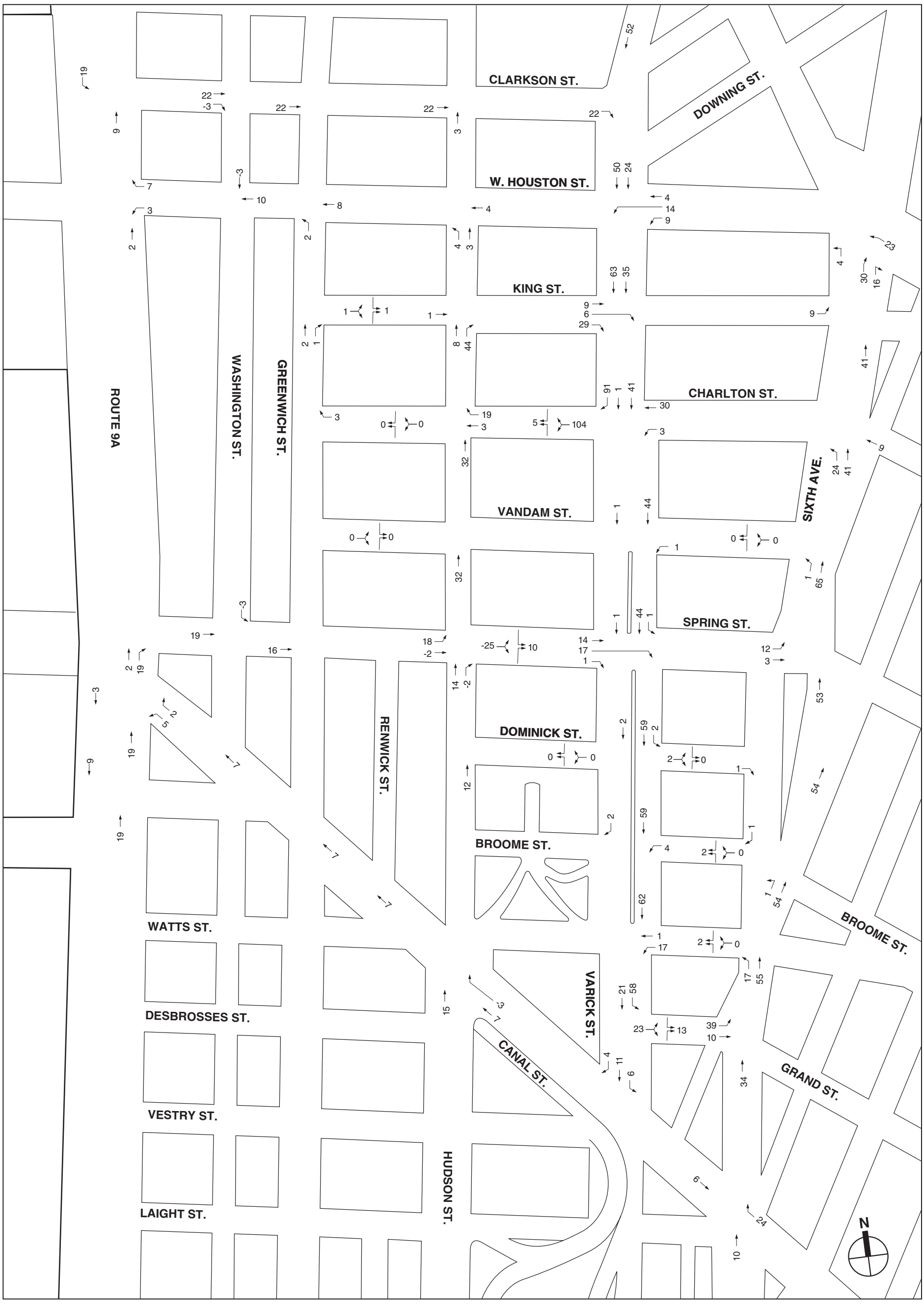
- Auto Trips – Auto trip travel patterns were assumed to follow the most likely access and egress routes serving the Rezoning Area. The U.S. Census journey-to-work and reverse journey-to work origin-destination data were reviewed to identify directional patterns and trip distribution. Based on the above, approximately 20 to 25 percent of the auto trips were assume to travel to/from the Rezoning Area via West Street (Route 9A), 30 to 35 percent via Varick Street, Avenue of the Americas, and Hudson Street, 10 to 15 percent via Canal Street, 10 percent via West Houston Street, 5 to 10 percent via Holland Tunnel, and the remaining via other roadways in the area.
- Taxi Trips – Taxi trips are expected to be primarily local, with the majority of the trips using Varick Street (approximately 40 percent), Avenue of the Americas (approximately 30 percent), and West Houston Street (approximately 20 percent). The remaining trips would use other roadways in the area.
- Delivery – Delivery trips are expected to use NYCDOT designated truck routes, such as West Street (approximately 30 percent), Varick Street (approximately 20 percent), Avenue of the Americas (approximately 15 percent), West Houston Street (approximately 15 percent), Canal Street (approximately 15 percent), and Hudson Street (approximately 5 percent).

Figures 13-9 to **13-12** present the incremental peak hour trips resulting from the Proposed Action. In total, 22 area intersections were identified for study (22 signalized and 1 unsignalized)[1]. Hudson Street and Varick Street are separated into through lanes and Holland Tunnel access lanes at intersections near entrances to the Holland Tunnel. The separated lanes exhibit different traffic patterns and vary widely in volume during the peak analysis hours. Therefore, these intersections have been separated into "east lane" and "west lane" sub-intersections for the purposes of this analysis. All study intersections are situated in the immediate area near the project sites, bounded by West Houston Street to the north, Canal Street to the south, Greenwich Street to the west, and Avenue of the Americas to the east. As depicted in **Figure 13-13**, these study area intersections include:

1. West Street and Clarkson Street
2. West Street and West Houston Street

[1] The signalized and unsignalized portions of the intersection of Avenue of the Americas and West Houston Street are listed as "a" and "b" instead of separate numbers.

4.16.12



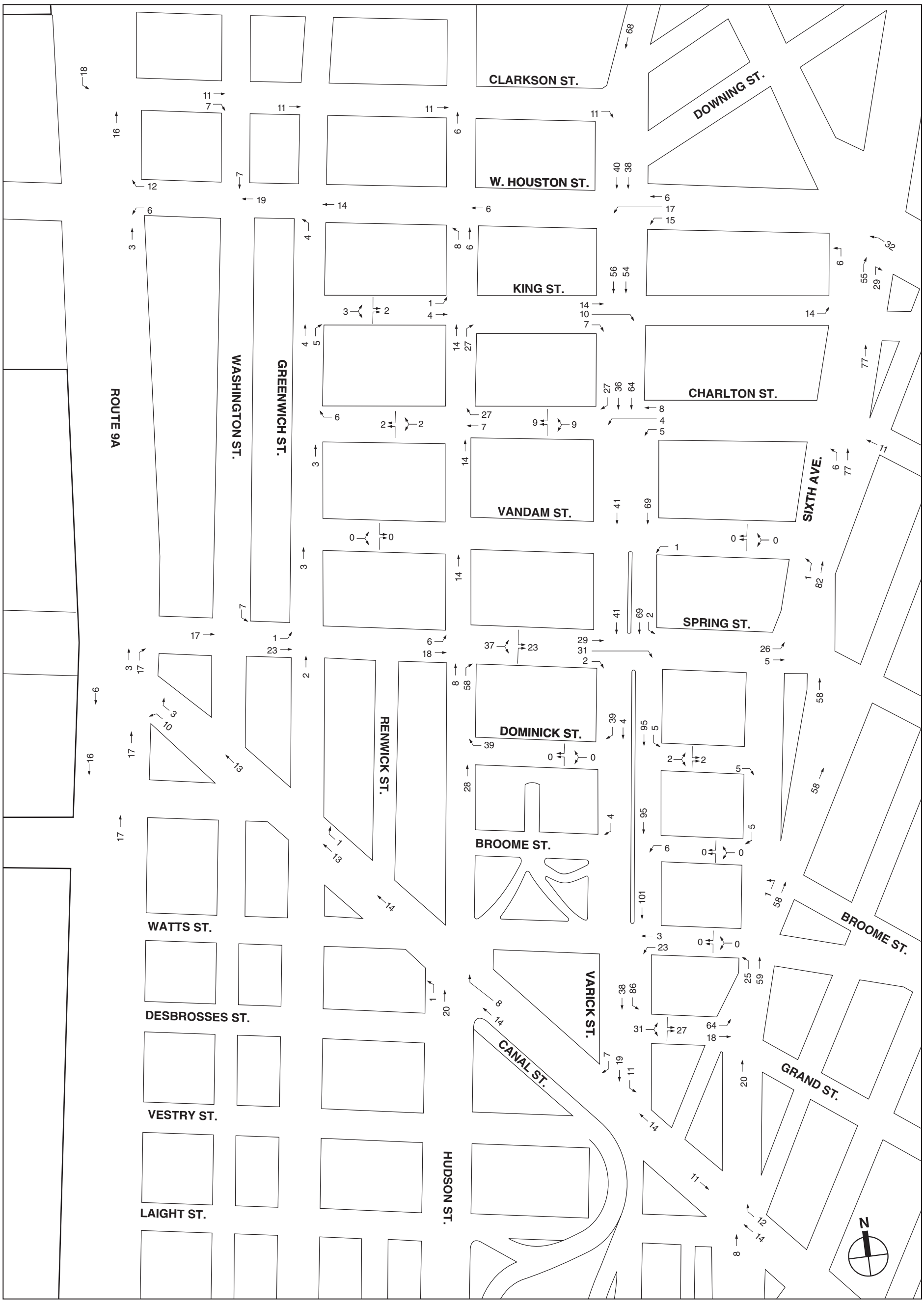
NOT TO SCALE

Midblock Source

Midblock Sink

2022 No-Action Net Existing Generated Traffic
Weekday AM Peak Hour
Figure 13-1

4.16.12



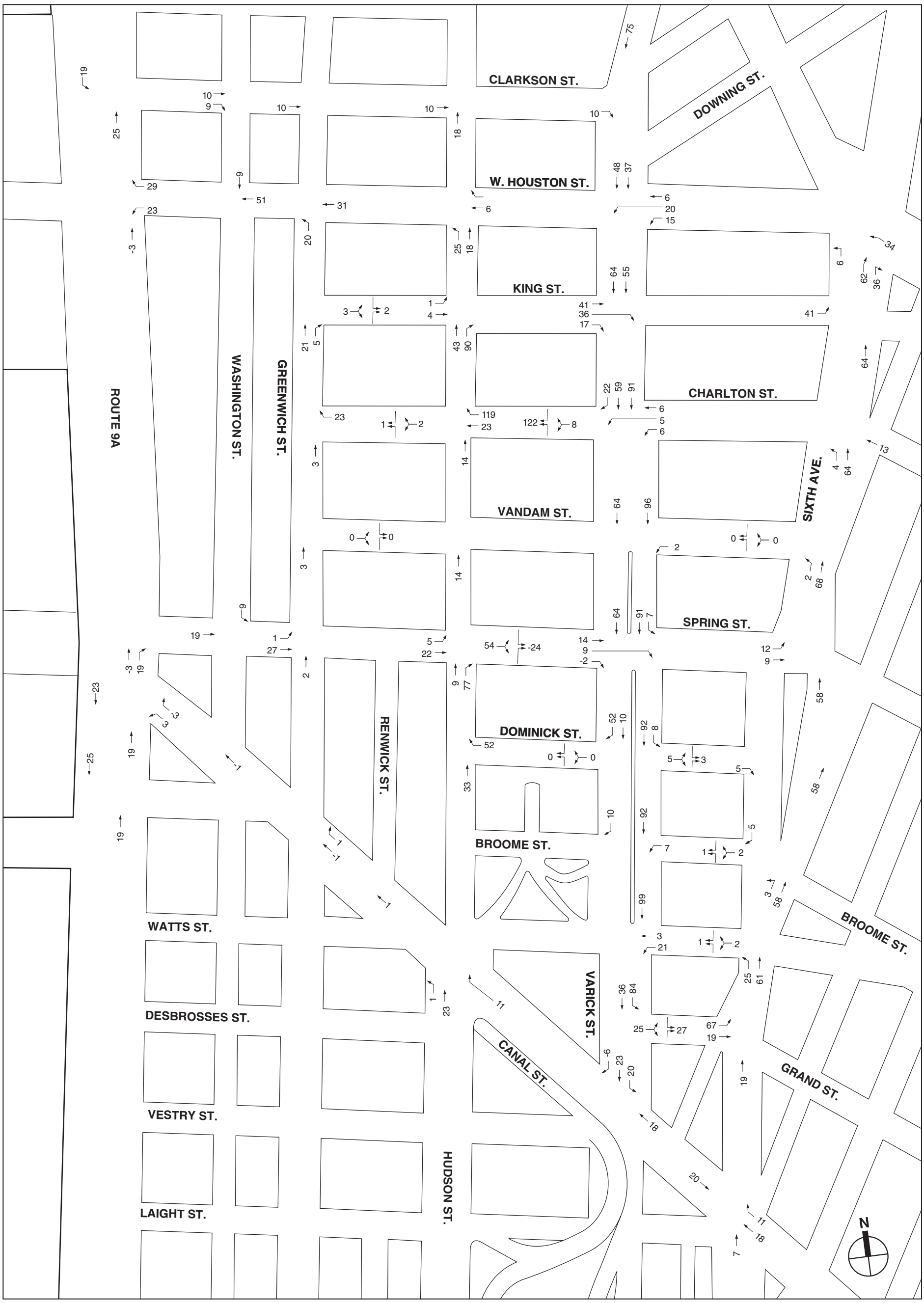
NOT TO SCALE

Midblock Source

Midblock Sink

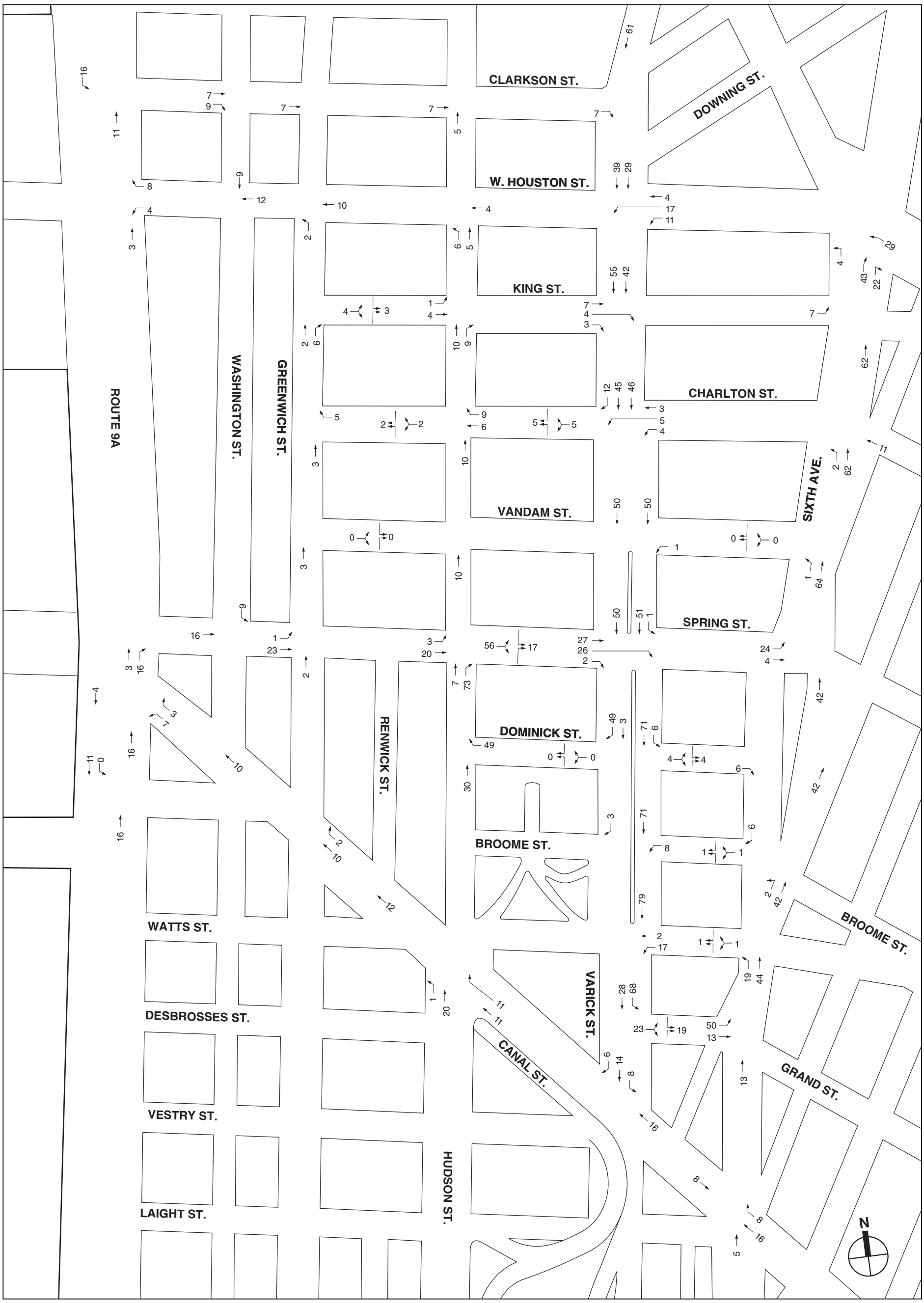
2022 No-Action Net Existing Generated Traffic
Weekday Midday Peak Hour
Figure 13-2

4.16.12



2022 No-Action Net Existing Generated Traffic
Weekday PM Peak Hour
Figure 13-3

4.16.12



NOT TO SCALE

Midblock Source

Midblock Sink

2022 No-Action Net Existing Generated Traffic
Saturday Midday Peak Hour
Figure 13-4

4.16.12

CLARKSON ST.
DOWNING ST.
W. HOUSTON ST.
KING ST.
CHARLTON ST.
VANDAM ST.
SPRING ST.
DOMINICK ST.
BROOME ST.
WATTS ST.
DESBROSSES ST.
VESTRY ST.
LAIGHT ST.
ROUTE 9A
WASHINGTON ST.
GREENWICH ST.
RENWICK ST.
SIXTH AVE.
VARICK ST.
CANAL ST.
HUDSON ST.
GRAND ST.
BROOME ST.

N

NOT TO SCALE

Midblock Source

Midblock Sink

HUDSON SQUARE REZONING

2022 With-Action Net Existing Generated Traffic
Weekday AM Peak Hour
Figure 13-5

4.16.12

CLARKSON ST.
DOWNING ST.
W. HOUSTON ST.
KING ST.
CHARLTON ST.
VANDAM ST.
SPRING ST.
DOMINICK ST.
BROOME ST.
GRAND ST.
WATTS ST.
DESBROSSES ST.
VESTRY ST.
LAIGHT ST.
ROUTE 9A
WASHINGTON ST.
GREENWICH ST.
RENWICK ST.
SIXTH AVE.
VARICK ST.
CANAL ST.
HUDSON ST.

N

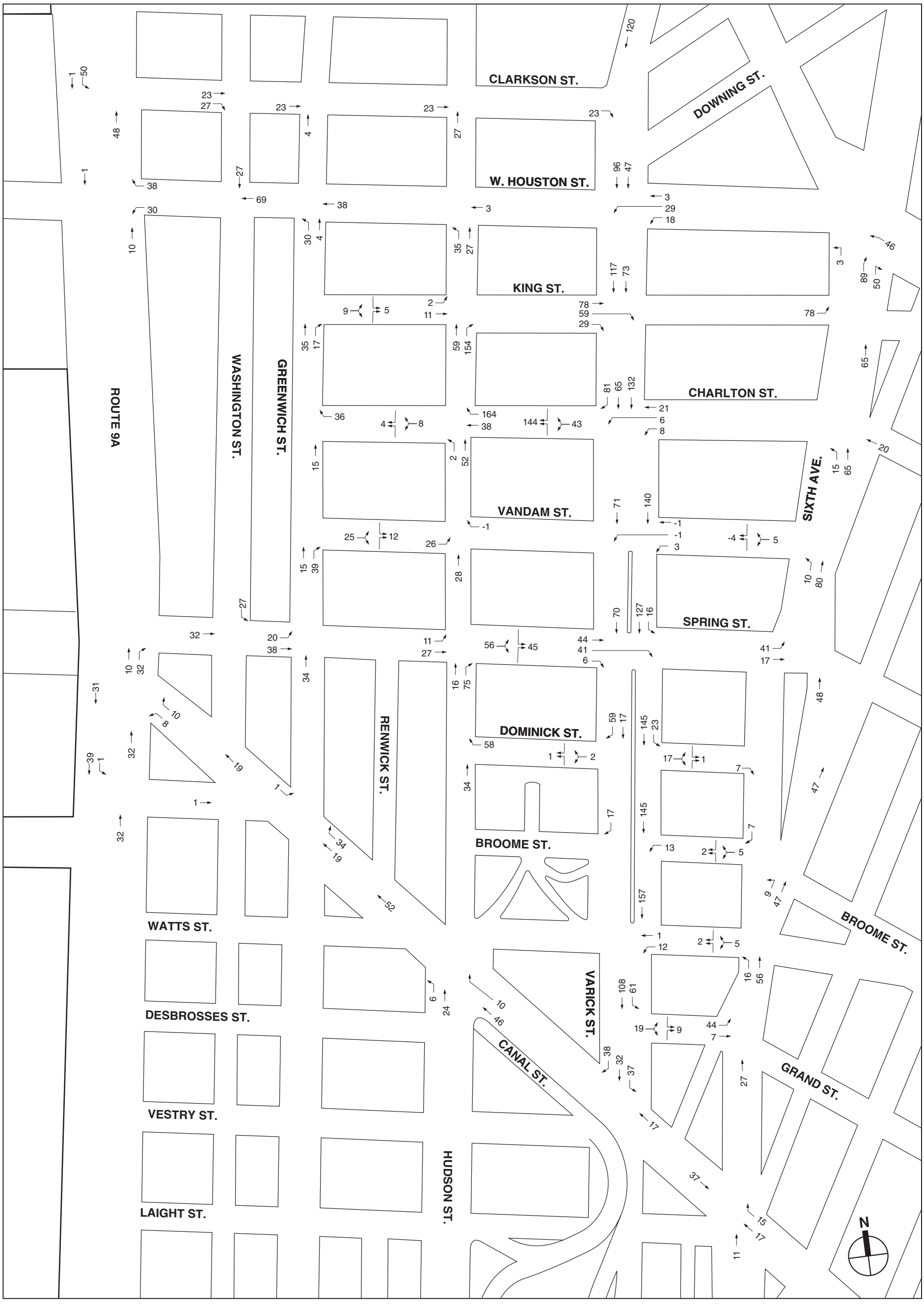
NOT TO SCALE

Midblock Source

Midblock Sink

2022 With-Action Net Existing Generated Traffic
Weekday Midday Peak Hour
Figure 13-6

4.16.12



NOT TO SCALE

Midblock Source

Midblock Sink

2022 With-Action Net Existing Generated Traffic
Weekday PM Peak Hour
Figure 13-7

4.16.12

CLARKSON ST.
DOWNING ST.
W. HOUSTON ST.
KING ST.
CHARLTON ST.
VANDAM ST.
SPRING ST.
DOMINICK ST.
BROOME ST.
WATTS ST.
DESBROSSES ST.
VESTRY ST.
LAIGHT ST.
CANAL ST.
GRAND ST.
ROUTE 9A
WASHINGTON ST.
GREENWICH ST.
RENWICK ST.
SIXTH AVE.
VARICK ST.
HUDSON ST.

NOT TO SCALE

Midblock Source

Midblock Sink

2022 With-Action Net Existing Generated Traffic
Saturday Midday Peak Hour
Figure 13-8

4.18.12

CLARKSON ST.
DOWNING ST.
W. HOUSTON ST.
KING ST.
CHARLTON ST.
VANDAM ST.
SIXTH AVE.
SPRING ST.
DOMINICK ST.
BROOME ST.
GRAND ST.
CANAL ST.
ROUTE 9A
WASHINGTON ST.
GREENWICH ST.
RENWICK ST.
VARICK ST.
HUDSON ST.
WATTS ST.
DESBROSSES ST.
VESTRY ST.
LAIGHT ST.

N

NOT TO SCALE

Midblock Source

Midblock Sink

HUDSON SQUARE REZONING

Net Incremental Traffic
Weekday AM Peak Hour
Figure 13-9

4.18.12

CLARKSON ST.
DOWNING ST.
W. HOUSTON ST.
KING ST.
CHARLTON ST.
VANDAM ST.
SIXTH AVE.
SPRING ST.
DOMINICK ST.
BROOME ST.
WATTS ST.
RENWICK ST.
GREENWICH ST.
WASHINGTON ST.
ROUTE 9A
VARICK ST.
CANAL ST.
GRAND ST.
HUDSON ST.
DESBROSSES ST.
VESTRY ST.
LAIGHT ST.

N

NOT TO SCALE

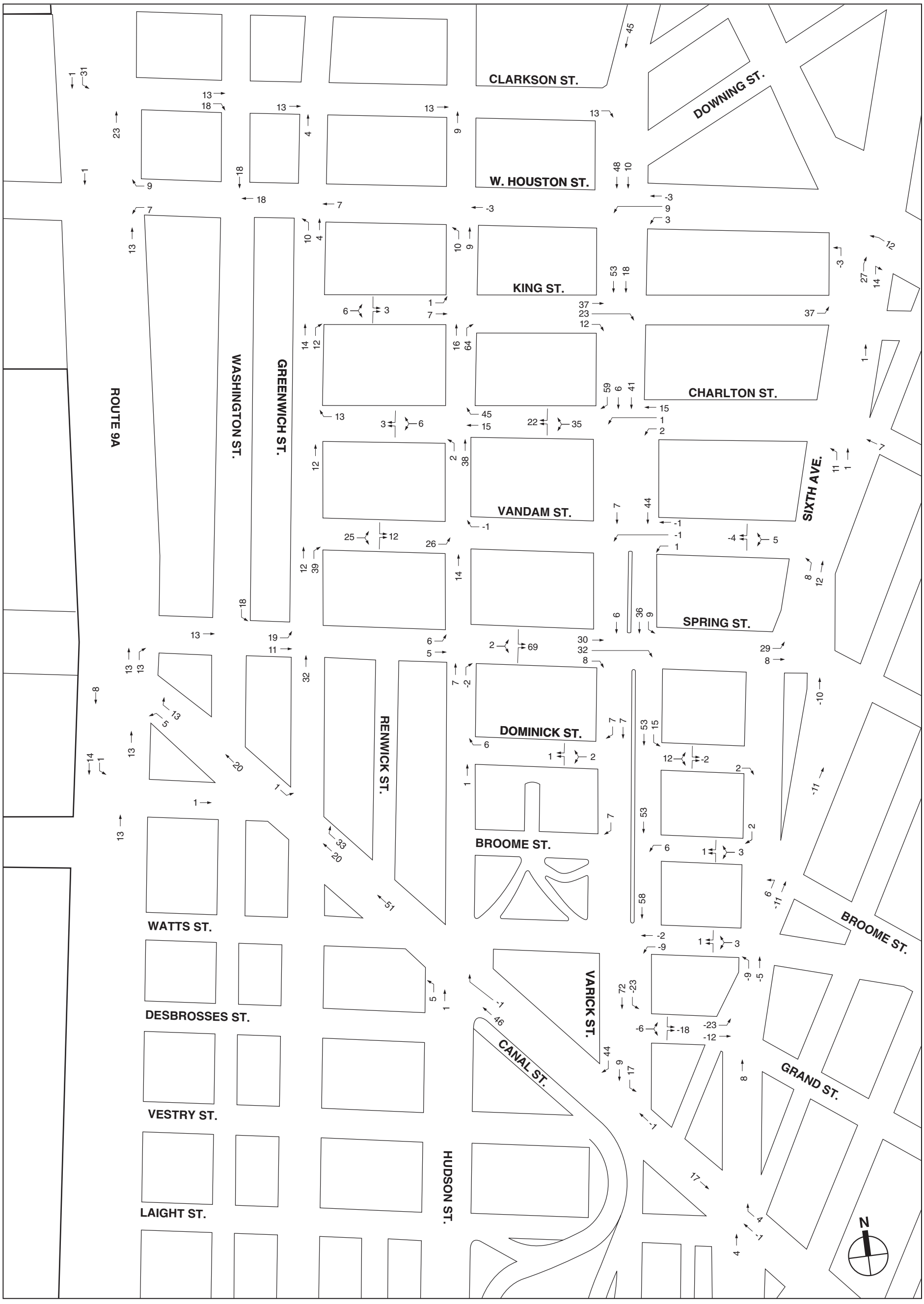
Midblock Source

Midblock Sink

HUDSON SQUARE REZONING

Net Incremental Traffic
Weekday Midday Peak Hour
Figure 13-10

4.18.12



NOT TO SCALE

Midblock Source

Midblock Sink

HUDSON SQUARE REZONING

Net Incremental Traffic
Weekday PM Peak Hour
Figure 13-11

4.18.12

CLARKSON ST.
DOWNING ST.
W. HOUSTON ST.
KING ST.
CHARLTON ST.
VANDAM ST.
SIXTH AVE.
SPRING ST.
DOMINICK ST.
BROOME ST.
WATTS ST.
DESBROSSES ST.
VESTRY ST.
LAIGHT ST.
ROUTE 9A
WASHINGTON ST.
GREENWICH ST.
RENWICK ST.
VARICK ST.
CANAL ST.
HUDSON ST.
GRAND ST.

N

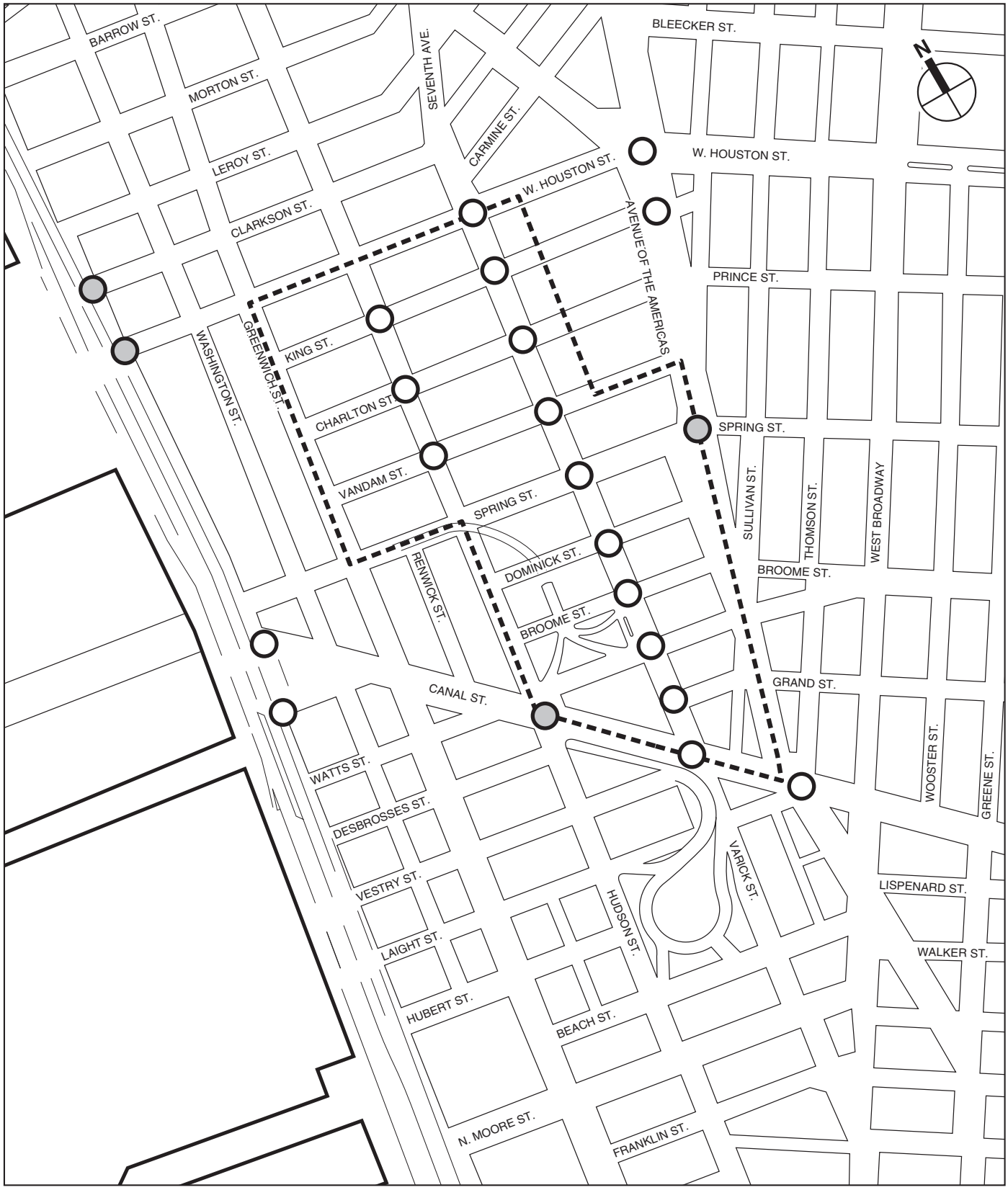
NOT TO SCALE

Midblock Source

Midblock Sink

HUDSON SQUARE REZONING

Net Incremental Traffic
Saturday Midday Peak Hour
Figure 13-12



HUDSON SQUARE REZONING

Traffic Analysis Locations

Figure 13-13

3. Hudson Street and King Street
4. Hudson Street and Charlton Street
5. Hudson Street and Vandam Street
6. Hudson Street (east and west lanes) and Canal Street
7. Varick Street (east and west lanes) and West Houston Street
8. Varick Street (east and west lanes) and King Street
9. Varick Street (east and west lanes) and Charlton Street
10. Varick Street (east and west lanes) and Vandam Street
11. Varick Street (east and west lanes) and Spring Street
12. Varick Street (east and west lanes) and Dominick Street
13. Varick Street (east and west lanes) and Broome Street
14. Varick Street (east and west lanes) and Watts Street
15. Varick Street and Grand Street
16. Varick Street and Canal Street

17a. Avenue of the Americas and West Houston Street (signalized)
17b. Avenue of the Americas and West Houston Street (unsignalized)

18. Avenue of the Americas and King Street
19. Avenue of the Americas and Spring Street
20. Avenue of the Americas and Canal Street/Laight Street
21. West Street and Canal Street North
22. West Street and Canal Street South

Additional intersections may be analyzed between the Draft and Final EIS. These intersections will be selected in consultation with DCP and NYCDOT.

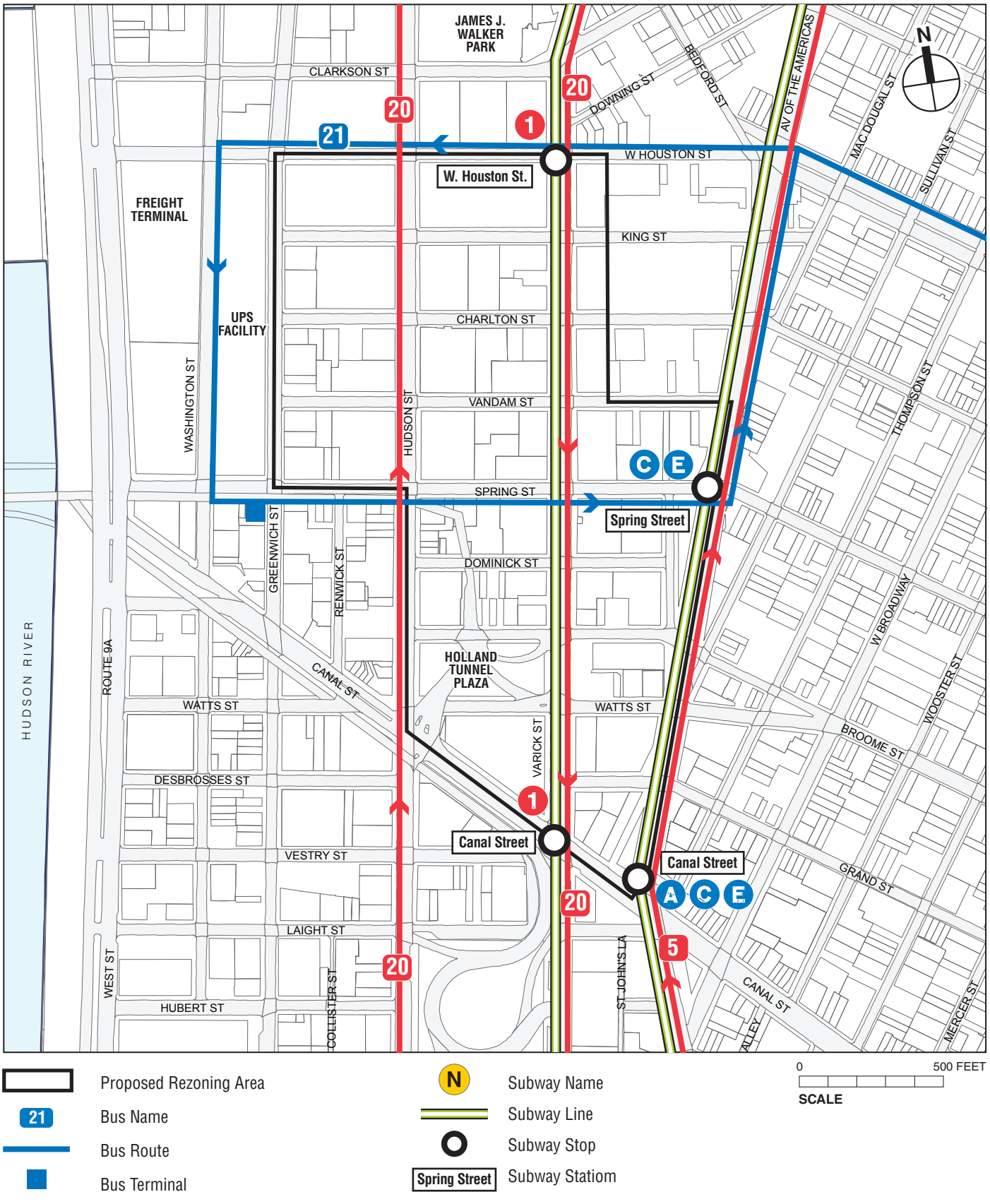
TRANSIT

SUBWAY

As presented in **Table 13-9**, the net subway trip increments were projected to be 1,325, 575, 1,482, and 1,144 during the weekday AM, midday, and PM, and Saturday midday peak hours, respectively. Trip assignments for both the No-Action and With-Action conditions were prepared for the weekday AM, midday, and PM peak hours, as well as the Saturday midday peak hour. These trips were distributed to the nearby subway stations serving the area (see **Figure 13-14**). The allocation of project-generated subway trips also considered different train origins, transfer opportunities, and varying train loads at different points along their routes. Based on this assessment, nearly 90 percent of the total project-generated subway trips are expected to be served by the four nearest subway stations—the Canal Street (A/C/E) station, the Canal Street (No.1) station, the Spring Street (C/E) station, and the West Houston Street (No.1) station. The remaining 10 percent were distributed to other stations in the area, including the Prince Street (N/R) station, the Spring Street (No.6) station, and the Canal Street (No.6/J/N/Q/R/W) station.

The following stations and associated station elements are expected to incur 200 or more peak hour incremental subway trips, and the following control areas and station elements were therefore identified for analysis for the weekday AM and PM peak periods.

- Spring Street station (C/E lines) stairways and control areas, including the uptown N86 control area connecting to a street-level stairway (S3 stairway at the northeast corner of



HUDSON SQUARE REZONING

Transit Map
Figure 13-14

Avenue of the Americas and Spring Street) and two downtown control areas each connecting to a street-level stairway (S4 stairway at the southwest corner of Avenue of the Americas and Vandam Street and an unmarked stairway at the northeast corner of Avenue of the Americas and Spring Street); and

- Houston Street station (No.1 line) stairways and control areas, including the uptown control area connecting to a street-level stairway (S2 stairway at the southeast corner of Varick Street and King Street) and the downtown control area connecting to a street-level stairway (S1 stairway at the southwest corner of Varick Street and King Street).

To determine whether a subway line-haul analysis is warranted, the estimated incremental ridership for each subway line by direction was compared with each line's peak period service frequency to determine the incremental increase in subway riders per subway car as shown in **Table 13-10** below. According to the *CEQR Technical Manual*, an incremental ridership of fewer than five riders per subway car is unlikely to result in the potential for a significant subway line-haul impact. The detailed subway trip assignments showed that all subway lines would incur fewer than five additional riders per car along all subway lines. Since the projected peak ridership increment would be below this threshold, a detailed subway line-haul analysis is not warranted.

Table 13-10
Subway Line Haul Screening Analysis

Subway Line	Projected Riders	No. of Cars *	No. Riders/Car	Screening Result
AM Peak Hour				
No. 1 Downtown	146	180	0.8	Screened out
No. 1 Uptown	209	150	1.4	Screened out
C/E Downtown	341	188	1.8	Screened out
C/E Uptown	488	196	2.5	Screened out
N/Q/R/6 Both Directions	135	816	0.2	Screened out
PM Peak Hour				
No. 1 Downtown	202	110	1.8	Screened out
No. 1 Uptown	168	70	2.4	Screened out
C/E Downtown	501	158	2.9	Screened out
C/E Uptown	452	158	2.9	Screened out
N/Q/R/6 Both Directions	182	814	0.2	Screened out

Note: * Number of cars available for each line during the peak hour is obtained from 2010 cordon counts

NYCT BUS

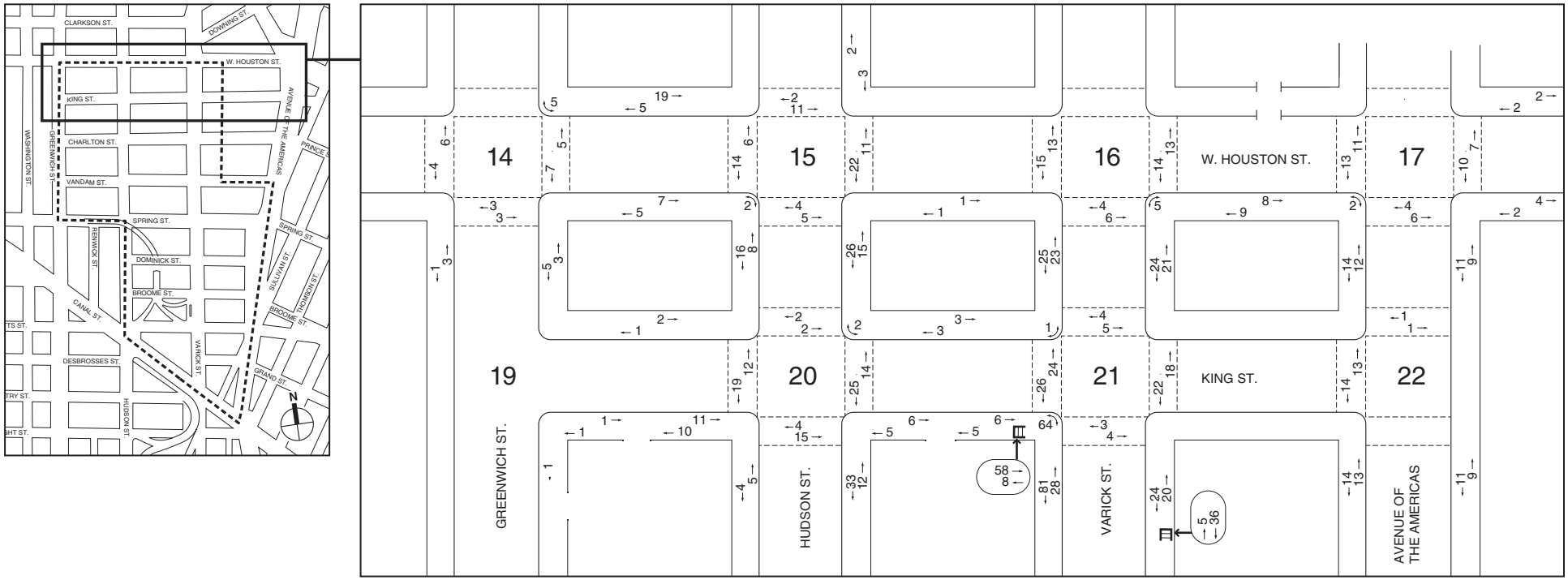
Bus trips were distributed to the Metropolitan Transportation Authority (MTA) New York City Transit (NYCT) local bus routes serving the study area (see **Figure 13-14**). There are three local bus routes (M5, M20, and M21) with stops adjacent to or near the project sites. According to the projected incremental bus trips presented in **Table 13-9,** increments of up to 72 total peak hour bus passengers (30 in and 42 out) and no more than 50 peak hour bus passengers in one direction were projected for the Proposed Action. This demonstrates that no individual bus route would experience 50 or more peak hour bus trips in one direction—the CEQR recommended threshold for undertaking a quantified bus analysis. Therefore, a detailed bus line-haul analysis would not be required to address potential transit impacts on the bus system associated with the Proposed Action.

PEDESTRIANS

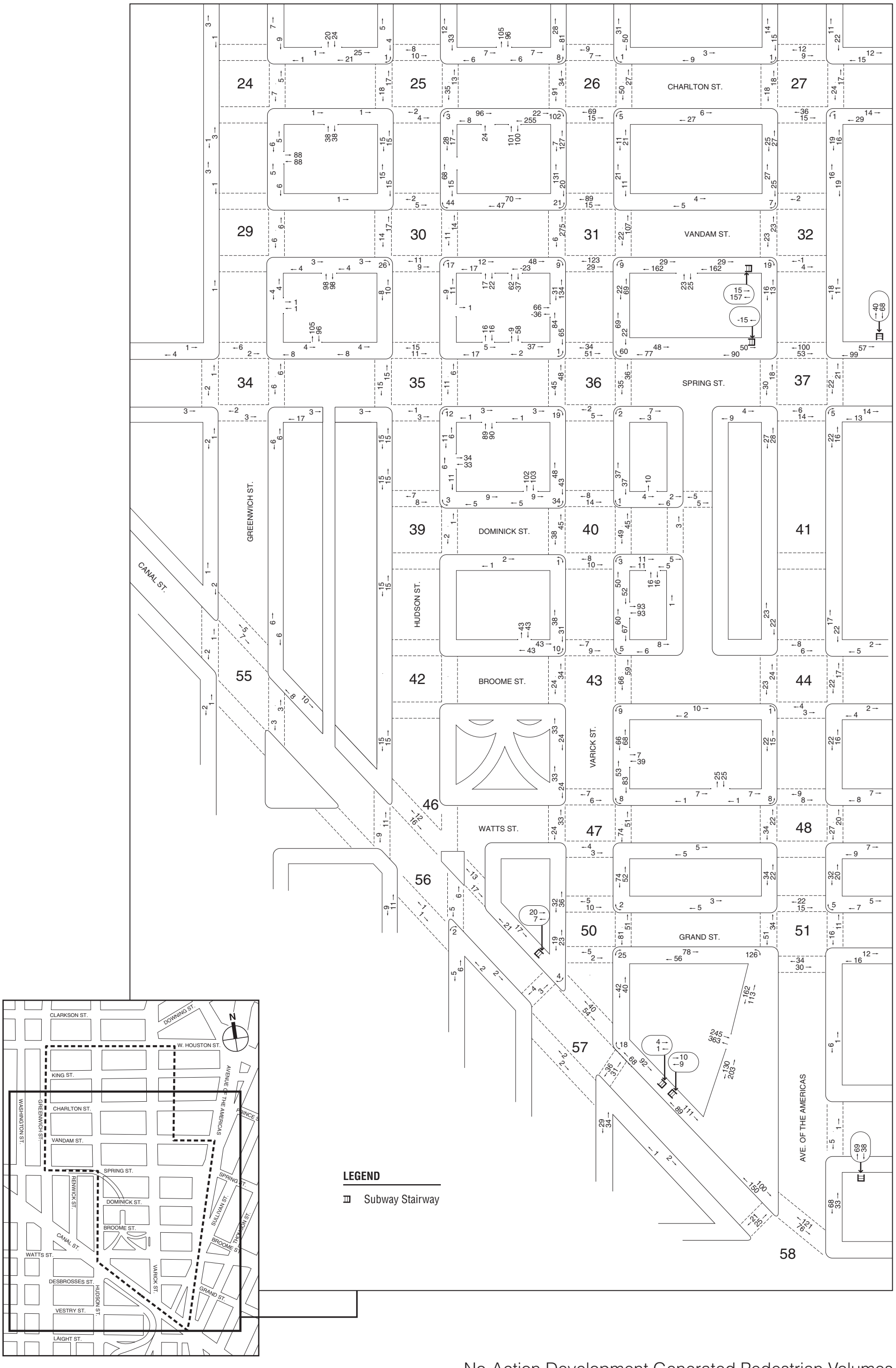
Trip assignments for both the No-Action and With-Action conditions were prepared for the weekday AM, midday, and PM peak hours, as well as the Saturday midday peak hour as

presented in **Figures 13-15A** to **13-18B** and **13-19A** to **13-22B**, respectively. As shown in **Table 13-9**, the projected peak hour pedestrian increments would exceed the CEQR analysis threshold of 200 pedestrians during the weekday AM, midday, and PM, and Saturday midday peak hours. Pedestrian trip assignments were developed for all the uses to conduct a Level 2 screening assessment. For each use, pedestrian trips would follow similar assignment procedures, as described below:

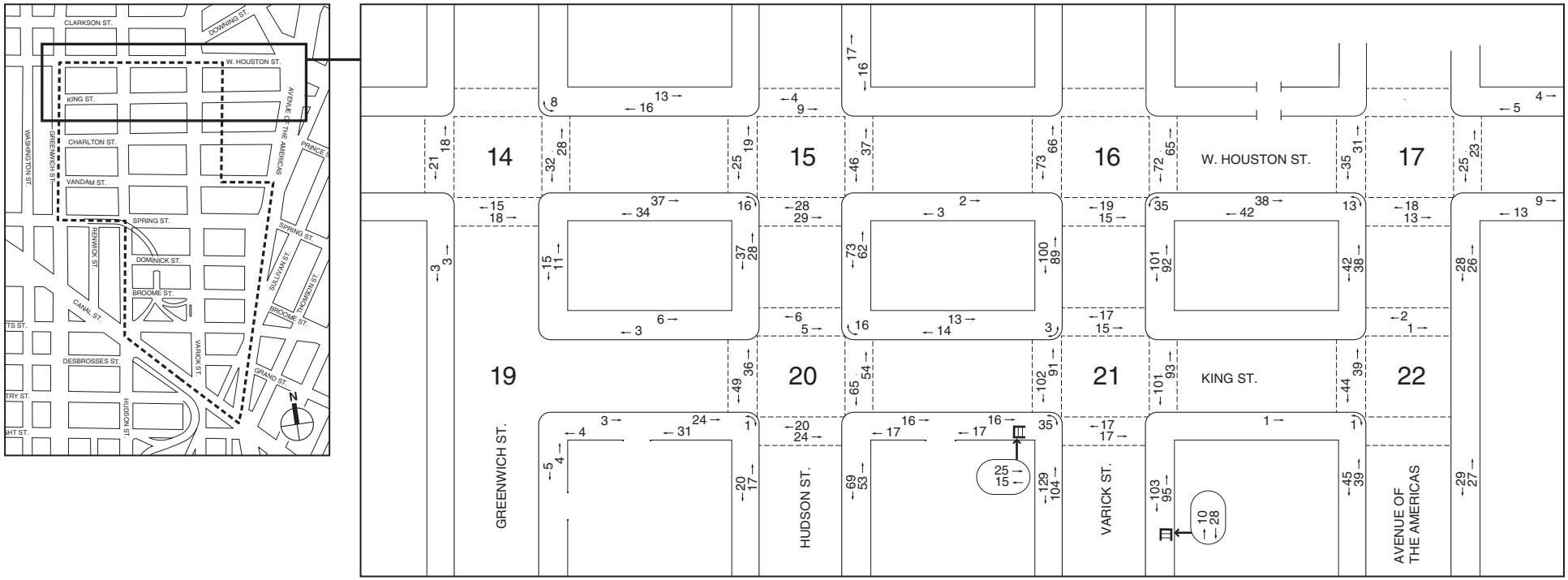
- Auto Trips – For the residential and hotel uses, motorists would park on site and would have direct access to the site without traversing any pedestrian elements. For all other uses, it was assumed that the motorists would drive to the site and park near the site entrance and walk to and from the site.
- Taxi Trips – Taxi riders would get dropped off and picked up near their destination for each use.
- Bus Trips – Bus riders would use one of the three bus routes serving the area (M5, M20, and M21) and would get on and off at the bus stops nearest to the destinations and walk to and from the project sites. It was assumed that 60 percent of bus riders would travel to/from uptown/crosstown and the remaining 40 percent would travel to/from downtown to get to/from their final destinations.
- Subway Trips – Subway riders were assigned to the nearest stations and would walk to and from the proposed sites. The distribution of the subway riders to nearby subway stations is based on the proximity of the stations, the number of subway lines available at each station, and the transfer opportunities that each line provides at other stations. Nearly 90 percent of the total project-generated subway trips are expected to be served by the four nearest subway stations—the Canal Street (A/C/E) station, the Canal Street (No.1) station, the Spring Street (C/E) station, and the West Houston Street (No.1) station. Based on the subway lines available, 30 percent of the subway trips were assigned to the Canal Street and Houston Street Stations (No. 1 line), 60 percent were assigned to the Canal Street (A/C/E lines) and Spring Street(C/E lines) Stations. The remaining 10 percent were distributed to other stations located east of the rezoning area, including the Prince Street (N/R) Station, the Spring Street (No.6) Station, and the Canal Street (No.6/J/N/Q/R/W/Z) Station. It was assumed that approximately 2/3 of subway riders would travel to/from uptown and the remaining 1/3 would travel to/from downtown and Brooklyn to get to/from their final destinations. These estimates would result in the net incremental subway trip distribution to the four stations within the rezoing area as shown below for the AM peak hour. The PM peak hour distribution is slightly different within 1 to 2 percent range.
  - Spring Street Station (C/E) – approximately 63 percent;
  - Houston Street Station (No. 1) – approximately 22 percent;
  - Canal Street Station at Varick Street (No. 1) – approximately 5 percent; and
  - Canal Street Station at Avenue of the Americas (A/C/E) – approximately 1 percent.
- School Bus Trips– All school bus riders would be picked up and dropped off in front of the school entrance.
- Walk-Only Trips – Pedestrians who walk to and from the development sites within the Rezoning Area were distributed to the area's pedestrian facilities (i.e. crosswalks, sidewalks, and corners) based on the neighborhood land-use characteristics and 2010 Census population data, which was used to identify concentrations of population and to assign residential trips and related use trips accordingly.



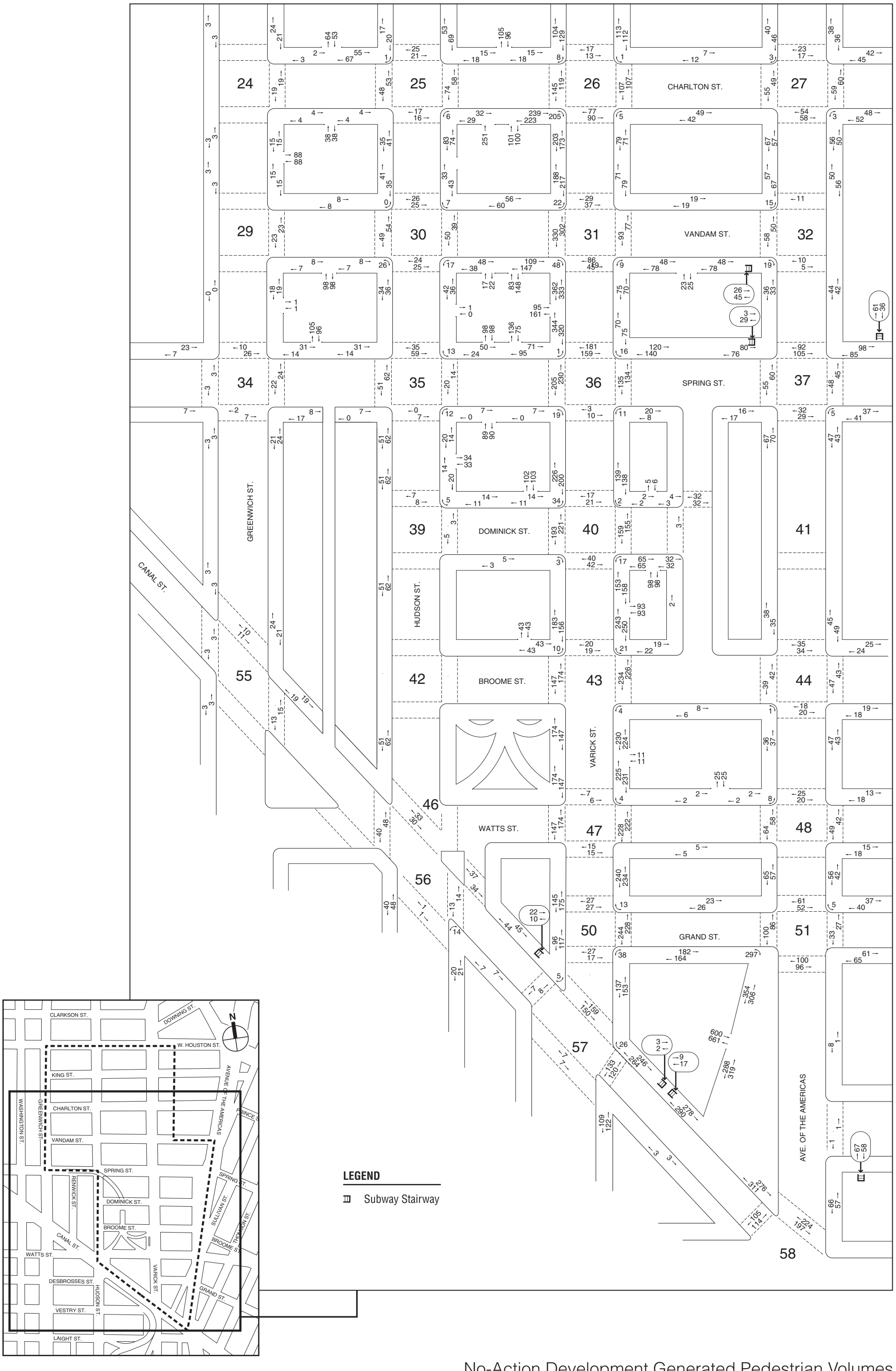
No-Action Development Generated Pedestrian Volumes
Weekday AM Peak Hour
Figure 13-15A



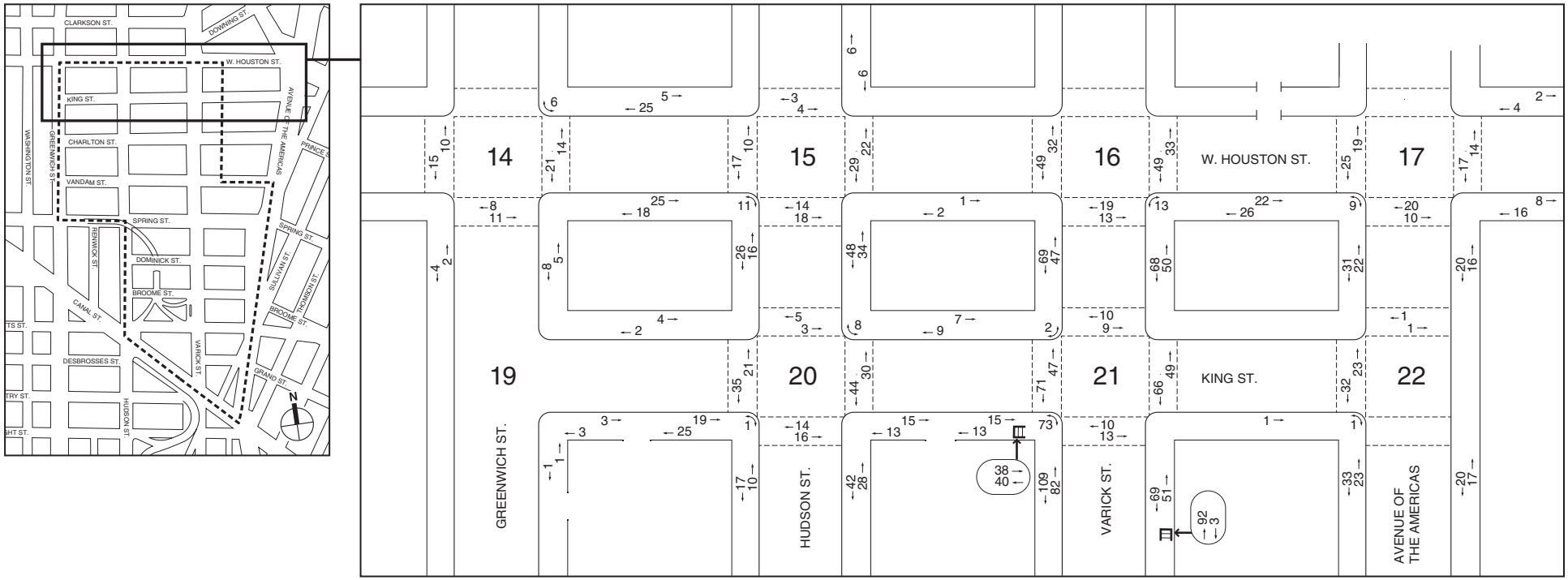
No-Action Development Generated Pedestrian Volumes
Weekday AM Peak Hour
Figure 13-15B



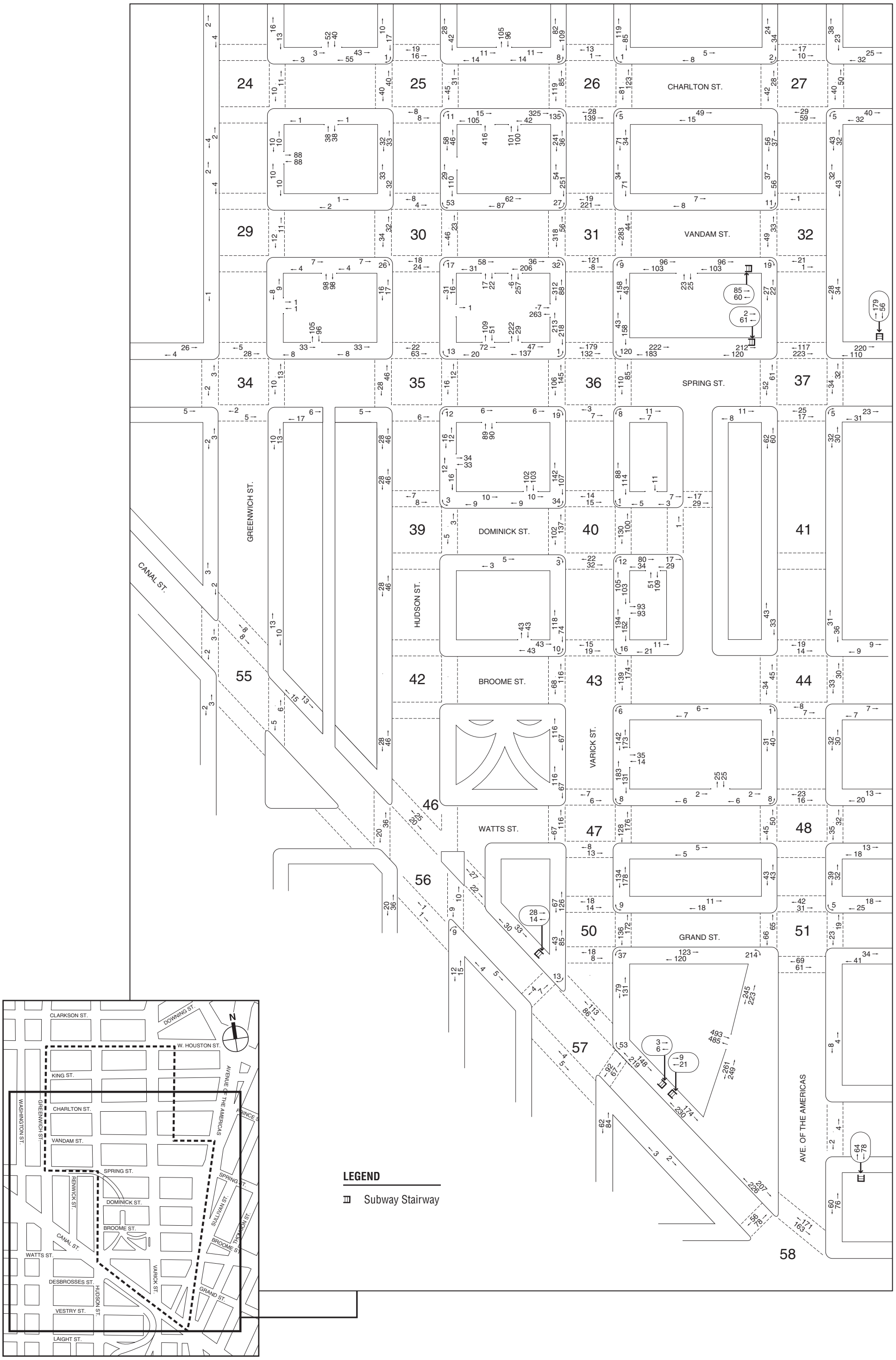
No-Action Development Generated Pedestrian Volumes
Weekday MD Peak Hour
Figure 13-16A



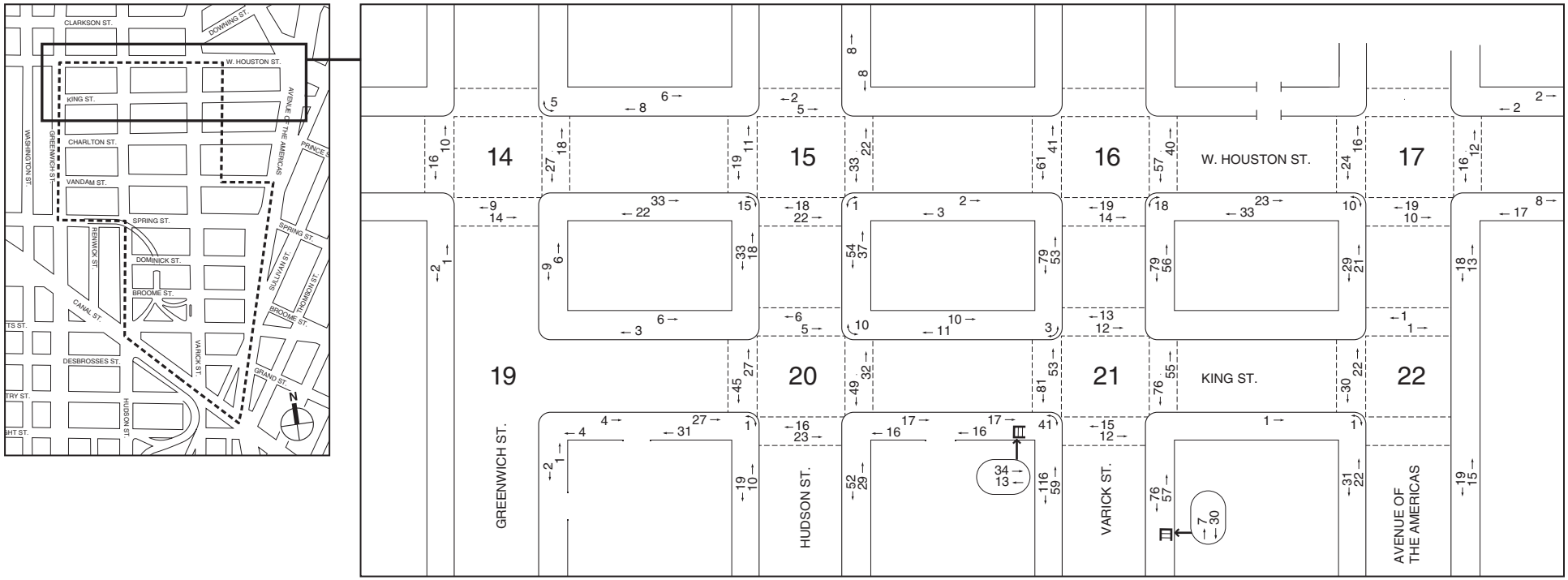
No-Action Development Generated Pedestrian Volumes
Weekday MD Peak Hour
Figure 13-16B



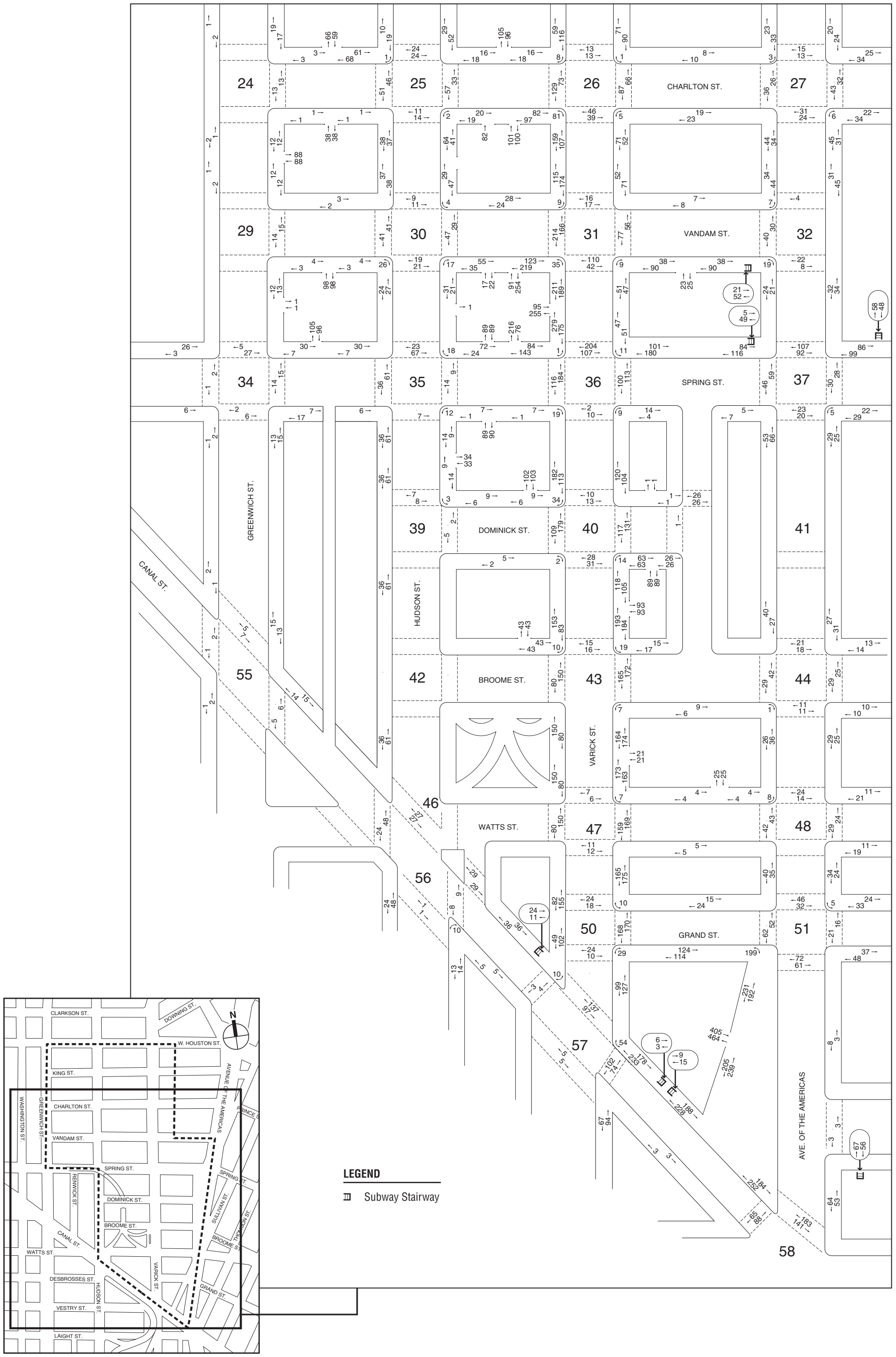
No-Action Development Generated Pedestrian Volumes
Weekday PM Peak Hour
Figure 13-17A



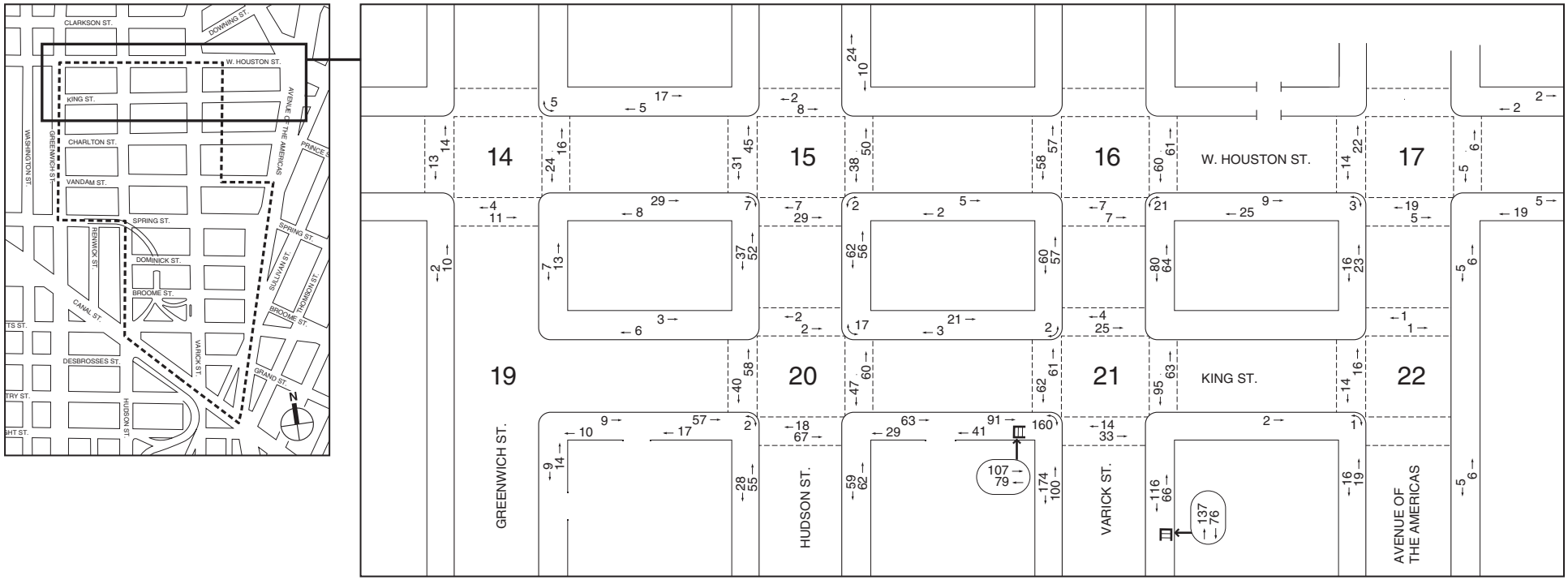
No-Action Development Generated Pedestrian Volumes
Weekday PM Peak Hour
Figure 13-17B



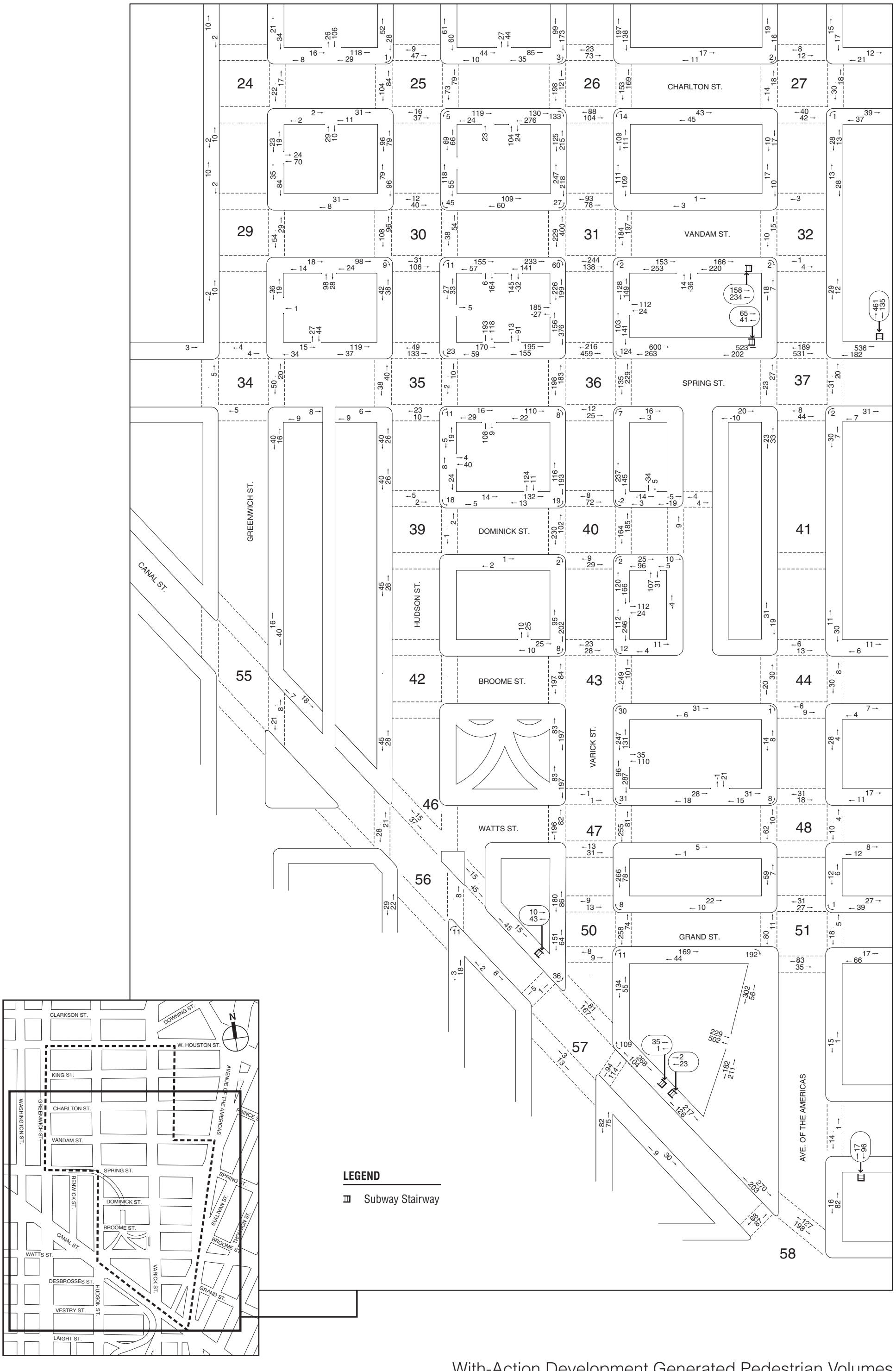
No-Action Development Generated Pedestrian Volumes
Saturday Midday Peak Hour
Figure 13-18A



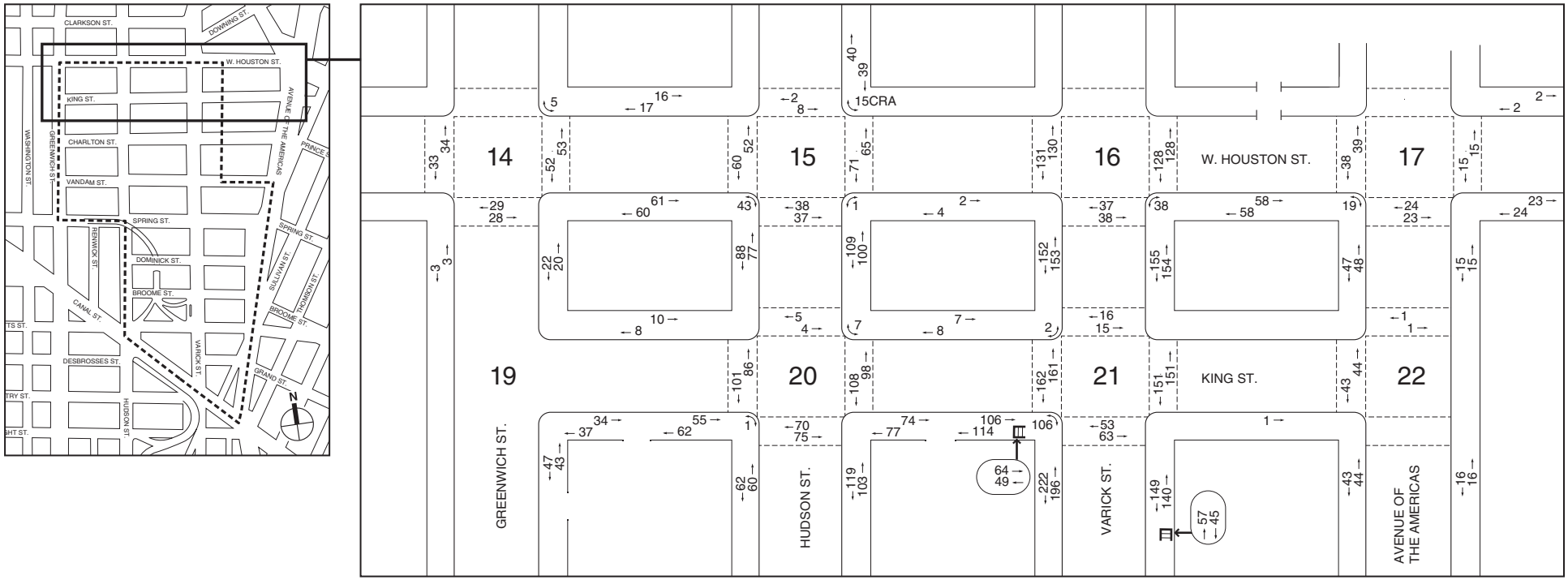
No-Action Development Generated Pedestrian Volumes
Saturday Midday Peak Hour
Figure 13-18B



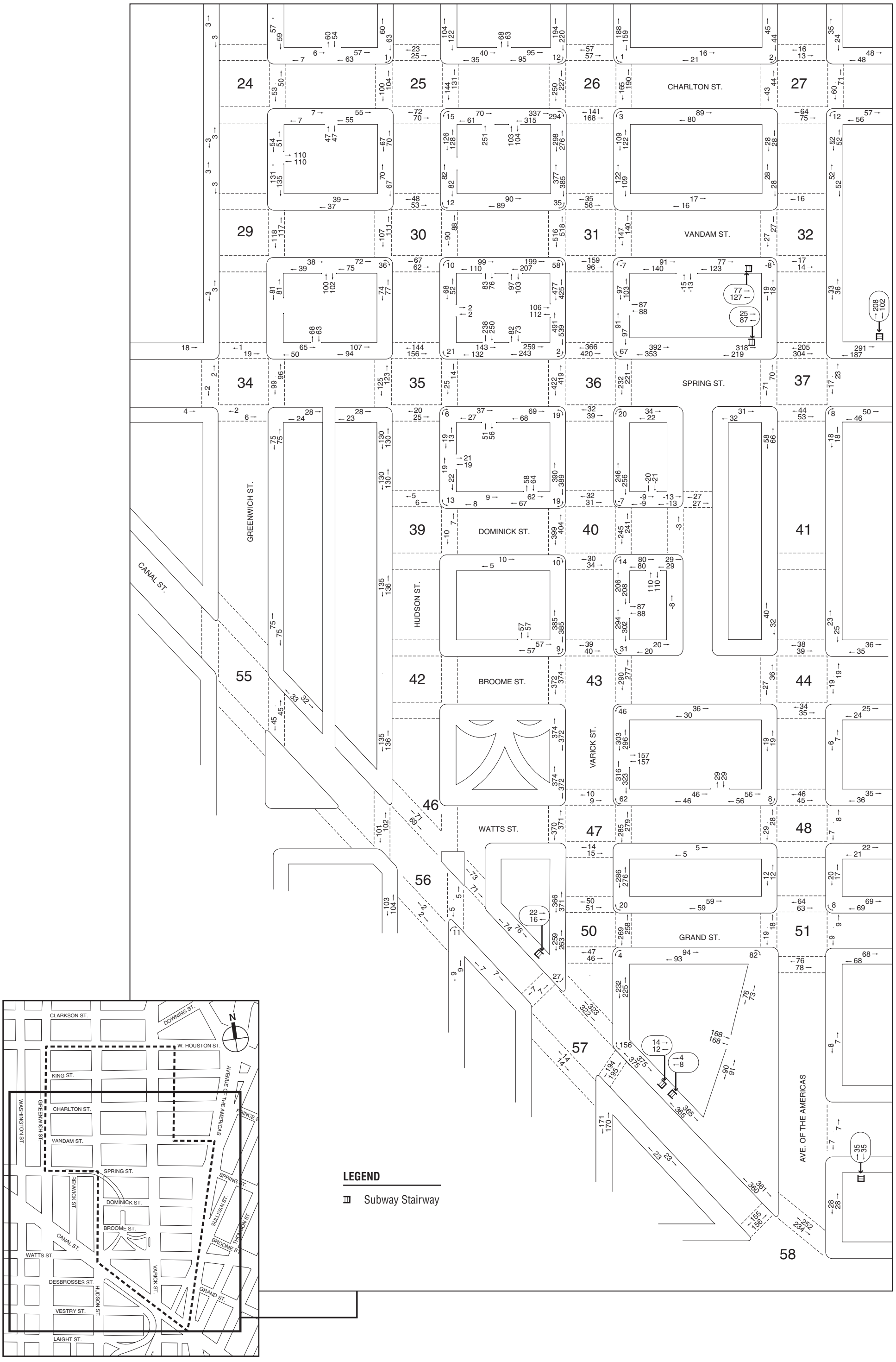
With-Action Development Generated Pedestrian Volumes
Weekday AM Peak Hour
Figure 13-19A



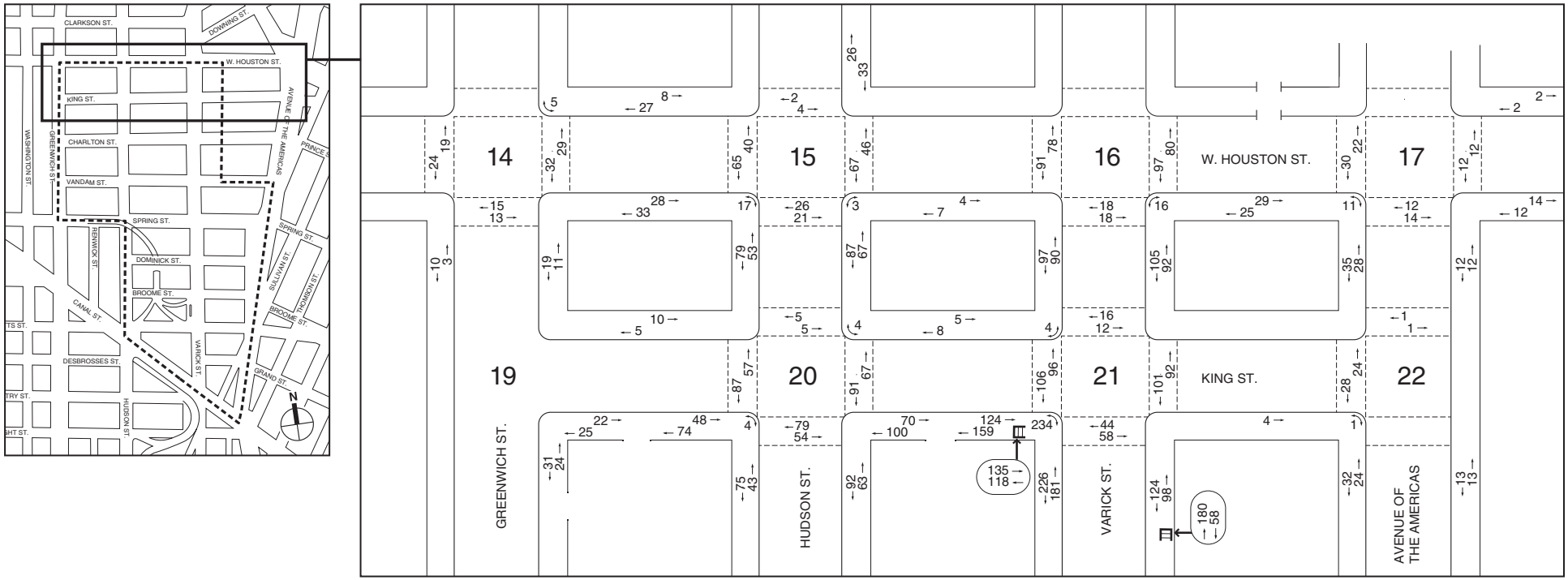
With-Action Development Generated Pedestrian Volumes
Weekday AM Peak Hour
Figure 13-19B



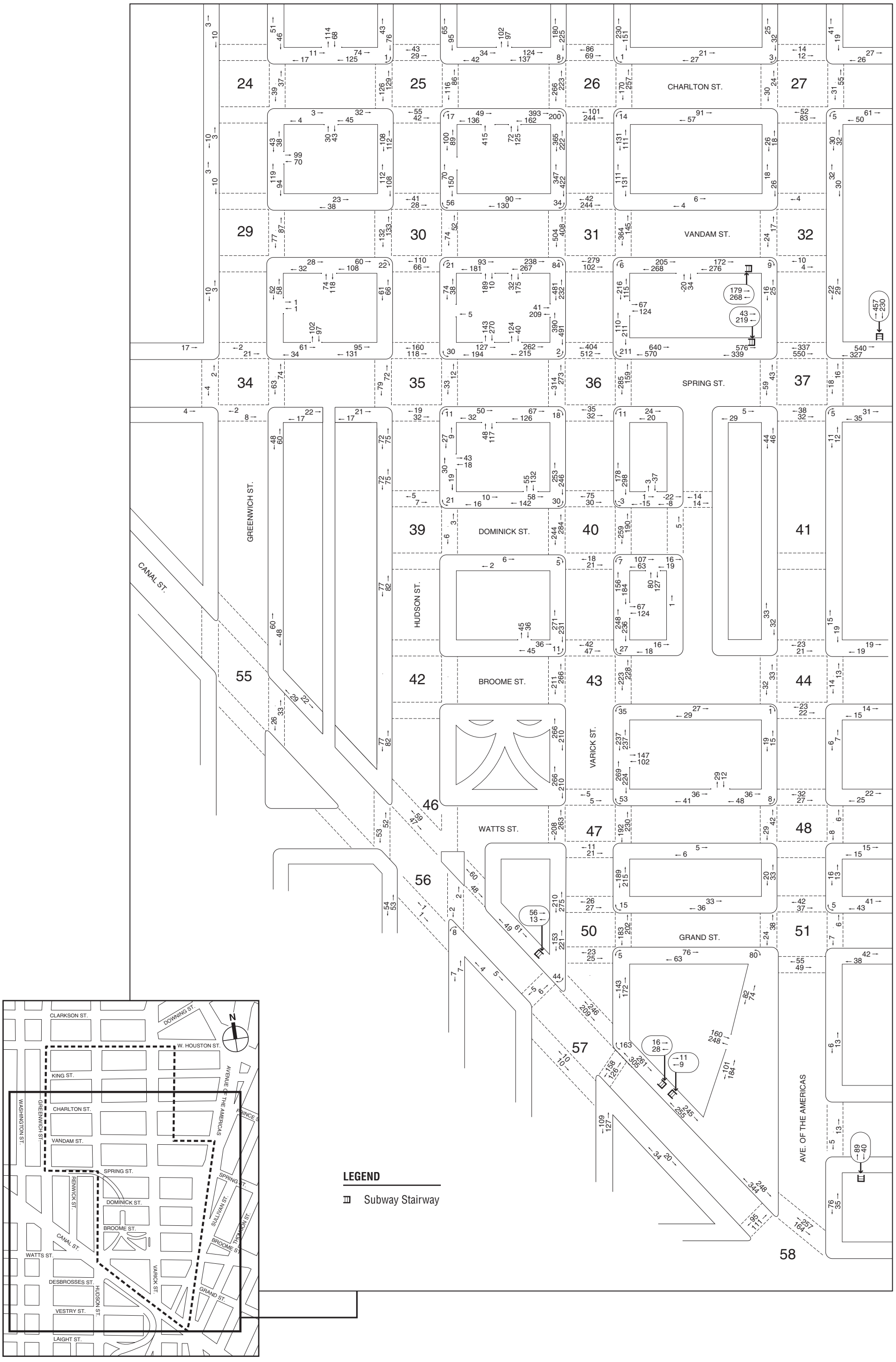
With-Action Development Generated Pedestrian Volumes
Weekday MD Peak Hour
Figure 13-20A



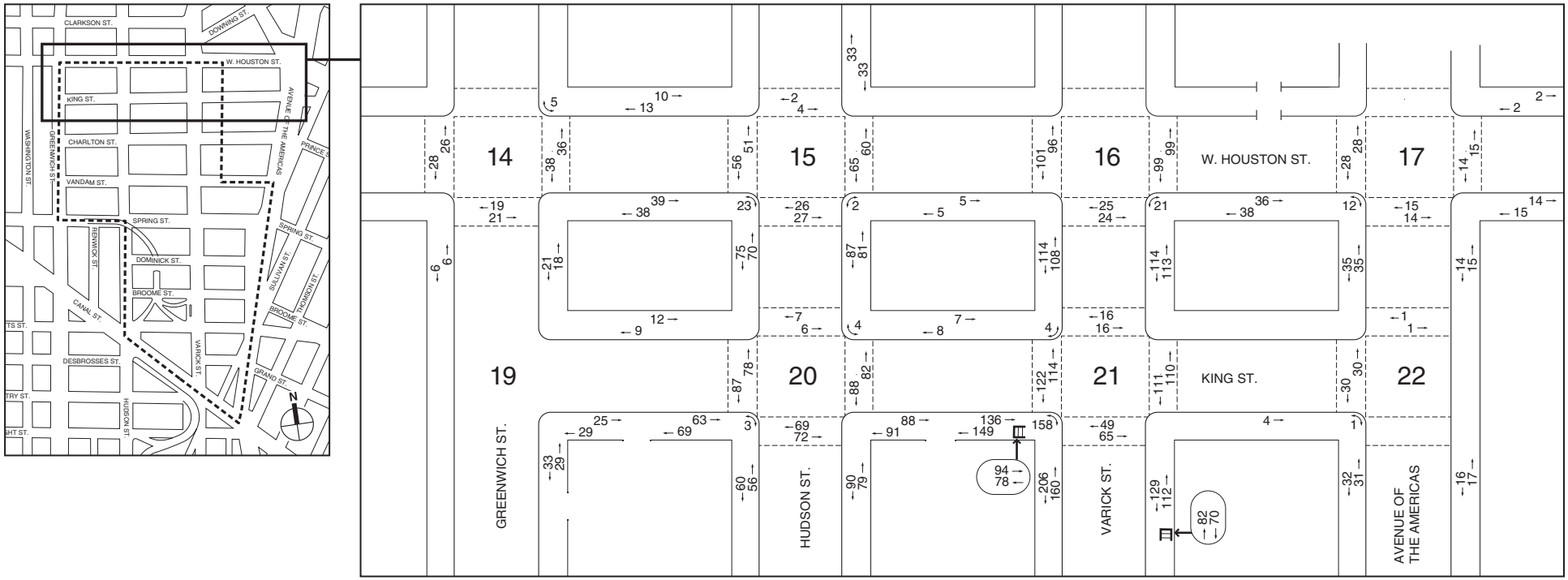
With-Action Development Generated Pedestrian Volumes
Weekday MD Peak Hour
Figure 13-20B



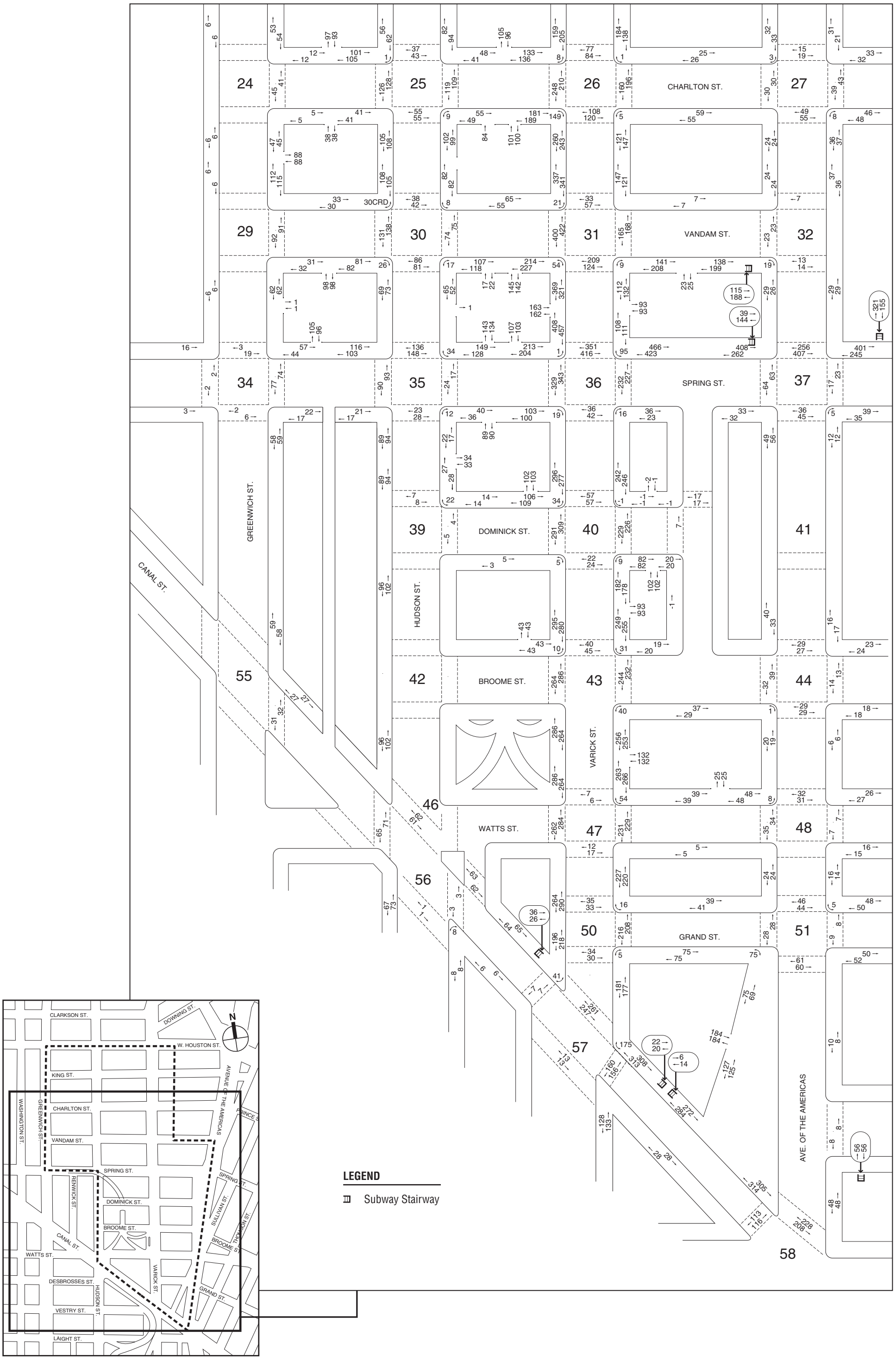
With-Action Development Generated Pedestrian Volumes
Weekday PM Peak Hour
Figure 13-21A



With-Action Development Generated Pedestrian Volumes
Weekday PM Peak Hour
Figure 13-21B



With-Action Development Generated Pedestrian Volumes
Saturday Midday Peak Hour
Figure 13-22A



With-Action Development Generated Pedestrian Volumes
Saturday Midday Peak Hour
Figure 13-22B

Figures 13-23A to **13-26B** present the incremental peak hour trips resulting from the Proposed Action. According to the *CEQR Technical Manual*, quantified pedestrian analyses could be required for pedestrian elements incurring 200 or more incremental peak hour trips. Based on this Level 2 pedestrian assignment, various sidewalks, crosswalks, and corner reservoirs within and in the vicinity of the Rezoning Area would incur 200 or more project-generated peak hour trips. Pedestrian analysis locations were assigned for the weekday AM, midday, PM, and Saturday midday peak hours, taking into account the projected trip increments and background pedestrian characteristics (see **Table 13-11** and **Figure 13-27)**.

E. TRANSPORTATION ANALYSIS METHODOLOGIES

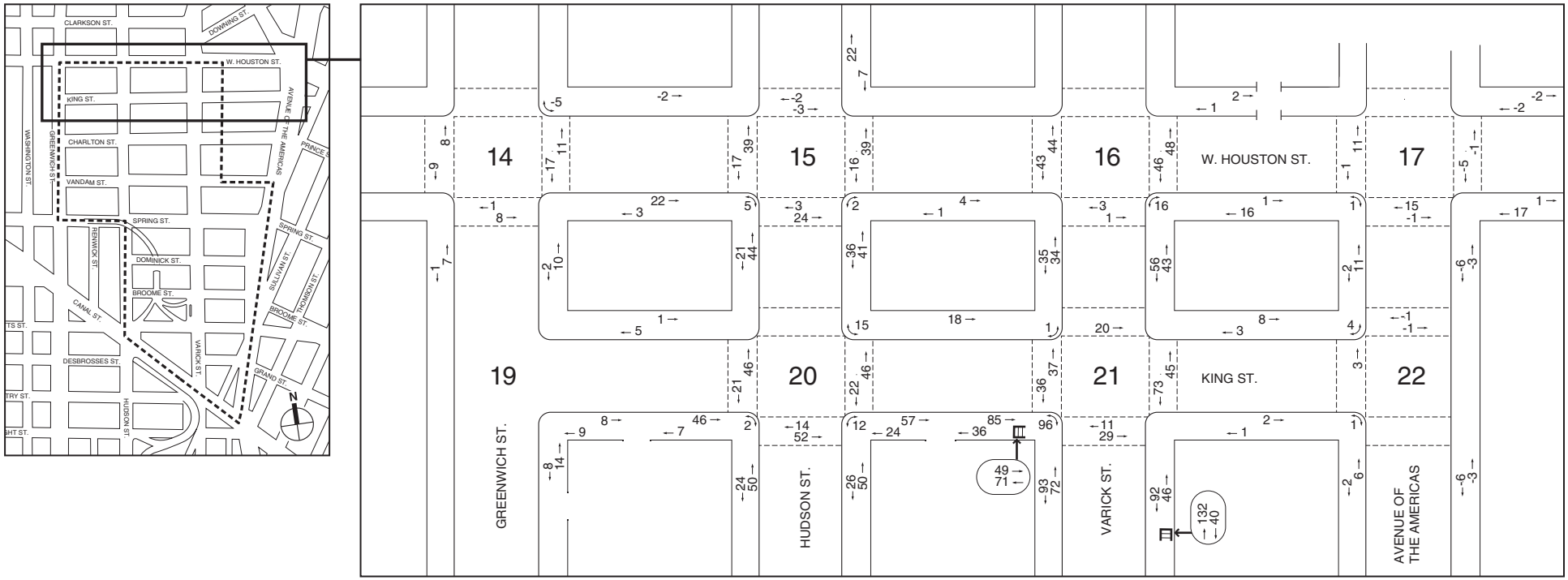
TRAFFIC OPERATIONS

The operation of all of the signalized intersections and unsignalized intersection in the study area were assessed using methodologies presented in the *2000 Highway Capacity Manual (HCM)* using the *Highway Capacity Software (HCS+ 5.5)*. The *HCM* procedure evaluates the levels of service (LOS) for signalized and unsignalized intersections using average stop control delay, in seconds per vehicle, as described below.

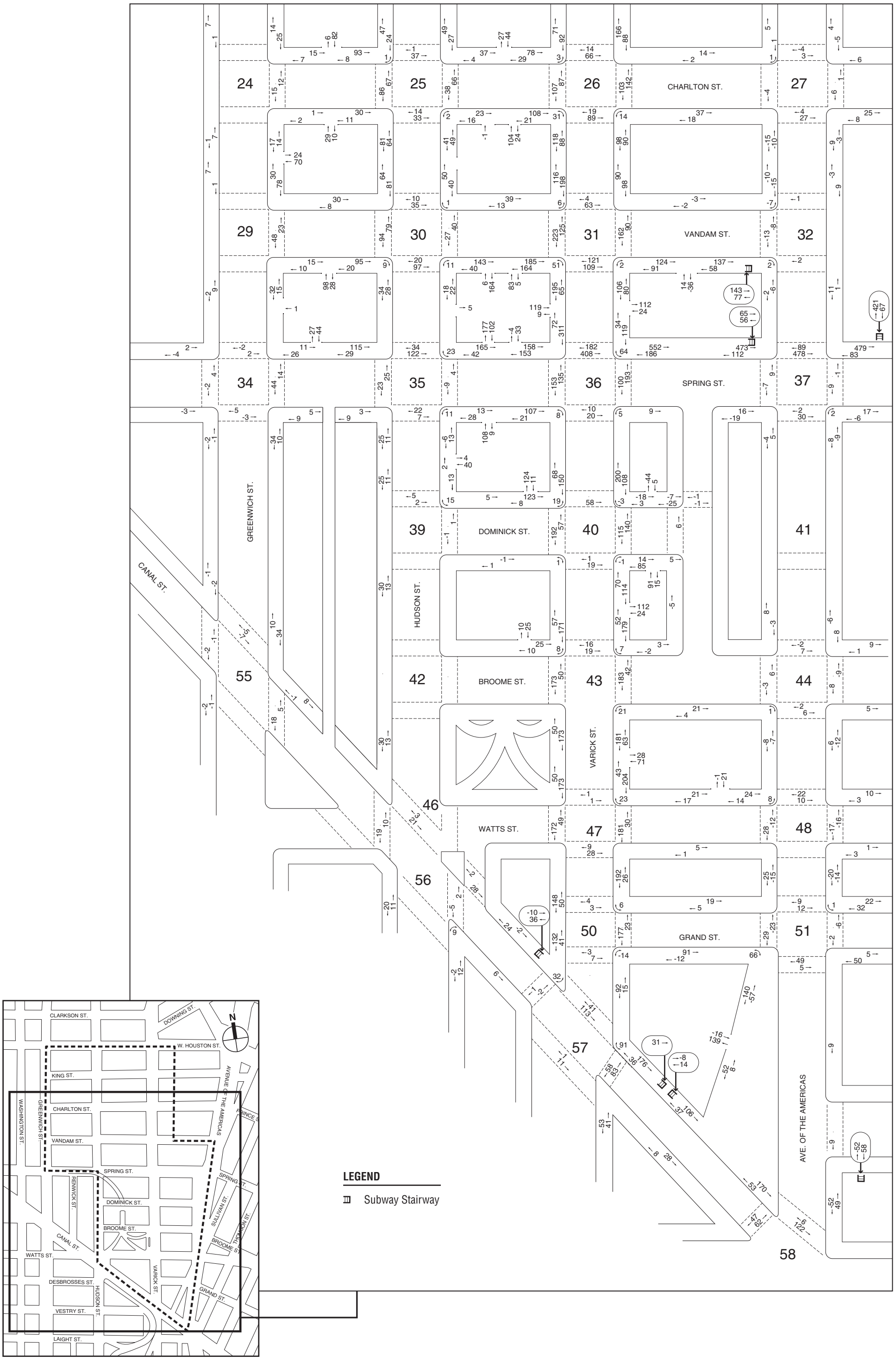
SIGNALIZED INTERSECTIONS

The average control delay per vehicle is the basis for LOS determination for individual lane groups (grouping of movements in one or more travel lanes), the approaches, and the overall intersection. The levels of service are defined in **Table 13-12**.

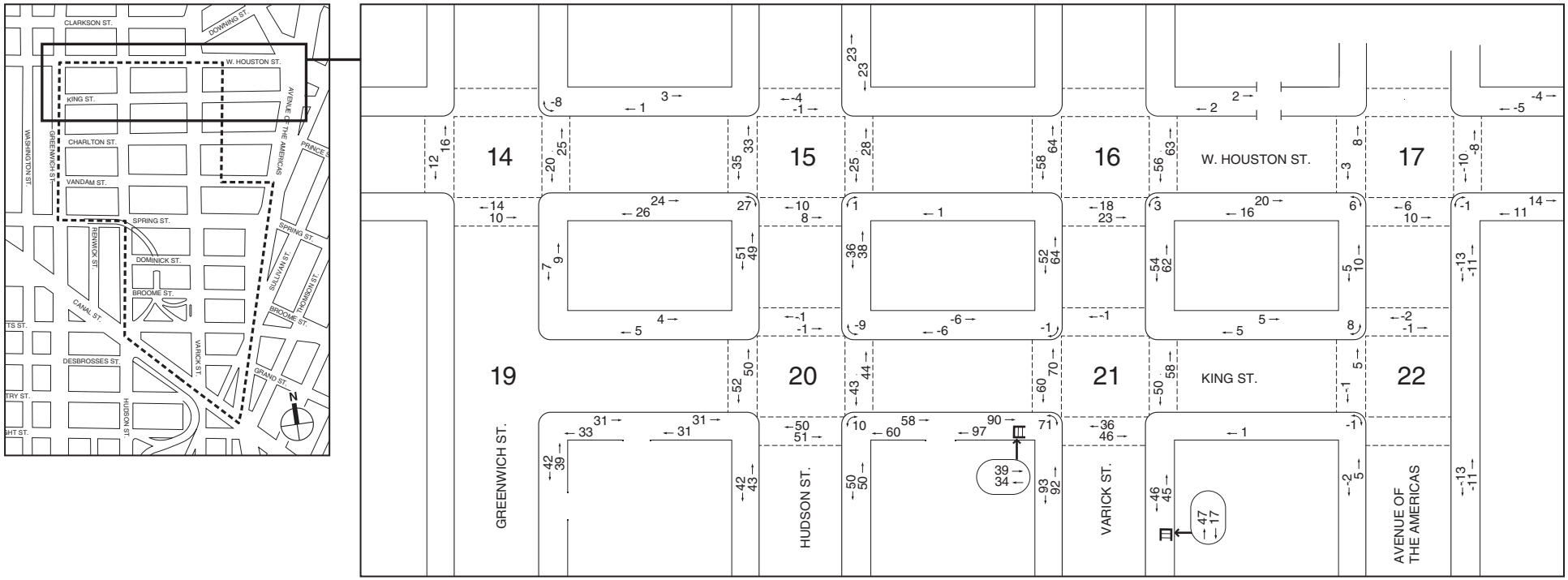
Although the HCM methodology calculates a volume-to-capacity (v/c) ratio, there is no strict relationship between v/c ratios and LOS as defined in the *HCM*. A high v/c ratio indicates substantial traffic passing through an intersection, but a high v/c ratio combined with low average delay actually represents the most efficient condition in terms of traffic engineering standards, where an approach or the whole intersection processes traffic close to its theoretical maximum capacity with minimal delay. However, very high v/c ratios—especially those approaching or greater than 1.0—are often correlated with a deteriorated LOS. Other important variables affecting delay include cycle length, progression, and green time. LOS A and B indicate good operating conditions with minimal delay. At LOS C, the number of vehicles stopping is higher, but congestion is still fairly light. LOS D describes a condition where congestion levels are more noticeable and individual cycle failures (a condition where motorists may have to wait for more than one green phase to clear the intersection) can occur. Conditions at LOS E and F reflect poor service levels, and cycle breakdowns are frequent. The *HCM* methodology also provides for a summary of the total intersection operating conditions. The analysis chooses the two critical movements (the worst case from each roadway) and calculates a summary critical v/c ratio. The overall intersection delay, which determines the intersection's LOS, is based on a weighted average of control delays of the individual lane groups. Within New York City, the midpoint of LOS D (45 seconds of delay) is generally considered as the threshold between acceptable and unacceptable operations.



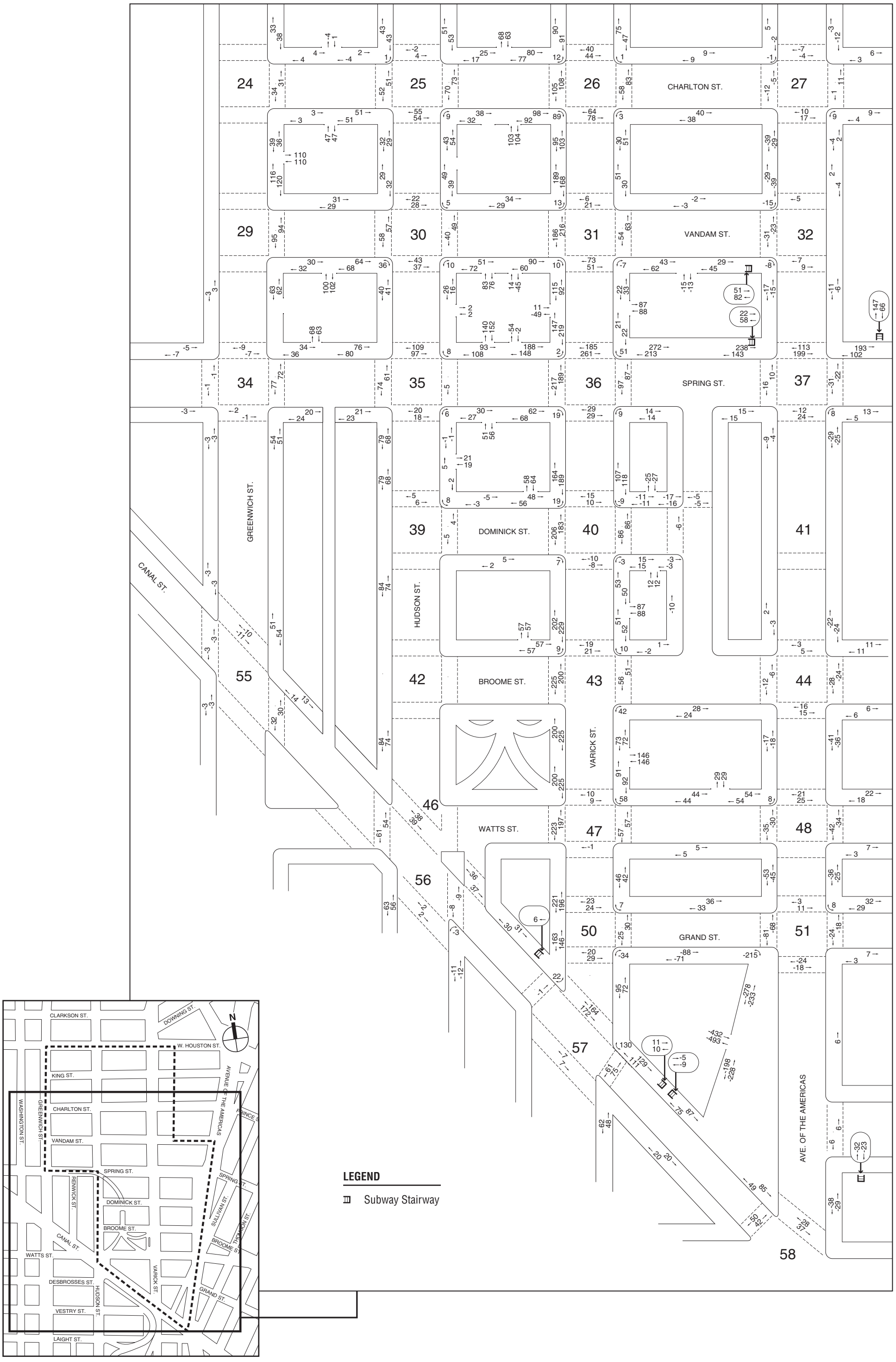
Net Incremental Pedestrian Volumes
Weekday AM Peak Hour
Figure 13-23A



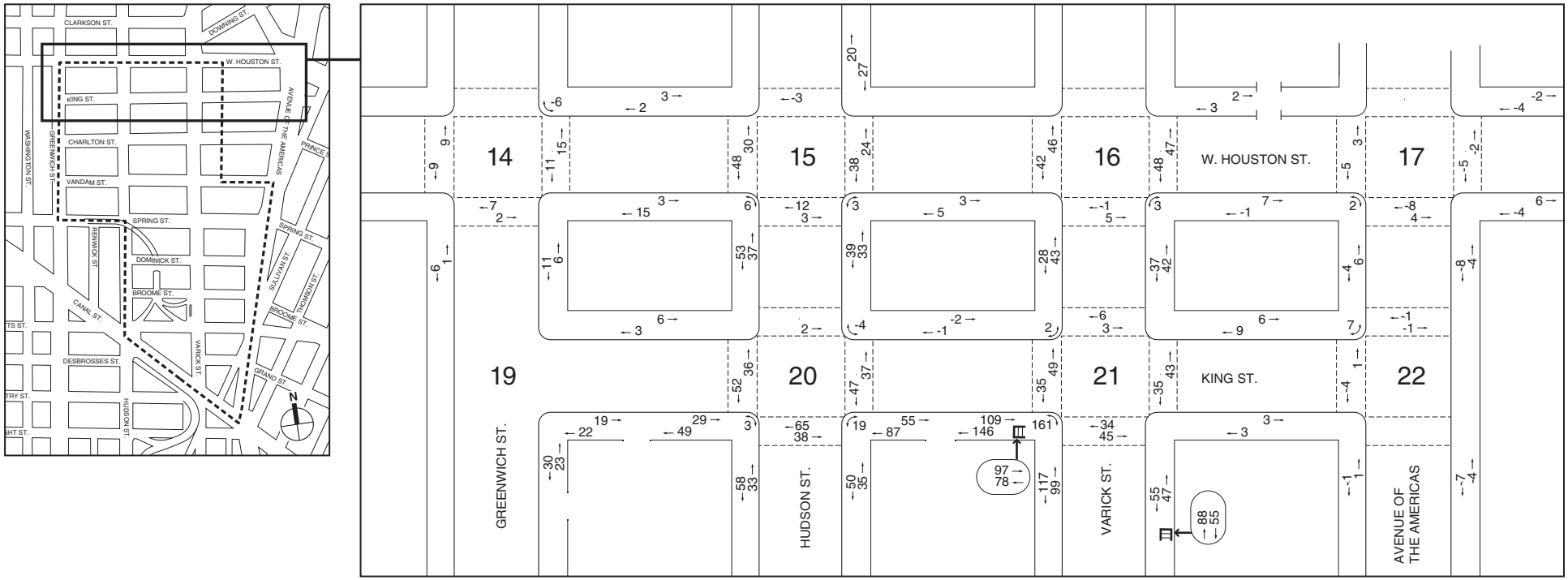
Net Incremental Pedestrian Volumes
Weekday AM Peak Hour
Figure 13-23B



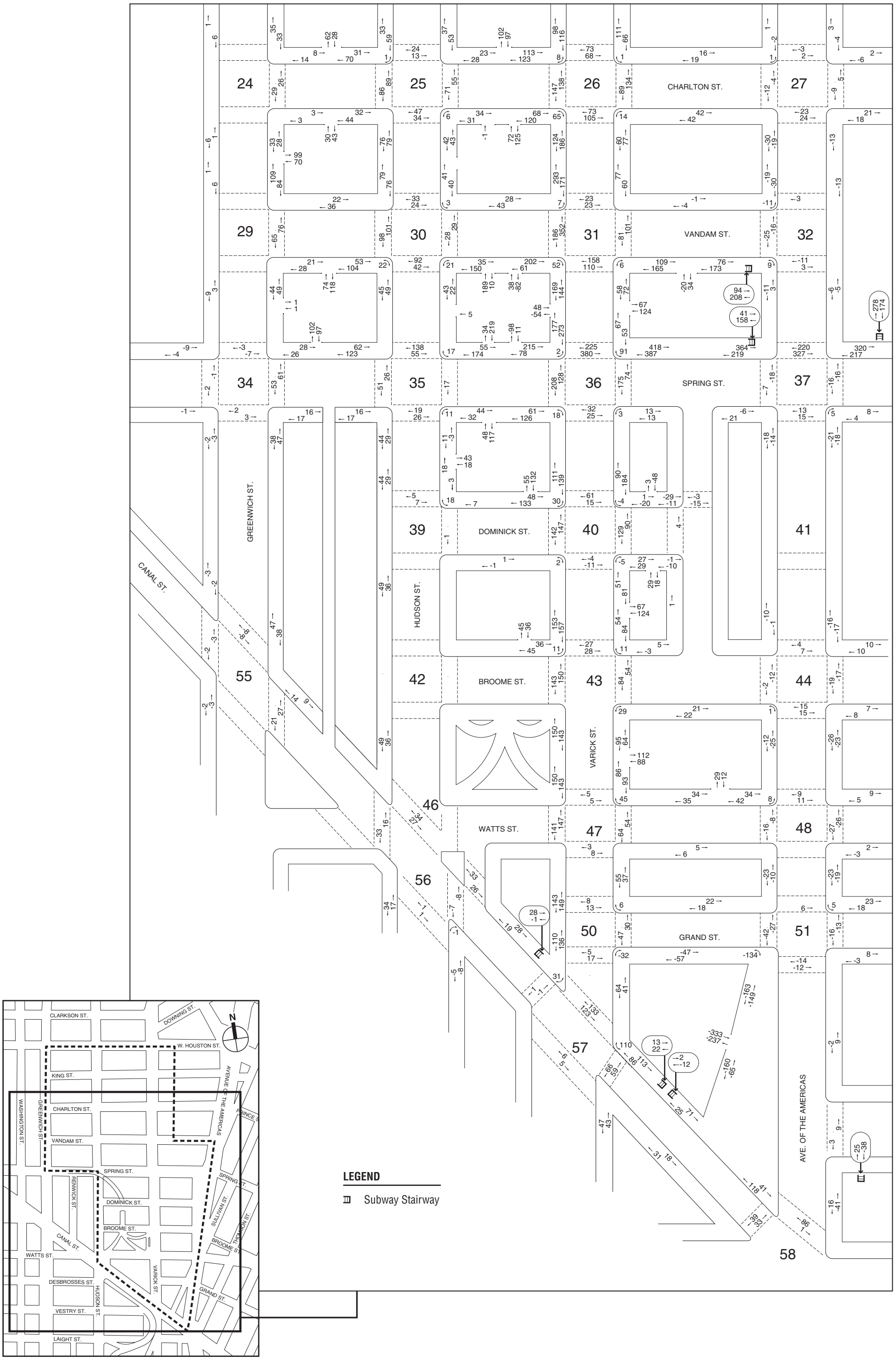
Net Incremental Pedestrian Volumes
Weekday MD Peak Hour
Figure 13-24A



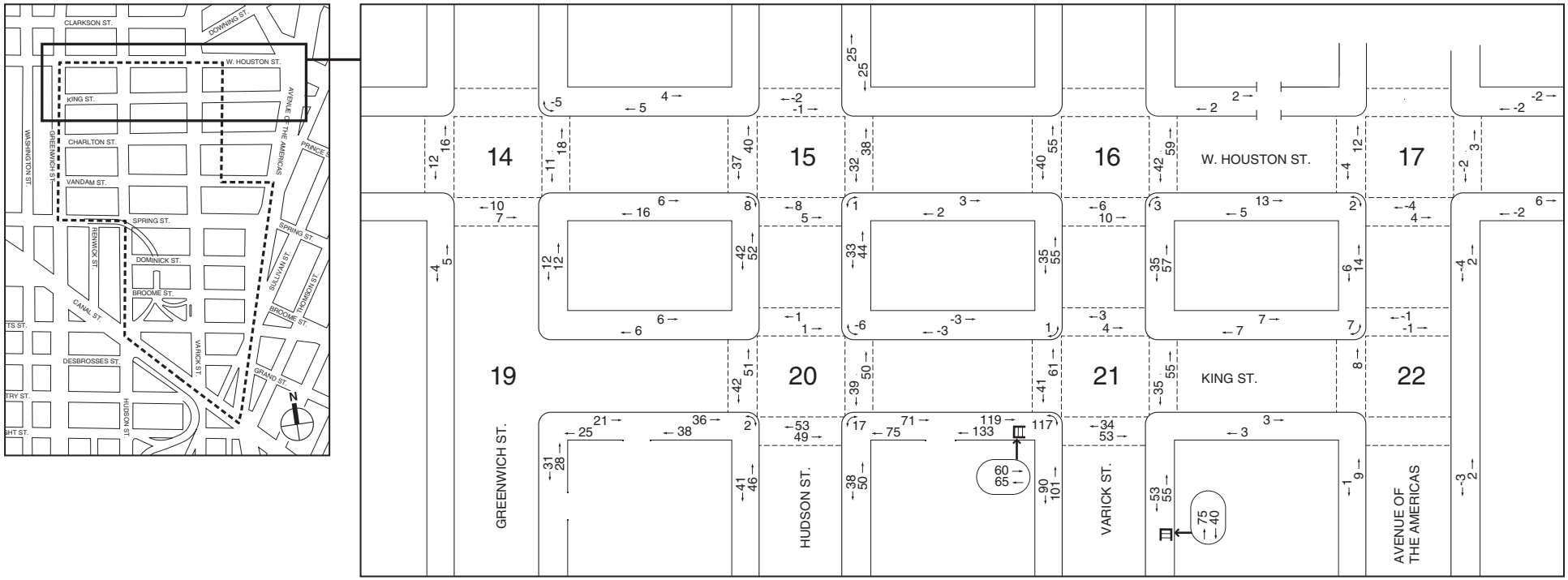
Net Incremental Pedestrian Volumes
Weekday MD Peak Hour
Figure 13-24B



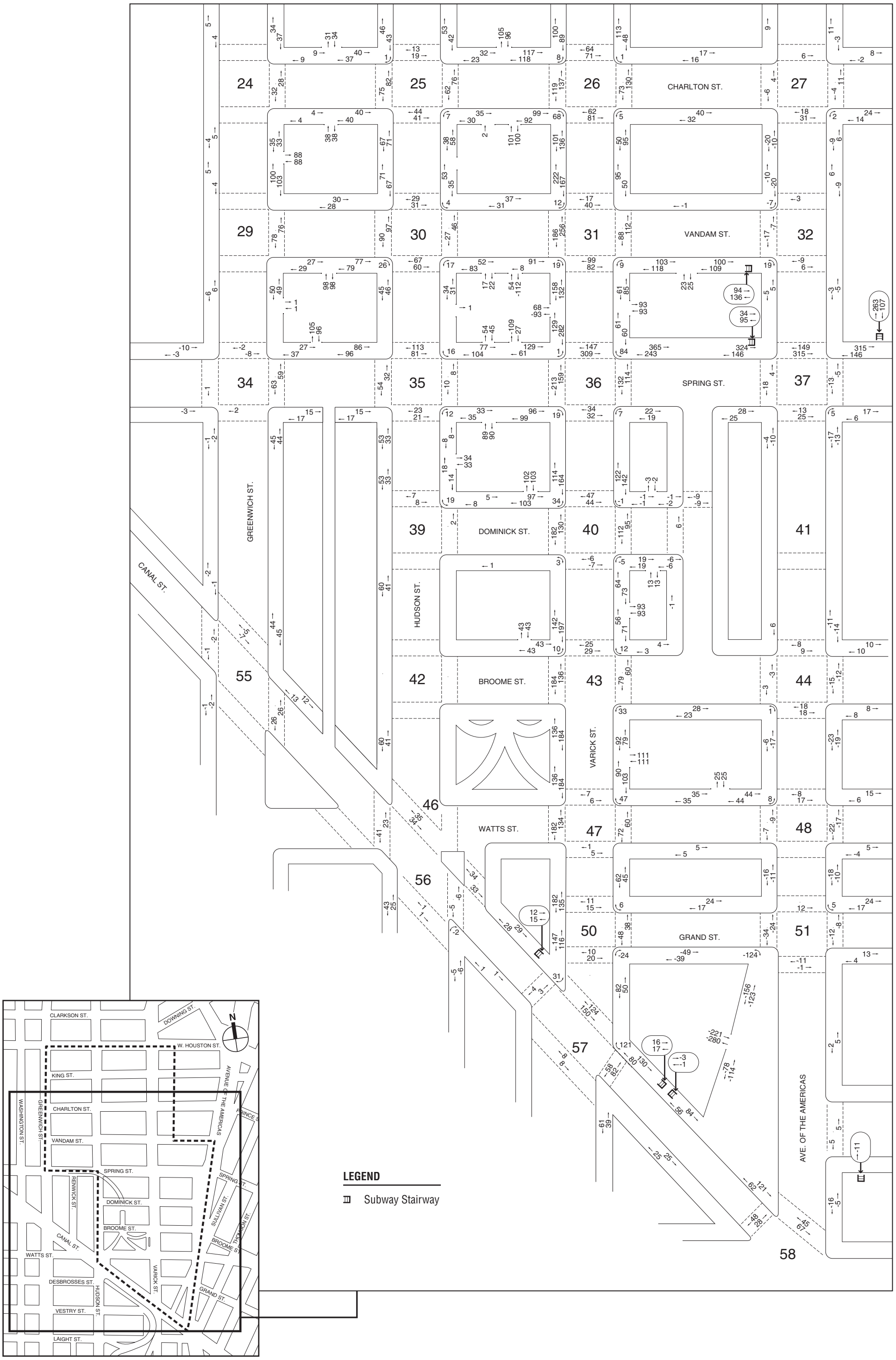
Net Incremental Pedestrian Volumes
Weekday PM Peak Hour
Figure 13-25A



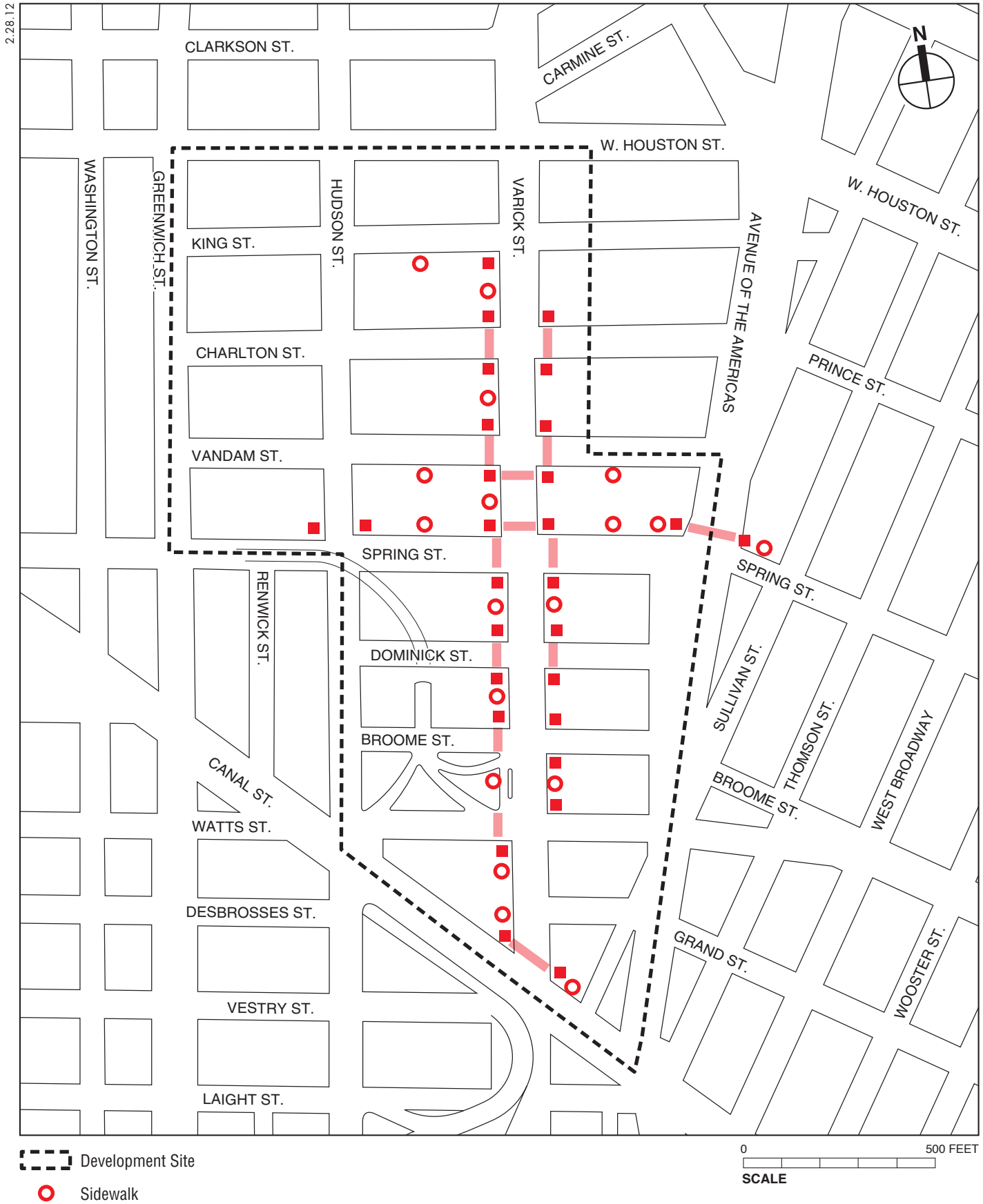
Net Incremental Pedestrian Volumes
Weekday PM Peak Hour
Figure 13-25B



Net Incremental Pedestrian Volumes
Saturday Midday Peak Hour
Figure 13-26A



Net Incremental Pedestrian Volumes
Saturday Midday Peak Hour
Figure 13-26B



HUDSON SQUARE REZONING

Pedestrian Analysis Locations
Figure 13-27

Table 13-11
Pedestrian Analysis Locations

Intersection No.	Location	Elements
1	Avenue of the Americas and Spring Street	North Crosswalk
		Northeast Corner/ Northwest Corner
		North sidewalk between Avenue of the Americas and Sullivan Street (on Spring Street)
		North sidewalk between Avenue of the Americas and Varick Street (on Spring Street)
2	Varick Street and King Street	Southwest Corner
		South sidewalk between Varick Street and Hudson Street (on King Street)
		West sidewalk between King Street and Charlton Street (on Varick Street, north end of sidewalk)
3	Varick Street and Charlton Street	North Crosswalk
		Northeast Corner/ Southeast Corner/ Southwest Corner / Northwest Corner
		West sidewalk between King Street and Charlton Street (on Varick Street, south end of sidewalk)
		West sidewalk between Charlton Street and Vandam Street (on Varick Street, north end of sidewalk)
4	Varick Street and Vandam Street	South Crosswalk/ East Crosswalk/ West Crosswalk
		Northeast Corner/ Southeast Corner/ Southwest Corner / Northwest Corner
		South sidewalk between Varick Street and Hudson Street (on Vandam Street, east end of sidewalk)
		West sidewalk between Charlton Street and Vandam Street (on Varick Street, south end of sidewalk)
		West sidewalk between Vandam Street and Spring Street (on Varick Street, north end of sidewalk)
5	Varick Street and Spring Street	North Crosswalk/ East Crosswalk/ West Crosswalk
		Northeast Corner/ Southeast Corner/ Southwest Corner / Northwest Corner
		North sidewalk between Avenue of the Americas and Varick Street (on Spring Street, west end of sidewalk)
		North sidewalk between Varick Street and Hudson Street (on Spring Street, east end of sidewalk)
		West sidewalk between Vandam Street and Spring Street (on Varick Street, south end of sidewalk)
6	Varick Street and Dominick Street	East Crosswalk/ West Crosswalk
		Northeast Corner/ Southeast Corner/ Southwest Corner / Northwest Corner
		East sidewalk between Spring Street and Dominick Street (on Varick Street)
		West sidewalk between Spring Street and Dominick Street (on Varick Street)
		West sidewalk between Dominick Street and Broome Street (on Varick Street)
7	Varick Street and Broome Street	West Crosswalk
		Northeast Corner/ Southeast Corner/ Northwest Corner
		East sidewalk between Broome Street and Watts Street (on Varick Street, north end of sidewalk)
		West sidewalk between Broome Street and Watts Street (on Varick Street, north end of sidewalk)
8	Varick Street and Watts Street	West Crosswalk
		Northeast Corner/ Southwest Corner
		East sidewalk between Broome Street and Watts Street (on Varick Street, south end of sidewalk)
		West sidewalk between Broome Street and Watts Street (on Varick Street, south end of sidewalk)
9	Varick Street and Grand Street	West sidewalk between Watts Street and Grand Street (on Varick Street)
10	Varick Street and Canal Street	North Crosswalk
		Northeast Corner/ Northwest Corner
		West sidewalk between Grand Street and Canal Street (on Varick Street)
		North sidewalk between Varick Street and Avenue of the Americas (on Canal Street)
11	Hudson Street and Spring Street	Northeast Corner/ Northwest Corner
		North sidewalk between Hudson Street and Varick Street (on Spring Street, west end of sidewalk)

Table 13-12
LOS Criteria for Signalized Intersections

LOS	Average Control Delay
A	≤ 10.0 seconds
B	>10.0 and ≤ 20.0 seconds
C	>20.0 and ≤ 35.0 seconds
D	>35.0 and ≤ 55.0 seconds
E	>55.0 and ≤ 80.0 seconds
F	>80.0 seconds
Source: Transportation Research Board. *Highway Capacity Manual*, 2000.	

Significant Impact Criteria

According to the criteria presented in the *CEQR Technical Manual*, impacts are considered significant and require examination of mitigation if they result in an increase in the With-Action condition of 5 or more seconds of delay in a lane group over No-Action levels beyond mid-LOS D. For No-Action LOS E, a 4-second increase in delay is considered significant. For No-Action LOS F, a 3-second increase in delay is considered significant. In addition, impacts are considered significant if levels of service deteriorate from acceptable A, B, or C in the No-Action condition to marginally unacceptable LOS D (a delay in excess of 45 seconds, the midpoint of LOS D), or unacceptable LOS E or F in the With-Action condition.

UNSIGNALIZED INTERSECTIONS

For unsignalized intersections, the average control delay is defined as the total elapsed time from which a vehicle stops at the end of the queue until the vehicle departs from the stop line. This includes the time required for the vehicle to travel from the last-in-queue to the first-in-queue position. The average control delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. The LOS criteria for unsignalized intersections are summarized in **Table 13-13**.

Table 13-13
LOS Criteria for Unsignalized Intersections

LOS	Average Control Delay
A	≤ 10.0 seconds
B	> 10.0 and ≤ 15.0 seconds
C	> 15.0 and ≤ 25.0 seconds
D	> 25.0 and ≤ 35.0 seconds
E	> 35.0 and ≤ 50.0 seconds
F	> 50.0 seconds
Source: Transportation Research Board. *Highway Capacity Manual*, 2000.	

The LOS thresholds for unsignalized intersections are different from those for signalized intersections. The primary reason is that drivers expect different levels of performance from different types of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection; hence, the corresponding control delays are higher at a signalized intersection than at an unsignalized intersection for the same LOS. In addition, certain driver behavioral considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, whereas

drivers on minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized intersections. For these reasons, the corresponding delay thresholds for unsignalized intersections are lower than those of signalized intersections. As with signalized intersections, within New York City, the midpoint of LOS D (30 seconds of delay) is generally perceived as the threshold between acceptable and unacceptable operations.

Significant Impact Criteria

The same sliding scale of significant delays described for signalized intersections applies for unsignalized intersections. For the minor street to trigger significant impacts, at least 90 passenger car equivalents (PCE) must be identified in the With-Action condition in any peak hour.

TRANSIT OPERATIONS

SUBWAY STATION ELEMENTS

The methodology for assessing station circulation (stairs, escalators, and passageways) and fare control (regular turnstiles, high entry/exit turnstiles, and high exit turnstiles) elements compares the user volume with the analyzed element's design capacity, resulting in a volume-to-capacity (v/c) ratio.

For stairs, the design capacity considers the effective width of a tread, which accounts for railings or other obstructions, the friction or counter-flow between upward and downward pedestrians (up to 10 percent capacity reduction is applied to account for counter-flow friction), surging of exiting pedestrians (up to 25 percent capacity reduction is applied to account for detraining surges near platforms), and the average area required for circulation. For passageways, similar considerations are made. For escalators and turnstiles, capacities are measured by the number and width of an element and the NYCT optimum capacity per element, also account for the potential for surging of exiting pedestrians. In the analysis for each of these elements, volumes and capacities are presented for 15-minute intervals.

The estimated v/c ratio is compared with NYCT criteria to determine a LOS for the operation of an element, as summarized in **Table 13-14**.

Table 13-14
LOS Criteria for Subway Station Elements

LOS	V/C Ratio
A	0.00 to 0.45
B	0.45 to 0.70
C	0.70 to 1.00
D	1.00 to 1.33
E	1.33 to 1.67
F	Above 1.67

Source: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual* (February 2012).

At LOS A ("free flow") and B ("fluid flow"), there is sufficient area to allow pedestrians to freely select their walking speed and bypass slower pedestrians. When cross and reverse flow movement exists, only minor conflicts may occur. At LOS C ("fluid, somewhat restricted"), movement is fluid although somewhat restricted. While there is sufficient room for standing without personal contact, circulation through queuing areas may require adjustments to walking

speed. At LOS D ("crowded, walking speed restricted"), walking speed is restricted and reduced. Reverse and cross flow movement is severely restricted because of congestion and the difficult passage of slower moving pedestrians. At LOS E ("congested, some shuffling and queuing") and F ("severely congested, queued"), walking speed is restricted. There is also insufficient area to bypass others, and opposing movement is difficult. Often, forward progress is achievable only through shuffling, with queues forming.

Significant Impact Criteria

The determination of significant impacts for station elements varies based on their type and use. For stairs and passageways, significant impacts are defined in term of width increment threshold (WIT) based on the minimum amount of additional capacity that would be required either to mitigate the location to its service conditions (LOS) under the No-Action levels, or to bring it to a v/c ratio of 1.00 (LOS C/D), whichever is greater. Significant impacts are typically considered to occur once the WITs in **Table 13-15** are reached or exceeded.

Table 13-15
Significant Impact Guidance for Stairs and Passageways

No-Action V/C Ratio	WIT for Significant Impact (inches)	
	Stairway	Passageway
1.00 to 1.09	8.0	13.0
1.10 to 1.19	7.0	11.5
1.20 to 1.29	6.0	10.0
1.30 to 1.39	5.0	8.5
1.40 to 1.49	4.0	6.0
1.50 to 1.59	3.0	4.5
1.60 and up	2.0	3.0

Notes: WIT = Width Increment Threshold
Sources: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual*.

For escalators and control area elements, impacts are significant if the Proposed Action causes a v/c ratio to increase from below 1.00 to 1.00 or greater. Where a facility is already at or above its capacity (a v/c of 1.00 or greater) in the No-Action condition, a 0.01 increase in v/c ratio is also significant.

SUBWAY AND BUS LINE-HAUL CAPACITIES

As per the *CEQR Technical Manual*, line-haul capacities are evaluated when a Proposed Action is anticipated to generate a perceptible number of passengers on particular subway and bus routes. For subways, if, on average, a subway car for a particular route is expected to incur five or more riders from a Proposed Action, a review of ridership level at its maximum load point and/or other project-specific load points would be required to determine if the route's guideline (or practical) capacity would be exceeded. NYCT operates six different types of subway cars with different seating and guideline capacities. The peak period guideline capacity of a subway car, which ranges from 110 to 175 passengers, is compared with ridership levels to determine the acceptability of conditions. Bus line-haul capacities are evaluated when a Proposed Action is anticipated to generate 50 or more bus passengers to a single bus line in one direction. The assessment of bus line-haul conditions involves analyzing bus routes at their peak load points and, if necessary, also their bus stops closest to the project site to identify the potential for the analyzed routes to exceed their guideline (or practical) capacities. NYCT and the MTA Bus Company operate three types of buses: standard and articulated buses, and over-the-road coaches.

During peak hours, standard buses operate with up to 54 passengers per bus, articulated buses operate with up to 85 passengers per bus, and over-the-road coaches operate with up to 55 passengers per bus.

Significant Impact Criteria

For subways, projected increases from the No-Action condition within guideline capacity to a With-Action condition that exceeds guideline capacity may be a significant impact. Since there are constraints on what service improvements are available to NYCT, significant line-haul capacity impacts on subway routes are generally disclosed but would usually remain unmitigated. For buses, an increase in bus load levels greater than the maximum capacity at any load point is defined as a significant adverse impact. While subject to operational and fiscal constraints, bus impacts can typically be mitigated by increasing service frequency. Therefore, mitigation of bus line-haul capacity impacts, where appropriate, would be recommended for NYCT's approval.

PEDESTRIAN OPERATIONS

The adequacy of the study area's sidewalks, crosswalks, and corner reservoir capacities in relation to the demand imposed on them is evaluated based on the methodologies presented in the 2000 *HCM*, pursuant to procedures detailed in the *CEQR Technical Manual*.

Sidewalks are analyzed in terms of pedestrian flow. The calculation of the average pedestrians per minute per foot (PMF) of effective walkway width is the basis for a sidewalk LOS analysis. The determination of walkway LOS is also dependent on whether the pedestrian flow being analyzed is best described as "non-platoon" or "platoon." Non-platoon flow occurs when pedestrian volume within the peak 15-minute period is relatively uniform, whereas, platoon flow occurs when pedestrian volumes vary significantly with the peak 15-minute period. Such variation typically occurs near bus stops, subway stations, and/or where adjacent crosswalks account for much of the walkway's pedestrian volume.

Crosswalks and street corners are not easily measured in terms of free pedestrian flow, as they are influenced by the effects of traffic signals. Street corners must be able to provide sufficient space for a mix of standing pedestrians (queued to cross a street) and circulating pedestrians (crossing the street or moving around the corner). The *HCM* methodologies apply a measure of time and space availability based on the area of the corner, the timing of the intersection signal, and the estimated space used by circulating pedestrians.

The total "time-space" available for these activities, expressed in square feet-second, is calculated by multiplying the net area of the corner (in square feet) by the signal's cycle length. The analysis then determines the total circulation time for all pedestrian movements at the corner per signal cycle (expressed as pedestrians per second). The ratio of net time-space divided by the total pedestrian circulation volume per signal cycle provides the LOS measurement of square feet per pedestrian (SFP).

Crosswalk LOS is also a function of time and space. Similar to the street corner analysis, crosswalk conditions are first expressed as a measurement of the available area (the crosswalk width multiplied by the width of the street) and the permitted crossing time. This measure is expressed in square feet-second. The average time required for a pedestrian to cross the street is calculated based on the width of the street and an assumed walking speed. The ratio of time-space available in the crosswalk to the total crosswalk pedestrian occupancy time is the LOS measurement of available square feet per pedestrian. The LOS analysis also accounts for vehicular turning movements that traverse the crosswalk. The LOS standards for sidewalks,

corner reservoirs, and crosswalks are summarized in **Table 13-16**. The *CEQR Technical Manual* specifies acceptable LOS in Central Business District (CBD) areas is mid-LOS D or better.

Table 13-16
Level of Service Criteria for Pedestrian Elements

LOS	Sidewalks		Corner Reservoirs and Crosswalks
	Non-Platoon Flow	Platoon Flow	
A	≤ 5 PMF	≤ 0.5 PMF	> 60 SFP
B	> 5 and ≤ 7 PMF	> 0.5 and ≤ 3 PMF	> 40 and ≤ 60 SFP
C	> 7 and ≤ 10 PMF	> 3 and ≤ 6 PMF	> 24 and ≤ 40 SFP
D	> 10 and ≤ 15 PMF	> 6 and ≤ 11 PMF	> 15 and ≤ 24 SFP
E	> 15 and ≤ 23 PMF	> 11 and ≤ 18 PMF	> 8 and ≤ 15 SFP
F	> 23 PMF	> 18 PMF	≤ 8 SFP

Notes: PMF = pedestrians per minute per foot; SFP = square feet per pedestrian.
Source: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual*.

SIGNIFICANT IMPACT CRITERIA

The determination of significant pedestrian impacts considers the level of predicted deterioration in pedestrian flow or decrease in pedestrian space between the No-Action and With-Action conditions. For different pedestrian elements, flow conditions, and area types, the CEQR procedure for impact determination corresponds with various sliding-scale formulas, as further detailed below.

Sidewalks

There are two sliding-scale formulas for determining significant sidewalk impacts. For non-platoon flow, the increase in average pedestrian flow rate (Y) in PMF needs to be greater or equal to 3.5 minus X divided by 8.0 (where X is the No-Action pedestrian flow rate in PMF [$Y \geq 3.5 - X/8.0$]) for it to be a significant impact. For platoon flow, the sliding-scale formula is $Y \geq 3.0 - X/8.0$. Since deterioration in pedestrian flow within acceptable levels would not constitute a significant impact, these formulas would apply only if the With-Action pedestrian flow exceeds LOS C in non-CBD areas or mid-LOS D in CBD areas. **Table 13-17** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant sidewalk impacts.

Corner Reservoirs and Crosswalks

The determination of significant corner and crosswalk impacts is also based on a sliding scale using the following formula: $Y \geq X/9.0 - 0.3$, where Y is the decrease in pedestrian space in SFP and X is the No-Action pedestrian space in SFP. Since a decrease in pedestrian space within acceptable levels would not constitute a significant impact, this formula would apply only if the With-Action pedestrian space falls short of LOS C in non-CBD areas or mid-LOS D in CBD areas. **Table 13-18** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant corner reservoir and crosswalk impacts.

Table 13-17
Significant Impact Guidance for Sidewalks

Non-Platoon Flow				Platoon Flow			
Sliding Scale Formula: ***Y ≥ 3.5 – X/8.0***				**Sliding Scale Formula:** ***Y ≥ 3.0 – X/8.0***			
Non-CBD Areas		**CBD Areas**		**Non-CBD Areas**		**CBD Areas**	
No-Action Ped. Flow (X, PMF)	**With-Action Ped. Flow Incr. (Y, PMF)**	**No-Action Ped. Flow (X, PMF)**	**With-Action Ped. Flow Incr. (Y, PMF)**	**No-Action Ped. Flow (X, PMF)**	**With-Action Ped. Flow Incr. (Y, PMF)**	**No-Action Ped. Flow (X, PMF)**	**With-Action Ped. Flow Incr. (Y, PMF)**
7.4 to 7.8	≥ 2.6	–	–	3.4 to 3.8	≥ 2.6	–	–
7.9 to 8.6	≥ 2.5	–	–	3.9 to 4.6	≥ 2.5	–	–
8.7 to 9.4	≥ 2.4	–	–	4.7 to 5.4	≥ 2.4	–	–
9.5 to 10.2	≥ 2.3	–	–	5.5 to 6.2	≥ 2.3	–	–
10.3 to 11.0	≥ 2.2	10.3 to 11.0	≥ 2.2	6.3 to 7.0	≥ 2.2	6.3 to 7.0	≥ 2.2
11.1 to 11.8	≥ 2.1	11.1 to 11.8	≥ 2.1	7.1 to 7.8	≥ 2.1	7.1 to 7.8	≥ 2.1
11.9 to 12.6	≥ 2.0	11.9 to 12.6	≥ 2.0	7.9 to 8.6	≥ 2.0	7.9 to 8.6	≥ 2.0
12.7 to 13.4	≥ 1.9	12.7 to 13.4	≥ 1.9	8.7 to 9.4	≥ 1.9	8.7 to 9.4	≥ 1.9
13.5 to 14.2	≥ 1.8	13.5 to 14.2	≥ 1.8	9.5 to 10.2	≥ 1.8	9.5 to 10.2	≥ 1.8
14.3 to 15.0	≥ 1.7	14.3 to 15.0	≥ 1.7	10.3 to 11.0	≥ 1.7	10.3 to 11.0	≥ 1.7
15.1 to 15.8	≥ 1.6	15.1 to 15.8	≥ 1.6	11.1 to 11.8	≥ 1.6	11.1 to 11.8	≥ 1.6
15.9 to 16.6	≥ 1.5	15.9 to 16.6	≥ 1.5	11.9 to 12.6	≥ 1.5	11.9 to 12.6	≥ 1.5
16.7 to 17.4	≥ 1.4	16.7 to 17.4	≥ 1.4	12.7 to 13.4	≥ 1.4	12.7 to 13.4	≥ 1.4
17.5 to 18.2	≥ 1.3	17.5 to 18.2	≥ 1.3	13.5 to 14.2	≥ 1.3	13.5 to 14.2	≥ 1.3
18.3 to 19.0	≥ 1.2	18.3 to 19.0	≥ 1.2	14.3 to 15.0	≥ 1.2	14.3 to 15.0	≥ 1.2
19.1 to 19.8	≥ 1.1	19.1 to 19.8	≥ 1.1	15.1 to 15.8	≥ 1.1	15.1 to 15.8	≥ 1.1
19.9 to 20.6	≥ 1.0	19.9 to 20.6	≥ 1.0	15.9 to 16.6	≥ 1.0	15.9 to 16.6	≥ 1.0
20.7 to 21.4	≥ 0.9	20.7 to 21.4	≥ 0.9	16.7 to 17.4	≥ 0.9	16.7 to 17.4	≥ 0.9
21.5 to 22.2	≥ 0.8	21.5 to 22.2	≥ 0.8	17.5 to 18.2	≥ 0.8	17.5 to 18.2	≥ 0.8
22.3 to 23.0	≥ 0.7	22.3 to 23.0	≥ 0.7	18.3 to 19.0	≥ 0.7	18.3 to 19.0	≥ 0.7
> 23.0	≥ 0.6	> 23.0	≥ 0.6	> 19.0	≥ 0.6	> 19.0	≥ 0.6

Notes: PMF = pedestrians per minute per foot; Y = increase in average pedestrian flow rate in PMF; X = No-Action pedestrian flow rate in PMF.
Sources: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual*.

Table 13-18
Significant Impact Guidance for Corners and Crosswalks

Sliding Scale Formula: ***Y ≥ X/9.0 – 0.3***			
Non-CBD Areas		**CBD Areas**	
No-Action Pedestrian Space (X, SFP)	**With-Action Pedestrian Space Reduction (Y, SFP)**	**No-Action Pedestrian Space (X, SFP)**	**With-Action Pedestrian Space Reduction (Y, SFP)**
25.8 to 26.6	≥ 2.6	–	–
24.9 to 25.7	≥ 2.5	–	–
24.0 to 24.8	≥ 2.4	–	–
23.1 to 23.9	≥ 2.3	–	–
22.2 to 23.0	≥ 2.2	–	–
21.3 to 22.1	≥ 2.1	21.3 to 21.5	≥ 2.1
20.4 to 21.2	≥ 2.0	20.4 to 21.2	≥ 2.0
19.5 to 20.3	≥ 1.9	19.5 to 20.3	≥ 1.9
18.6 to 19.4	≥ 1.8	18.6 to 19.4	≥ 1.8
17.7 to 18.5	≥ 1.7	17.7 to 18.5	≥ 1.7
16.8 to 17.6	≥ 1.6	16.8 to 17.6	≥ 1.6
15.9 to 16.7	≥ 1.5	15.9 to 16.7	≥ 1.5
15.0 to 15.8	≥ 1.4	15.0 to 15.8	≥ 1.4
14.1 to 14.9	≥ 1.3	14.1 to 14.9	≥ 1.3
13.2 to 14.0	≥ 1.2	13.2 to 14.0	≥ 1.2
12.3 to 13.1	≥ 1.1	12.3 to 13.1	≥ 1.1
11.4 to 12.2	≥ 1.0	11.4 to 12.2	≥ 1.0
10.5 to 11.3	≥ 0.9	10.5 to 11.3	≥ 0.9
9.6 to 10.4	≥ 0.8	9.6 to 10.4	≥ 0.8
8.7 to 9.5	≥ 0.7	8.7 to 9.5	≥ 0.7
7.8 to 8.6	≥ 0.6	7.8 to 8.6	≥ 0.6
6.9 to 7.7	≥ 0.5	6.9 to 7.7	≥ 0.5
6.0 to 6.8	≥ 0.4	6.0 to 6.8	≥ 0.4
5.1 to 5.9	≥ 0.3	5.1 to 5.9	≥ 0.3
< 5.1	≥ 0.2	< 5.1	≥ 0.2

Notes: SFP = square feet per pedestrian; Y = decrease in pedestrian space in SFP; X = No-Action pedestrian space in SFP.
Sources: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual*.

VEHICULAR AND PEDESTRIAN SAFETY EVALUATION

An evaluation of vehicular and pedestrian safety is necessary for locations within the traffic and pedestrian study areas that have been identified as high accident locations, where 48 or more total reportable and non-reportable crashes or five or more pedestrian/bicyclist injury crashes occurred in any consecutive 12 months of the most recent 3-year period for which data are available. For these locations, accident trends are identified to determine whether projected vehicular and pedestrian traffic would further impact safety at these locations. The determination of potential significant safety impacts depends on the type of area where the project site is located, traffic volumes, accident types and severity, and other contributing factors. Where appropriate, measures to improve traffic and pedestrian safety are identified and coordinated with NYCDOT.

PARKING CONDITIONS ASSESSMENT

The parking analysis identifies the extent to which off-street parking is available and utilized under existing and future conditions. It takes into consideration anticipated changes in area parking supply and provides a comparison of parking needs versus availability to determine if a parking shortfall is likely to result from parking displacement attributable to or additional demand generated by a Proposed Action. Typically, this analysis encompasses a study area within a ¼mile of the project site. If the analysis concludes a shortfall in parking within the ¼ mile study area, the study area could sometimes be extended to a ½ mile to identify additional parking supply.

For proposed projects located in Manhattan or other CBD areas, the inability of the proposed project or the surrounding area to accommodate the project's future parking demand is considered a parking shortfall, but is generally not considered significant due to the magnitude of available alternative modes of transportation. For other areas in New York City, a parking shortfall that exceeds more than half the available on-street and off-street parking spaces within a ¼ mile of the project site may be considered significant. Additional factors, such as the availability and extent of transit in the area, proximity of the project to such transit, and patterns of automobile usage by area residents, could be considered to determine the significance of the identified parking shortfall. In some cases, if there is adequate parking supply within a ½ mile of the project site, the projected parking shortfall may also not necessarily be considered significant.

F. TRAFFIC

2011 EXISTING CONDITIONS

ROADWAY NETWORK

The traffic study area characterizes the Lower Manhattan grid pattern with major north-south avenues and east-west minor cross streets. Many of these roadways provide access to and egress from the Holland Tunnel.

West Street, located on the western edge of the study area, is a major north/south arterial on the west side of Manhattan. It operates with four to five moving lanes (including turning lanes) in each direction. Restrictive parking regulations prevail along certain segments of the arterial. West Street is a through truck route between the Brooklyn-Battery Tunnel and West 34th Street. It operates with a center median and exclusive turn lanes at major intersections. Traffic flow on the arterial is controlled by signals that are often spaced by several blocks and operating at long 120- to 150-second cycles.

Canal Street extends in the east-west direction and is an important commuter route for traffic entering and exiting Manhattan via the Manhattan Bridge. It provides access to both the Manhattan Bridge on the east and the Holland Tunnel and West Street on the west. Canal Street generally consists of three travel lanes in each direction with "No Standing Anytime" curbside parking regulations on either side along most of the study area. Canal Street is a through truck route along its entire length. Left turn prohibitions from Canal Street are in effect at several intersections in the study area due to heavy through volumes. Canal Street is generally characterized by mixed-use developments.

Varick Street is a southerly extension of the Seventh Avenue South corridor and runs one way southbound; the roadway consists of a 60-foot wide roadway with four travel lanes. Varick Street's eastern and western travel lanes are separated by bollards between Vandam Street and the entrance to the Holland Tunnel at Watts street, which channelizes southbound through traffic, and relieves congestion caused by tunnel-bound traffic. Curbside parking is generally prohibited along both sides of the street. Varick Street is generally characterized by commercial and retail uses. It is a local and through truck route within the study area.

Hudson Street is a one-way northbound roadway that is approximately 50 feet wide. North of Canal Street, Hudson Street consists of two travel lanes and curbside parking interspersed with loading/unloading regulations. Hudson Street is a local truck route within the study area. South of Canal Street, Hudson Street consists of four travel lanes and intermittent curbside parking. Hudson Street provides access to the Holland Tunnel via an entrance just north of Canal Street. In addition, a channelized right-turn lane also allows for turns from Hudson Street onto eastbound Canal Street.

Houston Street is a primarily two-way east-west arterial spanning the width of Manhattan, with East Houston Street extending from the East River to Broadway, and West Houston Street extending from Broadway to the Hudson River. East of Avenue of the Americas, the roadway is separated by a pedestrian refuge island and generally contains three eastbound travel lanes and four westbound travel lanes. West of Sixth Avenue, Houston Street runs one-way westbound, with two travel lanes. There is curbside parking or bus staging along certain segments of the street.

Avenue of the Americas is a one-way northbound roadway extending from Franklin Street to West 59th Street. It generally contains four travel lanes. There is curbside parking or bus staging along certain segments of the street. Avenue of the Americas is a through truck route within the study area.

Broome Street is oriented in the east-west direction and is one-way westbound within the study area. Within the study area, it is generally characterized by two travel lanes with parking on both sides.

Spring Street is a one-way eastbound local roadway that ranges in width from 32 to 45 feet within the study area. Curbside parking along both sides of Spring Street is generally restricted on weekdays.

Within the study area, Grand Street runs in the eastbound direction, and generally consists of one travel lane with parking allowed on both sides of the street. Grand Street also has a Class II eastbound bike lane that provides a travel lane designated for the exclusive use of bicycles protected from traffic by an offset parking lane. Within the study area, Grand Street is mostly characterized by residential and retail uses.

Other principal streets within the study area include Greenwich Street and Washington Street, which form a one-way pair of streets, running northbound and southbound, respectively, within the study area. Watts Street branches off from Broome Street at West Broadway and runs one-way westbound, providing direct access to the Holland Tunnel via an entrance just west of Varick Street. Near the northern border of the study area, the principal one-way crosstown streets are King Street, Charlton Street, Vandam Street and Dominick Street. These streets run eastbound and westbound, providing local access to the study area.

TRAFFIC CONDITIONS

Existing traffic volumes for the study area intersections were established based on field counts (including manual turning movement counts and Automatic Traffic Recorder [ATR] counts) conducted from June 4 to June 15, 2010 and from November 10 to November 21, 2011. Overall, based on a comparison of the 2010 and 2011 ATR data, weekday traffic volumes collected in 2010 were approximately 1 percent higher than those collected in 2011, while Saturday traffic volumes collected in 2011 were approximately 3 percent higher than those collected in 2010. Therefore, where available, weekday volumes gathered in 2010 were incorporated into the study area traffic network with the 2011 collected traffic volumes to develop the existing baseline weekday traffic volume networks. Saturday 2010 volumes were increased by approximately 3 percent and incorporated into the study area traffic network with the 2011 collected traffic volumes to develop the existing baseline Saturday traffic volume network.

During the 2011 data collection, the New York City Department of Design and Construction (DDC) was at work on a project to install trunk water mains along Hudson Street between Worth Street and Laight Street. Over the duration of this project (September 2010 through winter 2015), traffic pattern changes will be implemented in the study area to facilitate DDC's construction. Specifically:

- Holland Tunnel access from Hudson Street is restricted (no right-turn from Hudson Street to the Holland Tunnel entrance north of Canal Street);
- Variable message sign (VMS) boards have been installed along Hudson Street to advise motorists to use either West Street or Church Street to access the Holland Tunnel; and
- Right-turns from West Street to Canal Street for access to the Holland Tunnel are permitted during peak hours.

It was determined from field observations undertaken in January 2012 that, during the weekday AM, midday, and Saturday afternoon periods, despite DDC construction-related regulations, New York Police Department (NYPD) Traffic Enforcement Agents (TEAs) permit Hudson Street northbound traffic into the Holland Tunnel at their discretion when they see that the tunnel can process traffic demand. During the weekday PM period, the regulation is strictly enforced, with only a few government or official vehicles permitted to enter the tunnel from Hudson Street northbound.

At the West Street and Canal Street intersection, northbound right-turns are generally not permitted during the weekday PM period. TEAs allow a few vehicles to make the northbound right-turn at their discretion. During the weekday AM, midday, and Saturday afternoon period, there are no restrictions on the northbound right-turn. In addition, during traffic peak hours, TEAs are also positioned at other critical intersections near the Holland Tunnel (including the intersections of Varick Street at Watts and Canal Streets and Avenue of the Americas at Canal Street/Laight Street) overriding traffic signals to facilitate traffic flow.

Data for the intersection of Hudson Street and Canal Street were collected in June 2010, before the above traffic pattern changes took effect. However, a comparison of volume data between 2010 and 2011 showed differences in volumes at nearby intersections. Therefore, these traffic pattern changes were incorporated into the existing conditions analysis. In addition, the DDC project is expected to be completed in 2015. This is before the Proposed Action's 2022 build year. Because it will be completed before the Proposed Action and because the traffic pattern under the existing conditions is generally reflective of conditions before the DDC project construction, there would not be a need to adjust the traffic patterns for the analysis of future conditions.

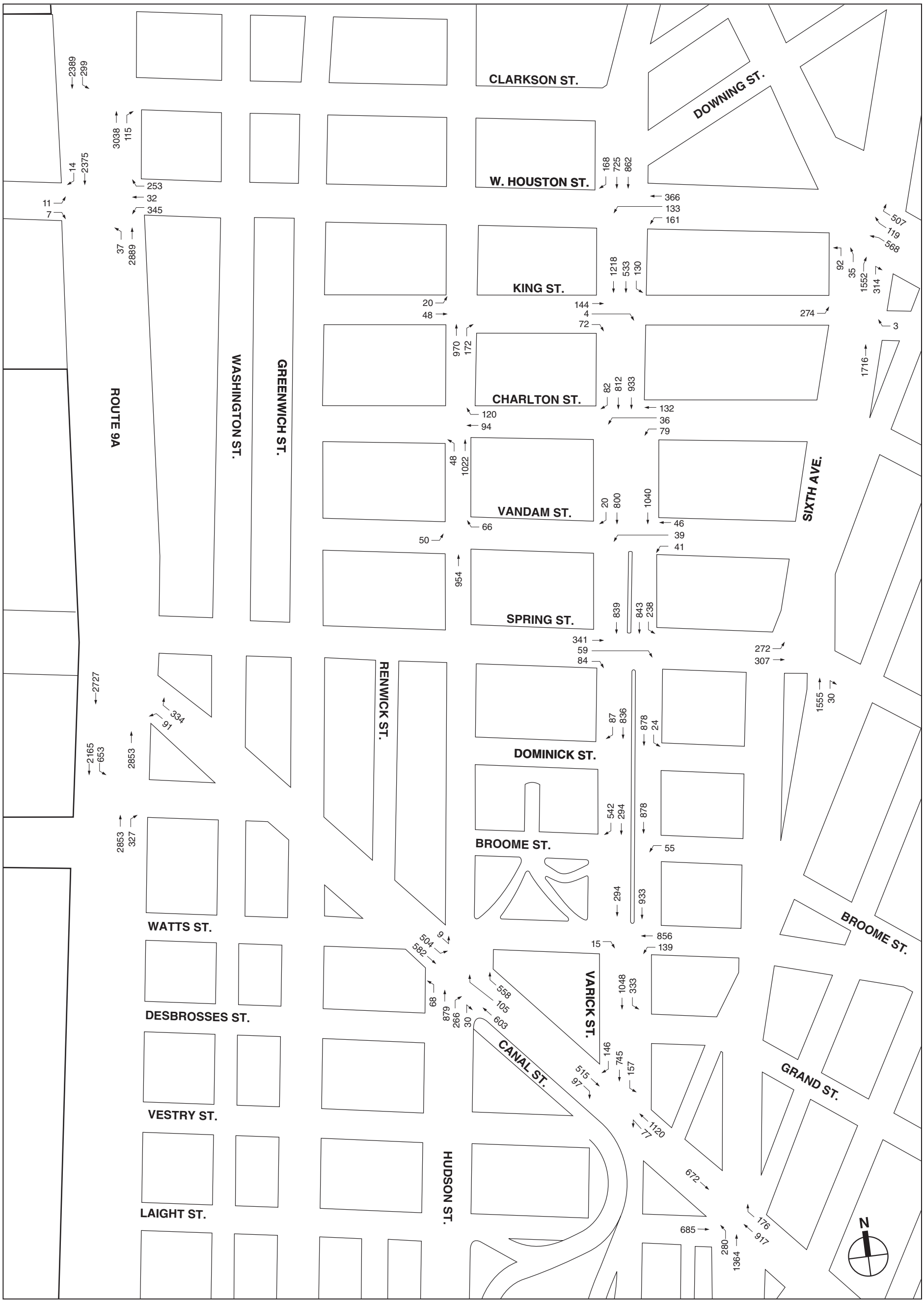
Also as part of the data collection effort, traffic congestion as a result of unmet demand at entrances to the Holland Tunnel caused several intersections along Varick Street and Hudson Street to experience significant start-up lost time, primarily during the weekday PM and Saturday peak hours. Extensive observations were conducted to estimate the additional delays resulted from the extended Holland Tunnel queues. In addition, inventories of roadway geometry, traffic controls, bus stops, and parking regulations/activities were recorded to provide appropriate inputs for the operational analyses. Official signal timings were also obtained from NYCDOT for use in the analysis of the study area signalized intersections. **Figures 13-28** to **13-31** show the 2011 existing traffic volumes for the weekday AM, midday, PM and Saturday peak hours, respectively.

LEVELS OF SERVICE

As discussed above in Section D, "Level 2 Screening Assessment," Hudson Street and Varick Street are separated into through lanes and Holland Tunnel access lanes at intersections near entrances to the Holland Tunnel. The separated lanes exhibit different traffic patterns and vary widely in volume during the peak analysis hours. Therefore, these intersections have been separated into "east lane" and "west lane" sub-intersections for the purposes of this analysis. In addition, the HCS analysis accounted for NYCDOT and field observed start-up lost time in excess of the default 2.0 seconds and/or adjustments to the initial unmet demand during one or more peak analysis hours at the following approaches:

- Eastbound left-turn (to Holland Tunnel) at the Hudson Street and Canal Street intersection;
- Westbound right-turn (to Holland Tunnel) at the Hudson Street and Canal Street intersection;
- Northbound through movement (to Holland Tunnel) at the Hudson Street and Canal Street intersection;
- Southbound through movement (west lanes) at the Varick Street and West Houston Street intersection;
- Southbound through movement (west lanes) at the Varick Street and King Street intersection;
- Southbound through movement (west lanes) at the Varick Street and Charlton Street intersection;
- Southbound through movement (west lanes) at the Varick Street and Vandam Street intersection;
- Eastbound through movement at the Varick Street and Spring Street intersection;
- Eastbound right-turn at the Varick Street and Spring Street intersection;

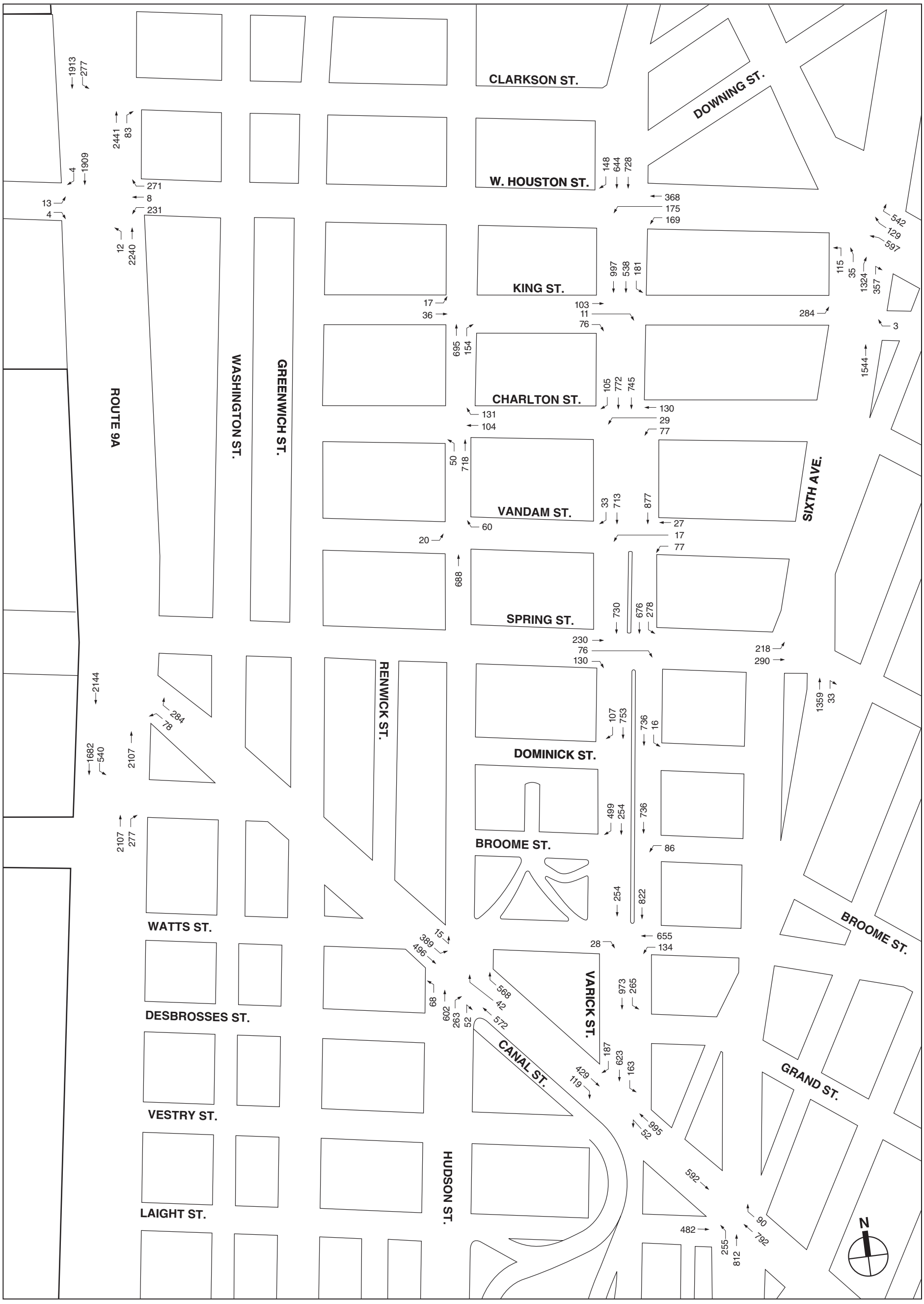
2.27.12



NOT TO SCALE

2011 Existing Traffic Volumes
Weekday AM Peak Hour
Figure 13-28

2.27.12



NOT TO SCALE

2011 Existing Traffic Volumes
Weekday Midday Peak Hour
Figure 13-29

2.27.12

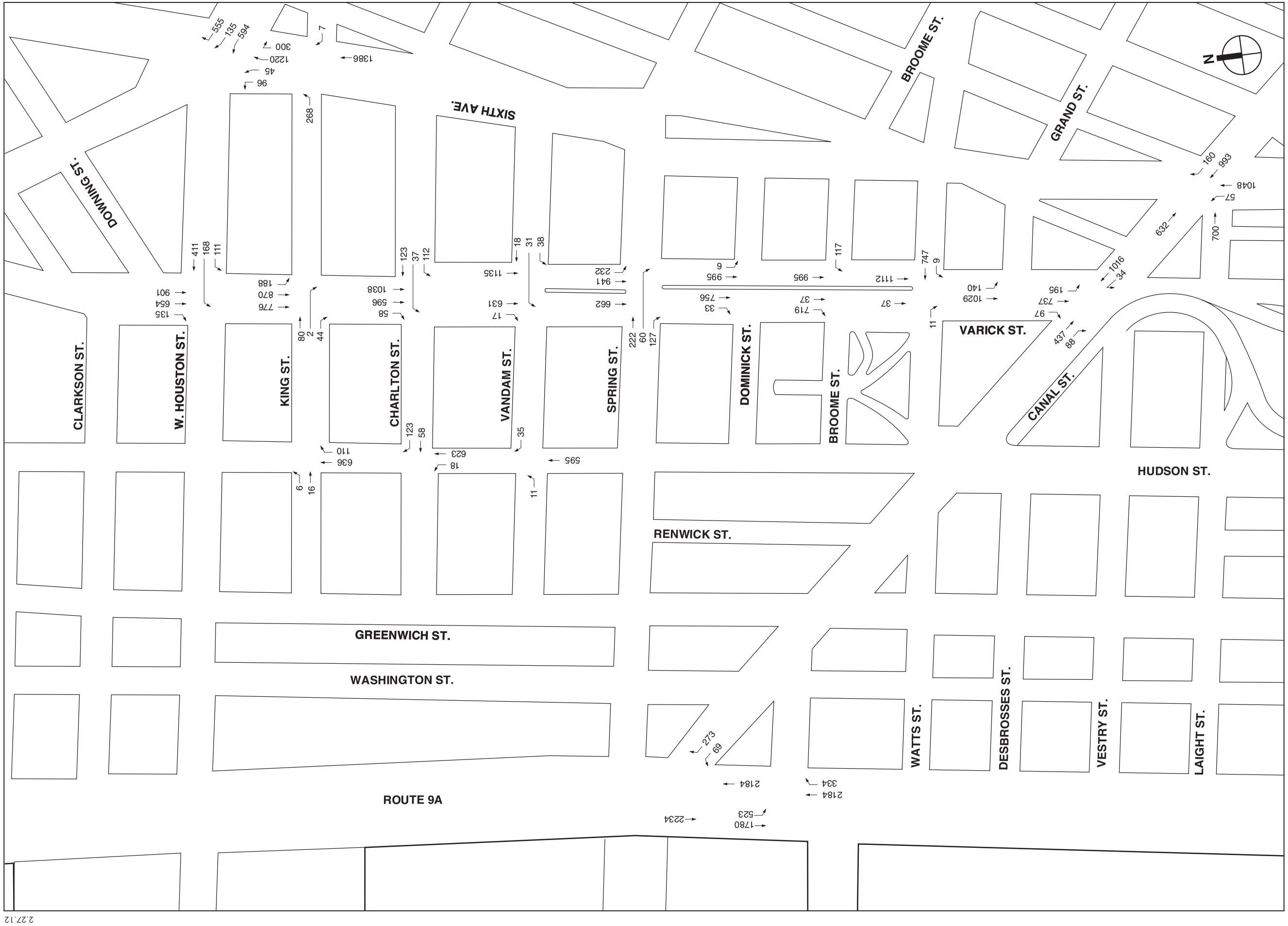
CLARKSON ST.
DOWNING ST.
W. HOUSTON ST.
KING ST.
CHARLTON ST.
VANDAM ST.
SPRING ST.
DOMINICK ST.
BROOME ST.
WATTS ST.
DESBROSSES ST.
VESTRY ST.
LAIGHT ST.
ROUTE 9A
WASHINGTON ST.
GREENWICH ST.
SIXTH AVE.
RENWICK ST.
HUDSON ST.
VARICK ST.
CANAL ST.
GRAND ST.
BROOME ST.

2277 226
2877 128
32 2245
289 18 332
68 23
39 2648
27 56
160 22 25
849 151
25 204 942
80 86
42 920
32 406
65
43
854
414 806 208
181 29 271
163 226
2600
180 112
2110 602
2754
2754 23
59 626
822 13
516 110
822
169
110 991
519
11 7
399 431
6
53
836 431
16
630 14
92
946 173
32 702
380 67
212
704 14
592
639
57 718
775
N

113 216 806
417 59 166
316 808 123
72 43
1123 316
581 152 570
1267
4
283
25 204 942
141 73 178
33 8 55
959
1087 46

NOT TO SCALE

2011 Existing Traffic Volumes
Weekday PM Peak Hour
Figure 13-30



2.27.12

2011 Existing Traffic Volumes
Saturday Midday Peak Hour
Figure 13-31

HUDSON SQUARE REZONING

- Southbound through movement (west lanes) at the Varick Street and Spring Street intersection;
- Southbound through movement (west lanes) at the Varick Street and Dominick Street intersection;
- Southbound through movement (west lanes) at the Varick Street and Broome Street intersection;
- Southbound right-turn (to Holland Tunnel) at the Varick Street and Broome Street intersection;
- Westbound through movement (to Holland Tunnel) at the Varick Street and Watts Street intersection;
- Westbound through movement at the Varick Street and Canal Street intersection;
- Eastbound through movement (Laight Street) at the Avenue of the Americas and Canal Street/Laight Street intersection;
- Westbound through movement (Canal Street) at the Avenue of the Americas and Canal Street/Laight Street intersection; and
- Northbound approach at the Avenue of the Americas and Canal Street/Laight Street intersection.

Table 13-19 provides an overview of the levels of service that characterize existing overall intersection conditions during the weekday AM, midday and PM, and Saturday peak hours.

Table 13-19
Existing Traffic Level of Service Summary

	Weekday			
	AM Peak Hour	**Midday Peak Hour**	**PM Peak Hour**	**Saturday Midday**
Intersections at Overall LOS A/B/C	19	23	11	12
Intersections at Overall LOS D	4	0	11	6
Intersections at Overall LOS E	0	0	1	1
Intersections Overall LOS F	0	0	0	0
Number of individual traffic lane groups at LOS E or F (of 82 movements analyzed during weekday AM and PM, 81 weekday midday, and 58 Saturday)	11	2	23	11
Note: Includes the 22 analyzed intersections (22 signalized and 1 unsignalized).				

The detailed traffic levels of service tables are provided in Section K, "Detailed Analysis Results Tables" at the end of this chapter. The analysis results shown on **Tables 13-47** to **13-48** indicate that most of the study area's intersection approaches/lane groups operate acceptably—at mid-LOS D (delays of 45 seconds per vehicle [spv] or less for signalized intersections and 30 spv or less for unsignalized intersections) or better for the analysis peak hours. Approaches/lane groups operating at worse than mid-LOS D and those with v/c ratios of 0.90 or greater are listed below.

West Street

- Southbound left-turn at the West Street and Clarkson Street intersection (LOS F with a v/c ratio of 0.92 during the weekday AM peak hour; LOS D with a delay of 47.4 spv during the weekday midday peak hour; and LOS E during the weekday PM peak hour);

- Eastbound left-turn at the West Street and West Houston Street intersection (LOS D with a delay of 48.2 spv during the weekday AM peak hour; and LOS E during the weekday PM peak hour);
- Eastbound right-turn at the West Street and West Houston Street intersection (LOS D with a delay of 46.1 spv during the weekday AM peak hour; and LOS D with a delay of 47.2 spv during the weekday PM peak hour);
- Westbound left-turn at the West Street and West Houston Street intersection (LOS E during the weekday AM and PM peak hours);
- Westbound left-turn/through at the West Street and West Houston Street intersection (LOS E during the weekday AM and PM peak hours);
- Westbound right-turn at the West Street and West Houston Street intersection (LOS F with a v/c ratio of 1.05 during the weekday AM and PM peak hours; and LOS E during the weekday midday peak hour);
- Northbound left-turn at the West Street and West Houston Street intersection (LOS E during the weekday AM peak hour; LOS D with a delay of 52.5 spv during the weekday midday peak hour; and LOS F during the weekday PM peak hour);
- Southbound through at the West Street and West Houston Street intersection (LOS D with a v/c ratio of 0.95 and 0.92 during the weekday AM and midday peak hours, respectively);
- Westbound left-turn at the West Street and Canal Street North intersection (LOS E during the weekday AM peak hour);
- Westbound left-turn/right-turn at the West Street and Canal Street North intersection (LOS F with a v/c ratio of 0.92 during the weekday AM peak hour; and LOS D with a delay of 52.2 spv and 50.2 spv during the weekday and Saturday midday peak hours, respectively);
- Westbound right-turn at the West Street and Canal Street North intersection (LOS F with a v/c ratio of 0.93 during the weekday AM peak hour; LOS E during the weekday midday; and LOS D with a delay of 54.3 spv during the Saturday midday peak hours);
- Northbound through at the West Street and Canal Street South intersection (LOS C with a v/c ratio of 0.94 and 0.93 during the weekday AM and PM peak hours, respectively); and
- Southbound through at the West Street and Canal Street South intersection (LOS D with a v/c ratio of 0.96 during the weekday PM peak hours).

Hudson Street

- Eastbound left-turn at the Hudson Street (east and west lanes) and Canal Street intersection (LOS F with a v/c ratio of 1.03 during the weekday PM peak hour);
- Westbound through/right-turn at the Hudson Street (east and west lanes) and Canal Street intersection (LOS D with a delay of 50.3 seconds and a v/c ratio of 0.93 during the weekday AM peak hour);
- Westbound right-turn at the Hudson Street (east and west lanes) and Canal Street intersection (LOS F with a v/c ratio of 1.05 during the weekday PM peak hour);
- Northbound through (east lanes) at the Hudson Street (east and west lanes) and Canal Street intersection (LOS F with a v/c ratio of 1.01 during the weekday PM peak hour); and
- Northbound left-turn/through (west lanes) at the Hudson Street (east and west lanes) and Canal Street intersection (LOS E with a v/c ratio of 1.05 and 1.05 during the weekday AM and PM peak hours, respectively).

Varick Street

- Southbound through/right-turn (west lanes) at Varick Street (east and west lanes) and West Houston Street (LOS D with a v/c ratio of 0.90 during the weekday AM peak hour; LOS F with a v/c ratio of 1.05 during the weekday PM peak hour);
- Southbound through (west lanes) at Varick Street (east and west lanes) and King Street (LOS D with a v/c ratio of 0.96 during the weekday AM peak hour; LOS F during the weekday PM peak hour; and LOS E with a v/c ratio of 0.96 during the Saturday midday peak hour);
- Westbound left-turn/through at Varick Street (east and west lanes) and Charlton Street (LOS D with a delay of 50.2 spv and a v/c ratio of 0.91 during the weekday PM peak hour);
- Southbound through/right-turn (west lanes) at Varick Street (east and west lanes) and Charlton Street (LOS F during the weekday PM peak hour; and LOS E with a v/c ratio of 0.96 during the Saturday midday peak hour);
- Southbound through/right-turn (west lanes) at Varick Street (east and west lanes) and Vandam Street (LOS F with a v/c ratio of 1.01 during the weekday PM peak hour; and LOS F with a v/c ratio of 1.05 during the Saturday midday peak hour);
- Eastbound through at Varick Street (east and west lanes) and Spring Street (LOS D with a delay of 52.4 during the weekday PM peak hour);
- Eastbound through/right-turn at Varick Street (east and west lanes) and Spring Street (LOS F with a v/c ratio of 1.05 during the Saturday midday peak hour);
- Eastbound right-turn at Varick Street (east and west lanes) and Spring Street (LOS F with a v/c ratio of 1.05 and 1.05 during the weekday PM and Saturday midday peak hours, respectively);
- Southbound left-turn/through at Varick Street (east and west lanes) and Spring Street (LOS C with a v/c ratio of 0.91 during the weekday AM peak hour);
- Southbound through (west lanes) at Varick Street (east and west lanes) and Spring Street (LOS F with 81.2 seconds of delay during the weekday PM peak hour; and LOS E with a v/c ratio of 1.03 during the Saturday midday peak hour);
- Southbound through/right-turn (west lanes) at Varick Street (east and west lanes) and Dominick Street (LOS F with a v/c ratio of 1.05 and 1.05 during the weekday PM and Saturday midday peak hours, respectively);
- Southbound through/right-turn (west lanes) at Varick Street (east and west lanes) and Broome Street (LOS F with a v/c ratio of 0.93 and 1.05 during the weekday PM and Saturday midday peak hours, respectively);
- Southbound right-turn (west lanes) at Varick Street (east and west lanes) and Broome Street (LOS F with a v/c ratio of 0.99 and 1.05 during the weekday PM peak hour and Saturday midday peak hours, respectively);
- Westbound left-turn/through at Varick Street (east and west lanes) and Watts Street (LOS E with a v/c ratio of 0.96 during the Saturday midday peak hour);
- Westbound through at Varick Street (east and west lanes) and Watts Street (LOS F with a v/c ratio of 1.04 during the weekday PM peak hour); and
- Westbound left-turn/through at Varick Street and Canal Street (LOS D with 49.5 seconds of delay and a v/c ratio of 1.02 during the weekday AM peak hour; LOS F with a v/c ratio of

1.04 during the weekday PM peak hour; and LOS E with a v/c ratio of 1.01 during the Saturday midday peak hour).

Avenue of the Americas

- Westbound right-turn at Avenue of the Americas and West Houston Street (LOS D with a v/c ratio of 0.90 during the weekday midday peak hour; LOS D with 48.4 seconds of delay and a v/c ratio of 0.94 during the weekday PM peak hour; LOS D with a v/c ratio of 0.91 during the Saturday midday peak hour);
- Northbound approach at Avenue of the Americas and West Houston Street (LOS D with a v/c ratio of 1.00 during the weekday AM peak hour); and
- Eastbound approach (Laight Street) at the Avenue of the Americas and Canal Street/Laight Street intersection (LOS E during the weekday AM peak hour; and LOS F with a v/c ratio of 1.05 during the weekday PM peak hour);
- Westbound approach at the Avenue of the Americas and Canal Street/Laight Street intersection (LOS D with a v/c ratio of 0.96 and 0.90 during the weekday AM and midday peak hours, respectively; and LOS F with a v/c ratio of 1.04 during the weekday PM peak hour); and
- Northbound approach at the Avenue of the Americas and Canal Street/Laight Street intersection (LOS E with a v/c ratio of 1.05 during the weekday AM peak hour).

THE FUTURE WITHOUT THE PROPOSED ACTION

The No-Action condition was developed by increasing existing (2011) traffic levels by the expected growth in overall travel through and within the study area. As per *CEQR* guidelines, an annual background growth rate of 0.25 percent was assumed for the first five years (year 2011 to year 2016) and then 0.125 percent for the remaining years (year 2016 to year 2022). In addition, a total of 45 development projects expected to occur in the No-Action condition (No Action projects) were identified in coordination with the New York City Department of City Planning (DCP) as being planned for the study area (see **Figure 13-32**). However, many of these planned projects are modest in size and would be very modest traffic generators. After reviewing the development programs for each of the 45 planned projects, it was determined that background growth will address the increase in traffic and pedestrian levels for 24 of the small- to moderate-sized projects in the study area. Person and vehicle trips generated by the remaining projects, which include trips associated with No-Action projects within the Rezoning Area, were then determined and incorporated into the No-Action traffic analysis. **Table 13-20** and **Figure 13-32** summarize the projects that were accounted for in this future 2022 baseline, including those that were considered as part of the study area background growth. Projected Development Sites 1 through 7 and No-Action site 8 were included in the net project screening, presented above in Section C, "Level 1 Screening Assessment."

As discussed, during the 2011 data collection, DDC was underway with a project to install trunk water mains along Hudson Street between Worth Street and Laight Street. During the duration of this project (September 2010 through winter 2015), traffic pattern changes were implemented in the study area to facilitate DDC's construction. However, since the baseline 2011 traffic networks reflect 2010 traffic patterns prior to DDC construction, no network traffic pattern adjustments were made to arrive at the No-Action condition traffic volumes.

2.28.12



0 2000 FEET

SCALE

Proposed Rezoning Area (Primary Study Area)

Study Area Boundary (1/2-Mile Perimeter)

1 No Action Project (see Table 13-17 for reference)

North Tribeca Rezoning Area

HUDSON SQUARE REZONING

Future Development Projects in the No-Action Condition

Figure 13-32

Table 13-20
Planned Projects Within or Near the Study Area by 2022

Map No.	Location	Description	Transportation Assumptions	Build Year
1	Projected Development Site 1 (Canal/Varick/Grand/Avenue of the Americas)	Mixed use development with hotel (419 rooms) above a commercial base containing 16,409 gsf ground floor retail and 50,666 gsf other commercial use, with 80 parking spaces	Hotel and Local Retail trip rates from the *CEQR Technical Manual*; Hotel temporal distribution, modal split, vehicle occupancy, and delivery trip rates based on *Western Rail Yard FEIS* (2009); Local Retail temporal distribution, modal split, vehicle occupancy and delivery trip rates from the *New School DASNY FEAF* (2010) and from the *CEQR Technical Manual*; Conference Center trip rates, temporal distribution, and delivery trip rates from *Battery Maritime Building Redevelopment EAS* (2008); Conference Center modal split and vehicle occupancy from 2000 U.S. Census Transportation Planning Package Reverse Journey- to-Work Data and *Battery Maritime Building Redevelopment EAS* (2008)	2022
2	Projected Development Site 2 (114 Varick St)	Two-story commercial development containing 13,328 gsf retail and 13,328 gsf other commercial use and 7 parking spaces	Local Retail: see Projected Site 1, above; Community Theater trip rates, temporal distribution, vehicle occupancy and delivery trip rates from *Brooklyn Bridge Park FEIS* (2005); Community Theater modal split from *Western Rail Yard FEIS* (2009)	2022
3	Projected Development Site 3 (Varick/Vandam/Spring)	Mixed use development with hotel (381 rooms) above a commercial base containing 12,100 gsf ground floor retail and 86,216 gsf other commercial use, with 82 parking spaces	Hotel and Local Retail: see Projected Site 1, above; Catering Hall average occupancy, trip rates, temporal distribution, and delivery trip rates from *Domino Sugar Rezoning FEIS* (2010); Catering Hall modal split and vehicle occupancy from *Battery Maritime Building Redevelopment EAS* (2008); Professional School trip rates, temporal distribution and delivery trip rates from *Jamaica Plan Rezoning FEIS, (*2007); Professional School modal split and vehicle occupancy from 2000 U.S. Census Transportation Planning Package Reverse Journey-to-Work Data and *Jamaica Plan Rezoning FEIS, (*2007)	2022

Table 13-20 (cont'd)
Planned Projects Within or Near the Study Area by 2022

Map No.	Location	Description	Transportation Assumptions	Build Year
4	Projected Development Site 4 (551-61 Greenwich St)	Two-story commercial development containing 21,934 gsf retail and 21,934 gsf other commercial use and 11 parking spaces	Destination Retail trip rates and delivery trip rates, and Health Club trip rates from the *CEQR Technical Manual*; Destination Retail temporal distribution, modal split, and vehicle occupancy based on *Western Rail Yard FEIS* (2009); Health Club temporal distribution and delivery trip rates from the *770 Eleventh Avenue Mixed-Use Development Rezoning EIS* (2009); Health Club modal split and vehicle occupancy from *Equinox - 344 Amsterdam Avenue EAS* (2008)	2022
5	Projected Development Site 5 (94-104 Varick St)	Residential development with 61 units and 12 parking spaces (pursuant to BSA variance)	Trip rates, temporal distribution, and delivery trip rates from the *CEQR Technical Manual*; modal split and vehicle occupancy from the *Western Rail Yard FEIS* (2009) and the U.S. Census Bureau 2005-2009 American Community Survey 5-Year Estimates	2022
6	Projected Development Site 18 (145 Avenue of the Americas)	Completion of a 5,032-gsf commercial enlargement	Trip rates and delivery trip rates from the *CEQR Technical Manual*; temporal distribution and vehicle occupancy from the *Western Rail Yard FEIS* (2009); modal split from the 2000 U.S. Census Transportation Planning Package Reverse Journey-to-Work Data and the *Western Rail Yard FEIS* (2009)	2012
7	Projected Development Site 19 (537 Greenwich St)	Re-tenanting an existing (vacant) 70,000-sf building with commercial or storage uses	see Projected Site 18, above	2022
8	330 Hudson Street	Commercial office conversion and expansion containing 330,000 gsf office space and 20,000 gsf retail	see Projected Sites 1 and 18, above	2022
9	23 Downing Street	Residential development containing one unit	Included in background growth	2022
10	396 West Broadway	Enlargement of existing building to add two residential units	Included in background growth	2021
11	419 West Broadway	Residential development with eight units	Included in background growth	2011
12	325 West Broadway	Residential development with 20 units	Included in background growth	2022
13	83 Thompson Street	Mixed use development with four residential units, 3,700 sf retail, and 750 sf community facility	Included in background growth	2022
14	403 Greenwich Street	Residential development with five units	Included in background growth	2022
15	137 Franklin Street	Residential development with three units	Included in background growth	2012

Table 13-20 (cont'd)
Planned Projects Within or Near the Study Area by 2022

Map No.	Location	Description	Transportation Assumptions	Build Year
16	309 Avenue of the Americas	Mixed use development with 17 residential units, 3,700-sf retail; 8,121-sf community facility	Included in background growth	2021
17	353 Spring Street	398,000-sf DSNY sanitation garage	Trip rates and temporal distribution from the *CEQR Technical Manual* and *First Avenue Properties Rezoning Final SEIS* (2008); Modal split and vehicle occupancy from U.S. Bureau of the Census, 2000 Reverse Journey-To-Work Data	2014
18	482 Greenwich Street	Mixed use development with 19 residential units; 975-sf retail; 294-sf community facility	Included in background growth	2012
19	43 Grand Street	Development of 17,515-sf hotel with 3,300-sf retail	Transportation assumptions from *Western Rail Yard FEIS* (2009)	2022
20	27 Wooster Street	Mixed use development with 16 residential units, 2,000-sf retail, and 10 parking spaces	Included in background growth	2021
21	138 Wooster Street	Mixed use development with nine residential units and 2,000-sf retail	Included in background growth	2021
22	150 Wooster Street	Mixed use development with 15 residential units and 5,000-sf retail	Included in background growth	2014
23	35-39 Greene St	Conversion and enlargement of existing building to add five residential units	Included in background growth	2021
24	603 Greenwich St	Enlargement and addition of one residential unit	Included in background growth	2021
25	70 Greene Street	Conversion to three residential units and 2,400-sf retail	Included in background growth	2021
26	357 Canal Street	Conversion to four residential units	Included in background growth	2021
27	359 Canal Street	Conversion to four residential units	Included in background growth	2021
28	361 Canal Street	Conversion to four residential units	Included in background growth	2021
29	55 Mercer Street	Conversion to four Joint Living Work Quarters for Artists units	Included in background growth	2021
30	435 Broadway	46,217-sf commercial development	Included in background growth	2012
31	22 Renwick Street	Residential development with 19 units	Included in background growth	2012
32	52 Laight Street	Residential development with six units	Included in background growth	2012
33	22-28 Downing Street	Residential development with three units	Included in background growth	2012
34	NYU – University Village [(1)]	Mixed use NYU development containing: 1,316 dormitory beds; 55,000-sf retail; 300 hotel rooms; 148,000-sf academic; 146,000-sf athletic center; 85,000-sf conference space; and a 100,000-sf (800 seat) public school	Transportation assumptions from NYU Core, 2021 RWCDS 3	2021

Table 13-20 (cont'd)
Planned Projects Within or Near the Study Area by 2022

Map No.	Location	Description	Transportation Assumptions	Build Year
35	Hudson River Park – Pier 26	1.49-acre open space development	Included in background growth	2013
36	32 development sites within the area roughly bounded by: Canal Street to the north, West Street to the west, Broadway to the east, and Walker, N. Moore, Beach, and Hubert Streets to the south.	Projected development from the Tribeca North Rezoning Environmental Assessment Statement (2010) that would collectively result in: 880 residential units (including 16 affordable units); 168,186-sf of retail uses; and 72 parking spaces.	Transportation assumptions from *Tribeca North Rezoning EAS* (2010)	2019
37	15 Washington Place	NYU: New 129,000 sf academic building	Transportation assumptions from *NYU Core DEIS* (2011)	2021
38	25 West 4th Street	NYU: Addition of 20,000 sf to existing building. New total: 94,000 sf.	Transportation assumptions from *NYU Core DEIS* (2011)	2021
39	36 East 8th Street	NYU: new building, 105,000 sf academic	Transportation assumptions from *NYU Core DEIS* (2011)	2021
40	383 Lafayette Street	NYU: 77,000 sf academic through addition and new building.	Transportation assumptions from *NYU Core DEIS* (2011)	2021
41	7, 8, 14A Washington Mews	NYU: conversion from residential to academic. 7: 12,000 sf; 8: 12,000 sf; 14A: 12,000 sf	Transportation assumptions from *NYU Core DEIS* (2011)	2021
42	58 Washington Square South	NYU: new 91,000-sf Center for Academic and Spiritual Life	Transportation assumptions from *NYU Core DEIS* (2011)	2021
43	51 Astor Place	215,000 sf commercial/office; 15,000 sf retail; 40,000 sf academic	Transportation assumptions from *First Avenue Properties Rezoning Final SEIS* (2008)	2015
44	302 Lafayette Street	36,000 sf office; 36,000 sf retail	Trip rates and temporal distribution from the *CEQR Technical Manual* and *First Avenue Properties Rezoning Final SEIS* (2008); Modal split and vehicle occupancy from U.S. Bureau of the Census, 2000 Reverse Journey-To-Work Data	2021
45	197 Mott Street	56-room hotel	see Projected Site 1, above	2022

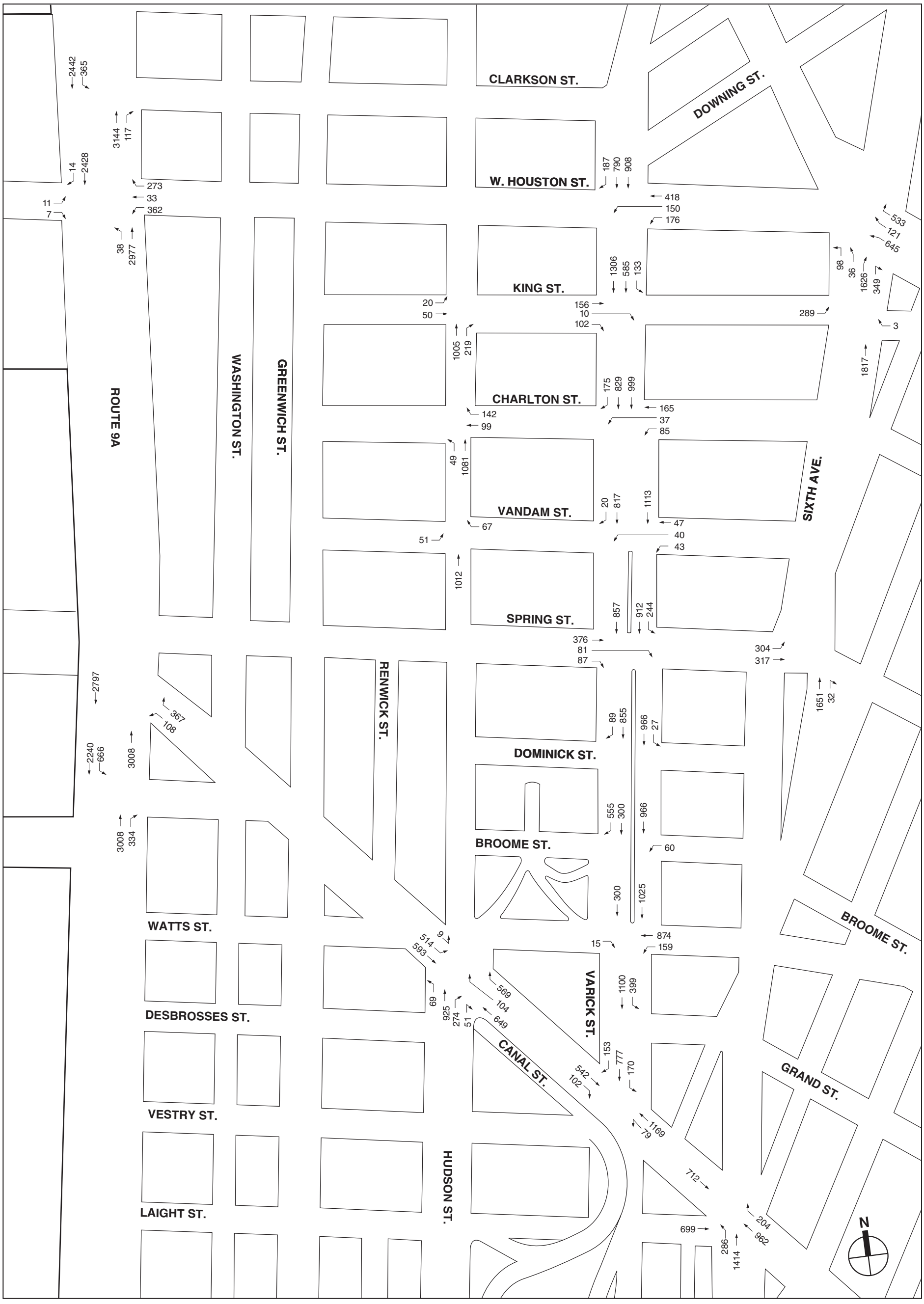
Notes: (1) The NYU-University Village project is currently undergoing public review. Between the Draft and Final EIS, the analyses in this document will be updated to reflect the final NYU-University Village program.

Sources: AKRF, Inc., Trinity Real Estate, New York City Department of City Planning, New York City Department of Buildings, New York City Economic Development Corporation, *NYU Core DEIS* (CEQR No. 11DCP121M).

TRAFFIC OPERATIONS

The No-Action condition traffic volumes are shown in **Figures 13-33** to **13-36** for the weekday AM, midday, PM, and Saturday peak hours. The No-Action condition traffic volumes were constructed by layering on top of the existing traffic volumes with background growth, the trips generated by the discrete No Action projects in the area and the No-Action Net Existing Generated Traffic show in **Figures 13-1** to **13-4**. **Table 13-21** shows an overall comparison of traffic levels of service for existing and No-Action conditions.

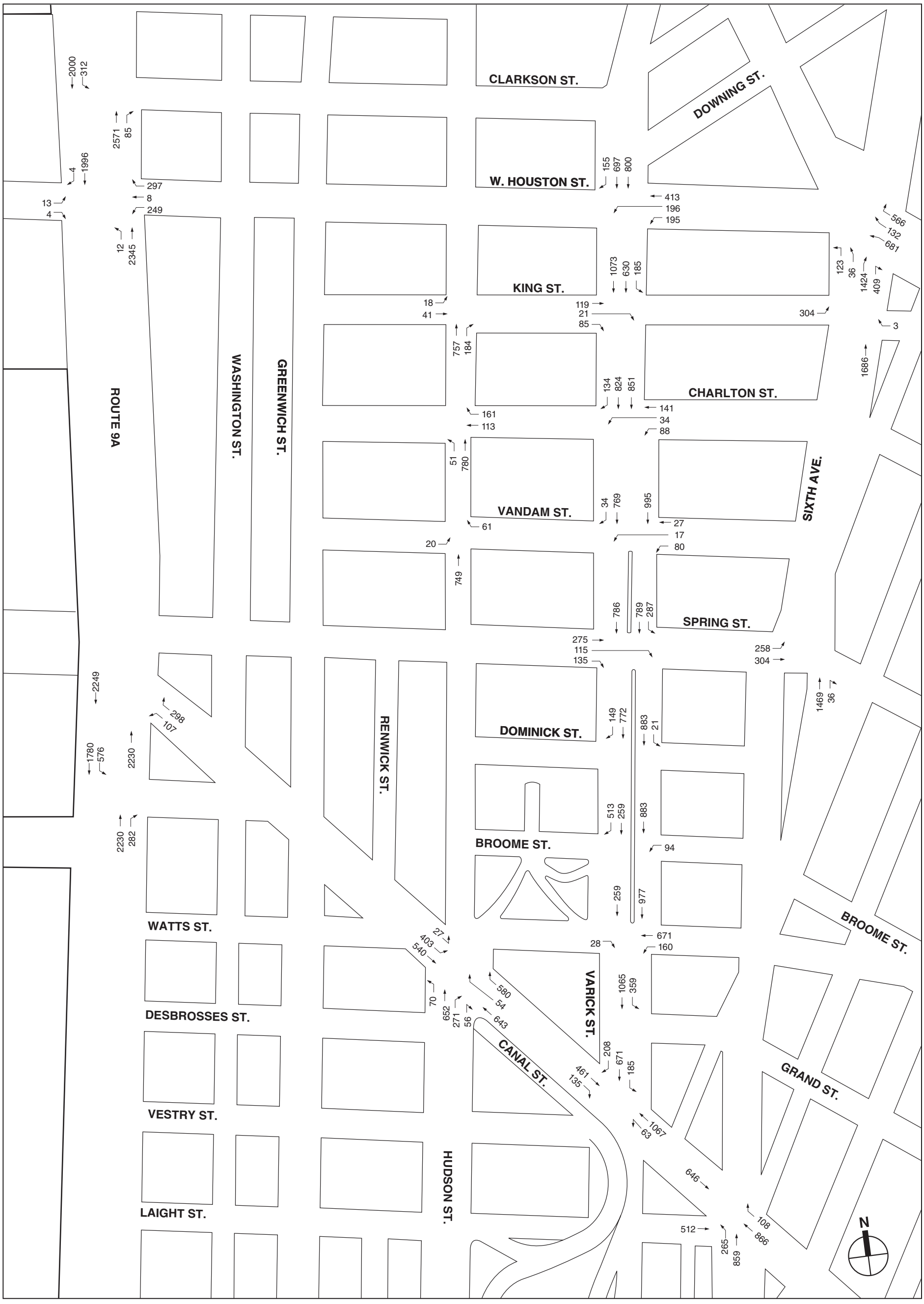
2.27.12



NOT TO SCALE

2022 No-Action Traffic Volumes
Weekday AM Peak Hour
Figure 13-33

5.29.12



NOT TO SCALE

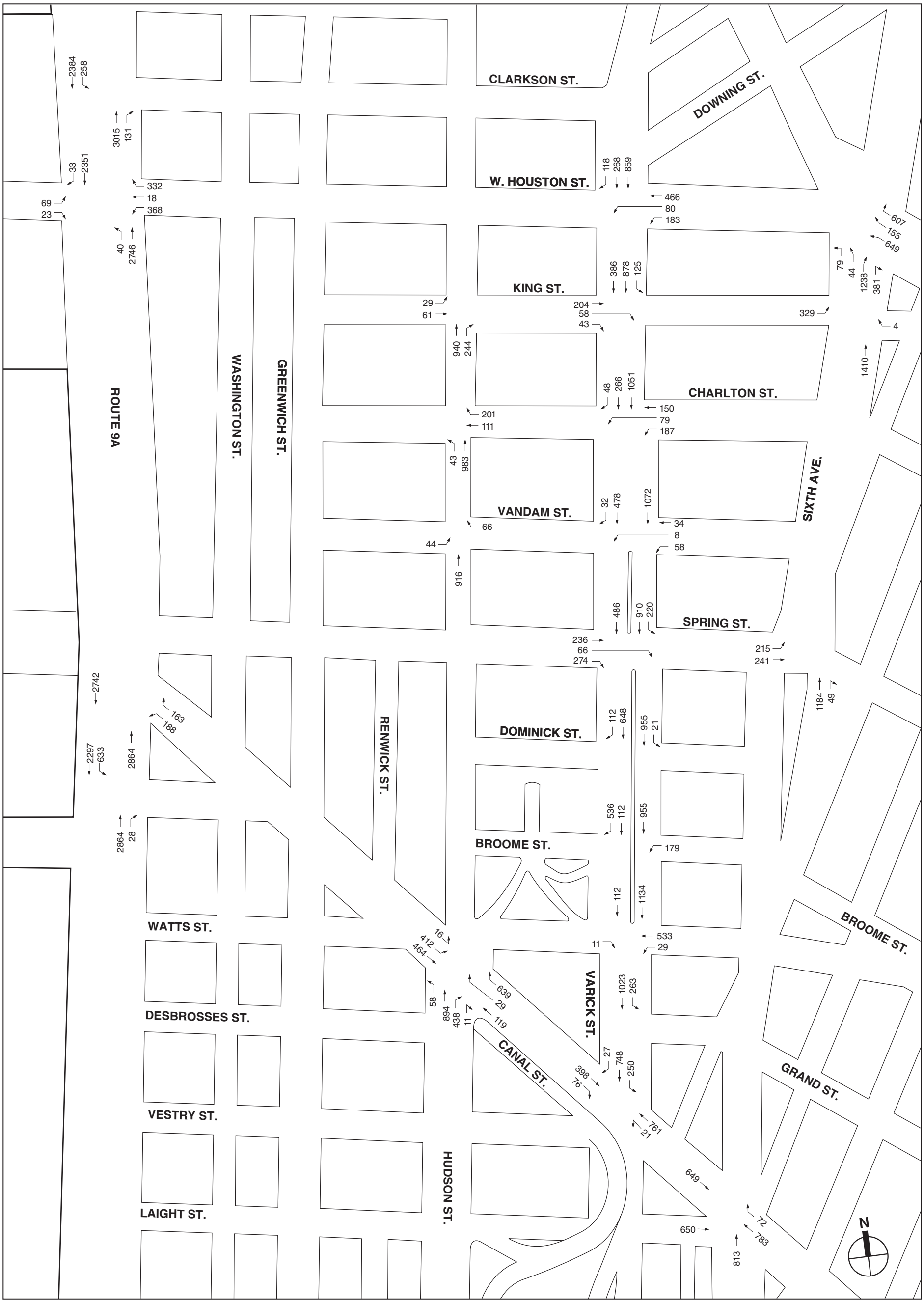
Midblock Source

Midblock Sink

HUDSON SQUARE REZONING

2022 No-Action Traffic Volumes
Weekday Midday Peak Hour
Figure 13-34

5.29.12



NOT TO SCALE

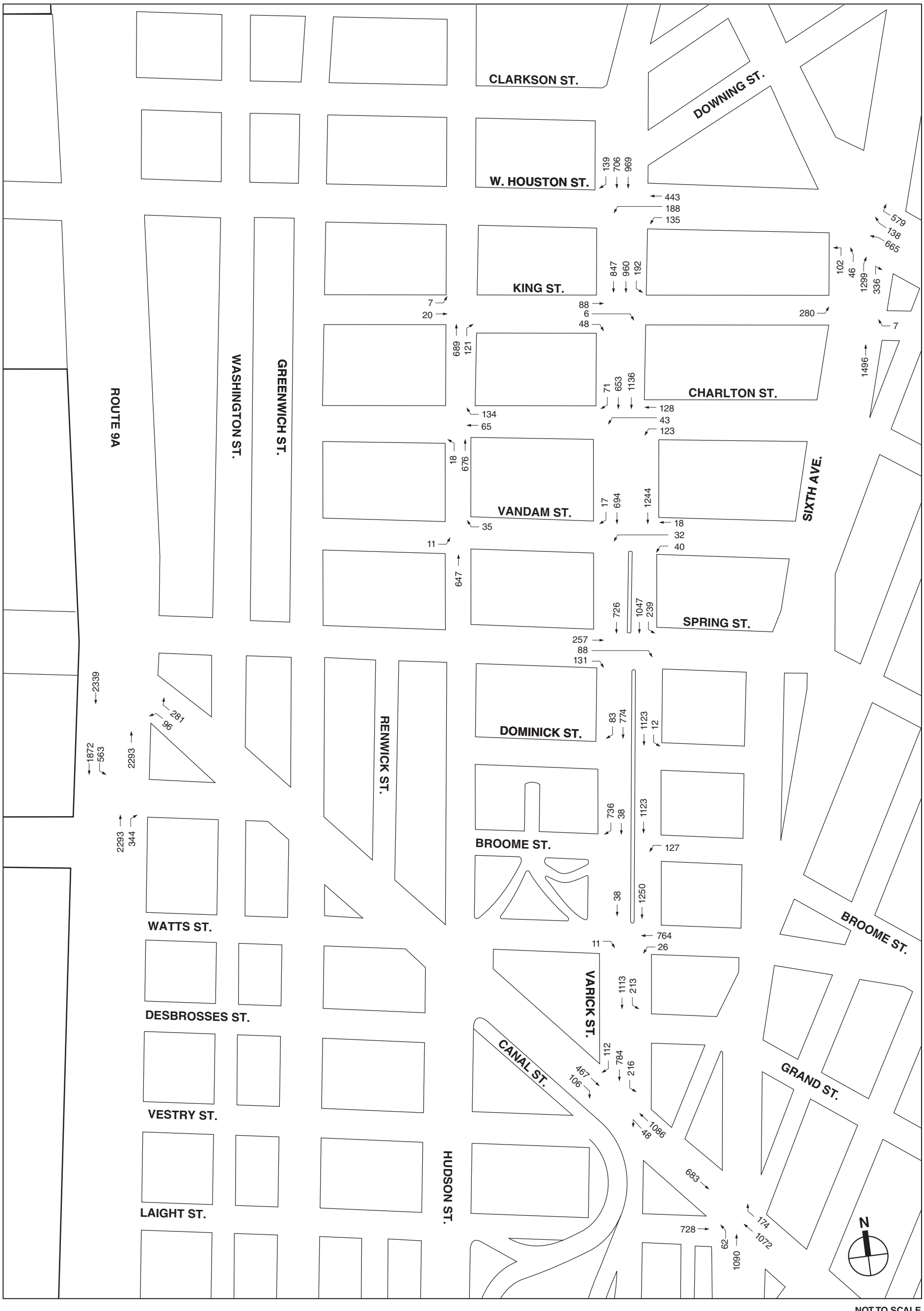
Midblock Source

Midblock Sink

HUDSON SQUARE REZONING

2022 No-Action Traffic Volumes
Weekday PM Peak Hour
Figure 13-35

5.29.12



2022 No-Action Traffic Volumes
Saturday Midday Peak Hour
Figure 13-36

Table 13-21
Traffic Level of Service Summary Comparison:
2011 Existing vs. 2022 No-Action Conditions

	Existing				2022 No-Action			
	Weekday Peak Hours			Saturday	Weekday Peak Hours			Saturday
	AM	Midday	PM	Midday	AM	Midday	PM	Midday
Intersections at Overall LOS A/B/C	19	23	11	12	15	18	10	11
Intersections at Overall LOS D	4	0	11	6	6	4	5	4
Intersections at Overall LOS E	0	0	1	1	2	1	6	2
Intersections at Overall LOS F	0	0	0	0	0	0	2	2
Number of individual traffic lane groups at LOS E or F (of 82 movements analyzed during weekday AM and PM, 81 weekday midday, and 58 Saturday)	11	2	23	11	13	5	26	12
Note: Includes 22 analyzed intersections (22 signalized and 1 unsignalized).								

Under existing conditions, the circulation of traffic in the study area was affected by traffic pattern changes associated with the DDC trunk water main project along Hudson Street (see discussion above). This construction project will be completed by 2015; therefore, in the No-Action condition, traffic circulation patterns at these locations will have reverted back to normal. In addition, a traffic management plan for the Hudson Square neighborhood was prepared in July 2010 by Hudson Square Connection, the Hudson Square business improvement district (BID). The BID plan recommendations include measures that would affect traffic patterns, such as travel lane narrowing, sidewalk widening, bicycle lane striping, curb extensions, and installation of center median pedestrian refuges along several of the study area streets, including Varick Street, Canal Street, Hudson Street, and Houston Street. However, the implementation timing of these recommendations is not clear, and therefore they were not included in the No-Action or With-Action condition traffic analyses.

In addition, NYCDOT presented in June 2012 a set of potential pedestrian improvement measures at Varick and Canal Streets near the Holland Tunnel to Manhattan's Community Board 2's Transportation Committee. The potential improvements would include the addition of new crosswalks (south crosswalk at the intersection of Varick Street and Broome Street), conversion of underutilized traffic lanes (Varick Street between Broome and Watts Streets) into sidewalk extentions to shorten crosswalk distances (at the intersection of Varick Street and Watts Street), installation of center median pedestrian refuge islands along Canal Street (at Hudson Street and at Avenue of the Americas), and general improvements in lane markings along Canal Street and Avenue of the Americas. Currently, Hudson Square BID "pedestrian traffic managers" are positioned along Varick Street at Spring, Vandam, Charlton, and West Houston Streets to help manage pedestrian flow during the PM commuter peak period. The NYCDOT pedestrian improvements are expected to be implemented as part of a pilot program in the near future. Based on the conceptual schematics outlined in NYCDOT's presentation, the potential pedestrian improvement measures are expected to benefit pedestrian circulation while not impeding traffic flow. These improvements would be implemented subject to further review and changes by NYCDOT. Therefore, they were not incorporated into the impact analysis presented below.

Based on the analysis results presented in **Tables 13-49** to **13-50** in Section K, "Detailed Analysis Results Tables," the majority of the approaches/lane-groups will operate at the same LOS as in existing conditions with the following notable exceptions:

West Street

- Eastbound left-turn at the West Street and West Houston Street intersection will deteriorate to LOS F with a v/c ratio of 0.74 and a delay of 88.9 spv during the weekday PM peak hour;
- Westbound right-turn at the West Street and West Houston Street intersection will deteriorate to LOS F with a v/c ratio of 0.98 and a delay of 86.0 spv during the weekday midday peak hour;
- Westbound left-turn at the West Street and Canal Street North intersection will deteriorate within LOS D with a v/c ratio of 0.40 and a delay of 46.6 spv during the weekday midday peak hour, within LOS D with a v/c ratio of 0.65 and a delay of 53.4 spv during the weekday PM peak hour, and within LOS D with a v/c ratio of 0.34 and a delay of 45.2 spv during the Saturday midday peak hour;
- Westbound right-turn at the West Street and Canal Street North intersection will deteriorate to LOS E with a delay of 55.0 spv during the Saturday midday peak hour; and
- Southbound through at the West Street and Canal Street South intersection will deteriorate to LOS E with a v/c ratio of 1.05 and a delay of 60.2 spv during the weekday PM peak hour.

Hudson Street

- Eastbound left-turn at the Hudson Street (east and west lanes) and Canal Street intersection will deteriorate within LOS D with a v/c ratio of 0.84 and a delay of 45.3 during the weekday AM peak hour;
- Westbound through/right-turn at the Hudson Street (east and west lanes) and Canal Street intersection will deteriorate to LOS E with a v/c ratio of 0.99 and a delay of 61.9 spv during the weekday AM peak hour and within LOS D with a v/c ratio of 0.92 and a delay of 49.5 spv during the weekday midday peak hour; and
- Northbound left-turn/through (west lanes) at the Hudson Street (east and west lanes) and Canal Street intersection will deteriorate to LOS F with a v/c ratio of 1.11 and a delay of 95.4 spv during the weekday AM peak hour, within LOS D with a v/c ratio of 0.92 and a delay of 47.7 spv during the weekday midday peak hour, and to LOS F with a v/c ratio of 1.14 and a delay of 106.7 spv during the weekday PM peak hour.

Varick Street

- Westbound left-turn at the Varick Street (east and west lanes) and West Houston Street intersection will deteriorate to LOS D with a v/c ratio of 0.95 and a delay of 54.3 spv during the weekday midday peak hour;
- Southbound through/right-turn (west lanes) at the Varick Street (east and west lanes) and West Houston Street will deteriorate to LOS D with a v/c ratio of 1.00 and a delay of 51.8 spv during the weekday AM peak hour;
- Southbound through (west lanes) at the Varick Street (east and west lanes) and King Street intersection will deteriorate within LOS D with a v/c ratio of 1.03 and a delay of 53.0 spv during the weekday AM peak hour and to LOS F with a v/c ratio of 1.04 and a delay of 88.2 spv during the Saturday midday peak hour;

- Westbound approach at the Varick Street (east and west lanes) and Charlton Street intersection will deteriorate to LOS F with a v/c ratio of 1.07 and a delay of 92.9 spv during the weekday PM peak hour;
- Southbound through/right-turn (west lanes) at the Varick Street (east and west lanes) and Charlton Street intersection will deteriorate to LOS F with a v/c ratio of 1.09 and a delay of 93.0 spv during the Saturday midday peak hour;
- Eastbound through at the Varick Street (east and west lanes) and Spring Street intersection will deteriorate to LOS F with a v/c ratio of 0.98 and a delay of 86.1 spv during the weekday PM peak hour;
- Southbound left-turn/through (east lanes) at the Varick Street (east and west lanes) and Spring Street intersection will deteriorate to LOS D with a v/c ratio of 1.00 and a delay of 45.5 spv during the Saturday midday peak hour;
- Southbound through/right-turn (west lanes) at the Varick Street (east and west lanes) and Broome Street intersection will deteriorate to LOS E with a v/c ratio of 1.05 and a delay of 76.9 spv during the weekday midday peak hour;
- Southbound right-turn (west lanes) at the Varick Street (east and west lanes) and Broome Street intersection will deteriorate to LOS F with a v/c ratio of 1.01 and 81.0 spv during the weekday midday peak hour;
- Westbound approach at the Varick Street and Canal Street intersection will deteriorate to LOS E with a v/c ratio of 1.07 and a delay of 66.1 spv during the weekday AM peak hour and to LOS F with a v/c ratio of 1.12 and a delay of 100.0 spv during the Saturday midday peak hour; and
- Southbound left-turn at the Varick Street and Canal Street intersection will deteriorate to LOS D with a v/c ratio of 0.72 and a delay of 48.1 spv during the weekday PM peak hour.

Avenue of the Americas

- Westbound right-turn at the Avenue of the Americas and West Houston Street intersection will deteriorate within LOS D with a v/c ratio of 0.94 and a delay of 49.0 spv and a v/c ratio of 0.95 and a delay of 51.3 spv during the weekday and Saturday midday peak hours, respectively;
- Northbound approach at the Avenue of the Americas and West Houston Street intersection will deteriorate within LOS D with a v/c ratio of 1.04 and a delay of 53.0 spv during the weekday AM peak hour;
- Westbound approach at the Avenue of the Americas and Canal Street/Laight Street intersection will deteriorate within LOS D with a v/c ratio of 1.03 and a delay of 54.0 spv during the weekday AM peak hour and to LOS E with a v/c ratio of 1.00 and a delay of 55.2 spv during the weekday midda peak hour; and
- Northbound approach at the Avenue of the Americas and Canal Street/Laight Street intersection will deteriorate to LOS F with a v/c ratio of 1.10 and a delay of 83.2 spv during the weekday AM peak hour.

FUTURE WITH THE PROPOSED ACTION

As discussed above in Section D, "Level 2 Screening Assessment," the project-generated vehicle trips were assigned to the study area off-street parking garages and the various block fronts surrounding the project sites. Overall, the 2022 completion of the Proposed Action would result

in approximately 400, 83, 275, and 240 incremental vehicle trips during the weekday AM, midday, PM and Saturday midday peak hours, respectively. The related peak hour traffic assignments are discussed above in Section D, "Level 2 Screening Assessment," and the incremental peak hour trips resulting from the Proposed Action are shown in **Figures 13-9** to **13-12**.

TRAFFIC OPERATIONS

The With-Action condition traffic volumes are shown in **Figures 13-37** to **13-40** for the weekday AM, midday, PM, and Saturday midday peak hours. The With-Action condition traffic volumes were constructed by layering on top of the existing traffic volumes with background growth, the trips generated by the discrete No Action projects in the area and the With-Action Net Existing Generated Traffic show in **Figures 13-5** to **13-8**. **Table 13-22** shows an overall comparison of traffic levels of service for the No-Action and With-Action conditions.

Table 13-22
Traffic Level of Service Summary Comparison:
2022 No-Action vs. 2022 With-Action Conditions

	2022 No-Action				2022 With-Action			
	Weekday Peak Hours			Saturday	Weekday Peak Hours			Saturday
	AM	Midday	PM	Midday	AM	Midday	PM	Midday
Intersections at Overall LOS A/B/C	15	18	10	11	11	18	7	11
Intersections at Overall LOS D	6	4	5	4	9	4	6	1
Intersections at Overall LOS E	2	1	6	2	3	0	5	5
Intersections at Overall LOS F	0	0	2	2	0	1	5	2
Number of intersections with significant impacts	-	-	-	-	13	3	13	5
Number of individual traffic lane groups at LOS E or F (of 82 movements analyzed during weekday AM and PM, 81 weekday midday, and 58 Saturday)	13	5	26	12	19	6	28	13
Note: Includes 22 analyzed intersections (22 signalized and 1 unsignalized).								

Based on the criteria presented in the *CEQR Technical Manual* and discussed previously in Section E, "Transportation Analysis Methodology," significant adverse traffic impacts were identified and are denoted by the "+" symbol in the analysis summary tables—**Table 13-51** to **13-52** in Section K, "Detailed Analysis Results Tables."

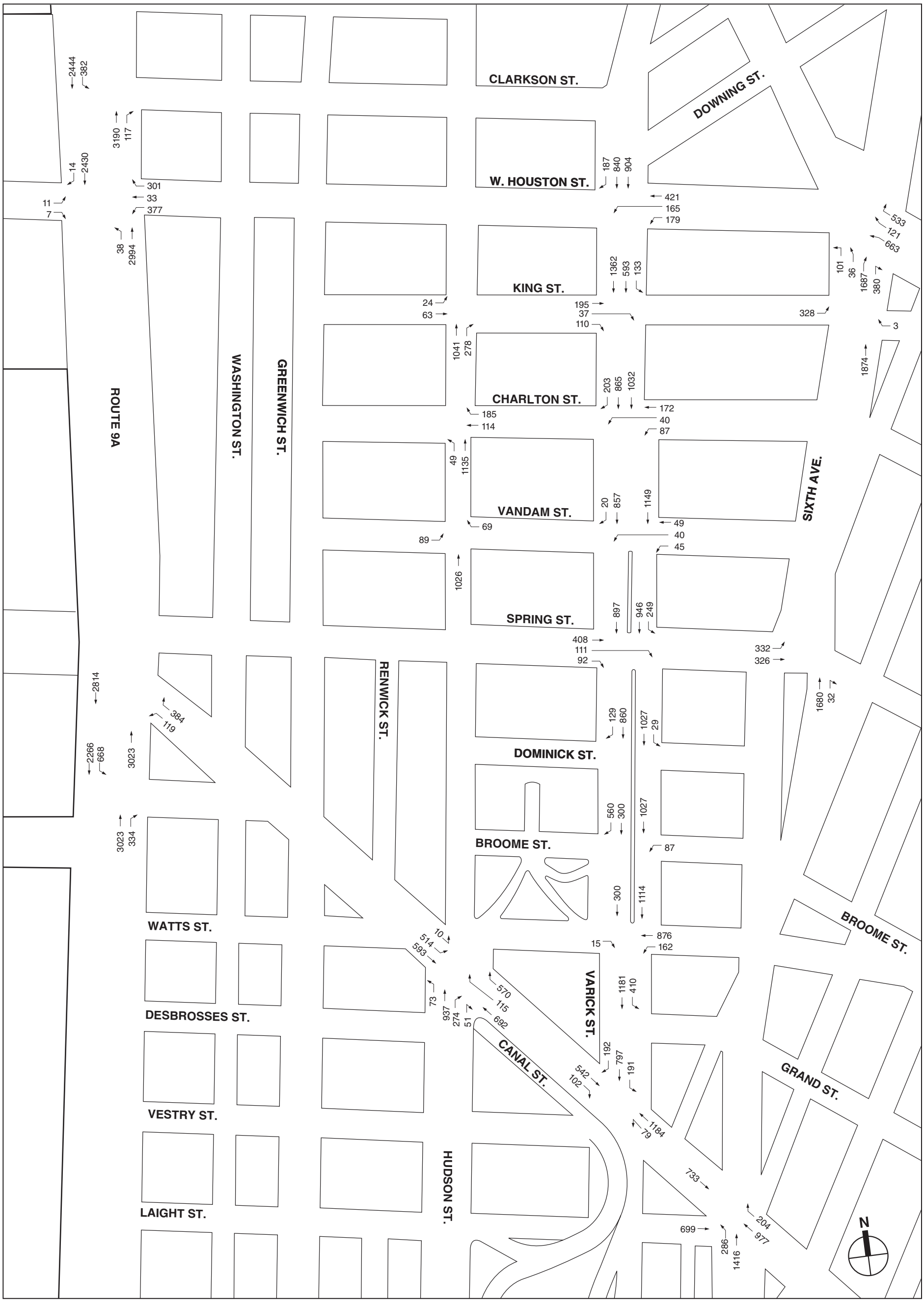
SIGNIFICANT IMPACTS

Significant adverse traffic impacts were identified at 27 approaches/lane groups (of 17 intersections). Potential measures that can be implemented to mitigate these significant adverse traffic impacts are discussed in Chapter 20, "Mitigation."

West Street

- The southbound left-turn at the signalized intersection of West Street and Clarkson Street would deteriorate within LOS F (from a v/c ratio of 1.13 and 146.2 spv of delay to a v/c ratio of 1.18 and 165.8 spv of delay) and from LOS E (v/c ratio of 0.79 and 71.6 spv of delay) to LOS F (v/c ratio of 0.88 and 83.0 spv of delay), increases in delay of more than three and

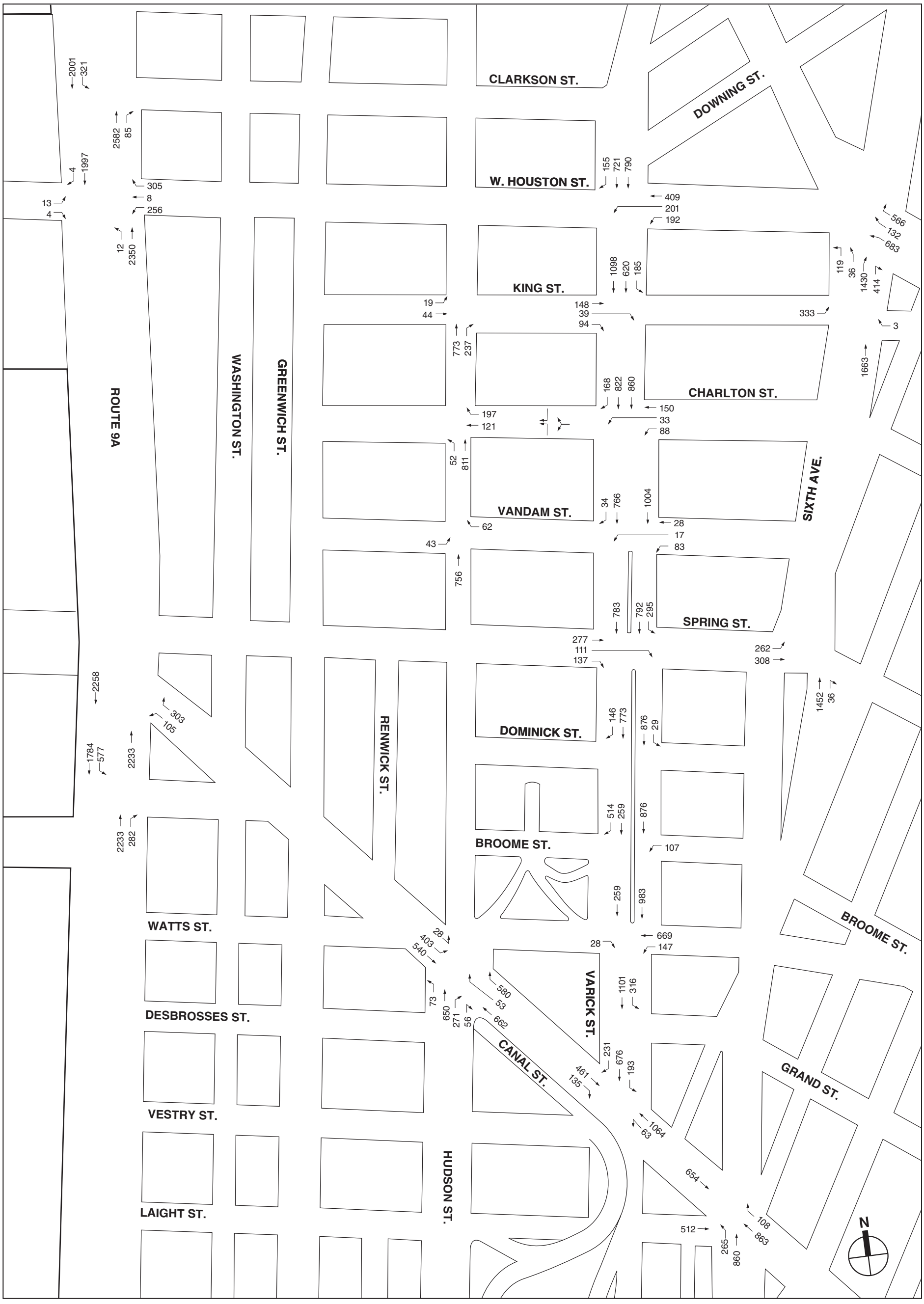
3.13.12



NOT TO SCALE

2022 With-Action Traffic Volumes
Weekday AM Peak Hour
Figure 13-37

5.29.12



NOT TO SCALE

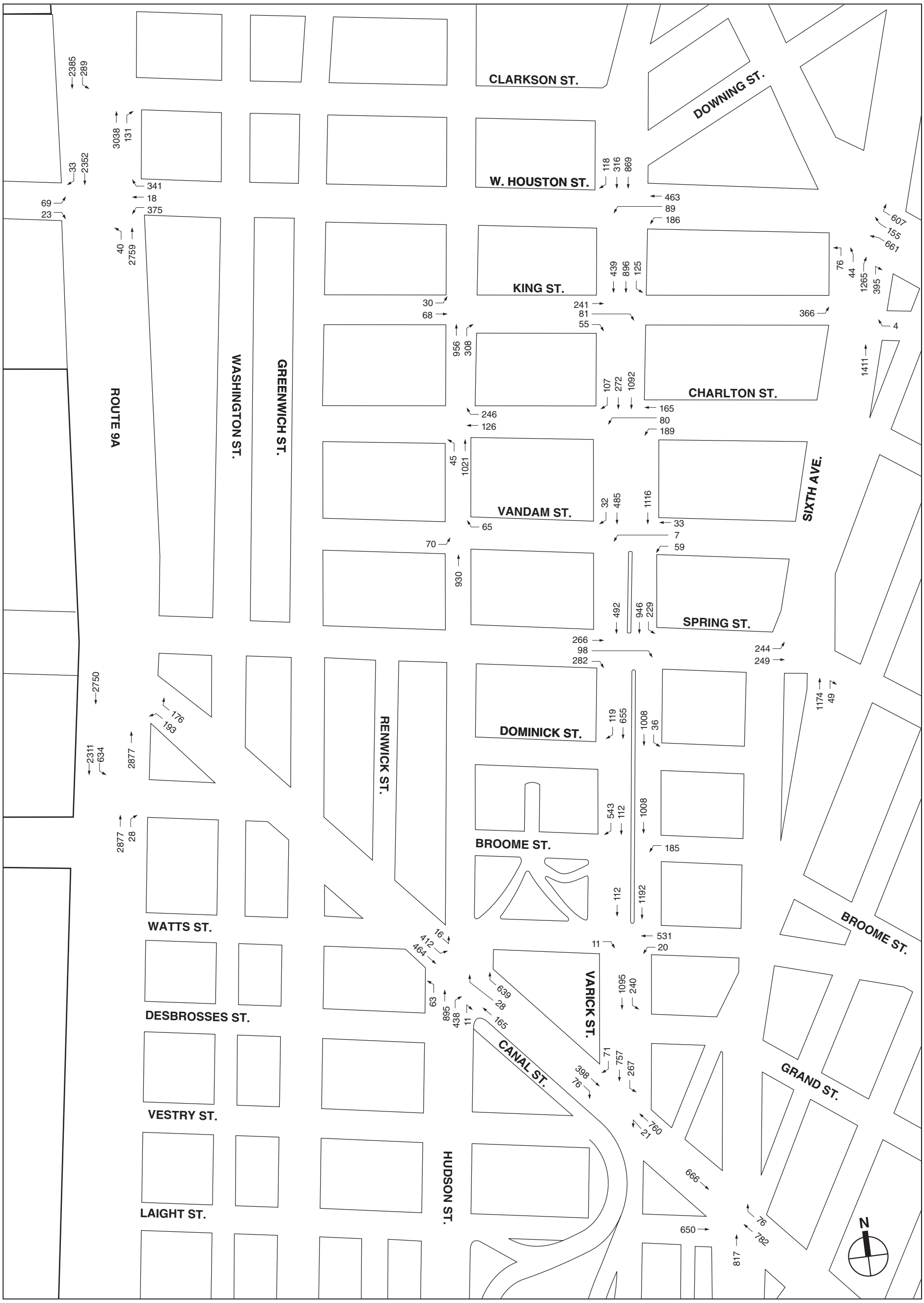
Midblock Source

Midblock Sink

HUDSON SQUARE REZONING

2022 With-Action Traffic Volumes
Weekday Midday Peak Hour
Figure 13-38

5.29.12



NOT TO SCALE

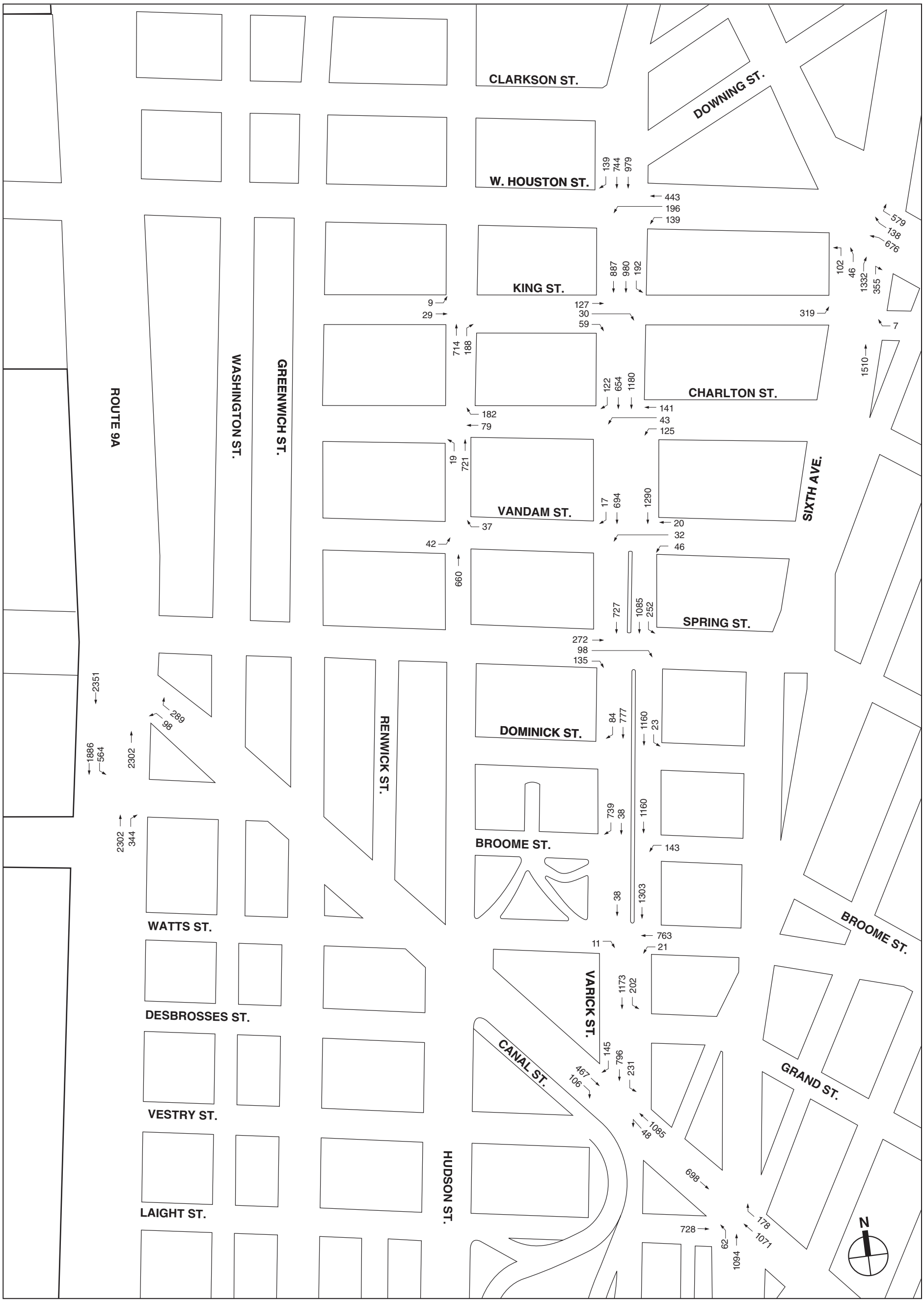
Midblock Source

Midblock Sink

HUDSON SQUARE REZONING

2022 With-Action Traffic Volumes
Weekday PM Peak Hour
Figure 13-39

5.29.12



NOT TO SCALE

Midblock Source

Midblock Sink

2022 With-Action Traffic Volumes
Saturday Midday Peak Hour
Figure 13-40

four seconds, during the weekday AM and PM peak hours, respectively. These projected increases in delay constitute significant adverse impacts.

- The westbound right-turn at the signalized intersection of West Street and West Houston Street would deteriorate within LOS F (from a v/c ratio of 1.15 and 159.0 spv of delay to a v/c ratio of 1.26 and 203.9 spv of delay, from a v/c ratio of 0.98 and 86.0 spv of delay to a v/c ratio of 1.00 with 92.6 spv of delay, and from a v/c ratio of 1.21 and 175.6 spv of delay to a v/c ratio of 1.24 and 188.2 spv of delay), increases in delay of more than three seconds, during the weekday AM, midday, and PM peak hours, respectively. These projected increases in delay constitute significant adverse impacts.
- The westbound left-turn/right-turn at the signalized intersection of West Street and Canal Street North would deteriorate within LOS F (from a v/c ratio of 1.01 and 124.6 spv of delay to a v/c ratio of 1.06 and 137.6 spv of delay), an increase in delay of more than three seconds, during the weekday AM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The westbound right-turn at the signalized intersection of West Street and Canal Street North would deteriorate within LOS F (from a v/c ratio of 1.02 and 127.4 spv of delay to a v/c ratio of 1.07 and 142.3 spv of delay), an increase in delay of more than three seconds during the weekday AM peak hour. This projected increase in delay constitutes a significant adverse impact.

Hudson Street

- The northbound approach at the signalized intersection of Hudson Street and King Street would deteriorate from LOS C (v/c ratio of 0.92 and 30.4 spv of delay) to LOS D (v/c ratio of 1.03 and 52.2 spv of delay), an increase in delay more than five seconds, during the AM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The westbound approach at the signalized intersection of Hudson Street and Charlton Street would deteriorate from LOS D (v/c ratio of 0.85 and 44.9 spv of delay) to LOS F (v/c ratio of 1.04 and 83.7 spv of delay), an increase in delay of more than five seconds, during the weekday PM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The westbound through/right-turn at the signalized intersection of Hudson Street (east and west lanes) and Canal Street would deteriorate from LOS E (v/c ratio of 0.99 and 61.9 spv of delay) to LOS F (v/c ratio of 1.06 and 81.9 spv of delay), an increase in delay of more than four seconds, during the weekday AM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The northbound left-turn/through (west lanes) at the signalized intersection of Hudson Street (east and west lanes) and Canal Street would deteriorate within LOS F (from a v/c ratio of 1.11 and 95.4 spv of delay to a v/c ratio of 1.13 and 104.0 spv of delay and from a v/c ratio of 1.14 and 106.7 spv of delay to a v/c ratio of 1.15 and 113.7 spv of delay), increases in delay of more than three seconds, during the weekday AM and PM peak hours, respectively. These projected increases in delay constitute significant adverse impacts.

Varick Street

- The southbound through/right-turn (west lanes) at the signalized intersection of Varick Street (east and west lanes) and West Houston Street would deteriorate from LOS D (v/c ratio of 1.00 and 51.8 spv of delay) to LOS E (v/c ratio of 1.06 and 71.0 spv of delay) and

within LOS F (from a v/c ratio of 1.25 and 171.0 spv of delay to a v/c ratio of 1.41 and 236.1 spv of delay), increases in delays of more than five and three seconds, during the weekday AM and PM peak hours, respectively. These projected increases in delay constitute significant adverse impacts.

- The southbound through (west lanes) at the signalized intersection of Varick Street (east and west lanes) and King Street would deteriorate from LOS D (v/c ratio of 1.03 and 53.0 spv of delay) to LOS E (v/c ratio of 1.07 and 67.3 spv of delay), within LOS F (from a v/c ratio of 1.09 and 173.5 spv of delay to a v/c ratio of 1.24 and 229.0 spv of delay) and within LOS F (from a v/c ratio of 1.04 and 88.2 spv of delay to a v/c ratio of 1.09 and 104.8 spv of delay), increases in delays of more than five, three, and three seconds, during the weekday AM and PM and Saturday midday peak hours, respectively. These projected increases in delay constitute significant adverse impacts.
- The westbound approach at the signalized intersection of Varick Street (east and west lanes) and Charlton Street would deteriorate within LOS F (from a v/c ratio of 1.07 and 92.9 spv of delay to a v/c ratio of 1.14 and 115.4 spv of delay), an increase in delay of more than three seconds, during the weekday PM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The southbound through/right-turn (west lanes) at the signalized intersection of Varick Street (east and west lanes) and Charlton Street would deteriorate from LOS C (v/c ratio of 0.92 and 33.4 spv of delay) to LOS D (v/c ratio of 1.00 and 48.7 spv of delay), within LOS F (from a v/c ratio of 1.19 and 248.6 spv of delay to a v/c ratio of 1.61 and 439.4 spv of delay) and within LOS F (from a v/c ratio of 1.09 and 93.0 spv of delay to a v/c ratio of 1.23 and 149.4 spv of delay), increases in delays of more than five, three, and three seconds, during the weekday AM and PM and Saturday midday peak hours, respectively. These projected increases in delay constitute significant adverse impacts.
- The southbound through/right-turn (west lanes) at the signalized intersection of Varick Street (east and west lanes) and Vandam Street would deteriorate within LOS F (from a v/c ratio of 1.20 and 146.9 spv of delay to a v/c ratio of 1.22 and 156.4 spv of delay), an increase in delay of more than three seconds, during the weekday PM peak hour. These projected increases in delay constitute significant adverse impacts.
- The eastbound through at the signalized intersection of Varick Street (east and west lanes) and Spring Street would deteriorate within LOS F (from a v/c ratio of 0.98 and 86.1 spv of delay to a v/c ratio of 1.11 and 122.3 spv of delay), an increase in delay of more than three seconds, during the weekday PM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The eastbound through/right-turn at the signalized intersection of Varick Street (east and west lanes) and Spring Street would deteriorate within LOS F (from a v/c ratio of 1.22 and 167.0 spv of delay to a v/c ratio of 1.32 and 206.2 spv of delay), an increase of more than three seconds, during the Saturday midday peak hour. This projected increase in delay constitutes a significant adverse impact.
- The eastbound right-turn at the signalized intersection of Varick Street (east and west lanes) and Spring Street would deteriorate from LOS D (v/c ratio of 0.71 and 41.2 spv of delay) to LOS E (v/c ratio of 0.82 and 55.1 spv of delay) and within LOS F (from a v/c ratio of 1.21 and 156.1 spv of delay to a v/c ratio of 1.44 and 254.7 spv of delay and from a v/c ratio of 1.32 and 223.8 spv of delay to a v/c ratio of 1.67 and 374.8 spv of delay), increases in delays of more than five, three, and three seconds, during the weekday midday and PM, and

Saturday midday peak hours, respectively. These projected increases in delay constitute significant adverse impacts.

- The southbound left-turn/through (east lanes) at the signalized intersection of Varick Street (east and west lanes) and Spring Street would deteriorate from LOS D (v/c ratio of 0.98 and 41.3 spv of delay and a v/c ratio of 1.00 and 45.5 spv of delay) to LOS E (v/c ratio of 1.05 and 59.3 spv of delay and a v/c ratio of 1.07 and 67.0 spv of delay), increases in delays of more than five seconds, during the weekday AM and Saturday midday peak hours, respectively. These projected increases in delay constitute significant adverse impacts.
- The southbound through (west lanes) at the signalized intersection of Varick Street (east and west lanes) and Spring Street would deteriorate within LOS F (from a v/c ratio of 0.97 and 152.2 spv of delay to a v/c ratio of 0.98 and 160.5 spv of delay), an increase in delay of more than three seconds, during the weekday PM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The southbound through/right-turn (west lanes) at the signalized intersection of Varick Street (east and west lanes) and Dominick Street would deteriorate within LOS F (from a v/c ratio of 1.24 and 156.2 spv of delay to a v/c ratio of 1.29 and 178.0 spv of delay and from a v/c ratio of 1.21 and 143.0 spv of delay to a v/c ratio of 1.22 and 148.8 spv of delay), increases in delays of more than three seconds, during the weekday PM and Saturday midday peak hours, respectively. These projected increases in delay constitute significant adverse impacts.
- The southbound through/right-turn (west lanes) at the signalized intersection of Varick Street (east and west lanes) and Broome Street would deteriorate from LOS E (v/c ratio of 1.05 and 76.9 spv of delay) to LOS F (v/c ratio of 1.14 and 106.6 spv of delay) and within LOS F (from a v/c ratio of 1.21 and 194.5 spv of delay to a v/c ratio of 1.62 and 372.3 spv of delay and from a v/c ratio of 1.86 and 432.7 spv of delay to a v/c ratio of 2.09 and 538.0 spv of delay), an increase in delay of more than four, three, and three seconds, during the weekday midday and PM and Saturday midday peak hour. This projected increase in delay constitutes a significant adverse impact.
- The southbound right-turn (west lanes) at the signalized intersection of Varick Street (east and west lanes) and Broome Street would deteriorate within LOS F (from a v/c ratio of 1.01 and 81.0 spv of delay to a v/c ratio of 1.23 and 159.8 spv of delay, from a v/c ratio of 1.27 and 196.2 spv of delay to a v/c ratio of 1.67 and 379.5 spv of delay, and from a v/c ratio of 2.02 and 508.6 spv of delay to a v/c ratio of 2.34 and 653.1 spv of delay), increases in delays of more than three, three, and three seconds, during the weekday midday, PM, and Saturday midday peak hours, respectively. These projected increases in delays constitute significant adverse impacts.
- The westbound approach at the signalized intersection of Varick Street and Canal Street would deteriorate within LOS E (from a v/c ratio of 1.07 and 66.1 spv of delay to a v/c ratio of 1.09 and 70.3 spv of delay), an increase in delay of more than four seconds, during the AM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The southbound left-turn at the signalized intersection of Varick Street and Canal Street would deteriorate from LOS D (v/c ratio of 0.72 and 48.1 spv of delay) to LOS E (v/c ratio of 0.85 and 66.3 spv of delay) an increase in delay of more than five seconds, during the weekday PM peak hours. These projected increases in delays constitute significant adverse impacts.

Avenue of the Americas

- The northbound approach at the signalized intersection of Avenue of the Americas and West Houston Street would deteriorate from LOS D (v/c ratio of 1.04 and 53.0 spv of delay) to LOS E (v/c ratio of 1.09 and 72.1 spv of delay), an increase in delay of more than five seconds, during the weekday AM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The eastbound left-turn at the signalized intersection of Avenue of the Americas and Spring Street would deteriorate from LOS D (v/c ratio of 0.80 and 36.2 spv of delay) to LOS E (v/c ratio of 0.95 and 59.2 spv of delay), an increase in delay of more than five seconds, during the weekday AM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The westbound approach at the signalized intersection of Avenue of the Americas and Canal Street/Laight Street would deteriorate within LOS F (from a v/c ratio of 1.15 and 123.9 spv of delay to a v/c ratio of 1.16 and 127.7 spv of delay), an increase in delay of more than three seconds, during the weekday PM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The northbound approach at the signalized intersection of Avenue of the Americas and Canal Street/Laight Street would deteriorate within LOS F (from a v/c ratio of 1.10 and 83.2 spv of delay to a v/c ratio of 1.12 and 90.9 spv of delay), an increase in delay of more than three seconds, during the weekday AM peak hour. This projected increase in delay constitutes a significant adverse impact.

G. TRANSIT

Mass transit options serving the study area are provided by the NYCT and include the No.1 subway line at the Houston Street station and the Canal Street station; the C/E subway lines at the Spring Street station; the No.6 line at the Spring Street station; the A.C/E subway lines at the Canal Street station; the N/R lines at the Prince Street station; the No.6/J/N/Q/R/W/Z lines at the Canal Street station; and the M5, M20, and M21 bus routes. A detailed analysis of transit operations during the critical weekday AM and PM peak periods is presented below. During other time periods, background transit ridership and station utilization, as well as project trip generation, are comparatively lower. Hence, potential transit impacts were evaluated only for the weekday AM and PM peak periods.

TRANSIT STUDY AREAS

SUBWAY SERVICE

Below is the summary of subway lines that would most likely serve the project site. Subway lines serving stations further away are shown in the transit map (see **Figure 13-14**) but are not included in the description below.

- The A subway line (Eighth Avenue Express) operates between Far Rockaway-Mott Avenue, Queens and Inwood-207th Street, Manhattan, at all times.
- The C subway line (Eighth Avenue Local) operates between Euclid Avenue, Brooklyn and 168th Street, Manhattan.
- The E subway line (Eighth Avenue Local) operates between the World Trade Center-Church Street, Manhattan and Jamaica Center, Queens, at all times.

- The N subway line (Broadway Local) operates between Coney Island-Stillwell Avenue, Brooklyn and Astoria-Ditmars Boulevard, Queens, at all times.
- The Q subway line (Broadway Express) operates between Coney Island-Stillwell Avenue, Brooklyn and Astoria-Ditmars Boulevard, Queens.
- The R subway line (Broadway Local) operates between 95th Street-4th Avenue, Brooklyn and Forest Hills-71st Avenue, Queens.
- The No.1 subway line (Broadway-Seventh Avenue Local) operates between South Ferry, Manhattan and Van Cortlandt Park-242nd Street, Bronx, at all times.

BUS SERVICE

Based on the travel demand estimates and the availability and service frequencies of the bus routes in the study area, it was determined that no individual bus route would experience 50 or more peak hour bus trips in one direction—the CEQR recommended threshold for undertaking a quantified bus analysis. As shown in **Table 13-9**, increments of up to 72 total peak hour riders and no more than 50 peak hour riders in one direction were projected for the Proposed Action. Consequently, a quantitative bus line-haul analysis is not warranted and the Proposed Action would not result in any significant adverse bus impacts. **Table 13-23** provides a summary of the NYCT local bus routes that provide regular service to the study area and their weekday frequencies of operation. All of these routes use standard buses with a guideline capacity of 54 to 55 passengers per bus.

Table 13-23
NYCT Local Bus Routes Serving The Study Area

Bus Route	Start Point	End Point	Routing in Study Area	Freq. of Bus Service (Headway in Minutes)		
				AM	Afternoon	PM
M5 (SB/NB)	Washington Heights	Staten Island Ferry	Broadway/ Avenue of the Americas	(6/9)	(12/10)	(10/10)
M20 (SB/NB)	Lincoln Center	South Ferry	Varick Street/Hudson Street	(20/30)	(15/15)	(12/15)
M21 (WB/EB)	Lower East Side	West Village	Spring St/W. Houston St	(15/20)	(15/30)	(20/20)

Source: MTA NYCT Bus Timetables (2011).

2011 EXISTING CONDITIONS—SUBWAY STATION OPERATIONS

As presented in **Table 13-9** in Section C, "Level 1 Screening Assessment," the full build-out of the Proposed Action in 2022 is expected to result in approximately 1,325 and 1,482 net project-generated subway trips during the weekday AM and PM peak hours, respectively. These trips were distributed to the several nearby stations discussed above and the corresponding station elements. As detailed in Section D, "Level 2 Screening Assessment," station elements at two area subway stations were identified for analysis, as follows.

SPRING STREET STATION (C/E LINES)

The Spring Street Station is located beneath Avenue of the Americas between Spring Street and Vandam Street. The stairways located on the northeast (S-3) and northwest (unmarked) corners of the Avenue of the Americas and Spring Street intersection, southwest (S-4) corner of the Avenue of Americas and Vandam Street, and the control areas located on the northeast (N86) and northwest (unmarked) corners of the Avenue of the Americas and Spring Street intersection

and the southwest (unmarked) corner of the Avenue of the Americas and Vandam Street intersection were included for analysis. The control area on the uptown side at Avenue of the Americas and Spring Street (Location 1-N86) includes three two-way turnstiles and two emergency gates, while that on the downtown side at Avenue of the Americas and Spring Street (Location 2) contains two High Entry/Exit Turnstiles (HEETs), one High Exit Turnstile (HXT), and two emergency gates, and the control area on the downtown side at Avenue of the Americas and Vandam Street (also Location 2) contains one HEET, two HXTs, and one emergency gate. Subway passengers for the downtown entrance at the northwest corner of the Avenue of the Americas and Spring Street intersection exit the station through the control area followed by a single stairway leading to the sidewalk. During the AM peak hour, the field data show that approximately 50 percent of the subway passengers exiting through this downtown entrance use the emergency gate. In accordance with CEQR guidance, the control area analysis was performed for the HEETs and HXTs, but not for the emergency gates. However, according to NYCT, the number and type of control area elements for each station are planned under the assumption that emergency gates are not used by exiting passengers under normal conditions. Therefore, for the purpose of a conservative analysis, all passenger volumes exiting through the emergency gates were redistributed to the HEETs and HXTs.

HOUSTON STREET STATION (NO.1 LINE)

The Houston Street Station is located beneath Varick Street between King Street and West Houston Street. The stairways and control areas located on the southwest (S-1) and southeast (S-2) corners of the Varick Street and King Street intersection were included for analysis. The downtown control area (Location 3) contains two HEETs, one HXT, and two emergency gates, and the control area on the uptown side (Location 4) contains two HEETs and two HXTs, and two emergency gates. Similar to the Spring Street Station, passenger volumes recorded for the emergency gates were redistributed to the HEETs and HXTs and the control area analysis was performed only for the HEETs and HXTs.

Field surveys conducted on May 19, 2010 during the hours of 7:00 to 9:30 AM and 4:00 to 6:30 PM provided the baseline volumes for the analysis of the above subway station elements. The CEQR recommended growth rate of 0.25 percent was applied to the 2010 volumes to establish the 2011 existing volumes. It should be noted that although common peak hours were selected for the subway station analysis, each analysis element may have different peak 15 minutes within the selected peak hour. As shown in **Tables 13-24** and **13-25**, all analyzed stairways and control areas currently operate at acceptable levels during the weekday AM and PM peak periods, with the exception of the northwest stairway at the Spring Street and Avenue of the Americas entrance during the AM peak period (LOS E, v/c= 1.58).

Table 13-24
Existing Conditions: Subway Stairway Analysis

Stairway	Width (ft.)	Effective Width (ft.)	15-Minute Pedestrian Volumes		Surging Factor	Friction Factor	V/C Ratio	LOS
			Down	Up				
Weekday AM Peak 15 Minutes								
Spring Street Station (C/E Lines) Spring Street and Avenue of the Americas Entrance								
NE (S-3)	8.0	7.0	100	206	0.80	0.90	0.38	A
NW (unmarked)	5.0	4.0	15	744	0.80	1.00	1.58	E
SW (S-4)	5.0	4.0	8	275	0.80	1.00	0.59	B
Houston Street Station (No.1 Line) King Street and Varick Street Entrance								
SW (S1)	5.2	4.2	2	247	0.80	1.00	0.49	B
SE (S2)	6.0	5.0	20	81	0.80	0.90	0.18	A
Weekday PM Peak 15 Minutes								
Spring Street Station (C/E Lines) Spring Street and Avenue of the Americas Entrance								
NE (S-3)	8.0	7.0	415	40	0.80	0.90	0.49	B
NW (unmarked)	5.0	4.0	63	156	0.80	0.90	0.48	B
SW (S-4)	5.0	4.0	81	32	0.80	0.90	0.22	A
Houston Street Station (No.1 Line) King Street and Varick Street Entrance								
SW (S1)	5.2	4.2	32	28	0.80	0.90	0.12	A
SE (S2)	6.0	5.0	263	6	0.80	1.00	0.36	A

Notes:
Capacities were calculated based on rates presented in the *CEQR Technical Manual*.
Surging factors are only applied to the exiting pedestrian volume (*CEQR Technical Manual*).
V/C = [Vin / (150 * We * Sf * Ff)]+ [Vx/ (150 * We * Sf * Ff)], where
Vin = Peak 15-minute entering passenger volume;
Vx = Peak 15-minute exiting passenger volume
We = Effective width of stairs
Sf = Surging factor (if applicable); Ff = Friction factor (if applicable)

Table 13-25
Existing Conditions: Subway Control Area Analysis

Station Elements	Qty.	15-Minute Pedestrian Volumes		Surging Factor	Friction Factor	V/C Ratio	LOS
		Into Control Area	Out from Control Area				
AM Peak 15- Minutes							
Location 1. Spring Street Station (N86) – C/E Lines (Uptown)							
NE Corner of Spring Street and Avenue of the Americas							
Two-Way Turnstiles	3	100	206	0.75	0.90	0.25	A
Location 2. Spring Street Station – C/E Lines (Downtown)*							
NW Corner of Spring Street and Avenue of the Americas							
HEET	2	15	366	0.75	1.00	0.48	B
Exit Only HXT	1	N/A	379	0.75	1.00	0.91	C
SW Corner of Vandam Street and Avenue of the Americas							
HEET	1	8	23	0.75	0.90	0.10	A
Exit Only HXT	2	N/A	251	0.75	1.00	0.30	A
Location 3. Houston Street Station – No.1 Line (Downtown)*							
West Side of Varick Street at King Street							
HEET	2	12	221	0.75	0.90	0.33	A
Exit Only HXT	1	N/A	118	0.75	1.00	0.28	A
Location 4. Houston Street Station – No.1 Line (Uptown)*							
East Side of Varick Street at King Street							
HEET	2	42	56	0.75	0.90	0.17	A
Exit Only HXT	2	N/A	60	0.75	1.00	0.07	A
PM Peak 15- Minutes							
Location 1. Spring Street Station (N86) – C/E Lines (Uptown)							
NE Corner of Spring Street and Avenue of the Americas							
Two-Way Turnstiles	3	415	40	0.75	0.90	0.40	A
Location 2. Spring Street Station – C/E Lines (Downtown)*							
NW Corner of Spring Street and Avenue of the Americas							
HEET	2	92	24	0.75	0.90	0.23	A
Exit Only HXT	1	N/A	135	0.75	1.00	0.32	A
SW Corner of Vandam Street and Avenue of the Americas							
HEET	1	81	2	0.75	1.00	0.32	A
Exit Only HXT	2	N/A	61	0.75	1.00	0.07	A
Location 3. Houston Street Station – No.1 Line (Downtown)*							
West Side of Varick Street at King Street							
HEET	2	70	39	0.75	0.90	0.21	A
Exit Only HXT	1	N/A	25	0.75	1.00	0.06	A
Location 4. Houston Street Station – No.1 Line (Uptown)*							
East Side of Varick Street at King Street							
HEET	2	240	0	0.75	1.00	0.47	B
Exit Only HXT	2	N/A	12	0.75	1.00	0.01	A

Notes:

* Passengers exiting through the emergency gates were redistributed to the HEETs and HXTs.
Capacities were calculated based on rates presented in the *CEQR Technical Manual.*
V/C =Vin / (Cin x Ff)+ Vx / (Cx x Sf x Ff), where
Vin = Peak 15 Min Entering Passenger Volume
Cin= Total 15-Minute Capacity of all turnstiles for entering Passengers
Vx = Peak 15- Minute Exiting Passenger
Cx = Total 15-minute Capacity of all turnstile for exiting Passengers
Sf = Surging Factor
Ff = Friction Factor

THE FUTURE WITHOUT THE PROPOSED ACTION—SUBWAY STATION OPERATIONS

Estimates of peak hour transit volumes in the No-Action condition were developed by applying the *CEQR Technical Manual* recommended annual background growth rates. An annual compounded background growth rate of 0.25 percent was applied to the transit volumes from 2011 to 2016, and an annual compounded background growth rate of 0.125 percent was applied to the transit volumes from 2016 to 2022. In addition, trips associated with No-Action projects were incorporated into the No-Action transit volumes.

The No-Action peak period volume projections were allocated to the transit analysis elements described above. For the analyzed control areas, the projected volumes were assigned only to the turnstiles, HEETs, and HXTs. As shown in **Tables 13-26** and **13-27**, all station stairways and control area elements would continue to operate at acceptable levels, except for the northwest stairway at the Spring Street and Avenue of the Americas entrance during the AM peak period (Spring Street station), which will operate at LOS F with a v/c ratio of 1.73 during the AM peak period.

Table 13-26
No-Action Condition: Subway Stairway Analysis

Stairway	Width (ft.)	Effective Width (ft.)	15-Minute Pedestrian Volumes		Surging Factor	Friction Factor	V/C Ratio	LOS
			Down	Up				
Weekday AM Peak 15 Minutes								
Spring Street Station (C/E Lines) Spring Street and Avenue of the Americas Entrance								
NE (S-3)	8.0	7.0	116	265	0.80	0.90	0.47	B
NW (unmarked)	5.0	4.0	16	816	0.80	1.00	1.73	F
SW (S-4)	5.0	4.0	12	331	0.80	1.00	0.71	C
Houston Street Station (No.1 Line) King Street and Varick Street Entrance								
SW (S1)	5.2	4.2	5	294	0.80	1.00	0.59	B
SE (S2)	6.0	5.0	23	106	0.80	0.90	0.23	A
Weekday PM Peak 15 Minutes								
Spring Street Station (C/E Lines) Spring Street and Avenue of the Americas Entrance								
NE (S-3)	8.0	7.0	548	60	0.80	0.90	0.66	B
NW (unmarked)	5.0	4.0	99	180	0.80	0.90	0.60	B
SW (S-4)	5.0	4.0	112	52	0.80	0.90	0.33	A
Houston Street Station (No.1 Line) King Street and Varick Street Entrance								
SW (S1)	5.2	4.2	59	41	0.80	0.90	0.19	A
SE (S2)	6.0	5.0	324	8	0.80	1.00	0.45	A

Notes:
Capacities were calculated based on rates presented in the *CEQR Technical Manual*.
Surging factors are only applied to the exiting pedestrian volume (*CEQR Technical Manual*).
V/C = [Vin / (150 * We * Sf * Ff)]+ [Vx/ (150 * We * Sf * Ff)], where
Vin = Peak 15-minute entering passenger volume
Vx = Peak 15-minute exiting passenger volume
We = Effective width of stairs
Sf = Surging factor (if applicable)
Ff = Friction factor (if applicable)

Table 13-27
No-Action Condition: Subway Control Area Analysis

Station Elements	Qty.	15-Minute Pedestrian Volumes		Surging Factor	Friction Factor	V/C Ratio	LOS
		Into Control Area	Out from Control Area				
AM Peak 15 Minutes							
Location 1. Spring Street Station (N86) – C/E Lines (Uptown)							
NE Corner of Spring Street and Avenue of the Americas							
Two-Way Turnstiles	3	116	265	0.75	0.90	0.31	A
Location 2. Spring Street Station – C/E Lines (Downtown)							
NW Corner of Spring Street and Avenue of the Americas							
HEET	2	16	422	0.75	1.00	0.55	B
Exit Only HXT	1	N/A	395	0.75	1.00	0.95	C
SW Corner of Vandam Street and Avenue of the Americas							
HEET	1	12	39	0.75	0.90	0.16	A
Exit Only HXT	2	N/A	290	0.75	1.00	0.35	A
Location 3. Houston Street Station – No.1 Line (Downtown)							
West Side of Varick Street at King Street							
HEET	2	15	254	0.75	0.90	0.38	A
Exit Only HXT	1	N/A	134	0.75	1.00	0.32	A
Location 4. Houston Street Station – No.1 Line (Uptown)							
East Side of Varick Street at King Street							
HEET	2	46	68	0.75	0.90	0.19	A
Exit Only HXT	2	N/A	73	0.75	1.00	0.09	A
PM Peak 15 Minutes							
Location 1. Spring Street Station (N86) – C/E Lines (Uptown)							
NE Corner of Spring Street and Avenue of the Americas							
Two-Way Turnstiles	3	548	60	0.75	0.90	0.53	B
Location 2. Spring Street Station – C/E Lines (Downtown)							
NW Corner of Spring Street and Avenue of the Americas							
HEET	2	129	39	0.75	0.90	0.33	A
Exit Only HXT	1	N/A	145	0.75	1.00	0.35	A
SW Corner of Vandam Street and Avenue of the Americas							
HEET	1	112	8	0.75	0.90	0.51	B
Exit Only HXT	2	N/A	75	0.75	1.00	0.09	A
Location 3. Houston Street Station – No.1 Line (Downtown)							
West Side of Varick Street at King Street							
HEET	2	97	48	0.75	0.90	0.28	A
Exit Only HXT	1	N/A	30	0.75	1.00	0.07	A
Location 4. Houston Street Station – No.1 Line (Uptown)							
East Side of Varick Street at King Street							
HEET	2	300	1	0.75	1.00	0.59	B
Exit Only HXT	2	N/A	13	0.75	1.00	0.02	A

Notes:
Capacities were calculated based on rates presented in the *CEQR Technical Manual.*
V/C =Vin / (Cin x Ff)+ Vx / (Cx x Sf x Ff), where
Vin = Peak 15 Min Entering Passenger Volume
Cin= Total 15-Minute Capacity of all turnstiles for entering Passengers
Vx = Peak 15- Minute Exiting Passenger
Cx = Total 15-minute Capacity of all turnstile for exiting Passengers
Sf = Surging Factor
Ff = Friction Factor

FUTURE WITH THE PROPOSED ACTION—SUBWAY STATION OPERATIONS

As shown in **Table 13-9**, the net incremental subway trips under the RWCDS were projected to be 1,325 (235 in and 1,090 out) during the weekday AM peak hour and 1,482 (890 in and 592 out) during the weekday PM peak hour. As discussed above in Section D, "Level 2 Screening Assessment," nearly 90 percent of the total project-generated subway trips are expected to be served by the four nearest subway stations—the Canal Street (A/C/E) station, the Canal Street (No.1) station, the Spring Street (C/E) station, and the West Houston Street (No.1) station. The remaining 10 percent were distributed to other stations in the area, including the Prince Street (N/R) station, the Spring Street (No.6) station, and the Canal Street (No.6/J/N/Q/R/W/Z) station.

As with the No-Action analysis, for the analyzed control areas, the projected volumes were assigned only to the turnstiles, HEETs, and HXTs. As shown in **Tables 13-28** and **13-29**, all station stairways and control elements would continue to operate at acceptable levels, except for the northwest stairway at the Spring Street and Avenue of the Americas entrance during the AM peak period (Spring Street station), which would operate at LOS F with a v/c ratio of 1.79 during the AM peak period. Compared with the No-Action service levels (LOS F, v/c ratio of 1.73), the WIT for this stairway was calculated to be 1.96 inches, which is less than the *CEQR Technical Manual* WIT impact threshold of 2.0 inches (for stairway v/c ratios of 1.60 and up in the With-Action condition; see **Table 13-15**), hence not constituting a significant adverse impact under CEQR.

Table 13-28
With-Action Condition: Subway Stairway Analysis

Stairway	Width (ft.)	Effective Width (ft.)	15-Minute Pedestrian Volumes		Surging Factor	Friction Factor	V/C Ratio	LOS
			Down	Up				
Weekday AM Peak 15 Minutes								
Spring Street Station (C/E Lines) Spring Street and Avenue of the Americas Entrance								
NE (S-3)	8.0	7.0	233	284	0.80	0.90	0.62	B
NW (unmarked)	5.0	4.0	34	832	0.80	1.00	1.79	F
SW (S-4)	5.0	4.0	52	352	0.80	0.90	0.91	C
Houston Street Station (No.1 Line) King Street and Varick Street Entrance								
SW (S1)	5.2	4.2	25	308	0.75	0.90	0.72	C
SE (S2)	6.0	5.0	60	117	0.75	0.90	0.31	A
Weekday PM Peak 15 Minutes								
Spring Street Station (C/E Lines) Spring Street and Avenue of the Americas Entrance								
NE (S-3)	8.0	7.0	625	108	0.80	0.90	0.80	C
NW (unmarked)	5.0	4.0	110	224	0.75	0.90	0.72	C
SW (S-4)	5.0	4.0	138	110	0.75	0.90	0.51	B
Houston Street Station (No.1 Line) King Street and Varick Street Entrance								
SW (S1)	5.2	4.2	81	68	0.75	0.90	0.29	B
SE (S2)	6.0	5.0	348	23	0.75	1.00	0.56	A

Notes:
Capacities were calculated based on rates presented in the *CEQR Technical Manual*.
Surging factors are only applied to the exiting pedestrian volume (*CEQR Technical Manual*).
V/C = [Vin / (150 * We * Sf * Ff)]+ [Vx/ (150 * We * Sf * Ff)], where
Vin = Peak 15-minute entering passenger volume
Vx = Peak 15-minute exiting passenger volume
We = Effective width of stairs
Sf = Surging factor (if applicable)
Ff = Friction factor (if applicable)

Table 13-29
With-Action Condition: Subway Control Area Analysis

Station Elements	Qty.	15-Minute Pedestrian Volumes		Surging Factor	Friction Factor	V/C Ratio	LOS
		Into Control Area	Out from Control Area				
AM Peak 15 Minutes							
Location 1. Spring Street Station (N86) – C/E Lines (Uptown)							
NE Corner of Spring Street and Avenue of the Americas							
Two-Way Turnstiles	3	233	284	0.75	0.90	0.42	A
Location 2. Spring Street Station – C/E Lines (Downtown)							
NW Corner of Spring Street and Avenue of the Americas							
HEET	2	34	436	0.75	0.90	0.67	B
Exit Only HXT	1	N/A	397	0.75	1.00	0.95	C
SW Corner of Vandam Street and Avenue of the Americas							
HEET	1	52	46	0.75	0.90	0.35	A
Exit Only HXT	2	N/A	304	0.75	1.00	0.37	A
Location 3. Houston Street Station – No.1 Line (Downtown)							
West Side of Varick Street at King Street							
HEET	2	35	263	0.75	0.90	0.44	A
Exit Only HXT	1	N/A	139	0.75	1.00	0.33	A
Location 4. Houston Street Station – No.1 Line (Uptown)							
East Side of Varick Street at King Street							
HEET	2	83	73	0.75	0.90	0.28	A
Exit Only HXT	2	N/A	79	0.75	1.00	0.09	A
PM Peak 15 Minutes							
Location 1. Spring Street Station (N86) – C/E Lines (Uptown)							
NE Corner of Spring Street and Avenue of the Americas							
Two-Way Turnstiles	3	625	108	0.75	0.90	0.63	B
Location 2. Spring Street Station – C/E Lines (Downtown)							
NW Corner of Spring Street and Avenue of the Americas							
HEET	2	140	68	0.75	0.90	0.40	A
Exit Only HXT	1	N/A	160	0.75	1.00	0.38	A
SW Corner of Vandam Street and Avenue of the Americas							
HEET	1	138	27	0.75	0.90	0.68	B
Exit Only HXT	2	N/A	114	0.75	1.00	0.14	A
Location 3. Houston Street Station – No.1 Line (Downtown)							
West Side of Varick Street at King Street							
HEET	2	119	66	0.75	0.90	0.35	A
Exit Only HXT	1	N/A	39	0.75	1.00	0.09	A
Location 4. Houston Street Station – No.1 Line (Uptown)							
East Side of Varick Street at King Street							
HEET	2	324	8	0.75	1.00	0.65	B
Exit Only HXT	2	N/A	21	0.75	1.00	0.03	A

Notes:
Capacities were calculated based on rates presented in the *CEQR Technical Manual.*
V/C =Vin / (Cin x Ff)+ Vx / (Cx x Sf x Ff), where
Vin = Peak 15 Min Entering Passenger Volume
Cin= Total 15-Minute Capacity of all turnstiles for entering Passengers
Vx = Peak 15- Minute Exiting Passenger
Cx = Total 15-minute Capacity of all turnstile for exiting Passengers
Sf = Surging Factor
Ff = Friction Factor

H. PEDESTRIANS

EXISTING CONDITIONS

Pedestrian data were collected in May and June 2010 at key locations near the project site during the weekday hours of 7:00 AM to 9:30 AM, 12:00 PM to 2:00 PM, and 4:00 PM to 6:30 PM, and during the Saturday hours of 12:00 PM to 2:30 PM and 3:00 PM to 5:00 PM. Additional data were collected in November 2011 during the same time periods to supplement the 2010 data for locations subsequently added for analysis and to establish a data set sufficient for analysis in accordance with procedures outlined in the *CEQR Technical Manual*. The 2010 pedestrian volume data were adjusted to 2011 levels, accounting for growth and changes in the area's pedestrian travel patterns in the following manner:

- For weekday counts, at key locations where crosswalk volumes were collected in 2010 and 2011, an overall volume difference of 1.3 percent was determined by comparing the total 2011 crosswalk volumes with the 2010 total crosswalk volumes at locations where data were gathered in both years.
- For locations where 2010 weekday data were gathered but not 2011 data, the 2010 baseline pedestrian volumes were increased by 1.3 percent for use in the pedestrian analysis. If 2011 data were gathered, then 2011 data were used for the pedestrian analysis.
- For Saturday counts, at key locations where crosswalk volumes were collected in 2010 and 2011, an overall volume difference of -1.4 percent was determined by comparing the total 2011 crosswalk volumes with the 2010 total crosswalk volumes at locations where data were gathered in both years.
- For locations where 2010 weekday data were gathered but not 2011 data, the 2010 baseline pedestrian volumes were used for the pedestrian analysis. If 2011 data were gathered, then 2011 data were used for the pedestrian analysis.
- For the crosswalk analysis locations where two days of data were gathered in 2011, the average of the two days of data collection were selected for the analysis.

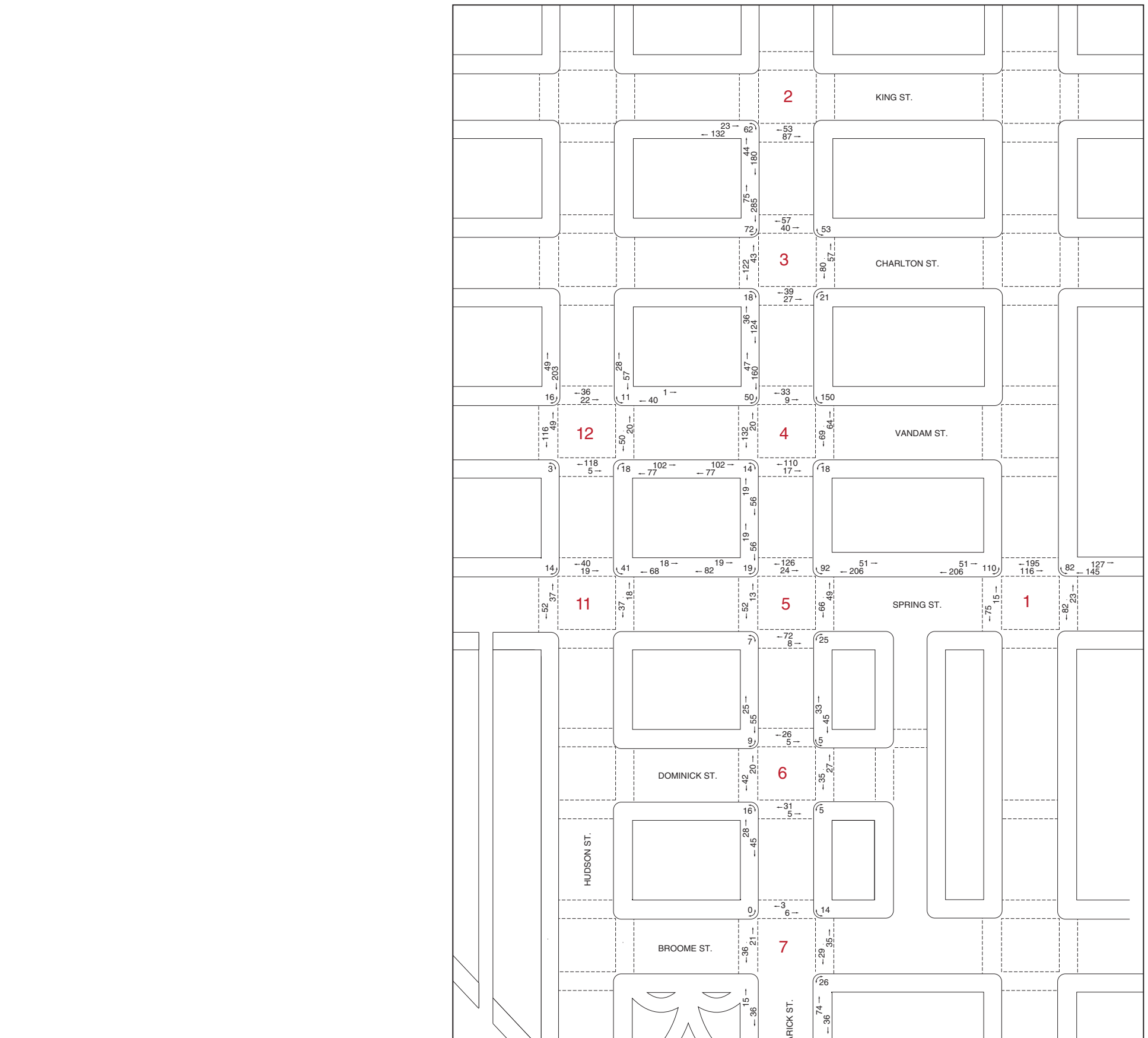
Peak hours were determined by comparing rolling hourly averages; the highest 15-minute volumes within the peak hours were selected for analysis. The existing peak 15-minute weekday AM, midday, PM, and Saturday pedestrian analysis networks are presented in **Figures 13-41** to **13-44**. **Tables 13-30** to **13-32** provide overall summaries of pedestrian levels of service under 2011 existing conditions. As shown in **Tables 13-50** to **13-52** in Section K, "Detailed Analysis Results Tables," all sidewalks, corner reservoirs, and crosswalk analysis locations operate at acceptable mid-LOS D or better (maximum of 8.5 PMF platoon flows for sidewalks; minimum of 19.5 SFP for corners and crosswalks).

Table 13-30
Existing Pedestrian Sidewalk Level of Service Summary

	Weekday			
	AM Peak Hour	Midday Peak Hour	PM Peak Hour	Saturday Peak Hour
Overall LOS A/B/C	23	23	23	23
Overall LOS D	0	0	0	0
Overall LOS E	0	0	0	0
Overall LOS F	0	0	0	0

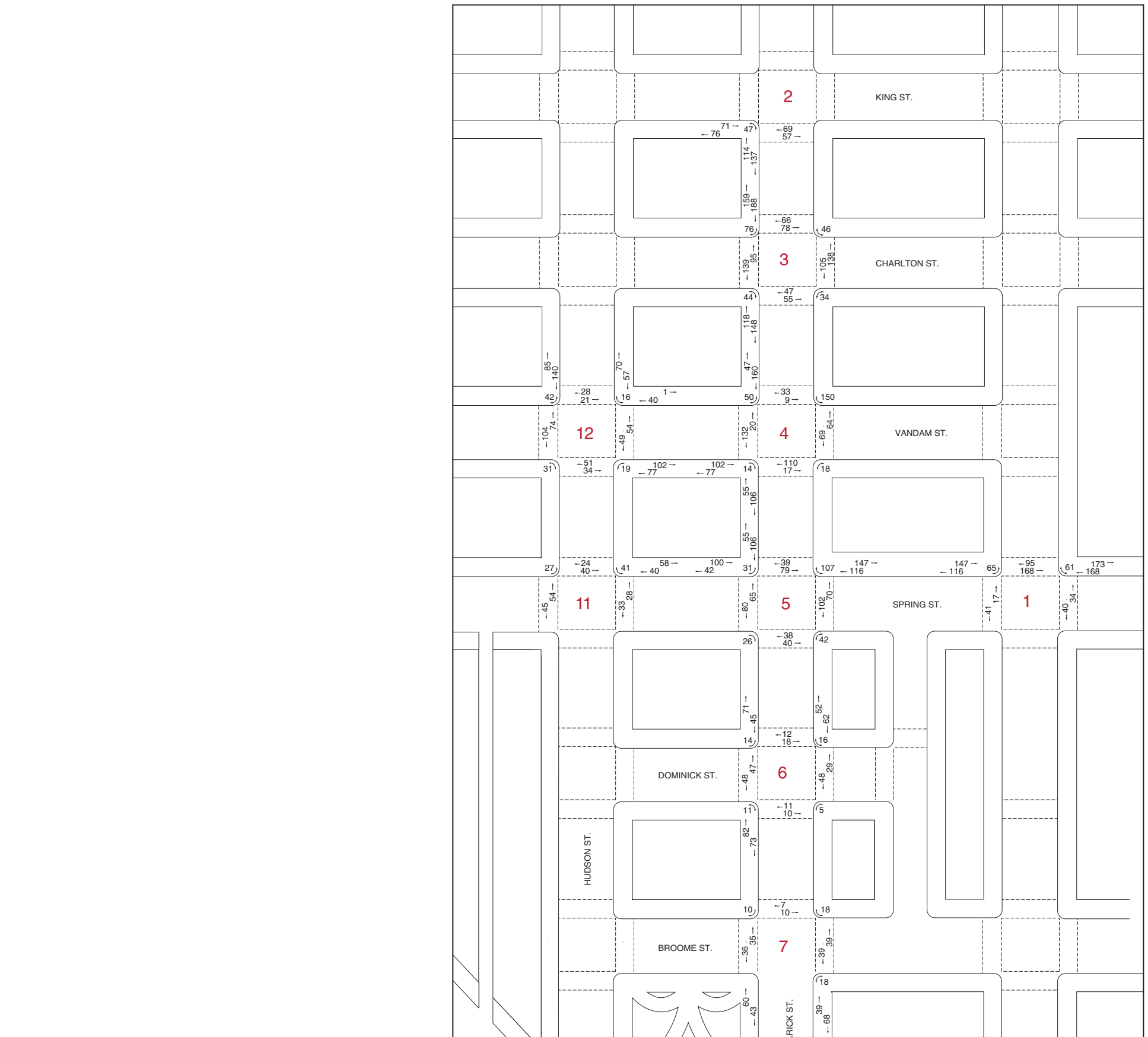
Note: Includes 23 sidewalk analysis locations.

5.31.12



2011 Existing Pedestrian Volumes
Weekday AM Peak 15 Minutes
Figure 13-41

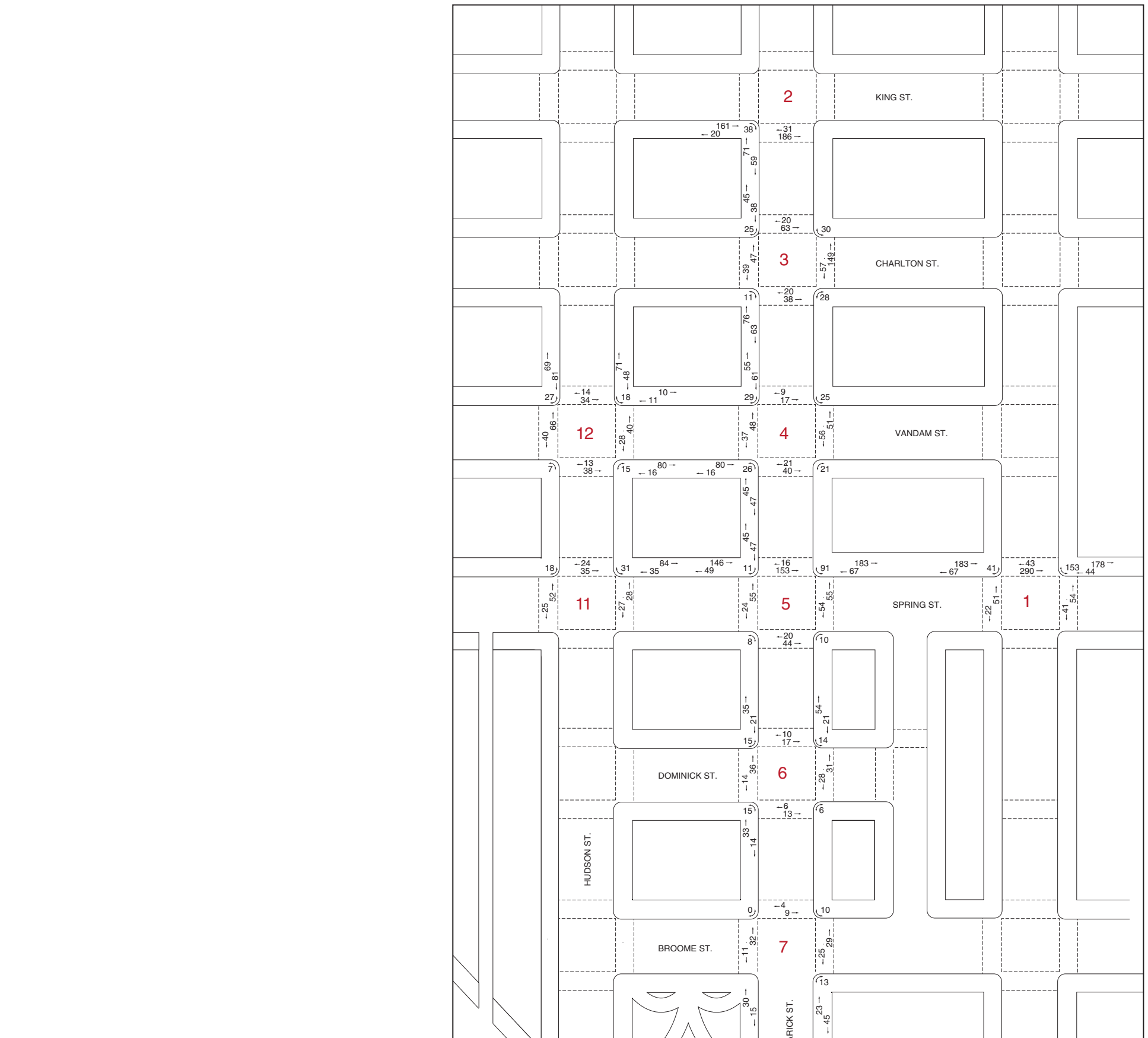
5.31.12

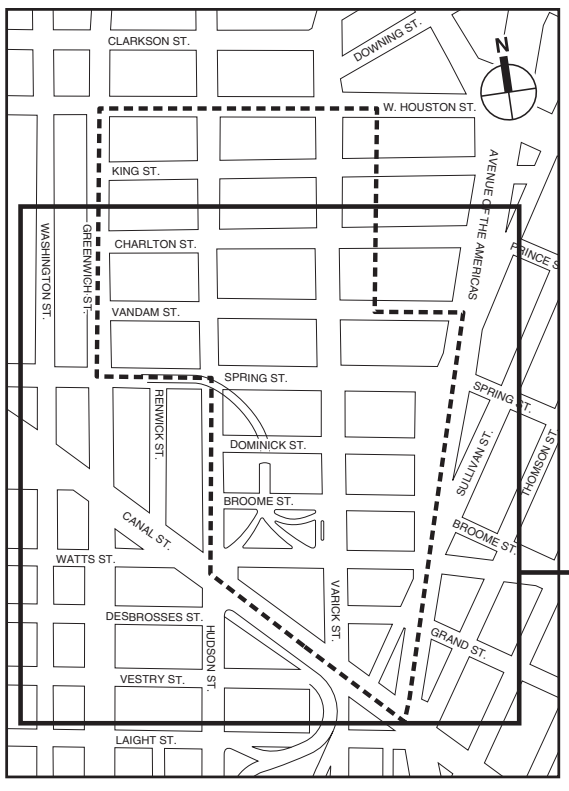


HUDSON SQUARE REZONING

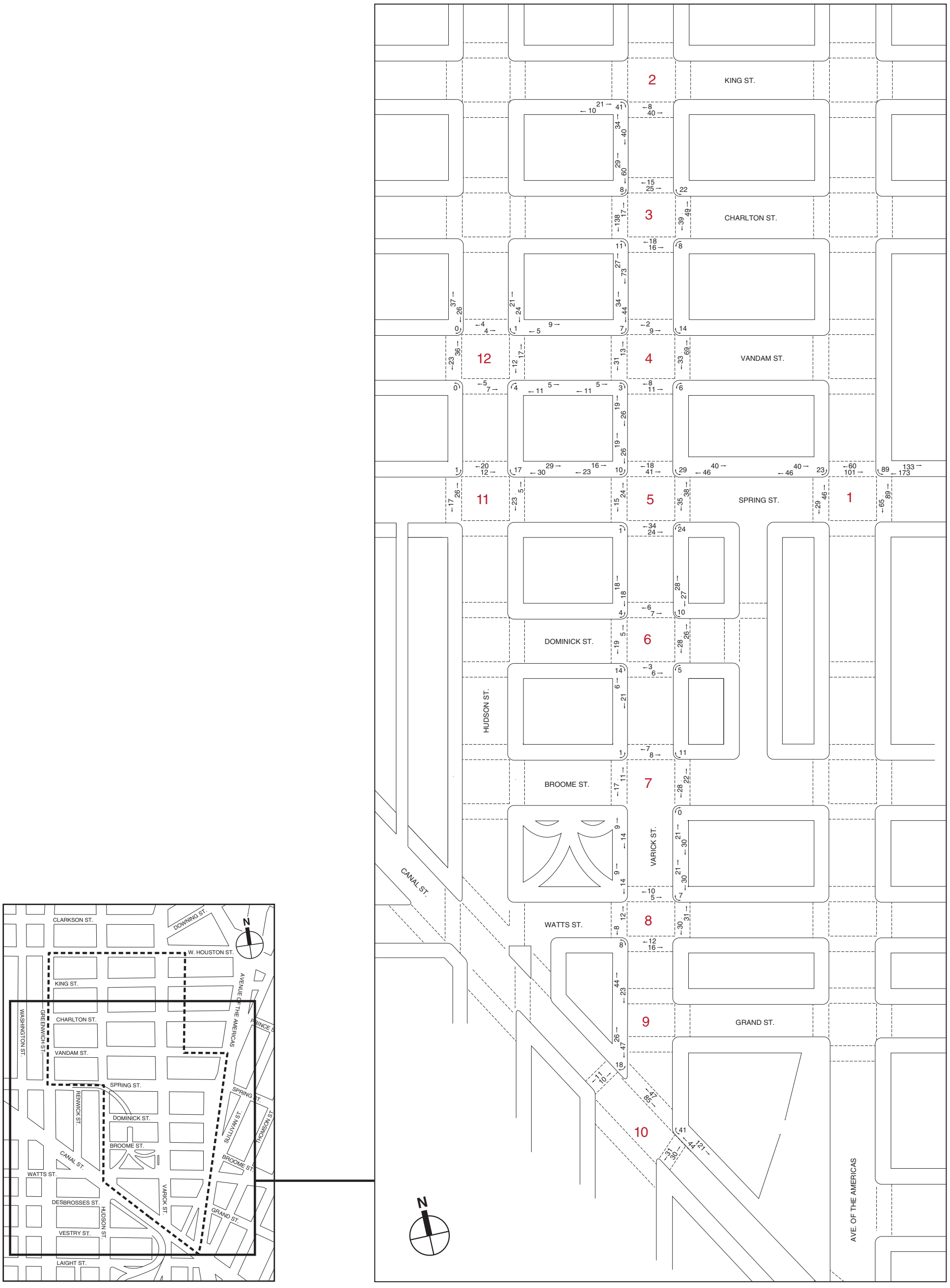
2011 Existing Pedestrian Volumes
Weekday Midday Peak 15 Minutes
Figure 13-42

5.31.12





2011 Existing Pedestrian Volumes
Weekday PM Peak 15 Minutes
Figure 13-43



2011 Existing Pedestrian Volumes
Saturday Peak 15 Minutes
Figure 13-44

Table 13-31
Existing Pedestrian Corner Level of Service Summary

	Weekday			
	AM Peak Hour	Midday Peak Hour	PM Peak Hour	Saturday Peak Hour
Overall LOS A/B/C	28	28	28	28
Overall LOS D	0	0	0	0
Overall LOS E	0	0	0	0
Overall LOS F	0	0	0	0
Note: Includes 28 corner analysis locations.				

Table 13-32
Existing Pedestrian Crosswalk Level of Service Summary

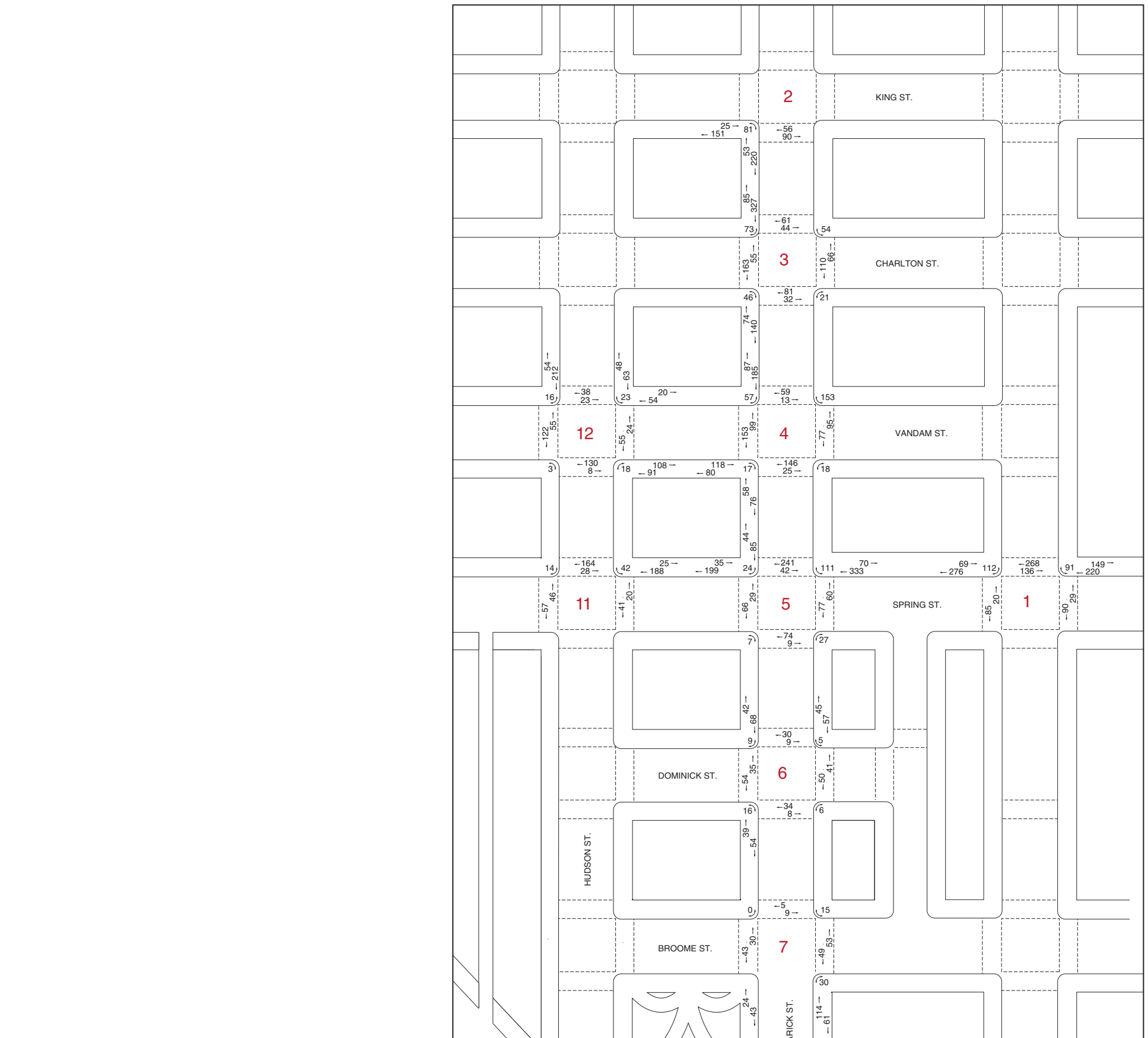
	Weekday			
	AM Peak Hour	Midday Peak Hour	PM Peak Hour	Saturday Peak Hour
Overall LOS A/B/C	14	14	14	14
Overall LOS D	0	0	0	0
Overall LOS E	0	0	0	0
Overall LOS F	0	0	0	0
Note: Includes 14 crosswalk analysis locations.				

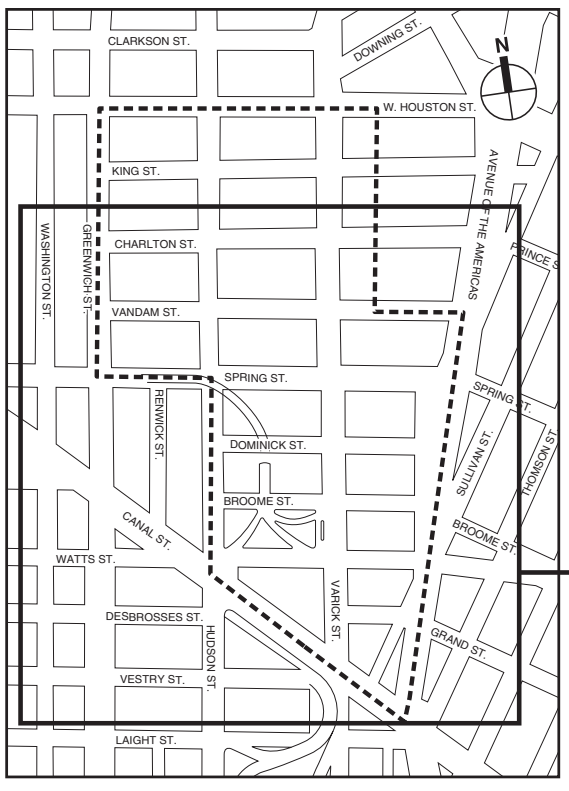
THE FUTURE WITHOUT THE PROPOSED ACTION

No-Action condition pedestrian volumes were estimated by increasing existing pedestrian levels to reflect expected growth in overall travel through and within the study area. As per CEQR guidelines, an annual background growth rate of 0.25 percent was assumed for the first five years (year 2011 to year 2016) and then 0.125 percent for the remaining years (year 2016 to year 2022). Pedestrian volumes from projects that are anticipated to be completed in the study area, absent the Proposed Action, were also added to arrive at the No-Action condition pedestrian volumes. The total No-Action peak 15-minute pedestrian volumes for the weekday AM, midday, PM, and Saturday peak periods are presented in **Figures 13-45** to **13-48**.

As mentioned above in Section F, "Traffic," a traffic management plan for the Hudson Square neighborhood was prepared in July 2010 by Hudson Square Connection, the Hudson Square BID. The BID plan recommendations include measures that would enhance the area's available pedestrian space. These measures include sidewalk widening, curb extensions, and installation of center median pedestrian refuges along several of the study area streets, including Varick Street, Canal Street, Hudson Street, and Houston Street. However, the implementation timing of these recommendations is not certain; therefore, they were not included in the No-Action or With-Action pedestrian analyses. Also mentioned above in Section F, "Traffic," NYCDOT presented in June 2012 a set of potential pedestrian improvement measures at locations near the Holland Tunnel. The potential improvements would include the addition of new crosswalks, sidewalk extensions, installation of center median pedestrian refuge islands, and general improvements in lane markings. Currently, Hudson Square BID "pedestrian traffic managers" are positioned along Varick Street at Spring, Vandam, Charlton, and West Houston Streets to help manage pedestrian flow during the PM commuter peak period. Based on the conceptual schematics outlined in NYCDOT's presentation, the potential pedestrian improvement measures are expected to benefit pedestrian circulation while not impeding traffic flow. These improvements

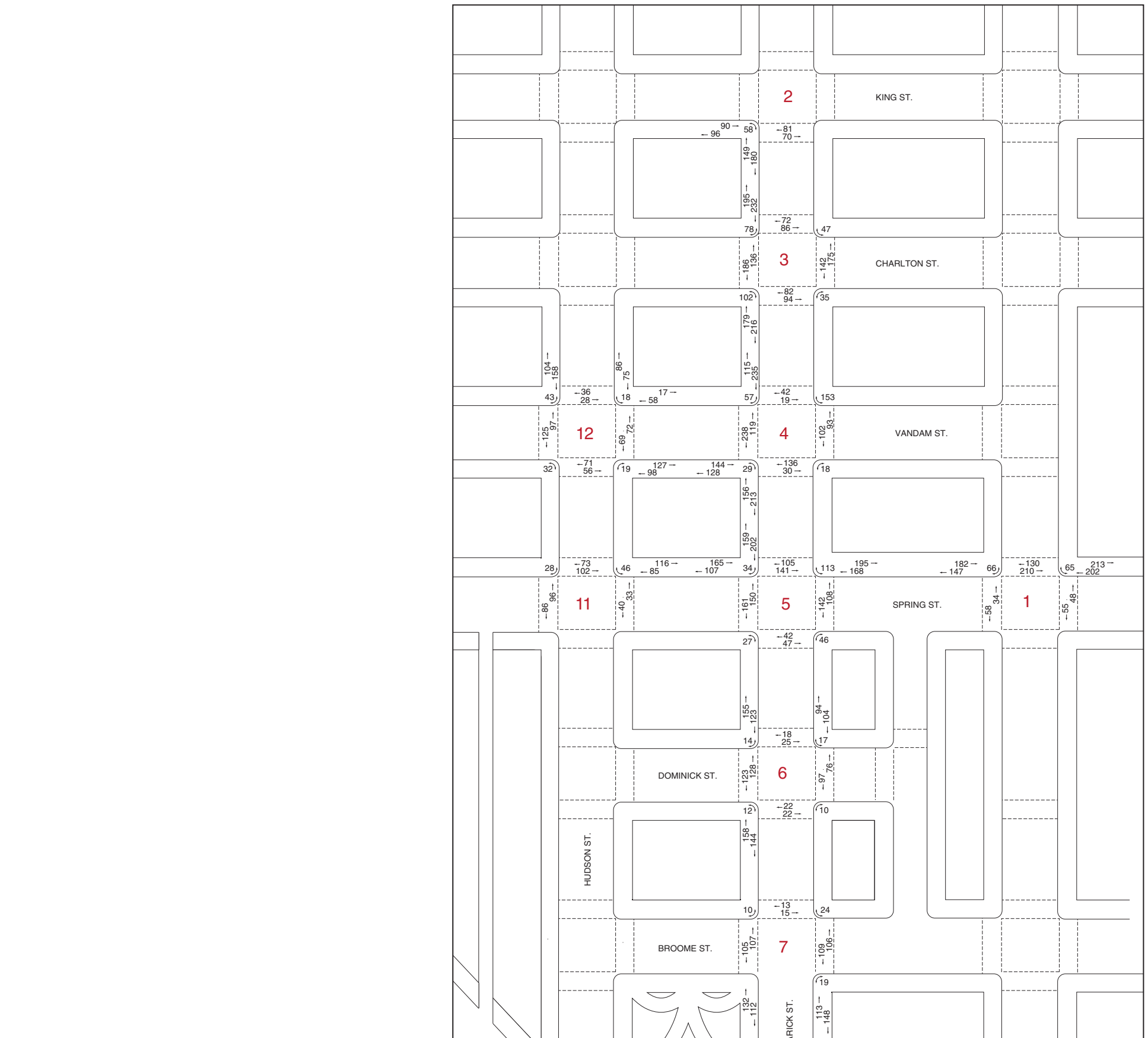
5.31.12

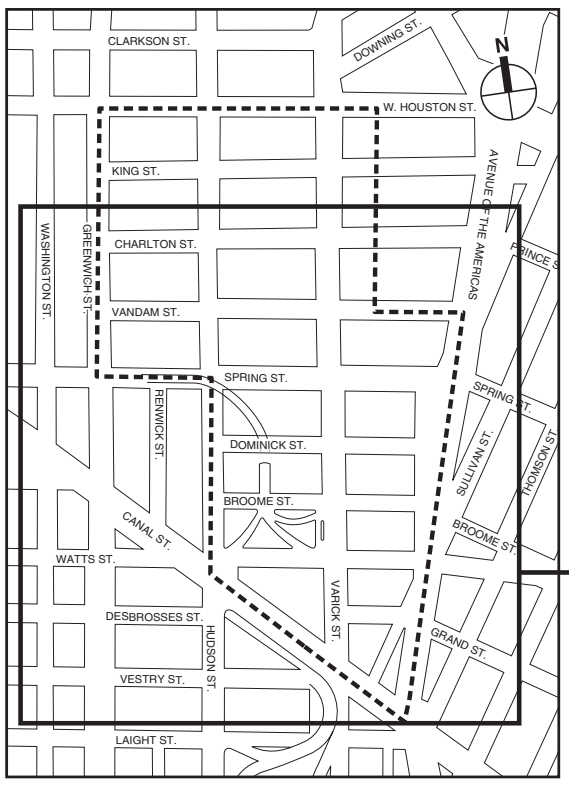




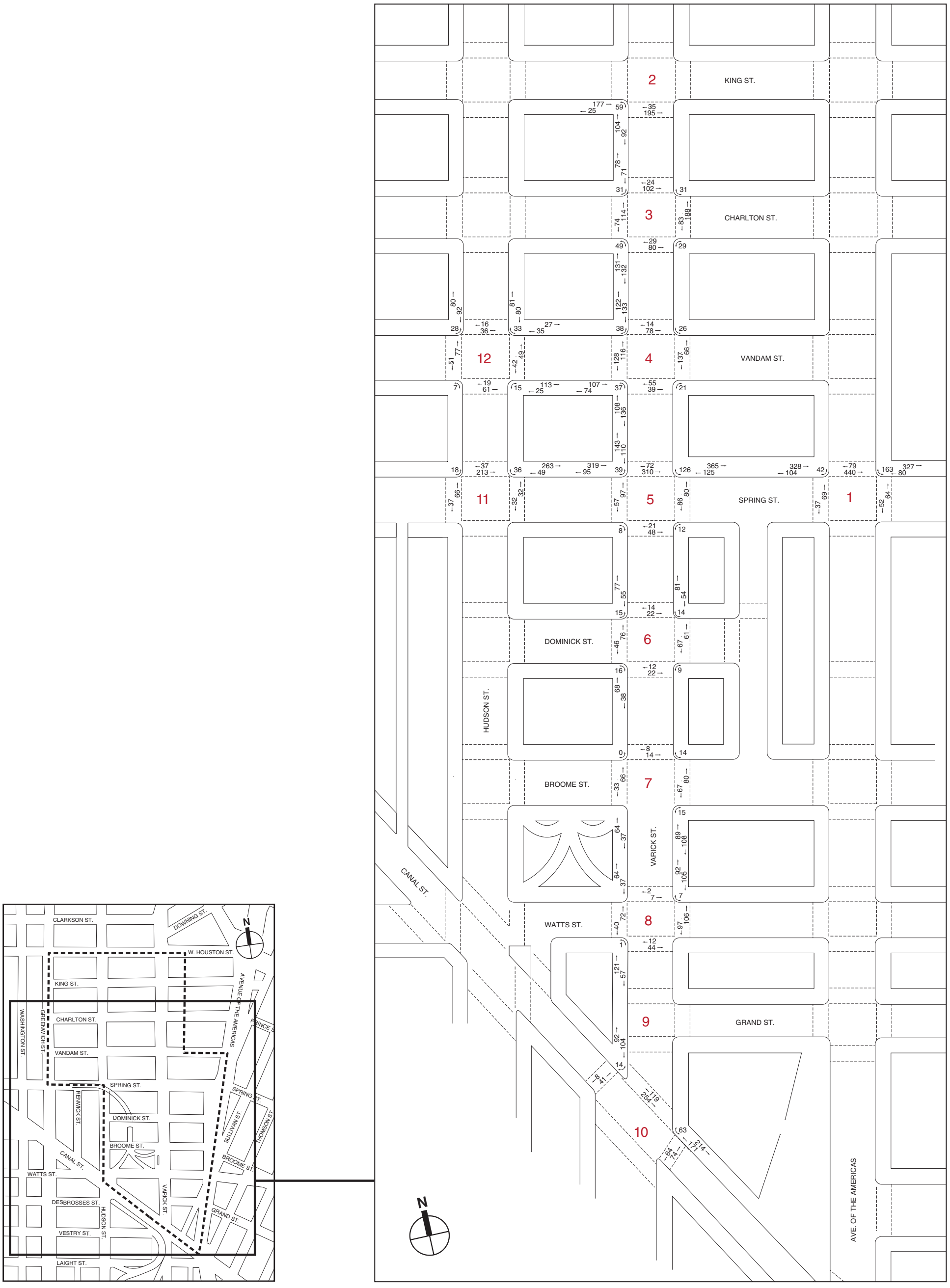
2022 No-Action Pedestrian Volumes
Weekday AM Peak 15 Minutes
Figure 13-45

5.31.12

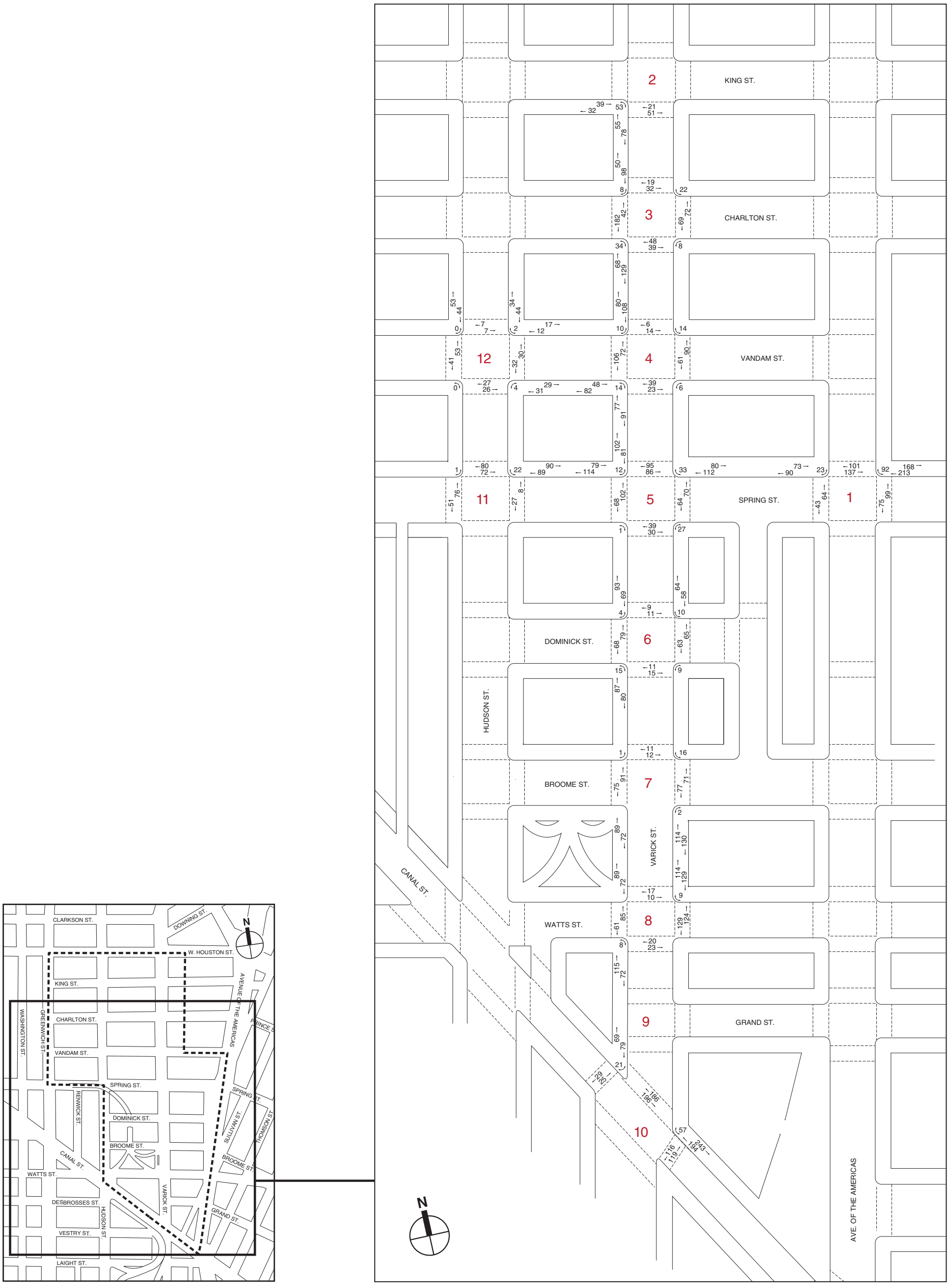




2022 No-Action Pedestrian Volumes
Weekday Midday Peak 15 Minutes
Figure 13-46



2022 No-Action Pedestrian Volumes
Weekday PM Peak 15 Minutes
Figure 13-47



2022 No-Action Pedestrian Volumes
Saturday Peak 15 Minutes
Figure 13-48

would be implemented subject to further review and changes by NYCDOT. Therefore, they were not incorporated into the impact analysis presented below.

Tables 13-33 to **13-35** show an overall comparison of pedestrian levels of service for the existing and No-Action conditions. As summarized in **Tables 13-56** to **13-58** in Section K, "Detailed Analysis Results Tables," all sidewalk, corner reservoir, and crosswalk analysis locations will continue to operate at acceptable mid-LOS D or better (maximum of 8.5 PMF platoon flows for sidewalks; minimum of 19.5 SFP for corners and crosswalks), except at the north crosswalk of Varick Street and Spring Street, which will operate at LOS D with 19.4 SFP during the PM peak period.

Table 13-33
Pedestrian Sidewalk Level of Service Summary Comparison
Existing vs. No-Action Conditions

	Existing				No-Action			
	Weekday Peak Hours			Saturday	Weekday Peak Hours			Saturday
	AM	Midday	PM	Peak Hour	AM	Midday	PM	Peak Hour
Overall LOS A/B/C	23	23	23	23	23	23	23	23
Overall LOS D	0	0	0	0	0	0	0	0
Overall LOS E	0	0	0	0	0	0	0	0
Overall LOS F	0	0	0	0	0	0	0	0
Note: Includes 23 sidewalk analysis locations.								

Table 13-34
Pedestrian Corner Level of Service Summary Comparison
Existing vs. No-Action Conditions

	Existing				No-Action			
	Weekday Peak Hours			Saturday	Weekday Peak Hours			Saturday
	AM	Midday	PM	Peak Hour	AM	Midday	PM	Peak Hour
Overall LOS A/B/C	28	28	28	28	28	28	28	28
Overall LOS D	0	0	0	0	0	0	0	0
Overall LOS E	0	0	0	0	0	0	0	0
Overall LOS F	0	0	0	0	0	0	0	0
Note: Includes 28 corner analysis locations.								

Table 13-35
Pedestrian Crosswalk Level of Service Summary Comparison
Existing vs. No-Action Conditions

	Existing				2022 No-Action			
	Weekday Peak Hours			Saturday	Weekday Peak Hours			Saturday
	AM	Midday	PM	Peak Hour	AM	Midday	PM	Peak Hour
Overall LOS A/B/C	14	14	14	14	14	14	12	14
Overall LOS D	0	0	0	0	0	0	2	0
Overall LOS E	0	0	0	0	0	0	0	0
Overall LOS F	0	0	0	0	0	0	0	0
Note: Includes 14 crosswalk analysis locations.								

FUTURE WITH THE PROPOSED ACTION

The project-generated pedestrian volumes were assigned to the pedestrian network considering current land uses in the area, nearby parking locations, available transit services, and pedestrian pathways connecting to/from the Proposed Action. Based on the incremental peak hour pedestrian trips presented on **Figures 13-23A** to **13-26B** in Section D, "Level 2 Screening Assessment," peak 15-minute incremental pedestrian volumes were developed by dividing the hourly incremental volumes by four and accounting for peaking characteristics within the peak hours. These pedestrian volumes were added to the No-Action volumes to arrive at the With-Action pedestrian volumes for analysis. The total With-Action peak 15-minute pedestrian volumes are presented in **Figures 13-49** to **13-52**.

The pedestrian analyses conducted for the With-Action condition accounted for the project-generated pedestrian volumes and anticipated physical changes, if any, to the pedestrian environment resulting from the Proposed Action. **Tables 13-36** to **13-38** show an overall comparison of pedestrian levels of service for the No-Action and With-Action conditions.

Table 13-36
Pedestrian Sidewalk Level of Service Summary Comparison
No-Action vs. With-Action Conditions

	No-Action				With-Action			
	Weekday Peak Hours			Saturday	Weekday Peak Hours			Saturday
	AM	Midday	PM	Peak Hour	AM	Midday	PM	Peak Hour
Overall LOS A/B/C	23	23	23	23	23	23	22	23
Overall LOS D	0	0	0	0	0	0	1	0
Overall LOS E	0	0	0	0	0	0	0	0
Overall LOS F	0	0	0	0	0	0	0	0
Number of analysis locations with significant impacts	-	-	-	-	0	0	0	0

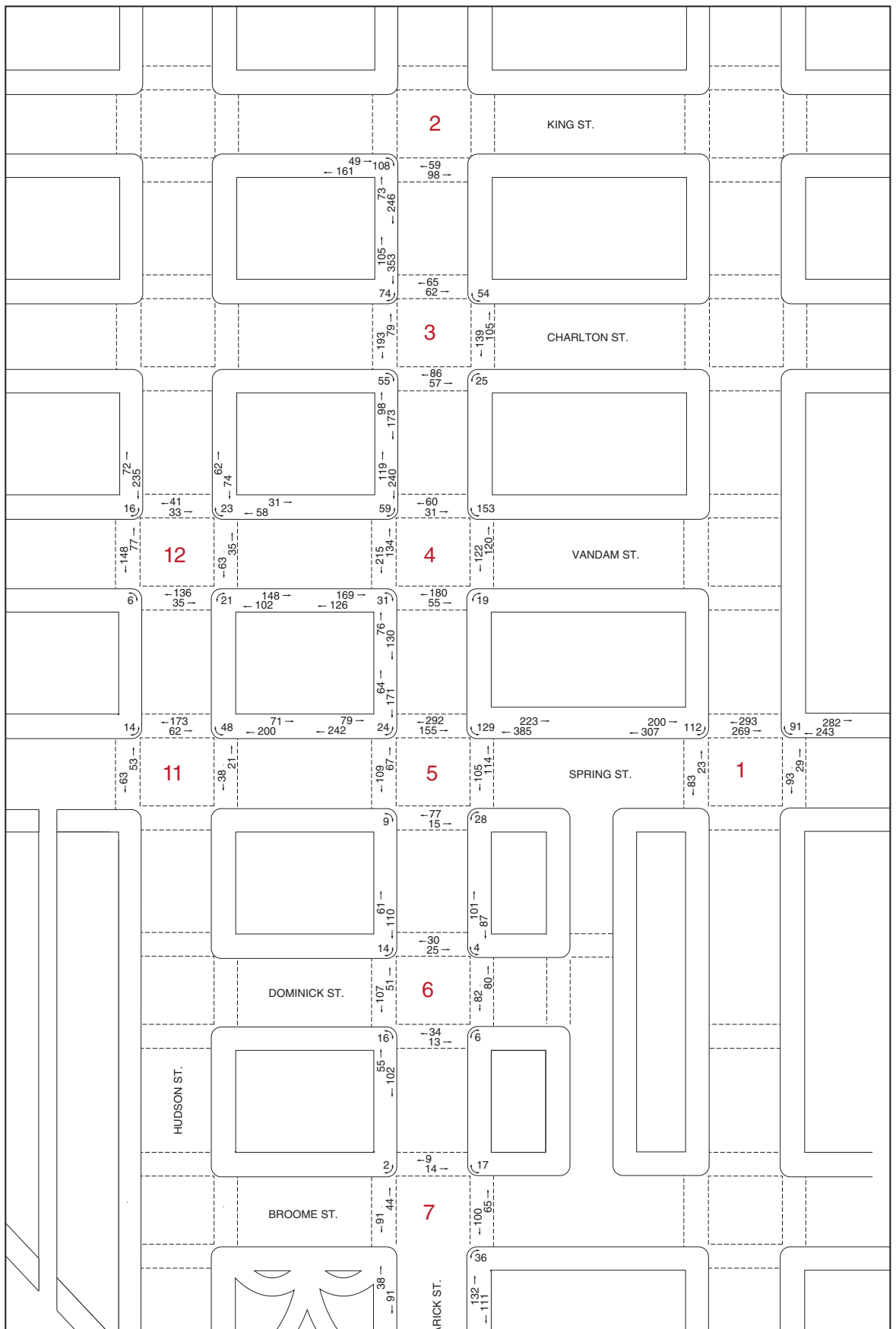
Note: Includes 23 sidewalk analysis locations.

Table 13-37
Pedestrian Corner Level of Service Summary Comparison
No-Action vs. With-Action Conditions

	No-Action				With-Action			
	Weekday Peak Hours			Saturday	Weekday Peak Hours			Saturday
	AM	Midday	PM	Peak Hour	AM	Midday	PM	Peak Hour
Overall LOS A/B/C	28	28	28	28	28	28	28	28
Overall LOS D	0	0	0	0	0	0	0	0
Overall LOS E	0	0	0	0	0	0	0	0
Overall LOS F	0	0	0	0	0	0	0	0
Number of analysis locations with significant impacts	-	-	-	-	0	0	0	0

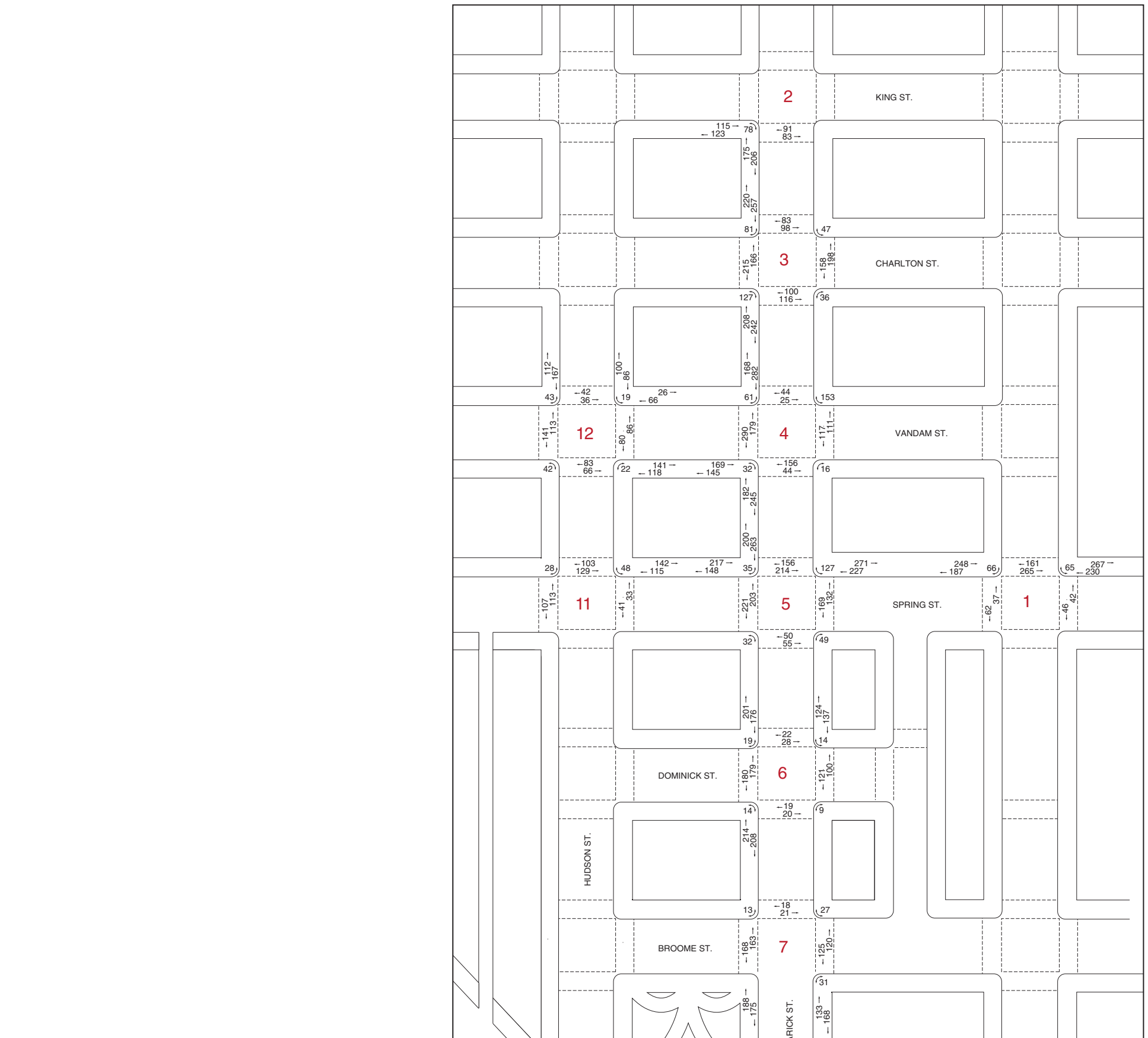
Note: Includes 28 corner analysis locations.

5.31.12



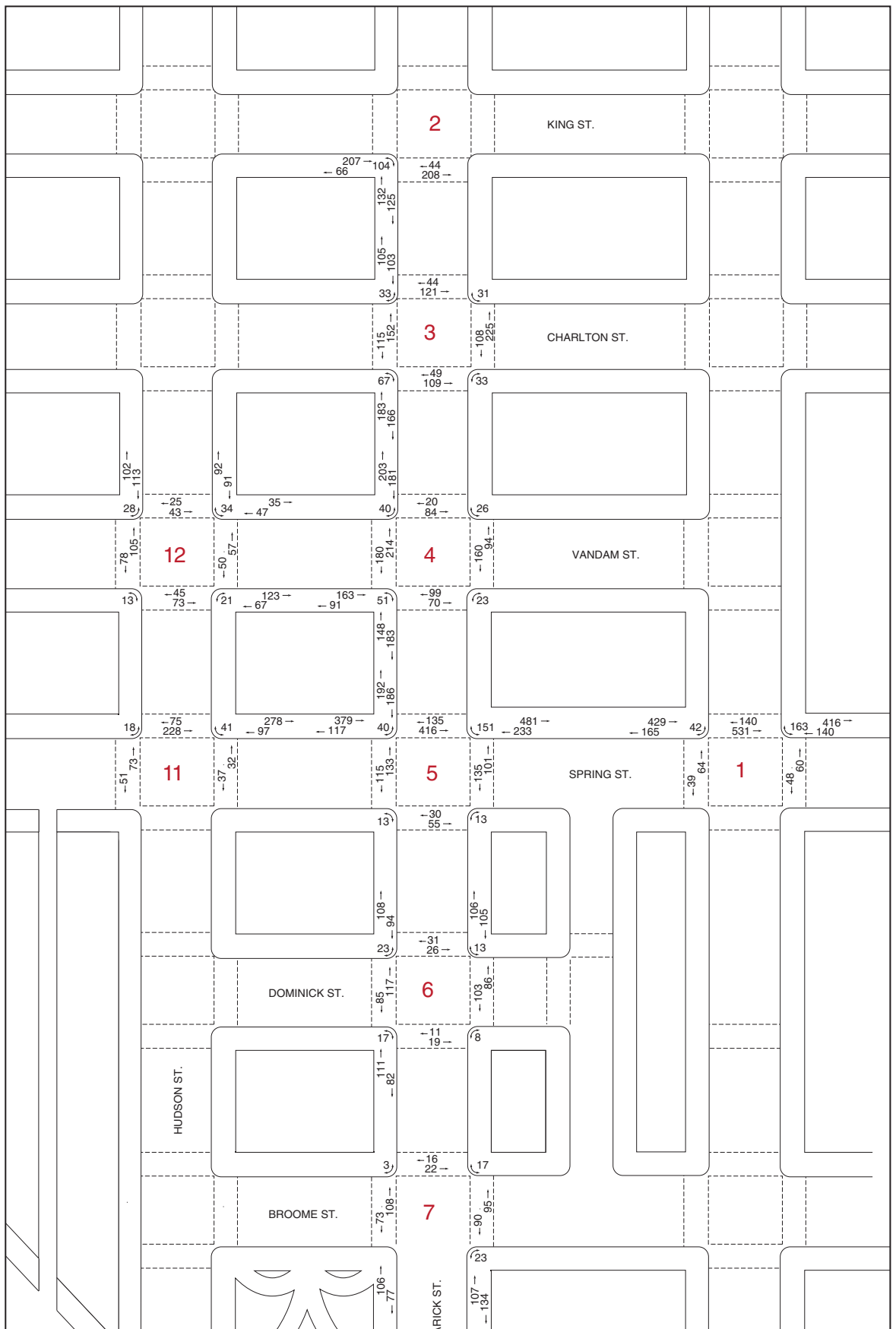
2022 With-Action Pedestrian Volumes
Weekday AM Peak 15 Minutes
Figure 13-49

5.31.12



2022 With-Action Pedestrian Volumes
Weekday Midday Peak 15 Minutes
Figure 13-50

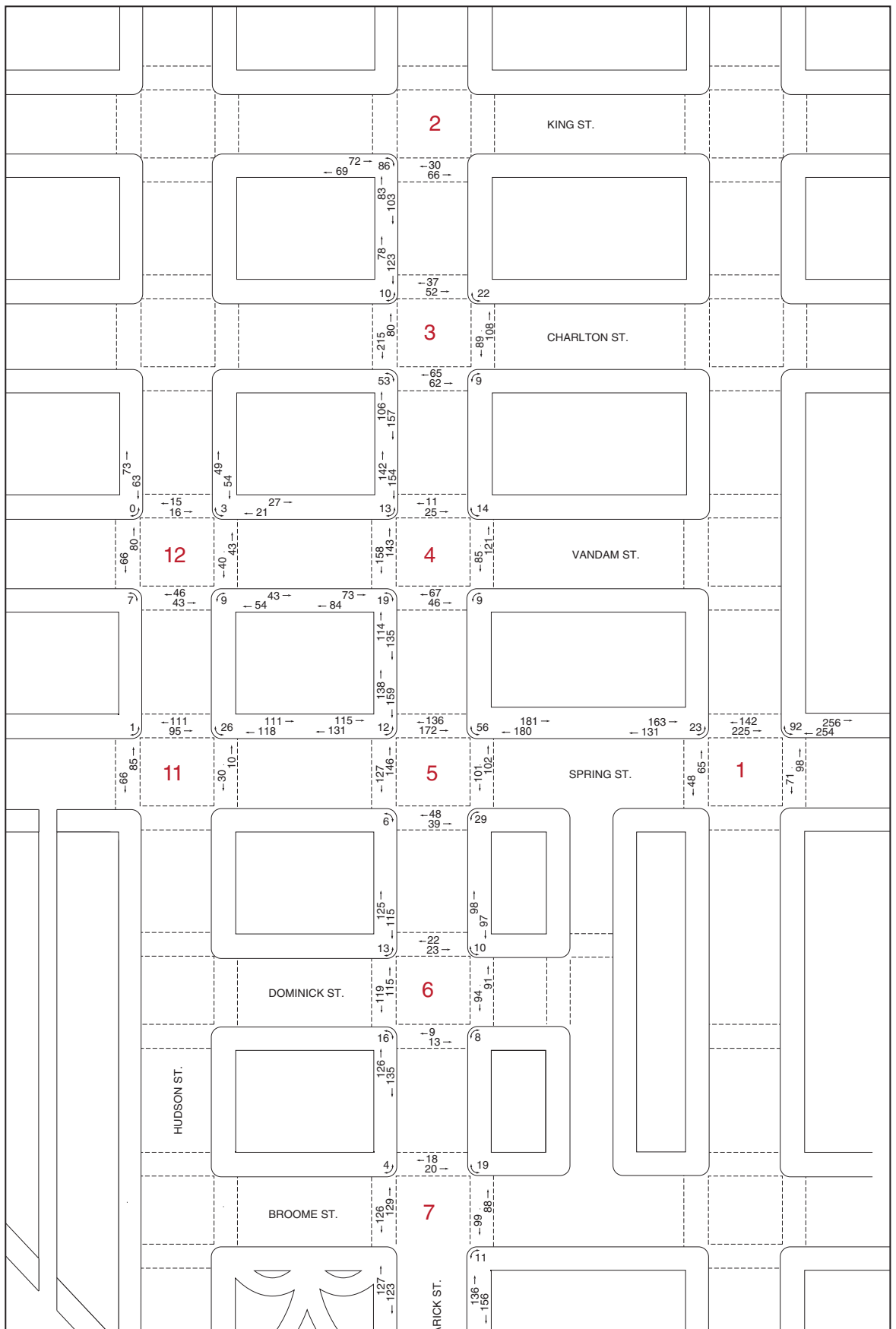
5.31.12



HUDSON SQUARE REZONING

2022 With-Action Pedestrian Volumes
Weekday PM Peak 15 Minutes
Figure 13-51

5.31.12



2022 With-Action Pedestrian Volumes
Saturday Peak 15 Minutes
Figure 13-52

Table 13-38
Pedestrian Crosswalk Level of Service Summary Comparison
No-Action vs. With-Action Conditions

	No-Action				With-Action			
	Weekday Peak Hours			Saturday	Weekday Peak Hours			Saturday
	AM	Midday	PM	Peak Hour	AM	Midday	PM	Peak Hour
Overall LOS A/B/C	14	14	12	14	12	12	12	14
Overall LOS D	0	0	2	0	2	2	1	0
Overall LOS E	0	0	0	0	0	0	1	0
Overall LOS F	0	0	0	0	0	0	0	0
Number of analysis locations with significant impacts	-	-	-	-	1	0	2	0

Note: Includes 14 crosswalk analysis locations.

As summarized in **Tables 13-59** to **13-61** in Section K, "Detailed Analysis Results Tables," all sidewalk, corner reservoir, and crosswalk locations would continue to operate at acceptable levels (within mid-LOS D, with a maximum of 8.5 PMF in sidewalk platoon flows or a minimum of 19.5 SFP for corners and crosswalks) or incur degradations that, when compared with the No-Action condition, do not exceed the *CEQR Technical Manual* sliding scale impact thresholds (see **Tables 13-17** and **13-18**), except at the following locations:

- The north crosswalk of Avenue of the Americas and Spring Street, which would operate at LOS D with 16.4 SFP during the PM peak 15-minute period; and
- The north crosswalk of Varick Street and Spring Street, which would operate at LOS D with 18.1 SFP during the AM peak 15-minute period, and at LOS E with 12.7 SFP during the PM peak 15-minute period.

Measures that can be implemented to mitigate these significant adverse pedestrian impacts are discussed in Chapter 20, "Mitigation."

I. VEHICULAR AND PEDESTRIAN SAFETY

Accident data for the study area intersections were obtained from the New York State Department of Transportation (NYSDOT) for the time period between March 31, 2008 and March 31, 2011. The data obtained quantify the total number of reportable accidents (involving fatality, injury, or more than $1,000 in property damage), fatalities, and injuries during the study period, as well as a yearly breakdown of pedestrian- and bicycle-related accidents at each location. According to the *CEQR Technical Manual*, a high accident location is one where there were five or more pedestrian/bicyclist-related accidents or 48 or more reportable and non-reportable accidents in any consecutive 12 months within the most recent 3-year period for which data are available.

During the March 2008 to March 2011 3-year period, a total of 864 reportable and non-reportable accidents, zero fatalities, 380 injuries, and 92 pedestrian/bicyclist-related accidents occurred at the study area and surrounding intersections. A rolling total of accident data identifies two study area intersections as high pedestrian accident locations in the 2008 to 2011 period. These intersections are Varick Street at West Houston Street and Avenue of the Americas at West Houston Street. **Table 13-39** depicts total accident characteristics by intersection during the study period, as well as a breakdown of pedestrian and bicycle accidents

by year and location. **Table 13-40** provides a detailed description of each pedestrian/bicyclist-related accident at the two intersections listed above during the three year period.

VARICK STREET AND WEST HOUSTON STREET

Based on the review of the accident history at the intersection of Varick Street and West Houston Street, no prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded accidents. With respect to geometric deficiencies that could potentially cause safety hazards, the intersection of Varick Street and West Houston Street is signalized and provides four high visibility crosswalks, though faded striping suggests they may have been school crosswalks. With the Proposed Action, the intersection of Varick Street and West Houston Street would experience noticeable increases in vehicular and pedestrian traffic. In terms of project-generated activity, the intersection would experience net incremental peak-hour volume increases of approximately 70 or fewer vehicle trips and 120 or fewer pedestrian trips at any crosswalks at this intersection during each of the four analysis peak hours.

As discussed above in Section F, "Traffic," this intersection would be impacted during the weekday AM and PM peak hours under the 2022 With-Action conditions. As described in Chapter 20, "Mitigation," the predicted impacts at this intersection could be fully mitigated during the weekday AM peak hour with standard traffic engineering measures; however, the impact during the weekday PM peak hour could not be fully migitated. Because the incremental vehicle trips at this intersection during the weekday PM peak hour would mostly be on the Varick Street southbound through movement and the incremental increase in pedestrian trips from the Proposed Action at this intersection's crosswalks would not be substantial, the potential for additional vehicular-pedestrian conflicts, which mostly occur with vehicular turning movements through crosswalks, is expected to be minimal. In addition, due to the persistent traffic queues from the Holland Tunnel along the Varick Street corridor, vehicles and pedestrians are generally acclimated to the prevailing condition during peak periods of heavy traffic. Therefore, the proposed project is not anticipated to exacerbate any of the current causes of pedestrian-related accidents. Nonetheless, additional safety measures such as the installation of signs warning turning vehicles to yield to pedestrians in the crosswalk on the southbound and westbound approaches and the installation of countdown timers at all crosswalks, can be implemented to improve pedestrian safety at this intersection.

Table 13-39
Accident Summary

Intersection		Study Period						Accidents by Year							
North-South Roadway	East-West Roadway	All Accidents by Year				Total Fatalities	Total Injuries	Pedestrian				Bicycle			
		2008	2009	2010	2011			2008	2009	2010	2011	2008	2009	2010	2011
West Street	Clarkson Street	0	1	0	0		1								
West Street	W. Houston Street	22	2	0	0		4								
West Street	Spring Street	5	9	4	0		4								
West Street	Canal Street (N&S)	2	0	2	0		2								
Washington Street	W. Houston Street	1	5	2	0		6						1		
Washington Street	Spring Street	2	6	0	0		8						2		
Washington Street	Canal Street	1	2	2	1		1			1					
Greenwich Street	W. Houston Street	1	4	0	0		3		3				1		
Greenwich Street	King Street	2	0	0	0		0								
Greenwich Street	Charlton Street	0	0	0	0		0								
Greenwich Street	Vandam Street	0	0	0	0		0								
Greenwich Street	Spring Street	2	2	3	0		0								
Greenwich Street	Canal Street	0	0	0	0		0								
Renwick Street	Spring Street	2	4	1	1		1	1							
Renwick Street	Canal Street	0	0	0	0		0								
Hudson Street	W. Houston Street	2	6	2	1		6								
Hudson Street	King Street	4	3	1	1		3								
Hudson Street	Charlton Street	0	2	2	1		4		1					1	
Hudson Street	Vandam Street	3	0	1	0		2	1							
Hudson Street	Spring Street	4	5	4	0		4		2	1					
Hudson Street	Dominick Street	2	0	1	1		4								
Hudson Street	Broome Street	0	2	0	0		2								
Hudson Street	Canal Street	33	30	15	3		36		1			1		1	
Hudson Street	Debrosses Street	4	2	1	0		4								
Hudson Street	Vestry Street	3	5	1	0		3	1		1			1		
Hudson Street	Laight Street	10	10	3	0		8	1							
Hudson Street	Hubert Street	0	3	0	0		0								
Hudson Street	Ericsson Pl/Beach St	4	7	0	0		3	1				1			
Varick Street	**W. Houston Street**	9	26	15	1		21	1	5	4	1			1	
Varick Street	King Street	3	2	2	0		4		1						
Varick Street	Charlton Street	10	8	0	1		4		1						
Varick Street	Vandam Street	6	1	6	4		10	1		1	1				
Varick Street	Spring Street	20	25	10	1		23		1				2	1	
Varick Street	Dominick Street	5	10	5	1		7			1					1
Varick Street	Broome Street	12	14	6	0		4								
Varick Street	Watts Street	33	30	27	1		73			2			2	1	
Varick Street	Grand Street	5	8	1	1		3							1	
Varick Street	Canal Street	18	30	3	0		14	1		1					
Varick Street	Laight Street	0	0	0	0		0								
Varick Street	Ericsson Place	11	8	4	0		9		2	1					
St Johns Lane	Laight Street	0	0	0	0		0								
St Johns Lane	York Street	0	0	0	0		0								
St Johns Lane	Beach Street	1	0	0	0		0								
Avenue of the Americas	**W. Houston Street**	7	5	10	0		16	2	1	3				1	
Avenue of the Americas	King Street	2	1	0	1		1					1			
Avenue of the Americas	Prince/Charlton St	2	1	0	0		0								
Avenue of the Americas	Vandam Street	1	0	0	1		0								

Table 13-39 (cont'd)
Accident Summary

Intersection		Study Period						Accidents by Year							
North-South Roadway	East-West Roadway	All Accidents by Year				Total Fatalities	Total Injuries	Pedestrian				Bicycle			
		2008	2009	2010	2011			2008	2009	2010	2011	2008	2009	2010	2011
Avenue of the Americas	Spring Street	3	5	3	2		21	2	1	1	2				
Avenue of the Americas	Dominick Street	0	0	1	0		1								
Avenue of the Americas	Broome Street	4	1	0	0		3	1							
Avenue of the Americas	Watts Street	3	19	6	4		23	1	1						
Avenue of the Americas	Grand Street	5	0	2	1		8				1				
Avenue of the Americas	Canal Street	12	17	4	1		8	1	2	1			2		
Avenue of the Americas	York Street	0	3	0	0		2						1		
Avenue of the Americas	Lispenard Street/W. Broadway	0	0	1	0		0								
Avenue of the Americas	Beach/Walker St	2	3	2	1		2			1					
W. Broadway	Canal Street	0	0	0	0		0								
W. Broadway	Beach Street	0	0	0	0		0								
Wooster Street	Canal Street	10	13	3	0		3								
Church Street	Canal Street	17	18	9	1		11	2	1	1			2	2	
Church Street	Lispenard Street	0	0	0	0		0								
Church Street	Walker Street	0	0	0	0		0								

Note: **Bold** intersections are high pedestrian accident locations.
Source: NYSDOT March 31, 2008 and March 31, 2011 accident data.

AVENUE OF THE AMERICAS AND WEST HOUSTON STREET

Based on a review of the accident history at the intersection of Avenue of the Americas and West Houston Street, no prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded accidents. With regard to geometric deficiencies that could potentially cause safety hazards, the intersection of Avenue of the Americas and West Houston Street is signalized and provides two school crosswalks, one high-visibility crosswalk, and one standard crosswalk. In addition, countdown timers are installed for all crosswalks at this intersection and School Advance Warning assembly signs are posted on the eastern leg of West Houston Street. With the Proposed Action, the intersection of Avenue of the Americas and West Houston Street would experience moderate increases in vehicular and pedestrian traffic. In terms of project-generated activity, the intersection would experience net incremental peak-hour volume increases of approximately 100 or fewer vehicle trips and 20 or fewer pedestrian trips at any crosswalks at this intersection during each of the four analysis peak hours. As discussed above in Section F, "Traffic," this intersection would be impacted during the weekday AM peak hour under the 2022 With-Action conditions.

Table 13-40
Vehicle and Pedestrian Accident Details

Intersection	Year	Date	Time	Accident Class		Action of Vehicle	Action of Pedestrian	Cause of Accident			
				Injured	Killed			Left / Right Turns	Pedestrian Error/ Confusion	Driver Inattention	Other
Varick Street @ W. Houston Street	2008	12/1	6:15 AM	X		Making right turn – South	Crossing with signal	X		X	
	2009	3/31	8:34 PM	X		Making left turn – Southwest	Crossing with signal	X			Failure to yield R.O.W.
		4/28	9:30 PM	X		Making left turn – South	Crossing against signal	X	X		
		6/5	4:00 PM	X		Going straight	Crossing with signal			X	
		8/19	9:00 PM	X		Going straight – South	Making left turn on red		X		
		9/8									
	2010	5/6	10:30 AM	X		Starting from parking – South	Other actions in roadway				Unknown
		6/14	4:00 PM	X		Going straight – South	Crossing with signal				Following too closely
		9/29	1:23 PM	X		Going straight – West	Working in roadway				Aggressive Driving/Road Rage
		10/5	4:25 PM	X		Backing – North	Crossing with signal				Backing unsafely
		12/6	6:22 AM	X		Making left turn – South	Crossing with signal	X		X	
	2011	3/6	8:21 PM	X		Making left turn – South	Crossing	X	X		
Avenue of the Americas @ W. Houston Street	2008	8/2	4:45 PM	X		Going straight – West	Crossing against signal		X	X	Unsafe speed
		12/20	3:00 AM	X		Going straight – North	Crossing against signal		X		
	2009	12/21	4:45 AM	X		Unknown	Unknown				Unknown
	2010	1/28	4:55 PM	X		Unknown	Crossing against signal		X		
		2/23	12:45 PM	X		Unknown	Unknown				Unknown
		10/2	7:45 PM	X		Unknown	Crossing with signal				Unknown
		12/13	7:30 PM	X		Unknown	Crossing with signal				Unknown

Source: NYSDOT March 31, 2008 and March 31, 2011 accident data.

However, as described in Chapter 20, "Mitigation," the predicted impacts at this intersection could be fully mitigated with standard traffic engineering measures. Therefore, the proposed project is not anticipated to exacerbate any of the current causes of pedestrian-related accidents. Nonetheless, additional safety measures, such as the installation of pedestrian safety signs (i.e., School Advance Warning assemblies on the northbound approach) and restriping the west crosswalk into a high-visibility crosswalk, can be implemented to improve pedestrian safety at this intersection.

J. PARKING

2011 EXISTING CONDITIONS

An inventory of on- and off-street parking within a ¼ mile of the Rezoning Area was conducted in October 2011 and March 2012. The on-street survey involved recording curbside regulations and performing general observations of daytime utilization. The off-street survey provided an inventory of the area's public parking facilities and their legal capacities and daytime utilization.

ON-STREET PARKING

Curbside parking regulations within a ¼ mile of the Rezoning Area are illustrated in **Figure 13-53** and summarized in **Table 13-41**. The curbside regulations in the area generally include limited one-hour metered parking, no standing or no parking anytime except authorized vehicles, and alternate-side parking to accommodate street-cleaning.

Table 13-41
Summary of On-Street Parking Regulations

No.	Regulation	No.	Regulation
1	NP anytime	**74**	NS 7-10AM 4-7PM except Sun
2	NP 9-10:30AM Mon & Thurs	**75**	1 hr parking 10AM-4PM except Sun
3	NP 9-10:30AM Tues & Fri	**76**	NS 4-7PM except Sun
4	NS anytime	**77**	NS except trucks loading/unloading 10AM-4PM except Sun
5	NP 11-12:30PM Mon & Thurs	**78**	2 hr parking 9AM-4PM except Sun
6	NP 8AM-6PM Mon-Fri	**79**	NS 8-9AM 4-7PM except Sun
8	NP 11-12:30PM Tues & Fri	**80**	1 hr parking 10AM-4PM Mon-Fri 9AM-7PM Sat
9	NP 7:30-8AM except Sun	**84**	Board of Education
10	1 hr parking 8AM-7PM except Sun	**85**	NS 4-7PM Mon-Fri
11	Pay at Muni-meter	**86**	NP 8AM-7PM except Sun
12	NS 6AM-6PM Mon-Fri	**87**	NS except taxis 7AM-4PM except Sun
13	NS except trucks loading/unloading 8AM-6PM except Sun	**88**	NS except trucks loading/unloading 7AM-4PM except Sun
14	NP 12:30-2PM Mon & Thurs	**89**	NP 8AM-4PM Mon-Fri
15	NP 7AM-4PM Mon-Fri	**90**	No bus layovers
17	NS except trucks loading/unloading 8AM-10PM Mon-Fri	**91**	Special night regulations/ NS 11PM-7AM including Sun
18	NS except trucks loading/unloading 8AM-4PM Mon-Fri	**92**	NS 7AM-4PM Mon-Fri
19	NP 7AM-4PM school days	**93**	6AM-7PM Mon-Fri
20	Department of Education (DOE)	**94**	NYS Dept of Labor
21	NS anytime temporary construction regulation	**95**	UIAB (Unemployment Insurance Appeal Board)
22	NS 7AM-4PM school days except school buses	**96**	NS access-a-ride bus stop
23	No stopping anytime	**97**	NYSL (New York State Lottery)
24	Bus stop, NS	**98**	NP passenger loading zone
25	NS except trucks loading/unloading 7AM-7PM except Sun	**99**	7AM-6PM Mon-Fri
26	NP 7AM-7PM Mon-Fri	**100**	3 minute idling law you idle you pay $2000
29	Department of Mental Health	**101**	Department of Sanitation
30	Ambulette	**102**	NP 10AM-6PM Mon-Fri
31	NYP license plates only	**103**	NS 4-8PM Mon-Fri
32	2 hr parking 8AM-7PM except Sun	**104**	NS fire zone
33	NP 8-8:30AM except Sun	**105**	NS 7AM-8PM Mon-Fri
34	2 hr parking 8:30AM-7PM except Sun	**106**	NS except trucks loading/unloading 7AM-7PM including Sun
35	Pay at Muni-meter NYC Parking card available for info visit www.nyc.gov/dot or call 311	**107**	NP 8AM-7PM Mon-Fri
36	Night regulations 4-6AM Tues, Thurs, Sat	**108**	NS 7AM-7PM Mon-Fri
37	1 hr parking 9AM-7PM except Sun	**109**	Buses only 4-7PM Mon-Fri
39	USDSS	**110**	NS except commercial vehicles metered parking 3 hr limit 9AM-7PM except Sun
40	NS 7AM-7PM Mon-Fri except authorized vehicles	**111**	Special night regulations/ NS 12-7AM including Sun
41	NS anytime except vehicles with NYP License Plates	**112**	Night regulations 3-6AM except Suns
44	DCASR	**113**	NS except trucks loading/unloading 7AM-1PM except Sun
45	US Government vehicles only	**114**	NS 1-7PM except Sun
47	NS 8AM-6PM Mon-Fri	**115**	NS 3-7PM except Sun
48	No permit zone	**116**	NS except commercial vehicles metered parking 3 hr limit 7AM-1PM except Sun 7PM-12AM except Sun metered parking 5 hr limit
49	NS 8AM-6PM except Sun	**117**	NS 1-7PM including Sun
50	NP 8AM-6PM except Sun	**118**	NS 7-10AM 3-7PM including Sun
51	US Immigration & Naturalization	**119**	NS except trucks loading/unloading 10AM-3PM except Sun
52	NS anytime except authorized vehicles	**120**	NS except trucks loading/unloading 8AM-7PM Mon-Fri
54	1 hr parking 7:30AM-10PM except Sun	**121**	Fire Department
55	NP 8AM-5PM Mon-Fri	**122**	NP 8-9:30AM Mon & Thurs

2.28.12



Rezoning Area Boundary

1/4-Mile Study Area

1. North/South Roadways Parking Regulations

1. East/West Roadways Parking Regulations

Blocked off for Construction/ Construction Equipment

HUDSON SQUARE REZONING

On-Street Parking Regulations

Figure 13-53

Table 13-41 (cont'd)
Summary of On-Street Parking Regulations

No.	Regulation	No.	Regulation
56	NP 6AM-6PM Mon-Fri	**123**	US Mail
57	NS 6PM-6AM including Sun	**124**	NS except trucks loading/unloading 7AM-4PM Mon-Fri
58	NP 6AM-6PM including Sun	**126**	Night regulations 2-6AM Tues & Fri
59	NP 7AM-6PM Mon-Fri	**127**	Taxi/FHV
60	NS hotel loading zone	**128**	Night regulations 4-6AM Mon, Wed, Fri
61	Department of Corrections vehicles	**129**	1 hr parking 8:30AM-7PM except Sun
62	DOL - OSHA	**130**	2 hr parking 9AM-7PM except Sun
63	1 hr parking 8AM-7PM except Sun	**131**	Night regulations 2-6AM Mon & Thurs
64	1 hr parking 7:30AM-7PM except Sun	**132**	NS anytime Taxi Stand
65	Meters are not in effect above times	**133**	NP Wed (paper sign posted by NYPD)
66	Board of Elections	**134**	1 Hr parking 9AM-4PM Mon-Fri 9AM-7PM Sat
67	NS 6AM-6PM Mon-Fri except Authorized vehicles	**135**	NS 8-12AM Mon-Fri except TLC licensed vehicles prearranged service only
68	U.S. Dept of Agriculture	**136**	NS 4-7PM including Sun
69	Police vehicles only	**16+46**	Faculty Parking
70	NS except trucks loading/unloading 7AM-6PM Mon-Fri	**28+43**	NS 8AM-6PM Mon-Fri except authorized vehicles
71	NS except trucks loading/unloading	**38+125**	NS except trucks loading/unloading 7AM-7PM Mon-Fri
72	NS 3-7PM Mon-Fri	**53+83**	NP 7-7:30AM except Sun
73	NS except trucks loading/unloading 7AM-3PM Mon-Fri	**7+27**	NS except trucks loading/unloading 8AM-6PM Mon-Fri

Notes: NP = No Parking; NS = No Standing; Sun = Sunday; Mon = Monday; Tue = Tuesday; Wed = Wednesday; Thu = Thursday; Fri = Friday; Sat = Saturday.
Sources: Surveys conducted by AKRF, Inc.; October 2011.

Based on field observations, on-street parking in the area is generally at or near full utilization during weekday daytime hours. In response to the comment made to the Draft Scope of Work regarding illegal parking activities (such as placard parking) in the Rezoning Area, a field survey was undertaken during February 2012 to document such activities. Key observations of illegal parking activities include:

- Vehicles with NYPD placards were observed within the Rezoning Area parking on streets with "No Parking 8 AM to 6 PM Monday to Friday" parking regulations (along Vandam Street between Greenwich Street and Varick Street; along Spring Street between Greenwich Street and Hudson Street);
- Vehicles with NYPD placards were observed parked in on-street metered parking spaces (along Hudson Street between Charlton Street and Spring Street);
- Vehicles standing and/or double parked along Spring Street between Varick Street and Avenue of the Americas, presumably waiting for passengers at the nearby hotel;
- U.S. Government vehicles were observed parked along sections of West Houston Street between Greenwich Street and Varick Street with "No Parking 8 AM to 6 PM Monday to Friday" parking regulations.

The presence of the NYPD vehicles could be attributed to the need for NYPD staff to facilitate traffic operations near the Holland Tunnel. And the presence of U.S. Government vehicles could be attributed to the various government buildings located within and near the Rezoning Area. However, this is an issue of enforcement that is typically addressed by the NYPD and not typically examined under CEQR parking analysis.

OFF-STREET PARKING

Off-street publicly accessible parking lots and garages (see **Figure 13-54**) within ¼ mile of the Rezoning Area were surveyed in October 2011 and March 2012. Each facility's operating license and legal capacity were noted. Based on responses given by parking attendants and visual inspections, where possible, estimates were made on the parking occupancy or utilization

3.14.12



Rezoning Area Boundary

Study Area Boundary (1/4-Mile Perimeter)

1 Off-Street Parking Facility

= Entry/Exit

1/4-Mile Off-Street Parking Facilities

Figure 13-54

at each facility for the morning, midday, evening, overnight, and Saturday time periods. A summary of the recorded information and the area's overall off-street public parking supply and utilization is presented in **Table 13-42**.

Table 13-42
Existing Off-Street Parking Supply and Utilization—1/4 Mile

Map #	Name/Operator and Address/Location	License Number	Licensed Capacity	Utilization Rate					Utilized Spaces					Available Spaces				
				AM	MD	PM	ON	SAT	AM	MD	PM	ON	SAT	AM	MD	PM	ON	SAT
1	Stop Park Garage Corp. - 18-20 Morton Street	427429	180	50%	75%	50%	50%	75%	90	135	90	90	135	90	45	90	90	45
2	Central Parking System - 100 Morton Street	1185987	140	70%	80%	60%	25%	30%	98	112	84	35	42	42	28	56	105	98
3	Caliente Car Park, LLC - 115 Leroy Street	1096607	98	50%	90%	55%	50%	33%	49	88	54	49	32	49	10	44	49	66
4	Elba Operating Corp. - 575 Washington Street	1148944	400	75%	70%	70%	N/A	40%	300	280	280	N/A	160	100	120	120	N/A	240
5	375 HUD Parking Corp. - 375 Hudson Street	1010916	100	50%	60%	50%	30%	40%	50	60	50	30	40	50	40	50	70	60
6	Greenwich Street Parking, LLC - 551-561 Greenwich Street	1076703	51	20%	90%	50%	45%	CLD	10	46	26	23	CLD	41	5	25	28	CLD
7	Greenwich Street Parking, LLC - 565 Greenwich Street	1076708	91	20%	90%	50%	45%	CLD	18	82	46	41	CLD	73	9	45	50	CLD
8	Central Parking System of NY, Inc - 272-296 Hudson Street	1243909	43	80%	85%	50%	20%	33%	34	37	22	9	14	9	6	21	34	29
9	Edison Parking, LLC - 272-276 Spring Street	925848	63	75%	80%	80%	30%	30%	47	50	50	19	19	16	13	13	44	44
10	Varick Street Parking, LLC - 114-122 Varick Street	1076689	86	70%	100%	50%	40%	50%	60	86	43	34	43	26	0	43	52	43
11	Central Parking System of NY, Inc - 43 Dominick Street	1243911	49	60%	90%	90%	50%	CLD	29	44	44	25	CLD	20	5	5	24	CLD
12	ERIK Parking Corp - 281-287 West Street	915103	75	85%	95%	CLD	CLD	80%	64	71	CLD	CLD	60	11	4	CLD	CLD	15
13	684 Warehouse Corp - 489 Canal Street	1231226	25	85%	50%	CLD	CLD	CLD	21	13	CLD	CLD	CLD	4	12	CLD	CLD	CLD
14	Sam Parking LLC - 360 West Broadway	926039	180	0%	65%	5%	0%	50%	0	117	9	0	90	180	63	171	180	90
15	Tribeca Parking Corp - 456 Greenwich Street, 445 Washington Street	981738	55	95%	95%	80%	CLD	CLD	52	52	44	CLD	CLD	3	3	11	CLD	CLD
16	West Side Parking Corporation - 432 Washington Street	1135161	25	10%	50%	CLD	CLD	CLD	3	13	CLD	CLD	CLD	22	12	CLD	CLD	CLD
17	Pine Parking Corp - 61-69 Grand Street	1141705	45	50%	100%	50%	50%	66%	23	45	23	23	30	22	0	22	22	15
18	First Mercer Parking LLC - 40 Mercer Street	1270544	100	45%	75%	45%	50%	25%	45	75	45	50	25	55	25	55	50	75
19	Empire Parking Corp - 90 Laight Street	1200653	90	50%	50%	45%	15%	20%	45	45	41	14	18	45	45	49	76	72
20	Diamond Parking Corp - 412-422 Greenwich Street	1157668	23	95%	95%	80%	CLD	75%	22	22	18	CLD	17	1	1	5	CLD	6
21	Wooster Parking Corp - 349 Canal Street (6-10 Wooster Street)	901637	225	75%	90%	85%	55%	30%	169	203	191	124	68	56	22	34	101	157
22	Canal Development Corp - 335-341 Canal Street	369905	89	CLD	100%	60%	CLD	75%	CLD	89	53	CLD	67	CLD	0	36	CLD	22
23	Kinney Parking Inc. D/B/A Central Parking Systems - 56 North Moore Street	1137052	220	80%	90%	65%	50%	66%	176	198	143	110	145	44	22	77	110	75
24	Kinney Parking Inc. D/B/A Central Parking Systems - 20-24 Varick Street	1196587	92	80%	90%	60%	CLD	CLD	74	83	55	CLD	CLD	18	9	37	CLD	CLD
25	Patriot Parking LLC - 350-1/2-376 Greenwich Street	1159595	318	90%	90%	75%	60%	25%	286	286	239	191	80	32	32	79	127	238
26	512 Parking Corp - 14 White Street	922578	42	90%	90%	70%	CLD	60%	38	38	29	CLD	25	4	4	13	CLD	17
27	Quik Park 311 WB LLC - 311 West Broadway	1310048	93	40%	80%	60%	10%	60%	37	74	56	9	56	56	19	37	84	37
28	Kinney-Charlton Corp. - 14-18 Charlton Street	1204606	63	50%	25%	45%	45%	CLD	32	16	28	28	CLD	31	47	35	35	CLD
29	Pine Parking Corp - 111-115 Varick Street	1141698	183	20%	90%	50%	45%	CLD	37	165	92	82	CLD	146	18	91	101	CLD
30	Quik Park Tribeca LLC - 450 Washington Street	1321864	166	70%	65%	60%	25%	30%	116	108	100	42	50	50	58	66	124	116
31	Central Parking Systems – Pier 40 West Street	1341459	700*	1%	45%	20%	3%	90%	7	315	140	21	630	693	385	560	679	70
1/4-Mile Area Totals			4,110	51%	74%	53%	32%	53%	2,032	3,048	2,095	1,049	1,846	1,989	1,062	1,890	2,235	1,630

Notes: MD = Midday; ON = Overnight; SAT = Saturday; CLD = CLD.
* The reported capacity reflects only the daily portion of the Pier 40 garage (#31). Information pertained to the long-term monthly portion of the garage was not surveyed.
Sources: AKRF, Inc. (October 2011 and March 2012).

Within the ¼-mile parking study area, 31 public parking facilities were inventoried. The combined capacity of these facilities totals 4,110 parking spaces. Overall, they were 51, 74, 53, 32 and 53-percent utilized, with 1,989, 1,062, 1,890, 2,235 and 1,630 parking spaces available during the weekday morning, midday, evening, overnight, and Saturday time periods, respectively.

THE FUTURE WITHOUT THE PROPOSED ACTION

Overall off-street public parking utilization is expected to experience the same growth as projected for traffic. In the No-Action condition, No-Action projects are expected to displace 9 public parking facilities, for a total displacement of approximately 746 parking spaces. However, the No-Action projects are expected to include a total of up to 192 off-street accessory parking spaces. As presented in **Table 13-43**, accounting for the displacement of the public parking spaces, the addition of the accessory parking spaces, and the parking demand generated from background growth, discrete projects that would advance absent the Proposed Action, the No-Action condition public parking utilization is expected to increase to 42 percent overnight and 101 percent during the weekday midday peak in the ¼-mile off-street parking study area; this represents a parking shortfall of 46 spaces.

Table 13-43
Existing and No-Action Condition Parking Supply and Utilization

	Weekday AM	Weekday Midday	Weekday PM	Weekday Overnight	Saturday Midday
Existing Public Parking Supply	4,021	4,110	3,985	3,284	3,476
Existing Public Parking Demand	2,032	3,048	2,095	1,049	1,846
Existing Public Parking Utilization	51%	74%	53%	32%	53%
Existing Public Parking Supply	4,021	4,110	3,985	3,284	3,476
Displaced Public Parking Supply Total [(1)]	-746	-746	-671	-501	-457
No-Action Public Parking Supply Total	3,275	3,364	3,314	2,783	3,019
No-Action Background Incremental Demand	41	62	43	21	37
No-Action Projects Total Parking Demand	179	262	107	108	117
No-Action As-of-Right Incremental Parking Demand	152	230	125	71	165
No-Action As-of-Right Accessory Parking Spaces	192	192	192	192	192
No-Action As-of-Right Incremental Parking Demand Accommodated by Accessory Parking	152	192	125	71	165
No-Action As-of-Right Incremental Parking Demand Accommodated by Public Parking	0	38	0	0	0
No-Action Incremental Public Parking Demand	220	362	150	129	154
No-Action Public Parking Demand Total	2,252	3,410	2,245	1,178	2,000
No-Action Public Parking Utilization	69%	101%	68%	42%	66%
No-Action Available Spaces (Shortfall)	1,023	(46)	1,069	1,605	1,019

Note: (1) Total parking displacement is not the same for all peak periods since not all surveyed parking facilities are available during all time periods, see **Table 13-42**.
Sample Calculation:
No-Action Incremental Public Parking Demand = No-Action Background Incremental Demand + No-Action Projects Total Parking Demand + No-Action As-of-Right Incremental Parking Demand Accomodated by Public Parking
Weekday AM No-Action Incremental Public Parking Demand = 41 + 179 + 0 = 220

FUTURE WITH THE PROPOSED ACTION

Similar to the No-Action condition, the Proposed Action would also displace public parking spaces and include new off-street accessory parking spaces. In the With-Action condition, expected future development projects (including No-Action projects and the Proposed Action) are expected to displace 10 public parking facilities, for a total displacement of approximately 809 parking spaces. The Proposed Action would include a total of up to 640 off-street accessory parking spaces. The weekday and Saturday incremental parking demand generated by the Proposed Action are presented in **Tables 13-44** and **13-45**, respectively.

Table 13-44

2022 Proposed Project Incremental Parking Demand - Weekday

Hour	Residential			Commercial Office			Destination Retail			Local Retail		
	In	Out	Demand	In	Out	Demand	In	Out	Demand	In	Out	Demand
12 AM - 01 AM	15	15	900	0	0	0	0	0	0	0	0	0
01 AM - 02 AM	7	7	900	0	0	0	0	0	0	0	0	0
02 AM - 03 AM	4	4	900	0	0	0	0	0	0	0	0	0
03 AM - 04 AM	3	3	900	0	0	0	0	0	0	0	0	0
04 AM - 05 AM	3	3	900	0	0	0	0	0	0	0	0	0
05 AM - 06 AM	3	3	900	0	0	0	0	0	0	0	0	0
06 AM - 07 AM	6	6	900	0	0	0	0	0	0	0	0	0
07 AM - 08 AM	8	69	839	9	1	8	1	1	0	0	0	0
08 AM - 09 AM	30	167	702	103	4	107	4	4	0	2	2	0
09 AM - 10 AM	26	104	624	83	8	182	4	1	3	1	1	0
10 AM - 11 AM	25	74	575	14	19	177	5	2	6	3	2	1
11 AM - 12 PM	35	52	558	3	3	177	7	5	8	4	4	1
12 PM - 01 PM	50	50	558	7	8	176	13	11	10	16	16	1
01 PM - 02 PM	45	45	558	8	5	179	20	19	11	12	12	1
02 PM - 03 PM	41	41	558	4	2	181	13	14	10	8	8	1
03 PM - 04 PM	54	52	560	15	15	181	12	10	12	7	6	2
04 PM - 05 PM	85	57	588	11	63	129	11	12	11	7	7	2
05 PM - 06 PM	152	64	676	6	119	16	10	12	9	8	8	2
06 PM - 07 PM	129	56	749	5	18	3	11	13	7	7	7	2
07 PM - 08 PM	115	49	815	2	5	0	10	10	7	4	6	0
08 PM - 09 PM	50	22	843	1	1	0	6	7	6	0	0	0
09 PM - 10 PM	40	18	865	0	0	0	2	8	0	0	0	0
10 PM - 11 PM	33	14	884	0	0	0	0	0	0	0	0	0
11 PM - 12 AM	28	12	900	0	0	0	0	0	0	0	0	0

Hour	Dormitory			PS/IS School [1]			Total		
	In	Out	Demand	In	Out	Demand	In	Out	Demand
12 AM - 01 AM	3	3	232	0	0	0	18	18	1132
01 AM - 02 AM	1	1	232	0	0	0	8	8	1132
02 AM - 03 AM	1	1	232	0	0	0	5	5	1132
03 AM - 04 AM	0	0	232	0	0	0	3	3	1132
04 AM - 05 AM	0	0	232	0	0	0	3	3	1132
05 AM - 06 AM	0	0	232	0	0	0	3	3	1132
06 AM - 07 AM	0	1	231	1	0	1	7	7	1132
07 AM - 08 AM	1	6	226	5	0	6	24	77	1079
08 AM - 09 AM	4	8	222	1	0	7	144	185	1038
09 AM - 10 AM	4	12	214	0	0	7	118	126	1030
10 AM - 11 AM	5	9	210	0	0	7	52	106	976
11 AM - 12 PM	7	8	209	0	0	7	56	72	960
12 PM - 01 PM	9	9	209	0	0	7	95	94	961
01 PM - 02 PM	7	7	209	0	0	7	92	88	965
02 PM - 03 PM	7	7	209	0	0	7	73	72	966
03 PM - 04 PM	10	8	211	0	5	2	98	96	968
04 PM - 05 PM	12	8	215	0	2	0	126	149	945
05 PM - 06 PM	17	16	216	0	0	0	193	219	919
06 PM - 07 PM	17	9	224	0	0	0	169	103	985
07 PM - 08 PM	17	9	232	0	0	0	148	79	1054
08 PM - 09 PM	12	12	232	0	0	0	69	42	1081
09 PM - 10 PM	4	4	232	0	0	0	46	30	1097
10 PM - 11 PM	5	5	232	0	0	0	38	19	1116
11 PM - 12 AM	4	4	232	0	0	0	32	16	1132

Notes: (1) PS/IS School auto drop-off/pick-up vehicle trips not included.

Table 13-45

2022 Proposed Project Incremental Parking Demand - Saturday

Hour	Residential			Commercial Office			Destination Retail			Local Retail		
	In	Out	Demand	In	Out	Demand	In	Out	Demand	In	Out	Demand
12 AM - 01 AM	6	6	900	0	0	0	0	0	0	0	0	0
01 AM - 02 AM	6	6	900	0	0	0	0	0	0	0	0	0
02 AM - 03 AM	0	0	900	0	0	0	0	0	0	0	0	0
03 AM - 04 AM	0	0	900	0	0	0	0	0	0	0	0	0
04 AM - 05 AM	0	0	900	0	0	0	0	0	0	0	0	0
05 AM - 06 AM	12	12	900	0	0	0	0	0	0	0	0	0
06 AM - 07 AM	6	18	888	0	0	0	0	0	0	0	0	0
07 AM - 08 AM	19	56	851	1	0	1	2	0	2	0	0	0
08 AM - 09 AM	23	70	804	4	1	4	3	0	5	1	0	1
09 AM - 10 AM	29	88	745	6	3	7	3	0	8	2	0	3
10 AM - 11 AM	35	105	675	10	5	12	5	1	12	8	2	9
11 AM - 12 PM	38	114	599	2	1	13	19	8	23	9	9	9
12 PM - 01 PM	41	123	517	2	1	14	13	11	25	10	9	10
01 PM - 02 PM	93	93	517	2	2	14	17	16	26	10	10	10
02 PM - 03 PM	98	71	544	1	1	14	16	15	27	11	8	13
03 PM - 04 PM	98	68	574	10	15	9	15	15	27	11	8	16
04 PM - 05 PM	96	67	603	6	11	4	9	10	26	9	9	16
05 PM - 06 PM	98	65	636	3	5	2	14	14	26	8	8	16
06 PM - 07 PM	106	57	685	2	3	1	12	15	23	7	9	14
07 PM - 08 PM	123	41	767	0	1	0	10	18	15	7	8	13
08 PM - 09 PM	105	35	837	0	0	0	8	16	7	5	9	9
09 PM - 10 PM	88	29	896	0	0	0	6	13	0	2	11	0
10 PM - 11 PM	37	33	900	0	0	0	0	0	0	0	0	0
11 PM - 12 AM	12	12	900	0	0	0	0	0	0	0	0	0

Hour	Dormitory			PS/IS School [1]			Total		
	In	Out	Demand	In	Out	Demand	In	Out	Demand
12 AM - 01 AM	1	1	232	0	0	0	7	7	1132
01 AM - 02 AM	1	1	232	0	0	0	7	7	1132
02 AM - 03 AM	0	0	232	0	0	0	0	0	1132
03 AM - 04 AM	0	0	232	0	0	0	0	0	1132
04 AM - 05 AM	0	0	232	0	0	0	0	0	1132
05 AM - 06 AM	2	2	232	0	0	0	14	14	1132
06 AM - 07 AM	1	3	230	0	0	0	7	21	1118
07 AM - 08 AM	3	8	225	0	0	0	25	64	1079
08 AM - 09 AM	4	11	218	0	0	0	35	82	1032
09 AM - 10 AM	4	13	209	0	0	0	44	104	972
10 AM - 11 AM	5	16	198	0	0	0	63	129	906
11 AM - 12 PM	6	17	187	0	0	0	74	149	831
12 PM - 01 PM	6	19	174	0	0	0	72	163	740
01 PM - 02 PM	15	13	176	0	0	0	137	134	743
02 PM - 03 PM	15	10	181	0	0	0	141	105	779
03 PM - 04 PM	15	10	186	0	0	0	149	116	812
04 PM - 05 PM	15	10	191	0	0	0	135	107	840
05 PM - 06 PM	15	10	196	0	0	0	138	102	876
06 PM - 07 PM	15	10	201	0	0	0	142	94	924
07 PM - 08 PM	18	7	212	0	0	0	158	75	1007
08 PM - 09 PM	15	5	222	0	0	0	133	65	1075
09 PM - 10 PM	13	4	231	0	0	0	109	57	1127
10 PM - 11 PM	6	5	232	0	0	0	43	38	1132
11 PM - 12 AM	2	2	232	0	0	0	14	14	1132

Notes: (1) PS/IS School auto drop-off/pick-up vehicle trips not included.

As presented in **Table 13-46**, accounting for the displacement of the public parking spaces, the addition of the accessory parking spaces, and the parking demand generated from background growth, No-Action projects and the Proposed Action, the With-Action public parking utilization is expected to increase to 61 percent overnight and to a weekday midday peak of 112 percent in the ¼-mile off-street parking study area; this represents a parking shortfall of 392 spaces.

Table 13-46
Existing and With-Action Condition Parking Supply and Utilization

	Weekday AM	Weekday Midday	Weekday PM	Weekday Overnight	Saturday Midday
Existing Public Parking Supply	4,021	4,110	3,985	3,284	3,476
Existing Public Parking Demand	2,032	3,048	2,095	1,049	1,846
Existing Public Parking Utilization	51%	74%	53%	32%	53%
Existing Public Parking Supply	4,021	4,110	3,985	3,284	3,476
Displaced Public Parking Supply Total [(1)]	-809	-809	-734	-564	-520
With-Action Public Parking Supply Total	3,212	3,301	3,251	2,720	2,956
No-Action Background Incremental Demand	41	62	43	21	37
No-Action Projects Total Parking Demand	179	262	107	108	117
RWCDS 2 Incremental Parking Demand	1,038	961	919	1,132	743
RWCDS 2 Accessory Parking Spaces	640	640	640	640	640
RWCDS 2 Incremental Parking Demand Accommodated by Accessory Parking	640	640	640	640	640
RWCDS 2 Incremental Parking Demand Accommodated by Public Parking	398	321	279	492	103
RWCDS 2 Incremental Public Parking Demand	618	645	429	621	257
With-Action Public Parking Demand Total	2,650	3,693	2,524	1,670	2,103
With-Action Public Parking Utilization	83%	112%	78%	61%	71%
With-Action Available Spaces (Shortfall)	562	(392)	727	1,050	853

Note: (1) Total parking displacement is not the same for all peak periods since not all surveyed parking facilities are available during all time periods, see **Table 13-42**.
Sample Calculation:
RWCDS 2 Incremental Public Parking Demand = No-Action Background Incremental Demand + No-Action Projects Total Parking Demand + RWCDS 2 Incremental Parking Demand Accomodated by Public Parking
Weekday AM RWCDS 2 Incremental Public Parking Demand = 41 + 179 + 398 = 618

It should be noted that the vehicle ownership rate used to calculate the dormitory overnight parking demand was conservatively assumed to be the same as typical residential dwelling units, while in reality, the vehicle ownership rate for dormitories would be lower than what is conservatively assumed. A review of the existing off-street parking supply and utilization within ½-mile of the rezoning boundaries showed that there would a total of approximately 9,000 off-street parking spaces. Out of these spaces, they were approximately 56, 77, 60, 40, and 44-percent utilized, with approximately 4,000, 2,100, 3,600, 4,700, and 4,500 parking spaces available during the weekday morning, midday, evening, overnight, and Saturday time periods, respectively. It is expected that the excess demand of 392 spaces resulting from the Proposed Action during the weekday midday period could be accommodated with a slightly longer walking distance beyond the ¼-mile radius. Furthermore, as stated in the *CEQR Technical Manual*, a parking shortfall resulting from a project located in Manhattan does not constitute a significant adverse parking impact, due to the magnitude of available alternative modes of transportation.

K. DETAILED ANALYSIS RESULTS TABLES

Table 13-47
2011 Existing Conditions Level of Service Analysis
Signalized Intersections

	Weekday AM				Weekday Midday				Weekday PM				Saturday Midday			
Intersection	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS
West Street (Route 9A) & Clarkson Street																
NB	TR	0.81	17.4	B	TR	0.76	17.8	B	TR	0.84	18.8	B				
SB	L	0.92	89.6	F	L	0.69	47.4	D	L	0.69	64.3	E				
	T	0.81	17.8	B	T	0.73	17.3	B	T	0.76	16.2	B				
	Int.		21.3	C	Int.		19.3	B	Int.		19.5	B				
West Street (Route 9A) & West Houston Street																
EB	L	0.10	48.2	D	L	0.06	32.4	C	L	0.66	76.8	E				
	R	0.03	46.1	D	R	0.01	31.7	C	R	0.09	47.2	D				
WB	L	0.57	58.9	E	L	0.32	36.7	D	L	0.63	61.9	E				
	LT	0.66	63.1	E	LT	0.34	37.1	D	LT	0.69	65.1	E				
	R	1.05	128.5	F	R	0.89	69.0	E	R	1.05	120.6	F				
NB	L	0.38	77.6	E	L	0.10	52.5	D	L	0.44	80.4	F				
	T	0.85	26.8	C	T	0.83	28.0	C	T	0.85	26.7	C				
SB	T	0.95	36.6	D	T	0.92	35.1	D	T	0.88	29.5	C				
	R	0.02	11.8	B	R	0.01	14.6	B	R	0.05	12.1	B				
	Int.		37.8	D	Int.		33.8	C	Int.		36.8	D				
West Street (Route 9A) & Canal Street North																
WB	L	0.44	58.9	E	L	0.29	44.2	D	L	0.39	44.5	D	L	0.24	43.1	D
	LR	0.92	102.7	F	LR	0.56	52.2	D	LR	0.34	43.5	D	LR	0.51	50.2	D
	R	0.93	104.8	F	R	0.66	57.3	E	R	0.39	44.8	D	R	0.61	54.3	D
NB	T	0.73	8.8	A	T	0.51	7.7	A	T	0.72	11.5	B	T	0.57	8.3	A
SB	T	0.51	5.8	A	T	0.47	7.2	A	T	0.55	8.8	A	T	0.47	7.1	A
	Int.		13.3	B	Int.		11.0	B	Int.		12.0	B	Int.		10.7	B
West Street (Route 9A) & Canal Street South																
NB	T	0.94	31.8	C	T	0.69	21.3	C	T	0.93	31.5	C	T	0.76	23.2	C
	R	0.50	18.3	B	R	0.42	18.1	B	R	0.04	13.0	B	R	0.56	21.3	C
SB	L	0.71	44.4	D	L	0.57	32.6	C	L	0.61	33.5	C	L	0.53	31.7	C
	T	0.87	27.1	C	T	0.80	25.3	C	T	0.96	37.8	D	T	0.81	25.6	C
	Int.		30.7	C	Int.		24.1	C	Int.		34.1	C	Int.		24.9	C
Hudson Street & King Street																
EB	LT	0.17	21.3	C	LT	0.13	20.9	C	LT	0.20	21.7	C	LT	0.05	19.9	B
NB	TR	0.84	23.4	C	TR	0.69	17.7	B	TR	0.72	18.5	B	TR	0.53	14.6	B
	Int.		23.2	C	Int.		17.9	B	Int.		18.7	B	Int.		14.8	B
Hudson Street & Charlton Street																
WB	TR	0.49	26.7	C	TR	0.57	28.9	C	TR	0.41	25.1	C	TR	0.45	25.8	C
NB	LT	0.77	20.0-	B	LT	0.57	15.1	B	LT	0.72	18.4	B	LT	0.47	13.6	B
	Int.		21.1	C	Int.		18.6	B	Int.		19.5	B	Int.		16.6	B
Hudson Street & Vandam Street																
EB	L	0.13	20.9	C	L	0.05	19.9	B	L	0.12	20.7	C	L	0.03	19.6	B
WB	R	0.17	21.5	C	R	0.18	21.6	C	R	0.19	21.7	C	R	0.09	20.4	C
NB	T	0.68	17.3	B	T	0.48	13.7	B	T	0.62	16.1	B	T	0.43	13.1	B
	Int.		17.8	B	Int.		14.6	B	Int.		16.7	B	Int.		13.7	B
Hudson Street & Canal Street																
EB	L	0.83	44.2	D	L	0.68	36.7	D	L	1.03	50.2	D				
	T	0.70	18.6	B	T	0.62	16.2	B	T	0.50	13.8	B				
WB	-	-	-	-	-	-	-	-	T	0.26	26.8	C				
	TR	0.93	50.3	D	TR	0.81	39.2	D	-	-	-	-				
	R	0.87	31.8	C	R	0.86	40.6	D	R	1.05	81.7	F				
NB (East Lanes)	T	0.32	26.1	C	T	0.32	26.1	C	T	1.01	83.2	F				
	R	0.18	26.2	C	R	0.30	29.1	C	R	0.09	24.3	C				
NB (West Lanes)	LT	1.05	76.6	E	LT	0.85	40.6	D	LT	1.05	76.8	E				
	Int.		48.9	D	Int.		34.4	C	Int.		69.1	E				
Varick Street & West Houston Street																
WB	L	0.65	26.1	C	L	0.80	34.5	C	L	0.46	20.2	C	L	0.49	20.6	C
	T	0.49	19.8	B	T	0.50	20.1	C	T	0.58	21.7	C	T	0.59	22.2	C
SB (East Lanes)	T	0.78	26.3	C	T	0.61	21.4	C	T	0.79	26.8	C	T	0.77	25.7	C
SB (West Lanes)	TR	0.90	35.1	D	TR	0.74	25.1	C	TR	1.05	97.3	F	TR	0.71	24.1	C
	Int.		28.5	C	Int.		24.5	C	Int.		37.8	D	Int.		24.0	C
Varick Street & King Street																
EB	TR	0.49	24.7	C	TR	0.44	23.7	C	TR	0.40	22.7	C	TR	0.29	21.0	C
SB (East Lanes)	LT	0.54	16.5	B	LT	0.63	18.4	B	LT	0.79	22.8	C	LT	0.83	25.0	C
SB (West Lanes)	T	0.96	37.1	D	T	0.74	20.7	C	T	0.89	83.6	F	T	0.96	55.9	E
	Int.		29.3	C	Int.		20.1	C	Int.		36.0	D	Int.		37.0	D
Varick Street & Charlton Street																
WB	LT	0.60	28.0	C	LT	0.57	27.1	C	LT	0.91	50.2	D	LT	0.62	28.7	C
SB (East Lanes)	T	0.73	20.4	C	T	0.57	16.8	B	T	0.77	21.8	C	T	0.77	21.7	C
SB (West Lanes)	TR	0.77	22.3	C	TR	0.73	20.7	C	TR	0.82	84.2	F	TR	0.96	58.5	E
	Int.		22.1	C	Int.		19.9	B	Int.		38.1	D	Int.		34.9	C
Varick Street & Vandam Street																
WB	LT	0.31	21.3	C	LT	0.30	21.3	C	LT	0.21	19.8	B	LT	0.18	19.4	B
SB (East Lanes)	T	0.54	15.8	B	T	0.66	18.7	B	T	0.51	15.4	B	T	0.82	24.1	C
SB (West Lanes)	TR	0.45	14.6	B	TR	0.58	20.1	B	TR	1.01	82.6	F	TR	1.05	83.4	F
	Int.		15.7	B	Int.		19.5	B	Int.		35.4	D	Int.		44.4	D

Table 13-47 (cont'd)
2011 Existing Conditions Level of Service Analysis
Signalized Intersections

Intersection	Weekday AM				Weekday Midday				Weekday PM				Saturday Midday			
	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS
Varick Street & Spring Street																
EB	-	-	-	-	-	-	-	-	T	0.75	52.4	D	-	-	-	-
	TR	0.67	31.4	C	TR	0.61	29.9	C	-	-	-	-	TR	1.05	106.1	F
	R	0.51	29.5	C	R	0.53	31.1	C	R	1.05	98.6	F	R	1.05	122.6	F
SB (East Lanes)	LT	0.91	29.4	C	LT	0.79	22.2	C	LT	0.52	14.5	B	LT	0.88	26.7	C
SB (West Lanes)	T	0.43	13.4	B	T	0.52	20.1	C	T	0.82	81.2	F	T	1.05	82.9	F
	Int.		24.1	C	Int.		23.2	C	Int.		45.8	D	Int.		59.1	E
Varick Street & Dominick Street																
SB (East Lanes)	LT	0.47	15.4	B	LT	0.37	14.3	B	LT	0.44	15.1	B	LT	0.48	15.6	B
SB (West Lanes)	TR	0.52	16.2	B	TR	0.71	20.8	C	TR	1.05	83.8	F	TR	1.05	83.5	F
	Int.		15.8	B	Int.		17.8	B	Int.		46.1	D	Int.		45.5	D
Varick Street & Broome Street																
WB	L	0.12	18.0	B	L	0.17	18.7	B	L	0.36	21.2	C	L	0.24	19.5	B
SB (East Lanes)	T	0.46	15.3	B	T	0.36	14.2	B	T	0.42	14.8	B	T	0.48	15.5	B
SB (West Lanes)	TR	0.53	18.1	B	TR	0.75	25.7	C	TR	0.93	80.9	F	TR	1.05	91.6	F
	R	0.58	18.3	B	R	0.70	25.9	C	R	0.99	83.4	F	R	1.05	92.9	F
	Int.		16.8	B	Int.		21.9	C	Int.		41.9	D	Int.		47.0	D
Varick Street & Watts Street																
EB	R	0.03	14.2	B	R	0.06	14.5	B	R	0.02	14.1	B	R	0.02	14.1	B
WB	L	0.30	17.3	B	L	0.30	17.6	B	L	0.01	14.0	B	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	LT	0.96	56.0	E
	T	0.65	24.5	C	T	0.38	17.3	B	T	1.04	84.2	F	-	-	-	-
SB (East Lanes)	T	0.67	21.8	C	T	0.49	18.8	B	T	0.43	17.7	B	T	0.79	25.0	C
SB (West Lanes)	T	0.28	16.4	B	T	0.20	15.6	B	T	0.09	14.6	B	T	0.03	14.2	B
	Int.		21.8	C	Int.		17.7	B	Int.		38.5	D	Int.		37.0	D
Varick Street & Grand Street																
SB	LT	0.45	10.2	B	LT	0.43	10.1	B	LT	0.31	9.1	A	LT	0.46	10.5	B
	Int.		10.2	B	Int.		10.1	B	Int.		9.1	A	Int.		10.5	B
Varick Street & Canal Street																
EB	TR	0.37	10.3	B	TR	0.38	10.4	B	TR	0.31	9.8	A	TR	0.35	10.1	B
WB	LT	1.02	49.5	D	LT	0.71	20.8	C	LT	1.04	80.7	F	LT	1.01	61.5	E
SB	L	0.24	25.4	C	-	-	-	-	L	0.37	28.0	C	-	-	-	-
	LTR	0.65	29.5	C	LTR	0.70	30.5	C	LTR	0.62	28.9	C	LTR	0.71	30.8	C
	Int.		34.0	C	Int.		22.0	C	Int.		41.2	D	int.		38.2	D
Avenue of the Americas & West Houston Street																
WB	T	0.63	24.1	C	T	0.64	24.4	C	T	0.61	23.6	C	T	0.59	23.2	C
	R	0.70	27.3	C	R	0.90	42.8	D	R	0.94	48.4	D	R	0.91	44.6	D
NB	LTR	1.00	43.3	D	LTR	0.89	27.8	C	LTR	0.80	23.8	C	LTR	0.76	22.7	C
	Int.		36.2	D	Int.		29.7	C	Int.		28.8	C	Int.		27.1	C
Avenue of the Americas & King Street																
EB	L	0.48	20.2	C	L	0.58	22.8	C	L	0.50	20.8	C	L	0.49	20.6	C
WB	R	0.01	13.9	B	R	0.01	14.0	B	R	0.01	14.0	B	R	0.02	14.0	B
NB	T	0.82	21.9	C	T	0.70	18.9	B	T	0.56	16.5	B	T	0.61	17.2	B
	Int.		21.6	C	Int.		19.6	B	Int.		17.3	B	Int.		17.7	B
Avenue of the Americas & Spring Street																
EB	L	0.66	27.3	C	L	0.54	22.7	C	L	0.38	19.0	B				
	T	0.44	19.2	B	T	0.44	19.0	B	T	0.31	17.2	B				
NB	TR	0.76	20.0+	C	TR	0.63	17.6	B	TR	0.53	16.2	B				
	Int.		20.8	C	Int.		18.4	B	Int.		16.6	B				
Avenue of the Americas & Canal Street/Laight Street																
EB (Canal Street)	T	0.62	30.6	C	T	0.52	28.9	C	T	0.40	23.2	C	T	0.52	29.0	C
EB (Laight Street)	T	0.80	56.4	E	T	0.53	34.4	C	T	1.05	87.1	F	T	0.81	42.1	D
WB	TR	0.96	36.3	D	TR	0.90	36.6	D	TR	1.04	82.4	F	TR	0.64	16.3	B
NB	LTR	1.05	67.1	E	LTR	0.78	29.9	C	-	-	-	-	LTR	0.82	31.4	C
	-	-	-	-	-	-	-	-	TR	0.55	24.6	C	-	-	-	-
	Int.		51.1	D	Int.		32.4	C	Int.		54.8	D	Int.		28.2	C

Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound, Int. = Intersection

Table 13-48
2011 Existing Conditions Level of Service Analysis
Unsignalized Intersections

Intersection	Weekday AM				Weekday Midday				Weekday PM				Saturday Midday			
	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS
Avenue of the Americas & West Houston Street																
NB	L	0.30	20.7	C	L	0.25	15.2	C	L	0.13	11.7	B	L	0.25	17.0	C

Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound

Table 13-49
2011 Existing and 2022 No-Action Conditions Level of Service Analysis
Signalized Intersections

	Weekday AM								Weekday Midday								Weekday PM								Saturday Midday							
	2011 Existing				2022 No-Action				2011 Existing				2022 No-Action				2011 Existing				2022 No-Action				2011 Existing				2022 No-Action			
Intersection	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS
West Street (Route 9A) & Clarkson Street																																
NB	TR	0.81	17.4	B	TR	0.84	18.5	B	TR	0.76	17.8	B	TR	0.80	19.0	B	TR	0.84	18.8	B	TR	0.88	20.8	C								
SB	L	0.92	89.6	F	L	1.13	146.2	F	L	0.69	47.4	D	L	0.78	52.8	D	L	0.69	64.3	E	L	0.79	71.6	E								
	T	0.81	17.8	B	T	0.82	18.6	B	T	0.73	17.3	B	T	0.76	18.2	B	T	0.76	16.2	B	T	0.80	17.4	B								
	Int.		21.3	C	Int.		26.2	C	Int.		19.3	B	Int.		20.8	C	Int.		19.5	B	Int.		21.6	C								
West Street (Route 9A) & West Houston Street																																
EB	L	0.10	48.2	D	L	0.11	48.5	D	L	0.06	32.4	C	L	0.06	32.4	C	L	0.66	76.8	E	L	0.74	88.9	F								
	R	0.03	46.1	D	R	0.03	46.1	D	R	0.01	31.7	C	R	0.01	31.7	C	R	0.09	47.2	D	R	0.09	47.2	D								
WB	L	0.57	58.9	E	L	0.59	60.0	E	L	0.32	36.7	D	L	0.35	37.2	D	L	0.63	61.9	E	L	0.70	65.6	E								
	LT	0.66	63.1	E	LT	0.69	64.9	E	LT	0.34	37.1	D	LT	0.37	37.6	D	LT	0.69	65.1	E	LT	0.76	70.0	E								
	R	1.05	128.5	F	R	1.15	159.0	F	R	0.89	69.0	E	R	0.98	86.0	F	R	1.05	120.6	F	R	1.21	175.6	F								
NB	L	0.38	77.6	E	L	0.39	78.0	E	L	0.10	52.5	D	L	0.10	52.5	D	L	0.44	80.4	F	L	0.45	80.9	F								
	T	0.85	26.8	C	T	0.88	28.2	C	T	0.83	28.0	C	T	0.87	29.8	C	T	0.85	26.7	C	T	0.88	28.5	C								
SB	T	0.95	36.6	D	T	0.97	40.2	D	T	0.92	35.1	D	T	0.96	40.6	D	T	0.88	29.5	C	T	0.92	33.0	C								
	R	0.02	11.8	B	R	0.02	11.8	B	R	0.01	14.6	B	R	0.01	14.6	B	R	0.05	12.1	B	R	0.05	12.1	B								
	Int.		37.8	D	Int.		41.7	D	Int.		33.8	C	Int.		38.1	D	Int.		36.8	D	Int.		43.4	D								
West Street (Route 9A) & Canal Street North																																
WB	L	0.44	58.9	E	L	0.52	61.9	E	L	0.29	44.2	D	L	0.40	46.6	D	L	0.39	44.5	D	L	0.65	53.4	D	L	0.24	43.1	D	L	0.34	45.2	D
	LR	0.92	102.7	F	LR	1.01	124.6	F	LR	0.56	52.2	D	LR	0.59	53.6	D	LR	0.34	43.5	D	LR	0.32	43.2	D	LR	0.51	50.2	D	LR	0.53	51.0	D
	R	0.93	104.8	F	R	1.02	127.4	F	R	0.66	57.3	E	R	0.70	59.5	E	R	0.39	44.8	D	R	0.35	43.9	D	R	0.61	54.3	D	R	0.62	55.0+	E
NB	T	0.73	8.8	A	T	0.77	9.7	A	T	0.51	7.7	A	T	0.54	8.0	A	T	0.72	11.5	B	T	0.75	12.1	B	T	0.57	8.3	A	T	0.60	8.6	A
SB	T	0.51	5.8	A	T	0.52	5.9	A	T	0.47	7.2	A	T	0.49	7.4	A	T	0.55	8.8	A	T	0.58	9.1	A	T	0.47	7.1	A	T	0.49	7.3	A
	Int.		13.3	B	Int.		15.5	B	Int.		11.0	B	Int.		11.6	B	Int.		12.0	B	Int.		12.9	B	Int.		10.7	B	Int.		11.1	B
West Street (Route 9A) & Canal Street South																																
NB	T	0.94	31.8	C	T	0.99	40.5	D	T	0.69	21.3	C	T	0.73	22.3	C	T	0.93	31.5	C	T	0.97	36.2	D	T	0.76	23.2	C	T	0.80	24.4	C
	R	0.50	18.3	B	R	0.51	18.5	B	R	0.42	18.1	B	R	0.42	18.3	B	R	0.04	13.0	B	R	0.04	13.0	B	R	0.56	21.3	C	R	0.57	21.8	C
SB	L	0.71	44.4	D	L	0.73	44.9	D	L	0.57	32.6	C	L	0.61	33.6	C	L	0.61	33.5	C	L	0.64	34.4	C	L	0.53	31.7	C	L	0.57	32.6	C
	T	0.87	27.1	C	T	0.90	29.1	C	T	0.80	25.3	C	T	0.85	27.4	C	T	0.96	37.8	D	T	1.05	60.2	E	T	0.81	25.6	C	T	0.85	27.6	C
	Int.		30.7	C	Int.		35.8	D	Int.		24.1	C	Int.		25.5	C	Int.		34.1	C	Int.		45.5	D	Int.		24.9	C	Int.		26.3	C
Hudson Street & King Street																																
EB	LT	0.17	21.3	C	LT	0.17	21.3	C	LT	0.13	20.9	C	LT	0.15	21.1	C	LT	0.20	21.7	C	LT	0.22	21.9	C	LT	0.05	19.9	B	LT	0.07	20.1	C
NB	TR	0.84	23.4	C	TR	0.92	30.4	C	TR	0.69	17.7	B	TR	0.80	21.5	C	TR	0.72	18.5	B	TR	0.88	25.9	C	TR	0.53	14.6	B	TR	0.59	15.6	B
	Int.		23.2	C	Int.		29.8	C	Int.		17.9	B	Int.		21.5	C	Int.		18.7	B	Int.		25.6	C	Int.		14.8	B	Int.		15.8	B
Hudson Street & Charlton Street																																
WB	TR	0.49	26.7	C	TR	0.57	28.8	C	TR	0.57	28.9	C	TR	0.68	33.0	C	TR	0.41	25.1	C	TR	0.85	44.9	D	TR	0.45	25.8	C	TR	0.51	27.2	C
NB	LT	0.77	20.0-	B	LT	0.81	21.8	C	LT	0.57	15.1	B	LT	0.62	16.0	B	LT	0.72	18.4	B	LT	0.77	20.0-	B	LT	0.47	13.6	B	LT	0.51	14.2	B
	Int.		21.1	C	Int.		23.1	C	Int.		18.6	B	Int.		20.6	C	Int.		19.5	B	Int.		26.3	C	Int.		16.6	B	Int.		17.4	B
Hudson Street & Vandam Street																																
EB	L	0.13	20.9	C	L	0.14	21.0	C	L	0.05	19.9	B	L	0.06	20.0-	B	L	0.12	20.7	C	L	0.12	20.7	C	L	0.03	19.6	B	L	0.03	19.6	B
WB	R	0.17	21.5	C	R	0.18	21.5	C	R	0.18	21.6	C	R	0.19	21.8	C	R	0.19	21.7	C	R	0.20	21.8	C	R	0.09	20.4	C	R	0.10	20.4	C
NB	T	0.68	17.3	B	T	0.72	18.4	B	T	0.48	13.7	B	T	0.52	14.3	B	T	0.62	16.1	B	T	0.67	17.1	B	T	0.43	13.1	B	T	0.47	13.6	B
	Int.		17.8	B	Int.		18.7	B	Int.		14.6	B	Int.		15.1	B	Int.		16.7	B	Int.		17.6	B	Int.		13.7	B	Int.		14.1	B
Hudson Street & Canal Street																																
EB	L	0.83	44.2	D	L	0.84	45.3	D	L	0.68	36.7	D	L	0.72	38.3	D	L	1.03	89.0	F	L	1.08	107.0	F								
	T	0.70	18.6	B	T	0.72	19.1	B	T	0.62	16.2	B	T	0.68	17.7	B	T	0.50	13.8	B	T	0.54	14.5	B								
WB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T	0.26	26.8	C	T	0.37	28.5	C								
	TR	0.93	50.3	D	TR	0.99	61.9	E	TR	0.81	39.2	D	TR	0.92	49.5	D	-	-	-	-	-	-	-	-								
	R	0.87	31.8	C	R	0.89	33.7	C	R	0.86	40.6	D	R	0.87	44.0	D	R	1.05	81.7	F	R	1.07	86.4	F								
NB (East Lanes)	T	0.32	26.1	C	T	0.33	26.2	C	T	0.32	26.1	C	T	0.33	26.2	C	T	1.01	83.2	F	T	1.03	87.8	F								
	R	0.18	26.2	C	R	0.31	29.6	C	R	0.30	29.1	C	R	0.33	30.1	C	R	0.09	24.3	C	R	0.07	23.9	C								
NB (West Lanes)	LT	1.05	76.6	E	LT	1.11	95.4	F	LT	0.85	40.6	D	LT	0.92	47.7	D	LT	1.05	76.8	E	LT	1.14	106.7	F								
	Int.		48.9	D	Int.		57.7	E	Int.		34.4	C	Int.		39.1	D	Int.		69.1	E	Int.		82.6	F								
Varick Street & West Houston Street																																
WB	L	0.65	26.1	C	L	0.73	30.2	C	L	0.80	34.5	C	L	0.95	54.3	D	L	0.46	20.2	C	L	0.56	22.5	C	L	0.49	20.6	C	L	0.59	23.3	C
	T	0.49	19.8	B	T	0.55	21.1	C	T	0.50	20.1	C	T	0.57	21.4	C	T	0.58	21.7	C	T	0.65	23.4	C	T	0.59	22.2	C	T	0.63	23.4	C
SB (East Lanes)	T	0.78	26.3	C	T	0.82	28.3	C	T	0.61	21.4	C	T	0.67	22.8	C	T	0.79	26.8	C	T	0.84	29.5	C	T	0.77	25.7	C	T	0.82	28.3	C
SB (West Lanes)	TR	0.90	35.1	D	TR	1.00	51.8	D	TR	0.74	25.1	C	TR	0.81	28.4	C	TR	1.05	97.3	F	TR	1.25	171.0	F	TR	0.71	24.1	C	TR	0.78	26.8	C
	Int.		28.5	C	Int.		36.1	D	Int.		24.5	C	Int.		29.4	C	Int.		37.8	D	Int.		53.4	D	Int.		24.0	C	Int.		26.4	C
Varick Street & King Street																																
EB	TR	0.49	24.7	C	TR	0.63	28.5	C	TR	0.44	23.7	C	TR	0.52	25.7	C	TR	0.40	22.7	C	TR	0.63	28.4	C	TR	0.29	21.0	C	TR	0.31	21.3	C
SB (East Lanes)	LT	0.54	16.5	B	LT	0.59	17.3	B	LT	0.63	18.4	B	LT	0.71	20.5	C	LT	0.79	22.8	C	LT	0.86	26.6	C	LT	0.83	25.0	C	LT	0.92	32.6	C
SB (West Lanes)	T	0.96	37.1	D	T	1.03	53.0	D	T	0.74	20.7	C	T	0.79	22.8	C	T	0.89	83.6	F	T	1.09	173.5	F	T	0.96	55.9	E	T	1.04	88.2	F
	Int.		29.3	C	Int.		39.2	C	Int.		20.1	C	Int.		22.2	C	Int.		36.0	D	Int.		58.8	E	Int.		37.0	D	Int.		53.9	D
Varick Street & Charlton Street																																
WB	LT	0.60	28.0	C	LT	0.73	34.2	C	LT	0.57	27.1	C	LT	0.67	31.3	C	LT	0.91	50.2	D	LT	1.07	92.9	F	LT	0.62	28.7	C	LT	0.74	35.0-	C
SB (East Lanes)	T	0.73	20.4	C	T	0.78	22.2	C	T	0.57	16.8	B	T	0.65	18.4	B	T	0.77	21.8	C	T	0.86	26.1	C	T	0.77	21.7	C	T	0.84	25.0	C
SB (West Lanes)	TR	0.77	22.3	C	TR	0.92	33.4	C	TR	0.73	20.7	C	TR	0.81	24.2	C	TR	0.82	84.2	F	TR	1.19	248.6	F	TR	0.96	58.5	E	TR	1.09	93.0	F
	Int.		22.1	C	Int.		28.5	C	Int.		19.9	B	Int.		22.8	B	Int.		38.1	D	Int.		75.5	E	Int.		34.9	C	Int.		49.0	D
Varick Street & Vandam Street																																
WB	LT	0.31	21.3	C	LT	0.33	21.7	C	LT	0.30	21.3	C	LT	0.34	22.0	C	LT	0.21	19.8	B	LT	0.24	20.3	C	LT	0.18	19.4	B	LT	0.21	19.8	B
SB (East Lanes)	T	0.54	15.8	B	T	0.57	16.3	B	T	0.66	18.7	B	T	0.75	21.2	C	T	0.51	15.4	B	T	0.57	16.3	B	T	0.82	24.1	C	T	0.90	29.5	C
SB (West Lanes)	TR	0.45	14.6	B	TR	0.46	14.8	B	TR	0.58	20.1	C	TR	0.62	21.3	C	TR	1.01	82.6	F	TR	1.20	146.9	F	TR	1.05	83.4	F	TR	1.16	122.4	F
	Int.		15.7	B	Int.		16.0	B	Int.		19.5	B	Int.		21.3	C	Int.		35.4	D	Int.		54.9	D	Int.		44.4	D	Int.		61.2	E
Varick Street & Spring Street																																
EB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T	0.75	52.4	D	T	0.98	86.1	F	-	-	-	-	-	-	-	-
	TR	0.67	31.4	C	TR	0.74	34.2	C	TR	0.61	29.9	C	TR	0.74	35.2	D	-	-	-	-	-	-	-	-	TR	1.05	106.1	F	TR	1.22	167.0	F
	R	0.51	29.5	C	R	0.61	33.1	C	R	0.53	31.1	C	R	0.71	41.2	D	R	1.05	98.6	F	R	1.21	156.1	F	R	1.05	122.6	F	R	1.32	223.8	F
SB (East Lanes)	LT	0.91	29.4	C	LT	0.98	41.3	D	LT	0.79	22.2	C	LT	0.91	30.5	C	LT	0.52	14.5	B	LT	0.63	16.2	B	LT	0.88	26.7	C	LT	1.00	45.5	D
SB (West Lanes)	T	0.43	13.4	B	T	0.44	13.5	B	T	0.52	20.1	C	T	0.56	21.2	C	T	0.82	81.2	F	T	0.97	152.2	F	T	1.05	82.9	F	T	1.15	118.6	F
	Int.		24.1	C	Int.		30.1	C	Int.		23.2	C	Int.		28.8	C	Int.		45.8	D	Int.		74.3	E	Int.		59.1	E	Int.		93.9	F
Varick Street & Dominick Street																																
SB (East Lanes)	LT	0.47	15.4	B	LT	0.52	16.1	B	LT	0.37	14.3	B	LT	0.45	15.2	B	LT	0.44	15.1	B	LT	0.52	16.1	B	LT	0.48	15.6	B	LT	0.55	16.6	B
SB (West Lanes)	TR	0.52	16.2	B	TR	0.54	16.5	B	TR	0.71	20.8	C	TR	0.81	24.9	C	TR	1.05	83.8	F	TR	1.24	156.2	F	TR	1.05	83.5	F	TR	1.21	143.0	F
	Int.		15.8	B	Int.		16.3	B	Int.		17.8	B	Int.		20.4	C	Int.		46.1	D	Int.		79.2	E	Int.		45.5	D	Int.		72.3	E
Varick Street & Broome Street																																
WB	L	0.12	18.0	B	L	0.13	18.2	B	L	0.17	18.7	B	L	0.19	18.9	B	L	0.36	21.2	C	L	0.38	21.6	C	L	0.24	19.5	B	L	0.26	19.8	B
SB (East Lanes)	T	0.46	15.3	B	T	0.50	15.9	B	T	0.36	14.2	B	T	0.44	15.0	B	T	0.42	14.8	B	T	0.49	15.7	B	T	0.48	15.5	B	T	0.54	16.4	B
SB (West Lanes)	TR	0.53	18.1	B	TR	0.56	19.0	B	TR	0.75	25.7	C	TR	1.05	76.9	E	TR	0.93	80.9	F	TR	1.21	194.5	F	TR	1.05	91.6	F	TR	1.86	432.7	F
	R	0.58	18.3	B	R	0.62	19.5	B	R	0.70	25.9	C	R	1.01	81.0	F	R	0.99	83.4	F	R	1.27	196.2	F	R	1.05	92.9	F	R	2.02	508.6	F
	Int.		16.8	B	Int.		17.6	B	Int.		21.9	C	Int.		56.5	E	Int.		41.9	D	Int.		86.1	F	Int.		47.0	D	Int.		214.3	F

Table 13-49 (cont'd)
2011 Existing and 2022 No-Action Conditions Level of Service Analysis
Signalized Intersections

	Weekday AM								Weekday Midday								Weekday PM								Saturday Midday							
	2011 Existing				2022 No-Action				2011 Existing				2022 No-Action				2011 Existing				2022 No-Action				2011 Existing				2022 No-Action			
Intersection	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS
Varick Street & Watts Street																																
EB	R	0.03	14.2	B	R	0.03	14.2	B	R	0.06	14.5	B	R	0.07	14.6	B	R	0.02	14.1	B	R	0.02	14.1	B	R	0.02	14.1	B	R	0.02	14.1	B
WB	L	0.30	17.3	B	L	0.34	18.0	B	L	0.30	17.6	B	L	0.38	19.1	B	L	0.01	14.0	B	L	0.06	14.5	B	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LT	0.96	56.0	E	LT	1.00	77.5	E
	T	0.65	24.5	C	T	0.67	24.8	C	T	0.38	17.3	B	T	0.39	17.4	B	T	1.04	84.2	F	T	1.07	92.9	F	-	-	-	-	-	-	-	-
SB (East Lanes)	T	0.67	21.8	C	T	0.73	23.3	C	T	0.49	18.8	B	T	0.59	20.2	C	T	0.43	17.7	B	T	0.49	18.5	B	T	0.79	25.0	C	T	0.88	29.7	C
SB (West Lanes)	T	0.28	16.4	B	T	0.29	16.5	B	T	0.20	15.6	B	T	0.21	15.7	B	T	0.09	14.6	B	T	0.09	14.6	B	T	0.03	14.2	B	T	0.04	14.2	B
	Int.		21.8	C	Int.		22.6	C	Int.		17.7	B	Int.		18.5	B	Int.		38.5	D	Int.		41.8	D	Int.		37.0	D	Int.		48.2	D
Varick Street & Grand Street																																
SB	LT	0.45	10.2	B	LT	0.51	10.9	B	LT	0.43	10.1	B	LT	0.54	11.4	B	LT	0.31	9.1	A	LT	0.38	9.6	A	LT	0.46	10.5	B	LT	0.56	11.6	B
	Int.		10.2	B	Int.		10.9	B	Int.		10.1	B	Int.		11.4	B	Int.		9.1	A	Int.		9.6	A	Int.		10.5	B	Int.		11.6	B
Varick Street & Canal Street																																
EB	TR	0.37	10.3	B	TR	0.39	10.5	B	TR	0.38	10.4	B	TR	0.41	10.8	B	TR	0.31	9.8	A	TR	0.33	9.9	A	TR	0.35	10.1	B	TR	0.38	10.4	B
WB	LT	1.02	49.5	D	LT	1.07	66.1	E	LT	0.71	20.8	C	LT	0.79	23.5	C	LT	1.04	80.7	F	LT	1.16	121.1	F	LT	1.01	61.5	E	LT	1.12	100.0	F
SB	L	0.24	25.4	C	L	0.39	30.1	C	-	-	-	-	-	-	-	-	L	0.37	28.0	C	L	0.72	48.1	D	-	-	-	-	-	-	-	-
	LTR	0.65	29.5	C	R	0.70	30.5	C	LTR	0.70	30.5	C	LTR	0.80	33.6	C	LTR	0.62	28.9	C	LTR	0.69	30.4	C	LTR	0.71	30.8	C	LTR	0.82	34.6	C
	Int.		34.0	C	Int.		41.6	D	Int.		22.0	C	Int.		24.3	C	Int.		41.2	D	Int.		56.4	E	Int.		38.2	D	Int.		54.7	D
Avenue of the Americas & West Houston Street																																
WB	T	0.63	24.1	C	T	0.72	27.2	C	T	0.64	24.4	C	T	0.72	26.4	C	T	0.61	23.6	C	T	0.66	24.1	C	T	0.59	23.2	C	T	0.65	24.4	C
	R	0.70	27.3	C	R	0.76	30.6	C	R	0.90	42.8	D	R	0.94	49.0	D	R	0.94	48.4	D	R	0.95	49.9	D	R	0.91	44.6	D	R	0.95	51.3	D
NB	LTR	1.00	43.3	D	LTR	1.04	53.0	D	LTR	0.89	27.8	C	LTR	0.98	38.8	D	LTR	0.80	23.8	C	LTR	0.94	33.7	C	LTR	0.76	22.7	C	LTR	0.83	24.7	C
	Int.		36.2	D	Int.		43.2	D	Int.		29.7	C	Int.		37.5	D	Int.		28.8	C	Int.		34.4	C	Int.		27.1	C	Int.		29.6	C
Avenue of the Americas & King Street																																
EB	L	0.48	20.2	C	L	0.51	20.8	C	L	0.58	22.8	C	L	0.62	24.1	C	L	0.50	20.8	C	L	0.58	22.8	C	L	0.49	20.6	C	L	0.51	21.1	C
WB	R	0.01	13.9	B	R	0.01	13.9	B	R	0.01	14.0	B	R	0.01	14.0	B	R	0.01	14.0	B	R	0.01	14.0	B	R	0.02	14.0	B	R	0.02	14.0	B
NB	T	0.82	21.9	C	T	0.87	23.9	C	T	0.70	18.9	B	T	0.77	20.4	C	T	0.56	16.5	B	T	0.62	17.4	B	T	0.61	17.2	B	T	0.66	17.9	B
	Int.		21.6	C	Int.		23.4	C	Int.		19.6	B	Int.		21.0	C	Int.		17.3	B	Int.		18.4	B	Int.		17.7	B	Int.		18.4	B
Avenue of the Americas & Spring Street																																
EB	L	0.66	27.3	C	L	0.80	36.2	D	L	0.54	22.7	C	L	0.68	28.3	C	L	0.38	19.0	B	L	0.58	24.8	C								
	T	0.44	19.2	B	T	0.46	19.4	B	T	0.44	19.0	B	T	0.46	19.4	B	T	0.31	17.2	B	T	0.34	17.5	B								
NB	TR	0.76	20.0+	C	TR	0.80	21.4	C	TR	0.63	17.6	B	TR	0.68	18.5	B	TR	0.53	16.2	B	TR	0.58	16.8	B								
	Int.		20.8	C	Int.		23.1	C	Int.		18.4	B	Int.		19.9	B	Int.		16.6	B	Int.		17.9	B								
Avenue of the Americas & Canal Street/Laight Street																																
EB (Canal Street)	T	0.62	30.6	C	T	0.65	31.3	C	T	0.52	28.9	C	T	0.56	29.6	C	T	0.40	23.2	C	T	0.44	23.6	C	T	0.52	29.0	C	T	0.56	29.6	C
EB (Laight Street)	T	0.80	56.4	E	T	0.81	58.4	E	T	0.53	34.4	C	T	0.56	34.9	C	T	1.05	87.1	F	T	1.06	92.5	F	T	0.81	42.1	D	T	0.85	44.0	D
WB	TR	0.96	36.3	D	TR	1.03	54.4	D	TR	0.90	36.6	D	TR	1.00	55.2	E	TR	1.04	82.4	F	TR	1.15	123.9	F	TR	0.64	16.3	B	TR	0.69	17.4	B
NB	LTR	1.05	67.1	E	LTR	1.10	83.2	F	LTR	0.78	29.9	C	LTR	0.86	34.0	C	-	-	-	-	-	-	-	-	LTR	0.82	31.4	C	LTR	0.86	33.3	C
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TR	0.55	24.6	C	TR	0.58	25.1	C	-	-	-	-	-	-	-	-
	Int.		51.1	D	Int.		62.8	E	Int.		32.4	C	Int.		39.5	D	Int.		54.8	D	Int.		67.8	E	Int.		28.2	C	Int.		29.7	C

Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound, Int. = Intersection

Table 13-50
2011 Existing and 2022 No-Action Conditions Level of Service Analysis
Unsignalized Intersection

	Weekday AM								Weekday Midday								Weekday PM									Saturday Midday							
	2011 Existing				2022 No-Action				2011 Existing				2022 No-Action				2011 Existing				2022 No-Action					2011 Existing				2022 No-Action			
Intersection	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS
Avenue of the Americas & West Houston Street																																
NB	L	0.30	20.7	C	L	0.35	23.6	C	L	0.25	15.2	C	L	0.30	17.1	C	L	0.13	11.7	B	L	0.15	12.8	B	L	0.25	17.0	C	L	0.30	19.3	C

Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound

Table 13-51
2022 No-Action and With-Action Conditions Level of Service Analysis
Signalized Intersections

Intersection	Weekday AM									Weekday Midday									Weekday PM									Saturday Midday								
	2022 No-Action				2022 With-Action					2022 No-Action				2022 With-Action					2022 No-Action				2022 With-Action					2022 No-Action				2022 With-Action				
	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS		Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS		Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS		Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	
West Street (Route 9A) & Clarkson Street																																				
NB	TR	0.84	18.5	B	TR	0.85	19.1	B		TR	0.80	19.0	B	TR	0.81	19.1	B		TR	0.88	20.8	C	TR	0.89	21.1	C										
SB	L	1.13	146.2	F	L	1.18	165.8	F	+	L	0.78	52.8	D	L	0.80	54.8	D		L	0.79	71.6	E	L	0.88	83.0	F	+									
	T	0.82	18.6	B	T	0.82	18.6	B		T	0.76	18.2	B	T	0.76	18.2	B		T	0.80	17.4	B	T	0.80	17.5	B										
	Int.		26.2	C	Int.		28.0	C		Int.		20.8	C	Int.		21.0	C		Int.		21.6	C	Int.		22.6	C										
West Street (Route 9A) & West Houston Street																																				
EB	L	0.11	48.5	D	L	0.11	48.6	D		L	0.06	32.4	C	L	0.06	32.5	C		L	0.74	88.9	F	L	0.75	91.2	F										
	R	0.03	46.1	D	R	0.03	46.1	D		R	0.01	31.7	C	R	0.01	31.7	C		R	0.09	47.2	D	R	0.09	47.2	D										
WB	L	0.59	60.0	E	L	0.62	61.1	E		L	0.35	37.2	D	L	0.36	37.4	D		L	0.70	65.6	E	L	0.71	66.6	E										
	LT	0.69	64.9	E	LT	0.72	66.4	E		LT	0.37	37.6	D	LT	0.38	37.8	D		LT	0.76	70.0	E	LT	0.77	71.0	E										
	R	1.15	159.0	F	R	1.26	203.9	F	+	R	0.98	86.0	F	R	1.00	92.6	F	+	R	1.21	175.6	F	R	1.24	188.2	F	+									
NB	L	0.39	78.0	E	L	0.39	78.0	E		L	0.10	52.5	D	L	0.10	52.5	D		L	0.45	80.9	F	L	0.45	80.9	F										
	T	0.88	28.2	C	T	0.88	28.5	C		T	0.87	29.8	C	T	0.87	29.9	C		T	0.88	28.5	C	T	0.89	28.8	C										
SB	T	0.97	40.2	D	T	0.97	40.4	D		T	0.96	40.6	D	T	0.96	40.7	D		T	0.92	33.0	C	T	0.92	33.0	C										
	R	0.02	11.8	B	R	0.02	11.8	B		R	0.01	14.6	B	R	0.01	14.6	B		R	0.05	12.1	B	R	0.05	12.1	B										
	Int.		41.7	D	Int.		44.8	D		Int.		38.1	D	Int.		38.7	D		Int.		43.4	D	Int.		44.7	D										
West Street (Route 9A) & Canal Street North																																				
WB	L	0.52	61.9	E	L	0.58	64.6	E		L	0.40	46.6	D	L	0.39	46.4	D		L	0.65	53.4	D	L	0.66	54.4	D		L	0.34	45.2	D	L	0.35	45.3	D	
	LR	1.01	124.6	F	LR	1.06	137.6	F	+	LR	0.59	53.6	D	LR	0.60	54.0	D		LR	0.32	43.2	D	LR	0.34	43.7	D		LR	0.53	51.0	D	LR	0.54	51.4	D	
	R	1.02	127.4	F	R	1.07	142.3	F	+	R	0.70	59.5	E	R	0.71	60.2	E		R	0.35	43.9	D	R	0.38	44.6	D		R	0.62	55.0+	E	R	0.64	56.0	E	
NB	T	0.77	9.7	A	T	0.78	9.8	A		T	0.54	8.0	A	T	0.55	8.0	A		T	0.75	12.1	B	T	0.75	12.2	B		T	0.60	8.6	A	T	0.60	8.7	A	
SB	T	0.52	5.9	A	T	0.52	6.0	A		T	0.49	7.4	A	T	0.49	7.4	A		T	0.58	9.1	A	T	0.58	9.1	A		T	0.49	7.3	A	T	0.49	7.4	A	
	Int.		15.5	B	Int.		16.7	B		Int.		11.6	B	Int.		11.7	B		Int.		12.9	B	Int.		13.1	B		Int.		11.1	B	Int.		11.2	B	
West Street (Route 9A) & Canal Street South																																				
NB	T	0.99	40.5	D	T	1.00	41.7	D		T	0.73	22.3	C	T	0.73	22.3	C		T	0.97	36.2	D	T	0.97	37.0	D		T	0.80	24.4	C	T	0.80	24.5	C	
	R	0.51	18.5	B	R	0.51	18.5	B		R	0.42	18.3	B	R	0.42	18.3	B		R	0.04	13.0	B	R	0.04	13.0	B		R	0.57	21.8	C	R	0.57	21.8	C	
SB	L	0.73	44.9	D	L	0.73	45.0	D		L	0.61	33.6	C	L	0.61	33.6	C		L	0.64	34.4	C	L	0.64	34.4	C		L	0.57	32.6	C	L	0.57	32.6	C	
	T	0.90	29.1	C	T	0.91	29.9	C		T	0.85	27.4	C	T	0.85	27.4	C		T	1.05	60.2	E	T	1.06	62.5	E		T	0.85	27.6	C	T	0.86	27.9	C	
	Int.		35.8	D	Int.		36.7	D		Int.		25.5	C	Int.		25.5	C		Int.		45.5	D	Int.		46.8	D		Int.		26.3	C	Int.		26.5	C	
Hudson Street & King Street																																				
EB	LT	0.17	21.3	C	LT	0.22	21.9	C		LT	0.15	21.1	C	LT	0.16	21.2	C		LT	0.22	21.9	C	LT	0.24	22.1	C		LT	0.07	20.1	C	LT	0.09	20.3	C	
NB	TR	0.92	30.4	C	TR	1.03	52.2	D	+	TR	0.80	21.5	C	TR	0.88	27.1	C		TR	0.88	25.9	C	TR	0.97	37.3	D		TR	0.59	15.6	B	TR	0.69	17.9	B	
	Int.		29.8	C	Int.		49.9	D		Int.		21.5	C	Int.		26.7	C		Int.		25.6	C	Int.		36.1	D		Int.		15.8	B	Int.		18.1	B	
Hudson Street & Charlton Street																																				
WB	TR	0.57	28.8	C	TR	0.72	34.8	C		TR	0.68	33.0	C	TR	0.81	40.6	D		TR	0.85	44.9	D	TR	1.04	83.7	F	+	TR	0.51	27.2	C	TR	0.68	33.1	C	
NB	LT	0.81	21.8	C	LT	0.86	24.1	C		LT	0.62	16.0	B	LT	0.64	16.6	B		LT	0.77	20.0-	B	LT	0.81	21.5	C		LT	0.51	14.2	B	LT	0.55	14.7	B	
	Int.		23.1	C	Int.		26.3	C		Int.		20.6	C	Int.		23.6	C		Int.		26.3	C	Int.		38.9	D		Int.		17.4	B	Int.		20.0+	C	
Hudson Street & Vandam Street																																				
EB	L	0.14	21.0	C	L	0.26	22.6	C		L	0.06	20.0-	B	L	0.13	20.9	C		L	0.12	20.7	C	L	0.20	21.8	C		L	0.03	19.6	B	L	0.11	20.5	C	
WB	R	0.18	21.5	C	R	0.19	21.8	C		R	0.19	21.8	C	R	0.21	22.1	C		R	0.20	21.8	C	R	0.21	22.0	C		R	0.10	20.4	C	R	0.11	20.6	C	
NB	T	0.72	18.4	B	T	0.73	18.7	B		T	0.52	14.3	B	T	0.52	14.4	B		T	0.67	17.1	B	T	0.68	17.3	B		T	0.47	13.6	B	T	0.48	13.7	B	
	Int.		18.7	B	Int.		19.2	B		Int.		15.1	B	Int.		15.4	B		Int.		17.6	B	Int.		17.9	B		Int.		14.1	B	Int.		14.5	B	
Hudson Street & Canal Street																																				
EB	L	0.84	45.3	D	L	0.85	45.5	D		L	0.72	38.3	D	L	0.72	38.3	D		L	1.08	107.0	F	L	1.08	107.0	F										
	T	0.72	19.1	B	T	0.72	19.1	B		T	0.68	17.7	B	T	0.68	17.7	B		T	0.54	14.5	B	T	0.54	14.5	B										
WB	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-		T	0.37	28.5	C	T	0.48	30.8	C										
	TR	0.99	61.9	E	TR	1.06	81.9	F	+	TR	0.92	49.5	D	TR	0.95	53.2	D		-	-	-	-	-	-	-	-										
	R	0.89	33.7	C	R	0.89	33.9	C		R	0.87	44.0	C	R	0.87	44.0	D		R	1.07	86.4	F	R	1.07	86.4	F										
NB (East Lanes)	T	0.33	26.2	C	T	0.33	26.2	C		T	0.33	26.2	C	T	0.33	26.2	C		T	1.03	87.8	F	T	1.03	87.8	F										
	R	0.31	29.6	C	R	0.31	29.6	C		R	0.33	30.1	C	R	0.33	29.9	C		R	0.07	23.9	C	R	0.06	23.9	C										
NB (West Lanes)	LT	1.11	95.4	F	LT	1.13	104.0	F	+	LT	0.92	47.7	D	LT	0.93	48.5	D		LT	1.14	106.7	F	LT	1.15	113.7	F	+									
	Int.		57.7	E	Int.		65.0	E		Int.		39.1	D	Int.		39.9	D		Int.		82.6	F	Int.		84.8	F										
Varick Street & West Houston Street																																				
WB	L	0.73	30.2	C	L	0.78	33.0	C		L	0.95	54.3	D	L	0.96	57.5	E		L	0.56	22.5	C	L	0.58	23.4	C		L	0.59	23.3	C	L	0.62	24.3	C	
	T	0.55	21.1	C	T	0.56	21.2	C		T	0.57	21.4	C	T	0.56	21.3	C		T	0.65	23.4	C	T	0.64	23.3	C		T	0.63	23.4	C	T	0.63	23.4	C	
SB (East Lanes)	T	0.82	28.3	C	T	0.82	28.0	C		T	0.67	22.8	C	T	0.66	22.6	C		T	0.84	29.5	C	T	0.85	30.1	C		T	0.82	28.3	C	T	0.83	28.8	C	
SB (West Lanes)	TR	1.00	51.8	D	TR	1.06	71.0	E	+	TR	0.81	28.4	C	TR	0.84	29.7	C		TR	1.25	171.0	F	TR	1.41	236.1	F	+	TR	0.78	26.8	C	TR	0.83	29.3	C	
	Int.		36.1	D	Int.		43.5	D		Int.		29.4	C	Int.		30.3	C		Int.		53.4	D	Int.		65.8	E		Int.		26.4	C	Int.		27.5	C	
Varick Street & King Street																																				
EB	TR	0.63	28.5	C	TR	0.81	38.7	D		TR	0.52	25.7	C	TR	0.66	30.1	C		TR	0.63	28.4	C	TR	0.79	36.9	D		TR	0.31	21.3	C	TR	0.50	25.0	C	
SB (East Lanes)	LT	0.59	17.4	B	LT	0.61	17.8	B		LT	0.71	20.5	C	LT	0.71	20.4	C		LT	0.86	26.6	C	LT	0.87	27.8	C		LT	0.92	32.6	C	LT	0.94	34.9	C	
SB (West Lanes)	T	1.03	53.0	D	T	1.07	67.3	E	+	T	0.79	22.8	C	T	0.81	23.6	C		T	1.09	173.5	F	T	1.24	229.0	F	+	T	1.04	88.2	F	T	1.09	104.8	F	+
	Int.		39.2	D	Int.		48.7	D		Int.		22.2	C	Int.		23.0	C		Int.		58.8	E	Int.		72.8	E		Int.		53.9	D	Int.		61.9	E	
Varick Street & Charlton Street																																				
WB	LT	0.73	34.2	C	LT	0.77	36.8	D		LT	0.67	31.3	C	LT	0.70	32.4	C		LT	1.07	92.9	F	LT	1.14	115.4	F	+	LT	0.74	35.0-	C	LT	0.81	40.5	D	
SB (East Lanes)	T	0.78	22.2	C	T	0.80	23.3	C		T	0.65	18.4	B	T	0.66	18.6	B		T	0.86	26.1	C	T	0.89	28.6	C		T	0.84	25.0	C	T	0.87	27.1	C	
SB (West Lanes)	TR	0.92	33.4	C	TR	1.00	48.7	D	+	TR	0.81	24.2	C	TR	0.87	27.8	C		TR	1.19	248.6	F	TR	1.61	439.4	F	+	TR	1.09	93.0	F	TR	1.23	149.4	F	
	Int.		28.5	C	Int.		35.9	D		Int.		22.8	C	Int.		24.7	C		Int.		75.5	E	Int.		110.6	F		Int.		49.0	D	Int.		69.7	E	
Varick Street & Vandam Street																																				
WB	LT	0.33	21.7	C	LT	0.34	22.0	C		LT	0.34	22.0	C	LT	0.36	22.3	C		LT	0.24	20.3	C	LT	0.25	20.4	C		LT	0.21	19.8	B	LT	0.26	20.7	C	
SB (East Lanes)	T	0.57	16.3	B	T	0.59	16.6	B		T	0.75	21.2	C	T	0.76	21.4	C		T	0.57	16.3	B	T	0.60	16.7	B		T	0.90	29.5	C	T	0.93	33.3	C	
SB (West Lanes)	TR	0.46	14.8	B	TR	0.48	15.1	B		TR	0.62	21.3	C	TR	0.62	21.4	C		TR	1.20	146.9	F	TR	1.22	156.4	F	+	TR	1.16	122.4	F	TR	1.16	123.9	F	
	Int.		16.0	B	Int.		16.3	B		Int.		21.3	C	Int.		21.5	C		Int.		54.9	D	Int.		57.9	E		Int.		61.2	E	Int.		64.1	E	
Varick Street & Spring Street																																				
EB	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-		T	0.98	86.1	F	T	1.11	122.3	F	+	-	-	-	-	-	-	-	-	
	TR	0.74	34.2	C	TR	0.80	37.7	D		TR	0.74	35.2	D	TR	0.76	36.5	D		-	-	-	-	-	-	-	-		TR	1.22	167.0	F	TR	1.32	206.2	F	+
	R	0.61	33.1	C	R	0.76	42.5	D		R	0.71	41.2	D	R	0.82	55.1	E	+	R	1.21	156.1	F	R	1.44	254.7	F	+	R	1.32	223.8	F	R	1.67	374.8	F	+
SB (East Lanes)	LT	0.98	41.3	D	LT	1.05	59.3	E	+	LT	0.91	30.5	C	LT	0.93	33.4	C		LT	0.63	16.2	B	LT	0.66	16.9	B		LT	1.00	45.5	D	LT	1.07	67.0	E	+
SB (West Lanes)	T	0.44	13.5	B	T	0.46	13.7	B		T	0.56	21.2	C	T	0.56	21.1	C		T	0.97	152.2	F	T	0.98	160.5	F	+	T	1.15	118.6	F	T	1.15	119.2	F	
	Int.		30.1	C	Int.		39.3	D		Int.		28.8	C	Int.		31.6	C		Int.		74.3	E	Int.		95.4	F		Int.		93.9	F	Int.		121.8	F	
Varick Street & Dominick Street																																				
SB (East Lanes)	LT	0.52	16.1	B	LT	0.55	16.6	B		LT	0.45	15.2	B	LT	0.46	15.3	B		LT	0.52	16.1	B	LT	0.56	16.7	B		LT	0.55	16.6	B	LT	0.58	17.0	B	
SB (West Lanes)	TR	0.54	16.5	B	TR	0.59	17.3	B		TR	0.81	24.9	C	TR	0.82	25.3	C		TR	1.24	156.2	F	TR	1.29	178.0	F	+	TR	1.21	143.0	F	TR	1.22	148.8	F	+
	Int.		16.3	B	Int.		17.0	B		Int.		20.4	C	Int.		20.6	C		Int.		79.2	E	Int.		89.4	F		Int.		72.3	E	Int.		75.1	E	
Varick Street & Broome Street																																				
WB	L	0.13	18.2	B	L	0.19	18.9	B		L	0.19	18.9	B	L	0.21	19.2	B		L	0.38	21.6	C	L	0.39	21.8	C		L	0.26	19.8	B	L	0.29	20.3	C	
SB (East Lanes)	T	0.50	15.9	B	T	0.54	16.3	B		T	0.44	15.0	B	T	0.43	15.0	B		T	0.49	15.7	B	T	0.51	16.0	B		T	0.54	16.4	B	T	0.56	16.6	B	
SB (West Lanes)	TR	0.58	19.0	B	TR	0.74	25.7	C		TR	1.05	76.9	E	TR	1.14	106.6	F	+	TR	1.21	194.5	F	TR	1.62	372.3	F	+	TR	1.86	432.7	F	TR	2.09	538.0	F	+
	R	0.62	19.5	B	R	0.76	26.4	C		R	1.01	81.0	F	R	1.23	159.8	F	+	R	1.27	196.2	F	R	1.67	379.5	F	+	R	2.02	508.6	F	R	2.34	653.1	F	+
	Int.		17.6	B	Int.		21.0	C		Int.		56.5	E	Int.		91.6	F		Int.		86.1	F	Int.		156.8	F		Int.		214.3	F	Int.		272.2	F	

Table 13-51 (cont'd)
2022 No-Action and With-Action Conditions Level of Service Analysis
Signalized Intersections

Intersection	Weekday AM									Weekday Midday									Weekday PM									Saturday Midday								
	2022 No-Action				2022 With-Action					2022 No-Action				2022 With-Action					2022 No-Action				2022 With-Action					2022 No-Action				2022 With-Action				
	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS		Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS		Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS		Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	
Varick Street & Watts Street																																				
EB	R	0.03	14.2	B	R	0.03	14.2	B		R	0.07	14.6	B	R	0.07	14.6	B		R	0.02	14.1	B	R	0.02	14.1	B		R	0.02	14.1	B	R	0.02	14.1	B	
WB	L	0.34	18.0	B	L	0.36	18.2	B		L	0.38	19.1	B	L	0.35	18.5	B		L	0.06	14.5	B	L	0.04	14.3	B		-	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-		LT	1.00	77.5	E	LT	0.99	73.1	E	
	T	0.67	24.8	C	T	0.67	24.9	C		T	0.39	17.4	B	T	0.39	17.4	B		T	1.07	92.9	F	T	1.06	91.2	F		-	-	-	-	-	-	-	-	
SB (East Lanes)	T	0.73	23.3	C	T	0.80	25.3	C		T	0.59	20.2	C	T	0.59	20.3	C		T	0.49	18.5	B	T	0.52	18.8	B		T	0.88	29.7	C	T	0.92	32.9	C	
SB (West Lanes)	T	0.29	16.5	B	T	0.29	16.5	B		T	0.21	15.7	B	T	0.21	15.7	B		T	0.09	14.6	B	T	0.09	14.6	B		T	0.04	14.2	B	T	0.04	14.2	B	
	Int.		22.6	C	Int.		23.5	C		Int.		18.5	B	Int.		18.5	B		Int.		41.8	D	Int.		41.4	D		Int.		48.2	D	Int.		48.3	D	
Varick Street & Grand Street																																				
SB	LT	0.51	10.9	B	LT	0.56	11.5	B		LT	0.54	11.4	B	LT	0.53	11.3	B		LT	0.38	9.6	A	LT	0.39	9.7	A		LT	0.56	11.6	B	LT	0.58	11.8	B	
	Int.		10.9	B	Int.		11.5	B		Int.		11.4	B	Int.		11.3	B		Int.		9.6	A	Int.		9.7	A		Int.		11.6	B	Int.		11.8	B	
Varick Street & Canal Street																																				
EB	TR	0.39	10.5	B	TR	0.39	10.5	B		TR	0.41	10.8	B	TR	0.41	10.8	B		TR	0.33	9.9	A	TR	0.33	9.9	A		TR	0.38	10.4	B	TR	0.38	10.4	B	
WB	LT	1.07	66.1	E	LT	1.09	70.3	E	+	LT	0.79	23.5	B	LT	0.79	23.4	C		LT	1.16	121.1	F	LT	1.15	120.5	F		LT	1.12	100.0	F	LT	1.12	99.6	F	
SB	L	0.39	30.1	C	L	0.49	34.3	C		-	-	-	-	-	-	-	-		L	0.72	48.1	D	L	0.85	66.3	E	+	-	-	-	-	-	-	-	-	
	LTR	0.70	30.5	C	LTR	0.75	32.1	C		LTR	0.80	33.6	C	LTR	0.83	35.3	D		LTR	0.69	30.4	C	LTR	0.75	32.0	C		LTR	0.82	34.6	C	LTR	0.88	38.1	D	
	Int.		41.6	D	Int.		43.9	D		Int.		24.3	C	Int.		25.0	C		Int.		56.4	E	Int.		57.2	E		Int.		54.7	D	Int.		55.5	E	
Avenue of the Americas & West Houston Street																																				
WB	T	0.72	27.2	C	T	0.74	27.7	C		T	0.72	26.4	C	T	0.72	26.5	C		T	0.66	24.1	C	T	0.67	24.3	C		T	0.65	24.4	C	T	0.66	24.7	C	
	R	0.76	30.6	C	R	0.76	30.6	C		R	0.94	49.0	D	R	0.94	49.0	D		R	0.95	49.9	D	R	0.95	49.9	D		R	0.95	51.3	D	R	0.95	51.3	D	
NB	LTR	1.04	53.0	D	LTR	1.09	72.1	E	+	LTR	0.98	38.8	D	LTR	0.98	40.1	D		LTR	0.94	33.7	C	LTR	0.96	37.4	D		LTR	0.83	24.7	C	LTR	0.86	25.9	C	
	Int.		43.2	D	Int.		55.0+	E		Int.		37.5	D	Int.		38.2	D		Int.		34.4	C	Int.		36.4	D		Int.		29.6	C	Int.		30.3	C	
Avenue of the Americas & King Street																																				
EB	L	0.51	20.8	C	L	0.57	22.4	C		L	0.62	24.1	C	L	0.68	26.1	C		L	0.58	22.8	C	L	0.65	24.7	C		L	0.51	21.1	C	L	0.58	22.9	C	
WB	R	0.01	13.9	B	R	0.01	13.9	B		R	0.01	14.0	B	R	0.01	14.0	B		R	0.01	14.0	B	R	0.01	14.0	B		R	0.02	14.0	B	R	0.02	14.0	B	
NB	T	0.87	23.9	C	T	0.89	25.4	C		T	0.77	20.4	C	T	0.76	20.1	C		T	0.62	17.4	B	T	0.62	17.4	B		T	0.66	17.9	B	T	0.66	18.0	B	
	Int.		23.4	C	Int.		24.9	C		Int.		21.0	C	Int.		21.2	C		Int.		18.4	B	Int.		18.9	B		Int.		18.4	B	Int.		18.9	B	
Avenue of the Americas & Spring Street																																				
EB	L	0.80	36.2	D	L	0.95	59.2	E	+	L	0.68	28.3	C	L	0.75	32.5	C		L	0.58	24.8	C	L	0.67	28.7	C										
	T	0.46	19.4	B	T	0.47	19.7	B		T	0.46	19.4	B	T	0.46	19.5	B		T	0.34	17.5	B	T	0.35	17.6	B										
NB	TR	0.80	21.4	C	TR	0.82	21.8	C		TR	0.68	18.5	B	TR	0.68	18.3	B		TR	0.58	16.8	B	TR	0.57	16.8	B										
	Int.		23.1	C	Int.		26.7	C		Int.		19.9	B	Int.		20.4	C		Int.		17.9	B	Int.		18.5	B										
Avenue of the Americas & Canal Street/Laight Street																																				
EB (Canal Street)	T	0.65	31.3	C	T	0.67	31.8	C		T	0.56	29.6	C	T	0.57	29.7	C		T	0.44	23.6	C	T	0.45	23.8	C		T	0.56	29.6	C	T	0.58	29.8	C	
EB (Laight Street)	T	0.81	58.4	E	T	0.81	58.4	E		T	0.56	34.9	C	T	0.56	34.9	C		T	1.06	92.5	F	T	1.06	92.5	F		T	0.85	44.0	D	T	0.85	44.0	D	
WB	TR	1.03	54.4	D	TR	1.05	59.0	E		TR	1.00	55.2	E	TR	1.00	55.0-	D		TR	1.15	123.9	F	TR	1.16	127.7	F	+	TR	0.69	17.5	B	TR	0.70	17.5	B	
NB	LTR	1.10	83.2	F	LTR	1.12	90.9	F	+	LTR	0.86	34.0	C	LTR	0.87	34.3	C		-	-	-	-	-	-	-	-		LTR	0.86	33.4	C	LTR	0.86	33.5	C	
	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-		TR	0.58	25.1	C	TR	0.58	25.1	C		-	-	-	-	-	-	-	-	
	Int.		62.8	E	Int.		67.2	E		Int.		39.5	C	Int.		39.5	D		Int.		67.8	E	Int.		68.9	E		Int.		29.7	C	Int.		29.8	C	

Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound, Int. = Intersection
+ Denotes a significant adverse traffic impact

Table 13-52
2022 No-Action and With-Action Conditions Level of Service Analysis
Unsignalized Intersection

Intersection	Weekday AM									Weekday Midday									Weekday PM									Saturday Midday								
	2022 No-Action				2022 With-Action					2022 No-Action				2022 With-Action					2022 No-Action				2022 With-Action					2022 No-Action				2022 With-Action				
	Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS		Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS		Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS		Ln Grp	v/c Ratio	spv	LOS	Ln Grp	v/c Ratio	spv	LOS	
Sixth Avenue & West Houston Street																																				
NB	L	0.35	23.6	C	L	0.38	25.1	D		L	0.30	17.0	C	L	0.31	17.4	C		L	0.15	12.9	B	L	0.15	12.7	B		L	0.30	19.1	C	L	0.31	19.1	C	

Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound

Table 13-53
2011 Existing Conditions Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
AM Peak Period						
1	Spring Street between Sixth Avenue and Sullivan Street	North	7.0	272	2.59	B
	Spring Street between Sixth Avenue and Varick Street (east)	North	6.0	257	2.86	B
2	King Street between Varick Street and Hudson Street	South	4.0	155	2.58	B
	Varick Street between King Street and Charlton Street (north)	West	13.0	224	1.15	B
3	Varick Street between King Street and Charlton Street (south)	West	11.0	360	2.18	B
	Varick Street between Charlton Street and Vandam Street (north)	West	9.0	160	1.19	B
4	Vandam Street between Varick Street and Hudson Street (east)	South	13.0	179	0.92	B
	Varick Street between Charlton Street and Vandam Street (south)	West	15.0	207	0.92	B
	Varick Street between Vandam Street and Spring Street (north)	West	11.0	75	0.45	A
5	Spring Street between Sixth Avenue and Varick Street (west)	North	13.0	257	1.32	B
	Spring Street between Varick Street and Hudson Street (east)	North	13.0	101	0.52	B
	Varick Street between Vandam Street and Spring Street (south)	West	14.0	75	0.36	A
6	Varick Street between Spring Street and Dominick Street	East	26.0	78	0.20	A
		West	15.0	80	0.36	A
	Varick Street between Dominick Street and Broome Street	West	14.0	73	0.35	A
7	Varick Street between Broome Street and Watts Street (north)	East	12.0	110	0.61	B
		West	5.0	51	0.68	B
8	Varick Street between Broome Street and Watts Street (south)	East	11.0	110	0.67	B
		West	5.0	51	0.68	B
9	Varick Street between Watts Street and Grand Street	West	15.0	185	0.82	B
10	Varick Street between Grand Street and Canal Street	West	15.0	277	1.23	B
	Canal Street between Varick Street and Sixth Avenue	North	6.0	193	2.14	B
11	Spring Street between Hudson Street and Varick Street (west)	North	8.0	86	0.72	B

Table 13-53 (cont'd)
2011 Existing Conditions Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
Midday Peak Period						
1	Spring Street between Sixth Avenue and Sullivan Street	North	7.0	341	3.25	C
	Spring Street between Sixth Avenue and Varick Street (east)	North	6.0	263	2.92	B
2	King Street between Varick Street and Hudson Street	South	4.0	147	2.45	B
	Varick Street between King Street and Charlton Street (north)	West	13.0	251	1.29	B
3	Varick Street between King Street and Charlton Street (south)	West	11.0	347	2.10	B
	Varick Street between Charlton Street and Vandam Street (north)	West	9.0	266	1.97	B
4	Vandam Street between Varick Street and Hudson Street (east)	South	13.0	179	0.92	B
	Varick Street between Charlton Street and Vandam Street (south)	West	15.0	207	0.92	B
	Varick Street between Vandam Street and Spring Street (north)	West	11.0	161	0.98	B
5	Spring Street between Sixth Avenue and Varick Street (west)	North	13.0	263	1.35	B
	Spring Street between Varick Street and Hudson Street (east)	North	13.0	142	0.73	B
	Varick Street between Vandam Street and Spring Street (south)	West	14.0	161	0.77	B
6	Varick Street between Spring Street and Dominick Street	East	26.0	114	0.29	A
		West	15.0	116	0.52	B
	Varick Street between Dominick Street and Broome Street	West	14.0	155	0.74	B
7	Varick Street between Broome Street and Watts Street (north)	East	12.0	107	0.59	B
		West	5.0	103	1.37	B
8	Varick Street between Broome Street and Watts Street (south)	East	11.0	107	0.65	B
		West	5.0	103	1.37	B
9	Varick Street between Watts Street and Grand Street	West	15.0	382	1.70	B
10	Varick Street between Grand Street and Canal Street	West	15.0	162	0.72	B
	Canal Street between Varick Street and Sixth Avenue	North	6.0	127	1.41	B
11	Spring Street between Hudson Street and Varick Street (west)	North	8.0	98	0.82	B

Table 13-53 (cont'd)
2011 Existing Conditions Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
PM Peak Period						
1	Spring Street between Sixth Avenue and Sullivan Street	North	7.0	222	2.11	B
	Spring Street between Sixth Avenue and Varick Street (east)	North	6.0	250	2.78	B
2	King Street between Varick Street and Hudson Street	South	4.0	181	3.02	C
	Varick Street between King Street and Charlton Street (north)	West	13.0	130	0.67	B
3	Varick Street between King Street and Charlton Street (south)	West	11.0	83	0.50	A
	Varick Street between Charlton Street and Vandam Street (north)	West	9.0	139	1.03	B
4	Vandam Street between Varick Street and Hudson Street (east)	South	13.0	96	0.49	A
	Varick Street between Charlton Street and Vandam Street (south)	West	15.0	116	0.52	B
	Varick Street between Vandam Street and Spring Street (north)	West	11.0	92	0.56	B
5	Spring Street between Sixth Avenue and Varick Street (west)	North	13.0	250	1.28	B
	Spring Street between Varick Street and Hudson Street (east)	North	13.0	195	1.00	B
	Varick Street between Vandam Street and Spring Street (south)	West	14.0	92	0.44	A
6	Varick Street between Spring Street and Dominick Street	East	26.0	75	0.19	A
		West	15.0	56	0.25	A
	Varick Street between Dominick Street and Broome Street	West	14.0	47	0.22	A
7	Varick Street between Broome Street and Watts Street (north)	East	12.0	68	0.38	A
		West	5.0	45	0.60	B
8	Varick Street between Broome Street and Watts Street (south)	East	11.0	68	0.41	A
		West	5.0	45	0.60	B
9	Varick Street between Watts Street and Grand Street	West	15.0	120	0.53	B
10	Varick Street between Grand Street and Canal Street	West	15.0	157	0.70	B
	Canal Street between Varick Street and Sixth Avenue	North	6.0	205	2.28	B
11	Spring Street between Hudson Street and Varick Street (west)	North	8.0	119	0.99	B

Table 13-53 (cont'd)
2011 Existing Conditions Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
Saturday Peak Period						
1	Spring Street between Sixth Avenue and Sullivan Street	North	7.0	306	2.91	B
	Spring Street between Sixth Avenue and Varick Street (east)	North	6.0	86	0.96	B
2	King Street between Varick Street and Hudson Street	South	4.0	31	0.52	B
	Varick Street between King Street and Charlton Street (north)	West	13.0	74	0.38	A
3	Varick Street between King Street and Charlton Street (south)	West	11.0	89	0.54	B
	Varick Street between Charlton Street and Vandam Street (north)	West	9.0	100	0.74	B
4	Vandam Street between Varick Street and Hudson Street (east)	South	13.0	16	0.08	A
	Varick Street between Charlton Street and Vandam Street (south)	West	15.0	78	0.35	A
	Varick Street between Vandam Street and Spring Street (north)	West	11.0	45	0.27	A
5	Spring Street between Sixth Avenue and Varick Street (west)	North	13.0	86	0.44	A
	Spring Street between Varick Street and Hudson Street (east)	North	13.0	39	0.20	A
	Varick Street between Vandam Street and Spring Street (south)	West	14.0	45	0.21	A
6	Varick Street between Spring Street and Dominick Street	East	26.0	55	0.14	A
		West	15.0	36	0.16	A
	Varick Street between Dominick Street and Broome Street	West	14.0	27	0.13	A
7	Varick Street between Broome Street and Watts Street (north)	East	12.0	51	0.28	A
		West	5.0	23	0.31	A
8	Varick Street between Broome Street and Watts Street (south)	East	11.0	51	0.31	A
		West	5.0	23	0.31	A
9	Varick Street between Watts Street and Grand Street	West	15.0	67	0.30	A
10	Varick Street between Grand Street and Canal Street	West	15.0	73	0.32	A
	Canal Street between Varick Street and Sixth Avenue	North	6.0	165	1.83	B
11	Spring Street between Hudson Street and Varick Street (west)	North	8.0	59	0.49	A

Note: PMF = pedestrians per minute per foot

Table 13-54
2011 Existing Conditions Corner Analysis

Intersection No.	Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period		Saturday Peak Period	
			SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
1	Sixth Avenue and Spring Street	Northeast	221.9	A	283.8	A	195.9	A	280.0	A
		Northwest	155.6	A	205.1	A	173.1	A	311.0	A
2	Varick Street and King Street	Southwest	131.8	A	119.6	A	153.8	A	364.4	A
3	Varick Street and Charlton Street	Northeast	209.9	A	137.9	A	192.3	A	411.4	A
		Southeast	272.1	A	157.5	A	205.9	A	473.1	A
		Southwest	246.6	A	158.1	A	394.2	A	309.9	A
		Northwest	179.8	A	129.9	A	312.7	A	296.4	A
4	Varick Street and Vandam Street	Northeast	187.4	A	187.4	A	389.9	A	488.8	A
		Southeast	206.0	A	206.0	A	314.2	A	468.0	A
		Southwest	226.7	A	226.7	A	381.1	A	1009.8	A
		Northwest	248.3	A	248.3	A	440.7	A	999.1	A
5	Varick Street and Spring Street	Northeast	164.1	A	152.0	A	166.7	A	383.1	A
		Southeast	273.4	A	208.1	A	335.4	A	395.1	A
		Southwest	409.2	A	244.0	A	402.6	A	629.2	A
		Northwest	270.7	A	209.6	A	233.5	A	586.8	A
6	Varick Street and Dominick Street	Northeast	627.8	A	501.1	A	619.6	A	805.7	A
		Southeast	597.4	A	601.2	A	738.1	A	913.7	A
		Southwest	545.4	A	485.7	A	735.5	A	1326.9	A
		Northwest	606.5	A	442.5	A	674.0	A	1515.7	A
7	Varick Street and Broome Street	Northeast	517.1	A	396.1	A	584.7	A	591.0	A
		Southeast	499.6	A	467.8	A	672.4	A	903.0	A
		Northwest	600.8	A	403.8	A	713.2	A	906.3	A
8	Varick Street and Watts Street	Northeast	448.2	A	412.9	A	470.5	A	498.7	A
		Southwest	371.6	A	247.3	A	456.3	A	895.5	A
10	Varick Street and Canal Street	Northeast	348.5	A	493.4	A	348.3	A	502.2	A
		Northwest	256.0	A	298.4	A	222.8	A	385.7	A
11	Hudson Street and Spring Street	Northeast	369.5	A	347.7	A	398.5	A	752.3	A
		Northwest	407.4	A	345.1	A	428.1	A	875.9	A

Note: SFP = square feet per pedestrian

Table 13-55
2011 Existing Conditions Crosswalk Analysis

Intersection No.	Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles											
					AM			Midday			PM			Saturday		
					2-way Volume	SFP	LOS	2-way Volume	SFP	LOS	2-way Volume	SFP	LOS	2-way Volume	SFP	LOS
1	Sixth Avenue and Spring Street	North	60.0	15.0	311	42.3	B	263	48.8	B	333	36.5	C	161	82.3	A
3	Varick Street and Charlton Street	East	34.0	18.0	137	137.9	A	243	74.4	A	206	87.3	A	88	215.6	A
		West	34.0	18.0	165	104.0	A	234	71.4	A	86	217.8	A	155	111.8	A
4	Varick Street and Vandam Street	South	60.0	16.0	127	89.4	A	127	89.4	A	61	194.6	A	19	629.0	A
		East	34.0	19.0	133	149.6	A	133	149.6	A	107	187.2	A	102	194.5	A
		West	33.0	19.0	152	123.9	A	152	122.7	A	85	230.8	A	44	452.3	A
5	Varick Street and Spring Street	North	59.0	14.0	150	58.3	B	118	71.7	A	169	47.9	B	59	146.7	A
		East	36.0	19.0	115	184.6	A	172	122.2	A	109	194.2	A	73	292.3	A
		West	36.0	19.0	65	326.1	A	145	144.2	A	79	271.9	A	39	553.3	A
6	Varick Street and Dominick Street	East	31.0	17.0	62	281.0	A	77	226.0	A	59	294.5	A	54	322.9	A
		West	31.0	18.0	62	274.7	A	95	175.6	A	50	354.8	A	24	752.9	A
7	Varick Street and Broome Street	West	67.0	12.0	57	140.0	A	71	115.2	A	43	190.4	A	28	257.9	A
8	Varick Street and Watts Street	West	57.0	19.0	54	323.7	A	70	250.1	A	58	302.9	A	20	882.4	A
10	Varick Street and Canal Street	North	60.0	16.0	204	101.1	A	155	129.9	A	237	83.1	A	132	154.4	A

Note: SFP = square feet per pedestrian

Table 13-56
2022 No-Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
AM Peak Period						
1	Spring Street between Sixth Avenue and Sullivan Street	North	7.0	369	3.51	C
	Spring Street between Sixth Avenue and Varick Street (east)	North	6.0	345	3.83	C
2	King Street between Varick Street and Hudson Street	South	4.0	176	2.93	B
	Varick Street between King Street and Charlton Street (north)	West	13.0	273	1.40	B
3	Varick Street between King Street and Charlton Street (south)	West	11.0	412	2.50	B
	Varick Street between Charlton Street and Vandam Street (north)	West	9.0	214	1.59	B
4	Vandam Street between Varick Street and Hudson Street (east)	South	13.0	198	1.02	B
	Varick Street between Charlton Street and Vandam Street (south)	West	15.0	272	1.21	B
	Varick Street between Vandam Street and Spring Street (north)	West	11.0	134	0.81	B
5	Spring Street between Sixth Avenue and Varick Street (west)	North	13.0	403	2.07	B
	Spring Street between Varick Street and Hudson Street (east)	North	13.0	234	1.20	B
	Varick Street between Vandam Street and Spring Street (south)	West	14.0	129	0.61	B
6	Varick Street between Spring Street and Dominick Street	East	26.0	102	0.26	A
		West	15.0	110	0.49	A
	Varick Street between Dominick Street and Broome Street	West	14.0	93	0.44	A
7	Varick Street between Broome Street and Watts Street (north)	East	12.0	175	0.97	B
		West	5.0	67	0.89	B
8	Varick Street between Broome Street and Watts Street (south)	East	11.0	176	1.07	B
		West	5.0	67	0.89	B
9	Varick Street between Watts Street and Grand Street	West	15.0	205	0.91	B
10	Varick Street between Grand Street and Canal Street	West	15.0	289	1.28	B
	Canal Street between Varick Street and Sixth Avenue	North	6.0	284	3.16	C
11	Spring Street between Hudson Street and Varick Street (west)	North	8.0	213	1.78	B

Table 13-56 (cont'd)
2022 No-Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
Midday Peak Period						
1	Spring Street between Sixth Avenue and Sullivan Street	North	7.0	415	3.95	C
	Spring Street between Sixth Avenue and Varick Street (east)	North	6.0	329	3.66	C
2	King Street between Varick Street and Hudson Street	South	4.0	186	3.10	C
	Varick Street between King Street and Charlton Street (north)	West	13.0	329	1.69	B
3	Varick Street between King Street and Charlton Street (south)	West	11.0	427	2.59	B
	Varick Street between Charlton Street and Vandam Street (north)	West	9.0	395	2.93	B
4	Vandam Street between Varick Street and Hudson Street (east)	South	13.0	272	1.39	B
	Varick Street between Charlton Street and Vandam Street (south)	West	15.0	350	1.56	B
	Varick Street between Vandam Street and Spring Street (north)	West	11.0	369	2.24	B
5	Spring Street between Sixth Avenue and Varick Street (west)	North	13.0	363	1.86	B
	Spring Street between Varick Street and Hudson Street (east)	North	13.0	272	1.39	B
	Varick Street between Vandam Street and Spring Street (south)	West	14.0	361	1.72	B
6	Varick Street between Spring Street and Dominick Street	East	26.0	198	0.51	A
		West	15.0	278	1.24	B
	Varick Street between Dominick Street and Broome Street	West	14.0	302	1.44	B
7	Varick Street between Broome Street and Watts Street (north)	East	12.0	261	1.45	B
		West	5.0	244	3.25	C
8	Varick Street between Broome Street and Watts Street (south)	East	11.0	261	1.58	B
		West	5.0	244	3.25	C
9	Varick Street between Watts Street and Grand Street	West	15.0	509	2.26	B
10	Varick Street between Grand Street and Canal Street	West	15.0	234	1.04	B
	Canal Street between Varick Street and Sixth Avenue	North	6.0	375	4.17	C
11	Spring Street between Hudson Street and Varick Street (west)	North	8.0	201	1.68	B

Table 13-56 (cont'd)
2022 No-Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
PM Peak Period						
1	Spring Street between Sixth Avenue and Sullivan Street	North	7.0	407	3.88	C
	Spring Street between Sixth Avenue and Varick Street (east)	North	6.0	432	4.8	C
2	King Street between Varick Street and Hudson Street	South	4.0	202	3.37	C
	Varick Street between King Street and Charlton Street (north)	West	13.0	196	1.01	B
3	Varick Street between King Street and Charlton Street (south)	West	11.0	149	0.90	B
	Varick Street between Charlton Street and Vandam Street (north)	West	9.0	263	1.95	B
4	Vandam Street between Varick Street and Hudson Street (east)	South	13.0	181	0.93	B
	Varick Street between Charlton Street and Vandam Street (south)	West	15.0	255	1.13	B
	Varick Street between Vandam Street and Spring Street (north)	West	11.0	244	1.48	B
5	Spring Street between Sixth Avenue and Varick Street (west)	North	13.0	490	2.51	B
	Spring Street between Varick Street and Hudson Street (east)	North	13.0	414	2.12	B
	Varick Street between Vandam Street and Spring Street (south)	West	14.0	253	1.20	B
6	Varick Street between Spring Street and Dominick Street	East	26.0	135	0.35	A
		West	15.0	132	0.59	B
	Varick Street between Dominick Street and Broome Street	West	14.0	106	0.50	A
7	Varick Street between Broome Street and Watts Street (north)	East	12.0	197	1.09	B
		West	5.0	101	1.35	B
8	Varick Street between Broome Street and Watts Street (south)	East	11.0	197	1.19	B
		West	5.0	101	1.35	B
9	Varick Street between Watts Street and Grand Street	West	15.0	178	0.79	B
10	Varick Street between Grand Street and Canal Street	West	15.0	196	0.87	B
	Canal Street between Varick Street and Sixth Avenue	North	6.0	385	4.28	C
11	Spring Street between Hudson Street and Varick Street (west)	North	8.0	312	2.60	B

Table 13-56 (cont'd)
2022 No-Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
Saturday Peak Period						
1	Spring Street between Sixth Avenue and Sullivan Street	North	7.0	381	3.63	C
	Spring Street between Sixth Avenue and Varick Street (east)	North	6.0	163	1.81	B
2	King Street between Varick Street and Hudson Street	South	4.0	71	1.18	B
	Varick Street between King Street and Charlton Street (north)	West	13.0	133	0.68	B
3	Varick Street between King Street and Charlton Street (south)	West	11.0	148	0.90	B
	Varick Street between Charlton Street and Vandam Street (north)	West	9.0	197	1.46	B
4	Vandam Street between Varick Street and Hudson Street (east)	South	13.0	130	0.67	B
	Varick Street between Charlton Street and Vandam Street (south)	West	15.0	188	0.84	B
	Varick Street between Vandam Street and Spring Street (north)	West	11.0	168	1.02	B
5	Spring Street between Sixth Avenue and Varick Street (west)	North	13.0	192	0.98	B
	Spring Street between Varick Street and Hudson Street (east)	North	13.0	193	0.99	B
	Varick Street between Vandam Street and Spring Street (south)	West	14.0	183	0.87	B
6	Varick Street between Spring Street and Dominick Street	East	26.0	122	0.31	A
		West	15.0	162	0.72	B
	Varick Street between Dominick Street and Broome Street	West	14.0	167	0.80	B
7	Varick Street between Broome Street and Watts Street (north)	East	12.0	244	1.36	B
		West	5.0	161	2.15	B
8	Varick Street between Broome Street and Watts Street (south)	East	11.0	243	1.47	B
		West	5.0	161	2.15	B
9	Varick Street between Watts Street and Grand Street	West	15.0	187	0.83	B
10	Varick Street between Grand Street and Canal Street	West	15.0	148	0.66	B
	Canal Street between Varick Street and Sixth Avenue	North	6.0	437	4.86	C
11	Spring Street between Hudson Street and Varick Street (west)	North	8.0	179	1.49	B

Note: PMF = pedestrians per minute per foot

Table 13-57
2022 No-Action Condition Corner Analysis

Intersection No.	Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period		Saturday Peak Period	
			SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
1	Sixth Avenue and Spring Street	Northeast	177.7	A	220.6	A	141.6	A	222.7	A
		Northwest	127.2	A	156.9	A	111.7	A	216.5	A
2	Varick Street and King Street	Southwest	119.3	A	95.2	A	127.7	A	227.9	A
3	Varick Street and Charlton Street	Northeast	178.4	A	113.2	A	142.3	A	286.1	A
		Southeast	193.3	A	110.6	A	145.2	A	256.5	A
		Southwest	162.1	A	97.8	A	171.3	A	177.2	A
		Northwest	150.0	A	104.3	A	172.0	A	209.9	A
4	Varick Street and Vandam Street	Northeast	151.7	A	147.4	A	188.2	A	333.0	A
		Southeast	155.3	A	148.6	A	183.8	A	267.0	A
		Southwest	148.1	A	117.4	A	172.4	A	258.2	A
		Northwest	158.1	A	124.1	A	158.1	A	292.4	A
5	Varick Street and Spring Street	Northeast	104.7	A	95.6	A	88.6	A	170.7	A
		Southeast	242.8	A	156.3	A	247.2	A	264.0	A
		Southwest	335.0	A	139.5	A	260.5	A	252.3	A
		Northwest	156.0	A	100.0	A	97.6	A	169.7	A
6	Varick Street and Dominick Street	Northeast	453.5	A	261.0	A	344.5	A	389.1	A
		Southeast	440.8	A	268.8	A	359.4	A	376.8	A
		Southwest	421.1	A	196.4	A	354.8	A	325.2	A
		Northwest	449.7	A	195.8	A	355.2	A	358.9	A
7	Varick Street and Broome Street	Northeast	341.0	A	163.5	A	242.3	A	236.1	A
		Southeast	338.7	A	187.9	A	273.7	A	296.4	A
		Northwest	453.9	A	154.0	A	326.7	A	205.1	A
8	Varick Street and Watts Street	Northeast	261.2	A	149.0	A	184.3	A	136.8	A
		Southwest	322.3	A	138.1	A	287.7	A	247.5	A
10	Varick Street and Canal Street	Northeast	252.4	A	199.2	A	201.9	A	168.9	A
		Northwest	197.8	A	142.3	A	147.8	A	140.9	A
11	Hudson Street and Spring Street	Northeast	183.8	A	192.0	A	164.0	A	270.0	A
		Northwest	212.7	A	165.2	A	165.7	A	231.2	A

Note: SFP = square feet per pedestrian

Table 13-58
2022 No-Action Condition Crosswalk Analysis

Intersection No.	Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles											
					AM			Midday			PM			Saturday		
					2-way Volume	SFP	LOS	2-way Volume	SFP	LOS	2-way Volume	SFP	LOS	2-way Volume	SFP	LOS
1	Sixth Avenue and Spring Street	North	60.0	15.0	404	32.3	C	340	37.1	C	519	22.0	D	238	54.7	B
3	Varick Street and Charlton Street	East	34.0	18.0	176	106.8	A	317	55.9	B	271	65.0	A	141	132.8	A
		West	34.0	18.0	218	71.6	A	322	49.5	B	188	96.1	A	224	74.9	A
4	Varick Street and Vandam Street	South	60.0	16.0	171	65.3	A	166	67.5	A	94	124.1	A	62	189.7	A
		East	34.0	19.0	172	113.8	A	195	100.5	A	203	97.9	A	151	130.0	A
		West	33.0	19.0	252	73.9	A	357	49.5	B	244	76.6	A	178	107.5	A
5	Varick Street and Spring Street	North	59.0	14.0	283	30.6	C	246	33.1	C	382	19.4	D	181	46.5	B
		East	36.0	19.0	137	154.1	A	250	82.6	A	166	126.0	A	134	156.8	A
		West	36.0	19.0	95	221.6	A	311	64.8	A	154	137.3	A	170	123.7	A
6	Varick Street and Dominick Street	East	31.0	17.0	91	189.7	A	173	97.6	A	128	133.2	A	128	132.9	A
		West	31.0	18.0	89	189.7	A	251	61.3	A	122	136.3	A	147	114.5	A
7	Varick Street and Broome Street	West	67.0	12.0	73	108.2	A	212	37.2	C	99	81.0	A	166	42.0	B
8	Varick Street and Watts Street	West	57.0	19.0	69	252.6	A	199	85.8	A	112	155.6	A	146	118.3	A
10	Varick Street and Canal Street	North	60.0	16.0	278	73.0	A	372	52.4	B	373	51.7	B	382	51.4	B

Note: SFP = square feet per pedestrian

Table 13-59
2022 With-Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
AM Peak Period						
1	Spring Street between Sixth Avenue and Sullivan Street	North	7.0	525	5.00	C
	Spring Street between Sixth Avenue and Varick Street (east)	North	6.0	507	5.63	C
2	King Street between Varick Street and Hudson Street	South	4.0	210	3.50	C
	Varick Street between King Street and Charlton Street (north)	West	13.0	319	1.64	B
3	Varick Street between King Street and Charlton Street (south)	West	11.0	458	2.78	B
	Varick Street between Charlton Street and Vandam Street (north)	West	9.0	271	2.01	B
4	Vandam Street between Varick Street and Hudson Street (east)	South	13.0	295	1.51	B
	Varick Street between Charlton Street and Vandam Street (south)	West	15.0	359	1.60	B
	Varick Street between Vandam Street and Spring Street (north)	West	11.0	206	1.25	B
5	Spring Street between Sixth Avenue and Varick Street (west)	North	13.0	608	3.12	C
	Spring Street between Varick Street and Hudson Street (east)	North	13.0	321	1.65	B
	Varick Street between Vandam Street and Spring Street (south)	West	14.0	235	1.12	B
6	Varick Street between Spring Street and Dominick Street	East	26.0	188	0.48	A
		West	15.0	171	0.76	B
	Varick Street between Dominick Street and Broome Street	West	14.0	157	0.75	B
7	Varick Street between Broome Street and Watts Street (north)	East	12.0	243	1.35	B
		West	5.0	129	1.72	B
8	Varick Street between Broome Street and Watts Street (south)	East	11.0	245	1.48	B
		West	5.0	129	1.72	B
9	Varick Street between Watts Street and Grand Street	West	15.0	260	1.16	B
10	Varick Street between Grand Street and Canal Street	West	15.0	337	1.50	B
	Canal Street between Varick Street and Sixth Avenue	North	6.0	343	3.81	C
11	Spring Street between Hudson Street and Varick Street (west)	North	8.0	271	2.26	B

Table 13-59 (cont'd)
2022 With-Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
Midday Peak Period						
1	Spring Street between Sixth Avenue and Sullivan Street	North	7.0	497	4.73	C
	Spring Street between Sixth Avenue and Varick Street (east)	North	6.0	435	4.83	C
2	King Street between Varick Street and Hudson Street	South	4.0	238	3.97	C
	Varick Street between King Street and Charlton Street (north)	West	13.0	381	1.95	B
3	Varick Street between King Street and Charlton Street (south)	West	11.0	477	2.89	B
	Varick Street between Charlton Street and Vandam Street (north)	West	9.0	450	3.33	C
4	Vandam Street between Varick Street and Hudson Street (east)	South	13.0	314	1.61	B
	Varick Street between Charlton Street and Vandam Street (south)	West	15.0	450	2.00	B
	Varick Street between Vandam Street and Spring Street (north)	West	11.0	427	2.59	B
5	Spring Street between Sixth Avenue and Varick Street (west)	North	13.0	498	2.55	B
	Spring Street between Varick Street and Hudson Street (east)	North	13.0	365	1.87	B
	Varick Street between Vandam Street and Spring Street (south)	West	14.0	463	2.20	B
6	Varick Street between Spring Street and Dominick Street	East	26.0	261	0.67	B
		West	15.0	377	1.68	B
	Varick Street between Dominick Street and Broome Street	West	14.0	422	2.01	B
7	Varick Street between Broome Street and Watts Street (north)	East	12.0	301	1.67	B
		West	5.0	363	4.84	C
8	Varick Street between Broome Street and Watts Street (south)	East	11.0	312	1.89	B
		West	5.0	363	4.84	C
9	Varick Street between Watts Street and Grand Street	West	15.0	624	2.77	B
10	Varick Street between Grand Street and Canal Street	West	15.0	320	1.42	B
	Canal Street between Varick Street and Sixth Avenue	North	6.0	442	4.91	C
11	Spring Street between Hudson Street and Varick Street (west)	North	8.0	257	2.14	B

Table 13-59 (cont'd)
2022 With-Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
PM Peak Period						
1	Spring Street between Sixth Avenue and Sullivan Street	North	7.0	556	5.3	C
	Spring Street between Sixth Avenue and Varick Street (east)	North	6.0	594	6.6	D
2	King Street between Varick Street and Hudson Street	South	4.0	273	4.55	C
	Varick Street between King Street and Charlton Street (north)	West	13.0	257	1.32	B
3	Varick Street between King Street and Charlton Street (south)	West	11.0	208	1.26	B
	Varick Street between Charlton Street and Vandam Street (north)	West	9.0	349	2.59	B
4	Vandam Street between Varick Street and Hudson Street (east)	South	13.0	254	1.30	B
	Varick Street between Charlton Street and Vandam Street (south)	West	15.0	384	1.71	B
	Varick Street between Vandam Street and Spring Street (north)	West	11.0	331	2.01	B
5	Spring Street between Sixth Avenue and Varick Street (west)	North	13.0	714	3.66	C
	Spring Street between Varick Street and Hudson Street (east)	North	13.0	496	2.54	B
	Varick Street between Vandam Street and Spring Street (south)	West	14.0	378	1.80	B
6	Varick Street between Spring Street and Dominick Street	East	26.0	211	0.54	B
		West	15.0	202	0.90	B
	Varick Street between Dominick Street and Broome Street	West	14.0	193	0.92	B
7	Varick Street between Broome Street and Watts Street (north)	East	12.0	241	1.34	B
		West	5.0	183	2.44	B
8	Varick Street between Broome Street and Watts Street (south)	East	11.0	247	1.50	B
		West	5.0	183	2.44	B
9	Varick Street between Watts Street and Grand Street	West	15.0	259	1.15	B
10	Varick Street between Grand Street and Canal Street	West	15.0	265	1.18	B
	Canal Street between Varick Street and Sixth Avenue	North	6.0	440	4.89	C
11	Spring Street between Hudson Street and Varick Street (west)	North	8.0	375	3.13	C

Table 13-59 (cont'd)
2022 With-Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
Saturday Peak Period						
1	Spring Street between Sixth Avenue and Sullivan Street	North	7.0	510	4.86	C
	Spring Street between Sixth Avenue and Varick Street (east)	North	6.0	294	3.27	C
2	King Street between Varick Street and Hudson Street	South	4.0	141	2.35	B
	Varick Street between King Street and Charlton Street (north)	West	13.0	186	0.95	B
3	Varick Street between King Street and Charlton Street (south)	West	11.0	201	1.22	B
	Varick Street between Charlton Street and Vandam Street (north)	West	9.0	263	1.95	B
4	Vandam Street between Varick Street and Hudson Street (east)	South	13.0	157	0.81	B
	Varick Street between Charlton Street and Vandam Street (south)	West	15.0	296	1.32	B
	Varick Street between Vandam Street and Spring Street (north)	West	11.0	249	1.51	B
5	Spring Street between Sixth Avenue and Varick Street (west)	North	13.0	361	1.85	B
	Spring Street between Varick Street and Hudson Street (east)	North	13.0	246	1.26	B
	Varick Street between Vandam Street and Spring Street (south)	West	14.0	297	1.41	B
6	Varick Street between Spring Street and Dominick Street	East	26.0	195	0.50	A
		West	15.0	240	1.07	B
	Varick Street between Dominick Street and Broome Street	West	14.0	261	1.24	B
7	Varick Street between Broome Street and Watts Street (north)	East	12.0	292	1.62	B
		West	5.0	250	3.33	C
8	Varick Street between Broome Street and Watts Street (south)	East	11.0	297	1.80	B
		West	5.0	250	3.33	C
9	Varick Street between Watts Street and Grand Street	West	15.0	276	1.23	B
10	Varick Street between Grand Street and Canal Street	West	15.0	221	0.98	B
	Canal Street between Varick Street and Sixth Avenue	North	6.0	495	5.50	C
11	Spring Street between Hudson Street and Varick Street (west)	North	8.0	229	1.91	B

Note: PMF = pedestrians per minute per foot

Table 13-60
2022 With-Action Condition Corner Analysis

Intersection No.	Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period		Saturday Peak Period	
			SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
1	Sixth Avenue and Spring Street	Northeast	140.1	A	192.9	A	118.9	A	177.7	A
		Northwest	98.3	A	130.5	A	89.4	A	155.2	A
2	Varick Street and King Street	Southwest	105.8	A	83.0	A	104.3	A	169.3	A
3	Varick Street and Charlton Street	Northeast	139.5	A	100.4	A	113.7	A	196.6	A
		Southeast	143.9	A	94.9	A	111.6	A	179.3	A
		Southwest	128.2	A	79.8	A	118.2	A	126.6	A
		Northwest	123.9	A	89.5	A	125.5	A	148.6	A
4	Varick Street and Vandam Street	Northeast	122.7	A	133.4	A	156.2	A	239.0	A
		Southeast	110.9	A	125.3	A	128.1	A	175.1	A
		Southwest	104.2	A	90.9	A	102.0	A	148.1	A
		Northwest	118.2	A	97.0	A	108.4	A	171.1	A
5	Varick Street and Spring Street	Northeast	67.9	A	70.9	A	61.3	A	102.2	A
		Southeast	174.7	A	131.2	A	181.4	A	188.4	A
		Southwest	221.5	A	104.6	A	172.1	A	163.4	A
		Northwest	91.8	A	68.2	A	62.9	A	99.0	A
6	Varick Street and Dominick Street	Northeast	275.0	A	211.9	A	233.4	A	253.2	A
		Southeast	282.4	A	225.8	A	269.2	A	284.1	A
		Southwest	278.6	A	144.7	A	243.0	A	223.0	A
		Northwest	266.6	A	138.9	A	215.7	A	206.9	A
7	Varick Street and Broome Street	Northeast	214.0	A	139.3	A	182.7	A	179.1	A
		Southeast	221.6	A	158.6	A	212.1	A	223.3	A
		Northwest	241.9	A	97.9	A	174.8	A	128.3	A
8	Varick Street and Watts Street	Northeast	181.3	A	122.9	A	149.9	A	114.2	A
		Southwest	216.9	A	101.1	A	190.0	A	168.2	A
10	Varick Street and Canal Street	Northeast	203.8	A	152.8	A	162.1	A	137.2	A
		Northwest	171.2	A	115.7	A	124.2	A	117.6	A
11	Hudson Street and Spring Street	Northeast	158.0	A	157.4	A	136.6	A	204.6	A
		Northwest	177.6	A	130.6	A	137.0	A	178.7	A

Note: SFP = square feet per pedestrian

Table 13-61
2022 With-Action Condition Crosswalk Analysis

Intersection No.	Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles											
					AM			Midday			PM			Saturday		
					2-way Volume	SFP	LOS	2-way Volume	SFP	LOS	2-way Volume	SFP	LOS	2-way Volume	SFP	LOS
1	Sixth Avenue and Spring Street	North	60.0	15.0	562	21.9	D	426	28.9	C	671	16.4	D	367	34.1	C
3	Varick Street and Charlton Street	East	34.0	18.0	244	75.3	A	356	49.2	B	333	51.9	B	197	93.3	A
		West	34.0	18.0	272	55.2	B	381	40.1	B	267	63.3	A	295	53.8	B
4	Varick Street and Vandam Street	South	60.0	16.0	235	46.7	B	200	55.5	B	169	67.6	A	113	102.6	A
		East	34.0	19.0	242	79.8	A	228	85.2	A	254	77.1	A	206	93.8	A
		West	33.0	19.0	349	51.8	B	469	36.8	C	394	46.2	B	301	61.9	A
5	Varick Street and Spring Street	North	59.0	14.0	447	18.1	D	370	21.1	D	551	12.7	E	308	26.0	C
		East	36.0	19.0	219	94.0	A	301	67.8	A	236	87.7	A	203	102.0	A
		West	36.0	19.0	176	117.2	A	424	46.2	B	248	83.0	A	273	74.9	A
6	Varick Street and Dominick Street	East	31.0	17.0	162	104.0	A	221	75.3	A	189	88.8	A	185	90.4	A
		West	31.0	18.0	158	100.0	A	359	41.5	B	202	79.9	A	234	69.7	A
7	Varick Street and Broome Street	West	67.0	12.0	135	57.1	B	331	23.2	D	181	43.4	B	255	26.7	C
8	Varick Street and Watts Street	West	57.0	19.0	131	130.6	A	316	52.8	B	192	89.4	A	234	72.4	A
10	Varick Street and Canal Street	North	60.0	16.0	320	62.8	A	466	41.2	B	444	43.0	B	458	42.3	B

Note: SFP = square feet per pedestrian

✶