Chapter 17: Traffic and Parking

A. INTRODUCTION

As described in Chapter 1, "Project Description," the Proposed Actions would allow Columbia University to develop a new Manhattanville campus, and would facilitate redevelopment of other nearby properties within the approximate 35-acre Manhattanville Project Area. This chapter examines the potential impacts of these Proposed Actions in the 2015 and 2030 analysis years on the traffic network and on parking conditions in the study area. The potential impacts on transit and pedestrian facilities are described in Chapter 18.

To maintain flexibility for programmatic changes that may occur in the course of the long-range development of the Manhattanville campus, minimum and maximum build-outs for each of the development components were established. Based on these limits and the trip generation characteristics associated with each of these components, a reasonable worst-case development scenario for evaluating transportation-related impacts, determined by maximizing the space allocation for the highest trip-generating components, was developed. This analysis approach is further discussed below. In addition, since the publication of the DEIS, the traffic studies presented in this chapter have been revised to provide detailed midday peak hour analyses and to reflect recently developed traffic information from the 125th Street Corridor Rezoning and Related Actions and East 125th Street Development background projects.

PRINCIPAL CONCLUSIONS

The Proposed Actions would add a substantial number of vehicle trips in the Project Area. Largely due to traffic improvements that are proposed as part of this project, no significant adverse traffic impacts would occur at intersections bordering and within the Project Area. At study area locations that are farther away from the Project Area, particularly at locations where congested conditions would already exist for conditions in the future without the Proposed Actions, significant adverse traffic impacts may occur. The analysis results show that the Proposed Actions would result in significant adverse traffic impacts at four, four and five intersections during the AM, midday, and PM peak hours, respectively, in 2015, and at three, three, and seven intersections during the AM, midday, and PM peak hours, respectively, in 2030, as listed below.

2015 AM Peak Hour

- Amsterdam Avenue and West 125th Street
- Frederick Douglass Boulevard and West 125th Street
- Madison Avenue and East 125th Street
- Second Avenue and East 125th Street

2015 Midday Peak Hour

- Amsterdam Avenue and West 125th Street

- Madison Avenue and East 125th Street
- Second Avenue and East 125th Street
- Broadway and West 145th Street

2015 PM Peak Hour

- Riverside Drive and West 135th Street
- Amsterdam Avenue and West 125th Street
- Frederick Douglass Boulevard and West 125th Street
- Madison Avenue and East 125th Street
- Second Avenue and East 125th Street

2030 AM Peak Hour

- Amsterdam Avenue and West 125th Street
- Madison Avenue and East 125th Street
- Second Avenue and East 125th Street

2030 Midday Peak Hour

- Amsterdam Avenue and West 125th Street
- Second Avenue and East 125th Street
- Broadway and West 145th Street

2030 PM Peak Hour

- Riverside Drive and West 135th Street
- Amsterdam Avenue and West 135th Street
- Amsterdam Avenue and West 125th Street
- Broadway and West 145th Street
- Madison Avenue and East 125th Street
- Second Avenue and East 125th Street
- First Avenue and East 125th Street

While adequate off-street parking would be provided for the projected demand from the Columbia University development and adequate on-street supply would be available for the demand due to development within the rezoning area outside of Subdistrict A, there would be significant adverse parking impacts from the displacement of existing off-street facilities within the Project Area, resulting in a total shortfall of up to approximately 260 parking spaces in 2015 and just over 120 parking spaces in 2030.

Potential measures to mitigate these projected significant adverse impacts are described in Chapter 23, "Mitigation."

B. METHODOLOGY

OVERVIEW

The planning for a transportation impact analysis begins with understanding the travel characteristics associated with the Proposed Actions and the roadway network and regional transportation systems surrounding the Project Area. Depending on the size and anticipated trip generation of the Proposed Actions, various transportation elements may need to be evaluated

quantitatively. The determination of analysis needs for projects in New York City is based on guidance outlined in the *City Environmental Quality Review (CEQR) Technical Manual*. Impacts on vehicular flow, parking supply and demand, and vehicle-pedestrian safety are evaluated as part of the "Traffic and Parking" chapter of an EIS, while those on transit services and pedestrian flow are depicted in the "Transit and Pedestrians" section.

Once the analysis needs have been determined, a study area is developed for each of the specific transportation elements. At the same time, the appropriate analysis time periods are determined. Typically, the weekday AM, midday and PM peak hours are selected as representative peak periods for analysis. However, based on the types of use, these periods could vary to also include late evening or weekend hours. To provide the basic parameters for analysis, baseline traffic, parking, transit, and pedestrian data, along with physical and operational characteristics, are collected for developing the baseline conditions, often referred to as the "existing conditions." Once the basic analysis parameters have been established, operating levels for each of the transportation analysis areas are determined.

The future without the Proposed Actions, or the No Build condition, builds on the existing conditions analysis by incorporating background growth, other nearby projects expected to be completed, and anticipated changes in the transportation network. Again, operating levels are computed. The analysis results become the future baseline onto which projected increments associated with the Proposed Actions are layered to formulate the "Build condition." If the future Build analysis concludes that the Proposed Actions would result in significant transportation-related impacts, as defined by the *CEQR Technical Manual*, mitigation measures to alleviate these impacts are examined.

The following sections summarize the various aspects of the "Traffic and Parking" assessment, such as defining study areas, detailing analysis methodologies, and summarizing future trip projections, and set the framework upon which existing and future analyses would be based.

STUDY AREA

To assess the potential traffic impacts associated with the Proposed Actions, primary and secondary study areas were defined, considering the proposed Columbia University and nearby developments, principal access routes to and from the Project Area, traffic conditions in the surrounding area, and key intersections likely to be affected by project-generated trips. In total, 23 signalized and nine unsignalized intersections, determined through this EIS's scoping process, were selected for analysis. The geographic locations of these intersections are depicted in Figure 17-1.

PRIMARY STUDY AREA

The primary study area is bounded to the north by West 138th Street, to the east by Amsterdam Avenue, to the south by Tiemann Place and West 125th Street, and to the west by the Hudson River. Within this area, the following intersections, at which project-related traffic is likely to be most concentrated, were selected for analysis.

Signalized Intersections

- Marginal Street at West 125th Street
- Riverside Drive at West 135th Street
- Twelfth Avenue at West 133rd Street

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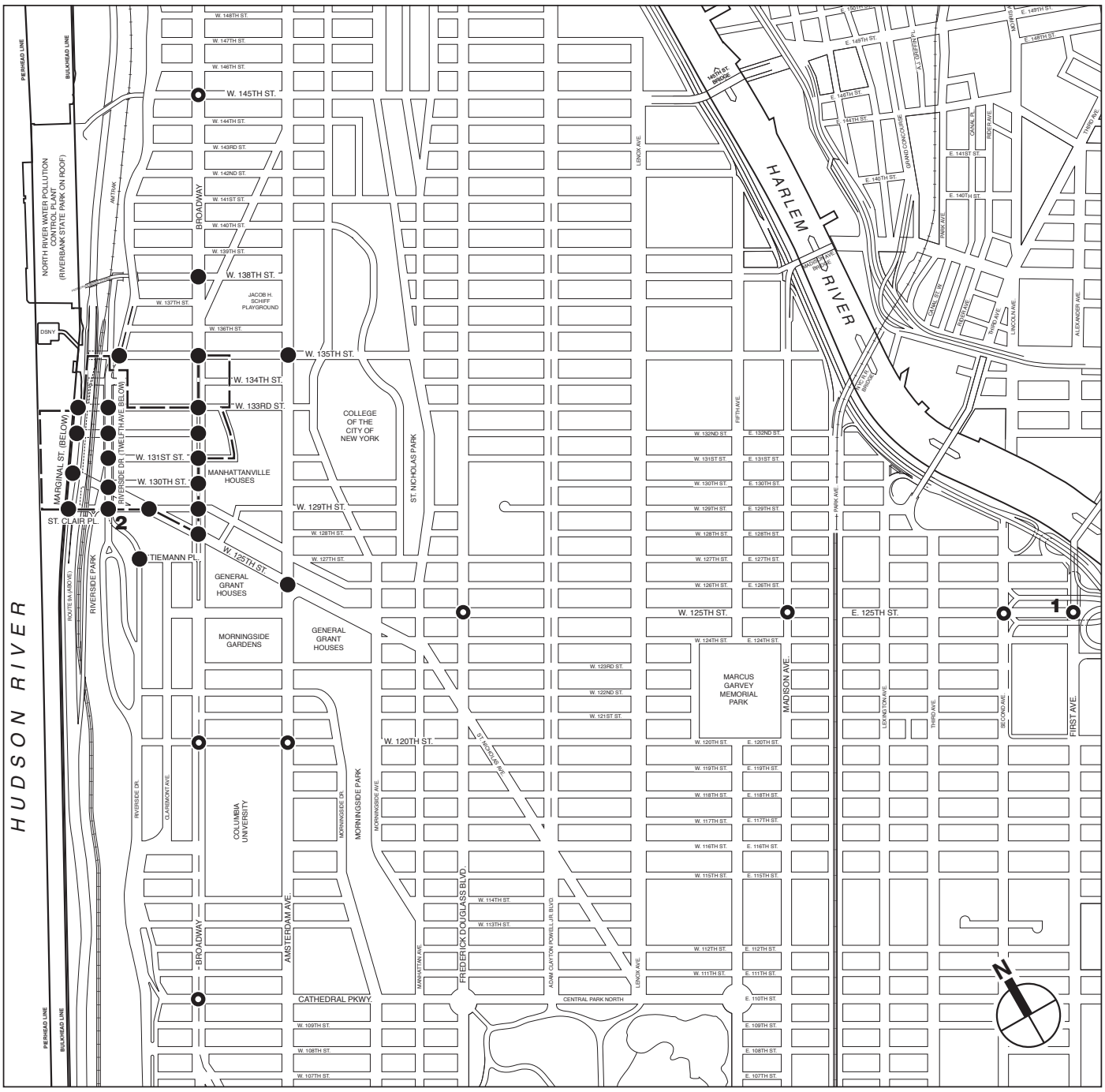

Project and Rezoning Area Boundary

Primary Study Area Intersection

Secondary Study Area Intersection

1 *Intersection Analyzed Partly as Signalized and Partly as Unsignalized due to its Configuration*

2 *Intersection of Twelfth Avenue and St. Claire Place is Located Immediately Below the Intersection of Riverside Drive and St. Claire Place*

MANHATTANVILLE IN WEST HARLEM REZONING AND ACADEMIC MIXED-USE DEVELOPMENT

Figure 17-1
Study Area Intersections

- Twelfth Avenue at West 132nd Street
- Twelfth Avenue at West 125th Street
- Broadway at West 138th Street
- Broadway at West 135th Street
- Broadway at West 133rd Street
- Broadway at West 132nd Street
- Broadway at West 131st Street
- Broadway at West 130th Street
- Broadway at West 129th Street
- Broadway at West 125th Street
- Amsterdam Avenue at West 135th Street
- Amsterdam Avenue at West 125th Street

Unsignalized Intersections

- Twelfth Avenue at West 131st Street
- Twelfth Avenue at St. Clair Place
- Riverside Drive at St. Clair Place
- Marginal Street at West 133rd Street
- Marginal Street at West 132nd Street
- Marginal Street at St. Clair Place
- Riverside Drive at Tiemann Place
- West 125th Street at West 129th Street

SECONDARY STUDY AREA

A secondary study area was defined to include additional key locations where project-generated traffic is expected to traverse. This area encompasses upper Manhattan to West 145th Street and Harlem east of the Project Area to the East River. The southern boundary of the secondary study area extends to West 110th Street (Cathedral Parkway) in Morningside Heights. Nine intersections within this area were selected for analysis, as listed below.

Signalized Intersections

- Broadway at West 145th Street
- Broadway at West 120th Street
- Broadway at Cathedral Parkway
- Amsterdam Avenue at West 120th Street
- First Avenue at East 125th Street
- Second Avenue at East 125th Street
- Madison Avenue at East 125th Street
- Frederick Douglass Boulevard at West 125th Street

Unsignalized Intersections

- First Avenue at East 125th Street Southbound Right Turn

STUDY AREA INTERSECTION AND ROADWAY CHARACTERISTICS

The Henry Hudson Parkway (Route 9A) is the primary highway connection to the study area. Located west of the site along the Hudson River waterfront, it connects with the Cross Bronx Expressway and the New Jersey Turnpike (via the George Washington Bridge) to the north, as well as the Gowanus and Brooklyn-Queens Expressway (via the Brooklyn Battery Tunnel) to the south. The northbound exit and southbound entrance ramps are located at the southwest corner of the project site at St. Clair Place. The northbound entrance and southbound exit ramps are located at the northwest corner of the project site at West 133rd Street.

Local through routes connecting to the Project Area include West 125th Street, Broadway, Amsterdam Avenue, and Riverside Drive. West 125th Street is a major crosstown roadway operating east-west with two moving lanes in each direction. On-street parking is permitted on both sides of the street. Broadway, a designated New York City Department of Transportation (NYCDOT) truck route, is a major north-south thoroughfare adjacent to the project site. Two moving lanes are available in each direction, and on-street parking is permitted on both sides of the street. Within the primary study area, the No. 1 subway operates on an elevated viaduct above Broadway between West 122nd and West 135th Streets. Amsterdam Avenue, also a designated NYCDOT truck route, is a two-way, four-lane arterial serving north-south traffic, with on-street parking permitted on both sides of the street. Riverside Drive is a major north-south, four-lane arterial elevated above Twelfth Avenue and connects to the local street network at St. Clair Place and West 135th Street. Within the study area, parking is permitted on both sides of Riverside Drive. In addition to these through routes, Twelfth Avenue and Marginal Street facilitate access to and from the Henry Hudson Parkway and circulation for local traffic. Twelfth Avenue is a two-lane, north-south roadway beneath the Riverside Drive viaduct from St. Clair Place to West 135th Street, with parking permitted on both sides. North of West 135th Street, it is one-way southbound. Marginal Street, operating southbound with two to three travel lanes between West 133rd Street and St. Clair Place, borders the waterfront and serves as the connecting roadway to the Henry Hudson Parkway on- and off-ramps.

OPERATIONAL ANALYSIS METHODOLOGY

SIGNALIZED INTERSECTION CAPACITY ANALYSIS

The operation of signalized intersections within the study area was analyzed in accordance with CEQR guidelines by applying the methodologies presented in the 2000 *Highway Capacity Manual (HCM)*, using Highway Capacity Software (HCS) 2000 Version 4.1e. This procedure evaluates signalized intersections for average delay per vehicle and level of service (LOS).

LOS for signalized intersections are based on the average stopped delay per vehicle for the various lane group movements within the intersection. This delay is the basis for an LOS determination for individual lane groups (grouping of movements in one or more travel lanes), the approaches, and the overall intersection. The LOS criteria for signalized intersections are defined in Table 17-1:

Table 17-1
Level of Service Criteria for Signalized Intersections

LOS	Average 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

Sources: 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 an approach or the whole 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. The midpoint of this service level (45 seconds of delay) is considered the threshold of acceptable operating conditions. Conditions at LOS E and F reflect poor service levels, and cycle failures are frequent. The HCM methodology provides for a summary of the total intersection operating conditions, by identifying the two critical movements (the worst-case from each roadway) and calculating a summary of critical v/c ratio, delay, and LOS.

Significant Impact Criteria

According to the criteria presented in the *CEQR Technical Manual*, impacts are considered significant and require examination of mitigation if they result in an increase in the Build condition of 5 or more seconds of delay in a lane group over No Build levels beyond mid-LOS D. For No Build LOS E, a 4-second increase in delay is considered significant. For No Build LOS F, a 3-second increase in delay is considered significant. Also, if the No Build 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. In addition, impacts are considered significant if levels of service deteriorate from acceptable A, B, or C in the No Build condition to marginally unacceptable LOS D (a delay in excess of 45 seconds, the midpoint of LOS D), or unacceptable LOS E or F in the future Build condition. The above sliding scale is applicable only if the Proposed Actions are projected to generate five or more vehicle trips through the affected lane group in the peak hour.

UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS

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 in Table 17-2.

Table 17-2
Level of Service Criteria for Unsignalized Intersections

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

Source: Transportation Research Board. *Highway Capacity Manual*, 2000.

The LOS thresholds for unsignalized intersections are different from those for signalized intersections. The primary reason is that drivers expect different levels of performance from different types of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. 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.

Significant Impact Criteria

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

PARKING CONDITIONS ASSESSMENT

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

Outside of the Manhattan central business district (CBD), a parking shortfall that exceeds the number of off-street parking spaces and more than half the available on-street spaces within ¼ mile of the project site may be considered significant. However, smaller shortfalls may be deemed insignificant. In some cases, if the shortfalls could be accommodated by parking spaces within ½ mile, the parking impacts may not necessarily be considered significant.

For the Proposed Actions, on-street and off-street parking shortfalls would occur within ¼ mile from the Project Area boundaries. Therefore, the parking study area was extended to a ½-mile radius for both on-street and off-street parking analyses. However, due to the small number of off-street parking facilities within this ½-mile radius, some of which would be displaced by the Proposed Actions, and the sheer size of the development Project Area, the off-street parking analysis was further extended to 1 mile from the Project Area boundaries to identify potential off-street parking supply. Furthermore, since there would be adequate on-site parking to accommodate all off-street demand resulting from the Proposed Actions, this extension of the off-street parking study area was determined to be appropriate in identifying potential off-street parking impacts.

TRAFFIC SAFETY EVALUATION

An evaluation of traffic safety is necessary for locations within the traffic study area that have been identified as high accident locations, where five or more pedestrian accidents in any year in the most recent three-year period were recorded. For these locations, accident trends would be identified to determine whether projected vehicular and pedestrian traffic would further impact safety at these locations or whether existing unsafe conditions could adversely impact the flow of the projected new trips. The determination of potential significant safety impacts is often subjective and depends largely on the type of area where the Proposed Actions are anticipated to occur. For example, in busy Manhattan midtown and downtown areas, where vehicular and pedestrian activities are high and motorists and pedestrians are acclimated to travel under congested conditions, it is unlikely that significant safety impacts would be determined even if the Proposed Actions are anticipated to generate a substantial amount of vehicular and pedestrian traffic. On the other hand, in quiet residential neighborhoods, if substandard roadway geometry had historically resulted in unsafe crossing, even nominal increases in activities anticipated from the Proposed Actions may adversely affect safety and constitute significant safety impacts.

TRAVEL DEMAND PROJECTIONS

The projection of future trips incorporated background growth, No Build projects that are expected to be completed absent the Proposed Actions by the respective 2015 and 2030 future analysis years, and the reasonable worst-case transportation scenario (as defined in Table 17-3) developed for the Proposed Actions. Details related to the development of travel demand estimates for the No Build projects and uses programmed as part of the Proposed Actions are discussed below.

Table 17-3
Comparison of Transportation Analysis Scenarios

Use	Illustrative Plan (gsf)	Maximum Build-Out (gsf)	Minimum Build-Out (gsf)	Reasonable Worst-Case Transportation Scenario	
				2015	2030
Academic Mixed-Use Area (Subdistrict A)					
Community Facility Uses					
Academic Research	2,596,957	2,700,000	960,000	337,990	2,367,931
General or Other Academic	1,266,928	2,000,000	1,000,000	705,000	2,000,000
Columbia University Housing	582,115	1,300,000	350,000	0	350,000
Recreation	239,313	350,000	0	0	0
Commercial Uses					
Active Ground-Floor Uses (Retail)	162,618	600,000	130,000	60,449	130,000
Primary Space Subtotal	**4,847,931**	**--**	**--**	**1,103,439**	**4,847,931**
Below-Grade Support Uses					
Research Support	296,201			58,563	296,201
Academic Program	69,830			69,830	69,830
Swimming and Diving Center	145,431			0	145,431
Parking and Loading/Service/Storage	1,403,996			125,932	1,403,996
Centralized Steam/Chilled Water Plant	70,199			50,870	70,199
Support Space Subtotal	**1,985,657**			**305,195**	**1,985,657**
Grand Total	**6,833,588**	**--**	**--**	**1,408,634**	**6,833,588**

Non-University Rezoning Areas	Residential	Office	Retail	Health Center
Subdistrict B	0	55,000 gsf	125,000 gsf	0
Other Area	99 DU	0	18,000 gsf	62,000 gsf

NO BUILD PROJECTS

Typically, No Build projects within ½ mile of a project site are incorporated into the future No Build condition. For the Proposed Actions, since the traffic study areas defined earlier encompass intersections within a large area in upper Manhattan, No Build projects beyond the typical ½ mile were included. Figure 17-2 provides an illustration of these future developments. All of the No Build sites are anticipated to be completed on or before the initial analysis year 2015[1]. Trips generated by each of the No Build projects were developed based on information provided in approved studies, including the *Retail and Industrial Zoning Text Amendments FGEIS* (1996), *Harlem Park Development EAS* (2004), *Harlem Center Project EAS* (1999), *East River Plaza FEIS* (1999), *East Harlem Rezoning EAS* (2003), and *Frederick Douglass Rezoning EAS* (2004), standard references, such as the *CEQR Technical Manual*, Pushkarev and Zupan's *Urban Space for Pedestrians*, and the U.S. census database. For the six Columbia University buildings included in the No Build analysis, trip projections also accounted for information obtained from the Columbia University Department of Facilities Planning and Space Management and from the April/May 2004 on-line travel survey (to be discussed under the Build trip estimates). Brief discussions of these No Build projects and their corresponding trip generation characteristics are provided below. Some projects listed were anticipated for

[1] The 125th Street Corridor Rezoning and Related Actions project is expected to be completed in 2017. For a conservative analysis, its projected trips were incorporated into the 2015 analysis; however, the mitigation measures proposed to alleviate impacts related to these trips in the DEIS for the rezoning were incorporated only into the 2030 analysis.

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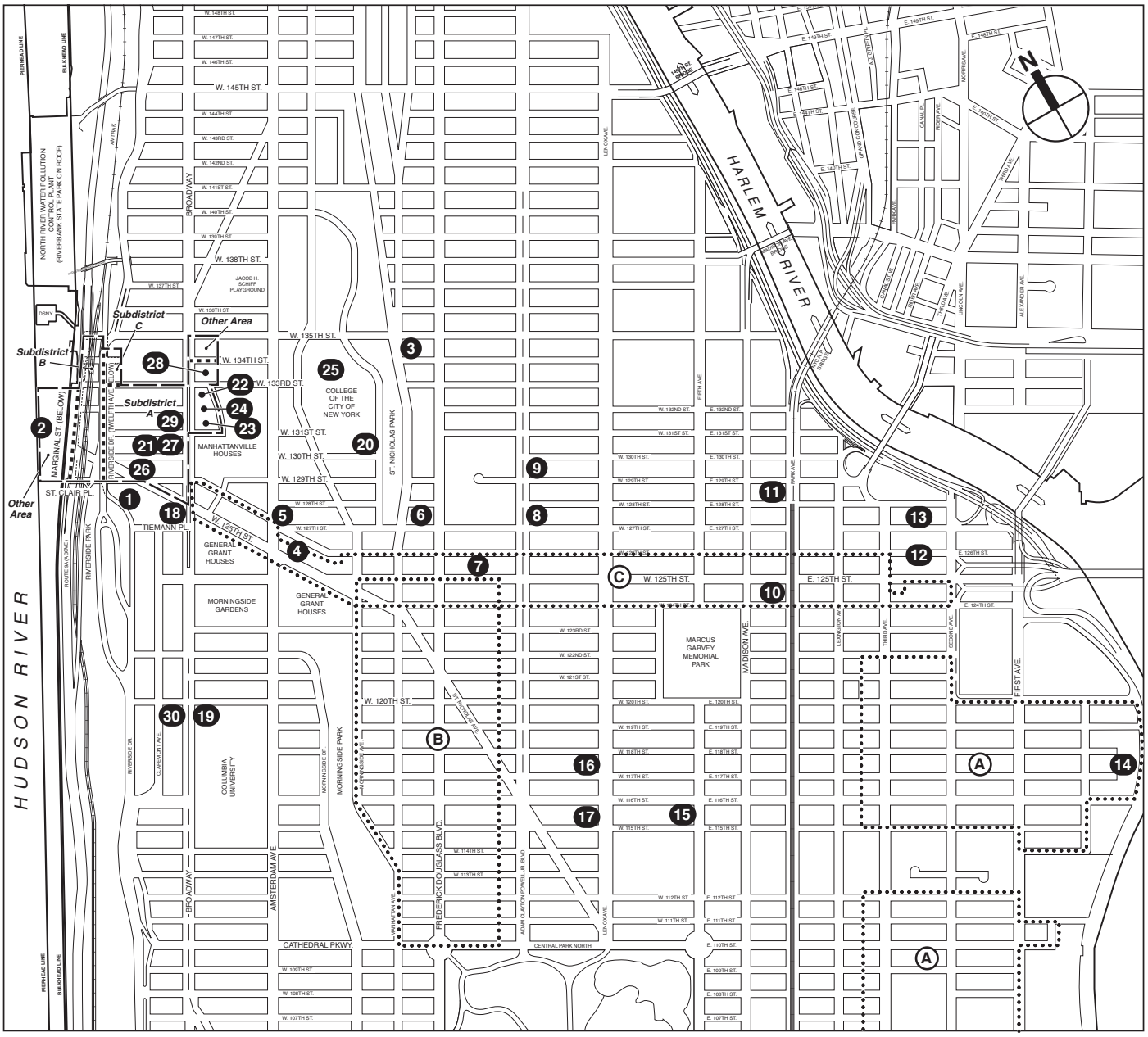


Project and Rezoning Area Boundary

Subdistrict Boundaries

Development Projects (2015)

Area-Wide Rezoning Projects (2015)

Figure 17-2

Traffic Study Area: Developments Proposed or Under Construction for 2015 and 2030

completion during the preparation of this study. Because data collection occurred before the completion of these projects, projected traffic volumes for these projects were included in the No Build analysis.

1. 560 Riverside Drive: Located between St. Clair Place and Tiemann Place, this Columbia University housing complex would be renovated, resulting in the addition of a new entrance on West 125th Street. No alteration to the existing use and no incremental trips would be generated with this project.

2. Harlem Piers: Located along the Hudson River between West 125th and West 137th Streets, this project would result in noticeable improvements to the existing waterfront destinations by enhancing the piers and recreational open space with a gateway plaza and landscaped areas. The new Harlem Piers, containing approximately 120,400 gross square feet (gsf) of waterfront open space, 9,000 gsf of site building, and one ferry slip, would function as passive parkland and primarily serve the surrounding communities. Scheduled for completion in 2008, this project is expected to generate 154 AM, 156 midday, and 171 PM peak hour person trips, and 9 AM, 16 midday, and 16 PM peak hour vehicle trips.

3. Striver's Garden: Located on Frederick Douglass Boulevard at West 135th Street, this project would contain 46,000 gsf of ground-floor retail and 170 residential condominium or cooperative units. Completed in 2005, it is expected to generate 193 AM, 478 midday, and 357 PM peak hour person trips, and 31 AM, 36 midday, and 39 PM peak hour vehicle trips.

4. Citarella: Located on West 126th Street between Morningside and Amsterdam Avenues in the former Taystee factory, this project is scheduled for completion sometime before 2015. The trip generation estimates assumed the 80,000-gsf building to be comprised of 50,000-gsf of office space and 30,000-gsf of retail space. Under this assumption, 170, 411 and 243 person trips, and 32, 35 and 31 vehicle trips would be generated during the AM, midday and PM peak hours, respectively.

5. Mink Building: Located on Amsterdam Avenue between West 126th and West 128th Streets, this project would entail the reuse of an existing 120,000-gsf building for new office space. Scheduled for completion in 2008, it is expected to generate 302, 337, and 255 person trips, and 70, 47, and 56 vehicle trips during the AM, midday, and PM peak hours, respectively.

6. West 127th Street Cornerstone: Occupying the entire block bounded by St. Nicholas Avenue, Frederick Douglass Boulevard, West 127th Street, and West 128th Street, this project would contain 40,000 gsf of commercial space and 200 residential units. Expected to be completed in 2010, it would generate estimated 205, 436, and 355 person trips, and 30, 32, and 35 vehicle trips during the AM, midday, and PM peak hours, respectively.

7. Mart 125: Located on West 125th Street between Frederick Douglass and Adam Clayton Powell Jr. Boulevards, this project is scheduled for completion before 2015. While the precise mixture of uses is not yet determined, it is assumed, for trip generation purposes, to include 40,000 gsf for office use and 10,000 gsf of retail space. Overall, 115, 202, and 131 person trips, and 27, 21, and 22 vehicle trips during the AM, midday, and PM peak hours, respectively, are anticipated for this project.

8. Harlem Dowling: Located along Adam Clayton Powell Jr. Boulevard at West 127th Street, this project is scheduled for completion prior to 2015. The 35,000-gsf commercial development would be 10 stories high and is expected to include ground-level retail uses. For trip generation purposes, it is assumed to contain 31,000 gsf for office use and 4,000 gsf

of retail space. Due to its proximity to No Build site No. 9, trip projections for the two sites were combined, as described below.

9. United City Methodist Society: Located along Adam Clayton Powell Jr. Boulevard between West 129th and West 130th Streets, this six-story, mixed-use building, which is expected to be completed before 2015, would feature ground-floor commercial uses and community facility space totaling 34,200 gsf, and 40 residential dwelling units. Combined with No Build site No. 8, the total development program would include 65,200 gsf of office space (community facility space assumed as office space for trip generation purposes), 4,000 gsf of retail space, and 40 residential units. It is estimated that the two projects would generate 199, 235, and 190 person trips, and 51, 29, and 40 vehicle trips during the AM, midday, and PM peak hours, respectively.

10. Harlem Park: Located on the southwest corner of Park Avenue and East 125th Street, the original project would contain 230 hotel rooms, 146,000 gsf of office space, 69,000 gsf of neighborhood retail space, and 100 residential dwelling units. Although the project was scheduled for completion in 2005, it has not yet begun construction, and the programming of on-site uses has recently been changed to include only office space, totaling approximately 600,000 gsf. Since no further environmental review was required for this change in use, previous trip projections and analysis conclusions are likely to remain similar with the new plan. For trip generation purposes, the original program, as described above and analyzed in the *Harlem Park Development EAS*, was assumed. In total, this project is expected to generate 915, 3,232, and 1,916 person trips, and 97, 157, and 125 vehicle trips during the AM, midday, and PM peak hours, respectively.

11. Vincent Cyrus Plaza: Located along East 128th Street between Madison and Park Avenues, this project, which has been completed, contains 104 units of low-income housing. Trip estimates show that 76, 40, and 90 person trips, and 10, 4, and 12 vehicle trips during the AM, midday, and PM peak hours, respectively, would be generated.

12. East 125th Street Development Project: Located between Second and Third Avenues and bounded by East 124th and East 127th Streets, this potential development, scheduled for completion in 2012, encompasses several parcels that could total approximately 300,000 gsf of media/office space, a 30,000-gsf cultural facility (500-seat auditorium), 470,000 gsf of destination retail/entertainment space, a 100,000-gsf hotel with approximately 130 rooms, and up to 1,000 residential units. Based on the transportation planning assumptions that accompanied this project's draft scoping document, the proposed development components are estimated to generate 2,345, 4,790, and 5,371 person trips and 321, 625, and 767 vehicle trips during the AM, midday, and PM peak hours, respectively.

13. Harlem Auto Mall: Located between Second and Third Avenues and bounded by East 127th and East 128th Streets, this Potamkin Development Company-sponsored project would entail 180,000 gsf of showroom, auto service, and repair facilities. Completed in March 2006, the projected increments of 54, 69, and 96 vehicle trips during the AM, midday, and PM peak hours, respectively, as summarized in the approved *Harlem Auto Mall EAS* were incorporated into the No Build traffic analysis networks.

14. East River Plaza: Located adjacent to the FDR Drive between East 116th and East 119th Streets, this big box retail project would include approximately 500,000 gsf of retail space to house, among others, Home Depot and Costco stores. In addition, the development program would include 24,500 gsf of office space and a 1,250-car garage. Scheduled for completion before 2015, East River Plaza is estimated to generate 4,687 person trips and 1,688 vehicle

trips during the midday peak hour, and 4,547 person trips and 1,621 vehicle trips during the PM peak hour.

15. Malcolm Shabazz Merchants Market: Located along Fifth Avenue between 115th and 116th Streets, this project, scheduled for completion before 2015, would result in up to 150 residential dwelling units. Due to its proximity to No Build sites No. 16 and 17, trip projections for the three sites were combined, as described below.

16. Shabazz Gardens: Located along Malcolm X Boulevard (Lenox Avenue) between West 117th and West 118th Streets, this mixed-use project, which is currently under construction, would contain 170 residential units and 12,000 gsf of retail space. Due to its proximity to No Build sites No. 15 and 17, trip projections for the three sites were combined, as described below.

17. The Kalahari: Located along Malcolm X Boulevard (Lenox Avenue) at West 116th Street, this project, scheduled to open in December 2007, would contain 249 condominium units, an independent film center, education center, and a gym (analyzed as 265 dwelling units and approximately 50,000 gsf of retail space). Combined with No Build sites No. 15 and 16, the total development program would include 585 residential units and 62,000 gsf of retail space. It is estimated that the three projects would generate 521, 780, and 788 person trips, and 62, 58, and 72 vehicle trips during the AM, midday, and PM peak hours, respectively.

18. New Columbia Academic Building: Located at the southwest corner of Broadway and West 125th Street, this new 250,840-gsf academic building would replace the existing uses and is expected to be completed in 2010. It would result in 421 person trips during both the AM and PM peak hours, and 422 person trips during the midday peak hour. Additionally, 57, 28, and 56 vehicle trips would be made during the AM, midday, and PM peak hours, respectively. In the Build condition, the academic use within this building would be reduced to 154,240 gsf, with the remaining space accommodating No Build site No. 22.

19. New Columbia Academic/Research Building: Located at the southeast corner of Broadway and West 120th Street, this new 170,000-gsf academic/research building is expected to be completed in 2010. The new space would accommodate primarily existing population within the Columbia University Morningside Campus. Based on information provided by Columbia University, only a minimal number of new users would be generated by the operation of this new building. The additional trips associated with these new users were assumed to be part of the background growth.

20. City College Dormitory: Located on St. Nicholas Terrace at West 130th Street, this project comprises a 600-bed dormitory for City College students and housing for up to five faculty members. Scheduled for completion in 2006, it is expected to generate 259 AM, 134 midday, and 304 PM peak hour person trips, and 6 AM, 4 midday, and 6 PM peak hour vehicle trips.

21. New Columbia Administrative Building (the Studebaker Building): Located on West 131st Street, between Broadway and Twelfth Avenue, the existing building would be converted into 220,500 gsf of office and accessory space for Columbia University administrative use. Scheduled for completion in 2008, this building is expected to generate 559, 364, and 559 person trips, and 111, 32, and 103 vehicle trips during the AM, midday, and PM peak hours, respectively.

22. Science, Math and Engineering Secondary School: Located on the east side of Broadway on the existing U-Haul site, between West 132nd and West 133rd Streets, a 90,000-gsf public school would be constructed for grades 6-12, accommodating 650 to 700 students and 35 to 45

staff/faculty members. Scheduled for completion sometime before 2015, it is expected to generate 637 AM and mid-afternoon peak hour person trips, and 112 AM and mid-afternoon peak hour vehicle trips. In the Build condition, this school would relocate to No Build site No. 18.

23. New Columbia Office Building: Located on Broadway, between West 131st and West 132nd Streets, the existing former Warren Nash Service Station building would be converted into approximately 208,000 gsf of office space for use by Columbia University. Scheduled for completion sometime before 2015, it is expected to generate 526 AM, 342 midday, and 527 PM peak hour person trips, and 105 AM, 32 midday, and 97 PM peak hour vehicle trips. In the Build condition, this use would be replaced by a component of the Proposed Actions.

24. New Columbia Office Building: Located on the east side of Broadway on the existing U-Haul site, between West 132nd and West 133rd Streets, a new 127,296-gsf Columbia University office building would be constructed, along with No Build site No. 22. Scheduled for completion sometime before 2015, it is expected to generate 323 AM, 210 midday, and 323 PM peak hour person trips, and 64 AM, 20 midday, and 59 PM peak hour vehicle trips. In the Build condition, this use would be replaced by a component of the Proposed Actions.

25. CUNY Research Buildings & Building Conversions: Within City College's South Campus, approximately 350,000 gsf of research facilities for use by City College would be constructed between 2010 and 2013. These uses are expected to generate 785 AM, 682 midday, and 784 PM peak hour person trips, and 125 AM, 48 midday, and 124 PM peak hour vehicle trips.

26. Project Area Rezoning A: Located at 655 West 125th Street, a rezoning application has been filed to convert the existing use to yield approximately 53,000 gsf of added office space or 54 new residential units. This potential use, if approved, could be completed sometime before 2015. However, since this No Build project would be replaced by a component of the Proposed Actions and its exact use is speculative, it was not included in the analysis.

27. Project Area Rezoning B: Located at 614 West 131st Street, a rezoning application has been filed to convert the existing use to yield approximately 10,000 gsf of added office space or 25 new residential units. This potential use, if approved, could be completed sometime before 2015. However, since this No Build project would be replaced by a component of the Proposed Actions and its exact use is speculative, it was not included in the analysis.

28. Project Area Rezoning C: Located at 3300-3320 Broadway, a rezoning application has been filed to convert the existing use to yield approximately 120,000 gsf of added office space or 116 new residential units and 36,000 gsf of retail space. This potential use, if approved, could be completed sometime before 2015. However, since this No Build project would be replaced by a component of the Proposed Actions and its exact use is speculative, it was not included in the analysis.

29. Project Area Rezoning D: Located at 3261 Broadway, a rezoning application has been filed to convert the existing use to yield approximately 40,200 gsf of added office space or 66 new residential units and 20,000 gsf of retail space. This potential use, if approved, could be completed sometime before 2015. However, since this No Build project would be replaced by a component of the Proposed Actions and its exact use is speculative, it was not included in the analysis.

30. Barnard Student Center: Located along Broadway south of West 120th Street, an 80,000-gsf Nexus building would be constructed to replace the existing McIntosh Center as Barnard's

campus resource center. The building would include space for a small number of classrooms, academic departments, dining facilities, two event-hall theaters, and a 100-seat black box theater. Anticipated for completion in 2009, this facility would largely result in a reallocation of existing trips within the Barnard campus and not result in added trips to the study area.

A. East Harlem Rezoning: Recently approved and expected to be completed prior to 2015, this rezoning project would involve residential (totaling 2,519 dwelling units) and neighborhood retail developments on 56 blocks in East Harlem, generally bounded by East 122nd Street, Pleasant Avenue, 100 feet east of Lexington Avenue, and East 99th Street. In total, 1,851, 956, and 2,177 person trips, and 245, 130, and 271 vehicle trips were estimated for the AM, midday and PM peak hours, respectively.

B. Frederick Douglass Boulevard Rezoning: Recently approved and expected to be completed prior to 2015, this rezoning project would allow for increases in residential density and extension of existing commercial overlay on West 116th Street. The rezoning area is bounded by Adam Clayton Powell Jr. Boulevard to the east and Morningside Avenue to the west, between West 110th and West 124th Streets. In total, 1,830 residential dwelling units and nearly 135,000 gsf of retail space would be developed, resulting in 2,930, 4,552, and 4,899 non-vehicle trips, and 126, 181, and 184 vehicle trips during the AM, midday and PM peak hours, respectively.

C. 125th Street Corridor Rezoning and Related Actions: The DEIS for this project was issued in October 2007. Once approved, a two-block-wide corridor centered on 125th Street, from Broadway to Second Avenue, would be rezoned and construction is anticipated to be completed by 2017. The DEIS identifies 26 projected development sites in the rezoning area. For analysis purposes, the development was assumed for the 2015 analysis year.

PROPOSED ACTIONS

Future trips associated with the Proposed Actions were derived through a vigorous process of determining the reasonable worst-case transportation scenario, developing trip rates for various Columbia University uses and population components, and interpreting travel characteristics through an on-line travel survey and review of other approved documents.

Reasonable Worst-Case Transportation Scenario

As described in Chapter 1, the Academic Mixed-Use Area, or Subdistrict A, would facilitate, with the Proposed Actions' Illustrative Plan, five different above-grade uses, including academic research, academic, housing for graduate students, faculty, and other employees, recreation, and retail. Below grade, additional space would be created for academic and academic research support, as well as to provide parking, loading/service/storage, central energy plants, and a swimming and diving center. In total, approximately 6.8 million gsf of development space would be constructed.

Based on trip generation rates developed for each of the possible development components (discussed in further detail in the next section), iterations of estimating future trips for different combinations of space allocation were conducted to determine a reasonable worst-case transportation scenario for impact assessment of transportation-related elements in the 2015 Phase 1 build-out and the 2030 final analysis year. In addition, the remaining parcels within the overall 35-acre rezoning area were assumed to be completed in a similar timeframe as the 2015 Phase 1 build-out. These remaining developable parcels, divided into Subdistricts B and Other Area, respectively, include 55,000 gsf of office and 125,000 gsf of retail developments west of the Academic Mixed-Use Area, across Twelfth Avenue, and 99 residential units, 18,000 gsf of retail development, and a 62,000-gsf health center, all to the northeast across Broadway.

Overall, the transportation analysis accounted for nearly 2.7 million gsf of academic research facilities, just over 2.0 million gsf of academic building space, 350,000 gsf of housing for graduate students, faculty, and other employees, 130,000 gsf of ground-floor retail, and 440,000 gsf of surrounding mixed-use developments. A summary of the above breakdown and comparisons with the Illustrative Plan is shown in Table 17-3.

Trip Generation Estimates

The projection of future trips associated with the Proposed Actions accounted for general travel characteristics related to typical uses as well as those specific to Columbia University facilities and users. In addition to information presented in standard references and approved studies, new data on travel rates and characteristics were attained through in-depth consultations with Columbia University officials and through an on-line survey of Columbia University faculty, administrators, other employees, and students. The consultations provided key information on the users of different University facilities, such as population distribution, absentee rates, class/work schedules, and average visitations, while the on-line survey generated valuable data on the travel characteristics for specific user groups, including modal split, housing information, geographical distribution, and parking patterns. Trip rates for employees (faculty, post-doctorate researchers, researchers, and administrators) were based on these surveys and on existing density ratios in Columbia facilities. Trip rates for graduate students were based on these surveys and on projections of future graduate student populations at Manhattanville. Collectively, these efforts provided the basis for developing the trip estimates for different components of the University development assumed in the reasonable worst-case transportation scenario.

In 2015, with five of the 18 buildings scheduled to be completed, 2,780 students and 1,716 employees (faculty, post-doctorate researchers, researchers, administrators, and non-Columbia employees) were projected for the Illustrative Plan. Upon the completion of the remaining 13 buildings in 2030, the total campus population would be 4,322 students and 6,411 employees. For the analysis of the reasonable worst-case transportation scenario, the number of students would remain the same as projected, regardless of the mix of potential uses assumed for each of the proposed buildings. However, employee population would vary from the Illustrative Plan, as discrete density ratios (i.e., population per 1,000 gsf) among different personnel groups at different building types were used to project the total population under this reasonably conservative transportation analysis scenario.

To determine travel characteristics of different users within the Columbia University community, an on-line travel survey was administered over a three-week period in the spring of 2004. The survey was designed for all Columbia University personnel and students based at the Morningside and Medical Center campuses. Overall, responses were received from just under 25 percent of the target population. The results show that approximately 25 percent of all employees and 5 percent of all students travel via auto. Transit shares, which include subway and bus trips, make up nearly 50 and 35 percent of the total employee and student trips, respectively. With over half of all students residing in University housing or dormitory, travel on foot to and from University facilities is their primary mode of travel (56 percent), while the walk only mode comprises only 18 percent of the total employee trips. These statistics were further dissected to reflect specific travel patterns for different University affiliations. For example, the faculty has an auto rate of 35 percent, while administrators and other employees have rates of 23 and 13 percent, respectively. Graduate and professional students have a combined auto rate of over 6 percent, while undergraduate students have a rate of around 3 percent. A memorandum summarizing the planning and administration of the survey and the survey results is included in Appendix H.

Based on the information provided by Columbia University's Department of Facilities Planning and Space Management, the above travel patterns, and reasonable assumptions, transportation characteristics were developed for each of the University personnel groups. For example, the absentee rates for graduate students, post-doctorate and general researchers, and administrators were projected at 5 percent, with the faculty reaching a 20 percent absentee rate. Each member of these personnel groups was assumed to make 3.5 trips a day. These trips encompass commuting to and from the campus and 75 percent of the total population making other discretionary two-way trips (i.e., lunch) during the course of day. In terms of trip distribution, graduate students and faculty members are expected to have a more evenly distributed arrival or departure pattern while researchers and administrators would tend to adhere to a more regular schedule and arrive or depart during a smaller window of time. These characteristics, along with those associated with daily visitations, truck deliveries, university housing, and retail uses are summarized in Tables 17-4a and 17-4b. Total projected trips for the 2015 and 2030 analysis years are presented in Tables 17-5 and 17-6, respectively. As part of the transportation analyses, 12 University-operated shuttle bus trips were assumed for serving the projected shuttle trips during each of the analysis hours.

Table 17-4a
Travel Demand Assumptions for Columbia University Personnel

Daily Trip Rates

	Graduate Students (1,6)	Faculty (1,6)	Researchers (1,6)	Adminstrators (1,6)	Visitors (1) Res	Visitors (1) Acad
Person Trips	3.5	3.5	3.5	3.5	0.3	0.4
Absentee Rate	5%	20%	5%	5%	---	

All rates are per person, except for visitors (per 1,000 gsf) for academic research and academic buildings

Modal Split

	Graduate Student (2,4)		Faculty (2,4)		Researchers (2,4)		Adminstrators (2,4)		Visitors (4,6)	
	AM/PM	MD	AM/PM	MD	AM/PM	MD	AM/PM	MD	AM/PM	MD
Auto	6.0%	5.0%	35.0%	5.0%	15.9%	5.0%	20.4%	5.0%	25.0%	5.0%
Taxi	2.5%	2.0%	3.5%	2.0%	0.5%	2.0%	1.5%	2.0%	2.0%	2.0%
Subway	40.0%	10.0%	31.0%	10.0%	49.0%	10.0%	49.5%	10.0%	50.0%	10.0%
Bus	3.5%	5.0%	4.5%	5.0%	6.0%	5.0%	10.5%	5.0%	11.0%	5.0%
Shuttle	1.0%	3.0%	2.0%	3.0%	6.0%	3.0%	2.0%	3.0%	2.0%	3.0%
Commuter Rail	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Walk Only	47.0%	75.0%	24.0%	75.0%	22.6%	75.0%	16.1%	75.0%	10.0%	75.0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Vehicle Occupancy

	Graduate Students (2)	Faculty (2)	Researchers (2)	Adminstrators (2)	Visitors (2)
Auto	1.20	1.20	1.20	1.20	1.20
Taxi/Black Car	1.30	1.30	1.30	1.30	1.30

All vehicle occupancy figures are persons per vehicle

Temporal Distribution

	Graduate Students (3,5)			Faculty (3,5)			Researchers (3,5)			Administrators (3,5)			Visitors (5)		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
AM Peak Hour	7.0%	95.0%	5.0%	11.0%	95.0%	5.0%	19.0%	95.0%	5.0%	21.0%	95.0%	5.0%	15.0%	90.0%	10.0%
Midday Peak Hour	9.0%	50.0%	50.0%	9.0%	50.0%	50.0%	13.0%	50.0%	50.0%	13.0%	50.0%	50.0%	15.0%	50.0%	50.0%
PM Peak Hour	7.0%	10.0%	90.0%	11.0%	10.0%	90.0%	19.0%	10.0%	90.0%	21.0%	10.0%	90.0%	15.0%	10.0%	90.05

Source:
(1) *Columbia University Department of Facilities Planning and Space Management (July 2004, June 2006)*
(2) *Columbia University On-line Travel Survey (April/May 2004)*
(3) *Audubon IV EAS (December 2002)*
(4) *Midday percentages derived from various sources and AKRF assumptions*
(5) *Weighted percentages and Columbia University/AKRF assumptions*
(6) *AKRF assumptions*

Table 17-4b
Travel Demand Assumptions for Columbia University Components

Daily Trip Rates	Academic Research (1,2)	Academic (3)	University Housing (4,5)	Retail (9,11)
Person Trips	---	---	4.0	47.42
Truck Trips	0.10	0.03	0.03	0.35

All rates are per 1,000 gsf, except for University Housing (per dwelling unit)

Modal Split	University Housing (6)		Retail (9)	
	AM/PM	MD	AM/PM	MD
Auto	12.0%	12.0%	2.0%	2.0%
Taxi	3.0%	3.0%	3.0%	3.0%
Subway	40.0%	40.0%	20.0%	20.0%
Bus	12.5%	12.5%	5.0%	5.0%
Shuttle	2.0%	2.0%	0.0%	0.0%
Commuter Rail	1.5%	1.5%	0.0%	0.0%
Walk Only	29.0%	29.0%	70.0%	70.0%
Total	100%	100%	100%	100%

Vehicle Occupancy	University Housing (6,7)	Retail (10)
Auto	1.20	1.60
Taxi/Black Car	1.20	1.20

All vehicle occupancy figures are persons per vehicle

Temporal Distribution	University Housing (8)			Retail (9)		
	Total	In	Out	Total	In	Out
AM Peak Hour	9.1%	20.0%	80.0%	3.1%	50.0%	50.0%
Midday Peak Hour	4.7%	51.0%	49.0%	19.0%	50.0%	50.0%
PM Peak Hour	10.7%	65.0%	35.0%	9.6%	50.0%	50.0%

Delivery Trip Distribution (In/Out)	Academic Research (1)	Academic (1)	University Housing (4)	Retail (9)
AM Peak Hour	9.7%	9.7%	9.7%	8.0%
Midday Peak Hour	9.1%	9.1%	9.1%	11.0%
PM Peak Hour	5.1%	5.1%	5.1%	2.0%

Source:
(1) *PCGTM Building for Albert Einstein College of Medicine EAS (May 2004)*
(2) *Adjusted for 50% linkage of research truck deliveries*
(3) *Columbia University School for Social Works (2001)*
(4) *Motor Trucks in the Metropolis (1969), Wilbur Smith Associates*
(5) *4 of 8.075 daily person trips (CEQR) conservatively assumed not to be journey trips to/from University facilities*
(6) *2000 Journey to Work statistics, US Census Bureau; "adjusted percentages used for estimating non-University related trips*
(7) *AKRF assumptions*
(8) *Urban Space for Pedestrians (1975), Pushkarev & Zupan*
(9) *Harlem Park Development EAS (May 2004)*
(10) *Harlem Center Project EA (December 1999)*
(11) *Retail and Industrial Zoning Text Amendments FGEIS (October 1996)*

Table 17-5
2015 Trip Generation Results for Columbia University Components

Person Trips by Mode

Analysis Period and Use	Auto		Taxi		Subway		Bus		Shuttle		Comm Rail		Walk Only		Total		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
AM Peak Hour																	
Research	56	4	4	0	145	8	25	1	9	0	0	0	75	5	314	18	332
Academic	188	11	23	1	491	26	75	3	19	0	0	0	345	21	1141	62	1203
General Support	6	0	0	0	15	1	3	0	1	0	0	0	6	1	31	2	33
University Housing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retail	1	1	1	1	9	9	2	2	0	0	0	0	31	31	44	44	88
Total	**251**	**16**	**28**	**2**	**660**	**44**	**105**	**6**	**29**	**0**	**0**	**0**	**457**	**58**	**1530**	**126**	**1656**
Midday Peak Hour																	
Research	6	6	3	3	14	14	6	6	3	3	0	0	99	99	131	131	262
Academic	28	28	11	11	57	57	28	28	17	17	0	0	426	426	567	567	1134
General Support	1	1	0	0	1	1	1	1	0	0	0	0	7	7	10	10	20
University Housing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retail	5	5	8	8	54	54	14	14	0	0	0	0	189	189	270	270	540
Total	**40**	**40**	**22**	**22**	**126**	**126**	**49**	**49**	**20**	**20**	**0**	**0**	**721**	**721**	**978**	**978**	**1956**
PM Peak Hour																	
Research	6	54	0	4	15	138	2	23	0	8	0	0	10	72	33	299	332
Academic	19	178	3	22	50	466	8	72	1	18	0	0	38	327	119	1083	1202
General Support	1	6	0	0	1	15	0	3	0	1	0	0	1	5	3	30	33
University Housing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retail	3	3	4	4	27	27	7	7	0	0	0	0	96	96	137	137	274
Total	**29**	**241**	**7**	**30**	**93**	**646**	**17**	**105**	**1**	**27**	**0**	**0**	**145**	**500**	**292**	**1549**	**1841**

Vehicle Trips by Type

Analysis Period and Use	Auto		Taxi		Delivery		Shuttle			Total		
	In	Out	In	Out	In	Out	In	Out		In	Out	Total
AM Peak Hour												
Research	47	4	4	4	4	4				55	12	67
Academic	156	10	18	18	2	2				176	30	206
General Support	5	0	0	0	0	0				5	0	5
University Housing	0	0	0	0	0	0				0	0	0
Retail	1	1	1	1	2	2				4	4	8
Total	**209**	**15**	**23**	**23**	**8**	**8**	12	12		**252**	**58**	**310**
Midday Peak Hour												
Research	6	6	3	3	4	4				13	13	26
Academic	24	24	11	11	2	2				37	37	74
General Support	1	1	0	0	0	0				1	1	2
University Housing	0	0	0	0	0	0				0	0	0
Retail	3	3	10	10	2	2				15	15	30
Total	**34**	**34**	**24**	**24**	**8**	**8**	12	12		**78**	**78**	**156**
PM Peak Hour												
Research	6	45	4	4	2	2				12	51	63
Academic	17	147	18	18	1	1				36	166	202
General Support	1	5	0	0	0	0				1	5	6
University Housing	0	0	0	0	0	0				0	0	0
Retail	2	2	4	4	0	0				6	6	12
Total	**26**	**199**	**26**	**26**	**3**	**3**	12	12		**67**	**240**	**307**

Table 17-6
2030 Trip Generation Results for Columbia University Components

Person Trips by Mode

Analysis Period and Use	Auto		Taxi		Subway		Bus		Shuttle		Comm Rail		Walk Only		Total		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
AM Peak Hour																	
Research	355	20	28	1	859	47	150	8	55	3	0	0	377	21	1824	100	1924
Academic	465	26	50	3	1082	60	182	9	45	1	0	0	650	38	2474	137	2611
General Support	38	2	3	0	92	5	20	1	4	0	0	0	29	2	186	10	196
University Housing	5	20	1	5	16	66	5	21	1	3	1	2	12	47	41	164	205
Retail	2	2	3	3	19	19	5	5	0	0	0	0	67	67	96	96	192
Total	**865**	**70**	**85**	**12**	**2068**	**197**	**362**	**44**	**105**	**7**	**1**	**2**	**1135**	**175**	**4621**	**507**	**5128**
Midday Peak Hour																	
Research	35	35	14	14	71	71	35	35	22	22	0	0	523	523	700	700	1400
Academic	57	57	24	24	113	113	57	57	33	33	0	0	841	841	1125	1125	2250
General Support	3	3	1	1	6	6	3	3	2	2	0	0	46	46	61	61	122
University Housing	6	6	2	2	22	21	7	7	1	1	1	1	15	14	54	52	106
Retail	12	12	18	18	117	117	29	29	0	0	0	0	410	410	586	586	1172
Total	**113**	**113**	**59**	**59**	**329**	**328**	**131**	**131**	**58**	**58**	**1**	**1**	**1835**	**1834**	**2526**	**2524**	**5050**
PM Peak Hour																	
Research	39	337	2	25	90	817	16	143	5	52	0	0	40	360	192	1734	1926
Academic	49	443	6	47	114	1027	20	174	5	43	0	0	66	614	260	2348	2608
General Support	4	36	0	3	10	87	2	18	0	4	0	0	4	28	20	176	196
University Housing	19	10	5	3	62	34	20	11	3	2	2	1	45	23	156	84	240
Retail	6	6	9	9	59	59	15	15	0	0	0	0	207	207	296	296	592
Total	**117**	**832**	**22**	**87**	**335**	**2024**	**73**	**361**	**13**	**101**	**2**	**1**	**362**	**1232**	**924**	**4638**	**5562**

Vehicle Trips by Type

Analysis Period and Use	Auto		Taxi		Delivery		Shuttle			Total		
	In	Out	In	Out	In	Out	In	Out		In	Out	Total
AM Peak Hour												
Research	297	17	22	22	25	25				344	64	408
Academic	389	23	39	39	6	6				434	68	502
General Support	32	2	2	2	0	0				34	4	38
University Housing	4	17	4	4	2	2				10	23	33
Retail	1	1	4	4	4	4				9	9	18
Total	**723**	**60**	**71**	**71**	**37**	**37**	12	12		**843**	**180**	**1023**
Midday Peak Hour												
Research	31	31	16	16	24	24				71	71	142
Academic	49	49	27	27	6	6				82	82	164
General Support	3	3	1	1	0	0				4	4	8
University Housing	5	5	3	3	2	2				10	10	20
Retail	8	8	22	22	5	5				35	35	70
Total	**96**	**96**	**69**	**69**	**37**	**37**	12	12		**214**	**214**	**428**
PM Peak Hour												
Research	34	281	20	20	13	13				67	314	381
Academic	42	370	40	40	3	3				85	413	498
General Support	3	30	2	2	0	0				5	32	37
University Housing	16	8	5	5	1	1				22	14	30
Retail	4	4	12	12	1	1				17	17	34
Total	**99**	**693**	**79**	**79**	**18**	**18**	12	12		**208**	**802**	**1010**

Academic Research

Based on the reasonable worst-case transportation scenario, for the 2015 analysis year, the population projected for the trip generation analysis includes 263 graduate students, 79 faculty members, 126 post-doctorate and general researchers, 216 administrators, and 45 other general support employees. Approximately 370 person trips were estimated during each of the AM and PM peak hours, and 280 person trips during the midday peak hour. Accounting also for deliveries, the 2015 vehicle trip projections resulted in approximately 70, 30, and 70 vehicle trips during the AM, midday, and PM peak hours, respectively. For the 2030 analysis year, there would be 642 graduate students, 531 faculty members, 855 post-doctorate and general researchers, 1,388 administrators, and 280 other general support employees. The 2030 projected person-trip totals would be approximately 2,100 during the AM and PM peak hours, and 1,500 during the midday peak hour. The vehicle-trip totals were estimated at approximately 450, 150, and 420 during the AM, midday, and PM peak hours, respectively.

Academic

Based on the reasonable worst-case transportation scenario, for the 2015 analysis year, the population projected for the trip generation analysis includes 2,517 graduate students, 534 faculty members, 53 post-doctorate and general researchers, and 651 administrators. Approximately 1,200 person trips were estimated during each of the AM and PM peak hours, and 1,130 person trips during the midday peak hour. Accounting also for deliveries, the 2015 vehicle trip projections resulted in approximately 210, 70, and 200 vehicle trips during the AM, midday, and PM peak hours, respectively. For the 2030 analysis year, there would be 3,680 graduate students, 1,430 faculty members, 140 post-doctorate and general researchers, and 1,740 administrators. The 2030 projected person-trip totals would be approximately 2,610 during the AM and PM peak hours, and 2,250 during the midday peak hour. The vehicle-trip totals were estimated at approximately 500, 160, and 500 during the AM, midday, and PM peak hours, respectively.

General Support

A general support staff would be required to maintain the various operations on the Manhattanville campus, including the below-grade support uses. For the 2015 analysis year, 47 support employees were projected. These employees were estimated to generate less than 20 to 40 person trips and fewer than 10 vehicle trips during each of the AM, midday, and PM peak hours. For the 2030 analysis year, there would be 280 support employees, resulting in 120 to 200 person trips and fewer than 40 vehicle trips during each of the AM, midday, and PM peak hours.

Housing for Graduate Students, Faculty, and Other Employees

It was assumed that most trips made to and from university housing would be linked to other University facilities within Manhattanville. Starting with the standard CEQR residential rate of 8.075 daily trips per dwelling unit, a conservative credit was taken for the linked trip component, resulting in 4.0 non-University related daily trips per dwelling unit. While the housing to/from University trips would mostly be walk only, the non-Manhattanville trips were assumed to follow journey-to-work patterns for all analysis periods, resulting in modal splits of 12.0 percent by auto and 3.0 percent by taxi. Since university housing within Manhattanville would not be available during the 2015 analysis year in the reasonable worst-case transportation scenario, trip projections were developed only for the 2030 future analysis year. The residential units would generate approximately 210, 110 and 240 person trips during the AM, midday, and PM peak

hours, respectively. Accounting also for deliveries, the 2030 vehicle trip projections resulted in 32, 20, and 30 vehicle trips during the AM, midday, and PM peak hours, respectively.

Active Ground-Floor Uses

The ground floors for most of the planned buildings in Subdistrict A are expected to be configured into storefronts to serve both the Columbia University and the adjacent communities. Possible uses include bookstores, exhibits, local retails, and restaurants. For trip generation purposes, all active ground-floor uses were assumed to retain local retail characteristics, serving primarily Columbia University and the nearby community. Since a substantial amount of linkage is expected for these uses, the *Retail and Industrial Zoning Text Amendments GEIS* rate of 47.42 daily trips per 1,000 gsf was used to project future trips attributed to the retail uses planned for Manhattanville. Peak period modal splits were estimated at 2.0 percent auto and 3.0 percent taxi for all analysis hours. For the 2015 analysis year, approximately 90, 540, and 270 person trips were estimated during the AM, midday, and PM peak hours, respectively. Accounting also for deliveries, the 2015 vehicle trip projections resulted in approximately 10, 50, and 20 vehicle trips over the same time periods. For the 2030 analysis year, there would be approximately 190, 1,170, and 590 person trips during the AM, midday, and PM peak hours. The vehicle-trip totals were estimated at approximately 20, 70, and 30 over the same time periods.

Subdistrict B Developments[1]

As part of the overall proposed rezoning in Manhattanville, office and retail uses could be developed within available parcels between Twelfth Avenue and Marginal Street, from St. Clair Place to West 135th Street.

The CEQR general office rate of 18.0 daily trips per 1,000 gsf was used to project future trips attributed to the office use. Peak period modal splits were estimated at 26.0 percent auto and 0.5 percent taxi during the morning and evening hours, and are expected to be about half via walk only, with only 14.0 percent auto and 1.0 percent taxi, during the midday hours. In total, approximately 140, 160, and 120 person trips were estimated during the AM, midday, and PM peak hours, respectively. Accounting also for deliveries, the office uses would result in approximately 30, 20, and 30 peak hour vehicle trips over the same time periods. It should be noted that commuting trips associated with the non-Columbia-affiliated commercial uses within Subdistrict B were estimated using the 1990 (instead of 2000) census reverse journey-to-work statistics, which for the Manhattanville area were determined to be more comparable with existing characteristics exhibited in areas surrounding Columbia University's Morningside Heights campus.

Using the *Retail and Industrial Zoning Text Amendments GEIS* rate of 47.42 daily trips per 1,000 gsf, the retail space would generate approximately 180, 420, and 570 person trips during the AM, midday, and PM peak hours, respectively. Unlike other retail developments in the Manhattanville Project Area, this retail space is likely to resemble the more destination-oriented retail uses developed within Hudson River Park. Therefore, rates presented in the *Hudson River Park FEIS* (1998) were used to estimate the modal splits for this waterfront retail use. As a

[1] CPC is contemplating certain modifications to Subdistrict B. The proposed modifications would rezone Subdistrict B to a modified M1-2 light manufacturing district to support light manufacturing and retail uses. It is anticipated that this modification would not result in any projected development sites in Subdistrict B. The proposed modifications are more fully described in Chapter 29, "Modifications to the Proposed Actions." Chapter 29 also analyzes the potential environmental impacts that could result from the proposed modifications.

result, peak period modal splits were estimated at 35.0 percent auto and 5.0 percent taxi during all analysis hours. Accounting also for deliveries, the retail uses would result in approximately 60, 130, and 160 vehicle trips during the AM, midday, and PM peak hours, respectively.

Subdistrict C Developments

This subdistrict includes the western end of the block bounded by West 133rd Street, West 134th Street, and Twelfth Avenue, and a small portion of the block to the north. Because the existing uses already exceed what the proposed rezoning would permit for this area, no additional development in this area as a result of the Proposed Actions is assumed.

Other Area Developments

Non-Columbia University uses could also be developed within available parcels in the Other Area. Although the Harlem Piers west of Marginal Street is part of this Other Area, no additional development beyond the currently-under-construction waterfront project is assumed for the Future Without the Proposed Actions in association with that project. East of Broadway on the western portion of the block bounded by West 134th and West 135th Streets, residential dwelling units, retail uses, and a 62,000-gsf health center have been identified as potential development as a result of the Proposed Actions.

The CEQR residential rate of 8.075 daily trips per dwelling unit was used to project future trips attributed to the residential use. Peak period modal splits were estimated at 13.0 percent auto and 2.5 percent taxi during all analysis hours. In total, approximately 70, 40, and 90 person trips were estimated during the AM, midday, and PM peak hours, respectively. Accounting also for deliveries, the residential units would result in between 10 and 15 peak hour vehicle trips during the AM and PM peak hours, and less than five vehicle trips during the midday peak hour.

Using the *Retail and Industrial Zoning Text Amendments GEIS* rate of 47.42 daily trips per 1,000 gsf, the retail space would generate approximately 30, 160, and 80 person trips during the AM, midday, and PM peak hours, respectively. Peak period modal splits were estimated at 2.0 percent auto and 3.0 percent taxi during all analysis hours. Accounting also for deliveries, the retail uses would result in negligible traffic in the morning and evening hours and 10 vehicle trips during the midday peak hour.

The community facility component of the planned development was assumed to serve as a 62,000-gsf neighborhood health center. Using information presented in the *506 East 76th Street Rezoning FEIS* (1999) and *The New York Hospital Program and Facility Development Plan FEIS* (1993), trip rates and travel characteristics were developed for the facility's doctors and staff, patients, and visitors. In total, approximately 290, 520, and 490 person trips were estimated during the AM, midday, and PM peak hours, respectively. Accounting also for deliveries, the health center would generate 90, 140, and 150 vehicle trips over the same time periods.

Tables 17-7 and 17-8 provide summaries of the travel demand assumptions and projected person and vehicle trips discussed above for the potential future developments in Subdistrict B and Other Area.

Table 17-7
Travel Demand Assumptions for Subdistrict B and Other Area

Daily Trip Rates

	Subdistrict B			Other Area			
	Commercial Office (1)	Retail (1,4)	Residential (6,9)	Retail (1,4)	HC: Doctors & Staff (11)	HC: Patients & Visitors (12,13)	All rates are per 1,000 gsf, except for residential (per dwelling unit)
Person Trips	18.0	47.42	8.075	47.42	10.0	59.28	
Truck Trips	0.20	0.35	0.03	0.35	0.00	0.35	

Modal Split

	Subdistrict B						Other Area					
	Commercial Office (2,3)		Retail (5)		Residential (7)		Retail (1)		HC: Doctors & Staff (3,10)		HC: Patients & Visitors (12)	
	AM/PM	MD	AM/PM	MD	AM/PM	MD	AM/PM	MD	AM/PM	MD	AM/PM	MD
Auto	26.0%	14.0%	35.0%	35.0%	13.0%	13.0%	2.0%	2.0%	26.0%	10.0%	32.0%	32.0%
Taxi	0.5%	1.0%	5.0%	5.0%	2.5%	2.5%	3.0%	3.0%	0.5%	0.0%	11.0%	11.0%
Subway	32.5%	21.0%	15.0%	15.0%	52.0%	52.0%	20.0%	20.0%	32.5%	0.0%	20.0%	20.0%
Bus	16.0%	14.0%	10.0%	10.0%	12.5%	12.5%	5.0%	5.0%	16.0%	0.0%	17.0%	17.0%
Shuttle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Commuter Rail	6.0%	0.0%	0.0%	0.0%	1.5%	1.5%	0.0%	0.0%	6.0%	0.0%	0.0%	0.0%
Walk Only	19.0%	50.0%	35.0%	35.0%	18.5%	18.5%	70.0%	70.0%	19.0%	90.0%	20.0%	20.0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Vehicle Occupancy

	Subdistrict B			Other Area			
	Commercial Office (2,3)	Retail (2)	Residential (7,10)	Retail (2)	HC: Doctors & Staff (11)	HC: Patients & Visitors (12)	All vehicle occupancy figures are persons per vehicle
Auto	1.30	1.60	1.20	1.60	1.00	1.60	
Taxi/Black Car	1.40	1.20	1.20	1.20	1.40	1.40	

Temporal Distribution

	Subdistrict B									Other Area								
	Commercial Office (1,2)			Retail (1,5)			Residential (8)			Retail (1)			HC: Doctors & Staff (11)			HC: Patients & Visitors (12)		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
AM Peak Hour	14.0%	95.0%	5.0%	3.1%	50.0%	50.0%	9.1%	15.0%	85.0%	3.1%	50.0%	50.0%	24.0%	100.0%	0.0%	3.7%	85.0%	15.0%
MD Peak Hour	15.6%	36.0%	64.0%	7.1%	50.0%	50.0%	4.7%	50.0%	50.0%	19.0%	50.0%	50.0%	17.0%	50.0%	50.0%	11.3%	65.0%	35.0%
PM Peak Hour	11.8%	11.0%	89.0%	9.6%	50.0%	50.0%	10.7%	70.0%	30.0%	9.6%	50.0%	50.0%	24.0%	50.0%	100.0%	9.3%	60.0%	40.0%

Delivery Trip Distribution (In/Out)

	Subdistrict B			Other Area		
	Commercial Office (1,2)	Retail (1,5)	Residential (9)	Retail (1)	HC: Doctors & Staff	HC: Patients & Visitors (13)
AM Peak Hour	10.0%	8.0%	9.7%	8.0%	--	8.0%
Midday Peak Hour	11.0%	11.0%	7.8%	11.0%	--	11.0%
PM Peak Hour	2.0%	2.0%	5.1%	2.0%	--	2.0%

Source:
(1) *Harlem Park Development EAS (May 2004)*
(2) *Harlem Center Project EA (December 1999)*
(3) *1990 Reverse Journey to Work statistics, US Census Bureau*
(4) *Retail and Industrial Zoning Text Amendments FGEIS (October 1996)*
(5) *Hudson River Park FEIS (May 1998) – adjusted for area characteristics*
(6) *CEQR Technical Manual (2001)*
(7) *2000 Census of Population and Housing, US Department of Commerce, Bureau of Census*
(8) *Urban Space for Pedestrians (1975), Pushkarev & Zupan*
(9) *Motor Trucks in the Metropolis (1969), Wilbur Smith Associates*
(10) *AKRF assumption*
(11) *506 East 76th Street Rezoning FEIS (October 1999)*
(12) *The New York Hospital Program and Facility Development Plan FEIS (January 1993)*
(13) *Curbside Pickup and Delivery and Arterial Traffic Impacts (1981), Federal Highway Administration*

Table 17-8
2015 Trip Generation Results for Subdistrict B and Other Area

Person Trips by Mode

Analysis Period and Use	Auto		Taxi		Subway		Bus		Shuttle		Comm Rail		Walk Only		Total		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
AM Peak Hour																	
Subdistrict B																	
Commercial Office	34	2	1	0	43	2	21	1	0	0	8	0	25	2	132	7	139
Retail	32	32	5	5	14	14	9	9	0	0	0	0	32	32	92	92	184
Other Area																	
Residential	1	8	0	2	16	32	1	8	0	0	0	1	3	11	11	62	73
Retail	0	0	0	0	3	3	1	1	0	0	0	0	9	9	13	13	26
Health Center	76	6	14	2	71	4	44	3	0	0	9	0	51	5	265	20	285
Total	**143**	**48**	**20**	**9**	**137**	**55**	**76**	**22**	**0**	**0**	**17**	**1**	**120**	**59**	**513**	**194**	**707**
Midday Peak Hour																	
Subdistrict B																	
Commercial Office	8	14	1	1	12	21	8	14	0	0	0	0	27	49	56	99	155
Retail	74	74	11	11	32	32	21	21	0	0	0	0	72	72	210	210	420
Other Area																	
Residential	2	2	0	0	10	10	2	2	0	0	0	0	5	5	19	19	38
Retail	2	2	2	2	16	16	4	4	0	0	0	0	57	57	81	81	162
Health Center	91	51	30	16	54	29	46	25	0	0	0	0	102	77	323	198	521
Total	**177**	**143**	**44**	**30**	**124**	**108**	**81**	**66**	**0**	**0**	**0**	**0**	**263**	**260**	**689**	**607**	**1296**
PM Peak Hour																	
Subdistrict B																	
Commercial Office	3	27	0	1	4	34	2	17	0	0	1	6	3	19	13	104	117
Retail	100	100	14	14	43	43	29	29	0	0	0	0	99	99	285	285	570
Other Area																	
Residential	8	3	2	1	31	14	8	3	0	0	1	0	10	5	60	26	86
Retail	1	1	1	1	8	8	2	2	0	0	0	0	29	29	41	41	82
Health Center	66	83	23	16	41	75	35	47	0	0	0	9	40	56	205	286	491
Total	**178**	**214**	**40**	**33**	**127**	**174**	**76**	**98**	**0**	**0**	**2**	**15**	**181**	**208**	**604**	**742**	**1346**

Vehicle Trips by Type

Analysis Period and Use	Auto		Taxi		Delivery		Shuttle			Total		
	In	Out	In	Out	In	Out	In	Out		In	Out	Total
AM Peak Hour												
Subdistrict B												
Commercial Office	26	2	1	1	1	1				28	4	32
Retail	20	20	6	6	4	4				30	30	60
Other Area												
Residential	1	7	2	2	0	0				3	9	12
Retail	0	0	0	0	1	1				1	1	2
Health Center	62	4	10	10	2	2				74	16	90
Total	**109**	**33**	**19**	**19**	**8**	**8**	0	0		**136**	**60**	**196**
Midday Peak Hour												
Subdistrict B												
Commercial Office	6	11	1	1	1	1				8	13	21
Retail	46	46	13	13	5	5				64	64	128
Other Area												
Residential	2	2	0	0	0	0				2	2	4
Retail	1	1	3	3	1	1				5	5	10
Health Center	59	34	21	21	2	2				82	57	139
Total	**114**	**94**	**38**	**38**	**9**	**9**	0	0		**161**	**141**	**302**
PM Peak Hour												
Subdistrict B												
Commercial Office	2	21	1	1	0	0				3	22	25
Retail	63	63	18	18	1	1				82	82	164
Other Area												
Residential	7	3	2	2	0	0				9	5	14
Retail	1	1	1	1	0	0				2	2	4
Health Center	41	67	20	20	0	0				61	87	148
Total	**114**	**155**	**42**	**42**	**1**	**1**	0	0		**157**	**198**	**355**

C. EXISTING CONDITIONS

While the DEIS determined that the weekday morning and evening hours would be the most critical time periods for identifying potential traffic impacts, a midday analysis was added to more fully depict current and projected future traffic conditions with and without the Proposed Actions. The sections below detail the data collection efforts performed, current traffic operations for the three analysis time periods, and existing on- and off-street parking conditions.

TRAFFIC VOLUMES

Existing traffic volumes were developed using traffic data collected in April 2004 when New York City public schools and Columbia University were both still in session. The field efforts included manual counts (performed over two weekdays on Tuesday, April 20th and Thursday, April 22nd) at the intersections described in Section B, under Study Area, during the weekday morning (7 AM to 10AM), midday (noon to 2 PM), and evening (4 PM to 7 PM) time periods and continuous automatic traffic recorder (ATR) machine counts for a 10-day period between April 16th and April 25th. These machine counts were taken at 24 locations, as shown below. To reflect the current year of analysis, 2006, traffic volumes collected in 2004 were increased by 0.5 percent per annum to account for background growth.

- Riverside Drive southbound south of 135th Street
- Riverside Drive northbound south of 135th Street
- West 125th Street westbound between Amsterdam Avenue and Convent Avenue
- West 125th Street eastbound between Amsterdam Avenue and Broadway
- Amsterdam Avenue northbound between Lasalle Street and West 125th Street
- Amsterdam Avenue southbound between West 126th Street and West 125th Street
- West 125th Street eastbound between St. Clair Place and Broadway
- West 125th Street westbound between Broadway and Amsterdam Avenue
- Broadway northbound between West 125th Street and Tiemann Place
- Broadway southbound between West 125th Street and West 126th Street
- West 125th Street eastbound between Marginal Street and Twelfth Avenue
- West 125th Street westbound between 129th Street and Twelfth Avenue
- Twelfth Avenue northbound between St. Clair Place and 125th Street
- Twelfth Avenue southbound between West 130th Street and West 125th Street
- West 133rd Street eastbound between Broadway and Twelfth Avenue
- West 133rd Street westbound between Broadway and Twelfth Avenue
- West 138th Street westbound between Broadway and Hamilton Place
- Broadway northbound between West 137th Street and West 138th Street
- Broadway southbound between West 138th Street and West 139th Street
- Henry Hudson Parkway northbound exit ramp at St. Clair Place
- Henry Hudson Parkway southbound entrance ramp at St. Clair Place
- Henry Hudson Parkway northbound entrance ramp at West 133rd Street
- Henry Hudson Parkway southbound exit ramp at West 133rd Street
- Marginal Street southbound between West 132nd Street and West 133rd Street

An inventory of the analyzed intersections was also conducted 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 timing data were collected from NYCDOT for confirmation of field observations.

Figures 17-3, 17-4, and 17-5 show the existing traffic volumes within the primary study area for the weekday 8 to 9 AM, 1 to 2 PM, and 4 to 5 PM peak hours, respectively. The secondary study area peak hour volumes are presented in Figures 17-6, 17-7, and 17-8. The selected peak hours represent periods when the combination of vehicular traffic generated by the Proposed Actions and background traffic would be greatest.

Peak hour volumes on West 125th Street are approximately 220 vehicles per hour (vph) eastbound and 930 vph westbound during the AM peak hour, approximately 370 vph eastbound and 820 vph westbound during the midday peak hour, and approximately 420 vph eastbound and 1,140 vph westbound during the PM peak hour. Along Broadway, AM peak hour volumes are approximately 500 vph northbound and 700 vph southbound. The midday peak hour volumes are approximately 500 vph northbound and 540 vph southbound. The PM peak hour volumes are approximately 830 vph northbound and 550 vph southbound. Along Amsterdam Avenue, northbound volumes are approximately 670 vph, 400 vph, and 860 vph during the AM, midday, and PM peak hours, respectively. Southbound volumes are approximately 500 vph, 450 vph, and 470 vph during the AM, midday, and PM peak hours, respectively. In the vicinity of the Project Area, northbound volumes on Riverside Drive are approximately 380 vph, 320 vph, and 1,920 vph during the AM, midday, and PM peak hours, respectively, while southbound volumes are approximately 1,350 vph, 160 vph, and 220 vph during the same periods. Along Marginal Street, peak hour volumes are approximately 640 vph in the morning, 700 vph in the midday, and 1,050 vph in the evening.

INTERSECTION CAPACITY ANALYSIS

Most intersections in both the primary and secondary study areas operate at overall acceptable levels. Locations with notable service constraints, those operating at mid-LOS D (45.0 seconds of delay for signalized intersections and 30.0 seconds of delay for unsignalized intersections) or worse are described below. Detailed analysis results are summarized in Tables 17-9 and 17-10 for intersections in the primary study area and in Tables 17-11 and 17-12 for intersections in the secondary study area.

PRIMARY STUDY AREA

Twelfth Avenue and West 133rd Street

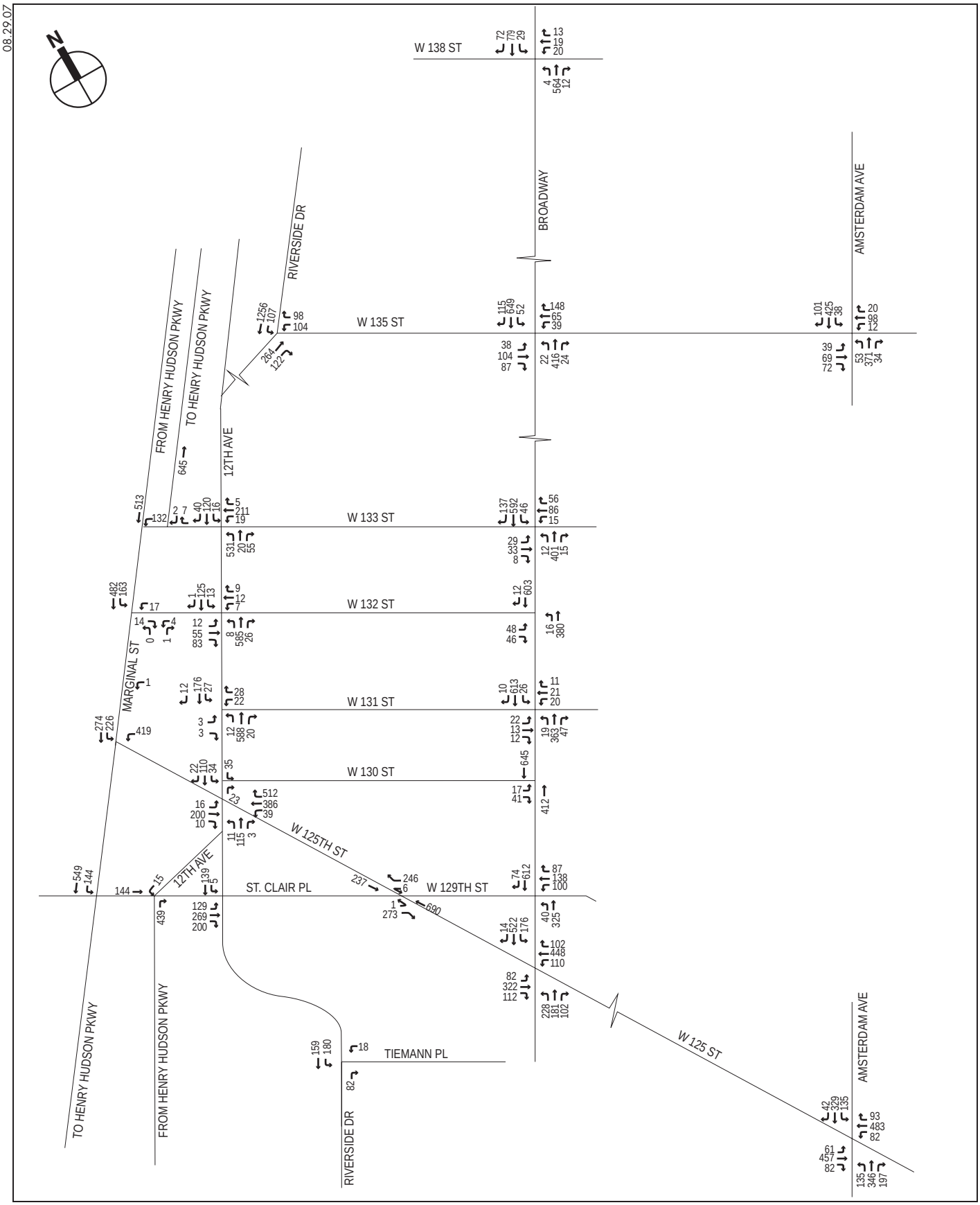
During the PM peak hour, the westbound left-through-right movement operates at LOS D with an average delay of 48.5 seconds and a v/c ratio of 0.89.

Twelfth Avenue and West 125th Street

During the PM peak hour, the westbound right-turn movement operates at LOS E with an average delay of 55.8 seconds and a v/c ratio of 1.01.

Broadway Northbound and West 135th Street

During the PM peak hour, the eastbound *de facto* left-turn movement operates at LOS D with an average delay of 51.7 seconds and a v/c ratio of 0.77.



NOT TO SCALE

Figure 17-3
Primary Study Area
Existing 2006 Morning Peak Hour

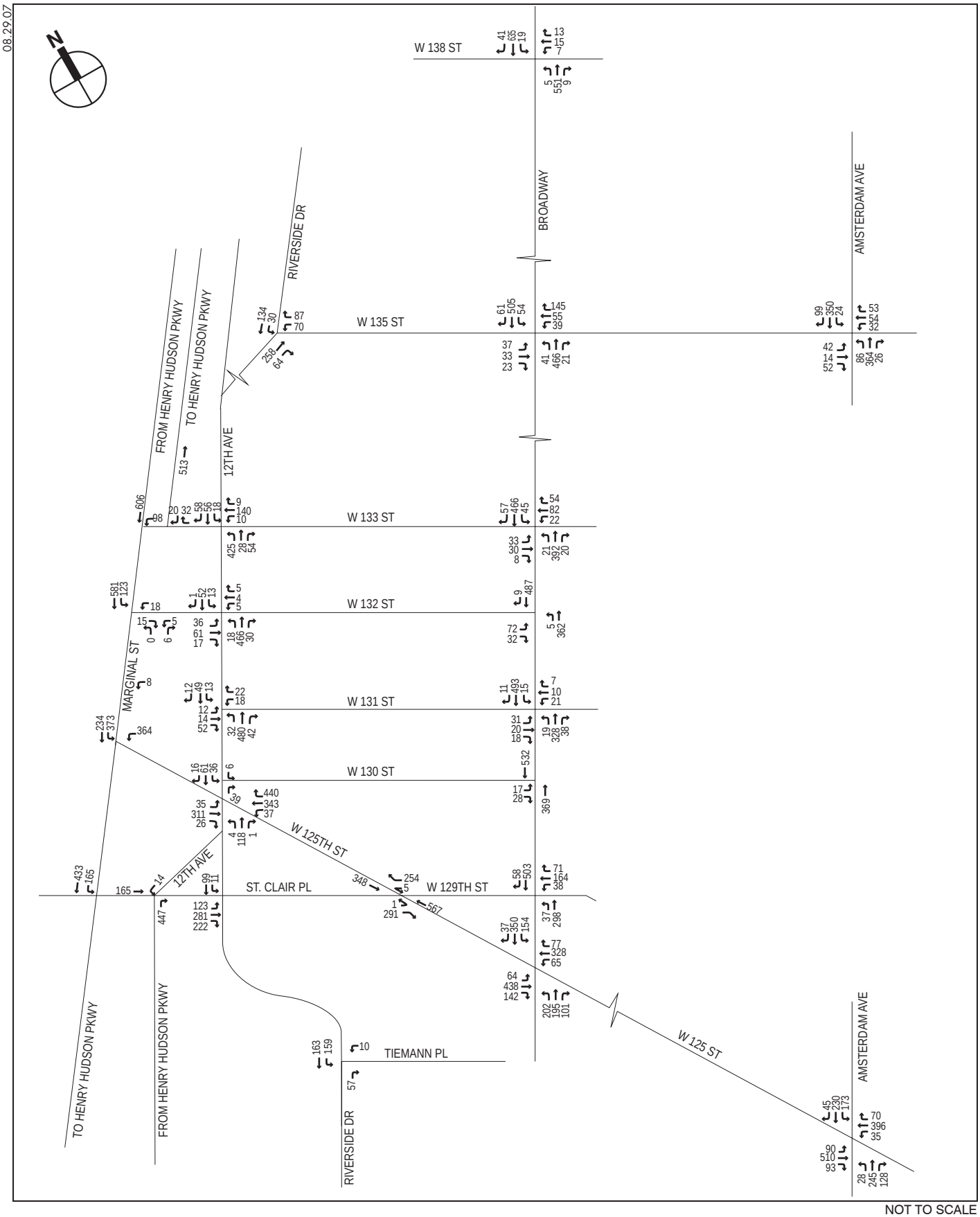


Figure 17-4
Primary Study Area
Existing 2006 Midday Peak Hour

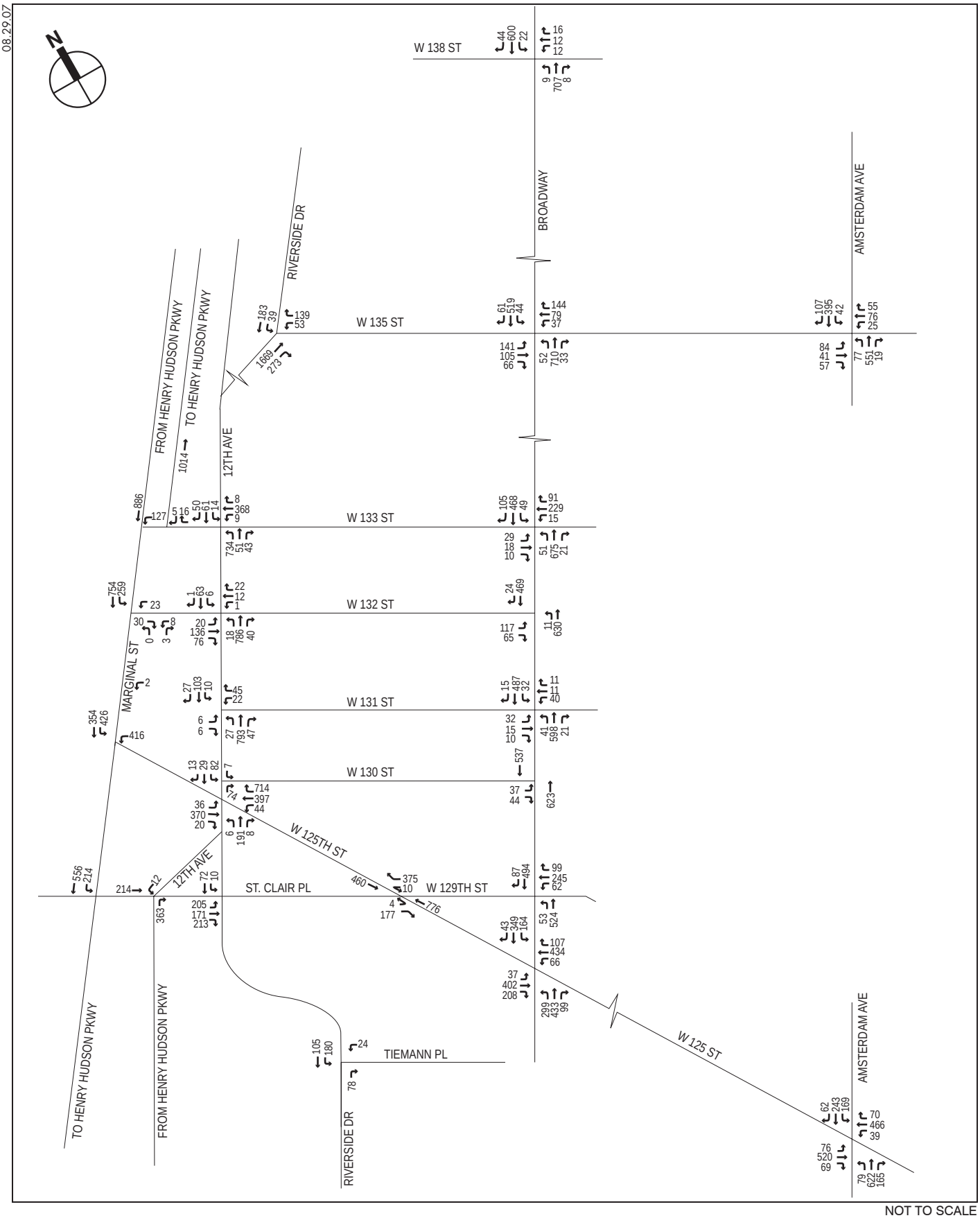
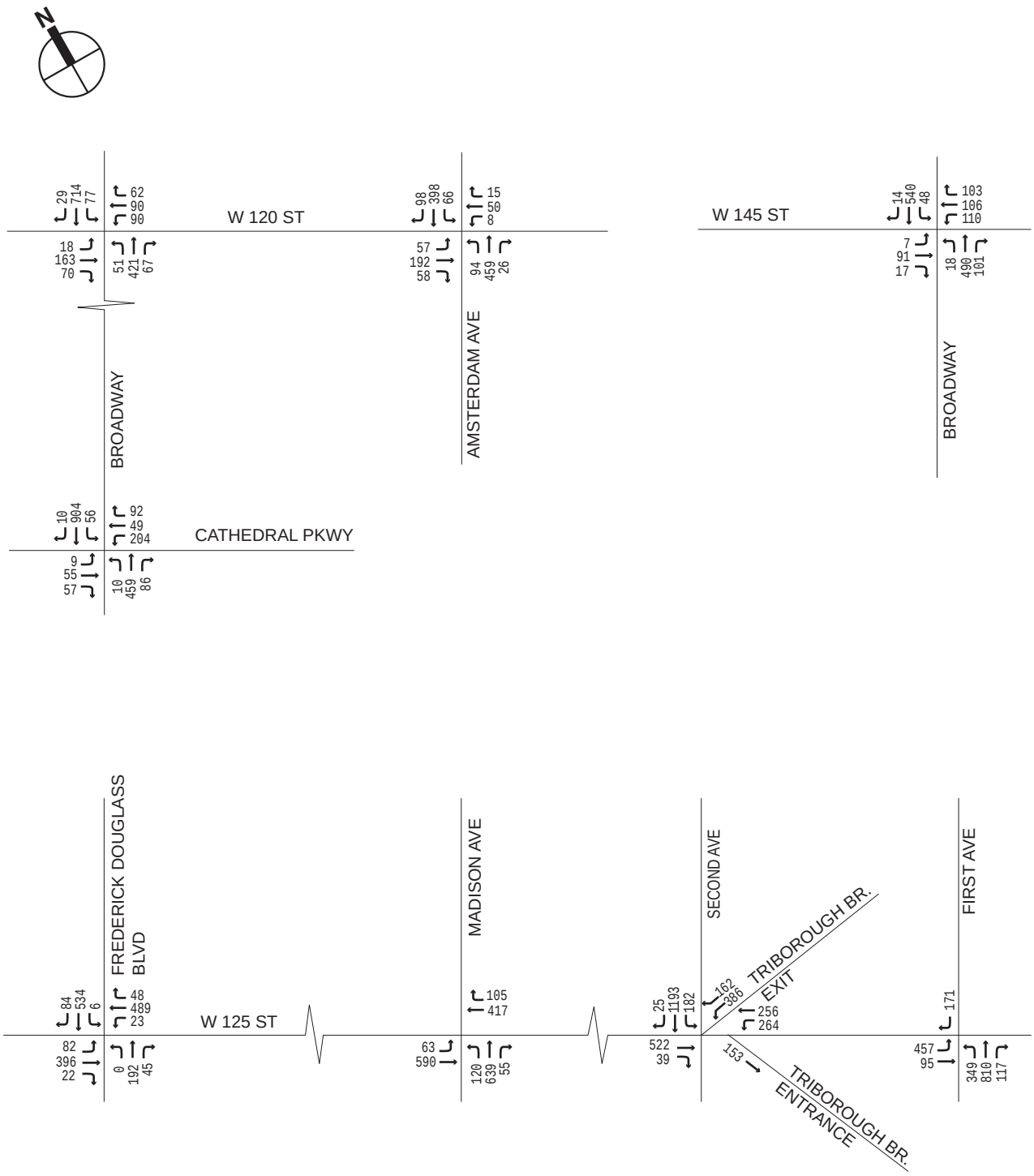


Figure 17-5
Primary Study Area
Existing 2006 Evening Peak Hour

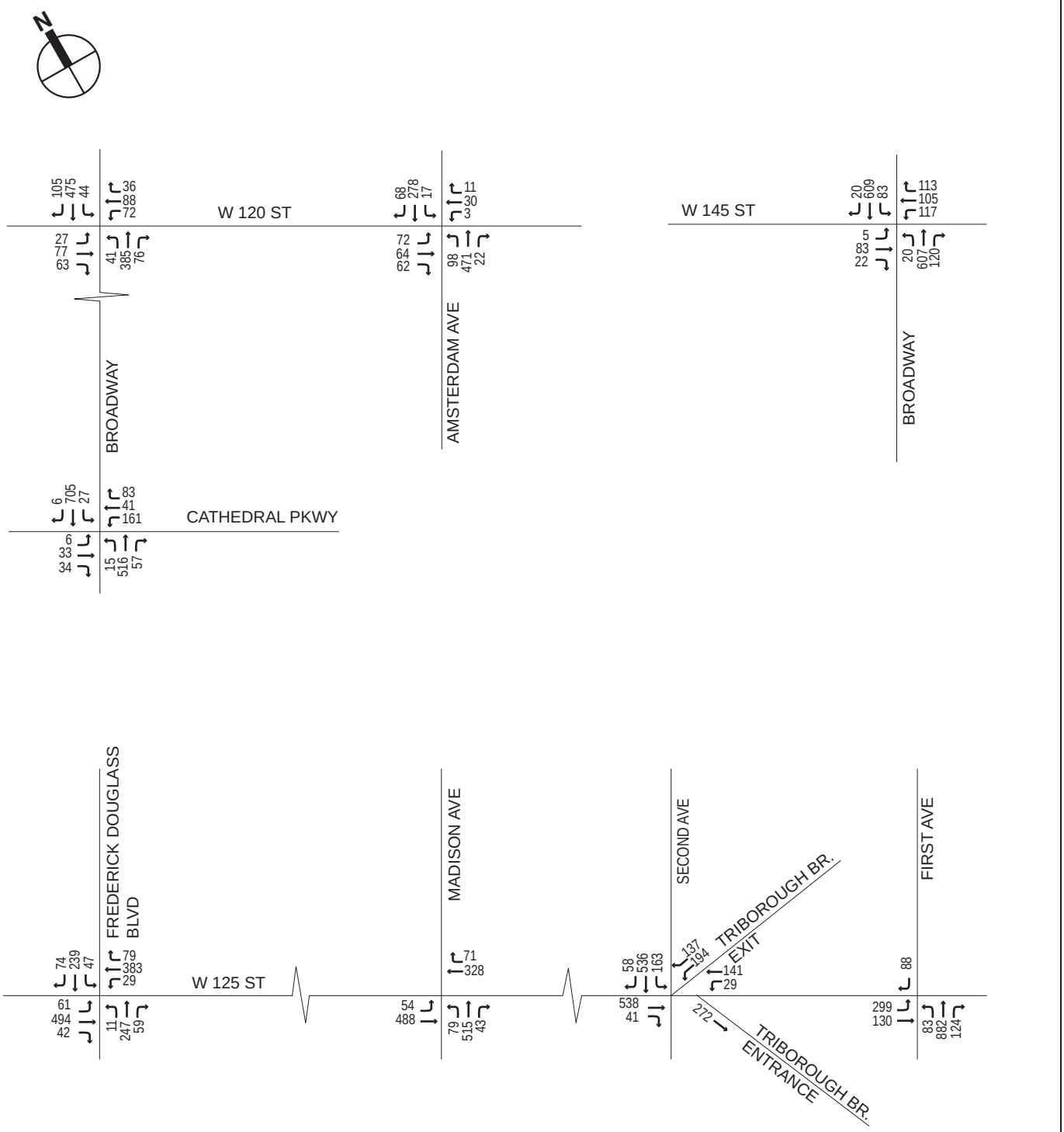
08.29.07



NOT TO SCALE

Figure 17-6
Secondary Study Area
Existing 2006 Morning Peak Hour

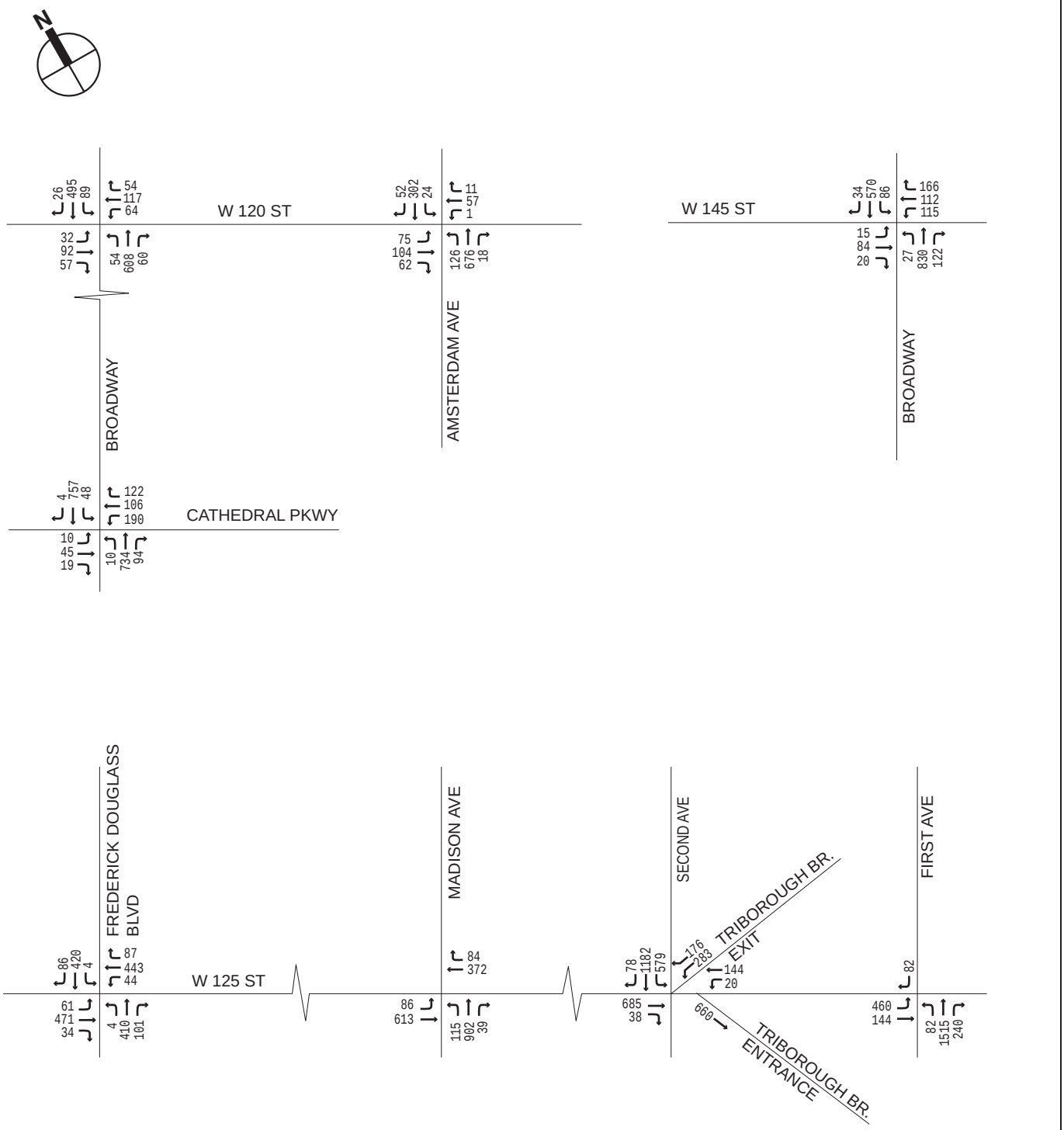
08.29.07



NOT TO SCALE

Figure 17-7
Secondary Study Area
Existing Midday Peak Hour

08.29.07



NOT TO SCALE

Figure 17-8
Secondary Study Area
Existing 2006 Evening Peak Hour

Table 17-9
2006 Existing Conditions
Primary Study Area Signalized Inersection Level-of-Service Analysis

	AM Peak Hour				Midday Peak Hour				PM Peak Hour			
Intersection	Lane Group	V/C	Delay (spv)	LOS	Lane Group	V/C	Delay (spv)	LOS	Lane Group	V/C	Delay (spv)	LOS
Marginal Street @ West 125th Street												
Westbound	L	0.40	24.3	C	L	0.35	23.7	C	L	0.41	24.5	C
Southbound	L	0.23	12.1	B	L	0.36	13.6	B	L	0.41	14.3	B
	LT	0.25	11.8	B	LT	0.25	11.8	B	LT	0.35	12.8	B
	Int.		17.5	B	Int.		16.8	B	Int.		17.3	B
Riverside Drive @ West 135th Street												
Westbound	L	0.32	28.0	C	L	0.21	26.1	C	L	0.16	25.6	C
	R	0.40	30.9	C	R	0.34	29.3	C	R	0.57	36.4	D
Northbound	TR	0.22	8.1	A	TR	0.19	7.9	A	TR	0.98	23.3	C
Southbound	LT	0.81	11.4	B	LT	0.10	7.4	A	LT	0.19	8.1	A
	Int.		12.6	B	Int.		12.4	B	Int.		22.7	C
Twelfth Avenue @ West 133rd Street												
Westbound	LTR	0.56	28.9	C	LTR	0.40	25.0	C	LTR	0.89	48.5	D
Northbound	L	0.91	39.9	D	L	0.70	21.8	C	L	0.79	26.3	C
	LTR	0.18	10.8	B	LTR	0.16	10.7	B	LTR	0.60	17.8	B
Southbound	LTR	0.26	11.7	B	LTR	0.20	11.1	B	LTR	0.17	10.8	B
	Int.		28.6	C	Int.		18.9	B	Int.		28.9	C
Twelfth Avenue @ West 132nd Street												
Eastbound	LTR	0.31	23.2	C	LTR	0.24	22.2	C	LTR	0.44	25.2	C
Westbound	LTR	0.06	20.0	B	LTR	0.03	19.7	B	LTR	0.07	20.1	C
Northbound	LTR	0.45	13.3	B	LTR	0.37	12.4	B	LTR	0.60	15.6	B
Southbound	LTR	0.24	11.6	B	LTR	0.13	10.5	B	LTR	0.11	10.2	B
	Int.		14.9	B	Int.		14.0	B	Int.		17.3	B
Twelfth Avenue @ West 125th Street												
Eastbound	LTR	0.18	12.7	B	LTR	0.29	13.7	B	LTR	0.31	13.9	B
Westbound	L	0.12	12.6	B	L	0.12	12.7	B	L	0.15	13.1	B
	T	0.57	18.9	B	T	0.49	17.1	B	T	0.57	18.8	B
	R	0.86	34.1	C	R	0.85	32.5	C	R	1.01	55.8	E
Northbound	LTR	0.23	19.3	B	LTR	0.22	19.2	B	LTR	0.36	21.1	C
Southbound	LT	0.34	21.4	C	LT	0.21	19.3	B	LT	0.28	20.5	C
	Int.		23.2	C	Int.		21.6	C	Int.		32.0	C
Broadway @ West 138th Street												
Westbound	LTR	0.16	24.1	C	LTR	0.10	23.3	C	LTR	0.13	23.7	C
Northbound	LT	0.31	6.0	A	LT	0.30	6.0	A	LT	0.37	6.3	A
	R	0.02	4.7	A	R	0.02	4.7	A	R	0.02	4.7	A
Southbound	LTR	0.52	7.7	A	LTR	0.40	6.7	A	LTR	0.38	6.5	A
	Int.		7.6	A	Int.		6.8	A	Int.		6.9	A
Broadway Northbound @ West 135th Street												
Eastbound	LT	0.31	25.1	C	LT	0.23	24.3	C	DefL	0.77	51.7	D
									T	0.38	27.1	C
Westbound	TR	0.46	28.0	C	TR	0.45	28.0	C	TR	0.48	28.4	C
Northbound	LTR	0.39	6.7	A	LTR	0.42	7.0	A	LTR	0.59	8.7	A
	Int.		16.4	B	Int.		15.1	B	Int.		19.1	B
Broadway Southbound @ West 135th Street												
Eastbound	TR	0.38	26.6	C	TR	0.15	23.5	C	TR	0.48	27.9	C
Westbound	LT	0.21	24.0	C	LT	0.23	24.1	C	LT	0.28	24.8	C
Southbound	L	0.08	5.0	A	L	0.09	5.1	A	L	0.07	5.0	A
	TR	0.62	9.5	A	TR	0.48	7.6	A	TR	0.47	7.5	A
	Int.		14.4	B	Int.		11.8	B	Int.		15.8	B

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service

Table 17-9 (Continued)
2006 Existing Conditions
Primary Study Area Signalized Inersection Level-of-Service Analysis

	AM Peak Hour				Midday Peak Hour				PM Peak Hour			
Intersection	Lane Group	V/C	Delay (spv)	LOS	Lane Group	V/C	Delay (spv)	LOS	Lane Group	V/C	Delay (spv)	LOS
Broadway Northbound @ West 133rd Street												
Eastbound	LT	0.20	17.2	B	LT	0.22	17.5	B	LT	0.18	17.1	B
Westbound	TR	0.34	21.1	C	TR	0.31	20.6	C	TR	0.67	29.0	C
Northbound	LT	0.39	11.7	B	LT	0.35	11.3	B	LT	0.66	15.6	B
	R	0.04	9.0	A	R	0.05	9.0	A	R	0.05	9.0	A
	Int.		14.6	B	Int.		14.4	B	Int.		19.3	B
Broadway Southbound @ West 133rd Street												
Eastbound	TR	0.12	17.9	B	TR	0.12	18.0	B	TR	0.09	17.7	B
Westbound	LT	0.20	17.3	B	LT	0.21	17.3	B	LT	0.47	21.0	C
Southbound	LTR	0.46	12.1	B	LTR	0.33	10.8	B	LTR	0.38	11.2	B
	Int.		13.2	B	Int.		12.6	B	Int.		14.6	B
Broadway Northbound @ West 132nd Street												
Eastbound	L	0.11	16.4	B	L	0.14	16.6	B	L	0.22	17.5	B
Northbound	LT	0.32	10.9	B	LT	0.29	10.6	B	LT	0.49	12.6	B
	Int.		11.5	B	Int.		11.6	B	Int.		13.4	B
Broadway Southbound @ West 132nd Street												
Eastbound	TR	0.22	19.5	B	TR	0.20	19.0	B	TR	0.34	20.9	C
Westbound	LT	0.03	15.5	B	LT	0.01	15.4	B	LT	0.02	15.4	B
Southbound	LTR	0.44	12.0	B	LTR	0.35	11.1	B	LTR	0.36	11.2	B
	Int.		13.1	B	Int.		12.5	B	Int.		13.8	B
Broadway @ West 131st Street												
Eastbound	LTR	0.10	20.4	C	LTR	0.14	20.9	C	LTR	0.12	20.6	C
Westbound	LT	0.10	20.5	C	LT	0.09	20.4	C	LT	0.14	21.1	C
	R	0.03	19.7	B	R	0.02	19.6	B	R	0.03	19.7	B
Northbound	LTR	0.27	7.9	A	LTR	0.23	7.7	A	LTR	0.39	8.8	A
Southbound	LTR	0.39	8.8	A	LTR	0.30	8.2	A	LTR	0.33	8.4	A
	Int.		9.5	A	Int.		9.3	A	Int.		9.7	A
Broadway @ West 130th Street												
Eastbound	LR	0.18	24.4	C	LR	0.13	23.7	C	LR	0.24	25.4	C
Northbound	T	0.21	5.4	A	T	0.18	5.3	A	T	0.28	5.8	A
Southbound	T	0.31	6.0	A	T	0.25	5.6	A	T	0.27	5.7	A
	Int.		6.7	A	Int.		6.4	A	Int.		7.0	A
Broadway @ West 129th Street												
Westbound	LT	0.38	18.2	B	LT	0.35	17.8	B	LT	0.46	19.6	B
	R	0.19	16.0	B	R	0.15	15.5	B	R	0.22	16.4	B
Northbound	LT	0.33	17.0	B	LT	0.30	16.6	B	LT	0.57	20.6	C
Southbound	TR	0.48	15.9	B	TR	0.37	17.3	B	TR	0.39	17.6	B
	Int.		16.6	B	Int.		17.1	B	Int.		19.0	B
Broadway @ West 125th Street												
Eastbound	L	0.55	36.8	D	L	0.35	26.5	C	L	0.27	25.7	C
	TR	0.57	26.8	C	TR	0.71	30.6	C	TR	0.83	36.7	D
Westbound	L	0.68	44.6	D	L	0.54	39.1	D	L	0.65	50.8	D
	TR	0.71	30.4	C	TR	0.56	26.5	C	TR	0.68	29.3	C
Northbound	L	0.43	32.1	C	L	0.38	31.1	C	L	0.56	35.4	D
	LT	0.41	30.5	C	LT	0.43	30.7	C	LT	0.82	42.9	D
	R	0.55	39.8	D	R	0.54	39.6	D	R	0.51	37.8	D
Southbound	L	0.33	30.1	C	L	0.28	29.1	C	L	0.25	28.5	C
	LTR	0.90	49.1	D	LTR	0.70	36.8	D	LTR	0.75	38.9	D
	Int.		35.7	D	Int.		31.6	C	Int.		36.6	D

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service

Table 17-9 (Continued)
2006 Existing Conditions
Primary Study Area Signalized Inersection Level-of-Service Analysis

	AM Peak Hour				Midday Peak Hour				PM Peak Hour			
Intersection	Lane Group	V/C	Delay (spv)	LOS	Lane Group	V/C	Delay (spv)	LOS	Lane Group	V/C	Delay (spv)	LOS
Amsterdam Avenue @ West 135th Street												
Eastbound	LT	0.31	26.4	C	LT	0.20	24.8	C	LT	0.47	30.8	C
	R	0.36	29.0	C	R	0.22	25.6	C	R	0.25	26.3	C
Westbound	LTR	0.36	27.1	C	LTR	0.45	29.6	C	LTR	0.48	30.2	C
Northbound	LTR	0.44	7.4	A	LTR	0.50	8.2	A	LTR	0.63	10.0	A
Southbound	LTR	0.52	8.2	A	LTR	0.44	7.4	A	LTR	0.52	8.3	A
	Int.		12.3	B	Int.		12.0	B	Int.		13.8	B
Amsterdam Avenue @ West 125th Street												
Eastbound	L	0.56	41.8	D	L	0.72	53.2	D	L	0.58	41.0	D
	TR	0.77	34.1	C	TR	0.82	36.9	D	TR	0.79	34.8	C
Westbound	L	0.67	49.4	D	L	0.38	32.9	C	L	0.42	35.4	D
	TR	0.76	33.3	C	TR	0.68	30.4	C	TR	0.71	31.4	C
Northbound	L	0.31	14.4	B	L	0.06	9.7	A	L	0.20	15.4	B
	TR	0.67	26.7	C	TR	0.47	22.3	C	TR	0.84	33.4	C
Southbound	L	0.47	22.9	C	L	0.48	18.8	B	L	0.58	33.9	C
	TR	0.41	21.2	C	TR	0.30	19.8	B	TR	0.73	33.4	C
	Int.		29.3	C	Int.		29.2	C	Int.		33.0	C

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service

Broadway and West 125th Street

During the AM peak hour, the southbound shared left-through-right movement operates at LOS D, with an average delay of 49.1 seconds and a v/c ratio of 0.90.

During the PM peak hour, the westbound left-turn movement operates at LOS D, with an average delay of 50.8 seconds and a v/c ratio of 0.65.

Amsterdam Avenue and West 125th Street

During the AM peak hour, the westbound left-turn movement operates at LOS D, with an average delay of 49.4 seconds and a v/c ratio of 0.67.

During the midday peak hour, the eastbound left-turn movement operates at LOS D, with an average delay of 53.2 seconds and a v/c ratio of 0.72.

Marginal Street and West 133rd Street

During the PM peak hour, the southbound approach operates at LOS E, with an average delay of 40.8 seconds and a v/c ratio of 0.96.

West 125th Street and West 129th Street/St. Clair Place

During the AM peak hour, westbound left-turn movement operates at LOS E, with an average delay of 43.7 seconds and a v/c ratio of 0.06.

During the PM peak hour, the eastbound left-turn movement operates at LOS F. The westbound left-turn movement operates at LOS F, with an average delay of 115.4 seconds and a v/c ratio of 0.26 and the westbound right-turn movement operates at LOS F, with an average delay of 92.0 seconds and a v/c ratio of 1.05.

SECONDARY STUDY AREA

Broadway and West 110th Street

During the AM peak hour, the westbound *de facto* left-turn movement operates at LOS E, with an average delay of 55.1 seconds and a v/c ratio of 0.85.

Table 17-10
2006 Existing Conditions
Primary Study Area Unsignalized Inersection Level-of-Service Analysis

	AM Peak Hour				Midday Peak Hour				PM Peak Hour			
Intersection	Lane Group	V/C	Delay (spv)	LOS	Lane Group	V/C	Delay (spv)	LOS	Lane Group	V/C	Delay (spv)	LOS
Marginal Street @ West 133rd Street												
Westbound	L	0.18	10.5	B	L	0.13	10.1	B	L	0.17	10.3	B
Southbound	T	0.68	18.5	C	T	0.78	23.4	C	T	0.96	40.8	E
Marginal Street @ West 132nd Street												
Westbound	LT	-	9.0	A	LT	-	9.3	A	LT	-	9.7	A
Southbound	LT	-	14.5	B	LT	-	13.4	B	LT	-	29.2	D
	TR	-	7.9	A	TR	-	8.1	A	TR	-	9.5	A
	Int.		13.0	B	Int.		12.0	B	Int.		22.9	C
Marginal Street @ St. Clair Place												
Southbound	L	0.17	9.8	A	L	0.20	10.0	A	L	0.26	10.4	B
	T	0.76	22.0	C	T	0.68	18.5	C	T	0.81	26.1	D
Twelfth Avenue @ West 131st Street												
Northbound	LT	0.01	7.8	A	LT	0.02	7.6	A	LT	0.02	7.7	A
Southbound	LT	0.04	9.6	A	LT	0.02	9.3	A	LT	0.02	10.5	B
Westbound	LTR	0.16	16.8	C	LTR	0.13	16.5	C	LTR	0.28	23.5	C
Eastbound	LTR	0.01	12.9	B	LTR	0.15	12.6	B	LTR	0.03	13.9	B
Twelfth Avenue @ West 125th Street Southbound Right Turn												
Southbound	R	0.04	10.4	B	R	0.03	10.0	B	R	0.02	10.1	B
Twelfth Avenue @ St. Clair Place												
Eastbound	T	-	9.3	A	T	-	9.8	A	T	-	10.2	B
Northbound	R	-	10.6	B	R	-	11.5	B	R	-	10.4	B
Southbound	L	-	8.8	A	L	-	8.6	A	L	-	8.6	A
	Int.		10.2	B	Int.		11.0	B	Int.		10.2	B
Riverside Drive @ St. Clair Place												
Eastbound	LTR	0.10	7.6	A	LTR	0.10	7.6	A	LTR	0.15	7.8	A
Southbound	LT	0.26	20.6	C	LT	0.25	22.2	C	LT	0.20	22.8	C
	T	0.25	20.1	C	T	0.21	21.1	C	T	0.17	23.2	C
Riverside Drive @ Tiemann Place												
Westbound	L	-	8.2	A	L	-	8.1	A	L	-	8.3	A
Northbound	R	-	7.3	A	R	-	7.1	A	R	-	7.2	A
Southbound	L	-	9.9	A	L	-	9.5	A	L	-	10.0	A
	T	-	8.8	A	T	-	8.7	A	T	-	8.2	A
	Int.		9.0	A	Int.		8.8	A	Int.		8.8	A
West 125th Street @ West 129th Street/St. Clair Place*												
Westbound	L	0.06	43.7	E	L	0.02	22.9	C	L	0.26	115.4	F
	R	0.58	22.6	C	R	0.45	14.4	B	R	1.05	92.0	F
Eastbound	L	0.01	30.0	D	L	0.01	25.1	D	L			F
	R	0.44	14.1	B	R	0.40	12.8	B	R	0.48	20.8	C

Notes: L: Left Turn; T: Through; R: Right Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service
***** The unsignalized intersection analysis procedure, which assumes random arrival, breaks down with high major or minor street volumes and reports exaggerated levels of stop delays. As such, its results are not necessarily indicative of actual conditions, where gaps created by adjacent signalized intersections often provide additional throughput capacity and result in lower stop delays.

Table 17-11
2006 Existing Conditions
Secondary Study Area Signalized Inersection Level-of-Service Analysis

	AM Peak Hour				Midday Peak Hour				PM Peak Hour			
Intersection	Lane Group	V/C	Delay (spv)	LOS	Lane Group	V/C	Delay (spv)	LOS	Lane Group	V/C	Delay (spv)	LOS
Broadway @ West 110th Street												
Eastbound	LTR	0.38	24.1	C	LTR	0.17	21.3	C	LTR	0.20	20.8	C
Westbound	DefL	0.85	55.1	E	DefL	0.57	30.4	C	DefL	0.76	44.0	D
	TR	0.50	29.0	C	TR	0.38	25.3	C	TR	0.78	43.1	D
Northbound	LTR	0.42	12.5	B	LTR	0.44	12.6	B	LTR	0.58	14.4	B
Southbound	LTR	0.68	20.0	B	LTR	0.48	13.0	B	LTR	0.55	17.4	B
	Int.		22.4	C	Int.		16.0	B	Int.		21.7	C
Broadway @ West 120th Street												
Eastbound	LTR	0.40	27.5	C	LTR	0.30	26.2	C	LTR	0.31	26.2	C
Westbound	LTR	1.04	100.2	F	LTR	0.77	45.8	D	LTR	0.87	57.8	E
Northbound	LTR	0.35	5.8	A	LTR	0.33	5.7	A	LTR	0.43	6.4	A
Southbound	LTR	0.52	7.1	A	LTR	0.41	6.2	A	LTR	0.42	6.4	A
	Int.		21.4	C	Int.		13.5	B	Int.		15.3	B
Amsterdam Avenue @ West 120th Street												
Eastbound	L	0.42	38.4	D	L	0.48	40.7	D	L	0.55	44.4	D
	TR	0.94	72.7	E	TR	0.67	47.2	D	TR	0.73	49.4	D
Westbound	L	0.08	29.2	C	L	0.02	27.7	C	L	0.01	27.3	C
	TR	0.29	32.1	C	TR	0.18	30.0	C	TR	0.28	31.7	C
Northbound	LTR	0.56	5.0	A	LTR	0.54	4.7	A	LTR	0.79	9.5	A
Southbound	LTR	0.53	4.6	A	LTR	0.31	3.1	A	LTR	0.31	3.0	A
	Int.		18.4	B	Int.		11.9	B	Int.		15.0	B
Frederick Douglass Boulevard @ West 125th Street												
Eastbound	LTR	0.69	24.9	C	LTR	0.65	17.7	B	LTR	0.74	26.6	C
Westbound	LTR	0.60	21.6	C	LTR	0.52	14.9	B	LTR	0.71	25.5	C
Northbound	LT	0.17	15.3	B	LT	0.33	22.8	C	LTR	0.55	17.7	B
	R	0.11	15.0	B	R	0.30	24.9	C				
Southbound	LT	0.53	17.1	B	LT	0.41	24.1	C	LT	0.41	18.0	B
	R	0.20	13.8	B	R	0.36	26.4	C	R	0.30	18.4	B
	Int.		20.0	B	Int.		19.3	B	Int.		22.1	C
Madison Avenue @ East 125th Street												
Eastbound	LT	0.85	32.5	C	LT	0.71	25.3	C	LT	0.91	38.1	D
Westbound	TR	0.60	21.8	C	TR	0.45	18.9	B	TR	0.50	19.7	B
Northbound	LTR	0.55	16.9	B	LTR	0.45	15.5	B	LTR	0.67	18.8	B
	Int.		23.3	C	Int.		19.7	B	Int.		25.1	C
Second Avenue @ East 125th Street												
Eastbound	T	1.05	86.0	F	T	1.05	86.7	F	T	1.05	82.3	F
	R	0.23	32.3	C	R	0.22	31.7	C	R	0.21	31.7	C
Westbound	DefL	1.05	103.1	F	LT	0.49	35.6	D	LT	0.51	36.4	D
	T	1.05	103.3	F								
Southbound	LTR	0.55	20.2	C	LTR	0.31	17.6	B	LTR	0.70	22.3	C
Southwestbound	TR	1.00	72.6	E	TR	0.61	36.6	D	TR	0.84	47.2	D
	Int.		63.2	E	Int.		43.5	D	Int.		52.8	D
First Avenue @ East 125th Street												
Eastbound	L	0.99	66.0	E	L	0.67	29.5	C	L	0.87	42.5	D
	LT	0.18	18.7	B	LT	0.24	19.5	B	LT	0.28	20.0	C
Northbound	L	0.59	16.1	B	L	0.13	9.6	A	L	0.12	9.5	A
	T	0.34	10.8	B	T	0.39	11.2	B	T	0.61	13.4	B
	R	0.22	10.6	B	R	0.23	10.6	B	R	0.46	13.8	B
	Int.		26.1	C	Int.		15.5	B	Int.		19.0	B

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service

Table 17-11 (Continued)
2006 Existing Conditions
Secondary Study Area Signalized Inersection Level-of-Service Analysis

	AM Peak Hour				Midday Peak Hour				PM Peak Hour			
Intersection	Lane Group	V/C	Delay (spv)	LOS	Lane Group	V/C	Delay (spv)	LOS	Lane Group	V/C	Delay (spv)	LOS
Broadway @ West 145th Street												
Eastbound	LTR	0.22	25.2	C	LTR	0.26	25.7	C	LTR	0.24	25.5	C
Westbound	LTR	0.78	41.7	D	LTR	0.90	56.4	E	LTR	0.86	46.0	D
Northbound	LTR	0.53	19.7	B	LTR	0.63	21.5	C	LTR	0.76	24.8	C
Southbound	L	0.18	9.3	A	L	0.32	11.5	B	L	0.37	13.1	B
	TR	0.42	10.5	B	TR	0.50	11.4	B	TR	0.44	10.7	B
	Int.		20.9	C	Int.		23.8	C	Int.		24.3	C

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service

Table 17-12
2006 Existing Conditions
Secondary Study Area Unsignalized Inersection Level-of-Service Analysis

	AM Peak Hour				Midday Peak Hour				PM Peak Hour			
Intersection	Lane Group	V/C	Delay (spv)	LOS	Lane Group	V/C	Delay (spv)	LOS	Lane Group	V/C	Delay (spv)	LOS
First Avenue @ East 125th Street Southbound Right Turn												
Southbound	R	0.26	11.7	B	R	0.11	9.4	A	R	0.10	9.4	A

Notes: R: Right Turn; V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service

Broadway and West 120th Street

During the AM peak hour, the westbound approach operates at LOS F, with an average delay of 100.2 seconds and a v/c ratio of 1.04.

During the midday peak hour, the westbound approach operates at LOS D, with an average delay of 45.8 seconds and a v/c ratio of 0.77.

During the PM peak hour, the same approach operates at LOS E, with an average delay of 57.8 seconds and a v/c ratio of 0.87.

Amsterdam Avenue and West 120th Street

During the AM peak hour, the eastbound through-right movement operates at LOS E, with an average delay of 72.7 seconds and a v/c ratio of 0.94.

During the midday peak hour, the eastbound through-right movement operates at LOS D, with an average delay of 47.2 seconds and a v/c ratio of 0.67.

During the PM peak hour, the same movement operates at LOS D, with an average delay of 49.4 seconds and a v/c ratio of 0.73.

Second Avenue and East 125th Street

During the AM peak hour, the eastbound through movement operates at LOS F, with an average delay of 86.0 seconds and a v/c ratio of 1.05. The westbound *de facto* left-turn movement operates at LOS F, with an average delay of 103.1 seconds and a v/c ratio of 1.05 and the westbound through movement operates at LOS F, with an average delay of 103.3 seconds and a

v/c ratio of 1.05. The southwestbound approach operates at LOS E, with an average delay of 72.6 seconds and a v/c ratio of 1.00.

During the midday peak hour, the eastbound through movement operates at LOS E, with an average delay of 86.7 seconds and a v/c ratio of 1.05.

During the PM peak hour, the eastbound through movement operates at LOS F, with an average delay of 82.3 seconds and a v/c ratio of 1.05. The southwestbound approach operates at LOS D, with an average delay of 47.2 seconds and a v/c ratio of 0.84.

First Avenue and East 125th Street

During the AM peak hour, the eastbound left-turn movement operates at LOS E, with an average delay of 66.0 seconds and a v/c ratio of 0.99.

Broadway and West 145th Street

During the midday peak hour, the westbound approach operates at LOS E, with an average delay of 56.4 seconds and a v/c ratio of 0.90.

During the PM peak hour, the same approach operates at LOS D, with an average delay of 46.0 seconds and a v/c ratio of 0.86.

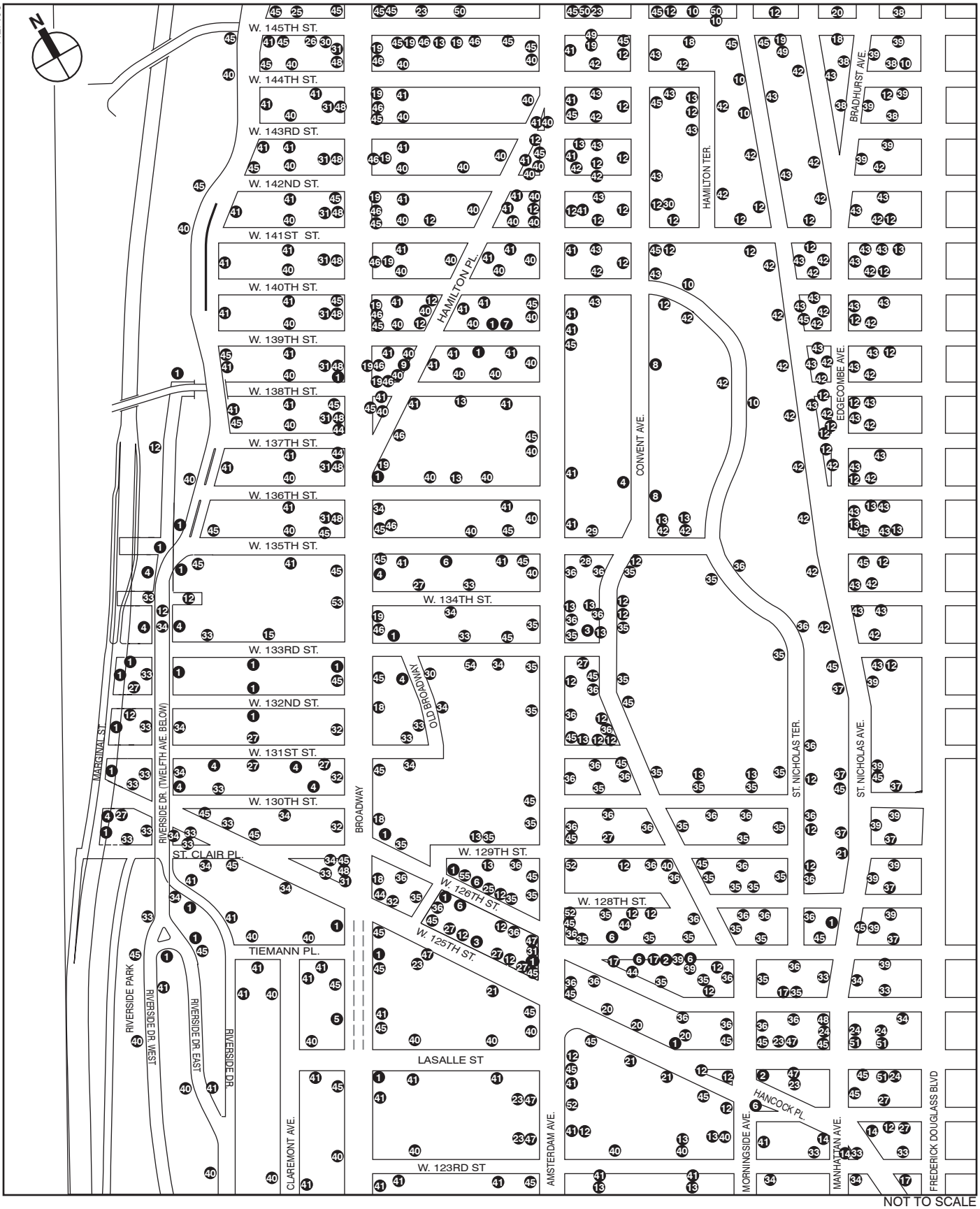
PARKING SUPPLY AND UTILIZATION

Existing study area parking conditions were evaluated via a field inventory of on-street parking regulations and utilization, as well as off-street public parking facilities.

ON-STREET PARKING

On-street parking regulations within ½ mile of the project site are summarized in Figures 17-9a and 17-9b. Parking is regulated by meters on most of Broadway north of West 135th Street and sections of West 145th Street. It is limited to authorized vehicles (8 AM-6 PM Monday-Friday) during school hours or completely restricted on Convent Avenue adjacent to City College, and is not permitted at any time on West 141st Street between Amsterdam and Edgecombe Avenues. No standing regulations prevail on most of West 132nd and 133rd Streets between Broadway and Twelfth Avenue. The remaining streets in the ½-mile radius have on-street parking restricted only during street-cleaning hours.

Parking utilization surveys were conducted in the study area under typical weekday conditions on Wednesday, June 2, 2004 and Tuesday, June 8, 2004 from 7 AM to 7 PM. Individual street capacities and an hourly assessment of on-street parking utilization were collected for each street in the study area. Utilization rates and capacities collected in 2004 were verified and modified, where necessary, in September 2006. Figures 17-10 through 17-12 present summaries of the survey results, in terms of the average percentage of available on-street spaces utilized during the morning, midday, and evening periods. The results indicate that throughout the study area, several of the streets approach capacity sometime during the day, particularly during the midday and evening periods. However, other areas never approach capacity during the survey period. These locations include the area south of West 125th Street between Twelfth and Amsterdam Avenues, as well as the Riverside Drive viaduct. Within ¼ mile of the Project Area, on-street parking utilization is 76, 79, and 77 percent during the morning, midday, and evening periods, respectively. Overall, within ½ mile, on-street parking utilization is 72, 78, and 80 percent during the morning, midday, and evening periods, respectively (see Table 17-13).



MANHATTANVILLE IN WEST HARLEM REZONING AND ACADEMIC MIXED-USE DEVELOPMENT

Figure 17-9a

Study Area Parking Regulations

9.27.06

1. NS Anytime
2. NS Except Trucks Loading & Unloading (7am-7pm Except Sunday)
3. NS Except Trucks Loading & Unloading (7am-3pm Except Sunday)
4. NS Except Trucks Loading & Unloading (8am-6pm Monday-Friday)
5. NS Anytime Except Trucks Loading & Unloading
6. NS Anytime Except Authorized Vehicles
7. NS Anytime Except Authorized Vehicles (FDNY)
8. NS Except Authorized Vehicles (8am-6pm Monday-Friday)
9. NS Except Authorized Vehicles (7am-4pm Except Sunday) MIU
10. NS Except Authorized Vehicles (7am-7pm Except Sunday) CUNY
11. NS 8am-6pm (Monday-Friday)
12. NP Anytime
13. NP 7am-4pm (School Days)
14. NP 7am-6pm (Monday Thursday Friday)
15. NP 7am-7pm (School Days)
16. NP 7am-7pm (Monday-Friday)
17. NP 7am-7pm (Except Sunday)
18. NP 7:30am-8am (Tuesday & Friday)
19. NP 7:30am-8am (Except Sunday)
20. NP 8am-8:30am (Monday & Thursday)
21. NP 8am-8:30am (Tuesday & Friday)
22. NP 8am-8:30am (Wednesday & Friday)
23. NP 8am-8:30am (Except Sunday)
24. NP 8am-9am (Except Sunday)
25. NP 8am-9:30am (Monday & Thursday)
26. NP 8am-9:30am (Tuesday & Friday)
27. NP 8am-6pm (Monday-Friday)
28. NP 8am-6pm (Tuesday & Thursday)
29. NP 8am-6pm (Monday Wednesday Friday)
30. NP 8am-6pm (Except Sunday)
31. NP 8:30am-9am (Except Sunday)
32. NP 8:30am-9am (Monday & Thursday)
33. NP 8:30am-10am (Monday & Thursday)
34. NP 8:30am-10am (Tuesday & Friday)
35. NP 9am-10:30am (Monday & Thursday)
36. NP 9am-10:30am (Tuesday & Friday)
37. NP 9:30am-11am (Monday & Friday)
38. NP 9:30am-11am (Monday & Thursday)
39. NP 9:30am-11am (Tuesday & Friday)
40. NP 11am-12:30pm (Monday & Thursday)
41. NP 11am-12:30pm (Tuesday & Friday)
42. NP 11:30am-1pm (Monday & Thursday)
43. NP 11:30am-1pm (Tuesday & Friday)
44. Taxi Stand (1 Hour Limit)
45. Bus Stop (NS Anytime)
46. 1 Hr Meter Parking 8am-7pm (Except Sunday)
47. 1 Hr Meter Parking 8:30am-7pm (Except Sunday)
48. 1 Hr Meter Parking 9am-7pm (Except Sunday)
49. 2 Hr Meter Parking 8am-7pm (Except Sunday)
50. 2 Hr Meter Parking 8:30am-7pm (Except Sunday)
51. 2 Hr Meter Parking 9am-7pm (Except Sunday)
52. Snow Route
53. NS 7am-7pm (Monday-Friday)
54. NS Except Authorized Vehicles (7am-7pm) HPD
55. NS Except Authorized Vehicles (8am-5pm Monday-Friday)

NS = No Standing
NP = No Parking

MANHATTANVILLE IN WEST HARLEM REZONING AND ACADEMIC MIXED-USE DEVELOPMENT

Figure 17-9b
Study Area Parking Regulations

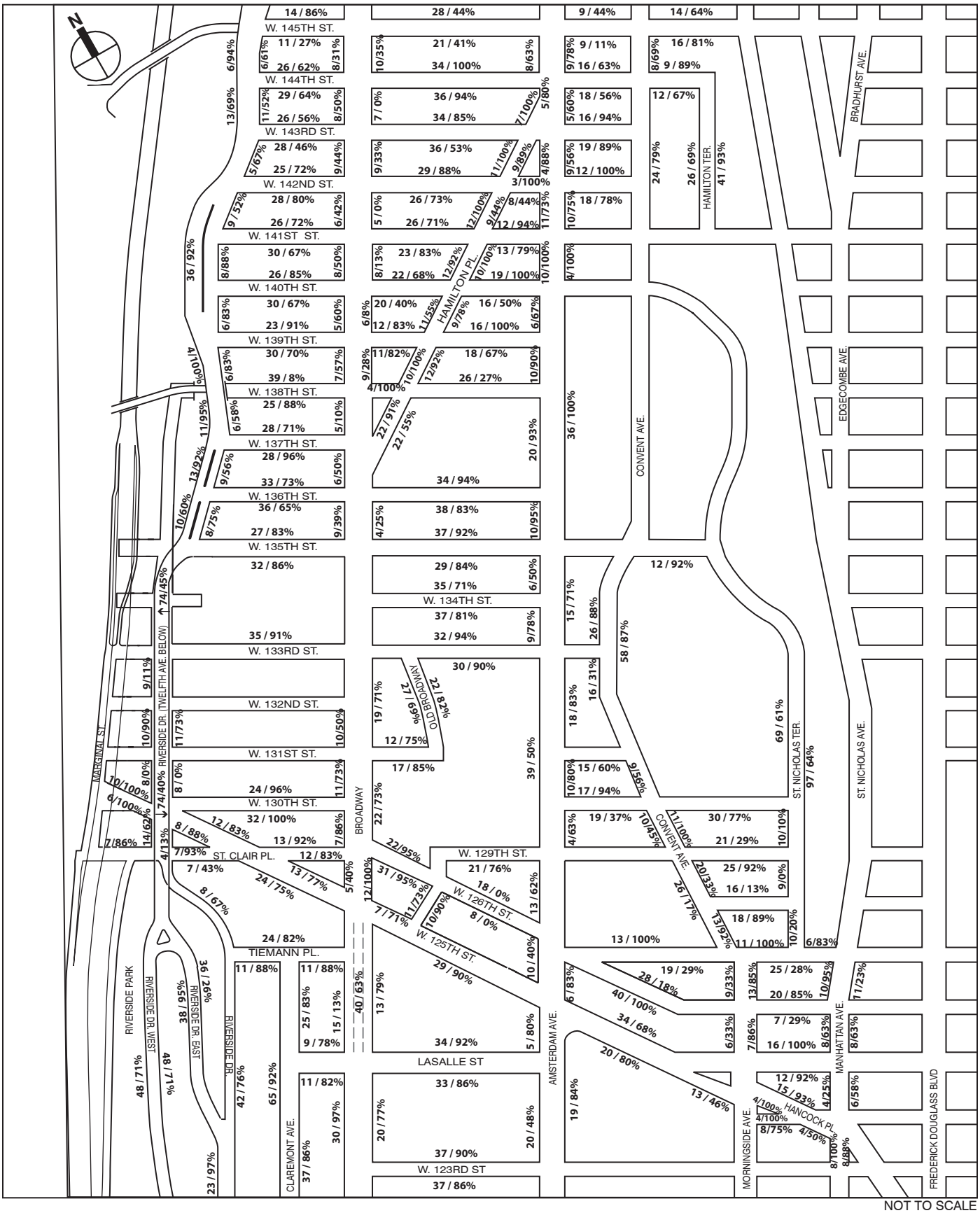


Figure 17-10
Existing 2006 Morning On-Street Parking Capacity/Occupancy Rate

MANHATTANVILLE IN WEST HARLEM REZONING AND ACADEMIC MIXED-USE DEVELOPMENT

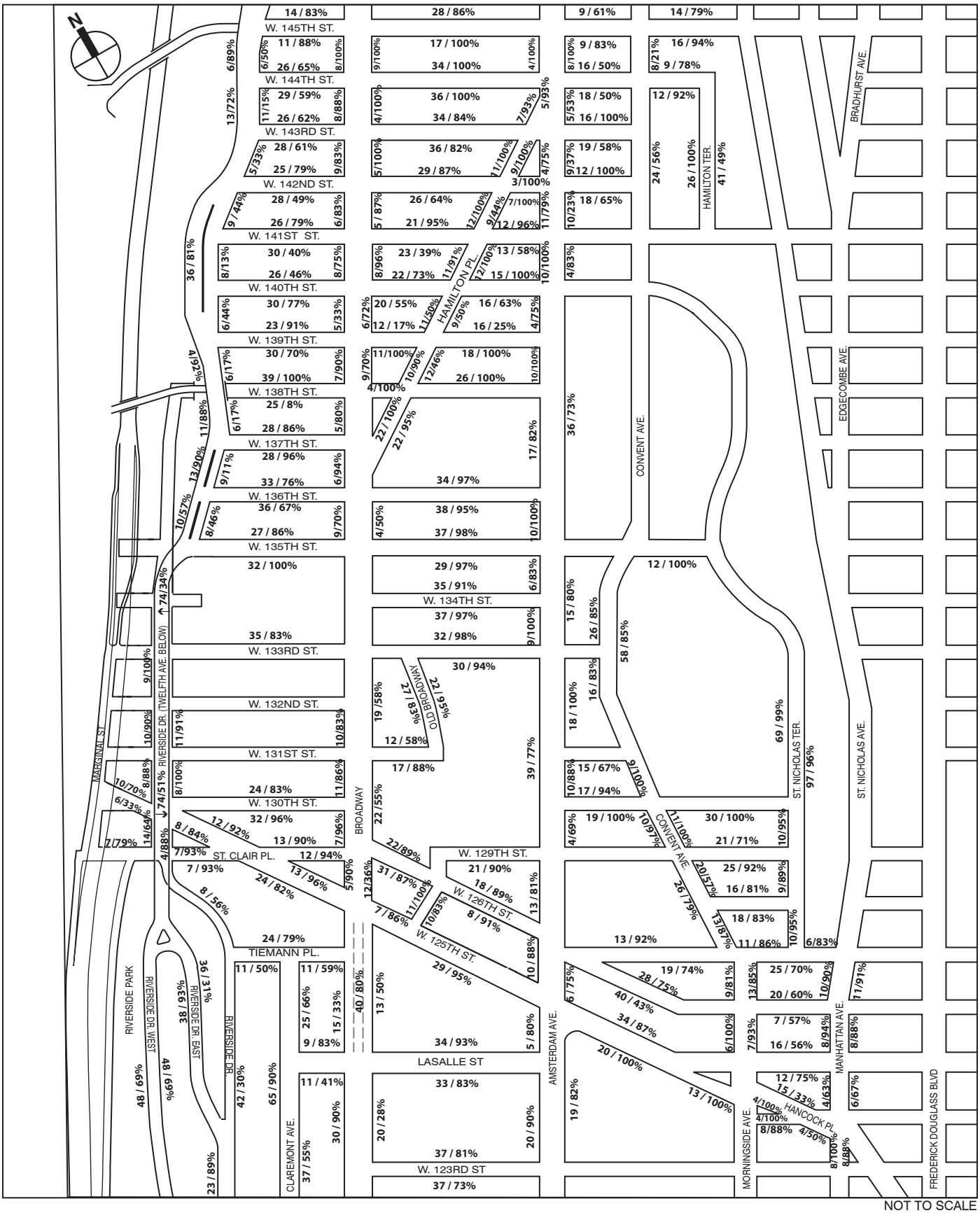


Figure 17-11

Existing 2006 Midday On-Street Parking Capacity/Occupancy Rate

MANHATTANVILLE IN WEST HARLEM REZONING AND ACADEMIC MIXED-USE DEVELOPMENT

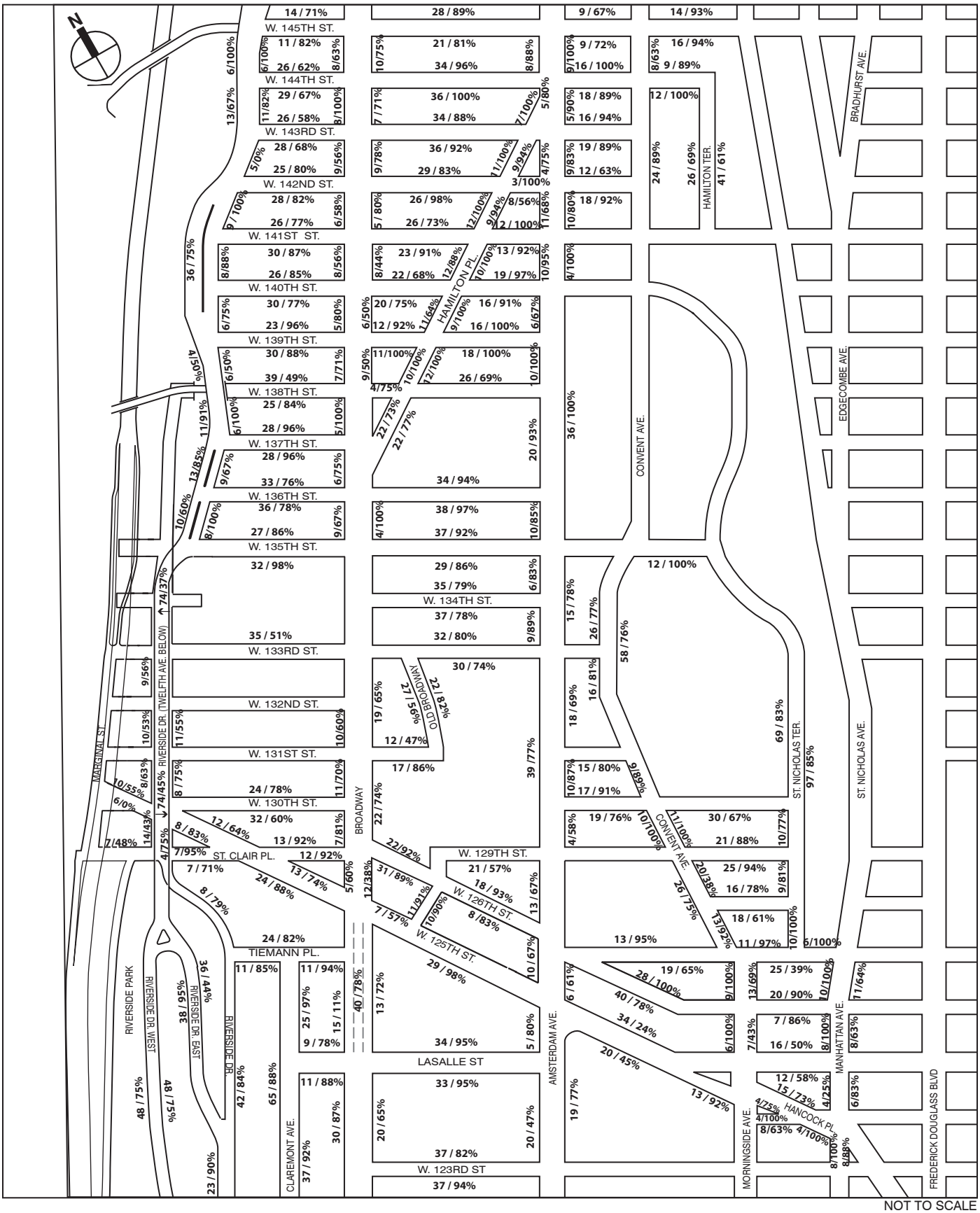


Figure 17-12

Existing 2006 Evening On-Street Parking Capacity/Occupancy Rate

MANHATTANVILLE IN WEST HARLEM REZONING AND ACADEMIC MIXED-USE DEVELOPMENT

Table 17-13
2006 Existing On-Street Parking Utilization Summary

2006 Existing	AM	MD	PM
¼-Mile Radius			
Capacity	1847	1847	1847
Demand	1407	1457	1415
Remaining Spaces	440	390	432
Utilization	**76%**	**79%**	**77%**
½-Mile Radius			
Capacity	4783	4783	4783
Demand	3454	3732	3807
Remaining Spaces	1329	1051	976
Utilization	**72%**	**78%**	**80%**

OFF-STREET PARKING

Off-street publicly accessible parking lots and garages within one mile of the project site were surveyed in September 2006 to assess their capacities and approximate weekday utilization during the morning, midday, and evening peak periods. Individual facility licensed capacities and utilization estimates were surveyed and recorded. Results are summarized in Appendix H and displayed in Figures 17-13a and 17-13b.

Seven public parking facilities are located within ¼ mile of the Project Area, with a combined capacity of 1,330 spaces. Currently, these facilities are 88, 81, and 89 percent utilized, with 159, 249, and 142 available spaces during the morning, midday, and evening periods, respectively. Within ½ mile, there are nine public parking facilities, with a combined capacity of 1,710 spaces. Currently, these facilities are 88, 85, and 84 percent utilized, with 209, 249, and 282 available spaces during the morning, midday, and evening periods, respectively. Overall within one mile, there are 26 public parking facilities with a combined capacity of 3,576 spaces. Currently, these facilities are 85, 83, and 67 percent utilized, with 546, 619, and 1,189 available spaces during the morning, midday, and evening periods, respectively (see Table 17-14).

Table 17-14
2006 Existing Off-Street Parking Utilization Summary

2006 Existing	AM	MD	PM
¼-Mile Radius			
Capacity	1330	1330	1330
Demand	1171	1081	1188
Remaining Spaces	159	249	142
Utilization	**88%**	**81%**	**89%**
½-Mile Radius			
Capacity	1710	1710	1710
Demand	1501	1461	1428
Remaining Spaces	209	249	282
Utilization	**88%**	**85%**	**84%**
1-Mile Radius			
Capacity	3576	3576	3576
Demand	3030	2957	2387
Remaining Spaces	546	619	1189
Utilization	**85%**	**83%**	**67%**

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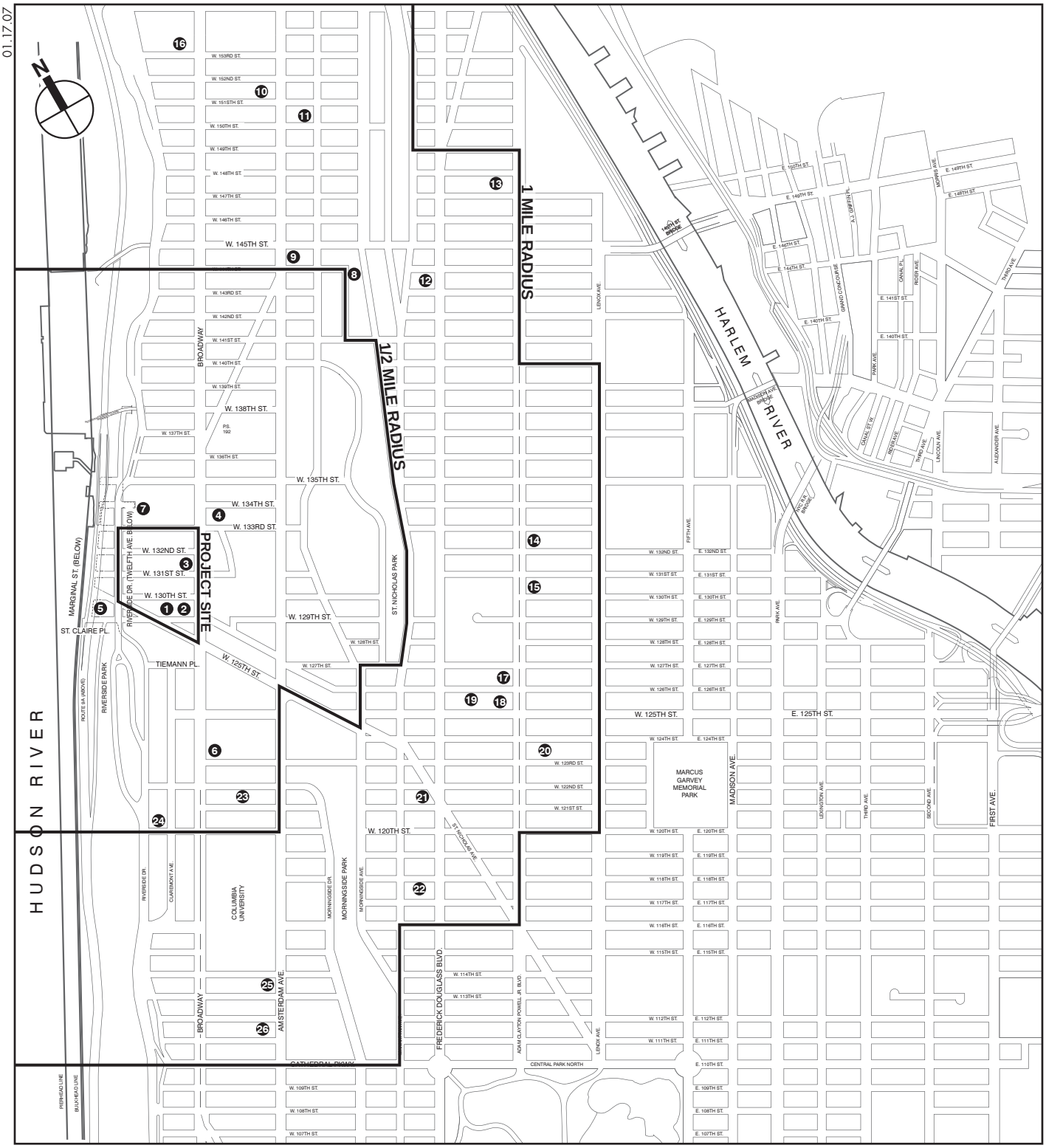

Parking Garage

- For Parking Facility information, please see Fig. 17-13b

MANHATTANVILLE IN WEST HARLEM REZONING AND ACADEMIC MIXED-USE DEVELOPMENT

Figure 17-13a

Study Area Off-Street Parking Facilities

10.18.06

1. MPT 3300 Broadway Corp. - 627 West 129th Street (Capacity: 200)
2. West 129th Street LLC - 605 West 129th Street (Capacity: 134)
3. Uni Facility Corp. - 631-635 West 131st Street
4. Y & H Enterprises Inc. - 526-534 West 134th Street (Capacity: 175)
5. Columbia Waterfront LLC - 69 St. Clair Pl. (Capacity: 70)
6. Morningside Heighs Housing Corp. - 3100 Broadway (Capacity: 291)
7. Edison Riverside Corp. - 3333 Broadway (Capacity: 360)
8. Marvel Parking Corp. - 673 St. Nicholas Avenue (Capacity: 180)
9. Uptown Parking Corp. - 1721-1735 Amsterdam Avenue (Capacity: 53)
10. Nicholson & Nicholas Park - 503 West 151st Street (Capacity: 20)
11. LAZ Parking Limited - 457 West 150th Street (Capacity: 125)
12. Giselle Garage Corp. - 310 West 144th Street
13. Stanns Parking - 234-40 West 148th Street (Capacity:110)
14. Giselle Garage Corp. - 161 West 132nd Street (Capacity: 130)
15. EZ Going Park - 2201 Seventh Avenue (Capacity: 48)
16. Stable Car Parking Inc - 616 West 153rd Street (Capacity: 135)
17. Impark HSW LLC - 2130-38 Seventh Avenue
18. Impark HSW LLC - 215 West 125th Street (Capacity: 60)
19. EZ Going Park - 270 West 126th Street (Capacity: 159)
20. Uptown Parking Corp. - 160 West 124th Street (Capacity: 175)
21. Easy Cross Parking Corp. - 225 St. Nicholas Avenue (Capacity:160)
22. SoLo Parking - 316 West 118th Street (Capacity: 130)
23. Park GMC Garage Management Corp. - 532 West 122nd Street (Capacity: 180)
24. Rapid Park Industries - 480 Claremont Avenue (Capacity: 200)
25. ProPark America - 1090 Amsterdam Avenue (Capacity: 135)
26. GGMC Garage Corp. - 516-20 West 112th Street (Capacity: 75)

Figure 17-13b
Study Area Off-Street Parking Facilities

D. 2015 FUTURE WITHOUT THE PROPOSED ACTIONS

The analysis of traffic conditions in the 2015 analysis year without the Proposed Actions, or the 2015 No Build condition, serves as the baseline against which the impacts of the Proposed Actions would be compared. The future No Build analysis reflects increases in background traffic volumes and traffic from other planned developments in the area, as well as roadway or signal timing changes scheduled to be implemented by the analysis year. Although the West Harlem Master Plan contemplates the possibility of improved bus service, a new ferry landing, and a potential Metro-North stop at West 125th Street, these transportation improvements are still currently being studied and were not included in the future No Build analysis. Similarly, DCP and the New York City Department of Transportation (NYCDOT) are undertaking a "river-to-river" study for the Harlem section of Manhattan (Harlem Morningside Heights Transportation Study) to develop potential strategies to improve both vehicular and pedestrian travel. The outcomes of this study were also not accounted for in the future No Build analysis.

Future No Build peak hour traffic volumes were estimated by first applying a background growth of 0.5 percent per year (as recommended by the *CEQR Technical Manual*), for a total of 4.6 percent by 2015. As detailed in Section B of this chapter, other projects anticipated to be completed independent of the Proposed Actions were considered, along with the general background growth, to forecast the future baseline traffic volumes.

TRAFFIC VOLUMES AND INTERSECTION CAPACITY ANALYSIS

Peak hour traffic volumes for the 2015 No Build condition are shown in Figures 17-14 through 17-19. Within the primary study area, increases in two-way peak hour traffic over existing conditions are expected to range from 150 vph to 310 vph along Broadway, from 150 vph to 200 vph along Amsterdam Avenue, and from 0 vph to 190 vph along Twelfth Avenue. Two-way peak hour volumes along West 125th Street would increase by 200 vph to 380 vph during the three analysis periods. In the secondary study area, intersections along East 125th Street are expected to experience substantial increases in traffic volumes as a result of the East River Plaza and East 125th Street developments in East Harlem, particularly along First and Second Avenues at East 125th Street, where increases in PM peak hour traffic over existing volumes will exceed 470 vph and 850 vph, respectively. PM peak hour eastbound and westbound volumes along East 125th Street between Second and Fifth Avenues are expected to increase by 330 vph and 200 vph, respectively.

In addition to changes in traffic volumes, the No Build analysis also accounted for the modification of parking lot access at the Fairway supermarket, which would result in the elimination of the eastbound approach at the intersection of Marginal and West 132nd Streets and the addition of an eastbound approach to the intersection of Twelfth Avenue and West 131st Street. The No Build analysis included additional roadway modifications expected to occur as a result of construction of the West Harlem Waterfront park, including lane width and pavement-marking modifications along Marginal Street, and relocation of the bicycle lane, currently southbound on Twelfth Avenue between West 125th and West 134th Streets, to west of Marginal Street. Relocation of the bicycle lane would result in an additional southbound lane on Twelfth Avenue between West 125th and West 133rd Streets. Results of the LOS analysis are presented in Tables 17-15 and 17-16 for the primary study area, and in Tables 17-17 and 17-18 for the secondary study area. As with existing conditions, locations with notable service constraints, those operating at mid-LOS D or worse, are described below.

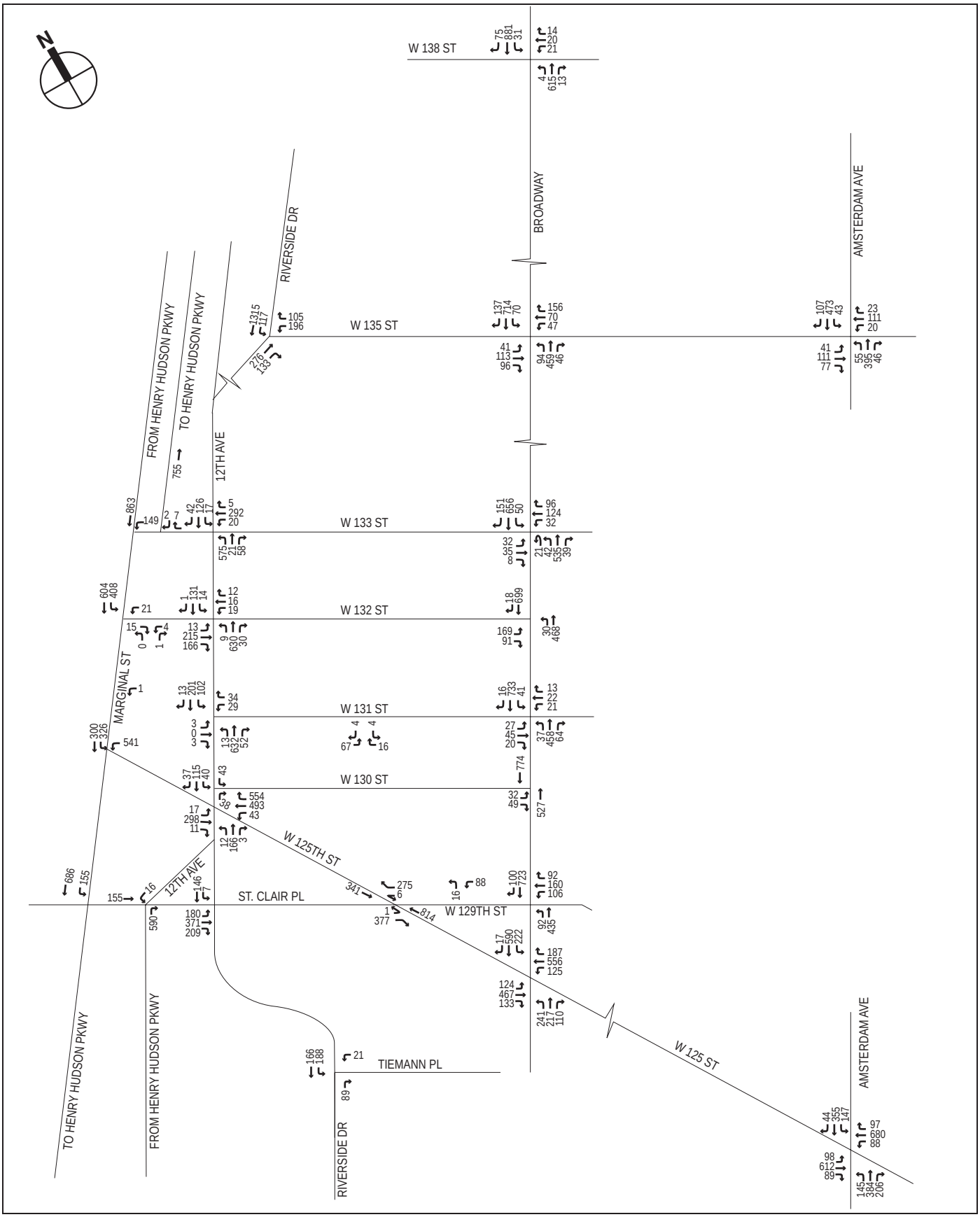

Figure 17-14
Primary Study Area
No Build 2015 Morning Peak Hour

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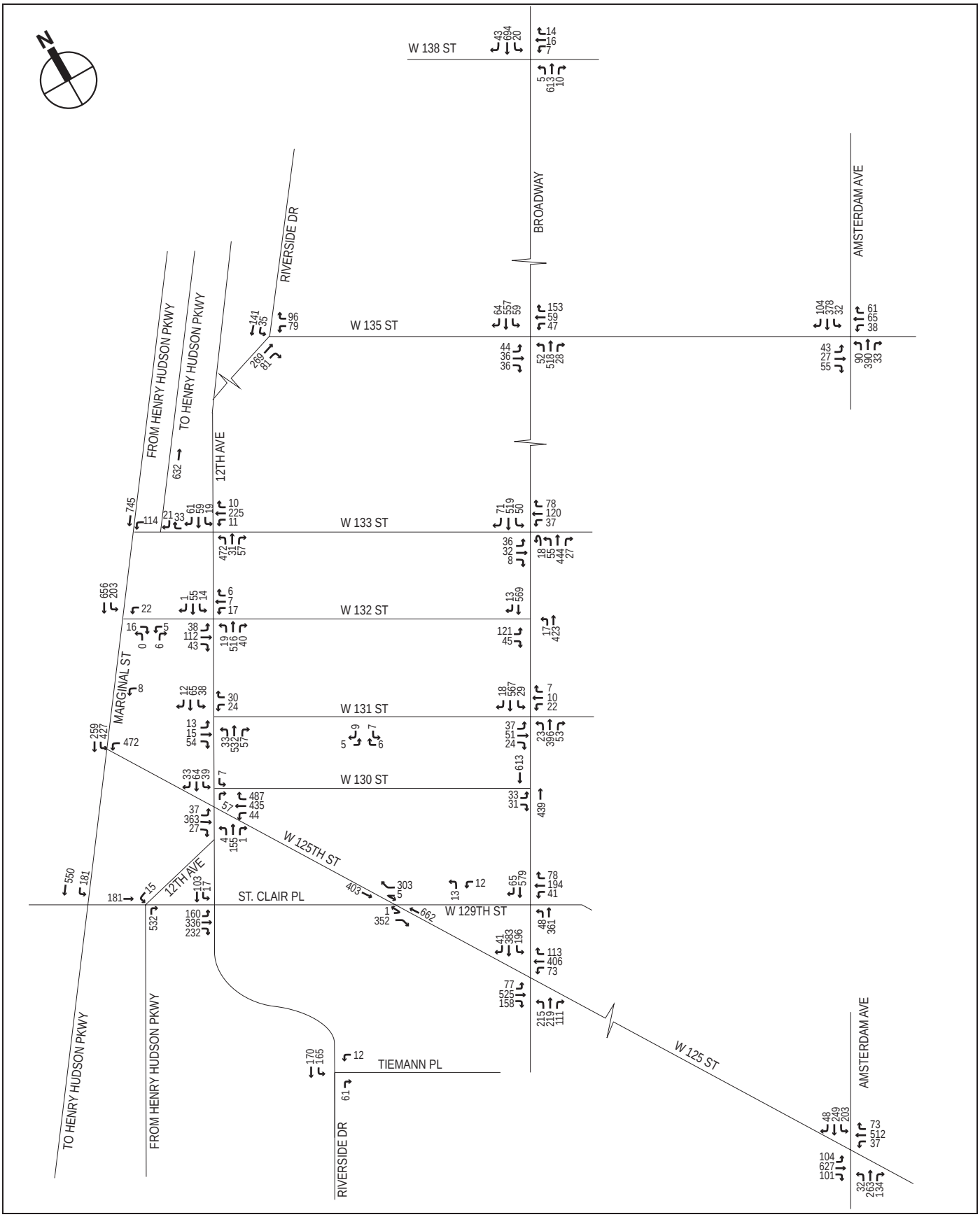


NOT TO SCALE

Figure 17-15
Primary Study Area
No Build 2015 Midday Peak Hour

09.13.07

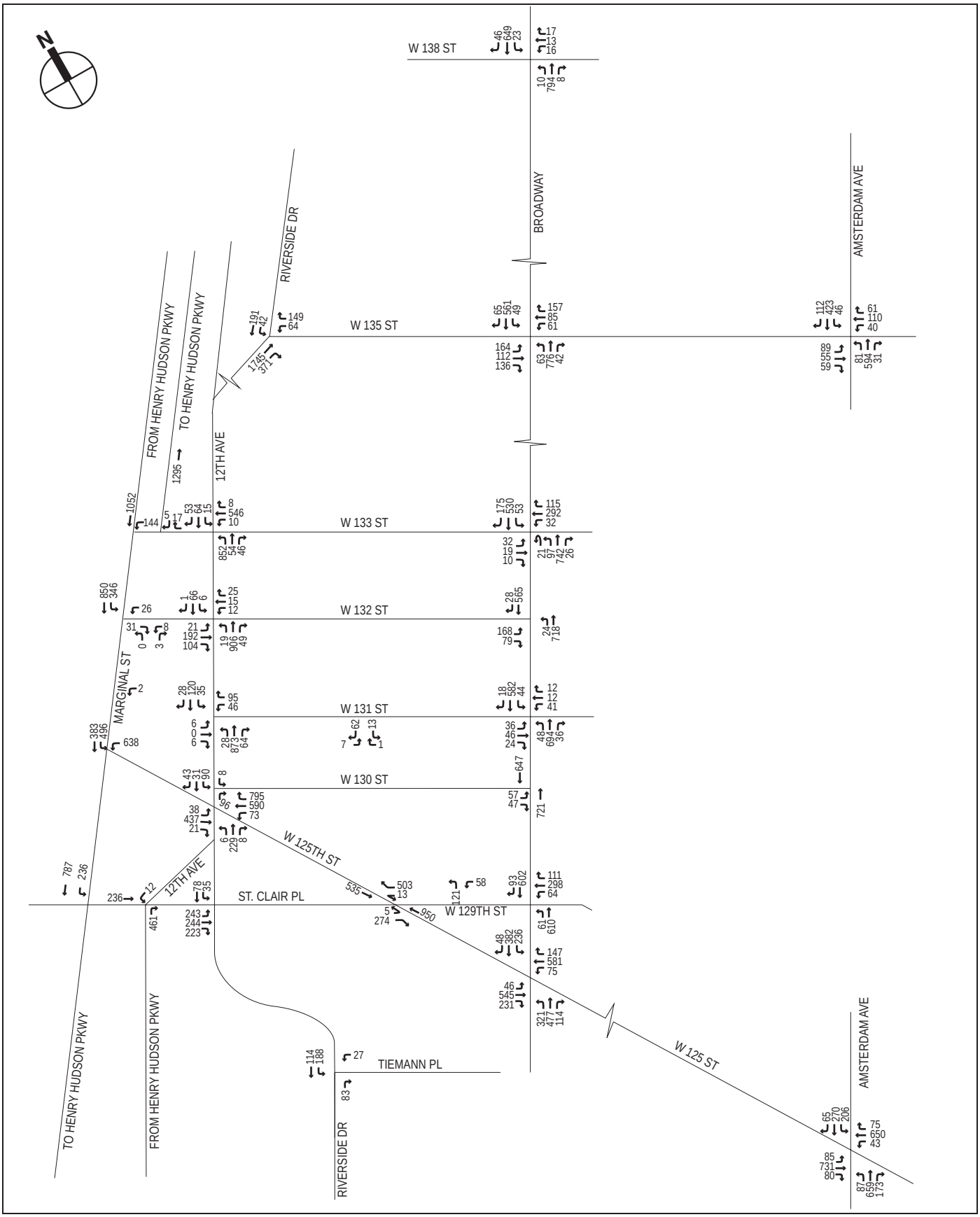
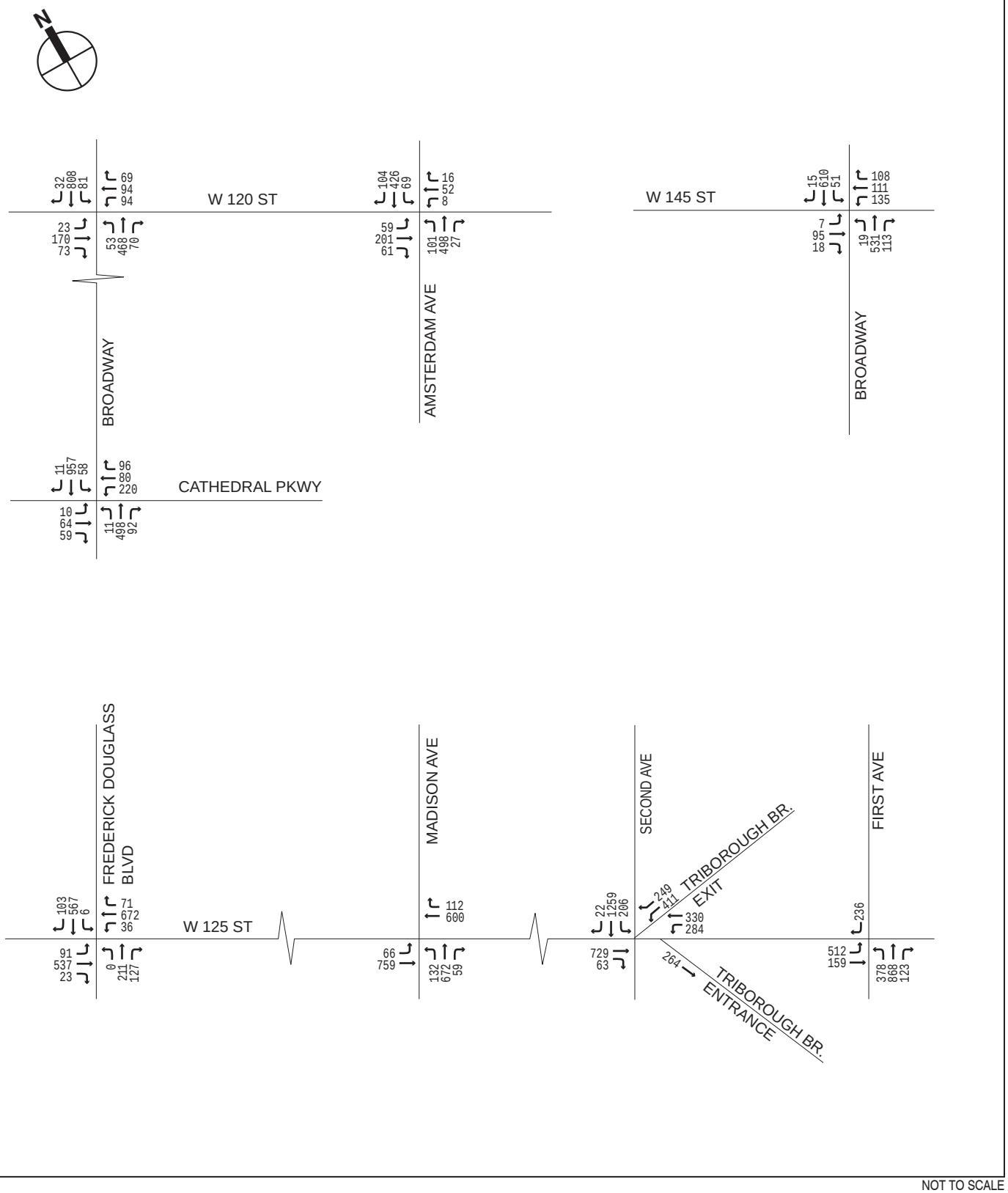


Figure 17-16
Primary Study Area
No Build 2015 Evening Peak Hour

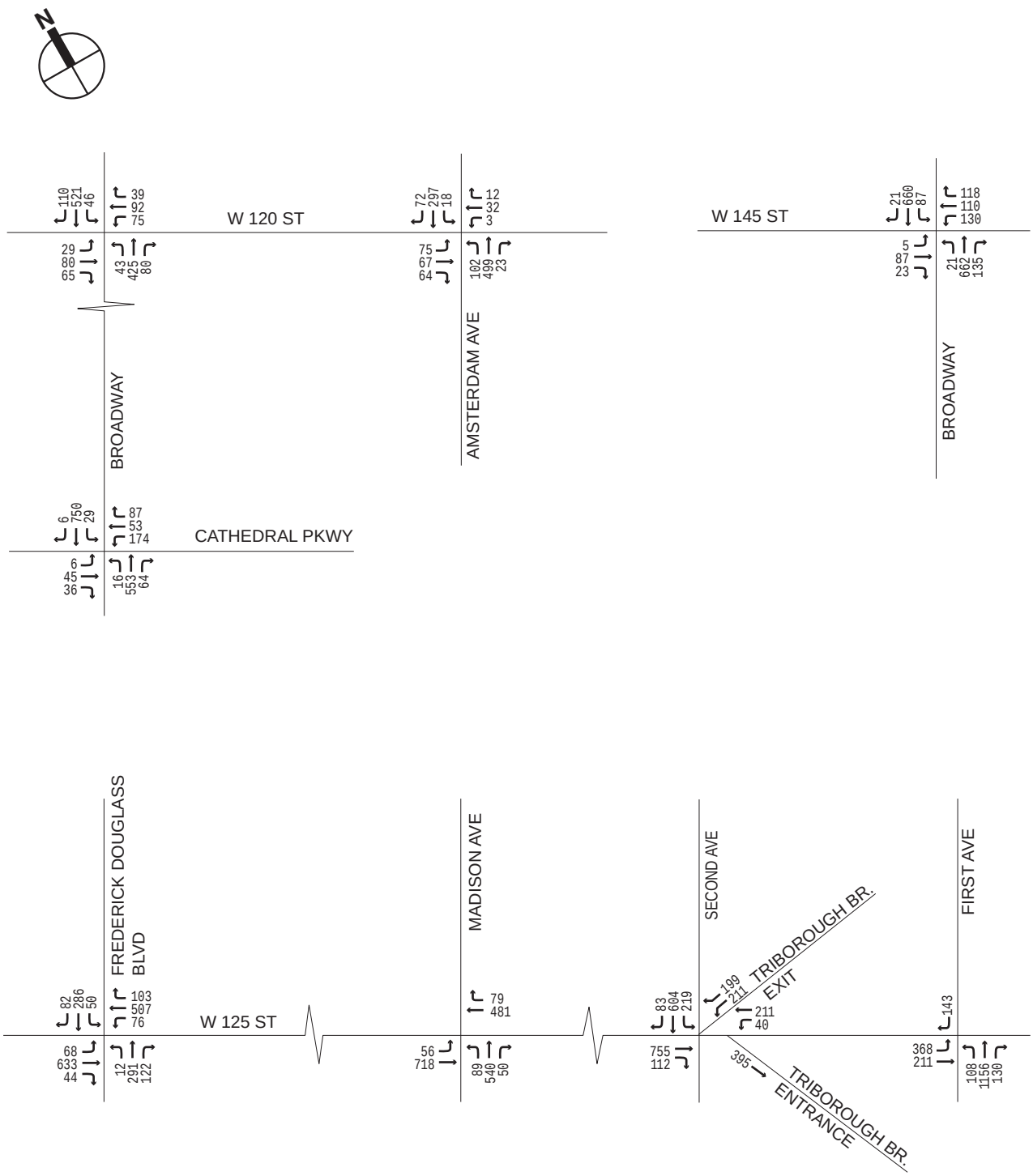
09.10.07



NOT TO SCALE

Figure 17-17
Secondary Study Area
No Build 2015 Morning Peak Hour

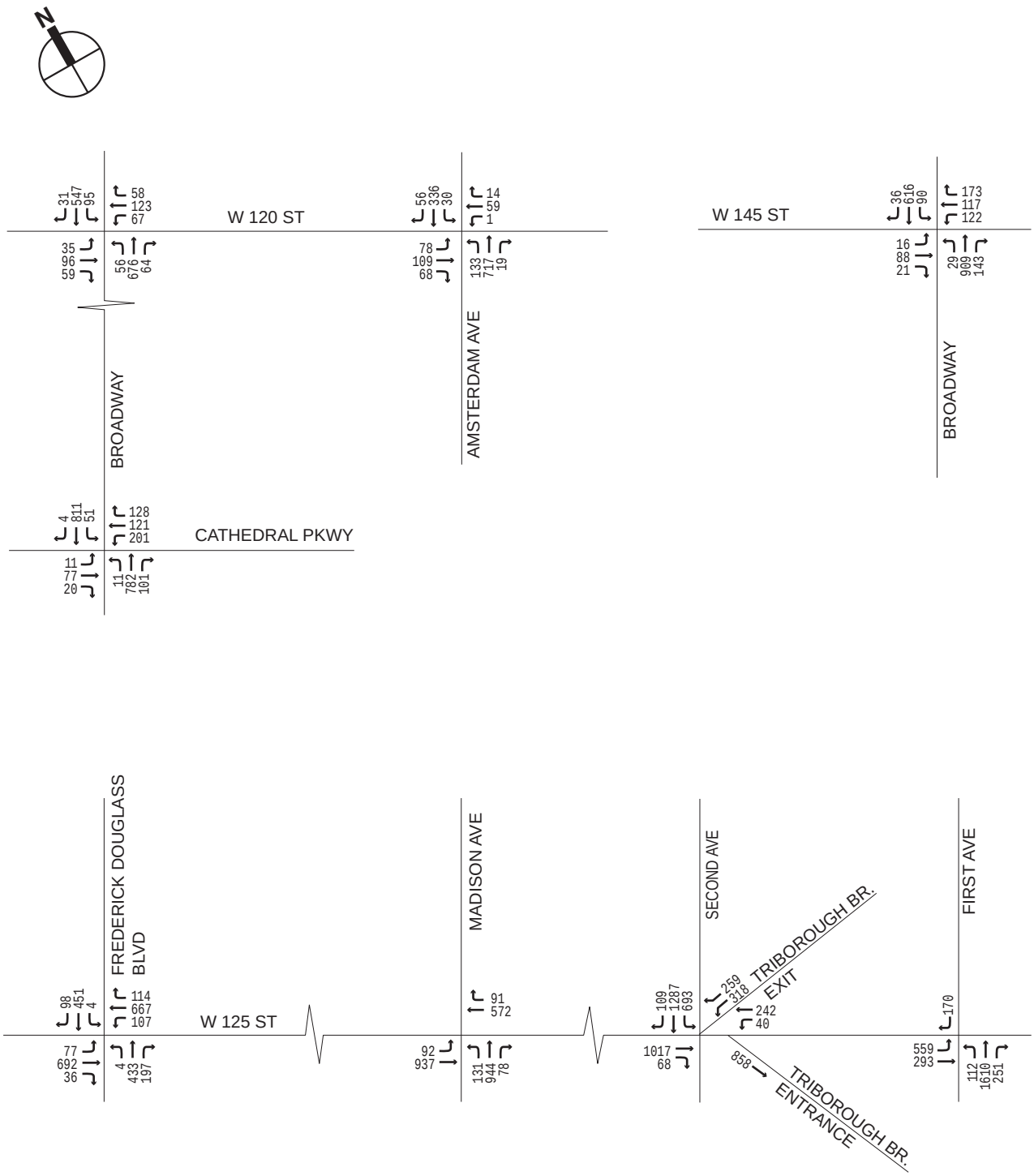
09.10.07



NOT TO SCALE

Figure 17-18
Secondary Study Area
No Build 2015 Midday Peak Hour

09.10.07



NOT TO SCALE

Figure 17-19
Secondary Study Area
No Build 2015 Evening Peak Hour

Table 17-15
2015 No Build Condition
Primary Study Area Signalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2006 Existing				2015 No Build				2006 Existing				2015 No Build				2006 Existing				2015 No Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Marginal Street @ West 125th Street																								
WB	L	0.40	24.3	C	L	0.51	26.0	C	L	0.35	23.7	C	L	0.45	25.0	C	L	0.41	24.5	C	L	0.63	28.2	C
SB	L	0.23	12.1	B					L	0.36	13.6	B					L	0.41	14.3	B				
	LT	0.25	11.8	B	LT	0.47	14.3	B	LT	0.25	11.8	B	LT	0.50	14.7	B	LT	0.35	12.8	B	LT	0.64	17.1	B
	Int.		17.5	B	Int.		19.6	B	Int.		16.8	B	Int.		18.9	B	Int.		17.3	B	Int.		21.9	C
Riverside Drive @ West 135th Street																								
WB	L	0.32	28.0	C	L	0.59	35.0	C	L	0.21	26.1	C	L	0.23	26.5	C	L	0.16	25.6	C	L	0.20	26.0	C
	R	0.40	30.9	C	R	0.43	31.7	C	R	0.34	29.3	C	R	0.38	30.1	C	R	0.57	36.4	D	R	0.61	38.4	D
NB	TR	0.22	8.1	A	TR	0.23	8.2	A	TR	0.19	7.9	A	TR	0.21	8.0	A	TR	0.98	23.3	C	TR	1.07	51.8	D
SB	LT	0.81	11.4	B	LT	0.86	13.6	B	LT	0.10	7.4	A	LT	0.11	7.4	A	LT	0.19	8.1	A	LT	0.21	8.2	A
	Int.		12.6	B	Int.		15.5	B	Int.		12.4	B	Int.		12.8	B	Int.		22.7	C	Int.		46.3	D
Twelfth Avenue @ West 133rd Street																								
WB	LTR	0.56	28.9	C	LTR	0.76	37.1	D	LTR	0.40	25.0	C	LTR	0.62	30.5	C	LTR	0.89	48.5	D	LTR	1.30	177.1	F
NB	L	0.91	39.9	D	L	1.02	65.9	E	L	0.70	21.8	C	L	0.79	27.2	C	L	0.79	26.3	C	L	0.94	44.2	D
	LTR	0.18	10.8	B	LTR	0.19	11.0	B	LTR	0.16	10.7	B	LTR	0.18	10.8	B	LTR	0.60	17.8	B	LTR	0.71	21.6	C
SB	LTR	0.26	11.7	B	LTR	0.15	10.4	B	LTR	0.20	11.1	B	LTR	0.12	10.1	B	LTR	0.17	10.8	B	LTR	0.10	10.0	B
	Int.		28.6	C	Int.		42.1	D	Int.		18.9	B	Int.		23.2	C	Int.		28.9	C	Int.		81.7	F
Twelfth Avenue @ West 132nd Street																								
EB	LTR	0.31	23.2	C	LTR	0.79	37.2	D	LTR	0.24	22.2	C	LTR	0.40	24.7	C	LTR	0.44	25.2	C	LTR	0.60	28.9	C
WB	LTR	0.06	20.0	B	LTR	0.12	20.7	C	LTR	0.03	19.7	B	LTR	0.08	20.3	C	LTR	0.07	20.1	C	LTR	0.12	20.6	C
NB	LTR	0.45	13.3	B	LTR	0.49	13.8	B	LTR	0.37	12.4	B	LTR	0.42	13.0	B	LTR	0.60	15.6	B	LTR	0.69	17.6	B
SB	LTR	0.24	11.6	B	LTR	0.13	10.3	B	LTR	0.13	10.5	B	LTR	0.07	9.8	A	LTR	0.11	10.2	B	LTR	0.06	9.7	A
	Int.		14.9	B	Int.		21.1	C	Int.		14.0	B	Int.		15.6	B	Int.		17.3	B	Int.		19.9	B
Twelfth Avenue @ West 125th Street																								
EB	LTR	0.18	12.7	B	LTR	0.26	13.4	B	LTR	0.29	13.7	B	LTR	0.33	14.1	B	LTR	0.31	13.9	B	LTR	0.40	15.1	B
WB	L	0.12	12.6	B	L	0.15	13.0	B	L	0.12	12.7	B	L	0.16	13.3	B	L	0.15	13.1	B	L	0.27	15.3	B
	T	0.57	18.9	B	T	0.73	23.8	C	T	0.49	17.1	B	T	0.62	19.9	B	T	0.57	18.8	B	T	0.85	30.6	C
	R	0.86	34.1	C	R	0.96	48.8	D	R	0.85	32.5	C	R	0.95	46.1	D	R	1.01	55.8	E	R	1.14	100.5	F
NB	LTR	0.23	19.3	B	LTR	0.32	20.6	C	LTR	0.22	19.2	B	LTR	0.29	20.1	C	LTR	0.36	21.1	C	LTR	0.42	22.2	C
SB	LT	0.34	21.4	C	LT	0.38	22.1	C	LT	0.21	19.3	B	LT	0.23	19.5	B	LT	0.28	20.5	C	LT	0.34	21.8	C
	Int.		23.2	C	Int.		28.7	C	Int.		21.6	C	Int.		26.6	C	Int.		32.0	C	Int.		49.8	D
Broadway @ West 138th Street																								
WB	LTR	0.16	24.1	C	LTR	0.17	24.3	C	LTR	0.10	23.3	C	LTR	0.11	23.4	C	LTR	0.13	23.7	C	LTR	0.15	23.9	C
NB	LT	0.31	6.0	A	LT	0.34	6.2	A	LT	0.30	6.0	A	LT	0.34	6.2	A	LT	0.37	6.3	A	LT	0.41	6.6	A
	R	0.02	4.7	A	R	0.02	4.7	A	R	0.02	4.7	A	R	0.02	4.7	A	R	0.02	4.7	A	R	0.02	4.7	A
SB	LTR	0.52	7.7	A	LTR	0.59	8.4	A	LTR	0.40	6.7	A	LTR	0.44	6.9	A	LTR	0.38	6.5	A	LTR	0.41	6.7	A
	Int.		7.6	A	Int.		8.0	A	Int.		6.8	A	Int.		7.0	A	Int.		6.9	A	Int.		7.2	A
Broadway Northbound @ West 135th Street																								
EB	LT	0.31	25.1	C	LT	0.36	25.8	C	LT	0.23	24.3	C	LT	0.27	24.8	C	DefL	0.77	51.7	D	DefL	0.95	83.0	F
																	T	0.38	27.1	C	T	0.41	27.7	C
WB	TR	0.46	28.0	C	TR	0.49	28.7	C	TR	0.45	28.0	C	TR	0.48	28.6	C	TR	0.48	28.4	C	TR	0.54	29.7	C
NB	LTR	0.39	6.7	A	LTR	0.51	7.8	A	LTR	0.42	7.0	A	LTR	0.47	7.5	A	LTR	0.59	8.7	A	LTR	0.65	9.7	A
	Int.		16.4	B	Int.		16.6	B	Int.		15.1	B	Int.		15.4	B	Int.		19.1	B	Int.		23.7	C
Broadway Southbound @ West 135th Street																								
EB	TR	0.38	26.6	C	TR	0.42	27.1	C	TR	0.15	23.5	C	TR	0.19	24.0	C	TR	0.48	27.9	C	TR	0.67	32.8	C
WB	LT	0.21	24.0	C	LT	0.34	25.6	C	LT	0.23	24.1	C	LT	0.27	24.7	C	LT	0.28	24.8	C	LT	0.40	26.9	C
SB	L	0.08	5.0	A	L	0.10	5.1	A	L	0.09	5.1	A	L	0.09	5.1	A	L	0.07	5.0	A	L	0.08	5.0	A
	TR	0.62	9.5	A	TR	0.70	11.0	B	TR	0.48	7.6	A	TR	0.52	8.1	A	TR	0.47	7.5	A	TR	0.51	7.9	A
	Int.		14.4	B	Int.		16.0	B	Int.		11.8	B	Int.		12.5	B	Int.		15.8	B	Int.		18.8	B
Broadway Northbound @ West 133rd Street																								
EB	LT	0.20	17.2	B	LT	0.21	17.4	B	LT	0.22	17.5	B	LT	0.25	17.9	B	LT	0.18	17.1	B	LT	0.23	17.8	B
WB	TR	0.34	21.1	C	TR	0.51	24.3	C	TR	0.31	20.6	C	TR	0.47	23.4	C	TR	0.67	29.0	C	TR	0.86	40.9	D
NB	LT	0.39	11.7	B	LT	0.56	13.9	B	LT	0.35	11.3	B	LT	0.44	12.2	B	LT	0.66	15.6	B	LT	0.78	18.9	B
	R	0.04	9.0	A	R	0.11	9.6	A	R	0.05	9.0	A	R	0.08	9.4	A	R	0.05	9.0	A	R	0.07	9.2	A
	Int.		14.6	B	Int.		16.8	B	Int.		14.4	B	Int.		15.9	B	Int.		19.3	B	Int.		25.3	C
Broadway Southbound @ West 133rd Street																								
EB	TR	0.12	17.9	B	TR	0.12	18.0	B	TR	0.12	18.0	B	TR	0.13	18.1	B	TR	0.09	17.7	B	TR	0.10	17.7	B
WB	LT	0.20	17.3	B	LT	0.43	20.6	C	LT	0.21	17.3	B	LT	0.41	20.1	C	LT	0.47	21.0	C	LT	0.74	28.5	C
SB	LTR	0.46	12.1	B	LTR	0.52	12.7	B	LTR	0.33	10.8	B	LTR	0.38	11.2	B	LTR	0.38	11.2	B	LTR	0.48	12.2	B
	Int.		13.2	B	Int.		14.6	B	Int.		12.6	B	Int.		14.0	B	Int.		14.6	B	Int.		18.2	B

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service

Table 17-15 (Continued)
2015 No Build Condition
Primary Study Area Signalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2006 Existing				2015 No Build				2006 Existing				2015 No Build				2006 Existing				2015 No Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Broadway Northbound @ West 132nd Street																								
EB	L	0.11	16.4	B	L	0.40	20.5	C	L	0.14	16.6	B	L	0.23	17.7	B	L	0.22	17.5	B	L	0.31	18.7	B
NB	LT	0.32	10.9	B	LT	0.41	11.7	B	LT	0.29	10.6	B	LT	0.35	11.1	B	LT	0.49	12.6	B	LT	0.57	13.6	B
	Int.		11.5	B	Int.		14.0	B	Int.		11.6	B	Int.		12.6	B	Int.		13.4	B	Int.		14.6	B
Broadway Southbound @ West 132nd Street																								
EB	TR	0.22	19.5	B	TR	0.61	27.9	C	TR	0.20	19.0	B	TR	0.32	20.7	C	TR	0.34	20.9	C	TR	0.46	22.9	C
WB	LT	0.03	15.5	B	LT	0.06	15.8	B	LT	0.01	15.4	B	LT	0.04	15.6	B	LT	0.02	15.4	B	LT	0.04	15.6	B
SB	LTR	0.44	12.0	B	LTR	0.51	12.9	B	LTR	0.35	11.1	B	LTR	0.41	11.7	B	LTR	0.36	11.2	B	LTR	0.43	11.9	B
	Int.		13.1	B	Int.		17.0	B	Int.		12.5	B	Int.		13.8	B	Int.		13.8	B	Int.		15.2	B
Broadway @ West 131st Street																								
EB	LTR	0.10	20.4	C	LTR	0.20	21.7	C	LTR	0.14	20.9	C	LTR	0.24	22.1	C	LTR	0.12	20.6	C	LTR	0.21	21.8	C
WB	LT	0.10	20.5	C	LT	0.11	20.6	C	LT	0.09	20.4	C	LT	0.10	20.5	C	LT	0.14	21.1	C	LT	0.16	21.3	C
	R	0.03	19.7	B	R	0.04	19.8	B	R	0.02	19.6	B	R	0.02	19.6	B	R	0.03	19.7	B	R	0.04	19.8	B
NB	LTR	0.27	7.9	A	LTR	0.37	8.8	A	LTR	0.23	7.7	A	LTR	0.30	8.1	A	LTR	0.39	8.8	A	LTR	0.47	9.6	A
SB	LTR	0.39	8.8	A	LTR	0.50	9.9	A	LTR	0.30	8.2	A	LTR	0.37	8.7	A	LTR	0.33	8.4	A	LTR	0.42	9.1	A
	Int.		9.5	A	Int.		10.6	B	Int.		9.3	A	Int.		10.1	B	Int.		9.7	A	Int.		10.7	B
Broadway @ West 130th Street																								
EB	LR	0.18	24.4	C	LR	0.25	25.6	C	LR	0.13	23.7	C	LR	0.19	24.5	C	LR	0.24	25.4	C	LR	0.31	26.5	C
NB	LT	0.21	5.4	A	LT	0.26	5.7	A	T	0.18	5.3	A	T	0.21	5.4	A	LT	0.28	5.8	A	LT	0.32	6.0	A
SB	LT	0.31	6.0	A	LT	0.37	6.3	A	T	0.25	5.6	A	T	0.29	5.9	A	LT	0.27	5.7	A	LT	0.32	6.0	A
	Int.		6.7	A	Int.		7.2	A	Int.		6.4	A	Int.		6.8	A	Int.		7.0	A	Int.		7.5	A
Broadway @ West 129th Street																								
WB	LT	0.38	18.2	B	LT	0.42	19.0	B	LT	0.35	17.8	B	LT	0.41	18.7	B	LT	0.46	19.6	B	LT	0.54	21.1	C
	R	0.19	16.0	B	R	0.20	16.1	B	R	0.15	15.5	B	R	0.18	15.9	B	R	0.22	16.4	B	R	0.27	17.1	B
NB	LT	0.33	17.0	B	DefL	0.61	34.9	C	LT	0.30	16.6	B	LT	0.38	17.6	B	LT	0.57	20.6	C	LT	0.69	23.5	C
					T	0.48	19.2	B																
SB	TR	0.48	15.9	B	TR	0.60	17.7	B	TR	0.37	17.3	B	TR	0.44	18.1	B	TR	0.39	17.6	B	TR	0.49	18.8	B
	Int.		16.6	B	Int.		19.1	B	Int.		17.1	B	Int.		18.0	B	Int.		19.0	B	Int.		20.9	C
Broadway @ West 125th Street																								
EB	L	0.55	36.8	D	L	1.44	275.6	F	L	0.35	26.5	C	L	0.56	37.1	D	L	0.27	25.7	C	L	0.55	45.1	D
	TR	0.57	26.8	C	TR	0.79	34.3	C	TR	0.71	30.6	C	TR	0.87	39.7	D	TR	0.83	36.7	D	TR	1.08	84.9	F
WB	L	0.68	44.6	D	L	1.15	159.2	F	L	0.54	39.1	D	L	0.81	77.6	E	L	0.65	50.8	D	L	1.04	140.8	F
	TR	0.71	30.4	C	TR	0.99	57.7	E	TR	0.56	26.5	C	TR	0.73	31.6	C	TR	0.68	29.3	C	TR	0.92	44.9	D
NB	L	0.43	32.1	C	L	0.46	32.7	C	L	0.38	31.1	C	L	0.40	31.6	C	L	0.56	35.4	D	L	0.60	36.7	D
	LT	0.41	30.5	C	LT	0.48	31.6	C	LT	0.43	30.7	C	LT	0.47	31.5	C	LT	0.82	42.9	D	LT	0.91	50.5	D
	R	0.55	39.8	D	R	0.62	43.8	D	R	0.54	39.6	D	R	0.68	49.5	D	R	0.51	37.8	D	R	0.61	43.4	D
SB	L	0.33	30.1	C	L	0.38	30.6	C	L	0.28	29.1	C	L	0.35	30.4	C	L	0.25	28.5	C	L	0.36	30.1	C
	LTR	0.90	49.1	D	LTR	1.04	76.6	E	LTR	0.70	36.8	D	LTR	0.79	40.9	D	LTR	0.75	38.9	D	LTR	0.86	45.9	D
	Int.		35.7	D	Int.		64.6	E	Int.		31.6	C	Int.		37.7	D	Int.		36.6	D	Int.		56.9	E
Amsterdam Avenue @ West 135th Street																								
EB	LT	0.31	26.4	C	LT	0.42	28.3	C	LT	0.20	24.8	C	LT	0.23	25.2	C	LT	0.47	30.8	C	LT	0.58	35.1	D
	R	0.36	29.0	C	R	0.38	29.8	C	R	0.22	25.6	C	R	0.23	25.8	C	R	0.25	26.3	C	R	0.27	26.6	C
WB	LTR	0.36	27.1	C	LTR	0.44	28.9	C	LTR	0.45	29.6	C	LTR	0.53	31.8	C	LTR	0.48	30.2	C	LTR	0.65	36.2	D
NB	LTR	0.44	7.4	A	LTR	0.48	7.9	A	LTR	0.50	8.2	A	LTR	0.54	8.8	A	LTR	0.63	10.0	A	LTR	0.69	11.3	B
SB	LTR	0.52	8.2	A	LTR	0.58	8.9	A	LTR	0.44	7.4	A	LTR	0.49	7.9	A	LTR	0.52	8.3	A	LTR	0.55	8.6	A
	Int.		12.3	B	Int.		13.6	B	Int.		12.0	B	Int.		13.0	B	Int.		13.8	B	Int.		16.1	B
Amsterdam Avenue @ West 125th Street																								
EB	L	0.56	41.8	D	L	1.39	264.3	F	L	0.72	53.2	D	L	1.10	145.3	F	L	0.58	41.0	D	L	1.06	144.6	F
	TR	0.77	34.1	C	TR	0.99	60.5	E	TR	0.82	36.9	D	TR	1.00	62.1	E	TR	0.79	34.8	C	TR	1.08	84.5	F
WB	L	0.67	49.4	D	L	1.08	148.3	F	L	0.38	32.9	C	L	0.51	45.7	D	L	0.42	35.4	D	L	0.60	54.1	D
	TR	0.76	33.3	C	TR	1.02	66.8	E	TR	0.68	30.4	C	TR	0.84	38.0	D	TR	0.71	31.4	C	TR	0.96	52.1	D
NB	L	0.31	14.4	B	L	0.35	15.7	B	L	0.06	9.7	A	L	0.07	10.1	B	L	0.20	15.4	B	L	0.23	16.9	B
	TR	0.67	26.7	C	TR	0.73	28.6	C	TR	0.47	22.3	C	TR	0.52	23.3	C	TR	0.84	33.4	C	TR	0.90	38.5	D
SB	L	0.47	22.9	C	L	0.53	26.7	C	L	0.48	18.8	B	L	0.62	25.0	C	L	0.58	33.9	C	L	0.75	45.0	D
	TR	0.41	21.2	C	TR	0.44	21.6	C	TR	0.30	19.8	B	TR	0.33	20.2	C	TR	0.73	33.4	C	TR	0.81	38.6	D
	Int.		29.3	C	Int.		56.1	E	Int.		29.2	C	Int.		44.0	D	Int.		33.0	C	Int.		56.2	E

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service

Table 17-16
2015 No Build Condition
Primary Study Area Unsignalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2006 Existing				2015 No Build				2006 Existing				2015 No Build				2006 Existing				2015 No Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Marginal Street @ West 133rd Street																								
WB	L	0.18	10.5	B	L	0.20	10.6	B	L	0.13	10.1	B	L	0.16	10.3	B	L	0.17	10.3	B	L	0.20	10.5	B
SB	T	0.68	18.5	C	T	1.15	101.8	F	T	0.78	23.4	C	T	0.96	45.2	E	T	0.96	40.8	E	T	1.15	95.9	F
Marginal Street @ West 132nd Street																								
WB	LT	-	9.0	A	L	-	9.7	A	LT	-	9.3	A	L	-	9.6	A	LT	-	9.7	A	L	-	9.9	A
SB	LT	-	14.5	B	LT	-	82.1	F	LT	-	13.4	B	LT	-	20.1	C	LT	-	29.2	D	LT	-	70.4	F
	TR	-	7.9	A	T	-	8.2	A	TR	-	8.1	A	T	-	8.3	A	TR	-	9.5	A	T	-	10.0	B
	Int.		13.0	B	Int.		68.3	F	Int.		12.0	B	Int.		17.0	C	Int.		22.9	C	Int.		52.1	F
Marginal Street @ St. Clair Place																								
SB	L	0.17	9.8	A	L	0.18	9.9	A	L	0.20	10.0	A	L	0.22	10.1	B	L	0.26	10.4	B	L	0.29	10.6	B
	T	0.76	22.0	C	T	0.94	42.4	E	T	0.68	18.5	C	T	0.86	30.4	D	T	0.81	26.1	D	T	1.15	103.2	F
Twelfth Avenue @ West 131st Street																								
NB	LT	0.01	7.8	A	LT	0.01	7.8	A	LT	0.02	7.6	A	LT	0.02	7.5	A	LT	0.02	7.7	A	LT	0.02	7.8	A
SB	LT	0.04	9.6	A	LT	0.15	10.8	B	LT	0.02	9.3	A	LT	0.05	10.0	A	LT	0.02	10.5	B	LT	0.07	11.9	B
WB	LTR	0.16	16.8	C	LTR	0.33	30.3	D	LTR	0.13	16.5	C	LTR	0.26	24.6	C	LTR	0.28	23.5	C	LTR	0.86	85.7	F
EB	LTR	0.01	12.9	B	LTR	0.02	16.4	C	LTR	0.15	12.6	B	LTR	0.19	14.5	B	LTR	0.03	13.9	B	LTR	0.05	19.2	C
Twelfth Avenue @ West 125th Street Southbound Right Turn																								
SB	R	0.04	10.4	B	R	0.07	11.6	B	R	0.03	10.0	B	R	0.06	10.8	B	R	0.02	10.1	B	R	0.08	11.6	B
Twelfth Avenue @ St. Clair Place																								
EB	T	-	9.3	A	T	-	10.0	A	T	-	9.8	A	T	-	10.4	B	T	-	10.2	B	T	-	11.2	B
NB	R	-	10.6	B	R	-	14.7	B	R	-	11.5	B	R	-	14.5	B	R	-	10.4	B	R	-	13.0	B
SB	L	-	8.8	A	L	-	9.1	A	L	-	8.6	A	L	-	8.8	A	L	-	8.6	A	L	-	8.9	A
	Int.		10.2	B	Int.		13.6	B	Int.		11.0	B	Int.		13.4	B	Int.		10.2	B	Int.		12.3	B
Riverside Drive @ St. Clair Place																								
EB	LTR	0.10	7.6	A	LTR	0.13	7.8	A	LTR	0.10	7.6	A	LTR	0.13	7.7	A	LTR	0.15	7.8	A	LTR	0.18	7.9	A
SB	LT	0.26	20.6	C	LT	0.42	34.2	D	LT	0.25	22.2	C	LT	0.37	31.9	D	LT	0.20	22.8	C	LT	0.40	33.6	D
	T	0.25	20.1	C	T	0.39	32.5	D	T	0.21	21.1	C	T	0.29	28.5	D	T	0.17	23.2	C	T	0.25	32.6	D
Riverside Drive @ Tiemann Place																								
WB	L	-	8.2	A	L	-	8.3	A	L	-	8.1	A	L	-	8.1	A	L	-	8.3	A	L	-	8.3	A
NB	R	-	7.3	A	R	-	7.4	A	R	-	7.1	A	R	-	7.1	A	R	-	7.2	A	R	-	7.3	A
SB	L	-	9.9	A	L	-	10.1	B	L	-	9.5	A	L	-	9.6	A	L	-	10.0	A	L	-	10.2	B
	T	-	8.8	A	T	-	8.9	A	T	-	8.7	A	T	-	8.8	A	T	-	8.2	A	T	-	8.3	A
	Int.		9.0	A	Int.		9.1	A	Int.		8.8	A	Int.		8.8	A	Int.		8.8	A	Int.		9.0	A
West 125th Street @ West 129th Street/St. Clair Place*																								
WB	L	0.06	43.7	E	L	0.17	128.0	F	L	0.01	25.1	D	L	0.08	67.0	F	L	0.26	115.4	F	L	1.75	1242.0	F
	R	0.58	22.6	C	R	0.83	47.4	E	R	0.40	12.8	B	R	0.76	32.2	D	R	1.05	92.0	F	R	1.94	466.9	F
EB	L	0.01	30.0	D	L	0.02	92.8	F	L	0.02	22.9	C	L	0.02	61.2	F	L			F	L	---	---	F
	R	0.44	14.1	B	R	0.68	22.1	C	R	0.45	14.4	B	R	0.61	19.7	C	R	0.48	20.8	C	R	0.83	47.2	E

Notes: L: Left Turn; T: Through; R: Right Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service
***** The unsignalized intersection analysis procedure, which assumes random arrival, breaks down with high major or minor street volumes and reports exaggerated levels of stop delays. As such, its results are not necessarily indicative of actual conditions, where gaps created by adjacent signalized intersections often provide additional throughput capacity and result in lower stop delays.

Table 17-17
2015 No Build Condition
Secondary Study Area Signalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2006 Existing				2015 No Build				2006 Existing				2015 No Build				2006 Existing				2015 No Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Broadway @ West 110th Street																								
EB	LTR	0.38	24.1	C	LTR	0.41	24.7	C	LTR	0.17	21.3	C	LTR	0.20	21.7	C	LTR	0.20	20.8	C	LTR	0.27	21.8	C
WB	DefL	0.85	55.1	E	DefL	1.01	89.5	F	DefL	0.57	30.4	C	DefL	0.61	32.1	C	DefL	0.76	44.0	D	DefL	0.87	59.2	E
	TR	0.50	29.0	C	TR	0.58	31.3	C	TR	0.38	25.3	C	TR	0.43	26.3	C	TR	0.78	43.1	D	TR	0.83	48.4	D
NB	LTR	0.42	12.5	B	LTR	0.46	12.9	B	LTR	0.44	12.6	B	LTR	0.47	13.0	B	LTR	0.58	14.4	B	LTR	0.62	15.1	B
SB	LTR	0.68	20.0	B	LTR	0.72	21.1	C	LTR	0.48	13.0	B	LTR	0.51	13.4	B	LTR	0.55	17.4	B	LTR	0.59	18.3	B
	Int.		22.4	C	Int.		26.9	C	Int.		16.0	B	Int.		16.7	B	Int.		21.7	C	Int.		24.3	C
Broadway @ West 120th Street																								
EB	LTR	0.40	27.5	C	LTR	0.43	27.9	C	LTR	0.30	26.2	C	LTR	0.32	26.4	C	LTR	0.31	26.2	C	LTR	0.33	26.5	C
WB	LTR	1.04	100.2	F	LTR	1.21	161.5	F	LTR	0.77	45.8	D	LTR	0.82	51.5	D	LTR	0.87	57.8	E	LTR	0.94	70.9	E
NB	LTR	0.35	5.8	A	LTR	0.39	6.1	A	LTR	0.33	5.7	A	LTR	0.36	5.9	A	LTR	0.43	6.4	A	LTR	0.48	6.7	A
SB	LTR	0.52	7.1	A	LTR	0.59	7.9	A	LTR	0.41	6.2	A	LTR	0.44	6.4	A	LTR	0.42	6.4	A	LTR	0.48	6.8	A
	Int.		21.4	C	Int.		28.9	C	Int.		13.5	B	Int.		14.2	B	Int.		15.3	B	Int.		17.0	B
Amsterdam Avenue @ West 120th Street																								
EB	L	0.42	38.4	D	L	0.44	39.3	D	L	0.48	40.7	D	L	0.50	41.7	D	L	0.55	44.4	D	L	0.57	45.9	D
	TR	0.94	72.7	E	TR	0.98	82.4	F	TR	0.67	47.2	D	TR	0.69	48.5	D	TR	0.73	49.4	D	TR	0.78	54.4	D
WB	L	0.08	29.2	C	L	0.09	29.4	C	L	0.02	27.7	C	L	0.03	27.8	C	L	0.01	27.3	C	L	0.01	27.3	C
	TR	0.29	32.1	C	TR	0.31	32.3	C	TR	0.18	30.0	C	TR	0.20	30.3	C	TR	0.28	31.7	C	TR	0.32	32.5	C
NB	LTR	0.56	5.0	A	LTR	0.61	5.7	A	LTR	0.54	4.7	A	LTR	0.57	5.1	A	LTR	0.79	9.5	A	LTR	0.85	12.5	B
SB	LTR	0.53	4.6	A	LTR	0.57	5.1	A	LTR	0.31	3.1	A	LTR	0.34	3.2	A	LTR	0.31	3.0	A	LTR	0.35	3.3	A
	Int.		18.4	B	Int.		20.1	C	Int.		11.9	B	Int.		12.3	B	Int.		15.0	B	Int.		17.2	B
Frederick Douglass Boulevard @ West 125th Street																								
EB	LTR	0.69	24.9	C	LTR	1.01	61.0	E	LTR	0.65	17.7	B	LTR	0.84	25.8	C	LTR	0.74	26.6	C	LTR	1.25	149.6	F
WB	LTR	0.60	21.6	C	LTR	0.86	32.4	C	LTR	0.52	14.9	B	LTR	0.86	28.1	C	LTR	0.71	25.5	C	LTR	1.49	255.6	F
NB	LT	0.17	15.3	B	LT	0.19	15.5	B	LT	0.33	22.8	C	LT	0.38	23.5	C	LTR	0.55	17.7	B	LTR	0.72	21.9	C
	R	0.11	15.0	B	R	0.30	17.6	B	R	0.30	24.9	C	R	0.63	36.6	D								
SB	LT	0.53	17.1	B	LT	0.57	17.6	B	LT	0.41	24.1	C	LT	0.48	25.3	C	LT	0.41	18.0	B	LT	0.44	18.5	B
	R	0.20	13.8	B	R	0.24	14.3	B	R	0.36	26.4	C	R	0.40	27.5	C	R	0.30	18.4	B	R	0.34	19.3	B
	Int.		20.0	B	Int.		33.2	C	Int.		19.3	B	Int.		26.8	C	Int.		22.1	C	Int.		125.5	F
Madison Avenue @ East 125th Street																								
EB	LT	0.85	32.5	C	LT	1.14	102.5	F	LT	0.71	25.3	C	LT	1.02	60.1	E	LT	0.91	38.1	D	LT	1.45	234.8	F
WB	TR	0.60	21.8	C	TR	0.80	28.9	C	TR	0.45	18.9	B	TR	0.63	22.3	C	TR	0.50	19.7	B	TR	0.71	24.7	C
NB	LTR	0.55	16.9	B	LTR	0.59	17.4	B	LTR	0.45	15.5	B	LTR	0.48	15.9	B	LTR	0.67	18.8	B	LTR	0.74	20.4	C
	Int.		23.3	C	Int.		50.4	D	Int.		19.7	B	Int.		34.7	C	Int.		25.1	C	Int.		99.2	F
Second Avenue @ East 125th Street																								
EB	T	1.05	86.0	F	T	1.46	252.1	F	T	1.05	86.7	F	T	1.47	257.3	F	T	1.05	82.3	F	T	1.34	196.3	F
	R	0.23	32.3	C	R	0.37	36.1	D	R	0.22	31.7	C	R	0.60	43.8	D	R	0.21	31.7	C	R	0.33	31.7	C
WB	DefL	1.05	103.1	F	DefL	1.13	128.5	F	LT	0.49	35.6	D	LT	0.91	67.2	E	LT	0.51	36.4	D	LT	0.91	63.8	E
	T	1.05	103.3	F	T	1.35	217.2	F																
SB	LTR	0.55	20.2	C	LTR	0.59	20.6	C	LTR	0.31	17.6	B	LTR	0.38	18.3	B	LTR	0.70	22.3	C	LTR	0.89	30.5	C
SW	TR	1.00	72.6	E	TR	1.22	149.2	F	TR	0.61	36.6	D	TR	0.76	42.3	D	TR	0.84	47.2	D	TR	1.06	88.6	F
	Int.		63.2	E	Int.		119.2	F	Int.		43.5	D	Int.		103.1	F	Int.		52.8	D	Int.		81.8	F
First Avenue @ East 125th Street																								
EB	L	0.99	66.0	E	L	1.11	102.9	F	L	0.67	29.5	C	L	0.82	38.4	D	L	0.87	42.5	D	L	1.06	82.4	F
	LT	0.18	18.7	B	LT	0.29	20.2	C	LT	0.24	19.5	B	LT	0.39	21.8	C	LT	0.28	20.0	C	LT	0.57	25.4	C
NB	L	0.59	16.1	B	L	0.64	17.4	B	L	0.13	9.6	A	L	0.17	10.0	A	L	0.12	9.5	A	L	0.17	9.9	A
	T	0.34	10.8	B	T	0.37	11.0	B	T	0.39	11.2	B	T	0.52	12.4	B	T	0.61	13.4	B	T	0.65	14.0	B
	R	0.22	10.6	B	R	0.23	10.7	B	R	0.23	10.6	B	R	0.26	11.0	B	R	0.46	13.8	B	R	0.48	14.2	B
	Int.		26.1	C	Int.		36.1	D	Int.		15.5	B	Int.		18.2	B	Int.		19.0	B	Int.		28.0	C
Broadway @ West 145th Street																								
EB	LTR	0.22	25.2	C	LTR	0.23	25.4	C	LTR	0.26	25.7	C	LTR	0.27	25.9	C	LTR	0.24	25.5	C	LTR	0.26	25.7	C
WB	LTR	0.78	41.7	D	LTR	0.88	51.9	D	LTR	0.90	56.4	E	LTR	0.97	69.3	E	LTR	0.86	46.0	D	LTR	0.91	53.0	D
NB	LTR	0.53	19.7	B	LTR	0.58	20.6	C	LTR	0.63	21.5	C	LTR	0.69	23.0	C	LTR	0.76	24.8	C	LTR	0.84	28.5	C
SB	L	0.18	9.3	A	L	0.20	9.6	A	L	0.32	11.5	B	L	0.36	12.4	B	L	0.37	13.1	B	L	0.41	14.7	B
	TR	0.42	10.5	B	TR	0.48	11.2	B	TR	0.50	11.4	B	TR	0.54	12.0	B	TR	0.44	10.7	B	TR	0.47	11.1	B
	Int.		20.9	C	Int.		23.4	C	Int.		23.8	C	Int.		26.8	C	Int.		24.3	C	Int.		27.3	C

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service

Table 17-18
2015 No Build Condition
Secondary Study Area Unsignalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2006 Existing				2015 No Build				2006 Existing				2015 No Build				2006 Existing				2015 No Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
First Avenue @ East 125th Street Southbound Right Turn																								
SB	R	0.26	11.7	B	R	0.37	13.0	B	R	0.11	9.4	A	R	0.18	9.9	A	R	0.10	9.4	A	R	0.21	10.2	B
Notes: R: Right Turn; V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service																								

PRIMARY STUDY AREA

Twelfth Avenue and West 133rd Street

During the AM peak hour, the northbound left-turn movement would deteriorate from LOS D to LOS E, with delay increasing from 39.9 to 65.9 seconds and v/c ratio increasing from 0.91 to 1.02.

During the PM peak hour, the westbound approach would deteriorate from LOS D to LOS F, with delay increasing from 48.5 to 177.1 seconds and v/c ratio increasing from 0.89 to 1.30.

Twelfth Avenue and West 125th Street

During the AM peak hour, the, the westbound right-turn movement would deteriorate from LOS C to LOS D, with delay increasing from 34.1 to 48.8 seconds and a v/c ratio increasing from 0.86 to 0.96.

During the midday peak hour, the westbound right-turn movement would deteriorate from LOS C to beyond mid-LOS D, with delay increasing from 32.5 to 46.1 seconds and a v/c ratio increasing from 0.85 to 0.95.

During the PM peak hour, the westbound right-turn movement would deteriorate from LOS E to LOS F, with delay increasing from 55.8 to 100.5 seconds and a v/c ratio increasing from 1.01 to 1.14.

Broadway Northbound and West 135th Street

During the PM peak hour, the eastbound *de facto* left-turn movement would deteriorate from LOS D to LOS F, with delay increasing from 51.7 to 83.0 seconds and v/c ratio increasing from 0.77 to 0.95.

Broadway and West 125th Street

During the AM peak hour, the southbound shared left-through-right movement would deteriorate from LOS D to LOS E, with delay increasing from 49.1 to 76.6 seconds and v/c ratio increasing from 0.90 to 1.04. The eastbound left-turn movement would deteriorate from LOS D to LOS F, with delay increasing from 36.8 to 275.6 seconds and v/c ratio increasing from 0.55 to 1.44. The westbound left-turn movement would deteriorate from LOS D to LOS F, with delay increasing from 44.6 to 159.2 seconds and v/c ratio increasing from 0.68 to 1.15. At the same time, the westbound through-right movement would deteriorate from LOS C to LOS E, with delay increasing from 30.4 to 57.7 seconds and v/c ratio increasing from 0.71 to 0.99.

During the midday peak hour, the northbound right-turn movement would deteriorate within LOS D, with delay increasing from 39.6 to 49.5 seconds and v/c ratio increasing from 0.54 to 0.68. The westbound left-turn movement would deteriorate from LOS D to LOS E, with delay increasing from 39.1 to 77.6 seconds and v/c ratio increasing from 0.54 to 0.81.

During the PM peak hour, the northbound left-through movement would continue to operate at LOS D, with delay increasing from 42.9 to 50.5 seconds and v/c ratio increasing from 0.82 to 0.91. The southbound left-through-right movement would continue to operate at LOS D, with delay increasing from 38.9 to 45.9 seconds and v/c ratio increasing from 0.75 to 0.86. The eastbound left-turn movement would deteriorate from LOS C to beyond mid-LOS D, with delay increasing from 25.7 to 45.1 seconds and v/c ratio increasing from 0.27 to 0.55. The eastbound through-right movement would deteriorate from LOS D to LOS F, with delay increasing from 36.7 to 84.9 seconds and v/c ratio increasing from 0.83 to 1.08. The westbound left-turn movement would deteriorate from LOS D to LOS F, with delay increasing from 50.8 to 140.8 seconds and v/c ratio increasing from 0.65 to 1.04.

Riverside Drive and West 135th Street

During the PM peak hour, the northbound approach would deteriorate from LOS C to LOS D, with delay increasing from 23.3 to 51.8 seconds and v/c ratio increasing from 0.98 to 1.07.

Amsterdam Avenue and West 125th Street

During the AM peak hour, the eastbound left-turn movement would deteriorate from LOS D to LOS F, with the delay increasing from 41.8 to 264.3 seconds and v/c ratio increasing from 0.56 to 1.39, and the eastbound through-right movement would deteriorate from LOS C to LOS E, with the delay increasing from 34.1 to 60.5 and v/c ratio increasing from 0.77 to 0.99. At the same time, the westbound left-turn movement would deteriorate from LOS D to LOS F, with delay increasing from 49.4 to 148.3 seconds and v/c ratio increasing from 0.67 to 1.08 and the westbound through-right movement would deteriorate from LOS C to LOS E, with delay increasing from 33.3 to 66.8 and v/c ratio increasing from 0.76 to 1.02.

During the midday peak hour, the eastbound left-turn movement would deteriorate from LOS D to LOS F, with the delay increasing from 53.2 to 145.3 seconds and v/c ratio increasing from 0.72 to 1.10, and the eastbound through-right movement would deteriorate from LOS D to LOS E, with the delay increasing from 36.9 to 62.1 and v/c ratio increasing from 0.82 to 1.00. At the same time, the westbound left-turn movement would deteriorate from LOS C to beyond mid-LOS D, with delay increasing from 32.9 to 45.7 seconds and v/c ratio increasing from 0.38 to 0.51.

During the PM peak hour, the southbound left-turn movement would deteriorate from LOS C to LOS D, with delay increasing from 33.9 to 45.0 seconds and the v/c ratio increasing from 0.58 to 0.75. The eastbound left-turn movement would deteriorate from LOS D to LOS F, with delay increasing from 41.0 to 144.6 seconds and v/c ratio increasing from 0.58 to 1.06. The eastbound through-right movement would deteriorate from LOS C to F, with delay increasing from 34.8 to 84.5 seconds and v/c ratio increasing from 0.79 to 1.08. At the same time, the westbound left-turn movement would continue to operate at LOS D, with delay increasing from 35.4 to 54.1 seconds and v/c ratio increasing from 0.42 to 0.60 and the westbound through-right movement would deteriorate from LOS C to D, with delay increasing from 31.4 to 52.1 seconds and v/c ratio increasing from 0.71 to 0.96.

Marginal Street and West 133rd Street

During the AM peak hour, the southbound approach would deteriorate from LOS C to LOS F, with delay increasing from 18.5 to 101.8 seconds and v/c ratio increasing from 0.68 to 1.15.

During the midday peak hour, the southbound approach would deteriorate from LOS C to LOS E, with delay increasing from 23.4 to 45.2 seconds and v/c ratio increasing from 0.78 to 0.96.

During the PM peak hour, the southbound approach would deteriorate from LOS E to LOS F, with delay increasing from 40.8 to 95.9 seconds and v/c ratio increasing from 0.96 to 1.15.

Marginal Street and West 132nd Street

During the AM peak hour, the southbound left-through movement would deteriorate from LOS B to LOS F, with delay increasing from 14.5 to 82.1 seconds.

During the PM peak hour, the same movement would deteriorate from LOS D to LOS F, with delay increasing from 29.2 to 70.4 seconds.

Marginal Street and St. Clair Place

During the AM peak hour, the southbound through movement would deteriorate from LOS C to LOS E, with delay increasing from 22.0 to 42.4 seconds and v/c ratio increasing from 0.76 to 0.94.

During the midday peak hour, the same movement would deteriorate from LOS C to LOS D, with delay increasing from 18.5 to 30.4 seconds and v/c ratio increasing from 0.68 to 0.86.

During the PM peak hour, the same movement would deteriorate from LOS D to LOS F, with delay increasing from 26.1 to 103.2 seconds and v/c ratio increasing from 0.81 to 1.15.

Twelfth Avenue and West 131st Street

During the AM peak hour, the westbound approach would deteriorate from LOS C to LOS D, with delay increasing from 16.8 to 30.3 seconds and v/c ratio increasing from 0.16 to 0.33.

During the PM peak hour, the westbound approach would deteriorate from LOS C to LOS F, with delay increasing from 23.5 to 85.7 seconds and v/c ratio increasing from 0.28 to 0.86.

Riverside Drive and St. Clair Place

During the AM peak hour, the southbound left-through movement would deteriorate from LOS C to LOS D, with delay increasing from 20.6 to 34.2 seconds and v/c ratio increasing from 0.26 to 0.42.

During the midday peak hour, the same movement would deteriorate from LOS C to LOS D, with delay increasing from 22.2 to 31.9 seconds and v/c ratio increasing from 0.25 to 0.37.

During the PM peak hour, the same movement would deteriorate from LOS C to LOS D, with delay increasing from 22.8 to 33.6 seconds and v/c ratio increasing from 0.20 to 0.40.

West 125th Street and West 129th Street/St. Clair Place

During the AM peak hour, the eastbound left-turn movement would deteriorate from LOS D to LOS F, with delay increasing from 30.0 to 92.8 seconds and v/c ratio increasing from 0.01 to 0.02. At the same time, the westbound left-turn movement would deteriorate from LOS E to LOS F, with delay increasing from 43.7 to 128.0 seconds and v/c ratio increasing from 0.06 to 0.17. The westbound right-turn movement would deteriorate from LOS C to LOS E, with delay increasing from 22.6 to 47.4 seconds and v/c ratio increasing from 0.58 to 0.83.

During the midday peak hour, the eastbound left-turn movement would deteriorate from LOS C to LOS F, with delay increasing from 22.9 to 61.2 seconds and v/c ratio would remain at 0.02. At the same time, the westbound left-turn movement would deteriorate from LOS D to LOS F, with delay increasing from 25.1 to 67.0 seconds and v/c ratio increasing from 0.01 to 0.08 and

the westbound right-turn movement would deteriorate from LOS B to LOS D, with delay increasing from 12.8 to 32.2 seconds and v/c ratio increasing from 0.40 to 0.76

During the PM peak hour, the eastbound left-turn movement would continue to operate at LOS F, and the eastbound right-turn movement would deteriorate from LOS C to LOS E, with delay increasing from 20.8 to 47.2 seconds and v/c ratio increasing from 0.48 to 0.83. At the same time, the westbound left-turn movement would continue to operate at LOS F, with delay increasing from 115.4 to 1,242.0 seconds and v/c ratio increasing from 0.26 to 1.75, and the westbound right-turn movement would continue to operate at LOS F, with delay increasing from 92.0 to 466.9 seconds and v/c ratio increasing from 1.05 to 1.94.

SECONDARY STUDY AREA

Broadway and West 110th Street

During the AM peak hour, the westbound *de facto* left-turn movement would deteriorate from LOS E to LOS F, with delay increasing from 55.1 to 89.5 seconds and v/c ratio increasing from 0.85 to 1.01.

During the PM peak hour, the westbound *de facto* left-turn movement would deteriorate from LOS D to LOS E, with delay increasing from 44.0 to 59.2 seconds and v/c ratio increasing from 0.76 to 0.87, and the westbound through-right movement would continue to operate at LOS D, with delay increasing from 43.1 to 48.4 seconds and v/c ratio increasing from 0.78 to 0.83.

Broadway and West 120th Street

During the AM peak hour, the westbound approach would continue to operate at LOS F, with delay increasing from 100.2 to 161.5 seconds and v/c ratio increasing from 1.04 to 1.21.

During the midday peak hour, the westbound approach would continue to operate at LOS D, with delay increasing from 45.8 to 51.5 seconds and v/c ratio increasing from 0.77 to 0.82.

During the PM peak hour the same approach would continue to operate at LOS E, with delay increasing from 57.8 to 70.9 seconds and v/c ratio increasing from 0.87 to 0.94.

Amsterdam Avenue and West 120th Street

During the AM peak hour, the eastbound through-right movement would deteriorate from LOS E to LOS F, with delay increasing from 72.7 to 82.4 seconds and v/c ratio increasing from 0.94 to 0.98.

During the PM peak hour, the eastbound through-right movement would continue to operate at LOS D, with delay increasing from 49.4 to 54.4 seconds and v/c ratio increasing from 0.73 to 0.78.

Frederick Douglass Boulevard and West 125th Street

During the AM peak hour, the eastbound approach would deteriorate from LOS C to LOS E, with the delay increasing from 24.9 to 61.0 seconds and v/c ratio increasing from 0.69 to 1.01.

During the PM peak hour, the eastbound approach would deteriorate from LOS C to LOS F, with the delay increasing from 26.6 to 149.6 seconds and v/c ratio increasing from 0.74 to 1.25. The westbound approach would deteriorate from LOS C to LOS F, with delay increasing from 25.5 to 255.6 and v/c ratio increasing from 0.71to 1.49

Madison Avenue and East 125th Street

During the AM peak hour, the eastbound approach would deteriorate from LOS C to LOS F, with the delay increasing from 32.5 to 102.5 seconds and v/c ratio increasing from 0.85 to 1.14.

During the midday peak hour, the eastbound approach would deteriorate from LOS C to LOS E, with the delay increasing from 25.3 to 60.1 seconds and v/c ratio increasing from 0.71 to 1.02.

During the PM peak hour, the eastbound approach would deteriorate from LOS D to LOS F, with delay increasing from 38.1 to 234.8 and v/c ratio increasing from 0.91 to 1.45.

Second Avenue and East 125th Street

During the AM peak hour, the eastbound through movement would continue to operate at LOS F, with delay increasing from 86.0 to 252.1 seconds and v/c ratio increasing from 1.05 to 1.46. The westbound *de facto* left-turn movement would continue to operate at LOS F, with delay increasing from 103.1 to 128.5 seconds and v/c ratio increasing from 1.05 to 1.13, and the westbound through movement would continue to operate at LOS F, with delay increasing from 103.3 to 217.2 seconds and v/c ratio increasing from 1.05 to 1.35. The southwestbound approach would deteriorate from LOS E to LOS F, with delay increasing from 72.6 to 149.2 seconds and v/c ratio increasing from 1.00 to 1.22.

During the midday peak hour, the eastbound through movement would continue to operate at LOS F, with delay increasing from 86.7 to 257.3 seconds and v/c ratio increasing from 1.05 to 1.47. The westbound approach would deteriorate from LOS D to LOS E, with delay increasing from 35.6 to 67.2 seconds and v/c ratio increasing from 0.49 to 0.91.

During the PM peak hour, the eastbound through movement would continue to operate at LOS F, with delay increasing from 82.3 to 196.3 seconds and v/c ratio increasing from 1.05 to 1.34. The westbound approach would deteriorate from LOS D to LOS E, with delay increasing from 36.4 to 63.8 seconds and v/c ratio increasing from 0.51 to 0.91. At the same time, the southwestbound approach would deteriorate from LOS D to LOS F, with delay increasing from 47.2 to 88.6 and v/c ratio increasing from 0.84 to 1.06.

First Avenue and East 125th Street

During the AM peak hour, the eastbound left-turn movement would deteriorate from LOS E to LOS F, with delay increasing from 66.0 to 102.9 seconds and v/c ratio increasing from 0.99 to 1.11.

During the PM peak hour, the same movement would deteriorate from LOS D to LOS F, with delay increasing from 42.5 to 82.4 and v/c ratio increasing from 0.87 to 1.06.

Broadway and West 145th Street

During the AM peak hour, the westbound approach would continue to operate at LOS D, with delay increasing from 41.7 to 51.9 seconds and v/c ratio increasing from 0.78 to 0.88.

During the midday peak hour, the westbound approach would continue to operate at LOS E, with delay increasing from 56.4 to 69.3 seconds and v/c ratio increasing from 0.90 to 0.97.

During the PM peak hour, the same approach would continue to operate at LOS D, with delay increasing from 46.0 to 53.0 seconds and v/c ratio increasing from 0.86 to 0.91.

PARKING SUPPLY AND UTILIZATION

On- and off-street parking utilization rates for the 2015 No Build condition were based on an increase in background parking demand of 0.5 percent per year for a total of 4.6 percent by 2015.

ON-STREET PARKING

Table 17-19 shows expected on-street parking utilization in 2015, assuming a 0.5 percent per year growth in background parking demand. As discussed below under "Off-Street Parking," vehicles generated by No Build projects within the on-street parking study area were not expected to materially add to the area's on-street parking demand, and therefore were assumed to be part of the background growth in the on-street parking analysis. On-street parking utilization within ¼ mile of the Project Area would increase to 80, 83, and 80 percent during the morning, midday, and evening periods, respectively. Overall, within ½ mile, on-street parking utilization would increase to 76, 82, and 83 percent during the morning, midday, and evening periods, respectively.

Table 17-19
2015 No Build On-Street Parking Utilization Summary

2015 No Build	AM	MD	PM
¼-Mile Radius			
Capacity	1847	1847	1847
2006 Existing Demand	1407	1457	1415
Background Growth (0.5% per year)	65	67	65
2015 No Build Demand	1471	1524	1480
Remaining Spaces	376	323	367
Utilization	**80%**	**83%**	**80%**
½-Mile Radius			
Capacity	4783	4783	4783
2006 Existing Demand	3454	3732	3807
Background Growth (0.5% per year)	159	171	175
2015 No Build Demand	3613	3903	3982
Remaining Spaces	1170	880	801
Utilization	**76%**	**82%**	**83%**

OFF-STREET PARKING

A growth rate of 0.5 percent per year was also assumed for off-street parking facilities within the one-mile radius of the Project Area. In addition, the projected peak hour parking accumulation of the following No Build projects (identified in Section B of this chapter) are expected to utilize off-street parking facilities within the Project Area in the 2015 No Build condition:

- No Build Project 18: new Columbia University academic building
- No Build Project 21: new Columbia University administrative building (the Studebaker Building)
- No Build Project 22: science, math, and engineering secondary school
- No Build Project 23: new Columbia University office building
- No Build Project 24: new Columbia University office building

Other No Build projects within the off-street parking study area would mostly accommodate on-site ancillary parking spaces per New York City zoning requirements. As demonstrated in the analysis results summarized in Appendix H, the number of ancillary parking spaces anticipated in accordance with the applicable zoning regulations would be adequate in accommodating the demand projected from the parking accumulation analysis of relevant No Build projects.

The seven public parking facilities located with ¼ mile of the Project Area would be 113, 115, and 107 percent utilized, with expected shortfalls of 167, 195, and 99 spaces during the morning, midday, and evening periods, respectively. The nine public parking facilities located within ½ mile would be 108, 112, and 98 percent utilized, with expected shortfalls of 132 and 212 spaces during the morning and midday periods, respectively, and 30 available spaces during the evening period. Overall, within the one mile, the 26 public parking facilities would be 96, 98, and 75 percent utilized, with 135, 89, and 893 available spaces during the morning, midday, and evening periods, respectively (see Table 17-20).

Table 17-20
2015 No Build Off-Street Parking Utilization Summary

2015 No Build	AM	MD	PM
¼-Mile Radius			
Capacity	1330	1330	1330
2006 Existing Demand	1171	1081	1188
Background Growth (0.5% per year)	54	50	55
No Build Project Generated Parking Demand	272	394	186
New Columbia Academic Building	*48*	*118*	*69*
Science, Math, and Engineering Secondary School	*13*	*13*	*0*
New Columbia Administrative Building (Studebaker)	*86*	*148*	*89*
New Columbia Office Building (No. 23)	*77*	*70*	*17*
New Columbia Office Building (No. 24)	*48*	*45*	*11*
Total 2015 No Build Demand	1497	1525	1429
Remaining Spaces	-167	-195	-99
Utilization	**113%**	**115%**	**107%**
½-Mile Radius			
Capacity	1710	1710	1710
2006 Existing Demand	1501	1461	1428
Background Growth (0.5% per year)	69	67	66
No Build Project Generated Parking Demand	272	394	186
Total 2015 No Build Demand	1842	1922	1680
Remaining Spaces	-132	-212	30
Utilization	**108%**	**112%**	**98%**
1-Mile Radius			
Capacity	3576	3576	3576
2006 Existing Demand	3030	2957	2387
Background Growth (0.5% per year)	139	136	110
No Build Project Generated Parking Demand	272	394	186
Total 2015 No Build Demand	3441	3487	2683
Remaining Spaces	135	89	893
Utilization	**96%**	**98%**	**75%**

Note: See Appendix H for detailed parking accumulation analysis.

E. 2015 PROBABLE IMPACTS OF THE PROPOSED ACTIONS

OVERVIEW

The 2015 with the Proposed Actions condition, or the 2015 Build condition, reflects increases in traffic volumes, as well as, roadway and signal timing improvements that are part of the Proposed Actions[1]. The 2015 Build condition was developed by first removing from the 2015 No Build condition those No Build projects that would not occur if the Proposed Actions are approved (No Build project numbers 23 and 24), modifying No Build trips that would be distributed differently with the Proposed Actions (No Build project numbers 18 and 22), incorporating traffic diversions due to roadway network changes, and finally adding the 2015 reasonable worst-case transportation scenario project-generated trips, as described below.

STUDY AREA STREET NETWORK

The 2015 Build analysis accounted for several roadway and signal timing improvements that would occur as part of the Proposed Actions. These improvements were included as part of the design process, since they would be integral to the overall planning of site access and traffic circulation, and reflect a more typical street grid configuration that addresses access and circulation needs of the community and the Manhattanville project. The project-related roadway improvements include the following (details provided in Appendix H):

- Conversion of West 133rd Street between Broadway and Twelfth Avenue from two-way to one-way westbound;
- Conversion of West 132nd Street between Broadway and Marginal Street from two-way to one-way eastbound;
- Conversion of West 131st Street between Broadway and Twelfth Avenue from two-way to one-way westbound;
- Conversion of West 125th Street between Twelfth Avenue and Marginal Street from two-way to one-way westbound; and
- Installation of traffic signals (and associated pavement markings) at the following intersections, which are currently stop-controlled:
  - Twelfth Avenue and West 131st Street
  - Twelfth Avenue and St. Clair Place/Riverside Drive
  - West 125th Street and St. Clair Place/West 129th Street
  - Marginal Street and West 133rd Street
  - Marginal Street and West 132nd Street
  - Marginal Street and St. Clair Place

In addition, a roadway improvement alternative for West 125th Street between Broadway and Marginal Street is currently being considered as part of a streetscapes project conducted by the

[1] The probable impact analysis presented in this section includes only operational impacts which would occur in 2015 and does not include cumulative impacts due to construction. Cumulative impacts are discussed in Chapter 21, "Construction."

New York City Economic Development Corporation (EDC). This alternative marginally differs from components of the Proposed Actions in sidewalk widths and roadway alignment. However, from a traffic analysis standpoint, because roadway geometry and operational assumptions would be identical under both alternatives, the analysis findings discussed below would be the same regardless of the alternative chosen.

VEHICLE TRIP ASSIGNMENT

To develop an appropriate baseline traffic network from which potential project impacts could be evaluated, the 2015 No Build traffic network volumes were adjusted to account for traffic diversions resulting from the project-related street direction changes, No Build projects that would not be constructed if the Proposed Actions are approved, and changes in how certain No Build trips would be distributed. The primary and secondary study area net 2015 diverted peak hour traffic volumes are shown in Appendix H.

In the 2015 Build condition, the Columbia University development component of the Proposed Actions is projected to generate a total of 310 (252 entering and 58 exiting), 156 (78 entering and 78 exiting), and 307 (67 entering and 240 exiting) vehicle trips during the weekday AM, midday, and PM peak hours, respectively. The non-Columbia University development component is expected to generate a total of 196 (136 entering and 60 exiting), 302 (161 entering and 141 exiting), and 355 (157 entering and 198 exiting) vehicle trips during the AM, midday, and PM peak hours, respectively. The 2015 project-generated peak hour traffic volumes within the primary and secondary study areas are shown in Appendix H.

COLUMBIA UNIVERSITY TRIPS

Trips associated with Columbia University uses were assigned to the traffic network based on area travel patterns and information accumulated from the on-line survey of Columbia University personnel. Separate trip assignments were prepared separately for student cars, student taxis, faculty/other employees cars, faculty/other employees taxis, and trucks. Auto and taxi trips generated by the Columbia University component of the Proposed Actions were assigned to study area roadways based on likely pathways between their origins and destinations. The primary routes expected to carry the majority of project-generated traffic include Broadway, 125th Street, the Triborough Bridge, the FDR Drive, and the Henry Hudson Parkway. Truck trips to and from the Project Area would traverse designated local truck routes in Manhattan, which include 125th and 145th Streets, Broadway, and Amsterdam Avenue.

It was also assumed that a shuttle bus service would be provided by Columbia University to transport students and faculty/other employees within and between the Manhattanville and the Morningside and Health Sciences campuses. Shuttle bus trips would traverse a set route through the campuses, with stops at specific locations. Trips associated with this service were incorporated into the Build analysis under the assumption that they would travel at 10-minute headways, resulting in 12 (six entering and six exiting) bus trips during each peak hour to/from Morningside or Health Sciences for a total of 24 shuttle bus trips during each peak hour.

Trips approaching the primary study area were assigned to the area's parking facilities, loading areas, or at or near proposed development sites. All Columbia University auto trips are expected to use off-street parking in four facilities in the primary study area, described in more detail in the "Parking Supply and Utilization" section below. Ingress/egress points for these facilities are located on West 133rd Street between Broadway and Amsterdam Avenue, West 131st Street between Twelfth Avenue and Broadway, and Broadway at West 132nd Street.

NON-COLUMBIA UNIVERSITY TRIPS

Future Build peak hour non-Columbia University trips were also assigned to the study area traffic network. The most recent Census reverse journey-to-work data were used to develop trip origin and destination patterns for office and residential uses.

TRAFFIC VOLUMES AND INTERSECTION CAPACITY ANALYSES

The 2015 project-generated traffic volumes were added to the 2015 traffic diversion network volumes to obtain the 2015 Build traffic network. Figures 17-20, 17-21, and 17-22 depict the 2015 Build condition traffic volumes within the primary study area for the weekday AM, midday, and PM peak hours, respectively. The secondary study area peak hour 2015 Build condition volumes are presented in Figures 17-23 to 17-25.

Within the primary study area, increases in two-way peak hour traffic over 2015 No Build volumes are expected to range from 20 vph to 400 vph along Broadway, from 10 vph to 100 vph along Amsterdam Avenue, and from 30 vph to 400 vph along Twelfth Avenue. Two-way peak hour volumes along West 125th Street would increase by 50 vph to 150 vph during the two analysis periods.

Tables 17-21 and 17-22 compare the 2015 No Build and Build peak hour conditions for the primary study area intersections. The secondary study area 2015 No Build and Build peak hour conditions are presented in Tables 17-23 and 17-24. Based on the thresholds established in the *CEQR Technical Manual*, as described in Section B of this chapter, significantly impacted movements are denoted with a + sign in the tables and detailed below.

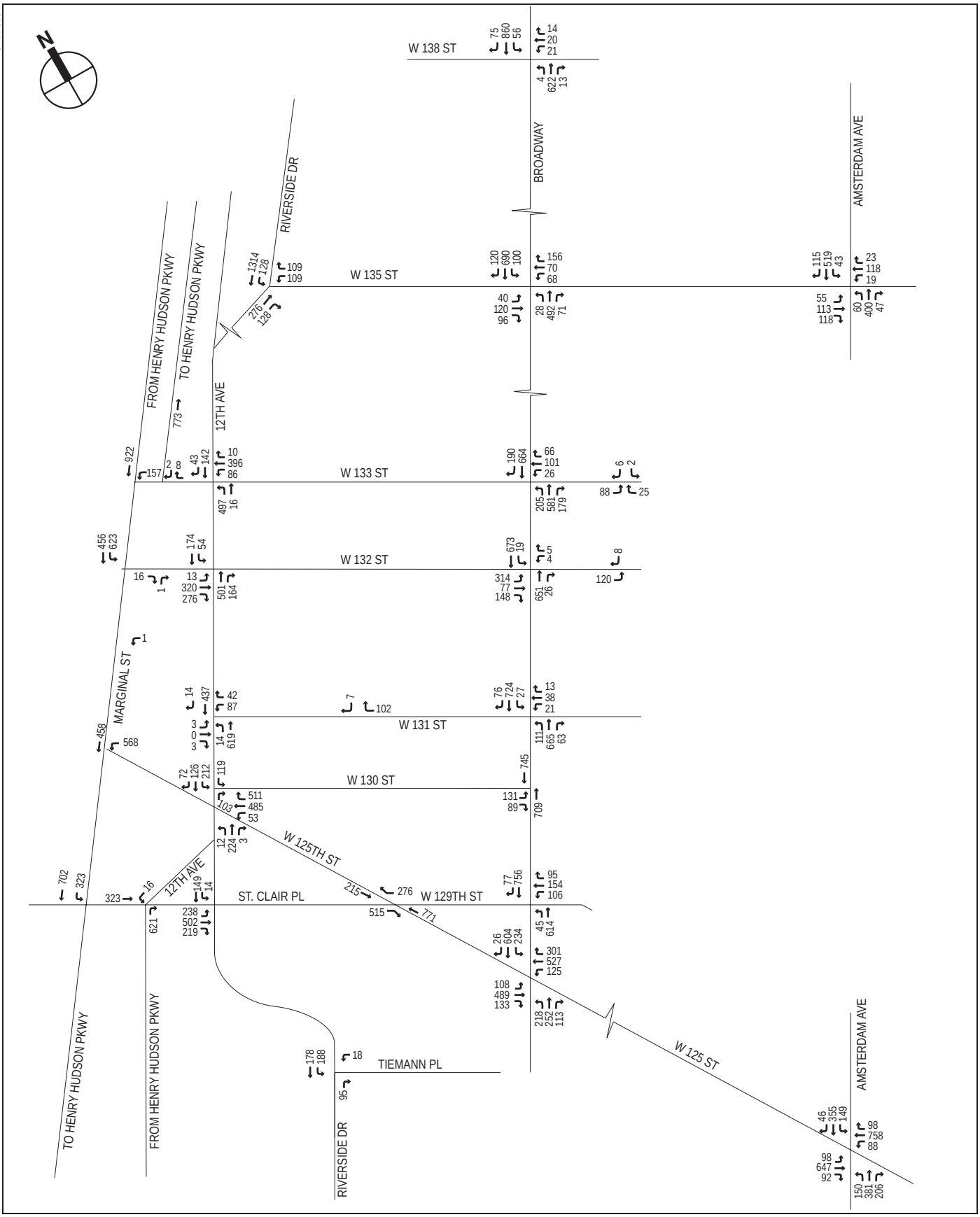
PRIMARY STUDY AREA

Amsterdam Avenue and West 125th Street

During the AM peak hour, the westbound left-turn movement would continue to operate at LOS F, with delay increasing from 148.3 to 194.1 seconds and v/c ratio increasing from 1.08 to 1.20, and the westbound through-right movement would deteriorate from LOS E to LOS F, with delay increasing from 66.8 seconds to 100.5 seconds and v/c ratio increasing from 1.02 to 1.12. The eastbound through-right movement would continue to operate at LOS E, with delay increasing from 60.5 to 75.6 seconds with v/c ratio increasing from 0.99 to 1.05.

During the midday peak hour, the eastbound left-turn movement would continue to operate at LOS F, with delay increasing from 145.3 to 235.8 seconds and v/c ratio increasing from 1.10 to 1.33, and the eastbound through-right movement would deteriorate from LOS E to LOS F, with delay increasing from 62.1 to 87.3 seconds and v/c ratio of 1.00 to 1.08. The westbound through-right movement would deteriorate within LOS D, with delay increasing from 38.0 to 48.3 seconds and v/c ratio increasing from 0.84 to 0.93.

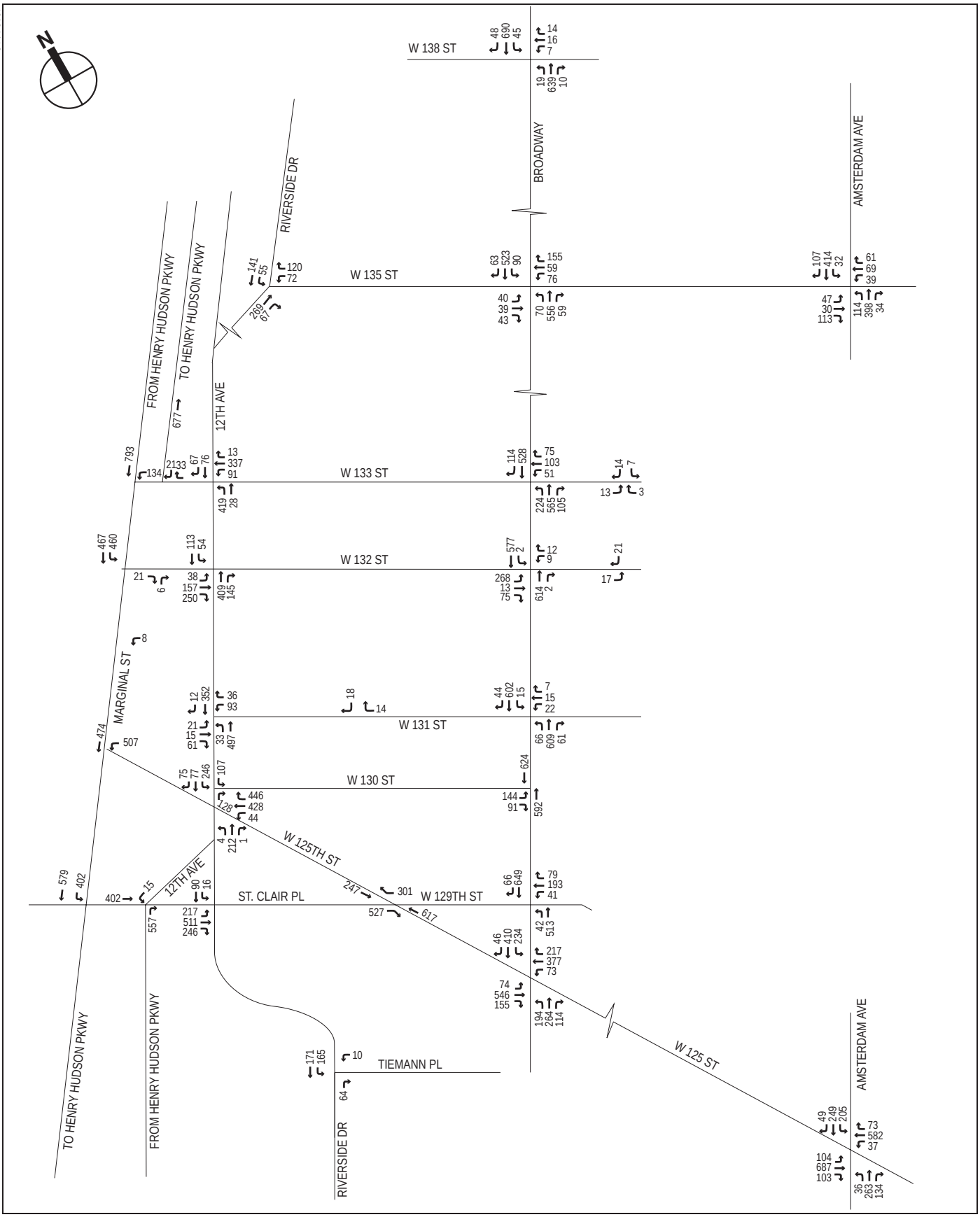
During the PM peak hour, the eastbound left-turn movement would continue to operate at LOS F, with delay increasing from 144.6 to 168.5 seconds and v/c ratio increasing from 1.06 to 1.13, and the eastbound through-right movement would also continue to operate at LOS F, with delay increasing from 84.5 to 125.2 seconds and v/c ratio of 1.08 to 1.18. The westbound through-right movement would deteriorate from LOS D to LOS E, with delay increasing from 52.1 to 75.0 seconds and v/c ratio increasing from 0.96 to 1.05.



NOT TO SCALE

Figure 17-20
Primary Study Area
Build 2015 Morning Peak Hour

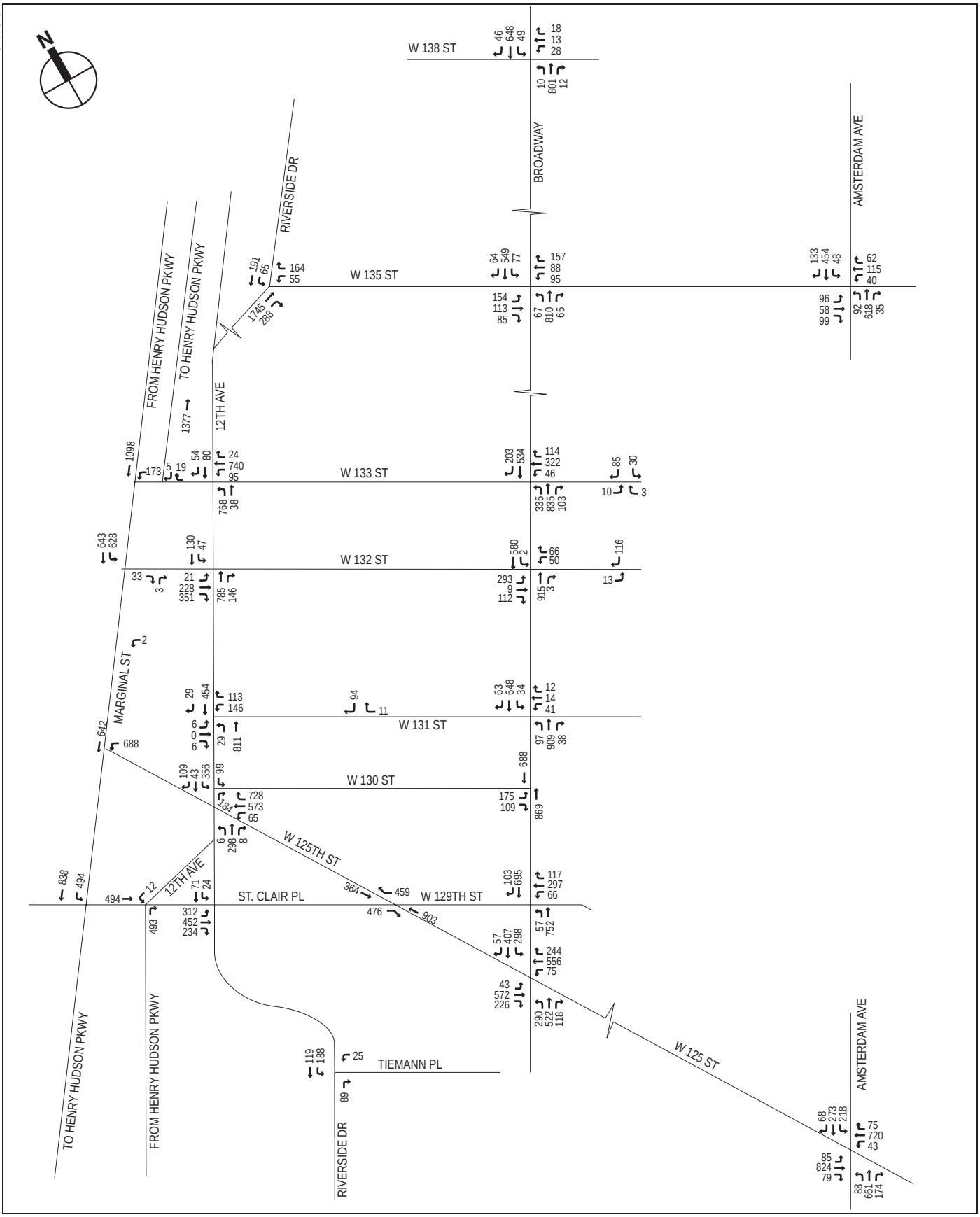
09.10.07



NOT TO SCALE

Figure 17-21
Primary Study Area
Build 2015 Midday Peak Hour

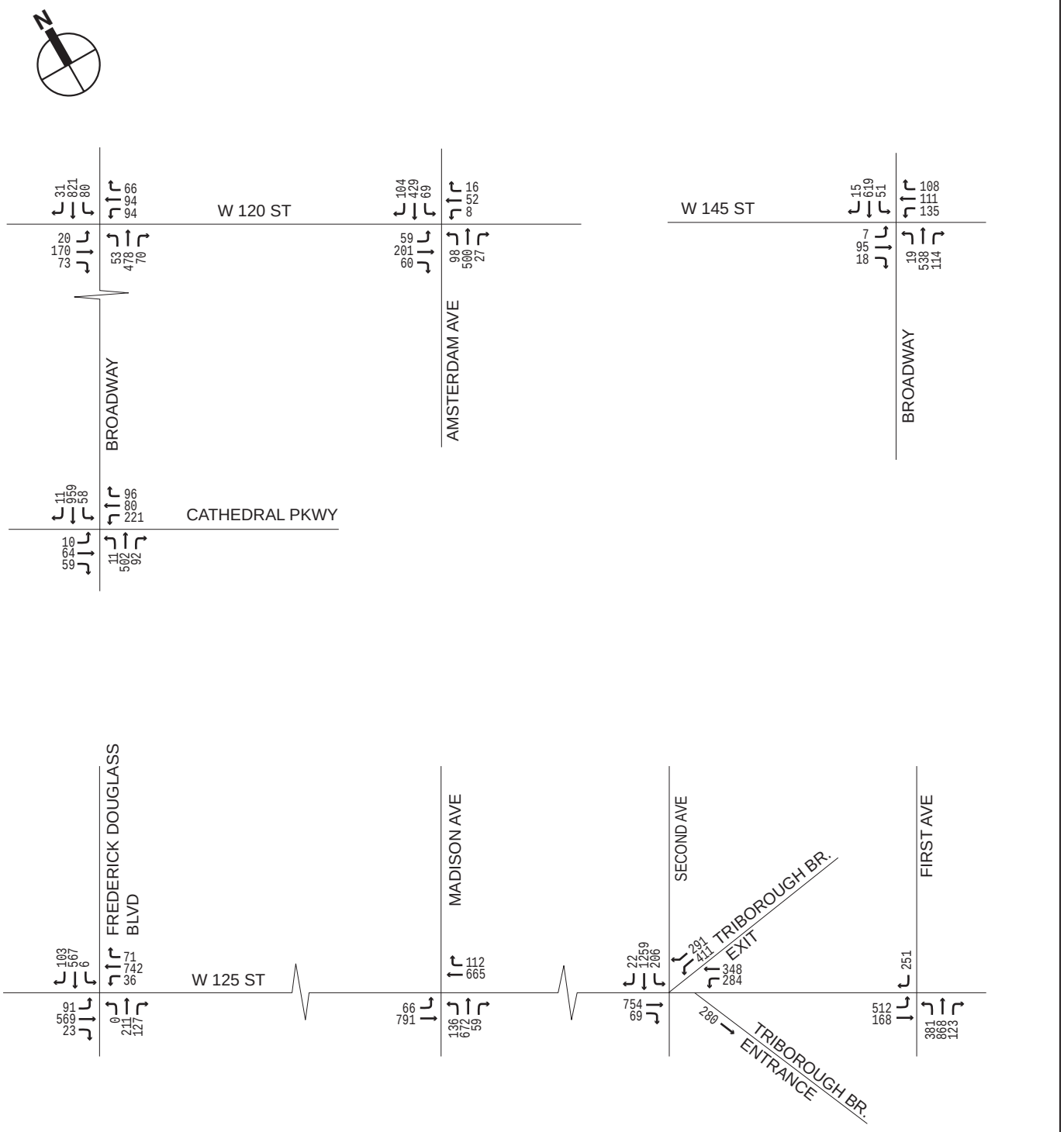
09.10.07



NOT TO SCALE

Figure 17-22
Primary Study Area
Build 2015 Evening Peak Hour

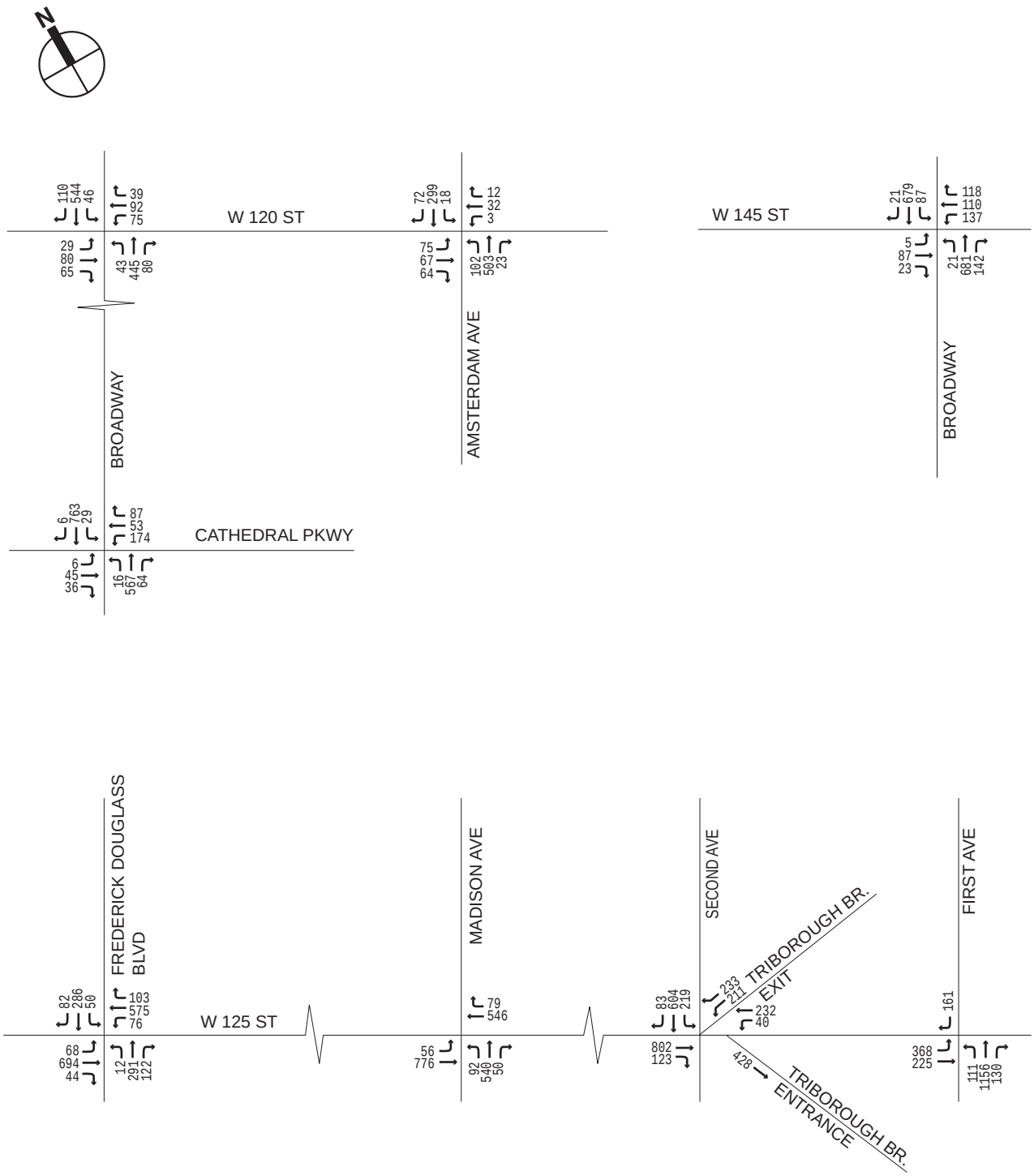
09.10.07



NOT TO SCALE

Figure 17-23
Secondary Study Area
Build 2015 Morning Peak Hour

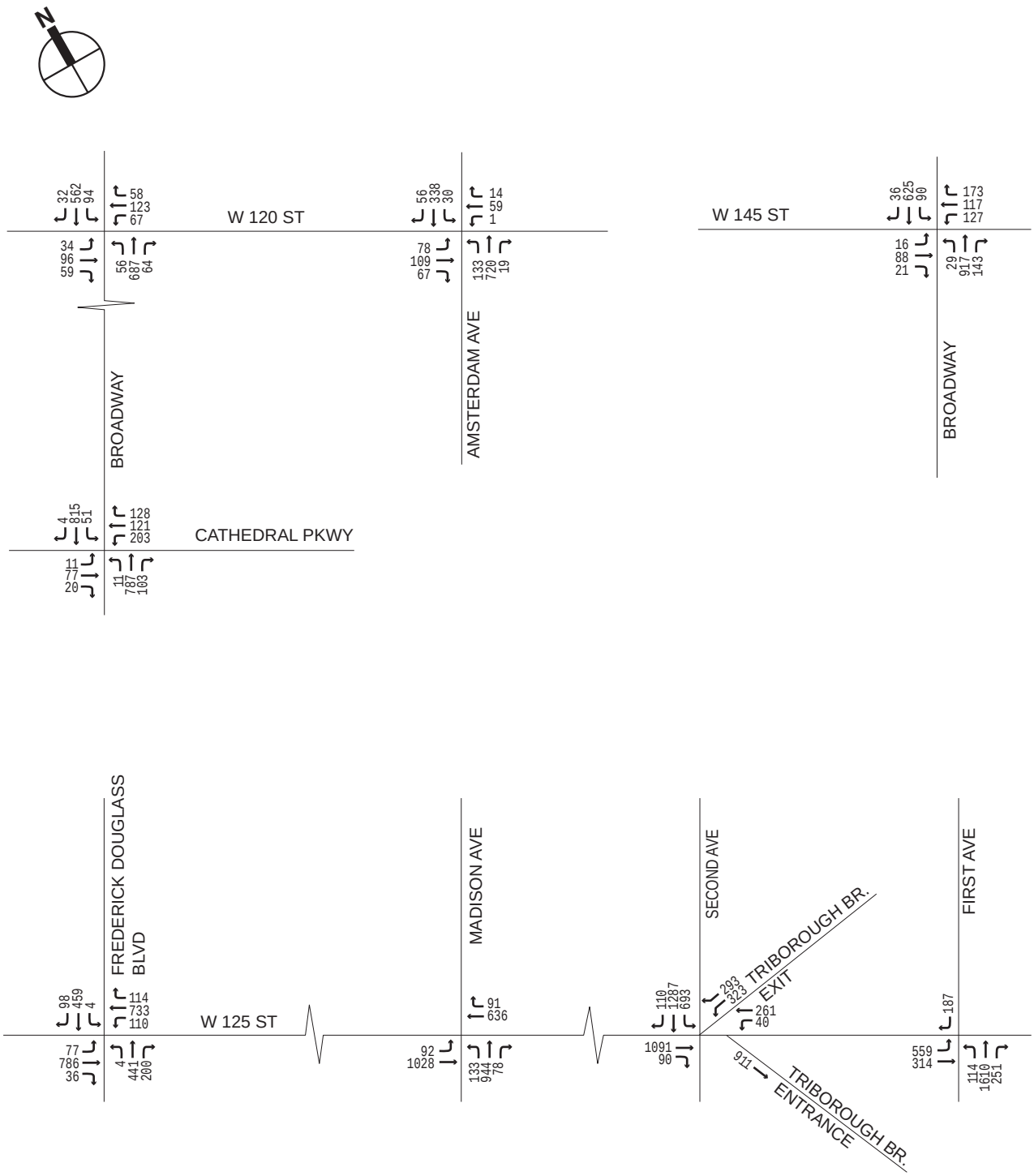
09.10.07



NOT TO SCALE

Figure 17-24
Secondary Study Area
Build 2015 Midday Peak Hour

09.10.07



NOT TO SCALE

Figure 17-25
Secondary Study Area
Build 2015 Evening Peak Hour

Table 17-21
Comparison of 2015 No Build and Build Conditions
Primary Study Area Signalized Intersection Level-of-Service Analysis

	AM Peak Hour									Midday Peak Hour									PM Peak Hour								
	2015 No Build				2015 Build					2015 No Build				2015 Build					2015 No Build				2015 Build				
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS		Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS		Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	
Marginal Street @ West 133rd Street*																											
WB					L	0.46	32.3	C						L	0.38	30.5	C						L	0.56	37.6	D	
SB					T	0.90	26.3	C						T	0.67	13.5	B						T	0.91	24.2	C	
					Int.		27.2	C						Int.		16.1	B						Int.		26.1	C	
Marginal Street @ West 132nd Street*																											
SB					LT	0.73	17.6	B						LT	0.58	14.6	B						LT	0.82	21.0	C	
					Int.		17.6	B						Int.		14.6	B						Int.		21.0	C	
Marginal Street @ West 125th Street																											
WB	L	0.51	26.0	C	L	0.63	28.6	C		L	0.45	25.0	C	L	0.57	27.3	C		L	0.63	28.2	C	L	0.80	34.5	C	
SB	LT	0.47	14.3	B	T	0.32	12.6	B		LT	0.50	14.7	B	T	0.34	12.7	B		LT	0.64	17.1	B	T	0.46	14.1	B	
	Int.		19.6	B	Int.		21.4	C		Int.		18.9	B	Int.		20.3	C		Int.		21.9	C	Int.		24.7	C	
Marginal Street @ St. Clair Place*																											
SB					L	0.20	10.5	B						L	0.51	14.6	B						L	0.32	11.7	B	
					LT	0.53	13.8	B						LT	0.40	12.1	B						LT	0.72	17.4	B	
					Int.		13.3	B						Int.		13.0	B						Int.		16.4	B	
Riverside Drive @ West 135th Street																											
WB	L	0.59	35.0	C	L	0.33	28.2	C		L	0.23	26.5	C	L	0.21	26.2	C		L	0.20	26.0	C	L	0.17	25.6	C	
	R	0.43	31.7	C	R	0.45	32.1	C		R	0.38	30.1	C	R	0.46	32.2	C		R	0.61	38.4	D	R	0.67	41.2	D	
NB	TR	0.23	8.2	A	TR	0.23	8.2	A		TR	0.21	8.0	A	TR	0.20	8.0	A		TR	1.07	51.8	D	TR	1.02	34.3	C	
SB	LT	0.86	13.6	B	LT	0.88	14.5	B		LT	0.11	7.4	A	LT	0.13	7.6	A		LT	0.21	8.2	A	DefL	0.90	90.7	F+	
																							T	0.20	8.1	A	
	Int.		15.5	B	Int.		14.9	B		Int.		12.8	B	Int.		13.4	B		Int.		46.3	D	Int.		33.9	C	
Riverside Drive @ St. Clair Place*																											
EB					L	0.21	4.5	A						L	0.21	4.5	A						L	0.28	4.9	A	
					TR	0.66	9.4	A						TR	0.68	9.9	A						TR	0.62	8.7	A	
SB					LT	0.37	35.4	D						LT	0.25	33.9	C						LT	0.22	33.5	C	
					Int.		12.2	B						Int.		11.1	B						Int.		9.8	A	
Twelfth Avenue @ West 133rd Street																											
WB	LTR	0.76	37.1	D	L	0.21	21.9	C		LTR	0.62	30.5	C	L	0.23	22.3	C		LTR	1.30	177.1	F	L	0.23	22.2	C	
					TR	0.49	25.1	C						TR	0.44	24.2	C						TR	0.89	39.8	D	
NB	L	1.02	65.9	E	L	0.71	23.2	C		L	0.79	27.2	C	L	0.75	25.0	C		L	0.94	44.2	D	L	0.91	39.7	D	
	LTR	0.19	11.0	B	LT	0.29	12.3	B		LTR	0.18	10.8	B	LT	0.09	10.1	B		LTR	0.71	21.6	C	LT	0.60	18.3	B	
SB	LTR	0.15	10.4	B	TR	0.15	10.4	B		LTR	0.12	10.1	B	TR	0.11	10.1	B		LTR	0.10	10.0	B	TR	0.10	10.0	B	
	Int.		42.1	D	Int.		20.2	C		Int.		23.2	C	Int.		21.4	C		Int.		81.7	F	Int.		32.5	C	
Twelfth Avenue @ West 132nd Street																											
EB	LTR	0.79	37.2	D	LTR	0.63	27.5	C		LTR	0.40	24.7	C	LTR	0.51	25.3	C		LTR	0.60	28.9	C	LTR	0.62	27.2	C	
WB	LTR	0.12	20.7	C						LTR	0.08	20.3	C						LTR	0.12	20.6	C					
NB	LTR	0.49	13.8	B	TR	0.50	14.1	B		LTR	0.42	13.0	B	TR	0.40	12.8	B		LTR	0.69	17.6	B	TR	0.66	16.9	B	
SB	LTR	0.13	10.3	B	LT	0.24	11.3	B		LTR	0.07	9.8	A	LT	0.20	11.0	B		LTR	0.06	9.7	A	LT	0.18	10.7	B	
	Int.		21.1	C	Int.		19.2	B		Int.		15.6	B	Int.		17.3	B		Int.		19.9	B	Int.		19.9	B	
Twelfth Avenue @ West 131st Street*																											
WB					L	0.23	22.3	C						L	0.28	23.2	C						L	0.38	24.9	C	
					LTR	0.00	19.3	B						LTR	0.00	19.3	B						LTR	0.00	19.3	B	
					R	0.11	20.6	C						R	0.11	20.6	C						R	0.32	24.0	C	
NB					LT	0.50	14.1	B						LT	0.48	13.9	B						LT	0.68	17.6	B	
SB					TR	0.34	12.1	B						TR	0.27	11.4	B						TR	0.34	12.0	B	
					Int.									Int.									Int.				
Twelfth Avenue @ West 130th Street*																											
NB					TR	0.54	15.7	B						TR	0.54	15.8	B						TR	0.72	16.0	B	
SB					L	0.65	30.3	C						L	0.60	28.0	C						L	0.73	40.3	D	
					T	0.31	12.8	B						T	0.30	12.7	B						T	0.38	10.5	B	
					Int.		16.2	B						Int.		15.9	B						Int.		15.8	B	
Twelfth Avenue @ West 125th Street																											
EB	LTR	0.26	13.4	B						LTR	0.33	14.1	B						LTR	0.40	15.1	B					
WB	L	0.15	13.0	B						L	0.16	13.3	B						L	0.27	15.3	B					
	T	0.73	23.8	C	LT	0.59	25.6	C		T	0.62	19.9	B	LT	0.50	23.8	C		T	0.85	30.6	C	LT	0.83	38.3	D	
	R	0.96	48.8	D	R	0.77	19.9	B		R	0.95	46.1	D	R	0.78	20.8	C		R	1.14	100.5	F	R	1.01	51.1	D	
NB	LTR	0.32	20.6	C	LTR	0.36	28.2	C		LTR	0.29	20.1	C	LTR	0.32	27.5	C		LTR	0.42	22.2	C	LTR	0.45	28.7	C	
SB	LT	0.38	22.1	C	L	0.75	29.2	C		LT	0.23	19.5	B	L	0.68	23.2	C		LT	0.34	21.8	C	L	0.87	32.5	C	
					TR	0.18	11.6	B						TR	0.12	11.1	B						TR	0.12	8.4	A	
	Int.		28.7	C	Int.		23.2	C		Int.		26.6	C	Int.		22.0	C		Int.		49.8	D	Int.		38.1	D	

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service
+ Significant Adverse Traffic Impact
* indicates intersections which were unsignalized in the No Build condition and signalized in the Build condition

Table 17-21 (Continued)
Comparison of 2015 No Build and Build Conditions
Primary Study Area Signalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2015 No Build				2015 Build				2015 No Build				2015 Build				2015 No Build				2015 Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Twelfth Avenue @ St. Clair Place*																								
EB					T	0.30	22.9	C					T	0.37	23.7	C					T	0.48	25.2	C
NB					R	0.87	40.9	D					R	0.82	36.7	D					R	0.72	32.1	C
SB					L	0.08	32.4	C					L	0.07	32.1	C					L	0.05	31.9	C
					Int.		34.5	C					Int.		31.4	D					Int.		28.6	C
West 125th Street @ West 129th Street/St. Clair Place*																								
EB					R	0.86	43.5	D					R	0.75	35.4	D					R	0.84	42.7	D
WB					R	0.41	26.7	C					R	0.44	27.0	C					R	0.72	35.6	D
NB					T	0.88	38.8	D					T	0.66	27.9	C					T	0.94	43.8	D
SB					T	0.24	21.0	C					T	0.23	20.8	C					T	0.38	21.3	C
					Int.		36.1	D					Int.		29.0	C					Int.		38.2	D
Broadway @ West 138th Street																								
WB	LTR	0.17	24.3	C	LTR	0.17	24.3	C	LTR	0.11	23.4	C	LTR	0.11	23.4	C	LTR	0.15	23.9	C	LTR	0.18	24.4	C
NB	LT	0.34	6.2	A	LT	0.35	6.2	A	LT	0.34	6.2	A	LT	0.37	6.4	A	LT	0.41	6.6	A	LT	0.42	6.7	A
	R	0.02	4.7	A	R	0.04	4.9	A	R	0.02	4.7	A	R	0.02	4.7	A	R	0.02	4.7	A	R	0.04	4.8	A
SB	LTR	0.59	8.4	A	LTR	0.62	8.9	A	LTR	0.44	6.9	A	LTR	0.50	7.5	A	LTR	0.41	6.7	A	LTR	0.47	7.2	A
	Int.		8.0	A	Int.		8.3	A	Int.		7.0	A	Int.		7.4	A	Int.		7.2	A	Int.		7.6	A
Broadway Northbound @ West 135th Street																								
EB	LT	0.36	25.8	C	LT	0.41	26.5	C	LT	0.27	24.8	C	LT	0.31	25.2	C	DefL	0.95	83.0	F	DefL	0.94	82.7	F
																	T	0.41	27.7	C	T	0.49	29.4	C
WB	TR	0.49	28.7	C	TR	0.52	29.2	C	TR	0.48	28.6	C	TR	0.53	29.4	C	TR	0.54	29.7	C	TR	0.58	30.4	C
NB	LTR	0.51	7.8	A	LTR	0.52	8.0	A	LTR	0.47	7.5	A	LTR	0.55	8.4	A	LTR	0.65	9.7	A	LTR	0.70	10.6	B
	Int.		16.6	B	Int.		17.5	B	Int.		15.4	B	Int.		16.2	B	Int.		23.7	C	Int.		23.9	C
Broadway Southbound @ West 135th Street																								
EB	TR	0.42	27.1	C	TR	0.43	27.2	C	TR	0.19	24.0	C	TR	0.20	24.1	C	TR	0.67	32.8	C	TR	0.54	29.3	C
WB	LT	0.34	25.6	C	LT	0.32	25.5	C	LT	0.27	24.7	C	LT	0.38	26.3	C	LT	0.40	26.9	C	DefL	0.56	38.2	D
																					T	0.39	27.3	C
SB	L	0.10	5.1	A	L	0.15	5.4	A	L	0.09	5.1	A	L	0.14	5.4	A	L	0.08	5.0	A	L	0.12	5.3	A
	TR	0.70	11.0	B	TR	0.65	10.0	B	TR	0.52	8.1	A	TR	0.50	7.9	A	TR	0.51	7.9	A	TR	0.50	7.8	A
	Int.		16.0	B	Int.		15.1	B	Int.		12.5	B	Int.		13.4	B	Int.		18.8	B	Int.		18.1	B
Broadway Northbound @ West 133rd Street																								
EB	LT	0.21	17.4	B					LT	0.25	17.9	B					LT	0.23	17.8	B				
WB	TR	0.51	24.3	C	TR	0.40	22.2	C	TR	0.47	23.4	C	TR	0.48	23.6	C	TR	0.86	40.9	D	TR	0.85	38.2	D
NB	LT	0.56	13.9	B	L	0.37	15.5	B	LT	0.44	12.2	B	L	0.39	12.4	B	LT	0.78	18.9	B	L	0.56	15.4	B
	R	0.11	9.6	A	TR	0.70	16.7	B	R	0.08	9.4	A	TR	0.57	13.9	B	R	0.07	9.2	A	TR	0.83	21.1	C
	Int.		16.8	B	Int.		17.4	B	Int.		15.9	B	Int.		15.6	B	Int.		25.3	C	Int.		24.6	C
Broadway Southbound @ West 133rd Street																								
EB	TR	0.12	18.0	B					TR	0.13	18.1	B					TR	0.10	17.7	B				
WB	LT	0.43	20.6	C	LT	0.20	7.5	A	LT	0.41	20.1	C	LT	0.22	7.6	A	LT	0.74	28.5	C	LT	0.35	5.2	A
SB	LTR	0.52	12.7	B	TR	0.77	29.8	C	LTR	0.38	11.2	B	TR	0.58	24.9	C	LTR	0.48	12.2	B	TR	0.87	41.6	D
	Int.		14.6	B	Int.		23.4	C	Int.		14.0	B	Int.		18.5	B	Int.		18.2	B	Int.		23.8	C
Broadway Northbound @ West 132nd Street																								
EB	L	0.40	20.5	C	LT	0.88	43.3	D	L	0.23	17.7	B	LT	0.61	22.8	C	L	0.31	18.7	B	LT	0.81	40.2	D
WB					TR	0.01	15.1	B					TR	0.03	15.3	B					TR	0.19	18.8	B
NB	LT	0.41	11.7	B	TR	0.47	14.4	B	LT	0.35	11.1	B	TR	0.40	13.6	B	LT	0.57	13.6	B	TR	0.55	13.1	B
	Int.		14.0	B	Int.		25.2	C	Int.		12.6	B	Int.		16.5	B	Int.		14.6	B	Int.		19.8	B
Broadway Southbound @ West 132nd Street																								
EB	TR	0.61	27.9	C	TR	0.51	20.9	C	TR	0.32	20.7	C	TR	0.27	17.6	B	TR	0.46	22.9	C	TR	0.30	19.7	B
					R	0.25	18.2	B					R	0.24	18.3	B					R	0.34	21.8	C
WB	LT	0.06	15.8	B	L	0.01	15.2	B	LT	0.04	15.6	B	L	0.03	13.4	B	LT	0.04	15.6	B	L	0.18	19.3	B
SB	LTR	0.51	12.9	B	LT	0.59	16.6	B	LTR	0.41	11.7	B	LT	0.49	15.0	B	LTR	0.43	11.9	B	LT	0.47	12.4	B
	Int.		17.0	B	Int.		18.3	B	Int.		13.8	B	Int.		16.0	B	Int.		15.2	B	Int.		15.9	B
Broadway @ West 131st Street																								
EB	LTR	0.20	21.7	C					LTR	0.24	22.1	C					LTR	0.21	21.8	C				
WB	LT	0.11	20.6	C					LT	0.10	20.5	C					LT	0.16	21.3	C				
	R	0.04	19.8	B					R	0.02	19.6	B					R	0.04	19.8	B				
NB	LTR	0.37	8.8	A					LTR	0.30	8.1	A					LTR	0.47	9.6	A				
SB	LTR	0.50	9.9	A					LTR	0.37	8.7	A					LTR	0.42	9.1	A				
	Int.		10.6	B					Int.		10.1	B					Int.		10.7	B				

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service
+ Significant Adverse Traffic Impact
* indicates intersections which were unsignalized in the No Build condition and signalized in the Build condition

Table 17-21 (Continued)
Comparison of 2015 No Build and Build Conditions
Primary Study Area Signalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2015 No Build				2015 Build				2015 No Build				2015 Build				2015 No Build				2015 Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Broadway Northbound @ West 131st Street																								
EB					T	0.06	20.1	C					T	0.03	19.7	B					T	0.07	20.1	C
WB					TR	0.09	20.2	C					TR	0.08	20.1	C					TR	0.09	20.1	C
NB					LTR	0.51	10.0	B					LTR	0.43	9.2	A					LTR	0.59	10.8	B
					Int.		11.1	B					Int.		10.0	B					Int.		11.6	B
Broadway Southbound @ West 131st Street																								
WB					LT	0.19	21.1	C					LT	0.13	20.6	C					LT	0.17	20.9	C
SB					LTR	0.64	12.1	B					LTR	0.51	10.2	B					LTR	0.56	10.9	B
					Int.		13.7	B					Int.		11.6	B					Int.		12.6	B
Broadway @ West 130th Street																								
EB	LR	0.25	25.6	C	L	0.22	24.4	C	LR	0.19	24.5	C	L	0.24	24.6	C	LR	0.31	26.5	C	L	0.27	25.0	C
					R	0.33	27.3	C					R	0.34	27.6	C					R	0.40	28.8	C
NB	LT	0.26	5.7	A	T	0.38	6.4	A	T	0.21	5.4	A	T	0.31	6.0	A	LT	0.32	6.0	A	T	0.42	6.7	A
SB	LT	0.37	6.3	A	LT	0.50	7.6	A	T	0.29	5.9	A	T	0.42	6.9	A	LT	0.32	6.0	A	LT	0.49	7.4	A
	Int.		7.2	A	Int.		9.5	A	Int.		6.8	A	Int.		9.6	A	Int.		7.5	A	Int.		10.1	B
Broadway @ West 129th Street																								
WB	LT	0.42	19.0	B	LT	0.43	19.3	B	LT	0.41	18.7	B	LT	0.42	18.9	B	LT	0.54	21.1	C	LT	0.57	21.8	C
	R	0.20	16.1	B	R	0.23	16.7	B	R	0.18	15.9	B	R	0.19	16.2	B	R	0.27	17.1	B	R	0.31	17.9	B
NB	DefL	0.61	34.9	C	LT	0.59	20.9	C	LT	0.38	17.6	B	LT	0.49	19.1	B	LT	0.69	23.5	C	LT	0.84	30.0	C
	T	0.48	19.2	B																				
SB	TR	0.60	17.7	B	TR	0.86	27.8	C	TR	0.44	18.1	B	TR	0.69	23.4	C	TR	0.49	18.8	B	TR	0.80	27.4	C
	Int.		19.1	B	Int.		23.6	C	Int.		18.0	B	Int.		20.8	C	Int.		20.9	C	Int.		26.9	C
Broadway @ West 125th Street																								
EB	L	1.44	275.6	F	L	0.93	92.4	F	L	0.56	37.1	D	L	0.37	24.3	C	L	0.55	45.1	D	L	0.45	38.2	D
	TR	0.79	34.3	C	T	0.62	29.8	C	TR	0.87	39.7	D	T	0.49	22.3	C	TR	1.08	84.9	F	T	0.76	34.4	C
					R	0.32	13.2	B					R	0.36	11.0	B					R	0.55	18.2	B
WB	L	1.15	159.2	F	L	1.11	143.4	F	L	0.81	77.6	E	L	0.48	30.4	C	L	1.04	140.8	F	L	0.91	102.6	F
	TR	0.99	57.7	E	T	0.68	31.2	C	TR	0.73	31.6	C	T	0.42	21.2	C	TR	0.92	44.9	D	T	0.69	31.9	C
					R	0.76	27.7	C					R	0.79	41.8	D					R	0.64	21.8	C
NB	L	0.46	32.7	C	L	0.47	36.3	D	L	0.40	31.6	C	L	0.47	38.3	D	L	0.60	36.7	D	L	0.61	39.5	D
	LT	0.48	31.6	C	T	0.31	22.6	C	LT	0.47	31.5	C	T	0.40	27.4	C	LT	0.91	50.5	D	T	0.61	27.0	C
	R	0.62	43.8	D	R	0.50	30.5	C	R	0.68	49.5	D	R	0.68	46.4	D	R	0.61	43.4	D	R	0.50	30.1	C
SB	L	0.38	30.6	C	L	0.49	36.5	D	L	0.35	30.4	C	L	0.59	41.1	D	L	0.36	30.1	C	L	0.55	37.3	D
	LTR	1.04	76.6	E	T	0.64	27.8	C	LTR	0.79	40.9	D	T	0.56	30.0	C	LTR	0.86	45.9	D	T	0.47	24.4	C
					R	0.16	22.4	C					R	0.23	26.9	C					R	0.29	24.5	C
	Int.		64.6	E	Int.		35.6	D	Int.		37.7	D	Int.		28.8	C	Int.		56.9	E	Int.		31.5	C
Amsterdam Avenue @ West 135th Street																								
EB	LT	0.42	28.3	C	LT	0.48	29.8	C	LT	0.23	25.2	C	LT	0.25	25.5	C	LT	0.58	35.1	D	LT	0.64	38.4	D
	R	0.38	29.8	C	R	0.56	36.3	D	R	0.23	25.8	C	R	0.46	31.3	C	R	0.27	26.6	C	R	0.43	30.7	C
WB	LTR	0.44	28.9	C	LTR	0.45	29.1	C	LTR	0.53	31.8	C	LTR	0.55	32.3	C	LTR	0.65	36.2	D	LTR	0.67	37.0	D
NB	LTR	0.48	7.9	A	LTR	0.52	8.3	A	LTR	0.54	8.8	A	LTR	0.62	10.3	B	LTR	0.69	11.3	B	LTR	0.76	13.5	B
SB	LTR	0.58	8.9	A	LTR	0.62	9.6	A	LTR	0.49	7.9	A	LTR	0.53	8.4	A	LTR	0.55	8.6	A	LTR	0.61	9.5	A
	Int.		13.6	B	Int.		15.1	B	Int.		13.0	B	Int.		14.6	B	Int.		16.1	B	Int.		18.0	B
Amsterdam Avenue @ West 125th Street																								
EB	L	1.39	264.3	F	L	1.39	264.3	F	L	1.10	145.3	F	L	1.33	235.8	F+	L	1.06	144.6	F	L	1.13	168.5	F+
	TR	0.99	60.5	E	TR	1.05	75.6	E+	TR	1.00	62.1	E	TR	1.08	87.3	F+	TR	1.08	84.5	F	TR	1.18	125.2	F+
WB	L	1.08	148.3	F	L	1.20	194.1	F+	L	0.51	45.7	D	L	0.51	45.7	D	L	0.60	54.1	D	L	0.60	54.1	D
	TR	1.02	66.8	E	TR	1.12	100.5	F+	TR	0.84	38.0	D	TR	0.93	48.3	D+	TR	0.96	52.1	D	TR	1.05	75.0	E+
NB	L	0.35	15.7	B	L	0.37	16.1	B	L	0.07	10.1	B	L	0.08	10.2	B	L	0.23	16.9	B	L	0.24	17.5	B
	TR	0.73	28.6	C	TR	0.73	28.5	C	TR	0.52	23.3	C	TR	0.51	23.2	C	TR	0.90	38.5	D	TR	0.90	38.0	D
SB	L	0.53	26.7	C	L	0.54	27.1	C	L	0.62	25.0	C	L	0.62	25.0	C	L	0.75	45.0	D	L	0.78	47.8	D
	TR	0.44	21.6	C	TR	0.44	21.7	C	TR	0.33	20.2	C	TR	0.34	20.2	C	TR	0.81	38.6	D	TR	0.83	40.7	D
	Int.		56.1	E	Int.		70.7	E	Int.		44.0	D	Int.		58.4	E	Int.		56.2	E	Int.		74.0	E

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service
+ Significant Adverse Traffic Impact
* indicates intersections which were unsignalized in the No Build condition and signalized in the Build condition

Table 17-22
Comparison of 2015 No Build and Build Conditions
Primary Study Area Unsignalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2015 No Build				2015 Build				2015 No Build				2015 Build				2015 No Build				2015 Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Marginal Street @ West 133rd Street*																								
WB	L	0.20	10.6	B					L	0.16	10.3	B					L	0.20	10.5	B				
SB	T	1.15	101.8	F					T	0.96	45.2	E					T	1.15	95.9	F				
Marginal Street @ West 132nd Street*																								
WB	L	-	9.7	A					L	-	9.6	A					L	-	9.9	A				
SB	LT	-	82.1	F					LT	-	20.1	C					LT	-	70.4	F				
	T	-	8.2	A					T	-	8.3	A					T	-	10.0	B				
	Int.		68.3	F					Int.		17.0	C					Int.		52.1	F				
Marginal Street @ St. Clair Place*																								
SB	L	0.18	9.9	A					L	0.22	10.1	B					L	0.29	10.6	B				
	T	0.94	42.4	E					T	0.86	30.4	D					T	1.15	103.2	F				
Twelfth Avenue @ West 131st Street*																								
NB	LT	0.01	7.8	A					LT	0.02	7.5	A					LT	0.02	7.8	A				
SB	LT	0.15	10.8	B					LT	0.05	10.0	A					LT	0.07	11.9	B				
WB	LTR	0.33	30.3	D					LTR	0.26	24.6	C					LTR	0.86	85.7	F				
EB	LTR	0.02	16.4	C					LTR	0.19	14.5	B					LTR	0.05	19.2	C				
Twelfth Avenue @ West 125th Street Southbound Right Turn*																								
SB	R	0.07	11.6	B					R	0.06	10.8	B					R	0.08	11.6	B				
Twelfth Avenue @ St. Clair Place*																								
EB	T	-	10.0	A					T	-	10.4	B					T	-	11.2	B				
NB	R	-	14.7	B					R	-	14.5	B					R	-	13.0	B				
SB	L	-	9.1	A					L	-	8.8	A					L	-	8.9	A				
	Int.		13.6	B					Int.		13.4	B					Int.		12.3	B				
Riverside Drive @ St. Clair Place*																								
EB	LTR	0.13	7.8	A					LTR	0.13	7.7	A					LTR	0.18	7.9	A				
SB	LT	0.42	34.2	D					LT	0.37	31.9	D					LT	0.40	33.6	D				
	T	0.39	32.5	D					T	0.29	28.5	D					T	0.25	32.6	D				
Riverside Drive @ Tiemann Place																								
WB	L	-	8.3	A	L	-	8.3	A	L	-	8.1	A	L	-	8.1	A	L	-	8.3	A	L	-	8.3	A
NB	R	-	7.4	A	R	-	7.4	A	R	-	7.1	A	R	-	7.1	A	R	-	7.3	A	R	-	7.3	A
SB	L	-	10.1	B	L	-	10.1	B	L	-	9.6	A	L	-	9.6	A	L	-	10.2	B	L	-	10.1	B
	T	-	8.9	A	T	-	9.0	A	T	-	8.8	A	T	-	8.8	A	T	-	8.3	A	T	-	8.3	A
	Int.		9.1	A	Int.		9.1	A	Int.		8.8	A	Int.		8.8	A	Int.		9.0	A	Int.		8.9	A
West 125th Street @ West 129th Street/St. Clair Place*/*																								
WB	L	0.17	128.0	F					L	0.08	67.0	F					L	1.75	1242.0	F				
	R	0.83	47.4	E					R	0.76	32.2	D					R	1.94	466.9	F				
EB	L	0.02	92.8	F					L	0.02	61.2	F					L	---	---	F				
	R	0.68	22.1	C					R	0.61	19.7	C					R	0.83	47.2	E				

Notes: L: Left Turn; T: Through; R: Right Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service
+ Significant Adverse Traffic Impact
* indicates intersections which were unsignalized in the No Build condition and signalized in the Build condition
** The unsignalized intersection analysis procedure, which assumes random arrival, breaks down with high major or minor street volumes and reports exaggerated levels of stop delays. As such, its results are not necessarily indicative of actual conditions, where gaps created by adjacent signalized intersections often provide additional throughput capacity and result in lower stop delays.

Table 17-23
Comparison of 2015 No Build and Build Conditions
Secondary Study Area Signalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2015 No Build				2015 Build				2015 No Build				2015 Build				2015 No Build				2015 Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Broadway @ West 110th Street																								
EB	LTR	0.41	24.7	C	LTR	0.41	24.7	C	LTR	0.20	21.7	C	LTR	0.20	21.7	C	LTR	0.27	21.8	C	LTR	0.27	21.8	C
WB	DefL	1.01	89.5	F	DefL	1.02	91.7	F	DefL	0.61	32.1	C	DefL	0.61	32.1	C	DefL	0.87	59.2	E	DefL	0.89	61.2	E
	TR	0.58	31.3	C	TR	0.58	31.3	C	TR	0.43	26.3	C	TR	0.43	26.3	C	TR	0.83	48.4	D	TR	0.83	48.4	D
NB	LTR	0.46	12.9	B	LTR	0.46	12.9	B	LTR	0.47	13.0	B	LTR	0.48	13.2	B	LTR	0.62	15.1	B	LTR	0.62	15.2	B
SB	LTR	0.72	21.1	C	LTR	0.73	21.2	C	LTR	0.51	13.4	B	LTR	0.52	13.5	B	LTR	0.59	18.3	B	LTR	0.60	18.3	B
	Int.		26.9	C	Int.		27.2	C	Int.		16.7	B	Int.		16.7	B	Int.		24.3	C	Int.		24.6	C
Broadway @ West 120th Street																								
EB	LTR	0.43	27.9	C	LTR	0.42	27.8	C	LTR	0.32	26.4	C	LTR	0.32	26.4	C	LTR	0.33	26.5	C	LTR	0.33	26.5	C
WB	LTR	1.21	161.5	F	LTR	1.13	127.9	F	LTR	0.82	51.5	D	LTR	0.82	51.5	D	LTR	0.94	70.9	E	LTR	0.90	61.2	E
NB	LTR	0.39	6.1	A	LTR	0.40	6.2	A	LTR	0.36	5.9	A	LTR	0.38	6.0	A	LTR	0.48	6.7	A	LTR	0.49	6.8	A
SB	LTR	0.59	7.9	A	LTR	0.60	8.0	A	LTR	0.44	6.4	A	LTR	0.46	6.6	A	LTR	0.48	6.8	A	LTR	0.49	7.0	A
	Int.		28.9	C	Int.		24.4	C	Int.		14.2	B	Int.		14.1	B	Int.		17.0	B	Int.		15.7	B
Amsterdam Avenue @ West 120th Street																								
EB	L	0.44	39.3	D	L	0.48	42.1	D	L	0.50	41.7	D	L	0.50	41.7	D	L	0.57	45.9	D	L	0.57	45.9	D
	TR	0.98	82.4	F	TR	0.89	62.8	E	TR	0.69	48.5	D	TR	0.69	48.5	D	TR	0.78	54.4	D	TR	0.78	53.6	D
WB	L	0.09	29.4	C	L	0.09	29.4	C	L	0.03	27.8	C	L	0.03	27.8	C	L	0.01	27.3	C	L	0.01	27.3	C
	TR	0.31	32.3	C	TR	0.31	32.3	C	TR	0.20	30.3	C	TR	0.20	30.3	C	TR	0.32	32.5	C	TR	0.32	32.5	C
NB	LTR	0.61	5.7	A	LTR	0.61	5.6	A	LTR	0.57	5.1	A	LTR	0.58	5.1	A	LTR	0.85	12.5	B	LTR	0.85	12.7	B
SB	LTR	0.57	5.1	A	LTR	0.57	5.1	A	LTR	0.34	3.2	A	LTR	0.34	3.2	A	LTR	0.35	3.3	A	LTR	0.36	3.3	A
	Int.		20.1	C	Int.		17.1	B	Int.		12.3	B	Int.		12.2	B	Int.		17.2	B	Int.		17.2	B
Frederick Douglass Boulevard @ West 125th Street																								
EB	LTR	1.01	61.0	E	LTR	1.08	84.2	F+	LTR	0.84	25.8	C	LTR	0.91	32.4	C	LTR	1.25	149.6	F	LTR	1.40	214.5	F+
WB	LTR	0.86	32.4	C	LTR	0.92	38.4	D	LTR	0.86	28.1	C	LTR	0.94	37.9	D	LTR	1.49	255.6	F	LTR	1.67	334.2	F+
NB	LT	0.19	15.5	B	LT	0.19	15.5	B	LT	0.38	23.5	C	LT	0.38	23.5	C	LTR	0.72	21.9	C	LTR	0.73	22.3	C
	R	0.30	17.6	B	R	0.30	17.6	B	R	0.63	36.6	D	R	0.63	36.6	D								
SB	LT	0.57	17.6	B	LT	0.57	17.6	B	LT	0.48	25.3	C	LT	0.48	25.3	C	LT	0.44	18.5	B	LT	0.45	18.6	B
	R	0.24	14.3	B	R	0.24	14.3	B	R	0.40	27.5	C	R	0.40	27.5	C	R	0.34	19.3	B	R	0.34	19.3	B
	Int.		33.2	C	Int.		41.5	D	Int.		26.8	C	Int.		32.1	C	Int.		125.5	F	Int.		170.7	F
Madison Avenue @ East 125th Street																								
EB	LT	1.14	102.5	F	LT	1.22	134.4	F+	LT	1.02	60.1	E	LT	1.10	85.4	F+	LT	1.45	234.8	F	LT	1.61	303.3	F+
WB	TR	0.80	28.9	C	TR	0.85	32.0	C	TR	0.63	22.3	C	TR	0.69	23.8	C	TR	0.71	24.7	C	TR	0.77	26.8	C
NB	LTR	0.59	17.4	B	LTR	0.59	17.4	B	LTR	0.48	15.9	B	LTR	0.48	15.9	B	LTR	0.74	20.4	C	LTR	0.74	20.5	C
	Int.		50.4	D	Int.		62.6	E	Int.		34.7	C	Int.		45.4	D	Int.		99.2	F	Int.		128.0	F
Second Avenue @ East 125th Street																								
EB	T	1.46	252.1	F	T	1.51	274.2	F+	T	1.47	257.3	F	T	1.55	291.3	F+	T	1.34	196.3	F	T	1.43	233.2	F+
	R	0.37	36.1	D	R	0.40	36.8	D	R	0.60	43.8	D	R	0.66	46.7	D	R	0.33	31.7	C	R	0.41	33.5	C
WB	DefL	1.13	128.5	F	DefL	1.13	128.5	F	LT	0.91	67.2	E	LT	0.99	85.4	F+	LT	0.91	63.8	E	LT	0.97	76.1	E+
	T	1.35	217.2	F	T	1.43	248.2	F+																
SB	LTR	0.59	20.6	C	LTR	0.59	20.6	C	LTR	0.38	18.3	B	LTR	0.38	18.3	B	LTR	0.89	30.5	C	LTR	0.89	30.5	C
SW	TR	1.22	149.2	F	TR	1.29	178.7	F+	TR	0.76	42.3	D	TR	0.82	45.8	D	TR	1.06	88.6	F	TR	1.13	112.4	F+
	Int.		119.2	F	Int.		134.0	F	Int.		103.1	F	Int.		118.0	F	Int.		81.8	F	Int.		97.3	F
First Avenue @ East 125th Street																								
EB	L	1.11	102.9	F	L	1.11	102.9	F	L	0.82	38.4	D	L	0.82	38.4	D	L	1.06	82.4	F	L	1.06	82.4	F
	LT	0.29	20.2	C	LT	0.31	20.4	C	LT	0.39	21.8	C	LT	0.42	22.3	C	LT	0.57	25.4	C	LT	0.61	26.5	C
NB	L	0.64	17.4	B	L	0.64	17.5	B	L	0.17	10.0	A	L	0.18	10.0	B	L	0.17	9.9	A	L	0.17	10.0	A
	T	0.37	11.0	B	T	0.37	11.0	B	T	0.52	12.4	B	T	0.52	12.4	B	T	0.65	14.0	B	T	0.65	14.0	B
	R	0.23	10.7	B	R	0.23	10.7	B	R	0.26	11.0	B	R	0.26	11.0	B	R	0.48	14.2	B	R	0.48	14.2	B
	Int.		36.1	D	Int.		36.1	D	Int.		18.2	B	Int.		18.3	B	Int.		28.0	C	Int.		28.1	C
Broadway @ West 145th Street																								
EB	LTR	0.23	25.4	C	LTR	0.23	25.4	C	LTR	0.27	25.9	C	LTR	0.27	25.9	C	LTR	0.26	25.7	C	LTR	0.26	25.7	C
WB	LTR	0.88	51.9	D	LTR	0.88	51.9	D	LTR	0.97	69.3	E	LTR	1.00	75.2	E+	LTR	0.91	53.0	D	LTR	0.93	56.3	E
NB	LTR	0.58	20.6	C	LTR	0.60	21.0	C	LTR	0.69	23.0	C	LTR	0.72	23.9	C	LTR	0.84	28.5	C	LTR	0.85	29.2	C
SB	L	0.20	9.6	A	L	0.20	9.7	A	L	0.36	12.4	B	L	0.37	12.7	B	L	0.41	14.7	B	L	0.41	14.8	B
	TR	0.48	11.2	B	TR	0.49	11.3	B	TR	0.54	12.0	B	TR	0.56	12.3	B	TR	0.47	11.1	B	TR	0.48	11.3	B
	Int.		23.4	C	Int.		23.5	C	Int.		26.8	C	Int.		28.2	C	Int.		27.3	C	Int.		28.2	C

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service
+ Significant Adverse Traffic Impact
* indicates intersections which were unsignalized in the No Build condition and signalized in the Build condition

Table 17-24
Comparison of 2015 No Build and Build Conditions
Secondary Study Area Unsignalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2015 No Build				2015 Build				2015 No Build				2015 Build				2015 No Build				2015 Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
First Avenue @ East 125th Street Southbound Right Turn																								
SB	R	0.37	13.0	B	R	0.39	13.3	B	R	0.18	9.9	A	R	0.20	10.1	B	R	0.21	10.2	B	R	0.23	10.3	B
Notes: R: Right Turn; V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service																								

Riverside Drive and West 135th Street

During the PM peak hour, the southbound *de facto* left-turn movement would deteriorate from LOS A to LOS F with delay increasing from 8.2 to 90.7 seconds and v/c ratio increasing from 0.21 to 0.90.

SECONDARY STUDY AREA

Frederick Douglass Boulevard and West 125th Street

During the AM peak hour, the eastbound approach would deteriorate from LOS E to LOS F, with delay increasing from 61.0 to 84.2 seconds and v/c ratio increasing from 1.01 to 1.08.

During the PM peak hour, the eastbound approach would continue to operate at LOS F, with delay increasing from 149.6 to 214.5 seconds and v/c ratio decreasing from 1.25 to 1.40. The westbound approach would also continue to operate at LOS F, with delay increasing from 255.6 to 334.2 seconds and v/c ratio increasing from 1.49 to 1.67.

Madison Avenue and East 125th Street

During the AM peak hour, the eastbound approach would continue to operate at LOS F, with delay increasing from 102.5 to 134.4 seconds and v/c ratio increasing from 1.14 to 1.22.

During the midday peak hour, the eastbound approach would deteriorate from LOS E to LOS F, with delay increasing from 60.1 to 85.4 seconds and v/c ratio increasing from 1.02 to 1.10.

During the PM peak hour, the eastbound approach would continue to operate at LOS F, with delay increasing from 234.8 to 303.3 seconds and v/c ratio increasing from 1.45 to 1.61.

Second Avenue and East 125th Street

During the AM peak hour, the eastbound through movement would continue to operate at LOS F, with delay increasing from 252.1 to 274.2 seconds and v/c ratio increasing from 1.46 to 1.51. The westbound through movement would continue to operate at LOS F, with delay decreasing from 217.2 to 248.2 seconds and v/c ratio increasing from 1.35 to 1.43. The southwestbound approach would continue to operate at LOS F, with delay increasing from 149.2 to 178.7 seconds and v/c ratio increasing from 1.22 to 1.29.

During the midday peak hour, the eastbound through movement would continue to operate at LOS F, with delay increasing from 257.3 to 291.3 seconds and v/c ratio increasing from 1.47 to 1.55. The westbound approach would deteriorate from LOS E to LOS F, with delay increasing from 67.2 to 85.4 seconds and v/c ratio increasing from 0.91 to 0.99.

During the PM peak hour, the eastbound through movement would continue to operate at LOS F, with delay increasing from 196.3 to 233.2 seconds and v/c ratio increasing from 1.34 to 1.43.

The westbound approach would continue to operate at LOS E, with delay increasing from 63.8 to 76.1 seconds and v/c ratio increasing from 0.91 to 0.97. The southwestbound approach would also continue to operate at LOS F, with delay increasing from 88.6 to 112.4 seconds and v/c ratio increasing from 1.06 to 1.13.

Broadway and East 145th Street

During the midday peak hour, the westbound approach would continue to operate at LOS E, with delay increasing from 69.3 to 75.2 seconds and v/c ratio increasing from 0.97 to 1.00.

SIGNIFICANT IMPACTS

Within the primary study area, the Proposed Actions would result in significant adverse impacts at the follow intersections:

AM Peak Hour

- Amsterdam Avenue and West 125th Street

Midday Peak Hour

- Amsterdam Avenue and West 125th Street

PM Peak Hour

- Riverside Drive and West 135th Street
- Amsterdam Avenue and West 125th Street

Within the secondary study area, the Proposed Actions would result in significant adverse impacts on the following intersections:

AM Peak Hour

- Frederick Douglass Boulevard and West 125th Street
- Madison Avenue and East 125th Street
- Second Avenue and East 125th Street

Midday Peak Hour

- Madison Avenue and East 125th Street
- Second Avenue and East 125th Street
- Broadway and West 145th Street

PM Peak Hour

- Frederick Douglass Boulevard and West 125th Street
- Madison Avenue and East 125th Street
- Second Avenue and East 125th Street

It should be noted that the projected traffic impacts were identified primarily at intersections along 125th Street. These intersections were identified to already operate at congested levels during peak hours in the future without the Proposed Actions. As mentioned earlier, NYCDCP and NYCDOT are currently conducting an areawide transportation study in the effort to improve vehicular and pedestrian travel in the Harlem section of Manhattan. While this study, when completed, may

recommend corridor-wide strategies in easing congestion along 125th Street, potential measures to mitigate the significant adverse impacts identified above are presented in Chapter 23.

BUILD WITHOUT PROJECT-RELATED ROADWAY IMPROVEMENTS

An analysis was performed for a Build scenario that does not include the project-related improvements listed previously. This analysis compared traffic impacts for 2015 Build conditions assuming the operation of the roadway network under the existing geometric configuration to traffic impacts for 2015 Build conditions assuming the roadway network incorporating improvements recommended as part of the Proposed Actions. The analysis demonstrates how the recommended improvements, including the conversion of two-way streets to one-way couples, as described above, would substantially improve overall network operations and circulation, and not yield significant adverse impacts at the Project Area intersections. Furthermore, the comparison analysis confirmed that these improvements are both logical and practical as part of the comprehensive, community-based planning approach of the design process. In the alternative analysis, West 133rd Street between Broadway and Twelfth Avenue, West 132nd Street between Broadway and Marginal Street, West 131st Street between Broadway and Twelfth Avenue, and West 125th Street between Twelfth Avenue and Marginal Street would continue to operate as two-way, east-west streets. All project-generated traffic was routed to conform to this existing street network. In addition, traffic generated by the Harlem Piers project was also routed to conform to the existing two-way street network. Significantly impacted intersections within the Project Area are indicated below in Table 17-25. The detailed findings of this alternative analysis are presented in Appendix M. Since traffic volumes and operating characteristics at the analysis locations outside of the Project Area would be the same with or without the improvements, conditions at these locations have been previously discussed and are not summarized below or addressed in Appendix M.

Table 17-25
Significantly Impacted Intersections within the Project Area in 2015 Build Condition without Improvements

Project Area Intersections	Build without Improvements			Build with Improvements		
	AM Peak	MD Peak	PM Peak	AM Peak	MD Peak	PM Peak
Signalized Intersections						
Marginal Street @ West 125th Street						
Twelfth Avenue @ West 133rd Street	■		■			
Twelfth Avenue @ West 132nd Street	■					
Twelfth Avenue @ West 125th Street	■	■	■			
Broadway NB @ West 133rd Street			■			
Broadway SB @ West 133rd Street						
Broadway NB @West 132nd Street						
Broadway SB @ West 132nd Street						
Broadway @ West 131st Street						
Broadway @ West 130th Street						
Broadway @ West 129th Street						
Broadway @ West 125th Street	■	■	■			
Unsignalized Intersections						
Marginal Street @ West 133rd Street	■	■	■			
Marginal Street @ West 132nd Street	■		■			
Marginal Street @ St. Clair Place		■	■			
Twelfth Avenue @ West 131st Street	■	■	■			
Twelfth Avenue @ St. Clair Place						
Riverside Drive @ St. Clair Place	■	■	■			
West 125th St. @ West 129th St./St. Clair Pl.	■	■	■			

Notes: ■ Significantly Impacted Intersections

PARKING SUPPLY AND UTILIZATION

COLUMBIA UNIVERSITY PARKING

Four interim parking facilities, comprising a total of 652 spaces, would be provided to accommodate demand generated by Columbia University uses, as follows.

- 635 West 131st Street (122 spaces)
- 603-09 West 131st Street (75 spaces)
- 553-09 West 133rd Street (205 spaces)
- U-Haul Site (250 spaces)

A parking accumulation analysis was performed to ensure that the off-street parking supply provided as part of the Proposed Actions would be adequate to meet the projected demand. This analysis shows that the peak weekday Columbia University parking demand of 494 vehicles could be adequately accommodated by the above supply.

ON-STREET PARKING

Table 17-26 shows the expected on-street parking utilization in the 2015 Build condition. The 2015 Build analysis included additional demand for on-street parking from non-Columbia University project-generated vehicles (Subdistrict B and "Other Area"). Roadway modifications that were planned as part of the Proposed Actions would create additional on-street parking spaces on certain blocks and remove spaces from others, resulting in a net loss of 57 on-street parking spaces in the 2015 Build condition. The project-related modifications to on-street parking include:

- Addition of a parking lane on the south side of West 133rd Street between Broadway and Twelfth Avenue;
- Addition of a parking lane on the south side of West 132nd Street between Broadway and Twelfth Avenue;
- Addition of a parking lane on the north side of West 131st Street between Broadway and Twelfth Avenue;
- Removal of the parking lane on the north side of West 130th Street between Broadway and Twelfth Avenue;
- Removal of parking lanes on the north and south sides of West 129th Street between Broadway and West 125th Street;
- Removal of a parking lane on the west side of Broadway between West 129th Street and West 125th Street; and
- Removal of a parking lane on the north side of West 125th Street between Old Broadway and Broadway.

Table 17-26
2015 Build On-Street Parking Utilization Summary

2015 Build	AM	MD	PM
¼-Mile Radius			
Capacity	1847	1847	1847
Spaces Removed due to Geometric Modifications	57	57	57
Effective 2015 Build Capacity	**1790**	**1790**	**1790**
2015 No Build Demand	1471	1524	1480
Subdistrict B and "Other Area" Demand	136	201	142
2015 Build Demand	1607	1725	1622
Remaining Spaces	183	65	168
Utilization	**90%**	**96%**	**91%**
% No Build Availability Utilized in Build Condition	51%	80%	54%
½-Mile Radius			
Capacity	4783	4783	4783
Spaces Removed due to Geometric Modifications	57	57	57
Effective 2015 Build Capacity	**4726**	**4726**	**4726**
2015 No Build Demand	3613	3903	3982
Subdistrict B and "Other Area" Demand	136	201	142
2015 Build Demand	3749	4104	4124
Remaining Spaces	977	622	602
Utilization	**79%**	**87%**	**87%**
% No Build Availability Utilized in Build Condition	16%	29%	25%

Note: See Appendix H for detailed parking accumulation analysis.

Within ¼ mile of the Project Area, on-street parking would be 90, 96, and 91 percent utilized during the morning, midday, and evening periods, respectively, in the 2015 Build condition (compared with 80, 83, and 80 percent utilization for the same time periods under the 2015 No Build condition). Spaces available in the 2015 No Build condition would be 51, 80, and 54 percent utilized in the 2015 Build condition during the morning, midday, and evening periods, respectively. Since these utilization levels exceed 50 percent, a larger ½-mile on-street area was evaluated. Overall, within ½ mile, on-street parking would be 79, 87, and 87 percent utilized during the morning, midday, and evening periods, respectively, in the 2015 Build condition (compared with 76, 82, and 83 percent utilization for the same time periods under the 2015 No Build condition). Spaces available in the 2015 No Build condition would be 16, 29, and 25 percent utilized in the 2015 Build condition during the morning, midday, and evening periods, respectively. Since less than half of the on-street parking capacity available in the 2015 No Build condition would be utilized in the Build condition, no significant adverse impacts to on-street parking conditions would occur.

OFF-STREET PARKING

A survey was performed at three off-street public parking facilities within the Project Area in June 2005. Several different groups of users were identified parking at these facilities, including local residents, workers at local businesses, patrons of local businesses, and park-and-commute motorists. Approximately 10 to 15 percent of the parking demand at the surveyed facilities was generated by existing businesses or residences that would be displaced by the Proposed Actions. Another 15 to 20 percent was generated by commuters parking in Manhattanville and then riding the subway to work, and by motorists who neither work nor live in or near Manhattanville, but who choose to park there due to the availability of relatively inexpensive parking. Therefore, it is

expected that the Proposed Actions would not only result in the displacement of several area parking facilities, but would also result in a reduction of parking demand that would otherwise exist in the future without the Proposed Actions. For a conservative parking analysis, a credit of 16 percent was applied to parking facilities within the primary study area to account for the displacement of existing generators in the Project Area or the relocation of existing parking demand to other areas. An additional deduction of 143, 160, and 53 spaces during the morning, midday, and evening periods, respectively, in area public parking demand was taken to account for the elimination of parking demand generated by certain Columbia University No Build projects, which would not be constructed or would be reduced in size under the Build condition.

Five parking facilities, as shown in Table 17-27, would be displaced by the proposed development in the 2015 Build condition. The remaining two public parking facilities located within ¼ mile of the Project Area would be 192, 194, and 196 percent utilized, with expected shortfalls of 601, 612, and 623 spaces during the morning, midday, and evening periods, respectively. The four public parking facilities that would remain within ½ mile would be 155, 161, and 148 percent utilized, with expected shortfalls of 566, 629, and 494 spaces during the morning, midday, and evening periods, respectively. Overall, within one mile, the remaining 21 public parking facilities would be 110, 111, and 87 percent utilized during the morning, midday, and evening periods, respectively. The resulting parking shortfalls would be 299 spaces during the morning and 328 spaces during the midday.

Because there would be a surplus of 64 spaces from the four Columbia University interim parking facilities (after accommodating the projected construction worker parking demand, 94 vehicles, in 2015), some of the parking demand from Columbia University's other area uses could be accommodated by this surplus. Hence, while there would still be an off-street parking shortfall resulting from the Proposed Actions, this shortfall would be limited to 235 spaces in the morning period and 264 spaces in the midday period. It is possible that, as future parking demand increases, market forces could result in the construction of new pubic parking facilities in the area. However, since there is no certainty in these facilities being constructed, in accordance with guidance of the *CEQR Technical Manual*, the projected parking shortfall, while relative small compared with the total supply in the area, would constitute a significant adverse parking impact. Potential measures to mitigate this impact are discussed in Chapter 23, "Mitigation."

F. 2030 FUTURE WITHOUT THE PROPOSED ACTIONS

The analysis of traffic conditions in the 2030 analysis year without the Proposed Actions, or the 2030 No Build condition, considers increases in background traffic volumes, and as with the 2015 No Build analysis, incorporates traffic from other planned developments in the area, as well as roadway or signal timing changes scheduled to be implemented. These changes include the mitigation measures proposed as part of the 125th Street Corridor Rezoning and Related Actions DEIS, some of which would result in prohibiting left turns from 125th Street onto Amsterdam Avenue, Frederick Douglass Boulevard, and Madison Avenue. As discussed in Section D, "2015 Future Without the Proposed Actions," DCP and NYCDOT are currently undertaking a "river-to-river" study to develop potential strategies for improving vehicular and pedestrian travel. The outcomes of this study, however, were not accounted for in the future No Build analysis.

Future No Build peak hour traffic volumes were estimated by first applying a background growth of 0.5 percent per year for 24 years (as recommended by the *CEQR Technical Manual*). As with the 2015 No Build analysis, trips generated by No Build Projects were incorporated into the 2030 No Build analysis.

Table 17-27
2015 Build Off-Street Parking Utilization Summary

2015 Build	AM	MD	PM
¼-Mile Radius			
2015 No Build Capacity	1330	1330	1330
Displaced Garages	679	679	679
MTP 3300 Broadway Corp.	*200*	*200*	*200*
West 129th Street LLC	*134*	*134*	*134*
Uni Facility Corp.	*100*	*100*	*100*
Y&H Enterprises Inc.	*175*	*175*	*175*
Columbia Waterfront LLC	*70*	*70*	*70*
Effective 2015 Build Capacity	**651**	**651**	**651**
2015 No Build Demand	1497	1525	1429
Credit for Removal and Reduction of Projects in Build	143	160	53
New Columbia Academic Building	*18*	*45*	*25*
New Columbia Office Building (No. 23)	*77*	*70*	*17*
New Columbia Office Building (No. 24)	*48*	*45*	*11*
16% Credit for Displaced Parking Demand*	102	102	102
Total 2015 Build Demand	1252	1263	1274
Remaining Spaces	-601	-612	-623
Utilization	**192%**	**194%**	**196%**
Added Supply from Columbia On-Site Parking	64	64	64
Remaining Spaces	-537	-548	-559
Effective Utilization	**182%**	**184%**	**186%**
½-Mile Radius			
2015 No Build Capacity	1710	1710	1710
Displaced Garages	679	679	679
Effective 2015 Build Capacity	**1031**	**1031**	**1031**
2015 No Build Demand	1842	1922	1680
Credit for Removal and Reduction of Projects in Build	143	160	53
16% Credit for Displaced Parking Demand*	102	102	102
Total 2015 Build Demand	1597	1660	1525
Remaining Spaces	-566	-629	-494
Utilization	**155%**	**161%**	**148%**
Added Supply from Columbia On-Site Parking	64	64	64
Remaining Spaces	-502	-565	-430
Effective Utilization	**149%**	**155%**	**142%**
1-Mile Radius			
2015 No Build Capacity	3576	3576	3576
Displaced Garages	679	679	679
Effective 2015 Build Capacity	**2897**	**2897**	**2897**
2015 No Build Demand	3441	3487	2683
Credit for Removal and Reduction of Projects in Build	143	160	53
16% Credit for Displaced Parking Demand*	102	102	102
Total 2015 Build Demand	3196	3225	2528
Remaining Spaces	-299	-328	369
Utilization	**110%**	**111%**	**87%**
Added Supply from Columbia On-Site Parking	64	64	64
Remaining Spaces	-235	-264	433
Effective Utilization	**108%**	**109%**	**85%**

Note: Credit accounts for 16% of the existing demand at the five displaced parking garages grown to 2015 levels. See Appendix H for detailed parking accumulation analysis.

TRAFFIC VOLUMES AND INTERSECTION CAPACITY ANALYSES

Peak hour traffic volumes for the 2030 No Build condition are shown in Figures 17-26 through 17-31. Within the primary study area, increases in two-way peak hour traffic over existing volumes are expected to range from 270 vph to 400 vph along Broadway, from 250 vph to 300 vph along Amsterdam Avenue, and from 30 vph to 260 vph along Twelfth Avenue. Two-way peak hour volumes along West 125th Street would increase by 300 vph to 480 vph during the two analysis periods. As with the 2015 No Build analysis, secondary study area traffic volumes at intersections along East 125th Street are projected to increase substantially as a result of the East River Plaza and East 125th Street developments in East Harlem. Increases in PM peak hour traffic over existing volumes at the intersections of First and Second Avenues and 125th Street are projected to exceed 900 vph and 1,300 vph, respectively. Two-way volumes along East 125th Street between Second and Fifth Avenues are projected to increase by 650 vph.

As with the 2015 No Build analysis, the 2030 No Build analysis also included the roadway modifications planned in connection with the Fairway parking lot relocation and the West Harlem Waterfront park development. Results of the LOS analysis are presented in Tables 17-28 and 17-29 for the primary study area, and in Tables 17-30 and 17-31 for the secondary study area. As with existing, locations with notable service constraints, those operating at mid-LOS D or worse, are described below.

PRIMARY STUDY AREA

Riverside Drive and West 135th Street

During the PM peak hour, the northbound through-right movement would deteriorate from LOS C to LOS F, with delay increasing from 23.3 to 83.7 seconds and v/c ratio increasing from 0.98 to 1.15.

Twelfth Avenue and West 133rd Street

During the AM peak hour, the northbound left-turn movement would deteriorate from LOS D to LOS F, with delay increasing from 39.9 to 94.3 seconds and v/c ratio increasing from 0.91 to 1.11.

During the PM peak hour, the northbound left-turn movement would deteriorate from LOS C to LOS E, with delay increasing from 26.3 to 60.1 seconds and v/c ratio increasing from 0.79 to 1.01. At the same time, the westbound approach would deteriorate from LOS D to LOS F, with delay increasing from 48.5 to 206.1 seconds and v/c ratio increasing from 0.89 to 1.36.

Twelfth Avenue and West 125th Street

During the AM peak hour, the westbound right-turn movement would deteriorate from LOS C to LOS E, with delay increasing from 34.1 to 68.0 seconds and a v/c ratio increasing from 0.86 to 1.03.

During the midday peak hour, the westbound right-turn movement would deteriorate from LOS C to LOS E, with delay increasing from 32.5 to 61.4 seconds and a v/c ratio increasing from 0.85 to 1.01.

During the PM peak hour, the same movement would deteriorate from LOS E to LOS F, with delay increasing from 55.8 to 135.7 seconds and a v/c ratio increasing from 1.01 to 1.23.

Broadway Northbound and West 135th Street

During the PM peak hour, the eastbound *de facto* left-turn movement would deteriorate from LOS D to LOS F, with delay increasing from 51.7 to 108.8 seconds and v/c ratio increasing from 0.77 to 1.04.

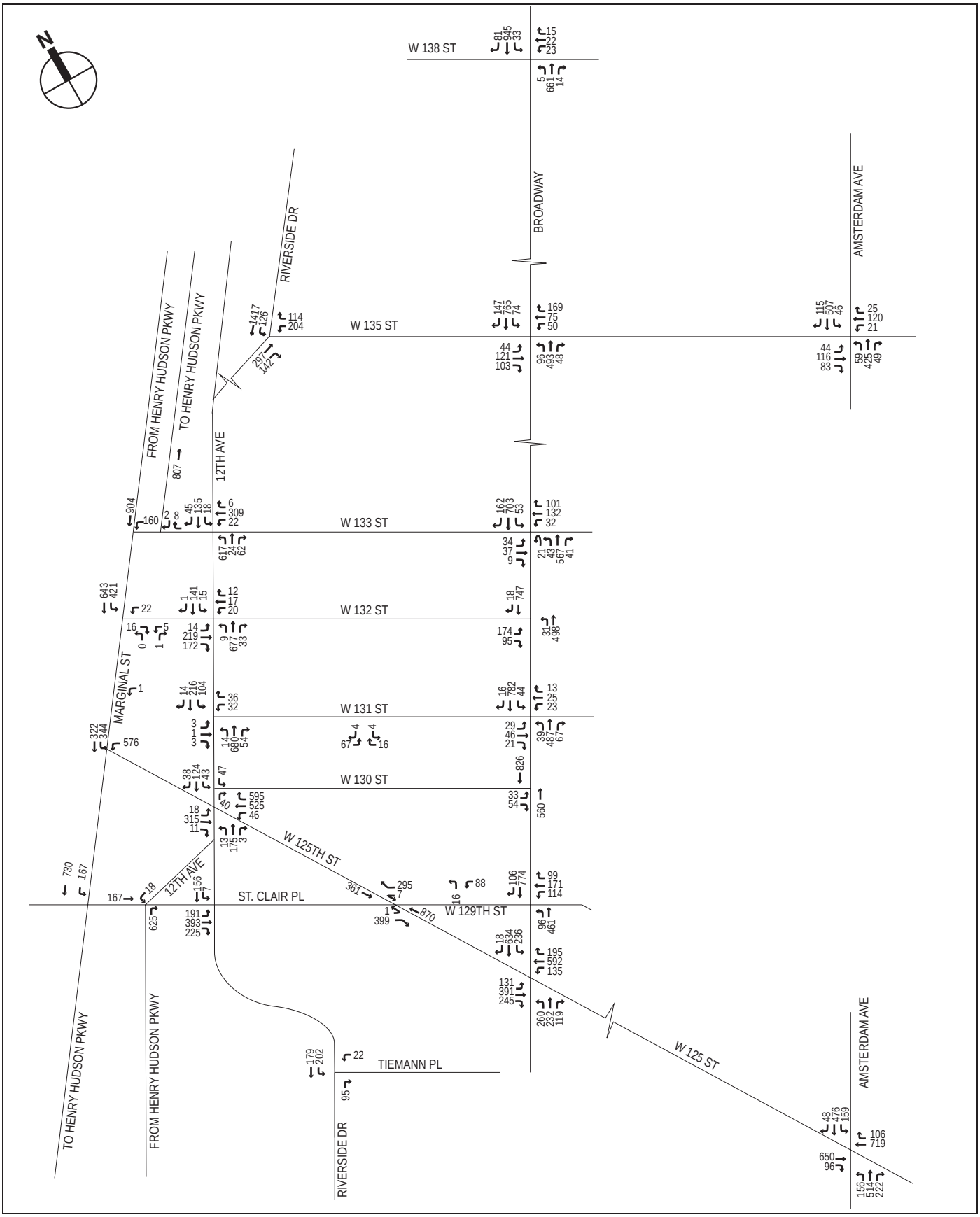
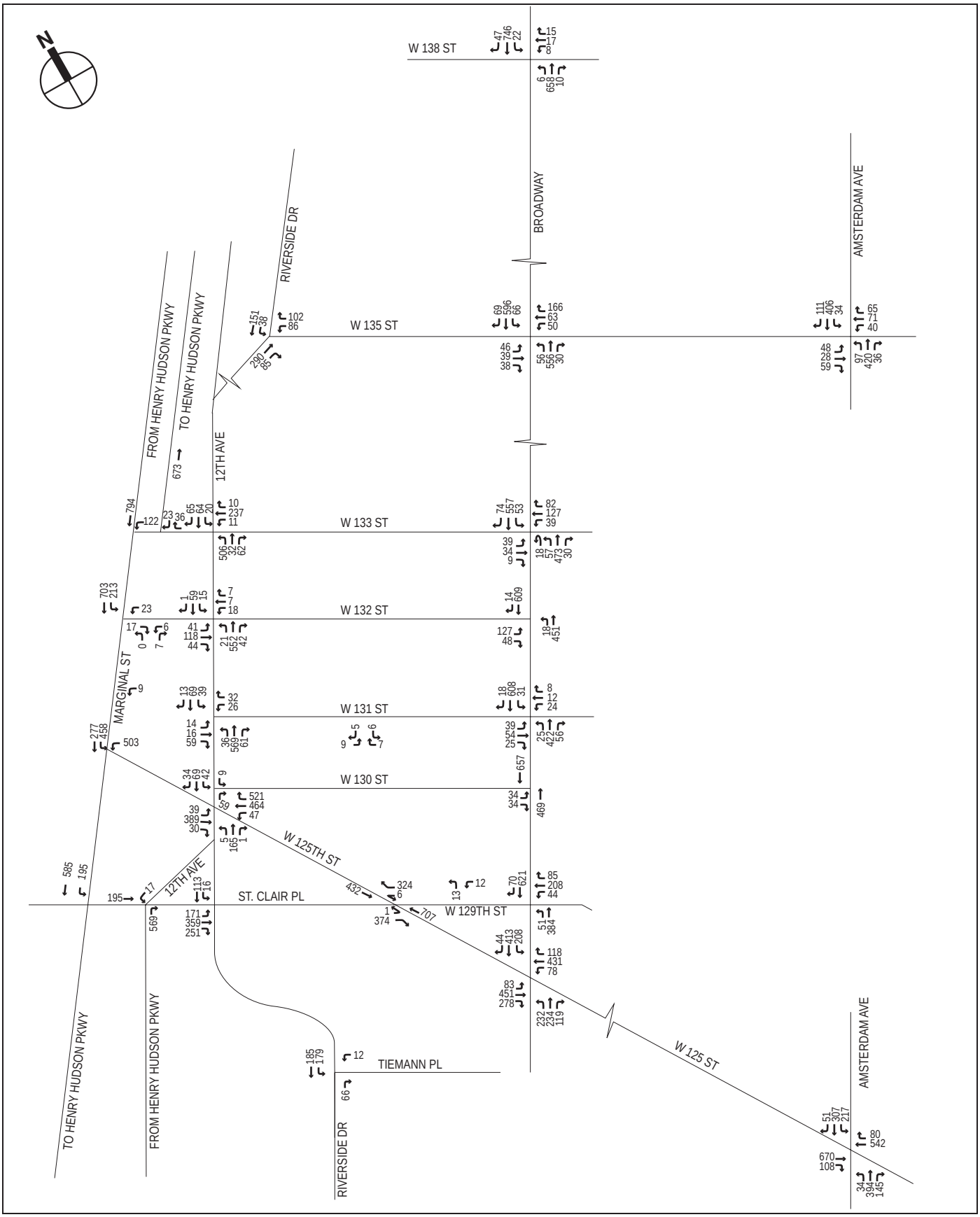


Figure 17-26
Primary Study Area
No Build 2030 Morning Peak Hour

11.08.07



NOT TO SCALE

Figure 17-27
Primary Study Area
No Build 2030 Midday Peak Hour

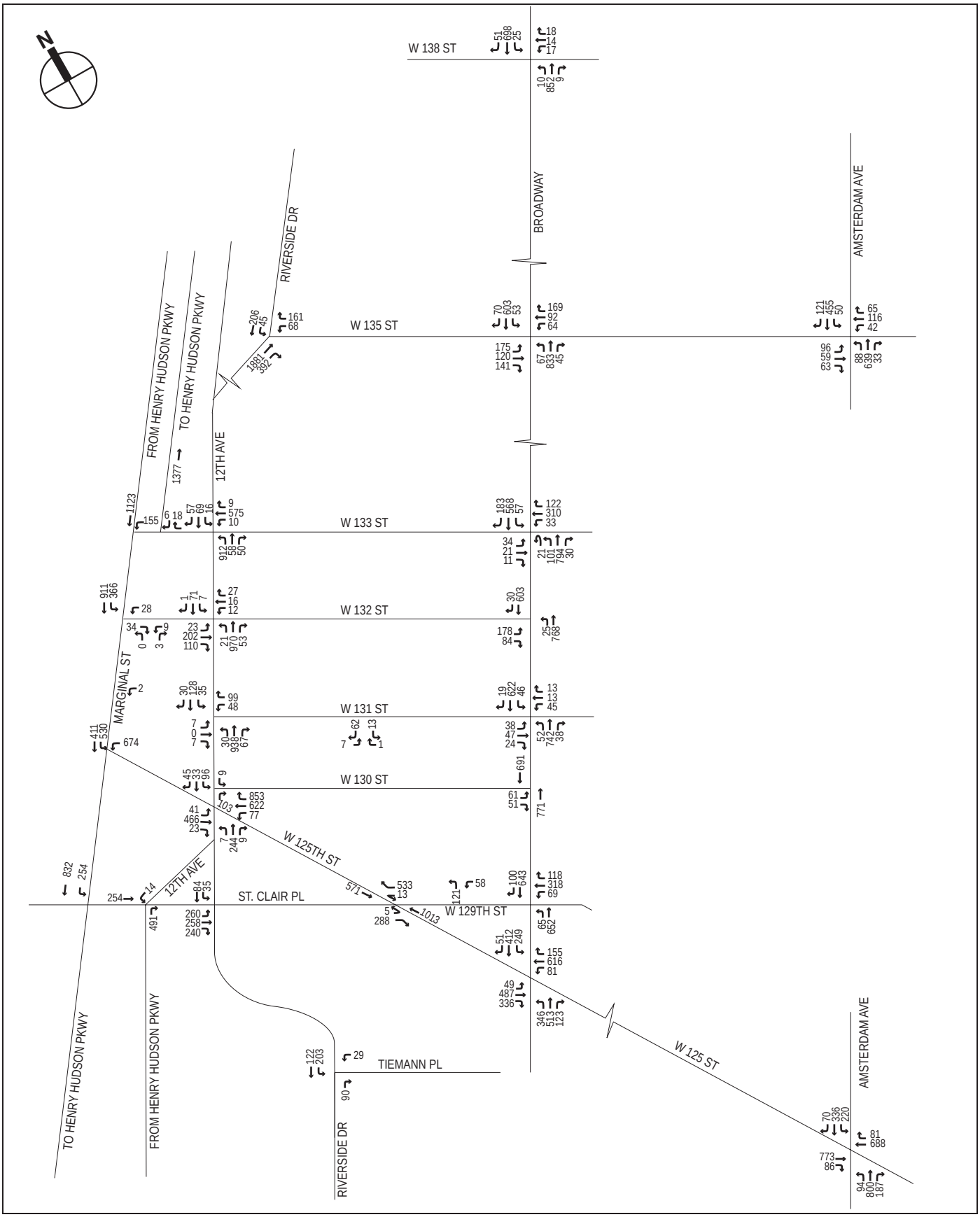
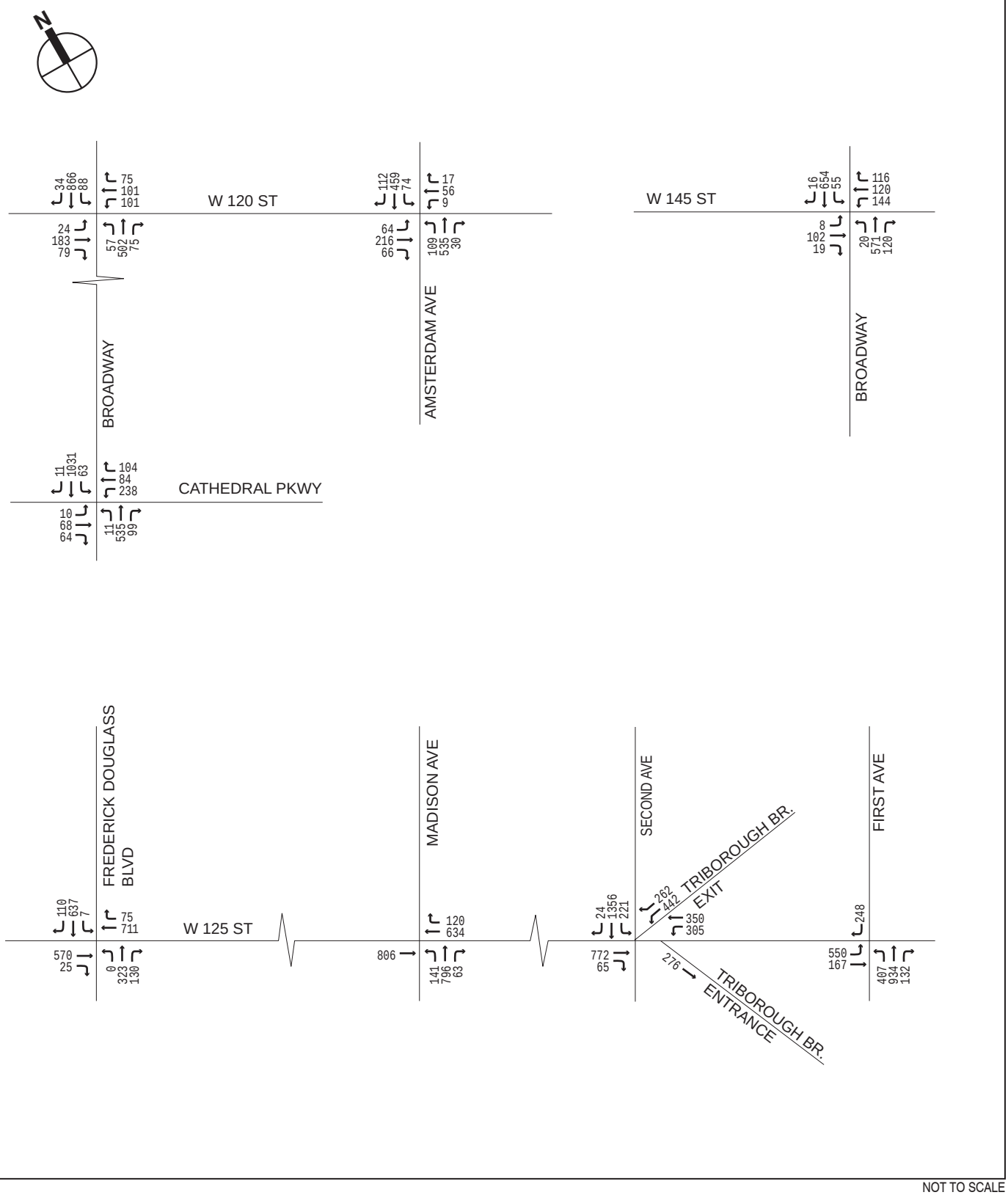


Figure 17-28
Primary Study Area
No Build 2030 Evening Peak Hour

11.08.07



NOT TO SCALE

Figure 17-29
Secondary Study Area
No Build 2030 Morning Peak Hour

11.08.07

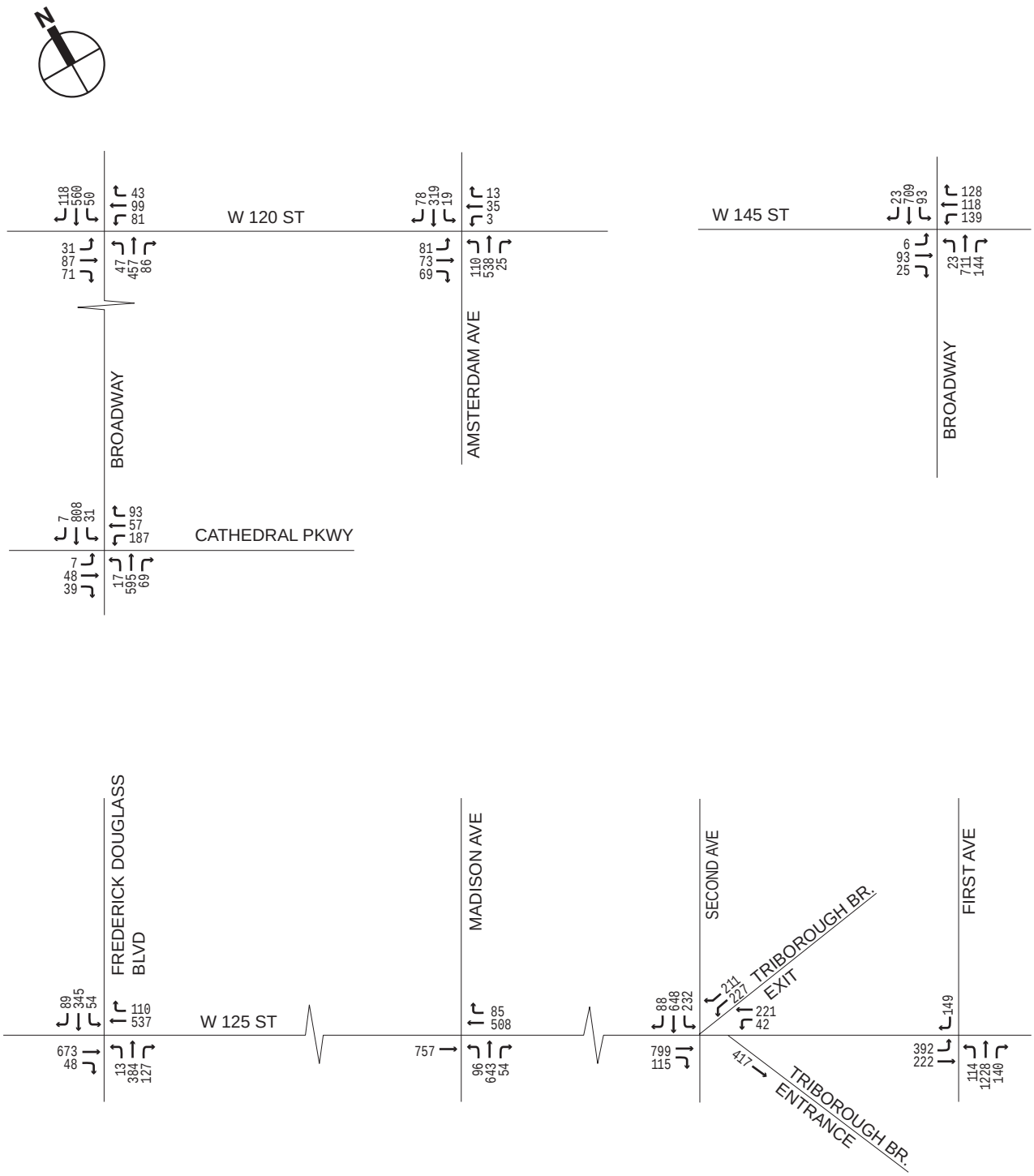


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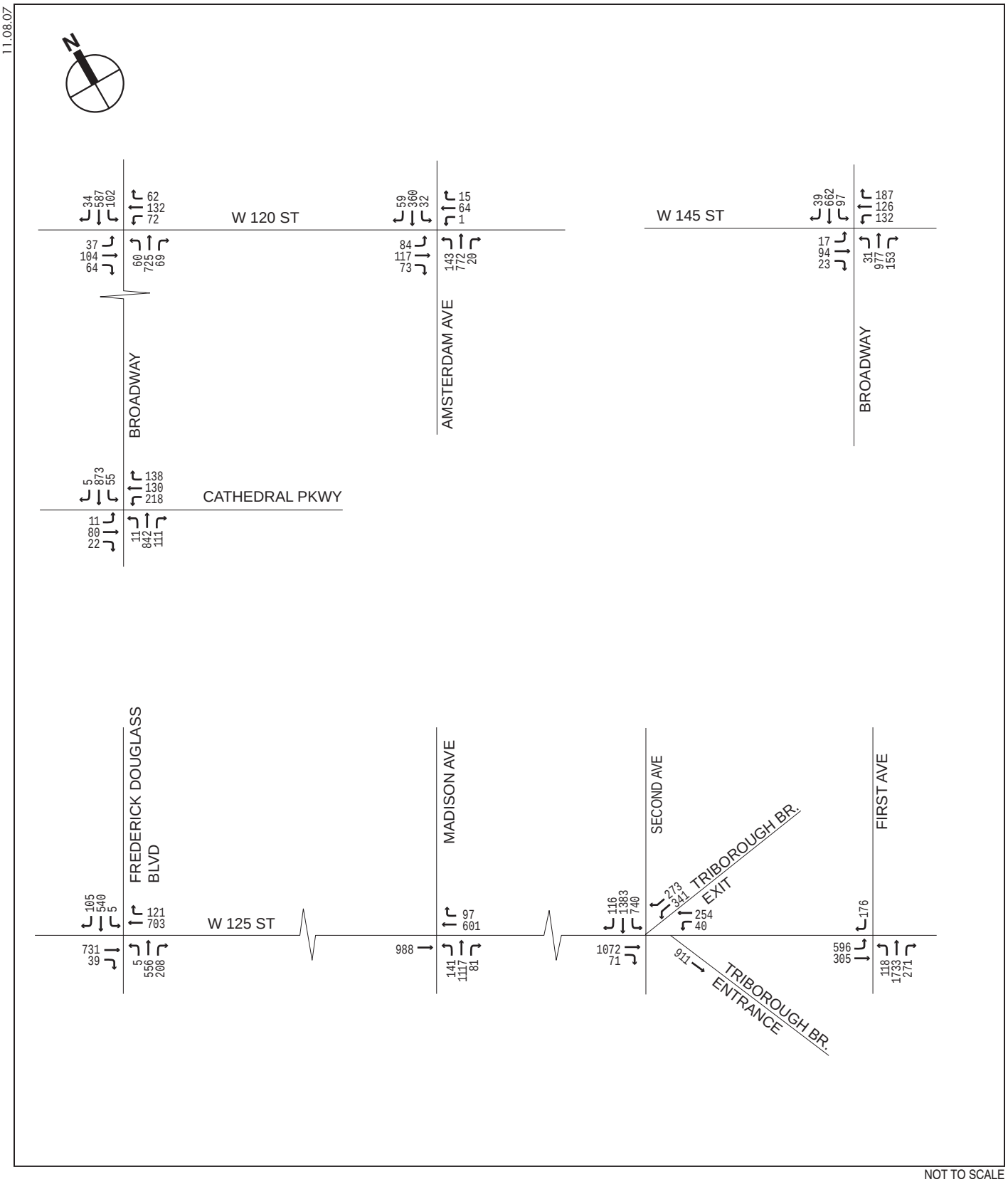
Figure 17-30
Secondary Study Area
No Build 2030 Midday Peak Hour

11.08.07



NOT TO SCALE

Figure 17-31
Secondary Study Area
No Build 2030 Evening Peak Hour

Table 17-28
2030 No Build Condition
Primary Study Area Signalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2006 Existing				2030 No Build				2006 Existing				2030 No Build				2006 Existing				2030 No Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Marginal Street @ West 125th Street																								
WB	L	0.40	24.3	C	L	0.55	26.5	C	L	0.35	23.7	C	L	0.48	25.5	C	L	0.41	24.5	C	L	0.67	29.0	C
SB	L	0.23	12.1	B					L	0.36	13.6	B					L	0.41	14.3	B				
	LT	0.25	11.8	B	LT	0.50	14.7	B	LT	0.25	11.8	B	LT	0.53	15.2	B	LT	0.35	12.8	B	LT	0.68	18.1	B
	Int.		17.5	B	Int.		20.1	C	Int.		16.8	B	Int.		19.4	B	Int.		17.3	B	Int.		22.7	C
Riverside Drive @ West 135th Street																								
WB	L	0.32	28.0	C	L	0.62	35.9	D	L	0.21	26.1	C	L	0.25	26.8	C	L	0.16	25.6	C	L	0.21	26.3	C
	R	0.40	30.9	C	R	0.47	32.8	C	R	0.34	29.3	C	R	0.40	30.6	C	R	0.57	36.4	D	R	0.66	40.9	D
NB	TR	0.22	8.1	A	TR	0.25	8.3	A	TR	0.19	7.9	A	TR	0.22	8.1	A	TR	0.98	23.3	C	TR	1.15	83.7	F
SB	LT	0.81	11.4	B	LT	0.94	19.8	B	LT	0.10	7.4	A	LT	0.12	7.5	A	LT	0.19	8.1	A	LT	0.14	7.6	A
	Int.		12.6	B	Int.		19.7	B	Int.		12.4	B	Int.		12.9	B	Int.		22.7	C	Int.		72.6	E
Twelfth Avenue @ West 133rd Street																								
WB	LTR	0.56	28.9	C	LTR	0.80	40.5	D	LTR	0.40	25.0	C	LTR	0.65	31.6	C	LTR	0.89	48.5	D	LTR	1.36	206.1	F
NB	L	0.91	39.9	D	L	1.11	94.3	F	L	0.70	21.8	C	L	0.85	32.8	C	L	0.79	26.3	C	L	1.01	60.1	E
	LTR	0.18	10.8	B	LTR	0.21	11.2	B	LTR	0.16	10.7	B	LTR	0.20	11.0	B	LTR	0.60	17.8	B	LTR	0.76	24.1	C
SB	LTR	0.26	11.7	B	LTR	0.16	10.5	B	LTR	0.20	11.1	B	LTR	0.12	10.2	B	LTR	0.17	10.8	B	LTR	0.11	10.1	B
	Int.		28.6	C	Int.		55.4	E	Int.		18.9	B	Int.		25.9	C	Int.		28.9	C	Int.		96.8	F
Twelfth Avenue @ West 132nd Street																								
EB	LTR	0.31	23.2	C	LTR	0.81	39.0	D	LTR	0.24	22.2	C	LTR	0.43	25.2	C	LTR	0.44	25.2	C	LTR	0.63	29.9	C
WB	LTR	0.06	20.0	B	LTR	0.12	20.8	C	LTR	0.03	19.7	B	LTR	0.09	20.4	C	LTR	0.07	20.1	C	LTR	0.12	20.7	C
NB	LTR	0.45	13.3	B	LTR	0.52	14.4	B	LTR	0.37	12.4	B	LTR	0.45	13.3	B	LTR	0.60	15.6	B	LTR	0.74	19.1	B
SB	LTR	0.24	11.6	B	LTR	0.14	10.4	B	LTR	0.13	10.5	B	LTR	0.08	9.9	A	LTR	0.11	10.2	B	LTR	0.06	9.8	A
	Int.		14.9	B	Int.		21.7	C	Int.		14.0	B	Int.		15.9	B	Int.		17.3	B	Int.		21.1	C
Twelfth Avenue @ West 125th Street																								
EB	LTR	0.18	12.7	B	LTR	0.27	13.5	B	LTR	0.29	13.7	B	LTR	0.37	14.5	B	LTR	0.31	13.9	B	LTR	0.45	15.8	B
WB	L	0.12	12.6	B	L	0.16	13.3	B	L	0.12	12.7	B	L	0.18	13.6	B	L	0.15	13.1	B	L	0.30	16.0	B
	T	0.57	18.9	B	T	0.78	26.1	C	T	0.49	17.1	B	T	0.66	21.2	C	T	0.57	18.8	B	T	0.89	35.1	D
	R	0.86	34.1	C	R	1.03	68.0	E	R	0.85	32.5	C	R	1.01	61.4	E	R	1.01	55.8	E	R	1.23	135.7	F
NB	LTR	0.23	19.3	B	LTR	0.34	20.8	C	LTR	0.22	19.2	B	LTR	0.31	20.4	C	LTR	0.36	21.1	C	LTR	0.45	22.7	C
SB	LT	0.34	21.4	C	LT	0.42	22.9	C	LT	0.21	19.3	B	LT	0.25	19.9	B	LT	0.28	20.5	C	LT	0.39	22.8	C
	Int.		23.2	C	Int.		35.4	D	Int.		21.6	C	Int.		31.9	C	Int.		32.0	C	Int.		63.7	E
Broadway @ West 138th Street																								
WB	LTR	0.16	24.1	C	LTR	0.19	24.5	C	LTR	0.10	23.3	C	LTR	0.12	23.5	C	LTR	0.13	23.7	C	LTR	0.16	24.1	C
NB	LT	0.31	6.0	A	LT	0.37	6.3	A	LT	0.30	6.0	A	LT	0.36	6.3	A	LT	0.37	6.3	A	LT	0.44	6.9	A
	R	0.02	4.7	A	R	0.03	4.7	A	R	0.02	4.7	A	R	0.02	4.7	A	R	0.02	4.7	A	R	0.03	4.8	A
SB	LTR	0.52	7.7	A	LTR	0.63	9.0	A	LTR	0.40	6.7	A	LTR	0.48	7.2	A	LTR	0.38	6.5	A	LTR	0.45	7.0	A
	Int.		7.6	A	Int.		8.5	A	Int.		6.8	A	Int.		7.3	A	Int.		6.9	A	Int.		7.4	A
Broadway Northbound @ West 135th Street																								
EB	LT	0.31	25.1	C	LT	0.39	26.2	C	LT	0.23	24.3	C	LT	0.29	25.1	C	DefL	0.77	51.7	D	DefL	1.04	108.8	F
																	T	0.38	27.1	C	T	0.44	28.3	C
WB	TR	0.46	28.0	C	TR	0.53	29.5	C	TR	0.45	28.0	C	TR	0.52	29.5	C	TR	0.48	28.4	C	TR	0.58	30.6	C
NB	LTR	0.39	6.7	A	LTR	0.54	8.2	A	LTR	0.42	7.0	A	LTR	0.51	7.8	A	LTR	0.59	8.7	A	LTR	0.70	10.5	B
	Int.		16.4	B	Int.		17.1	B	Int.		15.1	B	Int.		15.9	B	Int.		19.1	B	Int.		27.2	C
Broadway Southbound @ West 135th Street																								
EB	TR	0.38	26.6	C	TR	0.45	27.6	C	TR	0.15	23.5	C	TR	0.20	24.1	C	TR	0.48	27.9	C	TR	0.71	34.2	C
WB	LT	0.21	24.0	C	LT	0.36	25.9	C	LT	0.23	24.1	C	LT	0.29	25.0	C	LT	0.28	24.8	C	LT	0.44	27.6	C
SB	L	0.08	5.0	A	L	0.11	5.2	A	L	0.09	5.1	A	L	0.11	5.2	A	L	0.07	5.0	A	L	0.08	5.0	A
	TR	0.62	9.5	A	TR	0.75	12.3	B	TR	0.48	7.6	A	TR	0.56	8.5	A	TR	0.47	7.5	A	TR	0.55	8.3	A
	Int.		14.4	B	Int.		16.9	B	Int.		11.8	B	Int.		12.9	B	Int.		15.8	B	Int.		19.5	B
Broadway Northbound @ West 133rd Street																								
EB	LT	0.20	17.2	B	LT	0.23	17.6	B	LT	0.22	17.5	B	LT	0.27	18.2	B	LT	0.18	17.1	B	LT	0.26	18.3	B
WB	TR	0.34	21.1	C	TR	0.53	24.9	C	TR	0.31	20.6	C	TR	0.49	23.9	C	TR	0.67	29.0	C	TR	0.93	50.9	D
NB	LT	0.39	11.7	B	LT	0.59	14.5	B	LT	0.35	11.3	B	LT	0.47	12.5	B	LT	0.66	15.6	B	LT	0.83	21.1	C
	R	0.04	9.0	A	R	0.12	9.8	A	R	0.05	9.0	A	R	0.09	9.5	A	R	0.05	9.0	A	R	0.06	9.1	A
	Int.		14.6	B	Int.		17.3	B	Int.		14.4	B	Int.		16.3	B	Int.		19.3	B	Int.		29.6	C
Broadway Southbound @ West 133rd Street																								
EB	TR	0.12	17.9	B	TR	0.13	18.1	B	TR	0.12	18.0	B	TR	0.14	18.2	B	TR	0.09	17.7	B	TR	0.10	17.8	B
WB	LT	0.20	17.3	B	LT	0.44	20.9	C	LT	0.21	17.3	B	LT	0.43	20.5	C	LT	0.47	21.0	C	LT	0.78	30.4	C
SB	LTR	0.46	12.1	B	LTR	0.56	13.2	B	LTR	0.33	10.8	B	LTR	0.41	11.6	B	LTR	0.38	11.2	B	LTR	0.50	12.6	B
	Int.		13.2	B	Int.		15.0	B	Int.		12.6	B	Int.		14.2	B	Int.		14.6	B	Int.		19.0	B

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service

Table 17-28 (Continued)
2030 No Build Condition
Primary Study Area Signalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2006 Existing				2030 No Build				2006 Existing				2030 No Build				2006 Existing				2030 No Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Broadway Northbound @ West 132nd Street																								
EB	L	0.11	16.4	B	L	0.41	20.7	C	L	0.14	16.6	B	L	0.24	17.8	B	L	0.22	17.5	B	L	0.33	19.0	B
NB	LT	0.32	10.9	B	LT	0.43	12.0	B	LT	0.29	10.6	B	LT	0.37	11.3	B	LT	0.49	12.6	B	LT	0.61	14.3	B
	Int.		11.5	B	Int.		14.2	B	Int.		11.6	B	Int.		12.7	B	Int.		13.4	B	Int.		15.1	B
Broadway Southbound @ West 132nd Street																								
EB	TR	0.22	19.5	B	TR	0.63	28.7	C	TR	0.20	19.0	B	TR	0.34	21.0	C	TR	0.34	20.9	C	TR	0.49	23.5	C
WB	LT	0.03	15.5	B	LT	0.06	15.8	B	LT	0.01	15.4	B	LT	0.04	15.6	B	LT	0.02	15.4	B	LT	0.04	15.6	B
SB	LTR	0.44	12.0	B	LTR	0.55	13.3	B	LTR	0.35	11.1	B	LTR	0.44	12.0	B	LTR	0.36	11.2	B	LTR	0.46	12.2	B
	Int.		13.1	B	Int.		17.4	B	Int.		12.5	B	Int.		14.1	B	Int.		13.8	B	Int.		15.5	B
Broadway @ West 131st Street																								
EB	LTR	0.10	20.4	C	LTR	0.21	21.8	C	LTR	0.14	20.9	C	LTR	0.25	22.3	C	LTR	0.12	20.6	C	LTR	0.22	21.9	C
WB	LT	0.10	20.5	C	LT	0.13	20.8	C	LT	0.09	20.4	C	LT	0.11	20.7	C	LT	0.14	21.1	C	LT	0.17	21.6	C
NB	R	0.03	19.7	B	R	0.04	19.8	B	R	0.02	19.6	B	R	0.02	19.6	B	R	0.03	19.7	B	R	0.04	19.8	B
SB	LTR	0.27	7.9	A	LTR	0.40	9.0	A	LTR	0.23	7.7	A	LTR	0.32	8.3	A	LTR	0.39	8.8	A	LTR	0.51	10.0	B
	LTR	0.39	8.8	A	LTR	0.54	10.3	B	LTR	0.30	8.2	A	LTR	0.40	9.0	A	LTR	0.33	8.4	A	LTR	0.45	9.4	A
	Int.		9.5	A	Int.		10.9	B	Int.		9.3	A	Int.		10.3	B	Int.		9.7	A	Int.		11.0	B
Broadway @ West 130th Street																								
EB	LR	0.18	24.4	C	LR	0.27	26.0	C	LR	0.13	23.7	C	LR	0.20	24.6	C	LR	0.24	25.4	C	LR	0.34	27.0	C
NB	LT	0.21	5.4	A	LT	0.28	5.8	A	LT	0.18	5.3	A	LT	0.23	5.5	A	LT	0.28	5.8	A	LT	0.35	6.2	A
SB	LT	0.31	6.0	A	LT	0.40	6.5	A	LT	0.25	5.6	A	LT	0.31	6.0	A	LT	0.27	5.7	A	LT	0.35	6.2	A
	Int.		6.7	A	Int.		7.4	A	Int.		6.4	A	Int.		6.9	A	Int.		7.0	A	Int.		7.7	A
Broadway @ West 129th Street																								
WB	LT	0.38	18.2	B	LT	0.45	19.5	B	LT	0.35	17.8	B	LT	0.44	19.2	B	LT	0.46	19.6	B	LT	0.59	22.2	C
	R	0.19	16.0	B	R	0.22	16.4	B	R	0.15	15.5	B	R	0.19	16.1	B	R	0.22	16.4	B	R	0.27	17.1	B
NB	LT	0.33	17.0	B	DefL	0.70	43.5	D	LT	0.30	16.6	B	LT	0.41	18.0	B	LT	0.57	20.6	C	LT	0.74	25.3	C
					T	0.50	19.7	B																
SB	TR	0.48	15.9	B	TR	0.64	18.5	B	TR	0.37	17.3	B	TR	0.47	18.6	B	TR	0.39	17.6	B	TR	0.52	19.3	B
	Int.		16.6	B	Int.		20.1	C	Int.		17.1	B	Int.		18.4	B	Int.		19.0	B	Int.		22.0	C
Broadway @ West 125th Street																								
EB	L	0.55	36.8	D	L	1.76	415.5	F	L	0.35	26.5	C	L	0.64	43.8	D	L	0.27	25.7	C	L	0.41	31.2	C
	TR	0.57	26.8	C	TR	0.89	42.5	D	TR	0.71	30.6	C	TR	1.04	73.3	E	TR	0.83	36.7	D	TR	1.16	112.9	F
WB	L	0.68	44.6	D	L	1.35	235.1	F	L	0.54	39.1	D	L	1.02	136.4	F	L	0.65	50.8	D	L	1.13	167.5	F
	TR	0.71	30.4	C	TR	1.05	74.0	E	TR	0.56	26.5	C	TR	0.78	33.5	C	TR	0.68	29.3	C	T	0.65	27.4	C
																					R	0.60	32.7	C
NB	L	0.43	32.1	C	L	0.50	33.5	C	L	0.38	31.1	C	L	0.43	32.3	C	L	0.56	35.4	D	L	0.64	38.4	D
	LT	0.41	30.5	C	LT	0.52	32.2	C	LT	0.43	30.7	C	LT	0.51	32.2	C	LT	0.82	42.9	D	LT	0.97	62.1	E
	R	0.55	39.8	D	R	0.67	47.7	D	R	0.54	39.6	D	R	0.73	54.4	D	R	0.51	37.8	D	R	0.67	47.2	D
SB	L	0.33	30.1	C	L	0.40	31.1	C	L	0.28	29.1	C	L	0.37	30.7	C	L	0.25	28.5	C	L	0.39	31.5	C
	LTR	0.90	49.1	D	LTR	1.11	101.4	F	LTR	0.70	36.8	D	LTR	0.85	44.9	D	LTR	0.75	38.9	D	LTR	0.97	62.6	E
	Int.		35.7	D	Int.		85.1	F	Int.		31.6	C	Int.		50.3	D	Int.		36.6	D	Int.		65.5	E
Amsterdam Avenue @ West 135th Street																								
EB	LT	0.31	26.4	C	LT	0.44	28.8	C	LT	0.20	24.8	C	LT	0.25	25.5	C	LT	0.47	30.8	C	LT	0.65	39.0	D
	R	0.36	29.0	C	R	0.41	30.6	C	R	0.22	25.6	C	R	0.25	26.2	C	R	0.25	26.3	C	R	0.28	26.9	C
WB	LTR	0.36	27.1	C	LTR	0.47	29.6	C	LTR	0.45	29.6	C	LTR	0.57	33.2	C	LTR	0.48	30.2	C	LTR	0.70	39.1	D
NB	LTR	0.44	7.4	A	LTR	0.53	8.4	A	LTR	0.50	8.2	A	LTR	0.60	9.7	A	LTR	0.63	10.0	A	LTR	0.76	13.4	B
SB	LTR	0.52	8.2	A	LTR	0.62	9.6	A	LTR	0.44	7.4	A	LTR	0.53	8.4	A	LTR	0.52	8.3	A	LTR	0.61	9.5	A
	Int.		12.3	B	Int.		14.2	B	Int.		12.0	B	Int.		13.7	B	Int.		13.8	B	Int.		18.0	B
Amsterdam Avenue @ West 125th Street																								
EB	L	0.56	41.8	D					L	0.72	53.2	D					L	0.58	41.0	D				
	TR	0.77	34.1	C	TR	1.18	125.8	F	TR	0.82	36.9	D	TR	1.19	130.8	F	TR	0.79	34.8	C	TR	1.14	108.5	F
WB	L	0.67	49.4	D					L	0.38	32.9	C					L	0.42	35.4	D				
	TR	0.76	33.3	C	TR	1.21	139.4	F	TR	0.68	30.4	C	TR	1.00	64.3	E	TR	0.71	31.4	C	TR	1.02	66.3	E
NB	L	0.31	14.4	B	L	0.39	16.7	B	L	0.06	9.7	A	L	0.08	9.2	A	L	0.20	15.4	B	L	0.27	20.5	C
	TR	0.67	26.7	C	TR	0.82	30.4	C	TR	0.47	22.3	C	TR	0.62	23.4	C	TR	0.84	33.4	C	TR	1.07	74.9	E
SB	L	0.47	22.9	C	L	0.60	31.6	C	L	0.48	18.8	B	L	0.69	30.1	C	L	0.58	33.9	C	L	0.81	54.2	D
	TR	0.41	21.2	C	TR	0.53	21.1	C	TR	0.30	19.8	B	TR	0.37	18.7	B	TR	0.73	33.4	C	TR	0.98	63.8	E
	Int.		29.3	C	Int.		79.4	E	Int.		29.2	C	Int.		65.4	E	Int.		33.0	C	Int.		77.1	E

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service

Table 17-29
2030 No Build Condition
Primary Study Area Unsignalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2006 Existing				2030 No Build				2006 Existing				2030 No Build				2006 Existing				2030 No Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Marginal Street @ West 133rd Street																								
WB	L	0.18	10.5	B	L	0.22	10.8	B	L	0.13	10.1	B	L	0.17	10.3	B	L	0.17	10.3	B	L	0.21	10.6	B
SB	T	0.68	18.5	C	T	1.20	122.4	F	T	0.78	23.4	C	T	1.02	60.0	F	T	0.96	40.8	E	T	1.22	125.9	F
Marginal Street @ West 132nd Street																								
WB	LT	-	9.0	A	L	-	9.2	A	LT	-	9.3	A	L	-	9.7	A	LT	-	9.7	A	L	-	10.0	A
SB	LT	-	14.5	B	LT	-	96.1	F	LT	-	13.4	B	LT	-	23.8	C	LT	-	29.2	D	LT	-	96.5	F
	TR	-	7.9	A	T	-	8.3	A	TR	-	8.1	A	T	-	8.4	A	TR	-	9.5	A	T	-	10.5	B
	Int.		13.0	B	Int.		79.5	F	Int.		12.0	B	Int.		19.8	C	Int.		22.9	C	Int.		70.2	F
Marginal Street @ St. Clair Place																								
SB	L	0.17	9.8	A	L	0.20	9.9	A	L	0.20	10.0	A	L	0.24	10.2	B	L	0.26	10.4	B	L	0.31	10.8	B
	T	0.76	22.0	C	T	1.01	55.8	F	T	0.68	18.5	C	T	0.92	37.7	E	T	0.81	26.1	D	T	1.22	128.5	F
Twelfth Avenue @ West 131st Street																								
NB	LT	0.01	7.8	A	LT	0.01	7.8	A	LT	0.02	7.6	A	LT	0.03	7.5	A	LT	0.02	7.7	A	LT	0.02	7.8	A
SB	LT	0.04	9.6	A	LT	0.18	11.8	B	LT	0.02	9.3	A	LT	0.06	10.2	B	LT	0.02	10.5	B	LT	0.07	12.1	B
WB	LTR	0.16	16.8	C	LTR	0.44	40.8	E	LTR	0.13	16.5	C	LTR	0.30	28.2	D	LTR	0.28	23.5	C	LTR	0.94	105.9	F
EB	LTR	0.01	12.9	B	LTR	0.03	20.3	C	LTR	0.15	12.6	B	LTR	0.22	15.5	C	LTR	0.03	13.9	B	LTR	0.05	19.9	C
Twelfth Avenue @ West 125th Street Southbound Right Turn																								
SB	R	0.04	10.4	B	R	0.07	11.9	B	R	0.03	10.0	B	R	0.06	10.9	B	R	0.02	10.1	B	R	0.08	11.7	B
Twelfth Avenue @ St. Clair Place																								
EB	T	-	9.3	A	T	-	10.4	B	T	-	9.8	A	T	-	10.9	B	T	-	10.2	B	T	-	11.9	B
NB	R	-	10.6	B	R	-	16.8	C	R	-	11.5	B	R	-	16.9	C	R	-	10.4	B	R	-	14.4	B
SB	L	-	8.8	A	L	-	9.2	A	L	-	8.6	A	L	-	9.0	A	L	-	8.6	A	L	-	9.0	A
	Int.		10.2	B	Int.		15.3	C	Int.		11.0	B	Int.		15.3	C	Int.		10.2	B	Int.		13.5	B
Riverside Drive @ St. Clair Place																								
EB	LTR	0.10	7.6	A	LTR	0.14	7.8	A	LTR	0.10	7.6	A	LTR	0.14	7.8	A	LTR	0.15	7.8	A	LTR	0.19	8.0	A
SB	LT	0.26	20.6	C	LT	0.49	41.6	E	LT	0.25	22.2	C	LT	0.45	39.4	E	LT	0.20	22.8	C	LT	0.47	41.4	E
	T	0.25	20.1	C	T	0.46	39.0	E	T	0.21	21.1	C	T	0.36	34.6	D	T	0.17	23.2	C	T	0.30	39.0	E
Riverside Drive @ Tiemann Place																								
WB	L	-	8.2	A	L	-	8.4	A	L	-	8.1	A	L	-	8.2	A	L	-	8.3	A	L	-	8.4	A
NB	R	-	7.3	A	R	-	7.4	A	R	-	7.1	A	R	-	7.2	A	R	-	7.2	A	R	-	7.3	A
SB	L	-	9.9	A	L	-	10.4	B	L	-	9.5	A	L	-	9.8	A	L	-	10.0	A	L	-	10.4	B
	T	-	8.8	A	T	-	9.0	A	T	-	8.7	A	T	-	9.0	A	T	-	8.2	A	T	-	8.4	A
	Int.		9.0	A	Int.		9.3	A	Int.		8.8	A	Int.		9.0	A	Int.		8.8	A	Int.		9.1	A
West 125th Street @ West 129th Street/St. Clair Place*																								
EB	L	0.01	30.0	D	L	0.10	401.7	F	L	0.02	22.9	C	L	0.03	117.5	F	L			F	L	---	---	F
	R	0.44	14.1	B	R	0.75	26.7	D	R	0.45	14.4	B	R	0.69	23.5	C	R	0.48	20.8	C	R	0.96	74.8	F
WB	L	0.06	43.7	E	L	0.29	208.0	F	L	0.01	25.1	D	L	0.13	96.9	F	L	0.26	115.4	F	L	14.0	12119	F
	R	0.58	22.6	C	R	0.96	73.3	F	R	0.40	12.8	B	R	0.86	46.1	E	R	1.05	92.0	F	R	2.29	621.2	F

Notes: L: Left Turn; T: Through; R: Right Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service
* The unsignalized intersection analysis procedure, which assumes random arrival, breaks down with high major or minor street volumes and reports exaggerated levels of stop delays. As such, its results are not necessarily indicative of actual conditions, where gaps created by adjacent signalized intersections often provide additional throughput capacity and result in lower stop delays.

Table 17-30
2030 No Build Condition
Secondary Study Area Signalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2006 Existing				2030 No Build				2006 Existing				2030 No Build				2006 Existing				2030 No Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Broadway @ West 110th Street																								
EB	LTR	0.38	24.1	C	LTR	0.44	25.4	C	LTR	0.17	21.3	C	LTR	0.21	21.9	C	LTR	0.20	20.8	C	LTR	0.28	22.0	C
WB	DefL	0.85	55.1	E	DefL	1.10	118.6	F	DefL	0.57	30.4	C	DefL	0.66	34.3	C	DefL	0.76	44.0	D	DefL	0.95	72.4	E
	TR	0.50	29.0	C	TR	0.62	33.1	C	TR	0.38	25.3	C	TR	0.45	27.0	C	TR	0.78	43.1	D	TR	0.90	57.1	E
NB	LTR	0.42	12.5	B	LTR	0.49	13.3	B	LTR	0.44	12.6	B	LTR	0.51	13.5	B	LTR	0.58	14.4	B	LTR	0.67	16.0	B
SB	LTR	0.68	20.0	B	LTR	0.79	23.4	C	LTR	0.48	13.0	B	LTR	0.56	14.0	B	LTR	0.55	17.4	B	LTR	0.65	19.4	B
	Int.		22.4	C	Int.		31.3	C	Int.		16.0	B	Int.		17.4	B	Int.		21.7	C	Int.		27.3	C
Broadway @ West 120th Street																								
EB	LTR	0.40	27.5	C	LTR	0.46	28.5	C	LTR	0.30	26.2	C	LTR	0.34	26.8	C	LTR	0.31	26.2	C	LTR	0.36	26.9	C
WB	LTR	1.04	100.2	F	LTR	1.36	220.2	F	LTR	0.77	45.8	D	LTR	0.93	70.4	E	LTR	0.87	57.8	E	LTR	1.06	104.1	F
NB	LTR	0.35	5.8	A	LTR	0.42	6.4	A	LTR	0.33	5.7	A	LTR	0.40	6.1	A	LTR	0.43	6.4	A	LTR	0.52	7.1	A
SB	LTR	0.52	7.1	A	LTR	0.65	8.6	A	LTR	0.41	6.2	A	LTR	0.48	6.8	A	LTR	0.42	6.4	A	LTR	0.52	7.3	A
	Int.		21.4	C	Int.		36.6	D	Int.		13.5	B	Int.		17.0	B	Int.		15.3	B	Int.		21.7	C
Amsterdam Avenue @ West 120th Street																								
EB	L	0.42	38.4	D	L	0.48	41.0	D	L	0.48	40.7	D	L	0.54	43.7	D	L	0.55	44.4	D	L	0.61	48.5	D
	TR	0.94	72.7	E	TR	1.06	103.8	F	TR	0.67	47.2	D	TR	0.75	53.0	D	TR	0.73	49.4	D	TR	0.84	60.9	E
WB	L	0.08	29.2	C	L	0.11	30.3	C	L	0.02	27.7	C	L	0.03	27.8	C	L	0.01	27.3	C	L	0.01	27.4	C
	TR	0.29	32.1	C	TR	0.33	32.8	C	TR	0.18	30.0	C	TR	0.21	30.5	C	TR	0.28	31.7	C	TR	0.34	33.0	C
NB	LTR	0.56	5.0	A	LTR	0.68	6.8	A	LTR	0.54	4.7	A	LTR	0.63	5.8	A	LTR	0.79	9.5	A	LTR	0.93	19.6	B
SB	LTR	0.53	4.6	A	LTR	0.62	5.8	A	LTR	0.31	3.1	A	LTR	0.36	3.3	A	LTR	0.31	3.0	A	LTR	0.39	3.5	A
	Int.		18.4	B	Int.		24.3	C	Int.		11.9	B	Int.		13.3	B	Int.		15.0	B	Int.		21.9	C
Frederick Douglass Boulevard @ West 125th Street																								
EB	LTR	0.69	24.9	C	TR	0.58	21.0	C	LTR	0.65	17.7	B	TR	0.65	17.1	B	LTR	0.74	26.6	C	TR	0.80	28.4	C
WB	LTR	0.60	21.6	C	TR	0.77	26.4	C	LTR	0.52	14.9	B	TR	0.61	16.3	B	LTR	0.71	25.5	C	TR	0.86	32.7	C
NB	LT	0.17	15.3	B	LT	0.28	16.5	B	LT	0.33	22.8	C	LT	0.50	25.4	C	LTR	0.55	17.7	B	LTR	0.86	28.8	C
	R	0.11	15.0	B	R	0.30	17.7	B	R	0.30	24.9	C	R	0.65	38.1	D								
SB	LT	0.53	17.1	B	LT	0.64	19.0	B	LT	0.41	24.1	C	LT	0.57	27.2	C	LT	0.41	18.0	B	LT	0.53	19.9	B
	R	0.20	13.8	B	R	0.26	14.5	B	R	0.36	26.4	C	R	0.44	28.6	C	R	0.30	18.4	B	R	0.37	19.8	B
	Int.		20.0	B	Int.		21.0	C	Int.		19.3	B	Int.		21.6	C	Int.		22.1	C	Int.		27.6	C
Madison Avenue @ East 125th Street																								
EB	LT	0.85	32.5	C	T	0.87	32.7	C	LT	0.71	25.3	C	T	0.85	31.1	C	LT	0.91	38.1	D	T	1.02	56.6	E
WB	TR	0.60	21.8	C	TR	0.85	32.0	C	TR	0.45	18.9	B	TR	0.66	23.3	C	TR	0.50	19.7	B	TR	0.75	26.0	C
NB	LTR	0.55	16.9	B	LTR	0.68	19.0	B	LTR	0.45	15.5	B	LTR	0.56	17.0	B	LTR	0.67	18.8	B	LTR	0.86	24.7	C
	Int.		23.3	C	Int.		27.1	C	Int.		19.7	B	Int.		23.7	C	Int.		25.1	C	Int.		35.5	D
Second Avenue @ East 125th Street																								
EB	T	1.05	86.0	F	T	1.55	290.0	F	T	1.05	86.7	F	T	1.41	228.1	F	T	1.05	82.3	F	T	1.30	175.0	F
	R	0.23	32.3	C	R	0.39	36.4	D	R	0.22	31.7	C	R	0.56	39.3	D	R	0.21	31.7	C	R	0.31	29.6	C
WB	DefL	1.05	103.1	F	DefL	1.21	158.7	F	LT	0.49	35.6	D	LT	0.87	59.0	E	LT	0.51	36.4	D	LT	0.86	53.4	D
	T	1.05	103.3	F	T	1.44	251.3	F																
SB	LTR	0.55	20.2	C	L	0.52	26.2	C	LTR	0.31	17.6	B	L	0.56	27.7	C	LTR	0.70	22.3	C	L	1.87	431.8	F
					TR	0.69	24.2	C					TR	0.39	20.1	C					TR	0.83	31.4	C
SW	TR	1.00	72.6	E	TR	1.18	129.1	F	TR	0.61	36.6	D	TR	0.81	45.3	D	TR	0.84	47.2	D	TR	1.07	90.8	F
	Int.		63.2	E	Int.		129.8	F	Int.		43.5	D	Int.		94.2	F	Int.		52.8	D	Int.		146.3	F
First Avenue @ East 125th Street																								
EB	L	0.99	66.0	E	L	1.20	133.8	F	L	0.67	29.5	C	L	0.87	43.7	D	L	0.87	42.5	D	L	1.13	106.7	F
	LT	0.18	18.7	B	LT	0.31	20.4	C	LT	0.24	19.5	B	LT	0.42	22.2	C	LT	0.28	20.0	C	LT	0.59	26.0	C
NB	L	0.59	16.1	B	L	0.69	18.9	B	L	0.13	9.6	A	L	0.18	10.1	B	L	0.12	9.5	A	L	0.18	10.0	B
	T	0.34	10.8	B	T	0.39	11.2	B	T	0.39	11.2	B	T	0.55	12.8	B	T	0.61	13.4	B	T	0.70	14.8	B
	R	0.22	10.6	B	R	0.25	10.9	B	R	0.23	10.6	B	R	0.28	11.2	B	R	0.46	13.8	B	R	0.52	15.0	B
	Int.		26.1	C	Int.		44.3	D	Int.		15.5	B	Int.		19.5	B	Int.		19.0	B	Int.		33.1	C
Broadway @ West 145th Street																								
EB	LTR	0.22	25.2	C	LTR	0.25	25.6	C	LTR	0.26	25.7	C	LTR	0.29	26.2	C	LTR	0.24	25.5	C	LTR	0.28	26.0	C
WB	LTR	0.78	41.7	D	LTR	0.95	62.8	E	LTR	0.90	56.4	E	LTR	1.05	89.1	F	LTR	0.86	46.0	D	LTR	1.00	71.7	E
NB	LTR	0.53	19.7	B	LTR	0.62	21.5	C	LTR	0.63	21.5	C	LTR	0.75	24.7	C	LTR	0.76	24.8	C	LTR	0.91	33.5	C
SB	L	0.18	9.3	A	L	0.22	10.1	B	L	0.32	11.5	B	L	0.40	13.5	B	L	0.37	13.1	B	L	0.47	16.9	B
	TR	0.42	10.5	B	TR	0.51	11.7	B	TR	0.50	11.4	B	TR	0.58	12.6	B	TR	0.44	10.7	B	TR	0.51	11.6	B
	Int.		20.9	C	Int.		26.0	C	Int.		23.8	C	Int.		31.1	C	Int.		24.3	C	Int.		33.1	C

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service

Table 17-31
2030 No Build Condition
Secondary Study Area Unsignalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2006 Existing				2030 No Build				2006 Existing				2030 No Build				2006 Existing				2030 No Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
First Avenue @ East 125th Street Southbound Right Turn																								
SB	R	0.26	11.7	B	R	0.40	13.6	B	R	0.11	9.4	A	R	0.19	10.0	B	R	0.10	9.4	A	R	0.22	10.3	B
Notes: R: Right Turn; V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service																								

Broadway Northbound and West 133rd Street

During the PM peak hour, the westbound through-right movement would deteriorate from LOS C to LOS D, with delay increasing from 29.0 to 50.9 seconds and v/c ratio increasing from 0.67 to 0.93.

Broadway and West 125th Street

During the AM peak hour, the northbound right-turn movement would continue to operate at LOS D, with delay increasing from 39.8 to 47.7 seconds and v/c ratio increasing from 0.55 to 0.67. The southbound shared left-through-right movement would deteriorate from LOS D to LOS F, with delay increasing from 49.1 to 101.4 seconds and v/c ratio increasing from 0.90 to 1.11. The eastbound left-turn movement would deteriorate from LOS D to LOS F, with delay increasing from 36.8 to 415.5 seconds and v/c ratio increasing from 0.55 to 1.76. The westbound left-turn movement would deteriorate from LOS D to LOS F, with delay increasing from 44.6 to 235.1 seconds and v/c ratio increasing from 0.68 to 1.35. At the same time, the westbound through-right movement would deteriorate from LOS C to LOS E, with delay increasing from 30.4 to 74.0 seconds and v/c ratio increasing from 0.71 to 1.05.

During the midday peak hour, the northbound right-turn movement would continue to operate at LOS D, with delay increasing from 39.6 to 54.4 seconds and v/c ratio increasing from 0.54 to 0.73. The eastbound shared through and right-turn movement would deteriorate from LOS C to LOS E, with delay increasing from 30.6 to 73.7 seconds and v/c ratio increasing from 0.71 to 1.04. The westbound left-turn movement would deteriorate from LOS D to LOS F, with delay increasing from 39.1 to 136.4 seconds and v/c ratio increasing from 0.54 to 1.02.

During the PM peak hour, the northbound left-through movement would deteriorate from LOS D to LOS E, with delay increasing from 42.9 to 62.1 seconds and v/c ratio increasing from 0.82 to 0.97. The northbound right-turn movement would continue to operate at LOS D, with delay increasing from 37.8 to 47.2 seconds and v/c ratio increasing from 0.51 to 0.67. The southbound left-through-right movement would deteriorate from LOS D to LOS E, with delay increasing from 38.9 to 62.6 seconds and v/c ratio increasing from 0.75 to 0.97. The eastbound through-right movement would deteriorate from LOS D to LOS F, with delay increasing from 36.7 to 112.9 seconds and v/c ratio increasing from 0.83 to 1.16. At the same time, the westbound left-turn movement would deteriorate from LOS D to LOS F, with delay increasing from 50.8 to 167.5 seconds and v/c ratio increasing from 0.65 to 1.13.

Amsterdam Avenue and West 125th Street

During the AM peak hour, the eastbound through-right movement would deteriorate from LOS C to LOS F, with delay increasing from 34.1 to 125.8 seconds and v/c ratio increasing from 0.77 to 1.18. At the same time, the westbound through-right movement would deteriorate from LOS

C to LOS F, with delay increasing from 33.3 to 139.4 seconds and v/c ratio increasing from 0.76 to 1.21.

During the midday peak hour, the eastbound through-right movement would deteriorate from LOS D to LOS F, with delay increasing from 36.9 to 130.8 seconds and v/c ratio increasing from 0.82 to 1.19. At the same time, the westbound through-right movement would deteriorate from LOS C to LOS E, with delay increasing from 30.4 to 64.3 seconds and v/c ratio increasing from 0.68 to 1.00.

During the PM peak hour, the northbound through-right movement would deteriorate from LOS C to LOS E, with delay increasing from 33.4 to 74.9 seconds and v/c ratio increasing from 0.84 to 1.07. The southbound left-turn movement would deteriorate from LOS C to LOS D, with delay increasing from 33.9 to 54.2 seconds and v/c ratio increasing from 0.58 to 0.81 and the southbound through-right movement from LOS C to LOS E, with delay increasing from 33.4 to 63.8 seconds and v/c ratio increasing from 0.73 to 0.98. The eastbound through-right movement would deteriorate from LOS C to LOS F, with delay increasing from 34.8 to 108.5 seconds and v/c ratio increasing from 0.79 to 1.14. At the same time, the westbound through-right movement would deteriorate from LOS C to LOS E, with delay increasing from 31.4 to 66.3 seconds and v/c ratio increasing from 0.71 to 1.02.

Marginal Street and West 133rd Street

During the AM peak hour, the southbound approach would deteriorate from LOS C to LOS F, with delay increasing from 18.5 to 122.4 seconds and v/c ratio increasing from 0.68 to 1.20.

During the midday peak hour, the southbound approach would deteriorate from LOS C to LOS F, with delay increasing from 23.4 to 60.0 seconds and v/c ratio increasing from 0.78 to 1.02.

During the PM peak hour, the southbound approach would deteriorate from LOS E to LOS F, with delay increasing from 40.8 to 125.9 seconds and v/c ratio increasing from 0.96 to 1.22.

Marginal Street and West 132nd Street

During the AM peak hour, the southbound left-through movement would deteriorate from LOS B to LOS F, with delay increasing from 14.5 to 96.1 seconds.

During the PM peak hour, the same movement would deteriorate from LOS D to LOS F, with delay increasing from 29.2 to 96.5 seconds.

Marginal Street and St. Clair Place

During the AM peak hour, the southbound through movement would deteriorate from LOS C to LOS F, with delay increasing from 22.0 to 55.8 seconds and v/c ratio increasing from 0.76 to 1.01.

During the midday peak hour, the southbound through movement would deteriorate from LOS C to LOS E, with delay increasing from 18.5 to 37.7 seconds and v/c ratio increasing from 0.68 to 0.92.

During the PM peak hour, the same movement would deteriorate from LOS D to LOS F, with delay increasing from 26.1 to 128.5 seconds and v/c ratio increasing from 0.81 to 1.22.

Twelfth Avenue and West 131st Street

During the AM peak hour, westbound approach would deteriorate from LOS C to LOS E, with delay increasing from 16.8 to 40.8 seconds and v/c ratio increasing from 0.16 to 0.44.

During the PM peak hour, westbound approach would deteriorate from LOS C to LOS F, with delay increasing from 23.5 to 105.9 seconds and v/c ratio increasing from 0.28 to 0.94.

Riverside and St. Clair Place

During the AM peak hour, the southbound left-through movement would deteriorate from LOS C to LOS E, with delay increasing from 20.6 to 41.6 seconds and v/c ratio increasing from 0.26 to 0.49, and the southbound through movement would deteriorate from LOS C to LOS E, with delay increasing from 20.1 to 39.0 seconds and v/c ratio increasing from 0.25 to 0.46.

During the midday peak hour, the southbound left-through movement would deteriorate from LOS C to LOS E, with delay increasing from 22.2 to 39.4 seconds and v/c ratio increasing from 0.25 to 0.45, and the southbound through movement would deteriorate from LOS C to LOS D, with delay increasing from 21.1 to 34.6 seconds and v/c ratio increasing from 0.21 to 0.36.

During the PM peak hour, the southbound left-through movement would deteriorate from LOS C to LOS E, with delay increasing from 22.8 to 41.4 seconds and v/c ratio increasing from 0.20 to 0.47, and the southbound through movement would deteriorate from LOS C to LOS E, with delay increasing from 23.2 to 39.0 seconds and v/c ratio increasing from 0.17 to 0.30.

West 125th Street and West 129th Street/St. Clair Place

During the AM peak hour, the eastbound left-turn movement would deteriorate from LOS D to LOS F, with delay increasing from 30.0 to 401.7 seconds and v/c ratio increasing from 0.01 to 0.10. At the same time, the westbound left-turn movement would deteriorate from LOS E to LOS F, with delay increasing from 43.7 to 208.0 seconds and v/c ratio increasing from 0.06 to 0.29. The westbound right-turn movement would deteriorate from LOS C to LOS F, with delay increasing from 22.6 to 73.3 seconds and v/c ratio increasing from 0.58 to 0.96.

During the midday peak hour, the eastbound left-turn movement would deteriorate from LOS C to LOS F, with delay increasing from 22.9 to 117.5 seconds and v/c ratio increasing from 0.02 to 0.03. At the same time, the westbound left-turn movement would deteriorate from LOS D to LOS F, with delay increasing from 25.1 to 96.9 seconds and v/c ratio increasing from 0.01 to 0.13. The westbound right turn movement would deteriorate from LOS B to LOS E, with delay increasing from 12.8 to 46.1 seconds and v/c ratio increasing from 0.40 to 0.86.

During the PM peak hour, the eastbound left-turn movement would continue to operate at LOS F and the eastbound right-turn movement would deteriorate from LOS C to LOS F, with delay increasing from 20.8 to 74.8 seconds and v/c ratio increasing from 0.48 to 0.96. At the same time the westbound left-turn movement would continue to operate at LOS F, with delay increasing from 115.4 to 12,119.0 seconds and v/c ratio increasing from 0.26 to 14.00. The westbound right-turn movement would also continue to operate at LOS F, with delay increasing from 92.0 to 621.2 seconds and v/c ratio increasing from 1.05 to 2.29.

SECONDARY STUDY AREA

Broadway and West 110th Street

During the AM peak hour, the westbound *de facto* left-turn movement would deteriorate from LOS E to LOS F, with delay increasing from 55.1 to 118.6 seconds and v/c ratio increasing from 0.85 to 1.10.

During the PM peak hour the westbound *de facto* left-turn movement would deteriorate from LOS D to LOS E, with delay increasing from 44.0 to 72.4 seconds and v/c ratio increasing from

0.76 to 0.95, and the westbound through-right movement would deteriorate from LOS D to LOS E, with delay increasing from 43.1 to 57.1 seconds and v/c ratio increasing from 0.78 to 0.90.

Broadway and West 120th Street

During the AM peak hour, the westbound approach would continue to operate at LOS F, with delay increasing from 100.2 to 220.2 seconds and v/c ratio increasing from 1.04 to 1.36.

During the midday peak hour, the westbound approach would deteriorate from LOS D to LOS E, with delay increasing from 45.8 to 70.4 seconds and v/c ratio increasing from 0.77 to 0.93.

During the PM peak hour the same approach would deteriorate from LOS E to LOS F, with delay increasing from 57.8 to 104.1 seconds and v/c ratio increasing from 0.87 to 1.06.

Amsterdam Avenue and West 120th Street

During the AM peak hour, the eastbound through-right movement would deteriorate from LOS E to LOS F, with delay increasing from 72.7 to 103.8 seconds and v/c ratio increasing from 0.94 to 1.06.

During the midday peak hour, the eastbound through-right movement would continue to operate at LOS D, with delay increasing from 47.2 to 53.0 seconds and v/c ratio increasing from 0.67 to 0.75.

During the PM peak hour, the eastbound through-right movement would deteriorate from LOS D to LOS E, with delay increasing from 49.4 to 60.9 seconds and v/c ratio increasing from 0.73 to 0.84.

Madison Avenue and East 125th Street

During the PM peak hour, the eastbound approach would deteriorate from LOS D to LOS E, with delay increasing from 38.1 to 56.6 and v/c ratio increasing from 0.91 to 1.02.

Second Avenue and East 125th Street

During the AM peak hour, the eastbound through movement would continue to operate at LOS F, with delay increasing from 86.0 to 290.0 seconds and v/c ratio increasing from 1.05 to 1.55. The westbound *de facto* left-turn movement would continue to operate at LOS F, with delay increasing from 103.1 to 158.7 seconds and v/c ratio increasing from 1.05 to 1.21, and the westbound through movement would continue to operate at LOS F, with delay increasing from 103.3 to 251.3 seconds and v/c ratio increasing from 1.05 to 1.44. The southwestbound approach would deteriorate from LOS E to LOS F, with delay increasing from 72.6 to 129.1 seconds and v/c ratio increasing from 1.00 to 1.18.

During the midday peak hour, the eastbound through movement would continue to operate at LOS F, with delay increasing from 86.7 to 228.1 seconds and v/c ratio increasing from 1.05 to 1.41. The westbound left-through movement would deteriorate from LOS D to LOS E, with delay increasing from 35.6 to 59.0 seconds and v/c ratio increasing from 0.49 to 0.87. At the same time, the southwestbound approach would continue to operate at LOS D, with delay increasing from 36.6 to 45.3 and v/c ratio increasing from 0.61 to 0.81.

During the PM peak hour, the eastbound through movement would continue to operate at LOS F, with delay increasing from 82.3 to 175.0 seconds and v/c ratio increasing from 1.05 to 1.30. The westbound left-through movement would continue to operate at LOS D, with delay increasing from 36.4 to 53.4 seconds and v/c ratio increasing from 0.51 to 0.86. The southbound left-turn movement would deteriorate from LOS C to LOS F, with delay increasing from 22.3 to 431.8 seconds and v/c ratio increasing from 0.70 to 1.87. At the same time, the southwestbound

approach would deteriorate from LOS D to LOS F, with delay increasing from 47.2 to 90.8 and v/c ratio increasing from 0.84 to 1.07.

First Avenue and East 125th Street

During the AM peak hour, the eastbound left-turn movement would deteriorate from LOS E to LOS F, with delay increasing from 66.0 to 133.8 seconds and v/c ratio increasing from 0.99 to 1.20.

During the PM peak hour, the same movement would deteriorate from LOS D to LOS F, with delay increasing from 42.5 to 106.7 and v/c ratio increasing from 0.87 to 1.13.

Broadway and West 145th Street

During the AM peak hour, the westbound approach would deteriorate from LOS D to LOS E, with delay increasing from 41.7 to 62.8 seconds and v/c ratio increasing from 0.78 to 0.95.

During the midday peak hour, the westbound approach would deteriorate from LOS E to LOS F, with delay increasing from 56.4 to 89.1 seconds and v/c ratio increasing from 0.90 to 1.05.

During the PM peak hour, the same approach would deteriorate from LOS D to LOS E, with delay increasing from 46.0 to 71.7 seconds and v/c ratio increasing from 0.86 to 1.00.

PARKING SUPPLY AND UTILIZATION

As with the 2015 No Build analysis, on- and off-street parking utilization rates for the 2030 No Build condition were based on an increase in background parking demand of 0.5 percent per year for a total of 12.7 percent by 2030.

ON-STREET PARKING

Table 17-32 shows the expected on-street parking utilization in 2030, assuming a 0.5 percent per year growth in background parking demand. On-street parking utilization within ¼ mile of the Project Area would increase to 86, 89, and 86 percent during the morning, midday, and evening periods, respectively. Overall, within ½ mile, on-street parking utilization would increase to 81, 88, and 90 percent during the morning, midday, and evening periods, respectively.

OFF-STREET PARKING

A growth rate of 0.5 percent per year was also assumed for off-street parking facilities within the one-mile radius of the Project Area. In addition, the projected peak hour parking accumulation of the same No Build projects incorporated into the 2015 No Build analysis are expected to utilize off-street parking facilities within the Project Area in the 2030 No Build condition.

As shown in Table 17-33, the seven public parking facilities located within ¼ mile of the Project Area would be 120, 121, and 115 percent utilized, with expected shortfalls of 262, 282, and 195 spaces during the morning, midday, and evening periods, respectively. The nine public parking facilities located within ½ mile would be 115, 119, and 105 percent utilized, with expected shortfalls of 254, 331, and 86 spaces during the morning, midday, and evening periods, respectively. Overall, within one mile, the 26 public parking facilities would be 103, 104, and 80 percent utilized, with shortfalls of 111 and 151 spaces during the morning and midday periods, respectively, and a surplus of 699 spaces in the evening period.

Table 17-32
2030 No Build On-Street Parking Utilization Summary

2030 No Build	AM	MD	PM
¼-Mile Radius			
Capacity	1847	1847	1847
2006 Existing Demand	1407	1457	1415
Background Growth (0.5% per year)	179	185	180
2015 No Build Demand	1586	1642	1595
Remaining Spaces	261	205	252
Utilization	**86%**	**89%**	**86%**
½-Mile Radius			
Capacity	4783	4783	4783
2006 Existing Demand	3454	3732	3807
Background Growth (0.5% per year)	439	475	484
2015 No Build Demand	3893	4207	4291
Remaining Spaces	890	576	492
Utilization	**81%**	**88%**	**90%**

Table 17-33
2030 No Build Off-Street Parking Utilization Summary

2030 No Build	AM	MD	PM
¼-Mile Radius			
Capacity	1330	1330	1330
2006 Existing Demand	1171	1081	1188
Background Growth (0.5% per year)	149	137	151
No Build Project Generated Parking Demand	272	394	186
New Columbia Academic Building	*48*	*118*	*69*
Science, Math, and Engineering Secondary School	*13*	*13*	*0*
New Columbia Administrative Building (Studebaker)	*86*	*148*	*89*
New Columbia Office Building (No. 23)	*77*	*70*	*17*
New Columbia Office Building (No. 24)	*48*	*45*	*11*
Total 2030 No Build Demand	1592	1612	1525
Remaining Spaces	-262	-282	-195
Utilization	**120%**	**121%**	**115%**
½-Mile Radius			
Capacity	1710	1710	1710
2006 Existing Demand	1501	1461	1428
Background Growth (0.5% per year)	191	186	182
No Build Project Generated Parking Demand	272	394	186
Total 2030 No Build Demand	1964	2041	1796
Remaining Spaces	-254	-331	-86
Utilization	**115%**	**119%**	**105%**
1-Mile Radius			
Capacity	3576	3576	3576
2006 Existing Demand	3030	2957	2387
Background Growth (0.5% per year)	385	376	304
No Build Project Generated Parking Demand	272	394	186
Total 2030 No Build Demand	3687	3727	2877
Remaining Spaces	-111	-151	699
Utilization	**103%**	**104%**	**80%**
Note: See Appendix H for detailed parking accumulation analysis.			

G. 2030 PROBABLE IMPACTS OF THE PROPOSED ACTIONS

OVERVIEW

As with the 2015 Build condition, the 2030 Build condition reflects increases in traffic volumes, as well as roadway and signal timing improvements that are part of the Proposed Actions. The 2030 Build condition was developed by adjusting for the anticipated changes to No Build traffic as a result of the Proposed Actions and adding the 2030 reasonable worst-case transportation scenario project-generated trips to the 2030 No Build network, as described below.

STUDY AREA STREET NETWORK

The 2030 Build analysis accounted for the same roadway and signal timing improvements described for the 2015 analysis, including the possibility of implementing EDC's streetscapes alternative along West 125th Street between Broadway and Marginal Street. These improvements were included as part of the design process, since they would be integral to the overall planning of site access and traffic circulation, and reflect a more typical street grid configuration that addresses access and circulation needs of the community and the Manhattanville project. In addition, to accommodate midblock crosswalks along West 130th, West 131st, and West 132nd Streets, new traffic signals would be installed at these locations. Details of the project-related roadway improvements are summarized in Appendix H.

VEHICLE TRIP ASSIGNMENT

To develop an appropriate baseline traffic network from which potential project impacts could be evaluated, the 2030 No Build traffic network volumes were adjusted to account for the project-related street direction changes, No Build projects that would not be constructed if the Proposed Actions are approved, and changes in how certain No Build trips would be distributed. The primary and secondary study area net 2030 diverted peak hour traffic volumes are shown in Appendix H.

In the 2030 Build condition, the Columbia University development component of the Proposed Actions is projected to generate a total of 1,023 (843 entering and 180 exiting), 428 (214 entering and 214 exiting), and 1,010 (208 entering and 802 exiting) vehicle trips during the weekday AM, midday, and PM peak hours, respectively. The non-Columbia University development component is expected to generate a total of 196 (136 entering and 60 exiting), 302 (161 entering and 141 exiting), and 355 (157 entering and 198 exiting) vehicle trips during the AM, midday, and PM peak hours, respectively. The 2030 project-generated peak hour traffic volumes within the primary and secondary study areas are shown in Appendix H.

COLUMBIA UNIVERSITY TRIPS

As with the 2015 Build analysis, the 2030 project-generated trips associated with Columbia University uses were assigned to the study area traffic network. Ingress/egress points for the on-site parking facilities would be located on West 130th Street between Broadway and Twelfth Avenue, West 131st Street between Broadway and Old Broadway, West 132nd Street between Broadway and Twelfth Avenue, West 133rd Street between Broadway and Amsterdam Avenue, and West 133rd Street between Broadway and Twelfth Avenue. Truck access would be located on West 131st Street between Broadway and Twelfth Avenue. A Columbia University shuttle bus service was also incorporated into the peak hour traffic network.

NON-COLUMBIA UNIVERSITY TRIPS

Future Build peak hour non-Columbia University trips were also assigned to the study area traffic network following the same procedure set forth in the 2015 analysis.

TRAFFIC VOLUMES AND INTERSECTION CAPACITY ANALYSES

The 2030 project-generated traffic volumes were added to the 2030 traffic diversion network volumes to obtain the 2030 Build traffic network. Figures 17-32, 17-33, and 17-34 depict the 2030 Build condition traffic volumes within the primary study area for the weekday AM, midday, and PM peak hours, respectively. The secondary study area peak hour 2030 Build condition volumes are presented in Figures 17-35 to 17-37.

Within the primary study area, increases in two-way peak hour traffic over 2030 No Build volumes are expected to range from 100 vph to 600 vph along Broadway, from 50 vph to 150 vph along Amsterdam Avenue, and from 30 vph to 700 vph along Twelfth Avenue. Two-way peak hour volumes along West 125th Street would increase by 20 vph to 310 vph during the two analysis periods.

Tables 17-34 and 17-35 compare the 2030 No Build and Build peak hour conditions for the primary study area intersections. The secondary study area No Build and Build peak hour conditions are presented in Tables 17-36 and 17-37. Based on the thresholds established in the *CEQR Technical Manual*, as described in Section B of this chapter, significantly impacted movements are denoted with a + sign in the tables and detailed below.

PRIMARY STUDY AREA

Amsterdam Avenue and West 125th Street

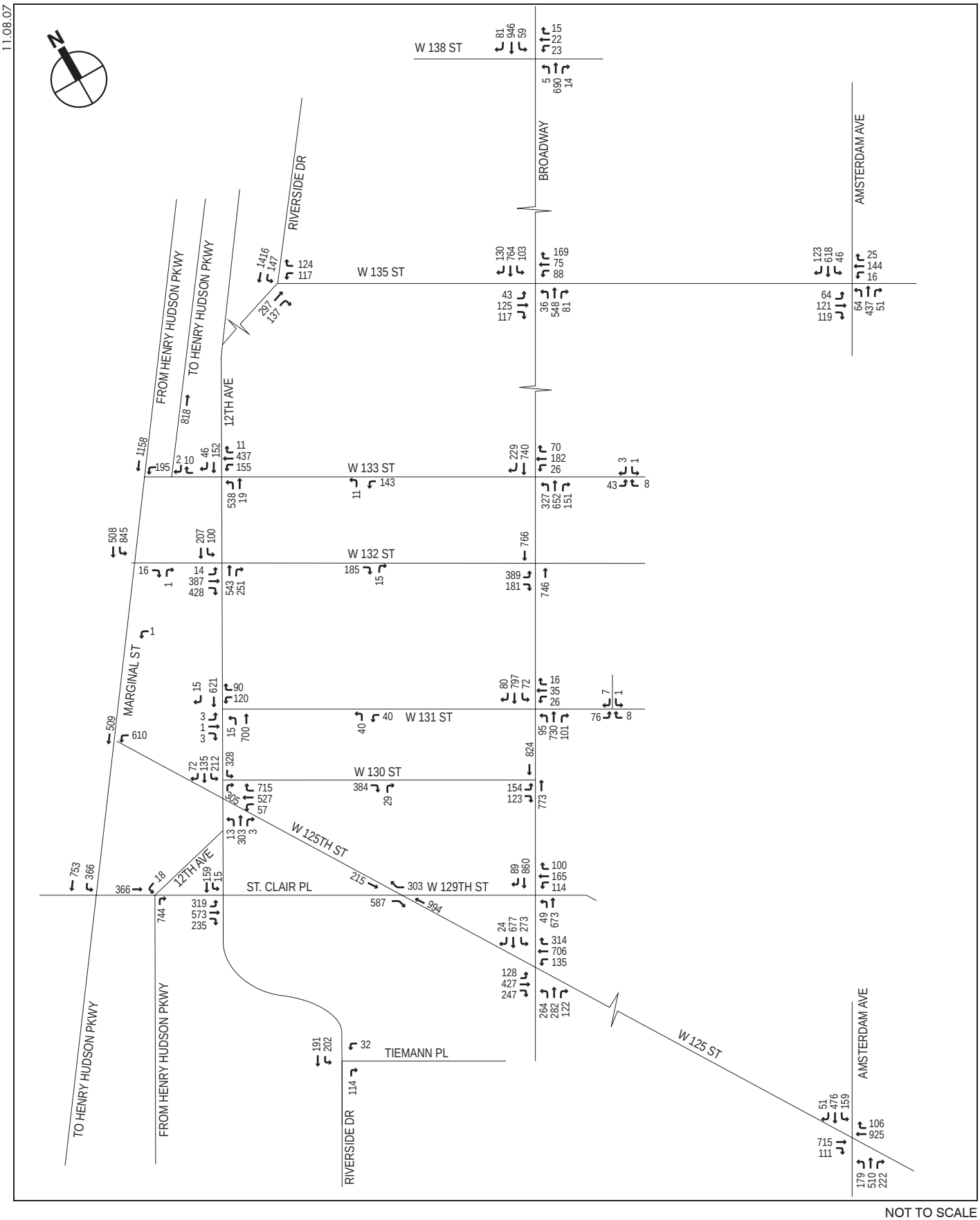
During the AM peak hour, the eastbound through-right movement would continue to operate at LOS F, with delay increasing from 125.8 to 188.6 seconds and v/c ratio increasing from 1.18 to 1.33. The westbound through-right movement would continue to operate at LOS F, with delay increasing from 139.4 to 260.7 seconds and v/c ratio increasing from 1.21 to 1.49.

During the midday peak hour, the eastbound through-right movement would continue to operate at LOS F, with delay increasing from 130.8 to 201.1 seconds and v/c ratio increasing from 1.19 to 1.36. The westbound through-right movement would deteriorate from LOS E to LOS F, with delay increasing from 64.3 to 113.3 seconds and v/c ratio increasing from 1.00 to 1.15.

During the PM peak hour, the eastbound through-right movement would continue to operate at LOS F, with delay increasing from 108.5 to 235.8 seconds and v/c ratio increasing from 1.14 to 1.44. The westbound through-right movement would deteriorate from LOS E to LOS F, with delay increasing from 66.3 to 109.4 seconds and v/c ratio increasing from 1.02 to 1.15.

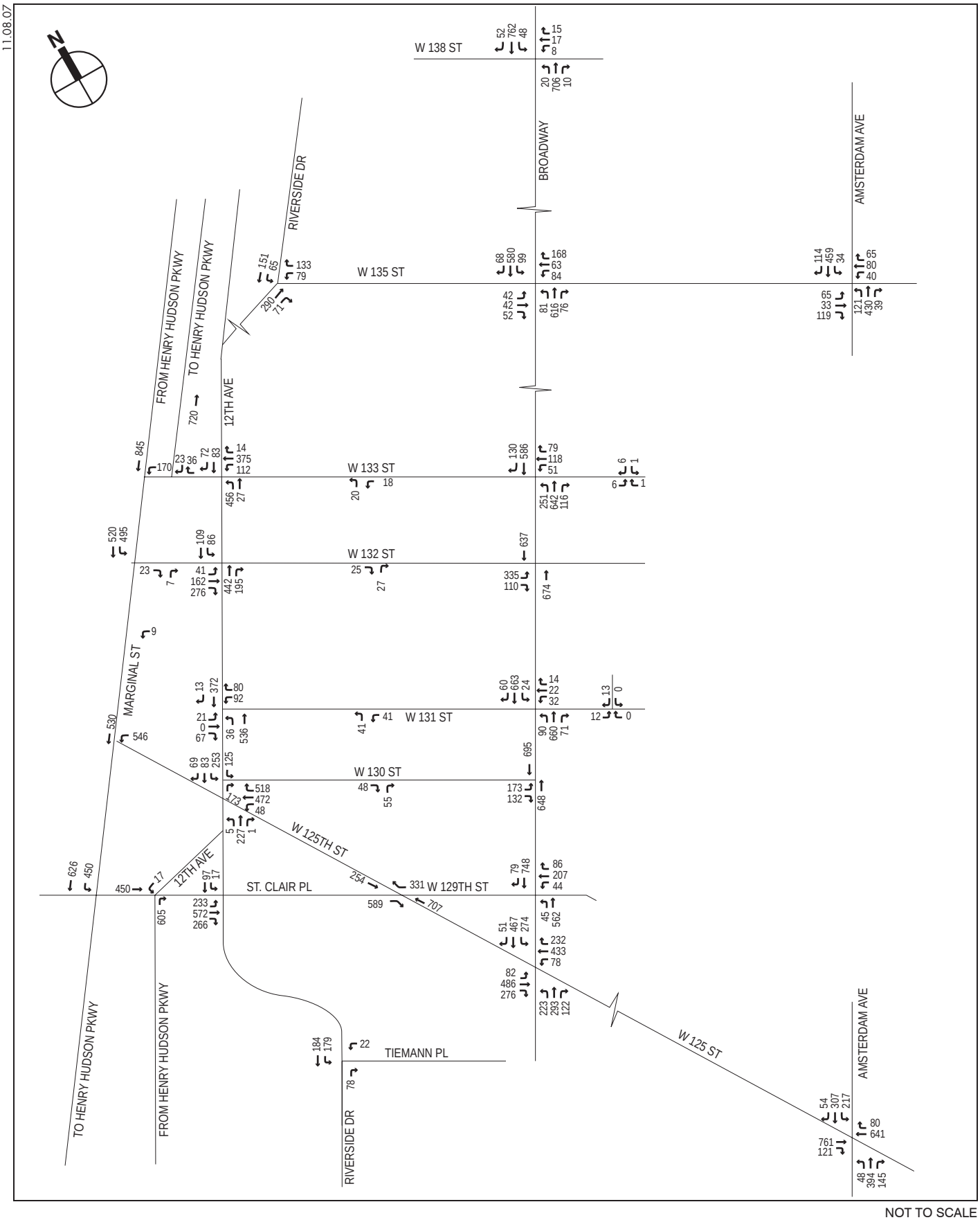
Riverside Drive and West 135th Street

During the PM peak hour, the southbound *de facto* left-turn movement would deteriorate from LOS A to LOS F, with delay increasing from 7.6 to 110.7 to seconds and v/c ratio increasing from 0.14 to 0.98. The westbound right-turn movement would continue to operate at LOS D, with delay increasing from 40.9 to 46.3 seconds and v/c ratio increasing from 0.66 to 0.74.



NOT TO SCALE

Figure 17-32
Primary Study Area
Build 2030 Morning Peak Hour



NOT TO SCALE

Figure 17-33
Primary Study Area
Build 2030 Midday Peak Hour

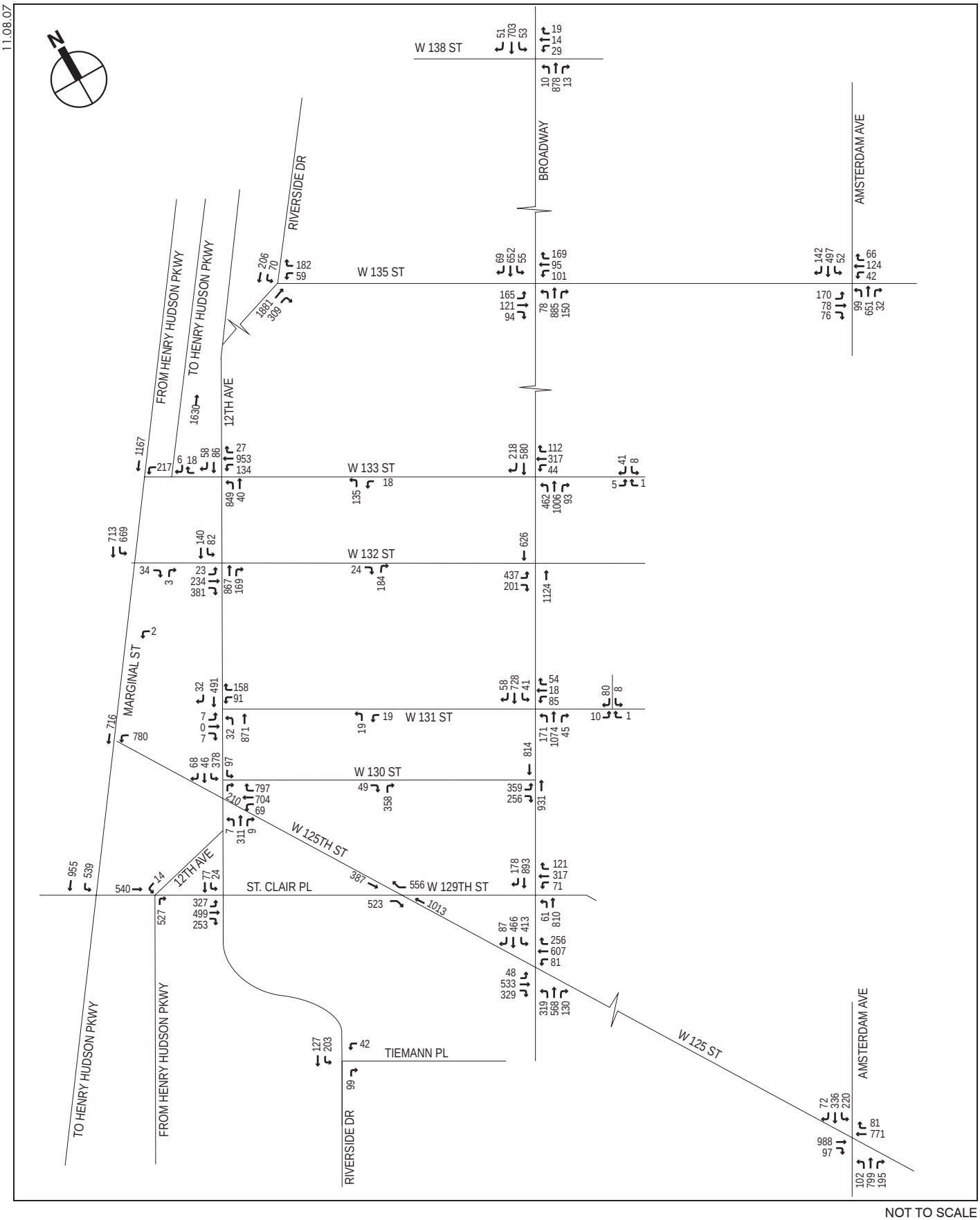


Figure 17-34
Primary Study Area
Build 2030 Evening Peak Hour

11.08.07

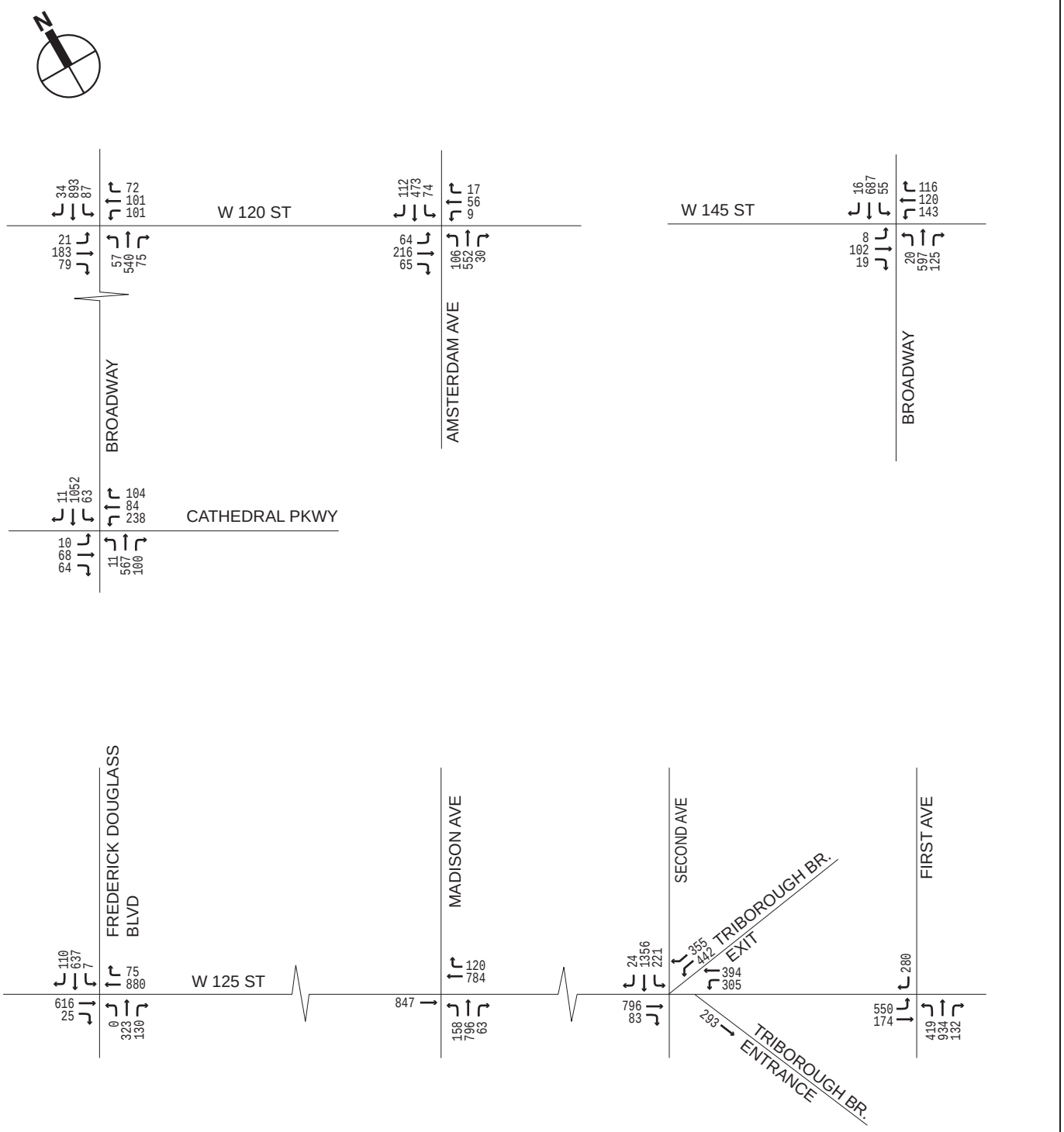
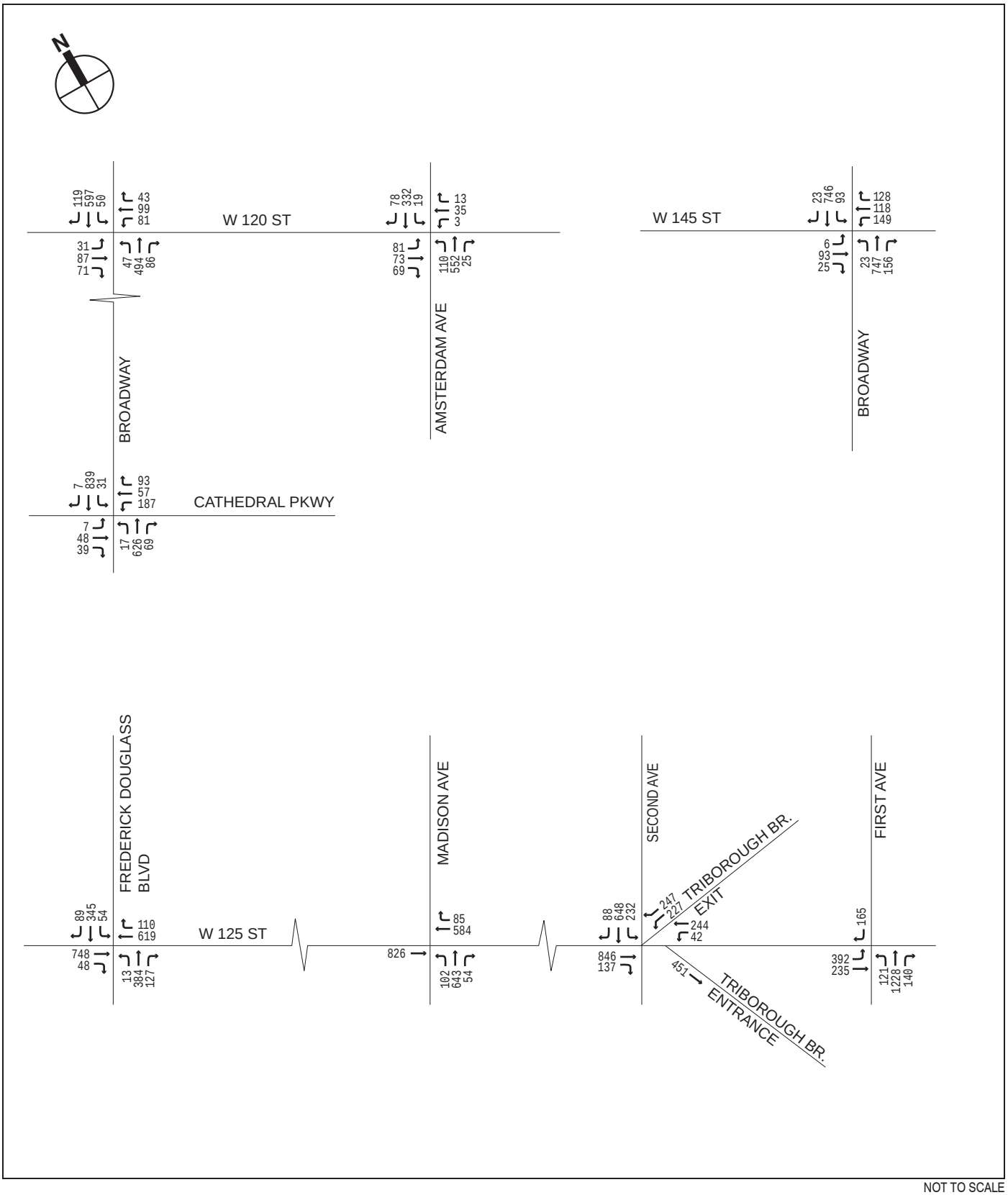


Figure 17-35
Secondary Study Area
Build 2030 Morning Peak Hour

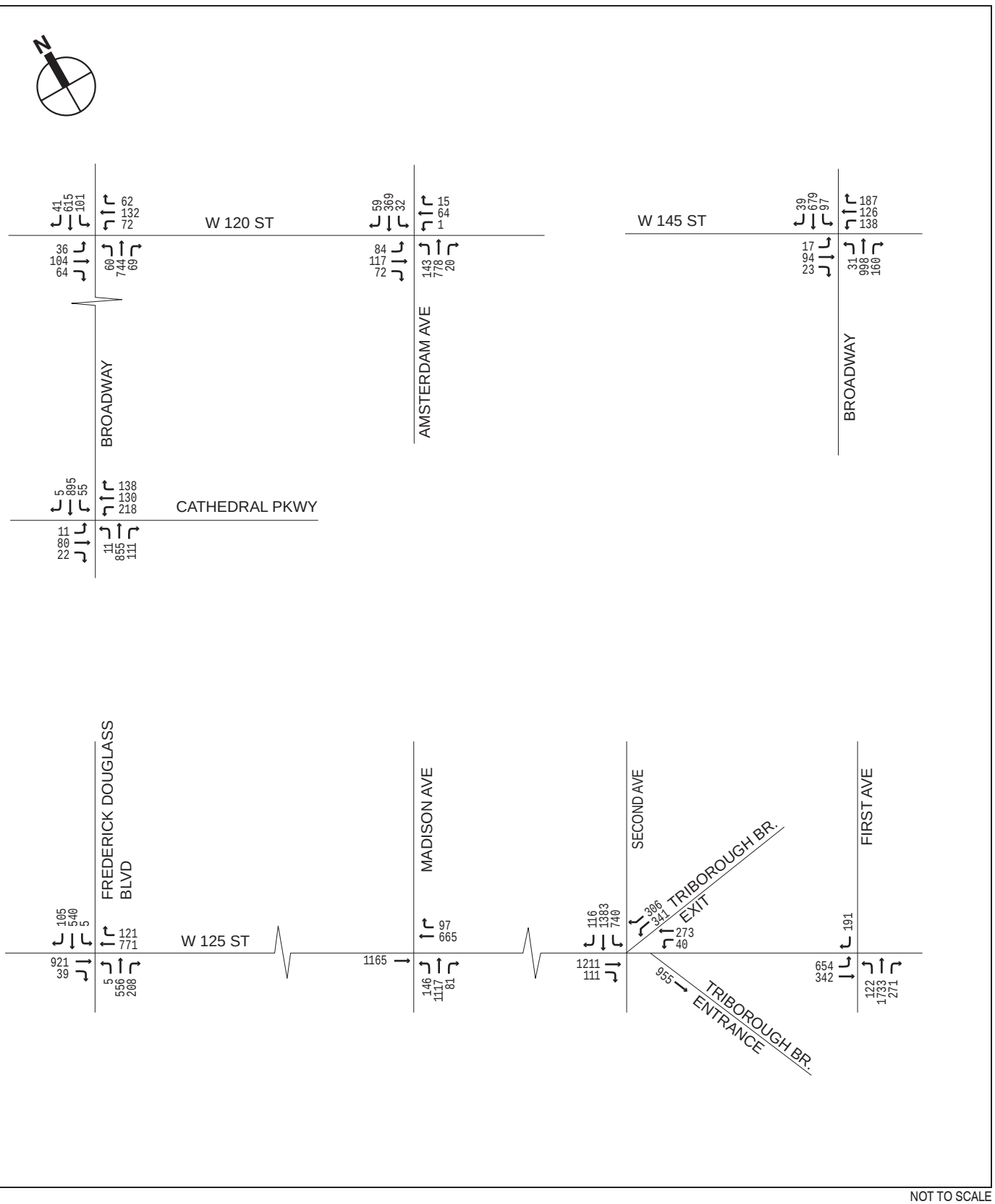
11.08.07



NOT TO SCALE

Figure 17-36
Secondary Study Area
Build 2030 Midday Peak Hour

11.08.07



NOT TO SCALE

Figure 17-37
Secondary Study Area
Build 2030 Evening Peak Hour

Table 17-34
Comparison of 2030 No Build and Build Conditions
Primary Study Area Signalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2030 No Build				2030 Build				2030 No Build				2030 Build				2030 No Build				2030 Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Marginal Street @ West 133rd Street*																								
WB					L	0.56	35.1	D					L	0.48	32.7	C					L	0.62	39.0	D
SB					T	1.17	102.9	F					T	0.72	14.7	B					T	0.97	33.1	C
					Int.		92.9	F					Int.		17.9	B					Int.		34.1	C
Marginal Street @ West 132nd Street*																								
SB					LT	0.93	29.4	C					LT	0.64	15.6	B					LT	0.89	25.3	C
					Int.		29.4	C					Int.		15.6	B					Int.		25.3	C
Marginal Street @ West 125th Street																								
WB	L	0.55	26.5	C	L	0.68	29.9	C	L	0.48	25.5	C	L	0.62	28.3	C	L	0.67	29.0	C	L	0.90	41.7	D
SB	LT	0.50	14.7	B	T	0.36	12.9	B	LT	0.53	15.2	B	T	0.38	13.1	B	LT	0.68	18.1	B	T	0.51	14.9	B
	Int.		20.1	C	Int.		22.1	C	Int.		19.4	B	Int.		20.8	C	Int.		22.7	C	Int.		28.9	C
Marginal Street @ St. Clair Place*																								
SB					L	0.22	10.6	B					L	0.57	15.8	B					L	0.33	11.8	B
					LT	0.57	14.4	B					LT	0.43	12.5	B					LT	0.80	20.1	C
					Int.		13.8	B					Int.		13.7	B					Int.		18.6	B
Riverside Drive @ West 135th Street																								
WB	L	0.62	35.9	D	L	0.30	27.4	C	L	0.25	26.8	C	L	0.23	26.5	C	L	0.21	26.3	C	L	0.18	25.8	C
	R	0.47	32.8	C	R	0.51	33.9	C	R	0.40	30.6	C	R	0.52	33.9	C	R	0.66	40.9	D	R	0.74	46.3	D+
NB	TR	0.25	8.3	A	TR	0.23	8.2	A	TR	0.22	8.1	A	TR	0.21	8.1	A	TR	1.15	83.7	F	TR	1.10	62.2	E
SB	LT	0.94	19.8	B	LT	0.97	24.6	C	LT	0.12	7.5	A	LT	0.15	7.7	A	LT	0.14	7.6	A	DefL	0.98	110.7	F+
																					T	0.21	8.2	A
	Int.		19.7	B	Int.		22.0	C	Int.		12.9	B	Int.		13.9	B	Int.		72.6	E	Int.		57.3	E
Riverside Drive @ St. Clair Place*																								
EB					L	0.27	4.9	A					L	0.23	4.6	A					L	0.29	5.0	A
					TR	0.73	11.3	B					TR	0.75	11.8	B					TR	0.68	9.9	A
SB					LT	0.39	35.7	D					LT	0.26	33.9	C					LT	0.23	33.6	C
					Int.		13.0	B					Int.		12.5	B					Int.		10.6	B
Twelfth Avenue @ West 133rd Street																								
WB	LTR	0.80	40.5	D	L	0.37	24.4	C	LTR	0.65	31.6	C	L	0.28	23.0	C	LTR	1.36	206.1	F	L	0.33	23.7	C
					TR	0.53	25.9	C					TR	0.49	25.0	C					TR	1.13	100.2	F
NB	L	1.11	94.3	F	L	0.77	26.9	C	L	0.85	32.8	C	L	0.81	29.3	C	L	1.01	60.1	E	L	1.00	60.1	E
	LTR	0.21	11.2	B	LT	0.43	15.2	B	LTR	0.20	11.0	B	LT	0.13	10.6	B	LTR	0.76	24.1	C	LT	0.92	44.9	D
SB	LTR	0.16	10.5	B	TR	0.14	10.3	B	LTR	0.12	10.2	B	TR	0.13	10.2	B	LTR	0.11	10.1	B	TR	0.11	10.1	B
	Int.		55.4	E	Int.		22.2	C	Int.		25.9	C	Int.		23.4	C	Int.		96.8	F	Int.		70.4	E
Twelfth Avenue @ West 132nd Street																								
EB	LTR	0.81	39.0	D	LTR	0.86	36.4	D	LTR	0.43	25.2	C	LTR	0.58	26.7	C	LTR	0.63	29.9	C	LTR	0.68	28.7	C
WB	LTR	0.12	20.8	C					LTR	0.09	20.4	C					LTR	0.12	20.7	C				
NB	LTR	0.52	14.4	B	TR	0.67	17.5	B	LTR	0.45	13.3	B	TR	0.51	14.2	B	LTR	0.74	19.1	B	TR	0.75	19.5	B
SB	LTR	0.14	10.4	B	L	0.52	21.7	C	LTR	0.08	9.9	A	L	0.45	19.3	B	LTR	0.06	9.8	A	L	0.51	25.3	C
					LT	0.34	12.8	B					LT	0.18	11.0	B					LT	0.26	11.8	B
	Int.		21.7	C	Int.		25.4	C	Int.		15.9	B	Int.		18.9	B	Int.		21.1	C	Int.		22.2	C
Twelfth Avenue @ West 131st Street*																								
WB					L	0.32	23.6	C					L	0.28	23.2	C					L	0.24	22.4	C
					LTR	0.00	19.3	B					LTR	0.00	19.3	B					LTR	0.00	19.3	B
					R	0.30	23.7	C					R	0.31	24.1	C					R	0.44	26.2	C
NB					LT	0.55	14.9	B					LT	0.52	14.4	B					LT	0.72	18.4	B
SB					TR	0.49	13.9	B					TR	0.28	11.5	B					TR	0.38	12.5	B
					Int.								Int.								Int.			
Twelfth Avenue @ West 130th Street*																								
NB					T	0.53	1.6	A					T	0.76	23.7	C					T	0.68	2.9	A
					R	0.84	19.2	B					R	0.79	39.6	D					R	0.67	10.2	B
SB					L	0.87	22.3	C					L	0.82	51.6	D					L	0.33	2.8	A
					T	0.27	8.1	A					T	0.31	12.8	B					T	0.37	11.0	B
					Int.		10.0	B					Int.		25.1	C					Int.		6.1	A

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service
+ Significant Adverse Traffic Impact
* indicates intersections which were unsignalized in the No Build condition and signalized in the Build condition

Table 17-34 (Continued)
Comparison of 2030 No Build and Build Conditions
Primary Study Area Signalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2030 No Build				2030 Build				2030 No Build				2030 Build				2030 No Build				2030 Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Twelfth Avenue @ West 125th Street																								
EB	LTR	0.27	13.5	B					LTR	0.37	14.5	B					LTR	0.45	15.8	B				
WB	L	0.16	13.3	B					L	0.18	13.6	B					L	0.30	16.0	B				
	T	0.78	26.1	C	LT	0.70	31.0	C	T	0.66	21.2	C	LT	0.52	24.1	C	T	0.89	35.1	D	LT	0.91	44.6	D
	R	1.03	68.0	E	R	1.04	59.8	E	R	1.01	61.4	E	R	0.93	35.9	D	R	1.23	135.7	F	R	1.02	49.7	D
NB	LTR	0.34	20.8	C	LTR	0.54	33.5	C	LTR	0.31	20.4	C	LTR	0.34	27.8	C	LTR	0.45	22.7	C	LTR	0.62	37.2	D
SB	LT	0.42	22.9	C	L	0.86	41.7	D	LT	0.25	19.9	B	L	0.82	39.0	D	LT	0.39	22.8	C	L	0.94	45.0	D
					TR	0.17	9.6	A					TR	0.12	11.1	B					TR	0.09	8.6	A
	Int.		35.4	D	Int.		40.0	D	Int.		31.9	C	Int.		29.6	C	Int.		63.7	E	Int.		43.6	D
Twelfth Avenue @ St. Clair Place*																								
EB					T	0.39	26.8	C					T	0.43	24.5	C					T	0.53	25.9	C
NB					R	0.91	41.4	D					R	0.89	42.5	D					R	0.77	34.2	C
SB					L	0.09	32.6	C					L	0.07	32.2	C					L	0.06	32.0	C
					Int.		36.4	D					Int.		34.9	C					Int.		30.0	C
West 125th Street @ West 129th Street/St. Clair Place*																								
EB					R	0.88	44.2	D					R	0.81	37.8	D					R	1.00	70.7	E
WB					R	0.45	27.3	C					R	0.48	27.7	C					R	0.99	68.1	E
NB					T	0.94	43.4	D					T	0.75	30.6	C					T	0.96	44.6	D
SB					T	0.25	21.1	C					T	0.24	21.0	C					T	0.37	19.3	B
					Int.		39.0	D					Int.		30.9	C					Int.		51.4	D
Mid-block @ West 132nd Street																								
EB					T	0.63	22.3	C					T	0.41	18.1	B					T	0.59	21.0	C
					Int.		22.3	C					Int.		18.1	B					Int.		21.0	C
Mid-block @ West 131st Street																								
WB					T	0.22	15.9	B					T	0.17	15.3	B					T	0.24	16.1	B
					Int.		15.9	B					Int.		15.3	B					Int.		16.1	B
Mid-block @ West 130th Street																								
EB					T	0.63	21.9	C					T	0.28	16.4	B					T	0.29	16.5	B
					Int.		21.9	C					Int.		16.4	B					Int.		16.5	B
Broadway @ West 138th Street																								
WB	LTR	0.19	24.5	C	LTR	0.19	24.5	C	LTR	0.12	23.5	C	LTR	0.12	23.5	C	LTR	0.16	24.1	C	LTR	0.19	24.6	C
NB	LT	0.37	6.3	A	LT	0.39	6.5	A	LT	0.36	6.3	A	LT	0.42	6.7	A	LT	0.44	6.9	A	LT	0.46	7.0	A
	R	0.03	4.7	A	R	0.03	4.7	A	R	0.02	4.7	A	R	0.02	4.7	A	R	0.03	4.8	A	R	0.04	4.8	A
SB	LTR	0.63	9.0	A	LTR	0.70	10.4	B	LTR	0.48	7.2	A	LTR	0.56	8.1	A	LTR	0.45	7.0	A	LTR	0.52	7.7	A
	Int.		8.5	A	Int.		9.3	A	Int.		7.3	A	Int.		7.9	A	Int.		7.4	A	Int.		7.9	A
Broadway Northbound @ West 135th Street																								
EB	LT	0.39	26.2	C	LT	0.44	27.0	C	LT	0.29	25.1	C	LT	0.34	25.7	C	DefL	1.04	108.8	F	DefL	1.05	111.7	F
																	T	0.44	28.3	C	T	0.44	28.1	C
WB	TR	0.53	29.5	C	TR	0.59	30.7	C	TR	0.52	29.5	C	TR	0.57	30.6	C	TR	0.58	30.6	C	TR	0.62	31.7	C
NB	LTR	0.54	8.2	A	LTR	0.59	8.9	A	LTR	0.51	7.8	A	LTR	0.63	9.6	A	LTR	0.70	10.5	B	LTR	0.86	16.5	B
	Int.		17.1	B	Int.		18.3	B	Int.		15.9	B	Int.		17.1	B	Int.		27.2	C	Int.		29.4	C
Broadway Southbound @ West 135th Street																								
EB	TR	0.45	27.6	C	TR	0.48	28.3	C	TR	0.20	24.1	C	TR	0.22	24.4	C	TR	0.71	34.2	C	TR	0.59	30.3	C
WB	LT	0.36	25.9	C	DefL	0.50	34.6	C	LT	0.29	25.0	C	LT	0.43	27.2	C	LT	0.44	27.6	C	DefL	0.63	42.9	D
					T	0.28	25.3	C													T	0.44	28.3	C
SB	L	0.11	5.2	A	L	0.15	5.4	A	L	0.11	5.2	A	L	0.16	5.5	A	L	0.08	5.0	A	L	0.08	5.0	A
	TR	0.75	12.3	B	TR	0.72	11.3	B	TR	0.56	8.5	A	TR	0.56	8.5	A	TR	0.55	8.3	A	TR	0.59	8.8	A
	Int.		16.9	B	Int.		16.8	B	Int.		12.9	B	Int.		14.0	B	Int.		19.5	B	Int.		19.1	B
Broadway Northbound @ West 133rd Street																								
EB	LT	0.23	17.6	B					LT	0.27	18.2	B					LT	0.26	18.3	B				
WB	TR	0.53	24.9	C	TR	0.58	26.5	C	TR	0.49	23.9	C	TR	0.53	24.9	C	TR	0.93	50.9	D	TR	0.88	43.5	D
NB	LT	0.59	14.5	B	L	0.57	19.4	B	LT	0.47	12.5	B	L	0.43	13.1	B	LT	0.83	21.1	C	L	0.76	21.0	C
	R	0.12	9.8	A	TR	0.86	24.0	C	R	0.09	9.5	A	TR	0.65	15.5	B	R	0.06	9.1	A	TR	1.00	41.8	D
	Int.		17.3	B	Int.		23.4	C	Int.		16.3	B	Int.		16.9	B	Int.		29.6	C	Int.		37.5	D
Broadway Southbound @ West 133rd Street																								
EB	TR	0.13	18.1	B					TR	0.14	18.2	B					TR	0.10	17.8	B				
WB	LT	0.44	20.9	C	LT	0.34	8.4	A	LT	0.43	20.5	C	LT	0.25	7.8	A	LT	0.78	30.4	C	LT	0.43	6.8	A
SB	LTR	0.56	13.2	B	TR	0.91	39.2	D	LTR	0.41	11.6	B	TR	0.65	26.4	C	LTR	0.50	12.6	B	TR	0.89	41.9	D
	Int.		15.0	B	Int.		28.0	C	Int.		14.2	B	Int.		19.4	B	Int.		19.0	B	Int.		24.1	C

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service
+ Significant Adverse Traffic Impact
* indicates intersections which were unsignalized in the No Build condition and signalized in the Build condition

Table 17-34 (Continued)
Comparison of 2030 No Build and Build Conditions
Primary Study Area Signalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2030 No Build				2030 Build				2030 No Build				2030 Build				2030 No Build				2030 Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Broadway Northbound @ West 132nd Street																								
EB	L	0.41	20.7	C	L	0.44	19.8	B	L	0.24	17.8	B	L	0.30	15.6	B	L	0.33	19.0	B	L	0.49	20.5	C
NB	LT	0.43	12.0	B	T	0.47	12.2	B	LT	0.37	11.3	B	T	0.43	13.9	B	LT	0.61	14.3	B	T	0.66	14.8	B
	Int.		14.2	B	Int.		14.8	B	Int.		12.7	B	Int.		14.5	B	Int.		15.1	B	Int.		16.4	B
Broadway Southbound @ West 132nd Street																								
EB	TR	0.63	28.7	C	TR	0.58	24.6	C	TR	0.34	21.0	C	TR	0.32	18.1	B	TR	0.49	23.5	C	TR	0.65	26.0	C
					R	0.58	32.0	C					R	0.32	19.5	B					R	0.38	24.4	C
WB	LT	0.06	15.8	B					LT	0.04	15.6	B					LT	0.04	15.6	B				
SB	LTR	0.55	13.3	B	LT	0.62	14.7	B	LTR	0.44	12.0	B	LT	0.56	15.9	B	LTR	0.46	12.2	B	LT	0.51	12.9	B
	Int.		17.4	B	Int.		19.8	B	Int.		14.1	B	Int.		17.0	B	Int.		15.5	B	Int.		19.4	B
Broadway @ West 131st Street																								
EB	LTR	0.21	21.8	C					LTR	0.25	22.3	C					LTR	0.22	21.9	C				
WB	LT	0.13	20.8	C					LT	0.11	20.7	C					LT	0.17	21.6	C				
	R	0.04	19.8	B					R	0.02	19.6	B					R	0.04	19.8	B				
NB	LTR	0.40	9.0	A					LTR	0.32	8.3	A					LTR	0.51	10.0	B				
SB	LTR	0.54	10.3	B					LTR	0.40	9.0	A					LTR	0.45	9.4	A				
	Int.		10.9	B					Int.		10.3	B					Int.		11.0	B				
Broadway Northbound @ West 131st Street																								
EB					T	0.17	21.4	C					T	0.05	19.9	B					T	0.09	20.3	C
WB					TR	0.11	20.4	C					TR	0.11	20.4	C					TR	0.21	21.5	C
NB					LTR	0.62	11.4	B					LTR	0.51	10.0	B					LTR	0.76	14.1	B
					Int.		12.8	B					Int.		11.1	B					Int.		15.1	B
Broadway Southbound @ West 131st Street																								
WB					LT	0.19	21.2	C					LT	0.22	21.7	C					LT	0.31	22.5	C
SB					LTR	0.79	16.3	B					LTR	0.59	11.3	B					LTR	0.65	12.3	B
					Int.		17.0	B					Int.		13.0	B					Int.		14.8	B
Broadway @ West 130th Street																								
EB	LR	0.27	26.0	C	L	0.25	24.6	C	LR	0.20	24.6	C	L	0.23	24.3	C	LR	0.34	27.0	C	L	0.48	25.8	C
					R	0.45	30.3	C					R	0.47	30.8	C					R	0.79	42.9	D
NB	LT	0.28	5.8	A	T	0.42	6.7	A	LT	0.23	5.5	A	T	0.34	6.1	A	LT	0.35	6.2	A	T	0.48	9.0	A
SB	LT	0.40	6.5	A	LT	0.56	8.2	A	LT	0.31	6.0	A	LT	0.46	7.2	A	LT	0.35	6.2	A	LT	0.60	10.7	B
	Int.		7.4	A	Int.		10.4	B	Int.		6.9	A	Int.		10.6	B	Int.		7.7	A	Int.		15.9	B
Broadway @ West 129th Street																								
WB	LT	0.45	19.5	B	LT	0.49	20.6	C	LT	0.44	19.2	B	LT	0.45	19.6	B	LT	0.59	22.2	C	LT	0.67	26.9	C
	R	0.22	16.4	B	R	0.27	17.4	B	R	0.19	16.1	B	R	0.25	17.1	B	R	0.27	17.1	B	R	0.40	22.1	C
NB	DefL	0.70	43.5	D	LT	0.68	23.0	C	LT	0.41	18.0	B	LT	0.56	20.4	C	LT	0.74	25.3	C	LT	0.90	33.6	C
	T	0.50	19.7	B																				
SB	TR	0.64	18.5	B	TR	0.97	40.7	D	TR	0.47	18.6	B	TR	0.81	28.3	C	TR	0.52	19.3	B	TR	0.98	44.2	D
	Int.		20.1	C	Int.		30.6	C	Int.		18.4	B	Int.		23.7	C	Int.		22.0	C	Int.		36.6	D
Broadway @ West 125th Street																								
EB	L	1.76	415.5	F	L	1.46	286.4	F	L	0.64	43.8	D	L	0.43	26.2	C	L	0.41	31.2	C	L	0.53	44.5	D
	TR	0.89	42.5	D	T	0.51	26.1	C	TR	1.04	73.3	E	T	0.44	21.6	C	TR	1.16	112.9	F	T	0.71	32.5	C
					R	0.73	26.3	C					R	0.75	23.4	C					R	1.08	93.1	F
WB	L	1.35	235.1	F	L	1.04	115.2	F	L	1.02	136.4	F	L	0.49	30.4	C	L	1.13	167.5	F	L	0.95	109.4	F
	TR	1.05	74.0	E	T	0.84	36.5	D	TR	0.78	33.5	C	T	0.47	22.1	C	T	0.65	27.4	C	T	0.75	34.1	C
					R	0.83	32.4	C					R	0.59	16.7	B	R	0.60	32.7	C	R	0.74	27.8	C
NB	L	0.50	33.5	C	L	0.56	38.2	D	L	0.43	32.3	C	L	0.53	39.7	D	L	0.64	38.4	D	L	0.67	41.4	D
	LT	0.52	32.2	C	T	0.37	24.8	C	LT	0.51	32.2	C	T	0.44	28.1	C	LT	0.97	62.1	E	T	0.66	28.3	C
	R	0.67	47.7	D	R	0.71	46.6	D	R	0.73	54.4	D	R	0.74	52.6	D	R	0.67	47.2	D	R	0.66	39.8	D
SB	L	0.40	31.1	C	L	0.57	38.3	D	L	0.37	30.7	C	L	0.68	44.1	D	L	0.39	31.5	C	L	0.76	43.8	D
	LTR	1.11	101.4	F	T	0.77	33.1	C	LTR	0.85	44.9	D	T	0.64	31.8	C	LTR	0.97	62.6	E	T	0.54	25.5	C
					R	0.18	24.7	C					R	0.33	30.3	C					R	0.46	29.9	C
	Int.		85.1	F	Int.		44.8	D	Int.		50.3	D	Int.		28.7	C	Int.		65.5	E	Int.		39.9	D
Amsterdam Avenue @ West 135th Street																								
EB	LT	0.44	28.8	C	LT	0.55	32.1	C	LT	0.25	25.5	C	LT	0.35	27.6	C	LT	0.65	39.0	D	LT	1.12	122.9	F+
	R	0.41	30.6	C	R	0.58	37.1	D	R	0.25	26.2	C	R	0.49	32.3	C	R	0.28	26.9	C	R	0.46	31.4	C
WB	LTR	0.47	29.6	C	LTR	0.51	30.8	C	LTR	0.57	33.2	C	LTR	0.61	34.4	C	LTR	0.70	39.1	D	LTR	0.89	60.9	E+
NB	LTR	0.53	8.4	A	LTR	0.58	9.4	A	LTR	0.60	9.7	A	LTR	0.70	12.0	B	LTR	0.76	13.4	B	LTR	0.82	16.3	B
SB	LTR	0.62	9.6	A	LTR	0.72	11.6	B	LTR	0.53	8.4	A	LTR	0.59	9.2	A	LTR	0.61	9.5	A	LTR	0.67	10.6	B
	Int.		14.2	B	Int.		16.6	B	Int.		13.7	B	Int.		16.0	B	Int.		18.0	B	Int.		33.5	C

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service
+ Significant Adverse Traffic Impact
* indicates intersections which were unsignalized in the No Build condition and signalized in the Build condition

Table 17-34 (Continued)
Comparison of 2030 No Build and Build Conditions
Primary Study Area Signalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2030 No Build				2030 Build				2030 No Build				2030 Build				2030 No Build				2030 Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Amsterdam Avenue @ West 125th Street																								
EB																								
	TR	1.18	125.8	F	TR	1.33	188.6	F+	TR	1.19	130.8	F	TR	1.36	201.1	F+	TR	1.14	108.5	F	TR	1.44	235.8	F+
WB																								
	TR	1.21	139.4	F	TR	1.49	260.7	F+	TR	1.00	64.3	E	TR	1.15	113.3	F+	TR	1.02	66.3	E	TR	1.15	109.4	F+
NB	L	0.39	16.7	B	L	0.47	18.9	B	L	0.08	9.2	A	L	0.11	9.6	A	L	0.27	20.5	C	L	0.31	21.6	C
	TR	0.82	30.4	C	TR	0.82	30.3	C	TR	0.62	23.4	C	TR	0.62	23.3	C	TR	1.07	74.9	E	TR	1.07	76.9	E
SB	L	0.60	31.6	C	L	0.60	31.5	C	L	0.69	30.1	C	L	0.68	29.7	C	L	0.81	54.2	D	L	0.81	54.3	D
	TR	0.53	21.1	C	TR	0.53	21.3	C	TR	0.37	18.7	B	TR	0.37	18.8	B	TR	0.98	63.8	E	TR	0.99	67.1	E
	Int.		79.4	E	Int.		134.9	F	Int.		65.4	E	Int.		102.4	F	Int.		77.1	E	Int.		126.5	F

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection; V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service; **+** Significant Adverse Traffic Impact
* indicates intersections which were unsignalized in the No Build condition and signalized in the Build condition

Table 17-35
Comparison of 2030 No Build and Build Conditions
Primary Study Area Unsignalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2030 No Build				2030 Build				2030 No Build				2030 Build				2030 No Build				2030 Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Marginal Street @ West 133rd Street*																								
WB	L	0.22	10.8	B					L	0.17	10.3	B					L	0.21	10.6	B				
SB	T	1.20	122.4	F					T	1.02	60.0	F					T	1.22	125.9	F				
Marginal Street @ West 132nd Street*																								
WB	L	-	9.2	A					L	-	9.7	A					L	-	10.0	A				
SB	LT	-	96.1	F					LT	-	23.8	C					LT	-	96.5	F				
	T	-	8.3	A					T	-	8.4	A					T	-	10.5	B				
	Int.		79.5	F					Int.		19.8	C					Int.		70.2	F				
Marginal Street @ St. Clair Place*																								
SB	L	0.20	9.9	A					L	0.24	10.2	B					L	0.31	10.8	B				
	T	1.01	55.8	F					T	0.92	37.7	E					T	1.22	128.5	F				
Twelfth Avenue @ West 131st Street*																								
NB	LT	0.01	7.8	A					LT	0.03	7.5	A					LT	0.02	7.8	A				
SB	LT	0.18	11.8	B					LT	0.06	10.2	B					LT	0.07	12.1	B				
WB	LTR	0.44	40.8	E					LTR	0.30	28.2	D					LTR	0.94	105.9	F				
EB	LTR	0.03	20.3	C					LTR	0.22	15.5	C					LTR	0.05	19.9	C				
Twelfth Avenue @ West 125th Street Southbound Right Turn*																								
SB	R	0.07	11.9	B					R	0.06	10.9	B					R	0.08	11.7	B				
Twelfth Avenue @ St. Clair Place*																								
EB	T	-	10.4	B					T	-	10.9	B					T	-	11.9	B				
NB	R	-	16.8	C					R	-	16.9	C					R	-	14.4	B				
SB	L	-	9.2	A					L	-	9.0	A					L	-	9.0	A				
	Int.		15.3	C					Int.		15.3	C					Int.		13.5	B				
Riverside Drive @ St. Clair Place*																								
EB	LTR	0.14	7.8	A					LTR	0.14	7.8	A					LTR	0.19	8.0	A				
SB	LT	0.49	41.6	E					LT	0.45	39.4	E					LT	0.47	41.4	E				
	T	0.46	39.0	E					T	0.36	34.6	D					T	0.30	39.0	E				
Riverside Drive @ Tiemann Place																								
WB	L	-	8.4	A	L	-	8.6	A	L	-	8.2	A	L	-	8.3	A	L	-	8.4	A	L	-	8.6	A
NB	R	-	7.4	A	R	-	7.6	A	R	-	7.2	A	R	-	7.3	A	R	-	7.3	A	R	-	7.5	A
SB	L	-	10.4	B	L	-	10.5	B	L	-	9.8	A	L	-	9.8	A	L	-	10.4	B	L	-	10.6	B
	T	-	9.0	A	T	-	9.3	A	T	-	9.0	A	T	-	9.0	A	T	-	8.4	A	T	-	8.5	A
	Int.		9.3	A	Int.		9.4	A	Int.		9.0	A	Int.		8.9	A	Int.		9.1	A	Int.		9.2	A
West 125th Street @ West 129th Street/St. Clair Place**/																								
EB	L	0.10	401.7	F					L	0.03	117.5	F					L	---	---	F				
	R	0.75	26.7	D					R	0.69	23.5	C					R	0.96	74.8	F				
WB	L	0.29	208.0	F					L	0.13	96.9	F					L	14.0	12119	F				
	R	0.96	73.3	F					R	0.86	46.1	E					R	2.29	621.2	F				

Notes: L: Left Turn; T: Through; R: Right Turn; Int.: Intersection; V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service
+ Significant Adverse Traffic Impact; * indicates intersections which were unsignalized in the No Build condition and signalized in the Build condition
** The unsignalized intersection analysis procedure, which assumes random arrival, breaks down with high major or minor street volumes and reports exaggerated levels of stop delays. As such, its results are not necessarily indicative of actual conditions, where gaps created by adjacent signalized intersections often provide additional throughput capacity and result in lower stop delays.

Table 17-36
Comparison of 2030 No Build and Build Conditions
Secondary Study Area Signalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2030 No Build				2030 Build				2030 No Build				2030 Build				2030 No Build				2030 Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
Broadway @ West 110th Street																								
EB	LTR	0.44	25.4	C	LTR	0.44	25.4	C	LTR	0.21	21.9	C	LTR	0.21	21.9	C	LTR	0.28	22.0	C	LTR	0.28	22.0	C
WB	DefL	1.10	118.6	F	DefL	1.10	118.6	F	DefL	0.66	34.3	C	DefL	0.66	34.3	C	DefL	0.95	72.4	E	DefL	0.95	72.4	E
	TR	0.62	33.1	C	TR	0.62	33.1	C	TR	0.45	27.0	C	TR	0.45	27.0	C	TR	0.90	57.1	E	TR	0.90	57.1	E
NB	LTR	0.49	13.3	B	LTR	0.51	13.6	B	LTR	0.51	13.5	B	LTR	0.53	13.8	B	LTR	0.67	16.0	B	LTR	0.67	16.2	B
SB	LTR	0.79	23.4	C	LTR	0.81	24.1	C	LTR	0.56	14.0	B	LTR	0.58	14.3	B	LTR	0.65	19.4	B	LTR	0.67	19.7	B
	Int.		31.3	C	Int.		31.4	C	Int.		17.4	B	Int.		17.5	B	Int.		27.3	C	Int.		27.4	C
Broadway @ West 120th Street																								
EB	LTR	0.46	28.5	C	LTR	0.45	28.3	C	LTR	0.34	26.8	C	LTR	0.34	26.8	C	LTR	0.36	26.9	C	LTR	0.36	27.0	C
WB	LTR	1.36	220.2	F	LTR	1.33	209.4	F	LTR	0.93	70.4	E	LTR	0.93	70.4	E	LTR	1.06	104.1	F	LTR	1.06	102.9	F
NB	LTR	0.42	6.4	A	LTR	0.45	6.6	A	LTR	0.40	6.1	A	LTR	0.42	6.3	A	LTR	0.52	7.1	A	LTR	0.54	7.3	A
SB	LTR	0.65	8.6	A	LTR	0.67	9.0	A	LTR	0.48	6.8	A	LTR	0.51	7.0	A	LTR	0.52	7.3	A	LTR	0.55	7.6	A
	Int.		36.6	D	Int.		34.5	C	Int.		17.0	B	Int.		16.7	B	Int.		21.7	C	Int.		21.4	C
Amsterdam Avenue @ West 120th Street																								
EB	L	0.48	41.0	D	L	0.52	44.4	D	L	0.54	43.7	D	L	0.54	43.7	D	L	0.61	48.5	D	L	0.61	48.5	D
	TR	1.06	103.8	F	TR	0.96	75.5	E	TR	0.75	53.0	D	TR	0.75	53.0	D	TR	0.84	60.9	E	TR	0.84	60.3	E
WB	L	0.11	30.3	C	L	0.11	30.3	C	L	0.03	27.8	C	L	0.03	27.8	C	L	0.01	27.4	C	L	0.01	27.4	C
	TR	0.33	32.8	C	TR	0.33	32.8	C	TR	0.21	30.5	C	TR	0.21	30.5	C	TR	0.34	33.0	C	TR	0.34	33.0	C
NB	LTR	0.68	6.8	A	LTR	0.69	7.0	A	LTR	0.63	5.8	A	LTR	0.64	6.0	A	LTR	0.93	19.6	B	LTR	0.94	20.7	C
SB	LTR	0.62	5.8	A	LTR	0.64	6.0	A	LTR	0.36	3.3	A	LTR	0.37	3.4	A	LTR	0.39	3.5	A	LTR	0.39	3.5	A
	Int.		24.3	C	Int.		19.9	B	Int.		13.3	B	Int.		13.2	B	Int.		21.9	C	Int.		22.3	C
Frederick Douglass Boulevard @ West 125th Street																								
EB	TR	0.58	21.0	C	TR	0.62	21.8	C	TR	0.65	17.1	B	TR	0.71	18.7	B	TR	0.80	28.4	C	TR	0.96	44.4	D
WB	TR	0.77	26.4	C	TR	0.90	34.6	C	TR	0.61	16.3	B	TR	0.67	17.7	B	TR	0.86	32.7	C	TR	0.92	37.7	D
NB	LT	0.28	16.5	B	LT	0.28	16.5	B	LT	0.50	25.4	C	LT	0.50	25.4	C	LTR	0.86	28.8	C	LTR	0.86	28.8	C
	R	0.30	17.7	B	R	0.30	17.7	B	R	0.65	38.1	D	R	0.65	38.1	D								
SB	LT	0.64	19.0	B	LT	0.64	19.0	B	LT	0.57	27.2	C	LT	0.57	27.2	C	LT	0.53	19.9	B	LT	0.53	19.9	B
	R	0.26	14.5	B	R	0.26	14.5	B	R	0.44	28.6	C	R	0.44	28.6	C	R	0.37	19.8	B	R	0.37	19.8	B
	Int.		21.0	C	Int.		24.2	C	Int.		21.6	C	Int.		22.2	C	Int.		27.6	C	Int.		33.7	C
Madison Avenue @ East 125th Street																								
EB	T	0.87	32.7	C	T	0.91	37.2	D	T	0.85	31.1	C	T	0.92	37.7	D	T	1.02	56.6	E	T	1.18	114.1	F+
WB	TR	0.85	32.0	C	TR	0.97	47.8	D+	TR	0.66	23.3	C	TR	0.74	25.5	C	TR	0.75	26.0	C	TR	0.81	28.7	C
NB	LTR	0.68	19.0	B	LTR	0.69	19.3	B	LTR	0.56	17.0	B	LTR	0.56	17.1	B	LTR	0.86	24.7	C	LTR	0.86	24.9	C
	Int.		27.1	C	Int.		33.8	C	Int.		23.7	C	Int.		26.9	C	Int.		35.5	D	Int.		57.7	E
Second Avenue @ East 125th Street																								
EB	T	1.55	290.0	F	T	1.59	310.7	F+	T	1.41	228.1	F	T	1.48	258.0	F+	T	1.30	175.0	F	T	1.45	242.4	F+
	R	0.39	36.4	D	R	0.49	40.2	D	R	0.56	39.3	D	R	0.67	45.1	D+	R	0.31	29.6	C	R	0.45	32.8	C
WB	DefL	1.21	158.7	F	DefL	1.21	158.7	F	LT	0.87	59.0	E	LT	0.95	71.8	E+	LT	0.86	53.4	D	LT	0.92	62.1	E+
	T	1.44	251.3	F	T	1.62	329.3	F+																
SB	L	0.52	26.2	C	L	0.52	26.2	C	L	0.56	27.7	C	L	0.56	27.7	C	L	1.87	431.8	F	L	1.87	431.8	F
	TR	0.69	24.2	C	TR	0.69	24.2	C	TR	0.39	20.1	C	TR	0.39	20.1	C	TR	0.83	31.4	C	TR	0.83	31.4	C
SW	TR	1.18	129.1	F	TR	1.31	186.0	F+	TR	0.81	45.3	D	TR	0.88	50.6	D+	TR	1.07	90.8	F	TR	1.12	109.9	F+
	Int.		129.8	F	Int.		155.0	F	Int.		94.2	F	Int.		107.0	F	Int.		146.3	F	Int.		166.9	F
First Avenue @ East 125th Street																								
EB	L	1.20	133.8	F	L	1.20	133.8	F	L	0.87	43.7	D	L	0.87	43.7	D	L	1.13	106.7	F	L	1.23	145.4	F+
	LT	0.31	20.4	C	LT	0.32	20.6	C	LT	0.42	22.2	C	LT	0.44	22.6	C	LT	0.59	26.0	C	LT	0.66	28.2	C
NB	L	0.69	18.9	B	L	0.71	19.7	B	L	0.18	10.1	B	L	0.19	10.2	B	L	0.18	10.0	B	L	0.19	10.1	B
	T	0.39	11.2	B	T	0.39	11.2	B	T	0.55	12.8	B	T	0.55	12.8	B	T	0.70	14.8	B	T	0.70	14.8	B
	R	0.25	10.9	B	R	0.25	10.9	B	R	0.28	11.2	B	R	0.28	11.2	B	R	0.52	15.0	B	R	0.52	15.0	B
	Int.		44.3	D	Int.		44.2	D	Int.		19.5	B	Int.		19.6	B	Int.		33.1	C	Int.		42.2	D
Broadway @ West 145th Street																								
EB	LTR	0.25	25.6	C	LTR	0.25	25.6	C	LTR	0.29	26.2	C	LTR	0.29	26.2	C	LTR	0.28	26.0	C	LTR	0.28	26.0	C
WB	LTR	0.95	62.8	E	LTR	0.95	64.2	E	LTR	1.05	89.1	F	LTR	1.09	102.0	F+	LTR	1.00	71.7	E	LTR	1.03	79.1	E+
NB	LTR	0.62	21.5	C	LTR	0.66	22.4	C	LTR	0.75	24.7	C	LTR	0.80	27.0	C	LTR	0.91	33.5	C	LTR	0.93	37.0	D
SB	L	0.22	10.1	B	L	0.23	10.2	B	L	0.40	13.5	B	L	0.41	14.1	B	L	0.47	16.9	B	L	0.48	17.5	B
	TR	0.51	11.7	B	TR	0.55	12.2	B	TR	0.58	12.6	B	TR	0.62	13.4	B	TR	0.51	11.6	B	TR	0.53	11.8	B
	Int.		26.0	C	Int.		26.5	C	Int.		31.1	C	Int.		34.2	C	Int.		33.1	C	Int.		36.0	D

Notes: L: Left Turn; T: Through; R: Right Turn; DefL: Defacto Left Turn; Int.: Intersection
V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service
+ Significant Adverse Traffic Impact
* indicates intersections which were unsignalized in the No Build condition and signalized in the Build condition

Table 17-37
Comparison of 2030 No Build and Build Conditions
Secondary Study Area Unsignalized Intersection Level-of-Service Analysis

	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	2030 No Build				2030 Build				2030 No Build				2030 Build				2030 No Build				2030 Build			
Int.	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS	Ln Grp	V/C	Delay (spv)	LOS
First Avenue @ East 125th Street Southbound Right Turn																								
SB	R	0.40	13.6	B	R	0.45	14.5	B	R	0.19	10.0	B	R	0.21	10.2	B	R	0.22	10.3	B	R	0.24	10.4	B
Notes: R: Right Turn; V/C: Volume to Capacity; spv: Seconds per Vehicle; LOS: Level of Service																								

Amsterdam Avenue and 135th Street

During the PM peak hour, the eastbound left-through movement would deteriorate from LOS D to LOS F, with delay increasing from 39.0 to 122.9 seconds and v/c ratio increasing from 0.65 to 1.12. The westbound left-through-right movement would deteriorate from LOS D to LOS E, with delay increasing from 39.1 to 60.9 and v/c ratio increasing from 0.70 to 0.89.

SECONDARY STUDY AREA

Madison Avenue and East 125th Street

During the AM peak hour, the westbound approach would deteriorate from LOS C to beyond mid-LOS D, with delay increasing from 32.0 to 47.8 seconds and v/c ratio increasing from 0.85 to 0.97.

During the PM peak hour, the eastbound approach would deteriorate from LOS E to LOS F, with delay increasing 56.6 to 114.1 seconds and v/c ratio increasing from 1.02 to 1.18.

Second Avenue and East 125th Street

During the AM peak hour, the eastbound through movement would continue to operate at LOS F, with delay increasing from 290.0 to 310.7 seconds and v/c ratio increasing from 1.55 to 1.59. The westbound through movement would continue to operate at LOS F, with delay increasing from 251.3 to 329.3 and v/c ratio increasing from 1.44 to 1.62. The southwestbound through-right movement would continue to operate at LOS F, with delay increasing from 129.1 to 186.0 seconds and v/c ratio increasing from 1.18 to 1.31.

During the midday peak hour, the eastbound through movement would continue to operate at LOS F, with delay increasing from 228.1 to 258.0 seconds and v/c ratio increasing from 1.41 to 1.48, and the eastbound right-turn movement would deteriorate beyond mid-LOS D, with delay increasing from 39.3 to 45.1 and v/c ratio increasing from 0.56 to 0.67. The westbound approach would continue to operate at LOS E, with delay increasing from 59.0 to 71.8 and v/c ratio increasing from 0.87 to 0.95. The southwestbound through-right movement would continue to operate at LOS D, with delay increasing from 45.3 to 50.6 seconds and v/c ratio increasing from 0.81 to 0.88.

During the PM peak hour, the eastbound through movement would continue to operate at LOS F, with delay increasing from 175.0 to 242.4 seconds and v/c ratio increasing from 1.30 to 1.45. The westbound approach would deteriorate from LOS D to LOS E, with delay increasing from 53.4 to 62.1 and v/c ratio increasing from 0.86 to 0.92. The southwestbound through-right movement would continue to operate at LOS F, with delay increasing from 90.8 to 109.9 seconds and v/c ratio increasing from 1.07 to 1.12.

Broadway and West 145th Street

During the midday peak hour, the westbound approach would continue to operate at LOS F, with delay increasing from 89.1 to 102.0 seconds and v/c ratio increasing from 1.05 to 1.09.

During the PM peak hour, the westbound approach would continue to operate at LOS E, with delay increasing from 71.7 to 79.1 seconds and v/c ratio increasing from 1.00 to 1.03.

First Avenue and East 125th Street

During the PM peak hour, the eastbound left-turn movement would continue to operate at LOS F, with delay increasing from 106.7 to 145.4 seconds and v/c ratio increasing from 1.13 to 1.23.

SIGNIFICANT IMPACTS

Within the primary study area, the Proposed Actions would result in significant adverse impacts on the follow intersections:

AM Peak Hour

- Amsterdam Avenue and West 125th Street

Midday Peak Hour

- Amsterdam Avenue and West 125th Street

PM Peak Hour

- Riverside Drive and West 135th Street
- Amsterdam Avenue and West 135th Street
- Amsterdam Avenue and West 125th Street

Within the secondary study area, the Proposed Actions would result in significant adverse impacts on the following intersections:

AM Peak Hour

- Madison Avenue and East 125th Street
- Second Avenue and East 125th Street

Midday Peak Hour

- Second Avenue and East 125th Street
- Broadway and West 145th Street

PM Peak Hour

- Broadway and West 145th Street
- Madison Avenue and East 125th Street
- Second Avenue and East 125th Street
- First Avenue and East 125th Street

As with the 2015 Build analysis, the projected traffic impacts were identified primarily at intersections along 125th Street. These intersections were identified to already operate at congested levels during peak hours in the future without the Proposed Actions. As mentioned earlier, NYCDCP and NYCDOT are currently conducting an areawide transportation study in

the effort to improve vehicular and pedestrian travel in the Harlem section of Manhattan. While this study, when completed, may recommend corridor-wide strategies in easing congestion along 125th Street, potential measures to mitigate the significant adverse impacts identified above are presented in Chapter 23.

BUILD WITHOUT PROJECT-RELATED ROADWAY IMPROVEMENTS

Similar to the 2015 Build condition, an analysis was performed for a Build scenario that does not include the project-related improvements. This analysis compared traffic impacts for 2030 Build conditions assuming the operations of the roadway network with the existing geometric configuration with traffic impacts for 2030 Build conditions assuming the roadway network incorporating improvements recommended as part of the Proposed Actions. The comparison demonstrated how the recommended improvements, including the conversion of two-way streets to one-way couples, would substantially improve overall network operations and circulation, and not yield significant adverse impacts at the Project Area intersections. Furthermore, the comparison analysis confirmed that these improvements are both logical and practical as part of the comprehensive, community-based planning approach of the design process. In the alternative analysis, West 133rd Street between Broadway and Twelfth Avenue, West 132nd Street between Broadway and Marginal Street, West 131st Street between Broadway and Twelfth Avenue, and West 125th Street between Twelfth Avenue and Marginal Street would continue to operate as two-way, east–west streets. All project-generated traffic was routed to conform to this existing street network. In addition, traffic generated by the Harlem Piers project was also routed to conform to the existing two-way street network. Significantly impacted intersections within the Project Area are indicated in Table 17-38.

Table 17-38
Significantly Impacted Intersections within the Project Area in 2030 Build Condition without Improvements

Project Area Intersections	Build without Improvements			Build with Improvements		
	AM Peak	MD Peak	PM Peak	AM Peak	MD Peak	PM Peak
Signalized Intersections						
Marginal Street @ West 125th Street						
Twelfth Avenue @ West 133rd Street	■	■	■			
Twelfth Avenue @ West 132nd Street	■					
Twelfth Avenue @ West 125th Street	■	■	■			
Broadway NB @ West 133rd Street			■			
Broadway SB @ West 133rd Street						
Broadway NB @West 132nd Street						
Broadway SB @ West 132nd Street						
Broadway @ West 131st Street						
Broadway @ West 130th Street			■			
Broadway @ West 129th Street						
Broadway @ West 125th Street	■	■	■			
Unsignalized Intersections						
Marginal Street @ West 133rd Street	■	■	■			
Marginal Street @ West 132nd Street	■	■	■			
Marginal Street @ St. Clair Place	■	■	■			
Twelfth Avenue @ West 131st Street	■	■	■			
Twelfth Avenue @ St. Clair Place	■					
Riverside Drive @ St. Clair Place	■	■	■			
West 125th St. @ West 129th St./St. Clair Pl.	■	■	■			

Notes: ■ Significantly Impacted Intersections

The detailed findings of this alternative analysis are presented in Appendix M. Since traffic volumes and operating characteristics at the analysis locations outside of the Project Area would be the same with or without the improvements, conditions at these locations have been previously discussed and are not summarized below or addressed in Appendix M.

PARKING SUPPLY AND UTILIZATION

COLUMBIA UNIVERSITY PARKING

Four below-grade parking facilities, two located east of Broadway between West 131st and West 134th Streets and two located west of Broadway between West 125th and West 133rd Streets, would be constructed to accommodate Columbia University parking demand. Up to approximately 2,300 total spaces, comprising a mix of self-park and valet spaces, would be provided within these parking facilities. A parking accumulation analysis was performed to ensure that the off-street parking supply provided as part of the Proposed Actions would be adequate to meet the projected demand. This analysis shows that the peak weekday parking demand of 1,997 spaces could be adequately accommodated by the above supply and there would also be an on-site surplus of approximately 300 spaces.

ON-STREET PARKING

Table 17-39 shows the expected on-street parking utilization in the 2030 Build condition. The 2030 Build analysis included additional demand for on-street parking from non-Columbia University project-generated vehicles (Subdistrict B and "Other Area"). Roadway modifications that would occur as part of the Proposed Actions would create additional on-street parking spaces on certain blocks and remove spaces from others, resulting in a net loss of 67 on-street parking spaces in the 2030 Build condition. The project-related modifications to on-street parking include:

- Addition of a parking lane on the south side of West 133rd Street between Broadway and Twelfth Avenue;
- Addition of a parking lane on the south side of West 132nd Street between Broadway and Twelfth Avenue;
- Addition of a parking lane on the north side of West 131st Street between Broadway and Twelfth Avenue;
- Removal of the parking lane on the north side of West 130th Street between Broadway and Twelfth Avenue;
- Removal of parking lanes on the north and south sides of West 129th Street between Broadway and West 125th Street;
- Removal of a parking lane on the west side of Broadway between West 129th Street and West 125th Street;
- Removal of a parking lane on the north side of West 125th Street between Old Broadway and Broadway;
- Removal of parking lanes on the east and west sides of Twelfth Avenue between West 125th Street and St. Clair Place; and

Table 17-39
2030 Build On-Street Parking Utilization Summary

2030 Build	AM	MD	PM
¼-Mile Radius			
Capacity	1847	1847	1847
Spaces Removed due to Geometric Modifications	67	67	67
Effective 2030 Build Capacity	**1780**	**1780**	**1780**
2030 No Build Demand	1586	1643	1595
Subdistrict B and "Other Area" Demand	136	201	142
2030 Build Demand	1722	1844	1737
Remaining Spaces	58	-64	43
Utilization	**97%**	**104%**	**98%**
% No Build Availability Utilized in Build Condition	78%	131%	83%
½-Mile Radius			
Capacity	4783	4783	4783
Spaces Removed due to Geometric Modifications	67	67	67
Effective 2030 Build Capacity	**4716**	**4716**	**4716**
2030 No Build Demand	3893	4207	4291
Subdistrict B and "Other Area" Demand	136	201	142
2030 Build Demand	4032	4418	4437
Remaining Spaces	684	298	280
Utilization	**86%**	**94%**	**94%**
% No Build Availability Utilized in Build Condition	23%	47%	42%
Note: See Appendix H for detailed parking accumulation analysis.			

- Addition of a parking lane on Twelfth Avenue between West 133rd Street and West 132nd Street.

Within ¼ mile of the Project Area, on-street parking would be 97, 104, and 98 percent utilized during the morning, midday, and evening periods, respectively, in the 2030 Build condition (compared with 86, 89, and 86 percent utilization for the same time periods under the 2030 No Build condition). Spaces available in the 2030 No Build condition would be 78, 131, and 83 percent utilized in the 2030 Build condition during the morning, midday, and evening periods, respectively. Since these utilization levels exceed 50 percent, a larger ½-mile on-street area was evaluated. Overall, within ½ mile, on-street parking would be 86, 94, and 94 percent utilized during the morning, midday, and evening periods, respectively, in the 2030 Build condition (compared with 81, 88, and 90 percent utilization for the same time periods under the 2030 No Build condition). Spaces available in the 2030 No Build condition would be 23, 46, and 42 percent utilized in the 2030 Build condition during the morning, midday, and evening periods, respectively. Since less than half of the on-street parking capacity available in the 2030 No Build condition would be utilized in the Build condition, no significant adverse impacts to on-street parking conditions would occur.

OFF-STREET PARKING

As with the 2015 parking analysis, a credit of 16 percent was applied to parking facilities within the Project Area to account for the displacement of existing generators in the Project Area or the relocation of existing parking demand to other areas. In addition, the replacement of No Build projects with components of the Proposed Actions and the reassignment of parking demand from No Build Columbia University projects within the Project Area to the on-site below-grade parking facilities would result in the parking demand reduction of 259 spaces in the morning

peak period, 381 spaces in the midday peak period, and 186 spaces in the evening peak period at area off-street parking facilities.

Five parking facilities, as shown in Table 17-40, would be displaced by the proposed development in the 2030 Build condition. The remaining two public parking facilities located within ¼ mile of the Project Area would be 188, 172, and 189 percent utilized, with expected shortfalls of 572, 470, and 578 spaces during the morning, midday, and evening periods, respectively. The four public parking facilities that would remain within ½ mile would be 155, 150, and 145 percent utilized, with expected shortfalls of 564, 519, and 469 spaces during the morning, midday, and evening periods, respectively. Overall, within one mile, the remaining 21 public parking facilities would be 115, 112, and 89 percent utilized during the morning, midday, and evening periods, respectively. The resulting parking shortfalls would be 421 spaces during the morning and 339 spaces during the midday.

A portion of the above off-street parking shortfalls is attributable to the parking demand generated by existing Columbia personnel. Based on information provided by Columbia University, two of the six parking facilities (numbers 1 and 3) that are expected to be displaced by the proposed development currently accommodate monthly parking for approximately 160 vehicles belonging to Columbia University affiliates. With these spaces no longer available as a result of the Proposed Actions, Columbia University would seek other off-street facilities to replenish the lost supply. This relocation of existing parking locations by Columbia University affiliates was included in the above parking analysis results. In addition to these 160 spaces, another 140 vehicles belonging to Columbia University affiliates are currently accommodated on a monthly basis at a parking garage (number 24) a few blocks south of the Project Area. In total, there are approximately 300 off-street parking spaces near or within the Project Area that are currently secured with leases by Columbia University for some of its students and employees. As discussed above, upon completion of the below-grade parking facilities at Manhattanville, there would be a surplus of approximately 500 parking spaces, which allows Columbia University to relinquish its leases for these 300 off-site spaces and to instead accommodate this demand within the Manhattanville campus. Therefore, while there would still be an off-street parking shortfall resulting from the Proposed Actions, this shortfall would be just over 120 spaces during the morning period and less than 50 spaces during the midday period. It is possible that, as future parking demand increases, market forces could result in the construction of new pubic parking facilities in the area. However, since there is no certainty in these facilities being constructed, in accordance with guidance of the *CEQR Technical Manual*, the projected parking shortfall, while relatively small compared with the total supply in the area, would constitute a significant adverse parking impact. Potential measures to mitigate this impact are discussed in Chapter 23, "Mitigation."

Table 17-40
2030 Build Off-Street Parking Utilization Summary

2030 Build	AM	MD	PM
¼-Mile Radius			
2030 No Build Capacity	1330	1330	1330
Displaced Garages	679	679	679
MTP 3300 Broadway Corp.	*200*	*200*	*200*
West 129th Street LLC	*134*	*134*	*134*
Uni Facility Corp.	*100*	*100*	*100*
Y&H Enterprises Inc.	*175*	*175*	*175*
Columbia Waterfront LLC	*70*	*70*	*70*
Effective 2030 Build Capacity	**651**	**651**	**651**
2030 No Build Demand	1592	1612	1525
Parking Demand Shifted to Columbia Garages	134	266	158
New Columbia Academic Building	*48*	*118*	*69*
New Columbia Administrative Building (Studebaker)	*86*	*148*	*89*
Credit for Removal and Reduction of Projects in Build	125	115	28
New Columbia Office Building (No. 23)	*77*	*70*	*17*
New Columbia Office Building (No. 24)	*48*	*45*	*11*
16% Credit for Displaced Parking Demand*	110	110	110
Total 2030 Build Demand	1223	1121	1229
Remaining Spaces	-572	-470	-578
Utilization	**188%**	**172%**	**189%**
Added Supply from Columbia On-Site Parking	300	300	300
Remaining Spaces	-272	-170	-278
Effective Utilization	**142%**	**126%**	**143%**
½-Mile Radius			
2030 No Build Capacity	1710	1710	1710
Displaced Garages	679	679	679
Effective 2030 Build Capacity	**1031**	**1031**	**1031**
2030 No Build Demand	1964	2041	1796
Parking Demand Shifted to Columbia Garages	134	266	158
Credit for Removal and Reduction of Projects in Build	125	115	28
16% Credit for Displaced Parking Demand*	110	110	110
Total 2030 Build Demand	1595	1550	1500
Remaining Spaces	-564	-519	-469
Utilization	**155%**	**150%**	**145%**
Added Supply from Columbia On-Site Parking	300	300	300
Remaining Spaces	-264	-219	-169
Effective Utilization	**126%**	**121%**	**116%**
1-Mile Radius			
2030 No Build Capacity	3576	3576	3576
Displaced Garages	679	679	679
Effective 2030 Build Capacity	**2897**	**2897**	**2897**
2030 No Build Demand	3687	3727	2877
Parking Demand Shifted to Columbia Garages	134	266	158
Credit for Removal and Reduction of Projects in Build	125	115	28
16% Credit for Displaced Parking Demand*	110	110	110
Total 2030 Build Demand	3318	3236	2581
Remaining Spaces	-421	-339	316
Utilization	**115%**	**112%**	**89%**
Added Supply from Columbia On-Site Parking	300	300	300
Remaining Spaces	-121	-39	616
Effective Utilization	**104%**	**101%**	**79%**

Note: Credit accounts for 16% of the existing demand at the five displaced parking garages grown to 2030 levels. See Appendix H for detailed parking accumulation analysis.

H. TRAFFIC SAFETY

According to the *CEQR Technical Manual*, locations within close proximity to sensitive land uses, such as hospitals, schools, parks, nursing homes, or elderly housing, which could be affected by traffic volumes generated by the Proposed Actions, require a detailed analysis of safety impacts. Roadways with high accident rates or a design that makes it difficult for pedestrians to traverse safely also require analysis. The *CEQR Technical Manual* (page 3O-4) considers an intersection to be a high-accident location if there are five or more pedestrian/bicycle accidents in any year in the most recent three-year period for which data is available.

Accident records for intersections within the study area were obtained from the NYCDOT for the three-year period from January 1, 2001 to December 31, 2003 (see Tables 17-41 through 17-43). Table 17-44 summarizes the data to present pedestrian and bicycle accidents for the three-year period. A review of these records revealed that there were four pedestrian and one bicycle related accidents at the intersection of Amsterdam Avenue and West 125th Street in 2003. As described for the 2030 No Build conditions and part of the mitigation measures proposed for the 125th Street Corridor Rezoning and Related Actions DEIS, eastbound and westbound left-turn movements would be prohibited at this intersection. Furthermore, as discussed in Chapter 23, "Mitigation," measures to mitigate significant adverse traffic impacts at this intersection were also proposed. Collectively, these measures are expected to improve traffic flow and reduce vehicular-pedestrian conflicts at this intersection. No other locations within the primary study area would be considered high accident locations based on the definition in the *CEQR Technical Manual*. Therefore, it is unlikely that project-generated volumes would result in significant safety impacts. The potential implementation of traffic calming measures at locations with low accident rates would further reduce the likelihood of pedestrian and vehicular conflicts.

Table 17-41
2001 Study Area Intersection Accident Data

YEAR	NODE#	MAIN ST	CROSS ST	TOTAL	RPT	NON-RPT	FATAL	INJURY	PEDESTRIAN	BICYCLIST	FIXED OBJ.	WET RD	NIGHT ACC	LEFT TURN	REAR END	OVER TAKIN	RIGHT ANGLE	RIGHT TURN	HEAD ON	SIDESWIPE	OTHER	TP K	TP A	TP B	TP C	TP NR
2001	1070	Riverside Dr	W 135th St	**5**	3	2	0	4	1	0	0	1	1	0	0	0	0	1	0	0	2			3	6	
2001	1072	12th Ave	W 133rd St	**8**	2	6	0	5	0	0	0	1	0	0	0	1	0	0	0	0	1			2	3	
2001	1073	12th Ave	W 132nd St	**11**	5	6	0	6	0	0	1	0	2	1	2	0	1	0	0	0	1		1		5	
2001	1074	12th Ave	W 131st St	**7**	4	3	0	1	0	0	0	0	1	2	0	1	0	0	0	0	1				1	
2001	1075	12th Ave	W 125th St	**13**	3	10	0	1	0	0	0	0	0	0	0	0	1	1	0	0	1				1	
2001	1076	12th Ave	St. Clair Pl	**6**	2	4	0	2	0	1	0	0	0	0	0	0	0	0	0	0	1			1	1	
2001	1084	Broadway NB	W 129th St	**13**	3	10	0	3	1	0	0	1	1	1	0	0	1	0	0	0	1				3	
2001	1085	Broadway NB	W 131st St	**5**	4	1	0	5	0	0	0	0	1	0	0	1	3	0	0	0	0				5	
2001	1086	Broadway NB	W 133rd St	**7**	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
2001	1088	Broadway NB	W 135th St	**11**	7	4	0	9	2	0	0	3	4	0	2	0	2	0	0	0	3					
2001	1091	Broadway NB	W 138th St	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			1	3	
2001	1098	Broadway NB	W 145th St	**23**	11	11	0	13	1	0	0	3	7	0	4	1	3	0	0	0	2				13	
2001	1147	Broadway SB	W 129th St	**4**	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
2001	1148	Broadway SB	W 125th St	**19**	8	11	0	9	0	0	0	1	2	0	1	3	0	0	0	0	2				9	
2001	1149	Broadway NB	W 125th St	**22**	10	12	0	11	2	0	0	3	3	1	4	1	0	2	0	0	2		1	2	8	
2001	1150	Broadway SB	W 130th St	**4**	2	2	0	4	0	0	0	1	1	0	0	0	1	0	0	0	0				4	
2001	1151	Broadway SB	W 131st St	**3**	1	2	0	2	0	0	0	1	0	0	0	0	0	0	0	0	1		1		1	
2001	1152	Broadway SB	W 132nd St	**6**	2	4	1	0	0	1	0	0	2	0	0	1	0	0	0	0	1	1				
2001	1153	Broadway SB	W 133rd St	**3**	2	1	0	2	0	0	0	1	0	0	0	0	2	0	0	0	0		1		1	
2001	1154	Broadway SB	W 135th St	**6**	2	4	0	4	0	0	0	0	0	0	0	0	1	0	0	0	0					
2001	1158	Broadway SB	W 138th St	**7**	4	3	0	4	2	0	0	0	1	0	0	2	0	0	0	0	2				3	
2001	1165	Broadway SB	W 145th St	**5**	2	3	0	1	0	0	0	0	1	0	1	0	1	0	0	0	0				1	
2001	1187	Amsterdam Ave	W 125th St	**41**	17	24	0	18	4	0	0	3	6	3	1	2	1	1	1	0	7		1	2	15	
2001	1195	Amsterdam Ave	W 135th St	**6**	4	2	0	7	0	0	0	1	2	1	1	0	0	1	0	0	0				7	
2001	1418	St. Clair Pl	W 125th St	**7**	1	6	0	2	0	0	0	1	0	0	0	0	0	0	0	0	1				2	
2001	8968	1st Ave	E 125th St	**50**	18	32	0	20	1	1	0	5	7	1	4	0	6	1	0	1	3		1	1	18	
2001	9085	Broadway SB	W 120th St	**2**	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
2001	9093	Broadway SB	Cathedral Pk	**8**	3	5	0	3	1	0	0	2	0	0	1	0	0	0	0	0	1				3	
2001	9192	Broadway NB	Cathedral Pk	**7**	2	5	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0					
2001	9200	Broadway NB	W 120th St	**4**	2	2	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0					
2001	9205	Amsterdam Ave	W 120th St	**3**	1	2	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0				1	
2001	9943	E 125th St	Madison Ave	**21**	9	12	0	11	1	1	0	3	4	0	1	0	3	0	0	0	3		1		10	

Table 17-42
2002 Study Area Intersection Accident Data

YEAR	NODE#	MAIN ST	CROSS ST	TOTAL	RPT	NON-RPT	FATAL	INJURY	PEDESTRIAN	BICYCLIST	FIXED OBJ.	WET RD	NIGHT ACC	LEFT TURN	REAR END	OVER TAKIN	RIGHT ANGLE	RIGHT TURN	HEAD ON	SIDESWIPE	OTHER	TP K	TP A	TP B	TP C	TP NR
2002	1070	Riverside Dr	W 135th St	**4**	2	2	0	4	0	0	0	0	2	0	1	1	0	0	0	0	0				4	
2002	1072	12th Ave	W 133rd St	**1**	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
2002	1073	12th Ave	W 132nd St	**2**	1	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0				1	
2002	1074	12th Ave	W 131st St	**1**	1	0	0	2	0	0	0	0	1	1	0	0	0	0	0	0	0				2	
2002	1075	12th Ave	W 125th St	**8**	3	5	0	2	0	0	0	0	1	0	1	0	0	0	0	0	1		1	1		
2002	1076	12th Ave	St. Clair Pl	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
2002	1084	Broadway NB	W 129th St	**3**	2	1	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0				3	
2002	1085	Broadway NB	W 131st St	**2**	1	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0	1				1	
2002	1086	Broadway NB	W 133rd St	**5**	2	3	0	2	0	0	0	0	1	0	0	0	2	0	0	0	0				2	
2002	1088	Broadway NB	W 135th St	**6**	4	2	0	4	0	0	0	2	1	1	1	0	1	0	0	0	0					
2002	1091	Broadway NB	W 138th St	**2**	2	0	0	2	1	0	0	0	1	0	0	0	1	0	0	0	1					
2002	1098	Broadway NB	W 145th St	**4**	1	3	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0				1	
2002	1147	Broadway SB	W 129th St	**7**	1	6	0	1	1	0	0	0	1	0	0	0	0	0	0	0	1				1	
2002	1148	Broadway SB	W 125th St	**8**	5	3	0	8	0	0	0	2	1	0	1	1	1	0	0	0	2				8	
2002	1149	Broadway NB	W 125th St	**10**	8	2	0	5	3	0	0	2	2	0	1	1	0	0	0	0	4		1	1	3	
2002	1150	Broadway SB	W 130th St	**3**	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
2002	1151	Broadway SB	W 131st St	**1**	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
2002	1152	Broadway SB	W 132nd St	**6**	2	4	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0				1	
2002	1153	Broadway SB	W 133rd St	**4**	1	3	0	2	0	0	0	1	0	0	0	0	1	0	0	0	0				2	
2002	1154	Broadway SB	W 135th St	**3**	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
2002	1158	Broadway SB	W 138th St	**1**	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1				2	
2002	1165	Broadway SB	W 145th St	**2**	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
2002	1187	Amsterdam Ave	W 125th St	**15**	5	10	0	6	0	0	0	2	1	2	2	1	0	0	0	0	0				6	
2002	1195	Amsterdam Ave	W 135th St	**5**	2	3	0	2	1	0	0	0	2	0	1	0	0	0	0	0	1		1		1	
2002	1418	St. Clair Pl	W 125th St	**4**	2	2	0	2	0	0	0	0	1	0	2	0	0	0	0	0	0				2	
2002	8968	1st Ave	E 125th St	**19**	12	7	0	15	0	0	0	3	3	0	4	0	4	0	0	0	0		1	2	12	
2002	9085	Broadway SB	W 120th St	**7**	4	3	0	5	0	0	0	0	1	2	0	0	1	0	0	0	0			1	4	
2002	9093	Broadway SB	Cathedral Pk	**1**	1	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0				1	
2002	9192	Broadway NB	Cathedral Pk	**4**	2	2	0	2	1	0	0	0	0	0	1	0	0	0	0	0	1					
2002	9200	Broadway NB	W 120th St	**6**	1	5	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0					
2002	9205	Amsterdam Ave	W 120th St	**3**	2	1	0	2	0	1	0	1	1	0	1	0	0	0	0	0	1			1	1	
2002	9943	E 125th St	Madison Ave	**5**	5	0	0	6	1	0	0	2	2	0	0	0	2	0	0	0	2			2	4	

Table 17-43
2003 Study Area Intersection Accident Data

YEAR	NODE#	MAIN ST	CROSS ST	TOTAL	RPT	NON-RPT	FATAL	INJURY	PEDESTRIAN	BICYCLIST	FIXED OBJ.	WET RD	NIGHT ACC	LEFT TURN	REAR END	OVER TAKIN	RIGHT ANGLE	RIGHT TURN	HEAD ON	SIDESWIPE	OTHER	TP K	TP A	TP B	TP C	TP NR
2003	1070	Riverside Dr	W 135th St	**1**	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1				2	
2003	1072	12th Ave	W 133rd St	**2**	1	1	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0				1	
2003	1073	12th Ave	W 132nd St	**4**	4	0	0	3	0	0	0	0	1	1	0	0	1	0	0	0	0				3	
2003	1074	12th Ave	W 131st St	**2**	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0				2	
2003	1075	12th Ave	W 125th St	**3**	3	0	0	2	0	0	0	1	0	1	1	0	0	0	0	0	0		1		1	
2003	1076	12th Ave	St. Clair Pl	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
2003	1084	Broadway NB	W 129th St	**3**	3	0	0	7	0	0	0	0	1	0	0	0	3	0	0	0	0				7	
2003	1085	Broadway NB	W 131st St	**1**	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
2003	1086	Broadway NB	W 133rd St	**3**	3	0	0	2	1	0	0	0	0	0	0	0	1	0	0	0	1		1		1	
2003	1088	Broadway NB	W 135th St	**3**	2	1	0	2	0	0	0	0	1	0	0	0	2	0	0	0	0					
2003	1091	Broadway NB	W 138th St	**1**	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0		1		3	
2003	1098	Broadway NB	W 145th St	**5**	5	0	0	7	1	1	0	0	0	0	0	0	2	0	0	0	3		1		6	
2003	1147	Broadway SB	W 129th St	**1**	1	0	0	3	0	0	0	0	1	0	0	0	1	0	0	0	0		1	1	1	
2003	1148	Broadway SB	W 125th St	**11**	10	1	0	17	1	0	0	0	5	1	2	1	2	1	0	0	2			3	14	
2003	1149	Broadway NB	W 125th St	**4**	4	0	0	4	0	0	0	1	3	0	0	0	0	2	0	0	0			1	3	
2003	1150	Broadway SB	W 130th St	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
2003	1151	Broadway SB	W 131st St	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
2003	1152	Broadway SB	W 132nd St	**2**	2	0	0	4	0	0	0	0	0	0	0	0	1	0	0	1	0			2	2	
2003	1153	Broadway SB	W 133rd St	**2**	2	0	0	10	0	0	0	0	0	1	0	0	1	0	0	0	0				7	
2003	1154	Broadway SB	W 135th St	**2**	2	0	0	4	0	0	0	0	1	0	0	1	0	0	0	0	0					
2003	1158	Broadway SB	W 138th St	**1**	1	0	0	5	0	0	0	0	1	0	0	0	1	0	0	0	0			2	1	
2003	1165	Broadway SB	W 145th St	**3**	3	0	0	3	0	0	0	1	0	0	2	0	0	0	0	0	0				3	
2003	1187	Amsterdam Ave	W 125th St	**21**	21	0	0	27	4	1	0	3	6	3	3	1	5	1	0	0	7			2	25	
2003	1195	Amsterdam Ave	W 135th St	**7**	7	0	0	8	2	0	0	2	3	0	1	0	0	1	0	0	3		1		7	
2003	1418	St. Clair Pl	W 125th St	**2**	2	0	0	6	1	0	0	0	2	0	1	0	0	0	0	0	1			1	5	
2003	8968	1st Ave	E 125th St	**23**	23	0	2	42	0	1	0	7	11	0	2	0	17	0	0	0	3	3	2	5	34	
2003	9085	Broadway SB	W 120th St	**5**	3	2	0	6	0	0	0	1	0	1	0	0	1	0	0	0	0			1	5	
2003	9093	Broadway SB	Cathedral Pk	**2**	2	0	0	2	2	0	0	0	1	0	0	0	0	0	0	0	2				1	
2003	9192	Broadway NB	Cathedral Pk	**2**	1	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0				1	
2003	9200	Broadway NB	W 120th St	**2**	2	0	0	3	0	0	0	1	1	0	0	0	1	0	0	0	0					
2003	9205	Amsterdam Ave	W 120th St	**3**	3	0	0	2	1	1	0	2	2	0	1	0	0	0	0	0	2					
2003	9943	E 125th St	Madison Ave	**6**	6	0	0	7	1	1	0	1	2	0	2	0	2	0	0	0	2				7	

Table 17-44
Study Area Intersection Accident Data Summary

NODE#	MAIN ST	CROSS ST	2001			2002			2003		
			TOTAL	PEDESTRIAN	BICYCLIST	TOTAL	PEDESTRIAN	BICYCLIST	TOTAL	PEDESTRIAN	BICYCLIST
1070	Riverside Dr	W 135th St	**1**	1	0	**0**	0	0	**1**	0	1
1072	12th Ave	W 133rd St	**0**	0	0	**0**	0	0	**0**	0	0
1073	12th Ave	W 132nd St	**0**	0	0	**0**	0	0	**0**	0	0
1074	12th Ave	W 131st St	**0**	0	0	**0**	0	0	**0**	0	0
1075	12th Ave	W 125th St	**0**	0	0	**0**	0	0	**0**	0	0
1076	12th Ave	St. Clair Pl	**1**	0	1	**0**	0	0	**0**	0	0
1084	Broadway NB	W 129th St	**1**	1	0	**0**	0	0	**0**	0	0
1085	Broadway NB	W 131st St	**0**	0	0	**1**	0	1	**0**	0	0
1086	Broadway NB	W 133rd St	**0**	0	0	**0**	0	0	**1**	1	0
1088	Broadway NB	W 135th St	**2**	2	0	**0**	0	0	**0**	0	0
1091	Broadway NB	W 138th St	**0**	0	0	**1**	1	0	**0**	0	0
1098	Broadway NB	W 145th St	**1**	1	0	**0**	0	0	**2**	1	1
1147	Broadway SB	W 129th St	**0**	0	0	**1**	1	0	**0**	0	0
1148	Broadway SB	W 125th St	**0**	0	0	**0**	0	0	**1**	1	0
1149	Broadway NB	W 125th St	**2**	2	0	**3**	3	0	**0**	0	0
1150	Broadway SB	W 130th St	**0**	0	0	**0**	0	0	**0**	0	0
1151	Broadway SB	W 131st St	**0**	0	0	**0**	0	0	**0**	0	0
1152	Broadway SB	W 132nd St	**1**	0	1	**0**	0	0	**0**	0	0
1153	Broadway SB	W 133rd St	**0**	0	0	**0**	0	0	**0**	0	0
1154	Broadway SB	W 135th St	**0**	0	0	**0**	0	0	**0**	0	0
1158	Broadway SB	W 138th St	**2**	2	0	**1**	1	0	**0**	0	0
1165	Broadway SB	W 145th St	**0**	0	0	**0**	0	0	**0**	0	0
1187	Amsterdam Ave	W 125th St	**4**	4	0	**0**	0	0	**5**	4	1
1195	Amsterdam Ave	W 135th St	**0**	0	0	**1**	1	0	**2**	2	0
1418	St. Clair Pl	W 125th St	**0**	0	0	**0**	0	0	**1**	1	0
8968	1st Ave	E 125th St	**2**	1	1	**0**	0	0	**1**	0	1
9085	Broadway SB	W 120th St	**0**	0	0	**0**	0	0	**0**	0	0
9093	Broadway SB	Cathedral Pk	**1**	1	0	**0**	0	0	**2**	2	0
9192	Broadway NB	Cathedral Pk	**0**	0	0	**1**	1	0	**0**	0	0
9200	Broadway NB	W 120th St	**0**	0	0	**0**	0	0	**0**	0	0
9205	Amsterdam Ave	W 120th St	**0**	0	0	**1**	0	1	**2**	1	1
9943	E 125th St	Madison Ave	**2**	1	1	**1**	1	0	**2**	1	1

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