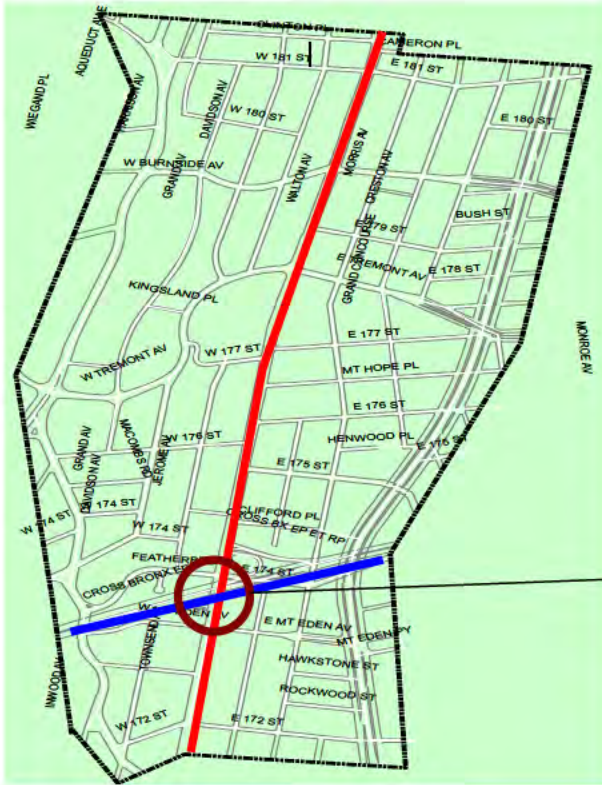


# Jerome Avenue Transportation Study



## EXISTING AND FUTURE CONDITIONS WITH RECOMMENDATIONS FINAL REPORT



Michael R. Bloomberg  
Mayor



Janette Sadik-Khan  
Commissioner



A Member of the New York  
Metropolitan Transportation Council

May 2013

**Jerome Avenue Transportation Study**  
**Existing and Future Conditions**  
**with Recommendations**  
**Final Report**  
**PTDT10D00.H08**

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# **EXECUTIVE SUMMARY**

## **1.0 Introduction**

The Jerome Avenue Transportation Study was initiated at the request of Bronx Community Boards 4 and 5 in response to growing traffic congestion in the area and to address mobility and safety for all street users (motorists, cyclists, pedestrian, and transit). The study area has a mix of land uses with residential, local retail and auto related uses attracting a significant amount of vehicular and pedestrian trips. The study area extends from 172<sup>nd</sup> Street in the south to 181<sup>st</sup> Street in the north and from Grand Concourse in the east to Martin Luther King Boulevard/University Avenue in the west. The study assess existing and future traffic conditions including demographics, zoning & land use, traffic, goods movement, pedestrians & bicycles, accidents & safety, parking and public transportation. The study recommends various improvement measures to address congestion and safety.

## **2.0 Demographic Analysis**

The study area overlaps Bronx Community Districts 4 and 5, and includes 11 census tracts. The demographic analysis of the study area examined population trends from 1990 to 2010 and projects trends for 2018. For 1990 to 2010, the population in the study area increased 10% from 36,765 to 41,067; number of households increased by 12% and household size decreased from 2.14 to 2.08 person/household; the median household income increased 49% from \$14,608 to \$28,800. In 1990, 73% of the study area population used public transit for journey to work, (55% subway, 14% buses and 4% railroad/ferry/taxi) and 22% used private automobiles, while 5.5% used other modes. In 2000, the share dropped to 66% (49% subway, 14% buses and 3% railroad/ferry/taxi). Private auto share was 23%, while 11% traveled by other modes.

## **3.0 Zoning and Land Use**

The study area is zoned mainly for residential and commercial uses, but it also has a special Grand Concourse Preservation District. There are three residential districts within the study area: R5, R7-1 and R8; three commercial zoning districts: C8-3, C1-4 and C2-4; and no designated manufacturing zoning districts. The study area contains various land uses

including single and two family houses, multi-family apartment buildings, educational institutions, auto-related uses, restaurants, local retail and community facilities. Many auto-related uses (repair shops) exist along Jerome Avenue and parts of Macombs Road/Inwood Avenue. There are limited vacant lots for future developments.

#### **4.0 Traffic**

To analyze the existing and future traffic conditions in the study area, basic roadway characteristics were surveyed and a traffic data collection plan (Automatic Traffic Recorders, manual turning movement counts, vehicle classifications and pedestrian counts) for the various peak periods was executed. The Grand Concourse, University Avenue/MLK Boulevard and Jerome Avenue near the Cross Bronx Expressway experience congestion during most peak periods. Levels of service (LOS) analyses were conducted at 32 intersections with most operating at LOS A, B, C, and up to mid-level D. However, some intersections along major corridors experienced LOS E or F on one or more lane groups during one or more peak periods. There is one “through truck” route (CBE) and three “local truck” routes in the study area

#### **5.0 Pedestrians and Bicycles**

Pedestrian and bicycle activities were examined in the study area. Pedestrian analysis focused on areas with high pedestrian concentrations (near subway, bus stations and transfer points, retail/commercial strips, schools, and high density residential developments). The pedestrian analysis, which focused on crosswalks and corners showed the majority of crosswalks and corners operated at an acceptable LOS C or better. There are two “bicycle lanes” and one “bicycle route” in the study area and two “bicycle routes” are proposed for East 181<sup>st</sup> Street/Grand Avenue and Tremont Avenue.

#### **6.0 Accidents/Safety**

The accident analysis conducted for the study area screened all intersections from 2008 to 2010. After reviewing all the intersections in the study area, detailed analysis was done for eight locations for the recent four years. From the analysis, only one intersection (Burnside Avenue/Jerome Avenue) qualified as a “High Accident Location” with seven pedestrian

accidents in 2008. Three locations had an average of ten accidents during the four year period: Jerome Avenue and Mt Eden Avenue, Jerome Avenue and Featherbed Lane, and Grand Concourse and East Tremont Avenue. During the four-year period 269 people were injured as a result of 206 accidents occurring at the eight locations. Forty four of the injuries involved pedestrians. The highest numbers of injuries (49) were recorded at East 174<sup>th</sup> Street and Jerome Avenue.

## **7.0 Parking**

A parking survey/inventory of on and off-street facilities was conducted during the AM, midday, and PM peak hours to determine existing parking capacity and utilization. There are 44 off-street parking facilities with a total of 2,021 spaces in the study area. On weekdays, utilization during the midday peak is about 75%. There are approximately 3,628 on-street parking spaces in the study area depending on parking regulations. On-street parking utilization was approximately 80% during the weekday. However, along the most congested commercial corridors (Jerome and Burnside Avenues), the parking demand is above 90%.

## **8.0 Public Transportation**

The study area is well served with public transportation by three subways and ten bus lines, with a transit hub at Macombs Road, East 175<sup>th</sup> Street, Jerome Avenue and Grand Concourse. Three subway lines (#4, D & B) use two routes (Jerome Avenue and Grand Concourse) serving five subway stations; and eight local and two express bus lines serve the entire study area. The bus routes operate on five major corridors: Macombs Road/University Avenue, Jerome Avenue, Burnside Avenue, Tremont Avenue and Grand Concourse.

## **9.0 Recommendations**

Seven intersections have been identified for roadway and pedestrian safety improvements that include sidewalk and median extensions and restriping, eleven intersections for signal timing modifications, six truck loading/unloading zones, bus stops relocation, and a one-way conversion.



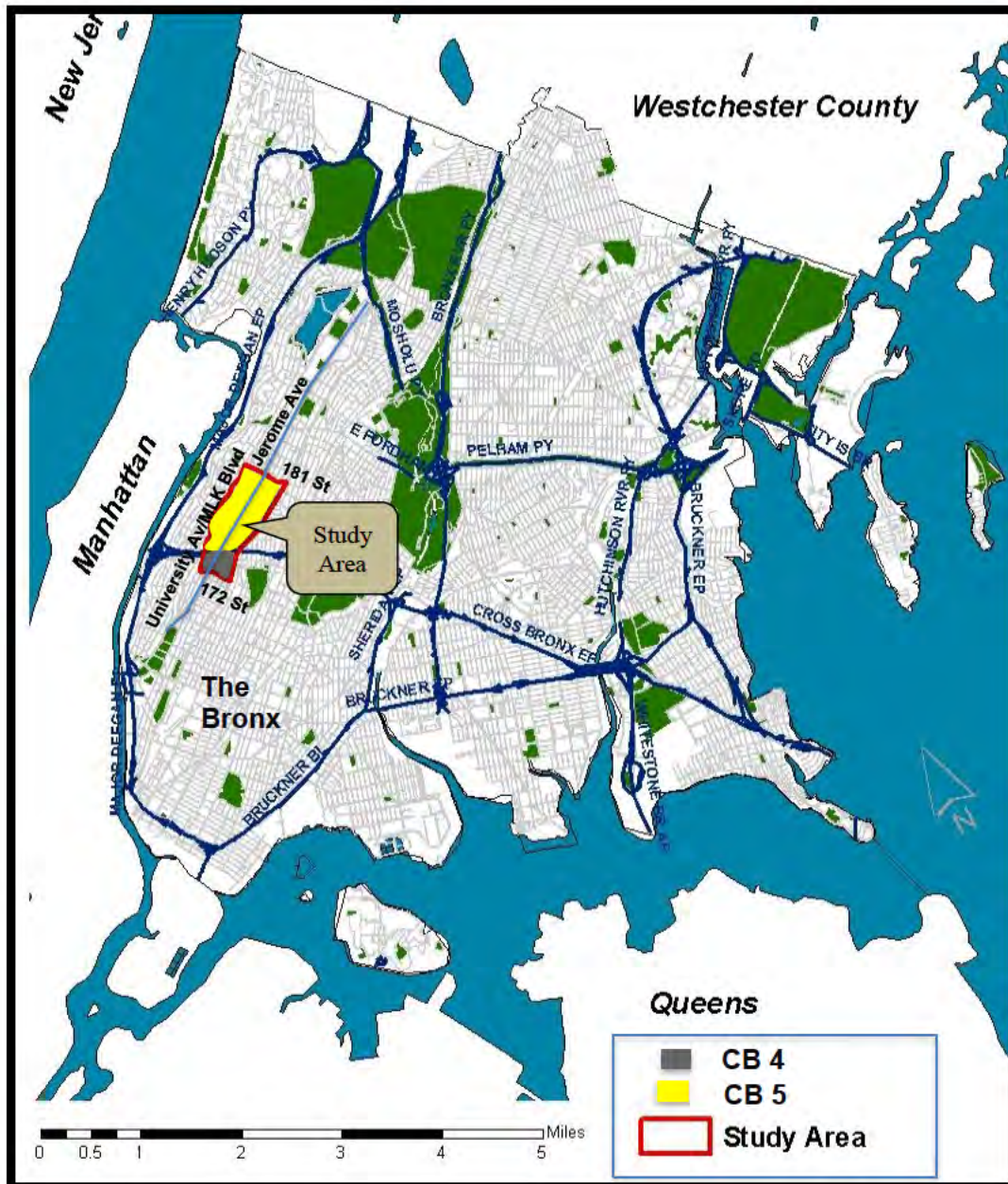
## **1.0 INTRODUCTION**

### **1.1. Background**

This study is being conducted in response to growing traffic congestion in the area and requests from the community to address traffic circulation and safety for all road users. The area has a mix of land uses with residential, local retail and auto related uses attracting a significant amount of vehicular and other trips. The study area which extends from 172<sup>nd</sup> Street in the south to 181<sup>st</sup> Street in the north and from Grand Concourse in the east to Martin Luther King Boulevard in the west is divided into four quadrants by two major arterials: the Cross Bronx Expressway (CBE) running east-west and Jerome Avenue, running north-south. The Cross Bronx Expressway connects to George Washington Bridge in the west providing access to New Jersey and to the Throgs Neck and Whitestone Bridges in the east accessing Queens. The below grade CBE divides the study area limiting access between the north and south halves of the study area. Community Boards 4 and 5 have expressed concern about congestion on Jerome Avenue and especially at the access ramps to the CBE. The problem was also identified in the Bronx Arterial Needs Major Investment Study (MIS) conducted by NYS DOT in 2004. Exhibit 1-1 shows the study area with Community Boards 4 and 5 in a regional setting.

The study seeks to identify traffic and transportation problems in the area and to develop recommendations to improve traffic circulation, enhance safety for all street users (vehicles, pedestrians, bicycles) as well as reduce congestion. It would also explore ways to connect the northern and southern parts of the study area.

**Exhibit 1-1**  
**Study Area in Regional Setting**



## **2 Study Area**

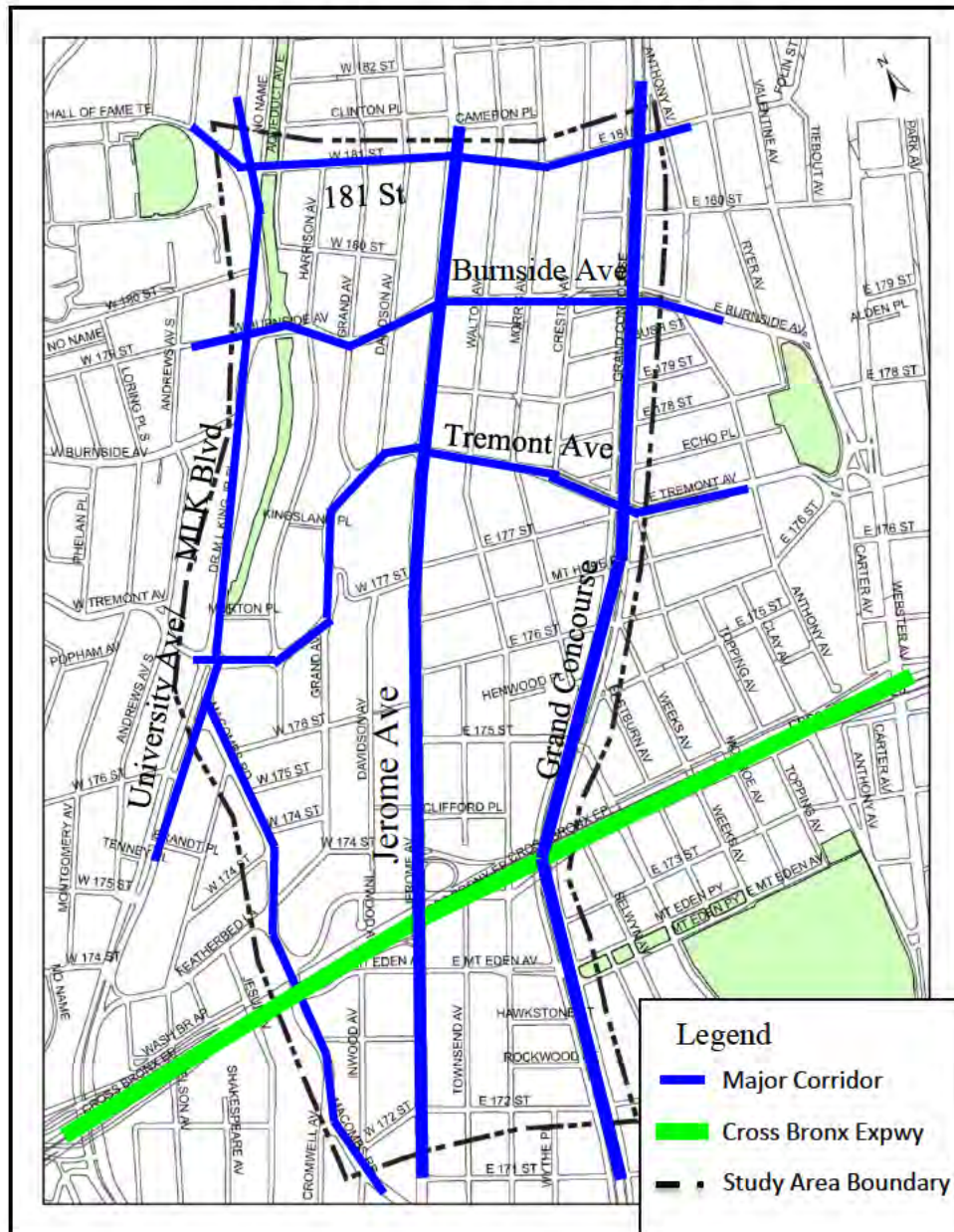
The study area is located in the western part of the Bronx, in the vicinity of the Major Deegan Expressway (I-87), Harlem River, and George Washington Bridge. It is bounded by 181st Street to the north, 172<sup>nd</sup> Street to the south, Grand Concourse to the east and Macombs Road/Dr. Martin Luther King Boulevard to the west. It is made up of two neighborhoods – Mount Eden and Morris Heights. The study area street network has limited north-south connections as many streets are discontinuous and dead end at the CBE. There are four major ramps to and from the CBE connecting to Jerome Avenue that are generally congested. Exhibit 1-2 shows the study area boundaries with major corridors in the study area.

The study area primarily consists of row houses and multi-family dwellings except along major corridors where small commercial businesses and other retail establishments exist. There are mainly auto repair shops and car dealerships on Jerome Avenue.

The study area is well served by public transportation - buses and subways operated by NYCT.

## Exhibit 1-2

### Study Area Boundaries and Major Corridors



### **1.3 Goals**

The goal of the study is to reduce traffic congestion, improve internal traffic circulation, streetscape, and enhance safety for all road uses with affective community participation.

### **1.4 Objectives**

The study objectives are:

- to assess the existing and future travel and traffic conditions;
- to identify constraints to internal vehicular and pedestrian circulation with specific emphasis on limited crossings over Cross Bronx Expressway;
- to develop a package of recommendations with improvement measures to reduce vehicular congestion, improve pedestrian access and circulation, enhance safety for all street users (vehicles, pedestrians, bicycles) and general streetscape; and
- to foster a sense of community support through extensive public participation.

### **1.5 Project Organization and Methodology**

The study will examine the following issues to help in problem identification, definition, and the development of effective solutions:

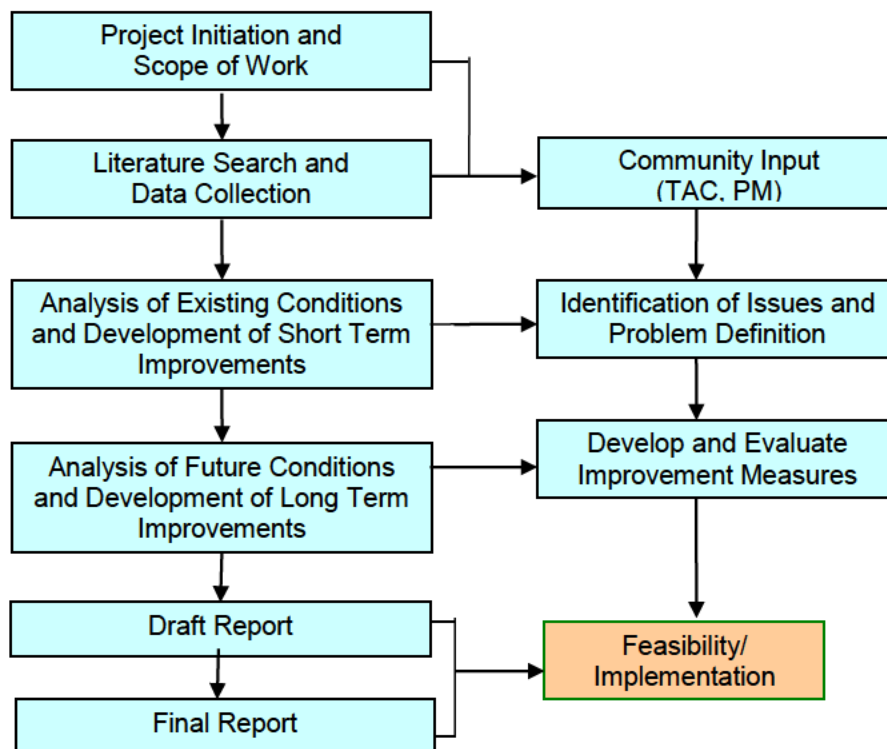
- *Demographics*  
The study will conduct a basic demographic analysis to examine socioeconomic characteristics, population trends, income, households, vehicle ownership and general travel information.
- *Existing Land Use and Zoning*  
It will examine land use/major trip generators and any proposed zoning in the study area that can impact trip generation and traffic.
- *Vehicular Traffic*  
It will assess traffic congestion, circulation, roadway capacity and level of service (LOS) for 32 locations.
- *Goods Movement*  
It will examine truck routes (local and through), delivery patterns, frequency, size of trucks, loading and unloading activities to determine needs.



- *Pedestrians and Bicycles*  
Inventory pedestrian volumes, evaluate safety on major routes, commercial sites, businesses, and schools. It will conduct capacity analysis in crosswalks and corners, and evaluate the need for new bike routes and promote bicycle usage.
- *Accident and Safety*  
The study will conduct an analysis of accident history and trends, types and classes of accidents and provide adequate countermeasures.
- *On and Off-Street Parking*  
The study will inventory the existing off and on street parking facilities, parking demand and supply, utilization, parking regulations, fee structure, and double and illegal parking.
- *Public Transportation*  
The study will inventory subway and bus lines and routes, stops and layovers, transit ridership, intermodal transfer points, schedules and intervals of services.

The following chart shows the study process.

#### Study Process



## 2.0 DEMOGRAPHIC ANALYSIS

The demographic analysis relied on data from New York City Department of City Planning (NYCDCP), and computer files issued by the United States Department of Commerce – Bureau of the Census for the last two decades (years 1990, 2000 and 2010).

The study area which cuts across two community districts (Nos. 4 and 5) consists of the following Census Tracts: 215.02\*, 217.01, 217.02, 223\*, 227.01, 227.02, 233.01, 235.01, 241, 243 and 251\*, eight fully and three partly within the study area.

Table 2-1 shows the census tracts, community districts and the percentage in population.

**Table 2-1: Study Area Census Tracts and Population**

| No.               | Census Tract | Community District | Portion in Study Area | Population    |               |               | Change 1990-2010 (%) |
|-------------------|--------------|--------------------|-----------------------|---------------|---------------|---------------|----------------------|
|                   |              |                    | (%)                   | 1990          | 2000          | 2010          |                      |
| 1                 | 215.02*      | 5                  | 45                    | 2,126         | 3,027         | 2,723         | 22                   |
| 2                 | 217.01       | 4/5                | 100                   | 4,557         | 5,051         | 4,797         | 5                    |
| 3                 | 217.02       | 4                  | 100                   | 952           | 467           | 537           | -77                  |
| 4                 | 223*         | 4                  | 50                    | 3,926         | 4,841         | 2,864         | -37                  |
| 5                 | 227.01       | 4/5                | 100                   | 4,043         | 3,036         | 5,196         | 22                   |
| 6                 | 227.02       | 5                  | 100                   | 1,198         | 1,710         | 1,964         | 39                   |
| 7                 | 233.01       | 5                  | 100                   | 4,122         | 4,916         | 4,377         | 6                    |
| 8                 | 235.01       | 5                  | 100                   | 3,385         | 4,405         | 3,341         | -1                   |
| 9                 | 241          | 5                  | 100                   | 4,693         | 5,955         | 6,182         | 24                   |
| 10                | 243          | 5                  | 100                   | 4,865         | 5,415         | 5,685         | 14                   |
| 11                | 251*         | 5                  | 50                    | 2,898         | 3,320         | 3,401         | 15                   |
| Total Population: |              |                    |                       | <b>36,765</b> | <b>42,143</b> | <b>41,067</b> | <b>10</b>            |

\* Tracts partly within the study area.



## 2.1 Population

The population in New York City, the Bronx, and the study area increased considerably by 8.6%, 9.7%, and 12.8%, respectively, between 1990 and 2000 by gaining 685,714, 128,861, and 5,378, people, respectively. Between 2000 and 2010, the New York City and Bronx population increased by 2% and 3.8%, while the population in the study area decreased by 2.6%, respectively.

The study area population of 41,067 (2010) is expected to exhibit similar trend to the Bronx. Based on projections for 2018, the study area population is expected to increase to 42,295 in 2018. Table 2-2 below shows the “population by area” for the study area, the Bronx, and New York City, for 1990, 2000, 2010, with 2018 projections.

**Table 2-2: Population by Area**

| <b>Census Year</b> | <b>New York City</b> | <b>% Change</b> | <b>Bronx</b> | <b>% Change</b> | <b>Study Area</b> | <b>% Change</b> |
|--------------------|----------------------|-----------------|--------------|-----------------|-------------------|-----------------|
| 1990               | 7,322,564            | -               | 1,203,789    | -               | 36,765            | -               |
| 2000               | 8,008,278            | 8.6             | 1,332,650    | 9.7             | 42,143            | 12.8            |
| 2010               | 8,175,133            | 2.0             | 1,385,108    | 3.8             | 41,067            | -2.6            |
| 2018*              | 8,461,263            | 3.5             | 1,404,500    | 1.4             | 42,295            | 1.5             |

\* 2000-2030 NYC Population Projection by Age/Sex & Borough, DCP & DOT Traffic Planning projections for 2018.

## 2.2 Household Characteristics

The number of households in the study area, between 1990 and 2000, increased by 13.9% from 11,708 to 13,336; the Bronx increased by 9.5% from 423,191 to 463,242; and New York City increased by 7.3% from 2,816,274 to 3,022,477.

The average household size in the study area remained relatively constant at 3.14 and 3.16 in 1990 and 2000. Household size in the Bronx and New York City also remained relatively constant at 2.84 and 2.88, and 2.60 and 2.65 in 1990 and 2000, respectively. Table 2-3 below shows household characteristics for New York City, the Bronx and the study area.

**Table 2-3: Household Characteristics**

| Area       | Number of households |           |          | Persons Per Household |      |          |
|------------|----------------------|-----------|----------|-----------------------|------|----------|
|            | 1990                 | 2000      | % Change | 1990                  | 2000 | % Change |
| Study Area | 11,708               | 13,336    | 13.9     | 3.14                  | 3.16 | 0.6      |
| Bronx      | 423,191              | 463,242   | 9.5      | 2.84                  | 2.88 | 1.4      |
| NYC        | 2,816,274            | 3,022,477 | 7.3      | 2.60                  | 2.65 | 1.9      |

The average household size in the study area, the Bronx, and New York City is expected to remain relatively constant through 2018.

### 2.3 Median Household Income

The median household income for New York City, the Bronx and the study area in 1990 and 2000 were \$32,262, \$21,944, \$14,608 and \$38,293, \$27,611, \$21,522, respectively. The median household income increased by 19, 21, and 32 percent from 1990 to 2000, for New York City, the Bronx, and the study area, respectively. The median household income in the study area increases faster than City and the Borough incomes but is far below their rates.

Based on a simple extrapolation, the estimated median household income for New York City, the Bronx, and the study area in 2018 is \$62,611, \$43,534 and \$35,260, respectively (see Table 2-4).

**Table 2-4: Median Household Income by Area**

| Census Year                       | New York City (\$) | % Change | Bronx (\$) | % Change | Study Area (\$) | % Change |
|-----------------------------------|--------------------|----------|------------|----------|-----------------|----------|
| 1990                              | 32,262             | 19       | 21,944     | 21       | 14,608          | 32       |
| 2000                              | 38,293             |          | 27,611     |          | 21,522          |          |
| Projected Median Household Income |                    |          |            |          |                 |          |
| 2008*                             | 48,488             | 27       | 33,986     | 23       | 26,460          | 23       |
| 2018**                            | 62,611             | 29       | 43,534     | 28       | 35,260          | 33       |

\* 2030 Demographics and Socioeconomic Forecast NYMTC

\*\* DOT Traffic Planning projections for 2018.

### 2.4 Vehicle Ownership

The vehicle ownership in New York City and the Bronx increased by approximately 11% and 9%, respectively, while in the study area it decreased by 7% between 1990 and 2000. In 1990, about 44%, 39%, and 19% of the total households in the city, the borough and the study area owned a vehicle, while in 2000 it was approximately 46%, 38%, and 17%, respectively.

The number of households with one, two, three or more vehicles increased by approximately 12%, 8%, and 5%, in the city and by 10%, 4% and 7%, in the borough between 1990 and 2000, respectively. The number of households with one vehicle in the study area decreased by 9%, those with two vehicles increased by 13%, and those with three or more vehicles showed no change. The number of households with ‘no vehicles’ increased by 7%, 10% and 8%, in the city, the borough and the study area, respectively. Table 2-5 and charts below show the vehicle ownership rates per household in the city, borough, and the study area for 1990 and 2000.

**Table 2-5: Vehicle Ownership per Household (1990 and 2000)**

| No. of Vehicles<br>per<br>Household | NYC               |           |             | Bronx             |         |             | Study Area        |       |             |
|-------------------------------------|-------------------|-----------|-------------|-------------------|---------|-------------|-------------------|-------|-------------|
|                                     | No. of Households |           | %<br>Change | No. of Households |         | %<br>Change | No. of Households |       | %<br>Change |
|                                     | 1990              | 2000      |             | 1990              | 2000    |             | 1990              | 2000  |             |
| 0                                   | 1,572,090         | 1,682,946 | 7           | 259,401           | 285,309 | 10          | 3,790             | 4,068 | 7           |
| 1                                   | 887,309           | 995,165   | 12          | 121,102           | 133,331 | 10          | 810               | 735   | -9          |
| 2                                   | 282,593           | 305,267   | 8           | 34,494            | 35,841  | 4           | 94                | 106   | 13          |
| 3+                                  | 74,282            | 78,246    | 5           | 8,194             | 8,731   | 7           | 0                 | 0     | 0           |
| Total HHs                           | 2,816,274         | 3,022,477 | 7           | 423,191           | 463,212 | 9           | 4,694             | 4,909 | 5           |
| Total Vehicles<br>Available         | 1,244,184         | 1,378,678 | 11          | 163,790           | 177,903 | 9           | 904               | 841   | -7          |
| Avg. Vehicles<br>per HH             | 0.44              | 0.46      | 3           | 0.39              | 0.38    | -0.8        | 0.19              | 0.17  | -11         |

No significant changes in the vehicle ownership are expected by 2018.

## **2.5 Journey to Work by Mode**

The journey to work data shown in Table 2-6 indicates that in 1990 and 2000 New York City public transportation accounted for 54.7% and 54.4% of all work trips, while in the Bronx it was 57.2% and 54.7% and in the study area it was 73% and 66.4%. Thus, the study area transit share is higher than the Bronx and City in 1990 and 2000. Trips by subway accounted for 37.7% and 38.7% in New York City, 37.5% and 35.2% in the Bronx and 55% and 48.8% in the study area. The automobile share (including drive alone and carpooling) in New York City was 33.5% and 33.9%, the Bronx was 34.9% and 37%, and 21.6% and 23.1% in the study area. Journey to work by taxicabs, ferry and railroad represented less than 4% all round in 1990 and 2000. In 1990 and 2000, walking represented 11% and 10.7%, 7.2% and 7.4%, and 4.4% and 8.2% in New York City, Bronx and the study area, respectively. Due to low auto ownership and income rates there is more reliance on transit than on the automobile usage. Exhibit 2-1 shows Journey to Work Mode Share for 2000. Journeys to work mode share for 2010 and 2018 are not expected to change significantly.

**Table 2-6: Journey to Work Mode Share (1900 & 2000)**

| Mode                  | New York City |           |             |           | Bronx       |           |             |           | Study Area  |           |             |           |
|-----------------------|---------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
|                       | 1990          |           | 2000        |           | 1990        |           | 2000        |           | 1990        |           | 2000        |           |
|                       | Journey (#)   | Share (%) | Journey (#) | Share (%) | Journey (#) | Share (%) | Journey (#) | Share (%) | Journey (#) | Share (%) | Journey (#) | Share (%) |
| Car, Truck, or Van    | 1,036,654     | 33.5      | 1,049,396   | 33.9      | 147,789     | 34.9      | 150,885     | 37        | 903         | 21.6      | 909         | 23.1      |
| Drove Alone           | 765,151       | 24.7      | 794,422     | 25.6      | 107,020     | 25.3      | 112,159     | 27.5      | 676         | 16.1      | 339         | 8.6       |
| Carpooled             | 271,503       | 8.8       | 254,974     | 8.2       | 40,769      | 9.6       | 38,726      | 9.5       | 227         | 5.4       | 511         | 13.0      |
|                       | 2,073,308     |           | 2,098,792   |           | 295,578     |           | 301,770     |           | 1,806       |           | 1,759       |           |
| Public Transportation | 1,693,254     | 54.7      | 1,684,850   | 54.4      | 241,848     | 57.2      | 222,835     | 54.7      | 3,058       | 73.0      | 2,609       | 66.4      |
| Bus                   | 403,477       | 13.0      | 364,408     | 11.8      | 70,665      | 16.7      | 64,918      | 15.9      | 600         | 14.3      | 545         | 13.9      |
| Subway                | 1,168,346     | 37.7      | 1,199,226   | 38.7      | 158,679     | 37.5      | 143,534     | 35.2      | 2,306       | 55.0      | 1,919       | 48.8      |
| Railroad              | 54,716        | 1.8       | 51,141      | 1.6       | 8,737       | 2.1       | 8,113       | 2.0       | 83.0        | 2.0       | 58.0        | 1.5       |
| Ferry                 | 16,619        | 0.5       | 11,193      | 0.4       | 97          | 0         | 106         | 0         | 0           | 0         | 9.0         | 0.2       |
| Taxicab               | 50,096        | 1.6       | 53,781      | 1.7       | 3,670       | 0.9       | 5,495       | 1.3       | 69          | 1.6       | 78.0        | 2.0       |
|                       | 3,386,508     |           | 3,364,599   |           | 483,696     |           | 445,001     |           | 6,116       |           | 2,609       |           |
| Motorcycle            | 1,711         | 0.1       | 1,488       | 0         | 123         | 0.03      | 179         | 0.04      | 0           | 0         | 0           | 0         |
| Bicycle               | 9,643         | 0.3       | 15,024      | 0.5       | 662         | 0.2       | 987         | 0.2       | 8           | 0.2       | 23          | 0.6       |
| Walked                | 340,077       | 11        | 332,264     | 10.7      | 30,422      | 7.2       | 30,076      | 7.4       | 185         | 4.4       | 324         | 8.2       |
| Other means           | 16,992        | 0.5       | 16,897      | 0.5       | 2,201       | 0.5       | 2,357       | 0.6       | 36          | 0.9       | 67          | 1.7       |
|                       | 368,423       |           | 365,673     |           | 33,408      |           | 33,599      |           | 229         |           | 414         |           |
| Total Trips           | 3,098,331     |           | 3,099,919   |           | 423,045     |           | 407,319     |           | 4,190       |           | 3,932       |           |

**Exhibit 2-1: Journey to Work Mode Share (2000)**

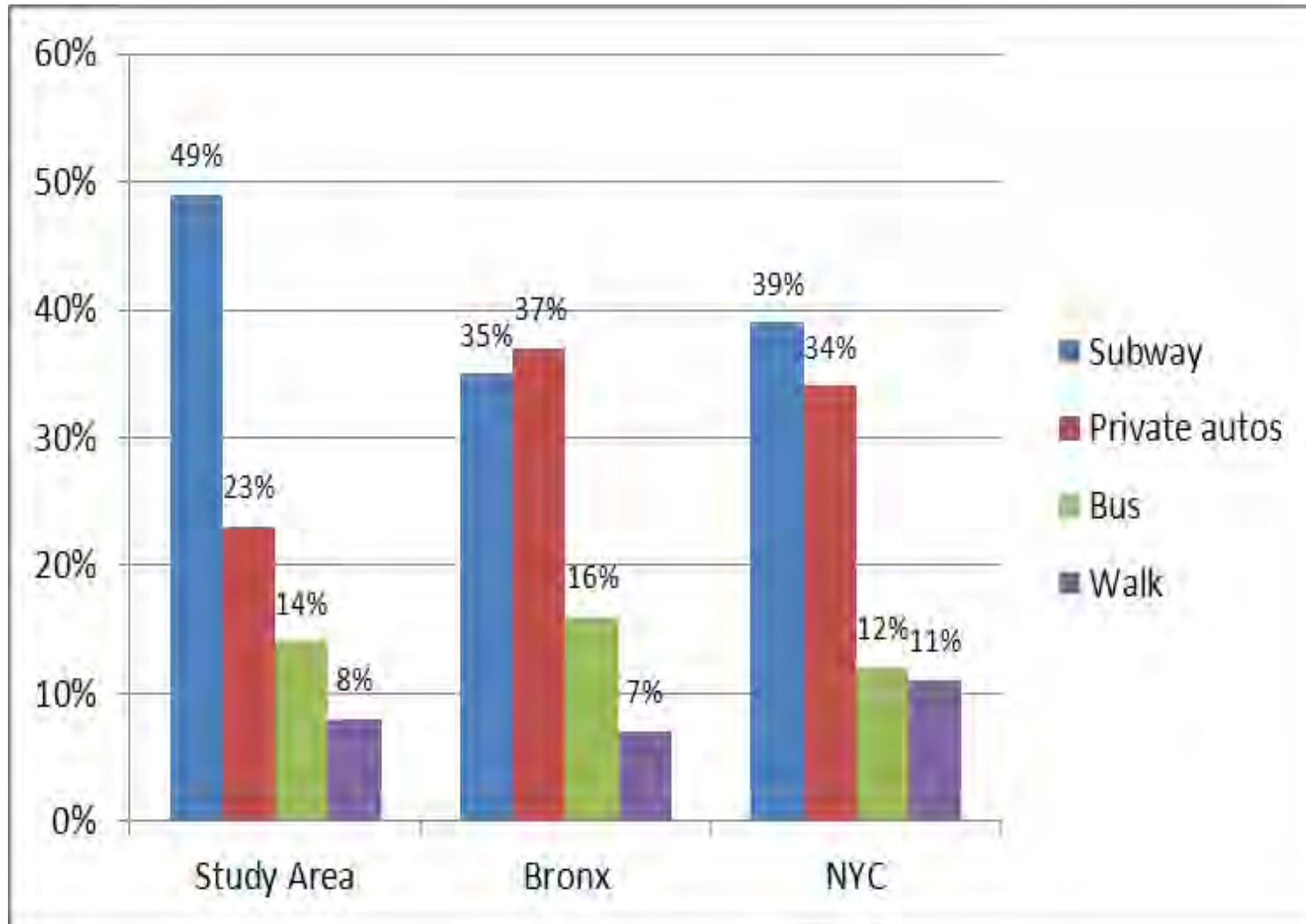




Table 2-7 below shows a summary of the basic socio-economic characteristics for the study area.

**Table 2-7: Summary of Socio-economic Characteristics**

| Study Area |                  |                   |                |                  |                  |                                |
|------------|------------------|-------------------|----------------|------------------|------------------|--------------------------------|
| Year       | Total Population | No. of Households | Household Size | Median HH Income | Avg. veh. per HH | Journey to work (No. of trips) |
| 1990       | 36,765           | 11,708            | 3.14           | \$14,608         | 0.19             | 4,190                          |
| 2000       | 42,143           | 13,336            | 3.16           | \$21,522         | 0.17             | 3,932                          |
| 2010*      | 41,067           | 13,342            | 3.08           | \$28,800         | 0.18             | 3,976                          |
| 2018*      | 42,295           | 13,376            | 3.17           | \$35,260         | 0.18             | 4,065                          |

\* DOT Traffic Planning projections for 2018.

### **3.0 ZONING AND LAND USE**

#### **3.1 Zoning**

The city is divided into three basic zoning districts: residential (R), commercial (C), and manufacturing (M). The three basic categories are further subdivided to facilitate lower, medium, and higher density developments. Development within these districts are subject to regulations that determine use, building size, and parking provisions.. Below is a brief description of the three basic zoning districts according to the Zoning Handbook.

##### ***Residential District (R)***

There are ten standard residential districts, R1 through R10 with R1 representing the lowest density and R10 the highest.

##### ***Commercial District (C)***

Commercial districts ranging from C1 to C8 reflect the full range of commercial activity from local retail and service establishments to high density, shopping, entertainment and office uses. The C1 and C2 districts are designed to serve local needs, C4 for shopping centers outside the central business district, C5 and C6 districts are for the central business districts that serve the city and region, and three C3, C7, and C8 districts are designed for special purposes (waterfront activity, large commercial amusement parks and heavy repair services).

##### ***Manufacturing District (M)***

Manufacturing districts ranging from M1 to M3 along with performance standards establish limits on the amount and type of industrial nuisances which may be created. The more noxious uses are restricted to M3 districts but they may be permitted in M1 and M2 districts if they comply with performance standards of those districts. Retail and commercial uses are permitted in manufacturing districts with some exceptions while residential and community facility uses are excluded from most manufacturing districts.

### **Zoning Districts in the Study Area**

The study area is zoned mainly for residential and commercial activities. In addition to residential and commercial districts there is a special Grand Concourse Preservation District. Figure 3-1 shows the zoning districts in the study area.

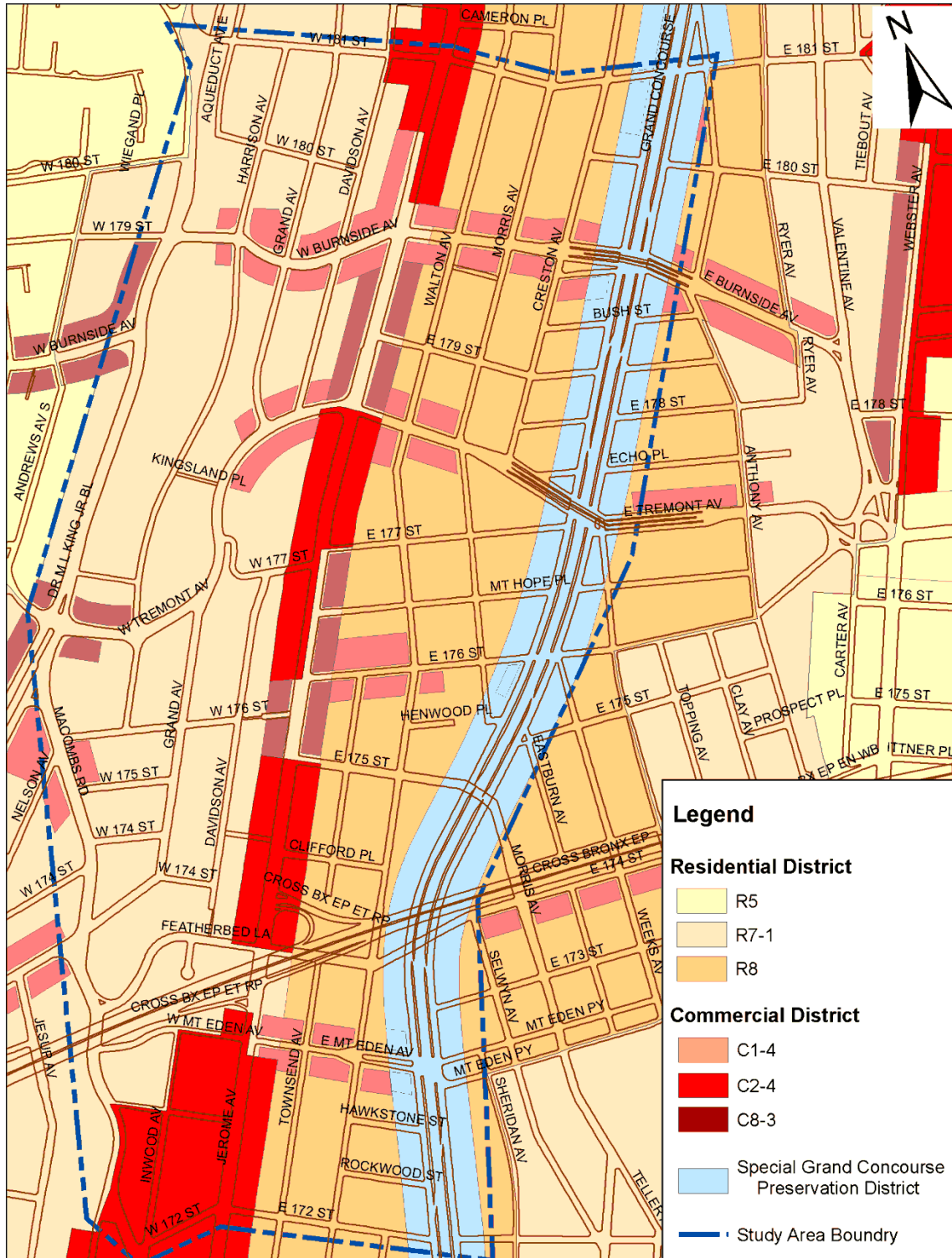
#### ***Residential Zoning Districts***

There are three residential districts within the study area: R5, R7-1 and R8. The R5 residential zoning district represents approximately 1% of the study area and is concentrated in the northwest area near Aqueduct Avenue. An R7-1 district, representing approximately 50 percent of the study area, is located mainly west of Jerome Avenue and north of Cross Bronx Expressway. The R7-1 residential zoning district south of Cross Bronx is concentrated around Macombs Road that forms the western boundary of the study area. Several blocks along the east side of Jerome Avenue are also zoned R7-1, primarily between 175<sup>th</sup> and 177<sup>th</sup> Streets and between Tremont and Burnside Avenues. An R8 district, representing approximately 40 percent of the study area, is mapped east of Jerome Avenue, west of Townsend Avenue to Grand Concourse, and from 172<sup>nd</sup> Street to 181<sup>st</sup> Street.

#### ***Commercial Zoning Districts***

Commercial zoning district, C8-3, represents eleven percent of the study area. The C8-3 zoning designation permits automotive and other heavy commercial services. Typical uses are automobile showrooms and automotive service facilities. Housing is not permitted in C8-3 district. The maximum commercial FAR for this zoning district is 2.0. The C8-3 districts can be seen in Figure 3-1.

**Figure 3-1: Zoning Districts in the Study Area**



There are several Commercial Overlays in the study area such as C1-4 and C2-4, representing about nine percent of the study area as shown in Figure 3-1. They are usually mapped along major avenues/arterials such as Burnside Avenue, Tremont Avenue, Macombs Road, East 176<sup>th</sup> Street, and Mt. Eden Avenue in residential districts. Table 3-1 shows the floor area ratio (FAR) for the commercial districts in the study area.

The special Grand Concourse preservation district is mapped along Grand Concourse, overlaying the R-8 residential zoning.

### ***Manufacturing Zoning Districts***

There are no designated manufacturing zoning districts in the study area, but there are numerous industrial amenities such as auto-related businesses (repair shops), along Jerome Avenue and parts of Macombs Road/Inwood Avenue.

Table 3-1 below shows the floor area ratio (FAR) for the zoning districts.

**Table 3-1: Zoning Districts/with FAR in the Study Area**

| <b>Zoning District</b> | <b>Maximum Residential FAR</b> | <b>Maximum Commercial FAR*</b> | <b>Maximum Community FAR</b> | <b>Approximate percentage in the study area</b> |
|------------------------|--------------------------------|--------------------------------|------------------------------|---|
| R5                     | 1.25                           | 1                              | 2                            | 1   |
| R7-1                   | 0.87 – 3.44                    | 2                              | 4.8                          | 50  |
| R8                     | 0.94 – 6.02                    | 2                              | 6.5                          | 40  |
| C8-3                   |                                | 2.00                           | 6.5                          | 11  |
| C1-4 overlay district  | *                              | 2.00                           |                              | 6   |
| C2-4 overlay district  | *                              | 2.00                           |                              | 3   |

\* Represents maximum FAR for commercial overlay district which permits a wide range of local retail and personal service establishments needed in a residential neighborhood. Typical uses include grocery stores, small dry cleaning establishments, restaurants and barber shops. Source: *Department of City Planning Zoning Data Tables*

### 3.2 Land Use

The study area contains various land uses including numerous single and two family houses, multi-family apartment buildings, educational institutions, auto-related uses, restaurants, local retail and community facilities. A land use/field survey was conducted, which was complimented by secondary data from the other city agencies mainly the (NYC) Department of City Planning (DCP) and other web sites. Figure 3-2 shows the existing land use in the study area.

#### One and Two –Family Residences

One, two and three-family residences are scattered throughout the study area but are mainly concentrated on east-west streets such as along Harrison Avenue between West Tremont Avenue and West 181<sup>st</sup> Street and along Davidson Avenue between West Burnside Avenue and West 181<sup>st</sup> Street.

Photos below show typical one, two and three family residences in the study area.



One and two family residences



Two and three family residences



The map displays a grid of streets and land parcels. Major streets labeled include W 14th St, W 15th St, W 16th St, W 17th St, W 18th St, W 19th St, W 20th St, W 21st St, W 22nd St, W 23rd St, W 24th St, W 25th St, W 26th St, W 27th St, W 28th St, W 29th St, W 30th St, W 31st St, W 32nd St, W 33rd St, W 34th St, W 35th St, W 36th St, W 37th St, W 38th St, W 39th St, W 40th St, W 41st St, W 42nd St, W 43rd St, W 44th St, W 45th St, W 46th St, W 47th St, W 48th St, W 49th St, W 50th St, W 51st St, W 52nd St, W 53rd St, W 54th St, W 55th St, W 56th St, W 57th St, W 58th St, W 59th St, W 60th St, W 61st St, W 62nd St, W 63rd St, W 64th St, W 65th St, W 66th St, W 67th St, W 68th St, W 69th St, W 70th St, W 71st St, W 72nd St, W 73rd St, W 74th St, W 75th St, W 76th St, W 77th St, W 78th St, W 79th St, W 80th St, W 81st St, W 82nd St, W 83rd St, W 84th St, W 85th St, W 86th St, W 87th St, W 88th St, W 89th St, W 90th St, W 91st St, W 92nd St, W 93rd St, W 94th St, W 95th St, W 96th St, W 97th St, W 98th St, W 99th St, W 100th St. The legend identifies the following land use categories: Study Area Boundary (dashed line), One and Two Family Residence (light yellow), Multi-Family Residence (orange), Mixed Residential/Commercial (dark orange), Industrial/Manufacturing (purple), Commercial/Office (red), Hospital/Health Center (blue), Public Facilities/Institutions (dark blue), Parking Facilities (green), and Vacant Land (white). A north arrow is located in the upper right corner.



### Multi-Family Apartment Buildings

Most of the study area consists of high-rise apartment buildings. The northwest quadrant has mainly six-story buildings along with areas south of the Cross Bronx Expressway and west of Jerome Avenue. On Macombs Road there are building structures with seven and eight stories. Around Grand Concourse Boulevard numerous high-rise residential buildings, in particular between E. 175<sup>th</sup> and E. 174<sup>th</sup> Streets exist. Also, there are two 12-story and three 8-story apartment buildings in the area. Residential densities are highest between Grand Concourse and the east side of Walton Avenue from E. 175<sup>th</sup> St. to the Cross Bronx Expressway. In this area there are three 16-story residential buildings, three 12/14-story buildings, and several 8-story apartment buildings. Photos below show examples of typical six family and high-densities residential developments in the study area.



Six-story residences



High density residences

### Mixed Residential/Commercial Developments

Many of the residential buildings along the major corridors are mixed residential/commercial buildings with ground floor retail. These are scattered throughout the study area and are common along Jerome Avenue, Burnside Avenue, Tremont Avenue, Mt. Eden Avenue, and E. 176<sup>th</sup> Street.

### Commercial Land Use

Commercial activity found in the study area include discount stores and retail shops, hardware stores, cleaners, flower shops, barber shops/salons, money services, laundromats, delis, groceries and restaurants. There are also several fast food chain (McDonalds, Dunkin Donuts) restaurants and community facilities. The land use along Jerome Avenue and parts of Macombs

Road/Inwood Avenue is almost entirely of a commercial/industrial nature with predominantly auto-services (used car dealerships, repair shops, auto parts), and parking garages. Along Grand Concourse, commercial uses are interspersed with residential buildings. They include groceries, supermarkets, pharmacies, Western Union, Kennedy Fried Chicken, travel agencies and real estate offices. Most of the commercial land uses are situated on the ground floor of residential buildings.

#### Industrial Land Use

There are numerous industrial uses in the study area such as auto-related businesses (repair shops), predominantly along Jerome Avenue and Macombs Road/Inwood Avenue.

#### Community/Institutional Facilities

There are numerous community and institutional facilities located throughout the study area. These represent one hospital and several health care and medical/dental clinics, schools, daycare facilities, churches and religious institutions. There is also a university complex (Bronx Community College - CUNY) located on the north-western corner of the study area. Also exist a residence for formerly homeless and mentally ill, drug rehabilitation center, a college assistance program center and a courthouse can be also found in the study area.

#### Recreational Facilities, Parks and Open Spaces

There are several recreational facilities, parks and open spaces in the study area. There are two playgrounds along the east side of Jerome Avenue overlook the Cross Bronx Expressway. Another park/playground exists on 175<sup>th</sup> Street, between Macombs Road and Grand Avenue. One playground exists in the residential neighborhood along the southern corner of Rockwood Street and Walton Avenue, another park with a playground, handball court and a basketball court is located at the corner of Macombs Road and Goble Place, known as “Goble Playground”. A small park with benches can be found next to a residential building and car parts lot, near Macombs Road/Featherbed Lane intersection and the Cross Bronx Expressway.

#### Vacant Land

There are no large vacant lots in the study area.

### **3.3 Future Developments**

The following are planned developments in the study area:

#### *Business Improvement Districts (BID)*

Davidson Community Center working with Mount Hope Housing Company and others, to establish a Business Improvement District (BID), on Burnside Avenue. The BID will revitalize the existing shopping district. Due to the constant lack of variety of goods and services, this prompts local residents to travel outside of the area to shop in other locations within the borough and the city. Similar to other developed commercial strips in the Bronx, this target area with predominant discount stores and retails has no major fast food chain restaurants to satisfy needs of residents, therefore, the plan is to bring these kinds of services to the area. (build year?)

#### *Morris Heights Health Center*

The Morris Heights Health Center (MHHC) is a community oriented facility, not-for-profit institution, serves the Morris Heights area of the Bronx for over 20 years. Terjesen Associates (since 1985), designed numerous facilities for the area including the first neighborhood health center, a 10,000 sq. ft. facility, at 70 West Burnside Avenue. Currently, the company is working on a new project “Harrison Circle”, mixed use, 107,000 sq. ft. facility to be located across from their original site at 85 West Burnside Avenue. Other projects include:

- The Morris Heights Health Center at 70 W. Burnside Ave,
- A 30,000 sq. ft. Family Health Center at 85 W. Burnside Avenue,.
- A 12,000 sq. ft. Family Health Center at Walton Ave,
- An 8,000 sq. ft. Birthing Center at 70 W. Burnside Ave,
- Dental Center expansion at 85 West Burnside Avenue,
- Satellite school clinics in the south Bronx area,
- WIC office at 85 West Burnside Avenue.
- Harrison Circle, a mixed use complex (construction began in the fall of 2007).

### Morris Heights Health Center (MHHC)

“Morris Heights Health Center” was built on an abandoned lot on the corner of Harrison Avenue and West Burnside Avenue and completed in 2010.



MHHC under construction (2009)



MHHC completed (2010)

### Mount Hope's New Community Center

Mount Hope Housing Company is newly constructed community center (opened in June 2009).

The center is located on 55 East 175th Street at Walton Avenue and serves up to 2,000 people at day. Additional a gymnasium facility is planned to build alongside center.



Mount Hope's Community Center

### Kips Bay Boys and Girls Club

Kips Bay Boys and Girls Club renovated the former Hebrew Institute building at 1835 Dr. Martin Luther King Jr. Boulevard in Morris Heights. The new community center is located in completely renovated city-owned building that had been vacant for last 20 years. Work began in May 2009 and is completed in March 2010. The club includes a gym, auditorium and performance space, and a game room. The goal to build this club was to enhance health, educational and recreation opportunities for kids in Morris Heights. The new community center



by partnering with other community organizations such as The Frederic & Margaret Coudert Clubhouse already operating nearby will reach many young people and have a lasting impact on their lives.

### Davidson Community Center

Development of “Davidson Community Center” to provide community services to the area. The construction site of the Community Center is located on north-west corner of West Burnside Avenue and Davidson Avenue. Photo below shows this facility under construction (2009).



“Davidson Community Center”

The Community Center consists of two furnished floors, divided up into offices and two activity areas. There are community plans to acquire an additional floor to accommodate the increased demand for activities, services and information. Renovations on the first floor are completed and the office is now in use. The partially renovated basement accommodates the "Dress for Success" program.

### West Tremont Development

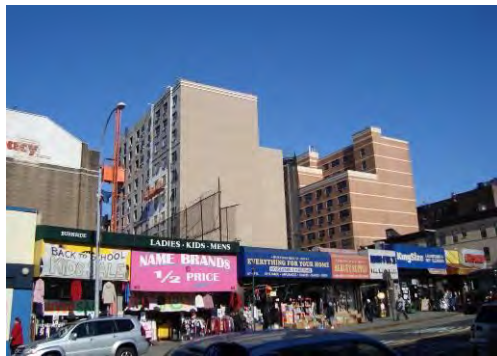
There is a newly constructed public school on the southeast corner of West Tremont Avenue at University Avenue/MLK Boulevard with limited parking (10-15 spaces) for faculty members located behind the building. On the ground floor there are four new stores: America's 99-cent, public laundromat, pizzeria, and a nail salon. Photos below show the new facility.



West Tremont Development

*Burnside and Morris Avenues Residential Development*

Near East Burnside Avenue at Morris Avenue two new high-rise residential buildings were constructed (see photos below).



*University Heights Secondary School*

In March 2010, the city's Panel for Educational Policy voted to approve University Heights Secondary School's move to the South Bronx High School campus. Local developer Frank DeLeonardis asked the city to consider his four-story building on Jerome Avenue at East 179th Street, which is just six or seven blocks from BCC where the school is currently housed, but this is to be approved by various parties including local officials and community boards.

## **4.0 TRAFFIC AND TRANSPORTATION**

### **4.1 Introduction**

The Jerome Avenue study area is bounded by 181st Street to the north, 172<sup>nd</sup> Street to the south, Grand Concourse to the east and Macombs Road and University Avenue/Dr. Martin Luther King Jr Boulevard to the west. Several major corridors (Jerome Avenue, Grand Concourse, University Avenue/Dr. Martin Luther King, Burnside Avenue, and Tremont Avenue) process significant vehicular volumes during rush hours. The Cross Bronx Expressway (CBE), a major east-west corridor with significant through traffic has two exit and two entrance ramps at Jerome Avenue that adds to the congestion. The CBE is below grade and divides the neighborhood, creating limited north-south connections in the study area. Figure 4.1 shows the study area network.

### **4.2 Street System**

The study area can be accessed from the CBE (I-95), Grand Concourse Boulevard, and the Major Deegan Expressway (I-87). The following are major corridors in the study area:

*Jerome Avenue* is a main north/south corridor in the study area with an elevated subway line (No. 4). It serves as the major arterial providing access to the Cross Bronx Expressway (I-95) in the southern part of the study area. It is approximately 60 feet wide with two moving lanes per direction and parking on both sides. It also bears columns that support the subway elevated structure. Jerome Avenue between 172<sup>nd</sup> and 181<sup>st</sup> Streets is predominantly commercial with auto related activities (body shops), fast food chains, and various small retail stores. The four entrance/exit ramps from/to the CBE, located between Mount Eden Avenue and Clifford Place, made Jerome Avenue one of the most congested corridors in the study area. Jerome Avenue acts as a divider between east and west streets.

*Grand Concourse*, another major north/south corridor, is approximately 140 feet wide with mainline and service roads separated by raised medians. The typical lane configuration on the mainline is two through lanes and one exclusive left turn lane in the northbound and southbound directions. The service roads have one travel lane and one parking lane for direction.

*Burnside Avenue* is an east/west corridor in the northern part of the study area. It is approximately 50 feet wide with one travel lane and a parking lane in each direction. It provides direct access to the WB Major Deegan Expressway. Burnside Avenue, between University





### **4.3 Data Collection and Traffic Operations**

The traffic data collection plan includes Automatic Traffic Recorders (ATR), manual turning movements, vehicle classification counts (auto, bikes, trucks, and buses), and pedestrian counts for one midweek day (Tuesday or Wednesday or Thursday) during the AM, midday, PM, and Saturday midday peak hours. Other data for conducting HCS analysis such as bus stops, parking, roadway geometry, and signal timing were collected for capacity analysis at 32 locations, as follows:

1. Jerome Avenue & 172<sup>nd</sup> Street;
2. Jerome Avenue & Mount Eden Avenue;
3. Jerome Avenue & Featherbed Lane/174<sup>th</sup> Street;
4. Jerome Avenue & 175<sup>th</sup> Street;
5. Jerome Avenue & 176<sup>th</sup> Street;
6. Jerome Avenue & 177<sup>th</sup> Street;
7. Jerome Avenue & Tremont Avenue;
8. Jerome Avenue & Burnside Avenue;
9. Jerome Avenue & 181<sup>st</sup> Street;
10. Townsend Avenue & E. 174<sup>th</sup> Street;
11. Townsend Avenue & E. Mount Eden Avenue;
12. Walton Avenue & E. 174<sup>th</sup> Street;
13. Walton Avenue & E. 176<sup>th</sup> Street;
14. Walton Avenue & E. Mount Eden Avenue;
15. Macombs Road & Grand Avenue;
16. Macombs Road & Featherbed Lane;
17. Macombs Road/Inwood Avenue & W. 172<sup>nd</sup> Street;
18. University Avenue/Dr. MLK Blvd & W. Tremont Avenue;
19. University Avenue/Dr. MLK Blvd & W. 179<sup>th</sup> Street/Burnside Avenue;
20. University Avenue Dr. MLK Blvd / & W. Burnside Avenue;
21. University Avenue/Dr. MLK Blvd & W. 181<sup>st</sup> Street/Hall of Fame Terrace;
22. W. Tremont Avenue & Grand Avenue;
23. W. Burnside Avenue & Grand Avenue;
24. W. Burnside Avenue & Davidson Avenue;
25. E. Tremont Avenue & Creston Avenue;

26. E. Tremont Avenue & Grand Concourse;
27. E. Burnside Avenue & Walton Avenue;
28. E. Burnside Avenue & Morris Avenue;
29. E. Burnside Avenue & Creston Avenue;
30. E. Burnside Avenue & Grand Concourse;
31. E. 181<sup>st</sup> Street & Morris Avenue; and
32. E. 181<sup>st</sup> Street & Grand Concourse.

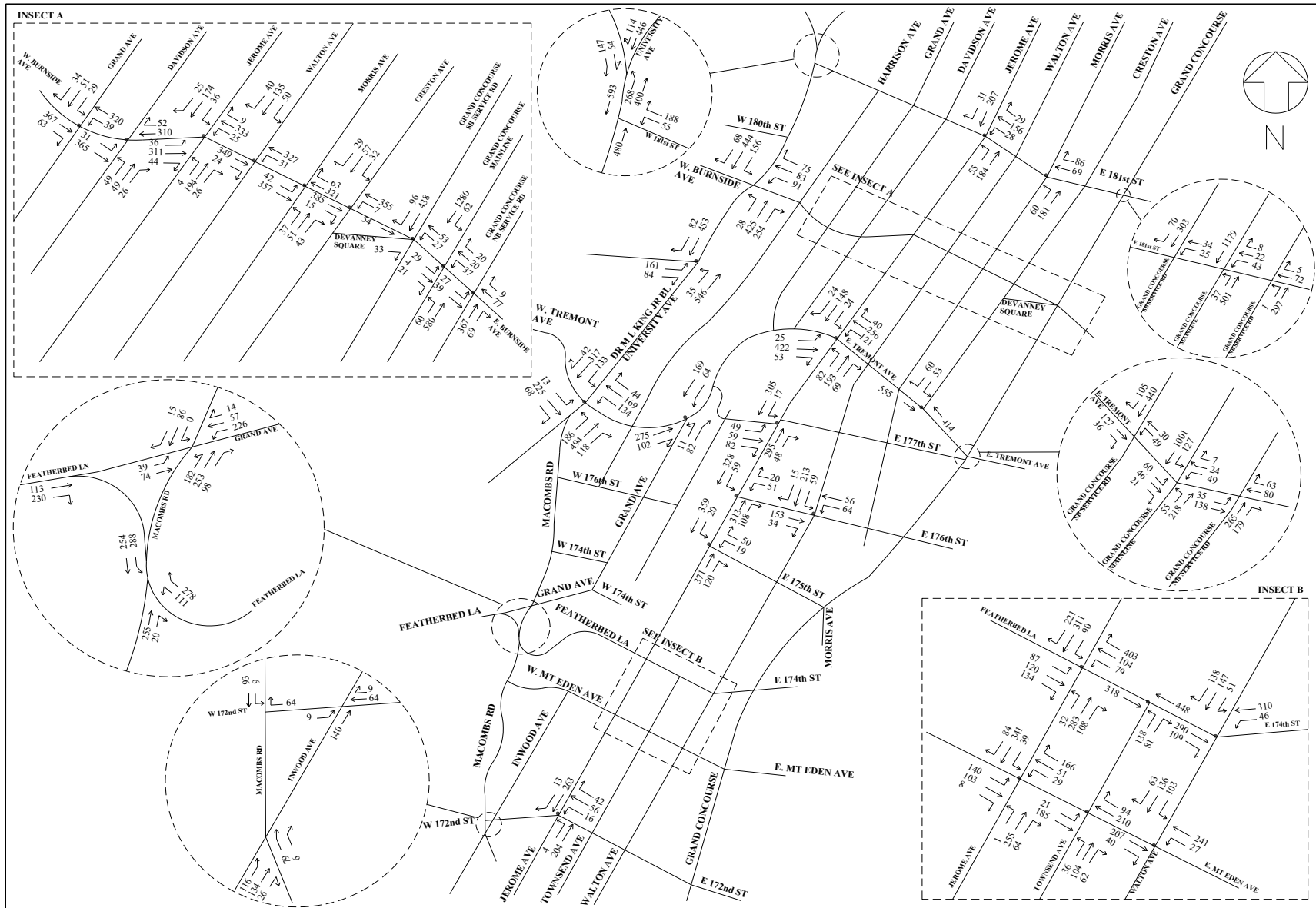
Pedestrian counts were conducted one midweek day during the AM, midday, PM peaks, and Saturday midday peak hours for twenty four locations. Figure 4.2 shows all locations where traffic counts were conducted.

#### **4.4 Network Traffic Volumes**

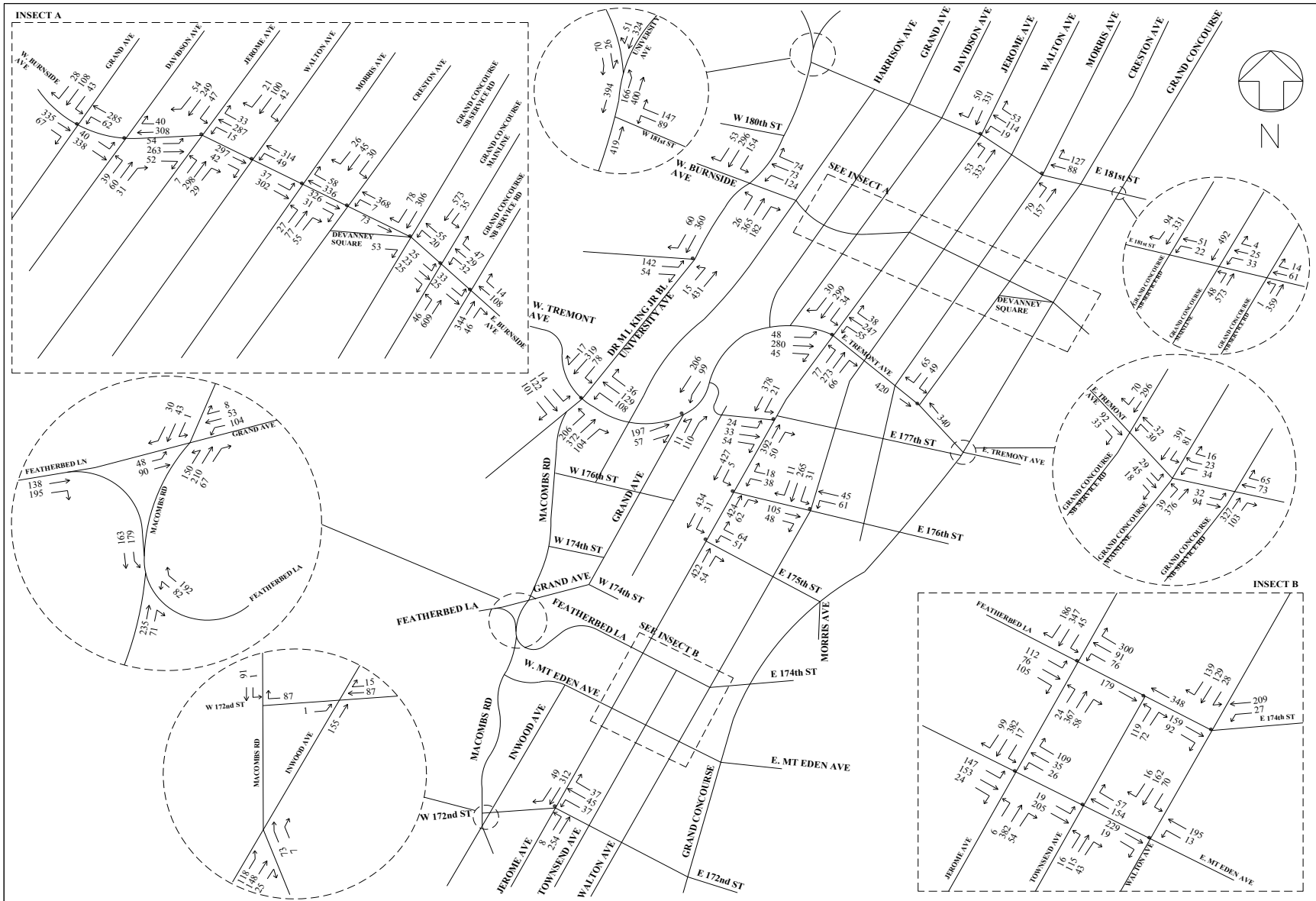
Balanced traffic network volumes were prepared for each peak period. See Figures 4.3 to 4.6. The Grand Concourse southbound Service Road between East Burnside Avenue and East 180<sup>th</sup> Street with 1,342 vehicles in the AM peak hour and Jerome Avenue southbound between Featherbed Lane and Cross Bronx Expressway exit/entrance ramps with 1280, 1304, and 1195 vehicles in the midday, PM, and Saturday midday peak hours, respectively, recorded the highest volumes.



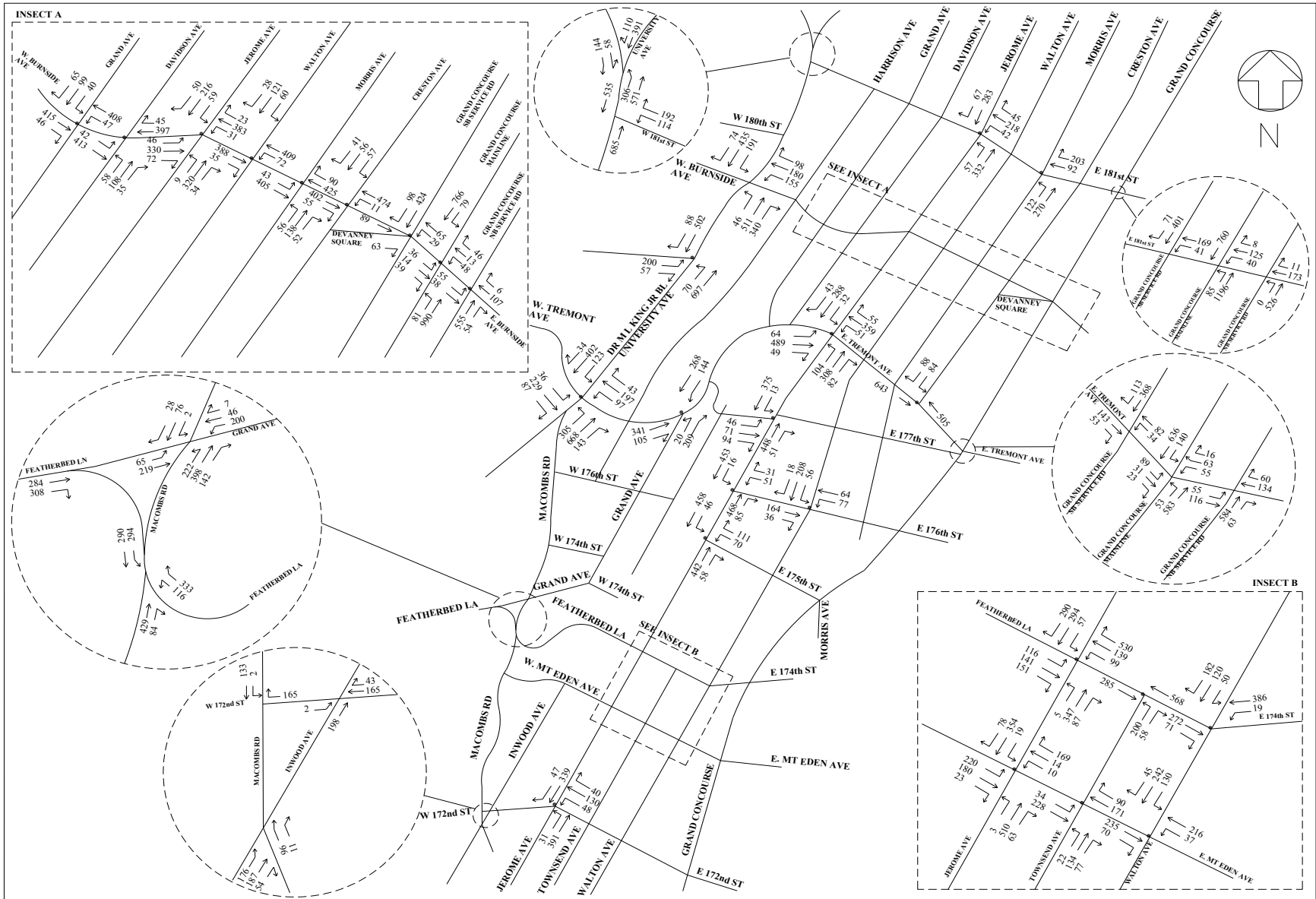
**Figure 4-3**  
**Existing Traffic Volumes**  
**AM Peak Hour**



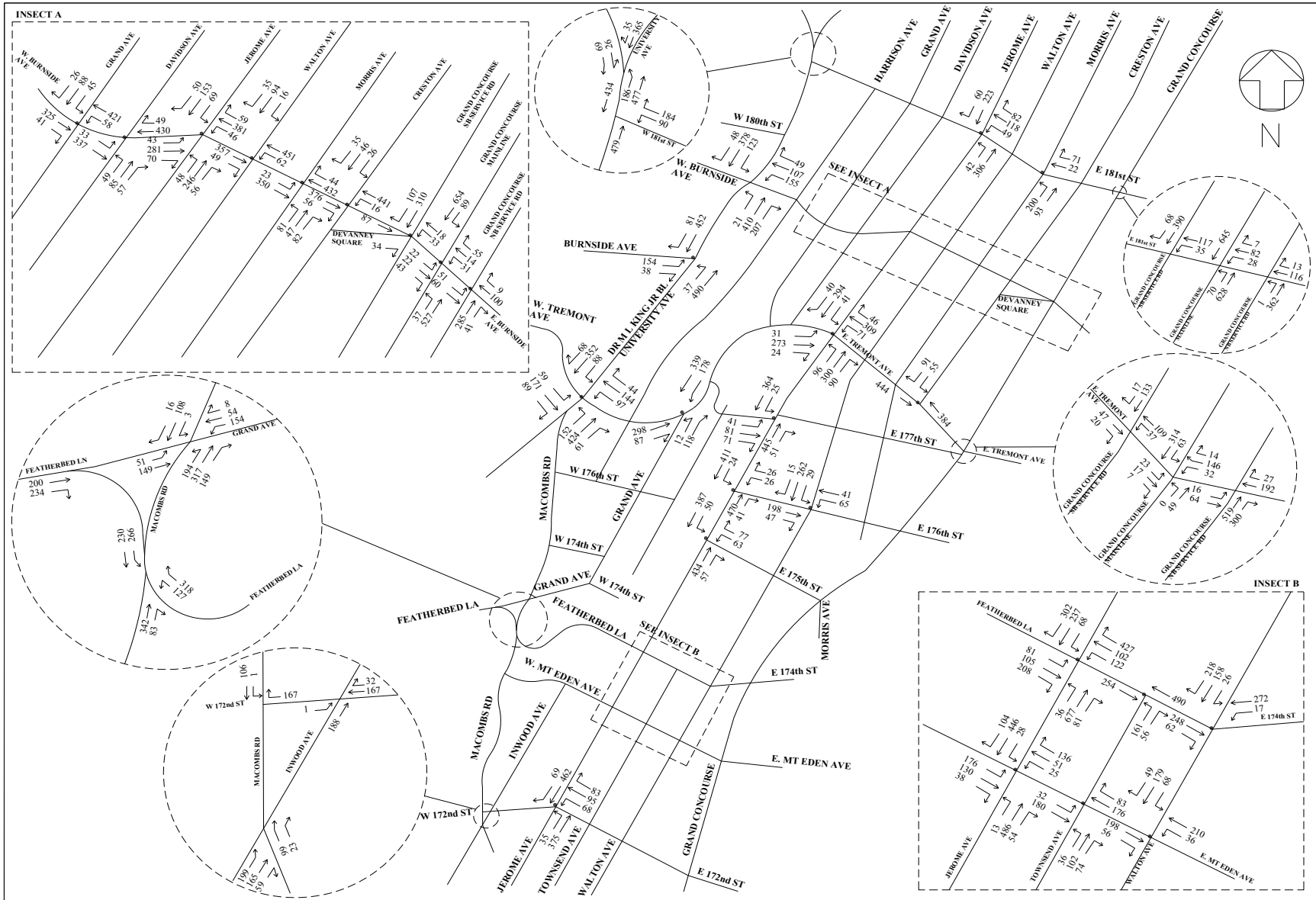
**Figure 4-4**  
**Existing Traffic Volumes**  
**Midday Peak Hour**



**Figure 4-5  
Existing Traffic Volumes  
PM Peak Hour**



**Figure 4-6**  
**Existing Traffic Volumes**  
**Saturday Midday Peak Hour**



#### **4.5 Street Capacity and Level of Service (LOS)**

The capacity of the roadways is the maximum rate of flow which may pass through a section of roadway under prevailing traffic, signalization and roadway conditions. The capacity of a roadway is determined by several factors including turning movements, signal timing, geometric design of the intersection, pedestrian movements, type of vehicle, illegal and/or double parking, grade, and roadway and weather conditions. In determining street capacity within the study area, the 2000 HCM methodology was used. The methodology requires the use of official signal timings, street geometry, and other relevant roadway and traffic information for performing capacity (LOS) analysis.

The traffic flow characteristics are measured in terms of the volume-to-capacity ( $v/c$ ) ratios and delays. The quality of the flow is expressed in terms of LOS, which is based on an average delay experienced by a vehicle. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. When the  $v/c$  ratio exceeds 1.0, a facility or intersection operates at or over capacity. In this situation severe congestion occurs in traffic with stop-and-start conditions, and extensive vehicle queuing and delays. Volume-to-capacity ratios of less than 0.85 are considered to be reflective of acceptable traffic conditions, with average delays of 45 seconds or less. Table 4-1 shows the level of service criteria as specified in the 2000 HCM Methodology.



**Table 4-1: Level of Service Criteria for Signalized Intersections**

| <b>Level of Service (LOS)</b> | <b>Control Delay Per Vehicle</b> | <b>Description of Traffic Condition</b>  |
|-------------------------------|----------------------------------|--|
| <b>A</b>                      | <b>≤ 10.0</b>                    | Describes operations with very low control delay, up to 10 seconds per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.  |
| <b>B</b>                      | <b>10.1 to 20.0</b>              | Describes operations with control delay greater than 10 and up to 20 sec. per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.  |
| <b>C</b>                      | <b>20.1 to 35.0</b>              | Describes operations with control delay greater than 20 and up to 35 sec. per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.   |
| <b>D</b>                      | <b>35.1 to 55.0</b>              | Describes operations with control delay greater than 35 and up to 55 sec. per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.   |
| <b>E</b>                      | <b>55.1 to 80.0</b>              | Describes operations with control delay greater than 55 and up to 80 sec. per vehicle. This level of service is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.   |
| <b>F</b>                      | <b>&gt; 80</b>                   | Describes operations with control delay in excess of 80 sec. per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factor to such delay levels. |

Sources: Highway Capacity Manual, Transportation Research Board,  
National Research Council, Washington, D.C. 2000.  
New York City Department of Transportation  
New York State Department of Transportation

## 4.6 Existing Traffic Conditions

The HCS+ and 2000 Highway Capacity Manual (HCM) analyses show the volume-to-capacity (v/c) ratios, vehicular delay, and level-of-service (LOS). See Table 4-2.

Most intersections operated at an acceptable level of service (LOS) C or better during the various peak hours. However, some intersections experienced LOS D, E and F for some approaches or all lane groups during certain peak hours. Intersections with approaches or lane groups with mid LOS D (equal or higher than 45 seconds per vehicle) are listed below and shown in Figures 4-7 to 4-10.

- Jerome Avenue and Mount Eden Avenue (AM, midday, PM, and Saturday midday);
- Jerome Avenue and Featherbed Lane/East 174<sup>th</sup> Street (AM, Midday, PM, and Saturday Midday);
- Jerome Avenue and Burnside Avenue (midday, PM, and Saturday midday);
- Walton Avenue and East 174<sup>th</sup> Street (AM and PM);
- Walton Avenue and East Mount Eden Avenue (AM and PM);
- Macombs Road and Grand Avenue (AM and PM);
- Macombs Road and Featherbed Lane (PM);
- Grand Avenue and West Tremont Avenue (PM);
- Dr. Martin Luther King Blvd/University Avenue and West Tremont Avenue (midday and PM);
- Dr. Martin Luther King Blvd/University Avenue and W. Burnside Avenue/W. 179<sup>th</sup> Street (PM);
- Dr. Martin Luther King Blvd/University Avenue and W. Burnside Avenue (AM, midday, PM, and Saturday midday); and
- Dr. Martin Luther King Blvd/University Avenue and W. 181<sup>st</sup> Street/Hall of Fame Terrace (AM, PM, and Saturday midday).

**TABLE 4-2 (page 1 of 4)**  
**Traffic Capacity Analysis for Signalized Intersections**  
**Existing Conditions**

| Intersection                                  | Approach | Lane Group | AM   |       |     | Midday |       |     | PM   |       |     | Saturday MD |       |     |
|---|----------|------------|------|-------|-----|--------|-------|-----|------|-------|-----|-------------|-------|-----|
|   |          |            | V/C  | Delay | LOS | V/C    | Delay | LOS | V/C  | Delay | LOS | V/C         | Delay | LOS |
| Jerome Avenue & E. 172nd Street               | NB       | LT         | 0.20 | 10.8  | B   | 0.24   | 11.2  | B   | 0.36 | 12.4  | B   | 0.41        | 12.9  | B   |
|   | SB       | TR         | 0.25 | 11.2  | B   | 0.32   | 11.9  | B   | 0.33 | 11.9  | B   | 0.49        | 13.9  | B   |
|   | WB       | LTR        | 0.27 | 22.6  | C   | 0.35   | 23.8  | C   | 0.62 | 30.0  | C   | 0.64        | 30.7  | C   |
|   | Overall  |            |      | 13.2  | B   |        | 13.9  | B   |      | 16.7  | B   |             | 17.1  | B   |
| Jerome & Mt. Eden Avenues                     | NB       | LTR        | 0.29 | 11.6  | B   | 0.68   | 17.7  | B   | 0.47 | 13.6  | B   | 0.72        | 18.5  | B   |
|   | SB       | LTR        | 0.43 | 13.3  | B   | 1.05   | 89.6  | F   | 0.39 | 12.7  | B   | 0.93        | 33.5  | C   |
|   | EB       | LTR        | 1.05 | 96.7  | F   | 1.05   | 90.6  | F   | 1.05 | 85.6  | F   | 1.05        | 87.7  | F   |
|   | WB       | LTR        | 0.88 | 50.9  | D   | 0.88   | 53.4  | D   | 0.71 | 35.8  | D   | 0.95        | 61.3  | E   |
|   | Overall  |            |      | 36.8  | C   |        | 34.4  | C   |      | 34.5  | C   |             | 40.0  | D   |
| Jerome Avenue & Featherbed Lane/ 174th Street | NB       | LTR        | 0.48 | 14.1  | B   | 0.42   | 13.2  | B   | 0.35 | 12.2  | B   | 0.64        | 16.6  | B   |
|   | SB       | LTR        | 0.80 | 23.0  | C   | 0.59   | 16.0  | B   | 0.62 | 16.6  | B   | 0.63        | 17.1  | B   |
|   | EB       | LTR        | 1.05 | 97.2  | F   | 0.99   | 97.1  | F   | 0.97 | 96.8  | F   | 0.86        | 44.2  | D   |
|   | WB       | LTR        | 0.98 | 62.4  | E   | 0.97   | 54.9  | D   | 1.00 | 61.7  | E   | 1.04        | 74.2  | E   |
|   | Overall  |            |      | 46.5  | D   |        | 33.2  | D   |      | 38.0  | D   |             | 36.4  | D   |
| Jerome Avenue & 175th Street                  | NB       | TR         | 0.45 | 13.4  | B   | 0.41   | 12.9  | B   | 0.39 | 12.6  | B   | 0.37        | 12.3  | B   |
|   | SB       | LT         | 0.34 | 12.3  | B   | 0.44   | 13.5  | B   | 0.42 | 13.2  | B   | 0.38        | 12.7  | B   |
|   | WB       | L          | 0.07 | 20.1  | C   | 0.19   | 21.7  | C   | 0.21 | 21.8  | C   | 0.19        | 21.5  | C   |
|   |          | R          | 0.25 | 22.8  | C   | 0.33   | 24.2  | C   | 0.35 | 24.4  | C   | 0.27        | 23.1  | C   |
|   | Overall  |            |      | 13.9  | B   |        | 14.7  | B   |      | 14.7  | B   |             | 14.1  | B   |
| Jerome Avenue & 176th Street                  | NB       | TR         | 0.37 | 12.5  | B   | 0.40   | 12.9  | B   | 0.43 | 13.1  | B   | 0.45        | 13.4  | B   |
|   | SB       | LT         | 0.48 | 14.3  | B   | 0.44   | 13.3  | B   | 0.37 | 12.5  | B   | 0.38        | 12.6  | B   |
|   | WB       | LR         | 0.29 | 23.2  | C   | 0.21   | 22.0  | C   | 0.26 | 22.7  | C   | 0.21        | 22.0  | C   |
|   | Overall  |            |      | 14.5  | B   |        | 13.7  | B   |      | 13.7  | B   |             | 13.6  | B   |
| Jerome Avenue & 177th Street                  | NB       | T          | 0.31 | 10.8  | B   | 0.33   | 11.0  | B   | 0.37 | 11.3  | B   | 0.37        | 11.3  | B   |
|   | SB       | T          | 0.27 | 10.4  | B   | 0.34   | 11.1  | B   | 0.28 | 10.5  | B   | 0.25        | 10.3  | B   |
|   | EB       | LR         | 0.62 | 32.1  | C   | 0.37   | 26.1  | C   | 0.55 | 29.8  | C   | 0.68        | 35.0  | C   |
|   | Overall  |            |      | 15.7  | B   |        | 13.0  | B   |      | 14.6  | B   |             | 16.5  | B   |
| Jerome & Tremont Avenues                      | NB       | LTR        | 0.54 | 25.7  | C   | 0.66   | 29.3  | C   | 0.70 | 30.3  | C   | 0.71        | 31.2  | C   |
|   | SB       | LTR        | 0.28 | 20.9  | C   | 0.48   | 24.2  | C   | 0.41 | 22.9  | C   | 0.56        | 26.5  | C   |
|   | EB       | LTR        | 0.57 | 25.9  | C   | 0.48   | 24.3  | C   | 0.72 | 30.7  | C   | 0.35        | 21.9  | C   |
|   | WB       | DefL       | 0.81 | 53.1  | D   |        |       |     |      |       |     |             |       |     |
|   |          | LTR        |      |       |     | 0.46   | 24.1  | C   | 0.59 | 26.8  | C   | 0.54        | 25.5  | C   |
|   | Overall  | TR         | 0.67 | 31.2  | C   |        |       |     |      |       |     |             |       |     |
| Jerome & Burnside Avenues                     | NB       | LTR        | 0.51 | 26.1  | C   | 0.70   | 32.9  | C   | 0.81 | 39.2  | D   | 0.80        | 39.9  | D   |
|   | SB       | LTR        | 0.56 | 28.0  | C   | 0.89   | 49.5  | D   | 0.81 | 42.6  | D   | 0.85        | 48.3  | D   |
|   | EB       | LTR        | 0.76 | 35.8  | D   | 0.98   | 68.9  | E   | 0.97 | 64.2  | E   | 0.91        | 52.6  | D   |
|   | WB       | LTR        | 0.86 | 43.1  | D   | 0.82   | 39.8  | D   | 0.95 | 57.5  | E   | 1.03        | 78.2  | E   |
|   | Overall  |            |      | 35.0  | D   |        | 47.8  | D   |      | 51.9  | D   |             | 57.4  | E   |
| Jerome Avenue & 181st Street                  | NB       | LT         | 0.27 | 14.4  | B   | 0.42   | 16.4  | B   | 0.25 | 14.1  | B   | 0.34        | 15.1  | B   |
|   | SB       | TR         | 0.25 | 14.0  | B   | 0.37   | 15.5  | B   | 0.19 | 13.4  | B   | 0.23        | 13.8  | B   |
|   | WB       | LTR        | 0.58 | 35.8  | D   | 0.47   | 32.6  | C   | 0.50 | 33.4  | C   | 0.62        | 37.5  | D   |
|   | Overall  |            |      | 21.1  | C   |        | 19.3  | B   |      | 19.9  | B   |             | 21.3  | C   |

**TABLE 4-2 (page 2 of 4)**  
**Traffic Capacity Analysis for Signalized Intersections**  
**Existing Conditions**

| Intersection                                  | Approach | Lane Group | AM   |       |     | Midday |       |     | PM   |       |     | Saturday MD |       |     |
|---|----------|------------|------|-------|-----|--------|-------|-----|------|-------|-----|-------------|-------|-----|
|   |          |            | V/C  | Delay | LOS | V/C    | Delay | LOS | V/C  | Delay | LOS | V/C         | Delay | LOS |
| Townsend Avenue & E. 174th Street             | NB       | LR         | 0.57 | 29.5  | C   | 0.53   | 28.2  | C   | 0.64 | 31.5  | C   | 0.58        | 29.6  | C   |
|   | EB       | TR         | 0.46 | 14.4  | B   | 0.25   | 11.7  | B   | 0.37 | 13.1  | B   | 0.33        | 12.6  | B   |
|   | WB       | LT         | 0.59 | 16.9  | B   | 0.45   | 14.4  | B   | 0.71 | 20.2  | C   | 0.57        | 16.4  | B   |
|   | Overall  |            |      | 18.9  | B   |        | 17.6  | B   |      | 21.1  | C   |             | 18.6  | B   |
| Townsend & E. Mt. Eden Avenues                | NB       | LTR        | 0.46 | 23.2  | C   | 0.46   | 23.2  | C   | 0.62 | 27.2  | C   | 0.48        | 23.9  | C   |
|   | EB       | LT         | 0.42 | 17.1  | B   | 0.53   | 19.3  | B   | 0.51 | 18.9  | B   | 0.44        | 17.6  | B   |
|   | WB       | TR         | 0.74 | 27.5  | C   | 0.54   | 19.8  | B   | 0.61 | 21.7  | C   | 0.61        | 21.5  | C   |
|   | Overall  |            |      | 23.4  | C   |        | 20.6  | C   |      | 22.8  | C   |             | 21.1  | C   |
| Walton Avenue & E. 174th Street               | SB       | LTR        | 0.64 | 13.9  | B   | 0.51   | 11.6  | B   | 0.51 | 11.4  | B   | 0.63        | 13.9  | B   |
|   | EB       | TR         | 1.03 | 68.7  | E   | 0.59   | 22.1  | C   | 0.88 | 38.6  | D   | 0.70        | 25.4  | C   |
|   | WB       | LT         | 1.05 | 78.0  | E   | 0.73   | 28.3  | C   | 1.05 | 77.8  | E   | 0.77        | 30.0  | C   |
|   | Overall  |            |      | 53.1  | D   |        | 20.0  | B   |      | 44.1  | D   |             | 22.1  | C   |
| Walton Avenue & E. 176th Street               | SB       | LTR        | 0.45 | 10.5  | B   | 0.51   | 11.5  | B   | 0.48 | 10.9  | B   | 0.50        | 11.2  | B   |
|   | EB       | TR         | 0.53 | 21.0  | C   | 0.49   | 20.1  | C   | 0.55 | 21.6  | C   | 0.83        | 36.6  | D   |
|   | WB       | LT         | 0.58 | 24.1  | C   | 0.40   | 19.3  | B   | 0.57 | 24.1  | C   | 0.58        | 26.6  | C   |
|   | Overall  |            |      | 16.7  | B   |        | 15.4  | B   |      | 16.9  | B   |             | 23.2  | C   |
| Walton & E. Mt. Eden Avenue                   | SB       | LTR        | 0.97 | 66.1  | E   | 0.72   | 35.6  | D   | 1.05 | 85.0  | F   | 0.84        | 44.2  | D   |
|   | EB       | TR         | 0.36 | 13.1  | B   | 0.36   | 13.0  | B   | 0.50 | 15.3  | B   | 0.37        | 13.2  | B   |
|   | WB       | LT         | 0.48 | 15.0  | B   | 0.34   | 12.9  | B   | 0.44 | 14.4  | B   | 0.41        | 13.8  | B   |
|   | Overall  |            |      | 33.8  | C   |        | 21.3  | C   |      | 44.0  | D   |             | 25.4  | C   |
| Macombs Road & Grand Avenue/ Featherbed Lane  | NB       | LTR        | 0.81 | 21.4  | C   | 0.61   | 14.6  | B   | 0.86 | 23.6  | C   | 0.79        | 19.6  | B   |
|   | SB       | LTR        | 0.11 | 8.7   | A   | 0.09   | 8.7   | A   | 0.11 | 8.7   | A   | 0.17        | 9.1   | A   |
|   | EB       | LT         | 0.26 | 14.0  | B   | 0.33   | 14.9  | B   | 0.61 | 20.1  | C   | 0.44        | 16.5  | B   |
|   | WB       | LTR        | 0.99 | 69.1  | E   | 0.66   | 25.1  | C   | 1.00 | 72.7  | E   | 0.81        | 35.4  | D   |
|   | Overall  |            |      | 31.8  | C   |        | 16.3  | B   |      | 30.2  | C   |             | 20.6  | C   |
| Macombs Road & Featherbed Lane                | NB       | TR         | 0.27 | 9.8   | A   | 0.33   | 10.3  | B   | 0.50 | 12.0  | B   | 0.37        | 10.7  | B   |
|   | SB       | DefL       | 0.84 | 32.6  | C   | 0.73   | 24.6  | C   | 1.02 | 72.6  | E   | 0.85        | 35.5  | D   |
|   |          | T          | 0.46 | 12.8  | B   | 0.32   | 11.0  | B   | 0.49 | 13.3  | B   | 0.41        | 12.2  | B   |
|   | WB       | L          | 0.20 | 13.1  | B   | 0.14   | 12.6  | B   | 0.23 | 13.4  | B   | 0.24        | 13.6  | B   |
|   | Overall  |            |      | 17.9  | B   |        | 14.6  | B   |      | 23.9  | C   |             | 17.7  | B   |
| Macombs Road/ Inwood Avenue & W. 172nd Street | NB       | LTR        | 0.33 | 12.9  | B   | 0.38   | 13.5  | B   | 0.53 | 15.2  | B   | 0.53        | 15.4  | B   |
|   | EB       | LT         | 0.13 | 9.2   | A   | 0.10   | 9.10  | A   | 0.13 | 9.2   | A   | 0.11        | 9.1   | A   |
|   | WB       | TR         | 0.10 | 9.0   | A   | 0.09   | 9.00  | A   | 0.11 | 9.1   | A   | 0.12        | 9.1   | A   |
|   | Overall  |            |      | 11.3  | B   |        | 11.7  | B   |      | 13.0  | B   |             | 13.1  | B   |
| University & W. Tremont Avenues               | NB       | L          | 0.77 | 47.8  | D   | 0.87   | 61.2  | E   | 1.04 | 96.3  | F   | 0.71        | 44.9  | D   |
|   |          | TR         | 0.75 | 33.8  | C   | 0.58   | 28.8  | C   | 0.87 | 42.0  | D   | 0.55        | 27.6  | C   |
|   | SB       | L          | 0.80 | 53.1  | D   | 0.39   | 28.0  | C   | 0.95 | 96.3  | F   | 0.48        | 32.7  | C   |
|   |          | TR         | 0.33 | 23.6  | C   | 0.28   | 22.8  | C   | 0.36 | 24.1  | C   | 0.36        | 24.0  | C   |
|   | EB       | LTR        | 0.77 | 43.3  | D   | 0.57   | 33.7  | C   | 0.76 | 42.3  | D   | 0.87        | 52.9  | D   |
|   | WB       | DefL       | 0.41 | 33.2  | C   | 0.32   | 27.9  | C   | 0.35 | 31.8  | C   | 0.30        | 31.0  | C   |
|   |          | TR         | 0.40 | 21.5  | C   | 0.31   | 20.0  | B   | 0.39 | 21.2  | C   | 0.29        | 19.5  | B   |
|   | Overall  |            |      | 40.8  | D   |        | 30.8  | C   |      | 46.2  | D   |             | 32.7  | C   |

**TABLE 4-2 (page 3 of 4)**  
**Traffic Capacity Analysis for Signalized Intersections**  
**Existing Conditions**

| Intersection  | Approach | Lane Group | AM   |       |     | Midday |       |     | PM   |       |     | Saturday MD |       |     |
|---|----------|------------|------|-------|-----|--------|-------|-----|------|-------|-----|-------------|-------|-----|
|   |          |            | V/C  | Delay | LOS | V/C    | Delay | LOS | V/C  | Delay | LOS | V/C         | Delay | LOS |
| University & Burnside Avenues                                   | NB       | LT         | 0.86 | 40.0  | D   | 0.57   | 27.1  | C   | 1.05 | 77.3  | E   | 0.73        | 31.7  | C   |
|   | SB       | TR         | 0.69 | 30.2  | C   | 0.57   | 27.1  | C   | 0.77 | 33.0  | C   | 0.66        | 29.0  | C   |
|   | EB       | LR         | 0.85 | 53.2  | D   | 0.82   | 53.8  | D   | 0.86 | 57.3  | E   | 0.74        | 45.2  | D   |
|   | Overall  |            |      | 42.2  | D   |        | 32.8  | C   |      | 57.2  | E   |             | 32.7  | C   |
| University & W. Burnside Avenues/<br>W.179 <sup>th</sup> Street | NB       | LTR        | 0.57 | 9.1   | A   | 0.42   | 7.3   | A   | 0.73 | 12.2  | B   | 0.45        | 7.5   | A   |
|   | SB       | LTR/Defl L | 0.69 | 12    | B   | 0.67   | 11.7  | B   | 0.88 | 45.1  | D   | 0.49        | 8.3   | A   |
|   | TR       |            |      |       |     |        |       |     | 0.67 | 12.3  | B   |             |       |     |
|   | WB       | LTR        | 0.94 | 71.7  | E   | 0.94   | 73.4  | E   | 1.04 | 88.3  | F   | 0.07        | 75.0  | E   |
|   | Overall  |            |      | 20.1  | C   |        | 20.9  | C   |      | 29.8  | C   |             | 21.6  | C   |
| University Avenue & W. 181st Street                             | NB       | T          | 0.45 | 23.9  | C   | 0.50   | 24.9  | C   | 0.68 | 29.3  | C   | 0.51        | 25.1  | C   |
|   | SB       | T          | 0.38 | 8.0   | A   | 0.27   | 7.0   | A   | 0.34 | 7.6   | A   | 0.29        | 7.2   | A   |
|   | WB       | L          | 0.40 | 45.6  | D   | 0.36   | 44.8  | D   | 0.44 | 46.9  | D   | 0.29        | 42.9  | D   |
|   | R        |            | 0.84 | 77.2  | E   | 0.61   | 53.5  | D   | 0.86 | 75.6  | E   | 0.78        | 65.8  | E   |
|   | Overall  |            |      | 25.2  | C   |        | 24.7  | C   |      | 28.2  | C   |             | 25.2  | C   |
| University Avenue & Hall of Fame Terrace                        | NB       | L          | 0.59 | 23.4  | C   | 0.33   | 10.7  | B   | 0.59 | 22.8  | C   | 0.41        | 13.1  | B   |
|   | T        |            | 0.23 | 6.7   | A   | 0.30   | 7.2   | A   | 0.34 | 7.5   | A   | 0.28        | 7.1   | A   |
|   | SB       | TR         | 0.57 | 26.6  | C   | 0.39   | 23.1  | C   | 0.54 | 25.8  | C   | 0.43        | 23.6  | C   |
|   | EB       | LR         | 0.89 | 79.8  | E   | 0.54   | 50.8  | D   | 0.86 | 76.6  | E   | 0.47        | 48.1  | D   |
|   | Overall  |            |      | 31.2  | C   |        | 17.4  | B   |      | 25.2  | C   |             | 17.5  | B   |
| Grand & W. Tremont Avenues                                      | NB       | LR         | 0.44 | 41.7  | D   | 0.60   | 48.0  | D   | 0.88 | 71.4  | E   | 0.48        | 43.0  | D   |
|   | EB       | TR         | 0.34 | 9.5   | A   | 0.19   | 8.3   | A   | 0.31 | 9.3   | A   | 0.26        | 8.8   | A   |
|   | WB       | DefL       | 0.29 | 10.5  | B   |        |       |     | 0.44 | 13.0  | B   | 0.46        | 13.1  | B   |
|   | LT       |            |      |       |     | 0.30   | 9.3   | A   |      |       |     |             |       |     |
|   | T        |            | 0.21 | 8.6   | A   |        |       |     | 0.34 | 9.9   | A   | 0.37        | 10.3  | B   |
|   | Overall  |            |      | 13.4  | B   |        | 16.3  | B   |      | 22.1  | C   |             | 14.2  | B   |
| Creston & E. Tremont Avenues                                    | SB       | LR         | 0.46 | 38.1  | D   | 0.47   | 37.7  | D   | 0.68 | 46.5  | D   | 0.42        | 36.2  | D   |
|   | EB       | T          | 0.33 | 12.0  | B   | 0.31   | 11.8  | B   | 0.46 | 13.6  | B   | 0.24        | 11.1  | B   |
|   | WB       | T          | 0.28 | 11.4  | B   | 0.24   | 11.1  | B   | 0.28 | 11.5  | B   | 0.22        | 10.9  | B   |
|   | Overall  |            |      | 14.8  | B   |        | 15.3  | B   |      | 17.8  | B   |             | 14.7  | B   |
| Grand Concourse SB Service Road & E. Tremont Avenue             | SB       | TR         | 0.53 | 21.5  | C   | 0.38   | 21.1  | C   | 0.43 | 19.5  | B   | 0.29        | 19.9  | B   |
|   | EB       | TR         | 0.68 | 48.2  | D   | 0.45   | 37.4  | D   | 0.77 | 53.7  | D   | 0.48        | 38.1  | D   |
|   | WB       | LT         | 0.24 | 24.5  | C   | 0.16   | 20.7  | C   | 0.44 | 28.2  | C   | 0.28        | 22.3  | C   |
|   | Overall  |            |      | 28.5  | C   |        | 25.4  | C   |      | 31.1  | C   |             | 25.6  | C   |
| Grand Concourse mainline & E. Tremont Avenue                    | NB       | L          | 0.28 | 30.3  | C   | 0.13   | 14.1  | B   | 0.31 | 18.2  | B   | 0.00        | 13.3  | B   |
|   | T        |            | 0.19 | 16.3  | B   | 0.29   | 19.7  | B   | 0.45 | 19.8  | B   | 0.04        | 17.0  | B   |
|   | SB       | L          | 0.24 | 10.3  | B   | 0.20   | 13.3  | B   | 0.42 | 20.3  | C   | 0.21        | 11.4  | B   |
|   | T        |            | 0.80 | 28.7  | C   | 0.41   | 21.4  | C   | 0.48 | 20.3  | C   | 0.45        | 22.2  | C   |
|   | EB       | LTR        | 0.59 | 45.1  | D   | 0.33   | 34.6  | C   | 0.70 | 52.7  | D   | 0.39        | 36.7  | D   |
|   | WB       | LTR        | 0.33 | 38.0  | D   | 0.27   | 33.5  | C   | 0.65 | 47.3  | D   | 0.65        | 43.2  | D   |
|   | Overall  |            |      | 28.0  | C   |        | 22.4  | C   |      | 26.0  | C   |             | 27.1  | C   |
| Grand Concourse NB Service Road & E. Tremont Avenue             | NB       | TR         | 0.65 | 24.2  | C   | 0.52   | 23.7  | C   | 0.61 | 23.0  | C   | 0.84        | 34.6  | C   |
|   | EB       | LT         | 0.51 | 29.6  | C   | 0.28   | 22.4  | C   | 0.66 | 36.5  | D   | 0.44        | 25.6  | C   |
|   | WB       | TR         | 0.59 | 44.8  | D   | 0.56   | 40.6  | D   | 0.75 | 53.5  | D   | 0.66        | 43.7  | D   |
|   | Overall  |            |      | 28.9  | C   |        | 27.3  | C   |      | 31.4  | C   |             | 34.9  | C   |

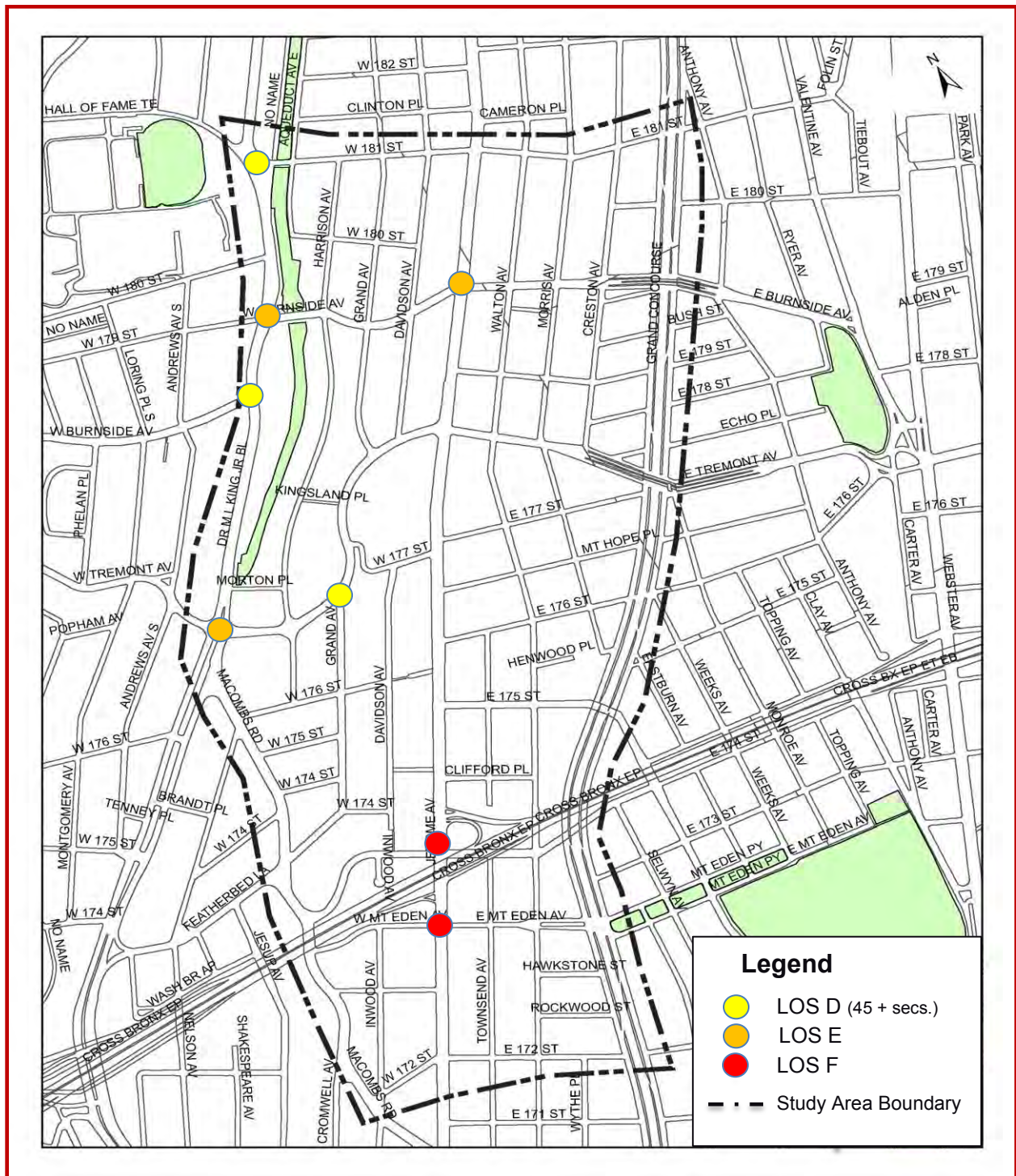
**TABLE 4-2 (page 4 of 4)**  
**Traffic Capacity Analysis for Signalized Intersections**  
**Existing Conditions**

| Intersection   | Approach | Lane Group | AM   |       |     | Midday |       |     | PM   |       |     | Saturday MD |       |     |
|--|----------|------------|------|-------|-----|--------|-------|-----|------|-------|-----|-------------|-------|-----|
|  |          |            | V/C  | Delay | LOS | V/C    | Delay | LOS | V/C  | Delay | LOS | V/C         | Delay | LOS |
| W. Burnside & Grand Avenues                          | SB       | LTR        | 0.33 | 24.0  | C   | 0.55   | 29.1  | C   | 0.72 | 35.0  | C   | 0.47        | 26.8  | C   |
|  | EB       | TR         | 0.88 | 33.3  | C   | 0.72   | 22.1  | C   | 0.70 | 20.9  | C   | 0.67        | 19.9  | B   |
|  | WB       | LT         | 0.79 | 26.3  | C   | 0.67   | 20.6  | C   | 0.83 | 28.1  | C   | 0.85        | 30.4  | C   |
|  | Overall  |            |      | 29.5  | C   |        | 23.1  | C   |      | 27.1  | C   |             | 25.7  | C   |
| W. Burnside & Davidson Avenues                       | NB       | LTR        | 0.40 | 25.1  | C   | 0.40   | 25.4  | C   | 0.50 | 27.1  | C   | 0.53        | 28.0  | C   |
|  | EB       | LT         | 0.63 | 18.6  | B   | 0.65   | 19.5  | B   | 0.66 | 19.4  | B   | 0.59        | 17.5  | B   |
|  | WB       | TR         | 0.56 | 16.6  | B   | 0.55   | 16.6  | B   | 0.68 | 19.9  | B   | 0.71        | 20.8  | C   |
|  | Overall  |            |      | 19.0  | B   |        | 19.4  | B   |      | 21.1  | C   |             | 21.2  | C   |
| E. Burnside & Walton Avenues                         | SB       | LTR        | 0.79 | 42.9  | D   | 0.58   | 33.3  | C   | 0.68 | 37.3  | D   | 0.50        | 30.9  | C   |
|  | EB       | TR         | 0.49 | 12.5  | B   | 0.48   | 12.7  | B   | 0.58 | 14.3  | B   | 0.62        | 15.6  | B   |
|  | WB       | LT         | 0.51 | 13.1  | B   | 0.63   | 16.0  | B   | 0.77 | 21.0  | C   | 0.88        | 30.0  | C   |
|  | Overall  |            |      | 21.2  | C   |        | 18.6  | B   |      | 21.9  | C   |             | 25.0  | C   |
| E. Burnside & Morris Avenues                         | NB       | LTR        | 0.45 | 26.2  | C   | 0.51   | 27.8  | C   | 0.74 | 36.4  | D   | 0.75        | 37.8  | D   |
|  | EB       | LT         | 0.67 | 20.1  | C   | 0.61   | 18.3  | B   | 0.86 | 30.6  | C   | 0.65        | 19.5  | B   |
|  | WB       | TR         | 0.63 | 18.3  | B   | 0.67   | 19.8  | B   | 0.92 | 37.7  | D   | 0.79        | 24.8  | C   |
|  | Overall  |            |      | 20.4  | C   |        | 20.9  | C   |      | 34.8  | C   |             | 26.1  | C   |
| E. Burnside & Creston Avenues                        | SB       | LTR        | 0.67 | 41.9  | D   | 0.58   | 39.0  | D   | 0.68 | 43.3  | D   | 0.42        | 32.8  | C   |
|  | EB       | TR         | 0.52 | 10.9  | B   | 0.47   | 10.3  | B   | 0.66 | 13.9  | B   | 0.54        | 11.3  | B   |
|  | WB       | LT         | 0.49 | 10.4  | B   | 0.55   | 11.5  | B   | 0.60 | 12.4  | B   | 0.60        | 12.4  | B   |
|  | Overall  |            |      | 16.4  | B   |        | 15.2  | B   |      | 17.7  | B   |             | 14.4  | B   |
| Grand Concourse SB Service Road & E. Burnside Avenue | SB       | TR         | 0.54 | 21.7  | C   | 0.40   | 21.4  | C   | 0.53 | 21.4  | C   | 0.48        | 22.7  | C   |
|  | EB       | T          | 0.54 | 44.2  | D   | 0.37   | 35.7  | D   | 0.35 | 38.0  | D   | 0.36        | 35.3  | D   |
|  | WB       | LT         | 0.21 | 23.7  | C   | 0.16   | 20.6  | C   | 0.19 | 23.4  | C   | 0.14        | 20.4  | C   |
|  | Overall  |            |      | 25.8  | C   |        | 24.2  | C   |      | 24.2  | C   |             | 24.8  | C   |
| Grand Concourse mainline & E. Burnside Avenue        | NB       | L          | 0.37 | 46.2  | D   | 0.14   | 15.4  | B   | 0.32 | 22.3  | C   | 0.13        | 16.6  | B   |
|  |          | T          | 0.44 | 19.6  | B   | 0.45   | 22.1  | C   | 0.73 | 26.2  | C   | 0.48        | 22.6  | C   |
|  | SB       | L          | 0.21 | 14.7  | B   | 0.15   | 15.6  | B   | 0.37 | 31.3  | C   | 0.32        | 20.4  | C   |
|  |          | T          | 0.99 | 52.5  | D   | 0.44   | 21.9  | C   | 0.59 | 22.5  | C   | 0.51        | 23.0  | C   |
|  | EB       | LTR        | 0.23 | 35.9  | D   | 0.32   | 34.6  | C   | 0.31 | 37.4  | D   | 0.28        | 33.7  | C   |
|  | WB       | LTR        | 0.36 | 38.7  | D   | 0.44   | 37.2  | D   | 0.38 | 39.1  | D   | 0.36        | 35.7  | D   |
| Grand Concourse NB Service Road & E. Burnside Avenue | Overall  |            |      | 51.0  | D   |        | 24.2  | C   |      | 26.1  | C   |             | 24.2  | C   |
|  | NB       | TR         | 0.45 | 19.9  | B   | 0.37   | 20.9  | C   | 0.54 | 21.7  | C   | 0.32        | 20.3  | C   |
|  | EB       | LT         | 0.32 | 25.8  | C   | 0.17   | 20.7  | C   | 0.22 | 23.9  | C   | 0.26        | 22.1  | C   |
|  | WB       | TR         | 0.49 | 42.6  | D   | 0.41   | 36.5  | D   | 0.48 | 41.3  | D   | 0.43        | 37.3  | D   |
| E. 181st Street & Morris Avenue                      | Overall  |            |      | 25.0  | C   |        | 24.7  | C   |      | 25.5  | C   |             | 24.6  | C   |
|  | NB       | LT         | 0.27 | 12.1  | B   | 0.27   | 12.1  | B   | 0.44 | 13.8  | B   | 0.36        | 13.0  | B   |
|  | WB       | TR         | 0.51 | 16.3  | B   | 0.46   | 15.4  | B   | 0.64 | 19.9  | B   | 0.32        | 13.4  | B   |
|  | Overall  |            |      | 14.2  | B   |        | 13.7  | B   |      | 16.3  | B   |             | 13.1  | B   |
| Grand Concourse SB Service Road & E. 181st Street    | SB       | TR         | 0.37 | 16.4  | B   | 0.37   | 16.5  | B   | 0.41 | 17.1  | B   | 0.43        | 17.3  | B   |
|  | WB       | LT         | 0.13 | 25.7  | C   | 0.17   | 26.3  | C   | 0.36 | 29.2  | C   | 0.32        | 28.5  | C   |
|  | Overall  |            |      | 17.6  | B   |        | 18.0  | B   |      | 20.4  | C   |             | 20.1  | C   |
| Grand Concourse mainline & E. 181st Street           | NB       | L          | 0.53 | 38.5  | D   | 0.23   | 16.1  | B   | 0.65 | 34.6  | C   | 0.35        | 19.2  | B   |
|  |          | T          | 0.35 | 16.1  | B   | 0.38   | 16.5  | B   | 0.84 | 28.6  | C   | 0.41        | 16.9  | B   |
|  | SB       | T          | 0.79 | 26.0  | C   | 0.33   | 15.9  | B   | 0.50 | 18.3  | B   | 0.44        | 17.4  | B   |
|  | WB       | LTR        | 0.15 | 26.0  | C   | 0.15   | 25.9  | C   | 0.32 | 28.5  | C   | 0.26        | 27.5  | C   |
|  | Overall  |            |      | 23.5  | C   |        | 16.9  | B   |      | 25.6  | C   |             | 18.3  | B   |
| Grand Concourse NB Service Road & E. 181st Street    | NB       | LT         | 0.23 | 14.8  | B   | 0.26   | 15.1  | B   | 0.42 | 17.2  | B   | 0.28        | 15.3  | B   |
|  | WB       | TR         | 0.18 | 26.4  | C   | 0.19   | 26.7  | C   | 0.36 | 29.4  | C   | 0.31        | 28.5  | C   |
|  | Overall  |            |      | 17.3  | B   |        | 17.6  | B   |      | 20.2  | C   |             | 19.4  | B   |



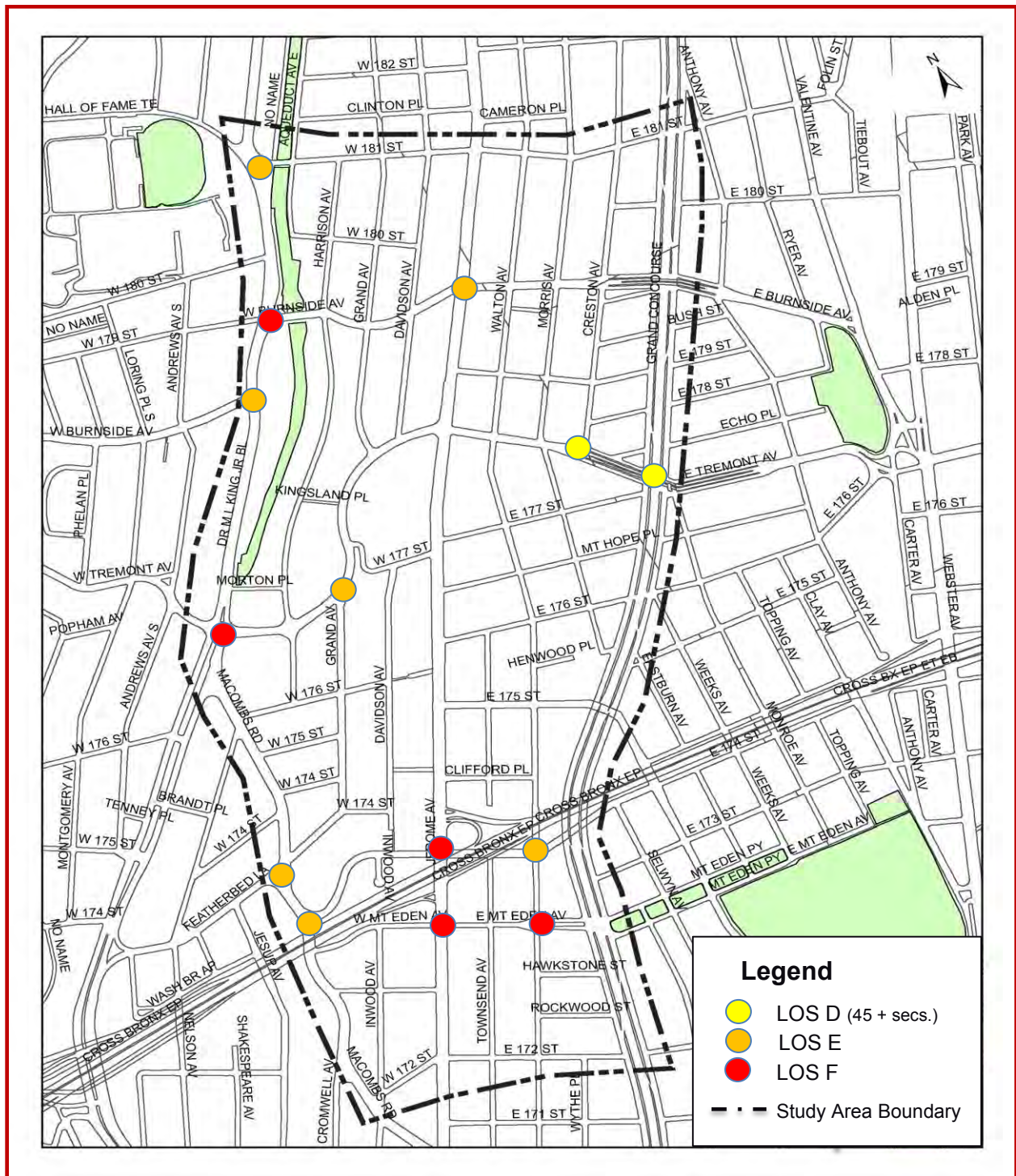


**Figure 4-8**  
**Existing Conditions – Intersections with LOS D, E, and F**  
**Midday Peak Hour**

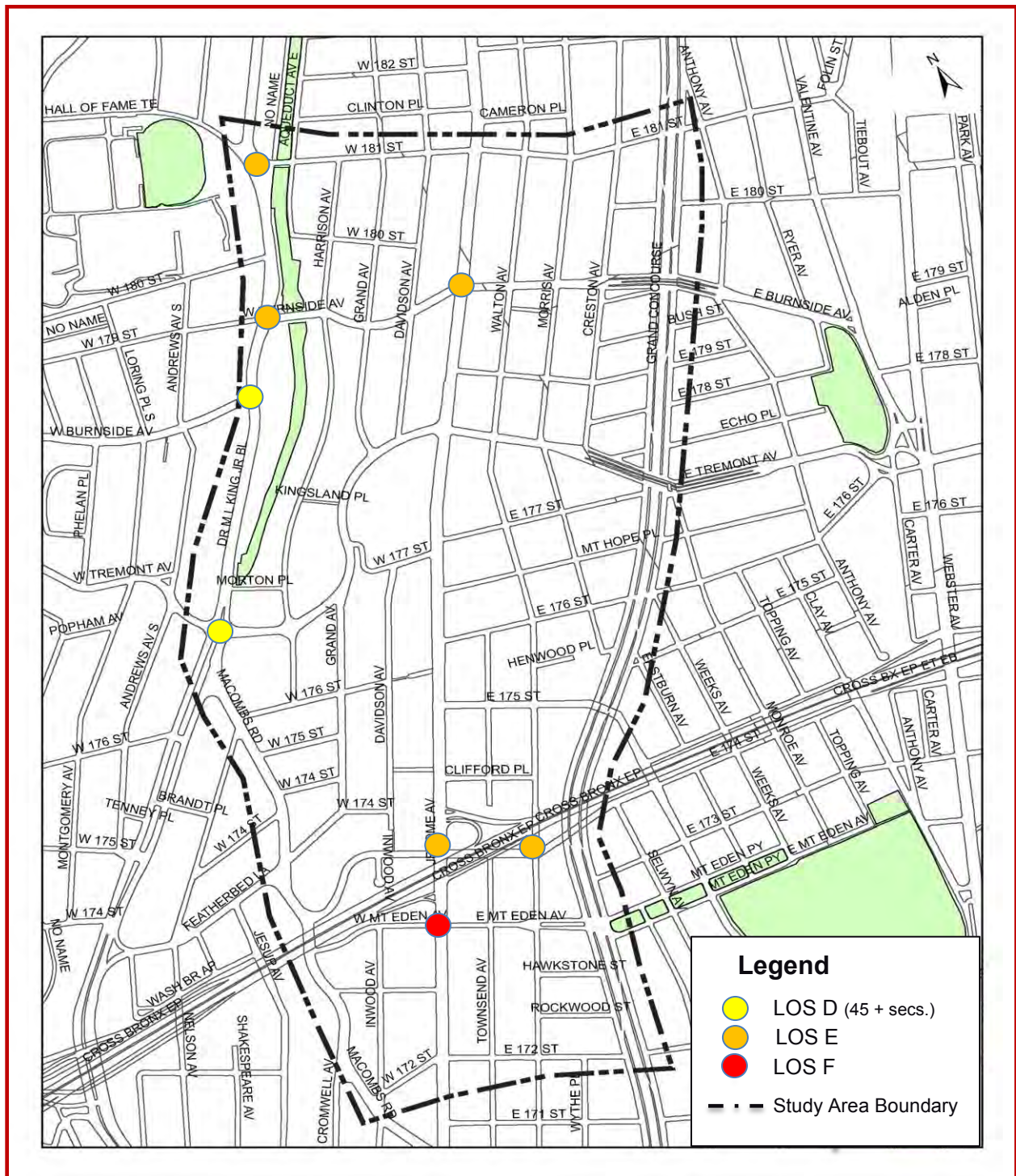




**Figure 4-9**  
**Existing Conditions – Intersections with LOS D, E, and F**  
**PM Peak Hour**



**Figure 4-10**  
**Existing Conditions – Intersections with LOS D, E, and F**  
**Saturday Midday Peak Hour**



## 4.7 Future Traffic Conditions

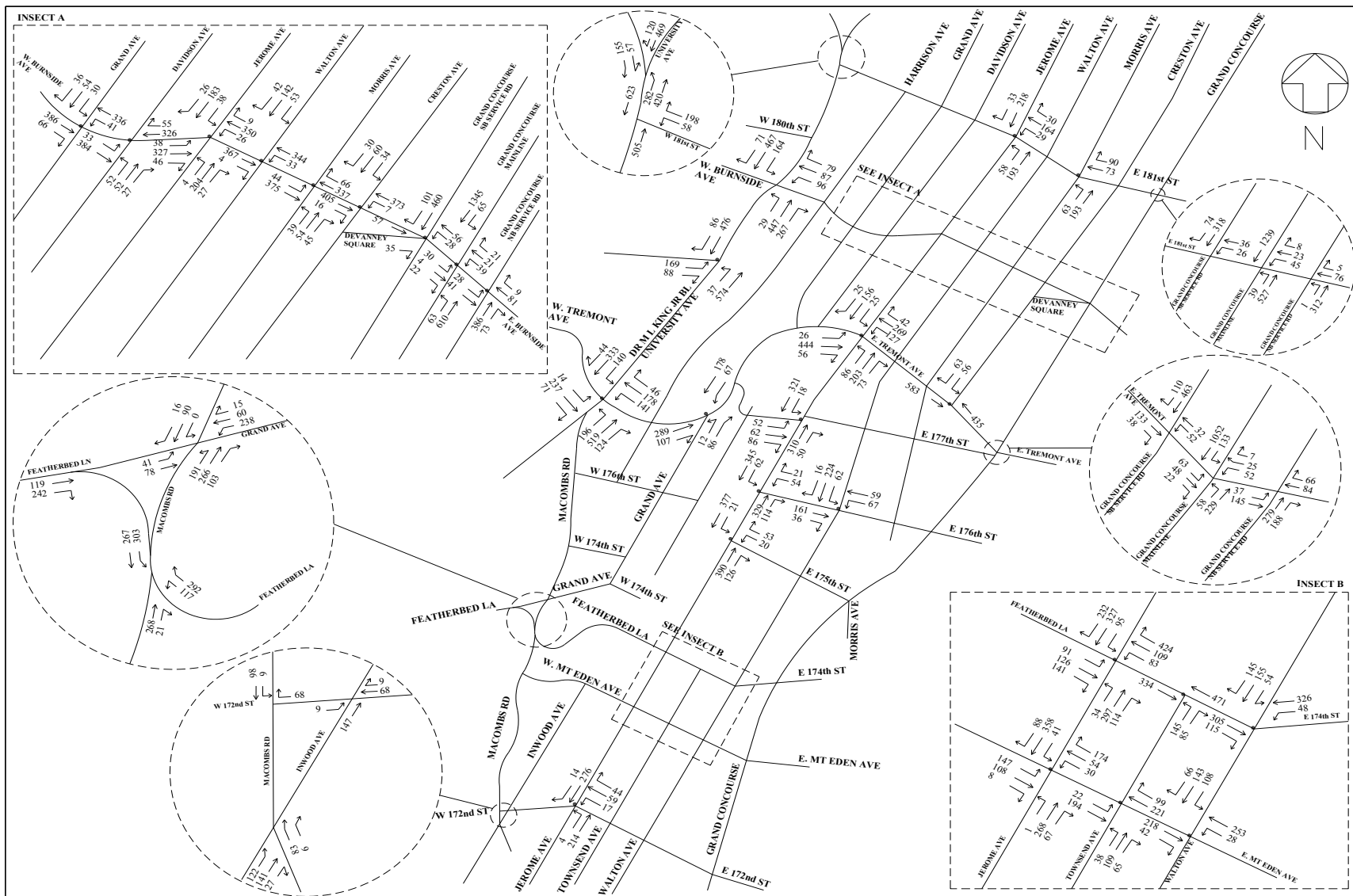
The 2018 future traffic conditions focused on capacity analysis of 32 intersections. The existing volumes were projected 0.38% per year for period of ten years, plus trips from new known developments by year 2018. Thus, future balanced traffic network volumes were developed for the weekday AM, midday, PM, and Saturday midday peak hours (see Figures 4-11 to 4-14). Table 4-3 shows the future conditions capacity analysis results.

The results show that most intersections would operate at an acceptable level of service (LOS) C or better during the various peak hours. However, some intersection approaches or lane groups would experience LOS D, E, and F. Intersections with approaches or lane groups with mid LOS D or worse are listed below and shown in Figures 4-15 to 4-18.

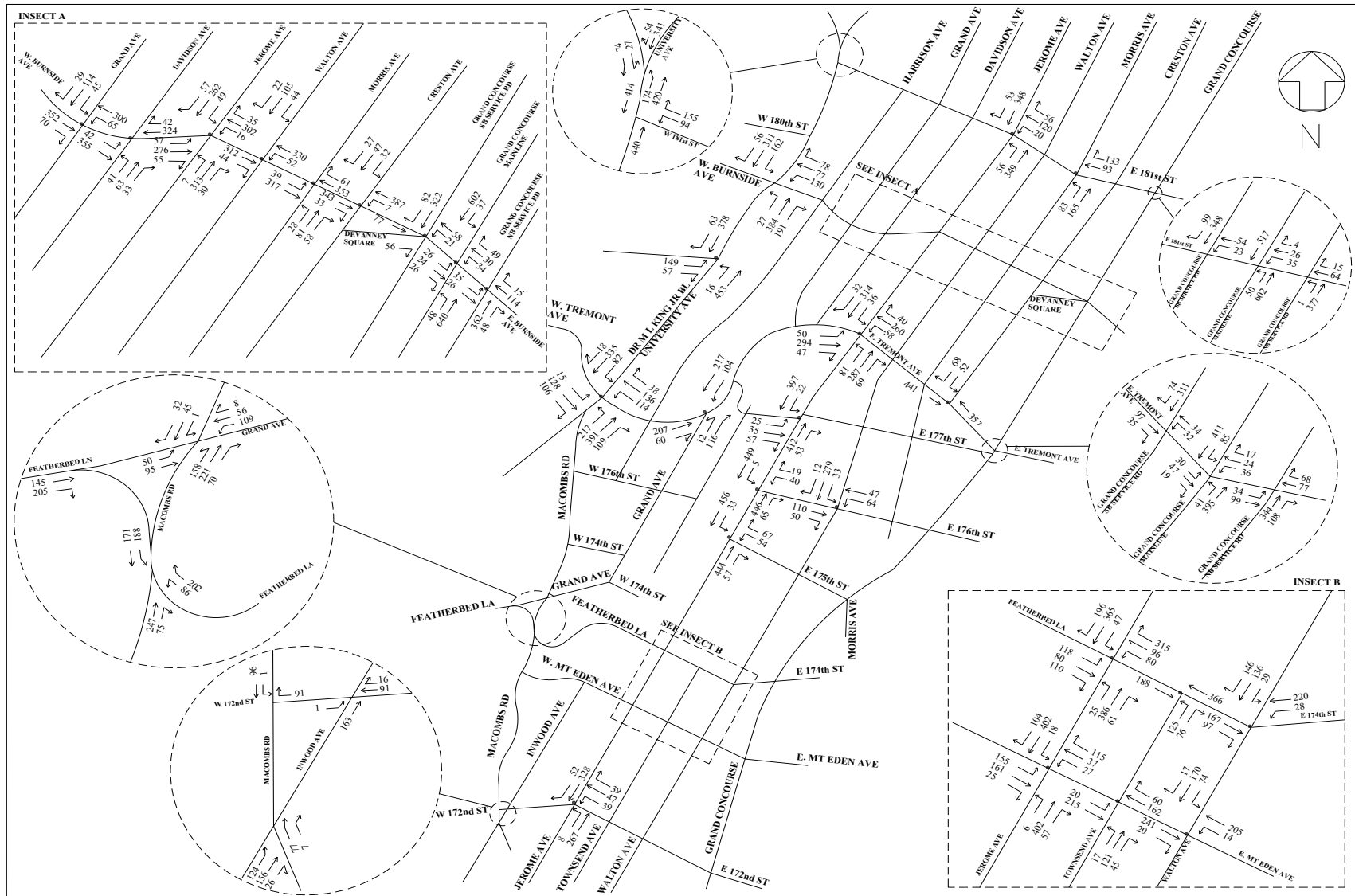
- Jerome Avenue and Mount Eden Avenue (AM, midday, PM, & Saturday midday);
- Jerome Avenue and Featherbed Lane/East 174<sup>th</sup> Street (AM, midday, PM, and Saturday midday);
- Jerome Avenue and Burnside Avenue (Midday, PM, and Saturday midday);
- Walton Avenue and East 174<sup>th</sup> Street (AM and PM);
- Walton Avenue and East Mount Eden Avenue (AM and PM);
- Macombs Road and Grand Avenue (AM and PM);
- Macombs Road and Featherbed Lane (PM);
- Grand Avenue and West Tremont Avenue (PM);
- Dr. Martin Luther King Jr Boulevard/University Avenue and West Tremont Avenue (Midday and PM);
- Dr. Martin Luther King Jr Boulevard/University Avenue and Burnside Avenue (PM);
- University Avenue/Dr. Martin Luther King Jr Boulevard/ and W. Burnside Avenue (AM, Midday, PM, and Saturday Midday); and
- Dr. Martin Luther King Jr Boulevard/University Avenue and W. 181<sup>st</sup> Street/Hall of Fame Terrace.



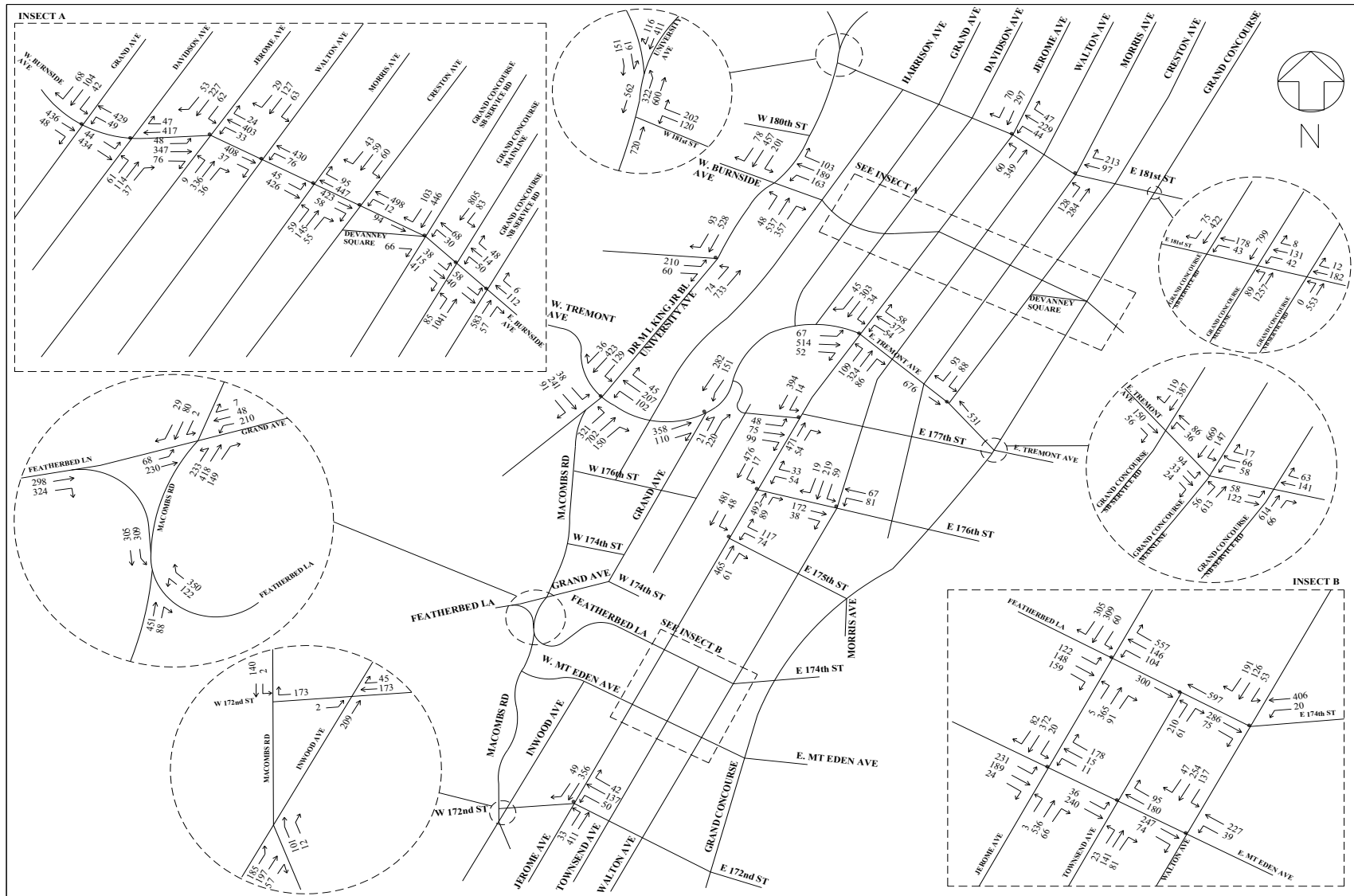
**Figure 4-11  
Future Traffic Volumes  
AM Peak Hour**



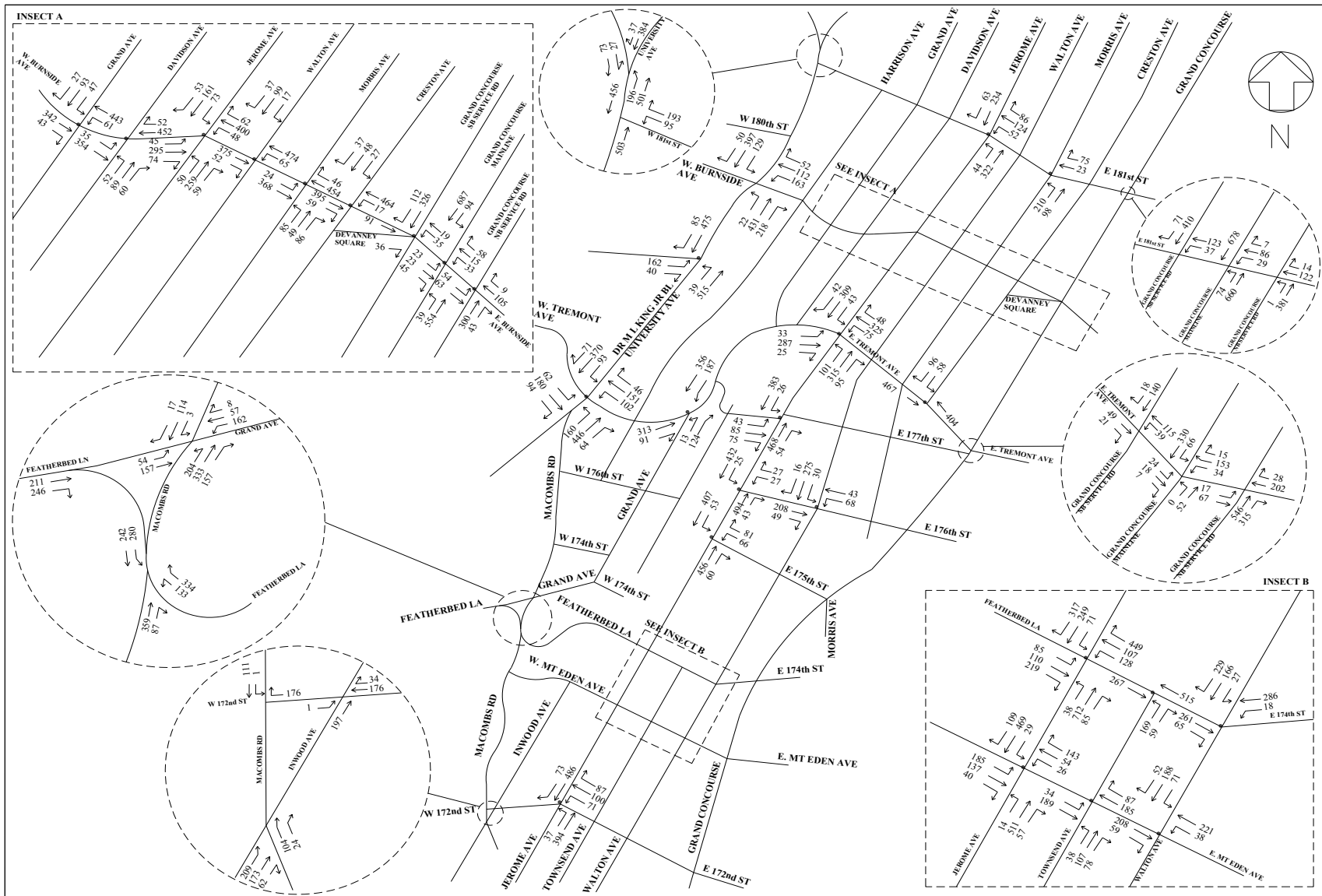
**Figure 4-12**  
**Future Traffic Volumes**  
**Midday Peak Hour**



**Figure 4-13**  
**Future Traffic Volumes**  
**PM Peak Hour**



**Figure 4-14**  
**Future Traffic Volumes**  
**Saturday Midday Peak Hour**



**TABLE 4-3 (page 1 of 4)**  
**Traffic Capacity Analysis for Signalized Intersections**  
**Future Conditions**

| Intersection                                  | Approach | Lane Group | AM   |       |     | Midday |       |     | PM   |       |     | Saturday MD |       |     |
|---|----------|------------|------|-------|-----|--------|-------|-----|------|-------|-----|-------------|-------|-----|
|   |          |            | V/C  | Delay | LOS | V/C    | Delay | LOS | V/C  | Delay | LOS | V/C         | Delay | LOS |
| Jerome Avenue & E. 172nd Street               | NB       | LT         | 0.21 | 10.9  | B   | 0.26   | 11.3  | B   | 0.38 | 12.6  | B   | 0.43        | 13.3  | B   |
|   | SB       | TR         | 0.27 | 11.4  | B   | 0.33   | 12.1  | B   | 0.34 | 12.1  | B   | 0.52        | 14.3  | B   |
|   | WB       | LTR        | 0.29 | 22.8  | C   | 0.36   | 24.0  | C   | 0.65 | 31.0  | C   | 0.66        | 31.5  | C   |
|   | Overall  |            |      | 13.3  | B   |        | 14.1  | B   |      | 17.1  | B   |             | 17.5  | B   |
| Jerome & Mt. Eden Avenues                     | NB       | LTR        | 0.30 | 11.7  | B   | 0.71   | 18.7  | B   | 0.49 | 13.9  | B   | 0.76        | 19.9  | B   |
|   | SB       | LTR        | 0.46 | 13.6  | B   | 0.80   | 21.8  | C   | 0.41 | 12.9  | B   | 0.99        | 45.1  | D   |
|   | EB       | LTR        | 1.10 | 110.9 | F   | 1.11   | 108.4 | F   | 1.11 | 103.1 | F   | 1.06        | 92.2  | F   |
|   | WB       | LTR        | 0.92 | 57.8  | E   | 0.93   | 62.1  | E   | 0.75 | 38.6  | D   | 0.98        | 68.1  | E   |
|   | Overall  |            |      | 41.0  | D   |        | 39.3  | D   |      | 39.5  | D   |             | 46.1  | D   |
| Jerome Avenue & Featherbed Lane/ 174th Street | NB       | LTR        | 0.51 | 14.5  | B   | 0.45   | 13.5  | B   | 0.37 | 12.4  | B   | 0.67        | 17.4  | B   |
|   | SB       | LTR        | 0.86 | 27.1  | C   | 0.63   | 16.8  | B   | 0.66 | 17.5  | B   | 0.68        | 18.5  | B   |
|   | EB       | Deflt L    |      |       |     | 0.98   | 98.6  | F   | 0.98 | 101.9 | F   |             |       |     |
|   |          | LT/LTR     | 1.09 | 98.7  | F   | 0.64   | 33.3  | C   | 0.83 | 44.1  | D   | 0.87        | 45.1  | D   |
|   | WB       | LTR        | 1.00 | 63.4  | E   | 0.96   | 56.2  | E   | 1.01 | 62.8  | E   | 1.08        | 88.0  | F   |
|   | Overall  |            |      | 47.8  | D   |        | 33.4  | D   |      | 39.1  | D   |             | 40.6  | D   |
| Jerome Avenue & 175th Street                  | NB       | TR         | 0.47 | 13.7  | B   | 0.43   | 13.1  | B   | 0.39 | 12.6  | B   | 0.38        | 12.6  | B   |
|   | SB       | LT         | 0.36 | 12.5  | B   | 0.47   | 13.9  | B   | 0.45 | 13.5  | B   | 0.41        | 13.1  | B   |
|   | WB       | L          | 0.08 | 20.2  | C   | 0.21   | 21.9  | C   | 0.22 | 22.0  | C   | 0.19        | 21.6  | C   |
|   |          | R          | 0.27 | 23.1  | C   | 0.34   | 24.5  | C   | 0.37 | 24.8  | C   | 0.28        | 23.3  | C   |
|   | Overall  |            |      | 14.2  | B   |        | 15.0  | B   |      | 15.0  | B   |             | 14.3  | B   |
| Jerome Avenue & 176th Street                  | NB       | TR         | 0.39 | 12.8  | B   | 0.42   | 13.1  | B   | 0.45 | 13.4  | B   | 0.47        | 13.7  | B   |
|   | SB       | LT         | 0.52 | 14.8  | B   | 0.46   | 13.6  | B   | 0.39 | 12.7  | B   | 0.40        | 12.8  | B   |
|   | WB       | LR         | 0.31 | 23.4  | C   | 0.22   | 22.2  | C   | 0.27 | 22.9  | C   | 0.21        | 22.1  | C   |
|   | Overall  |            |      | 14.9  | B   |        | 14.0  | B   |      | 13.9  | B   |             | 13.9  | B   |
| Jerome Avenue & 177th Street                  | NB       | T          | 0.32 | 10.9  | B   | 0.35   | 11.2  | B   | 0.39 | 11.5  | B   | 0.38        | 11.5  | B   |
|   | SB       | T          | 0.29 | 10.6  | B   | 0.35   | 11.2  | B   | 0.29 | 10.6  | B   | 0.27        | 10.4  | B   |
|   | EB       | LR         | 0.63 | 32.4  | C   | 0.38   | 26.3  | C   | 0.56 | 30.1  | C   | 0.70        | 35.6  | D   |
|   | Overall  |            |      | 15.9  | B   |        | 13.2  | B   |      | 14.8  | B   |             | 16.7  | B   |
| Jerome & Tremont Avenues                      | NB       | LTR        | 0.57 | 26.5  | C   | 0.71   | 31.2  | C   | 0.74 | 32.3  | C   | 0.75        | 33.4  | C   |
|   | SB       | LTR        | 0.29 | 21.1  | C   | 0.51   | 24.9  | C   | 0.44 | 23.3  | C   | 0.61        | 27.7  | C   |
|   | EB       | LTR        | 0.60 | 26.6  | C   | 0.51   | 24.8  | C   | 0.78 | 33.3  | C   | 0.37        | 22.2  | C   |
|   | WB       | DefL       | 0.81 | 54.0  | D   |        |       |     |      |       |     |             |       |     |
|   |          | LTR        |      |       |     | 0.49   | 24.7  | C   | 0.64 | 28.4  | C   | 0.58        | 26.3  | C   |
|   |          | TR         | 0.70 | 32.7  | C   |        |       |     |      |       |     |             |       |     |
|   | Overall  |            |      | 29.5  | C   |        | 26.7  | C   |      | 30.0  | C   |             | 27.9  | C   |
| Jerome & Burnside Avenues                     | NB       | LTR        | 0.53 | 26.7  | C   | 0.73   | 34.5  | C   | 0.85 | 42.9  | D   | 0.85        | 44.0  | D   |
|   | SB       | LTR        | 0.59 | 29.1  | C   | 0.91   | 53.1  | D   | 0.88 | 50.6  | D   | 0.88        | 53.4  | D   |
|   | EB       | LTR        | 0.80 | 38.9  | D   | 1.00   | 75.2  | E   | 0.99 | 67.9  | E   | 0.98        | 65.9  | E   |
|   | WB       | LTR        | 0.90 | 48.7  | D   | 0.87   | 44.4  | D   | 0.98 | 63.0  | E   | 1.08        | 92.8  | F   |
|   | Overall  |            |      | 38.2  | D   |        | 51.7  | D   |      | 56.7  | E   |             | 67.5  | E   |
| Jerome Avenue & 181st Street                  | NB       | LT         | 0.29 | 14.6  | B   | 0.45   | 16.9  | B   | 0.42 | 16.4  | B   | 0.36        | 15.4  | B   |
|   | SB       | TR         | 0.26 | 14.1  | B   | 0.39   | 15.8  | B   | 0.30 | 14.6  | B   | 0.24        | 13.9  | B   |
|   | WB       | LTR        | 0.60 | 36.4  | D   | 0.49   | 33.1  | C   | 0.75 | 43.0  | D   | 0.65        | 38.4  | D   |
|   | Overall  |            |      | 21.4  | C   |        | 19.7  | B   |      | 23.7  | C   |             | 21.7  | C   |



**TABLE 4-3 (page 2 of 4)**  
**Traffic Capacity Analysis for Signalized Intersections**  
**Future Conditions**

| Intersection                                  | Approach | Lane Group | AM   |       |     | Midday |       |     | PM   |       |     | Saturday MD |       |     |
|---|----------|------------|------|-------|-----|--------|-------|-----|------|-------|-----|-------------|-------|-----|
|   |          |            | V/C  | Delay | LOS | V/C    | Delay | LOS | V/C  | Delay | LOS | V/C         | Delay | LOS |
| Townsend Avenue & E. 174th Street             | NB       | LR         | 0.60 | 30.4  | C   | 0.56   | 29.0  | C   | 0.67 | 32.6  | C   | 0.61        | 30.6  | C   |
|   | EB       | TR         | 0.48 | 14.8  | B   | 0.26   | 11.8  | B   | 0.39 | 13.4  | B   | 0.35        | 12.8  | B   |
|   | WB       | LT         | 0.62 | 17.6  | B   | 0.48   | 14.8  | B   | 0.75 | 21.6  | C   | 0.60        | 17.0  | B   |
|   | Overall  |            |      | 19.5  | B   |        | 18.1  | B   |      | 22.1  | C   |             | 19.2  | B   |
| Townsend & E. Mt. Eden Avenues                | NB       | LTR        | 0.47 | 23.4  | C   | 0.48   | 23.6  | C   | 0.64 | 28.1  | C   | 0.50        | 24.2  | C   |
|   | EB       | LT         | 0.44 | 17.5  | B   | 0.56   | 20.0  | C   | 0.54 | 19.6  | B   | 0.47        | 18.1  | B   |
|   | WB       | TR         | 0.78 | 30.1  | C   | 0.57   | 20.7  | C   | 0.64 | 22.9  | C   | 0.64        | 22.6  | C   |
|   | Overall  |            |      | 24.8  | C   |        | 21.3  | C   |      | 23.7  | C   |             | 21.8  | C   |
| Walton Avenue & E. 174th Street               | SB       | LTR        | 0.67 | 14.9  | B   | 0.53   | 12.0  | B   | 0.53 | 11.8  | B   | 0.66        | 14.7  | B   |
|   | EB       | TR         | 1.05 | 76.1  | E   | 0.63   | 23.0  | C   | 0.93 | 45.1  | D   | 0.74        | 27.2  | C   |
|   | WB       | LT         | 1.07 | 83.7  | F   | 0.78   | 32.0  | C   | 1.07 | 83.6  | F   | 0.84        | 36.0  | D   |
|   | Overall  |            |      | 57.2  | E   |        | 21.6  | C   |      | 48.1  | D   |             | 24.7  | C   |
| Walton Avenue & E. 176th Street               | SB       | LTR        | 0.47 | 10.8  | B   | 0.54   | 11.9  | B   | 0.50 | 11.2  | B   | 0.52        | 11.6  | B   |
|   | EB       | TR         | 0.56 | 21.7  | C   | 0.51   | 20.6  | C   | 0.58 | 22.3  | C   | 0.87        | 41.1  | D   |
|   | WB       | LT         | 0.63 | 26.8  | C   | 0.44   | 20.2  | C   | 0.62 | 26.5  | C   | 0.63        | 29.9  | C   |
|   | Overall  |            |      | 17.7  | B   |        | 15.9  | B   |      | 17.7  | B   |             | 25.6  | C   |
| Walton & E. Mt. Eden Avenue                   | SB       | LTR        | 0.98 | 68.4  | E   | 0.72   | 35.4  | D   | 1.07 | 90.9  | F   | 0.86        | 45.7  | D   |
|   | EB       | TR         | 0.38 | 13.4  | B   | 0.38   | 13.3  | B   | 0.52 | 15.9  | B   | 0.39        | 13.5  | B   |
|   | WB       | LT         | 0.51 | 15.5  | B   | 0.36   | 13.2  | B   | 0.47 | 14.9  | B   | 0.43        | 14.1  | B   |
|   | Overall  |            |      | 32.0  | C   |        | 21.4  | C   |      | 51.7  | D   |             | 26.1  | C   |
| Macombs Road & Grand Avenue/ Featherbed Lane  | NB       | LTR        | 0.86 | 24.4  | C   | 0.64   | 15.3  | B   | 0.91 | 27.8  | C   | 0.83        | 21.9  | C   |
|   | SB       | LTR        | 0.12 | 8.80  | A   | 0.10   | 8.70  | A   | 0.11 | 8.80  | A   | 0.18        | 9.20  | A   |
|   | EB       | LT         | 0.28 | 14.2  | B   | 0.35   | 15.1  | B   | 0.64 | 20.9  | C   | 0.47        | 16.9  | B   |
|   | WB       | LTR        | 1.01 | 70.9  | E   | 0.69   | 26.5  | C   | 1.02 | 77.5  | E   | 0.86        | 41.4  | D   |
|   | Overall  |            |      | 33.2  | C   |        | 17.0  | B   |      | 33.2  | C   |             | 23.0  | C   |
| Macombs Road & Featherbed Lane                | NB       | TR         | 0.25 | 8.1   | A   | 0.31   | 8.5   | A   | 0.49 | 10.1  | B   | 0.35        | 8.90  | A   |
|   | SB       | DefL       | 0.81 | 26.8  | C   | 0.71   | 20.7  | C   | 1.04 | 74.3  | E   | 0.82        | 29.1  | C   |
|   |          | T          | 0.44 | 10.6  | B   | 0.31   | 9.1   | A   | 0.45 | 10.7  | B   | 0.39        | 10.1  | B   |
|   | WB       | L          | 0.24 | 15.6  | B   | 0.17   | 14.9  | B   | 0.28 | 16.0  | B   | 0.29        | 16.2  | B   |
|   | Overall  |            |      | 15.3  | B   |        | 12.6  | B   |      | 24.6  | C   |             | 15.3  | B   |
| Macombs Road/ Inwood Avenue & W. 172nd Street | NB       | LTR        | 0.34 | 13.0  | B   | 0.39   | 13.6  | B   | 0.52 | 15.1  | B   | 0.54        | 15.6  | B   |
|   | EB       | LT         | 0.14 | 9.2   | A   | 0.11   | 9.1   | A   | 0.13 | 9.2   | A   | 0.12        | 9.10  | A   |
|   | WB       | TR         | 0.10 | 9.0   | A   | 0.10   | 9.0   | A   | 0.11 | 9.1   | A   | 0.12        | 9.20  | A   |
|   | Overall  |            |      | 11.4  | B   |        | 11.8  | B   |      | 13.0  | B   |             | 13.3  | B   |
| University & W. Tremont Avenues               | NB       | L          | 0.82 | 52.8  | D   | 0.88   | 63.2  | E   | 1.05 | 98.8  | F   | 0.78        | 52.1  | D   |
|   |          | TR         | 0.78 | 34.6  | C   | 0.60   | 29.0  | C   | 0.91 | 45.3  | D   | 0.57        | 28.3  | C   |
|   | SB       | L          | 0.80 | 53.3  | D   | 0.42   | 28.8  | C   | 1.01 | 115.8 | F   | 0.54        | 35.7  | D   |
|   |          | TR         | 0.34 | 23.3  | C   | 0.29   | 22.5  | C   | 0.37 | 23.7  | C   | 0.38        | 24.3  | C   |
|   | EB       | LTR        | 0.82 | 47.7  | D   | 0.61   | 35.3  | D   | 0.81 | 46.2  | D   | 0.87        | 52.9  | D   |
|   | WB       | DefL       | 0.44 | 35.0  | C   | 0.35   | 29.2  | C   | 0.38 | 33.4  | C   | 0.32        | 32.0  | C   |
|   |          | TR         | 0.43 | 22.2  | C   | 0.33   | 20.4  | C   | 0.41 | 21.8  | C   | 0.31        | 19.8  | B   |
|   | Overall  |            |      | 36.4  | D   |        | 31.7  | C   |      | 48.6  | D   |             | 35.3  | D   |

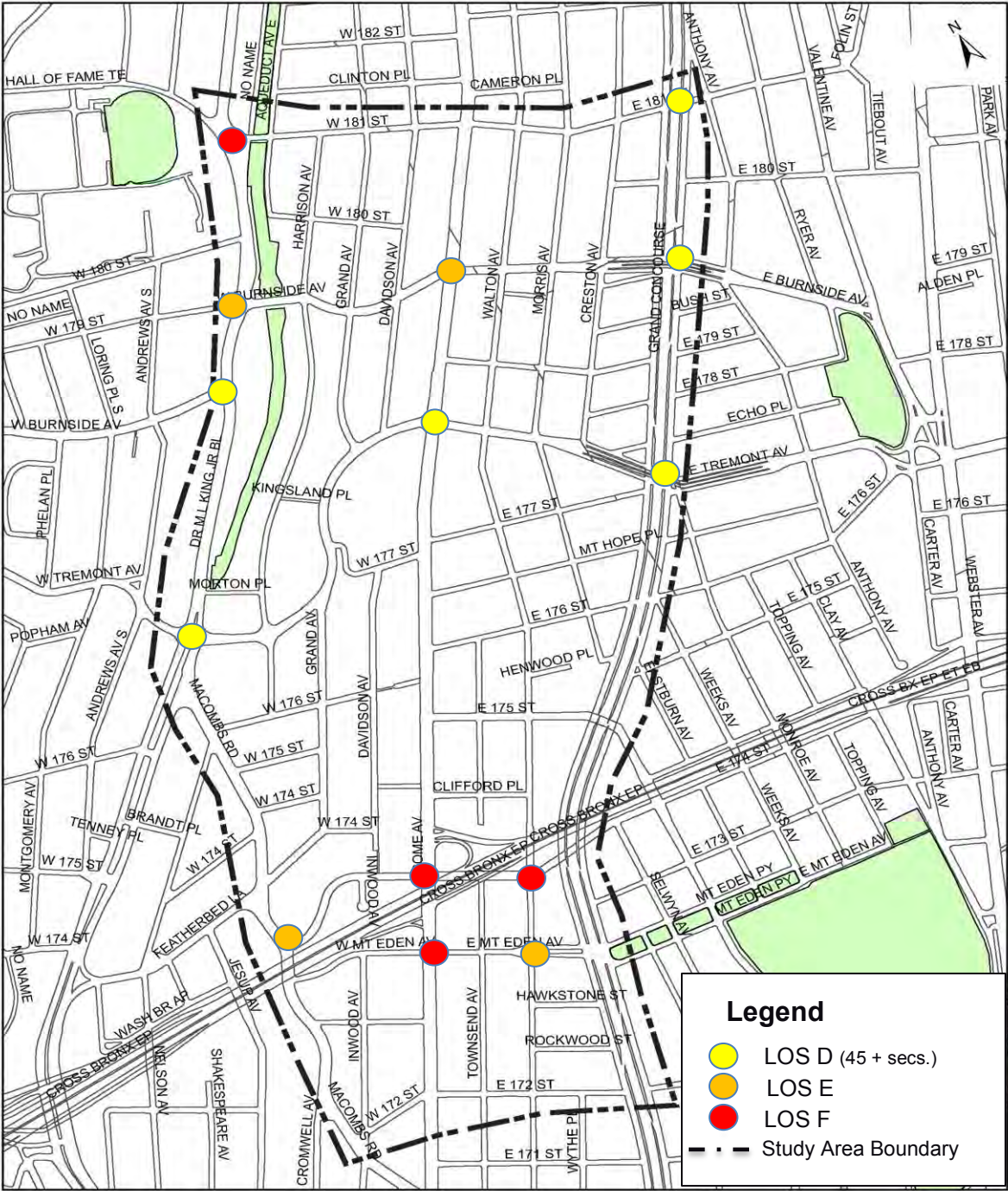
**TABLE 4-3 (page 3 of 4)**  
**Traffic Capacity Analysis for Signalized Intersections**  
**Future Conditions**

| Intersection  | Approach | Lane Group | AM   |       |     | Midday |       |     | PM   |       |     | Saturday MD |       |     |
|---|----------|------------|------|-------|-----|--------|-------|-----|------|-------|-----|-------------|-------|-----|
|   |          |            | V/C  | Delay | LOS | V/C    | Delay | LOS | V/C  | Delay | LOS | V/C         | Delay | LOS |
| University & Burnside Avenues                             | NB       | LT         | 0.93 | 48.8  | D   | 0.60   | 27.8  | C   | 1.08 | 85.8  | F   | 0.79        | 34.7  | C   |
|   | SB       | TR         | 0.72 | 31.4  | C   | 0.60   | 27.8  | C   | 0.81 | 35.0  | D   | 0.69        | 30.0  | C   |
|   | EB       | LR         | 0.86 | 54.9  | D   | 0.83   | 54.4  | D   | 0.91 | 64.1  | E   | 0.78        | 48.4  | D   |
|   | Overall  |            |      | 43.3  | D   |        | 33.1  | C   |      | 62.7  | E   |             | 34.9  | C   |
| University & W. Burnside Avenues/<br>W. 179th Street      | NB       | LTR        | 0.61 | 9.60  | A   | 0.45   | 7.60  | A   | 0.77 | 13.50 | B   | 0.47        | 7.70  | A   |
|   | SB       | DefL       |      |       |     |        |       |     | 0.97 | 67.2  | E   |             |       |     |
|   |          | LTR        | 0.73 | 13.5  | B   | 0.72   | 12.9  | B   |      |       |     | 0.53        | 8.80  | A   |
|   |          | TR         |      |       |     |        |       |     | 0.70 | 13.3  | B   |             |       |     |
|   | WB       | LTR        | 0.96 | 75.7  | E   | 0.97   | 77.6  | E   | 1.09 | 103.8 | F   | 0.98        | 78.2  | E   |
|   | Overall  |            |      | 21.6  | C   |        | 22.3  | C   |      | 35.6  | D   |             | 22.1  | C   |
| University Avenue & W. 181st Street                       | NB       | T          | 0.47 | 24.4  | C   | 0.52   | 25.5  | C   | 0.71 | 30.4  | C   | 0.53        | 25.6  | C   |
|   | SB       | T          | 0.40 | 8.10  | A   | 0.28   | 7.10  | A   | 0.36 | 7.70  | A   | 0.31        | 7.3   | A   |
|   | WB       | L          | 0.39 | 45.3  | D   | 0.38   | 45.2  | D   | 0.46 | 47.6  | D   | 0.32        | 43.5  | D   |
|   |          | R          | 0.87 | 79.6  | E   | 0.62   | 54.5  | D   | 0.87 | 77.6  | E   | 0.79        | 67.5  | E   |
|   | Overall  |            |      | 25.8  | C   |        | 23.6  | C   |      | 28.7  | C   |             | 25.6  | C   |
| University Avenue & Hall of Fame Terrace                  | NB       | L          | 0.63 | 26.3  | C   | 0.35   | 11.4  | B   | 0.63 | 25.7  | C   | 0.43        | 14.2  | B   |
|   |          | T          | 0.24 | 6.80  | A   | 0.31   | 7.40  | A   | 0.36 | 7.70  | A   | 0.30        | 7.20  | A   |
|   | SB       | TR         | 0.60 | 27.3  | C   | 0.42   | 23.5  | C   | 0.57 | 26.4  | C   | 0.45        | 24.0  | C   |
|   | EB       | LR         | 0.90 | 82.6  | F   | 0.56   | 52.1  | D   | 0.88 | 78.1  | E   | 0.50        | 49.0  | D   |
|   | Overall  |            |      | 28.9  | C   |        | 17.9  | B   |      | 25.6  | C   |             | 18.0  | B   |
| Grand & W. Tremont Avenues                                | NB       | LR         | 0.46 | 42.4  | D   | 0.63   | 49.8  | D   | 0.90 | 73.5  | E   | 0.50        | 43.7  | D   |
|   | EB       | TR         | 0.35 | 9.70  | A   | 0.20   | 8.4   | A   | 0.33 | 9.40  | A   | 0.27        | 8.9   | A   |
|   | WB       | DefL       | 0.31 | 10.9  | B   |        |       |     | 0.48 | 14.0  | B   | 0.49        | 14.1  | B   |
|   |          | LT         |      |       |     | 0.32   | 9.5   | A   |      |       |     |             |       |     |
|   |          | T          | 0.22 | 8.70  | A   |        |       |     | 0.35 | 10.1  | B   | 0.38        | 10.5  | B   |
|   | Overall  |            |      | 13.7  | B   |        | 16.7  | B   |      | 22.4  | C   |             | 14.6  | B   |
| Creston & E. Tremont Avenues                              | SB       | LR         | 0.48 | 38.6  | D   | 0.49   | 38.4  | D   | 0.72 | 48.5  | D   | 0.44        | 36.7  | D   |
|   | EB       | T          | 0.35 | 12.1  | B   | 0.33   | 12.0  | B   | 0.48 | 13.9  | B   | 0.26        | 11.2  | B   |
|   | WB       | T          | 0.29 | 11.6  | B   | 0.25   | 11.2  | B   | 0.29 | 11.6  | B   | 0.23        | 11.0  | B   |
|   | Overall  |            |      | 15.0  | B   |        | 15.6  | B   |      | 18.3  | B   |             | 14.9  | B   |
| Grand Concourse<br>SB Service Road<br>& E. Tremont Avenue | SB       | TR         | 0.56 | 22.0  | C   | 0.40   | 21.4  | C   | 0.45 | 19.9  | B   | 0.31        | 20.1  | C   |
|   | EB       | TR         | 0.71 | 49.9  | D   | 0.48   | 38.1  | D   | 0.78 | 54.1  | D   | 0.50        | 38.7  | D   |
|   | WB       | LT         | 0.26 | 25.0  | C   | 0.17   | 20.9  | C   | 0.47 | 28.9  | C   | 0.30        | 22.7  | C   |
|   | Overall  |            |      | 29.3  | C   |        | 25.8  | C   |      | 31.2  | C   |             | 25.9  | C   |
| Grand Concourse<br>mainline & E. Tremont Avenue           | NB       | L          | 0.30 | 34.2  | C   | 0.14   | 14.7  | B   | 0.34 | 19.7  | B   | 0.01        | 13.1  | B   |
|   |          | T          | 0.20 | 16.4  | B   | 0.31   | 19.9  | B   | 0.48 | 20.2  | C   | 0.05        | 17.0  | B   |
|   | SB       | L          | 0.25 | 10.6  | B   | 0.21   | 13.8  | B   | 0.45 | 22.3  | C   | 0.22        | 11.5  | B   |
|   |          | T          | 0.84 | 30.8  | C   | 0.43   | 21.8  | C   | 0.51 | 20.7  | C   | 0.48        | 22.5  | C   |
|   | EB       | LTR        | 0.63 | 46.4  | D   | 0.35   | 35.0  | C   | 0.73 | 54.8  | D   | 0.42        | 37.4  | D   |
|   | WB       | LTR        | 0.35 | 38.6  | D   | 0.28   | 33.8  | C   | 0.69 | 49.3  | D   | 0.68        | 44.9  | D   |
|   | Overall  |            |      | 29.7  | C   |        | 22.7  | C   |      | 27.1  | C   |             | 24.2  | C   |
| Grand Concourse<br>NB Service Road<br>& E. Tremont Avenue | NB       | TR         | 0.68 | 25.1  | C   | 0.55   | 24.3  | C   | 0.64 | 23.8  | C   | 0.88        | 38.0  | D   |
|   | EB       | LT         | 0.55 | 30.8  | C   | 0.30   | 22.8  | C   | 0.61 | 33.8  | C   | 0.47        | 26.5  | C   |
|   | WB       | TR         | 0.62 | 46.1  | D   | 0.58   | 41.6  | D   | 0.77 | 54.1  | D   | 0.69        | 45.0  | D   |
|   | Overall  |            |      | 30.0  | C   |        | 27.9  | C   |      | 32.0  | C   |             | 37.5  | D   |

**TABLE 4-3 (page 4 of 4)**  
**Traffic Capacity Analysis for Signalized Intersections**  
**Future Conditions**

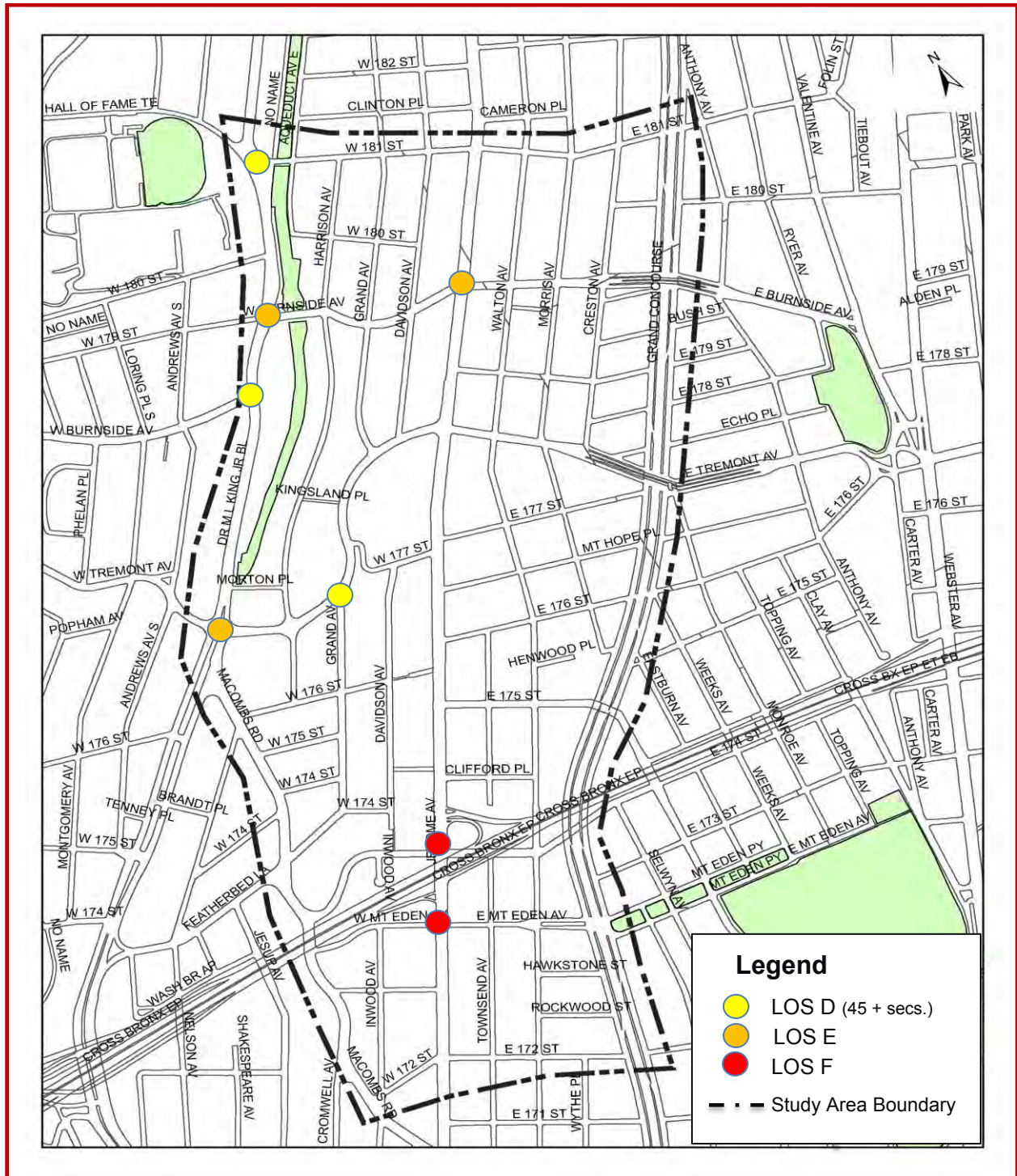
| Intersection   | Approach | Lane Group | AM   |       |     | Midday |       |     | PM   |       |     | Saturday MD |       |     |
|--|----------|------------|------|-------|-----|--------|-------|-----|------|-------|-----|-------------|-------|-----|
|  |          |            | V/C  | Delay | LOS | V/C    | Delay | LOS | V/C  | Delay | LOS | V/C         | Delay | LOS |
| W. Burnside & Grand Avenues                          | SB       | LTR        | 0.33 | 24.0  | C   | 0.55   | 28.7  | C   | 0.75 | 36.2  | D   | 0.47        | 26.6  | C   |
|  | EB       | TR         | 0.93 | 39.5  | D   | 0.75   | 23.6  | C   | 0.74 | 22.4  | C   | 0.71        | 21.2  | C   |
|  | WB       | LT         | 0.86 | 32.5  | C   | 0.72   | 22.9  | C   | 0.89 | 34.8  | C   | 0.92        | 39.9  | D   |
|  | Overall  |            |      | 35.0  | C   |        | 24.4  | C   |      | 30.6  | C   |             | 30.4  | C   |
| W. Burnside & Davidson Avenues                       | NB       | LTR        | 0.33 | 24.0  | C   | 0.55   | 28.7  | C   | 0.75 | 36.2  | D   | 0.47        | 26.6  | C   |
|  | EB       | LT         | 0.93 | 39.5  | D   | 0.75   | 23.6  | C   | 0.74 | 22.4  | C   | 0.71        | 21.2  | C   |
|  | WB       | TR         | 0.86 | 32.5  | C   | 0.72   | 22.9  | C   | 0.89 | 34.8  | C   | 0.92        | 39.9  | D   |
|  | Overall  |            |      | 35.0  | C   |        | 24.4  | C   |      | 30.6  | C   |             | 30.4  | C   |
| E. Burnside & Walton Avenues                         | SB       | LTR        | 0.80 | 43.4  | D   | 0.59   | 33.3  | C   | 0.67 | 36.2  | D   | 0.51        | 31.3  | C   |
|  | EB       | TR         | 0.47 | 12.2  | B   | 0.51   | 13.1  | B   | 0.61 | 15.0  | B   | 0.65        | 16.5  | B   |
|  | WB       | LT         | 0.54 | 13.6  | B   | 0.67   | 17.1  | B   | 0.82 | 24.4  | C   | 0.94        | 37.1  | D   |
|  | Overall  |            |      | 21.7  | C   |        | 19.2  | B   |      | 23.4  | C   |             | 28.9  | C   |
| E. Burnside & Morris Avenues                         | NB       | LTR        | 0.46 | 26.3  | C   | 0.52   | 28.1  | C   | 0.75 | 36.6  | D   | 0.72        | 35.1  | D   |
|  | EB       | LT         | 0.71 | 21.5  | C   | 0.64   | 19.4  | B   | 0.93 | 39.9  | D   | 0.69        | 20.7  | C   |
|  | WB       | TR         | 0.66 | 19.3  | B   | 0.70   | 21.0  | C   | 0.97 | 47.0  | D   | 0.83        | 27.4  | C   |
|  | Overall  |            |      | 21.4  | C   |        | 21.8  | C   |      | 42.2  | D   |             | 27.0  | C   |
| E. Burnside & Creston Avenues                        | SB       | LTR        | 0.68 | 41.9  | D   | 0.58   | 38.5  | D   | 0.65 | 40.6  | D   | 0.43        | 32.9  | C   |
|  | EB       | TR         | 0.55 | 11.3  | B   | 0.50   | 10.7  | B   | 0.69 | 14.9  | B   | 0.57        | 11.8  | B   |
|  | WB       | LT         | 0.52 | 10.8  | B   | 0.58   | 12.1  | B   | 0.63 | 13.2  | B   | 0.63        | 13.3  | B   |
|  | Overall  |            |      | 16.8  | B   |        | 15.6  | B   |      | 18.1  | B   |             | 15.0  | B   |
| Grand Concourse SB Service Road & E. Burnside Avenue | SB       | TR         | 0.57 | 22.3  | C   | 0.42   | 21.7  | C   | 0.56 | 22.0  | C   | 0.50        | 23.1  | C   |
|  | EB       | T          | 0.57 | 45.3  | D   | 0.39   | 36.2  | D   | 0.37 | 38.4  | D   | 0.38        | 35.7  | D   |
|  | WB       | LT         | 0.22 | 23.9  | C   | 0.17   | 20.7  | C   | 0.20 | 23.6  | C   | 0.15        | 20.6  | C   |
|  | Overall  |            |      | 26.5  | C   |        | 24.5  | C   |      | 24.6  | C   |             | 25.2  | C   |
| Grand Concourse mainline & E. Burnside Avenue        | NB       | L          | 0.39 | 45.9  | D   | 0.16   | 16.1  | B   | 0.35 | 24.4  | C   | 0.14        | 17.5  | B   |
|  |          | T          | 0.46 | 19.9  | B   | 0.47   | 22.5  | C   | 0.77 | 27.6  | C   | 0.51        | 23.1  | C   |
|  | SB       | L          | 0.22 | 15.5  | B   | 0.16   | 16.4  | B   | 0.41 | 35.6  | D   | 0.35        | 22.0  | C   |
|  |          | T          | 1.01 | 53.7  | D   | 0.46   | 22.3  | C   | 0.62 | 23.2  | C   | 0.53        | 23.5  | C   |
|  | EB       | LTR        | 0.24 | 36.1  | D   | 0.34   | 35.0  | C   | 0.33 | 37.9  | D   | 0.29        | 33.9  | C   |
|  | WB       | LTR        | 0.38 | 39.1  | D   | 0.46   | 37.7  | D   | 0.40 | 39.5  | D   | 0.38        | 36.2  | D   |
| Grand Concourse NB Service Road & E. Burnside Avenue | Overall  |            |      | 41.9  | D   |        | 24.6  | C   |      | 27.3  | C   |             | 24.7  | C   |
|  | NB       | TR         | 0.47 | 20.3  | C   | 0.39   | 21.2  | C   | 0.57 | 22.2  | C   | 0.34        | 20.5  | C   |
|  | EB       | LT         | 0.35 | 26.2  | C   | 0.18   | 20.9  | C   | 0.23 | 24.2  | C   | 0.28        | 22.4  | C   |
|  | WB       | TR         | 0.52 | 43.5  | D   | 0.44   | 37.1  | D   | 0.50 | 41.7  | D   | 0.45        | 37.8  | D   |
| E. 181st Street & Morris Avenue                      | Overall  |            |      | 25.5  | C   |        | 25.0  | C   |      | 26.0  | C   |             | 24.9  | C   |
|  | NB       | LT         | 0.28 | 12.2  | B   | 0.27   | 12.2  | B   | 0.44 | 13.8  | B   | 0.37        | 13.0  | B   |
|  | WB       | TR         | 0.54 | 16.9  | B   | 0.48   | 15.8  | B   | 0.68 | 20.9  | C   | 0.34        | 13.6  | B   |
|  | Overall  |            |      | 14.5  | B   |        | 13.9  | B   |      | 16.8  | B   |             | 13.2  | B   |
| Grand Concourse SB Service Road & E. 181st Street    | SB       | TR         | 0.39 | 16.7  | B   | 0.39   | 16.7  | B   | 0.44 | 17.4  | B   | 0.45        | 17.7  | B   |
|  | WB       | LT         | 0.13 | 25.7  | C   | 0.18   | 26.4  | C   | 0.37 | 29.4  | C   | 0.33        | 28.6  | C   |
|  | Overall  |            |      | 17.8  | B   |        | 18.3  | B   |      | 20.7  | C   |             | 20.4  | C   |
|  |          |            |      |       |     |        |       |     |      |       |     |             |       |     |
| Grand Concourse mainline & E. 181st Street           | NB       | L          | 0.65 | 54.8  | D   | 0.25   | 16.5  | B   | 0.73 | 42.2  | D   | 0.38        | 20.6  | C   |
|  |          | T          | 0.37 | 16.4  | B   | 0.40   | 16.7  | B   | 0.89 | 31.5  | C   | 0.43        | 17.2  | B   |
|  | SB       | T          | 0.83 | 28.0  | C   | 0.35   | 16.1  | B   | 0.53 | 18.8  | B   | 0.46        | 17.7  | B   |
|  | WB       | LTR        | 0.15 | 26.0  | C   | 0.15   | 26.0  | C   | 0.33 | 28.7  | C   | 0.27        | 27.6  | C   |
|  | Overall  |            |      | 25.2  | C   |        | 17.1  | B   |      | 27.7  | C   |             | 18.7  | B   |
| Grand Concourse NB Service Road & E. 181st Street    | NB       | LT         | 0.25 | 14.9  | B   | 0.26   | 15.1  | B   | 0.45 | 17.6  | B   | 0.29        | 15.4  | B   |
|  | WB       | TR         | 0.18 | 26.5  | C   | 0.19   | 26.7  | C   | 0.38 | 29.7  | C   | 0.33        | 28.8  | C   |
|  | Overall  |            |      | 17.5  | B   |        | 17.6  | B   |      | 20.6  | C   |             | 19.7  | B   |

### Future Conditions 2018 – Intersections with LOS D, E, and F AM Peak Hour

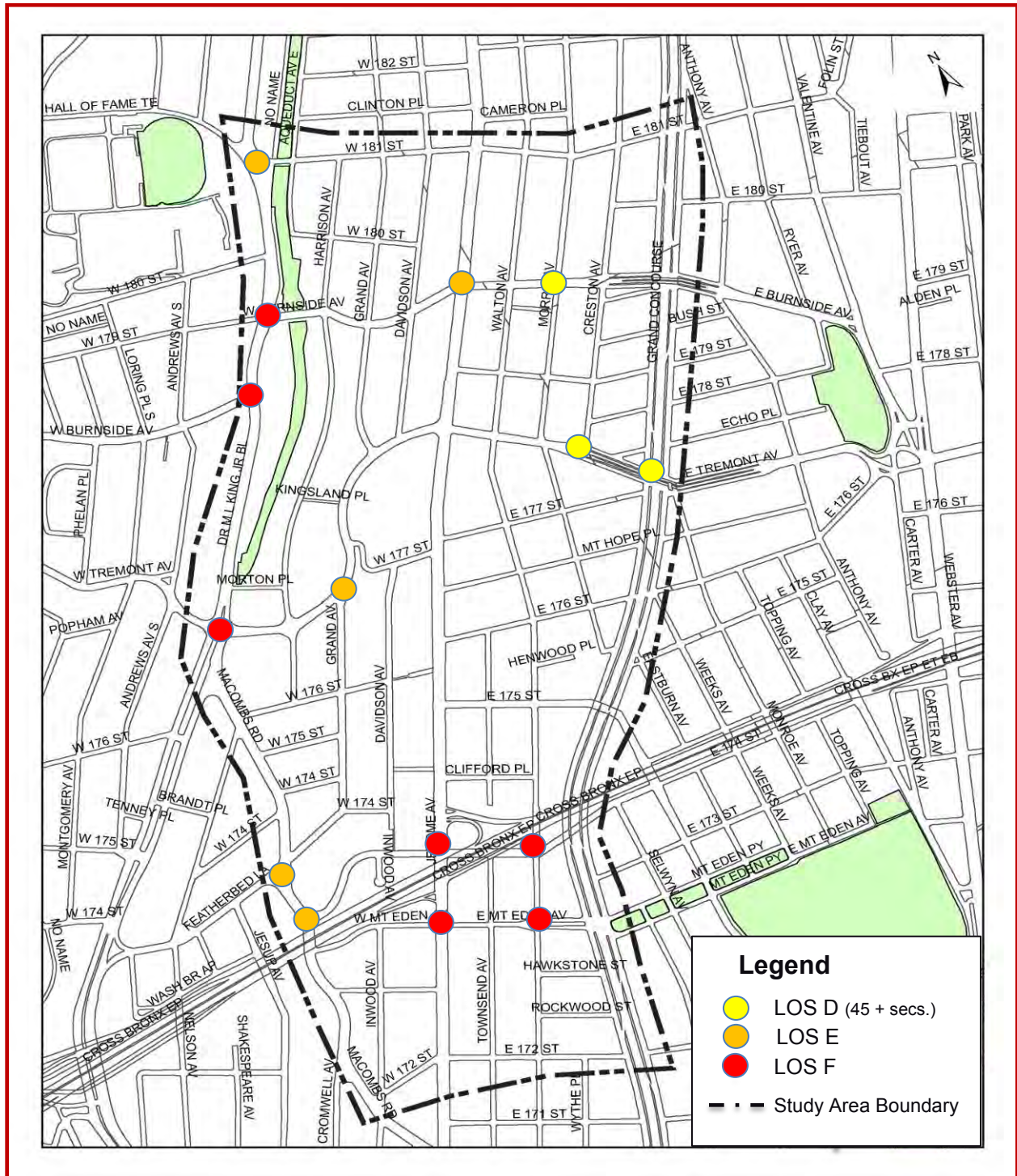




**Figure 4-16**  
**Future Conditions 2018 – Intersections with LOS D, E, and F**  
**Midday Peak Hour**

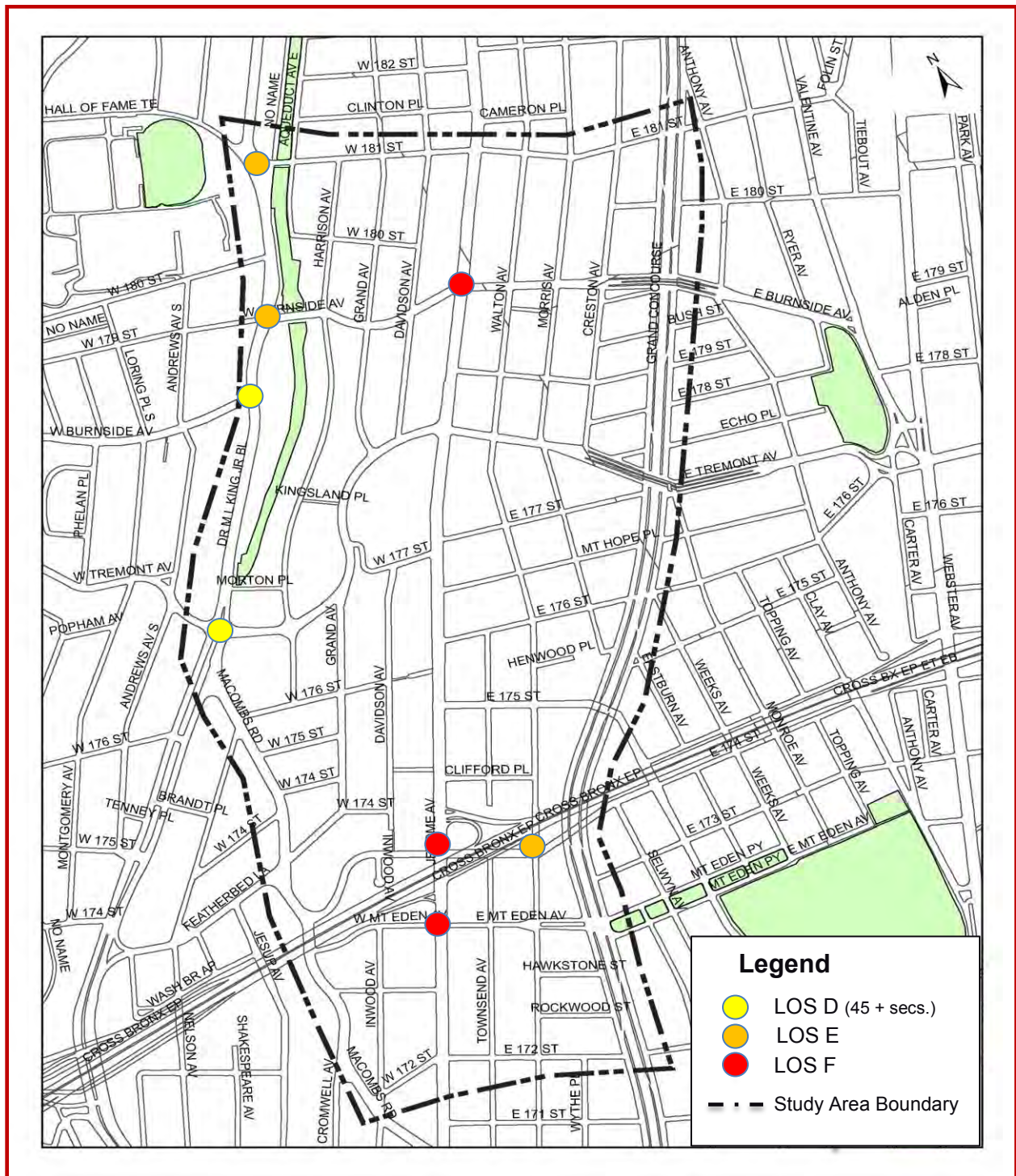


**Figure 4-17**  
**Future Conditions 2018 – Intersections with LOS D, E, and F**  
**PM Peak Hour**





**Figure 4-18**  
**Future Conditions 2018 – Intersections with LOS D, E, and F**  
**Saturday Midday Peak Hour**





## 4.8 Goods Movement

### Introduction

New York City is heavily dependent on trucks for delivery of goods and services. Thousands of local and through truck trips traverse the city to satisfy its daily needs. Given the reliance upon trucks for goods movement in New York City, the need to examine truck traffic as part of any traffic and transportation study is obvious. Though trucks provide a vital service, their presence requires space for loading and unloading and they add to existing noise, air pollution, congestion, and safety issues throughout the City.

### Truck routes in the study area

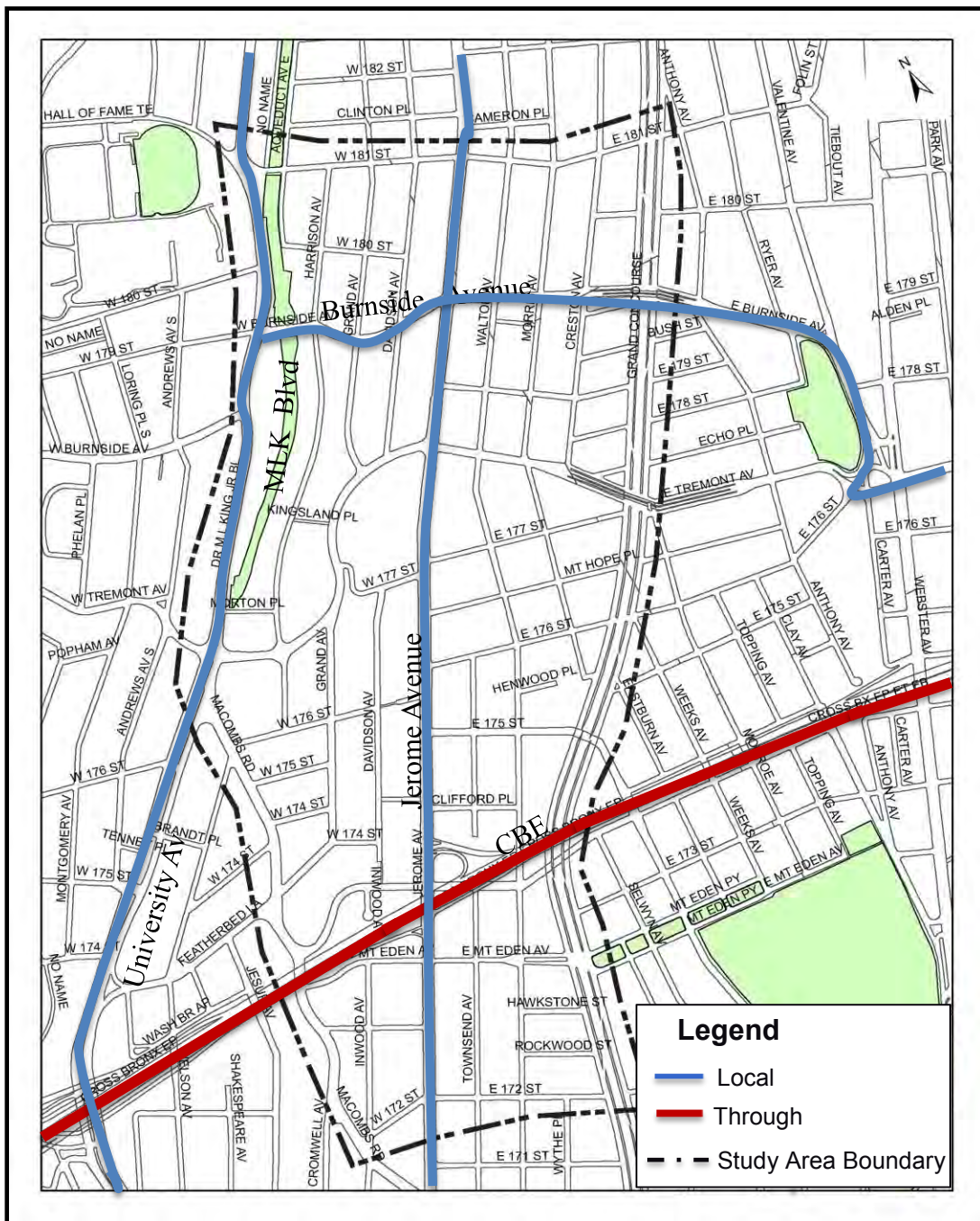
There is one designated through truck route and three local truck routes in the study area. The Cross Bronx Expressway is a main east-west through truck route which is one of the most congested corridors in the city. Jerome and University Avenues are local north-south truck routes, while Burnside Avenue is an east-west throughout the study area. Figure 4-19 shows local and through truck routes in the study area. Photo below shows Cross Bronx Expressway, a heavily used through truck route passing through the study area.



Cross Bronx Expressway, looking west from Grand Concourse

Jerome Avenue carries moderate levels of truck traffic, about seven percent of total traffic. Truck loading and unloading create additional congestion and circulation problems in the study area.

**Figure 4-19**  
**Truck Routes**



## **5.0 PEDESTRIAN AND BICYCLES**

### **5.1 Introduction**

Generally, all trips generated by land uses within the study area contain a walking component either at the beginning or at the end. The pedestrian analysis focused on locations where pedestrian volumes were observed, while bicycle issues were confined to bike routes in the study area.

### **5.2 Pedestrian Analysis – Existing Conditions**

Pedestrian analyses for crosswalks and corners were conducted for 24 locations as shown in the traffic count map and listed below:

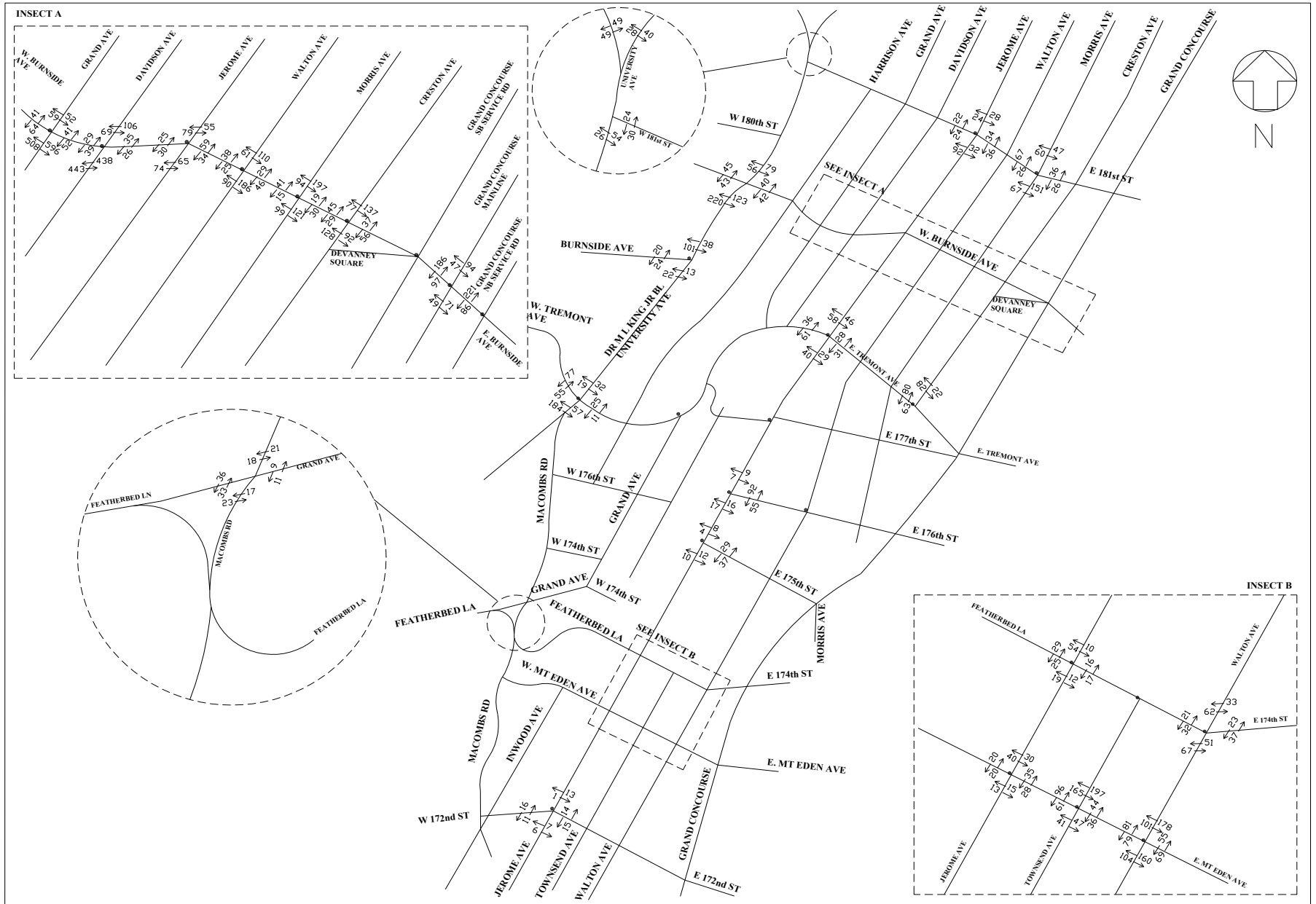
1. Jerome Avenue & 172<sup>nd</sup> Street
2. Jerome Avenue & Mt Eden Avenue
3. Jerome Avenue & Featherbed Lane/174<sup>th</sup> Street
4. Jerome Avenue & 175<sup>th</sup> Street
5. Jerome Avenue & 176<sup>th</sup> Street
6. Jerome Avenue & Tremont Avenue
7. Jerome Avenue & Burnside Avenue
8. Jerome Avenue & 181<sup>st</sup> Street
9. Townsend Avenue & East Mt Eden Avenue
10. Walton Avenue & East Mt Eden Avenue
11. Walton Avenue & East 174<sup>th</sup> Street
12. Grand Avenue & Macombs Road
13. Dr. Martin L King Jr. Blvd/University Avenue & West Tremont Avenue
14. Dr. Martin L King Jr. Blvd/University Avenue & West Burnside Avenue
15. Dr. Martin L King Jr. Blvd/University Ave. & W. Burnside Ave./179<sup>th</sup> Street
16. Dr. Martin L King Jr. Blvd/University Avenue & West 181<sup>st</sup> Street
17. Creston Avenue & East Tremont Avenue
18. Grand Avenue & West Burnside Avenue
19. Davidson Avenue & West Burnside Avenue

- 20. Grand Concourse and East Burnside Avenue
- 21. Walton Avenue & East Burnside Avenue
- 22. Morris Avenue & East Burnside Avenue
- 23. Morris Avenue and East 181<sup>st</sup> Street
- 24. Creston Avenue & East Burnside Avenue

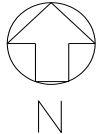
### **5.3 Existing Pedestrian Volumes**

The major corridors with significant pedestrian volumes are Burnside Avenue, Jerome Avenue, University Avenue, 181<sup>st</sup> Street and Tremont Avenue. Also, significant pedestrian traffic was observed at the entrances/exits to subway/bus stations and transfer points. Figures 5-1 to 5-4 show peak hour pedestrian volumes.

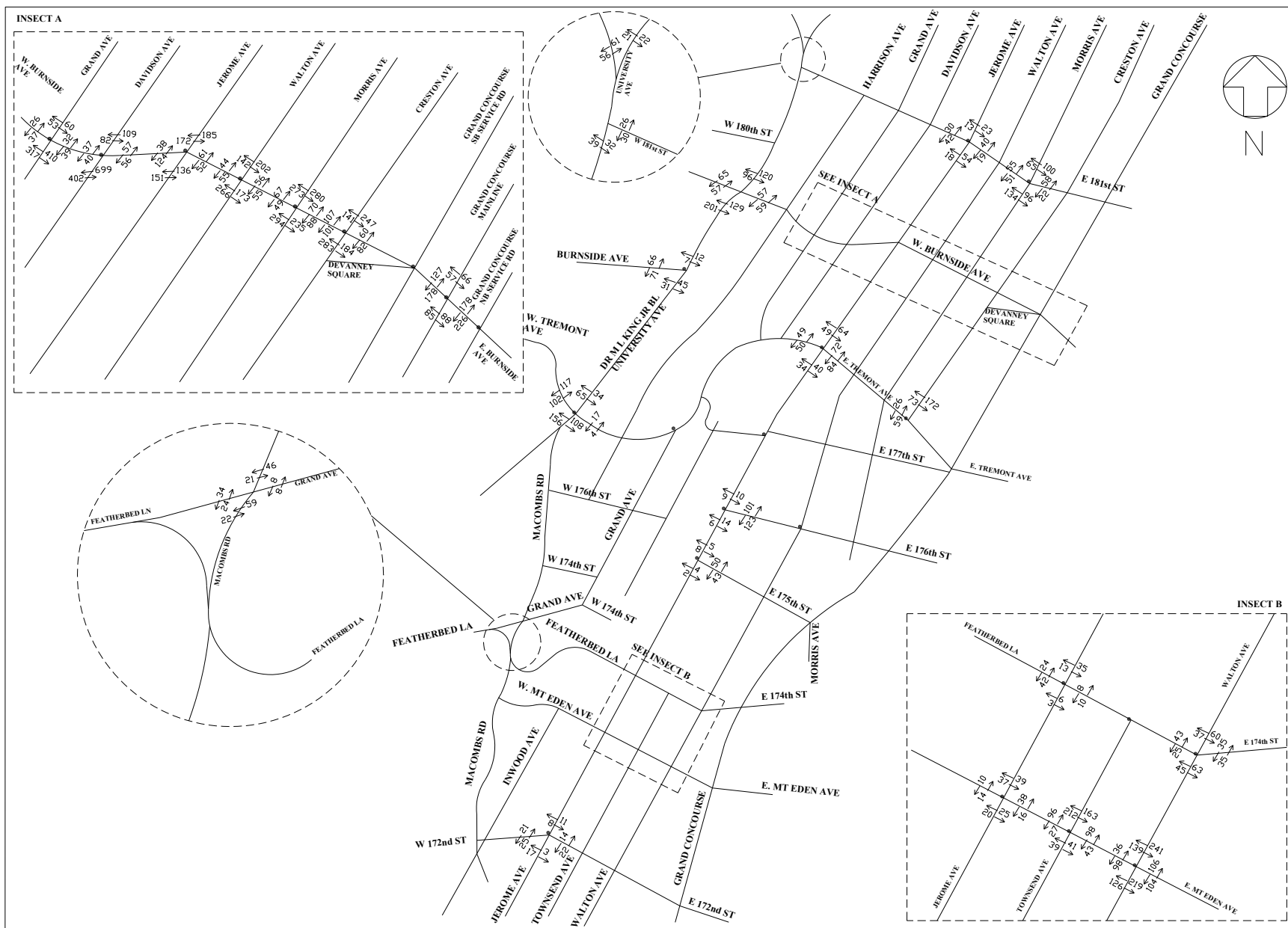
**Figure 5-1: Existing Pedestrian Volumes  
AM Peak Hour**



## Midday Peak Hour

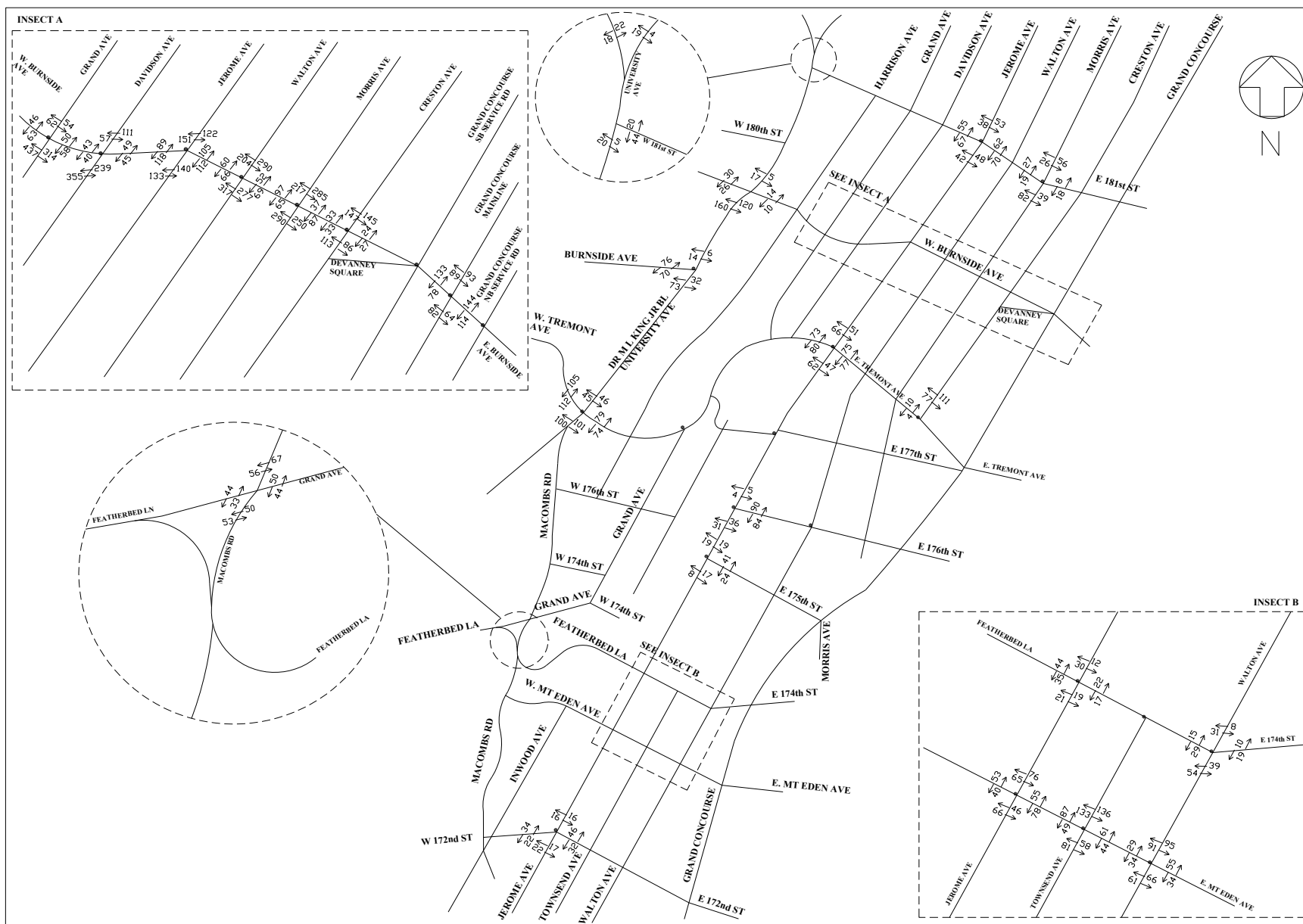


**Figure 5-3: Existing Pedestrian Volumes  
PM Peak Hour**





**Figure 5-4: Existing Pedestrian Volumes  
Saturday Midday Peak Hour**



#### 5.4 Level of Service (LOS) Analysis

The pedestrian level of service (LOS) analysis was performed by using the 2000 Highway Capacity Manual methodology. Pedestrian LOS is measured as the pedestrian flow rate per minute per foot of width (p/min/ft). This indicates the quality of pedestrian movement and comfort, and is defined in a density-comfort relationship. Table 5-1 shows the LOS criteria for crosswalks and corners, which is measured in a square feet of space per pedestrian. Pedestrian volumes were collected in 15-minute increments during peak hours; the weekday peak hours are 8-9 AM, 1-2 PM midday, and 5-6 PM, and the Saturday 1-2 PM midday peak.

**Table 5-1: Level of Service Criteria for Pedestrians**

| <b>LOS</b> | <b>Descriptions</b>  | <b>Space<br/>(ft<sup>2</sup>/p)</b> | <b>Flow Rate<br/>(p/min/ft)</b> | <b>Speed (ft/s)</b> | <b>v/c Ratio</b> |
|------------|--|-------------------------------------|---------------------------------|---------------------|------------------|
| <b>A</b>   | Unrestricted   | >60                                 | < or = 5                        | >4.25               | < or = 0.21      |
| <b>B</b>   | Slightly restricted  | 40 – 60                             | 5 – 7                           | 4.17 – 4.25         | 0.21 – 0.31      |
| <b>C</b>   | Restricted but fluid   | 24 – 40                             | 7 – 10                          | 4.00 – 4.17         | 0.31 – 0.44      |
| <b>D</b>   | Restricted; necessary to continuously alter walking stride and direction | 15 – 24                             | 10 – 15                         | 3.75 – 4.00         | 0.44 – 0.65      |
| <b>E</b>   | Severely restricted  | 8 – 15                              | 15 – 23                         | 2.50 – 3.75         | 0.65 – 1.00      |
| <b>F</b>   | Forward progress only by shuffling; no reverse movement possible         | < or = 8                            | variable                        | < or = 2.50         | variable         |

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

### **Crosswalk LOS Analysis**

The pedestrian analysis for crosswalks reveals that all crosswalks at the 24 locations operated at an acceptable LOS of C or better. The volume of pedestrians, relative to the physical characteristic of a crosswalk, results in almost universally unrestricted conditions. There were only 4 intersections where one or more crosswalks operated at LOS B or C during one or more peak hours; the remaining intersection crosswalks operated consistently at LOS A.

- Dr. Martin L King Jr. Blvd/University Avenue and Burnside Avenue/179<sup>th</sup> Street: AM (C), MD (B), PM (C), and Saturday (B);
- Grand Avenue and Burnside Avenue: AM (C), PM (B), and Saturday (B);
- Creston Avenue and Burnside Avenue: PM (B); and
- Morris Avenue and East 181<sup>st</sup> Street: AM (B).

The results of the crosswalk analysis are shown in Table 5-2.

### **Corner LOS Analysis**

Similarly, the pedestrian corner analysis at the 24 locations shows all at acceptable LOS C or better. There was only one intersection where corners operated at LOS C, two intersections at LOS B during one or more peak hours, while all other locations operated consistently at LOS A.

- Grand Avenue and Burnside Avenue: AM (B); and
- Davidson Avenue and Burnside Avenue: AM (B), midday (B), and PM (C).

The results of the corner analysis are shown in Table 5-3.

**Table 5-2: Crosswalk LOS Analysis – Existing Conditions (Page 1 of 2)**

| Intersection                                 | Crosswalk | AM     |     | MD     |     | PM     |     | Sat    |     |
|--|-----------|--------|-----|--------|-----|--------|-----|--------|-----|
|  |           | SF/P   | LOS | SF/P   | LOS | SF/P   | LOS | SF/P   | LOS |
| Jerome Avenue & 172nd Street                 | North     | 1741.8 | A   | 2615.0 | A   | 1743.1 | A   | 1126.5 | A   |
|  | South     | 1071.5 | A   | 1211.3 | A   | 765.2  | A   | 637.3  | A   |
|  | East      | 1411.7 | A   | 910.4  | A   | 1032.7 | A   | 619.1  | A   |
|  | West      | 1179.3 | A   | 840.4  | A   | 733.3  | A   | 759.3  | A   |
| Jerome Avenue & Mt Eden Avenue               | North     | 378.9  | A   | 323.7  | A   | 322.7  | A   | 211.5  | A   |
|  | South     | 1233.3 | A   | 844.8  | A   | 739.8  | A   | 318.8  | A   |
|  | East      | 784.6  | A   | 734.0  | A   | 1048.1 | A   | 413.0  | A   |
|  | West      | 839.6  | A   | 2376.5 | A   | 2421.1 | A   | 428.1  | A   |
| Jerome Avenue & Featherbed Lane/174th Street | North     | 320.1  | A   | 515.3  | A   | 418.6  | A   | 442.4  | A   |
|  | South     | 763.2  | A   | 1225.8 | A   | 2044.9 | A   | 591.7  | A   |
|  | East      | 1182.1 | A   | 871.5  | A   | 2081.1 | A   | 906.6  | A   |
|  | West      | 857.4  | A   | 779.5  | A   | 568.6  | A   | 417.4  | A   |
| Jerome Avenue & 175th Street                 | North     | 2620.5 | A   | 1851.8 | A   | 1569.3 | A   | 988.9  | A   |
|  | South     | 1293.7 | A   | 3802.5 | A   | 3758.6 | A   | 1256.0 | A   |
|  | East      | 782.3  | A   | 904.3  | A   | 562.9  | A   | 724.0  | A   |
|  | West      | x      | x   | x      | x   | x      | x   | x      | x   |
| Jerome Avenue & 176th Street                 | North     | 1935.3 | A   | 2326.7 | A   | 1645.0 | A   | 2889.9 | A   |
|  | South     | 977.0  | A   | 1974.0 | A   | 203.8  | A   | 337.0  | A   |
|  | East      | 406.1  | A   | 431.5  | A   | 280.8  | A   | 422.4  | A   |
|  | West      | x      | x   | x      | x   | x      | x   | x      | x   |
| Jerome Avenue & Tremont Avenue               | North     | 654.2  | A   | 745.9  | A   | 494.7  | A   | 543.9  | A   |
|  | South     | 785.4  | A   | 740.8  | A   | 740.4  | A   | 539.2  | A   |
|  | East      | 834.9  | A   | 696.9  | A   | 364.8  | A   | 361.0  | A   |
|  | West      | 626.4  | A   | 715.3  | A   | 586.2  | A   | 402.4  | A   |
| Jerome Avenue & Burnside Avenue              | North     | 320.9  | A   | 271.1  | A   | 127.2  | A   | 156.9  | A   |
|  | South     | 338.3  | A   | 210.3  | A   | 142.6  | A   | 176.5  | A   |
|  | East      | 336.7  | A   | 272.6  | A   | 309.2  | A   | 133.6  | A   |
|  | West      | 472.2  | A   | 241.7  | A   | 125.6  | A   | 116.8  | A   |
| Jerome Avenue & 181st Street                 | North     | 431.2  | A   | 1646.1 | A   | 899.4  | A   | 384.6  | A   |
|  | South     | 194.0  | A   | 694.0  | A   | 494.8  | A   | 417.7  | A   |
|  | East      | 830.2  | A   | 649.8  | A   | 1015.8 | A   | 518.8  | A   |
|  | West      | 850.7  | A   | 619.4  | A   | 705.7  | A   | 436.3  | A   |
| Townsend Avenue & Mt. Eden Avenue            | North     | 91.5   | A   | 200.4  | A   | 130.8  | A   | 176.8  | A   |
|  | South     | 508.5  | A   | 1496.3 | A   | 562.6  | A   | 396.2  | A   |
|  | East      | 425.0  | A   | 1534.1 | A   | 242.1  | A   | 333.9  | A   |
|  | West      | 278.8  | A   | 945.6  | A   | 444.3  | A   | 360.3  | A   |
| Walton Avenue & 174th Street                 | North     | 250.5  | A   | 643.7  | A   | 277.3  | A   | 554.7  | A   |
|  | South     | 113.5  | A   | 208.0  | A   | 170.4  | A   | 212.9  | A   |
|  | East      | 436.1  | A   | 816.2  | A   | 456.0  | A   | 966.0  | A   |
|  | West      | 363.0  | A   | 612.9  | A   | 434.3  | A   | 627.7  | A   |
| Walton Avenue & Mt. Eden Avenue              | North     | 148.3  | A   | 214.8  | A   | 143.9  | A   | 295.6  | A   |
|  | South     | 134.1  | A   | 281.3  | A   | 125.3  | A   | 489.3  | A   |
|  | East      | 136.1  | A   | 293.6  | A   | 122.4  | A   | 350.0  | A   |
|  | West      | 92.0   | A   | 367.4  | A   | 82.1   | A   | 442.2  | A   |
| Grand Avenue & Macombs Road                  | North     | 567.2  | A   | 603.4  | A   | 357.6  | A   | 264.3  | A   |
|  | South     | 589.4  | A   | 486.3  | A   | 312.5  | A   | 248.2  | A   |
|  | East      | 1361.1 | A   | 1391.5 | A   | 1053.4 | A   | 372.1  | A   |
|  | West      | 464.3  | A   | 777.0  | A   | 782.6  | A   | 644.6  | A   |

**Table 5-2: Crosswalk LOS Analysis – Existing Conditions (Page 2 of 2)**

| Intersection  | Crosswalk | AM     |     | MD     |     | PM     |     | Sat    |     |
|---|-----------|--------|-----|--------|-----|--------|-----|--------|-----|
|   |           | SF/P   | LOS | SF/P   | LOS | SF/P   | LOS | SF/P   | LOS |
| Dr. Martin L King Jr<br>Boulevard/University Avenue &<br>Tremont Avenue               | North     | 676.4  | A   | 774.7  | A   | 379.5  | A   | 329.2  | A   |
|   | South     | 187.9  | A   | 260.4  | A   | 173.4  | A   | 190.4  | A   |
|   | East      | 1254.8 | A   | 3006.9 | A   | 1288.6 | A   | 304.8  | A   |
|   | West      | 507.4  | A   | 350.7  | A   | 226.0  | A   | 214.1  | A   |
| Dr. Martin L King Jr<br>Boulevard/University Avenue &<br>Burnside Avenue              | North     | 247.9  | A   | 3324.3 | A   | 2781.9 | A   | 2834.5 | A   |
|   | South     | 1350.4 | A   | 1021.6 | A   | 728.2  | A   | 663.5  | A   |
|   | East      | x      | x   | x      | x   | x      | x   | x      | x   |
|   | West      | 1359.7 | A   | 808.3  | A   | 597.5  | A   | 562.7  | A   |
| Dr. Martin L King Jr<br>Boulevard/University Avenue &<br>Burnside Avenue/179th Street | North     | 63.5   | A   | 49.9   | B   | 35.0   | C   | 254.7  | A   |
|   | South     | 34.8   | C   | 41.0   | B   | 34.8   | C   | 44.7   | B   |
|   | East      | 635.5  | A   | 585.1  | A   | 484.4  | A   | 2523.9 | A   |
|   | West      | 578.9  | A   | 405.8  | A   | 537.2  | A   | 1046.6 | A   |
| Dr. Martin L King Jr<br>Boulevard/University Avenue &<br>181st Street                 | North     | 583.4  | A   | 1480.6 | A   | 986.6  | A   | 1449.9 | A   |
|   | South     | 539.9  | A   | 573.8  | A   | 598.4  | A   | 1204.9 | A   |
|   | East      | 630.8  | A   | 1334.3 | A   | 629.9  | A   | 486.5  | A   |
|   | West      | 309.8  | A   | 615.1  | A   | 189.7  | A   | 928.3  | A   |
| Creston Avenue & Tremont<br>Avenue  | North     | 399.7  | A   | 329.1  | A   | 184.0  | A   | 265.1  | A   |
|   | South     | x      | x   | x      | x   | x      | x   | x      | x   |
|   | East      | x      | x   | x      | x   | x      | x   | x      | x   |
|   | West      | 156.0  | A   | 1362.7 | A   | 312.6  | A   | 1884.0 | A   |
| Grand Avenue & Burnside<br>Avenue   | North     | 414.1  | A   | 338.0  | A   | 367.0  | A   | 414.5  | A   |
|   | South     | 36.4   | C   | 60.1   | A   | 53.5   | B   | 52.3   | B   |
|   | East      | 311.1  | A   | 218.8  | A   | 387.7  | A   | 202.6  | A   |
|   | West      | 279.1  | A   | 230.3  | A   | 402.9  | A   | 237.4  | A   |
| Davidson Avenue & Burnside<br>Avenue  | North     | 298.7  | A   | 210.8  | A   | 227.3  | A   | 284.0  | A   |
|   | South     | 68.7   | A   | 101.1  | A   | 61.8   | A   | 116.6  | A   |
|   | East      | 418.4  | A   | 339.6  | A   | 206.0  | A   | 282.0  | A   |
|   | West      | 419.1  | A   | 336.6  | A   | 361.7  | A   | 379.3  | A   |
| Walton Avenue & Burnside<br>Avenue  | North     | 326.0  | A   | 337.7  | A   | 147.7  | A   | 133.9  | A   |
|   | South     | 208.4  | A   | 140.1  | A   | 130.0  | A   | 98.4   | A   |
|   | East      | 321.0  | A   | 298.8  | A   | 223.7  | A   | 248.5  | A   |
|   | West      | 400.0  | A   | 318.3  | A   | 269.5  | A   | 189.1  | A   |
| Morris Avenue & Burnside<br>Avenue  | North     | 157.1  | A   | 164.6  | A   | 83.6   | A   | 83.6   | A   |
|   | South     | 179.0  | A   | 110.2  | A   | 77.1   | A   | 80.6   | A   |
|   | East      | 392.8  | A   | 197.3  | A   | 115.2  | A   | 160.1  | A   |
|   | West      | 436.8  | A   | 340.8  | A   | 220.7  | A   | 156.1  | A   |
| Creston Avenue & Burnside<br>Avenue   | North     | 249.1  | A   | 141.1  | A   | 126.7  | A   | 172.4  | A   |
|   | South     | 227.9  | A   | 186.7  | A   | 114.3  | A   | 268.8  | A   |
|   | East      | 94.1   | A   | 161.3  | A   | 77.2   | A   | 249.2  | A   |
|   | West      | 120.7  | A   | 63.0   | A   | 40.1   | B   | 131.8  | A   |
| Grand Concourse & Burnside<br>Avenue  | North     | 136.5  | A   | 196.4  | A   | 97.8   | A   | 131.0  | A   |
|   | South     | 171.9  | A   | 147.0  | A   | 105.0  | A   | 180.7  | A   |
|   | East      | 161.6  | A   | 205.8  | A   | 123.7  | A   | 192.0  | A   |
|   | West      | 148.8  | A   | 204.2  | A   | 171.4  | A   | 233.4  | A   |
| Morris Avenue & 181st Street  | North     | 118.4  | A   | 224.9  | A   | 60.4   | A   | 154.1  | A   |
|   | South     | 47.7   | B   | 144.3  | A   | 63.3   | A   | 146.6  | A   |
|   | East      | 361.4  | A   | 723.8  | A   | 189.2  | A   | 447.7  | A   |
|   | West      | 125.0  | A   | 276.1  | A   | 132.4  | A   | 265.4  | A   |

**Table 5-3: Corner LOS Analysis – Existing Conditions (Page 1 of 2)**

| Intersection                                 | Corner | AM     |     | MD     |     | PM     |     | Sat    |     |
|--|--------|--------|-----|--------|-----|--------|-----|--------|-----|
|  |        | SF/P   | LOS | SF/P   | LOS | SF/P   | LOS | SF/P   | LOS |
| Jerome Avenue & 172nd Street                 | NE     | 1146.2 | A   | 1062.0 | A   | 1250.9 | A   | 583.8  | A   |
|  | NW     | 2049.9 | A   | 1753.2 | A   | 1476.5 | A   | 1022.2 | A   |
|  | SE     | 650.8  | A   | 577.4  | A   | 441.8  | A   | 293.2  | A   |
|  | SW     | 1520.4 | A   | 1263.0 | A   | 914.4  | A   | 703.7  | A   |
| Jerome Avenue & Mt Eden Avenue               | NE     | 297.0  | A   | 454.7  | A   | 544.3  | A   | 341.9  | A   |
|  | NW     | 457.2  | A   | 196.7  | A   | 544.3  | A   | 341.9  | A   |
|  | SE     | 624.4  | A   | 541.5  | A   | 622.8  | A   | 344.6  | A   |
|  | SW     | 826.9  | A   | 1153.7 | A   | 1189.5 | A   | 423.2  | A   |
| Jerome Avenue & Featherbed Lane/174th Street | NE     | 609.8  | A   | 620.5  | A   | 1148.8 | A   | 538.6  | A   |
|  | NW     | 668.8  | A   | 644.0  | A   | 504.1  | A   | 446.4  | A   |
|  | SE     | 717.8  | A   | 816.7  | A   | 1841.7 | A   | 506.9  | A   |
|  | SW     | 836.8  | A   | 774.6  | A   | 696.1  | A   | 300.9  | A   |
| Jerome Avenue & 175th Street                 | NE     | 625.0  | A   | 714.3  | A   | 570.0  | A   | 503.9  | A   |
|  | NW     | x      | x   | x      | x   | x      | x   | x      | x   |
|  | SE     | 1234.9 | A   | 1689.6 | A   | 939.2  | A   | 993.4  | A   |
|  | SW     | x      | x   | x      | x   | x      | x   | x      | x   |
| Jerome Avenue & 176th Street                 | NE     | 537.2  | A   | 526.1  | A   | 405.6  | A   | 283.2  | A   |
|  | NW     | x      | x   | x      | x   | x      | x   | x      | x   |
|  | SE     | 655.6  | A   | 462.5  | A   | 339.9  | A   | 204.0  | A   |
|  | SW     | x      | x   | x      | x   | x      | x   | x      | x   |
| Jerome Avenue & Tremont Avenue               | NE     | 404.5  | A   | 363.8  | A   | 230.9  | A   | 292.1  | A   |
|  | NW     | 164.2  | A   | 169.0  | A   | 145.0  | A   | 219.7  | A   |
|  | SE     | 433.6  | A   | 486.8  | A   | 261.3  | A   | 271.5  | A   |
|  | SW     | 283.2  | A   | 300.1  | A   | 321.5  | A   | 275.9  | A   |
| Jerome Avenue & Burnside Avenue              | NE     | 396.3  | A   | 357.8  | A   | 220.8  | A   | 269.4  | A   |
|  | NW     | 520.1  | A   | 375.2  | A   | 192.1  | A   | 295.8  | A   |
|  | SE     | 71.1   | A   | 64.6   | A   | 52.2   | A   | 79.9   | A   |
|  | SW     | 245.9  | A   | 192.5  | A   | 118.5  | A   | 177.1  | A   |
| Jerome Avenue & 181st Street                 | NE     | 679.9  | A   | 696.2  | A   | 1097.2 | A   | 390.2  | A   |
|  | NW     | 668.6  | A   | 984.1  | A   | 983.3  | A   | 426.0  | A   |
|  | SE     | 358.8  | A   | 581.1  | A   | 705.9  | A   | 379.2  | A   |
|  | SW     | 384.8  | A   | 800.5  | A   | 712.3  | A   | 411.1  | A   |
| Townsend Avenue & Mt. Eden Avenue            | NE     | 63.7   | A   | 131.7  | A   | 62.2   | A   | 136.9  | A   |
|  | NW     | 125.2  | A   | 246.7  | A   | 167.1  | A   | 333.5  | A   |
|  | SE     | 386.0  | A   | 1404.3 | A   | 356.7  | A   | 490.2  | A   |
|  | SW     | 329.7  | A   | 891.7  | A   | 340.0  | A   | 518.6  | A   |
| Walton Avenue & 174th Street                 | NE     | 277.6  | A   | 821.0  | A   | 424.0  | A   | 718.0  | A   |
|  | NW     | 417.9  | A   | 1006.7 | A   | 532.6  | A   | 1028.6 | A   |
|  | SE     | 342.4  | A   | 769.1  | A   | 471.6  | A   | 671.3  | A   |
|  | SW     | 188.7  | A   | 325.7  | A   | 254.0  | A   | 382.6  | A   |
| Walton Avenue & Mt. Eden Avenue              | NE     | 189.2  | A   | 295.0  | A   | 179.7  | A   | 362.7  | A   |
|  | NW     | 112.5  | A   | 229.8  | A   | 105.2  | A   | 261.9  | A   |
|  | SE     | 292.7  | A   | 586.2  | A   | 272.7  | A   | 894.7  | A   |
|  | SW     | 107.3  | A   | 285.9  | A   | 100.1  | A   | 350.3  | A   |
| Grand Avenue & Macombs Road                  | NE     | 342.6  | A   | 343.1  | A   | 200.4  | A   | 128.4  | A   |
|  | NW     | 658.2  | A   | 378.6  | A   | 640.4  | A   | 525.5  | A   |
|  | SE     | 1078.2 | A   | 1103.7 | A   | 816.5  | A   | 549.8  | A   |
|  | SW     | 467.3  | A   | 642.7  | A   | 432.4  | A   | 814.8  | A   |



**Table 5-3: Corner LOS Analysis – Existing Conditions (Page 2 of 2)**

| Intersection  | Corner | AM     |     | MD     |     | PM     |     | Sat    |     |
|---|--------|--------|-----|--------|-----|--------|-----|--------|-----|
|   |        | SF/P   | LOS | SF/P   | LOS | SF/P   | LOS | SF/P   | LOS |
| Dr. Martin L King Jr<br>Boulevard/University Avenue &<br>Tremont Avenue               | NE     | 1212.5 | A   | 2027.7 | A   | 944.8  | A   | 356.3  | A   |
|   | NW     | 961.8  | A   | 932.5  | A   | 583.7  | A   | 427.7  | A   |
|   | SE     | 153.7  | A   | 202.6  | A   | 127.0  | A   | 78.0   | A   |
|   | SW     | 289.2  | A   | 325.2  | A   | 240.9  | A   | 233.4  | A   |
| Dr. Martin L King Jr<br>Boulevard/University Avenue &<br>Burnside Avenue              | NE     | x      | x   | x      | x   | x      | x   | x      | x   |
|   | NW     | 1226.7 | A   | 2826.9 | A   | 2024.8 | A   | 1218.2 | A   |
|   | SE     | x      | x   | x      | x   | x      | x   | x      | x   |
|   | NW     | 2889.5 | A   | 1703.5 | A   | 1299.0 | A   | 1422.3 | A   |
| Dr. Martin L King Jr<br>Boulevard/University Avenue &<br>Burnside Avenue/179th Street | NE     | 460.8  | A   | 395.4  | A   | 284.0  | A   | 1862.6 | A   |
|   | NW     | 562.3  | A   | 420.2  | A   | 422.4  | A   | 1363.4 | A   |
|   | SE     | 237.8  | A   | 263.4  | A   | 149.4  | A   | 371.4  | A   |
|   | SW     | 215.1  | A   | 238.5  | A   | 239.7  | A   | 326.0  | A   |
| Dr. Martin L King Jr<br>Boulevard/University Avenue &<br>181st Street                 | NE     | 1290.3 | A   | 2146.1 | A   | 1379.7 | A   | 1132.1 | A   |
|   | NW     | 852.3  | A   | 1297.4 | A   | 709.6  | A   | 2320.2 | A   |
|   | SE     | 630.1  | A   | 779.1  | A   | 612.7  | A   | 736.9  | A   |
|   | SW     | 180.0  | A   | 245.2  | A   | 101.4  | A   | 410.2  | A   |
| Creston Avenue & Tremont<br>Avenue  | NE     | 487.3  | A   | 487.3  | A   | 280.2  | A   | 263.7  | A   |
|   | NW     | 330.5  | A   | 489.1  | A   | 265.0  | A   | 321.6  | A   |
|   | SE     | x      | x   | x      | x   | x      | x   | x      | x   |
|   | SW     | x      | x   | x      | x   | x      | x   | x      | x   |
| Grand Avenue & Burnside<br>Avenue   | NE     | 343.7  | A   | 287.2  | A   | 388.9  | A   | 298.8  | A   |
|   | NW     | 368.1  | A   | 313.6  | A   | 398.6  | A   | 356.0  | A   |
|   | SE     | 76.8   | A   | 108.5  | A   | 110.1  | A   | 91.8   | A   |
|   | SW     | 56.7   | B   | 91.3   | A   | 78.4   | A   | 79.0   | A   |
| Davidson Avenue & Burnside<br>Avenue  | NE     | 323.4  | A   | 317.8  | A   | 271.9  | A   | 334.8  | A   |
|   | NW     | 404.8  | A   | 338.7  | A   | 374.1  | A   | 417.6  | A   |
|   | SE     | 91.5   | A   | 129.9  | A   | 80.6   | A   | 143.8  | A   |
|   | SW     | 41.9   | B   | 54.9   | B   | 38.8   | C   | 64.0   | A   |
| Walton Avenue & Burnside<br>Avenue  | NE     | 282.9  | A   | 294.3  | A   | 145.6  | A   | 173.2  | A   |
|   | NW     | 291.1  | A   | 290.2  | A   | 147.3  | A   | 180.0  | A   |
|   | SE     | 244.2  | A   | 152.9  | A   | 134.0  | A   | 157.3  | A   |
|   | SW     | 248.3  | A   | 193.1  | A   | 180.1  | A   | 186.9  | A   |
| Morris Avenue & Burnside<br>Avenue  | NE     | 238.0  | A   | 210.6  | A   | 111.4  | A   | 114.2  | A   |
|   | NW     | 139.1  | A   | 186.8  | A   | 105.2  | A   | 100.9  | A   |
|   | SE     | 325.7  | A   | 173.0  | A   | 125.6  | A   | 148.0  | A   |
|   | SW     | 268.9  | A   | 201.0  | A   | 140.6  | A   | 136.8  | A   |
| Creston Avenue & Burnside<br>Avenue   | NE     | 246.3  | A   | 201.7  | A   | 153.7  | A   | 285.6  | A   |
|   | NW     | 157.6  | A   | 97.8   | A   | 72.7   | A   | 134.0  | A   |
|   | SE     | 292.2  | A   | 314.8  | A   | 182.0  | A   | 415.1  | A   |
|   | SW     | 253.6  | A   | 177.2  | A   | 111.8  | A   | 308.6  | A   |
| Grand Concourse & Burnside<br>Avenue  | NE     | 398.3  | A   | 538.2  | A   | 314.9  | A   | 416.4  | A   |
|   | NW     | 195.3  | A   | 211.2  | A   | 163.4  | A   | 201.3  | A   |
|   | SE     | 165.5  | A   | 211.1  | A   | 150.1  | A   | 214.8  | A   |
|   | SW     | 151.3  | A   | 182.5  | A   | 146.1  | A   | 216.8  | A   |
| Morris Avenue & 181st Street  | NE     | 270.6  | A   | 686.4  | A   | 141.4  | A   | 405.7  | A   |
|   | NW     | 237.6  | A   | 413.8  | A   | 153.5  | A   | 289.2  | A   |
|   | SE     | 189.3  | A   | 366.6  | A   | 151.9  | A   | 301.8  | A   |
|   | SW     | 107.9  | A   | 313.9  | A   | 161.9  | A   | 360.3  | A   |

## 5.5 Pedestrian Analysis - Future Conditions

Pedestrian volumes are expected to increase in the future due to various factors such as land use changes near developments and economic growth. The future projected pedestrian volumes were generated by applying a 0.38% compounded growth over ten-years as well as adding trips from known developments in the study area.

The analysis shows all intersection crosswalks operating at an acceptable LOS of C or better; only 4 of the 24 intersections have one or more crosswalks with LOS B or C during one or more peak hours. The results of the future conditions crosswalk analysis are shown in Tables 5-4.

For the corner analysis only three intersections corners would operate at LOS B or C during one or more peak hours. All other intersections corners would operate consistently at LOS A. The results of the future corner analysis are shown in Table 5-5.

**Table 5-4: Crosswalk LOS Analysis for Selected Locations  
(2018 Future Conditions)**

| Intersection   | Crosswalk | AM    |     | MD    |     | PM    |     | Sat    |     |
|--|-----------|-------|-----|-------|-----|-------|-----|--------|-----|
|  |           | SF/P  | LOS | SF/P  | LOS | SF/P  | LOS | SF/P   | LOS |
| Dr. Martin L King Jr<br>Boulevard/University<br>Avenue & Burnside<br>Avenue/179th Street | North     | 63.5  | A   | 49.9  | B   | 35.0  | C   | 254.7  | A   |
|  | South     | 34.8  | C   | 41.0  | B   | 34.8  | C   | 44.7   | B   |
|  | East      | 635.5 | A   | 585.1 | A   | 484.4 | A   | 2523.9 | A   |
|  | West      | 578.9 | A   | 405.8 | A   | 537.2 | A   | 1046.6 | A   |
| Grand Avenue & Burnside<br>Avenue  | North     | 414.1 | A   | 338.0 | A   | 367.0 | A   | 414.5  | A   |
|  | South     | 36.4  | C   | 60.1  | A   | 53.5  | B   | 52.3   | B   |
|  | East      | 311.1 | A   | 218.8 | A   | 387.7 | A   | 202.6  | A   |
|  | West      | 279.1 | A   | 230.3 | A   | 402.9 | A   | 237.4  | A   |
| Creston Avenue & Burnside<br>Avenue  | North     | 249.1 | A   | 141.1 | A   | 126.7 | A   | 172.4  | A   |
|  | South     | 227.9 | A   | 186.7 | A   | 114.3 | A   | 268.8  | A   |
|  | East      | 94.1  | A   | 161.3 | A   | 77.2  | A   | 249.2  | A   |
|  | West      | 120.7 | A   | 63.0  | A   | 40.1  | B   | 131.8  | A   |
| Morris Avenue & 181st<br>Street  | North     | 118.4 | A   | 224.9 | A   | 60.4  | A   | 154.1  | A   |
|  | South     | 47.7  | B   | 144.3 | A   | 63.3  | A   | 146.6  | A   |
|  | East      | 361.4 | A   | 723.8 | A   | 189.2 | A   | 447.7  | A   |
|  | West      | 125.0 | A   | 276.1 | A   | 132.4 | A   | 265.4  | A   |

**Table 5-5: Corner LOS Analysis for Selected Locations  
(2018 Future Conditions)**

| Intersection                      | Corner | AM    |     | MD     |     | PM    |     | Sat   |     |
|-----------------------------------|--------|-------|-----|--------|-----|-------|-----|-------|-----|
|                                   |        | SF/P  | LOS | SF/P   | LOS | SF/P  | LOS | SF/P  | LOS |
| Jerome Avenue & Burnside Avenue   | NE     | 394.4 | A   | 356.4  | A   | 220.0 | A   | 268.5 | A   |
|                                   | NW     | 518.5 | A   | 373.7  | A   | 191.4 | A   | 294.9 | A   |
|                                   | SE     | 70.8  | A   | 64.3   | A   | 52.0  | B   | 79.6  | A   |
|                                   | SW     | 245.1 | A   | 220.8  | A   | 118.1 | A   | 176.4 | A   |
| Townsend Avenue & Mt. Eden Avenue | NE     | 63.4  | A   | 131.1  | A   | 61.9  | A   | 136.3 | A   |
|                                   | NW     | 124.7 | A   | 245.8  | A   | 166.5 | A   | 332.2 | A   |
|                                   | SE     | 384.3 | A   | 1404.3 | A   | 355.2 | A   | 488.0 | A   |
|                                   | SW     | 328.0 | A   | 889.7  | A   | 339.1 | A   | 516.5 | A   |
| Grand Avenue & Burnside Avenue    | NE     | 345.9 | A   | 286.2  | A   | 387.4 | A   | 297.7 | A   |
|                                   | NW     | 366.5 | A   | 312.2  | A   | 397.2 | A   | 354.5 | A   |
|                                   | SE     | 76.7  | A   | 108.1  | A   | 109.7 | A   | 91.4  | A   |
|                                   | SW     | 56.5  | B   | 90.9   | A   | 78.1  | A   | 78.7  | A   |
| Davidson Avenue & Burnside Avenue | NE     | 322.5 | A   | 316.6  | A   | 270.6 | A   | 333.5 | A   |
|                                   | NW     | 403.6 | A   | 337.5  | A   | 372.6 | A   | 415.7 | A   |
|                                   | SE     | 91.2  | A   | 129.4  | A   | 80.2  | A   | 143.3 | A   |
|                                   | SW     | 41.7  | B   | 54.7   | B   | 38.6  | C   | 63.8  | A   |

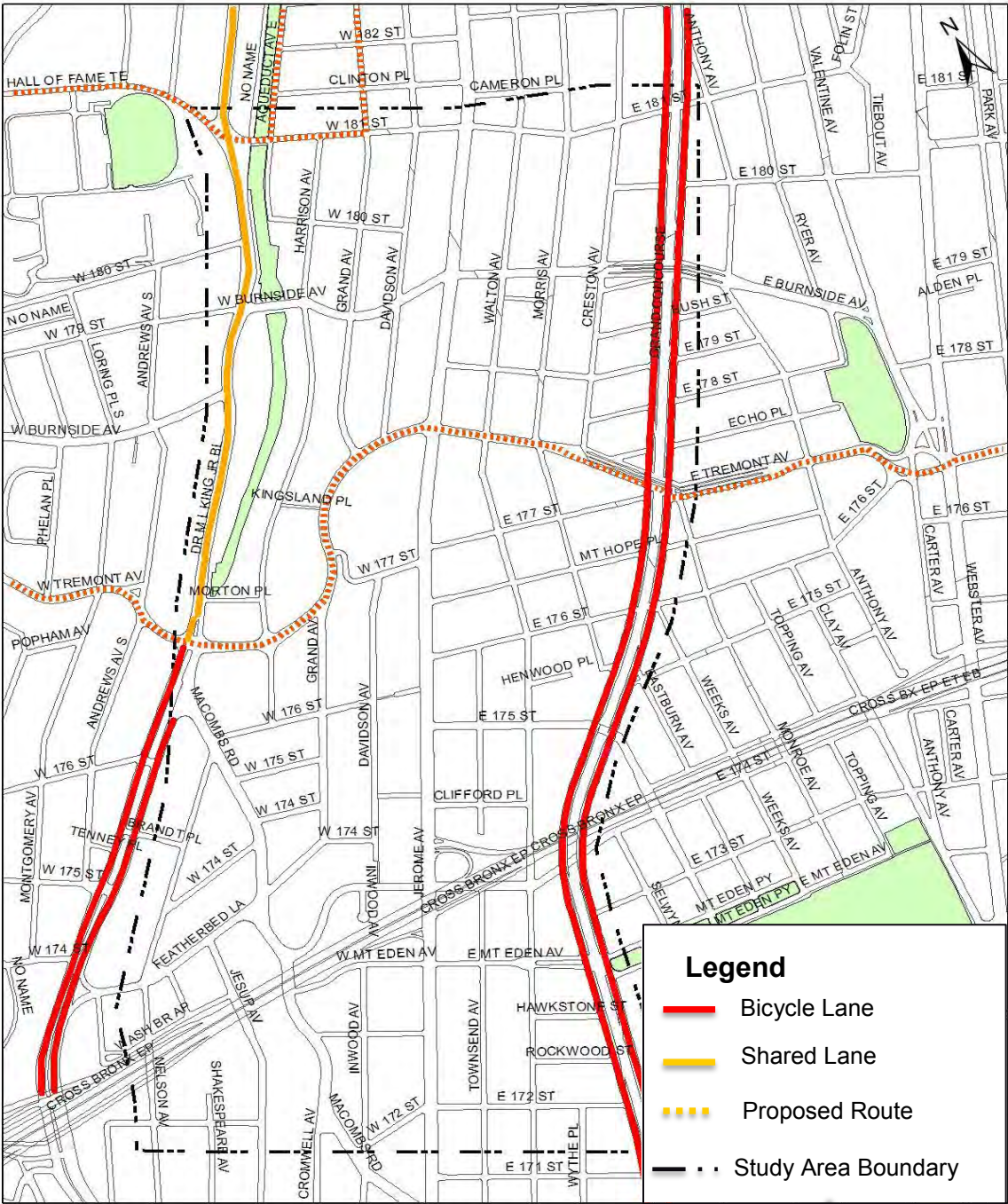
## 5.6 Bicycle Network

There are two on-street striped “*Bicycle Lanes*” in the study area: one along Grand Concourse, and one along University Avenue south of West Tremont Avenue. North of West Tremont Avenue on Dr. Martin Luther King Jr. Boulevard there is an on-street striped “*Shared Lane*” for bicycles.

The current New York City Cycling Map (2011) identifies three “*Proposed Routes*” in the study area: one is striped along Tremont Avenue and two others partially along West 181st Street /Hall of Fame and Grand and Aqueduct Avenues.

Figure 5-5 shows the existing and proposed bicycle facilities in the study area.

Figure 5-5: Existing and Proposed Bicycle Facilities



## **6.0 ACCIDENTS/SAFETY ANALYSIS**

### **6.1 Introduction**

The analysis of accidents and safety is an important component in traffic and transportation planning studies, as transportation related accidents can lead to loss of life and/or damage of property. The main purpose of accident analysis is to identify locations in the study area with safety issues that may need special attention and potentially safety improvement measures.

In order to identify locations with high accident occurrences in the study area, it was necessary to examine the most recent accident history to see if any patterns can be established. Existing reportable accident data for the last four years (2007 to 2010) was assembled and analyzed. These records were collected from the New York City Department of Transportation (NYCDOT) accident database which includes New York State Department of Motor Vehicle (NYSDMV) and New York Police Department (NYPD) reported accidents. The data provides information on location, severity, collision type, time of accident, and other related factors such as the weather condition in identify high accident locations.

### **6.2 Accident History (2007-2010)**

Since NYSDMV stopped reporting “Non-Reportable” accidents, “High Accident Locations” based on “Reportable Accidents” are those with 23 or more “Reportable” accidents or five preventable pedestrian crashes per year.

After reviewing all the intersections in the study area for the most recent four-year (2007-2010), using the above criteria, two intersections, East/West Burnside Avenue/Jerome Avenue and Grand Concourse/East Mt. Eden Avenue/Mt. Eden Parkway qualified as a “High Pedestrian Accident Locations”. Nonetheless, it was felt that an examination of additional locations averaging no less than 8 “Reportable Accidents” per year might yield to some useful insights. Based on this rationale, six additional locations were identified for detailed analysis. Table 6-1 lists all eight locations and provides the summary of accident history from 2007 to 2010, while Figure 6-1 shows these locations on a study area map.

**Table 6-1: Accident History (2007 – 2010)**

| Intersection   | 2007            |           | 2008            |           | 2009            |           | 2010            |           | Total      |           |
|--|-----------------|-----------|-----------------|-----------|-----------------|-----------|-----------------|-----------|------------|-----------|
|  | Total Accidents | Peds      | Total Accidents | Peds      | Total Accidents | Peds      | Total Accidents | Peds      | Accidents  | Peds      |
| Jerome Ave./174 <sup>th</sup> St. & W. Burnside Avenue | 8               | 6         | 12              | 6         | 0               | 0         | 2               | 1         | 22         | 13        |
| Grand Concourse/E. Mt. Eden Ave/Parkway                | 12              | 2         | 9               | 6         | 15              | 3         | 9               | 2         | 45         | 13        |
| Jerome Ave./Tremont Avenue                             | 12              | 1         | 10              | 2         | 14              | 1         | 13              | 3         | 49         | 7         |
| Jerome Ave./174 <sup>th</sup> St/ Featherbed Ln.       | 11              | 1         | 8               | 0         | 15              | 1         | 13              | 0         | 47         | 2         |
| Jerome Ave./Mt. Eden Avenue                            | 12              | 1         | 17              | 2         | 5               | 1         | 7               | 1         | 41         | 5         |
| Grand Concourse/E. 181 <sup>st</sup> Street.           | 4               | 3         | 6               | 2         | 12              | 4         | 17              | 4         | 39         | 13        |
| Dr. M. L. King Jr./W. Burnside Avenue                  | 7               | 4         | 5               | 2         | 9               | 3         | 11              | 1         | 32         | 10        |
| Jerome Ave./175 <sup>th</sup> Street                   | 8               | 0         | 6               | 3         | 6               | 1         | 11              | 3         | 31         | 7         |
| <b>Total</b>   | <b>74</b>       | <b>18</b> | <b>73</b>       | <b>23</b> | <b>76</b>       | <b>14</b> | <b>83</b>       | <b>15</b> | <b>306</b> | <b>70</b> |

The data shows that most accidents are clustered along two main corridors: Jerome Avenue and W. Burnside Avenue. On average 60% of all accidents involved pedestrians at the two “High Accident Locations.”

### **Injuries**

Between 2007 and 2010, 388 people were injured as a result of 306 accidents occurring at the eight intersections where 70 injuries were sustained by pedestrians. The highest numbers of injuries were recorded at the intersection of Jerome Avenue/E./W. Tremont Avenue, where a total of 71 people were injured. Table 6-2 shows the total number of injuries by type.





**Table 6-2: Summary of Injuries (2007-2010)**

| Intersection                                  | Total Injuries | Injury Type |           |            |            |
|---|----------------|-------------|-----------|------------|------------|
|   |                | A           | B         | C          | PDO        |
| Jerome Ave/Tremont Ave                        | 71             | 8           | 1         | 62         | 6          |
| Grand Concourse/E. Mt. Eden Ave/Parkway       | 55             | 3           | 6         | 46         | 10         |
| Jerome Ave/174 <sup>th</sup> St/Featherbed Ln | 55             | 2           | 3         | 50         | 15         |
| Grand Concourse/E. 181 <sup>st</sup> Street   | 51             | 4           | 3         | 44         | 0          |
| Jerome Ave/Mt. Eden Avenue                    | 50             | 0           | 2         | 48         | 10         |
| University Ave/W. Burnside Avenue             | 45             | 4           | 3         | 38         | 4          |
| Jerome Ave/175 <sup>th</sup> Street           | 34             | 3           | 2         | 29         | 6          |
| Jerome Ave/Burnside Avenue                    | 26             | 1           | 2         | 23         | 2          |
| <b>Total</b>                                  | <b>387*</b>    | <b>25</b>   | <b>22</b> | <b>340</b> | <b>53*</b> |

Type A – Person bleeding/carried away from scene; Type B – Bruises; Type C – No visible injuries; PDO – Property Damage Only (\* – Total injuries does not include PDO).

### **Accidents by Collision Type and Driving Conditions**

An analysis of the contributing factors to the accidents revealed that 40% of the accidents occurred during night time and 14% occurred under wet roadway conditions (rain or snow). The distribution of accident by collision types showed that 15% were **rear end**, 14% occurred due to **overtaking**, and 6% were **left-turn** accidents. In many instances (35% of the time) the collision type was not recorded; this translates into 106 out 306 accidents being rendered inconclusive with respect to collision type. The highest numbers of **rear end** accidents were recorded at the intersection of Jerome Avenue/ Tremont Avenue, where 10 were recorded. The highest number of accidents as a result of **overtaking** also occurred at this intersection. Below are the intersections where the highest number of **left-turn**, **rear end**, and **overtaking** accidents occurred. Figure 6-2 shows accidents by collision type and roadway conditions.

- **Rear End:**

1. Jerome Avenue/E./W. Tremont Avenue (10)
2. Grand Concourse/E. 181<sup>st</sup> Street (9)
3. Jerome Avenue/E. 174<sup>th</sup> Street/Featherbed Lane (8)

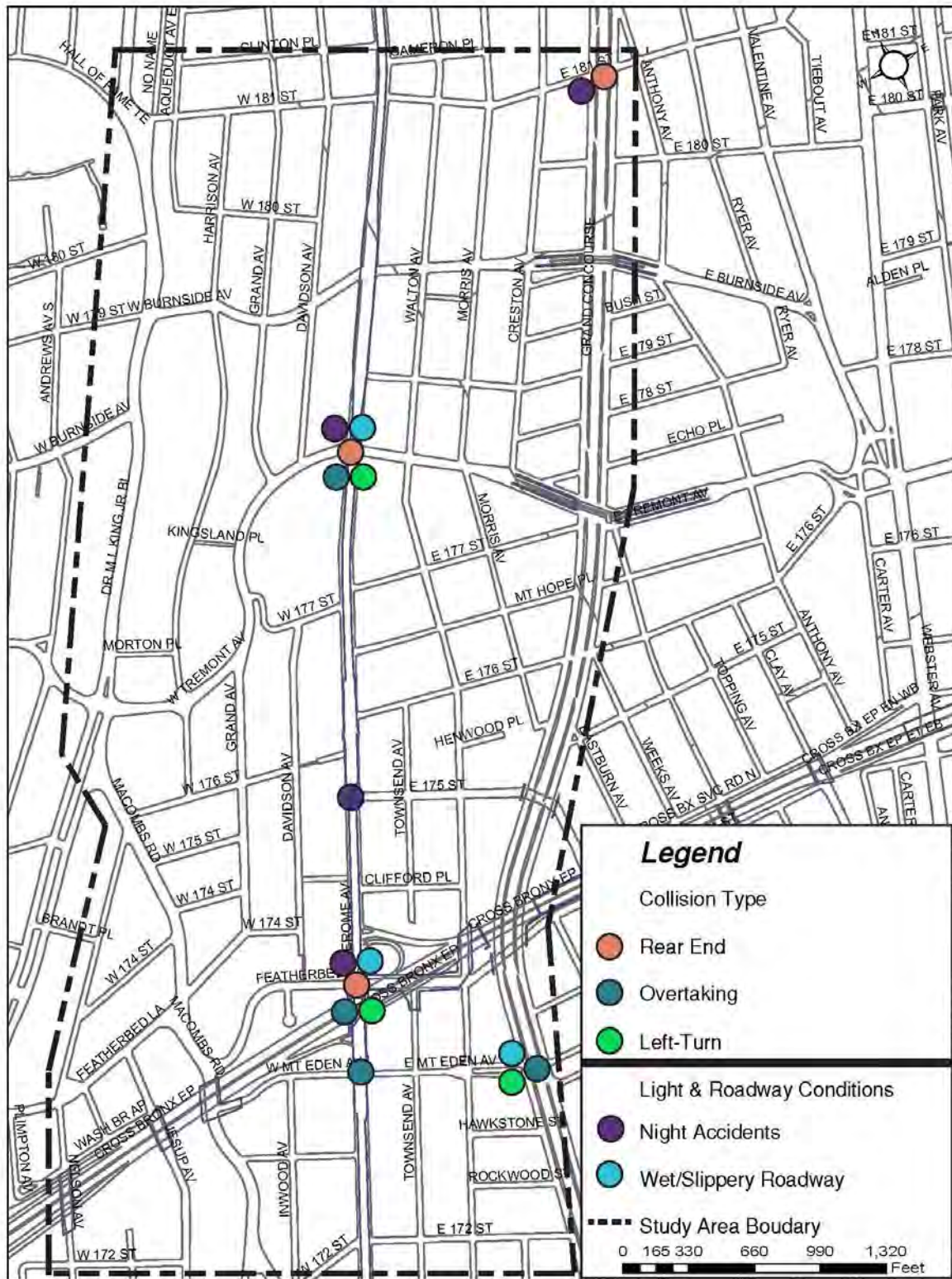
- **Overtaking:**
  1. Jerome Avenue/E./W. Tremont Avenue (11)
  2. Jerome Avenue/E./W. Mt. Eden Avenue (8)
  3. Grand Concourse/Mt. Eden Avenue/Mt. Eden Parkway (8)
- **Left-Turn:**
  1. Jerome Avenue/E./W. Tremont Avenue (7)
  2. Jerome Avenue/E. 174<sup>th</sup> Street/Featherbed Lane (4)
  3. Grand Concourse/Mt. Eden Avenue/Mt. Eden Parkway (4)

A number of accidents that occurred during **night time** and under **wet road conditions** are listed below for the following locations:

- **Night time:**
  1. Jerome Avenue/E. 174<sup>th</sup> Street/Featherbed Lane (24)
  2. Jerome Avenue/E./W. Tremont Avenue (17)
  3. Jerome Avenue/E. 175<sup>th</sup> Street (16)
- **Wet roadway conditions:**
  1. Jerome Avenue/E. 174<sup>th</sup> Street/Featherbed Lane (9)
  2. Jerome Avenue/E./W. Tremont Avenue (8)
  3. Grand Concourse/Mt. Eden Avenue/Mt. Eden Parkway (8)



Figure 6-2: Accidents by Collision Type



Traffic accidents are random occurrences; however, certain counter-measures can be implemented in order to improve overall operations that make an intersection less accident prone. Accidents can be reduced by using the standard countermeasures such as providing left turn slots, improving sight distance, removing obstructions, widening lanes, providing special phase for left turns, increasing amber time, installing larger lenses, providing pedestrian walk/don't walk indicators, installing count-down signals, reducing speed, improving signing and markings, installing advancing warning signs, improving roadway lighting, improving drainage, and prohibiting curb parking. Recommendations to improve overall safety conditions in the study area are integrated into the traffic improvement measures that include the following intersections: Jerome Avenue and Tremont/Burnside/Mt. Eden Avenues; Jerome Avenue/174<sup>th</sup> Street/Featherbed Lane; Grand Concourse and East Mt. Eden Avenue/E. 181<sup>st</sup> Street; Dr. Martin Luther King Boulevard and Tremont/Burnside Avenues, and Dr. Martin Luther King Boulevard and W. 181<sup>st</sup> Street/Hall of Fame.

## **7.0 PARKING**

### **7.1 Introduction**

Parking plays an important role in the overall transportation system. Inadequate parking could lead to unnecessary circulation as motorists search for parking spaces, or to illegal and double parking, thus reducing roadway capacity. This section examines the study area's parking demand and supply to identify parking deficiencies in an attempt to address the area's parking needs.

There are on-street and off-street parking facilities in the study area. On-street parking is generally permitted on all streets except where parking regulation prohibits. Off-street parking facilities are associated with large residential buildings as well as some commercial and entertainment establishments in the study area.

Surveys of on-street and off-street parking facilities were conducted along major corridors as well as minor streets during weekday 8:00-11:00 AM and 12:00-4:00 PM peak periods.

### **7.2 Off-Street Parking**

An inventory of all accessible off-street parking facilities (lots and garages) in the study area was conducted. These include 22 off street public parking garages/lots and 22 accessories parking garages/lots. Figure 7-1 shows the locations of public off-street parking facilities and Table 7-1 lists the names, location, capacity, utilization and fee structure.

#### **Public Parking**

It is estimated that there are 1,629 public parking spaces in 22 facilities. The largest facility (250 spaces) is located on Jerome Avenue between Goble Place and Mount Eden Avenue. A facility with 195 spaces at Harrison Avenue and West 181<sup>st</sup> Street was the second largest. Three are three facilities with 100 spaces and all others have less than 75 parking spaces.

Observed utilization is about 75% during the midday (12-4PM). Off-street parking supply is adequate to satisfy the existing demand – a situation that is expected to continue in the future.



**Accessory parking**

Twenty two accessory parking facilities with a total of 392 parking spaces are located mostly alongside the major corridors such as Jerome, Walton, and Grand Avenues, and also along Macombs Road, Featherbed Lane, 181<sup>st</sup> Street, and Grand Concourse.

Of the 22 accessory parking lots in the study-area, 13 are used primarily for residential parking (236 spaces), four for commercial purposes (44 spaces), and five for institutional buildings (122 spaces) such as churches and community centers. Observed utilization is about 75% during the midday (12-4PM).

Table 7-2 lists the names, location, capacity, utilization and type of facilities while Figure 7-2 showed the locations of facilities in the study area.

**Legend**

- Study Area Boundary
- Public Parking
- Facilities Capacity

**Table 7-1: Off-Street Public Parking Facilities**

| No.          | Name of Public Lot/Garage         | Location of Facility              | License (#) | Capacity (#) | Utilization<br>(#) (%) |           | Rate/fee (\$)               |
|--------------|-----------------------------------|-----------------------------------|-------------|--------------|------------------------|-----------|-----------------------------|
| 1            | Gladys K. Fayne                   | 1475-81 Macombs Rd                | 817886      | 32           | 23                     | 72        | (D) \$3.65<br>(N) \$5.50    |
| 2            | 110 Rockwood Street LLC           | 111 E. 172 <sup>nd</sup> Street   | 1077757     | 33           | 21                     | 64        | (D) \$5.00<br>(M) \$155     |
| 3            | Jonathon & Gabriel Parking Lot    | 1521 Inwood Avenue                | 1134343     | 100          | 68                     | 68        | (D) \$5.00<br>(M) \$155     |
| 4            | City Parking                      | 1550 Inwood Avenue                | 1151512     | 95           | 68                     | 72        | (D) \$5/Hr<br>(M) \$150     |
| 5            | Jerome Avenue Parking Garage Inc. | 1509 Jerome Avenue                | 1098960     | 66           | 57                     | 86        | N/A                         |
| 6            | 1545 Parking LLC                  | 1545 Jerome Avenue                | 1040945     | 250          | 234                    | 94        | (D) \$3.65<br>(N) \$5.50    |
| 7            | Community Parking Inc.            | 1556-60 Jerome Avenue             | 1135542     | 148          | 82                     | 55        | \$7 (12Hrs)<br>\$10 (24Hrs) |
| 8            | The GGG Parking Inc.              | 1565 Jerome Avenue                | 1128837     | 69           | 55                     | 80        | \$7 (12Hrs)<br>10 (24Hrs)   |
| 9            | Draynib Corp                      | 25 W. 174 Street                  | 469978      | 20           | 12                     | 60        | \$6 (4Hrs)<br>\$8 (24Hrs)   |
| 10           | KRM Garage                        | 1900 Jerome Avenue                | 1088937     | 40           | 29                     | 73        | \$7 (12hrs)<br>\$9 (24hrs)  |
| 11           | Estrella Reinaldo                 | 1941 Jerome Avenue                | 996304      | 50           | 44                     | 88        | \$7 (12hrs)<br>\$10 (24hrs) |
| 12           | Estrella Reinaldo                 | 1961 Jerome Avenue                | 957524      | 50           | 39                     | 78        | \$6 (4hrs)<br>\$8 (24hrs)   |
| 13           | Estrella Reinaldo                 | 1985 Jerome Avenue                | 1067182     | 54           | 32                     | 59        | \$7 (12hrs)<br>\$9 (24hrs)  |
| 14           | La Perla Parking                  | 152 E. 179 <sup>th</sup> Street   | 1212126     | 25           | 24                     | 96        | \$7 (12hrs)<br>\$9 (24hrs)  |
| 15           | Central Parking Systems           | 2032 Creston Avenue               | 1200151     | 49           | 46                     | 94        | \$7 (12hrs)<br>\$10 (24hrs) |
| 16           | Marand Realty Company LLC         | 6698 East Burnside Ave            | 944416      | 11           | 9                      | 82        | N/A                         |
| 17           | Candido Batista Enterprise        | 2064 Jerome Avenue                | 1022884     | 50           | 41                     | 82        | \$7 (12hrs)<br>\$10 (24hrs) |
| 18           | Issac Parking Corp                | 2080 Jerome Avenue                | 1082044     | 70           | 48                     | 69        | \$7 (12hrs)<br>\$8 (24hrs)  |
| 19           | Jose J. Rivas                     | 2102 Jerome Avenue                | 1135588     | 47           | 24                     | 51        | \$7 (12hrs)<br>\$10 (24hrs) |
| 20           | NINI Enterprises                  | 2125 Jerome Avenue                | 1148777     | 75           | 49                     | 65        | \$7 (12hrs)<br>\$8 (24hrs)  |
| 21           | Javier Rodriguez                  | 2801 Jerome Avenue                | 1179976     | 100          | 80                     | 80        | \$7 (12hrs)<br>\$10 (24hrs) |
| 22           | Westbury Realty LLC               | 508 West 181 <sup>st</sup> Street | 1192584     | 195          | 147                    | 74        | N/A                         |
| <b>Total</b> |                                   |                                   |             | <b>1,629</b> | <b>1,222</b>           | <b>75</b> |                             |

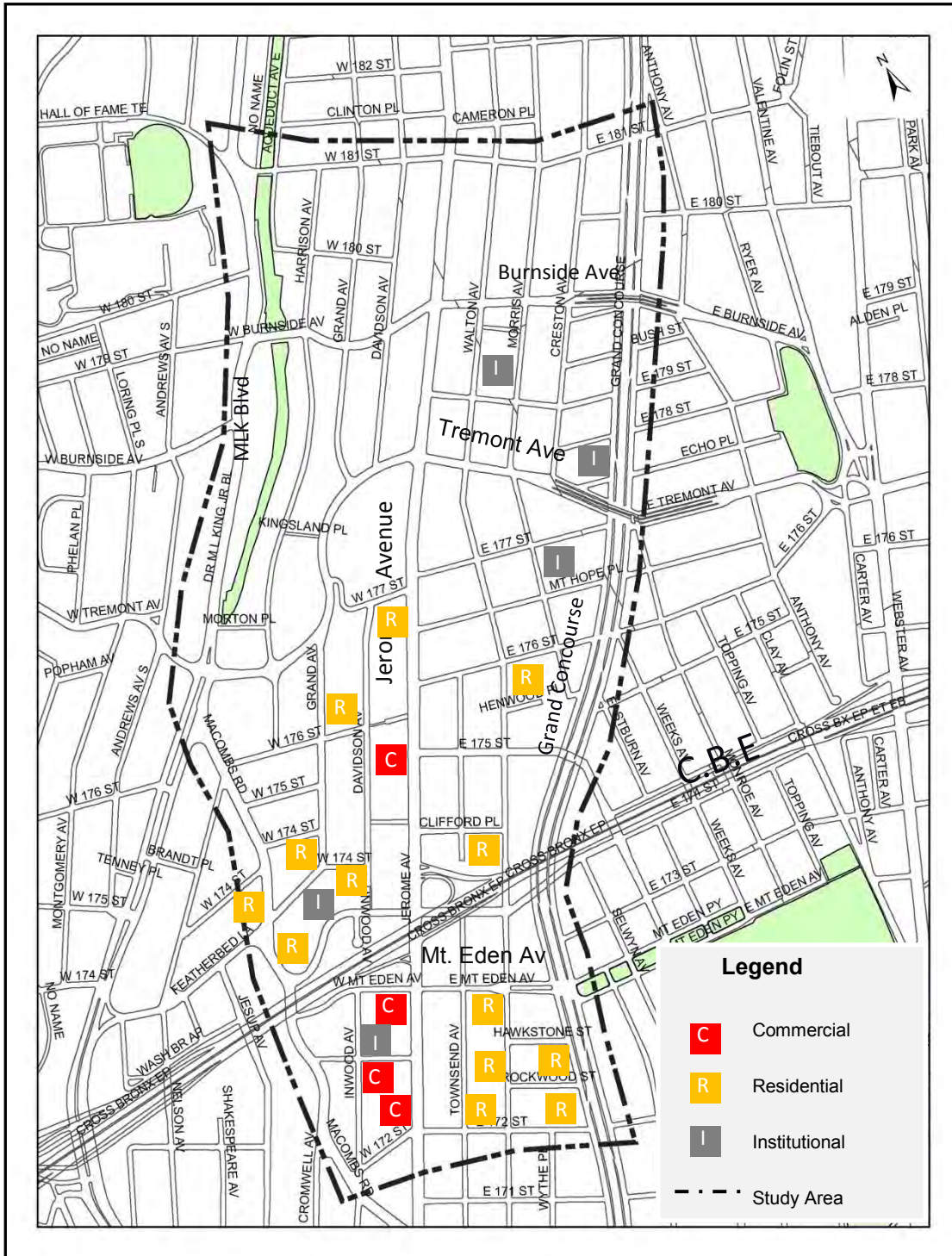
Note: M-Monthly; D- Daily; N-Over night

**Table 7-2: Accessory Parking Facilities**

| No           | Name of Lot/Garage                               | Location of Facility   | Capacity (#) | Utilization |           | Type of Parking |
|--------------|--|--|--------------|-------------|-----------|-----------------|
|              |  |  |              | (#)         | (%)       |                 |
| 1            | Private Lot                                      | Inwood Ave & E. 172 Street                                   | 11           | 6           | 55        | Commercial      |
| 2            | McDonalds  | Jerome & Mt. Eden Avenues                                    | 5            | 3           | 60        | Commercial      |
| 3            | Auto Zone  | 1551 Jerome Ave & Globe Place                                | 18           | 12          | 67        | Commercial      |
| 4            | Dunkin Donuts                                    | Jerome Avenue & 175 Street                                   | 10           | 7           | 70        | Commercial      |
| 5            | Hill House (DHS)                                 | 1616 Grand Ave & W. 174 Street                               | 20           | 15          | 75        | Institutional   |
| 6            | First Ghana 7 <sup>th</sup> Day Adventist Church | 45 Globe Place   | 10           | 8           | 80        | Institutional   |
| 7            | Residential Complex                              | 32 W. 174 Street   | 15           | 11          | 73        | Residential     |
| 8            | Residential Complex                              | Macombs Rd & Grand Avenue                                    | 4            | 3           | 75        | Residential     |
| 9            | Residential Complex                              | W. 176 <sup>th</sup> Street & Grand Avenue                   | 16           | 15          | 94        | Residential     |
| 10           | Residential Complex                              | 1730 Davidson Avenue   | 20           | 17          | 85        | Residential     |
| 11           | Residential Complex                              | 31 Featherbed Lane   | 8            | 4           | 50        | Residential     |
| 12           | Residential Complex                              | Walton Avenue & Henwood Place                                | 14           | 12          | 86        | Residential     |
| 13           | Residential Complex                              | Walton Avenue b/w E. 174 <sup>th</sup> St. & Townsend Avenue | 16           | 11          | 69        | Residential     |
| 14           | Residential Complex                              | Walton Avenue & Hawkstone Street                             | 27           | 18          | 67        | Residential     |
| 15           | Residential Complex                              | 1535 Walton Avenue   | 32           | 21          | 66        | Residential     |
| 16           | Residential Complex                              | Walton Avenue & Rockwood Street                              | 5            | 5           | 100       | Residential     |
| 17           | Residential Complex                              | Hawkstone Avenue b/w Walton Ave & Grand Concourse            | 21           | 14          | 67        | Residential     |
| 18           | Residential Complex                              | Rockwood Avenue b/w Walton Ave & Grand Concourse             | 28           | 25          | 89        | Residential     |
| 19           | Residential Complex                              | W. 174 <sup>th</sup> Street & Davidson Avenue                | 20           | 12          | 60        | Residential     |
| 20           | Project Return                                   | 1865 Morris Avenue & E. 177 Street                           | 41           | 33          | 80        | Institutional   |
| 21           | Theresa's Haven                                  | 1975 Creston Avenue E. 178 Street                            | 39           | 34          | 87        | Institutional   |
| 22           | Episcopal Mission Society of New York            | 1980 Morris Avenue & E. 179 Street                           | 12           | 8           | 67        | Institutional   |
| <b>Total</b> |  |  | <b>392</b>   | <b>294</b>  | <b>75</b> |                 |



**Figure 7-2: Accessory Parking Facilities**



### **7.3 On-Street Parking**

The on-street parking analysis focused on major corridors in the study area where commercial activities and high density residential uses are concentrated but also included some minor streets. Parking regulations in the area range from alternate side street cleaning to restricted parking on commercial streets (metered-parking, time restricted parking, no standing zones, bus stops, fire hydrants, authorized parking zones, and loading/unloading bays).

The parking survey documented parking accumulation by time of day on each block face. Figure 7-3 shows the on-street parking regulation codes. Table 7-3 provides a list of on-street parking regulation codes along the corridors/streets inventoried in the study area.

There were instances when parking demand exceed capacity, resulting in double parking especially along major commercial corridors such as Burnside Avenue and Jerome Avenue.

### **7.4 On-Street Parking Demand and Utilization**

There are approximately 3600 on-street parking spaces in the study area. The average parking utilization reached 80% (2,874 spaces) during the midday peak hours (12-4 PM). Parking shortfalls were noticeable along some segments of Jerome Avenue, Burnside Avenue, Grand Concourse, Featherbed Lane, Dr. Martin Luther King Blvd and Mt. Eden Avenue where utilization exceeded 90% for most of day.

The corridors with generally higher parking demand are listed below:

- Dr. Martin Luther King Blvd between W. Tremont Avenue and West 181<sup>st</sup> Street.
- Jerome Avenue between 172<sup>nd</sup> Street and 181<sup>st</sup> Street.
- Grand Concourse between East 175<sup>th</sup> Street and East 181<sup>st</sup> Street.
- Burnside Avenue between Dr. MLK Blvd/University Avenue and Creston Avenue.
- Featherlane Road between Macombs Road and Walton Avenue.
- Mount Eden Avenue between Macombs Road and Grand Concourse.



The map displays a grid of streets in the Bronx, New York. The streets shown include W 180 St, W 179 St, W 178 St, W 177 St, W 176 St, W 175 St, W 174 St, W 173 St, W 172 St, W 171 St, W 170 St, W 169 St, W 168 St, W 167 St, W 166 St, W 165 St, W 164 St, W 163 St, W 162 St, W 161 St, W 160 St, W 159 St, W 158 St, W 157 St, W 156 St, W 155 St, W 154 St, W 153 St, W 152 St, W 151 St, W 150 St, W 149 St, W 148 St, W 147 St, W 146 St, W 145 St, W 144 St, W 143 St, W 142 St, W 141 St, W 140 St, W 139 St, W 138 St, W 137 St, W 136 St, W 135 St, W 134 St, W 133 St, W 132 St, W 131 St, W 130 St, W 129 St, W 128 St, W 127 St, W 126 St, W 125 St, W 124 St, W 123 St, W 122 St, W 121 St, W 120 St, W 119 St, W 118 St, W 117 St, W 116 St, W 115 St, W 114 St, W 113 St, W 112 St, W 111 St, W 110 St, W 109 St, W 108 St, W 107 St, W 106 St, W 105 St, W 104 St, W 103 St, W 102 St, W 101 St, W 100 St, W 99 St, W 98 St, W 97 St, W 96 St, W 95 St, W 94 St, W 93 St, W 92 St, W 91 St, W 90 St, W 89 St, W 88 St, W 87 St, W 86 St, W 85 St, W 84 St, W 83 St, W 82 St, W 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**Table 7-3: On-Street Parking Regulations**

| No. | Description   |
|-----|---|
| 1   | No Parking Anytime  |
| 2   | No Standing Anytime   |
| 3   | No Standing 10PM-5AM including Sunday                                 |
| 4   | No Standing Fire Zone   |
| 5   | No Standing Except Trucks Loading/Unloading 10PM-5AM including Sunday |
| 6   | No Standing Anytime Except Trucks Loading/Unloading 6AM-6PM Mon-Fri   |
| 7   | No Standing Anytime Except Trucks Loading/Unloading 7AM-7PM Mon-Fri   |
| 8   | No Standing Anytime Except Authorized Vehicles                        |
| 9   | No Standing Anytime Taxi Stand  |
| 10  | No Parking 7AM-4PM Mon-Fri  |
| 11  | No Parking 8AM-6PM Except Sunday                                      |
| 12  | No Standing 7-10AM & 4-6PM Mon-Fri                                    |
| 13  | No Parking 7-10AM & 4-7PM Mon-Fri                                     |
| 14  | No Parking 7:30-8AM Except Sunday                                     |
| 15  | No Parking 7:30-8AM Mon & Thurs                                       |
| 16  | No Parking 7:30-8AM Tues & Fri  |
| 17  | No Parking 8-8:30AM Except Sunday                                     |
| 18  | No Parking 8-8:30AM Mon & Thurs                                       |
| 19  | No Parking 8-8:30AM Tues & Fri  |
| 20  | No Parking 8:30-9AM Except Sunday                                     |
| 21  | No Parking 8:30-9AM Mon & Thurs                                       |
| 22  | No Parking 8:30-9AM Tues & Fri  |
| 23  | No Parking 8-9:30AM Mon & Thurs                                       |
| 24  | No Parking 8:30-10AM Mon & Thurs                                      |
| 25  | No Parking 9:30-11AM Mon & Thurs                                      |
| 26  | No Parking 9:30-11AM Tues & Fri                                       |
| 26  | No Parking 9-10:30AM Tues-Fri   |
| 27  | No Parking 11:30AM-1PM Mon-Fri  |
| 28  | No Parking 11:30AM-1PM Mon & Thurs                                    |
| 29  | No Parking 11:30-1PM Tues & Fri                                       |
| 30  | 1 Hour Parking 8AM to 7PM Except Sunday                               |
| 31  | 1 Hour Parking 8:30AM to 7PM Except Sunday                            |
| 32  | 1 Hour Parking 9AM to 7PM Except Sunday                               |
| 33  | 2 Hour Parking 8AM to 7PM Except Sunday                               |
| 34  | 2 Hour Parking 8:30AM-7PM Except Sunday                               |
| 35  | 2 Hour Parking 9AM-7PM Except Sunday                                  |

## **7.5 Future Parking**

Generally speaking, the parking supply is adequate to satisfy demand in the study area, but there are a few areas where commercial and automobile activities are concentrated that have parking shortfalls. Based on current demand in these areas and potential growth, the parking situation will persist. On-street parking utilization along major corridors such as Jerome Avenue, Grand Concourse, Macomb Road, and Mt. Eden Avenue is below existing capacity. It is anticipated that enough available spaces exist to satisfy future demand. As expected, future demand for on-street parking is expected to be higher primarily along and around Burnside Avenue, Tremont Avenue, and Jerome Avenue. The projected on-street utilization for the peak hours takes into account a 0.38% growth rate over 10 years. Muni-meters should be installed to increase parking turnover and satisfy demand for both trucks and autos along the major commercial corridors.

## **8.0 PUBLIC TRANSPORTATION**

### **8.1 Introduction**

Public transportation plays a key role in the transportation system of the study area. It is the predominant mode of travel for area residents. The study area is well served by public transportation with three subway lines and ten bus routes and a transit hub at Macombs Road, East 175 Street, Jerome Avenue and Grand Concourse. The Metropolitan Transportation Authority - New York City Transit (MTA - NYCT) operates bus and subway services within the study area.

### **8.2 Subway Service**

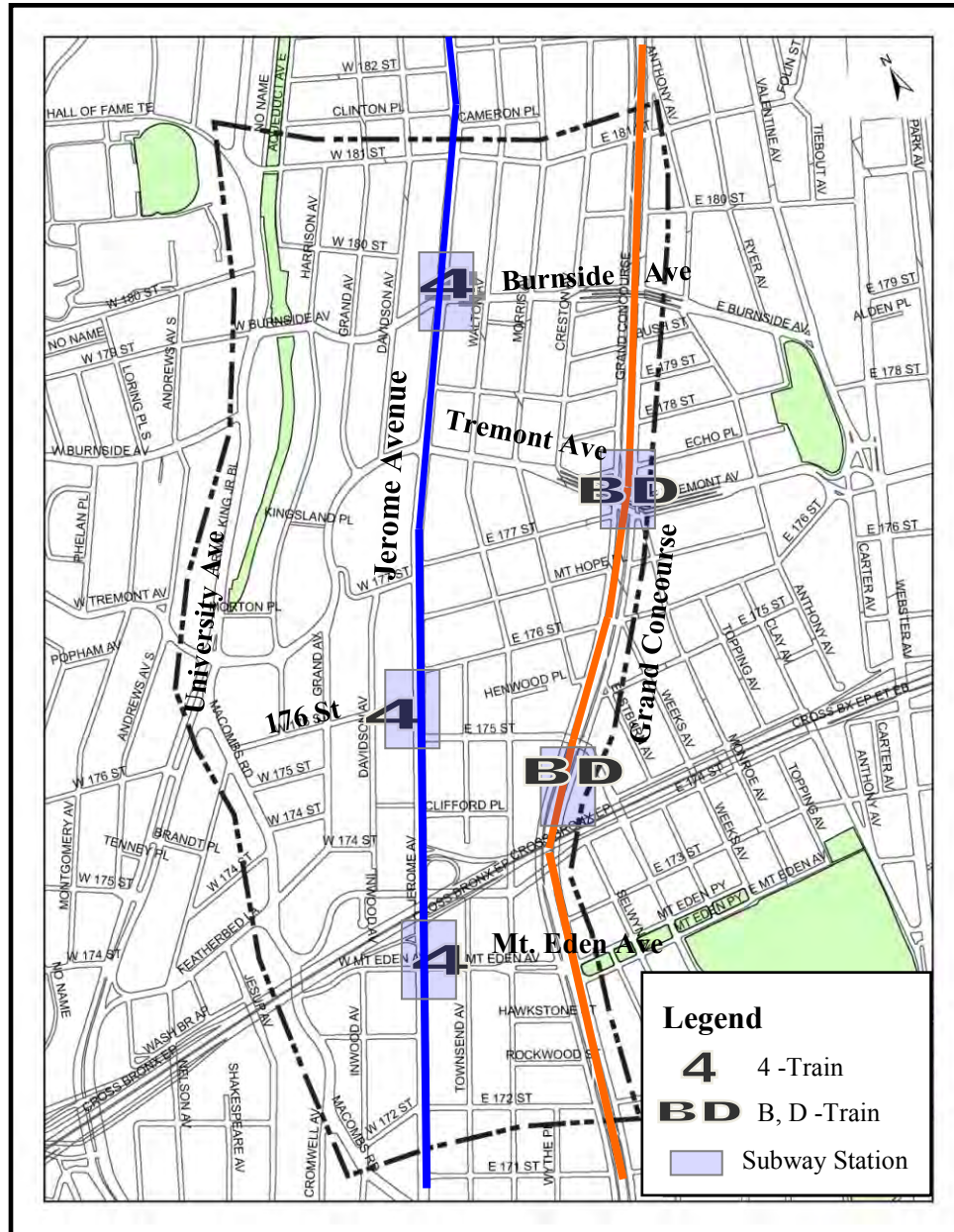
There are three subway lines along two routes that serve five subway stations. Table 8-1 below lists the subway lines/stations, while Figure 8-1 shows the subway lines and stations.

**Table 8-1: Subway Lines and Stations**

| <b>Lines</b>   | <b>Routes</b>   | <b>Stations</b>   |
|----------------|-----------------|---|
| 4 (Local)      | Jerome Avenue   | <ul style="list-style-type: none"><li>• Mt Eden Avenue</li><li>• 176 Street</li><li>• Burnside Avenue</li></ul> |
| D or B (Local) | Grand Concourse | <ul style="list-style-type: none"><li>• 174-175 Street</li><li>• Tremont Avenue</li></ul>                       |

The subway lines connect the study area and the Bronx to the boroughs of Manhattan and Brooklyn.

Figure 8-1: Subway Lines and Stations



The following are descriptions of subway lines:

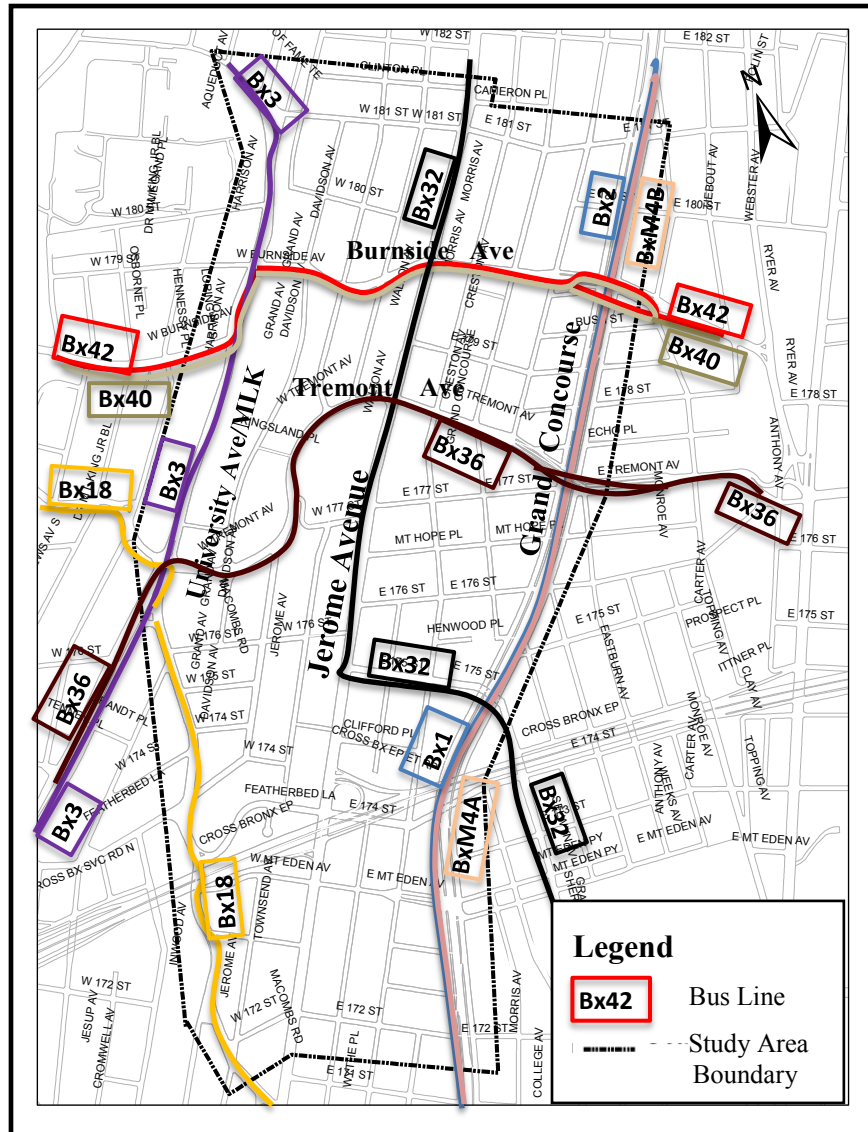
- The #4 subway service runs express on Lexington Avenue and along Jerome Avenue where it is elevated. It stops at the following stations: Mt. Eden Avenue, 176street, and Burnside Avenue at all times. It runs from New Lots Avenue (Brooklyn) to Woodlawn (Bronx).
- The D line extends from Coney Island (Brooklyn) to 205 Street (Bronx). The service runs express on Sixth Avenue and below Grand Concourse. It stops at the Tremont Avenue/Grand Concourse and at 174-175 Streets stations.
- Alternate to the D line is the B local, it runs express on Central Park West /Sixth Avenue and Grand Concourse (underground). It stops at the Tremont Avenue/Grand Concourse and at 174-175 Streets stations.

### **8.3 Bus Service**

There are eight local and two express bus lines that serve the study area. The bus routes operate on five major corridors: Macombs Road/University Avenue, Jerome Avenue, Burnside Avenue, Tremont Avenue and Grand Concourse. There are three locations within the study area that can be considered as major transfer points: Jerome/Burnside Avenues, Jerome/Mt Eden Avenues, and Grand Concourse at East 170 Street/East Tremont Avenue where passengers from various bus lines transfer to the B/D or 4 trains and vice versa. The peak hours of bus operations selected for analysis were: 7-9AM, (11AM–1PM) midday, and 4-7PM. Figure 8-2 shows the bus lines in the study area.



Figure 8-2: Bus Lines

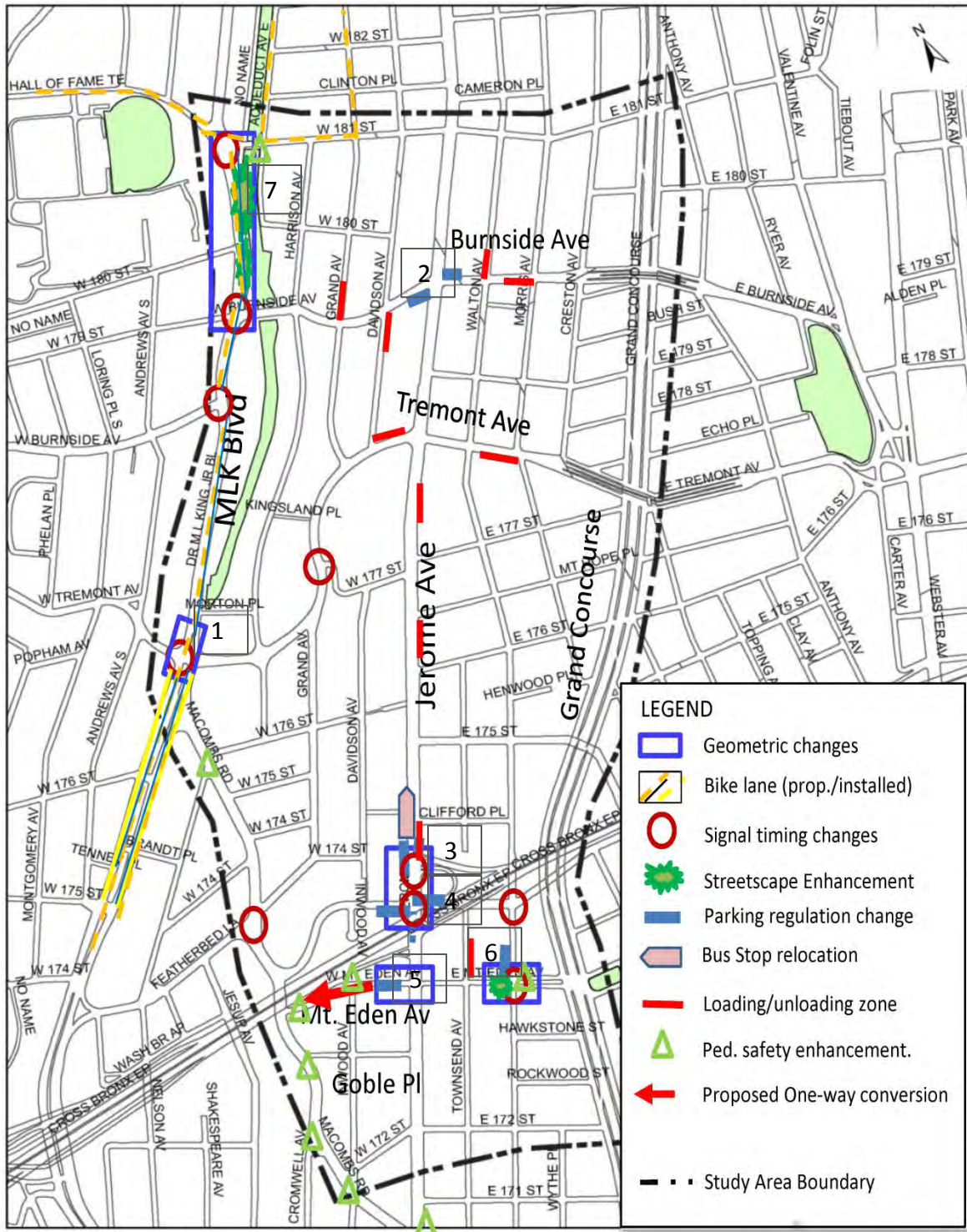


## **9.0 RECOMMENDATIONS**

The analysis revealed several locations in the study area that can be improved with respect to traffic circulation, intersection and roadway configuration, signal timing, parking, signs and markings, truck loading/unloading zones, and streetscape. Exhibit 9.1 shows locations with improvement measures and Table 9-1 lists the description of improvement measures. The following locations are identified for roadway and safety improvements:

1. University Avenue/Dr. Martin Luther King (MLK) Boulevard and West Tremont Avenue (parking removal and roadway restriping, installing high visibility (HV) crosswalks with ADA ramps, and signal timing changes);
2. Jerome Avenue and Burnside Avenue (parking removal, installing HV crosswalks with ADA ramps, and signal timing changes);
3. Jerome Avenue and CBE exit/entrance ramps interchange (parking removal, roadway/median striping, installing HV crosswalks with ADA ramps, and signal timing changes);
4. Jerome Avenue and Featherbed Lane (parking removal and roadway striping, and installing HV crosswalks with ADA ramps);
5. Jerome Avenue and Mt. Eden Avenue (one-way conversion, parking removal, roadway striping, installing HV crosswalks with ADA ramps);
6. Walton Avenue and Mt. Eden Avenue (parking removal, enlarging medians and installing HV crosswalks with ADA ramps, Stop bars, and signal timing changes);
7. Dr. Martin Luther King Boulevard, from West Burnside Avenue to Hall of Fame/West 181<sup>st</sup> Street (pedestrian safety improvements including streetscape enhancement, roadway striping, sidewalk extension, installing pedestrian refuge and HV crosswalks with ADA ramps, and signal timing changes);
8. Truck loading/unloading zones at Jerome Avenue, Burnside Avenue, Tremont Avenue and Mt. Eden Avenue;
9. Signal timing modifications involving eleven intersections; and
10. Transit improvements (bus stops relocation).

**Exhibit 9.1: Locations for Improvements**



**Table 9-1: Proposed Improvement Measures**

| No. | Intersection/Area   | Peak Period   | Proposed Improvement Measures   |
|-----|---|---|---|
| 1   | Dr. MLK Blvd & W. Tremont Avenue  | All Time Periods  | Restripe W. Tremont Avenue to two moving lanes. Install HV X-walks & ADA ramps. Shift 3 seconds from EB/WB phase to NB/SB phase during the MD & PM peak hours.  |
| 2   | Jerome @ Burnside Avenues   | All Time Periods  | Restripe Burnside Avenue to provide two moving lanes. Install HV X-walks & ped. ADA ramps and move Stop bar 10 feet from X-walks. Install No Standing Anytime signs on both approaches of Burnside Avenue for 100 feet.                                     |
| 3   | Jerome Ave @ CBE North side ramps   | All Time Periods  | Change signal phasing plan; introduce LT phase for Jerome Ave. SB approach, provide sufficient green time for vehicles entering CBE ramp (WB).  |
|     |   | All Time Periods  | Restripe medians and install HV X-walks with ped. ADA ramps b/w two entrance/exit ramps coming from/to CBE at Jerome Avenue and move Stop bar 10 feet from X-walks.   |
| 4   | Jerome Avenue @ Featherbed Lane   | 7AM-7PM   | Restripe Featherbed Lane and provide two moving lanes in each direction. Install signs No Standing 7 AM-7 PM for 100 feet (Monday to Friday). Install HV X-walks & pedestrian ADA ramps and move Stop bars 10 feet from X-walks.                            |
|     |   | 7AM-7PM   | Install No Standing 7AM-7PM signs and provide two moving lanes on Jerome Avenue b/w Mt. Eden Avenue and Featherbed Lane. For the south ramps, shift three seconds of green time from the EB phase to SB phase in AM & PM peaks.                             |
| 5   | Jerome @ Mt. Eden Avenues (One-way conversion)  | All Time Periods  | Convert WB Mt. Eden Avenue and provide two moving lanes. Install No Standing Anytime signs for 50' on the north curb. Install HV X-walks/ADA ramps and move Stop bar 10 feet from X-walks.  |
| 6   | Walton @ Mt. Eden Avenues   | All Time Periods  | Enlarge two medians on Mt. Eden Avenue; prohibit 4 parking spaces from west curb on Walton Ave. SB approach and shift three seconds of green time from the EB/WB phase to SB phase in PM. Install HV X-walks/ADA ramps & move Stop bars 10 ft from X-walks. |
| 7   | Dr. MLK Blvd and W. Burnside Avenue (b/w 179 <sup>th</sup> and 181 <sup>st</sup> Streets) | All Time Periods  | Restripe Martin Luther King Blvd; widen medians and create pedestrian refuge. Landscape raised medians Install HV X-walks/ADA ramps and realign sidewalks and crosswalks.   |
|     |   | All Time Periods  | Shift 4 seconds of green time to the WB phase at the intersection of Dr. MLK Blvd and W. Burnside Avenue during the all peak hours.   |
|     |   | All Times   | Refurbish all existing pavement markings, centerline and.   |
|     | University Ave/MLK Blvd & W. 181 <sup>st</sup> Street                                     | All Time Periods  | Shift 3 seconds of green time from the NB/SB phase to EB/WB phase during the AM, PM, and Saturday peak hours.   |
| 8   | Truck loading/unloading zones   |   | Install truck loading/unloading zones on Jerome/Burnside/Tremont and Mt. Eden Avenues; Install No Standing Except Truck Loading/unloading signs from 10 AM to 5 PM, with limit of 1 hour.   |
| 9   | Walton Avenue @ E. 174 <sup>th</sup> Street   | PM  | ● Shift 3 seconds of green time from the NB/SB phase to EB/WB phase   |
|     | W. Tremont @ Grand Avenues  | PM  | ● Shift 4 seconds of green time from the EB/WB phase to NB/SB phase   |
| 10  | Public Transit  | Relocate bus stops at Jerome Avenue and 176 <sup>th</sup> Street.   |   |
| 11  | Bike lane proposal  | As per the NYC Bicycle Master Plan, two new bike routes are proposed (along Tremont Ave. and E. 181 <sup>st</sup> Street). Shared lanes were recently marked along Macombs Road and Dr. MLK Blvd. |   |
| 12  | Pedestrian Safety improvements  | Install medians with pedestrian refuge at four locations along Macombs Road.  |   |

Detailed description of improvements follows.



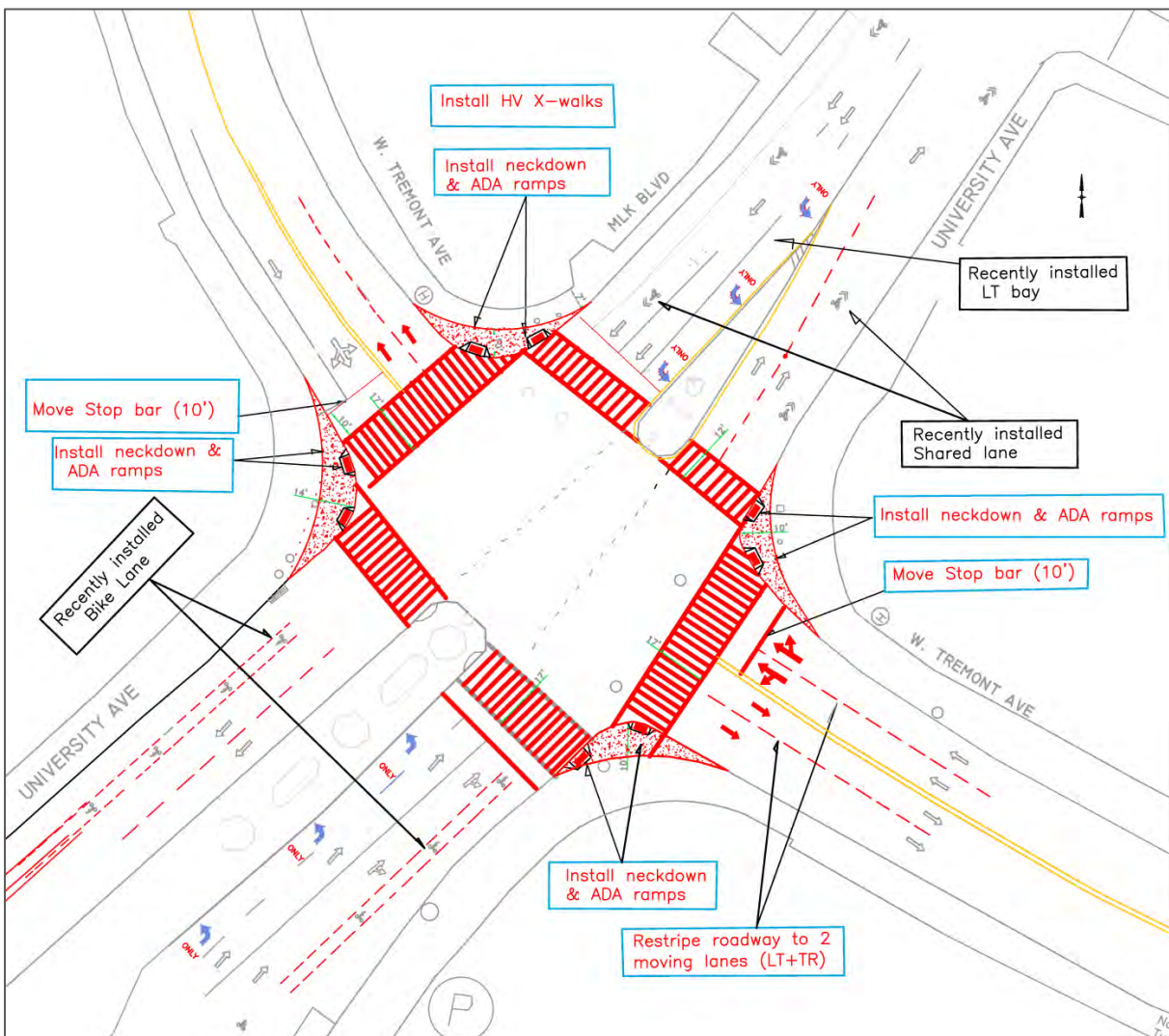
## 1. University Avenue/Dr. MLK Boulevard and West Tremont Avenue

Restripe West Tremont Avenue to two moving lanes and install “No Standing Anytime” signs. Install four neckdowns, high visibility (HV) crosswalks with ADA ramps, and move Stop bars 10 feet from crosswalks (see Exhibit 9-2).

**Exhibit 9-2**

### **University Avenue/Dr. MLK Blvd and W. Tremont Avenue**

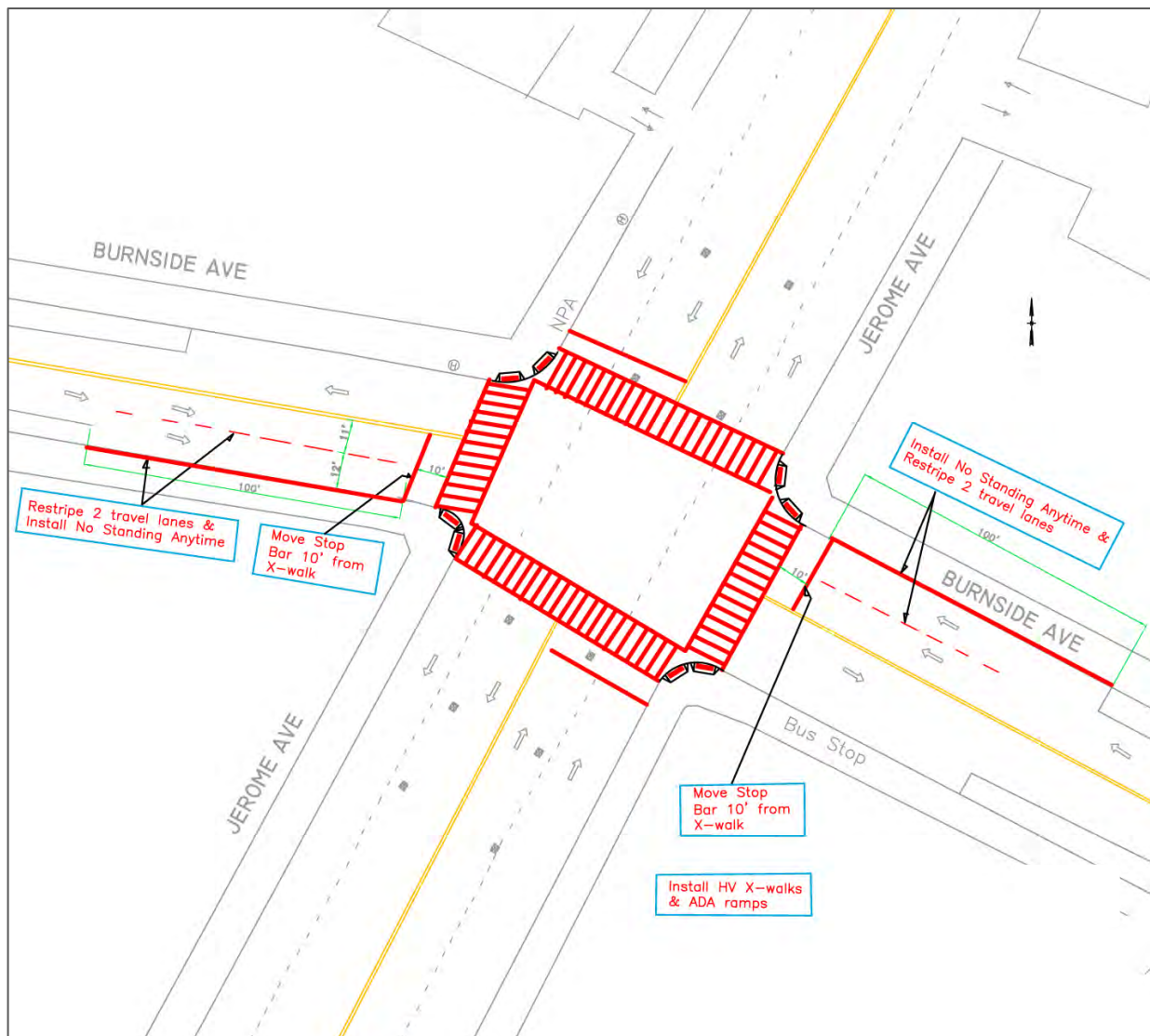
#### **Proposed Intersection Improvements**



## 2. Jerome Avenue and Burnside Avenue

Remove three parking spaces on the eastbound and westbound approaches to provide two moving lanes and install “No Standing 7AM - 7PM Monday-Friday” signs. Install HV crosswalks and pedestrian ADA ramps, and move Stop bars 10 feet from crosswalks (See Exhibit 9-3).

**Exhibit 9-3**  
**Jerome Avenue and Burnside Avenue**  
**Proposed Improvements**

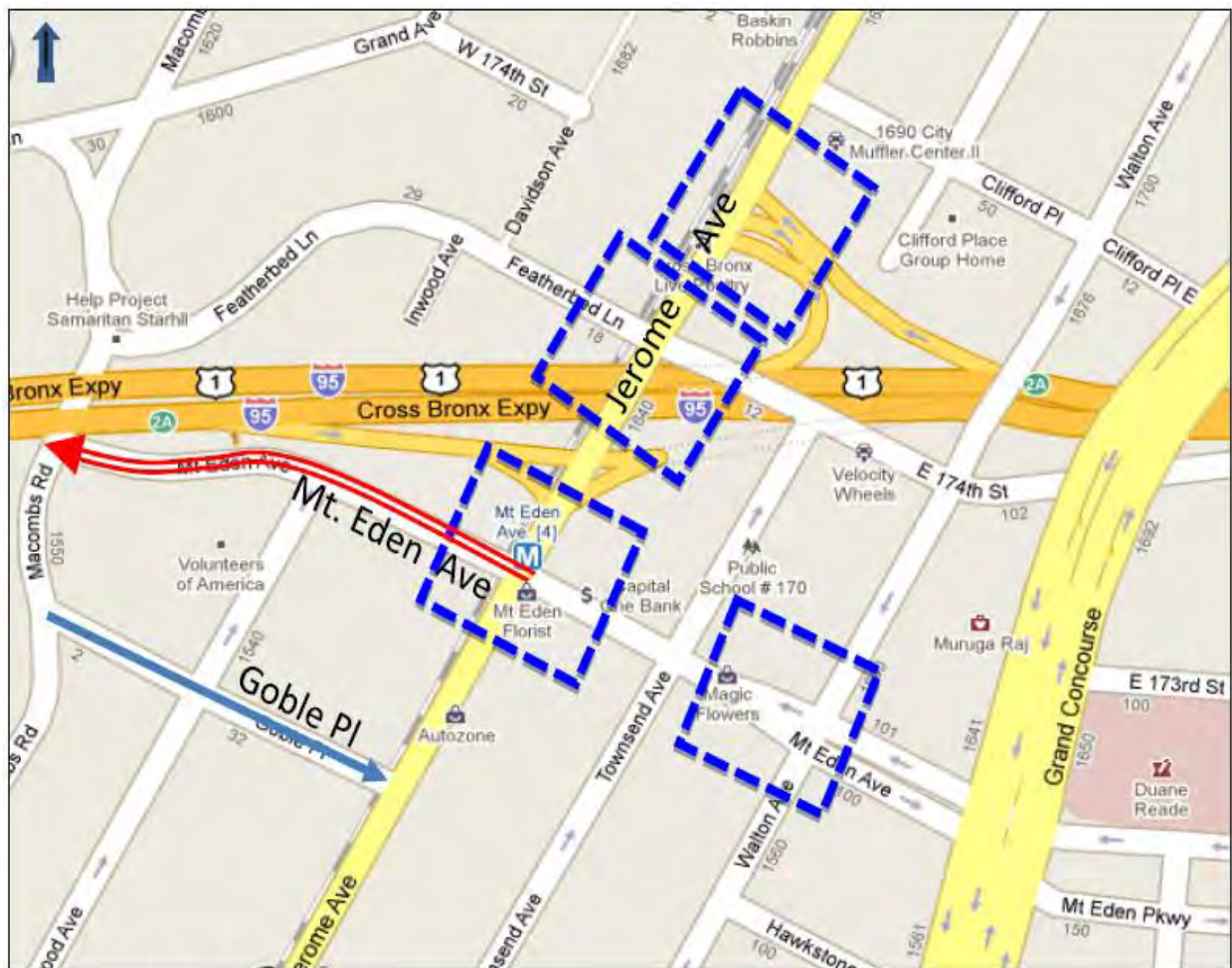




### 3. Jerome Avenue and Cross Bronx Expressway (CBE) interchange

Jerome Avenue and Cross Bronx Expressway interchange is the most complex location in the study area with several connecting local streets and ramps where heavy congestion occurs most of the day. Exhibit 9-4 shows locations where congestion exists.

**Exhibit 9-4**  
**Jerome Avenue and Cross Bronx Expressway Interchange**  
**Locations for Improvement**



Note: See detail drawings next

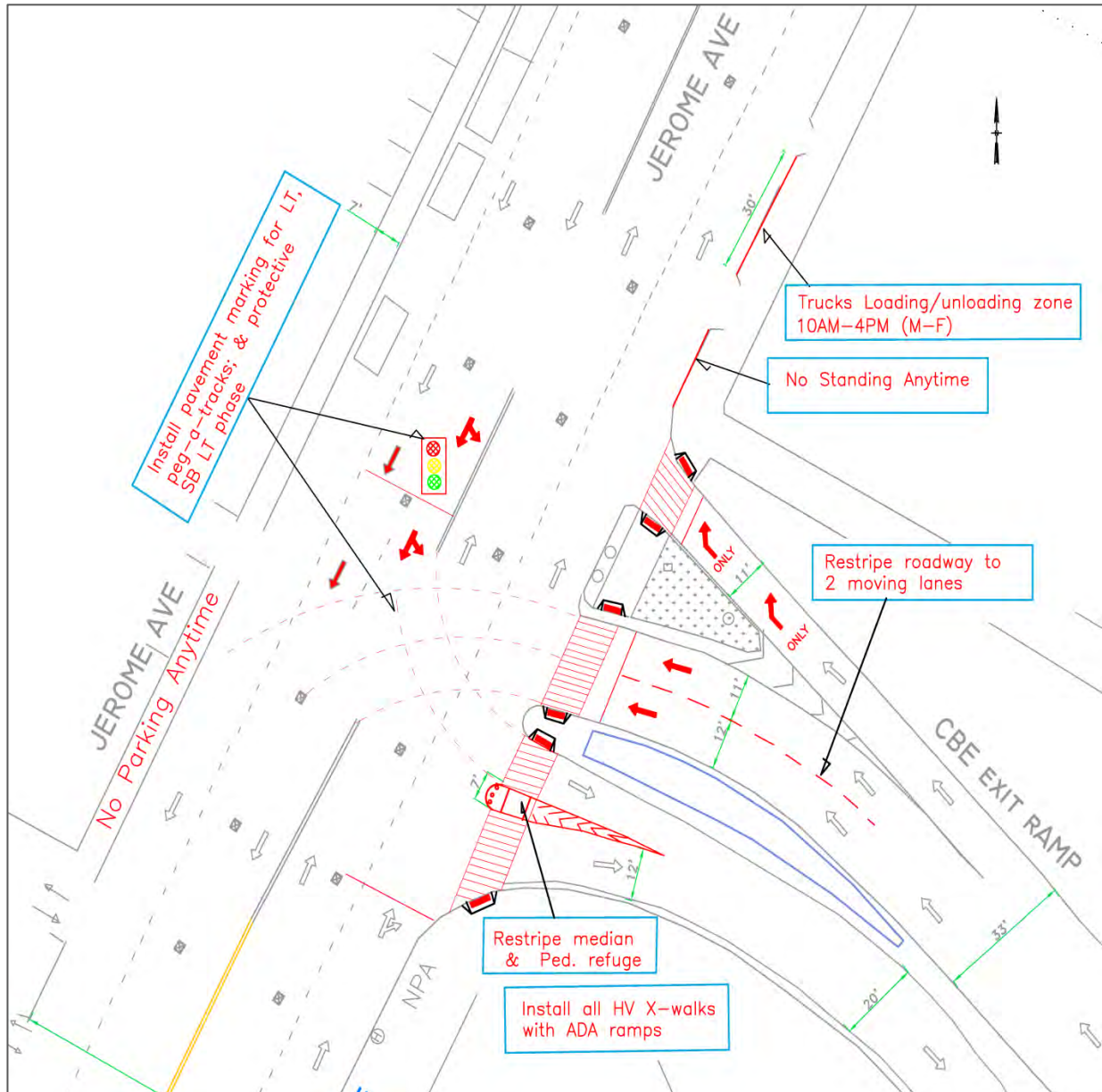
← One-way conversion

Overall traffic circulation and safety at these locations can be enhanced by the following improvement measures:

- Provide an exclusive SB left turn phase on Jerome Avenue to the CBE exit/entrance north ramps;
- Remove one parking space on the east curb at the corner of northeast exit ramp and install a “No Standing Anytime” sign; Install a truck loading/unloading zone on the east curb (50’).
- Restripe concrete median between entrance ramps and provide HV crosswalks with pedestrian ADA ramps;
- Install peg-a-tracks to delineate roadways between Jerome Avenue and entrance/exit ramps;
- Install “No Standing Anytime” signs along the west curb of the intersection;
- Install No Standing 7 AM – 7 PM Except Sunday and provide two moving lanes on the east curb of Jerome Avenue between Mt. Eden Avenue and Featherbed Lane.
- Adjust signal timing on Jerome Avenue to the CBE entrance south ramp; and
- Install advisory signs and pavement markings on Jerome Avenue to direct drivers to the four CBE entrance and exit ramps.

See Exhibit 9-5 for details (north side).

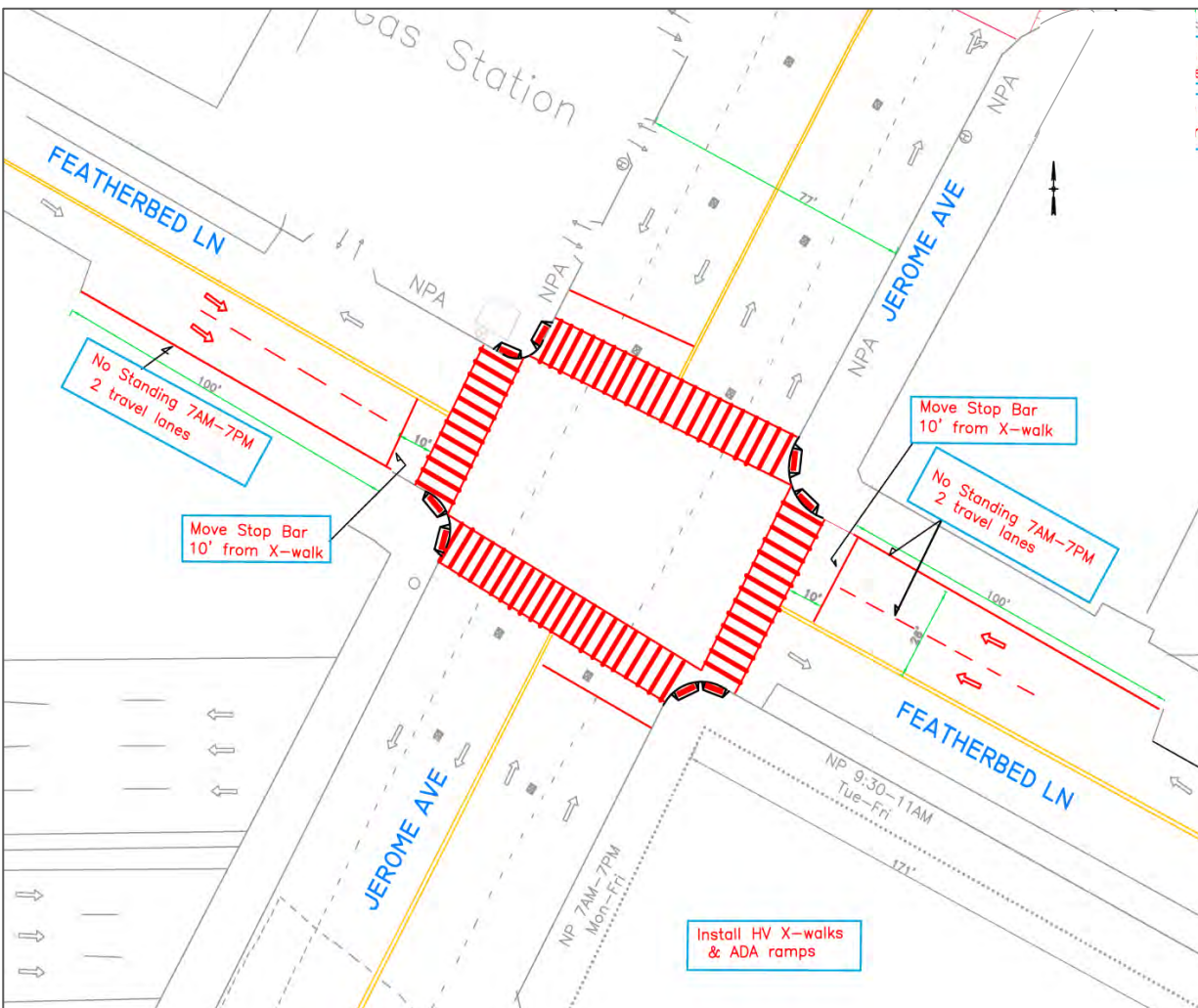
**Exhibit 9-5**  
**Jerome Avenue and CBE exit/entrance ramps**  
**Proposed Improvements**



#### 4. Jerome Avenue and Featherbed Lane

Remove five parking spaces on the east and west approaches (north and south curbs) to provide two moving lanes (LT+TR) and install “No Standing 7 AM-7 PM Monday-Friday”. Install HV crosswalks with pedestrian ADA ramps and move Stop bars 10 feet from X-walks (see Exhibit 9-6).

**Exhibit 9-6**  
**Jerome Avenue and Featherbed Lane**  
**Proposed Improvements**





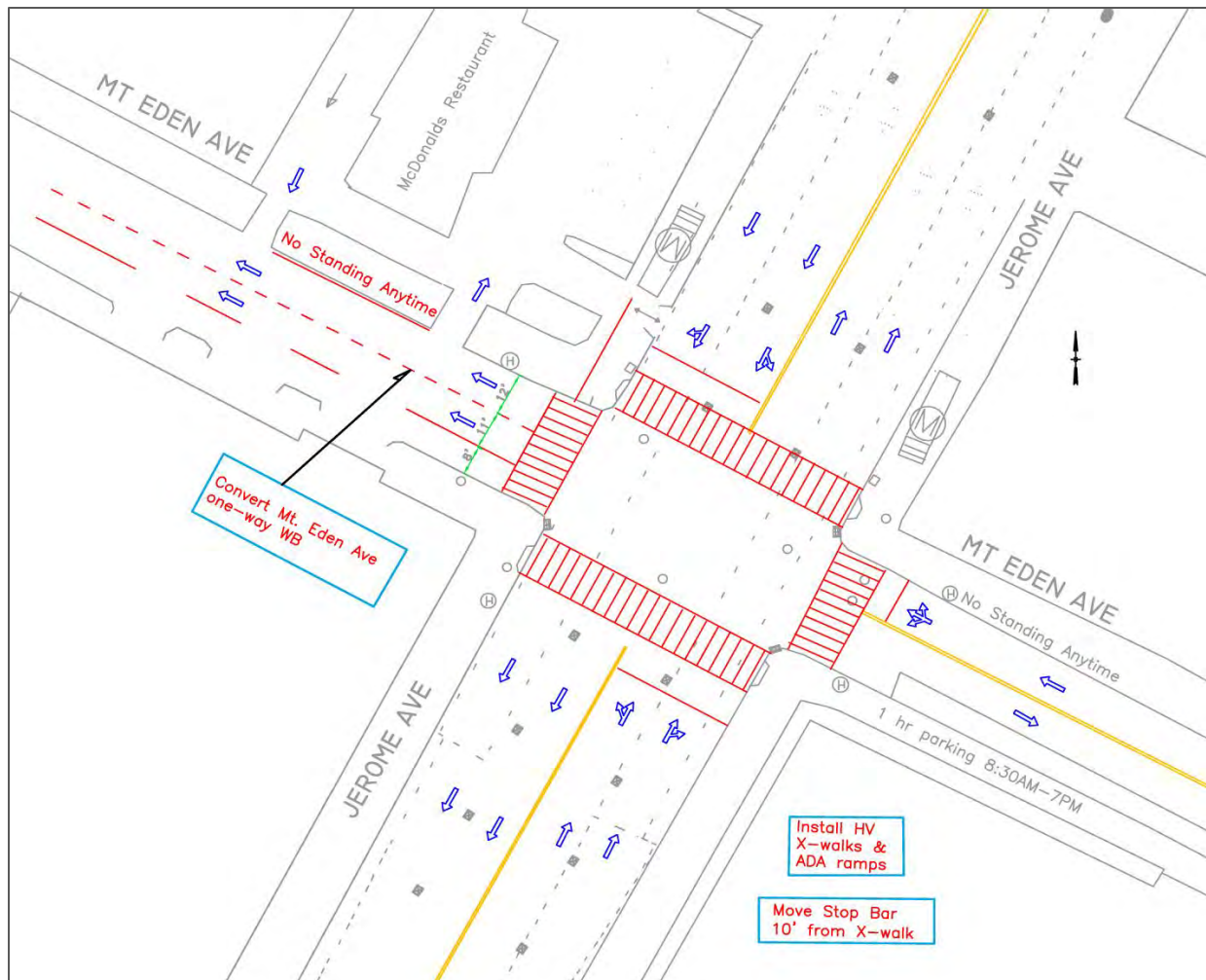
## 5. Jerome Avenue and Mt. Eden Avenue

- Convert Mt. Eden Avenue to one-way westbound from Jerome Avenue to Macombs Road and provide two moving lanes.
- Install HV crosswalks with pedestrian (ADA) ramps and move Stop bars 10 feet from crosswalks; and
- Remove two parking spaces on the north curb of Mt. Eden Avenue, between McDonald's driveways and install "No Standing Anytime" sign (see Exhibit 9-7).

**Exhibit 9-7**

### **Jerome Avenue and Mt. Eden Avenue**

#### **Proposed Improvements**



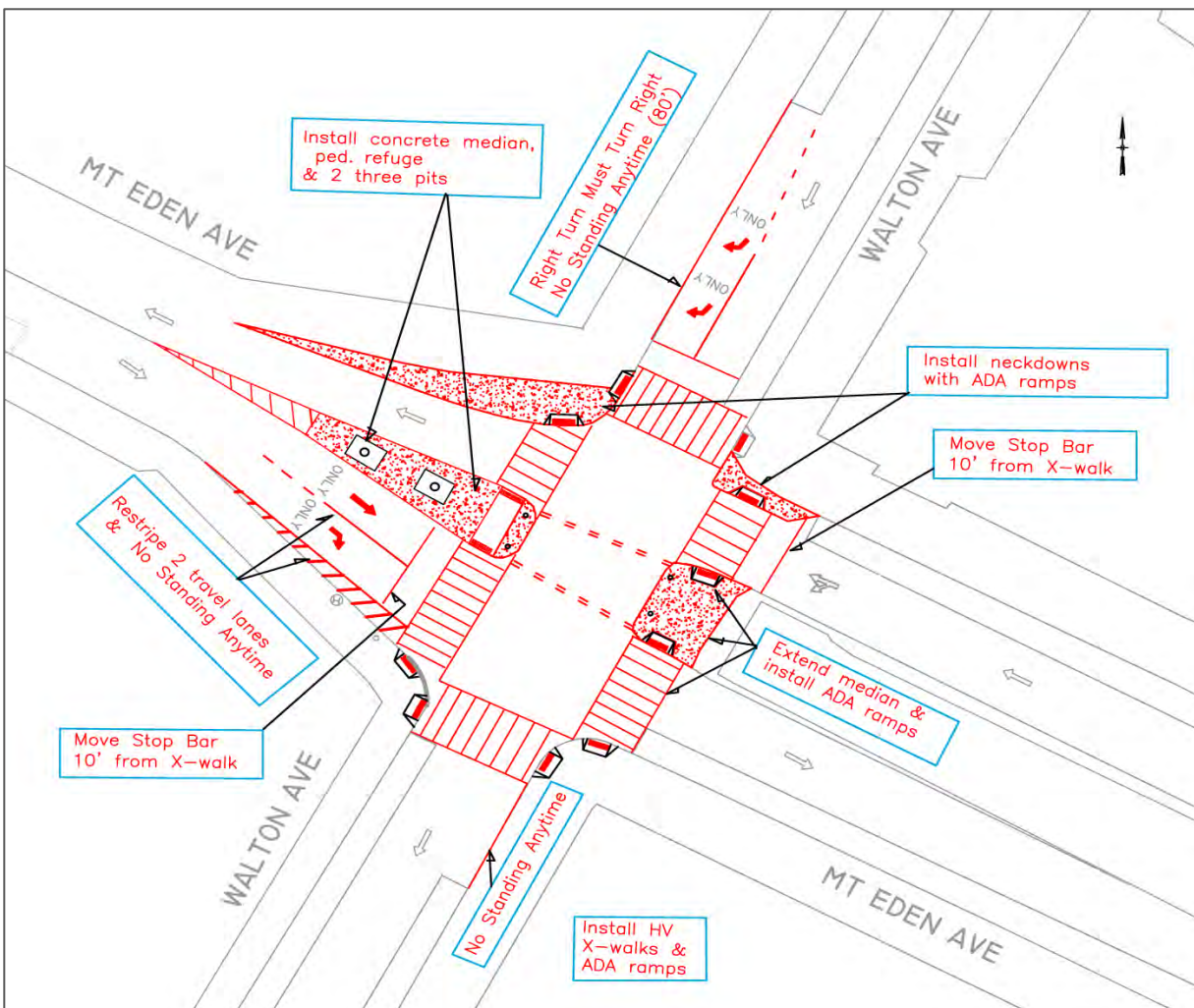
## 6. Walton Avenue and East Mt. Eden Avenue

- Install “No Standing Anytime” 100 feet on Mt. Eden Avenue west leg on the both curbs and restripe two eastbound lanes;
- Install “No Standing 4-7 PM (Monday-Friday)” 150 feet on Walton Avenue on the west curb (southbound approach) and provide two moving lanes; and
- Extend sidewalks and install concrete medians on Mt. Eden Avenue with pedestrian refuge, HV crosswalks with ADA ramps, and move Stop bars 10 feet from X-walks. Landscape the centrally located western median/install three pits (see Exhibit 9-8).

### Exhibit 9-8

#### Walton Avenue and East Mt. Eden Avenue

#### Proposed Improvements





## **7. Dr. Martin Luther King (MLK) Boulevard/University Avenue Improvements**

NYC Transit, Department of City Planning and the Bronx Borough President Office requested DOT to develop solutions to enhance pedestrian safety along Dr. Martin Luther King (MLK) Boulevard, between West 179<sup>th</sup> Street/West Burnside Avenue and East 181<sup>st</sup> Street. The recommendations prepared by Parks Department and DOT provide additional space for pedestrians, enlarge medians, landscaping, and adding refuge for four HV crosswalks along this segment (see Exhibits 9-9 and 9-10).

### **Exhibit 9-9**

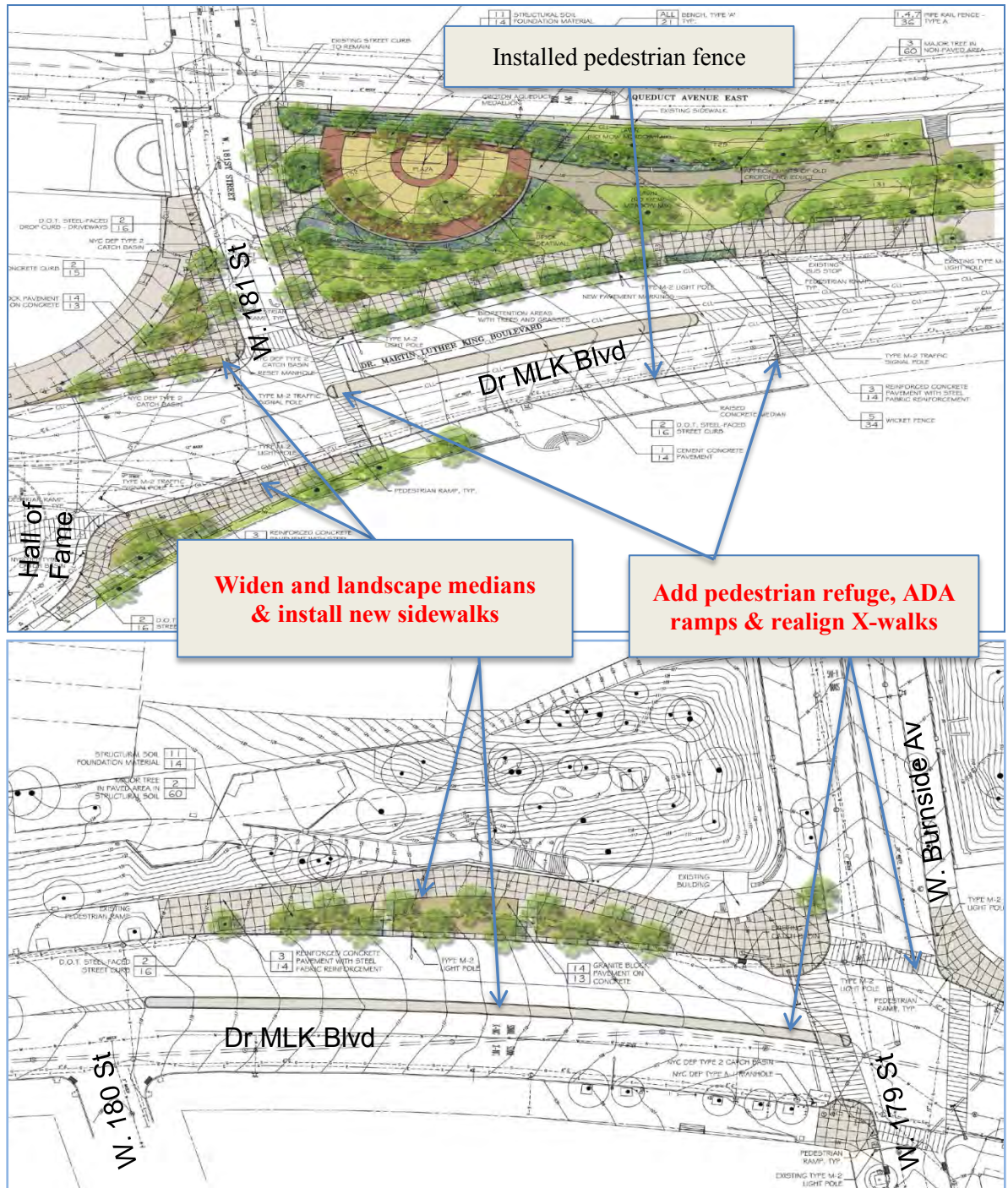
#### **Dr. MLK Boulevard and E. 181<sup>st</sup> Street/Hall of Fame Terrace**

#### **Proposed Segment for Improvement**



## Exhibit 9-10

### Dr. MLK Boulevard b/w W. 181<sup>st</sup> Street/Hall of Fame Terrace and W. 179<sup>th</sup> Street Proposed Streetscape Enhancement



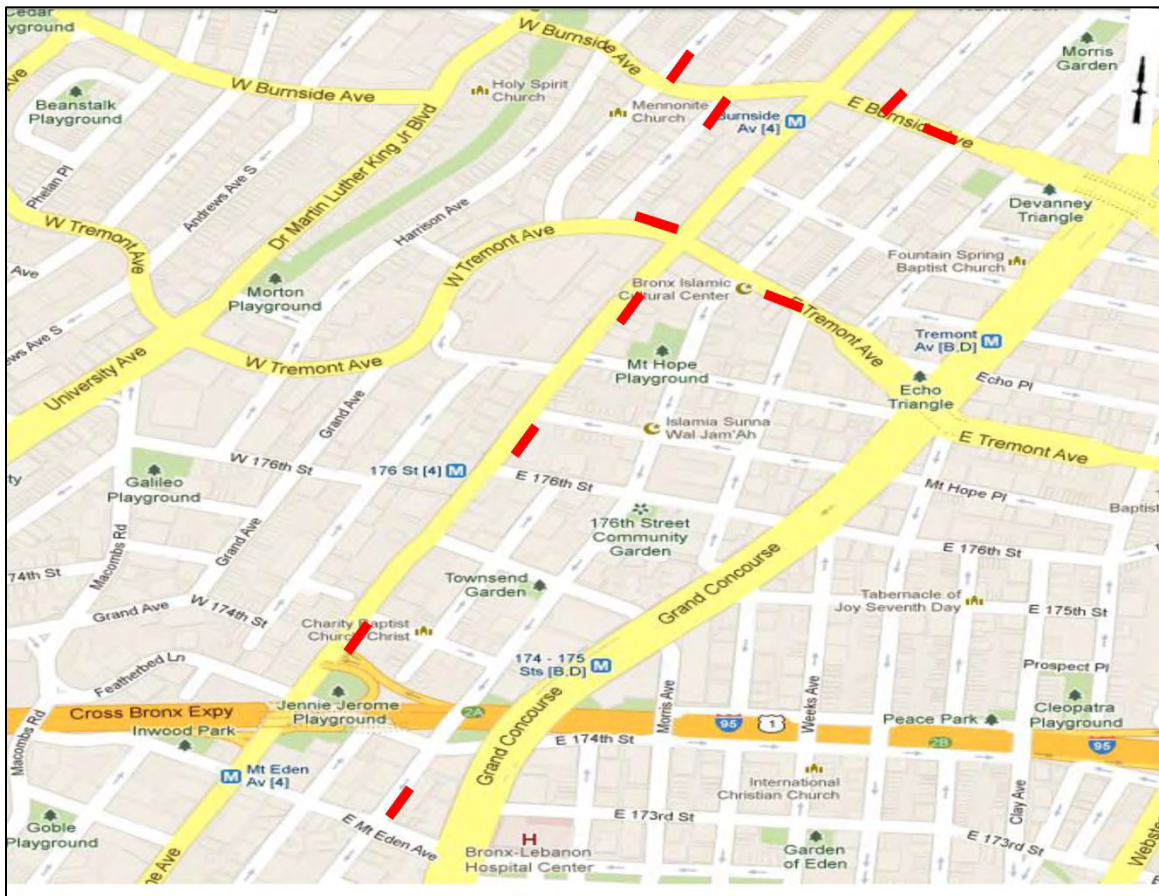
Joint Proposal – Dept. of Parks and Recreation/DDC and DOT

## 8. Proposed trucks loading/unloading zones

There are a few commercial corridors in the study area with intense truck loading and unloading activities causing double parking hence it is recommended that six loading/unloading zones be installed at the following locations (see Exhibit 9-11):

1. Burnside Avenue @ Davidson Avenue (southeast curb); Grand Avenue (northeast curb); Walton Avenue (northeast curb); and at Morris Avenue (southeast curb);
2. Tremont Avenue between Davidson & Jerome Avenues (north curb) and between Walton and Morris Avenues (south curb);
3. Jerome Avenue between 176<sup>th</sup> Street & Mt. Hope Place (east curb), 177<sup>th</sup> Street & Tremont Avenue (east curb) and CBE Exit ramp & Clifford Place (southeast curb); and
4. Mt. Eden Avenue @ Townsend Avenue (northeast curb).

**Exhibit 9-11: Proposed locations for truck loading/unloading zones**



Ten truck loading/unloading zones are proposed from 10:00 AM and 4:00 PM, Monday-Friday.



## **9. Proposed Signal Timing Changes**

To improve traffic operations at various locations, signal timing modifications are recommended for the following intersections:

1. Jerome Avenue and CBE north ramps WB (all times);
2. Jerome Avenue and CBE south ramps EB (all times);
3. Walton Avenue and E. 174<sup>th</sup> Street (AM and PM);
4. Walton Avenue and E. Mt. Eden Avenue (AM & PM);
5. Macombs Road and Grand Avenue (PM);
6. Grand Avenue and W. Tremont Avenue (PM);
7. Dr. MLK Blvd and W. 179<sup>th</sup> Street/W. Burnside Avenue (PM);
8. Dr. MLK Blvd and W. Burnside Avenue (AM, MD, PM, and SAT);
9. Dr. MLK Blvd and W. 181<sup>st</sup> St/Hall of Fame Terrace (AM, PM, and SAT); and
10. University Avenue/Dr. MLK Blvd and W. Tremont Avenue (MD and PM).

### **Jerome Avenue and CBE north ramps (All Times)**

At Jerome Avenue and the north entrance/exit ramps introduce a 15 seconds left turn phase for Jerome Avenue southbound approach for left turns onto the entrance ramp. The LOS during the AM and PM peak hours would be improved from E to D and delays reduced to 38 and 39 from 62 and 63 seconds.

### **Jerome Avenue and CBE south ramps (AM and PM)**

At Jerome Avenue and the south entrance/exit ramps shift three seconds of green time from the EB phase to the southbound phase for left turns onto the entrance ramp. The LOS during the AM and PM peak hours would be improved from E to D and delays reduced to 45 and 50 from 60 and 69 seconds.

### **Walton Avenue and E. 174<sup>th</sup> Street (AM and PM)**

During the AM and PM peak hours shift three seconds of green time from the SB phase to the EB/WB phase. The LOS during the AM and PM peaks would improve from E and F to D and

delays reduced to 45/50 and 31 seconds from 69/78 and 78 seconds for the EB/WB approaches, respectively.

**Walton Avenue and E. Mt. Eden Avenue (AM and PM)**

During the AM and PM peak hours shift three seconds of green time from the EB/WB phase to the SB phase. The LOS during the AM and PM peak hours would improve from E to D and delays reduced to 44 and 51 seconds from 69 and 73 seconds, respectively.

**Macombs Road and Grand Avenue (PM)**

During the PM peak hour shift three seconds of green time from the NB/SB phase to the EB/WB phase. The LOS during the PM peak hour would improve from E to D and delays reduced to 40 seconds from 74 seconds, respectively.

**Grand Avenue and West Tremont Avenue (PM)**

During the PM peak hour shift four seconds of green time from the EB/WB phase to the NB phase. The LOS for the PM peak would improve from E to D and delay reduced to 54 seconds from 71 seconds, respectively.

**Dr. MLK Blvd and W. Burnside Avenue (PM)**

During the PM peak hour shift three seconds of green time from the pedestrian clearance phase to the NB/SB phase. The LOS for the PM peak hour would improve from E to D and delay reduced to 29 seconds from 77 seconds, respectively.

**Dr. MLK Blvd and W. Burnside Avenue/W. 179<sup>th</sup> St. (AM, MD, PM, & SAT)**

During the AM, midday, and PM peak hours shift two seconds of green time from the NB/SB to the WB phase and three seconds of green time for the Saturday midday peak. The LOS during the AM, midday, PM, Saturday midday peaks would improve from E/F to D and delays reduced to 45, 44, 54 and 45 seconds from 72, 73, 88 and 75 seconds, respectively.

**Dr. MLK Blvd and W. 181<sup>st</sup> Street/Hall of Fame Terrace (AM, PM, and SAT)**

During the AM, PM and Saturday midday peak hours shift three seconds of green time from the NB/SB to the WB phase. The LOS during the AM, PM, and Saturday midday peak hours would improve from E to D and delays reduced to 46, 49 and 52 seconds from 77, 76 and 66 seconds, respectively.

**University Avenue/MLK Blvd and W. Tremont Avenue (MD and PM)**

During the midday and PM peak hours shift three seconds of green time from the EB/WB phase to the NB/SB phase. The LOS during the midday and PM peak hours would be improved to C/D from E/F and delays reduced to 30 and 50 seconds from 61 and 96 seconds, respectively.

**10. Proposed Transit Improvements****Buses:**

NYC Transit (Buses) proposes relocation of bus stops at Jerome Avenue and 176<sup>th</sup> Street.

There are two proposals:

Proposal 1: Southbound bus stop will be relocated south of 176<sup>th</sup> Street.

Proposal 2: Northbound bus stop will be relocated north of 176<sup>th</sup> Street, in front of lumber delivery entrance and the southbound bus stop relocated south of W. 176<sup>th</sup> Street. Exhibit 9-12 show proposed locations for the bus stop relocation.



**Exhibit 9-12**  
**Jerome Avenue and 176<sup>th</sup> Street**  
**Proposed Bus Stops Relocation**



# **APPENDIX**

## **Evaluation of One-way Proposal Mt. Eden Avenue between Jerome Avenue and Macombs Road**

## **Mt. Eden Avenue One-way Conversion**

During the summer of 2012, as a part of the public participation process CB 4 requested a site visit with DOT to observe many locations where DOT had recommended improvements. Resulting from the field visit, CB 4 asked DOT to evaluate converting Mt. Eden Avenue to one-way operation between Jerome Avenue and Macombs Road to address some of the congestion in the vicinity of the Jerome Avenue/CBE interchange.

Subsequent to the field visit a reconnaissance was done and DOT conducted traffic counts (ATRs and manual turning movements) in October 2012 at six locations for the Jerome Avenue/CBE interchanges to evaluate the proposal.

From the data collected, a balanced traffic network was prepared for the AM and PM peak hours for the existing condition and the proposed one-way. The eastbound traffic was reassigned based on the origin and the most direct route for the proposed one-way. A total of eighteen intersections (twelve signalized and six unsignalized) were analyzed using the HCS/Synchro methodology. This new data and analysis required nine additional locations to be reevaluated including five locations where recommendations were previously made.

Figures A-1 and A-2 show the existing street network and the extent of the proposed one-way conversion. Figures A-3 and A-4 show the existing updated network volumes for the AM and PM peak hours. Figures A-5 thru A-8 shows reassigned and balanced network volumes for the one-way conversion. Figure A-9 shows the existing vs. proposed configuration of the Jerome Avenue and Mt. Eden Avenue intersection.

Tables A-1 and A-2 show the HCS and Synchro analysis results (delays and LOS) for the existing and proposed one-way operation affecting a wider area. Table A-3 shows the delays and LOS for the intersections directly affected by the one-way conversion. The proposal will improve the overall traffic operations in the area, eliminate the queuing for the eastbound approach and reduce congestion at the intersection of Mt. Eden Avenue/Jerome Avenue. The traffic flow on Mt. Eden Avenue, between Macombs Road and Walton Avenue will improve significantly. In addition, traffic to and from Mc. Donald's parking lot will create less conflicts.

The conversion of Mt. Eden Avenue will compliment Goble Place as a one-way pair, which was implemented recently.

Figure A-1  
 Cross Bronx Expressway/Jerome Avenue Interchange  
 Existing Street Network

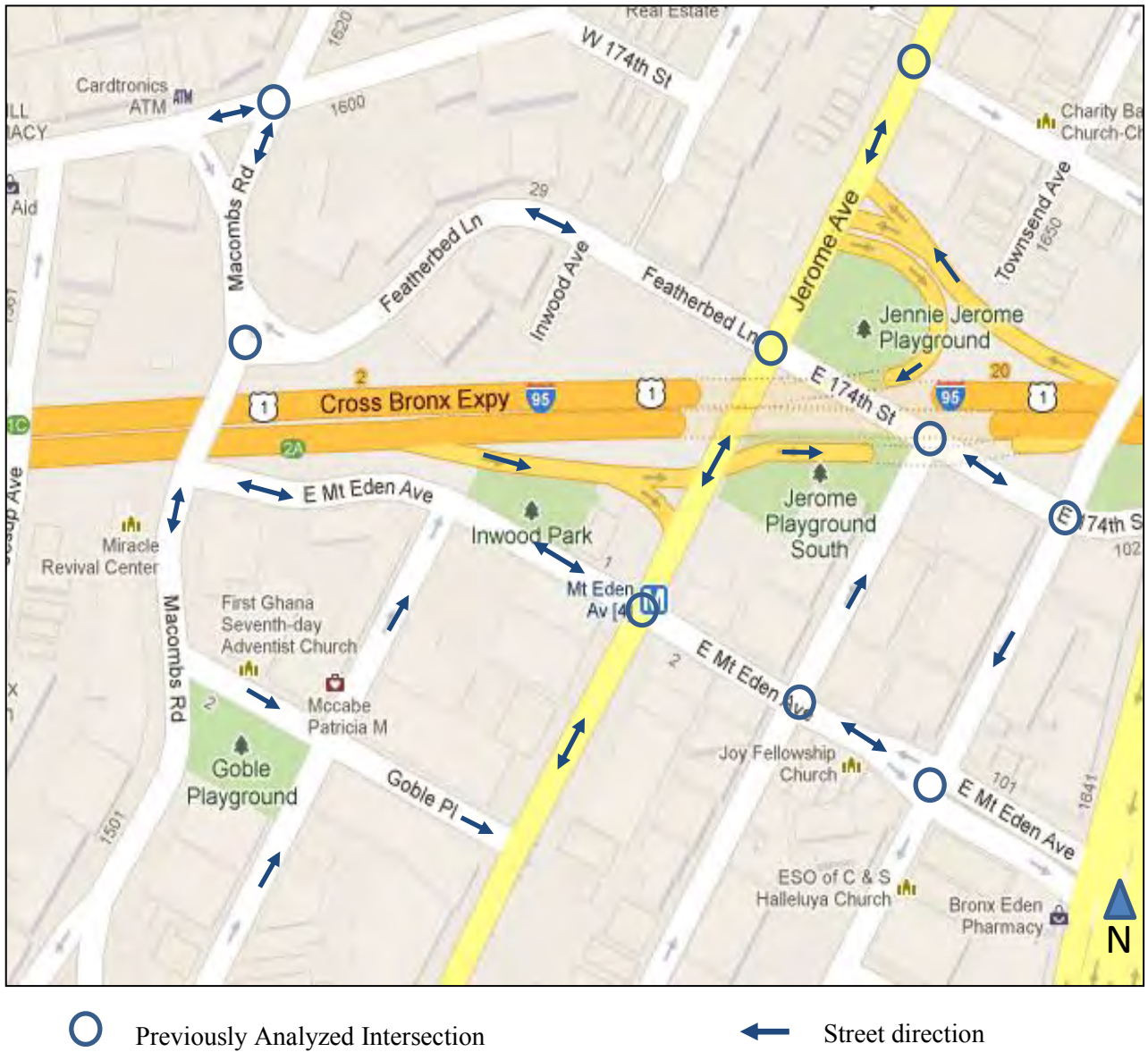
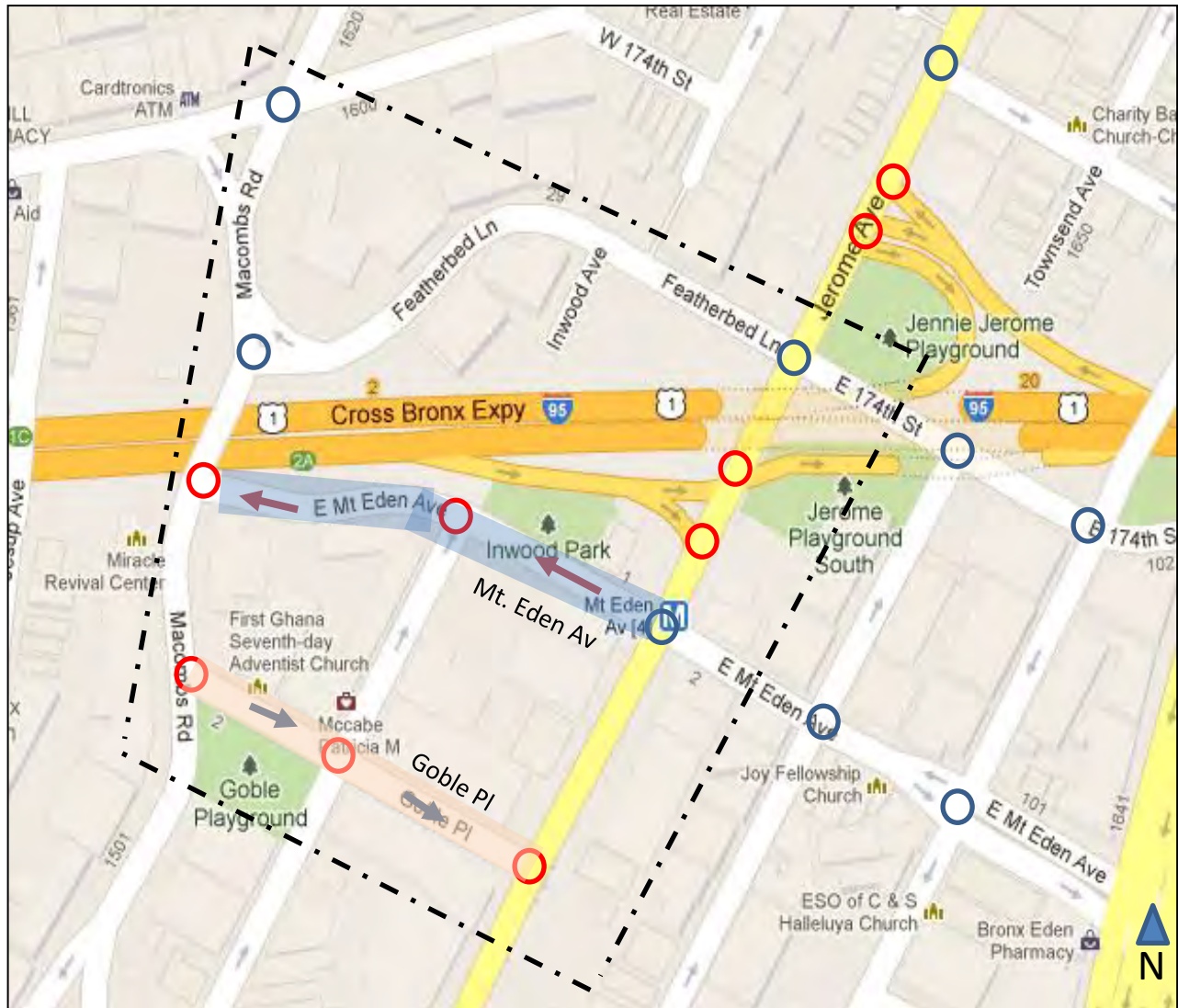




Figure A-2  
 Cross Bronx Expressway/Jerome Avenue Interchange  
 Proposed One-way Conversion



Analyzed Intersection:

○ Previous

○ Recent



Mt. Eden Avenue - Proposed conversion from two-way to one-way WB



Goble Place – Converted from two-way to one-way EB (Implemented 2012)

Figure A-3  
Cross Bronx Expressway/Jerome Avenue Interchange  
Existing Volumes 2012 (AM Peak)

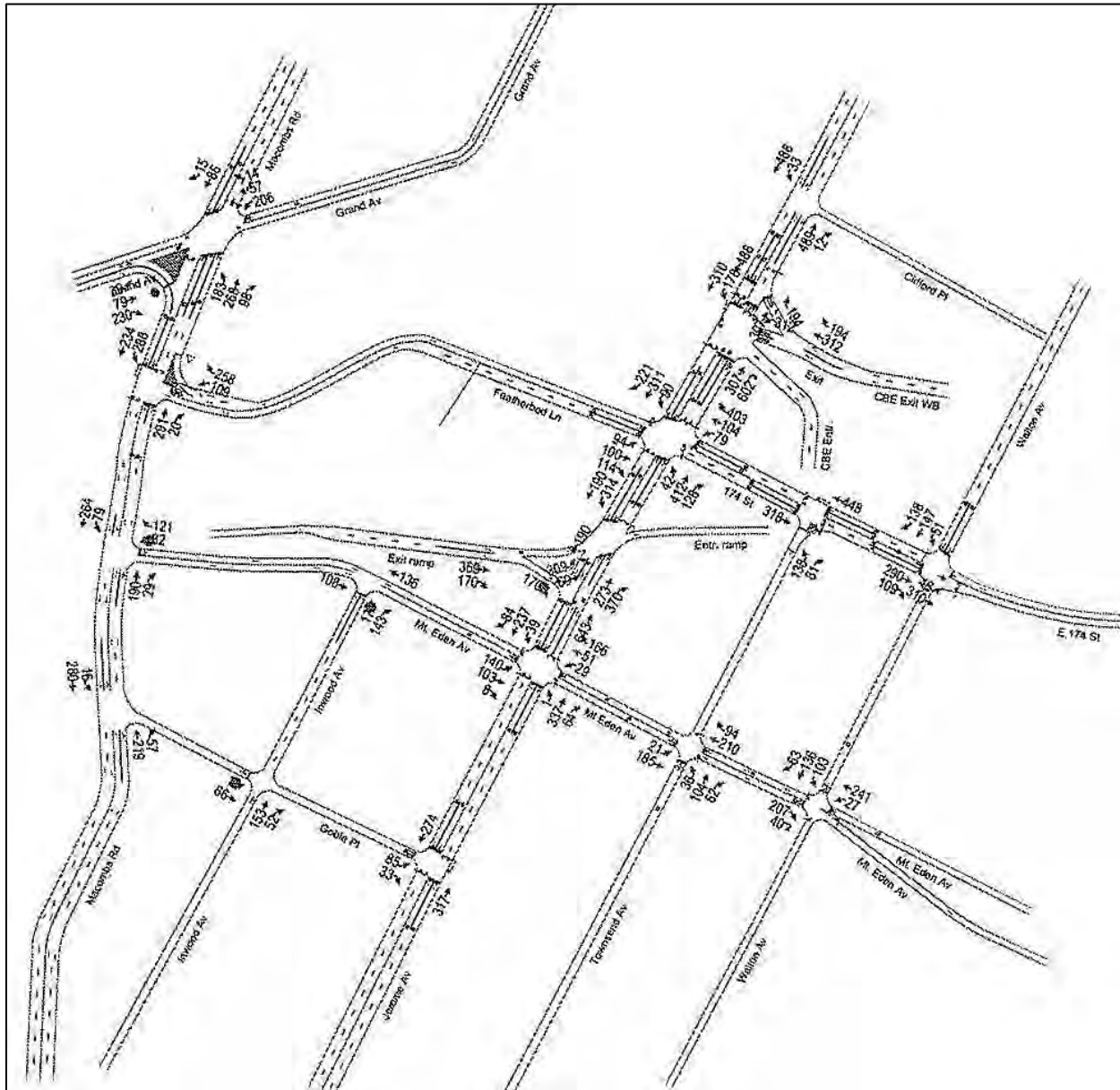
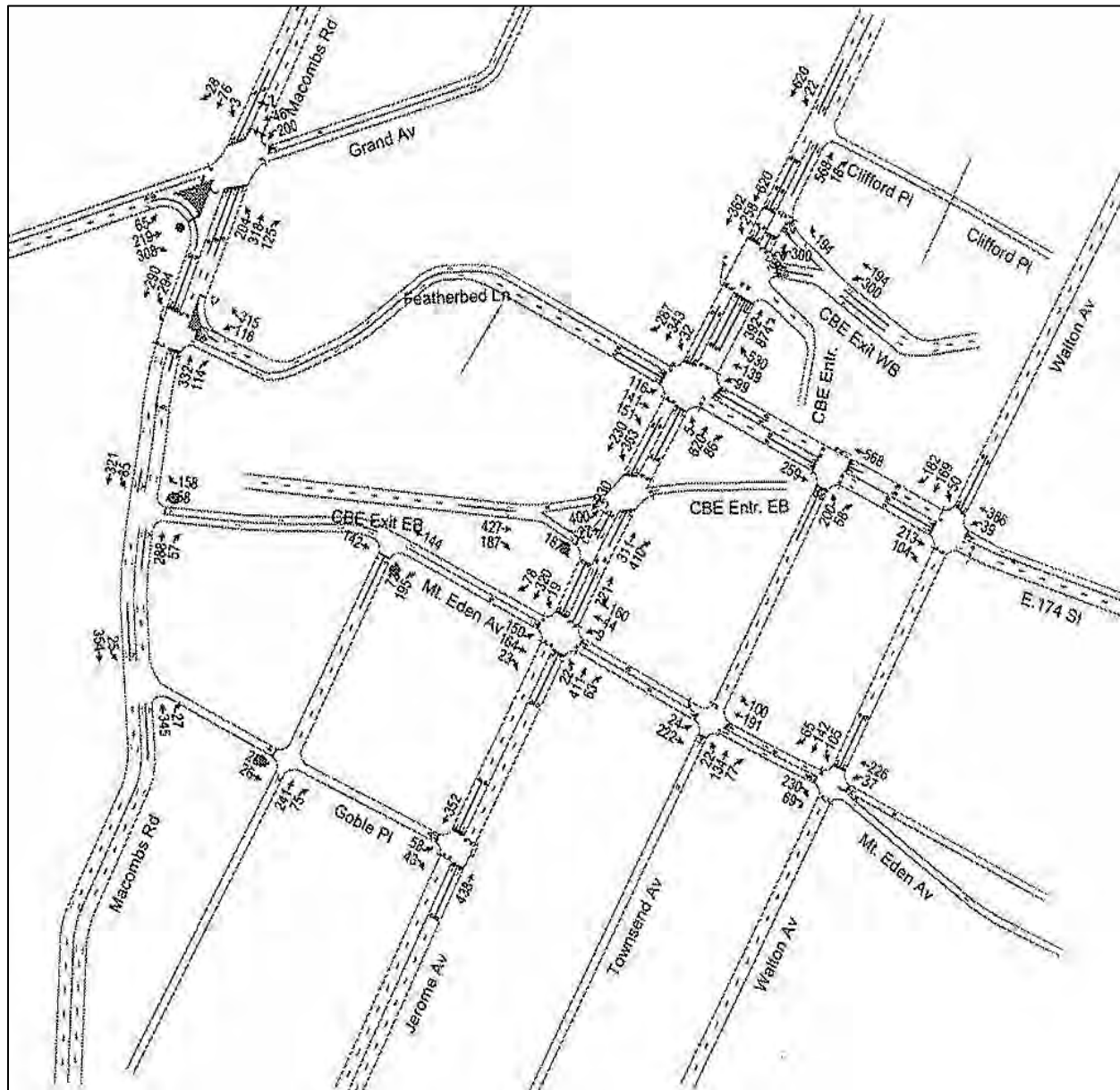




Figure A-4  
Cross Bronx Expressway/Jerome Avenue Interchange  
Existing Volumes 2012 (PM Peak)



**TABLE A-1 (Page 1 of 2)**  
**LOS Analysis for Signalized Intersections**  
**Existing Conditions 2012**

| Intersection                                    | Approach | Lane Group | AM   |       |     | PM   |       |     |
|---|----------|------------|------|-------|-----|------|-------|-----|
|   |          |            | V/C  | Delay | LOS | V/C  | Delay | LOS |
| Jerome Avenue & Goble Place                     | NB       | T          | 0.21 | 10.9  | B   | 0.26 | 11.2  | B   |
|   | SB       | T          | 0.18 | 4.8   | A   | 0.21 | 2.4   | A   |
|   | EB       | LR         | 0.26 | 18.8  | B   | 0.18 | 21.5  | C   |
|   | Overall  |            |      | 9.8   | A   |      | 8.4   | A   |
| Jerome & Mt. Eden Avenues                       | NB       | LTR        | 0.45 | 11.8  | B   | 0.89 | 42.4  | D   |
|   | SB       | LTR        | 0.56 | 13.6  | B   | 0.90 | 31.4  | C   |
|   | EB       | LTR        | 0.94 | 76.1  | E   | 1.05 | 87.7  | F   |
|   | WB       | LTR        | 0.88 | 53.9  | D   | 0.64 | 39.4  | D   |
|   | Overall  |            |      | 36.5  | D   |      | 42.6  | D   |
| Jerome Avenue & CBE Exit EB<br>Left turns       | NB       | TR         | 0.74 | 22.7  | C   | 0.41 | 19.8  | B   |
|   | SB       | DefL       | 0.96 | 58.6  | E   | 0.97 | 64.7  | E   |
|   |          | T          | 0.61 | 19.1  | B   | 0.68 | 27.6  | C   |
|   | EB       | LT         | 0.56 | 23.4  | C   | 0.65 | 34.1  | C   |
|   | Overall  |            |      | 29.8  | C   |      | 32.7  | C   |
| Jerome Avenue & Featherbed<br>Lane/174th Street | NB       | LTR        | 0.46 | 13.6  | B   | 0.44 | 22.8  | C   |
|   | SB       | LTR        | 0.58 | 19.3  | B   | 0.37 | 21.6  | C   |
|   | EB       | LTR        | 0.97 | 67.7  | E   | 0.86 | 71.1  | E   |
|   | WB       | LTR        | 0.99 | 60.3  | E   | 1.00 | 63.6  | E   |
|   | Overall  |            |      | 36.8  | D   |      | 37.5  | D   |
| Jerome Avenue & CBE Exit WB<br>Left             | NB       | TR         | 0.25 | 15.9  | B   | 0.29 | 13.7  | B   |
|   | SB       | LT         | 0.25 | 62.6  | E   | 0.96 | 62.9  | E   |
|   | WB       | L          | 0.26 | 16.2  | B   | 0.22 | 15.8  | B   |
|   | Overall  |            |      | 27.7  | C   |      | 21.5  | C   |
| Jerome Avenue & CBE Exit WB<br>Right            | NB       | T          | 0.38 | 17.8  | B   | 0.29 | 23.6  | C   |
|   | SB       | T          | 0.64 | 26.6  | C   | 0.65 | 28.3  | C   |
|   | WB       | R          | 0.22 | 17.7  | B   | 0.29 | 21.7  | C   |
|   | Overall  |            |      | 19.1  | B   |      | 24.2  | C   |
| Townsend Avenue & E. 174th<br>Street            | NB       | LR         | 0.49 | 25.6  | C   | 0.69 | 29.7  | C   |
|   | EB       | T          | 0.27 | 14.7  | B   | 0.19 | 14.4  | B   |
|   | WB       | T          | 0.54 | 18.2  | B   | 0.39 | 19.1  | B   |
|   | Overall  |            |      | 19.6  | B   |      | 21.5  | C   |
| Walton Avenue & E. 174th Street                 | SB       | LTR        | 0.25 | 8.6   | A   | 0.27 | 9.8   | A   |
|   | EB       | TR         | 0.43 | 13.6  | B   | 0.24 | 15.1  | B   |
|   | WB       | LT         | 0.86 | 41.2  | D   | 0.76 | 36.4  | D   |
|   | Overall  |            |      | 19.9  | B   |      | 27.8  | C   |
| Townsend & E. Mt. Eden Avenues                  | NB       | LTR        | 0.46 | 28.9  | C   | 0.62 | 32.4  | C   |
|   | EB       | LT         | 0.33 | 17.8  | B   | 0.38 | 19.5  | B   |
|   | WB       | TR         | 0.63 | 29.3  | C   | 0.35 | 26.2  | C   |
|   | Overall  |            |      | 24.5  | C   |      | 25.8  | C   |
| Walton & E. Mt. Eden Avenues                    | SB       | LTR        | 0.70 | 33.8  | C   | 0.18 | 21.1  | C   |
|   | EB       | TR         | 0.80 | 51.9  | D   | 0.67 | 41.1  | D   |
|   | WB       | LT         | 0.92 | 52.2  | D   | 0.93 | 54.2  | D   |
|   | Overall  |            |      | 46.4  | D   |      | 46.5  | D   |
| Macombs Road & Grand Avenue                     | NB       | LTR        | 0.55 | 26.1  | C   | 0.62 | 29.4  | C   |
|   | SB       | LTR        | 0.37 | 27.5  | C   | 0.17 | 28.5  | C   |
|   | EB       | LT         | 0.86 | 52.0  | D   | 0.55 | 27.1  | C   |
|   | WB       | LTR        | 0.92 | 51.1  | D   | 0.98 | 73.5  | E   |
|   | Overall  |            |      | 33.0  | C   |      | 34.8  | C   |
| Macombs Road & Featherbed<br>Lane               | NB       | TR         | 0.19 | 7.3   | A   | 0.24 | 7.9   | A   |
|   | SB       | DefL       | 0.81 | 26.8  | C   | 0.90 | 47.3  | D   |
|   |          | T          | 0.50 | 15.4  | B   | 0.34 | 18.1  | B   |
|   | WB       | L          | 0.21 | 15.8  | B   | 0.23 | 15.5  | B   |
|   |          | R          | 0.43 | 14.6  | B   | 0.18 | 15.1  | B   |
|   | Overall  |            |      | 17.0  | B   |      | 16.3  | B   |

**TABLE A-1 (Page 2 of 2)**  
**LOS Analysis for Unsignalized Intersections**  
**Existing Conditions 2012**

| Intersection   | Approach | Lane Group | AM   |       |     | PM   |       |     |
|--|----------|------------|------|-------|-----|------|-------|-----|
|  |          |            | V/C  | Delay | LOS | V/C  | Delay | LOS |
| <b>Jerome Avenue &amp; CBE Exit EB<br/>Righth turn</b> | NB       | T          | 0.21 | 10.1  | B   | 0.24 | 11.1  | B   |
|  | SB       | T          | 0.06 | 0.0   | A   | 0.08 | 0.0   | A   |
|  | EB       | R          | 0.23 | 10.7  | B   | 0.26 | 11.2  | B   |
|  | Overall  |            |      | 1.7   | A   |      | 1.8   | A   |
| <b>Jerome Avenue &amp; Clifford Place</b>              | NB       | TR         | 0.11 | 0.0   | A   | 0.23 | 0.0   | A   |
|  | SB       | LT         | 0.22 | 0.6   | A   | 0.87 | 0.4   | A   |
|  | Overall  |            |      | 0.3   | A   |      | 0.2   | A   |
| <b>Macombs Road &amp; Mt. Eden<br/>Avenue</b>          | NB       | TR         | 0.08 | 0     | A   | 0.12 | 1.4   | A   |
|  | SB       | LT         | 0.12 | 1.4   | A   | 0.09 | 8.6   | A   |
|  | WB       | LR         | 0.25 | 12.1  | B   | 0.44 | 16.6  | C   |
|  | Overall  |            |      | 7.6   | A   |      | 9.7   | A   |
| <b>Inwood Avenue &amp; Mt. Eden<br/>Avenue</b>         | NB       | L R        | 0.18 | 10.6  | B   | 0.29 | 11.5  | B   |
|  | EB       | T          | 0.07 | 0.0   | A   | 0.09 | 0.0   | A   |
|  | WB       | T          | 0.10 | 0.0   | A   | 0.11 | 0.0   | A   |
|  | Overall  |            |      | 3.6   | A   |      | 3.8   | A   |
| <b>Inwood Avenue &amp; Goble Place</b>                 | NB       | TR         |      |       |     |      |       |     |
|  | WB       | TL         | 0.07 | 8.3   | A   | 0.08 | 8.9   | A   |
|  | Overall  |            |      |       |     |      |       |     |
| <b>Macombs Road &amp; Goble Place</b>                  | NB       | TR         |      |       |     |      |       |     |
|  | SB       | LT         | 0.02 | 0.07  | A   | 0.04 | 0.13  | A   |
|  | Overall  |            |      |       |     |      |       |     |

Figure A-5

Cross Bronx Expressway/Jerome Avenue Interchange

One-way Conversion – Diversion Volumes (AM Peak)

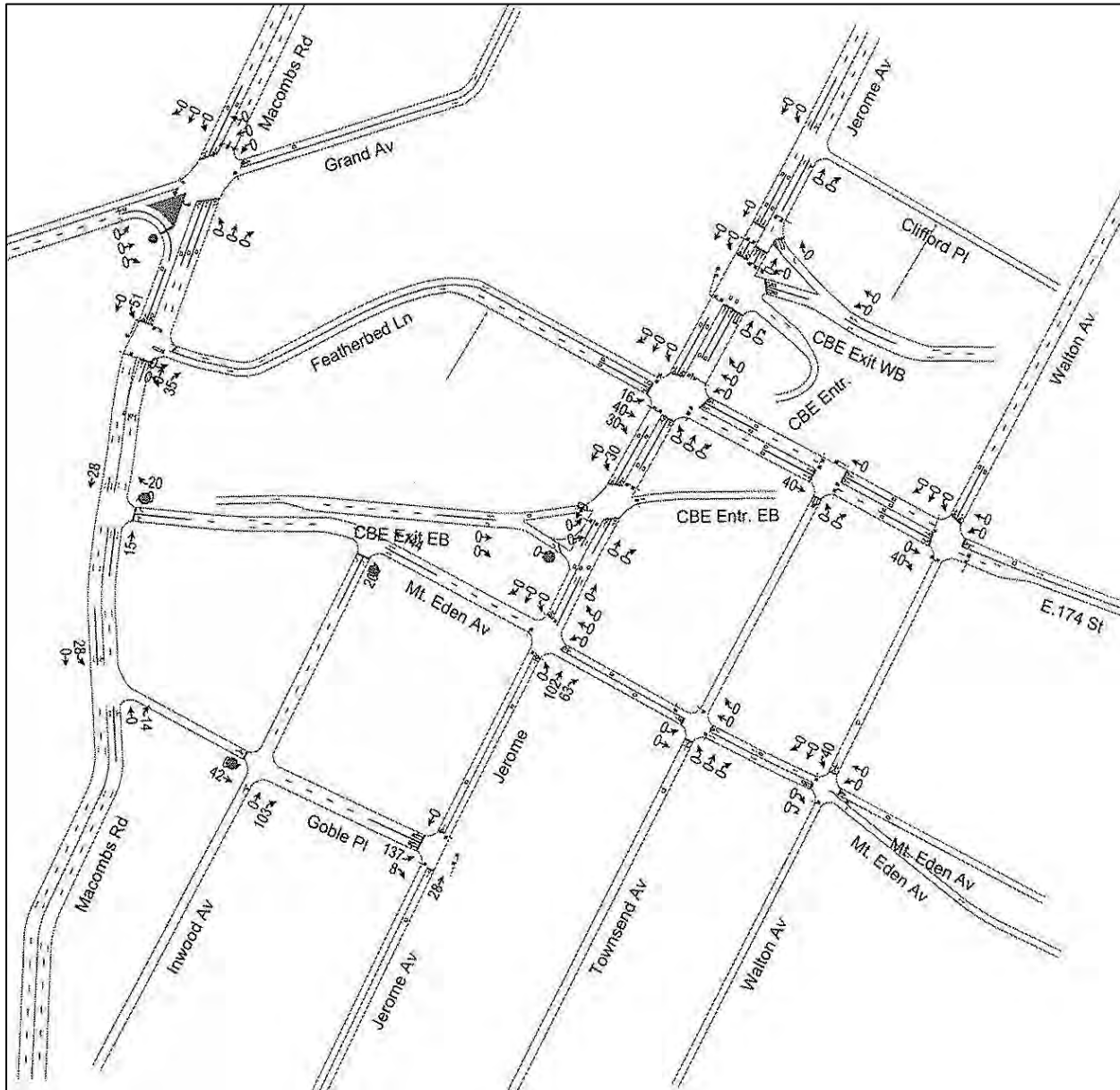
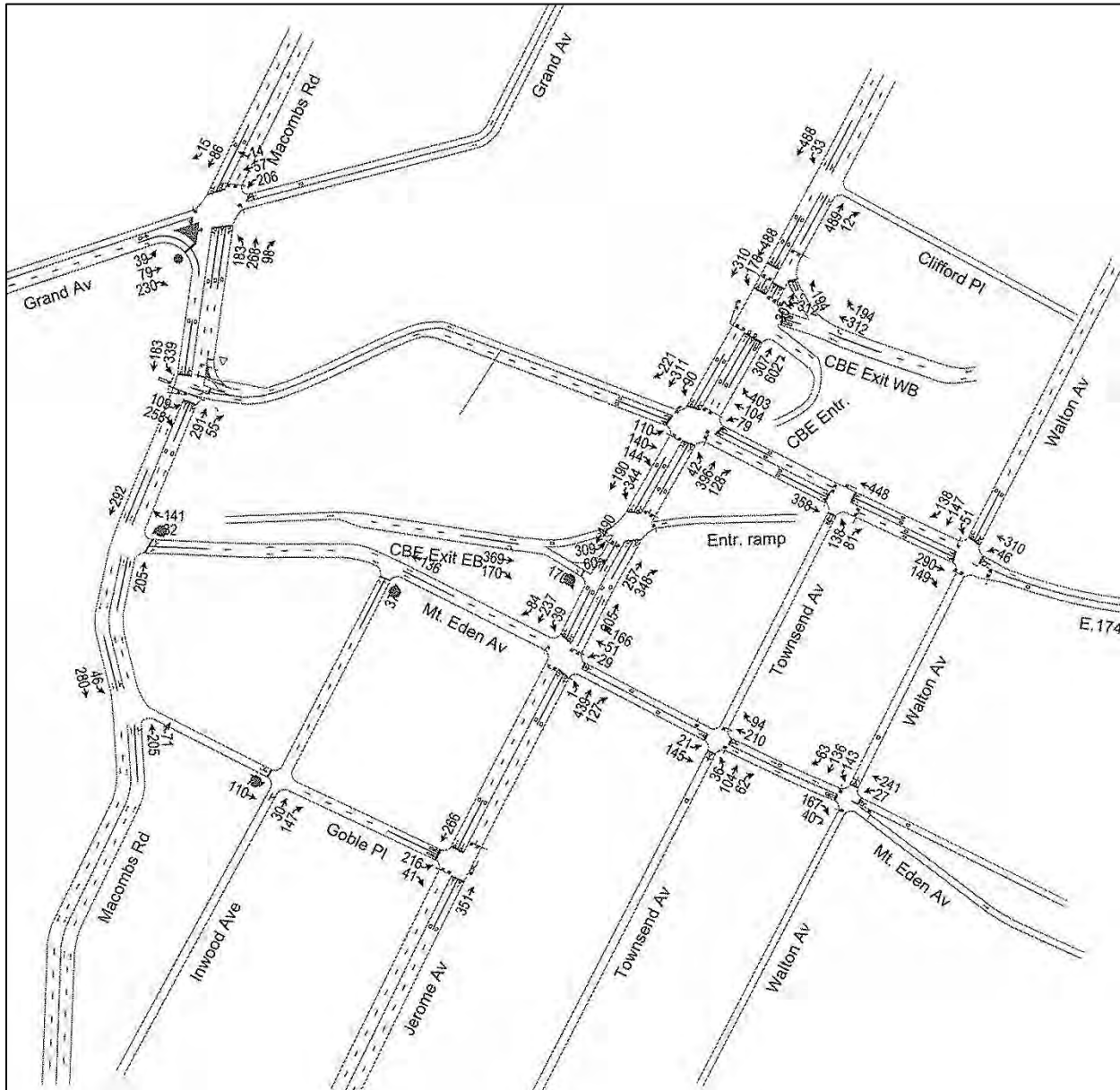




Figure A-7

Cross Bronx Expressway/Jerome Avenue Interchange

One-way Conversion Volumes (AM Peak)





This is a detailed street map of the CBE (Central Business East) area in Berkeley, California. The map shows a network of streets including Grand Ave, Macombs Rd, Featherbed Ln, Mt. Eden Av, Jerome Av, Townsend Av, Walton Av, Inwood Av, Goble Pl, and E 174 St. Key features include:

- Major Roads:** Grand Ave runs horizontally across the top. Macombs Rd runs vertically on the left. Townsend Av runs vertically on the right. Walton Av runs diagonally from the top right to the bottom right. Jerome Av runs diagonally from the bottom left to the center. Inwood Av runs horizontally at the bottom left. Goble Pl is a short street connecting Inwood Av and Jerome Av. Featherbed Ln is a winding road in the upper left. Mt. Eden Av runs horizontally in the center. E 174 St runs horizontally at the bottom right.
- Intersections and Labels:**
  - CBE Entr. (Central Business East Entrance):** Located at the intersection of Townsend Av and Jerome Av.
  - CBE Exit (Central Business East Exit):** Located at the intersection of Townsend Av and Jerome Av.
  - CBE Entr. EB (Eastbound):** Located at the intersection of Townsend Av and Jerome Av.
  - CBE Exit WB (Westbound):** Located at the intersection of Townsend Av and Jerome Av.
- Numerical Data Points:** Numerous numbers are scattered throughout the map, likely representing traffic volume or other metrics. Examples include 367, 325, 354, 326, 328, 329, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

**TABLE A-2 (Page 1 of 2)**  
**LOS Analysis for Signalized Intersections**  
**Proposed One-way Conversion**

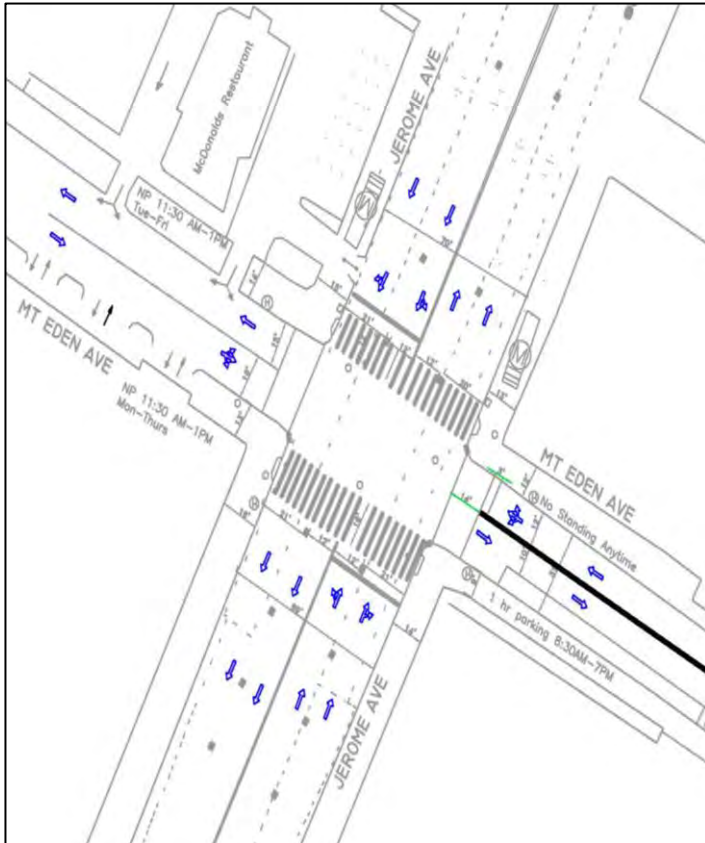
| Intersection                                    | Approach | Lane Group | AM         |       |     | PM         |       |     |
|---|----------|------------|------------|-------|-----|------------|-------|-----|
|   |          |            | V/C        | Delay | LOS | V/C        | Delay | LOS |
| Jerome Avenue & Goble Place                     | NB       | T          | 0.21       | 10.8  | B   | 0.28       | 16.0  | B   |
|   | SB       | T          | 0.18       | 3.6   | A   | 0.41       | 3.4   | A   |
|   | EB       | LR         | 0.66       | 31.2  | C   | 0.28       | 24.8  | C   |
|   | Overall  |            |            | 14.9  | B   |            | 14.2  | B   |
| Jerome & Mt. Eden Avenues                       | NB       | LTR        | 0.39       | 13.6  | B   | 1.01       | 44.5  | D   |
|   | SB       | LTR        | 0.33       | 13.0  | B   | 0.90       | 31.4  | C   |
|   | EB       |            | Eliminated |       |     | Eliminated |       |     |
|   | WB       | LTR        | 0.54       | 29.2  | C   | 0.66       | 30.6  | C   |
|   | Overall  |            |            | 18.3  | B   |            | 36.2  | D   |
| Jerome Avenue & CBE Exit EB<br>Left turns       | NB       | TR         | 0.78       | 24.8  | C   | 0.37       | 20.6  | C   |
|   | SB       | DefL       | 0.98       | 59.7  | E   | 1.00       | 68.7  | E   |
|   |          | T          | 0.61       | 19.6  | B   | 0.79       | 27.5  | C   |
|   | EB       | LT         | 0.62       | 24.7  | C   | 0.81       | 34.8  | C   |
|   | Overall  |            |            | 32.5  | C   |            | 38.6  | D   |
| Jerome Avenue & Featherbed<br>Lane/174th Street | NB       | LTR        | 0.45       | 13.4  | B   | 0.43       | 22.5  | C   |
|   | SB       | LTR        | 0.57       | 19.2  | B   | 0.37       | 21.6  | C   |
|   | EB       | LTR        | 1.00       | 70.0  | E   | 0.97       | 73.4  | E   |
|   | WB       | LTR        | 1.00       | 60.7  | E   | 1.02       | 65.6  | E   |
|   | Overall  |            |            | 38.8  | D   |            | 43.8  | D   |
| Jerome Avenue & CBE Exit WB<br>Left             | NB       | TR         | 0.25       | 15.9  | B   | 0.29       | 13.7  | B   |
|   | SB       | LT         | 0.25       | 62.6  | E   | 0.96       | 62.9  | E   |
|   | WB       | L          | 0.26       | 16.2  | B   | 0.22       | 15.8  | B   |
|   | Overall  |            |            | 27.7  | C   |            | 26.5  | C   |
| Jerome Avenue & CBE Exit WB<br>Right            | NB       | T          | 0.35       | 18.5  | B   | 0.29       | 23.6  | C   |
|   | SB       | T          | 0.65       | 26.6  | C   | 0.65       | 28.3  | C   |
|   | WB       | R          | 0.22       | 17.7  | B   | 0.29       | 21.6  | C   |
|   | Overall  |            |            | 19.2  | B   |            | 24.2  | C   |
| Townsend Avenue & E. 174th<br>Street            | NB       | LR         | 0.63       | 32.2  | C   | 0.85       | 34.2  | C   |
|   | EB       | T          | 0.27       | 14.9  | B   | 0.23       | 17.0  | B   |
|   | WB       | T          | 0.53       | 18.3  | B   | 0.39       | 19.5  | B   |
|   | Overall  |            |            | 19.6  | B   |            | 22.2  | C   |
| Walton Avenue & E. 174th Street                 | SB       | LTR        | 0.28       | 8.3   | A   | 0.26       | 8.2   | A   |
|   | EB       | TR         | 0.52       | 18.4  | B   | 0.28       | 15.5  | B   |
|   | WB       | LT         | 0.87       | 42.8  | D   | 0.76       | 37.4  | D   |
|   | Overall  |            |            | 21.0  | C   |            | 28.8  | C   |
| Townsend & E. Mt. Eden Avenues                  | NB       | LTR        | 0.45       | 28.3  | C   | 0.61       | 29.1  | C   |
|   | EB       | LT         | 0.19       | 21.8  | C   | 0.37       | 18.9  | B   |
|   | WB       | TR         | 0.62       | 29.4  | C   | 0.79       | 28.6  | C   |
|   | Overall  |            |            | 24.2  | C   |            | 26.0  | C   |
| Walton & E. Mt. Eden Avenues                    | SB       | LTR        | 0.80       | 44.8  | D   | 0.37       | 34.1  | C   |
|   | EB       | TR         | 0.74       | 43.6  | D   | 0.62       | 36.6  | D   |
|   | WB       | LT         | 0.92       | 52.0  | D   | 0.93       | 54.2  | D   |
|   | Overall  |            |            | 45.3  | D   |            | 43.6  | D   |
| Macombs Road & Grand Avenue                     | NB       | LTR        | 0.56       | 26.2  | C   | 0.63       | 29.5  | C   |
|   | SB       | LTR        | 0.37       | 28.5  | C   | 0.18       | 28.7  | C   |
|   | EB       | LT         | 0.87       | 52.6  | D   | 0.59       | 27.8  | C   |
|   | WB       | LTR        | 0.92       | 50.1  | D   | 0.98       | 73.5  | E   |
|   | Overall  |            |            | 33.0  | C   |            | 34.8  | C   |
| Macombs Road & Featherbed Lane                  | NB       | TR         | 0.20       | 8.7   | A   | 0.25       | 8.9   | A   |
|   | SB       | L          | 0.92       | 36.2  | D   | 0.94       | 53.5  | D   |
|   |          | T          | 0.54       | 17.2  | B   | 0.36       | 19.3  | B   |
|   | WB       | L          | 0.31       | 22.3  | C   | 0.26       | 18.9  | B   |
|   |          | R          | 0.56       | 21.1  | C   | 0.33       | 19.1  | B   |
|   | Overall  |            |            | 23.9  | C   |            | 22.5  | C   |

**TABLE A-2 (Page 2 of 2)**  
**LOS Analysis for Unsignalized Intersections**  
**Proposed One-way Conversion**

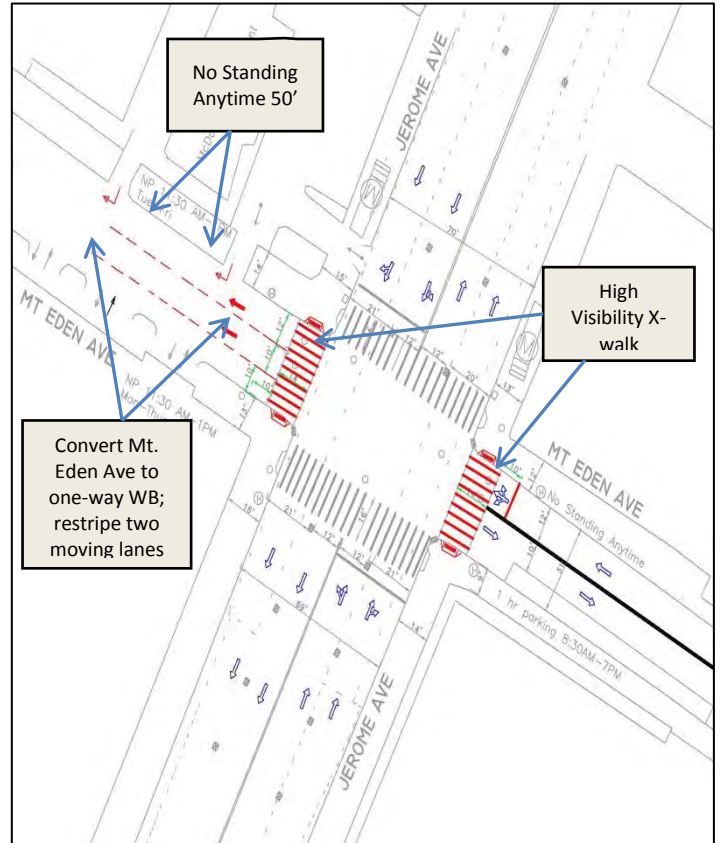
| Intersection   | Approach | Lane Group | AM         |       |     | PM         |       |     |
|--|----------|------------|------------|-------|-----|------------|-------|-----|
|  |          |            | V/C        | Delay | LOS | V/C        | Delay | LOS |
| <b>Jerome Avenue &amp; CBE Exit EB<br/>Righth turn</b> | NB       | T          | 0.2        | 10.1  | B   | 0.23       | 10.9  | B   |
|  | SB       | T          | 0.07       | 0.0   | A   | 0.20       | 0.0   | A   |
|  | EB       | R          | 0.23       | 10.8  | B   | 0.25       | 11.3  | B   |
|  | Overall  |            |            | 1.7   | A   |            | 1.8   | A   |
| <b>Jerome Avenue &amp; Clifford Place</b>              | NB       | TR         | 0.12       | 0.0   | A   | 0.23       | 0.0   | A   |
|  | SB       | LT         | 0.22       | 3.6   | A   | 0.48       | 8.9   | A   |
|  | Overall  |            |            | 0.3   | A   |            | 1.2   | A   |
| <b>Macombs Road &amp; Mt. Eden<br/>Avenue</b>          | NB       | T          | 0.07       | 0     | A   | 0.12       | 0.0   | A   |
|  | SB       | T          | 0.09       | 0     | A   | 0.09       | 0.0   | A   |
|  | WB       | LR         | 0.18       | 11.6  | B   | 0.4        | 14.6  | B   |
|  | Overall  |            |            | 8.7   | A   |            | 10.1  | B   |
| <b>Inwood Avenue &amp; Mt. Eden<br/>Avenue</b>         | NB       | L R        | 0.01       | 9.4   | A   | 0.05       | 9.6   | A   |
|  | EB       |            | Eliminated |       |     | Eliminated |       |     |
|  | WB       | T          | 0.05       | 0.0   | A   | 0.05       | 0.0   | A   |
|  | Overall  |            |            | 2.8   | A   |            | 3.2   | A   |
| <b>Inwood Avenue &amp; Goble Place</b>                 | NB       | TR         |            |       |     |            |       |     |
|  | WB       | TL         | 0.06       | 8.1   | A   | 0.07       | 8.3   | A   |
|  | Overall  |            |            |       |     |            |       |     |
| <b>Macombs Road &amp; Goble Place</b>                  | NB       | TR         |            |       |     |            |       |     |
|  | SB       | LT         | 0.06       | 8.3   | A   | 0.07       | 8.8   | A   |
|  | Overall  |            |            |       |     |            |       |     |

Figure A-9  
Cross Bronx Expressway/Jerome Avenue Interchange  
Mt. Eden/Jerome Avenues intersection

Existing



Proposed



**Table A-3**  
**LOS Analysis for Signalized Intersections**  
**One-way Conversion with Proposed Improvements**

| Intersection                                   | Approach | Lane Group | Existing |       |     | One-way               |       |     | Existing |       |     | One-way               |       |     |
|--|----------|------------|----------|-------|-----|-----------------------|-------|-----|----------|-------|-----|-----------------------|-------|-----|
|  |          |            | AM       |       |     | AM (with Improvement) |       |     | PM       |       |     | PM (with Improvement) |       |     |
|  |          |            | V/C      | Delay | LOS | V/C                   | Delay | LOS | V/C      | Delay | LOS | V/C                   | Delay | LOS |
| Jerome & Mt. Eden Avenues*                     | NB       | LTR        | 0.45     | 11.8  | B   | 0.46                  | 13.2  | B   | 0.89     | 42.4  | D   | 0.95                  | 44.5  | D   |
|  | SB       | LTR        | 0.56     | 13.6  | B   | 0.55                  | 12.2  | B   | 0.90     | 31.4  | C   | 0.89                  | 31.2  | C   |
|  | EB       | LTR        | 0.94     | 76.1  | E   |                       |       |     | 1.05     | 87.7  | F   |                       |       |     |
|  | WB       | LTR        | 0.88     | 53.9  | D   | 0.71                  | 34.0  | C   | 0.64     | 39.4  | D   | 0.66                  | 30.6  | C   |
|  | Overall  |            |          | 36.5  | D   |                       | 18.3  | B   |          | 42.6  | D   |                       | 36.2  | D   |
| Jerome Avenue & CBE Exit EB Left turn**        | NB       | TR         | 0.68     | 24.8  | C   | 0.68                  | 24.8  | C   | 0.37     | 20.6  | C   | 0.37                  | 20.6  | C   |
|  | SB       | DefL       | 0.98     | 59.7  | E   | 0.87                  | 45.0  | D   | 1.00     | 68.7  | E   | 0.92                  | 49.6  | D   |
|  |          | T          | 0.61     | 19.6  | B   | 0.60                  | 16.1  | B   | 0.79     | 27.5  | C   | 0.75                  | 23.4  | C   |
|  | EB       | LT         | 0.62     | 24.7  | C   | 0.66                  | 27.3  | C   | 0.81     | 34.8  | C   | 0.86                  | 40.7  | D   |
|  | Overall  |            |          | 32.5  | C   |                       | 28.4  | C   |          | 38.6  | D   |                       | 34.6  | C   |
| Jerome Avenue & Featherbed Lane/174th Street** | NB       | LTR        | 0.45     | 13.4  | B   | 0.47                  | 14.8  | B   | 0.43     | 22.5  | C   | 0.45                  | 23.9  | C   |
|  | SB       | LTR        | 0.57     | 19.2  | B   | 0.60                  | 20.9  | C   | 0.37     | 21.6  | C   | 0.38                  | 22.8  | C   |
|  | EB       | LTR        | 1.00     | 70.0  | E   | 0.93                  | 53.7  | D   | 0.97     | 73.4  | E   | 0.92                  | 53.7  | D   |
|  | WB       | LTR        | 1.00     | 60.7  | E   | 0.93                  | 45.4  | D   | 1.02     | 65.6  | E   | 0.95                  | 47.0  | D   |
|  | Overall  |            |          | 38.8  | D   |                       | 32.3  | C   |          | 43.8  | D   |                       | 35.6  | D   |
| Jerome Avenue & CBE Exit WB Left**             | NB       | TR         | 0.25     | 15.9  | B   | 0.37                  | 25.4  | C   | 0.29     | 13.7  | B   | 0.42                  | 25.7  | C   |
|  | SB       | LT         | 0.25     | 62.6  | E   | 0.97                  | 37.9  | D   | 0.96     | 62.9  | E   | 0.82                  | 38.6  | D   |
|  | WB       | L          | 0.26     | 16.2  | B   | 0.27                  | 17.5  | B   | 0.22     | 15.8  | B   | 0.23                  | 18.0  | B   |
|  | Overall  |            |          | 27.7  | C   |                       | 26.1  | C   |          | 26.5  | C   |                       | 20.3  | C   |
| Macombs Road & Grand Avenue**                  | NB       | LTR        | 0.56     | 26.2  | C   | 0.56                  | 26.2  | C   | 0.63     | 29.5  | C   | 0.65                  | 31.2  | C   |
|  | SB       | LTR        | 0.37     | 28.5  | C   | 0.37                  | 28.5  | C   | 0.18     | 28.7  | C   | 0.19                  | 29.8  | C   |
|  | EB       | LT         | 0.87     | 52.6  | D   | 0.87                  | 52.6  | D   | 0.59     | 27.8  | C   | 0.58                  | 24.3  | C   |
|  | WB       | LTR        | 0.92     | 50.1  | D   | 0.92                  | 50.1  | D   | 0.98     | 73.5  | E   | 0.86                  | 40.3  | D   |
|  | Overall  |            |          | 33.0  | C   |                       | 33.0  | C   |          | 34.8  | C   |                       | 28.8  | C   |

\* - By eliminating the EB movement, the intersection LOS in the AM improved from D to B and delay reduced from 37 to 18 seconds.

In the PM, LOS remains D, while delay reduced from 43 to 36 seconds.

\*\* - Minor signal timing modification/or restriping proposed to improve LOS and reduce delays at the intersection.