Chapter 17: Traffic and Parking

A. INTRODUCTION

This chapter examines the potential traffic and parking impacts of the proposed redevelopment of the former Domino Sugar site along the East River waterfront in Williamsburg, Brooklyn (the "proposed project"). The analyses of the pedestrian and transit conditions in connection with the proposed project are discussed in Chapter 18, "Transit and Pedestrians."

As described in Chapter 1, "Project Description," the proposed project would redevelop the former Domino Sugar site located along the Williamsburg waterfront in Brooklyn with residential, retail/commercial, community facility, and open space uses. The proposed project would include up to 2,400 residential units, up to 127,537 gross square feet (gsf) of retail/commercial space, up to 146,451 gsf of community facility space, up to 98,738 gsf of commercial office space, and approximately four acres of public open space. In addition, the proposed project would provide up to 1,694 below-grade accessory parking spaces.

It is expected that the proposed project would be completed and occupied by 2020. Therefore, 2020 was selected as the analysis year for assessing the potential traffic and parking impacts. The traffic capacity analysis for the proposed project was conducted for the weekday AM, midday, and PM, and Saturday midday peak hours—the periods during which the project-generated traffic and the overall traffic levels in the study area would be at the highest levels. All analyses presented in this chapter have been prepared pursuant to the methodologies and criteria outlined in the *City Environmental Quality Review (CEQR) Technical Manual.*

What follows is a detailed analysis of the proposed project and its potential traffic impacts. It begins with a description of the analysis framework and methodology, which is followed by a presentation of the existing traffic conditions, the future conditions without the proposed project (the "No Action" condition), and the future conditions with the proposed project. Where traffic impacts have been identified, they are summarized at the end of this chapter. Chapter 23, "Mitigation," presents the mitigation for these traffic impacts.

PRINCIPAL CONCLUSIONS

Traffic conditions were evaluated at 48 and 37 intersections for the weekday and Saturday conditions, respectively. The analysis considered the proposed project's traffic-generated activities, the future background growth in the study area (including the 32 residential and mixed-use developments projected for completion by the year 2020), and the traffic generated by the approximately 7,300 housing units and 204,600 square feet (sf) of commercial space on projected development sites identified in the *Greenpoint-Williamsburg Rezoning FEIS*[1]. This reflects a conservative No Action scenario, including future development projects beyond the ½-

[1] Greenpoint-Williamsburg Rezoning FEIS, CEQR # 04DCP003K (March 4, 2005)

mile radius[1] in the broader study area. The analysis indicates that in the future with the proposed project there would be the potential for significant adverse impacts at a total of 18 signalized and nine unsignalized intersections during one or more of the peak hour periods analyzed, including: 19 intersections during the weekday AM peak hour, 10 intersections during the weekday midday peak hour, 23 intersections during the weekday PM peak hour, and six intersections during the Saturday midday peak hour at one or more lane-groups or approaches. All of the potential traffic impacts at the 18 signalized and nine unsignalized locations identified above would be mitigated by implementing a variety of mitigation measures including signal timing modifications, lane restripings, changes to parking regulations, new stop controls, and installation of new traffic signals. These measures would be subject to review and approval from the New York City Department of Transportation (DOT) and, as described in Chapter 23, "Mitigation," would eliminate all of the potential significant adverse impacts that could result from the proposed project. The effect of the Kent Avenue reconfiguration on the study area's traffic conditions would be analyzed in detail between the DEIS and FEIS.

The proposed project would create garages that would provide approximately 1,694 accessory parking spaces. These spaces would accommodate the majority of the parking demand generated by the proposed project during the weekday and Saturday conditions. However, there would be a shortfall of a maximum of up to 45 parking spaces during the weekday morning (9 AM–10 AM) hour, and a maximum of up to 20 parking spaces during the Saturday late evening hours (9 PM–11 PM) at the project site garages. It is expected that this overflow parking demand during the weekday and Saturday conditions would be accommodated by off-site parking available in the ¼-mile study area and beyond. Therefore, the proposed project would not result in significant adverse parking impacts in the study area.

In addition, an analysis of the most recent three-year accident history available for the study area intersections indicates that the intersection of Marcy Avenue at South 6th Street (Broadway) is a high pedestrian and bicycle accident location. Under the current conditions, this intersection is equipped with curb bulb-outs across southbound Marcy Avenue and high visibility crosswalks across Broadway. A review of accident reports does not reveal an identifiable pattern of accidents at this intersection. Safety at this location could be further improved by providing high visibility crosswalks across the Marcy Avenue approaches and installing signs warning turning vehicles to yield to pedestrians on the southbound, eastbound, and westbound approaches. Based on predicted changes in pedestrian levels due to the proposed project, it was determined that, with the proposed safety improvements at the intersection of Marcy Avenue at South 6th Street (Broadway), the proposed project would not adversely impact pedestrian safety in the study area.

B. ANALYSIS FRAMEWORK

Absent the proposed project, it is assumed that the project site would be developed with commercial and industrial uses permitted under the existing M3-1 zoning. This No Action condition could include the development of a storage facility on the waterfront parcel between South 3rd and South 5th Streets, a building materials storage yard along the waterfront between South 2nd and South 1st Streets that would make use of waterborne transportation, and a new distribution facility along the waterfront immediately south of Grand Ferry Park. On the upland portion of the site, a new two-story building with a catering hall/restaurant on the upper floor and parking on the ground floor would be constructed. The total development program for this

[1] Typically, no-build projects within a ¼ up to a ½ mile radius are included in the no build analyses.

scenario includes approximately 106,300 sf of industrial distribution space, approximately 60,000 sf of storage space, 40,000 sf of catering hall/restaurant space, and 61,000 sf of land used for building materials storage (as well as 5,000 sf of office space for this use).

For the purposes of the traffic analysis, it was assumed that the trips generated by the proposed development would result from the difference in travel demand between the proposed project and the project's No Action condition. In addition to the No Action condition that would occur on the project site, the analysis accounted for a one percent annual growth rate (identified by the *CEQR Technical Manual)* for the project area, and included the traffic generated by uses on projected development sites identified in the *Greenpoint-Williamsburg Rezoning FEIS*, as well as 32 additional residential and mixed-use developments anticipated in the study area by 2020.

The No Action condition developed for evaluating the potential impacts of the proposed project represents a conservative scenario that not only incorporates a total of 11 percent background growth by 2020 over the 2009 baseline conditions but also includes the traffic generated by the specific development projects in the broader ½-mile radius study area, as well as the traffic generated by the development of approximately 7,300 dwelling units and 204,600 sf of retail space identified as part of the Greenpoint-Williamsburg Rezoning. It should be noted that the 2020 time frame is a decade in the future and, given the prevailing economic slowdown, there is a possibility that some of the anticipated development projects included as part of the No Action analyses would not be completed by the time the proposed project is constructed and operational. In such case, the 2020 No Action traffic conditions presented in the DEIS would be less severe, and there is a possibility that some of the potential traffic impacts attributed to the proposed project would be eliminated or be less impacted, as there would be more capacity available at study area intersections to accommodate the project demand.

KENT AVENUE RECONFIGURATION

Recently, Kent Avenue has been reconfigured in terms of traffic flow direction and geometric configuration in the study area. Specifically, since late September/early October 2009 the traffic flow direction on Kent Avenue has been changed from two-way north-south operation to one-way northbound operation between Clymer and North 14th Streets. In addition to the traffic flow direction change, new northbound-southbound bicycle lanes were installed on the west side of Kent Avenue in October 2009. Other geometric changes for the reconfigured Kent Avenue include a new loading/unloading lane on the east side of the roadway, followed by a northbound moving lane of traffic and a floating parking lane that separates the moving traffic lane from the bicycle lanes.

The traffic patterns resulting from the reconfiguration of Kent Avenue have not yet stabilized. Further, DOT is planning to assess the efficacy of the new Kent Avenue configuration and to determine whether additional network modifications are needed. Given the not yet stabilized network, this DEIS has undertaken the detailed traffic analysis assuming two-way volumes on Kent Avenue and has included a qualitative discussion of the effects of the one-way Kent Avenue reconfiguration based on new Automatic Traffic Recorder (ATR) data at limited locations. Qualitative discussion of the effects of the one-way Kent Avenue reconfiguration is presented later in the chapter including a comparison of the potential impacts of the proposed project under the pre-existing and revised Kent Avenue configuration. Additional mitigation measures that may be required with the revised Kent Avenue configuration are qualitatively discussed in Chapter 23, "Mitigation."

C. METHODOLOGY

The operations of all the signalized intersections and unsignalized intersections in the study area were analyzed by Highway Capacity Software (HCS) version 4.1f, which is based on the methodologies presented in the *2000 Highway Capacity Manual (HCM).* A description of these methodologies is provided below.

SIGNALIZED INTERSECTIONS

The level-of-service (LOS) for a signalized intersection is based on the average stopped delay per vehicle for the various lane groups (grouping of movements in one or more travel lanes). The levels of service are defined as follows:

LOS Criteria for Signalized Intersections

Level-of-Service (LOS)	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.	

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 either an approach or the entire intersection processes traffic close to its theoretical maximum 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 frequent cycle failures. The *HCM* methodology provides for a summary of the intersection's operating conditions by identifying the two critical movements (the worst case from each roadway) and calculating critical v/c ratio, delay, and LOS.

UNSIGNALIZED INTERSECTIONS

For unsignalized intersections, the total 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 total 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 as follows:

LOS Criteria for Unsignalized Intersections

Level-of-Service (LOS)	Average 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
Sources: 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. 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 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 total overall scale of delay thresholds for unsignalized intersections is lower than that of signalized intersections.

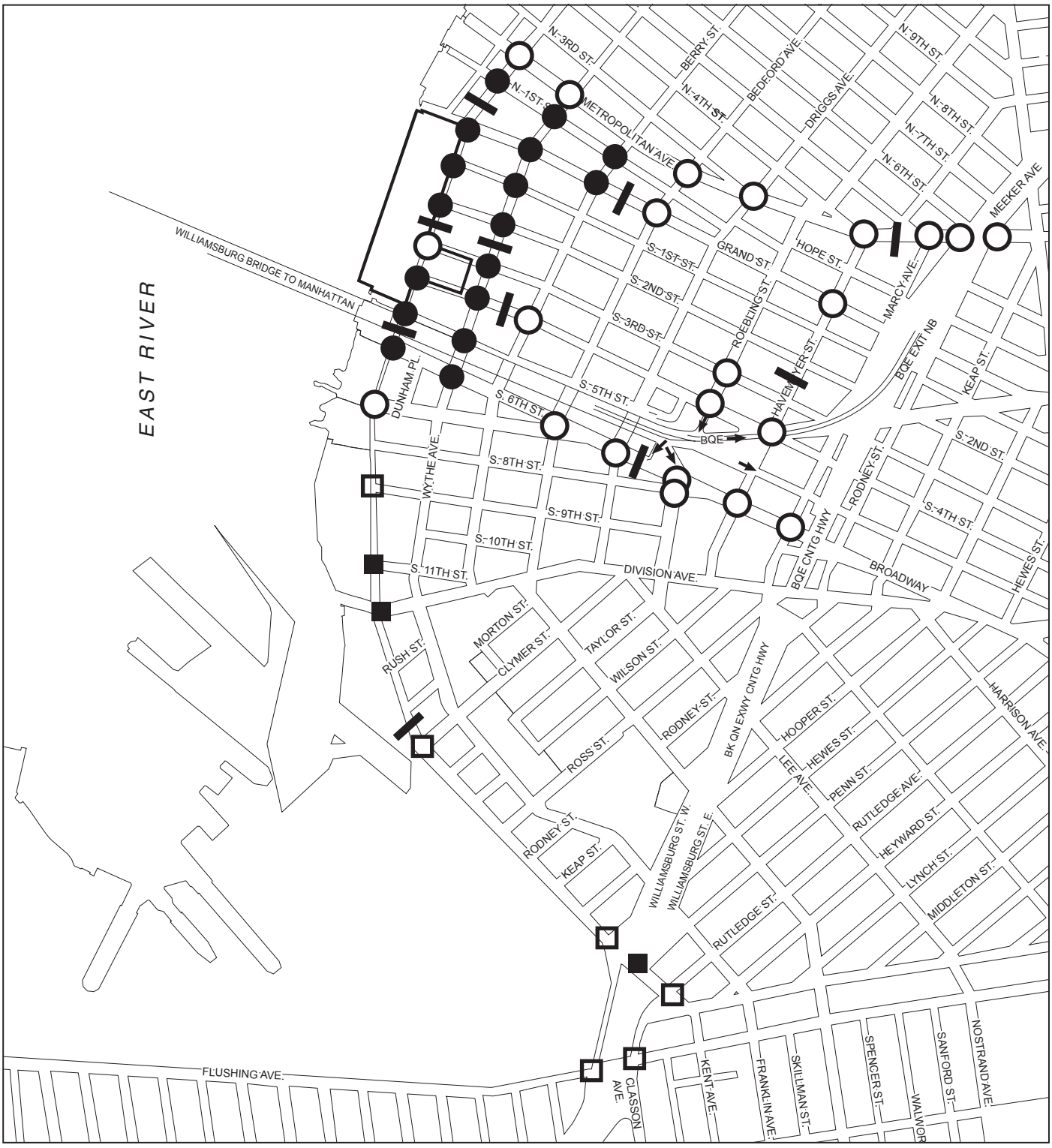
D. EXISTING CONDITIONS

STUDY AREA

To assess the traffic impacts associated with the proposed project, an overall traffic study area was defined which considered the location of the proposed project, primary access routes to and from the site, and key intersections likely to be affected by project-generated trips. In total, 48 intersections were selected for detailed analysis in the primary and secondary study areas for the weekday AM, midday, and PM conditions. For Saturday conditions, a total of 37 intersections were selected in the primary and secondary study areas. The primary and secondary study area intersections are identified in Figures 17-1a and 17-1b for the weekday and Saturday conditions, respectively.

The primary study area, which includes intersections closest to the project and most affected by project-generated traffic, consists of 39 intersections, and is bounded by Metropolitan Avenue on the north, Kent Avenue to the west, Broadway on the south, and the Brooklyn Queens Expressway (BQE) on the east. The secondary study area consists of nine additional intersections, primarily along Kent Avenue (between South 9th Street and Rutledge Street), as well the intersections on Flushing and Kent Avenues leading to the BQE service roads.

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Project Site Boundary

ATR Location Count

Primary Study Area (Signalized Intersection)

Primary Study Area (Unsignalized Intersection)

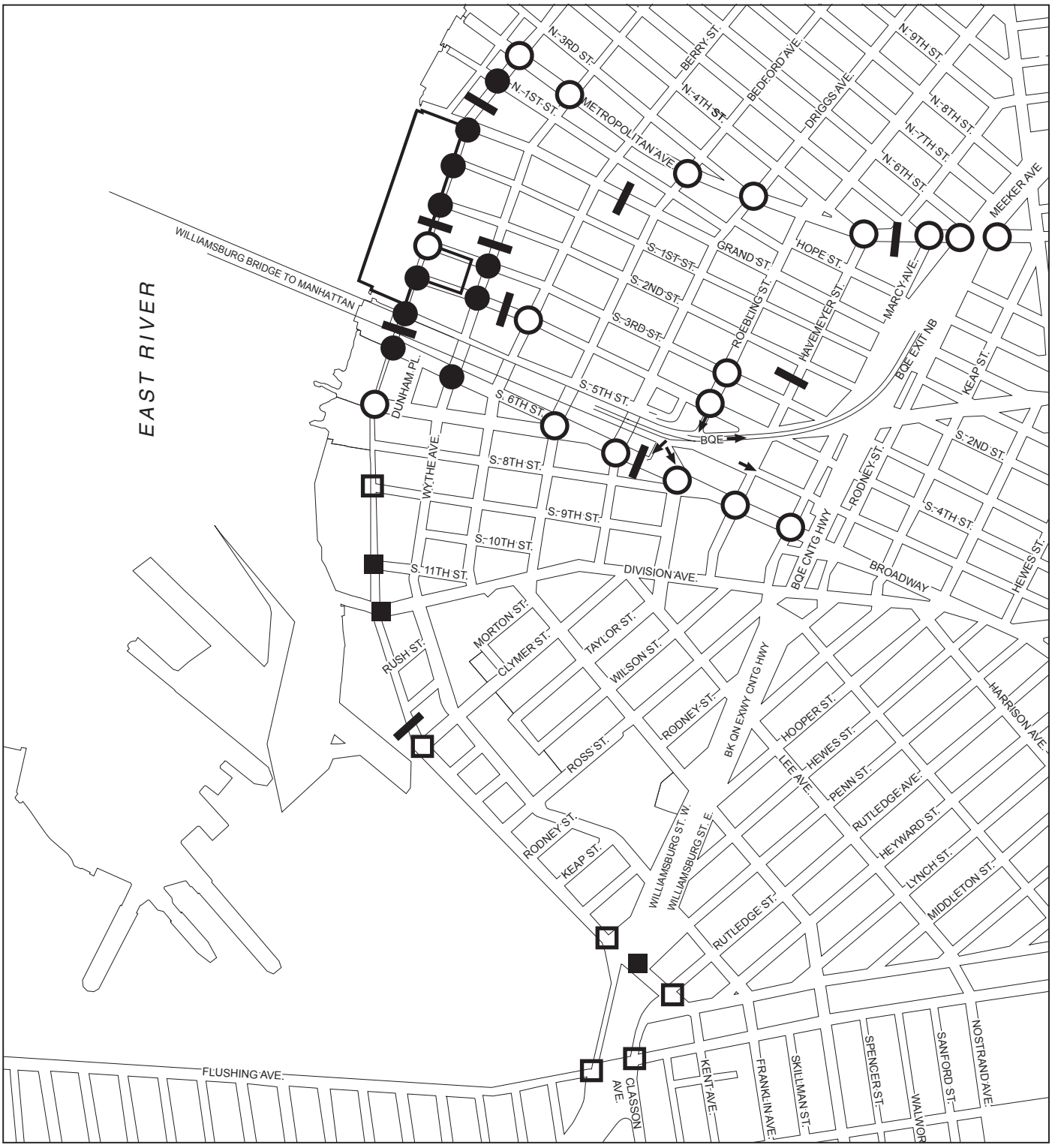
Secondary Study Area (Signalized Intersection)

Secondary Study Area (Unsignalized Intersection)

Traffic Analysis Locations-Weekday

Figure 17-1a

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Project Site Boundary

ATR Location Count

Primary Study Area (Signalized Intersection)

Primary Study Area (Unsignalized Intersection)

Secondary Study Area (Signalized Intersection)

Secondary Study Area (Unsignalized Intersection)

Traffic Analysis Locations-Saturday

Figure 17-1b

INTERSECTION AND ROADWAY CHARACTERISTICS

ROADWAY NETWORK

The project site is located in the Williamsburg section of Brooklyn, between the East River and Kent and Wythe Avenues, north of the Williamsburg Bridge. This area is characterized by higher-than-average commercial traffic since Kent Avenue, a DOT designated truck route, serves as a major north-south connection for the manufacturing and industrial uses along the Brooklyn waterfront. Major routes through the area include the BQE, which provides north-south access through the boroughs of Brooklyn, Queens, and Staten Island; the Williamsburg Bridge, which links the area with the Lower East Side of Manhattan; and Broadway, which serves as a major commercial route through Brooklyn.

As mentioned above, since late September/early October 2009 Kent Avenue has been reconfigured from two-way north-south operation to one-way northbound operation between Clymer and North 14th Streets. In addition to the traffic flow direction change, new two-way northbound-southbound bicycle lanes were installed on the west side of Kent Avenue in October 2009. Other geometric changes for the reconfigured Kent Avenue include a new loading/unloading lane on the east side of the roadway, followed by a northbound moving lane of traffic and a floating parking lane which separates the moving traffic lane from the bicycle lanes. The traffic patterns resulting from the reconfiguration of Kent Avenue have not yet stabilized. Therefore, the detailed analysis presented in the following sections analyzes traffic conditions in the study area assuming two-way volumes on Kent Avenue.

The following is a brief description of the key roadways/streets within the study area:

Kent Avenue is a major two-way north-south roadway and bicycle route in the study area. It provides a six-foot-wide bicycle lane and three-foot-wide buffer on each side of the roadway and operates with an 11- to 14-foot-wide moving lane of traffic in each travel direction. Traffic lights are spaced considerably apart along this corridor, making Kent Avenue a quick connection between downtown Brooklyn and the Williamsburg/Greenpoint area.

Roebling Street is a north-south commercial street which provides access to and from the Williamsburg Bridge, and is therefore subject to heavy vehicular and truck traffic. North of the Bridge, Roebling Street operates with one travel lane and one parking lane in each direction. South of the Bridge, the roadway features two travel lanes and a parking lane in each direction. Traffic signals control major intersections on Roebling Street.

Metropolitan Avenue is a local east-west commercial street operating with one travel lane and one parking lane in each direction. This roadway, which provides access to the BQE, carries heavy vehicular and truck traffic. Traffic signals control the major intersections along Metropolitan Avenue.

Broadway is an east-west commercial roadway which operates with one travel lane, a bicycle lane and one parking lane in each travel direction between Kent and Bedford Avenues. East of Bedford Avenue, it operates with one travel lane and one parking lane in each direction. Also, east of Havemeyer Street, Broadway serves as the alignment for the elevated J, M, and Z trains. As a result, the roadway is constrained by structural elements of the elevated tracks and is subject to poor sight distances and heavy pedestrian volumes, particularly at station locations.

Division Avenue is a local commercial street which serves as an east-west alternative to Broadway. It operates with one travel lane and one parking lane in each direction. Traffic signals control the major intersections along Division Avenue, except at its terminus at Kent Avenue.

Wythe Avenue is a one-way southbound street running parallel to Kent Avenue. It generally operates with one moving lane of traffic, with parking on both sides of the street. In addition, Wythe Avenue provides an exclusive southbound bicycle lane within the study area. Most of the intersections on Wythe Avenue in the vicinity of the project site are unsignalized.

Havemeyer Street is a one-way northbound street running from Division Avenue to Metropolitan Avenue. It operates with one moving lane of traffic and parking on both sides of the street.

Bedford Avenue runs the entire length of Brooklyn from Sheepshead Bay to Greenpoint. In the study area it operates as a one-way northbound street with one moving lane of traffic and parking on both sides.

South 6th Street is a westbound connector street which extends three blocks from Bedford to Kent Avenues. It generally operates with one moving lane of traffic and parking on both sides.

Grand Street is a two-way street providing an east-west connection between Maspeth, Queens and the Williamsburg section of Brooklyn. In the study area it operates with one moving lane in each direction with curbside parking.

Driggs Avenue is a one-way southbound street extending from Greenpoint Avenue to Division Avenue. In the study area it operates with one moving lane of traffic and parking on both sides.

Marcy Avenue is a one-way southbound street extending from Metropolitan Avenue to Fulton Street in Bedford Stuyvesant. In the study area it serves as a southbound service road to the BQE near Metropolitan Avenue, and generally operates with one moving lane with parking on both sides.

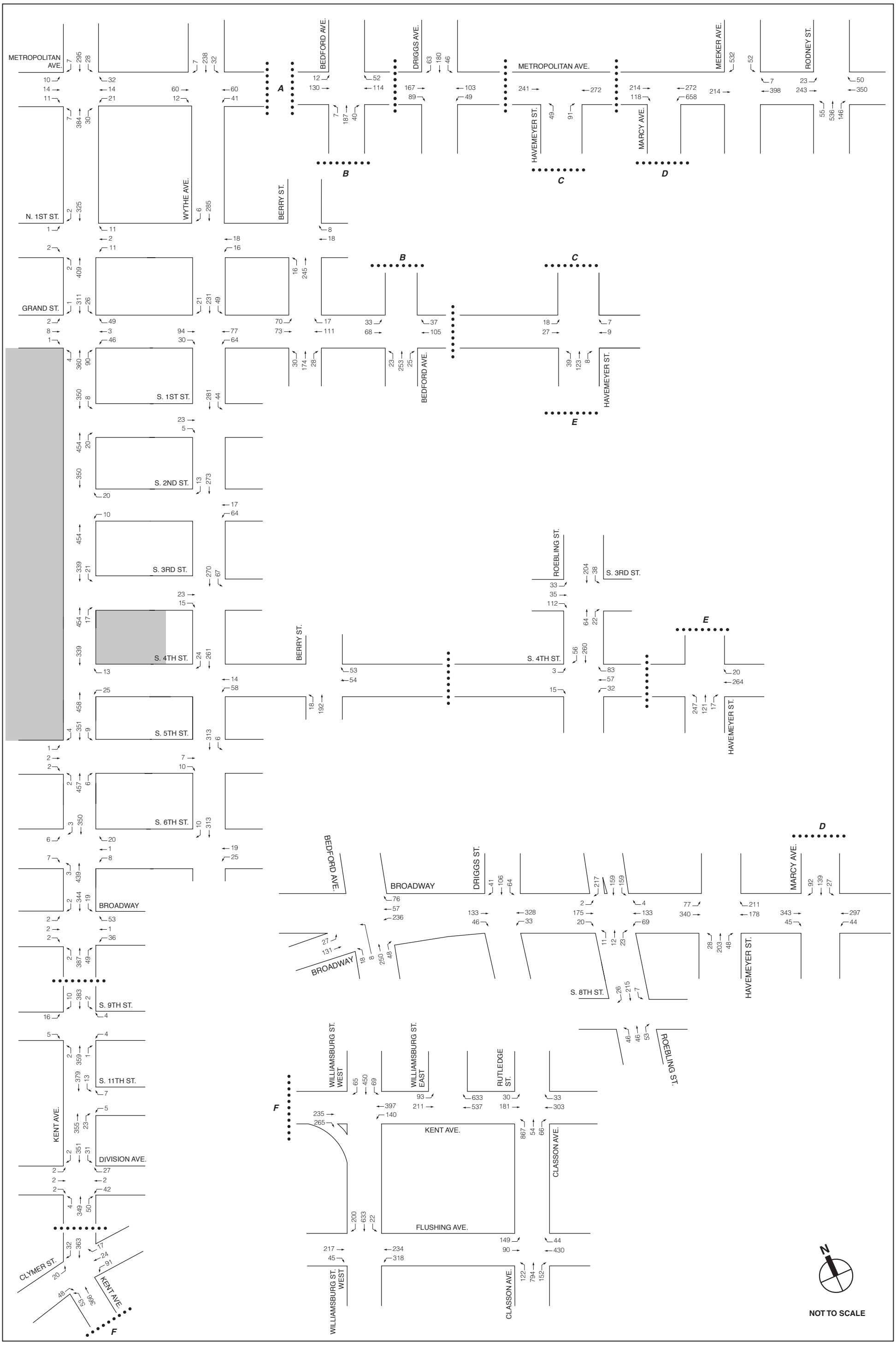
TRAFFIC VOLUMES

Existing volumes for the traffic analysis were established based on field counts conducted at the study area intersections in May and October 2007. Manual turning movement and classification counts were conducted at the study area intersections during the weekday AM, midday, and PM, and Saturday midday peak hours. In addition, Automatic Traffic Recorder (ATR) counts were conducted in January and February 2009 to supplement the 2007 traffic data. Based on these ATR counts, the baseline traffic volumes were revised to incorporate the changes in traffic levels in the study area. An inventory of the intersections was also performed to determine traffic signal timings, phasing and cycle lengths, street and curbside signage, pavement markings, and lane dimensions to be used in the calculation of street capacities. Official signal timings obtained from DOT were used in the analysis for all of the intersections.

Figures 17-2 through 17-5 show the existing traffic volumes for the weekday AM, midday, and PM, and Saturday midday peak hours. The weekday AM, midday, and PM, and Saturday midday peak hours of traffic in the study area were determined to take place from 8:30 AM to 9:30 AM, 12:15 PM to 1:15 PM, and 4:30 PM to 5:30 PM, respectively. The Saturday midday peak hour of traffic was determined to take place from 1:00 PM to 2:00 PM.

Within the study area, Williamsburg Street (the service road on either side of the BQE between Division and Flushing Avenues) and Metropolitan Avenue carry the heaviest traffic volumes, ranging from approximately 700 vehicles per hour (vph) and 1600 vph and from approximately

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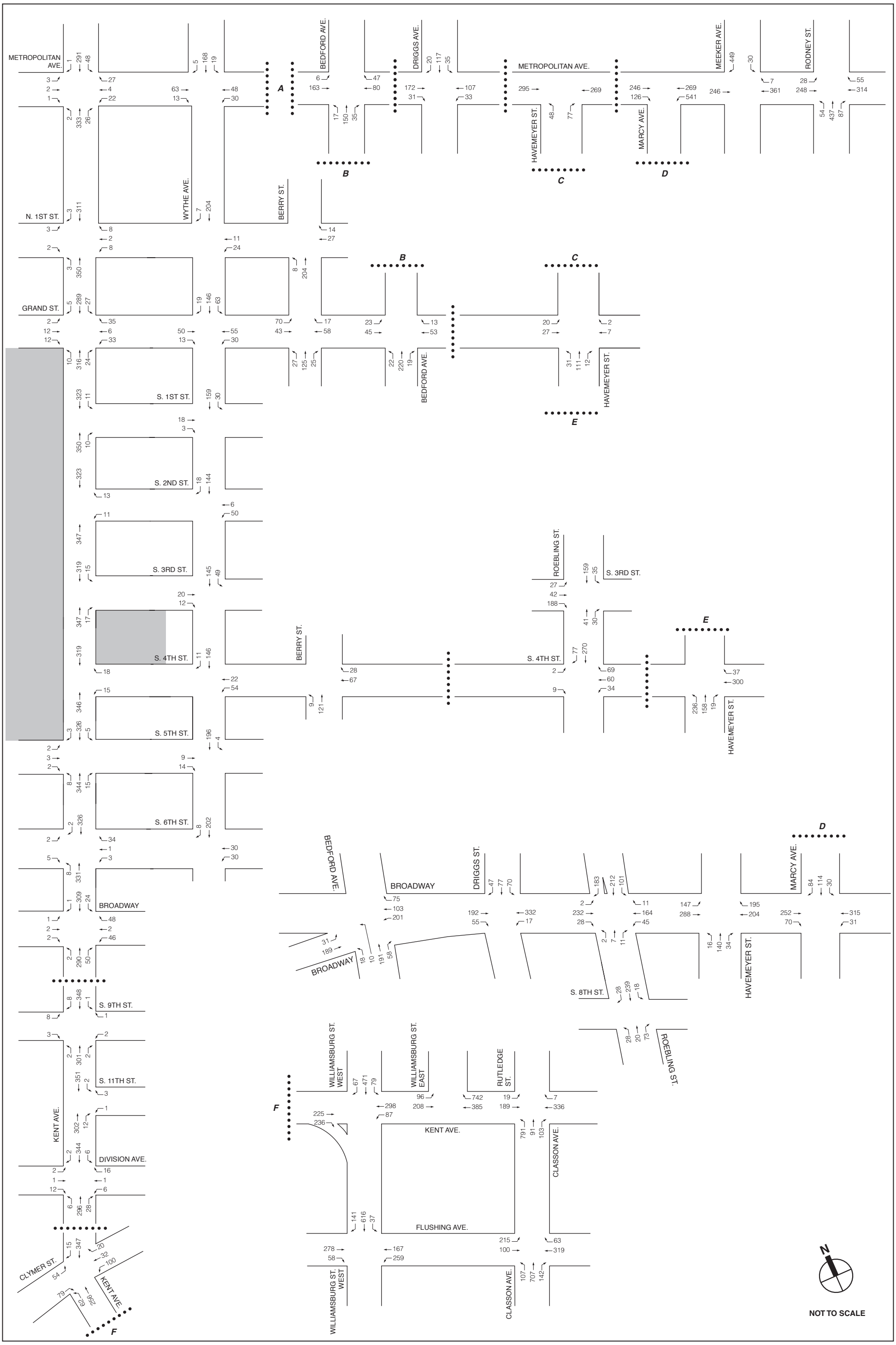


Project Site

Baseline Traffic Volumes
Weekday AM Peak Hour
Figure 17-2

DOMINO SUGAR REZONING

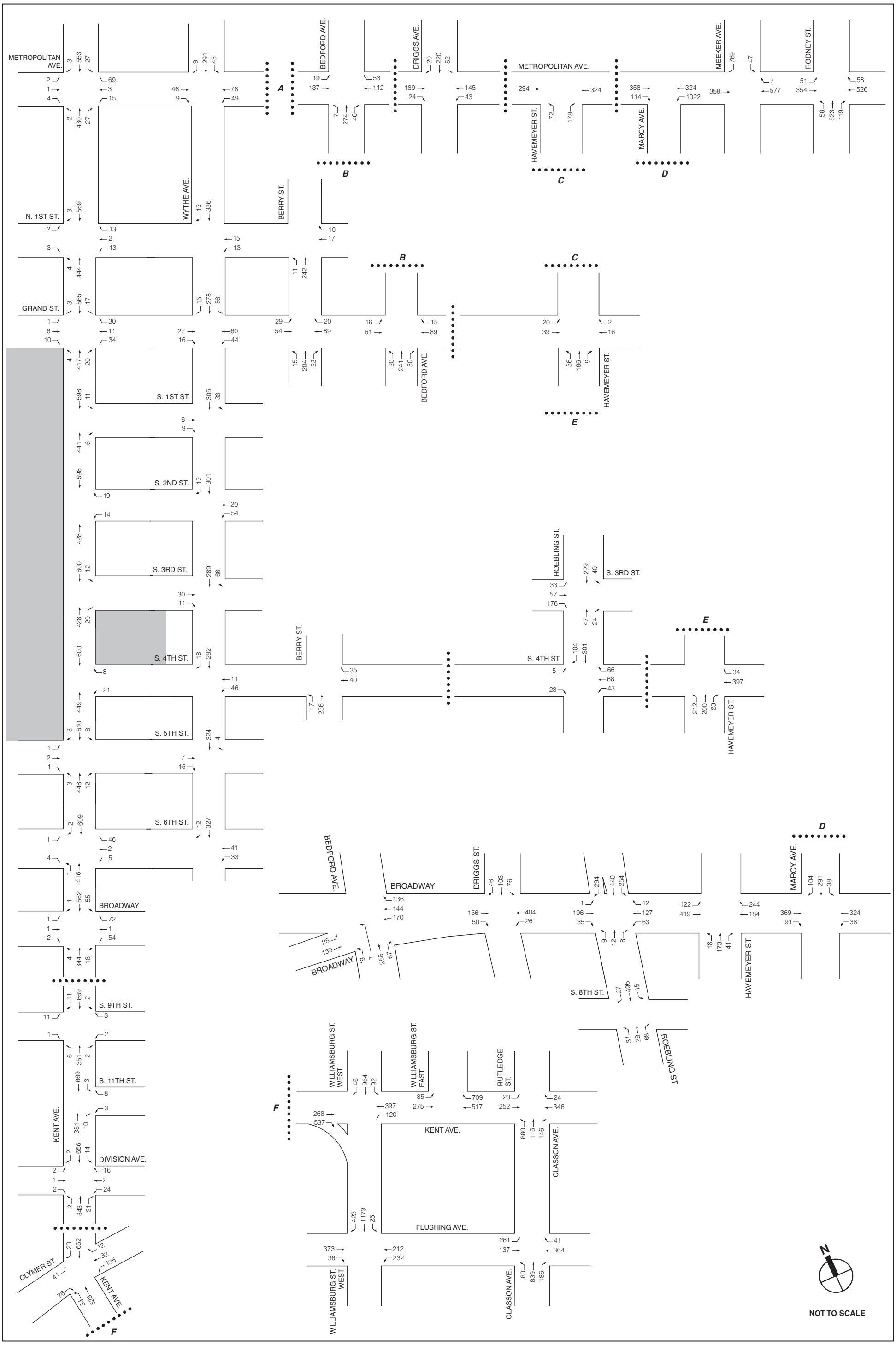
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Project Site

Baseline Traffic Volumes
Weekday Midday Peak Hour
Figure 17-3

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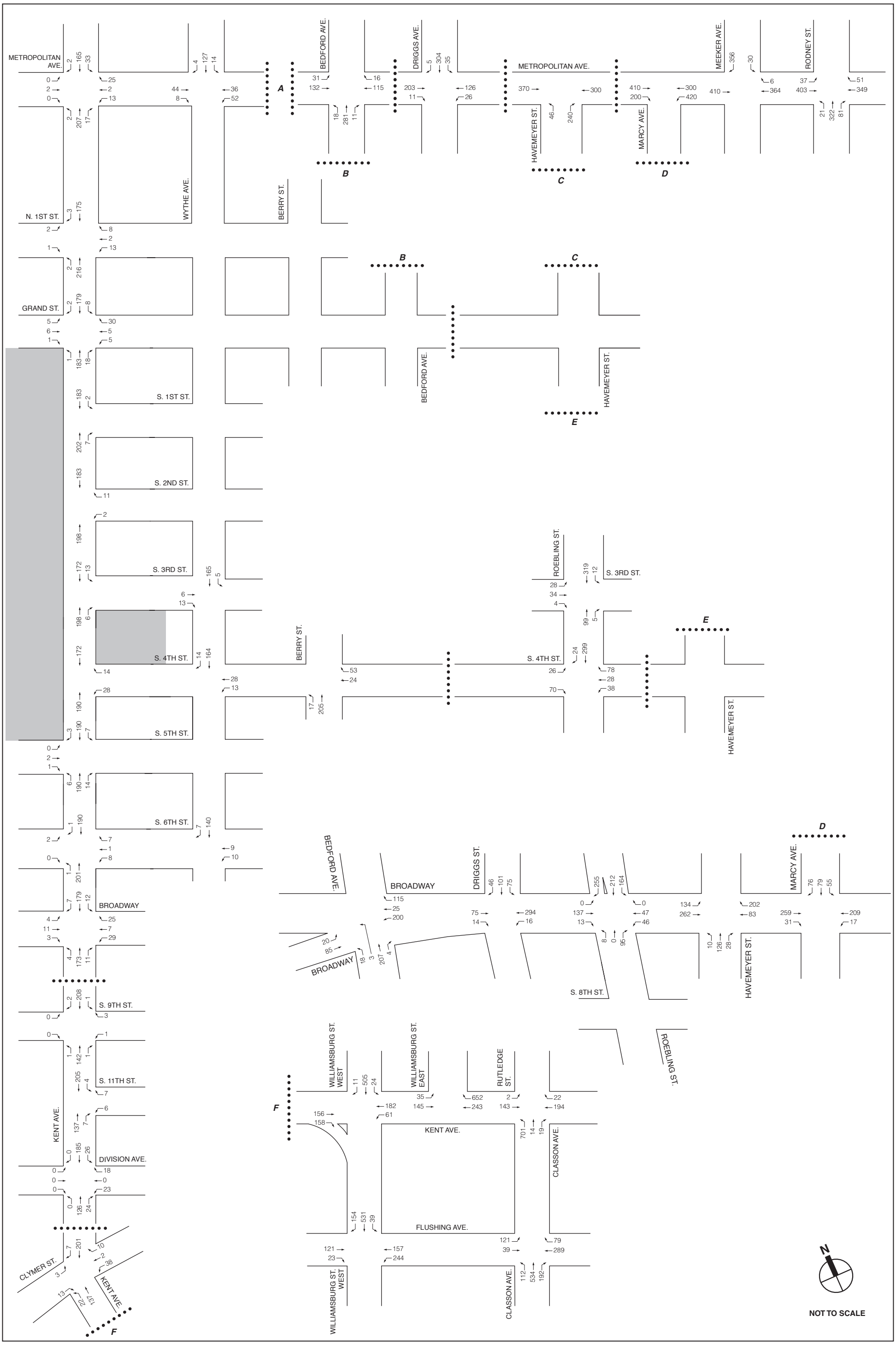


Project Site

DOMINO SUGAR REZONING

Baseline Traffic Volumes
Weekday PM Peak Hour
Figure 17-4

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Project Site

Baseline Traffic Volumes
Saturday Midday Peak Hour
Figure 17-5

330 vph to 1,700 vph during the four peak hours, respectively. Classon Avenue also carries heavy traffic volumes in the range of approximately 800 vph and 1,100 vph during the four peak hours. Two-way peak hour volumes on Kent Avenue generally range from 350 vph to 1,100 vph. Along Grand Street, the two-way peak hour traffic volumes range from between 120 vph to 290 vph. Broadway carries traffic volumes in the range of 430 vph to 890 vph. Wythe Avenue carries one-way southbound traffic volumes in the range of 150 vph to 360 vph. All other minor cross-streets carry low traffic volumes in the study area.

KENT AVENUE RECONFIGURATION

The baseline traffic data used in the traffic analyses discussed above was collected when Kent Avenue was operating as a two-way roadway and, therefore, the traffic analyses reflect conditions in which Kent Avenue has both northbound and southbound traffic. To gauge changes in traffic patterns resulting from the reconfiguration of Kent Avenue, ATR counts were conducted at limited locations in October 2009 at the following locations:

- Kent Avenue between South 1st and Grand Streets;
- Kent Avenue between South 5th and South 6th Streets;
- Wythe Avenue between South 1st and Grand Streets;
- Wythe Avenue between South 5th and South 6th Streets; and
- North 14th Street between Kent Avenue/Franklin Street and Wythe Avenue.

A comparison of peak hour ATR volumes collected at the above locations and the ATR volumes collected in February 2009 was conducted to gauge the changes in traffic levels (see Figures 17-6 through 17-9). Based on this comparison, notable increases in traffic levels were observed on both northbound Kent Avenue and southbound Wythe Avenue during the weekday AM, midday, and PM, and Saturday midday peak hours.

As discussed above, the traffic patterns resulting from the reconfiguration of Kent Avenue have not yet stabilized, and DOT is planning to assess the efficacy of the new Kent Avenue configuration to determine whether modifications are needed. Once the travel patterns have stabilized, a detailed analyses of project-generated traffic conditions—including the reassignment of truck trips—resulting from the Kent Avenue reconfiguration will be undertaken between the DEIS and FEIS.

This will also include assessing the effect of project-generated traffic and any associated mitigation measures on the newly installed bicycle lanes on Kent and Wythe Avenues, as well as other bicycle lanes in the broader study area.

LEVEL OF SERVICE

Tables 17-1 and 17-2 present the service conditions for the primary study area's signalized and unsignalized intersections. The service conditions for the secondary study area's signalized and unsignalized intersections are presented in Tables 17-3 and 17-4. Locations with notable service constraints, those operating at mid-LOS D (delays in excess of 45.0 seconds for a signalized intersection and 30.0 seconds for an unsignalized intersection) or worse are described below.

Table 17-1
Existing Conditions Level of Service Analysis
Primary Study Area Intersections
Signalized Intersections

Intersections	AM Peak Hour				Midday Peak Hour				PM Peak Hour				Saturday Peak Hour [1]			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Metropolitan Avenue and Kent Avenue																
Eastbound	LTR	0.21	28.6	C	LTR	0.04	26.3	C	LTR	0.06	26.5	C	LTR	0.01	25.8	C
Westbound	LTR	0.45	36.0	D	LTR	0.31	31.6	C	LTR	0.43	34.2	C	LTR	0.16	28.0	C
Northbound	LTR	0.43	9.1	A	LTR	0.39	8.7	A	LTR	0.43	9.1	A	LTR	0.19	6.8	A
Southbound	LTR	0.39	8.9	A	LTR	0.41	9.0	A	LTR	0.64	12.5	B	LTR	0.17	6.7	A
	Intersection		12.9	B	Intersection		10.8	B	Intersection		13.1	B	Intersection		9.0	A
Kent Avenue and S. 3rd Street																
Northbound	TR	0.46	9.5	A	TR	0.42	9.1	A	TR	0.46	9.4	A	TR	0.17	6.6	A
Southbound	LT	0.47	10.0+	B	LT	0.43	9.3	A	LT	0.60	11.7	B	LT	0.17	6.7	A
	Intersection		9.7	A	Intersection		9.2	A	Intersection		10.7	B	Intersection		6.7	A
Kent Avenue and Broadway																
Eastbound	LTR	0.01	22.2	C	LTR	0.01	22.1	C	LTR	0.01	22.1	C	LTR	0.04	22.5	C
Westbound	LTR	0.33	27.3	C	LTR	0.31	26.5	C	LTR	0.43	29.3	C	LTR	0.18	24.3	C
Northbound	LTR	0.50	12.7	B	LTR	0.42	11.6	B	LTR	0.41	11.4	B	LTR	0.20	9.1	A
Southbound	LTR	0.50	13.1	B	LTR	0.49	13.1	B	LTR	0.87	26.0	C	LTR	0.23	9.4	A
	Intersection		14.5	B	Intersection		14.3	B	Intersection		22.1	C	Intersection		11.8	B
Berry Street and S. 4th Street																
Westbound	TR	0.26	17.1	B	TR	0.22	16.6	B	TR	0.18	16.1	B	TR	0.17	16.0	B
Northbound	LT	0.32	17.6	B	LT	0.24	16.6	B	LT	0.39	18.7	B	LT	0.33	17.7	B
	Intersection		17.4	B	Intersection		16.6	B	Intersection		18.1	B	Intersection		17.2	B
Metropolitan Avenue and Bedford Avenue																
Eastbound	LT	0.30	17.3	B	LT	0.31	17.4	B	LT	0.31	17.3	B	LT	0.28	16.9	B
Westbound	TR	0.36	18.4	B	TR	0.28	17.2	B	TR	0.40	19.0	B	TR	0.21	16.1	B
Northbound	LTR	0.44	19.4	B	LTR	0.37	18.4	B	LTR	0.58	22.5	C	LTR	0.50	20.7	C
	Intersection		18.5	B	Intersection		17.7	B	Intersection		20.3	C	Intersection		18.6	B
Bedford Avenue and Grand Street													Not analyzed for Saturday conditions			
Eastbound	LT	0.25	22.8	C	LT	0.21	22.1	C	LT	0.20	22.0	C				
Westbound	TR	0.37	24.5	C	TR	0.20	22.0	C	TR	0.24	22.5	C				
Northbound	LTR	0.53	16.2	B	LTR	0.43	14.4	B	LTR	0.48	15.3	B				
	Intersection		19.7	B	Intersection		17.5	B	Intersection		18.1	B				
Bedford Avenue and Broadway																
Eastbound	LT	0.38	22.0	C	LT	0.47	23.5	C	LT	0.42	22.5	C	LT	0.20	19.0	B
Westbound	T	0.21	18.7	B	T	0.33	20.5	B	T	0.27	19.8	B	T	0.29	20.0+	C
Northbound	LTR	0.31	13.9	B	LTR	0.24	13.2	B	LTR	0.34	14.3	B	LTR	0.17	12.6	B
	Intersection		17.1	B	Intersection		18.6	B	Intersection		17.3	B	Intersection		16.6	B
Bedford Avenue and S. 6th Street																
Westbound	TR	0.32	21.0	C	TR	0.37	21.5	C	TR	0.58	26.5	C	TR	0.29	20.3	C
Northbound	LT	0.27	13.5	B	LT	0.19	12.7	B	LT	0.27	13.5	B	LT	0.17	12.5	B
	Intersection		15.7	B	Intersection		16.6	B	Intersection		19.3	B	Intersection		15.5	B
Metropolitan Avenue and Driggs Avenue																
Eastbound	TR	0.69	26.6	C	TR	0.45	19.9	B	TR	0.37	18.3	B	TR	0.31	17.3	B
Westbound	LT	0.41	19.8	B	LT	0.31	17.6	B	LT	0.46	20.5	C	LT	0.26	16.6	B
Southbound	LTR	0.62	23.9	C	LTR	0.34	17.8	B	LTR	0.48	20.2	C	LTR	0.54	21.3	C
	Intersection		24.2	C	Intersection		18.6	B	Intersection		19.7	B	Intersection		19.1	B
Driggs Avenue and Broadway																
Eastbound	TR	0.35	18.0	B	TR	0.49	20.4	C	TR	0.36	18.1	B	TR	0.14	15.3	B
Westbound	LT	0.79	31.9	C	LT	0.55	21.7	C	LT	0.75	28.5	C	LT	0.46	19.7	B
Southbound	LT	0.38	18.7	B	LT	0.27	17.0	B	LT	0.31	17.4	B	LT	0.31	17.4	B
	R	0.09	14.8	B	R	0.08	14.7	B	R	0.08	14.6	B	R	0.08	14.6	B
	Intersection		24.9	C	Intersection		20.0+	C	Intersection		23.1	C	Intersection		18.0	B
Roebling Street and S. 3rd Street																
Eastbound	LTR	0.47	19.4	B	LTR	0.75	29.9	C	LTR	0.72	28.0	C	LTR	0.14	14.4	B
Northbound	TR	0.14	7.3	A	TR	0.11	7.0	A	TR	0.10	7.0	A	TR	0.13	7.2	A
Southbound	LT	0.38	9.6	A	LT	0.35	9.3	A	LT	0.42	9.9	A	LT	0.44	10.0+	B
	Intersection		12.5	B	Intersection		18.9	B	Intersection		17.2	B	Intersection		10.0+	B

Table 17-1 (Continued)
Existing Conditions Level of Service Analysis
Primary Study Area Intersections
Signalized Intersections

Intersections	AM Peak Hour				Midday Peak Hour				PM Peak Hour				Saturday Peak Hour [1]			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Roebling Street and S. 4th Street																
Eastbound	LR	0.06	8.0	A	LR	0.04	7.9	A	LR	0.06	8.1	A	LR	0.15	8.8	A
Westbound	L	0.06	8.0	A	L	0.06	8.0	A	L	0.07	8.1	A	L	0.06	8.0	A
	TR	0.28	10.2	B	TR	0.23	9.5	A	TR	0.24	9.7	A	TR	0.18	9.1	A
Southbound	TR	0.89	55.7	E	TR	0.99	75.9	E	TR	1.04	86.1	F	TR	0.76	39.9	D
	Intersection		35.6	D	Intersection		50.4	D	Intersection		56.5	E	Intersection		25.6	C
Broadway and Roebling Street Exit Bridge																
Eastbound	LTR	0.36	22.5	C	LTR	0.41	18.8	B	LTR	0.35	22.3	C	LTR	0.20	15.9	B
Westbound													DefL	0.10	15.0	B
	LTR	0.24	20.3	C	LTR	0.20	15.6	B	LTR	0.18	19.5	B	TR	0.05	14.4	B
Northbound	LTR	0.10	18.7	B	LTR	0.03	14.2	B	LTR	0.05	18.1	B	LTR	0.11	14.8	B
Southbound	DefL	0.39	24.0	C									DefL	0.34	18.3	B
	T	0.23	20.4	C	LT	0.29	16.5	B	LT	0.58	25.9	C	T	0.26	16.4	B
	Intersection		21.4	C	Intersection		16.9	B	Intersection		23.8	C	Intersection		16.2	B
Roebling Street and S. 8th Street																
Northbound	LTR	0.19	19.8	B	LTR	0.15	15.3	B	LTR	0.18	19.6	B	Not analyzed for Saturday conditions			
Southbound	LT	0.30	9.5	A	LT	0.30	7.0	A	LT	0.54	12.7	B				
	R	0.04	7.3	A	R	0.04	5.2	A	R	0.03	7.2	A				
	Intersection		13.0	B	Intersection		9.3	A	Intersection		13.9	B				
Metropolitan Avenue and Havemeyer Street																
Eastbound	T	0.35	12.8	B	T	0.50	15.3	B	T	0.40	13.5	B	T	0.47	14.4	B
Westbound	T	0.42	13.9	B	T	0.41	13.7	B	T	0.55	16.5	B	T	0.37	12.9	B
Northbound	LR	0.42	25.9	C	LR	0.40	25.4	C	LR	0.68	34.3	C	LR	0.77	40.0	D
	Intersection		16.2	B	Intersection		16.6	B	Intersection		20.3	C	Intersection		21.6	C
Grand Street and Havemeyer Street																
Eastbound	LT	0.12	19.1	B	LT	0.13	19.2	B	LT	0.19	27.5	C	Not analyzed for Saturday conditions			
Westbound	TR	0.04	18.1	B	TR	0.03	17.9	B	TR	0.07	25.7	C				
Northbound	LTR	0.32	21.9	C	LTR	0.26	21.0	C	LTR	0.38	16.2	B				
	Intersection		21.0	C	Intersection		20.4	C	Intersection		19.1	B				
Havemeyer Street and S. 4th Street-Borinquen Pl.																
Westbound	TR	0.26	21.0	C	TR	0.26	21.1	C	TR	0.45	23.9	C	Not analyzed for Saturday conditions			
Northbound	L	0.21	20.4	C	L	0.18	20.0-	B	L	0.17	19.9	B				
	T	0.20	20.5	C	T	0.23	20.9	C	T	0.31	22.2	C				
	R	0.04	18.7	B	R	0.04	18.7	B	R	0.06	18.9	B				
	Intersection		20.6	C	Intersection		20.6	C	Intersection		22.6	C				
Broadway and Havemeyer Street																
Eastbound	LT	0.71	25.2	C	LT	0.81	33.7	C	LT	0.86	36.6	D	LT	0.60	21.3	C
Westbound	TR	0.55	19.9	B	TR	0.54	19.2	B	TR	0.68	24.4	C	TR	0.37	16.1	B
Northbound	LTR	0.35	29.3	C	LTR	0.26	27.9	C	LTR	0.29	28.3	C	LTR	0.20	27.1	C
	Intersection		24.4	C	Intersection		26.7	C	Intersection		30.6	C	Intersection		20.7	C
Metropolitan Avenue and Marcy Avenue																
Eastbound	TR	0.23	10.2	B	TR	0.28	10.7	B	TR	0.28	10.6	B	TR	0.39	9.6	A
Westbound	L	0.70	5.2	A	L	0.61	4.0	A	L	1.05	51.3	D	L	0.48	3.0	A
	T	0.18	0.2	A	T	0.18	0.2	A	T	0.25	0.4	A	T	0.19	0.3	A
	Intersection		5.5	A	Intersection		5.6	A	Intersection		32.0	C	Intersection		5.4	A
Marcy Avenue and Broadway																
Eastbound	TR	0.83	40.8	D	TR	0.61	28.9	C	TR	0.88	46.9	D	TR	0.44	24.2	C
Westbound	LT	0.69	33.2	C	LT	0.55	26.7	C	LT	0.75	35.5	D	LT	0.34	22.1	C
Southbound	LTR	0.53	26.9	C	LTR	0.47	25.3	C	LTR	0.90	48.7	D	LTR	0.44	24.7	C
	Intersection		35.0-	C	Intersection		27.2	C	Intersection		44.5	D	Intersection		23.7	C
Metropolitan Avenue and Meeker Avenue																
Eastbound	T	0.19	21.9	C	T	0.22	22.2	C	T	0.30	23.3	C	T	0.30	18.4	B
Westbound	TR	0.33	22.0	C	TR	0.29	21.5	C	TR	0.56	26.0	C	TR	0.25	16.1	B
Southbound	L	0.04	17.5	B	L	0.02	17.3	B	L	0.04	17.4	B	L	0.02	14.1	B
	LR	0.55	26.7	C	LR	0.45	24.0	C	LR	0.70	31.5	C	LR	0.31	17.4	B
	R	0.51	25.7	C	R	0.43	23.6	C	R	0.67	30.1	C	R	0.29	17.2	B
	Intersection		23.8	C	Intersection		22.6	C	Intersection		27.5	C	Intersection		17.2	B
Metropolitan Avenue and Rodney Street																
Eastbound	LT	0.24	20.8	C	LT	0.29	21.5	C	LT	0.36	22.5	C	LT	0.37	17.4	B
Westbound	TR	0.35	24.1	C	TR	0.33	23.8	C	TR	0.55	27.8	C	TR	0.34	18.8	B
Northbound	LT	0.48	23.3	C	LT	0.39	21.7	C	LT	0.50	23.6	C	LT	0.28	16.3	B
	R	0.28	20.9	C	R	0.16	19.0	B	R	0.24	20.2	C	R	0.15	15.5	B
	Intersection		22.8	C	Intersection		22.1	C	Intersection		24.6	C	Intersection		17.5	B
Metropolitan Avenue and Wythe Avenue																
Eastbound	TR	0.13	15.1	B	TR	0.13	15.2	B	TR	0.10	14.8	B	TR	0.09	14.8	B
Westbound	LT	0.20	16.0	B	LT	0.15	15.4	B	LT	0.24	16.6	B	LT	0.18	15.8	B
Southbound	LTR	0.50	20.7	C	LTR	0.35	17.9	B	LTR	0.62	23.7	C	LTR	0.26	16.7	B
	Intersection		18.7	B	Intersection		16.8	B	Intersection		21.0	C	Intersection		16.1	B

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
(1) The Saturday HCS analysis is new for the DEIS.

Table 17-2
Existing Conditions Level of Service Analysis
Primary Study Area Intersections
Unsignalized Intersections

Intersections	AM Peak Hour				Midday Peak Hour				PM Peak Hour				Saturday Peak Hour [1]			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Kent Avenue and N. 1st Street																
Eastbound	LR	0.02	14.7	B	LR	0.02	16.4	C	LR	0.04	25.9	D	LR	0.01	12.7	B
Westbound	LTR	0.17	19.3	C	LTR	0.09	16.6	C	LTR	0.26	31.1	D	LTR	0.06	12.9	B
Northbound	LT	0.00	8.4	A	LT	0.00	8.5	A	LT	0.01	9.6	A	LT	0.00	7.8	A
Kent Avenue and Grand Street																
Eastbound	LTR	0.12	26.7	D	LTR	0.12	18.9	C	LTR	0.10	23.0	C	LTR	0.04	14.3	B
Westbound	LTR	0.55	36.6	E	LTR	0.47	30.7	D	LTR	0.73	70.0	F	LTR	0.08	11.8	B
Northbound	LTR	0.00	8.5	A	LTR	0.01	8.6	A	LTR	0.00	9.3	A	LTR	0.00	7.8	A
Southbound	LTR	0.04	9.5	A	LTR	0.03	9.0	A	LTR	0.02	8.9	A	LTR	0.01	7.9	A
Kent Avenue and S. 1st Street																
Southbound	LT	0.01	9.6	A	LT	0.01	8.9	A	LT	0.01	8.8	A	LT	0.00	7.8	A
Kent Avenue and S. 2nd Street																
Westbound	LR	0.09	16.0	C	LR	0.08	15.4	C	LR	0.16	21.3	C	LR	0.03	10.8	B
Kent Avenue and S. 4th Street																
Westbound	LR	0.16	19.8	C	LR	0.12	16.1	C	LR	0.17	26.7	D	LR	0.13	12.6	B
Kent Avenue and S. 5th Street																
Eastbound	LTR	0.02	18.2	C	LTR	0.04	18.3	C	LTR	0.09	36.0	E	LTR	0.02	13.1	B
Northbound	LTR	0.00	8.7	A	LTR	0.01	8.8	A	LTR	0.00	10.4	B	LTR	0.01	7.9	A
Southbound	LTR	0.01	9.3	A	LTR	0.01	8.9	A	LTR	0.01	8.9	A	LTR	0.00	7.9	A
Kent Avenue and S. 6th Street																
Eastbound	LR	0.09	19.7	C	LR	0.03	15.1	C	LR	0.04	19.9	C	LR	0.01	14.7	B
Westbound	LTR	0.12	17.8	C	LTR	0.09	13.4	B	LTR	0.17	17.8	C	LTR	0.07	13.1	B
Northbound	LT	0.00	8.5	A	LT	0.01	8.7	A	LT	0.00	9.4	A	LT	0.00	7.9	A
Wythe Avenue and N. 1st Street																
Westbound	LT	0.08	12.8	B	LT	0.06	11.4	B	LT	0.09	13.3	B	Not analyzed for Saturday conditions			
Wythe Avenue and Grand Street																
Eastbound	TR	-	9.3	A	TR	-	8.2	A	TR	-	8.4	A	Not analyzed for Saturday conditions			
Westbound	LT	-	9.8	A	LT	-	8.7	A	LT	-	9.2	A				
Southbound	LTR	-	11.9	B	LTR	-	9.6	A	LTR	-	11.9	B				
	Intersection		10.8	B	Intersection		9.1	A	Intersection		11.0	B				
Wythe Avenue and S. 1st Street																
Eastbound	TR	0.07	13.8	B	TR	0.08	12.3	B	TR	0.10	13.4	B	Not analyzed for Saturday conditions			
Southbound	LT	0.03	7.6	A	LT	0.02	7.5	A	LT	0.02	7.5	A				
Wythe Avenue and S. 2nd Street																
Westbound	LT	0.18	13.4	B	LT	0.10	11.2	B	LT	0.20	14.3	B	Not analyzed for Saturday conditions			
Wythe Avenue and S. 3rd Street																
Eastbound	TR	0.10	14.0	B	TR	0.09	12.1	B	TR	0.17	16.3	C	TR	0.04	10.7	B
Southbound	LT	0.05	7.7	A	LT	0.03	7.6	A	LT	0.05	7.6	A	LT	0.00	7.4	A
Wythe Avenue and S. 4th Street																
Westbound	LT	-	8.6	A	LT	-	8.2	A	LT	-	10.0-	A	LT	-	7.7	A
Southbound	TR	-	9.8	A	TR	-	8.3	A	TR	-	8.5	A	TR	-	8.0	A
	Intersection		9.6	A	Intersection		8.2	A	Intersection		9.7	A	Intersection		8.0	A
Wythe Avenue and S. 5th Street																
Eastbound	TR	0.04	12.3	B	TR	0.06	11.6	B	TR	0.09	13.4	B	Not analyzed for Saturday conditions			
Southbound	LT	0.00	7.6	A	LT	0.00	7.5	A	LT	0.00	7.5	A				
Wythe Avenue and S. 6th Street																
Westbound	LT	0.16	13.7	B	LT	0.12	12.3	B	LT	0.24	15.5	C	LT	0.04	10.9	B
Berry Street and N. 1st Street																
Westbound	TR	0.05	12.4	B	TR	0.09	12.4	B	TR	0.05	12.0	B	Not analyzed for Saturday conditions			
Northbound	LT	0.01	7.5	A	LT	0.01	7.5	A	LT	0.01	7.5	A				
Grand Street and Berry Street																
Eastbound	LT	-	9.8	A	LT	-	8.8	A	LT	-	8.7	A	Not analyzed for Saturday conditions			
Westbound	TR	-	9.6	A	TR	-	8.3	A	TR	-	8.7	A				
Northbound	LTR	-	11.3	B	LTR	-	9.1	A	LTR	-	9.8	A				
	Intersection		10.4	B	Intersection		8.8	A	Intersection		9.3	A				
Broadway and Roebling Street - SBR																
Southbound	R	0.33	12.0	B	R	0.25	11.3	B	R	0.38	12.0	B	R	0.38	13.5	B

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
(1) The Saturday HCS analysis is new for the DEIS.

Table 17-3
Existing Conditions Level of Service Analysis
Secondary Study Area Intersections
Signalized Intersections

Intersections	AM Peak Hour				Midday Peak Hour				PM Peak Hour				Saturday Peak Hour [1]			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Kent Avenue and S. 9th Street-Schaefer Landing																
Eastbound	LR	0.07	26.4	C	LR	0.04	26.2	C	LR	0.05	26.3	C	LR	0.00	25.7	C
Westbound	LR	0.03	26.0	C	LR	0.03	26.0	C	LR	0.03	26.1	C	LR	0.02	25.9	C
Northbound	LTR	0.37	8.5	A	LTR	0.38	8.7	A	LTR	0.42	9.0	A	LTR	0.14	6.5	A
Southbound	LTR	0.40	8.9	A	LTR	0.43	9.3	A	LTR	0.60	11.6	B	LTR	0.18	6.7	A
	Intersection		9.5	A	Intersection		9.6	A	Intersection		11.0	B	Intersection		7.0	A
Kent Avenue and Clymer Street																
Eastbound	LR	0.27	29.3	C	LR	0.53	35.9	D	LR	0.54	36.2	D	LR	0.06	26.4	C
Westbound	LTR	0.24	28.2	C	LTR	0.30	28.8	C	LTR	0.32	29.1	C	LTR	0.10	26.6	C
Northbound	L	0.16	7.1	A	L	0.16	7.1	A	L	0.13	7.0	A	L	0.03	5.9	A
	T	0.55	11.3	B	T	0.36	8.7	A	T	0.46	9.5	A	T	0.15	6.6	A
Southbound	TR	0.44	9.3	A	TR	0.38	8.5	A	TR	0.56	10.7	B	TR	0.16	6.6	A
	Intersection		13.8	B	Intersection		15.9	B	Intersection		15.6	B	Intersection		10.1	B
Kent Avenue and Williamsburg Street West																
Eastbound	T	0.26	24.1	C	T	0.24	23.8	C	T	0.22	23.4	C	T	0.12	22.2	C
Westbound	L	0.50	31.5	C	L	0.30	26.3	C	L	0.36	27.5	C	L	0.15	23.0	C
	T	0.38	25.8	C	T	0.29	24.5	C	T	0.34	25.1	C	T	0.14	22.5	C
Southbound	LT	0.50	20.8	C	LT	0.46	20.2	C	LT	0.78	28.1	C	LT	0.37	18.6	B
	Intersection		24.0	C	Intersection		22.5	C	Intersection		26.7	C	Intersection		20.3	C
Kent Avenue and Classon Avenue																
Eastbound	L	0.13	20.2	C	L	0.06	19.1	B	L	0.07	19.1	B	L	0.00	18.2	B
	T	0.22	20.5	C	T	0.17	19.9	B	T	0.19	20.1	C	T	0.10	19.1	B
Westbound	TR	0.29	21.5	C	TR	0.30	21.6	C	TR	0.32	21.9	C	TR	0.16	19.7	B
Northbound	L	0.74	34.6	C	L	0.54	27.4	C	L	0.56	27.5	C	L	0.38	23.4	C
	LTR	0.80	34.0	C	LTR	0.62	27.7	C	LTR	0.61	27.3	C	LTR	0.34	22.1	C
	Intersection		29.9	C	Intersection		25.3	C	Intersection		25.0	C	Intersection		21.6	C
Flushing Avenue and Williamsburg Street West																
Eastbound	TR	0.24	19.7	B	TR	0.30	16.0	B	TR	0.32	20.6	C	TR	0.10	14.1	B
Westbound	L	0.80	42.2	D	L	0.85	42.3	D	L	0.75	40.2	D	L	0.46	19.8	B
	T	0.31	21.0	C	T	0.27	16.1	B	T	0.30	20.8	C	T	0.19	15.1	B
Southbound	LTR	0.54	25.2	C	LTR	0.49	19.3	B	LTR	0.94	41.2	D	LTR	0.38	17.8	B
	Intersection		26.7	C	Intersection		22.3	C	Intersection		36.0	D	Intersection		17.4	B
Flushing Avenue and Classon Avenue																
Eastbound	L	0.65	34.3	C	L	0.64	27.3	C	L	1.05	108.1	F	L	0.31	17.5	B
	T	0.16	18.9	B	T	0.14	14.7	B	T	0.32	34.8	C	T	0.05	13.8	B
Westbound	TR	0.39	21.7	C	TR	0.34	16.5	B	TR	0.56	38.6	D	TR	0.28	15.8	B
Northbound	LTR	0.65	27.4	C	LTR	0.61	21.1	C	LTR	0.42	11.9	B	LTR	0.44	18.6	B
	Intersection		26.2	C	Intersection		20.4	C	Intersection		33.8	C	Intersection		17.6	B

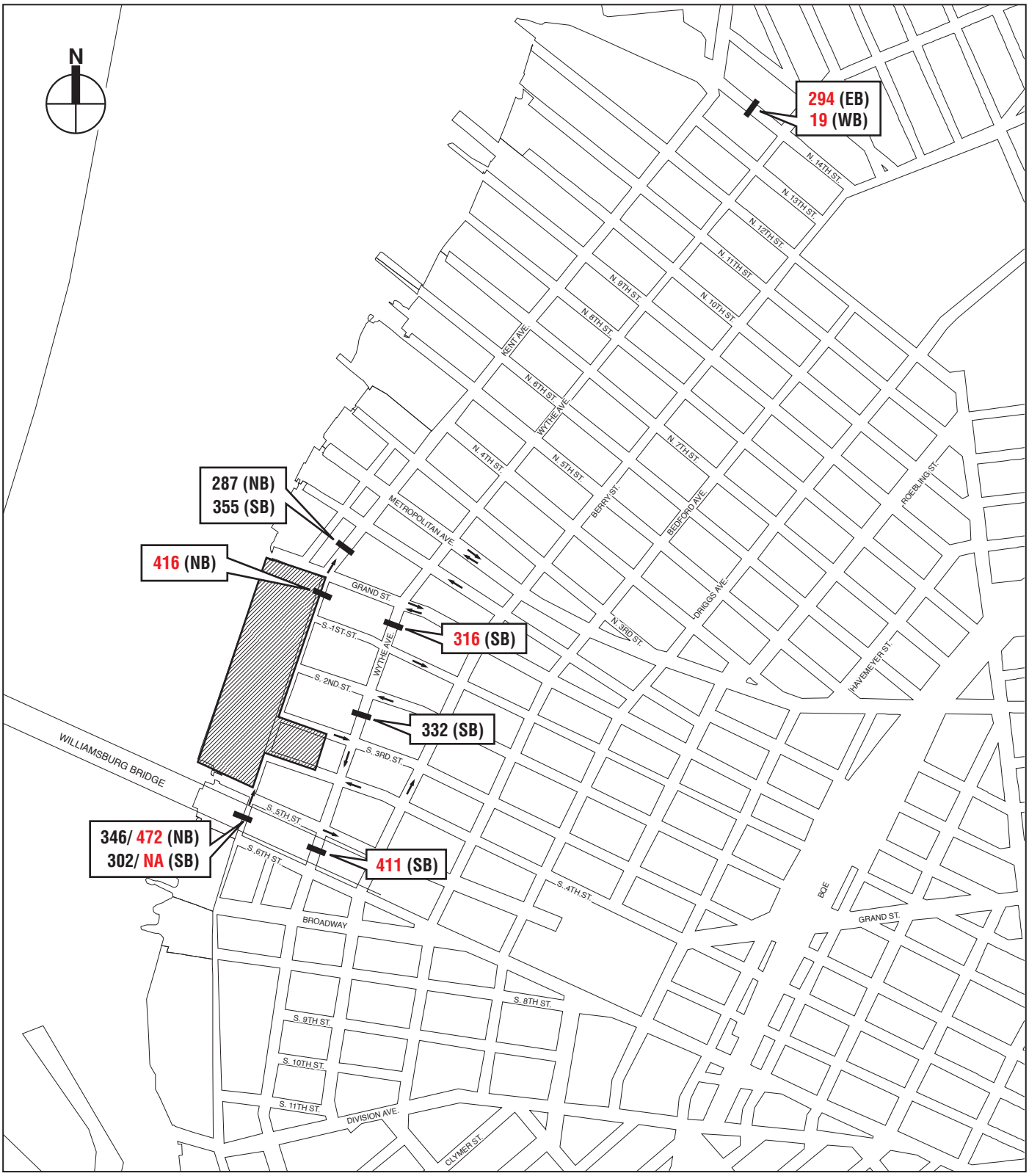
Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
(1) The Saturday HCS analysis is new for the DEIS.

Table 17-4
Existing Conditions Level of Service Analysis
Secondary Study Area Intersections
Unsignalized Intersections

Intersections	AM Peak Hour				Midday Peak Hour				PM Peak Hour				Saturday Peak Hour [1]			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Kent Avenue and S. 11th Street																
Westbound	LR	0.06	16.0	C	LR	0.03	13.5	B	LR	0.06	16.9	C	LR	0.03	11.2	B
Southbound	LT	0.02	8.9	A	LT	0.00	8.7	A	LT	0.00	8.7	A	LT	0.00	7.8	A
Kent Avenue and Division Avenue																
Eastbound	LTR	0.03	22.1	C	LTR	0.15	15.4	C	LTR	0.13	32.4	D				
Westbound	LTR	0.49	36.2	E	LTR	0.11	16.7	C	LTR	0.38	41.5	E	LTR	0.09	13.0	B
Northbound	LTR	0.00	8.6	A	LTR	0.01	8.8	A	LTR	0.00	9.5	A	LTR	0.00	7.8	A
Southbound	LTR	0.04	9.3	A	LTR	0.01	8.8	A	LTR	0.01	8.7	A	LTR	0.02	7.9	A
Kent Avenue and Williamsburg Street East																
Eastbound	L	0.27	15.5	C	L	0.17	12.0	B	L	0.14	11.1	B	L	0.05	10.4	B
Kent Avenue and Williamsburg Street West - SBR																
Southbound	R	0.12	11.0	B	R	0.10	10.3	B	R	0.07	10.2	B	R	0.01	9.3	A

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
(1) The Saturday HCS analysis is new for the DEIS.

11.20.09



Project Site

ATR Count Location

Feb '09 ATR Counts

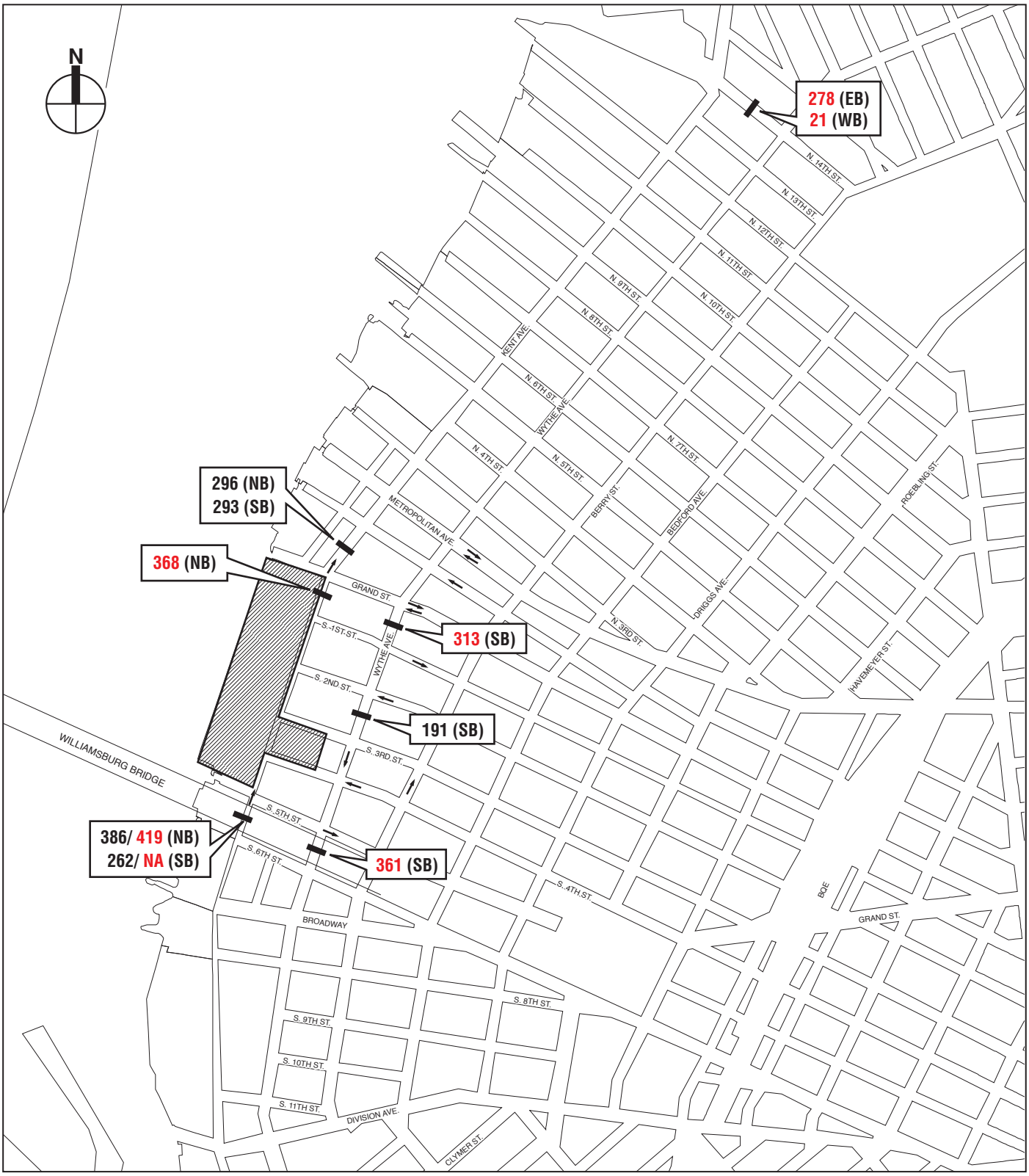
Oct/Nov '09 ATR Counts

0 1000 FEET

SCALE

ATR Volume Comparison for
Reconfigured Kent Avenue
AM Peak Hour (8:30 - 9:30 AM)

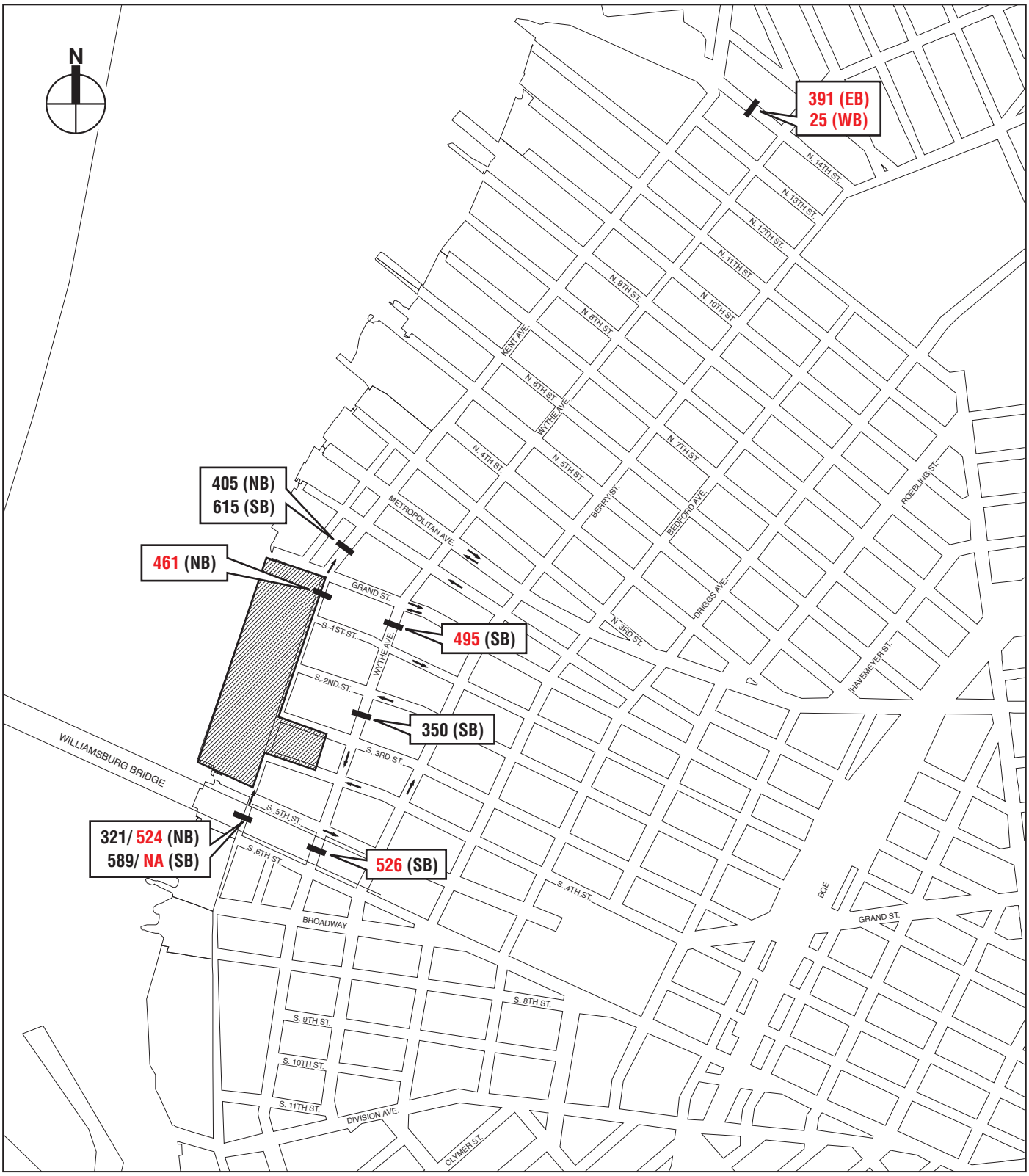
Figure 17-6



ATR Volume Comparison for
Reconfigured Kent Avenue
Midday Peak Hour (12:15 - 1:15 PM)

Figure 17-7

11.20.09



Project Site

ATR Count Location

Feb '09 ATR Counts

Oct/Nov '09 ATR Counts

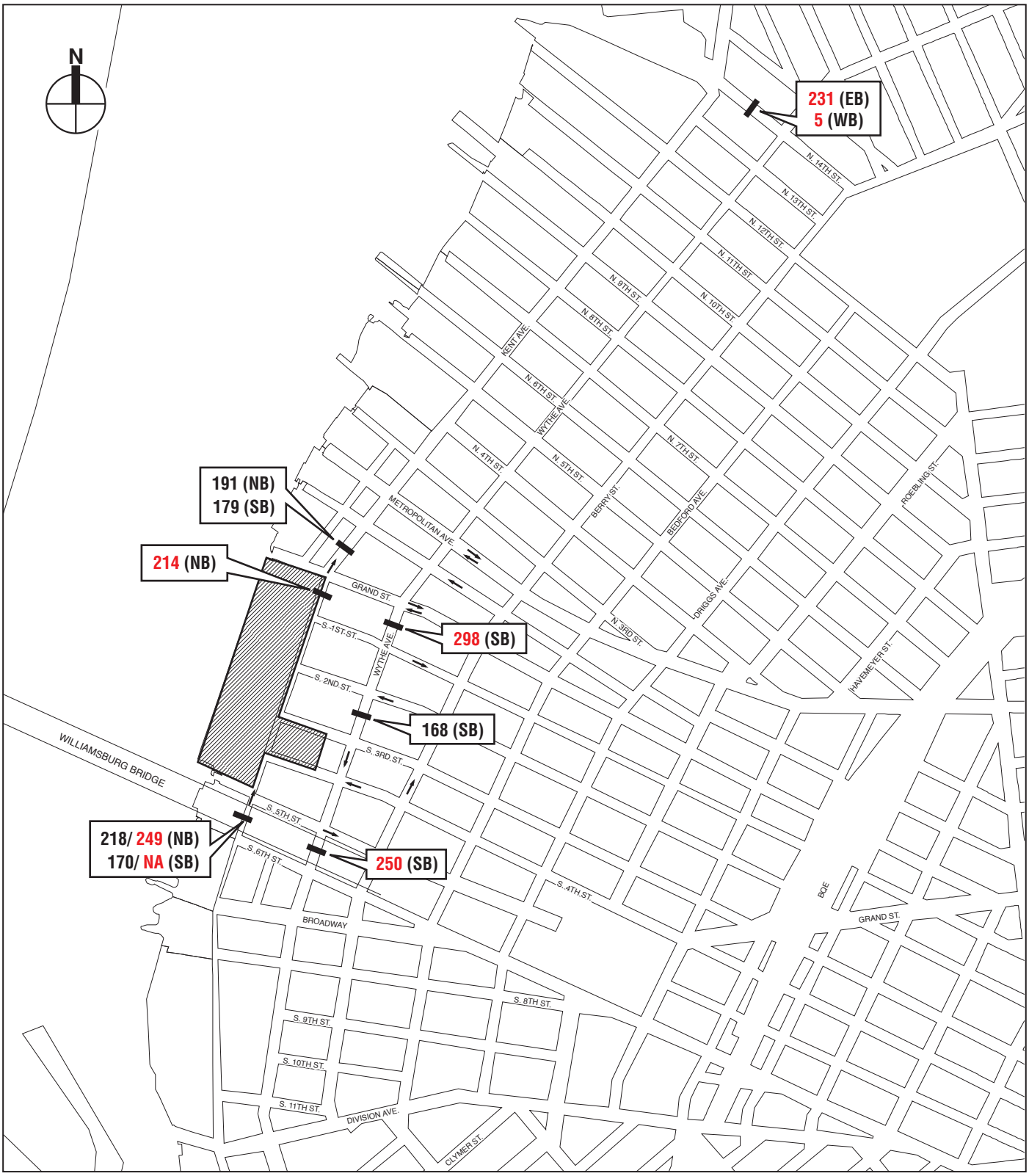
0 1000 FEET

SCALE

ATR Volume Comparison for
Reconfigured Kent Avenue
PM Peak Hour (4:30 - 5:30 PM)

Figure 17-8

11.20.09



Project Site

ATR Count Location

Feb '09 ATR Counts

Oct/Nov '09 ATR Counts

0 1000 FEET

SCALE

ATR Volume Comparison for
Reconfigured Kent Avenue
Saturday Midday Peak Hour (1:00 - 2:00 PM)

Figure 17-9

PRIMARY STUDY AREA

Signalized Intersections

- The southbound approach of South 4th Street at Roebling Street, which operates at LOS E during the AM and midday peak hours and at LOS F during the PM peak hour;
- The westbound left turn movement of Metropolitan Avenue at Marcy Avenue, which operates at LOS D during the PM peak hour;
- The eastbound approach of Broadway at Marcy Avenue, which operates at LOS D during the PM peak hour, and the southbound approach of Marcy Avenue at Broadway, which operates at LOS D during the PM peak hour.

Unsignalized Intersections

- The westbound approach of North 1st Street at Kent Avenue, which operates at LOS D (delay of 31.1 seconds) during the PM peak hour; The westbound approach of Grand Street at Kent Avenue, which operates at LOS E during the AM peak hour, at LOS D (delay of 30.7 seconds) during the midday peak hour, and at LOS F (delay of 70.0 seconds) during the PM peak hour, and
- The eastbound approach of South 5th Street at Kent Avenue, which operates at LOS E during the PM peak hour.

SECONDARY STUDY AREA

Signalized Intersections

- The eastbound left-turn movement of Flushing Avenue at Classon Avenue, which operates at LOS F during the PM peak hour.

Unsignalized Intersections

- The eastbound approach of Division Avenue at Kent Avenue, which operates at LOS D during the PM peak hour; and
- The westbound approach of Division Avenue at Kent Avenue, which operates at LOS E during the AM and PM peak hours.

PARKING

Within the ¼-mile study area, "No Stopping Anytime" regulations are in effect on all segments of Kent Avenue between Metropolitan Avenue and Clymer Street. The majority of segments on Wythe Avenue are regulated by weekday morning street cleaning regulations. The "No Parking" regulation during the daytime/afternoon hours is in effect on the segment of Wythe Avenue between North 1st Street and Grand Street. There is also a limited supply of meter parking in the study area along Broadway (in the vicinity of Driggs Street) and Grand Street (in the vicinity of Havemeyer Street). The majority of the remaining streets in the study area provide alternate-side-of-the-street parking regulated by street cleaning regulations.

There are no off-street public parking facilities located in the study area. However, there is a supply of on-street parking spaces in the study area along Wythe Avenue and east-west cross streets. Based on field observations, available parking spaces in the study area were in constant

demand. In addition, on the streets in the study area where curbside standing or parking is prohibited, illegal parking activities do occur, reducing the available street capacities.

E. THE FUTURE WITHOUT THE PROPOSED PROJECT

Traffic conditions in the future without the proposed project (the "No Action" condition) were assessed to establish a baseline condition against which to evaluate potential project impacts. The No Action analysis focuses on conditions in 2020, the year during which the proposed project is assumed to be completed. Future No Action traffic volumes were developed in two ways: 1) by applying a background traffic growth rate; and 2) by adding traffic generated by other future potential development projects that are forecasted to be completed in the No Action condition.

CHANGES IN TRAFFIC VOLUMES

As per the *CEQR Technical Manual*, an annual background growth of 1.0 percent is recommended for Brooklyn. This rate was applied to the existing traffic volumes increasing the overall traffic levels in the study area by a total of 11 percent between 2009 and 2020. Furthermore, traffic generated by 32 specific development projects located within the ½-mile land-use study area and two additional projects beyond the ½-mile study area anticipated to be completed prior to, or concurrent with, the planned completion of the proposed project, was incorporated in the No Action volumes. The most notable of the No Action development projects included in the analysis are described below:

- Kedem Winery Redevelopment—450 residential units, approximately 26,400 sf of retail space, a ½-acre public esplanade, and 225 parking spaces;
- Domsey Rezoning at 421-417 Kent Avenue—540 residential units and 120 parking spaces;
- Rose Plaza at 470-490 Kent Avenue—801 residential units, approximately 28,130 sf of retail space, 0.77 acres of public esplanade, and 436 parking spaces;
- Wythe Avenue between South 2nd and South 3rd Streets—80 residential units;
- 184 Kent Avenue—256 residential units and approximately 27,000 sf of retail space;
- Northside Piers—900 residential units;
- North 5th Street/Berry Street—40 residential units;
- 80 Metropolitan Avenue—123 residential units;
- North 1st Street between Kent and Wythe Avenues—41 residential units;
- 349 Metropolitan Avenue—35 residential units;
- South 4th Street between Driggs Avenue and Roebling Street—46 residential units;
- The block bounded by Berry Street, Bedford Avenue, North 3rd Street, and North 4th Street —195 residential units;
- 144 North 8th Street—42 residential units;
- North 8th and Roebling Streets—53 residential units;
- North 11th Street between Driggs Avenue and Roebling Street—120 residential units;
- Brooklyn Navy Yard Redevelopment—approximately 250,000 sf of industrial space for the food industry, 289,000 sf of media production space, and 600,000 sf of warehouse space; and

- Various small residential development projects located in the study area consisting of a total of 386 residential units.

In addition to the above projects, traffic generated by the projected development sites included in the *Greenpoint-Williamsburg Rezoning FEIS* was included in the No Action analysis. There were no mitigation measures proposed for this rezoning which would affect study area intersections. The total development resulting from the projected Greenpoint-Williamsburg Rezoning development sites consisted of approximately 7,300 dwelling units and 204,600 sf of retail space, and included all the properties affected by the rezoning.

Trips generated by the various No Action projects discussed above, as well as the projected development sites identified in the *Greenpoint-Williamsburg Rezoning FEIS*, were incorporated in the No Action traffic network. It should be noted that anticipated development projects within a ¼- up to ½-mile radius are typically included in the No Action conditions. Therefore, the future No Action scenario discussed above is conservative, as it includes future development projects beyond the ½-mile radius in the broader study area, resulting in increased traffic levels by the year 2020.

CHANGES IN THE ROADWAY NETWORK

In addition to trips generated by the future development projects identified above, changes in the roadway network in the future conditions were also incorporated in the No Action analysis, including:

- A new traffic signal for the Kent Avenue and Division Avenue intersection, proposed as part of Kedem Winery Redevelopment project; and
- Changes in street configurations proposed as part of the Domsey/Glantz Rezoning project, including extension of South 9th and South 10th Streets as through-block streets between Wythe and Kent Avenues. Specifically, in the future conditions, South 9th Street will operate as a one-way eastbound street, while South 10th Street will operate as a one-way westbound street between Wythe and Kent Avenues.

KENT AVENUE RECONFIGURATION

The reconfiguration of Kent Avenue would also affect the travel patterns of traffic generated by the future No Action projects in the study area. In general, traffic generated by 8 of the 17 notable development projects discussed above would experience changes in travel patterns. Specifically, these would include the anticipated projects located along the Kent Avenue corridor between Clymer and North 14th Streets (for example, the Kedem Winery Redevelopment, Domsey Rezoning, Rose Plaza, Northside Piers, and Brooklyn Navy Yard Redevelopment, etc.). In addition, traffic generated by approximately 75 percent of the total proposed residential and retail developments identified under the *Greenpoint-Williamsburg Rezoning FEIS* would experience changes in travel patterns resulting from the Kent Avenue reconfiguration.

As discussed previously, the traffic patterns resulting from the reconfiguration of Kent Avenue have not yet stabilized, and DOT is planning to assess the efficacy of the new Kent Avenue configuration to determine whether modifications are needed. Once the travel patterns have stabilized, a detailed analyses of traffic conditions—including the reassignment of truck trips—resulting from Kent Avenue reconfiguration will be undertaken between the DEIS and FEIS.

NO ACTION DEVELOPMENT ON THE PROJECT SITE

As discussed above under "Analysis Framework," absent the proposed project, the project site could be developed with commercial and industrial uses permitted under the existing M3-1 zoning. The No Action scenario includes the development of a storage facility on the waterfront parcel between South 3rd and South 5th Streets, a building materials storage yard along the waterfront to the north of South 2nd Street, and a new distribution facility along the waterfront immediately south of Grand Ferry Park. On the upland portion of the site, a new two-story building with a catering hall/restaurant on the upper floor and parking on the ground floor would be constructed.

The total development program for this scenario includes approximately 106,300 sf of industrial distribution space, approximately 60,000 sf of storage space, 40,000 sf of catering hall/restaurant space, and 61,000 sf of land used for building materials storage (as well as 5,000 sf of office space for this use). The various No Action components and their corresponding trip generation characteristics are summarized in Table 17-5 and are discussed in detail below.

INDUSTRIAL DISTRIBUTION CENTER/WAREHOUSE

A weekday trip rate of 10.44 trips/1,000 sf based on the information presented in the *Greenpoint-Williamsburg Rezoning FEIS* was used to determine the number of daily trips expected to be generated by the distribution center. A Saturday trip rate of 3.61 trips/1,000 sf was developed based on the information presented in the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 8th Edition — Land Use Code 150 (Warehousing)* to determine the number of trips expected to be generated by the distribution center on a Saturday. Other trip generation factors, including temporal and directional distributions, modal splits, and vehicle occupancies were based on the information presented in the *Greenpoint-Williamsburg Rezoning FEIS.* In total, the industrial distribution center would generate approximately 102, 78, 71, and 16 vehicle trips (converted to passenger car equivalents [PCEs]) during the AM, midday, and PM, and Saturday midday peak hours, respectively.

CATERING HALL

The catering hall could host a variety of formal events. Trip generation estimates for the catering hall were developed based on the information presented in the *Silvercup West FEIS.* Based on this information, the catering hall could hold events with attendance ranging from 225 to 450 guests. To further reflect the range of activities that might occur, a medium-size event of approximately 225 guests was assumed for the weekday midday peak hour; for larger-size events of approximately 450 and 670 guests were assumed for the weekday PM and Saturday midday peak hours. The catering hall is not expected to hold events during the weekday AM peak hour; therefore, no trips were assumed for that time period. Other trip generation factors, including directional distribution, modal splits, and vehicle occupancies, were based on the information presented in the *Silvercup West FEIS.* Since a majority of the guests would arrive and depart in a generally short time frame—just before the start and just after the end of an event—a temporal distribution of 80 percent was conservatively used for trip generation purposes. In total, the catering hall would generate approximately 120, 240, and 357 trips during the weekday midday and PM and Saturday midday peak hours, respectively.

STORAGE FACILITY

A weekday daily trip rate of 5.26 trips/1,000 sf and a Saturday daily trip rate of 4.91 trips/1,000 sf were used in estimating the number of trips generated by the storage facility. This trip generation

Table 17-5
No Action Development on the Project Site
Trip Generation Factors*

Factors	Industrial Distribution Center 106,300 s.f.				Catering Hall 40,000 s.f.				Storage Facility 60,000 s.f.			
	AM	MD	PM	Sat MD	AM	MD	PM	Sat MD	AM	MD	PM	Sat MD
	Daily Trip Rate[1,2]				Average Occupancy[4,5,6,7]				Daily Trip Rate[10]			
		10.44		3.61	0	223	446	668		5.26		4.91
	Modal Split[1,3]				Modal Split[4]				Modal Split[11]			
Auto		51.0%				92.0%				70.0%		
Bus		7.0%				-				0.0%		
Subway		28.0%				-				0.0%		
Walk/Other		12.0%				1.0%				0.0%		
Taxi		2.0%				7.0%				5.0%		
Trucks		-				-				25.0%		
	Vehicle Occupancies[1,3]				Vehicle Occupancies[4,9]				Vehicle Occupancies[1,10]			
Auto Occupancy		1.30				1.50				1.60		
Taxi Occupancy		1.30				2.30				1.30		
	Temporal Distribution[1,3]				Temporal Distribution[8]				Temporal Distribution[10,12,13]			
	13.2%	11.0%	14.2%	11.0%	0.0%	80.0%	80.0%	80.0%	6.0%	8.0%	10.0%	8.0%
	Direction Distribution[1,3]				Direction Distribution[4]				Direction Distribution[10,12,13]			
Percent In	88%	50%	12%	50%	90%	90%	90%	90%	51%	51%	51%	51%
Percent Out	12%	50%	88%	50%	10%	10%	10%	10%	49%	49%	49%	49%
Delivery Trips												
	Daily Trip Rate[1,2]				Daily Trip Rate				Daily Trip Rate			
		0.67		0.02		-				-		
	Temporal Distribution[1,3]				Temporal Distribution				Temporal Distribution[10,12,13]			
	14.0%	9.0%	1.0%	9.0%		-			6.0%	8.0%	10.0%	8.0%
	Direction Distribution[1,3]				Direction Distribution				Direction Distribution[10,12,13]			
Percent In	100%	100%	100%	100%	-	-	-	-	51.0%	51.0%	51.0%	51.0%
Percent Out	100%	100%	100%	100%	-	-	-	-	49.0%	49.0%	49.0%	49.0%

Notes:

* Trip generation estmates for the Maritime Industrial Use were based on the information presented in the LaFarge 25th Street Pier, Brooklyn EAS, September 2004, and the ratio between weekday and Saturday trip rates for Warehousing as per the information from ITE Trip Generation Manual (8th Edition)

(01) Source: Greenpoint - Williamsburg FEIS (CEQR No. 04DCP003K)

(02) Saturday trip rates adjusted as per the ratio between weekday and Saturday trip rates for Warehousing provided in the ITE Trip Generation Manual (8th Edition)

(03) Saturday modal split, temporal distribution, directional distribution, and vehicle occupancies assumed the same as weekday midday

(04) Source: *Silvercup West FEIS* , CEQR # 05DCP080Q (2006)

(05) Average catering hall operates at 25% capacity during weekday midday based on information provided in the Silvercup FEIS, CEQR # 05DCP080Q

(06) Average catering hall operates at 50% capacity during weekday PM based on information provided in the Silvercup FEIS, CEQR # 05DCP080Q

(07) Assuming the catering hall operating at 75% capacity during Saturday midday based on information provided in the Silvercup FEIS, CEQR # 05DCP080Q

(08) Assuming the majority of the trip distribution activity would occur during the weekday midday, PM, and Saturday midday peak hours

(09) Source: *Farley Post Office/Moynihan Station Redevelopment Project FEIS* (2006)

(10) Source: ITE Trip Generation Manual, 8th Edition - Land Use Code 151 (Mini-Warehouse)

(11) Modal split assumptions account for the higher vehicle share associated with a storage facility use

(12) Weekday midday temporal and directional distribution based on average of AM and PM values

(13) Saturday temporal distribution, directional distribution, and vehicle occupancies assumed the same as weekday midday

rate is based on the information provided in the *ITE Trip Generation Manual, 8th Edition — Land Use Code 151 (Mini-Warehouse).* Since no transit and pedestrian trips are expected to be generated by the storage facility due to the nature of such a use—which typically involves transfer (loading/unloading) of material in and out of the facility—a modal split of 25 percent trucks, 70 percent autos, and 5 percent taxis was used in forecasting the number of trips. The storage facility would generate approximately 16, 28, 34, and 26 vehicle trips (converted to PCEs) during the weekday AM, midday, and PM, and Saturday midday peak hours, respectively.

BUILDING MATERIALS STORAGE USE

For trip generation purposes, a concrete batching facility was assumed for the building materials storage use. The number of trips expected to be generated by this use were estimated based on the information presented in the *La Farge Cement Company EAS (2004)* and *ITE Trip Generation Manual, 8th Edition — Land Use Code 150 (Warehousing).* To accurately reflect the vehicular activity expected to be generated by such a use, the peak hour trips presented in the *La Farge Cement Company EAS* were adjusted based on the size of the building materials storage use under the No Action scenario. In total, the building materials storage yard would generate approximately 8, 8, 0, and 4 vehicle trips (converted to PCEs) during the weekday AM, midday, and PM, and Saturday midday peak hours, respectively.

TOTAL TRIPS

The *CEQR Technical Manual* recommends converting vehicular trips to PCEs for proposed actions that generate significant volumes of truck trips. Since the No Action development on the project site would primarily consist of industrial uses that would generate a significant number of truck trips, vehicle trips generated during all four peak hours were converted to PCEs for analysis purposes. The only exception would be trips generated by the banquet use, which would generate regular vehicular trips during peak hours. As shown in Table 17-6, the No Action development on site is estimated to generate approximately 159, 320, 539, and 594 person trips, and 126, 234, 345, and 403 vehicle trips, during the weekday AM, midday, and PM, and Saturday midday peak hours, which have been incorporated in the No Action analysis.

CAPACITY ANALYSIS RESULTS

Using the trips generated by anticipated new development projects together with an estimated 11 percent traffic growth, traffic volumes were estimated for the study area intersections for the 2020 No Action condition, as presented in Figures 17-10 through 17-13. Tables 17-7 through 17-10 present a comparison of the Existing and No Action LOS conditions for the primary and secondary study area intersections. Based on the analysis results, the following locations would experience notable changes in service conditions between existing and No Action scenarios:

PRIMARY STUDY AREA

Signalized Intersections

- The westbound approach at Metropolitan Avenue and Kent Avenue would decrease from LOS D to LOS F during the weekday AM peak hour, from LOS C to LOS E during the weekday midday peak hour, and from LOS C to LOS F during weekday PM peak hour;

Table 17-6
No Action Development on the Project Site

Peak Hour Person Trip by Mode

As-Of-Right Project	Auto		Bus		Subway		Walk/Other		Taxi		Total		Total
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In+Out
Weekday AM Peak Hour													
Industrial Distribution Center	66	9	9	1	36	5	15	2	3	0	129	17	146
Catering Hall	0	0	0	0	0	0	0	0	0	0	0	0	0
Maritime Industrial Use	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage Facility	7	6	0	0	0	0	0	0	0	0	7	6	13
Total	**73**	**15**	**9**	**1**	**36**	**5**	**15**	**2**	**3**	**0**	**136**	**23**	**159**
Weekday MD Peak Hour													
Industrial Distribution Center	32	32	4	4	17	17	7	7	1	1	61	61	122
Catering Hall	148	16	0	0	0	0	2	0	11	1	161	17	178
Maritime Industrial Use	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage Facility	9	9	0	0	0	0	0	0	1	1	10	10	20
Total	**189**	**57**	**4**	**4**	**17**	**17**	**9**	**7**	**13**	**3**	**232**	**88**	**320**
Weekday PM Peak Hour													
Industrial Distribution Center	10	71	1	10	5	39	2	17	0	3	18	140	158
Catering Hall	296	34	0	0	0	0	3	0	22	2	321	36	357
Maritime Industrial Use	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage Facility	11	11	0	0	0	0	0	0	1	1	12	12	24
Total	**317**	**116**	**1**	**10**	**5**	**39**	**5**	**17**	**23**	**6**	**351**	**188**	**539**
Saturday MD Peak Hour													
Industrial Distribution Center	11	11	1	1	6	6	3	3	0	0	21	21	42
Catering Hall	441	49	0	0	0	0	5	1	34	4	480	54	534
Maritime Industrial Use	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage Facility	8	8	0	0	0	0	0	0	1	1	9	9	18
Total	**460**	**68**	**1**	**1**	**6**	**6**	**8**	**4**	**35**	**5**	**510**	**84**	**594**

Peak Hour Vehicle Trips

As-Of-Right Project	Auto		Taxi		Trucks		Total		Total	PCE's		
	In	Out	In	Out	In	Out	In	Out	In+Out	In	Out	In+Out
Weekday AM Peak Hour												
Industrial Distribution Center	51	7	2	2	10	10	63	19	82	73	29	102
Catering Hall	0	0	0	0	0	0	0	0	0	0	0	0
Maritime Industrial Use	0	0	0	0	2	2	2	2	4	4	4	8
Storage Facility	4	4	0	0	2	2	6	6	12	8	8	16
Total	**55**	**11**	**2**	**2**	**14**	**14**	**71**	**27**	**98**	**85**	**41**	**126**
Weekday MD Peak Hour												
Industrial Distribution Center	25	25	2	2	6	6	33	33	66	39	39	78
Catering Hall	99	11	5	5	0	0	104	16	120	104	16	120
Maritime Industrial Use	0	0	0	0	2	2	2	2	4	4	4	8
Storage Facility	6	6	2	2	3	3	11	11	22	14	14	28
Total	**130**	**42**	**9**	**9**	**11**	**11**	**150**	**62**	**212**	**161**	**73**	**234**
Weekday PM Peak Hour												
Industrial Distribution Center	8	55	2	2	1	1	11	58	69	12	59	71
Catering Hall	197	23	10	10	0	0	207	33	240	207	33	240
Maritime Industrial Use	0	0	0	0	0	0	0	0	0	0	0	0
Storage Facility	7	7	2	2	4	4	13	13	26	17	17	34
Total	**212**	**85**	**14**	**14**	**5**	**5**	**231**	**104**	**335**	**236**	**109**	**345**
Saturday MD Peak Hour												
Industrial Distribution Center	8	8	0	0	0	0	8	8	16	8	8	16
Catering Hall	294	33	15	15	0	0	309	48	357	309	48	357
Maritime Industrial Use	0	0	0	0	1	1	1	1	2	2	2	4
Storage Facility	5	5	2	2	3	3	10	10	20	13	13	26
Total	**307**	**46**	**17**	**17**	**4**	**4**	**328**	**67**	**395**	**332**	**71**	**403**

Table 17-7
Existing and No Action Conditions Level of Service Analysis
Primary Study Area Intersections
Signalized Intersections

Intersections	AM Peak Hour								Midday Peak Hour								PM Peak Hour								Saturday Peak Hour [1]							
	Existing				No Action				Existing				No Action				Existing				No Action				Existing				No Action			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Metropolitan Avenue and Kent Avenue																																
Eastbound	LTR	0.21	28.6	C	LTR	0.25	29.3	C	LTR	0.04	26.3	C	LTR	0.04	26.3	C	LTR	0.06	26.5	C	LTR	0.07	26.5	C	LTR	0.01	25.8	C	LTR	0.01	25.8	C
Westbound	LTR	0.45	36.0	D	LTR	1.24	181.8	F	LTR	0.31	31.6	C	LTR	0.83	64.9	E	LTR	0.43	34.2	C	LTR	1.01	97.6	F	LTR	0.16	28.0	C	LTR	0.50	35.8	D
Northbound	LTR	0.43	9.1	A	LTR	0.66	13.0	B	LTR	0.39	8.7	A	LTR	0.62	12.3	B	LTR	0.43	9.1	A	LTR	0.81	18.3	B	LTR	0.19	6.8	A	LTR	0.42	8.9	A
Southbound	LTR	0.39	8.9	A	LTR	0.79	19.7	B	LTR	0.41	9.0	A	LTR	0.68	14.4	B	LTR	0.64	12.5	B	LTR	0.91	26.1	C	LTR	0.17	6.7	A	LTR	0.47	9.7	A
	Intersection		12.9	B	Intersection		38.9	D	Intersection		10.8	B	Intersection		19.3	B	Intersection		13.1	B	Intersection		30.3	C	Intersection		9.0	A	Intersection		12.6	B
Kent Avenue and S. 3rd Street																																
Eastbound					LTR	0.02	25.9	C					LTR	0.04	26.1	C					LTR	0.05	26.2	C					LTR	0.04	26.1	C
Northbound	TR	0.46	9.5	A	LTR	0.68	13.5	B	TR	0.42	9.1	A	LTR	0.69	14.0	B	TR	0.46	9.4	A	LTR	0.88	22.9	C	TR	0.17	6.6	A	LTR	0.45	9.2	A
Southbound	LT	0.47	10.0+	B	LTR	0.83	21.8	C	LT	0.43	9.3	A	LTR	0.68	14.3	B	LT	0.60	11.7	B	LTR	0.90	26.2	C	LT	0.17	6.7	A	LTR	0.41	8.9	A
	Intersection		9.7	A	Intersection		17.5	B	Intersection		9.2	A	Intersection		14.3	B	Intersection		10.7	B	Intersection		24.5	C	Intersection		6.7	A	Intersection		9.4	A
Kent Avenue and Broadway																																
Eastbound	LTR	0.01	22.2	C	LTR	0.01	22.2	C	LTR	0.01	22.1	C	LTR	0.01	22.2	C	LTR	0.01	22.1	C	LTR	0.01	23.6	C	LTR	0.04	22.5	C	LTR	0.04	22.5	C
Westbound	LTR	0.33	27.3	C	LTR	0.55	33.1	C	LTR	0.31	26.5	C	LTR	0.50	30.8	C	LTR	0.43	29.3	C	LTR	0.80	49.3	D	LTR	0.18	24.3	C	LTR	0.34	27.1	C
Northbound	LTR	0.50	12.7	B	LTR	0.79	21.1	C	LTR	0.42	11.6	B	LTR	0.66	16.5	B	LTR	0.41	11.4	B	LTR	0.73	16.9	B	LTR	0.20	9.1	A	LTR	0.47	12.1	B
Southbound	LTR	0.50	13.1	B	LTR	0.88	30.5	C	LTR	0.49	13.1	B	LTR	0.75	21.1	C	LTR	0.87	26.0	C	LTR	1.24	134.4	F	LTR	0.23	9.4	A	LTR	0.48	12.5	B
	Intersection		14.5	B	Intersection		26.4	C	Intersection		14.3	B	Intersection		20.4	C	Intersection		22.1	C	Intersection		83.9	F	Intersection		11.8	B	Intersection		14.3	B
Berry Street and S. 4th Street																																
Westbound	TR	0.26	17.1	B	TR	0.29	17.5	B	TR	0.22	16.6	B	TR	0.27	17.2	B	TR	0.18	16.1	B	TR	0.24	16.9	B	TR	0.17	16.0	B	TR	0.25	17.0	B
Northbound	LT	0.32	17.6	B	LT	0.36	18.1	B	LT	0.24	16.6	B	LT	0.34	17.9	B	LT	0.39	18.7	B	LT	0.56	21.9	C	LT	0.33	17.7	B	LT	0.52	21.1	C
	Intersection		17.4	B	Intersection		17.9	B	Intersection		16.6	B	Intersection		17.6	B	Intersection		18.1	B	Intersection		20.7	C	Intersection		17.2	B	Intersection		20.0-	B
Metropolitan Avenue and Bedford Avenue																																
Eastbound	LT	0.30	17.3	B	LT	0.60	23.4	C	LT	0.31	17.4	B	LT	0.47	20.1	C	LT	0.31	17.3	B	LT	0.61	23.3	C	LT	0.28	16.9	B	LT	0.39	18.5	B
Westbound	TR	0.36	18.4	B	TR	0.58	23.1	C	TR	0.28	17.2	B	TR	0.54	22.1	C	TR	0.40	19.0	B	TR	0.86	39.2	D	TR	0.21	16.1	B	TR	0.49	20.3	C
Northbound	LTR	0.44	19.4	B	LTR	0.52	21.3	C	LTR	0.37	18.4	B	LTR	0.45	19.9	B	LTR	0.58	22.5	C	LTR	0.69	26.5	C	LTR	0.50	20.7	C	LTR	0.58	22.4	C
	Intersection		18.5	B	Intersection		22.6	C	Intersection		17.7	B	Intersection		20.8	C	Intersection		20.3	C	Intersection		30.0	C	Intersection		18.6	B	Intersection		20.7	C
Bedford Avenue and Grand Street																																
Eastbound	LT	0.25	22.8	C	LT	0.30	23.5	C	LT	0.21	22.1	C	LT	0.26	23.1	C	LT	0.20	22.0	C	LT	0.24	22.5	C	Not analyzed for Saturday conditions							
Westbound	TR	0.37	24.5	C	TR	0.42	25.6	C	TR	0.20	22.0	C	TR	0.24	22.6	C	TR	0.24	22.5	C	TR	0.28	23.0	C								
Northbound	LTR	0.53	16.2	B	LTR	0.62	18.6	B	LTR	0.43	14.4	B	LTR	0.51	15.9	B	LTR	0.48	15.3	B	LTR	0.58	17.5	B								
	Intersection		19.7	B	Intersection		21.4	C	Intersection		17.5	B	Intersection		18.6	B	Intersection		18.1	B	Intersection		19.6	B								
Bedford Avenue and Broadway																																
Eastbound	LT	0.38	22.0	C	LT	0.66	30.6	C	LT	0.47	23.5	C	LT	0.68	30.6	C	LT	0.42	22.5	C	LT	0.69	31.4	C	LT	0.20	19.0	B	LT	0.31	20.5	C
Westbound	T	0.21	18.7	B	T	0.57	25.5	B	T	0.33	20.5	B	T	0.43	22.2	C	T	0.27	19.8	B	T	0.39	21.6	C	T	0.29	20.0+	C	T	0.38	21.2	C
Northbound	LTR	0.31	13.9	B	LTR	0.35	14.4	B	LTR	0.24	13.2	B	LTR	0.28	13.6	B	LTR	0.34	14.3	B	LTR	0.42	15.2	B	LTR	0.17	12.6	B	LTR	0.22	13.0	B
	Intersection		17.1	B	Intersection		22.0	B	Intersection		18.6	B	Intersection		21.8	C	Intersection		17.3	B	Intersection		21.3	C	Intersection		16.6	B	Intersection		17.7	B
Bedford Avenue and S. 6th Street																																
Westbound	TR	0.32	21.0	C	TR	0.37	21.8	C	TR	0.37	21.5	C	TR	0.55	25.4	C	TR	0.58	26.5	C	TR	1.01	68.2	E	TR	0.29	20.3	C	TR	0.65	28.3	C
Northbound	LT	0.27	13.5	B	LT	0.32	14.0	B	LT	0.19	12.7	B	LT	0.24	13.2	B	LT	0.27	13.5	B	LT	0.36	14.4	B	LT	0.17	12.5	B	LT	0.22	13.0	B
	Intersection		15.7	B	Intersection		16.2	B	Intersection		16.6	B	Intersection		19.1	B	Intersection		19.3	B	Intersection		42.4	D	Intersection		15.5	B	Intersection		21.2	C
Metropolitan Avenue and Driggs Avenue																																
Eastbound	TR	0.69	26.6	C	TR	1.13	104.2	F	TR	0.45	19.9	B	TR	0.67	25.7	C	TR	0.37	18.3	B	TR	0.59	22.7	C	TR	0.31	17.3	B	TR	0.42	18.9	B
Westbound	LT	0.41	19.8	B	LT	0.87	46.4	D	LT	0.31	17.6	B	LT	0.55	22.5	C	LT	0.46	20.5	C	LT	0.93	51.1	D	LT	0.26	16.6	B	LT	0.54	21.4	C
Southbound	LTR	0.62	23.9	C	LTR	0.74	28.8	C	LTR	0.34	17.8	B	LTR	0.36	18.2	B	LTR	0.48	20.2	C	LTR	0.51	20.7	C	LTR	0.54	21.3	C	LTR	0.56	22.0	C
	Intersection		24.2	C	Intersection		68.3	E	Intersection		18.6	B	Intersection		22.8	C	Intersection		19.7	B	Intersection		33.1	C	Intersection		19.1	B	Intersection		20.9	C
Driggs Avenue and Broadway																																
Eastbound	TR	0.35	18.0	B	TR	0.45	19.8	B	TR	0.49	20.4	C	TR	0.58	22.6	C	TR	0.36	18.1	B	TR	0.45	19.7	B	TR	0.14	15.3	B	TR	0.21	16.0	B
Westbound	LT	0.79	31.9	C	LT	0.99	60.7	E	LT	0.55	21.7	C	LT	0.80	31.2	C	LT	0.75	28.5	C	LT	1.24	143.9	F	LT	0.46	19.7	B	LT	0.85	34.3	C
Southbound	LT	0.38	18.7	B	LT	0.47	20.5	C	LT	0.27	17.0	B	LT	0.32	17.7	B	LT	0.31	17.4	B	LT	0.37	18.4	B	LT	0.31	17.4	B	LT	0.37	18.4	B
	R	0.09	14.8	B	R	0.12	15.1	B	R	0.08	14.7	B	R	0.09	14.8	B	R	0.08	14.6	B	R	0.08	14.7	B	R	0.08	14.6	B	R	0.08	14.7	B
	Intersection		24.9	C	Intersection		40.2	D	Intersection		20.0+	C	Intersection		25.5	C	Intersection		23.1	C	Intersection		92.4	F	Intersection		18.0	B	Intersection		27.2	C
Roebling Street and S. 3rd Street																																
Eastbound	LTR	0.47	19.4	B	LTR	0.60	23.2	C	LTR	0.75	29.9	C	LTR	0.86	40.2	D	LTR	0.72	28.0	C	LTR	0.84	37.3	D	LTR	0.14	14.4	B	LTR	0.18	14.8	B
Northbound	TR	0.14	7.3	A	TR	0.16	7.4	A	TR	0.11	7.0	A	TR	0.12	7.1	A	TR	0.10	7.0	A	TR	0.12	7.1	A	TR	0.13	7.2	A	TR	0.15	7.3	A
Southbound	LT	0.38	9.6	A	LT	0.53	11.8	B	LT	0.35	9.3	A	LT	0.42	10.1	B	LT	0.42	9.9	A	LT	0.48	10.7	B	LT	0.44	10.0+	B	LT	0.50	10.9	B
	Intersection		12.5	B	Intersection		14.8	B	Intersection		18.9	B	Intersection		24.0	C	Intersection		17.2	B	Intersection		21.5	C	Intersection		10.0+	B	Intersection		10.7	B

Table 17-7 (Continued)
Existing and No Action Conditions Level of Service Analysis
Primary Study Area Intersections
Signalized Intersections

Intersections	AM Peak Hour								Midday Peak Hour								PM Peak Hour								Saturday Peak Hour [1]							
	Existing				No Action				Existing				No Action				Existing				No Action				Existing				No Action			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Roebling Street and S. 4th Street																																
Eastbound	LR	0.06	8.0	A	LR	0.20	9.3	A	LR	0.04	7.9	A	LR	0.15	8.8	A	LR	0.06	8.1	A	LR	0.15	8.8	A	LR	0.15	8.8	A	LR	0.21	9.3	A
Westbound	L	0.06	8.0	A	L	0.07	8.1	A	L	0.06	8.0	A	L	0.07	8.1	A	L	0.07	8.1	A	L	0.08	8.2	A	L	0.06	8.0	A	L	0.06	8.0	A
	TR	0.28	10.2	B	TR	0.31	10.6	B	TR	0.23	9.5	A	TR	0.26	9.9	A	TR	0.24	9.7	A	TR	0.27	10.0-	A	TR	0.18	9.1	A	TR	0.21	9.3	A
Southbound	TR	0.89	55.7	E	TR	1.24	160.2	F	TR	0.99	75.9	E	TR	1.16	127.4	F	TR	1.04	86.1	F	TR	1.20	141.3	F	TR	0.76	39.9	D	TR	0.89	52.2	D
	Intersection		35.6	D	Intersection		93.0	F	Intersection		50.4	D	Intersection		76.2	E	Intersection		56.5	E	Intersection		86.0	F	Intersection		25.6	C	Intersection		32.1	C
Broadway and Roebling Street Exit Bridge																																
Eastbound	LTR	0.36	22.5	C	LTR	0.47	24.8	C	LTR	0.41	18.8	B	LTR	0.50	20.2	C	LTR	0.35	22.3	C	LTR	0.44	24.1	C	LTR	0.20	15.9	B	LTR	0.28	16.7	B
Westbound	LTR	0.24	20.3	C	LTR	0.33	21.4	C	LTR	0.20	15.6	B	LTR	0.26	16.2	B	LTR	0.18	19.5	B	LTR	0.28	20.5	C	TR	0.05	14.4	B	LTR	0.13	14.9	B
Northbound	LTR	0.10	18.7	B	LTR	0.12	18.8	B	LTR	0.03	14.2	B	LTR	0.04	14.2	B	LTR	0.05	18.1	B	LTR	0.05	18.2	B	LTR	0.11	14.8	B	LTR	0.12	14.9	B
Southbound	DefL	0.39	24.0	C	DefL	0.46	25.6	C																					DefL	0.40	14.9	B
	T	0.23	20.4	C	T	0.26	20.8	C	LT	0.29	16.5	B	LT	0.33	17.0	B	LT	0.58	25.9	C	LT	0.66	27.9	C	T	0.26	16.4	B	T	0.29	16.8	B
	Intersection		21.4	C	Intersection		22.6	C	Intersection		16.9	B	Intersection		17.7	B	Intersection		23.8	C	Intersection		25.2	C	Intersection		16.2	B	Intersection		16.7	B
Roebling Street and S. 8th Street																																
Northbound	LTR	0.19	19.8	B	LTR	0.22	20.2	C	LTR	0.15	15.3	B	LTR	0.18	15.6	B	LTR	0.18	19.6	B	LTR	0.21	20.1	C	Not analyzed for Saturday conditions							
Southbound	LT	0.30	9.5	A	LT	0.33	9.9	A	LT	0.30	7.0	A	LT	0.34	7.2	A	LT	0.54	12.7	B	LT	0.60	14.1	B								
	R	0.04	7.3	A	R	0.05	7.3	A	R	0.04	5.2	A	R	0.04	5.2	A	R	0.03	7.2	A	R	0.04	7.3	A								
	Intersection		13.0	B	Intersection		13.3	B	Intersection		9.3	A	Intersection		9.6	A	Intersection		13.9	B	Intersection		14.9	B								
Metropolitan Avenue and Havemeyer Street																																
Eastbound	T	0.35	12.8	B	T	0.57	16.8	B	T	0.50	15.3	B	T	0.70	20.4	C	T	0.40	13.5	B	T	0.58	16.8	B	T	0.47	14.4	B	T	0.62	17.6	B
Westbound	T	0.42	13.9	B	T	0.60	17.5	B	T	0.41	13.7	B	T	0.64	18.5	B	T	0.55	16.5	B	T	0.96	44.2	D	T	0.37	12.9	B	T	0.63	17.7	B
Northbound	LR	0.42	25.9	C	LR	0.49	27.8	C	LR	0.40	25.4	C	LR	0.46	26.9	C	LR	0.68	34.3	C	LR	0.79	42.3	D	LR	0.77	40.0	D	LR	0.90	53.9	D
	Intersection		16.2	B	Intersection		19.1	B	Intersection		16.6	B	Intersection		20.6	C	Intersection		20.3	C	Intersection		34.9	C	Intersection		21.6	C	Intersection		26.5	C
Grand Street and Havemeyer Street																																
Eastbound	LT	0.12	19.1	B	LT	0.15	19.5	B	LT	0.13	19.2	B	LT	0.15	19.5	B	LT	0.19	27.5	C	LT	0.22	28.0	C	Not analyzed for Saturday conditions							
Westbound	TR	0.04	18.1	B	TR	0.05	18.2	B	TR	0.03	17.9	B	TR	0.03	18.0	B	TR	0.07	25.7	C	TR	0.08	25.8	C								
Northbound	LTR	0.32	21.9	C	LTR	0.36	22.6	C	LTR	0.26	21.0	C	LTR	0.30	21.6	C	LTR	0.38	16.2	B	LTR	0.43	17.1	B								
	Intersection		21.0	C	Intersection		21.6	C	Intersection		20.4	C	Intersection		20.8	C	Intersection		19.1	B	Intersection		19.8	B								
Havemeyer Street and S. 4th Street-Borinquen Pl.																																
Westbound	TR	0.26	21.0	C	TR	0.29	21.4	C	TR	0.26	21.1	C	TR	0.29	21.5	C	TR	0.45	23.9	C	TR	0.51	24.8	C	Not analyzed for Saturday conditions							
Northbound	L	0.21	20.4	C	L	0.23	20.7	C	L	0.18	20.0-	B	L	0.20	20.2	C	L	0.17	19.9	B	L	0.19	20.2	C								
	T	0.20	20.5	C	T	0.22	20.8	C	T	0.23	20.9	C	T	0.26	21.3	C	T	0.31	22.2	C	T	0.35	22.9	C								
	R	0.04	18.7	B	R	0.05	18.8	B	R	0.04	18.7	B	R	0.05	18.8	B	R	0.06	18.9	B	R	0.07	19.0	C								
	Intersection		20.6	C	Intersection		20.9	C	Intersection		20.6	C	Intersection		21.1	C	Intersection		22.6	C	Intersection		23.3	C								
Broadway and Havemeyer Street																																
Eastbound	LT	0.71	25.2	C	LT	0.93	45.1	D	LT	0.81	33.7	C	LT	1.07	86.3	F	LT	0.86	36.6	D	LT	1.15	113.9	F	LT	0.60	21.3	C	LT	0.81	32.1	C
Westbound	TR	0.55	19.9	B	TR	0.68	23.6	C	TR	0.54	19.2	B	TR	0.67	22.9	C	TR	0.68	24.4	C	TR	0.88	38.3	D	TR	0.37	16.1	B	TR	0.50	18.5	B
Northbound	LTR	0.35	29.3	C	LTR	0.39	30.0	C	LTR	0.26	27.9	C	LTR	0.29	28.4	C	LTR	0.29	28.3	C	LTR	0.32	28.8	C	LTR	0.20	27.1	C	LTR	0.22	27.4	C
	Intersection		24.4	C	Intersection		34.1	C	Intersection		26.7	C	Intersection		48.8	D	Intersection		30.6	C	Intersection		68.6	E	Intersection		20.7	C	Intersection		26.2	C
Metropolitan Avenue and Marcy Avenue																																
Eastbound	TR	0.23	10.2	B	TR	0.36	11.5	B	TR	0.28	10.7	B	TR	0.38	11.7	B	TR	0.28	10.6	B	TR	0.37	11.5	B	TR	0.39	9.6	A	TR	0.48	10.7	B
Westbound	L	0.70	5.2	A	L	0.89	25.1	C	L	0.61	4.0	A	L	0.74	12.7	B	L	1.05	51.3	D	L	1.31	158.3	F	L	0.48	3.0	A	L	0.57	7.3	A
	T	0.18	0.2	A	T	0.24	0.4	A	T	0.18	0.2	A	T	0.27	0.4	A	T	0.25	0.4	A	T	0.43	0.9	A	T	0.19	0.3	A	T	0.31	0.5	A
	Intersection		5.5	A	Intersection		14.9	B	Intersection		5.6	A	Intersection		9.2	A	Intersection		32.0	C	Intersection		82.0	F	Intersection		5.4	A	Intersection		6.8	A
Marcy Avenue and Broadway																																
Eastbound	TR	0.83	40.8	D	TR	1.01	72.6	E	TR	0.61	28.9	C	TR	0.73	34.1	C	TR	0.88	46.9	D	TR	1.06	85.4	F	TR	0.44	24.2	C	TR	0.55	26.8	C
Westbound	LT	0.69	33.2	C	LT	0.96	64.2	E	LT	0.55	26.7	C	LT	0.68	31.3	C	LT	0.75	35.5	D	LT	1.08	96.7	F	LT	0.34	22.1	C	LT	0.49	25.1	C
Southbound	LTR	0.53	26.9	C	LTR	0.61	29.8	C	LTR	0.47	25.3	C	LTR	0.55	27.5	C	LTR	0.90	48.7	D	LTR	1.03	76.0	E	LTR	0.44	24.7	C	LTR	0.52	26.8	C
	Intersection		35.0-	C	Intersection		59.9	E	Intersection		27.2	C	Intersection		31.4	C	Intersection		44.5	D	Intersection		85.6	F	Intersection		23.7	C	Intersection		26.2	C
Metropolitan Avenue and Meeker Avenue																																
Eastbound	T	0.19	21.9	C	T	0.31	23.5	C	T	0.22	22.2	C	T	0.30	23.4	C	T	0.30	23.3	C	T	0.40	24.8	C	T	0.30	18.4	B	T	0.39	19.4	B
Westbound	TR	0.33	22.0	C	TR	0.41	23.2	C	TR	0.29	21.5	C	TR	0.38	22.7	C	TR	0.56	26.0	C	TR	0.72	30.4	C	TR	0.25	16.1	B	TR	0.34	17.0	B
Southbound	L	0.04	17.5	B	L	0.05	17.6	B	L	0.02	17.3	B	L	0.02	17.3	B	L	0.04	17.4	B	L	0.04	17.5	B	L	0.02	14.1	B	L	0.02	14.1	B
	LR	0.55	26.7	C	LR	0.64	29.8	C	LR	0.45	24.0	C	LR	0.55	26.6	C	LR	0.70	31.5	C	LR	0.87	43.5	D	LR	0.31	17.4	B	LR	0.41	19.0	B
	R	0.51	25.7	C	R	0.60	28.3	C	R	0.43	23.6	C	R	0.52	26.0	C	R	0.67	30.1	C	R	0.84	40.1	D	R	0.29	17.2	B	R	0.39	18.7	B
	Intersection		23.8	C	Intersection		25.6	C	Intersection		22.6	C	Intersection		24.2	C	Intersection		27.5	C	Intersection		34.0	C	Intersection		17.2	B	Intersection		18.4	B
Metropolitan Avenue and Rodney Street																																
Eastbound	LT	0.24	20.8	C	LT	0.46	24.4	C	LT	0.29	21.5	C	LT	0.47	24.6	C	LT	0.36	22.5	C	LT	0.61	28.2	C	LT	0.37	17.4	B	LT	0.56	20.5	C
Westbound	TR	0.35	24.1	C	TR	0.42	25.2	C	TR	0.33	23.8	C	TR	0.41	25.0	C	TR	0.55	27.8	C	TR	0.68	31.0	C	TR	0.34	18.8	B	TR	0.42	19.8	B
Northbound	LT	0.48	23.3	C	LT	0.55	24.6	C	LT	0.39	21.7	C	LT	0.45	22.6	C	LT	0.50	23.6	C	LT	0.59	25.5	C	LT	0.28	16.3	B	LT	0.33	17.0	B
	R	0.28	20.9	C	R	0.31	21.4	C	R	0.16	19.0	B	R	0.18	19.3	B	R	0.24	20.2	C	R	0.27	20.6	C	R	0.15	15.5	B	R	0.17	15.7	B
	Intersection		22.8	C	Intersection		24.4	C	Intersection		22.1	C	Intersection		23.7	C	Intersection		24.6	C	Intersection		27.7	C	Intersection		17.5	B	Intersection		19.1	B
Metropolitan Avenue and Wythe Avenue																																
Eastbound	TR	0.13	15.1	B	TR	0.36	18.1	B	TR	0.13	15.2	B	TR	0.33	17.7	B	TR	0.10	14.8	B	TR	0.29	17.1	B	TR	0.09	14.8	B	TR	0.33	17.7	B
Westbound	LT	0.20	16.0	B	LT	0.38	18.6	B	LT	0.15	15.4	B	LT	0.38	18.7	B	LT	0.24	16.6	B	LT	0.67	26.9	C	LT	0.18	15.8	B	LT	0.68	28.4	C
Southbound	LTR	0.50	20.7	C	LTR	0.58	22.5	C	LTR	0.35	17.9	B	LTR	0.39	18.7	B	LTR	0.62	23.7	C	LTR	0.70	26.6	C	LTR	0.26	16.7	B	LTR	0.30	17.3	B
	Intersection		18.7	B	Intersection		20.2	C	Intersection		16.8	B	Intersection		18.4	B	Intersection		21.0	C	Intersection		24.9	C	Intersection		16.1	B	Intersection		22.1	C

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
(1) The Saturday HCS analysis is new for the DEIS.

Table 17-8
Existing and No Action Conditions Level of Service Analysis
Primary Study Area Intersections
Unsignalized Intersections

Intersections	AM Peak Hour								Midday Peak Hour								PM Peak Hour								Saturday Peak Hour [1]							
	Existing				No Action				Existing				No Action				Existing				No Action				Existing				No Action			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Kent Avenue and N. 1st Street																																
Eastbound	LR	0.02	14.7	B	LR	0.04	25.3	D	LR	0.02	16.4	C	LR	0.04	26.8	D	LR	0.04	25.9	D	LR	0.12	75.4	F	LR	0.01	12.7	B	LR	0.03	21.2	C
Westbound	LTR	0.17	19.3	C	LTR	0.43	44.0	E	LTR	0.09	16.6	C	LTR	0.20	26.8	D	LTR	0.26	31.1	D	LTR	0.93	186.4	F	LTR	0.06	12.9	B	LTR	0.15	21.3	C
Northbound	LT	0.00	8.4	A	LT	0.00	9.4	A	LT	0.00	8.5	A	LT	0.00	9.2	A	LT	0.01	9.6	A	LT	0.01	11.0	B	LT	0.00	7.8	A	LT	0.00	8.4	A
Kent Avenue and Grand Street																																
Eastbound	LTR	0.12	26.7	D	LTR	0.33	75.3	F	LTR	0.12	18.9	C	LTR	0.25	35.9	E	LTR	0.10	23.0	C	LTR	0.29	63.2	F	LTR	0.04	14.3	B	LTR	0.11	27.1	D
Westbound	LTR	0.55	36.6	E	LTR	1.61	398.1	F	LTR	0.47	30.7	D	LTR	1.14	196.9	F	LTR	0.73	70.0	F	LTR	2.73	961.5	F	LTR	0.08	11.8	B	LTR	0.16	18.0	C
Northbound	LTR	0.00	8.5	A	LTR	0.01	9.8	A	LTR	0.01	8.6	A	LTR	0.02	9.4	A	LTR	0.00	9.3	A	LTR	0.01	10.5	B	LTR	0.00	7.8	A	LTR	0.00	8.5	A
Southbound	LTR	0.04	9.5	A	LTR	0.05	10.8	B	LTR	0.03	9.0	A	LTR	0.05	10.1	B	LTR	0.02	8.9	A	LTR	0.03	10.8	B	LTR	0.01	7.9	A	LTR	0.01	8.7	A
Kent Avenue and S. 1st Street																																
Southbound	LT	0.01	9.6	A	LT	0.02	10.9	B	LT	0.01	8.9	A	LT	0.02	10.0+	B	LT	0.01	8.8	A	LT	0.02	10.4	B	LT	0.00	7.8	A	LT	0.00	8.6	A
Kent Avenue and S. 2nd Street																																
Eastbound					LR	0.10	35.2	E					LR	0.02	27.2	D													LR	0.01	19.1	C
Westbound	LR	0.09	16.0	C	LR	0.22	32.4	D	LR	0.08	15.4	C	LR	0.20	29.4	D	LR	0.16	21.3	C	LR	0.64	111.6	F	LR	0.03	10.8	B	LR	0.05	14.5	B
Northbound					LT	0.00	9.5	A					LT	0.00	9.2	A					LT	0.00	11.0	B					LT	0.00	8.7	A
Kent Avenue and S. 4th Street																																
Westbound	LR	0.16	19.8	C	LR	0.36	41.9	E	LR	0.12	16.1	C	LR	0.33	29.8	D	LR	0.17	26.7	D	LR	0.90	149.2	F	LR	0.13	12.6	B	LR	0.56	30.8	D
Kent Avenue and S. 5th Street																																
Eastbound	LTR	0.02	18.2	C	LTR	0.11	32.5	D	LTR	0.04	18.3	C	LTR	0.07	31.5	D	LTR	0.09	36.0	E	LTR	0.30	129.7	F	LTR	0.02	13.1	B	LTR	0.03	21.5	C
Northbound	LTR	0.00	8.7	A	LTR	0.00	9.8	A	LTR	0.01	8.8	A	LTR	0.01	9.6	A	LTR	0.00	10.4	B	LTR	0.01	12.3	B	LTR	0.01	7.9	A	LTR	0.01	8.5	A
Southbound	LTR	0.01	9.3	A	LTR	0.02	10.5	B	LTR	0.01	8.9	A	LTR	0.01	10.0+	B	LTR	0.01	8.9	A	LTR	0.03	10.8	B	LTR	0.00	7.9	A	LTR	0.01	9.0	A
Kent Avenue and S. 6th Street																																
Eastbound	LR	0.09	19.7	C	LR	0.22	43.1	E	LR	0.03	15.1	C	LR	0.06	23.2	C	LR	0.04	19.9	C	LR	0.17	71.3	F	LR	0.01	14.7	B	LR	0.02	45.4	E
Westbound	LTR	0.12	17.8	C	LTR	0.28	35.3	E	LTR	0.09	13.4	B	LTR	0.25	18.9	C	LTR	0.17	17.8	C	LTR	0.79	65.4	F	LTR	0.07	13.1	B	LTR	0.53	24.0	C
Northbound	LT	0.00	8.5	A	LT	0.00	9.5	A	LT	0.01	8.7	A	LT	0.01	9.4	A	LT	0.00	9.4	A	LT	0.00	10.5	B	LT	0.00	7.9	A	LT	0.00	8.5	A
Wythe Avenue and N. 1st Street																																
Westbound	LT	0.08	12.8	B	LT	0.10	13.8	B	LT	0.06	11.4	B	LT	0.08	12.3	B	LT	0.09	13.3	B	LT	0.14	15.8	C	Not analyzed for Saturday conditions							
Wythe Avenue and Grand Street																																
Eastbound	TR	-	9.3	A	TR	-	9.9	A	TR	-	8.2	A	TR	-	8.5	A	TR	-	8.4	A	TR	-	8.9	A								
Westbound	LT	-	9.8	A	LT	-	10.4	B	LT	-	8.7	A	LT	-	9.1	A	LT	-	9.2	A	LT	-	9.9	A	Not analyzed for Saturday conditions							
Southbound	LTR	-	11.9	B	LTR	-	13.4	B	LTR	-	9.6	A	LTR	-	10.6	B	LTR	-	11.9	B	LTR	-	16.2	C								
	Intersection		10.8	B	Intersection		11.8	B	Intersection		9.1	A	Intersection		9.9	A	Intersection		11.0	B	Intersection		14.5	B								
Wythe Avenue and S. 1st Street																																
Eastbound	TR	0.07	13.8	B	TR	0.10	15.5	C	TR	0.08	12.3	B	TR	0.10	13.4	B	TR	0.10	13.4	B	TR	0.15	16.0	C	Not analyzed for Saturday conditions							
Southbound	LT	0.03	7.6	A	LT	0.04	7.7	A	LT	0.02	7.5	A	LT	0.02	7.6	A	LT	0.02	7.5	A	LT	0.03	7.5	A								
Wythe Avenue and S. 2nd Street																																
Westbound	LT	0.18	13.4	B	LT	0.21	14.6	B	LT	0.10	11.2	B	LT	0.12	12.1	B	LT	0.20	14.3	B	LT	0.28	17.5	C	Not analyzed for Saturday conditions							
Wythe Avenue and S. 3rd Street																																
Eastbound	TR	0.10	14.0	B	TR	0.16	15.9	C	TR	0.09	12.1	B	TR	0.22	13.5	B	TR	0.17	16.3	C	TR	0.52	24.9	C	TR	0.04	10.7	B	TR	0.29	14.2	B
Southbound	LT	0.05	7.7	A	LT	0.06	7.8	A	LT	0.03	7.6	A	LT	0.04	7.7	A	LT	0.05	7.6	A	LT	0.06	7.7	A	LT	0.00	7.4	A	LT	0.00	7.5	A
Wythe Avenue and S. 4th Street																																
Westbound	LT	-	8.6	A	LT	-	8.8	A	LT	-	8.2	A	LT	-	9.0	A	LT	-	10.0-	A	LT	-	10.1	B	LT	-	7.7	A	LT	-	10.0-	A
Southbound	TR	-	9.8	A	TR	-	10.6	B	TR	-	8.3	A	TR	-	9.0	A	TR	-	8.5	A	TR	-	15.1	C	TR	-	8.0	A	TR	-	11.0	B
	Intersection		9.6	A	Intersection		10.2	B	Intersection		8.2	A	Intersection		9.0	A	Intersection		9.7	A	Intersection		14.0	C	Intersection		8.0	A	Intersection		10.6	B
Wythe Avenue and S. 5th Street																																
Eastbound	TR	0.04	12.3	B	TR	0.09	14.0	B	TR	0.06	11.6	B	TR	0.10	12.5	B	TR	0.09	13.4	B	TR	0.17	15.8	C	Not analyzed for Saturday conditions							
Southbound	LT	0.00	7.6	A	LT	0.00	7.6	A	LT	0.00	7.5	A	LT	0.00	7.5	A	LT	0.00	7.5	A	LT	0.00	7.5	A								
Wythe Avenue and S. 6th Street																																
Westbound	LT	0.16	13.7	B	LT	0.21	15.3	C	LT	0.12	12.3	B	LT	0.22	14.2	B	LT	0.24	15.5	C	LT	0.67	31.0	D	LT	0.04	10.9	B	LT	0.23	13.4	B
Berry Street and N. 1st Street																																
Westbound	TR	0.05	12.4	B	TR	0.06	13.2	B	TR	0.09	12.4	B	TR	0.11	13.2	B	TR	0.05	12.0	B	TR	0.07	12.9	B	Not analyzed for Saturday conditions							
Northbound	LT	0.01	7.5	A	LT	0.01	7.5	A	LT	0.01	7.5	A	LT	0.01	7.5	A	LT	0.01	7.5	A	LT	0.01	7.5	A								
Grand Street and Berry Street																																
Eastbound	LT	-	9.8	A	LT	-	10.4	B	LT	-	8.8	A	LT	-	9.1	A	LT	-	8.7	A	LT	-	9.0	A								
Westbound	TR	-	9.6	A	TR	-	10.2	B	TR	-	8.3	A	TR	-	8.5	A	TR	-	8.7	A	TR	-	9.0	A	Not analyzed for Saturday conditions							
Northbound	LTR	-	11.3	B	LTR	-	12.6	B	LTR	-	9.1	A	LTR	-	9.6	A	LTR	-	9.8	A	LTR	-	10.5	B								
	Intersection		10.4	B	Intersection		11.4	B	Intersection		8.8	A	Intersection		9.2	A	Intersection		9.3	A	Intersection		9.8	A								
Broadway and Roebling Street - SBR																																
Southbound	R	0.33	12.0	B	R	0.42	13.8	B	R	0.25	11.3	B	R	0.41	13.7	B	R	0.38	12.0	B	R	0.71	20.5	C	R	0.38	13.5	B	R	0.75	27.3	D

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
(1) The Saturday HCS analysis is new for the DEIS.

Table 17-9
Existing and No Action Conditions Level of Service Analysis
Secondary Study Area Intersections
Signalized Intersections

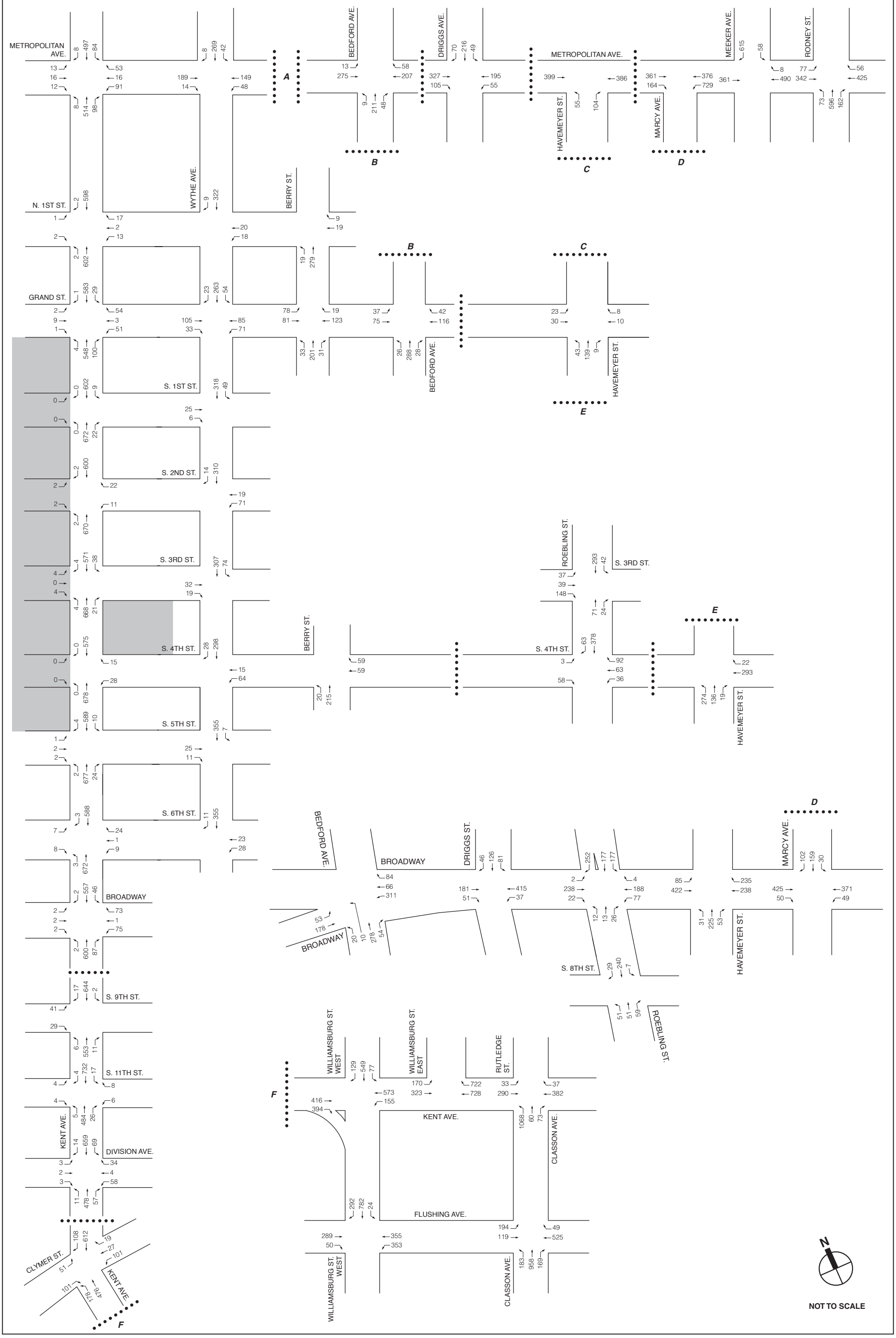
Intersections	AM Peak Hour								Midday Peak Hour								PM Peak Hour								Saturday Peak Hour [1]							
	Existing				No Action				Existing				No Action				Existing				No Action				Existing				No Action			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Kent Avenue and S. 9th Street-Schaefer Landing																																
Eastbound	LR	0.07	26.4	C	LR	0.21	28.3	C	LR	0.04	26.2	C	LR	0.11	27.0	C	LR	0.05	26.3	C	LR	0.15	27.5	C	LR	0.00	25.7	C	LR	0.06	26.4	C
Westbound	LR	0.03	26.0	C					LR	0.03	26.0	C					LR	0.03	26.1	C					LR	0.02	25.9	C				
Northbound	LTR	0.37	8.5	A	LTR	0.59	11.8	B	LTR	0.38	8.7	A	LTR	0.63	12.9	B	LTR	0.42	9.0	A	LTR	0.84	20.7	C	LTR	0.14	6.5	A	LTR	0.37	8.4	A
Southbound	LTR	0.40	8.9	A	LTR	0.68	13.9	B	LTR	0.43	9.3	A	LTR	0.65	13.2	B	LTR	0.60	11.6	B	LTR	0.83	19.2	B	LTR	0.18	6.7	A	LTR	0.34	8.0	A
	Intersection		9.5	A	Intersection		13.8	B	Intersection		9.6	A	Intersection		13.5	B	Intersection		11.0	B	Intersection		20.1	C	Intersection		7.0	A	Intersection		8.7	A
Kent Avenue and Division Avenue																																
Eastbound					LTR	0.04	26.2	C					LTR	0.10	27.0	C					LTR	0.10	27.2	C					LTR	0.01	25.9	C
Westbound	Unsignalized in Existing conditions				LTR	0.45	33.2	C	Unsignalized in Existing conditions				LTR	0.21	28.5	C	Unsignalized in Existing conditions				LTR	0.38	31.9	C	Unsignalized in Existing conditions				LTR	0.24	28.9	C
Northbound					LTR	0.70	14.7	B					LTR	0.68	14.3	B					LTR	0.92	29.3	C					LTR	0.37	8.5	A
Southbound					LTR	0.98	40.3	D					LTR	0.72	15.2	B					LTR	0.87	22.0	C					LTR	0.41	8.9	A
					Intersection		29.5	C					Intersection		15.8	B					Intersection		25.8	C					Intersection		10.6	B
Kent Avenue and Clymer Street																																
Eastbound	LR	0.27	29.3	C	LR	0.69	43.2	D	LR	0.53	35.9	D	LR	1.20	153.8	F	LR	0.54	36.2	D	LR	1.54	293.5	F	LR	0.06	26.4	C	LR	0.20	28.3	C
Westbound	LTR	0.24	28.2	C	LTR	0.28	28.6	C	LTR	0.30	28.8	C	LTR	0.33	29.4	C	LTR	0.32	29.1	C	LTR	0.37	29.8	C	LTR	0.10	26.6	C	LTR	0.11	26.8	C
Northbound	L	0.16	7.1	A	L	0.87	42.0	D	L	0.16	7.1	A	L	0.45	12.1	B	L	0.13	7.0	A	L	0.29	9.8	A	L	0.03	5.9	A	L	0.09	6.3	A
	T	0.55	11.3	B	T	0.72	15.5	B	T	0.36	8.7	A	T	0.55	11.4	B	T	0.46	9.5	A	T	0.82	20.6	B	T	0.15	6.6	A	T	0.37	8.6	A
Southbound	TR	0.44	9.3	A	TR	0.82	19.0	B	TR	0.38	8.5	A	TR	0.56	11.0	B	TR	0.56	10.7	B	TR	0.73	14.4	B	TR	0.16	6.6	A	TR	0.30	7.6	A
	Intersection		13.8	B	Intersection		23.8	C	Intersection		15.9	B	Intersection		39.6	D	Intersection		15.6	B	Intersection		63.9	E	Intersection		10.1	B	Intersection		10.9	B
Kent Avenue and Williamsburg Street - SB Service Road																																
Eastbound	T	0.26	24.1	C	T	0.46	27.3	C	T	0.24	23.8	C	T	0.35	25.4	C	T	0.22	23.4	C	T	0.33	24.9	C	T	0.12	22.2	C	T	0.18	23.0	C
Westbound	L	0.50	31.5	C	L	0.78	53.0	D	L	0.30	26.3	C	L	0.40	29.5	C	L	0.36	27.5	C	L	0.50	32.5	C	L	0.15	23.0	C	L	0.18	23.7	C
	T	0.38	25.8	C	T	0.56	29.0	C	T	0.29	24.5	C	T	0.45	27.1	C	T	0.34	25.1	C	T	0.54	28.7	C	T	0.14	22.5	C	T	0.29	24.3	C
Southbound	LT	0.50	20.8	C	LT	0.60	23.0	C	LT	0.46	20.2	C	LT	0.54	21.6	C	LT	0.78	28.1	C	LT	0.87	33.2	C	LT	0.37	18.6	B	LT	0.42	19.3	B
	Intersection		24.0	C	Intersection		28.4	C	Intersection		22.5	C	Intersection		24.6	C	Intersection		26.7	C	Intersection		30.6	C	Intersection		20.3	C	Intersection		21.8	C
Kent Avenue and Classon Avenue - NB Service Road																																
Eastbound	L	0.13	20.2	C	L	0.17	21.0	C	L	0.06	19.1	B	L	0.08	19.4	B	L	0.07	19.1	B	L	0.09	19.6	B	L	0.00	18.2	B	L	0.00	18.2	B
	T	0.22	20.5	C	T	0.34	22.1	C	T	0.17	19.9	B	T	0.22	20.6	C	T	0.19	20.1	C	T	0.24	20.8	C	T	0.10	19.1	B	T	0.14	19.5	B
Westbound	TR	0.29	21.5	C	TR	0.36	22.5	C	TR	0.30	21.6	C	TR	0.37	22.7	C	TR	0.32	21.9	C	TR	0.41	23.2	C	TR	0.16	19.7	B	TR	0.20	20.3	C
Northbound	L	0.74	34.6	C	L	0.92	51.4	D	L	0.54	27.4	C	L	0.69	32.5	C	L	0.56	27.5	C	L	0.74	34.5	C	L	0.38	23.4	C	L	0.51	26.1	C
	LTR	0.80	34.0	C	LTR	0.97	53.2	D	LTR	0.62	27.7	C	LTR	0.77	32.5	C	LTR	0.61	27.3	C	LTR	0.77	32.3	C	LTR	0.34	22.1	C	LTR	0.44	23.7	C
	Intersection		29.9	C	Intersection		41.9	D	Intersection		25.3	C	Intersection		28.7	C	Intersection		25.0	C	Intersection		28.9	C	Intersection		21.6	C	Intersection		23.0	C
Flushing Avenue and Williamsburg Street-SB Service Road																																
Eastbound	TR	0.24	19.7	B	TR	0.31	20.6	C	TR	0.30	16.0	B	TR	0.39	17.1	B	TR	0.32	20.6	C	TR	0.44	22.4	C	TR	0.10	14.1	B	TR	0.15	14.6	B
Westbound	L	0.80	42.2	D	L	1.02	84.2	F	L	0.85	42.3	D	L	1.14	117.9	F	L	0.75	40.2	D	L	1.10	116.2	F	L	0.46	19.8	B	L	0.56	22.4	C
	T	0.31	21.0	C	T	0.47	23.9	C	T	0.27	16.1	B	T	0.39	17.8	B	T	0.30	20.8	C	T	0.35	21.7	C	T	0.19	15.1	B	T	0.23	15.6	B
Southbound	LTR	0.54	25.2	C	LTR	0.71	29.0	C	LTR	0.49	19.3	B	LTR	0.61	21.2	C	LTR	0.94	41.2	D	LTR	1.10	87.9	F	LTR	0.38	17.8	B	LTR	0.48	19.1	B
	Intersection		26.7	C	Intersection		35.1	D	Intersection		22.3	C	Intersection		35.1	D	Intersection		36.0	D	Intersection		72.4	E	Intersection		17.4	B	Intersection		18.6	B
Flushing Avenue and Classon Avenue-NB Service Road																																
Eastbound	L	0.65	34.3	C	L	1.00	87.2	F	L	0.64	27.3	C	L	0.96	65.7	E	L	1.05	108.1	F	L	2.64	797.9	F	L	0.31	17.5	B	L	0.52	22.5	C
	T	0.16	18.9	B	T	0.22	19.6	B	T	0.14	14.7	B	T	0.20	15.3	B	T	0.32	34.8	C	T	0.44	37.2	D	T	0.05	13.8	B	T	0.07	13.9	B
Westbound	TR	0.39	21.7	C	TR	0.47	23.1	C	TR	0.34	16.5	B	TR	0.40	17.3	B	TR	0.56	38.6	D	TR	0.63	40.4	D	TR	0.28	15.8	B	TR	0.32	16.2	B
Northbound	LTR	0.65	27.4	C	LTR	0.80	32.0	C	LTR	0.61	21.1	C	LTR	0.73	23.9	C	LTR	0.42	11.9	B	LTR	0.50	13.0	B	LTR	0.44	18.6	B	LTR	0.54	19.9	B
	Intersection		26.2	C	Intersection		34.9	C	Intersection		20.4	C	Intersection		27.4	C	Intersection		33.8	C	Intersection		153.1	F	Intersection		17.6	B	Intersection		19.1	B

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
(1) The Saturday HCS analysis is new for the DEIS.

Table 17-10
Existing and No Action Conditions Level of Service Analysis
Secondary Study Area Intersections
Unsignalized Intersections

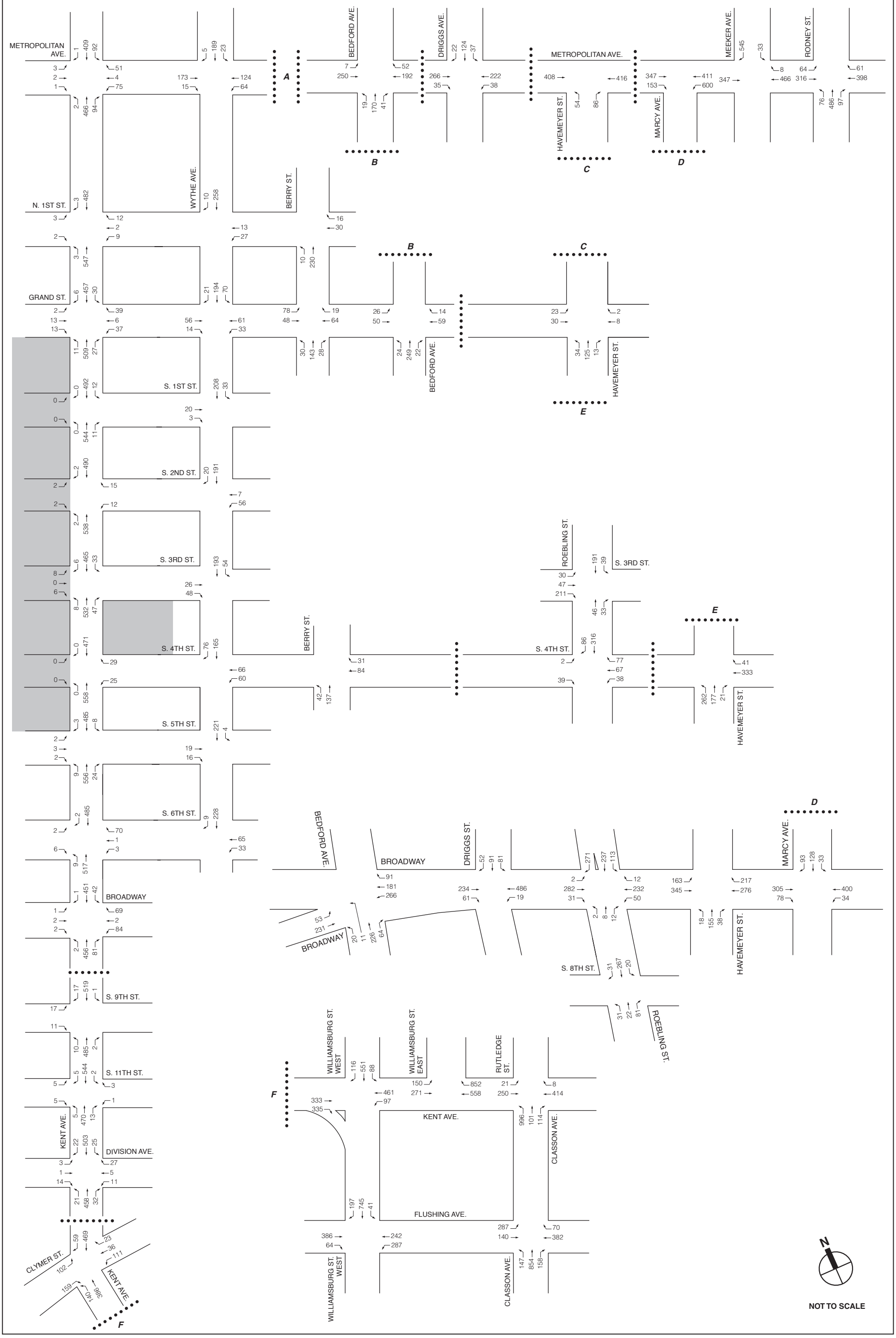
Intersections	AM Peak Hour								Midday Peak Hour								PM Peak Hour								Saturday Peak Hour [1]							
	Existing				No Action				Existing				No Action				Existing				No Action				Existing				No Action			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Kent Avenue and S. 11th Street																																
Eastbound					LR	0.13	48.3	E					LR	0.22	37.9	E					LR	0.28	71.9	F					LR	0.06	19.2	C
Westbound	LR	0.06	16.0	C	LR	0.17	38.9	E	LR	0.03	13.5	B	LR	0.06	22.6	C	LR	0.06	16.9	C	LR	0.25	56.7	F	LR	0.03	11.2	B	LR	0.07	18.7	C
Northbound					LTR	0.01	10.7	B					LTR	0.00	9.5	A					LTR	0.01	11.1	B					LTR	0.01	8.7	A
Southbound	LT	0.02	8.9	A	LTR	0.02	9.6	A	LT	0.00	8.7	A	LTR	0.01	9.9	A	LT	0.00	8.7	A	LTR	0.00	10.1	A	LT	0.00	7.8	A	LTR	0.00	8.4	A
Kent Avenue and Williamsburg Street East																																
Eastbound	L	0.27	15.5	C	L	0.69	36.2	E	L	0.17	12.0	B	L	0.35	16.1	C	L	0.14	11.1	B	L	0.33	15.5	C	L	0.05	10.4	B	L	0.14	12.8	B
Kent Avenue and Williamsburg Street West - SBR																																
Southbound	R	0.12	11.0	B	R	0.28	13.5	B	R	0.10	10.3	B	R	0.20	11.8	B	R	0.07	10.2	B	R	0.17	12.1	B	R	0.01	9.3	A	R	0.06	10.2	B

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
(1) The Saturday HCS analysis is new for the DEIS.



Project Site

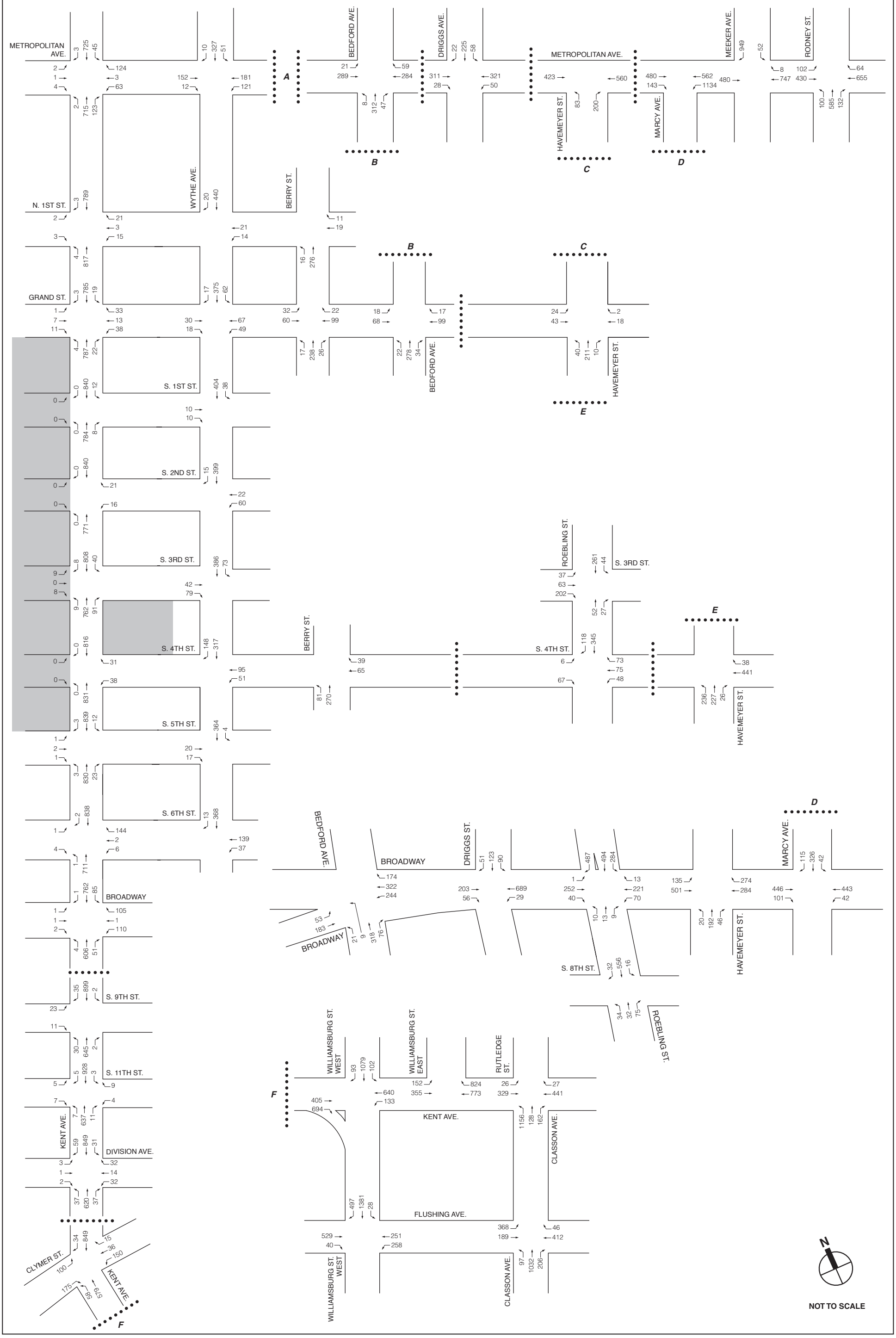
2020 No Build Traffic Volumes
Weekday AM Peak Hour
Figure 17-10



Project Site

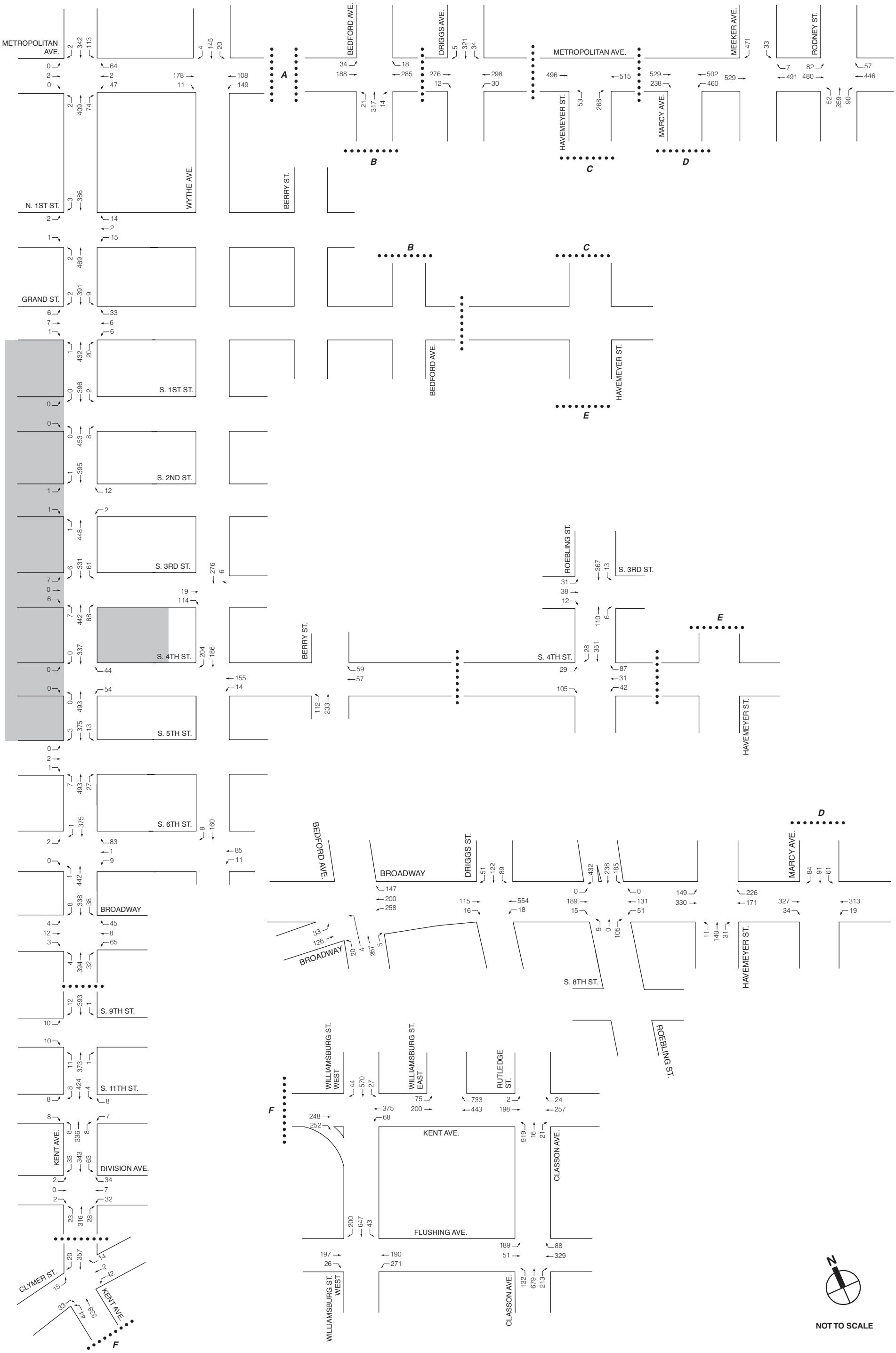
2020 No Build Traffic Volumes
Weekday Midday Peak Hour
Figure 17-11

12.15.09



Project Site

2020 No Build Traffic Volumes
Weekday PM Peak Hour
Figure 17-12



Project Site

2020 No Build Traffic Volumes
Saturday Midday Peak Hour
Figure 17-13

- The westbound approach and the southbound approach at Kent Avenue and Broadway would decrease from LOS C to LOS D and LOS F during the weekday PM peak hour, respectively;
- The westbound approach at Bedford Avenue and South 6th Street would decrease from LOS C to LOS E during the weekday PM peak hour;
- The eastbound approach at Metropolitan Avenue and Driggs Avenue would decrease from LOS C to LOS F during the weekday AM peak hour;
- The westbound approach at Metropolitan Avenue and Driggs Avenue would decrease from LOS B to LOS D during the weekday AM peak hour and from LOS C to LOS D during the weekday PM peak hour;
- The westbound approach at Driggs Avenue and Broadway would decrease from LOS C to LOS E during the weekday AM peak hour and from LOS C to LOS F during the weekday PM peak hour;
- The southbound approach at Roebling Street and South 4th Street would decrease from LOS E to LOS F during the weekday AM and midday peak hours, and the eastbound approach at Broadway and Havemeyer Street would decrease from LOS C to LOS D during the weekday AM peak hour, LOS C to LOS F during the weekday midday peak hour, and from LOS D to LOS F during the weekday PM peak hour;
- The westbound left turn movement at Metropolitan Avenue and Marcy Avenue would decrease from LOS D to LOS F during the weekday PM peak hour;
- The eastbound approach at Marcy Avenue and Broadway would decrease from LOS D to LOS E during the weekday AM peak hour and from LOS D to LOS F during the weekday PM peak hour;
- The westbound approach at Marcy Avenue and Broadway would decrease from LOS C to LOS E during the weekday AM peak hour and from LOS D to LOS F during the weekday PM peak hour; and
- The southbound approach at Marcy Avenue and Broadway would decrease from LOS D to LOS E during the weekday PM peak hour.

Unsignalized Intersections

- The eastbound approach at Kent Avenue and North 1st Street would decrease from LOS D to LOS F during the weekday PM peak hour;
- The westbound approach at Kent Avenue and North 1st Street would decrease from LOS C to LOS E during the weekday AM peak hour and from LOS D to LOS F during the weekday PM peak hour;
- The eastbound approach at Kent Avenue and Grand Street would decrease from LOS D to LOS F during the weekday AM peak hour, LOS C to LOS E during the weekday midday peak hour, and from LOS C to LOS F during the weekday PM peak hour;
- The westbound approach at Kent Avenue and Grand Street would decrease from LOS E to LOS F during the weekday AM peak hour, and from LOS D to LOS F during the weekday midday peak hour;
- The newly created eastbound approach at Kent Avenue and South 2nd Street would operate at LOS E during the weekday AM peak hour. (Please note that this approach has no

eastbound traffic volumes during the weekday PM peak hour in the No Action conditions, and therefore no LOS results were generated.);

- The westbound approach at Kent Avenue and South 2nd Street would decrease from LOS C to LOS D during the weekday AM peak hour and from LOS C to LOS F during the weekday PM peak hour;
- The westbound approach at Kent Avenue and South 4th Street would decrease from LOS C to LOS E during the weekday AM peak hour, from LOS D to LOS F during the weekday PM peak hour, and from LOS B to LOS D during the Saturday midday peak hour;
- The eastbound approach at Kent Avenue and South 5th Street would decrease from LOS C to LOS D during the weekday AM and midday peak hours, and from LOS E to LOS F during the weekday PM peak hour;
- The eastbound approach at Kent Avenue and South 6th Street would decrease from LOS C to LOS E during the weekday AM peak hour, from LOS C to LOS F during the weekday PM peak hour, and from LOS B to LOS E during the Saturday midday peak hour;
- The westbound approach at Kent Avenue and South 6th Street would decrease from LOS C to LOS E during the weekday AM peak hour, and from LOS C to LOS F during the weekday PM peak hour; and
- The westbound approach at Wythe Avenue and South 6th Street would decrease from LOS C to LOS D during the weekday PM peak hour.

SECONDARY STUDY AREA

Signalized Intersections

- The eastbound approach at Kent Avenue and Clymer Street would decrease from LOS D to LOS F during the weekday midday and PM peak hours;
- The westbound left turn movement at Kent Avenue and Williamsburg Street West would decrease from LOS C to LOS D during the weekday AM peak hour;
- The northbound approach at Kent Avenue and Classon Avenue would decrease from LOS C to LOS D during the AM peak hour;
- The westbound left turn movement at Flushing Avenue and Williamsburg Street West would decrease from LOS D to LOS F during weekday AM, midday, and PM peak hours;
- The southbound approach at Flushing Avenue and Williamsburg Street West would decrease from LOS D to LOS F during the weekday PM peak hour; and
- The eastbound left turn movement at Flushing Avenue and Classon Avenue would decrease from LOS C to LOS F during the weekday AM peak hour and from LOS C to LOS E during the weekday midday peak hour.

Unsignalized Intersections

- The newly created eastbound approach at Kent Avenue and South 11th Street would operate at LOS E during the weekday AM and midday peak hours and at LOS F during the weekday PM peak hour;
- The westbound approach at Kent Avenue and South 11th Street would decrease from LOS C to LOS E during the weekday AM peak hour, and from LOS C to LOS F during the weekday PM peak hour; and

- The eastbound approach at Kent Avenue and Williamsburg Street East would decrease from LOS C to LOS E during the weekday AM peak hour.

F. THE FUTURE WITH THE PROPOSED PROJECT

The analysis of impacts associated with the proposed project begins with and builds upon the future No Action conditions described in the preceding section. As with the future No Action evaluation, 2020 is used as the analysis year for assessing project impacts.

As discussed above under "Analysis Framework," for the purposes of the traffic analysis it was assumed that the trips generated by the proposed project would result from the difference in travel demand between the proposed project and the No Action condition. For the same reason, vehicular trips generated by the project's No Action condition were netted out of the future with the proposed project traffic volumes to obtain the incremental trips resulting from the difference in travel demand between the proposed project and the No Action condition.

PROPOSED DEVELOPMENT

The proposed project would include up to 2,400 residential units, up to 127,537 sf of retail/commercial space (for the purpose of this analysis it is assumed that this would include 97,537 sf of local retail space and a 30,000-square-foot supermarket), up to 146,451 sf of community facility space, up to 98,738 sf of commercial office space, and approximately four acres of public open space. In addition, the proposed project would provide approximately 1,694 accessory parking spaces.

As shown in Figure 1-4 of Chapter 1, "Project Description," new residential structures would be constructed along four of the waterfront blocks, to the north and south of the existing Refinery. A new residential/commercial structure would be constructed on the upland block east of Kent Avenue between South 3rd and South 4th Streets, and in this analysis is assumed to contain a 30,000-square-foot supermarket in addition to residential units. The Refinery would be reused and converted into a mix of residential, retail, and community facility uses. Ground-floor retail uses would be located along Kent Avenue on all parcels throughout the site. In addition, publicly accessible open space, including an esplanade along the waterfront that would connect to Grand Ferry Park to the north of the site, would be constructed as part of the proposed project.

TRIP GENERATION

The projection of future trips associated with the proposed project accounts for general travel characteristics related to the project's anticipated uses. Travel demand characteristics for each component of the proposed project are summarized in Table 17-11 and are discussed in detail below.

RESIDENTIAL

Trip generation from the 2,400 residential units were estimated based on a weekday daily trip rate of 8.075 person-trips and a Saturday daily trip rate of 7.679 person-trips per dwelling unit as presented in the *CEQR Technical Manual* and the *Atlantic Yards Arena and Redevelopment Project FEIS (2006),* respectively. Other trip generation factors, including temporal and directional distributions, were based on the information presented in *Pushkarev and Zupan's "Urban Space for Pedestrians."* The modal split estimates and vehicle occupancies were based

Table 17-11
Proposed Project
Trip Generation Factors

Factors	Residential 2,400 dwelling unit (d.u.)				Community Facility Medical Office - Staff 69,000 s.f.				Community Facility Medical Office - Visitors 69,000 s.f.				Community Facility Office 44,135 s.f.				Commercial Office 98,738 s.f.			
	AM	MD	PM	Sat MD	AM	MD	PM	Sat MD	AM	MD	PM	Sat MD	AM	MD	PM	Sat MD	AM	MD	PM	Sat MD
	Daily Trip Rate (per d.u.) [1,2]				Daily Trip Rate (per 1,000 sf) [8,9]				Daily Trip Rate (per 1,000 sf) [8,9]				Daily Trip Rate (per 1,000 sf) [1,2]				Daily Trip Rate (per 1,000 sf) [1,2]			
Person Trips		8.075		7.679		10.00		4.30		33.6		14.5		18.0		0.9		18.0		0.9
Linkage (if applicable)		-				-				-				-				-		
	Modal Split [4,5]				Modal Split [2,11]				Modal Split [8]				Modal Split [2,11]				Modal Split [2,11]			
Auto		16.2%		23.1%	49.2%	2.0%	49.2%	2.0%		25.0%			49.2%	2.0%	49.2%	2.0%	49.2%	2.0%	49.2%	2.0%
Bus		10.1%		10.1%	6.7%	7.0%	6.7%	7.0%		19.0%			6.7%	7.0%	6.7%	7.0%	6.7%	7.0%	6.7%	7.0%
Subway		52.9%		33.1%	28.1%	7.0%	28.1%	7.0%		21.0%			28.1%	7.0%	28.1%	7.0%	28.1%	7.0%	28.1%	7.0%
Walk/Other		19.0%		31.9%	14.1%	83.0%	14.1%	83.0%		20.0%			14.1%	83.0%	14.1%	83.0%	14.1%	83.0%	14.1%	83.0%
Taxi		1.8%		1.8%	1.9%	1.0%	1.9%	1.0%		15.0%			1.9%	1.0%	1.9%	1.0%	1.9%	1.0%	1.9%	1.0%
	Vehicle Occupancies [4,6]				Vehicle Occupancies [2,11]				Vehicle Occupancies [8]				Vehicle Occupancies [2,11]				Vehicle Occupancies [2,11]			
Auto Occupancy		1.28				1.17				1.65				1.17				1.17		
Taxi Occupancy		1.50				1.42				1.20				1.42				1.42		
	Temporal Distribution [1,2]				Temporal Distribution [8,9]				Temporal Distribution [8,13]				Temporal Distribution [2]				Temporal Distribution [2]			
	9.1%	4.7%	10.7%	7.0%	24.0%	17.0%	24.0%	17.0%	6.0%	9.0%	5.0%	9.0%	11.8%	14.5%	13.7%	15.0%	11.8%	14.5%	13.7%	15.0%
	Directional Distribution [2,7]				Directional Distribution [8,10]				Directional Distribution [8,13]				Directional Distribution [2,14]				Directional Distribution [2,14]			
Percent In	15%	50%	70%	50%	100%	50%	0%	50%	92.5%	50.0%	31.4%	50.0%	94.0%	39.0%	5.0%	60.0%	94.0%	39.0%	5.0%	60.0%
Percent Out	85%	50%	30%	50%	0%	50%	100%	50%	7.5%	50.0%	68.6%	50.0%	6.0%	61.0%	95.0%	40.0%	6.0%	61.0%	95.0%	40.0%
Delivery Trips																				
	Daily Trip Rate (per d.u.) [1,2]				Daily Trip Rate (per 1,000 sf) [8]				Daily Trip Rate				Daily Trip Rate (per 1,000 sf) [2]				Daily Trip Rate (per 1,000 sf) [2]			
Truck Trips		0.05		0.01		0.45		0.00	-	-	-	-		0.16		0.01		0.16		0.01
	Temporal Distribution [2,3]				Temporal Distribution [8,12]				Temporal Distribution				Temporal Distribution [2,14]				Temporal Distribution [2,14]			
	9.7%	7.8%	5.1%	9.0%	9.7%	7.8%	5.1%	0.0%	-	-	-	-	10.0%	11.0%	2.0%	11.0%	10.0%	11.0%	2.0%	11.0%
	Direction Distribution [2,3]				Direction Distribution [8,12]				Direction Distribution				Direction Distribution [2,14]				Direction Distribution [2,14]			
Percent In	100%	100%	100%	100%	100%	100%	100%	0%	-	-	-	-	100%	100%	100%	100%	100%	100%	100%	100%
Percent Out	100%	100%	100%	100%	100%	100%	100%	0%	-	-	-	-	100%	100%	100%	100%	100%	100%	100%	100%

Factors	Retail - Local 97,537 s.f.				Retail - Supermarket 30,000 s.f.				Open Space Ice Rink/Water Play Area 9,042 s.f.				Open Space Other 3.85 acres				Community Facility Museum 33,316 s.f.			
	AM	MD	PM	Sat MD	AM	MD	PM	Sat MD	AM	MD	PM	Sat MD	AM	MD	PM	Sat MD	AM	MD	PM	Sat MD
	Daily Trip Rate (per 1,000 sf) [1,2]				Daily Trip Rate (per 1,000 sf) [16]				Daily Trip Rate (per 1,000 sf) [17]				Daily Trip Rate (per acre) [18]				Daily Trip Rate (per 1,000 sf) [19]			
Person Trips		205.00				175.00		231.00		23.50		33.30		139.00				27.40		20.60
Linkage (if applicable)		25%				25%				-				-				-		
	Modal Split [15]				Modal Split [16]				Modal Split [17]				Modal Split [18]				Modal Split [20]			
Auto		5.0%			61.0%	68.0%	67.0%	76.0%	58.0%	58.0%	58.0%	64.0%	5.0%	5.0%	5.0%	5.0%		70.0%		
Bus		5.0%			5.0%	5.0%	3.0%	6.0%	0.0%	0.0%	0.0%	3.0%	5.0%	5.0%	5.0%	5.0%		5.0%		
Subway		5.0%			1.0%	0.0%	0.0%	0.0%	11.0%	11.0%	11.0%	15.0%	5.0%	5.0%	5.0%	5.0%		10.0%		
Walk/Other		80.0%			33.0%	27.0%	30.0%	18.0%	29.0%	29.0%	29.0%	14.0%	80.0%	80.0%	80.0%	80.0%		10.0%		
Taxi		5.0%			0.0%	0.0%	0.0%	0.0%	2.0%	2.0%	2.0%	4.0%	5.0%	5.0%	5.0%	5.0%		5.0%		
	Vehicle Occupancies [15]				Vehicle Occupancies [16]				Vehicle Occupancies [17]				Vehicle Occupancies [18]				Vehicle Occupancies [19]			
Auto Occupancy		2.20		2.1	1.12	1.32	1.34	1.48		3.45				2.00				2.34		
Taxi Occupancy		2.20		2.1	1.38	1.38	1.38	1.38		1.40				2.00				1.90		
	Temporal Distribution [2,15]				Temporal Distribution [16]				Temporal Distribution [17]				Temporal Distribution [18]				Temporal Distribution [19]			
	3.1%	10.1%	8.6%	9.5%	4.7%	5.9%	9.9%	9.3%	0.0%	28.0%	16.0%	24.0%	7.0%	17.0%	14.0%	17.0%	0.0%	7.2%	14.4%	16.8%
	Directional Distribution [2,15]				Directional Distribution [16]				Directional Distribution [17]				Directional Distribution [18]				Directional Distribution [19]			
Percent In	50.0%	47.0%	44.0%	55.0%	57.0%	50.0%	52.0%	52.0%	0.0%	26.0%	88.0%	99.0%	50.0%	50.0%	50.0%	50.0%	50.0%	63.0%	52.0%	36.0%
Percent Out	50.0%	53.0%	56.0%	45.0%	43.0%	50.0%	48.0%	48.0%	0.0%	74.0%	12.0%	1.0%	50.0%	50.0%	50.0%	50.0%	50.0%	37.0%	48.0%	64.0%
Delivery Trips																				
	Daily Trip Rate (per 1,000 sf) [2]				Daily Trip Rate (per 1,000 sf) [16]				Daily Trip Rate				Daily Trip Rate				Daily Trip Rate (per 1,000 sf) [19]			
Truck Trips		0.35		0.02		2.14		0.85	-	-	-	-	-	-	-	-		0.05		0.00
	Temporal Distribution [2,3]				Temporal Distribution [16]				Temporal Distribution				Temporal Distribution				Temporal Distribution [19]			
	9.7%	7.8%	5.1%	11.0%	12.0%	13.0%	4.0%	9.0%	-	-	-	-	-	-	-	-	9.6%	11.0%	1.0%	1.0%
	Direction Distribution [2,3]				Direction Distribution [16]				Direction Distribution				Direction Distribution				Direction Distribution [19]			
Percent In	100%	100%	100%	100%	50%	36%	67%	67%	-	-	-	-	-	-	-	-	100%	100%	100%	100%
Percent Out	100%	100%	100%	100%	50%	64%	33%	33%	-	-	-	-	-	-	-	-	100%	100%	100%	100%

Notes:

(01) Source: New York City Mayor's Office of Environmental Coordination *City Environmental Quality Review Technical Manual* (December 2001)
(02) Source: *Atlantic Yards Arena and Redevelopment Project, Final Environmental Impact Statement* (2006)
(03) Source: Wilbur Smith Associates, *Motor Trucks in the Metropolis* (1969)
(04) Source: Journey to Work information for Census Tract # 547, 549, 551, and 555 from 2000 U.S. Census Data
(05) Saturday modal split estimates based on Journey to Work information for Census Tract # 547, 549, 551, and 555 from 2000 U.S. Census Data and adjusted as per the information provided in *Atlantic Yards Arena and Redevelopment Project, FEIS* (2006)
(06) Source: *Flushing/Bedford Rezoning Final Environmental Impact Statement* (CEQR No. 00DCP015K), 2001
(07) Source: Pushkarev & Zapan, *Urban Space for Pedestrians* (1975)
(08) Source: *506 East 76th Street Rezoning FEIS* (CEQR No. 98DCP009M), October 1999
(09) Source: *Jamaica Plan FEIS*, June 2007
(10) Saturday directional distribution assumed same as weekday midday
(11) Source: Reverse Journey to Work information for Census Tract # 547, 549, 551, and 555 from 2000 U.S. Census Data
(12) Source: Characteristics of Urban Transportation Demand
(13) Saturday temporal distribution and direction distribution assumed the same as weekday midday
(14) Source: *Downtown Brooklyn FEIS* (CEQR No. 03DME016K), April 2004
(15) Source: New York City Department of City Planning, *Retail and Industrial Zoning Text Amendments: Final Generic Environmental Impact Statement* (1996) - Gowanus, Brooklyn
(16) Source: Supermarket survey at Pathmark (Albany Avenue, Brooklyn) by AKRF, 2009
(17) Source: McCarren Park Pool EAS (2008)
(18) Source: *Toll Brothers - Gowanus Rezoning FEIS* (February 2009)
(19) Source: *No. 7 Subway Extension and Hudson Yards Rezoning and Development Program FGEIS* (2004)
(20) Source: *Silvercup West FEIS*, CEQR # 05DCP080Q (2006)

on journey-to-work information obtained from the *2000 US Census Data*. Delivery trips were also estimated based on rates presented in the *CEQR Technical Manual*. In addition, the modal split estimates were adjusted for the Saturday conditions based on the information provided in the *Atlantic Yards Arena and Redevelopment Project FEIS (2006).* In total, the residential component of the proposed project would generate approximately 312, 170, 327, and 268 vehicle trips (converted to PCEs) during the weekday AM, midday, and PM, and Saturday midday peak hours, respectively.

LOCAL RETAIL

Potential trips generated by the local retail component in the proposed plan were based on a daily trip rate of 205 trips/1,000 sf as presented in the *CEQR Technical Manual.* A linkage factor of 25 percent was applied to the daily trip rate to account for local trips within the study area. Other trip generation factors, including temporal distribution, modal splits, and vehicle occupancies, were based on the trip generation factors for local retail use presented in the *Retail and Industrial Zoning Text Amendments FGEIS*. Delivery trip generation characteristics were based on the information presented in *Wilbur Smith Associates' "Motor Trucks in the Metropolis."* In total, the retail component of the proposed project would generate approximately 40, 106, 89, and 92 vehicle trips (converted to PCEs) during the weekday AM, midday, and PM, and Saturday midday peak hours, respectively.

SUPERMARKET USE

Trips generated by the potential supermarket use were estimated based on the information obtained from surveys conducted during the weekday and Saturday conditions at an existing Pathmark Supermarket located on Albany Avenue in Brooklyn in February 2009. Based on the trip generation factors obtained from these surveys, the supermarket component of the proposed project would generate approximately 117, 136, 200, and 254 vehicle trips (converted to PCEs) during the weekday AM, midday, and PM, and Saturday midday peak hours, respectively.

COMMUNITY FACILITY

The proposed project's community facility space has not yet been programmed. To conservatively assess the proposed project's traffic impacts, it was assumed that approximately 69,000 sf of the 146,451 sf of community facility space would be used as medical offices, approximately 44,135 sf would function as neighborhood offices, and the remaining 33,316 sf would function as a cultural/institutional space (assumed to be a museum for trip generation purposes). Trip generation characteristics for each of the community facility components are discussed as follows:

> **Medical Offices—Staff:** Trips generated by the medical office staff were estimated based on a weekday daily trip rate of 10 person trips and a Saturday daily trip rate of 4.30 person trips per 1,000 sf, as presented in the *506 East 76th Street Rezoning FEIS* and the *Jamaica Plan FEIS (2007),* respectively. Other trip generation factors, including temporal and directional distributions, and vehicle occupancies, were based on the information presented in the *506 East 76th Street Rezoning FEIS* and the *Atlantic Yards Arena and Redevelopment Project FEIS (2006).* The modal split estimates were based on the reverse-journey-to-work information obtained from the *2000 US Census Data*. Delivery trip rates for the medical office use were based on the information presented in the *Characteristics of Urban Transportation Demand.*

Medical Offices—Visitors: Trips generated by the medical office visitors were estimated based on a weekday daily trip rate of 33.6 person trips and a Saturday daily trip rate of 14.5 person trips per 1,000 sf as presented in the *506 East 76th Street Rezoning FEIS* and the *Jamaica Plan FEIS (2007),* respectively. Other trip generation factors, including temporal and directional distributions, modal splits and vehicle occupancies, were also based on the information presented in the *506 East 76th Street Rezoning FEIS.* The visitor modal split estimates obtained from the *506 East 76th Street Rezoning FEIS* were adjusted to reflect the local transportation characteristics of the study area.

Neighborhood Offices: Trips generated by the neighborhood office use were estimated based on a weekday daily trip rate of 18 person trips and a Saturday daily trip rate of 0.90 person trips per 1,000 sf, as presented in the *CEQR Technical Manual* and the *Atlantic Yards Arena and Redevelopment Project FEIS (2006*), respectively. Temporal distribution rates for the neighborhood office use were obtained from the *CEQR Technical Manual*, the *Atlantic Yards Arena and Redevelopment Project FEIS (2006*), and the *Downtown Brooklyn Redevelopment FEIS.* The directional distribution rates were obtained from the *Downtown Brooklyn Development FEIS* and the *Atlantic Yards Arena and Redevelopment Project FEIS (2006*). The modal split estimates and vehicle occupancies were based on the reverse-journey-to-work information obtained from the *2000 US Census Data* and the *Atlantic Yards Arena and Redevelopment Project FEIS (2006*). Delivery trip rates for the neighborhood office use were based on the information presented in the *Characteristics of Urban Transportation Demand.*

Museum: Trips generated by the museum component were estimated based on a weekday daily trip rate of 27.4 person trips and a Saturday daily trip rate of 20.6 person trips per 1,000 sf, as presented in the *No. 7 Subway Extension and Hudson Yards Rezoning and Development Program FGEIS (2004).* Temporal distribution, directional distribution, vehicle occupancies and delivery trip rates were also obtained from the *No. 7 Subway Extension and Hudson Yards Rezoning and Development Program FGEIS.* The modal split estimates for the museum component were based on the *Silvercup West FEIS.*

In total, the community facility component of the proposed project would generate a total of 185, 125, 219, and 76 vehicle trips (converted to PCEs) during the weekday AM, midday, and PM, and Saturday midday peak hours, respectively.

COMMERCIAL OFFICE

Trips generated by the commercial office were estimated based on the same trip generation factors developed for the community facility's neighborhood office component presented above. In total, the commercial office component of the project would generate a total of 102, 17, 108, and 0 vehicle trips (converted to PCEs) during the weekday AM, midday, and PM, and Saturday midday peak hours, respectively.

WATERFRONT OPEN SPACE

The proposed project would provide approximately four acres of publicly accessible waterfront open space which would include an esplanade along the water's edge, a large open lawn between the esplanade and the Refinery that would highlight this restored historic structure, and new connections that provide visual and physical access to the waterfront from all streets leading to the project site. Several active recreation areas would be located along the esplanade,

including tot lots, playgrounds, and an active play lawn with a water feature that may function as an ice rink in winter.

Trip generation for the waterfront open space was estimated separately for the 3.85 acres of publicly accessible waterfront open space and for the potential approximately 9,042-square-foot ice rink. Although, if realized, the ice rink would be operational only during the winter months—the period when the activity for the waterfront open space would be at its lowest—for a conservative analysis, the trip generation activity from these two components was assumed to overlap resulting in higher person and vehicle trips. Trips generated by the waterfront open space were estimated based on the rates presented in the *363-365 Bond Street FEIS*, whereas the trips generated by the ice rink were estimated based on the information presented in the *McCarren Pool Reconstruction EAS*.

TOTAL TRIPS

As shown in Tables 17-12a and 17-12b, the proposed development is estimated to generate approximately 3,062, 3,575, 4,629, and 3,633 person trips, and 762, 572, 957, and 713 vehicle trips (converted to PCEs) during the weekday AM, midday, and PM, and Saturday midday peak hours, respectively.

SITE ACCESS AND CIRCULATION

As discussed earlier, the proposed project would provide approximately 1,694 accessory parking spaces in below-grade garages on both the waterfront and upland parcels. Access to the garages would be provided off of Kent Avenue along South 1st Street (for North Garage), South 3rd Street (for Refinery Garage), and South 4th Street (for South Garage) on the waterfront parcel and would include driveways with drop-off areas (see Figure 1-4 in Chapter 1, "Project Description"). Access to the parking garage on the upland parcel would be provided on South 4th Street between Kent and Wythe Avenues. Access to the proposed project's loading docks will be provided off of Kent Avenue on South 1st, South 2nd, and South 4th Streets. Access to the upland parcel loading docks would be provided off of South 4th Street between Kent and Wythe Avenues.

TRIP ASSIGNMENT

Project-generated vehicle trips were assigned to the study area intersections based on the most likely routes to and from the project site, the configuration of the street network, prevailing travel patterns, and the location of the site's proposed access and egress points. The project-generated auto trips and taxi trips were routed to the driveways along South 1st, South 3rd, and South 4th Streets, where access to the proposed parking garages would be provided. All delivery vehicles were assigned to the traffic network via DOT's designated truck routes.

TRAFFIC VOLUMES AND LEVEL OF SERVICE

Figures 17-14 through 17-17 present the total project-generated traffic volumes for the weekday AM, midday, and PM and Saturday midday peak hours. Figures 17-18 through 17-21 show the incremental future with the proposed project traffic volumes for the weekday AM, midday, and PM and Saturday midday peak hours.

Tables 17-13 and 17-14 compare the No Action and future with the proposed project service conditions for the primary study area signalized and unsignalized intersections for the weekday

Table 17-12a

Proposed Development - Peak Hour Person Trips by Mode

Proposed Project	Auto		Bus		Subway		Walk/Other		Taxi		Total		Total
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In+Out
Weekday AM Peak Hour													
Residential	43	243	27	151	140	793	50	285	5	27	265	1499	1764
Community Facility - Medical Staff	82	0	11	0	47	0	23	0	3	0	166	0	166
Community Facility - Visitors	32	3	24	2	27	2	26	2	19	2	128	11	139
Community Facility - Office	43	3	6	0	25	2	12	1	2	0	88	6	94
Community Facility - Museum	0	0	0	0	0	0	0	0	0	0	0	0	0
Commercial Office	97	6	13	1	55	4	28	2	4	0	197	13	210
Retail - Local	12	12	12	12	12	12	185	185	12	12	233	233	466
Retail - Supermarket	64	49	5	4	1	1	35	26	0	0	105	80	185
Open Space - Ice Rink/Water Play	0	0	0	0	0	0	0	0	0	0	0	0	0
Open Space	1	1	1	1	1	1	15	15	1	1	19	19	38
Total	**374**	**317**	**99**	**171**	**308**	**815**	**374**	**516**	**46**	**42**	**1201**	**1861**	**3062**
Weekday MD Peak Hour													
Residential	74	74	46	46	241	241	87	87	8	8	456	456	912
Community Facility - Medical Staff	1	1	4	4	4	4	49	49	1	1	59	59	118
Community Facility - Visitors	26	26	20	20	22	22	21	21	16	16	105	105	210
Community Facility - Office	1	1	3	5	3	5	37	59	0	1	44	71	115
Community Facility - Museum	30	18	2	1	4	2	4	2	2	1	42	24	66
Commercial Office	2	3	7	11	7	11	83	131	1	2	100	158	258
Retail - Local	36	40	36	40	36	40	569	642	36	40	713	802	1515
Retail - Supermarket	79	79	6	6	0	0	31	31	0	0	116	116	232
Open Space - Ice Rink/Water Play	9	25	0	0	2	5	4	13	0	1	15	44	59
Open Space	2	2	2	2	2	2	37	37	2	2	45	45	90
Total	**260**	**269**	**126**	**135**	**321**	**332**	**922**	**1072**	**66**	**72**	**1695**	**1880**	**3575**
Weekday PM Peak Hour													
Residential	235	101	147	63	768	329	276	118	26	11	1452	622	2074
Community Facility - Medical Staff	0	82	0	11	0	47	0	23	0	3	0	166	166
Community Facility - Visitors	9	20	7	15	8	17	7	16	5	12	36	80	116
Community Facility - Office	3	50	0	7	2	29	1	15	0	2	6	103	109
Community Facility - Museum	48	44	3	3	7	6	8	6	3	3	69	62	131
Commercial Office	6	114	1	15	3	65	2	33	0	4	12	231	243
Retail - Local	28	36	28	36	28	36	455	579	28	36	567	723	1290
Retail - Supermarket	136	125	6	6	0	0	61	56	0	0	203	187	390
Open Space - Ice Rink/Water Play	18	2	0	0	3	0	9	1	1	0	31	3	34
Open Space	2	2	2	2	2	2	30	30	2	2	38	38	76
Total	**485**	**576**	**194**	**158**	**821**	**531**	**849**	**877**	**65**	**73**	**2414**	**2215**	**4629**
Saturday MD Peak Hour													
Residential	149	149	65	65	213	213	206	206	12	12	645	645	1290
Community Facility - Medical Staff	1	1	2	2	2	2	20	20	0	0	25	25	50
Community Facility - Visitors	11	11	9	9	9	9	9	9	7	7	45	45	90
Community Facility - Office	0	0	0	0	0	0	3	2	0	0	3	2	5
Community Facility - Museum	29	52	2	4	4	7	4	7	2	4	41	74	115
Commercial Office	0	0	1	0	1	0	7	4	0	0	9	4	13
Retail - Local	39	32	39	32	39	32	628	513	39	32	784	641	1425
Retail - Supermarket	191	176	15	14	0	0	45	42	0	0	251	232	483
Open Space - Ice Rink/Water Play	46	0	2	0	11	0	10	0	3	0	72	0	72
Open Space	2	2	2	2	2	2	37	37	2	2	45	45	90
Total	**468**	**423**	**137**	**128**	**281**	**265**	**969**	**840**	**65**	**57**	**1920**	**1713**	**3633**

Table 17-12b

Proposed Development - Peak Hour Vehicle Trips by Mode

Proposed Project	Auto		Taxi		Trucks		Total		Total	PCE's		
	In	Out	In	Out	In	Out	In	Out	In+Out	In	Out	In+Out
Weekday AM Peak Hour												
Residential	34	190	20	20	12	12	66	222	288	78	234	312
Community Facility - Medical Staff	70	0	2	2	3	3	75	5	80	78	8	86
Community Facility - Visitors	19	2	16	16	0	0	35	18	53	35	18	53
Community Facility - Office	37	3	1	1	1	1	39	5	44	40	6	46
Community Facility - Museum	0	0	0	0	0	0	0	0	0	0	0	0
Commercial Office	83	5	3	3	2	2	88	10	98	90	12	102
Retail - Local	5	5	9	9	3	3	17	17	34	20	20	40
Retail - Supermarket	57	44	0	0	4	4	61	48	109	65	52	117
Open Space - Ice Rink/Water Play	0	0	0	0	0	0	0	0	0	0	0	0
Open Space	1	1	2	2	0	0	3	3	6	3	3	6
Total	**306**	**250**	**53**	**53**	**25**	**25**	**384**	**328**	**712**	**409**	**353**	**762**
Weekday MD Peak Hour												
Residential	58	58	9	9	9	9	76	76	152	85	85	170
Community Facility - Medical Staff	1	1	2	2	2	2	5	5	10	7	7	14
Community Facility - Visitors	16	16	23	23	0	0	39	39	78	39	39	78
Community Facility - Office	1	1	1	1	1	1	3	3	6	4	4	8
Community Facility - Museum	13	8	2	2	0	0	15	10	25	15	10	25
Commercial Office	2	3	2	2	2	2	6	7	13	8	9	17
Retail - Local	16	18	30	30	3	3	49	51	100	52	54	106
Retail - Supermarket	60	60	0	0	3	5	63	65	128	66	70	136
Open Space - Ice Rink/Water Play	3	7	1	1	0	0	4	8	12	4	8	12
Open Space	1	1	2	2	0	0	3	3	6	3	3	6
Total	**171**	**173**	**72**	**72**	**20**	**22**	**263**	**267**	**530**	**283**	**289**	**572**
Weekday PM Peak Hour												
Residential	184	79	20	20	6	6	210	105	315	216	111	327
Community Facility - Medical Staff	0	70	2	2	2	2	4	74	78	6	76	82
Community Facility - Visitors	5	12	13	13	0	0	18	25	43	18	25	43
Community Facility - Office	3	43	1	1	0	0	4	44	48	4	44	48
Community Facility - Museum	21	19	3	3	0	0	24	22	46	24	22	46
Commercial Office	5	97	3	3	0	0	8	100	108	8	100	108
Retail - Local	13	16	26	26	2	2	41	44	85	43	46	89
Retail - Supermarket	101	93	0	0	2	1	103	94	197	105	95	200
Open Space - Ice Rink/Water Play	5	1	1	1	0	0	6	2	8	6	2	8
Open Space	1	1	2	2	0	0	3	3	6	3	3	6
Total	**338**	**431**	**71**	**71**	**12**	**11**	**421**	**513**	**934**	**433**	**524**	**957**
Saturday MD Peak Hour												
Residential	116	116	14	14	2	2	132	132	264	134	134	268
Community Facility - Medical Staff	1	1	0	0	0	0	1	1	2	1	1	2
Community Facility - Visitors	7	7	10	10	0	0	17	17	34	17	17	34
Community Facility - Office	0	0	0	0	0	0	0	0	0	0	0	0
Community Facility - Museum	12	22	3	3	0	0	15	25	40	15	25	40
Commercial Office	0	0	0	0	0	0	0	0	0	0	0	0
Retail - Local	19	15	29	29	0	0	48	44	92	48	44	92
Retail - Supermarket	129	119	0	0	2	1	131	120	251	133	121	254
Open Space - Ice Rink/Water Play	13	0	2	2	0	0	15	2	17	15	2	17
Open Space	1	1	2	2	0	0	3	3	6	3	3	6
Total	**298**	**281**	**60**	**60**	**4**	**3**	**362**	**344**	**706**	**366**	**347**	**713**

Table 17-13
No Action and Future with the Proposed Project Conditions Level of Service Analysis
Primary Study Area Intersections
Signalized Intersections

Intersections	AM Peak Hour								Midday Peak Hour								PM Peak Hour								Saturday Peak Hour [1]							
	No Action				Future with the Proposed Project				No Action				Future with the Proposed Project				No Action				Future with the Proposed Project				No Action				Future with the Proposed Project			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Metropolitan Avenue and Kent Avenue																																
Eastbound	LTR	0.25	29.3	C	LTR	0.26	29.4	C	LTR	0.04	26.3	C	LTR	0.04	26.3	C	LTR	0.07	26.5	C	LTR	0.07	26.5	C	LTR	0.01	25.8	C	LTR	0.01	25.8	C
Westbound	LTR	1.24	181.8	F	LTR	1.60	327.4	F +	LTR	0.83	64.9	E	LTR	1.08	123.7	F +	LTR	1.01	97.6	F	LTR	1.35	217.7	F +	LTR	0.50	35.8	D	LTR	0.76	50.4	D +
Northbound	LTR	0.66	13	B	LTR	0.78	17.1	B	LTR	0.62	12.3	B	LTR	0.75	16.3	B	LTR	0.81	18.3	B	LTR	1.01	46.2	D +	LTR	0.42	8.9	A	LTR	0.55	10.7	B
Southbound	LTR	0.79	19.7	B	LTR	0.84	22.7	C	LTR	0.68	14.4	B	LTR	0.71	15.6	B	LTR	0.91	26.1	C	LTR	0.93	29.7	C	LTR	0.47	9.7	A	LTR	0.49	10.1	B
	Intersection		38.9	D	Intersection		66.5	E	Intersection		19.3	B	Intersection		30.2	C	Intersection		30.3	C	Intersection		59.9	E	Intersection		12.6	B	Intersection		16.6	B
Kent Avenue and S. 3rd Street																																
Eastbound	LTR	0.02	25.9	C	LTR	0.08	26.6	C	LTR	0.04	26.1	C	LTR	0.08	26.8	C	LTR	0.05	26.2	C	LTR	0.14	27.4	C	LTR	0.04	26.1	C	LTR	0.12	27.5	C
Northbound	LTR	0.68	13.5	B	LTR	0.87	22.5	C	LTR	0.69	14.0	B	LTR	0.83	20.0-	B	LTR	0.88	22.9	C	LTR	1.11	78.2	E +	LTR	0.45	9.2	A	LTR	0.54	10.5	B
Southbound	LTR	0.83	21.8	C	LTR	1.19	116.9	F +	LTR	0.68	14.3	B	LTR	0.78	18.6	B	LTR	0.90	26.2	C	LTR	1.10	78.2	E +	LTR	0.41	8.9	A	LTR	0.42	9.0	A
	Intersection		17.5	B	Intersection		65.1	E	Intersection		14.3	B	Intersection		19.5	B	Intersection		24.5	C	Intersection		77.2	E	Intersection		9.4	A	Intersection		10.3	B
Kent Avenue and Broadway																																
Eastbound	LTR	0.01	22.2	C	LTR	0.01	22.2	C	LTR	0.01	22.2	C	LTR	0.01	22.2	C	LTR	0.01	23.6	C	LTR	0.01	23.6	C	LTR	0.04	22.5	C	LTR	0.04	22.5	C
Westbound	LTR	0.55	33.1	C	LTR	0.53	32.3	C	LTR	0.50	30.8	C	LTR	0.48	30.4	C	LTR	0.80	49.3	D	LTR	0.79	49.0	D	LTR	0.34	27.1	C	LTR	0.34	27.0	C
Northbound	LTR	0.79	21.1	C	LTR	0.90	30.4	C	LTR	0.66	16.5	B	LTR	0.69	17.4	B	LTR	0.73	16.9	B	LTR	0.76	18.3	B	LTR	0.47	12.1	B	LTR	0.46	11.9	B
Southbound	LTR	0.88	30.5	C	LTR	1.09	80.7	F +	LTR	0.75	21.1	C	LTR	0.91	35.8	D	LTR	1.24	134.4	F	LTR	1.68	327.3	F +	LTR	0.48	12.5	B	LTR	0.67	17.5	B
	Intersection		26.4	C	Intersection		52.1	D	Intersection		20.4	C	Intersection		27.2	C	Intersection		83.9	F	Intersection		199.1	F	Intersection		14.3	B	Intersection		16.3	B
Berry Street and S. 4th Street																																
Westbound	TR	0.29	17.5	B	TR	0.37	18.8	B	TR	0.27	17.2	B	TR	0.35	18.5	B	TR	0.24	16.9	B	TR	0.33	18.1	B	TR	0.25	17.0	B	TR	0.34	18.3	B
Northbound	LT	0.36	18.1	B	LT	0.41	19.0	B	LT	0.34	17.9	B	LT	0.31	17.5	B	LT	0.56	21.9	C	LT	0.52	21.1	C	LT	0.52	21.1	C	LT	0.43	19.2	B
	Intersection		17.9	B	Intersection		18.9	B	Intersection		17.6	B	Intersection		18.0	B	Intersection		20.7	C	Intersection		20.2	C	Intersection		20.0-	B	Intersection		18.9	B
Metropolitan Avenue and Bedford Avenue																																
Eastbound	LT	0.60	23.4	C	LT	0.77	30.4	C	LT	0.47	20.1	C	LT	0.60	23.4	C	LT	0.61	23.3	C	LT	0.94	48.3	D +	LT	0.39	18.5	B	LT	0.56	22.2	C
Westbound	TR	0.58	23.1	C	TR	0.78	31.1	C	TR	0.54	22.1	C	TR	0.61	23.9	C	TR	0.86	39.2	D	TR	0.94	51.4	D +	TR	0.49	20.3	C	TR	0.50	20.5	C
Northbound	LTR	0.52	21.3	C	LTR	0.52	21.4	C	LTR	0.45	19.9	B	LTR	0.46	20.0+	C	LTR	0.69	26.5	C	LTR	0.69	26.6	C	LTR	0.58	22.4	C	LTR	0.58	22.5	C
	Intersection		22.6	C	Intersection		28.3	C	Intersection		20.8	C	Intersection		22.6	C	Intersection		30.0	C	Intersection		43.1	D	Intersection		20.7	C	Intersection		21.8	C
Bedford Avenue and Grand Street																																
Eastbound	LT	0.30	23.5	C	LT	0.30	23.5	C	LT	0.26	23.1	C	LT	0.26	23.1	C	LT	0.24	22.5	C	LT	0.24	22.5	C	Not analyzed for Saturday conditions							
Westbound	TR	0.42	25.6	C	TR	0.42	25.6	C	TR	0.24	22.6	C	TR	0.24	22.6	C	TR	0.28	23.0	C	TR	0.28	23.0	C								
Northbound	LTR	0.62	18.6	B	LTR	0.62	18.7	B	LTR	0.51	15.9	B	LTR	0.51	16.0	B	LTR	0.58	17.5	B	LTR	0.58	17.5	B								
	Intersection		21.4	C	Intersection		21.5	C	Intersection		18.6	B	Intersection		18.7	B	Intersection		19.6	B	Intersection		19.6	B								
Bedford Avenue and Broadway																																
Eastbound	LT	0.66	30.6	C	LT	0.73	34.4	C	LT	0.68	30.6	C	LT	0.75	34.3	C	LT	0.69	31.4	C	LT	0.85	42.9	D	LT	0.31	20.5	C	LT	0.41	22.2	C
Westbound	T	0.57	25.5	B	T	0.57	25.2	C	T	0.43	22.2	C	T	0.43	22.1	B	T	0.39	21.6	C	T	0.39	21.6	C	T	0.38	21.2	C	T	0.38	21.2	C
Northbound	LTR	0.35	14.4	B	LTR	0.36	14.5	B	LTR	0.28	13.6	B	LTR	0.29	13.7	B	LTR	0.42	15.2	B	LTR	0.42	15.3	B	LTR	0.22	13.0	B	LTR	0.22	13.0	B
	Intersection		22.0	B	Intersection		23.1	C	Intersection		21.8	C	Intersection		23.3	C	Intersection		21.3	C	Intersection		25.6	C	Intersection		17.7	B	Intersection		18.3	B
Bedford Avenue and S. 6th Street																																
Westbound	TR	0.37	21.8	C	TR	0.60	27.7	C	TR	0.55	25.4	C	TR	0.67	29.4	C	TR	1.01	68.2	E	TR	1.27	163.8	F +	TR	0.65	28.3	C	TR	0.71	31.2	C
Northbound	LT	0.32	14.0	B	LT	0.33	14.1	B	LT	0.24	13.2	B	LT	0.25	13.3	B	LT	0.36	14.4	B	LT	0.36	14.5	B	LT	0.22	13.0	B	LT	0.23	13.1	B
	Intersection		16.2	B	Intersection		19.2	B	Intersection		19.1	B	Intersection		21.5	C	Intersection		42.4	D	Intersection		97.6	F	Intersection		21.2	C	Intersection		22.7	C
Metropolitan Avenue and Driggs Avenue																																
Eastbound	TR	1.13	104.2	F	TR	1.28	165.1	F +	TR	0.67	25.7	C	TR	0.78	30.6	C	TR	0.59	22.7	C	TR	0.77	29.6	C	TR	0.42	18.9	B	TR	0.51	20.7	C
Westbound	LT	0.87	46.4	D	LT	1.23	152.4	F +	LT	0.55	22.5	C	LT	0.61	24.4	C	LT	0.93	51.1	D	LT	1.12	105.6	F +	LT	0.54	21.4	C	LT	0.54	21.4	C
Southbound	LTR	0.74	28.8	C	LTR	0.76	30.2	C	LTR	0.36	18.2	B	LTR	0.39	18.7	B	LTR	0.51	20.7	C	LTR	0.53	21.3	C	LTR	0.56	22.0	C	LTR	0.60	22.8	C
	Intersection		68.3	E	Intersection		124.9	F	Intersection		22.8	C	Intersection		25.9	C	Intersection		33.1	C	Intersection		55.0-	D	Intersection		20.9	C	Intersection		21.7	C
Driggs Avenue and Broadway																																
Eastbound	TR	0.45	19.8	B	TR	0.49	20.7	C	TR	0.58	22.6	C	TR	0.63	24.0	C	TR	0.45	19.7	B	TR	0.53	21.5	C	TR	0.21	16.0	B	TR	0.30	17.1	B
Westbound	LT	0.99	60.7	E	LT	1.16	113.4	F +	LT	0.80	31.2	C	LT	0.85	35.2	D	LT	1.24	143.9	F	LT	1.39	208.6	F +	LT	0.85	34.3	C	LT	0.85	34.4	C
Southbound	LT	0.47	20.5	C	LT	0.50	21.0	C	LT	0.32	17.7	B	LT	0.36	18.3	B	LT	0.37	18.4	B	LT	0.41	19.0	B	LT	0.37	18.4	B	LT	0.41	19.1	B
	R	0.12	15.1	B	R	0.12	15.1	B	R	0.09	14.8	B	R	0.09	14.8	B	R	0.08	14.7	B	R	0.08	14.7	B	R	0.08	14.7	B	R	0.08	14.7	B
	Intersection		40.2	D	Intersection		68.8	E	Intersection		25.5	C	Intersection		27.8	C	Intersection		92.4	F	Intersection		130.1	F	Intersection		27.2	C	Intersection		26.8	C
Roebling Street and S. 3rd Street																																
Eastbound	LTR	0.60	23.2	C	LTR	0.83	36.7	D	LTR	0.86	40.2	D	LTR	0.95	53.7	D +	LTR	0.84	37.3	D	LTR	0.99	63.7	E +	LTR	0.18	14.8	B	LTR	0.23	15.4	B
Northbound	TR	0.16	7.4	A	TR	0.16	7.4	A	TR	0.12	7.1	A	TR	0.12	7.1	A	TR	0.12	7.1	A	TR	0.12	7.1	A	TR	0.15	7.3	A	TR	0.15	7.3	A
Southbound	LT	0.53	11.8	B	LT	0.53	11.8	B	LT	0.42	10.1	B	LT	0.42	10.1	B	LT	0.48	10.7	B	LT	0.47	10.6	B	LT	0.50	10.9	B	LT	0.50	10.9	B
	Intersection		14.8	B	Intersection		21.1	C	Intersection		24.0	C	Intersection		31.5	C	Intersection		21.5	C	Intersection		34.9	C	Intersection		10.7	B	Intersection		11.0	B

Table 17-13 (Continued)
No Action and Future with the Proposed Project Conditions Level of Service Analysis
Primary Study Area Intersections
Signalized Intersections

Intersections	AM Peak Hour								Midday Peak Hour								PM Peak Hour								Saturday Peak Hour [1]							
	No Action				Future with the Proposed Project				No Action				Future with the Proposed Project				No Action				Future with the Proposed Project				No Action				Future with the Proposed Project			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Roebling Street and S. 4th Street																																
Eastbound	LR	0.20	9.3	A	LR	0.29	10.2	B	LR	0.15	8.8	A	LR	0.19	9.2	A	LR	0.15	8.8	A	LR	0.17	8.9	A	LR	0.21	9.3	A	LR	0.23	9.5	A
Westbound	L	0.07	8.1	A	L	0.07	8.1	A	L	0.07	8.1	A	L	0.07	8.1	A	L	0.08	8.2	A	L	0.08	8.2	A	L	0.06	8.0	A	L	0.06	8.0	A
	TR	0.31	10.6	B	TR	0.34	10.9	B	TR	0.26	9.9	A	TR	0.29	10.2	B	TR	0.27	10.0-	A	TR	0.31	10.5	B	TR	0.21	9.3	A	TR	0.25	9.8	A
Southbound	TR	1.24	160.2	F	TR	1.46	250.7	F +	TR	1.16	127.4	F	TR	1.21	146.5	F +	TR	1.20	141.3	F	TR	1.29	179.2	F +	TR	0.89	52.2	D	TR	0.92	57.3	E +
	Intersection		93.0	F	Intersection		142.5	F	Intersection		76.2	E	Intersection		84.9	F	Intersection		86.0	F	Intersection		107.6	F	Intersection		32.1	C	Intersection		34.3	C
Broadway and Roebling Street Exit Bridge																																
Eastbound	LTR	0.47	24.8	C	LTR	0.52	25.8	C	LTR	0.50	20.2	C	LTR	0.54	21.1	C	LTR	0.44	24.1	C	LTR	0.52	25.8	C	LTR	0.28	16.7	B	LTR	0.35	17.7	B
Westbound	LTR	0.33	21.4	C	LTR	0.37	22.0	C	LTR	0.26	16.2	B	LTR	0.28	16.3	B	LTR	0.28	20.5	C	LTR	0.28	20.7	C	LTR	0.13	14.9	B	LTR	0.14	15.0	B
Northbound	LTR	0.12	18.8	B	LTR	0.12	18.8	B	LTR	0.04	14.2	B	LTR	0.04	14.2	B	LTR	0.05	18.2	B	LTR	0.05	18.2	B	LTR	0.12	14.9	B	LTR	0.12	14.9	B
Southbound	DefL	0.46	25.6	C	DefL	0.46	25.6	C																					DefL	0.40	19.4	B
	T	0.26	20.8	C	T	0.26	20.8	C	LT	0.33	17.0	B	LT	0.33	17.0	B	LT	0.66	27.9	C	LT	0.66	27.9	C	T	0.29	16.8	B	T	0.29	16.8	B
	Intersection		22.6	C	Intersection		23.1	C	Intersection		17.7	B	Intersection		18.1	B	Intersection		25.2	C	Intersection		25.5	C	Intersection		16.7	B	Intersection		16.9	B
Roebling Street and S. 8th Street																																
Northbound	LTR	0.22	20.2	C	LTR	0.22	20.2	C	LTR	0.18	15.6	B	LTR	0.18	15.6	B	LTR	0.21	20.1	C	LTR	0.21	20.1	C	Not analyzed for Saturday conditions							
Southbound	LT	0.33	9.9	A	LT	0.33	9.9	A	LT	0.34	7.2	A	LT	0.34	7.4	A	LT	0.60	14.1	B	LT	0.60	14.1	B								
	R	0.05	7.3	A	R	0.05	7.3	A	R	0.04	5.2	A	R	0.04	5.2	A	R	0.04	7.3	A	R	0.04	7.3	A								
	Intersection		13.3	B	Intersection		13.3	B	Intersection		9.6	A	Intersection		9.6	A	Intersection		14.9	B	Intersection		14.9	B								
Metropolitan Avenue and Havemeyer Street																																
Eastbound	T	0.57	16.8	B	T	0.66	19.2	B	T	0.70	20.4	C	T	0.78	24.5	C	T	0.58	16.8	B	T	0.74	21.7	C	T	0.62	17.6	B	T	0.71	20.2	C
Westbound	T	0.60	17.5	B	T	0.74	22.2	C	T	0.64	18.5	B	T	0.67	19.6	B	T	0.96	44.2	D	T	1.01	56.0	E +	T	0.63	17.7	B	T	0.63	17.7	B
Northbound	LR	0.49	27.8	C	LR	0.49	27.8	C	LR	0.46	26.9	C	LR	0.46	26.9	C	LR	0.79	42.3	D	LR	0.79	42.3	D	LR	0.90	53.9	D	LR	0.90	53.9	D
	Intersection		19.1	B	Intersection		21.9	C	Intersection		20.6	C	Intersection		22.9	C	Intersection		34.9	C	Intersection		40.7	D	Intersection		26.5	C	Intersection		27.1	C
Grand Street and Havemeyer Street																																
Eastbound	LT	0.15	19.5	B	LT	0.15	19.5	B	LT	0.15	19.5	B	LT	0.15	19.5	B	LT	0.22	28.0	C	LT	0.22	28.0	C	Not analyzed for Saturday conditions							
Westbound	TR	0.05	18.2	B	TR	0.05	18.2	B	TR	0.03	18.0	B	TR	0.03	18.0	B	TR	0.08	25.8	C	TR	0.08	25.8	C								
Northbound	LTR	0.36	22.6	C	LTR	0.36	22.6	C	LTR	0.30	21.6	C	LTR	0.30	21.6	C	LTR	0.43	17.1	B	LTR	0.43	17.1	B								
	Intersection		21.6	C	Intersection		21.6	C	Intersection		20.8	C	Intersection		20.8	C	Intersection		19.8	B	Intersection		19.8	B								
Havemeyer Street and S. 4th Street-Borinquen Pl.																																
Westbound	TR	0.29	21.4	C	TR	0.29	21.5	C	TR	0.29	21.5	C	TR	0.33	22.1	C	TR	0.51	24.8	C	TR	0.53	25.2	C	Not analyzed for Saturday conditions							
Northbound	L	0.23	20.7	C	L	0.23	20.7	C	L	0.20	20.2	C	L	0.20	20.2	C	L	0.19	20.2	C	L	0.19	20.2	C								
	T	0.22	20.8	C	T	0.22	20.8	C	T	0.26	21.3	C	T	0.26	21.3	C	T	0.35	22.9	C	T	0.35	22.9	C								
	R	0.05	18.8	B	R	0.05	18.8	B	R	0.05	18.8	B	R	0.05	18.8	B	R	0.07	19.0	C	R	0.07	19.0	B								
	Intersection		20.9	C	Intersection		21.0	C	Intersection		21.1	C	Intersection		21.2	C	Intersection		23.3	C	Intersection		23.5	C								
Broadway and Havemeyer Street																																
Eastbound	LT	0.93	45.1	D	LT	1.00	60.9	E +	LT	1.07	86.3	F	LT	1.14	110.4	F +	LT	1.15	113.9	F	LT	1.25	153.3	F +	LT	0.81	32.1	C	LT	0.91	44.0	D
Westbound	TR	0.68	23.6	C	TR	0.75	27.3	C	TR	0.67	22.9	C	TR	0.71	24.5	C	TR	0.88	38.3	D	TR	0.95	50.4	D +	TR	0.50	18.5	B	TR	0.54	19.3	B
Northbound	LTR	0.39	30.0	C	LTR	0.39	30.1	C	LTR	0.29	28.4	C	LTR	0.29	28.4	C	LTR	0.32	28.8	C	LTR	0.32	28.9	C	LTR	0.22	27.4	C	LTR	0.22	27.4	C
	Intersection		34.1	C	Intersection		42.1	D	Intersection		48.8	D	Intersection		59.5	E	Intersection		68.6	E	Intersection		91.7	F	Intersection		26.2	C	Intersection		32.3	C
Metropolitan Avenue and Marcy Avenue																																
Eastbound	TR	0.36	11.5	B	TR	0.40	11.9	B	TR	0.38	11.7	B	TR	0.42	12.1	B	TR	0.37	11.5	B	TR	0.44	12.3	B	TR	0.48	10.7	B	TR	0.52	11.2	B
Westbound	L	0.89	25.1	C	L	0.92	30.9	C	L	0.74	12.7	B	L	0.76	15.7	B	L	1.31	158.3	F	L	1.39	198.4	F +	L	0.57	7.3	A	L	0.59	9.2	A
	T	0.24	0.4	A	T	0.30	0.5	A	T	0.27	0.4	A	T	0.28	0.4	A	T	0.43	0.9	A	T	0.45	1.0	A	T	0.31	0.5	A	T	0.31	0.5	A
	Intersection		14.9	B	Intersection		16.6	B	Intersection		9.2	A	Intersection		10.4	B	Intersection		82.0	F	Intersection		96.9	F	Intersection		6.8	A	Intersection		7.7	A
Marcy Avenue and Broadway																																
Eastbound	TR	1.01	72.6	E	TR	1.06	87.0	F +	TR	0.73	34.1	C	TR	0.77	36.6	D	TR	1.06	85.4	F	TR	1.15	116.6	F +	TR	0.55	26.8	C	TR	0.62	28.9	C
Westbound	LT	0.96	64.2	E	LT	1.06	91.2	F +	LT	0.68	31.3	C	LT	0.71	32.4	C	LT	1.08	96.7	F	LT	1.17	130.2	F +	LT	0.49	25.1	C	LT	0.51	25.6	C
Southbound	LTR	0.61	29.8	C	LTR	0.61	29.8	C	LTR	0.55	27.5	C	LTR	0.55	27.5	C	LTR	1.03	76.0	E	LTR	1.03	76.0	E	LTR	0.52	26.8	C	LTR	0.52	26.8	C
	Intersection		59.9	E	Intersection		75.7	E	Intersection		31.4	C	Intersection		32.9	C	Intersection		85.6	F	Intersection		107.0	F	Intersection		26.2	C	Intersection		27.2	C
Metropolitan Avenue and Meeker Avenue																																
Eastbound	T	0.31	23.5	C	T	0.36	24.2	C	T	0.30	23.4	C	T	0.35	24.0	C	T	0.40	24.8	C	T	0.50	26.5	C	T	0.39	19.4	B	T	0.44	20.0+	C
Westbound	TR	0.41	23.2	C	TR	0.44	23.6	C	TR	0.38	22.7	C	TR	0.40	23.0	C	TR	0.72	30.4	C	TR	0.76	31.7	C	TR	0.34	17.0	B	TR	0.36	17.2	B
Southbound	L	0.05	17.6	B	L	0.05	17.6	B	L	0.02	17.3	B	L	0.02	17.3	B	L	0.04	17.5	B	L	0.04	17.5	B	L	0.02	14.1	B	L	0.02	14.1	B
	LR	0.64	29.8	C	LR	0.70	32.1	C	LR	0.55	26.6	C	LR	0.54	26.5	C	LR	0.87	43.5	D	LR	0.87	43.0	D	LR	0.41	19.0	B	LR	0.39	18.6	B
	R	0.60	28.3	C	R	0.65	30.3	C	R	0.52	26.0	C	R	0.52	25.9	C	R	0.84	40.1	D	R	0.83	39.7	D	R	0.39	18.7	B	R	0.37	18.3	B
	Intersection		25.6	C	Intersection		26.8	C	Intersection		24.2	C	Intersection		24.4	C	Intersection		34.0	C	Intersection		34.1	C	Intersection		18.4	B	Intersection		18.6	B
Metropolitan Avenue and Rodney Street																																
Eastbound	LT	0.46	24.4	C	LT	0.56	26.9	C	LT	0.47	24.6	C	LT	0.56	26.6	C	LT	0.61	28.2	C	DefL	0.85	76.4	E *	LT	0.56	20.5	C	LT	0.62	21.7	C
																					T	0.64	29.5	C *								
Westbound	TR	0.42	25.2	C	TR	0.45	25.8	C	TR	0.41	25.0	C	TR	0.44	25.4	C	TR	0.68	31.0	C	TR	0.71	32.0	C	TR	0.42	19.8	B	TR	0.45	20.1	C
Northbound	LT	0.55	24.6	C	LT	0.55	24.6	C	LT	0.45	22.6	C	LT	0.44	22.6	C	LT	0.59	25.5	C	LT	0.60	25.5	C	LT	0.33	17.0	B	LT	0.33	16.9	B
	R	0.31	21.4	C	R	0.31	21.4	C	R	0.18	19.3	B	R	0.18	19.3	B	R	0.27	20.6	C	R	0.27	20.6	C	R	0.17	15.7	B	R	0.17	15.7	B
	Intersection		24.4	C	Intersection		25.2	C	Intersection		23.7	C	Intersection		24.4	C	Intersection		27.7	C	Intersection		31.7	C	Intersection		19.1	B	Intersection		19.8	B
Metropolitan Avenue and Wythe Avenue																																
Eastbound	TR	0.36	18.1	B	TR	0.48	20.2	C	TR	0.33	17.7	B	TR	0.44	19.5	B	TR	0.29	17.1	B	TR	0.50	20.7	C	TR	0.33	17.7	B	TR	0.48	20.2	C
Westbound	LT	0.38	18.6	B	LT	0.72	29.8	C	LT	0.38	18.7	B	LT	0.44	19.8	B	LT	0.67	26.9	C	LT	0.84	38.9	D	LT	0.68	28.4	C	LT	0.68	28.4	C
Southbound	LTR	0.58	22.5	C	LTR	0.58	22.6	C	LTR	0.39	18.7	B	LTR	0.39	18.7	B	LTR	0.70	26.6	C	LTR	0.70	26.8	C	LTR	0.30	17.3	B	LTR	0.30	17.3	B
	Intersection		20.2	C	Intersection		24.2	C	Intersection		18.4	B	Intersection		19.3	B	Intersection		24.9	C	Intersection		29.1	C	Intersection		22.1	C	Intersection		22.6	C

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
(1) The Saturday HCS analysis is new for the DEIS.
+ implies a significant adverse impact
* The overall approach delay at eastbound Metropolitan Avenue at Rodney Street will be 41.4 spv (LOS D).

Table 17-14
No Action and Future with the Proposed Project Conditions Level of Service Analysis
Primary Study Area Intersections
Unsignalized Intersections

Intersections	AM Peak Hour								Midday Peak Hour								PM Peak Hour								Saturday Peak Hour [1]							
	No Action				Future with the Proposed Project				No Action				Future with the Proposed Project				No Action				Future with the Proposed Project				No Action				Future with the Proposed Project			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Kent Avenue and N. 1st Street																																
Eastbound	LR	0.04	25.3	D	LR	0.05	32.3	D	LR	0.04	26.8	D	LR	0.06	35.5	E	LR	0.12	75.4	F	LR	0.23	158.3	F	LR	0.03	21.2	C	LR	0.04	27.9	D
Westbound	LTR	0.43	44.0	E	LTR	0.68	96.3	F	LTR	0.20	26.8	D	LTR	0.39	60.6	F	LTR	0.93	186.4	F	LTR	2.13	794.4	F	LTR	0.15	21.3	C	LTR	0.29	42.9	E
Northbound	LT	0.00	9.4	A	LT	0.00	9.7	A	LT	0.00	9.2	A	LT	0.00	9.4	A	LT	0.01	11.0	B	LT	0.01	11.4	B	LT	0.00	8.4	A	LT	0.00	8.6	A
Kent Avenue and Grand Street																																
Eastbound	LTR	0.33	75.3	F	LTR	0.74	247.7	F	LTR	0.25	35.9	E	LTR	0.79	203.2	F	LTR	0.29	63.2	F	LTR	**	**	F	LTR	0.11	27.1	D	LTR	0.29	75.8	F
Westbound	LTR	1.61	398.1	F	LTR	12.00	5478.0	F +	LTR	1.14	196.9	F	LTR	16.50	7880.0	F +	LTR	2.73	961.5	F	LTR	68.50	33908.0	F +	LTR	0.16	18.0	C	LTR	0.94	201.9	F +
Northbound	LTR	0.01	9.8	A	LTR	0.01	10.9	B	LTR	0.02	9.4	A	LTR	0.02	10.7	B	LTR	0.01	10.5	B	LTR	0.01	12.3	B	LTR	0.00	8.5	A	LTR	0.00	9.4	A
Southbound	LTR	0.05	10.8	B	LTR	0.07	12.8	B	LTR	0.05	10.1	B	LTR	0.07	12.5	B	LTR	0.03	10.8	B	LTR	0.05	14.1	B	LTR	0.01	8.7	A	LTR	0.01	10.3	B
Kent Avenue and S. 1st Street																																
Eastbound					LTR	1.24	232.8	F					LTR	0.69	76.6	F					LTR	3.91	1462.0	F					LTR	0.53	38.9	E
Northbound					LTR	0.12	10.7	B					LTR	0.06	9.4	A					LTR	0.17	11.9	B					LTR	0.03	8.8	A
Southbound	LT	0.02	10.9	B	LTR	0.02	11.2	B	LT	0.02	10.0+	B	LTR	0.02	10.4	B	LT	0.02	10.4	B	LTR	0.02	11.1	B	LT	0.00	8.6	A	LTR	0.00	8.8	A
Kent Avenue and S. 2nd Street																																
Eastbound	LR	0.10	35.2	E	LR	0.29	125.7	F	LR	0.02	27.2	D	LR	0.16	75.3	F					LR	0.58	507.1	F	LR	0.01	19.1	C	LR	0.01	50.0-	E
Westbound	LR	0.22	32.4	D	LR	0.50	92.6	F	LR	0.20	29.4	D	LR	0.52	87.6	F	LR	0.64	111.6	F	LR	2.59	1091.0	F	LR	0.05	14.5	B	LR	0.16	31.2	D
Northbound	LT	0.00	9.5	A	LT	0.01	10.1	B	LT	0.00	9.2	A	LT	0.01	9.4	A	LT	0.00	11.0	B	LT	0.01	11.6	B	LT	0.00	8.7	A	LT	0.00	8.7	A
Kent Avenue and S. 4th Street																																
Eastbound					LR	**	**	F					LR	2.17	756.8	F					LR	**	**	F					LR	1.48	451.0	F
Westbound	LR	0.36	41.9	E	LTR	7.68	3254.0	F +	LR	0.33	29.8	D	LTR	3.54	1290.0	F +	LR	0.90	149.2	F	LTR	51.00	23937.0	F +	LR	0.56	30.8	D	LTR	3.81	1348.0	F +
Northbound					LT	0.05	10.0-	A					LT	0.06	9.1	A					LT	0.11	11.1	B					LT	0.05	8.6	A
Kent Avenue and S. 5th Street																																
Eastbound	LTR	0.11	32.5	D	LTR	0.29	288.7	F	LTR	0.07	31.5	D	LTR	0.43	250.7	F	LTR	0.30	129.7	F	LTR	12.00	11136.0	F	LTR	0.03	21.5	C	LTR	0.13	81.4	F
Northbound	LTR	0.00	9.8	A	LTR	0.01	15.8	C	LTR	0.01	9.6	A	LTR	0.03	15.6	C	LTR	0.01	12.3	B	LTR	0.02	32.3	D +	LTR	0.01	8.5	A	LTR	0.01	12.2	B
Southbound	LTR	0.02	10.5	B	LTR	0.12	16.0	C	LTR	0.01	10.0+	B	LTR	0.05	12.7	B	LTR	0.03	10.8	B	LTR	0.12	17.6	C	LTR	0.01	9.0	A	LTR	0.03	10.6	B
Kent Avenue and S. 6th Street																																
Eastbound	LR	0.22	43.1	E	LR	**	**	F	LR	0.06	23.2	C	LR	**	**	F	LR	0.17	71.3	F	LR	**	**	F	LR	0.02	45.4	E	LR	**	**	F
Westbound	LTR	0.28	35.3	E	LTR	2.56	907.6	F +	LTR	0.25	18.9	C	LTR	1.16	199.5	F +	LTR	0.79	65.4	F	LTR	9.23	3949.0	F +	LTR	0.53	24.0	C	LTR	2.02	524.0	F +
Northbound	LT	0.00	9.5	A	LT	0.00	9.9	A	LT	0.01	9.4	A	LT	0.01	9.8	A	LT	0.00	10.5	B	LT	0.00	11.4	B	LT	0.00	8.5	A	LT	0.00	8.9	A
Wythe Avenue and N. 1st Street																																
Westbound	LT	0.10	13.8	B	LT	0.13	16.3	C	LT	0.08	12.3	B	LT	0.10	13.8	B	LT	0.14	15.8	C	LT	0.19	19.9	C	Not analyzed for Saturday conditions							
Wythe Avenue and Grand Street																																
Eastbound	TR	-	9.9	A	TR	-	10.2	B	TR	-	8.5	A	TR	-	8.5	A	TR	-	8.9	A	TR	-	8.8	A								
Westbound	LT	-	10.4	B	LT	-	10.8	B	LT	-	9.1	A	LT	-	9.1	A	LT	-	9.9	A	LT	-	9.8	A	Not analyzed for Saturday conditions							
Southbound	LTR	-	13.4	B	LTR	-	15.5	C	LTR	-	10.6	B	LTR	-	10.5	B	LTR	-	16.2	C	LTR	-	15.3	C								
	Intersection		11.8	B	Intersection		13.2	B	Intersection		9.9	A	Intersection		9.9	A	Intersection		14.5	B	Intersection		13.7	B								
Wythe Avenue and S. 1st Street																																
Eastbound	TR	0.10	15.5	C	TR	0.12	16.6	C	TR	0.10	13.4	B	TR	0.14	14.2	B	TR	0.15	16.0	C	TR	0.28	19.6	C	Not analyzed for Saturday conditions							
Southbound	LT	0.04	7.7	A	LT	0.04	7.7	A	LT	0.02	7.6	A	LT	0.02	7.6	A	LT	0.03	7.5	A	LT	0.03	7.5	A								
Wythe Avenue and S. 2nd Street																																
Westbound	LT	0.21	14.6	B	LT	0.32	22.0	C	LT	0.12	12.1	B	LT	0.21	18.0	C	LT	0.28	17.5	C	LT	0.47	31.8	D +	Not analyzed for Saturday conditions							
Wythe Avenue and S. 3rd Street																																
Eastbound	TR	0.16	15.9	C	TR	0.69	36.5	E +	TR	0.22	13.5	B	TR	0.44	19.6	C	TR	0.52	24.9	C	TR	0.95	80.8	F +	TR	0.29	14.2	B	TR	0.33	16.8	C
Southbound	LT	0.06	7.8	A	LT	0.06	7.8	A	LT	0.04	7.7	A	LT	0.04	7.7	A	LT	0.06	7.7	A	LT	0.06	7.7	A	LT	0.00	7.5	A	LT	0.00	7.5	A
Wythe Avenue and S. 4th Street																																
Westbound	LT	-	8.8	A	LT	-	10.1	B	LT	-	9.0	A	LT	-	9.2	A	LT	-	10.1	B	LT	-	10.1	B	LT	-	10.0-	A	LT	-	9.2	A
Southbound	TR	-	10.6	B	TR	-	12.9	B	TR	-	9.0	A	TR	-	9.1	A	TR	-	15.1	C	TR	-	13.8	B	TR	-	11.0	B	TR	-	9.5	A
	Intersection		10.2	B	Intersection		12.1	B	Intersection		9.0	A	Intersection		9.2	A	Intersection		14.0	C	Intersection		12.9	B	Intersection		10.6	B	Intersection		9.3	A
Wythe Avenue and S. 5th Street																																
Eastbound	TR	0.09	14.0	B	TR	0.19	16.5	C	TR	0.10	12.5	B	TR	0.18	16.1	C	TR	0.17	15.8	C	TR	0.33	23.0	C	Not analyzed for Saturday conditions							
Southbound	LT	0.00	7.6	A	LT	0.00	7.6	A	LT	0.00	7.5	A	LT	0.00	7.5	A	LT	0.00	7.5	A	LT	0.00	7.5	A								
Wythe Avenue and S. 6th Street																																
Westbound	LT	0.21	15.3	C	LT	0.42	19.3	C	LT	0.22	14.2	B	LT	0.33	15.9	C	LT	0.67	31.0	D	LT	1.10	108.6	F +	LT	0.23	13.4	B	LT	0.37	15.4	C
Berry Street and N. 1st Street																																
Westbound	TR	0.06	13.2	B	TR	0.07	13.7	B	TR	0.11	13.2	B	TR	0.11	13.5	B	TR	0.07	12.9	B	TR	0.07	13.4	B	Not analyzed for Saturday conditions							
Northbound	LT	0.01	7.5	A	LT	0.02	7.7	A	LT	0.01	7.5	A	LT	0.01	7.6	A	LT	0.01	7.5	A	LT	0.01	7.7	A								
Grand Street and Berry Street																																
Eastbound	LT	-	10.4	B	LT	-	10.4	B	LT	-	9.1	A	LT	-	9.6	A	LT	-	9.0	A	LT	-	9.0	A								
Westbound	TR	-	10.2	B	TR	-	10.2	B	TR	-	8.5	A	TR	-	8.5	A	TR	-	9.0	A	TR	-	9.0	A	Not analyzed for Saturday conditions							
Northbound	LTR	-	12.6	B	LTR	-	12.6	B	LTR	-	9.6	A	LTR	-	9.6	A	LTR	-	10.5	B	LTR	-	10.5	B								
	Intersection		11.4	B	Intersection		11.4	B	Intersection		9.2	A	Intersection		9.2	A	Intersection		9.8	A	Intersection		9.8	A								
Broadway and Roebling Street - SBR																																
Southbound	R	0.42	13.8	B	R	2.18	598.4	F +	R	0.41	13.7	B	R	0.97	79.3	F +	R	0.71	20.5	C	R	5.24	1982.0	F +	R	0.75	27.3	D	R	1.47	263.9	F +

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
(1) The Saturday HCS analysis is new for the DEIS.
+ implies a significant adverse impact
** Delay values not reported by the HCS model.

12.15.09



Project Site

Project Generated Traffic Volumes
Weekday AM Peak Hour
Figure 17-14

12.15.09



Project Site

Project Generated Traffic Volumes
Weekday Midday Peak Hour
Figure 17-15

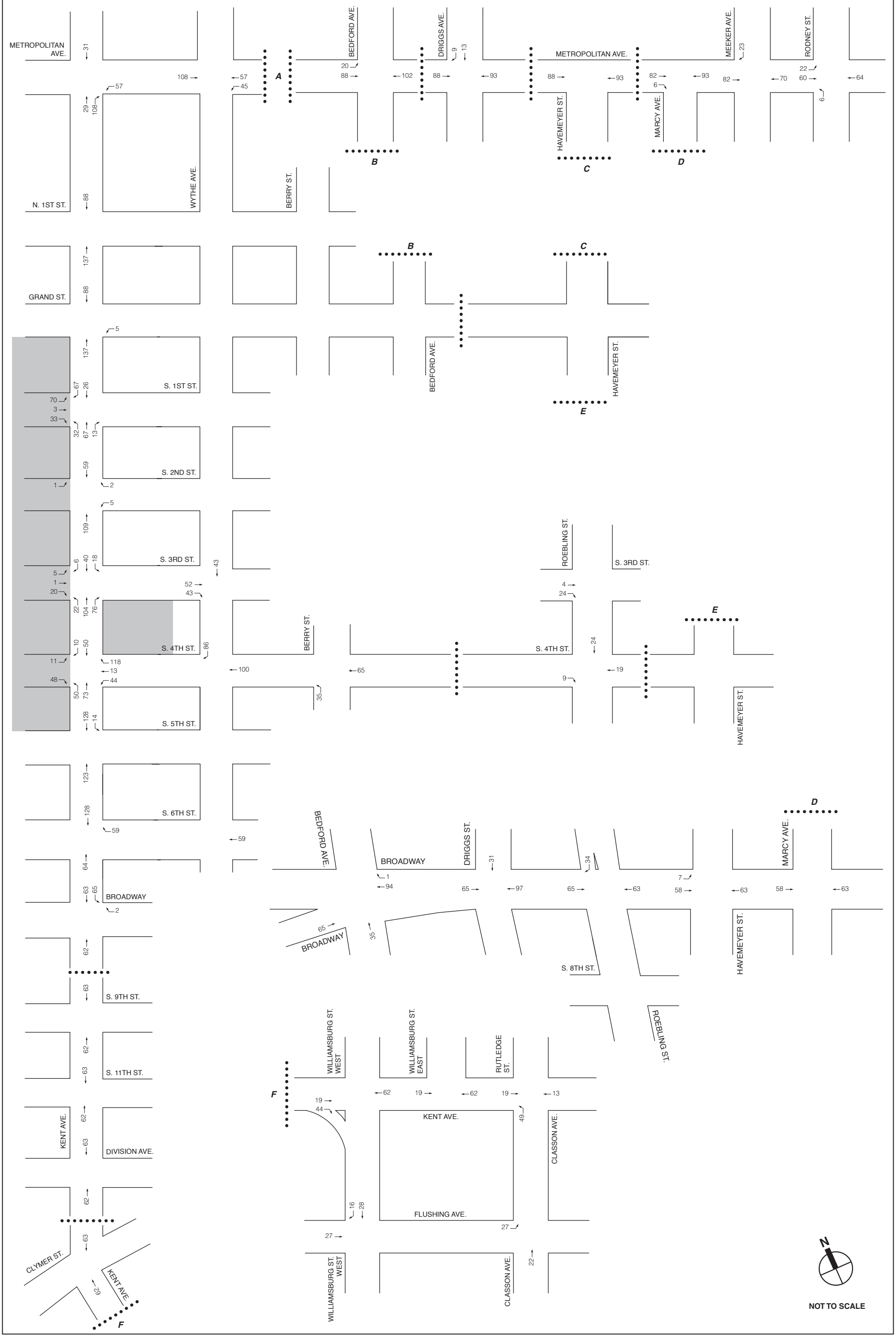
12.15.09



Project Site

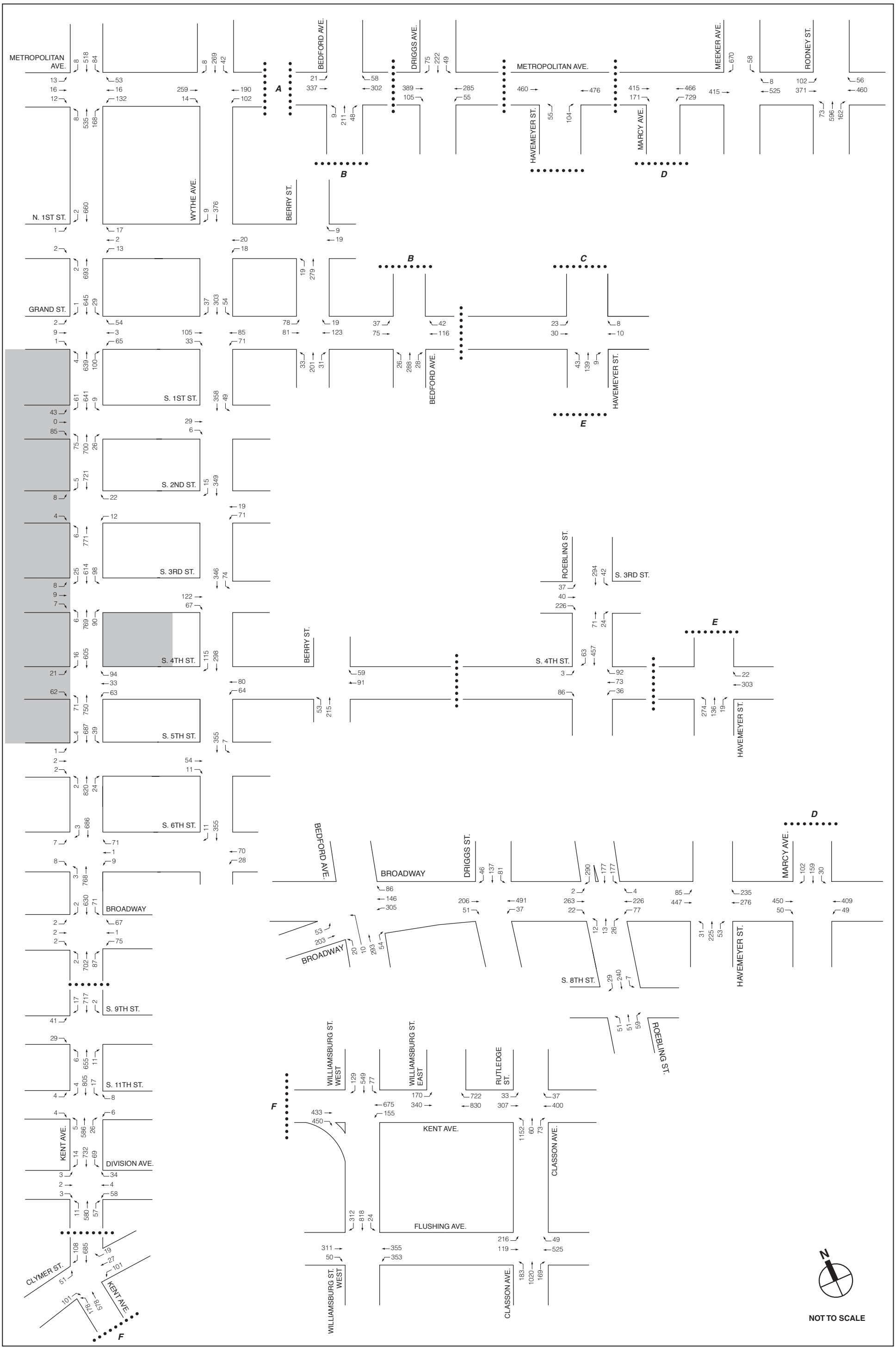
Project Generated Traffic Volumes
Weekday PM Peak Hour
Figure 17-16

12.16.09



Project Site

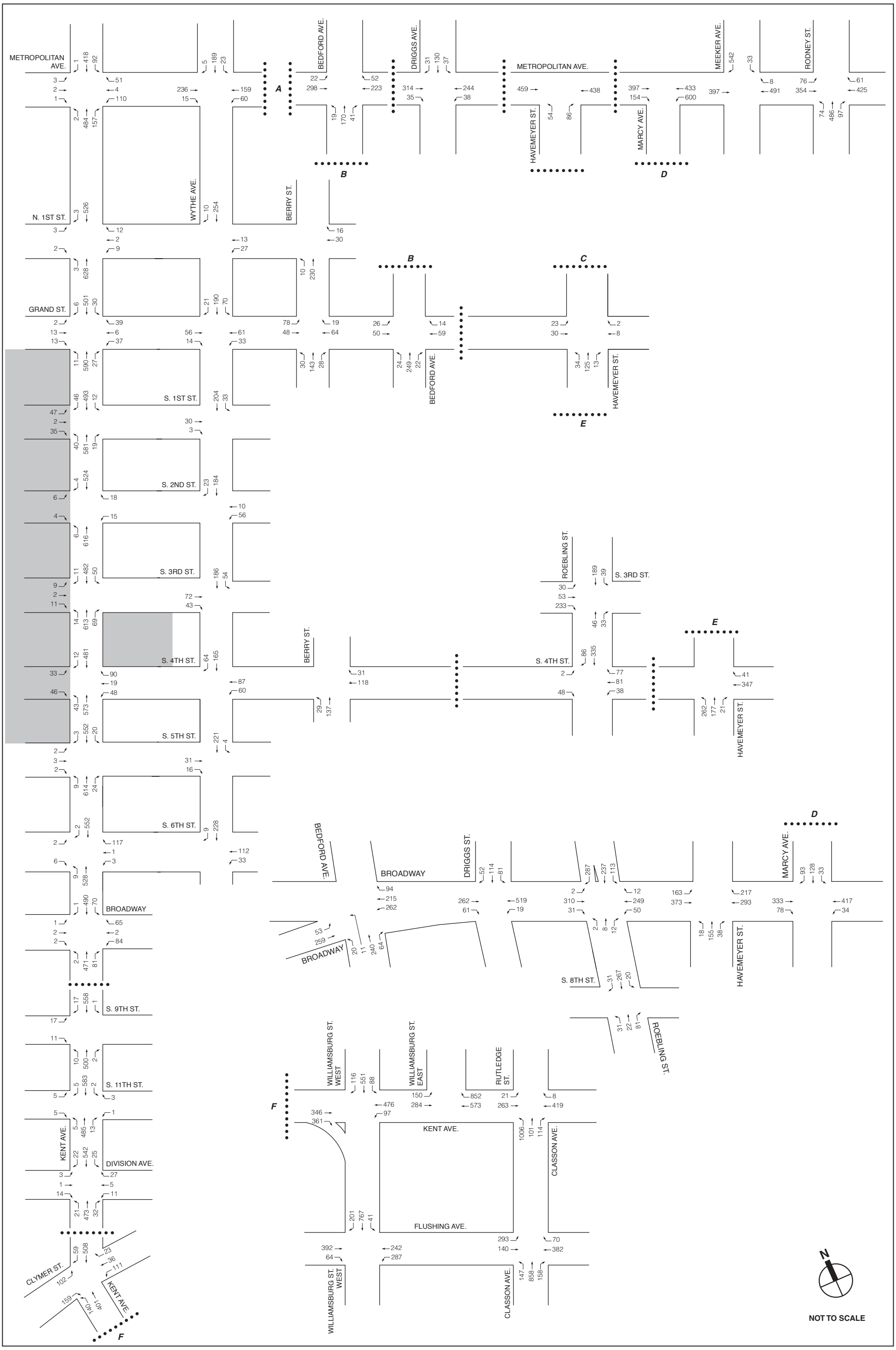
Project Generated Traffic Volumes
Saturday Midday Peak Hour
Figure 17-17



Project Site

2020 Build Traffic Volumes
Weekday AM Peak Hour
Figure 17-18

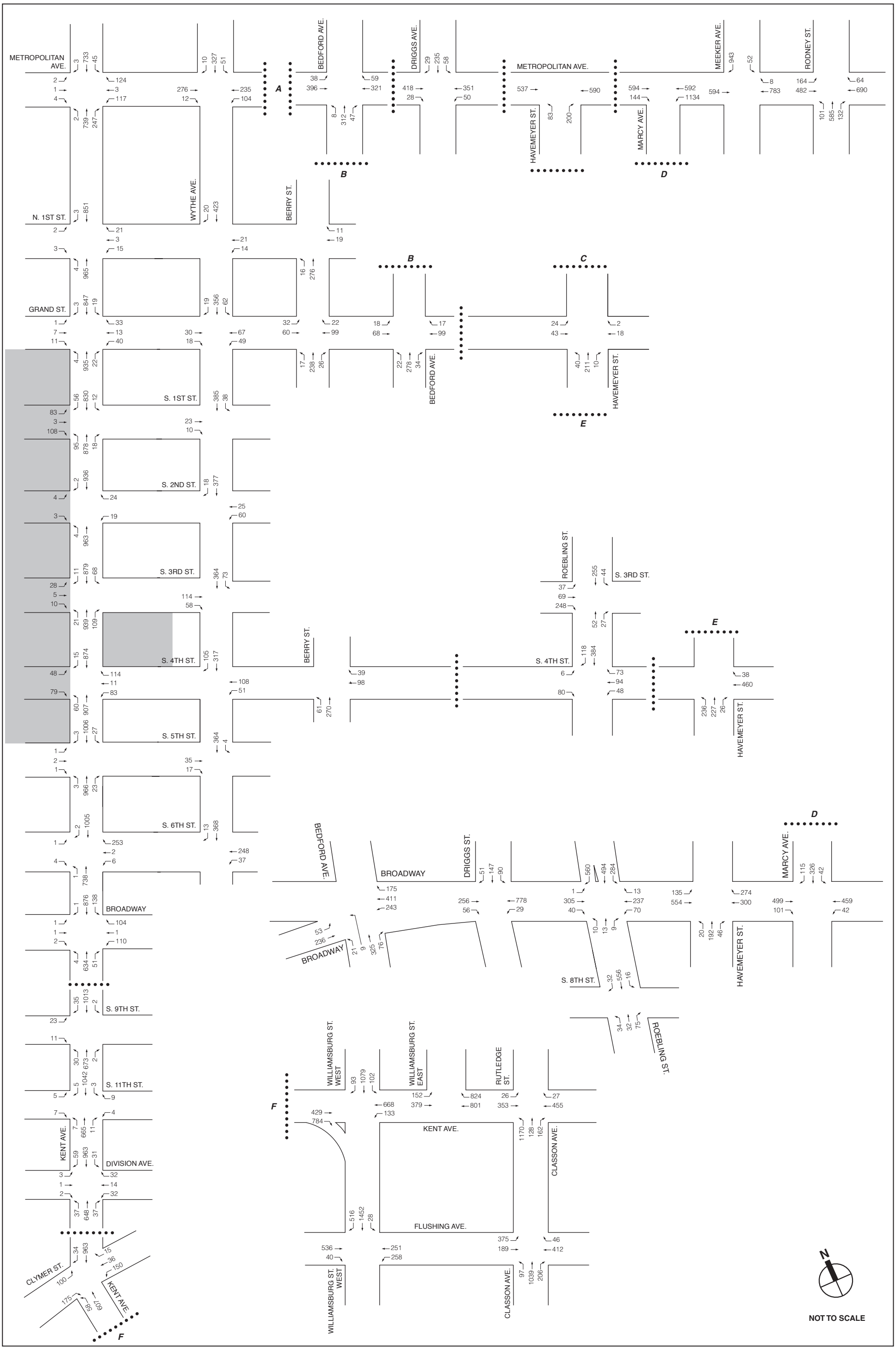
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Project Site

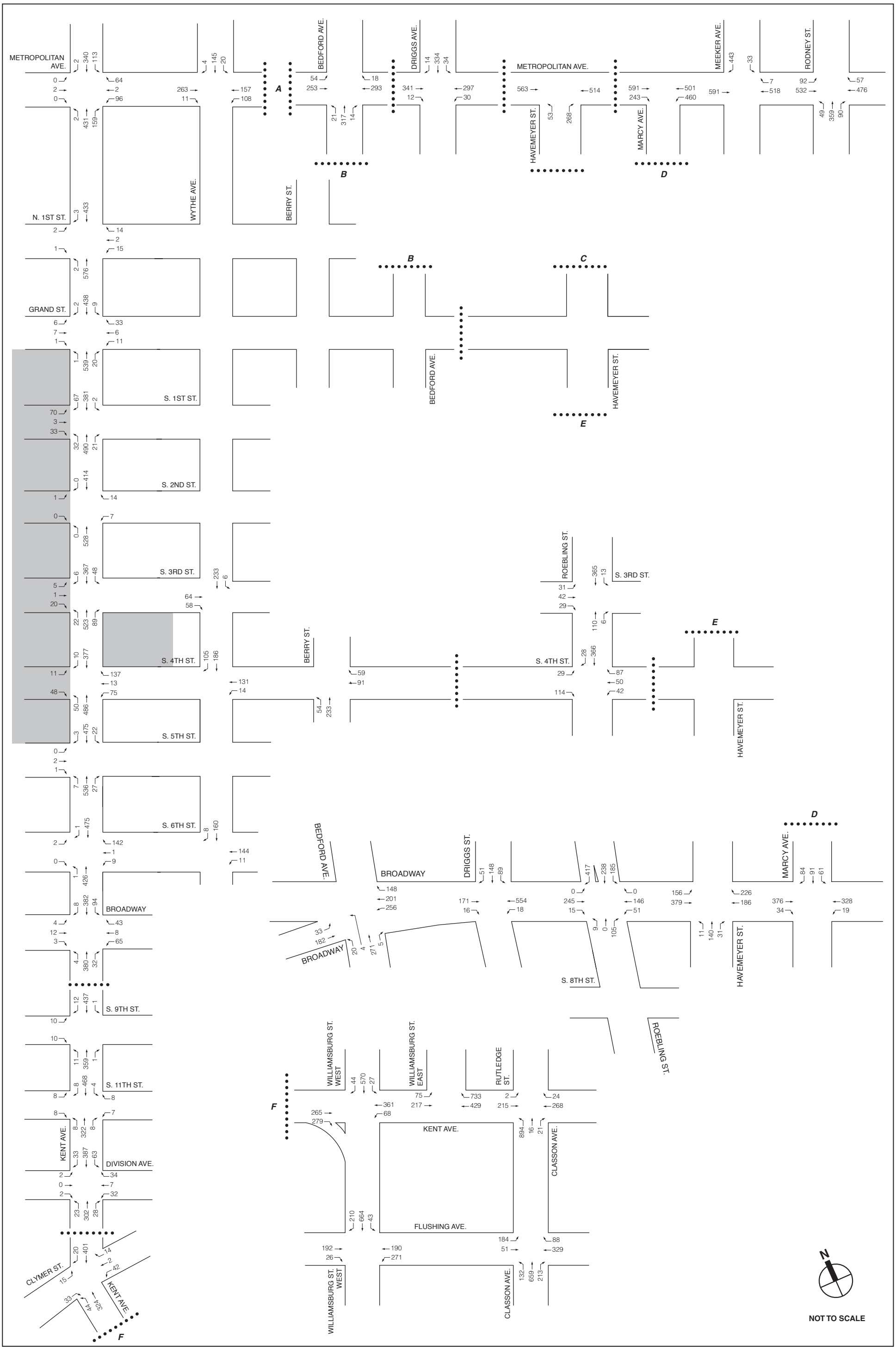
2020 Build Traffic Volumes
Weekday Midday Peak Hour
Figure 17-19

12.15.09



Project Site

2020 Build Traffic Volumes
Weekday PM Peak Hour
Figure 17-20



Project Site

2020 Build Traffic Volumes
Saturday Midday Peak Hour
Figure 17-21

AM, midday, and PM, and Saturday midday peak hours, respectively. The No Action and future with the proposed project service conditions comparison for the secondary study area intersections is presented in Tables 17-15 and 17-16 for the weekday AM, midday, and PM, and Saturday midday peak hours, respectively.

IMPACT CRITERIA

According to the criteria presented in the *CEQR Technical Manual*, impacts are considered significant (identified by the "+" symbol in the analysis summary table) and require examination of mitigation if they result in an increase of 5 or more seconds of delay in a lane group beyond mid-LOS D when compared to the No Action level. 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. Also, if the No Action LOS F condition already corresponds with a delay in excess of 120 seconds, an increase of 1.0 or more seconds of delay is considered significant, unless the proposed project generates fewer than five vehicle trips through that intersection in the peak hour. In addition, impacts are considered significant if levels of service decrease from acceptable LOS A, B, or C in the No Action condition to marginally unacceptable LOS D (a delay in excess of 45 seconds, the midpoint of the LOS D range of delay), or unacceptable LOS E or F in the future with the proposed project condition.

In addition, the *CEQR Technical Manual* states that at unsignalized intersections, 90 PCEs must be identified in the future build condition in any peak hour for the minor approach to trigger significant adverse impacts.

SIGNIFICANT ADVERSE IMPACTS

Based on CEQR standards, the proposed project could result in significant impacts at a total of 18 signalized and nine unsignalized intersections during one or more of the peak hours analyzed. Specific intersection approaches/lane groups and time periods of project-related impacts are listed below:

PRIMARY STUDY AREA

Signalized Intersections

- Kent Avenue and Metropolitan Avenue: the westbound approach during all peak hours; and the northbound approach during the weekday PM peak hour;
- Kent Avenue and South 3rd Street: the northbound approach during the weekday PM peak hour; and the southbound approach during the weekday AM and PM peak hours;
- Kent Avenue and Broadway: the southbound approach during the weekday AM and PM peak hours;
- Bedford Avenue and Metropolitan Avenue: the eastbound and westbound approaches during the weekday PM peak period;
- Bedford Avenue and South 6th Street: the westbound approach during the weekday PM peak hour;
- Driggs Avenue and Metropolitan Avenue: the eastbound approach during the weekday AM peak hour, and the westbound approach during the weekday AM and PM peak hours;
- Driggs Avenue and Broadway: the westbound approach during the weekday AM and PM peak hours;

Table 17-15
No Action and Future with the Proposed Project Conditions Level of Service Analysis
Secondary Study Area Intersections
Signalized Intersections

Intersections	AM Peak Hour								Midday Peak Hour								PM Peak Hour								Saturday Peak Hour (1)							
	No Action				Future with the Proposed Project				No Action				Future with the Proposed Project				No Action				Future with the Proposed Project				No Action				Future with the Proposed Project			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Kent Avenue and S. 9th Street-Schaefer Landing																																
Eastbound	LR	0.21	28.3	C	LR	0.21	28.3	C	LR	0.11	27.0	C	LR	0.11	27.0	C	LR	0.15	27.5	C	LR	0.15	27.5	C	LR	0.06	26.4	C	LR	0.06	26.4	C
Northbound	LTR	0.59	11.8	B	LTR	0.70	14.4	B	LTR	0.63	12.9	B	LTR	0.65	13.4	B	LTR	0.84	20.7	C	LTR	0.88	24.0	C	LTR	0.37	8.4	A	LTR	0.36	8.3	A
Southbound	LTR	0.68	13.9	B	LTR	0.76	16.4	B	LTR	0.65	13.2	B	LTR	0.70	14.5	B	LTR	0.83	19.2	B	LTR	0.93	28.7	C	LTR	0.34	8.0	A	LTR	0.38	8.4	A
	Intersection		13.8	B	Intersection		16.1	B	Intersection		13.5	B	Intersection		14.4	B	Intersection		20.1	C	Intersection		26.7	C	Intersection		8.7	A	Intersection		8.8	A
Kent Avenue and Division Avenue																																
Eastbound	LTR	0.04	26.2	C	LTR	0.04	26.2	C	LTR	0.10	27	C	LTR	0.10	27.0	C	LTR	0.10	27.2	C	LTR	0.10	27.2	C	LTR	0.01	25.9	C	LTR	0.01	25.9	C
Westbound	LTR	0.45	33.2	C	LTR	0.45	33.2	C	LTR	0.21	28.5	C	LTR	0.21	28.5	C	LTR	0.38	31.9	C	LTR	0.38	31.9	C	LTR	0.24	28.9	C	LTR	0.24	28.9	C
Northbound	LTR	0.70	14.7	B	LTR	0.83	20.5	C	LTR	0.68	14.3	B	LTR	0.70	15.1	B	LTR	0.92	29.3	C	LTR	0.97	37.8	D	LTR	0.37	8.5	A	LTR	0.36	8.4	A
Southbound	LTR	0.98	40.3	D	LTR	1.08	71.1	E +	LTR	0.72	15.2	B	LTR	0.77	17.1	B	LTR	0.87	22.0	C	LTR	0.97	35.5	D	LTR	0.41	8.9	A	LTR	0.45	9.3	A
	Intersection		29.5	C	Intersection		46.9	D	Intersection		15.8	B	Intersection		17.1	B	Intersection		25.8	C	Intersection		36.1	D	Intersection		10.6	B	Intersection		10.8	B
Kent Avenue and Clymer Street																																
Eastbound	LR	0.69	43.2	D	LR	0.69	43.2	D	LR	1.20	153.8	F	LR	1.20	153.8	F	LR	1.54	293.5	F	LR	1.54	293.5	F	LR	0.20	28.3	C	LR	0.20	28.3	C
Westbound	LTR	0.28	28.6	C	LTR	0.28	28.6	C	LTR	0.33	29.4	C	LTR	0.33	29.4	C	LTR	0.37	29.8	C	LTR	0.37	29.8	C	LTR	0.11	26.8	C	LTR	0.11	26.8	C
Northbound	L	0.87	42.0	D	L	0.97	65.0	E +	L	0.45	12.1	B	L	0.47	13.0	B	L	0.29	9.8	A	L	0.33	11.4	B	L	0.09	6.3	A	L	0.09	6.4	A
	T	0.72	15.5	B	T	0.87	24.4	C	T	0.55	11.4	B	T	0.57	11.8	B	T	0.82	20.6	B	T	0.86	23.6	C	T	0.37	8.6	A	T	0.36	8.4	A
Southbound	TR	0.82	19.0	B	TR	0.90	25.4	C	TR	0.56	11.0	B	TR	0.60	11.7	B	TR	0.73	14.4	B	TR	0.82	18.2	B	TR	0.30	7.6	A	TR	0.33	7.9	A
	Intersection		23.8	C	Intersection		30.9	C	Intersection		39.6	D	Intersection		39.1	D	Intersection		63.9	E	Intersection		63.4	E	Intersection		10.9	B	Intersection		10.9	B
Kent Avenue and Williamsburg Street - SB Service Road																																
Eastbound	T	0.46	27.3	C	T	0.48	27.6	C	T	0.35	25.4	C	T	0.36	25.6	C	T	0.33	24.9	C	T	0.35	25.2	C	T	0.18	23.0	C	T	0.20	23.2	C
Westbound	L	0.78	53.0	D	L	0.81	56.9	E	L	0.40	29.5	C	L	0.41	29.9	C	L	0.50	32.5	C	L	0.52	33.4	C	L	0.18	23.7	C	L	0.19	23.8	C
	T	0.56	29.0	C	T	0.65	31.4	C	T	0.45	27.1	C	T	0.47	27.3	C	T	0.54	28.7	C	T	0.57	29.2	C	T	0.29	24.3	C	T	0.28	24.2	C
Southbound	LT	0.60	23.0	C	LT	0.60	23.0	C	LT	0.54	21.6	C	LT	0.54	21.6	C	LT	0.87	33.2	C	LT	0.87	33.2	C	LT	0.42	19.3	B	LT	0.42	19.3	B
	Intersection		28.4	C	Intersection		29.7	C	Intersection		24.6	C	Intersection		24.8	C	Intersection		30.6	C	Intersection		30.7	C	Intersection		21.8	C	Intersection		21.7	C
Kent Avenue and Classon Avenue - NB Service Road																																
Eastbound	L	0.17	21.0	C	L	0.18	21.1	C	L	0.08	19.4	B	L	0.08	19.4	B	L	0.09	19.6	B	L	0.10	19.6	B	L	0.00	18.2	B	L	0.00	18.2	B
	T	0.34	22.1	C	T	0.36	22.5	C	T	0.22	20.6	C	T	0.23	20.7	C	T	0.24	20.8	C	T	0.26	21.0	C	T	0.14	19.5	B	T	0.15	19.6	B
Westbound	TR	0.36	22.5	C	TR	0.38	22.7	C	TR	0.37	22.7	C	TR	0.37	22.7	C	TR	0.41	23.2	C	TR	0.42	23.4	C	TR	0.20	20.3	C	TR	0.21	20.4	C
Northbound	L	0.92	51.4	D	L	0.99	65.9	E +	L	0.69	32.5	C	L	0.70	32.8	C	L	0.74	34.5	C	L	0.75	34.9	C	L	0.51	26.1	C	L	0.50	25.8	C
	LTR	0.97	53.2	D	LTR	1.04	69.9	E +	LTR	0.77	32.5	C	LTR	0.77	32.7	C	LTR	0.77	32.3	C	LTR	0.78	32.6	C	LTR	0.44	23.7	C	LTR	0.43	23.5	C
	Intersection		41.9	D	Intersection		52.5	D	Intersection		28.7	C	Intersection		28.8	C	Intersection		28.9	C	Intersection		29.1	C	Intersection		23.0	C	Intersection		22.8	C
Flushing Avenue and Williamsburg Street-SB Service Road																																
Eastbound	TR	0.31	20.6	C	TR	0.33	20.9	C	TR	0.39	17.1	B	TR	0.40	17.2	B	TR	0.44	22.4	C	TR	0.44	22.5	C	TR	0.15	14.6	B	TR	0.15	14.5	B
Westbound	L	1.02	84.2	F	L	1.06	96.2	F +	L	1.14	117.9	F	L	1.15	123.6	F +	L	1.10	116.2	F	L	1.11	120.8	F +	L	0.56	22.4	C	L	0.55	22.3	C
	T	0.47	23.9	C	T	0.47	23.9	C	T	0.39	17.8	B	T	0.39	17.8	B	T	0.35	21.7	C	T	0.35	21.7	C	T	0.23	15.6	B	T	0.23	15.6	B
Southbound	LTR	0.71	29.0	C	LTR	0.74	30.2	C	LTR	0.61	21.2	C	LTR	0.62	21.5	C	LTR	1.10	87.9	F	LTR	1.16	109.2	F +	LTR	0.48	19.1	B	LTR	0.50	19.4	B
	Intersection		35.1	D	Intersection		37.1	D	Intersection		35.1	D	Intersection		35.9	D	Intersection		72.4	E	Intersection		87.1	F	Intersection		18.6	B	Intersection		18.7	B
Flushing Avenue and Classon Avenue-NB Service Road																																
Eastbound	L	1.00	87.2	F	L	1.11	120.9	F +	L	0.96	65.7	E	L	0.98	70.3	E +	L	2.64	797.9	F	L	2.69	819.7	F +	L	0.52	22.5	C	L	0.51	22.1	C
	T	0.22	19.6	B	T	0.22	19.6	B	T	0.20	15.3	B	T	0.20	15.3	B	T	0.44	37.2	D	T	0.44	37.2	D	T	0.07	13.9	B	T	0.07	13.9	B
Westbound	TR	0.47	23.1	C	TR	0.47	23.1	C	TR	0.40	17.3	B	TR	0.40	17.3	B	TR	0.63	40.4	D	TR	0.63	40.4	D	TR	0.32	16.2	B	TR	0.32	16.2	B
Northbound	LTR	0.80	32.0	C	LTR	0.84	33.7	C	LTR	0.73	23.9	C	LTR	0.74	24.0	C	LTR	0.50	13.0	B	LTR	0.51	13.0	B	LTR	0.54	19.9	B	LTR	0.53	19.8	B
	Intersection		34.9	C	Intersection		40.1	D	Intersection		27.4	C	Intersection		28.2	C	Intersection		153.1	F	Intersection		158.4	F	Intersection		19.1	B	Intersection		18.9	B

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
(1) The Saturday HCS analysis is new for the DEIS.
+ implies a significant adverse impact

Table 17-16
No Action and Future with the Proposed Project Conditions Level of Service Analysis
Secondary Study Area Intersections
Unsignalized Intersections

Intersections	AM Peak Hour								Midday Peak Hour								PM Peak Hour								Saturday Peak Hour (1)							
	No Action				Future with the Proposed Project				No Action				Future with the Proposed Project				No Action				Future with the Proposed Project				No Action				Future with the Proposed Project			
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
Kent Avenue and S. 11th Street																																
Eastbound	LR	0.13	48.3	E	LR	0.18	69.0	F	LR	0.22	37.9	E	LR	0.25	45.6	E	LR	0.28	71.9	F	LR	0.40	111.9	F	LR	0.06	19.2	C	LR	0.07	20.9	C
Westbound	LR	0.17	38.9	E	LR	0.27	65.3	F	LR	0.06	22.6	C	LR	0.08	31.7	D	LR	0.25	56.7	F	LR	0.43	114.1	F	LR	0.07	18.7	C	LR	0.09	24.3	C
Northbound	LTR	0.01	10.7	B	LTR	0.01	11.1	B	LTR	0.00	9.5	A	LTR	0.01	10.2	B	LTR	0.01	11.1	B	LTR	0.01	11.8	B	LTR	0.01	8.7	A	LTR	0.01	8.8	A
Southbound	LTR	0.02	9.6	A	LTR	0.03	10.7	B	LTR	0.01	9.9	A	LTR	0.00	10.5	B	LTR	0.00	10.1	A	LTR	0.01	11.3	B	LTR	0.00	8.4	A	LTR	0.00	9.0	A
Kent Avenue and Williamsburg Street East																																
Eastbound	L	0.69	36.2	E	L	0.78	48.6	E +	L	0.35	16.1	C	L	0.35	16.3	C	L	0.33	15.5	C	L	0.34	15.9	C	L	0.14	12.8	B	L	0.14	12.7	B
Kent Avenue and Williamsburg Street West - SBR																																
Southbound	R	0.28	13.5	B	R	0.30	14.6	B	R	0.20	11.8	B	R	0.20	11.9	B	R	0.17	12.1	B	R	0.17	12.2	B	R	0.06	10.2	B	R	0.06	10.2	B

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
(1) The Saturday HCS analysis is new for the DEIS.
+ implies a significant adverse impact

- Roebling Street and South 3rd Street: the eastbound approach during the weekday midday and PM peak hours;
- Roebling Street and South 4th Street: the southbound approach during all four peak hours;
- Havemeyer Street and Metropolitan Avenue: the westbound approach during the weekday PM peak hour;
- Havemeyer Street and Broadway: the eastbound approach during the weekday AM, midday, and PM peak hours, and the westbound approach during the weekday PM peak hour;
- Marcy Avenue and Metropolitan Avenue: the westbound left-turn movement during the weekday PM peak hour; and
- Marcy Avenue and Broadway: the eastbound and westbound approaches during the weekday AM and PM peak hours.

Unsignalized Intersections

- Kent Avenue and Grand Street: the westbound approach during all four peak hours;
- Kent Avenue and South 4th Street: the westbound approach during all four peak hours;
- Kent Avenue and South 5th Street: the northbound approach during the weekday PM peak hour;
- Kent Avenue and South 6th Street: the westbound approach during all four peak hours;
- Wythe Avenue and South 2nd Street: the westbound approach during the weekday PM peak hour;
- Wythe Avenue and South 3rd Street: the eastbound approach during the weekday AM and PM peak hours;
- Wythe Avenue and South 6th Street: the westbound approach during the weekday PM peak hour; and
- Williamsburg Bridge exit/Roebling Street and Broadway: the southbound right-turn movement during all four peak hours.

SECONDARY STUDY AREA

Signalized Intersections

- Kent Avenue at Division Avenue: the southbound approach during the AM peak hour;
- Kent Avenue at Clymer Street: the northbound left-turn movement during the weekday AM peak hour;
- Kent Avenue and Classon Avenue: the northbound approach during the weekday AM peak hour;
- Flushing Avenue and Williamsburg Street West: the westbound left-turn movement during the weekday AM, midday, and PM peak hours; and the southbound approach during the weekday PM peak hour; and
- Flushing and Classon Avenues: the eastbound left-turn movement during the weekday AM, midday, and PM peak hours.

Unsignalized Intersections

- Kent Avenue and Williamsburg Street East: the eastbound left-turn movement during the weekday AM peak hour.

In addition to the impacted approaches/lane-groups identified above, several other intersection approaches/lane-groups in the primary and secondary study areas would experience increased delays in the 2020 future with the proposed project conditions. However, based on the CEQR impact criteria discussed above, these increases in delay would not be considered significant impacts, since either fewer than 90 PCEs were identified at the unsignalized intersection approaches, or there were fewer than 5 peak hour project-generated vehicles on the signalized intersection approaches which were operating with delays in excess of 120 seconds in the No Action conditions.

In addition, delays in excess of mid-LOS D were identified at three newly-created project access approaches at the unsignalized intersections of Kent Avenue at South 1st, South 2nd, and South 4th Streets. The service conditions at these unsignalized intersections could be improved by installing new traffic signals. The installation of new traffic signals would require detailed Signal Warrant Studies, which would be subject to review and approval from DOT.

To mitigate the potential traffic impacts at the 18 signalized and nine unsignalized locations identified above, a variety of mitigation measures could be implemented to address these impacts including signal timing modifications, new lane restripings, changes to parking regulations, new stop controls, and installation of new traffic signals. These measures would mitigate the potential traffic impacts at all of the locations identified above and are discussed in detail in Chapter 23, "Mitigation." It should be noted that the mitigation measures are subject to review and approval from DOT.

KENT AVENUE RECONFIGURATION

With the reconfiguration of Kent Avenue, there is the potential that incremental traffic from the proposed project could result in additional significant adverse traffic impacts when compared to the 2020 future with the proposed project condition analyzed in this DEIS due to the projected increase in baseline traffic volumes, as well as the reassignment of some of the southbound project-generated trips from Kent Avenue to Wythe Avenue. In general, the reassignment of project-generated trips from Kent Avenue to Wythe Avenue is expected to result in up to approximately 300 and 175 additional peak hour vehicles on Wythe Avenue between South 3rd and South 4th Streets during the weekday and Saturday conditions, respectively. Other segments of Wythe Avenue between South 3rd and Grand Streets are expected to experience approximately 65 to 200 additional peak hour vehicles during the weekday and Saturday conditions, respectively.

The majority of the traffic impacts resulting from the reconfiguration of Kent Avenue would likely be mitigated through the implementation of standard traffic engineering improvement measures, such as signal timing modifications, parking prohibition near intersection approaches ("daylighting"), lane re-striping, and installation of new traffic signals at unsignalized intersections. However, there is a possibility that additional mitigation measures would be required at some of the impacted locations along Wythe Avenue to improve the traffic conditions.

A detailed analysis of the effects of the Kent Avenue reconfiguration on study area traffic conditions—including the need for additional mitigation measures at impacted locations as well as the reassignment of truck trips—will be undertaken between the DEIS and FEIS once the travel patterns in the study area have stabilized.

PARKING SUPPLY AND UTILIZATION

The proposed project would provide 1,694 on-site accessory parking spaces in garages on both the waterfront and upland parcels. The waterfront parcel would have three parking facilities, including one at the north end of the site with 782 spaces, one beneath the Refinery with approximately 127 spaces, and one at the south end of the site with approximately 411 spaces. A fourth parking facility with approximately 374 parking spaces would be located on the upland parcel. South 1st, South 3rd, and South 4th Streets on the waterfront parcel would provide access to the below-grade parking garages and would include driveways with drop-off areas (see Figure 1-4). Access to the parking garage on the upland parcel would be provided from South 4th Street.

A parking accumulation was developed based on vehicle ownership data from 2000 US Census Data and the project's planned land uses. As shown in Table 17-17, the project is expected to generate a maximum overnight demand of 1,694 parking spaces generated by the residential use which would be fully accommodated by the on-site accessory parking. During other time periods on weekdays and Saturday, the majority of the proposed project's parking demand would be accommodated on-site. However, as shown in Table 17-17, during the weekday morning/afternoon and Saturday late evening hours, the proposed project's parking demand could result in a parking shortfall. Specifically, during the weekday morning (9 AM to 10AM) and Saturday late-evening (9 PM to 11 PM) hours, there could be shortfall of a maximum of up to 45 and 20 parking spaces, respectively. It is expected that this overflow parking demand during the weekday and Saturday conditions would be accommodated by off-site parking available in the ¼-mile study area and beyond. Therefore, the proposed project would not result in significant adverse parking impacts in the study area.

Additionally, the project sponsor is exploring a car-sharing option for the project's residents, which could result in a reduced parking demand. Data have been presented that indicate each shared vehicle could take up to 20 cars off the road as members sell their cars or decide not to purchase new ones. Although a new concept, car-sharing options are now operational in major U.S. cities including New York, Atlanta, Boston, Chicago, Seattle and San Francisco. Although no credit has been taken for a car-sharing option in this parking accumulation analysis, it is expected that should a car-sharing option be implemented, the overall residential parking demand generated by the proposed project would be lower than the 1,694 spaces identified above.

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 July 1, 2006 and June 30, 2009. 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 pedestrian/bicycle accident location is one where there were five or more pedestrian- and bicycle-related accidents in any year of the most recent three-year period for which data are available.

During this period, a total of 49 pedestrian-related accidents and 31 bicycle-related accidents occurred at study area intersections. Table 17-18 depicts total accident characteristics by intersection during the study period, as well as a breakdown of pedestrian and bicycle accidents by year and location. The accident data identifies two study area intersections, Marcy Avenue at Metropolitan Avenue and Havemeyer Street at Broadway (South 6th Street), as high pedestrian and bicycle accident locations in the 2006 to 2009 period.

Table 17-17
Parking Demand Summary by Component

Time Period	Residential			Local Retail			Supermarket			Community Facility												Commercial			Open Space						Total		
										Medical Staff			Medical Visitors			Office			Museum			Office			Ice Skate Rink			Other					
	In	Out	Demand	In	Out	Demand	In	Out	Demand	In	Out	Demand	In	Out	Demand	In	Out	Demand	In	Out	Demand	In	Out	Demand	In	Out	Demand	In	Out	Demand	In	Out	Demand
Weekday																																	
12:00 AM - 01:00 AM	21	21	1694	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	21	1694
01:00 AM - 02:00 AM	9	9	1694	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	1694
02:00 AM - 03:00 AM	5	5	1694	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	1694
03:00 AM - 04:00 AM	4	4	1694	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	1694
04:00 AM - 05:00 AM	4	4	1694	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	1694
05:00 AM - 06:00 AM	4	4	1694	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	1694
06:00 AM - 07:00 AM	7	7	1694	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7	1694
07:00 AM - 08:00 AM	10	87	1617	2	0	2	46	37	9	4	0	4	0	0	0	3	0	3	0	0	0	7	1	6	0	0	0	0	0	0	72	125	1641
08:00 AM - 09:00 AM	**34**	**190**	**1461**	**5**	**5**	**2**	**57**	**44**	**22**	**70**	**0**	**74**	**19**	**2**	**17**	**37**	**3**	**37**	**0**	**0**	**0**	**83**	**5**	**84**	**0**	**0**	**0**	**1**	**1**	**0**	**306**	**250**	**1697**
09:00 AM - 10:00 AM	32	131	1362	9	7	4	39	41	20	12	2	84	34	8	43	35	5	67	8	2	6	77	9	152	1	0	1	0	0	0	247	205	1739
10:00 AM - 11:00 AM	31	92	1301	13	9	8	38	34	24	5	2	87	24	16	51	7	5	69	11	3	14	16	12	156	2	0	3	0	0	0	147	173	1713
11:00 AM - 12:00 PM	43	65	1279	15	15	8	54	44	34	1	0	88	22	18	55	0	1	68	11	5	20	1	1	156	3	1	5	0	0	0	150	150	1713
12:00 PM - 01:00 PM	**58**	**58**	**1279**	**16**	**18**	**6**	**60**	**60**	**34**	**1**	**1**	**88**	**16**	**16**	**55**	**1**	**1**	**68**	**13**	**8**	**25**	**2**	**3**	**155**	**3**	**7**	**1**	**1**	**1**	**0**	**171**	**173**	**1711**
01:00 PM - 02:00 PM	56	56	1279	19	19	6	56	56	34	1	0	89	19	19	55	1	1	68	14	9	30	3	2	156	1	0	2	1	0	1	171	162	1720
02:00 PM - 03:00 PM	52	52	1279	14	14	6	74	72	36	1	0	90	15	22	48	1	0	69	14	12	32	1	1	156	4	1	5	0	0	1	176	174	1722
03:00 PM - 04:00 PM	68	65	1282	14	14	6	92	87	41	5	5	90	15	23	40	6	6	69	14	13	33	13	13	156	3	1	7	0	1	0	230	228	1724
04:00 PM - 05:00 PM	106	71	1317	14	14	6	98	88	51	2	16	76	3	28	15	4	25	48	16	16	33	9	55	110	1	5	3	1	0	1	254	318	1660
05:00 PM - 06:00 PM	**184**	**79**	**1422**	**13**	**16**	**3**	**101**	**93**	**59**	**0**	**70**	**6**	**5**	**12**	**8**	**3**	**43**	**8**	**21**	**19**	**35**	**5**	**97**	**18**	**5**	**1**	**7**	**1**	**1**	**1**	**338**	**431**	**1567**
06:00 PM - 07:00 PM	150	81	1491	15	15	3	99	83	75	1	6	1	1	7	2	2	9	1	10	18	27	3	18	3	0	4	3	1	0	2	282	241	1608
07:00 PM - 08:00 PM	143	60	1574	12	12	3	83	95	63	0	1	0	0	2	0	0	1	0	4	13	18	1	4	0	0	2	1	0	1	1	243	191	1660
08:00 PM - 09:00 PM	62	26	1610	8	9	2	51	72	42	0	0	0	0	0	0	0	0	0	2	12	8	0	0	0	0	1	0	0	1	0	123	121	1662
09:00 PM - 10:00 PM	50	21	1639	2	4	0	32	49	25	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	84	82	1664
10:00 PM - 11:00 PM	57	24	1672	0	0	0	20	35	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77	59	1682
11:00 PM - 12:00 AM	40	18	1694	0	0	0	7	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	35	1694
Saturday																																	
12:00 AM - 01:00 AM	8	8	1694	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	1694
01:00 AM - 02:00 AM	8	8	1694	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	1694
02:00 AM - 03:00 AM	0	0	1694	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1694
03:00 AM - 04:00 AM	0	0	1694	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1694
04:00 AM - 05:00 AM	0	0	1694	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1694
05:00 AM - 06:00 AM	17	17	1694	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	17	1694
06:00 AM - 07:00 AM	8	25	1677	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	25	1677
07:00 AM - 08:00 AM	27	80	1624	0	0	0	31	15	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	95	1640
08:00 AM - 09:00 AM	33	100	1557	2	0	2	54	41	29	1	0	1	8	1	7	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	99	142	1597
09:00 AM - 10:00 AM	42	125	1474	3	0	5	55	49	35	0	0	1	15	4	18	0	0	0	8	2	6	0	0	0	1	0	2	0	0	0	124	180	1541
10:00 AM - 11:00 AM	50	150	1374	14	3	16	82	63	54	0	0	1	11	7	22	0	0	0	9	2	13	0	0	0	3	2	3	0	0	0	169	227	1483
11:00 AM - 12:00 PM	54	162	1266	16	16	16	79	79	54	0	0	1	10	8	24	0	0	0	6	4	15	0	0	0	2	5	0	0	0	0	167	274	1376
12:00 PM - 01:00 PM	67	200	1133	18	15	19	88	104	38	0	0	1	8	8	24	0	0	0	15	12	18	0	0	0	3	3	0	1	0	1	200	342	1234
01:00 PM - 02:00 PM	**116**	**116**	**1133**	**19**	**15**	**23**	**129**	**119**	**48**	**1**	**1**	**1**	**7**	**7**	**24**	**0**	**0**	**0**	**12**	**22**	**8**	**0**	**0**	**0**	**13**	**0**	**13**	**1**	**1**	**1**	**298**	**281**	**1251**
02:00 PM - 03:00 PM	141	99	1175	18	15	26	110	105	53	0	0	1	7	10	21	0	0	0	14	15	7	0	0	0	4	4	13	0	0	1	294	248	1297
03:00 PM - 04:00 PM	142	95	1222	18	15	29	97	90	60	0	0	1	7	10	18	0	0	0	15	12	10	0	0	0	3	4	12	0	1	0	282	227	1352
04:00 PM - 05:00 PM	140	93	1269	15	18	26	117	116	61	0	0	1	1	12	7	0	0	0	13	14	9	0	0	0	1	4	9	1	0	1	288	257	1383
05:00 PM - 06:00 PM	140	93	1316	14	14	26	114	117	58	0	1	0	2	5	4	0	0	0	5	6	8	0	0	0	0	4	5	1	1	1	276	241	1418
06:00 PM - 07:00 PM	151	81	1386	12	16	22	104	99	63	0	0	0	0	3	1	0	0	0	3	7	4	0	0	0	0	3	2	1	0	2	271	209	1480
07:00 PM - 08:00 PM	175	58	1503	12	15	19	97	99	61	0	0	0	0	1	0	0	0	0	3	7	0	0	0	0	0	1	1	0	1	1	287	182	1585
08:00 PM - 09:00 PM	150	50	1603	9	16	12	79	87	53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	238	155	1668
09:00 PM - 10:00 PM	125	42	1686	4	16	0	51	80	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180	138	1710
10:00 PM - 11:00 PM	54	46	1694	0	0	0	34	41	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88	87	1711
11:00 PM - 12:00 AM	17	17	1694	0	0	0	12	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	46	1694

Table 17-18
Summary of Pedestrian-Related Accidents

Intersection		Accidents by Year											
North-South Roadway	East-West Roadway	Pedestrian				Bicycle				Combined Ped./Bike			
		2006	2007	2008	2009	2006	2007	2008	2009	2006	2007	2008	2009
Kent Ave.	Metropolitan Ave.	0	0	0	0	0	0	0	0	0	0	0	0
Kent Ave.	N. 1st St.	0	0	0	0	0	0	0	0	0	0	0	0
Kent Ave.	Grand St.	0	0	0	0	0	0	0	0	0	0	0	0
Kent Ave.	S. 1st St.	0	0	0	0	0	0	0	0	0	0	0	0
Kent Ave.	S. 2nd St.	0	0	1	0	0	0	0	0	0	0	1	0
Kent Ave.	S. 3rd St.	0	0	0	0	0	0	0	0	0	0	0	0
Kent Ave.	S. 4th St.	0	0	0	0	0	0	0	0	0	0	0	0
Kent Ave.	S. 5th St.	0	1	0	0	0	0	0	0	0	1	0	0
Kent Ave.	S. 6th St.	0	0	0	0	0	0	0	0	0	0	0	0
Kent Ave.	S. 9th St.	0	0	0	0	0	0	0	0	0	0	0	0
Kent Ave.	S. 11th St.	0	0	0	0	0	0	1	0	0	0	1	0
Kent Ave.	Division Ave.	0	0	0	0	0	0	0	0	0	0	0	0
Kent Ave.	Clymer St.	0	0	0	0	0	0	0	0	0	0	0	0
Kent Ave.	W. Williamsburg St.	0	2	1	0	0	0	1	0	0	2	2	0
Kent Ave.	E. Williamsburg St.	0	0	0	0	0	1	0	0	0	1	0	0
Kent Ave.	Rutledge St.-Classon Ave.	0	0	0	0	0	1	0	0	0	1	0	0
Flushing Ave.	W. Williamsburg St.	0	0	1	0	0	0	2	0	0	0	3	0
Flushing Ave.	Classon Ave.	0	2	0	0	1	1	2	0	1	3	2	0
Wythe Ave.	N. 1st St.	0	0	0	0	0	0	0	0	0	0	0	0
Wythe Ave.	Grand St.	1	0	0	0	0	0	0	0	1	0	0	0
Wythe Ave.	S. 1st St.	0	0	0	0	0	0	0	0	0	0	0	0
Wythe Ave.	S. 2nd St.	0	0	0	0	0	0	0	0	0	0	0	0
Wythe Ave.	S. 3rd St.	0	0	0	0	0	0	0	0	0	0	0	0
Wythe Ave.	S. 4th St.	0	0	0	0	0	0	0	0	0	0	0	0
Wythe Ave.	S. 5th St.	0	0	0	0	0	0	1	0	0	0	1	0
Wythe Ave.	S. 6th St.	0	0	0	0	0	0	0	0	0	0	0	0
Berry St.	N. 1st St.	0	0	0	0	0	0	0	0	0	0	0	0
Berry St.	Grand St.	1	1	0	0	0	0	0	0	1	1	0	0
Berry St.	S. 4th St.	0	0	0	0	0	0	0	0	0	0	0	0
Bedford Ave.	Metropolitan Ave.	0	2	0	0	0	0	0	0	0	2	0	0
Bedford Ave.	Grand St.	0	0	0	0	0	0	0	1	0	0	0	1
Bedford Ave.	S. 6th St.	0	0	0	0	0	0	0	1	0	0	0	1
Driggs Ave.	Metropolitan Ave.	0	0	0	0	0	1	0	0	0	1	0	0
Driggs Ave.	S. 6th St.	1	1	1	1	0	2	0	0	1	3	1	1
Roebling St.	Metropolitan Ave.	0	0	1	0	0	0	1	0	0	0	2	0
Roebling St.	S. 3rd St.	0	2	0	0	0	0	2	0	0	2	2	0
Roebling St.	S. 4th St.	0	1	0	0	1	1	0	1	1	2	0	1
Roebling St.	S. 6th St.	1	0	1	0	0	0	0	0	1	0	1	0
Havemeyer St.	Metropolitan Ave.	1	0	0	0	0	0	0	0	1	0	0	0
Havemeyer St.	Grand St.	0	0	0	0	0	0	0	0	0	0	0	0
Havemeyer St.*	Broadway/S. 6th St.	2	2	3	1	0	0	1	0	2	2	4	1
Marcy Ave.*	Metropolitan Ave.	0	3	3	0	0	1	1	0	0	4	4	0
Marcy Ave.	S. 6th St. (Broadway)	0	3	2	2	0	1	1	0	0	4	3	2
Meeker St.	Metropolitan Ave.	1	0	1	0	0	1	0	0	1	1	1	0
Rodney St.	Metropolitan Ave.	1	0	1	0	0	1	0	0	1	1	1	0
Roebling St.	S. 8th St.	0	0	0	0	0	0	0	0	0	0	0	0
Kent Ave.	Broadway	0	0	0	0	0	0	2	0	0	0	2	0
Wythe Ave.	Metropolitan Ave.	0	0	0	0	0	0	0	0	0	0	0	0

Note: *denotes high pedestrian/bicycle accident location.
Source: NYSDOT

A review of pedestrian and bicycle accident reports at the intersection of Marcy Avenue and Metropolitan Avenue reveals that a majority of the accidents are caused by driver inattention, while a review of the pedestrian and bicycle accident reports at the intersection of Havemeyer Street at Broadway (South 6th Street) does not reveal an identifiable pattern of accidents. The T-legged intersection of Marcy Avenue and Metropolitan Avenue is equipped with regular crosswalks across the eastbound Metropolitan Avenue and across Marcy Avenue. In addition, the eastbound and westbound approaches on Metropolitan Avenue are equipped with signs warning turning vehicles to yield to pedestrians. Safety at this location could be improved by providing a high visibility crosswalk across the westbound Metropolitan Avenue and by restriping the faded crosswalks across the eastbound Metropolitan Avenue and across Marcy Avenue with high visibility crosswalks. The intersection of Havemeyer Street and Broadway (South 6th Street) is equipped with high visibility crosswalks across Broadway. Safety at this location could be improved by restriping the Havemeyer Street approaches with high visibility crosswalks and installing signs warning turning vehicles to yield to pedestrians on the northbound, eastbound, and westbound approaches.

Based on the operational analyses of the future pedestrian conditions and consideration of relative changes in pedestrian levels, as detailed in Chapter 18, "Transit and Pedestrians," it was concluded that, with the installation of the improvements noted above, project-generated trips would not result in significant adverse impacts on pedestrian safety in the study area. ✷