



**MEMORANDUM**

**TO:** Allison Prince, Pillsbury Winthrop Shaw Pittman, LLP  
**CC:** Eric Price, Abdo Development  
**FROM:** Jami L. Milanovich  
**DATE:** March 17, 2006  
**RE:** Preliminary Traffic Impact Analysis  
Abdo Development, New York Avenue NE Washington, D.C.

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Wells & Associates has completed its preliminary traffic impact of the proposed redevelopment of Square 4268. Abdo Development is proposing to construct a mixed-use urban village consisting of approximately 3,362 residential units including high-rise and mid-rise condominiums and/or apartments and approximately 140,400 square feet (SF) of retail uses, including a 68,300 SF grocery store, on the 16-acre tract of land located in northeast Washington, D.C. The site is generally bounded by New York Avenue, Bladensburg Road, and Montana Avenue in the northeast section of Washington, D.C., as shown on Figure 1.

This preliminary traffic impact analysis was conducted in conjunction with a Planned Unit Development (PUD) application for the subject site.

**TRANSPORTATION SYSTEM**

Regional access to the site is provided primarily via New York Avenue, which provides access to Route 50, I-395, and the Baltimore-Washington Parkway (I-295). As such, New York Avenue is heavily used by high-speed, long-distance traffic destined to downtown Washington and beyond. New York Avenue carries average daily traffic volumes ranging from 63,000 to 75,000 vehicles per day. Local site access is facilitated by Bladensburg Road, Montana Avenue, Mount Olivet Road, Queens Chapel Road, West Virginia Avenue, 16<sup>th</sup> Street, and 17<sup>th</sup> Street. The existing lane use and traffic control for each study intersection is shown on Figure 2.

**New York Avenue Corridor Study<sup>1</sup>**

In order to address transportation deficiencies along the New York Avenue Corridor, DDOT initiated a study of the New York Avenue Corridor in July 2002. The purpose of the study was to develop a plan for the Corridor that would:

- Provide multimodal transportation, including automobiles, public transit, railroad, bicycles and pedestrians;
- Facilitate smooth traffic flow;
- Ensure an ability to accommodate local and regional vehicular transportation and transit needs foreseeable over the next thirty to fifty years;

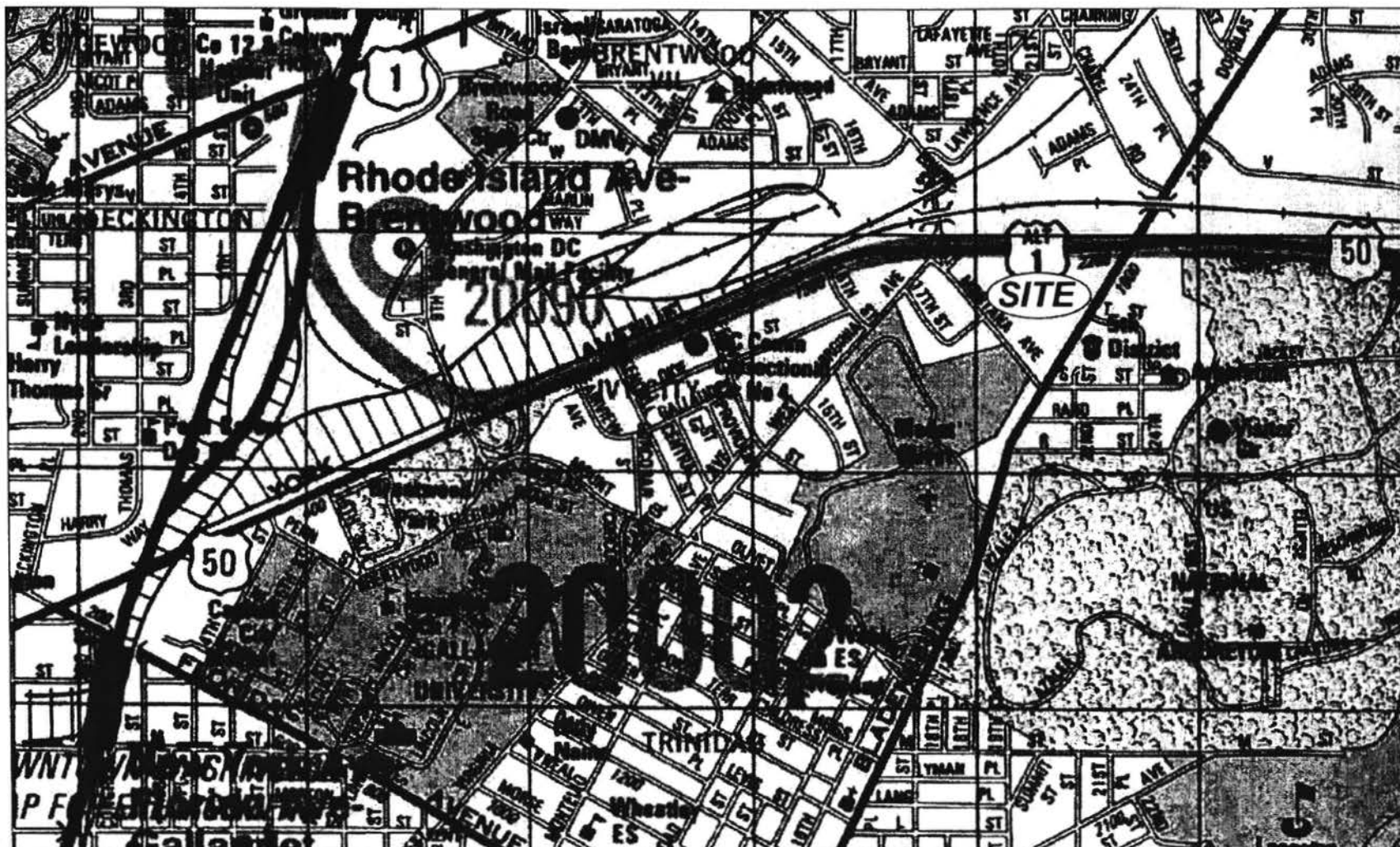


Figure 1  
Site Location



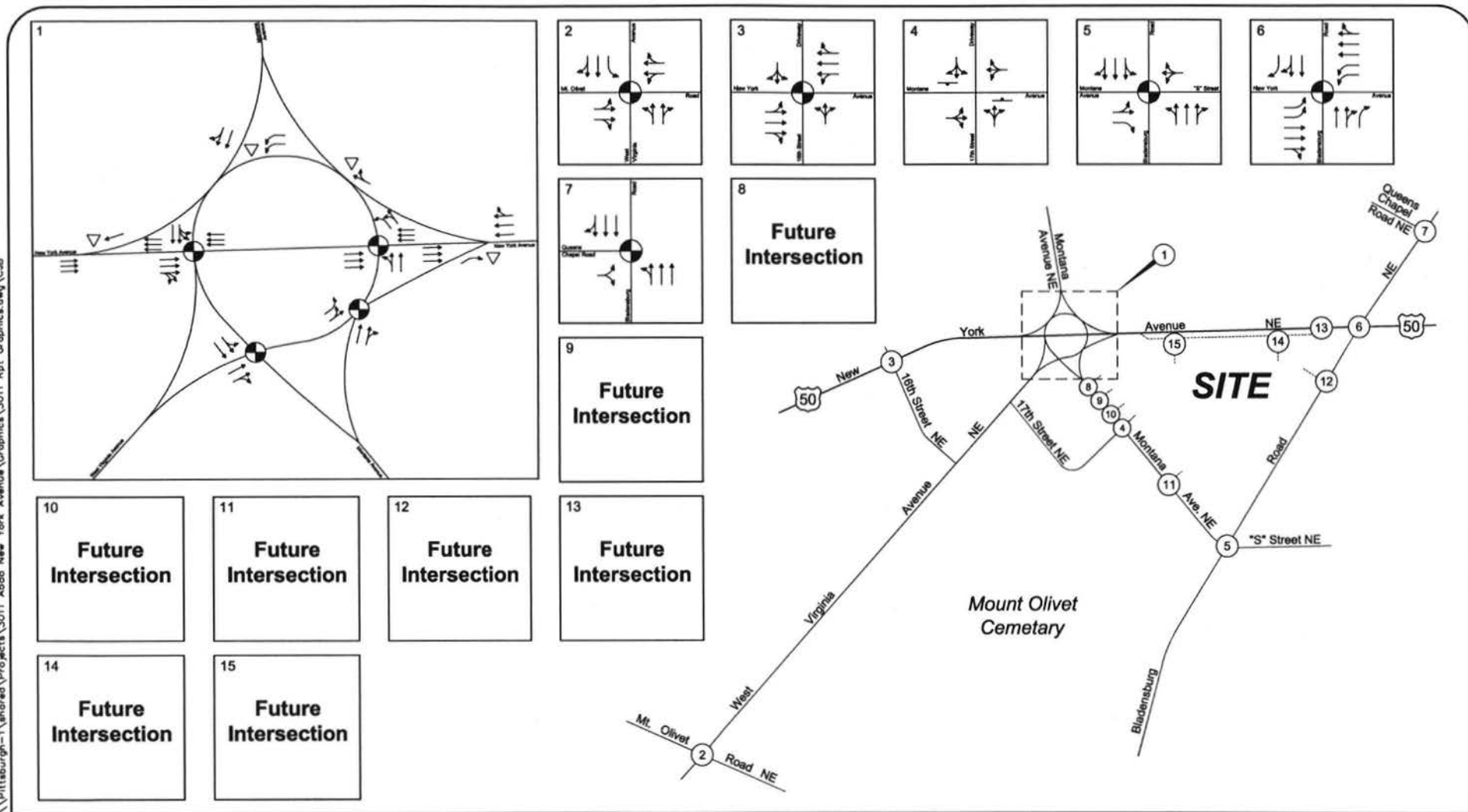


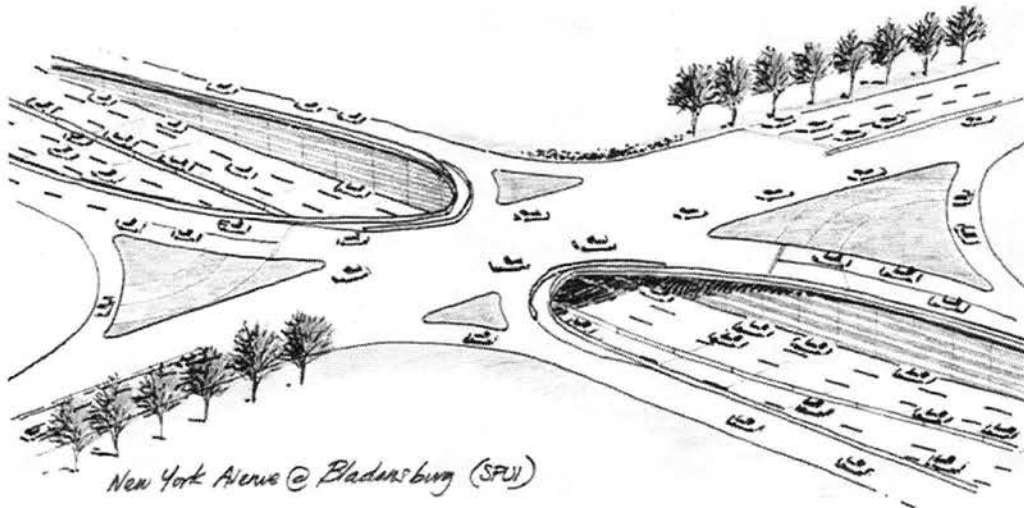
Figure 2  
Existing Lane Use And Traffic Control

← Represents One Travel Lane  
 ● Signalized Intersection  
 T Stop Sign  
 ▽ Yield Sign



- Create capacity for major commercial and residential development;
- Avoid displacement of existing residents or exclusion of income diversity.

The study recommended construction of a new single-point urban interchange (SPUI) at the New York Avenue/Bladensburg Road intersection. Under the SPUI configuration, New York Avenue would pass underneath Bladensburg Road, as shown below.



### Public Transportation Facilities and Services

The Rhode Island Metro Station, which serves the Red Line, is located approximately one mile from the subject site, "as the crow flies." The Rhode Island Metro Station has 350 all-day parking spaces as well as 40 short-term metered parking spaces and has a designated 'Kiss-and-Ride' area.

The New York Avenue Metro Station, which also serves the Red Line, is located approximately 1.5 miles from the site, "as the crow flies." Parking is not available at the New York Avenue Metro Station. Additionally, no 'Kiss-and-Ride' area is provided at the New York Avenue Metro Station.

Metrobus service is limited in the study area, as shown on Figure 3. Five bus stops are located within a one mile radius of the site. Of those, three are located within a ½ mile radius of the site. These stops are located on Bladensburg Road at New York Avenue, 26<sup>th</sup> Street, and South Dakota Avenue. Bus stops are also located on New York Avenue at 16<sup>th</sup> Street and on Mount Olivet Road at Montello Avenue. Bus trips to/from the New York Avenue/Bladensburg Road stop operate only when public school is open and only provide service during off-peak times.

The Bladensburg Road–Anacostia Line (Metrobus Route B2), Fort Lincoln Shuttle Line (Metrobus Route B8, B9), Ivy City–Union Station Line (Metrobus Route D4), Hospital Center Line (Metrobus Route D8), National Arboretum Line (Metrobus Route X6), provide bus service in the study area.



Figure 3  
Metrobus Service



Route B2 provides service to the Anacostia Metro Station. Routes B8 and B9 provide service to the Rhode Island Avenue-Brentwood Metro Station. Routes D4, D8, and X6 provide service to the Union Station Metro Station. Route D8 also provides service to the Rhode Island Avenue-Brentwood Metro Station.

### **Proposed Site Access**

The proposed residential development would be served by two right-in/right-out driveways on Bladensburg Road and by two full access driveways and a right-in/right-out driveway on Montana Avenue. The proposed retail development would be served by two additional full access driveways on Montana Avenue and by a new frontage road to the north of the site parallel to New York Avenue. The frontage road would be a one-way, two-lane road providing two access points to the retail uses. On-street parking is proposed along the Frontage Road.

Drop-off lanes are proposed on Bladensburg Road and on Montana Avenue.

### **TRAFFIC FORECASTS**

Future traffic forecasts in the study area with the proposed redevelopment were developed as a composite of existing traffic volumes, regional traffic growth, and projected site generated traffic. Traffic currently generated by the site was not included in the future traffic forecasts since the existing uses on site will be razed.

#### **Existing Traffic Volumes**

Vehicular turning movement counts and pedestrian counts were conducted at the New York Avenue/16<sup>th</sup> Street, West Virginia Avenue/Mount Olivet Road, Montana Avenue/17<sup>th</sup> Street, and Bladensburg Road/Montana Avenue intersections on Tuesday, January 31, 2006 from 6:00 AM to 9:00 AM and from 4:00 PM to 7:00 PM. Vehicular turning movement counts were conducted at the Bladensburg Road/Queens Chapel Road intersection on Wednesday, February 15, 2006 from 6:00 AM to 9:00 AM and from 4:00 PM to 7:00 PM.

Based on the data collected, a common AM peak hour and a common PM peak hour were selected for the entire study area. The common AM peak hour occurred from 8:00 AM to 9:00 AM; the common PM peak hour occurred from 4:45 PM to 5:45 PM.

Vehicular turning movement counts for the New York Avenue/Bladensburg Road and New York Avenue/Montana Avenue intersections were taken from the New York Avenue Corridor Study.<sup>2</sup> A two percent growth rate, compounded annually, was applied to the 2003 peak hour volumes for these intersections to obtain existing traffic volumes.

Existing traffic volumes at the intersections along New York Avenue and at the Bladensburg Road/Queens Chapel Road intersection were adjusted to balance with adjacent intersections with some allowance for driveways or roadways located between the intersections.

After accounting for the numerous driveways located between the remaining intersections, it was determined that traffic volumes at adjacent intersections balanced within reason.

Vehicular peak hour baseline traffic volumes are shown on Figure 4.

### **Regional Growth**

In order to account for regional traffic growth outside the immediate site vicinity, a growth rate of 1.0 percent, compounded annually, was applied to the baseline traffic volumes. Traffic generated by the existing site uses, shown on Figure 5, was not factored. The projected 2013 background traffic forecasts are shown on Figure 6.

### **Site Generated Traffic**

The total number of trips generated by the proposed development would be comprised of vehicular trips, pedestrian/bicycle trips, and transit trips. Additionally, the total number of trips would be made up of both internal (occurring within the confines of the site) and external trips.

### **Total Trips**

The number of trips anticipated to be generated by the proposed redevelopment was estimated based on the Institute of Transportation Engineers' (ITE) Trip Generation.<sup>3</sup> Land Use Code 220 (Apartment) and Land Use Code 230 (Condominium/Townhouse) were used for the residential components with the number of dwelling units as the independent variable. For purposes of this study, the split between apartment and condominium units was assumed to be 50/50. Land Use Code 850 (Supermarket), Land Use Code 814 (Specialty Retail), and Land Use Code 820 (Shopping Center) were used for the retail components with the square footage as the independent variable. For purposes of this study, 34,800 SF of retail space was generated using Land Use Code 814, while 37,300 SF of retail space was generated using Land Use Code 820.

The proposed development would generate 1,758 AM peak hour trips, 2,672 PM peak hour trips based on standard ITE rates/equations.

### **Internal Trips**

A portion of the site generated trips would be captured internally within the mixed-use development. By its nature and character of uses, the proposed development would experience a naturally occurring synergy. For example, a portion of individual residential trips may utilize proposed retail uses. As a result of this naturally occurring synergy, the volume of external trips generated by the site would be reduced.

For purposes of this analysis, the internal capture rates outlined in the ITE Trip Generation Handbook<sup>4</sup> were used. Based on the ITE, 164 AM peak hour trips and 407 PM peak hour trips would be projected to occur internally.

### **External Trips**

Taking into account internal trips stemming from the synergistic relationship of the uses, the proposed development would generate an estimated 1,594 AM peak hour external vehicular trips and 2,265 PM peak hour external vehicular trips.

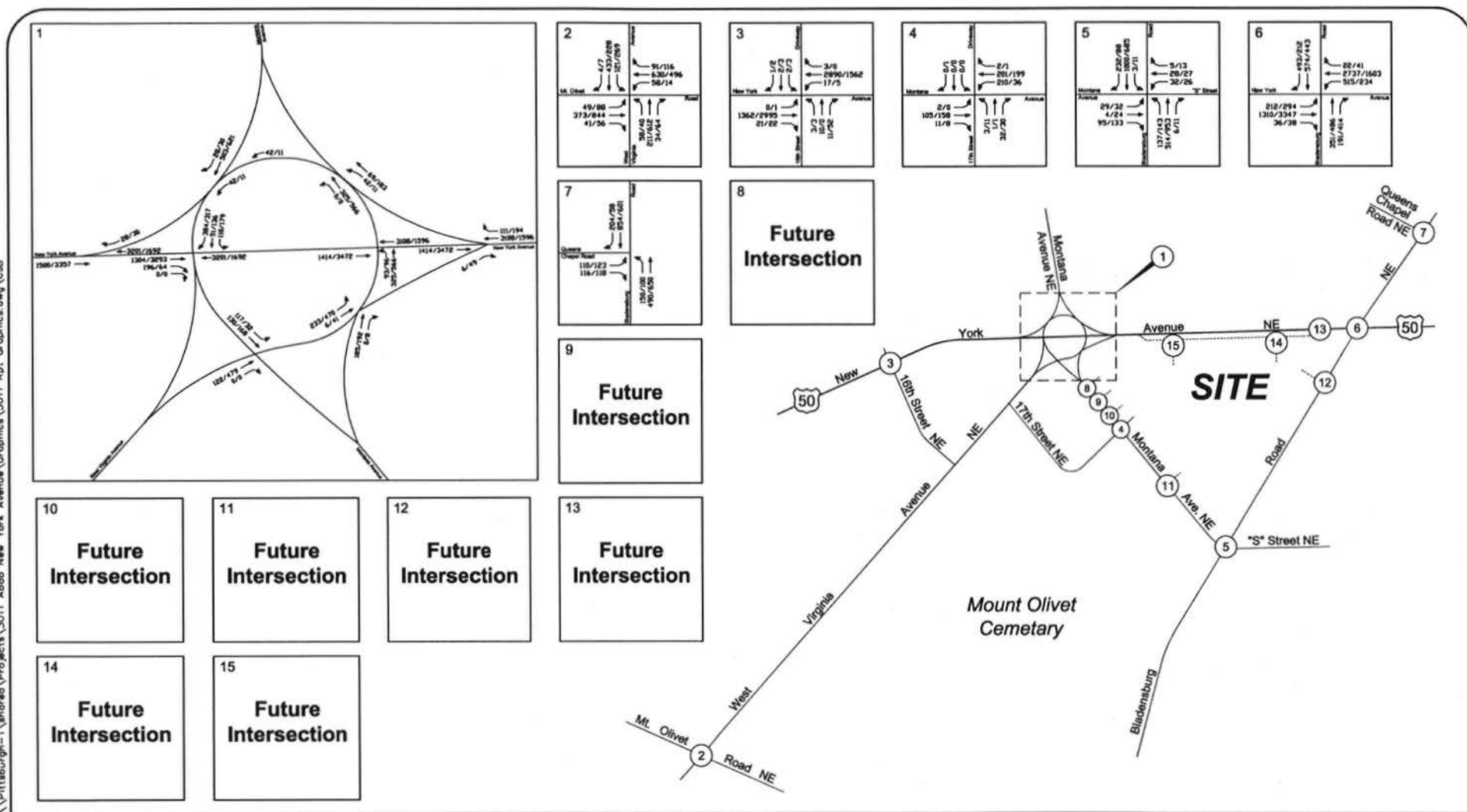


Figure 4  
Baseline Peak Hour Traffic Volumes



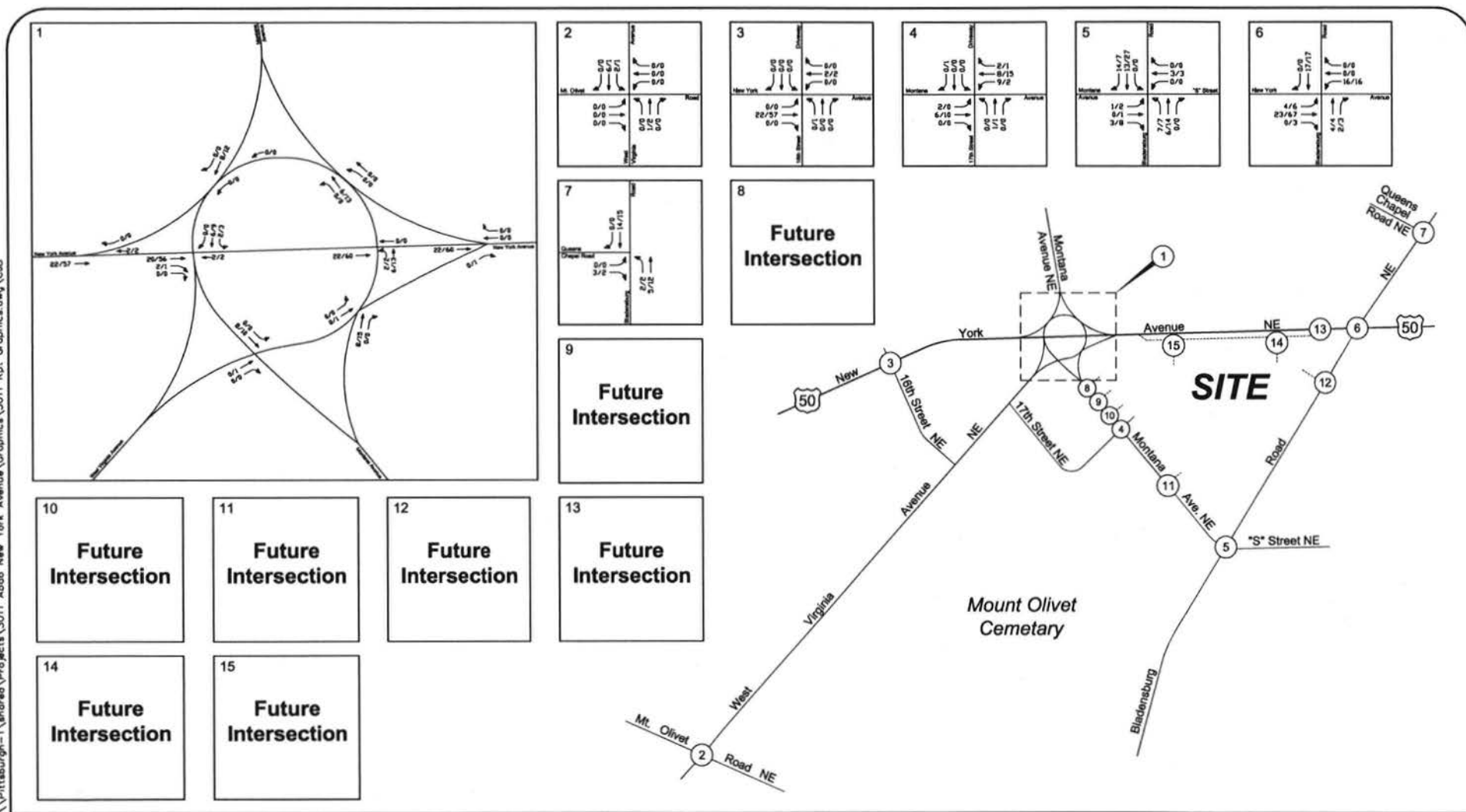


Figure 5  
Existing Peak Hour Site Trips

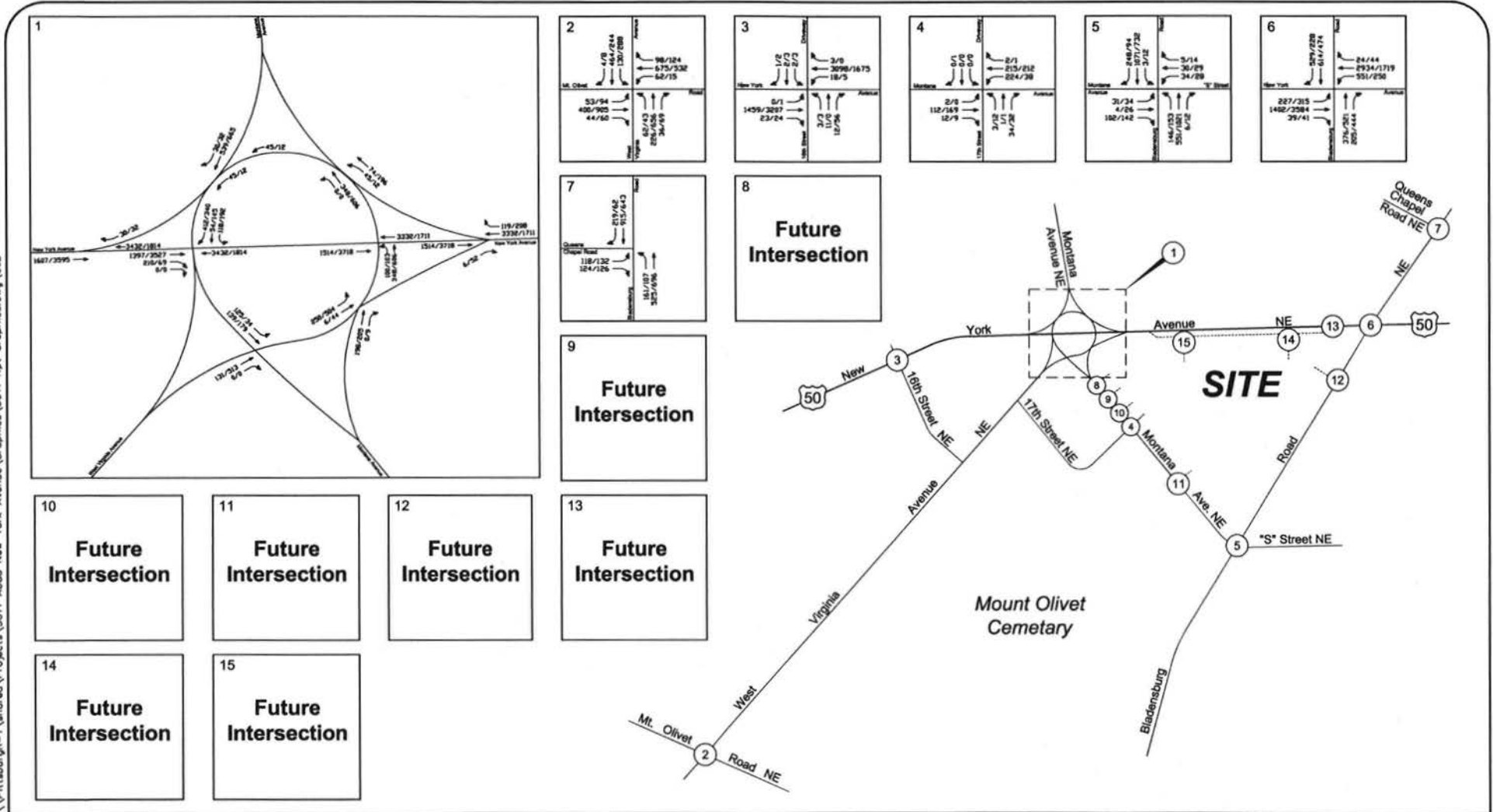


Figure 6  
2013 Future Background Peak Hour Traffic Forecasts

Abdo New York Avenue  
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### ***Effect of TDM Program***

In an effort to decrease reliance on the personal automobile and encourage the use of transit, ridesharing, bicycling, and walking, a Transportation Demand Management (TDM) Program should be implemented. "TDM is a general term for strategies that result in more efficient use of transportation resources. There are many different TDM strategies with a variety of impacts. Some improve the transportation options available to consumers, while others provide an incentive to choose more efficient travel patterns. Some reduce the need for physical travel through mobility substitutes or more efficient land use. TDM strategies can change travel timing, route, destination, or mode."<sup>5</sup>

The percentage of site generated trips that would utilize public transportation is dependent on the proximity of the site to transit stops and the degree to which the use of public transit is encouraged, such as by implementation of a transportation demand management (TDM) program. According to the U.S. Census Bureau,<sup>6</sup> approximately 40 percent of persons currently residing in the study area utilize non-auto modes of transportation to get to work. Therefore, with the implementation of a TDM program, it is reasonable to assume that a measurable portion of the trips generated by the proposed redevelopment would be made by a mode other than single occupant vehicles. For purposes of this analysis, a 20 percent non-auto mode split was assumed. Additionally, a small increase in auto vehicle occupancy was assumed to reflect an increase in carpooling attributable to the implementation of a TDM program. The TDM reduction is shown in Table 1.

Taking into account these reductions, the proposed redevelopment would generate 1,257 AM peak hour external vehicle trips and 1,792 PM peak hour external vehicle trips.

### ***Pass-by Trips***

A portion of the trips entering and leaving retail and service establishments are vehicles using adjacent roads to reach a different destination but stop at the site in passing. This is called a pass-by trip, and is defined by Trip Generation Handbook<sup>7</sup> as a trip in which the retail or service destination is the secondary part of a primary trip, such as a work-to-shopping-to-home trip. An example of a pass-by trip would be one in which a driver stops at the retail uses on his/her way home from work.

Typical pass-by trip percentages for various land uses are published by ITE in the Trip Generation Handbook.<sup>8</sup> A pass-by trip rate of 36 percent was applied to the proposed supermarket use during the PM peak hour. Similarly, a pass-by trip rate of 34 percent was applied to the remaining retail uses during the PM peak hour. Since no data were available for the AM peak hours, a 15 percent pass-by trip reduction was applied to the supermarket and additional retail uses. Accordingly, 38 of the AM peak hour trips and 235 of the PM peak hour trips are anticipated to be pass-by trips.

### ***New External Vehicle Trips***

New external vehicle trips were calculated by subtracting the non-auto mode split and pass-by trips from the external trip totals. The proposed development would generate an estimated 1,219 new AM peak hour external vehicular trips and 1,557 new PM peak hour external vehicular trips.

## Site Trip Distribution and Assignment

The distribution of peak hour retail site trips was based on existing traffic patterns in the study area. The distribution of peak hour residential site trips was based on existing traffic patterns in the study area and the location of the site with respect to employment centers. The distributions utilized are summarized in Table 2. The corresponding site assignments are shown on Figure 7.

Table 1  
Trip Generation Summary<sup>1</sup>

| Land Use                                          | AM Peak Hour |     |       | PM Peak Hour |     |       | ADT    |
|---------------------------------------------------|--------------|-----|-------|--------------|-----|-------|--------|
|                                                   | In           | Out | Total | In           | Out | Total |        |
| Apartment – 1,681 Units                           |              |     |       |              |     |       |        |
| Total Trips from ITE                              | 165          | 662 | 827   | 612          | 330 | 942   | 10,253 |
| Internal to other uses                            | 15           | 14  | 29    | 41           | 31  | 71    | 716    |
| External Trips (Total – Internal)                 | 150          | 648 | 798   | 571          | 299 | 871   | 9,537  |
| Person Trips <sup>2</sup>                         | 192          | 828 | 1,020 | 730          | 382 | 1,112 | 12,186 |
| Site Specific External Vehicle Trips <sup>3</sup> | 118          | 510 | 628   | 449          | 235 | 684   | 7,499  |
| Condominium/Townhouse – 1,681 Units               |              |     |       |              |     |       |        |
| Total Trips from ITE                              | 84           | 410 | 494   | 407          | 201 | 608   | 7,066  |
| Internal to other uses                            | 8            | 8   | 16    | 27           | 19  | 46    | 494    |
| External Trips (Total – Internal)                 | 76           | 402 | 478   | 380          | 182 | 562   | 6,572  |
| Person Trips <sup>2</sup>                         | 98           | 513 | 611   | 486          | 233 | 719   | 8,398  |
| Site Specific External Vehicle Trips <sup>3</sup> | 60           | 316 | 376   | 299          | 143 | 442   | 5,168  |
| Supermarket – 68,000 SF                           |              |     |       |              |     |       |        |
| Total Trips from ITE                              | 135          | 87  | 222   | 352          | 338 | 690   | 6,983  |
| Internal to other uses                            | 32           | 28  | 60    | 77           | 81  | 159   | 2,183  |
| External Trips (Total – Internal)                 | 103          | 59  | 162   | 275          | 257 | 531   | 4,800  |
| TDM Reduction                                     | 31           | 18  | 49    | 82           | 77  | 159   | 1,440  |
| External Vehicle Trips (External – TDM)           | 82           | 47  | 129   | 220          | 206 | 425   | 3,840  |
| Retail Total Trips – 72,100 SF                    |              |     |       |              |     |       |        |
| Total Trips from ITE                              | 114          | 101 | 215   | 203          | 229 | 432   | 5,119  |
| Internal to other uses                            | 28           | 32  | 60    | 58           | 73  | 131   | 1,996  |
| External Trips (Total – Internal)                 | 86           | 69  | 155   | 145          | 156 | 301   | 3,123  |
| TDM Reduction                                     | 26           | 21  | 47    | 44           | 47  | 91    | 937    |
| External Vehicle Trips (External – TDM)           | 70           | 55  | 124   | 115          | 125 | 241   | 2,499  |
| Total External Vehicle Trips                      | 329          | 928 | 1,257 | 1,083        | 709 | 1,792 | 19,006 |

<sup>1</sup> Vehicle trips generated using Institute of Transportation Engineers (ITE) Trip Generation, Seventh Edition.

<sup>2</sup> Based on non-auto mode split of 10% and an average auto occupancy of 1.15.

<sup>3</sup> Based on non-auto mode split of 30% and an average auto occupancy of 1.30.

AM PEAK HOUR  
PM PEAK HOUR  
000/000

  
North

Table 2  
Directional Distribution

| Directional Distribution                  | Residential Distribution |     | Retail Primary Trip Distribution |     | Retail Pass-by Trip Distribution |     |
|-------------------------------------------|--------------------------|-----|----------------------------------|-----|----------------------------------|-----|
|                                           | AM                       | PM  | AM                               | PM  | AM                               | PM  |
| To/From East on New York Avenue           | 10%                      | 10% | 28%                              | 28% | 70%                              | 40% |
| To/From West on New York Avenue           | 60%                      | 60% | 34%                              | 34% | 30%                              | 60% |
| To/From the North on Bladensburg Road     | 10%                      | 10% | 12%                              | 12% | 0%                               | 0%  |
| To/From the South on Bladensburg Road     | 10%                      | 10% | 10%                              | 10% | 0%                               | 0%  |
| To/From the North on Montana Avenue       | 5%                       | 5%  | 6%                               | 6%  | 0%                               | 0%  |
| To/From the South on West Virginia Avenue | 5%                       | 5%  | 5%                               | 5%  | 0%                               | 0%  |
| To/From the East on Mount Olivet Road     | 0%                       | 0%  | 5%                               | 5%  | 0%                               | 0%  |

#### Total Future Traffic Forecasts

Total future traffic forecasts with the proposed development were determined by combining the 2013 background traffic forecasts shown in Figure 6 with the total site traffic volumes shown on Figure 7. The vehicles that would be displaced by razing the existing buildings on the proposed site (shown on Figure 5) were then subtracted. The resulting volumes are shown on Figure 8.

#### PROPORTIONAL IMPACT

In order to determine the amount of traffic on the surrounding roadways that is attributable to the proposed redevelopment, a proportional impact assessment was conducted. Table 3 summarizes the proportional impact of the proposed development on key intersections.

Table 3  
Impact of Site Traffic

| Intersection                           | Site Impact |       |
|----------------------------------------|-------------|-------|
|                                        | AM          | PM    |
| New York Avenue/Bladensburg Road       | 3.4%        | 4.9%  |
| New York Avenue/Montana Avenue         | 6.3%        | 6.9%  |
| Bladensburg Road/Montana Avenue        | 11.3%       | 11.8% |
| West Virginia Avenue/Mount Olivet Road | 2.7%        | 3.0%  |

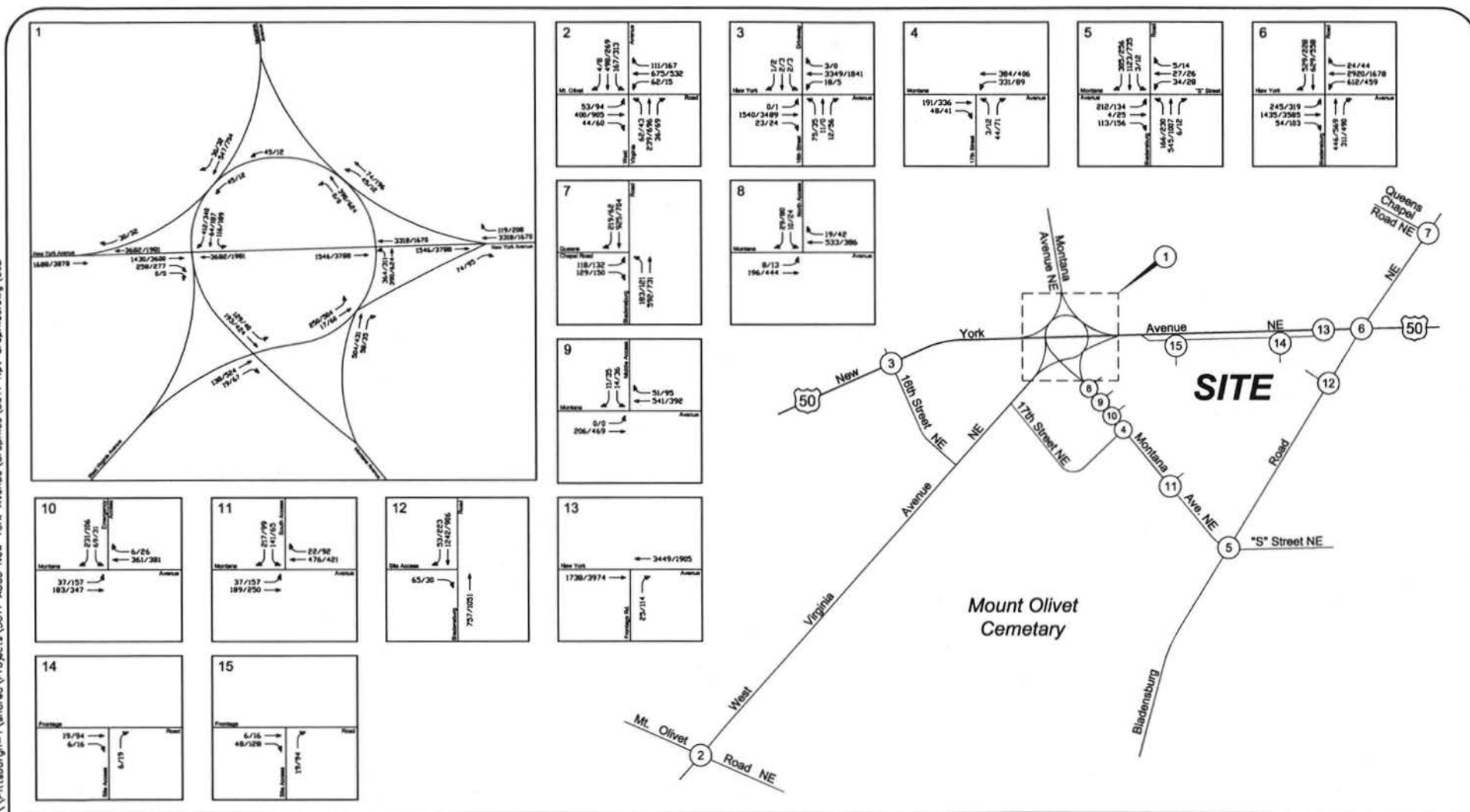


Figure 8  
2013 Total Future Peak Hour Traffic Forecasts

44 PM Peak Hour  
PM Peak Hour  
006/000



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Site impacts of five percent or less are low and generally reflect negligible effects on traffic operations and delays. Site impacts between five and 15 percent are generally considered moderate and minor effects on traffic operations and delays could be expected. Site impacts of more than 15 percent are generally considered significant.<sup>9</sup>

## **CONCLUSIONS**

The conclusions of this preliminary analysis are as follows:

1. The New York Avenue Corridor currently carries a significant volume of regional traffic. As such, congestion is present along the Corridor. Regional improvements currently are required to adequately accommodate the existing traffic volumes along the Corridor.
2. The New York Avenue Corridor Study, identified improvements along the Corridor to promote multimodalism, to facilitate traffic flow, and to create capacity for additional residential and commercial development along the Corridor. Specifically, the Study recommended a single-point urban interchange for the New York Avenue/Bladensburg Road intersection.
3. Under background conditions, the level of congestion along New York Avenue is expected to increase as the result of increased regional traffic.
4. The proposed redevelopment is anticipated to generate 1,219 new AM peak hour external vehicular-trips and 1,557 new PM peak hour external vehicular-trips.
5. To reduce the number of peak hour vehicle trips, a TDM plan should be implemented for the proposed development.
6. Along the New York Avenue Corridor, the proposed redevelopment would account for less than ten percent of the total traffic at the key intersections. Regional improvements, such as those recommended in the New York Avenue Corridor Study, would address existing and projected regional travel demands.

## REFERENCES

- 
- <sup>1</sup> New York Avenue Corridor Study Draft Plan, District of Columbia, April 2005,  
[<http://www.ddot.dc.gov/ddot/cwp/view,a,1247,q,627756,ddotNav,323991.asp>]
- <sup>2</sup> New York Avenue Corridor Study Draft Plan, District of Columbia Department of Transportation, Washington D.C., April 2005.
- <sup>3</sup> Trip Generation, 7<sup>th</sup> Edition, Volume 2, Institute of Transportation Engineers, Washington, D.C., 2003.
- <sup>4</sup> Trip Generation Handbook, Institute of Transportation Engineers, Washington, D.C., March 2001.
- <sup>5</sup> Victoria Transport Policy Institute. On-Line TDM Encyclopedia. Updated March 28, 2005,  
[<http://www.vtpi.org/tdm/>].
- <sup>6</sup> U.S. Census Bureau, March 7, 2006, <http://factfinder.census.gov>.
- <sup>7</sup> Trip Generation Handbook, Institute of Transportation Engineers, Washington, D.C., March 2001.
- <sup>8</sup> Trip Generation Handbook, Institute of Transportation Engineers, Washington, D.C., March 2001.
- <sup>9</sup> Connecticut Avenue Transportation Study – Draft Final Report, DMJM+Harris, Inc., June 2003.