



WELLS + ASSOCIATES

# 2300 16<sup>TH</sup> STREET NW

## COMPREHENSIVE TRANSPORTATION REVIEW

January 2018

Board of Zoning Adjustment  
District of Columbia  
CASE NO. 19889  
EXHIBIT NO. 23A1

<b>TABLE OF CONTENTS</b>	<u>PAGE</u>
<b>INTRODUCTION</b>	<b>1</b>
OVERVIEW.....	1
STUDY SCOPE .....	2
<b>EXISTING TRANSPORTATION FACILITIES</b>	<b>2</b>
ROADWAY NETWORK .....	2
<i>Table 1: Roadway Segment Details.....</i>	<i>3</i>
NON-AUTO TRANSPORTATION FACILITIES .....	4
Bus Service .....	4
<i>Table 2: Metrobus Headways (in minutes).....</i>	<i>4</i>
Metrorail Service.....	6
<i>Table 3: Metrorail Headways (in minutes).....</i>	<i>6</i>
Pedestrian Facilities .....	6
<i>Table 4: Pedestrian Inventory by Intersection .....</i>	<i>10</i>
Bicycle Facilities .....	11
Capital Bikeshare.....	12
Car Sharing Services.....	12
<b>EXISTING CONDITIONS ANALYSIS</b>	<b>13</b>
TRAFFIC VOLUMES .....	13
CAPACITY ANALYSIS .....	13
<i>Table 5: Level of Service Summary.....</i>	<i>14</i>
QUEUE ANALYSIS .....	16
<i>Table 6: 95<sup>th</sup> Percentile Queue Summary (in feet).....</i>	<i>17</i>
SAFETY EVALUATION .....	19
<i>Table 7: Crash Data Summary.....</i>	<i>19</i>
<u>16<sup>th</sup> Street/U Street/New Hampshire Avenue</u> .....	19
<u>16<sup>th</sup> Street/Florida Avenue/W Street</u> .....	20
<u>16<sup>th</sup> Street/Euclid Street</u> .....	20
<u>16<sup>th</sup> Street/Harvard Street</u> .....	20
<u>17<sup>th</sup> Street/Crescent Place</u> .....	21
<u>16<sup>th</sup> Street/V Street</u> .....	21
<b>FUTURE BACKGROUND CONDITIONS</b>	<b>21</b>
TRAFFIC VOLUMES .....	21
Overview .....	21
Regional Growth .....	21
Pipeline Developments .....	22
<u>Il Palazzo</u> .....	22
<u>2341 Ontario Road NW</u> .....	22
<u>Combined Pipeline Developments</u> .....	22
Background Forecasts .....	22
CAPACITY ANALYSIS .....	22
QUEUE ANALYSIS .....	23

**TABLE OF CONTENTS (CONTINUED)**

<b>SITE ANALYSIS</b>	<b>24</b>
OVERVIEW.....	24
VEHICULAR ACCESS.....	24
PEDESTRIAN AND BICYCLE ACCESS.....	24
TRIP GENERATION ANALYSIS .....	25
Overview .....	25
Total Trips .....	25
<i>Table 8: Site Trip Generation Summary – 110 Condominium Units</i> .....	25
Non-auto Mode Split .....	26
New Vehicle Trips .....	26
Site Trip Distribution and Assignment .....	26
<i>Table 9: Site Trip Distributions</i> .....	27
PROPOSED PARKING .....	27
Vehicular Parking .....	27
<i>Table 10: Parking Summary</i> .....	27
Bicycle Parking .....	28
<i>Table 11: Bicycle Parking Summary</i> .....	28
PROPOSED LOADING.....	28
<i>Table 12: Loading Summary</i> .....	29
<b>TOTAL FUTURE CONDITIONS</b>	<b>29</b>
ROADWAY NETWORK .....	29
TRAFFIC FORECASTS.....	29
CAPACITY ANALYSIS .....	29
QUEUE ANALYSIS .....	30
<b>IMPROVEMENT ANALYSIS</b>	<b>30</b>
OVERVIEW.....	30
<u>Improve Pedestrian Safety</u> .....	30
<u>Improve Traffic Operations at Belmont Street/16<sup>th</sup> Street intersection</u> .....	31
<u>Transportation and Loading Management Plans</u> .....	31
IMPROVEMENT FEASIBILITY ANALYSIS .....	32
Signalization of 16 <sup>th</sup> Street/Belmont Street.....	32
Pedestrian Timings at 16 <sup>th</sup> Street/Crescent Place .....	32
Evaluation of On-Street Parking .....	32
<b>CONCLUSIONS AND RECOMMENDATIONS</b>	<b>33</b>

## LIST OF FIGURES

FIGURE	TITLE
1	Site Location Map
2	Site Plan
3	Multi-modal Transportation Options
4	One Quarter Mile Walk Shed
5	One Mile Bike Shed
6	Existing Peak Hour Traffic Volumes
7	Existing Peak Hour Pedestrian Volumes
8	Existing Lane Use and Traffic Control
9	Existing Peak Hour Traffic Volumes with Regional Growth
10	Pipeline Locations
11	Pipeline Traffic Volumes
12	2022 Background Peak Hour Traffic Volumes
13A	Vehicular Circulation – Parking G1
13B	Loading Access – Parking G1
13C	Pedestrian Access – Level G1
13D	Pedestrian Access – First Floor
13E	Bike Circulation – Parking G1
14	Site Trips
15A	Rerouted Trips Due to Closure of Existing Driveway
15B	2022 Background Peak Hour Traffic Volumes with Rerouting
16	2022 Total Future Peak Hour Traffic Volumes
17	Belmont Street – Existing and Proposed Conditions

**LIST OF APPENDICES**

<b>APPENDIX</b>	<b>TITLE</b>
A	Scoping Document
B	Traffic Count Data
C	DDOT Signal Timings
D	Level of Service Descriptions
E	Existing LOS and Queue Reports
F	Pipeline Development Details
G	Background LOS and Queue Reports
H	Truck Turning and Sight Distance Diagrams
I	Total Future LOS and Queue Reports
J	Signal Warrant Analysis



## INTRODUCTION

### OVERVIEW

This report presents a Comprehensive Transportation Review (CTR) conducted in support of the development proposed by MIC9 OWNER, LLC (herein referred to as the Applicant) to construct a residential building at 2300 16<sup>th</sup> Street NW adjacent to the Meridian International Center. The subject site is located in Ward 1 on Square 2568, Lots 806, 808, and 809 in northwest Washington, DC. The site is located west of 16<sup>th</sup> Street between Belmont Street and Crescent Place, as shown on Figure 1.

The site, which is located in the RA-2 and RA-4 zoning districts, currently is occupied by the Meridian International Center (MIC), which is housed in two existing buildings – the Meridian House (Lot 809) and the White-Meyer House (Lot 806) – and an existing surface parking lot (Lot 808) used by the MIC for staff, visitor, and event parking. The Applicant has submitted an application for a Special Exception that would allow for the construction of a new residential building on the MIC’s campus. Specifically, the application requests approval to: 1) modify the MIC’s existing private school plan (the MIC currently operates as a private school for adults pursuant to prior approvals by the Board of Zoning Adjustment); 2) extend the bulk regulations of the RA-4 zone to the portion of the property zoned RA-2; and 3) approve the height of the proposed retaining walls.

The proposed project would include a nine-story building (including penthouse) with approximately 110 condominium units and approximately 6,000 SF of meeting space, which would be used by the MIC. The site plan is shown on Figure 2.

Approximately 72 parking spaces would be provided for the residential component in a below-grade garage. Approximately, 47 self-parked spaces (or 50-60 spaces, including stacked spaces) also would be provided in a separate below-grade garage for use by the MIC as replacement spaces for the 50 spaces in the existing parking lot. Access to the parking and loading facilities would be provided via a new single curb cut on Belmont Street. The existing curb cut on Crescent Place that provides access to the surface parking lot will be abandoned.

The purpose of this report is to:

- Evaluate existing traffic operational and safety conditions,
- Evaluate future traffic conditions without the proposed development,
- Evaluate future traffic conditions with the proposed development,
- Identify existing mode choice alternatives,
- Identify any traffic operational impacts associated with the proposed development,
- Evaluate the appropriateness of the proposed parking,
- Evaluate effectiveness of the proposed loading facilities, and

- Recommend transportation improvements (including roadway, operational, and demand management strategies) to mitigate the impact of the redevelopment and promote the safe and efficient flow of vehicular and pedestrian traffic associated with the proposed redevelopment.

## STUDY SCOPE

This Comprehensive Transportation Review was undertaken to assess the impacts of the proposed development on the surrounding roadway network. The scope of the study and proposed methodologies were approved by the District Department of Transportation (DDOT) prior to beginning the study. The agreed upon scoping document is included in Appendix A.

The study area was selected based on those roadway segments that potentially could be affected by the proposed redevelopment. The following intersections were identified for detailed analysis and agreed to by DDOT:

- 16<sup>th</sup> Street/U Street/New Hampshire Avenue,
- 16<sup>th</sup> Street/Florida Avenue/W Street,
- 16<sup>th</sup> Street/Belmont Street,
- 16<sup>th</sup> Street/Crescent Place,
- 16<sup>th</sup> Street/Euclid Street,
- 16<sup>th</sup> Street/Harvard Street,
- 16<sup>th</sup> Street/Columbia Road,
- 17<sup>th</sup> Street/Crescent Street,
- 16<sup>th</sup> Street/V Street,
- 16<sup>th</sup> Street/Fuller Street.
- Belmont Street/Beekman Place, and
- Crescent Place/Existing Driveway.

## EXISTING TRANSPORTATION FACILITIES

### ROADWAY NETWORK

General details regarding the surrounding roadway segments, including functional classification, average daily traffic volume (ADT), and speed limit are summarized in Table 1.

Several of the roadways in the study area operate as one-way streets, as summarized below:

- New Hampshire Avenue is one-way northbound north of U Street and one-way southbound south of U Street for vehicular traffic (both segments of the roadway are two-way for bicycles);
- W Street and Harvard Street operate as one-way eastbound streets, east of 16<sup>th</sup> Street;
- Columbia Road, east of 16<sup>th</sup> Street, operates as a one-way for westbound traffic;
- Crescent Place and Euclid Street operate as one-way eastbound streets, west of 16<sup>th</sup> Street;
- Fuller Street operates one-way westbound, west of 16<sup>th</sup> Street;
- Belmont Street operates as a one-way westbound west of Beekman Place;
- V Street operates as one-way westbound in the vicinity of the site; and
- 17<sup>th</sup> Street, between Euclid Street and Crescent Place, operates as a one-way street for northbound traffic.

Table 1  
 Roadway Segment Details

Roadway	Functional Classification	Average Daily Traffic* (vehicles per day)	Speed Limit (miles per hour)
16 <sup>th</sup> Street	Principal Arterial	23,900	30
U Street <sup>#</sup>	Principal Arterial/Minor Arterial	14,600	25
New Hampshire Avenue	Minor Arterial	7,800	25 <sup>†</sup>
Florida Avenue	Minor Arterial	3,600	25 <sup>†</sup>
W Street	Local	3,600	25 <sup>†</sup>
Belmont Street	Local	N/A	25 <sup>†</sup>
Crescent Place	Local	N/A	25 <sup>†</sup>
Euclid Street	Collector	4,500	25
Harvard Street	Minor Arterial	6,300	25
Columbia Road	Minor Arterial	N/A	25
17 <sup>th</sup> Street	Local	N/A	25 <sup>†</sup>
V Street	Local	3,600	25 <sup>†</sup>
Fuller Road	Local	N/A	25 <sup>†</sup>
Beekman Place	Local	N/A	25 <sup>†</sup>

\* The ADT volume is based on DDOT historical traffic volume data collected in 2015, which are the most recent data available.  
<sup>#</sup> U Street is classified as a Principal Arterial east of 16<sup>th</sup> Street and Minor Arterial west of 16<sup>th</sup> Street.  
<sup>†</sup> Speed limit unposted in the study area; assumed to be 25 mph.



## NON-AUTO TRANSPORTATION FACILITIES

### Bus Service

The subject site is situated on one of the busiest transit corridors in the District. 16<sup>th</sup> Street carries over 20,000 transit riders per day on an average weekday. As shown on Figure 3, the site is within a ¼ mile radius of bus stops serving eight WMATA routes. Stops along 16<sup>th</sup> Street are served by four Metrobus routes (S1, S2, S4, & S9). The stop immediately adjacent to the site, located at the 16<sup>th</sup> Street/Crescent Street intersection serves 394 buses per day.

Stops along U Street and 18<sup>th</sup> Street are served by four Metrobus routes (X3, 90, 92, and 96). A stop on Columbia Road, just outside of the ¼ mile radius serves three Metrobus routes (42, 43, and H1) and the Woodley Park – Adams Morgan – McPherson Square Circulator Route.

The minimum, maximum, and average headways for the WMATA and DC Circulator routes are provided in Table 2.

Table 2  
 Metrobus Headways (in minutes)

HEADWAY	NORTHBOUND/WESTBOUND			SOUTHBOUND/EASTBOUND		
	AM Peak Period	Midday Period	PM Peak Period	AM Peak Period	Midday Period	PM Peak Period
	7:00 AM – 10:00 AM	10:00 AM – 4:00 PM	4:00 PM – 7:00 PM	7:00 AM – 10:00 AM	10:00 AM – 4:00 PM	4:00 PM – 7:00 PM
<b>16TH STREET - POTOMAC PARK LINE (S1)</b>						
Min	N/A	N/A	0:00	0:05	N/A	N/A
Max	N/A	N/A	0:18	0:15	N/A	N/A
Avg	N/A	N/A	0:11	0:07	N/A	N/A
<b>16TH STREET LINE (S2, S4)</b>						
Min	0:10	0:10	0:07	0:05	0:09	0:10
Max	0:15	9:15	0:13	0:15	0:15	0:26
Avg	0:11	0:35	0:10	0:06	0:15	0:13
<b>16TH STREET METRO EXTRA LINE (S9)</b>						
Min	0:09	0:05	0:05	0:04	0:08	0:00
Max	0:12	0:20	0:05	0:08	0:20	0:08
Avg	0:09	0:15	0:05	0:04	0:16	0:08
<b>BENNING ROAD LINE (X3)</b>						
Min	0:23	N/A	N/A	N/A	N/A	0:32
Max	0:31	N/A	N/A	N/A	N/A	0:36
Avg	0:25	N/A	N/A	N/A	N/A	0:34

Table 2 (continued)  
 Metrobus Headways (in minutes)

HEADWAY	NORTHBOUND/WESTBOUND			SOUTHBOUND/EASTBOUND		
	AM Peak Period	Midday Period	PM Peak Period	AM Peak Period	Midday Period	PM Peak Period
	7:00 AM – 10:00 AM	10:00 AM – 4:00 PM	4:00 PM – 7:00 PM	7:00 AM – 10:00 AM	10:00 AM – 4:00 PM	4:00 PM – 7:00 PM
<b>U STREET - GARFIELD LINE (90,92)</b>						
Min	0:04	0:10	0:07	0:10	0:10	0:06
Max	0:12	0:10	0:11	0:10	0:10	0:09
Avg	0:07	0:10	0:10	0:10	0:10	0:07
<b>EAST CAPITOL STREET - CARDOZO LINE (96)</b>						
Min	0:20	0:19	0:21	0:15	0:21	0:21
Max	0:23	0:26	0:21	0:24	0:25	0:23
Avg	0:20	0:24	0:21	0:21	0:23	0:21
<b>WOODLEY PARK – ADAMS MORGAN – MCPHERSON SQUARE DC CIRCULATOR</b>						
Min	0:10	0:10	0:10	0:10	0:10	0:10
Max	0:10	0:10	0:10	0:10	0:10	0:10
Avg	0:10	0:10	0:10	0:10	0:10	0:10
<b>MOUNT PLEASANT LINE (42,43)</b>						
Min	0:08	0:00	0:10	0:02	0:08	0:10
Max	0:18	0:10	0:13	0:07	0:12	0:13
Avg	0:13	0:05	0:12	0:04	0:10	0:12

The 16<sup>th</sup> Street Line (Metrobus routes S1, S2, and S4) has been studied extensively by DDOT, starting with the Metrobus 16<sup>th</sup> Street Line Study completed in February 2009. Some recommendations from the study included the addition of the S9 and S3 routes, the introduction of articulated buses for late evening hours, enhanced service supervision at key points along the routes, specialized 16<sup>th</sup> Street Line training for drivers, improved shelters with benches and lighting, installation of more next-bus arrival displays, providing updated schedules at stops, transit-only lanes, signal timing adjustments, and greater enforcement of parking restrictions.

In April 2013, DDOT released its 16<sup>th</sup> Street Safety & Mobility Report identifying physical and operational improvements along the 16<sup>th</sup> Street corridor. Five corridor level alternatives were selected for evaluation. Key recommendations from the study included the implementation of peak-hour, peak-direction transit lanes from Arkansas Avenue to H Street and intersection modifications at Park Road, Irving Street/15<sup>th</sup> Street, and Arkansas Avenue to improve pedestrian safety.

In March 2016, DDOT released its 16<sup>th</sup> Street Transit Priority Planning Study which proposes prioritizing transit to accommodate the passenger demand for public transit along the 16<sup>th</sup> Street

corridor. The study identified operational and physical improvements such as transit signal priority, bus stop relocation, pedestrian safety improvements, parking, additional waiting area, ADA upgrades, bus stop consolidation, and a center reversible lane from Arkansas Avenue to K Street. Conceptual alternatives developed with input from the public and key stakeholders are currently being evaluated. The study is currently in the environmental documentation phase and development of roadway alternatives phase. According to DDOT’s schedule, 30 percent design plans will be completed in June 2018. Assuming the project moves forward according to the schedule, the implementation would take place in 2020 at the earliest.

Metrorail Service

The proposed project is approximately 0.7 miles walking/biking distance from the U Street/African-American Civil War Memorial/Cardozo Metro Station and the Columbia Heights Metro Station, as shown on Figure 3. Both Metro Stations provide access to the Metro Green and Yellow lines. Riders can transfer to the Blue, Orange, or Silver lines at L’Enfant Plaza Metro Station or to the Red Line at Gallery Place-Chinatown Metro Station or the Fort Totten Metro Station.

The minimum, maximum, and average headways for the Green and Yellow Line are summarized in Table 3.

Table 3  
 Metrorail Headways (in minutes)

Headway*	AM Rush 5:00 AM – 9:30 AM	Midday 9:30 AM – 3:00 PM	PM Rush 3:00 PM – 7:00 PM	Evening 7:00 PM – 9:30 PM	Late Night 9:30 PM – Close	Weekend Open – 9:30 PM	Weekend 9:30 PM – Close
<b>GREEN LINE/YELLOW LINE (U STREET/AFRICAN-AMERICAN CIVIL WAR MEMORIAL/CARDOZO)</b>							
<b>Min</b>	0:08	0:12	0:08	0:12	0:20	0:12	0:20
<b>Max</b>	0:08	0:12	0:08	0:12	0:20	0:15	0:20
* Headways presented represent headways in both directions.							

Pedestrian Facilities

The District of Columbia Pedestrian Master Plan (the Pedestrian Plan) strives to make Washington, DC safer and more walkable by improving sidewalks, roadway crossings, and the quality of the pedestrian environment as well as by ensuring that the District’s policies and procedures support walking.

The Pedestrian Plan provides an overview of existing pedestrian conditions, recommends new pedestrian projects and programs, establishes performance measures, and provides a plan for

implementation through 2018. The Pedestrian Plan also estimates areas of pedestrian activity and deficiency.

As part of the Pedestrian Plan, eight priority corridors (one in each ward) were identified based on areas of heavy pedestrian traffic and deficient walking conditions. The priority corridor in Ward 1 is 16<sup>th</sup> Street between Spring Road NW and Massachusetts Avenue NW, which includes the portion of 16<sup>th</sup> Street within the study area. Within the study area, the recommended pedestrian improvements include (where improvements have been completed, they are indicated as such):

- 16<sup>th</sup> Street/Columbia Road –
  - Remove pavement on the northwest corner of the intersection and close Mount Pleasant Street south of Argonne Place,
  - Build a curb extension on the southeast corner of the intersection,
  - Reconstruct curb ramps to be ADA compliant on the east leg of the intersection (complete),
  - Stripe a high visibility crosswalk on the west leg of the intersection (complete),
  - Restrict right turns on red from 7:00 AM to 7:00 PM on the westbound and southbound approaches, and
  - Replace diagonal curb ramps with two ramps on the west and north legs of the intersection.
- 16<sup>th</sup> Street/Harvard Street –
  - Construct new ADA ramps on all four corners of the intersection (complete),
  - Construct a new median on the northbound approach of the intersection,
  - Install pedestrian countdown heads for the west leg of the intersection (complete),
  - Restrict right turns on red from 7:00 AM to 7:00 PM on the northbound approach,
  - South of the intersection, build curb extensions on the Harvard Street approach and stripe a high visibility crosswalk, and
  - Relocate an existing bus stop on 16<sup>th</sup> Street to just north of the intersection of 16<sup>th</sup> Street/Harvard Street southbound.
- 16<sup>th</sup> Street/Euclid Street –
  - Construct new ADA ramps on all four corners (complete) and
  - Restripe crosswalks on the east and west legs of the intersection (complete).
- 16<sup>th</sup> Street/Crescent Place –
  - Remove or fix the pedestrian push button (complete),
  - Construct new ADA ramps on all approaches,

- Install pedestrian countdown heads for the south and west legs of the intersection (complete), and
- Relocate two existing bus stops on 16<sup>th</sup> Street to just south of the intersection for southbound buses and to just north of the intersection for northbound buses.
- 16<sup>th</sup> Street/Belmont Street –
  - Remove crosswalks on the north and south legs of the intersection,
  - Stripe a high visibility crosswalk on the west leg of the intersection, and
  - Construct new ADA ramps on the northwest and southwest corners.
- 16<sup>th</sup> Street/Florida Avenue/W Street –
  - Construct new ADA ramps on all four corners,
  - Restripe crosswalks on the north and south legs of the intersection (complete),
  - Restrict right turns on red from 7:00 AM to 7:00 PM on the eastbound approach, and
  - Build a curb extension on the northeast corner of the intersection (complete).
- 16<sup>th</sup> Street/U Street/New Hampshire Avenue –
  - Construct new ADA ramps on all four corners and for the New Hampshire Avenue (northeastbound) approach (complete),
  - Construct a new median on the eastbound and westbound approaches of the intersection,
  - Restripe crosswalk on the east leg of the intersection (complete),
  - Stripe a high visibility crosswalk on the northeast leg of the intersection (complete),
  - Create a 3' minimum clear sidewalk on the east side of 16<sup>th</sup> Street from Caroline Street to U Street (complete),
  - Build a raised crossing on the southwest corner of the intersection to cross New Hampshire Avenue,
  - Build a curb extension on the northeast corner of the intersection (complete),
  - Widen the island on the northeast corner of the intersection between New Hampshire Avenue and U Street, and
  - Remove pavement and close access to New Hampshire Avenue for westbound traffic on U Street (future traffic will take a right onto 16<sup>th</sup> Street and another right onto New Hampshire Avenue to head northeast).
- 16<sup>th</sup> Street/V Street –
  - Restripe crosswalk on the north and south leg of the intersection (complete), and
  - Reconstruct curb ramps for ADA on all four corners (complete).

- 16<sup>th</sup> Street/Fuller Street –
  - Replace diagonal curb ramps with two ramps on the east and north legs of the intersection (complete).

DDOT's Design and Engineering Manual (DEM) outlines various requirements for pedestrian facilities. Specifically, the following requirements were assessed at each of the study intersections and are documented in Table 4:

- Criteria 1 - Section 44.7 (Crosswalks): Crosswalks shall be 10 feet wide on local streets, 15 feet wide on collector streets, and 20 feet wide on major arterials, unless otherwise noted.
- Criteria 2 - Section 44.7 (Crosswalks): High visibility crosswalks are required at all uncontrolled crosswalks and all crosswalks (including signalized or stop-controlled crosswalks) leading to a block with a school, within a designated school zone area, along a designated school walking route, or on blocks adjacent to a Metro station.
- Criteria 3 - Section 44.7 (Crosswalks): ADA ramps must be included within a crosswalk, whether at a corner or mid-block crosswalk. ADA ramps must be installed in pairs of two, one for each pedestrian travel direction.
- Criteria 4 - Section 44.7 (Crosswalks): All curb ramps must be located within the marked crosswalk, not including the side flares of the ramp. All curb ramps must be installed perpendicular to the gutter pan angle, with the back side of the flare as closely as possible to the back-edge line of the crosswalks.
- Criteria 5 - Section 31.6.2 (Pedestrian Crossing): The minimum landing of a ramped median should be six feet by four feet. Detectable, two feet wide warning pavers must be installed on both ends of ramp median.

Pedestrian facilities and likely walking routes to the Metro Station, nearest bus stops within a ¼ mile of the site, and key generators in the site vicinity are shown on Figure 4. Figure 4 also shows pedestrian activity and deficiency according to the Pedestrian Master Plan.



Table 4  
 Pedestrian Inventory by Intersection

Intersection	Criteria 1,2	Criteria 3	Criteria 4	Criteria 5
16 <sup>th</sup> Street/U Street/New Hampshire Avenue (Signalized)	No – See Note 1	No – See Note 2	No – See Note 3	No – See Note 4
16 <sup>th</sup> Street/Florida Avenue/W Street (Signalized)	No – See Note 5	Yes	Yes	Yes
16 <sup>th</sup> Street/Belmont Street (One-way Stop Control)	No – See Note 6	No – See Note 7	Yes	No – See Note 8
16 <sup>th</sup> Street/Crescent Place (Signalized)	No – See Note 9	No – See Note 10	Yes	No – See Note 11
16 <sup>th</sup> Street/Euclid Street (Signalized)	No – See Note 12	No – See Note 13	No – See Note 14	Yes
16 <sup>th</sup> Street/Harvard Street (Signalized)	No – See Note 15	Yes	Yes	Yes
16 <sup>th</sup> Street/Columbia Road (Signalized)	No – See Note 16	No – See Note 17	No – See Note 18	Yes
17 <sup>th</sup> Street/Crescent Street (Unsignalized)	Yes	Yes	Yes	Yes

1. All crosswalk widths, except the crosswalk on the northeast corner at U Street/New Hampshire Avenue, do not meet minimum requirements.
2. At the southwest corner of the intersection, the southern and southwestern crosswalks share one ramp.
3. Two ramps on the northwest, one ramp on the northeast, and one ramp on the southwest corners do not have at least one side flare that aligns properly.
4. On the northeast corner, one ramp does not have detectable warning strips.
5. All crosswalk widths, except the crosswalk on the east leg, do not meet minimum requirements.
6. The crosswalk widths on the north and south legs do not meet minimum requirements.
7. Ramps are not present on the northwest and southwest corners for pedestrians crossing 16<sup>th</sup> Street.
8. Ramps on the northeast, northwest, and southeast corners do not have detectable warning strips.
9. The crosswalk widths on the north and south legs do not meet minimum requirements.
10. Handicap ramps are not present on the northwest, southeast, and southwest corners for pedestrians crossing 16<sup>th</sup> Street.
11. The two ramps on the west leg do not have detectable warning strips.
12. The crosswalk widths on the north and south legs do not meet minimum requirements.
13. Only one handicap ramp is present at the southeast and southwest corners.
14. One ramp on the northeast corner does not have at least one side flare that aligns properly.
15. The crosswalk width on the southern leg does not meet minimum requirements. Where Harvard Street traffic may turn right onto 16<sup>th</sup> Street, the crosswalk width does not meet minimum requirements.
16. The crosswalk width on the northern leg does not meet minimum requirements.
17. On the northwest corner, the concrete median separating Mount Pleasant Street and 16<sup>th</sup> Street does not have ADA compliant ramps.
18. One ramp on the southeast corner does not have at least one side flare that aligns properly.

Table 4 (continued)  
 Pedestrian Inventory by Intersection

Intersection	§44.7	§44.7	§44.7	§31.6.2
16 <sup>th</sup> Street/V Street	No – See Note 19	Yes	Yes	Yes
16 <sup>th</sup> Street/Fuller Street	No – See Note 20	No – See Note 21	No – See Note 22	Yes
19. The crosswalk width on the northern and southern leg does not meet minimum requirements. 20. The crosswalk width on the northern and southern leg does not meet minimum requirements. 21. Only one ramp is present at the northeast corner. 22. One ramp on the northeast corner does not have at least one side flare that aligns properly.				

Bicycle Facilities

The District of Columbia Bicycle Master Plan (the Bicycle Plan) seeks to create a more bicycle-friendly city by establishing high-quality bicycle facilities and programs that are safe and convenient. The Bicycle Plan identifies areas and corridors that are barriers to cyclists. These barriers include “freeways, railroad and highway grade separations, neighborhoods with heavy traffic, and other impediments to bicycle travel.” No such barriers exist in the vicinity of the site.

Bicycle facilities and likely biking routes to the Metro Station, nearest bus stops within a one mile of the site, and key generators in the site vicinity are shown on Figure 5.

Several dedicated bicycle lanes exist in the vicinity of the subject site:

- Columbia Road west of 16<sup>th</sup> Street has dedicated bicycle lanes on the east and west sides of the roadway for northbound and southbound bicycle traffic, respectively.
- Euclid Street has a dedicated bicycle lane on the south side of the roadway for eastbound bicycle traffic west of 16<sup>th</sup> Street.
- W Street has a dedicated bicycle lane on the south side of the roadway for eastbound bicycle traffic east of 16<sup>th</sup> Street.
- 15<sup>th</sup> Street has dedicated bicycle lanes on the east and west sides of the roadway for northbound bicycle traffic, respectively.
- Although New Hampshire Avenue is one-way for vehicular traffic within the study area, dedicated contraflow bicycle lanes are present within the study area. Sharrows are marked on New Hampshire Avenue for bicycles traveling with the flow of the one-way traffic.
- Within the study area, V Street has dedicated bicycle lanes on north side of the road for the westbound bicycle traffic.

### Capital Bikeshare

Capital Bikeshare is an automated bicycle rental or bicycle sharing program that provides approximately 3,400 bicycles at 440 stations across Washington, DC, Arlington, VA, Alexandria, VA, Fairfax County, VA, and Montgomery County, MD.

Membership, which is required to use Capital Bikeshare, includes six options for joining: single trip (\$2), 24 hours (\$8), three days (\$17), 30 days (\$28), one year (\$85), or one year with monthly installments (\$96, \$8/month for 12 months). The first 30 minutes of use are free; users then are charged a usage fee for each additional 30-minute period. Bicycles can be returned to any station with an available dock.

As shown on Figure 3, the closest Bikeshare station is located within ¼ mile of the site at the 15<sup>th</sup> Street/W Street intersection. This station includes 19 docks. Two additional Bikeshare stations are located within a ¼ mile radius of the site. One station at 15<sup>th</sup> Street/Euclid Street contains 15 docks, and one station at 16<sup>th</sup> Street/Wyoming Avenue includes 23 docks. Several other Capital Bikeshare stations are located just outside the ¼ mile radius, as shown on Figure 3.

### Car Sharing Services

Two car-sharing providers currently operate in the District. Zipcar requires a \$25 application fee and members can choose from four plans: occasional driving plan - \$70 per year (pay as you go based on the standard hourly or daily rate), monthly plan - \$7 per month (pay as you go based on the standard hourly or daily rate), and extra value plan - \$50 per month and receive 10% discount on driving (after the \$50 is used up you pay as you go based on a discounted hourly or daily rate). Cars must be returned to the same designated parking spaces from which they were picked up.

As shown on Figure 3, 16 Zipcars are located within a ¼ mile radius of the site. Three Zipcars are located at 2112 New Hampshire Avenue, and one Zipcar is located at the 2101 16<sup>th</sup> Street. Four additional Zipcars are located at Ecuador Alley and one Zipcar is located at Champlain Street/Kalorama Road. Seven cars are located at 2415 18<sup>th</sup> Street. Note the number of cars at any given location change frequently.

Car2Go requires a one-time \$5 application fee. Once registered, a member card is issued, which enables members to access an available car. Car2Go members can choose from two plans: smart fortwo – \$0.32 per minute/\$15 per hour/\$59 per day, and Mercedes-Benz CLA & GLA – \$0.45 per minute/\$19 per hour/\$79 per day. No reservation is required and car usage is charged by the minute, with hourly and daily maximum fees. Unlike Zipcar, a Car2Go vehicle does not have to be returned to its original location; a Car2Go vehicle can be parked in any unrestricted curbside parking space, in any metered/paystation curbside parking space (without paying meter/paystation fees), or in any residential permit parking space. Car2Go currently has 800 vehicles in the Washington Region.

## EXISTING CONDITIONS ANALYSIS

### TRAFFIC VOLUMES

Existing vehicular turning movement, bicycle, and pedestrian counts were conducted on Tuesday, September 27, 2016 and Tuesday, May 5, 2017 from 7:00 AM to 10:00 AM and from 4:00 PM to 7:00 PM.

AM and PM peak hours for each of the study intersections were determined individually to provide the most conservative peak hour analysis, per standard DDOT practice. Existing vehicular peak hour traffic volumes are shown on Figure 6. Pedestrian volumes are shown on Figure 7. Traffic count data are included in Appendix B.

### CAPACITY ANALYSIS

Capacity/level of service (LOS) analyses were conducted at the study intersections based on the existing lane use and traffic control shown on Figure 8, baseline traffic volumes shown on Figure 6, pedestrian volumes shown on Figure 7, and traffic signal timings obtained from DDOT, included in Appendix C.

Synchro software (Version 9, Build 912) was used to evaluate levels of service at the study intersections during the peak hours. Synchro is a macroscopic model used to evaluate the effects of changing intersection geometrics, traffic demands, traffic control, and/or traffic signal settings and to optimize traffic signal timings. The levels of service reported were taken from the Highway Capacity Manual 2000<sup>1</sup> (HCM) reports generated by Synchro. Level of service descriptions are included in Appendix D.

Under existing conditions, all approaches operate at acceptable levels of service (i.e. LOS D or better), except for the following:

- 16<sup>th</sup> Street/U Street/New Hampshire Avenue – The eastbound and westbound approaches operate at a LOS F during the AM peak hour. The eastbound, northbound, and southbound approaches operate at LOS F during the PM peak hour. The overall intersection operates at an LOS F during both the AM and PM peak hours.
- 16<sup>th</sup> Street/Florida Avenue/W Street – The eastbound and southbound approaches operate at a LOS F during the PM peak hour. The overall intersection operates at a LOS E during the PM peak hour.
- 16<sup>th</sup> Street/Belmont Street – The eastbound approach operates at a LOS E during the PM peak hour.

---

<sup>1</sup> HCM 2010 did not report the LOS and Queue for six out of the eight-study intersection. Therefore, to be consistent HCM 2000 was used to report LOS and Queue.

- 16<sup>th</sup> Street/Euclid Street – The eastbound and westbound approaches operate at a LOS F during both the AM and PM peak hours.
- 16<sup>th</sup> Street/Columbia Road – The westbound approach operates at a LOS F during both the AM and PM peak hour. Southbound approach operates at a LOS F during the AM peak hour. The overall intersection operates at a LOS F during the AM peak hour and a LOS E during the PM peak hour.
- 16<sup>th</sup> Street/V Street – The westbound approach operates at a LOS F during the AM peak hour.
- 16<sup>th</sup> Street/Fuller Street – The westbound approach operates at a LOS E during the AM peak hour.

Detailed results of the analyses (by approach) are summarized in Table 5. Capacity analysis worksheets are included in Appendix E.

Table 5  
 Level of Service Summary

Approach	Existing Conditions		Background Conditions		Total Future Conditions	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
<b>1. 16<sup>th</sup> Street/U Street/New Hampshire Avenue</b>						
EB	F (197.4)	F (113.1)	F (245.2)	F (148.0)	F (246.8)	F (148.0)
WB	F (123.5)	D	F (160.4)	D	F (161.9)	D
NB	C	F (187.0)	C	F (234.7)	C	F (237.4)
SB	D	F (216.7)	E (79.9)	F (333.1)	E (79.9)	F (337.7)
<b>Overall</b>	<b>F (89.2)</b>	<b>F (145.8)</b>	<b>F (118.0)</b>	<b>F (198.5)</b>	<b>F (118.6)</b>	<b>F (200.6)</b>
<b>2. 16<sup>th</sup> Street/Florida Avenue/W Street</b>						
EB	D	F (133.4)	D	F (162.4)	D	F (168.1)
NB	C	C	C	C	C	C
SB	C	F (82.1)	C	F (88.7)	C	F (92.2)
<b>Overall</b>	<b>C</b>	<b>E (65.9)</b>	<b>C</b>	<b>E (75.3)</b>	<b>C</b>	<b>E (78.1)</b>
<b>3. 16<sup>th</sup> Street/Belmont Street</b>						
EB	A	E [46.5]	A	F [52.5]	B	C <sup>1</sup>
NB	A	A	A	A	A	A
SB	A	A	A	A	A	A
1. Synchro reports the approach delay as the weighted average of the volumes at the intersection. At 16 <sup>th</sup> Street/Belmont Street for the total future conditions eastbound right turns are added to the intersection. Therefore, at the intersection the delay decreases from LOS F to LOS C even when the volumes are higher for the total future conditions.						

Table 5 (continued)  
 Level of Service Summary

Approach	Existing Conditions		Background Conditions		Total Future Conditions	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
<b>4. 16<sup>th</sup> Street/Crescent Place</b>						
EB	D	D	D	D	D	D
NB	A	A	A	B	A	B
SB	A	A	A	A	A	A
<b>Overall</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>
<b>5. 16<sup>th</sup> Street/Euclid Street</b>						
EB	F (248.2)	F (291.0)	F (292.5)	F (334.3)	F (290.9)	F (335.4)
WB	F (168.3)	F (91.9)	F (208.5)	F (105.7)	F (210.1)	F (108.2)
NB	B	B	B	B	B	B
SB	A	B	A	B	A	B
<b>Overall</b>	<b>D</b>	<b>D</b>	<b>D</b>	<b>E (55.8)</b>	<b>D</b>	<b>E (56.3)</b>
<b>6. 16<sup>th</sup> Street/Harvard Street</b>						
EB	D	D	D	D	D	D
NB	B	C	B	C	B	C
SB	A	A	A	A	A	A
<b>Overall</b>	<b>A</b>	<b>B</b>	<b>B</b>	<b>C</b>	<b>B</b>	<b>C</b>
<b>7. 16<sup>th</sup> Street/Columbia Road</b>						
WB	F (267.3)	F (269.8)	F (302.2)	F (315.9)	F (303.4)	F (319.3)
NBT	A	B	A	B	A	B
SB	F (164.1)	B	F (197.3)	B	F (197.7)	B
<b>Overall</b>	<b>F (153.9)</b>	<b>E (63.4)</b>	<b>F (181.8)</b>	<b>E (74.0)</b>	<b>F (182.1)</b>	<b>E (74.8)</b>
<b>8. 17<sup>th</sup> Street/Crescent Place</b>						
EB	A	A	A	A	A	A
NB	A	A	A	A	A	A
<b>9. 16<sup>th</sup> Street/V Street</b>						
WB	F (118.6)	D	F (145.3)	D	F (146.2)	D
NB	C	B	C	B	C	B
SB	B	B	C	B	C	B
<b>Overall</b>	<b>D</b>	<b>B</b>	<b>D</b>	<b>B</b>	<b>D</b>	<b>C</b>
<b>10. 16<sup>th</sup> Street/Fuller Street</b>						
WB	E (63.0)	D	E (66.8)	D	E (66.8)	D
NB	A	A	A	A	A	A
SB	A	A	A	A	A	A
<b>Overall</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>



Table 5 (continued)  
 Level of Service Summary

Approach	Existing Conditions		Background Conditions		Total Future Conditions	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
<b>10. 16<sup>th</sup> Street/Fuller Street</b>						
WB	E (63.0)	D	E (66.8)	D	E (66.8)	D
NB	A	A	A	A	A	A
SB	A	A	A	A	A	A
<b>Overall</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>
<b>11. Belmont Street/Beekman Place</b>						
WB	A	A	A	A	A	A
NB	A	A	A	A	A	A
<b>12. Crescent Place/Existing Driveway</b>						
EB	A	A	A	A	-	-
NB	A	A	A	A	-	-
<b>13. Belmont Street/Proposed Driveway</b>						
EB	-	-	-	-	A	A
WB	-	-	-	-	A	A
SB	-	-	-	-	A	A
[x.x] = unsignalized intersection control delay in sec/veh (x.x) = signalized intersection control delay in sec/veh						

## QUEUE ANALYSIS

A queuing analysis was conducted for existing conditions. Synchro was used to conduct the analyses, using the 95<sup>th</sup> percentile queue lengths. The results are summarized in Table 6. Queue reports are provided in Appendix E.

As shown in Table 6, the following lane groups have 95<sup>th</sup> percentile queues that exceed the available storage under existing conditions:

- 16<sup>th</sup> Street/U Street/New Hampshire Avenue – northbound through/right (PM peak hour) and southbound through (AM and PM peak hours);
- 16<sup>th</sup> Street/Florida Avenue/W Street – northbound left/through/right (PM peak hour) and southbound through/right (AM peak hour);
- 16<sup>th</sup> Street/Crescent Place – northbound through (PM peak hour);
- 16<sup>th</sup> Street/Euclid Street – westbound left/through/right and northbound through/right (AM and PM peak hours);
- 16<sup>th</sup> Street/Harvard Street – eastbound left/through (AM and PM peak hours) and northbound through/right (PM peak hour);

- 16<sup>th</sup> Street/Columbia Road – westbound and southbound through (AM and PM peak hours), northbound through (PM peak hour), and southbound right (AM peak hour); and
- 16<sup>th</sup> Street/V Street – westbound left/through/right and northbound left/through (AM and PM peak hours) and southbound through/right (AM peak hour).

Queues that extend to adjacent intersections are typical in urban environments where intersections are closely spaced.

Table 6  
 Synchro 95<sup>th</sup> Percentile Queue Summary (in feet)

Approach	Available Storage <sup>†</sup>	Existing Conditions		Background Conditions		Total Future Conditions	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
<b>1. 16<sup>th</sup> Street/U Street/New Hampshire Avenue</b>							
EBLTR	455'	337	335	364	365	364	365
WBLTR	455'	416	351	453	426	454	423
NBTR	430'	180	713	197	792	198	796
SBT	285'	519	708	606	807	602	812
SBR	150'	79	71	97	81	97	81
<b>2. 16<sup>th</sup> Street/Florida Avenue/W Street</b>							
EBLTR	515'	227	488	265	526	267	536
NBLTR	280'	185	416	207	541	209	551
SBL	370'	244	315	267	332	276	338
SBTR	370'	406	241	485	272	497	275
<b>3. 16<sup>th</sup> Street/Belmont Street</b>							
EBLR	125'	2	1	2	1	7	5
NBLT	370'	7	11	9	12	10	16
SBTR	165'	0	0	0	0	0	0
<b>4. 16<sup>th</sup> Street/Crescent Place</b>							
EBLR	665'	35	17	35	17	41	18
NBT	165'	93	295	102	350	103	350
SBT	560'	177	99	200	109	201	110
<b>5. 16<sup>th</sup> Street/Euclid Street</b>							
EBLTR	250'/645'	298	373	322	400	325	403
WBLTR	250'	385	338	421	361	423	365
NBTR	135'	154	307	169	354	172	355
SBLT	485'	13	141	37	169	38	172
<sup>†</sup> All distances measured to nearest intersection or end of turn lane, as appropriate. Where two storage lengths are given, the first is the distance to the driveway, the second is the distance to the nearest intersection.							

Table 6 (continued)  
 Synchro 95<sup>th</sup> Percentile Queue Summary (in feet)

Approach	Available Storage <sup>†</sup>	Existing Conditions		Background Conditions		Total Future Conditions	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
<b>6. 16<sup>th</sup> Street/Harvard Street</b>							
EBLT	40'	161	234	183	255	183	255
NBTR	475'	162	652	183	714	187	717
SBT	40'	0	18	0	21	0	22
<b>7. 16<sup>th</sup> Street/Columbia Road</b>							
WBT	225'	787	758	842	827	845	834
WBR	225'	78	36	96	41	96	41
NBT	60'	60	86	70	118	69	117
SBT	165'	1077	246	1058	269	1059	270
SBR	100'	292	57	351	67	351	67
<b>8. 17<sup>th</sup> Street/Crescent Street</b>							
EBL	-	0	1	0	1	0	1
NBTR	580'	0	0	0	0	0	0
<b>9. 16<sup>th</sup> Street/V Street</b>							
WBLTR	200'	515	287	560	315	562	319
NBLT	260'	366	300	424	355	432	364
SBTR	270'	320	137	371	150	377	151
<b>10. 16<sup>th</sup> Street/Fuller Street</b>							
WBLTR	245'	125	54	133	57	133	57
NBLTR	490'	39	73	43	401	44	402
SBLTR	350'	9	6	9	6	9	6
<b>11. Belmont Street/Beekman Place</b>							
WBLT	125'	1	2	1	3	1	3
NBLR	175'	4	2	4	2	4	2
<b>12. Crescent Place/Existing Driveway</b>							
EBTR	520'	0	0	0	0	-	-
NBR	-	0	1	0	1	-	-
<b>13. Belmont Street/Proposed Driveway</b>							
EBLT	115'	-	-	-	-	0	0
WBTR	20'	-	-	-	-	0	0
SBLR	-	-	-	-	-	3	2

<sup>†</sup> All distances measured to nearest intersection or end of turn lane, as appropriate. Where two storage lengths are given, the first is the distance to the driveway, the second is the distance to the nearest intersection.

## SAFETY EVALUATION

Crash data for the study intersections were obtained from DDOT. The information provided by DDOT included the total number of crashes at each intersection over the latest three years of available data (i.e. 2013, 2014, and 2015) and was further categorized by type of crash. Table 7 shows the overall intersection crash rates at each of the study intersections.

As shown in Table 7, the crash rates at the following intersections are above 1.0, which is considered high by DDOT:

- 16<sup>th</sup> Street/U Street/New Hampshire Avenue,
- 16<sup>th</sup> Street/Florida Avenue/W Street,
- 16<sup>th</sup> Street/Euclid Street,
- 16<sup>th</sup> Street/Harvard Street,
- 17<sup>th</sup> Street/Crescent Place, and
- 16<sup>th</sup> Street/V Street.

Table 7  
 Crash Data Summary

Intersection	Type of Control	No. of Crashes (3 Years)	ADT (vpd)	Crash Rate (MEV)
16 <sup>th</sup> Street/U Street/New Hampshire Avenue	Signal	82	32,990	2.27
16 <sup>th</sup> Street/Florida Avenue/W Street	Signal	44	25,940	1.55
16 <sup>th</sup> Street/Belmont Street	One-way Stop	19	24,990	0.69
16 <sup>th</sup> Street/Crescent Place	Signal	18	22,400	0.73
16 <sup>th</sup> Street/Euclid Street	Signal	39	23,230	1.53
16 <sup>th</sup> Street/Harvard Street	Signal	32	27,740	1.05
16 <sup>th</sup> Street/Columbia Road	Signal	34	31,760	0.98
17 <sup>th</sup> Street/Crescent Place	Free-flow	2	970	1.88
16 <sup>th</sup> Street/V Street	Signal	40	17,910	2.04
16 <sup>th</sup> Street/Fuller Street	Signal	18	22,440	0.73
Belmont Street/Beekman Place <sup>†</sup>	One-way Stop	N/A	1470	N/A
Crescent Place/Existing Driveway <sup>†</sup>	One-way Stop	N/A	270	N/A

<sup>†</sup> There are no crash reports from DDOT for the driveways. Therefore, the crash rate cannot be calculated.

### 16<sup>th</sup> Street/U Street/New Hampshire Avenue

A review of the crash types at the 16<sup>th</sup> Street/U Street/New Hampshire Avenue intersection reveals that side swipe collisions made up 28 percent of the crashes. Another 22 percent were rear end crashes. One other category that made up more than 10 percent of the crashes included

left turn collisions (11 percent). One crash at the intersection involved pedestrians (not in a crosswalk) and nine crashes involved bicycles.

A review of the crash data at this intersection reveals that a significant portion of the collisions (49 percent) occurred during the dark (under lighted conditions). A majority of the collisions (82 percent) also occurred under clear weather conditions. More information regarding the direction of travel would be required to make recommendations to improve safety.

#### 16<sup>th</sup> Street/Florida Avenue/W Street

A review of the crash types at the 16<sup>th</sup> Street/Florida Avenue/W Street intersection reveals that side swipe collisions made up 41 percent of the crashes. Another 23 percent were rear end crashes. Seven crashes at the intersection involved bicycles. One of the crashes involved pedestrians.

A review of the crash data at this intersection reveals that 23 percent occurred during the dark (under lighted conditions). A majority of the collisions (73 percent) also occurred under clear weather conditions. More information regarding the direction of travel would be required to make recommendations to improve safety.

#### 16<sup>th</sup> Street/Euclid Street

A review of the crash types at the 16<sup>th</sup> Street/Euclid Street intersection reveals that rear end crashes made up 31 percent of crashes. Another 28 percent were side swipe collisions. One other category that made up 10 percent of the crashes included right angle collisions. One crash at the intersection involved a pedestrian that was not in a crosswalk and four crashes involved bicycles.

A review of the crash data at this intersection reveals the majority of collisions (56 percent) occurred during the daylight. A majority of the collisions (73 percent) also occurred under clear weather conditions. More information regarding the direction of travel would be required to make recommendations to improve safety.

#### 16<sup>th</sup> Street/Harvard Street

A review of the crash types at the 16<sup>th</sup> Street/Harvard Street intersection reveals that the highest proportion of crashes (34 percent) were rear end crashes. Another 16 percent were side swipe collisions. One crash at the intersection involved pedestrians (not in a crosswalk) and two crashes involved bicycles.

A review of the crash data at this intersection reveals that half occurred during the daylight. A majority of the collisions (78 percent) also occurred under clear weather conditions. More information regarding the direction of travel would be required to make recommendations to improve safety.

### 17<sup>th</sup> Street/Crescent Place

A review of the crash types at the 17<sup>th</sup> Street/Crescent Place intersection reveals that of the crashes involved parked vehicle collisions. One crash involved at the intersection involved pedestrian.

A review of the crash data at this intersection reveals that half of the collisions occurred during the daylight. Half also occurred under clear weather conditions. More information regarding the direction of travel would be required to make recommendations to improve safety.

### 16<sup>th</sup> Street/V Street

A review of the crash types at the 16<sup>th</sup> Street/V Street intersection reveals that side swipe collisions made up 30 percent of crashes that have occurred at the intersection. Two other categories that made up 10 percent or more of the crashes included fixed object collisions (18 percent) and collisions while backing (10 percent). One crash at the intersection involved a pedestrian in a crosswalk, and one crash involved bicycle.

## **FUTURE BACKGROUND CONDITIONS**

### **TRAFFIC VOLUMES**

#### Overview

In order to forecast 2022 background traffic volumes in the study area without the proposed development, increases in traffic associated with growth outside the immediate site vicinity (regional growth) and increases in traffic associated with planned or approved but not yet constructed developments in the study area (pipeline developments) were considered.

#### Regional Growth

DDOT's historical average daily traffic (ADT) volume maps were examined to determine an appropriate growth rate for the study area. The historical ADTs indicate that traffic volumes in the study area generally have a growth rate less than one percent. Therefore, a growth rate of one percent per year, compounded annually over six years (2016 to 2022), conservatively was applied to the existing vehicular volumes shown on Figure 6. The resulting 2022 volumes with regional growth are shown on Figure 9.



## **Pipeline Developments**

Two other developments that are planned in and around the study area were identified during the scoping process and were considered as part of the background traffic growth for the 2022 study year (see Figure 10 for locations). A summary of each pipeline development is provided below.

### **Il Palazzo**

The Il Palazzo condominium development will feature approximately 135 residential units. Site trip assignments for the project were taken from the Il Palazzo Transportation Impact Study Report, prepared by A. Morton Thomas and Associates, dated May 2011. According to the study, the development will generate an estimated 71 AM peak hour vehicle trips and 80 PM peak hour vehicle trips.

### **2341 Ontario Road NW**

The 2341 Ontario Road NW development will include approximately 20 residential dwelling units. Trip generation for the project was determined using the Institute of Transportation Engineers' (ITE) Trip Generation Manual and applying a 40 percent non-auto mode split. The development will generate an estimated eight AM peak hour vehicle trips and ten PM peak hour vehicle trips. The AM and PM peak hour trips were added to the roadway network utilizing distributions based on existing traffic patterns in the study area and general knowledge of commuter routes to/from the development.

### **Combined Pipeline Developments**

The pipeline developments are expected to generate an additional 79 trips during the AM peak hour and 90 trips during the PM peak hour by 2022. Details for each of the pipeline developments and trip assignments are included in Appendix F. The traffic associated with the combined pipeline developments is shown at each of the study intersections on Figure 11.

## **Background Forecasts**

Background 2022 traffic forecasts (without the proposed development at 2300 16<sup>th</sup> Street) was developed by combining the existing traffic volumes grown to the year 2022 (shown on Figure 9) with the pipeline traffic volumes shown on Figure 11. The resulting 2022 background traffic forecasts are shown on Figure 12.

## **CAPACITY ANALYSIS**

Capacity/level of service (LOS) analyses were conducted at the study intersections based on the existing lane use and traffic control shown on Figure 8, future background traffic forecasts shown on Figure 12, and existing DDOT traffic signal timings.

The level of service results for the 2022 background conditions without the development are included in Appendix G and summarized in Table 5. As shown in Table 5, under background conditions, many of the study intersections will experience notable increases in delay as a result of the background traffic growth and the pipeline projects.

As summarized below, a number of approaches at the study intersections that currently are operating at acceptable levels of service would drop to a LOS E or LOS F with the increased traffic associated with regional growth and pipeline traffic.

- 16<sup>th</sup> Street/U Street/New Hampshire Avenue – The southbound approach is projected to drop from a LOS D to LOS E during the AM peak hour.
- 16<sup>th</sup> Street/Belmont Street – The eastbound approach is projected to drop from a LOS E to a LOS F during the PM peak hour.
- 16<sup>th</sup> Street/Euclid Street – The overall intersection is projected to drop from a LOS D to a LOS E during the PM peak hour.

## QUEUE ANALYSIS

A queuing analysis was conducted for 2022 conditions without the proposed development. Synchro was used to conduct the analyses, using the 95<sup>th</sup> percentile queue lengths. The results are summarized in Table 6. Queue reports are provided in Appendix G.

As shown in Table 6, the 95<sup>th</sup> percentile queues at several study intersections will increase under background conditions. As summarized below, under background conditions, queues for a couple of lane groups will exceed the available storage as a result of the increased traffic associated with regional growth and pipeline traffic (i.e. the available storage was not exceeded under existing conditions).

- 16<sup>th</sup> Street/Florida Avenue/W Street – Queues on the eastbound approach are projected to extend beyond the available storage during the PM peak hour.
- 16<sup>th</sup> Street/Columbia Road – Queues on the northbound approach are projected to extend beyond the available storage during the AM peak hour.

## **SITE ANALYSIS**

### **OVERVIEW**

The subject site is located in Ward 1 on Square 2568, Lots 806, 808, and 809. The site is located in the RA-2 and RA-4 districts and currently is occupied by a parking lot used by the MIC for staff, visitor, and event parking.

The Applicant proposes to construct a multi-story residential condominium building with approximately 110 units and approximately 6,000 SF of meeting space, which will be used by the MIC. Approximately 72 below-grade parking spaces will be provided for the residential use and approximately 50-60 parking spaces (including stacked parking) will be provided in a separate below-grade garage for the MIC to replace the spaces in the existing surface parking lot.

### **VEHICULAR ACCESS**

Access to the site currently is provided by a single curb cut on Crescent Place. In conjunction with the proposed development, the curb cut will be closed, and a new curb cut on Belmont Street will be constructed. The proposed curb cut will provide access to an entry court for the building. The residential parking and the MIC parking can be accessed via the entry court. Likewise, the loading facilities also can be accessed via the entry court. The site has been designed such that trucks and service vehicles will enter the site front-first from Belmont Street and will then back into one of the loading berths or the service delivery spaces. Trucks will then exit the loading area onto Belmont Street front-first.

Vehicular circulation diagrams are shown on Figures 13A and 13B. Diagrams showing the swept-area diagrams for the truck maneuvers in and out of the loading areas are included in Appendix H. Sight distance for the proposed curb cut on Belmont Street also was evaluated. A graphical depiction of the sight distance triangles are shown on Figure H1 in Appendix H. As shown, no obstructions or appurtenances would obstruct the sight distance.

### **PEDESTRIAN AND BICYCLE ACCESS**

Pedestrians can access the lower residential lobby via the entry court off of Belmont Street. Pedestrian access to the main residential lobby also will be provided via the 16<sup>th</sup> Street. Pedestrians can access the MIC ground-floor lobby via the entry court. A third-floor lobby also is provided for the MIC to provide a pedestrian connection between the new building and the White Meyer House.

Bicycle access will be provided through the parking garage entrance on Belmont Street to the long-term bicycle parking located in the P1 level of the garage.

Pedestrian and bicycle circulation is shown on Figures 13C, Figure 13D, and Figure 13E.

## TRIP GENERATION ANALYSIS

### Overview

The proposed project will include a multi-story residential condominium building with approximately 110 units. The building also will house approximately 6,000 SF of meeting space (including meeting space, office space, kitchen and bathrooms), which will be used by the MIC. The meeting space will allow the MIC to better accommodate its educational, training and cultural programs, and will allow for decompression of existing space in the adjacent White-Meyer House and Meridian House. Meridian programs are largely held during the day and typically have less than 50 attendees per session, and attendees often arrive/depart via a shuttle bus. Any increase in the number of Meridian programs or other events would be in accordance with the parameters of the current Memorandum of Understanding between Meridian and the neighborhood. Since these activities already occur at the MIC on a regular basis, no increase in typical peak hour traffic is anticipated as a result of the meeting space in the new building. Therefore, new trips generated by the site will be comprised of residential trips generated by the 110 residential dwelling units. The total number of trips generated by the proposed redevelopment would be comprised of vehicular trips, pedestrian/bicycle trips, and transit trips.

### Total Trips

The total number of trips anticipated to be generated by the proposed redevelopment was estimated based on ITE's Trip Generation Manual. Land Use Code (LUC) 230 (Condominium) was used to estimate the total number of trips generated by the proposed project. The number of dwelling units for the residential use was used as the independent variable.

The trip generation for the proposed development is summarized in Table 8. As shown, the proposed development would generate 56 **total** AM peak hour trips and 65 **total** PM peak hour trips based on standard ITE rates/equations.

Table 8  
 Site Trip Generation Summary – 110 Condominium Units

Trip Type	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Total Trips	10	46	56	44	21	65
<i>Non-auto Trips (40%)</i>	4	18	22	18	8	26
<i>Transit (24.4%)</i>	3	11	13	12	5	16
<i>Bicycle (3.1%)</i>	-	1	2	1	1	2
<i>Pedestrian (12.5%)</i>	1	6	7	6	3	9
Vehicle Trips	6	28	34	26	13	39

### **Non-auto Mode Split**

A portion of the trips generated by the proposed development would be made via non-auto modes of transportation. The percentage of site-generated trips that would use public transportation is dependent on the proximity of the site to transit stops, the walkability of the surrounding area, 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 US Census data, approximately 50 percent of residents in the vicinity of the site take public transportation, walk, or bike to work. Therefore, it is anticipated that the non-auto mode split for the proposed residential component could be as high as 50 percent. However, as requested by DDOT, a non-auto mode split of 40 percent was used for the residential component based on the proposed parking supply.

Based on these mode split estimates, the project is expected to generate 22 AM peak hour trips and 26 PM peak hour trips by non-auto modes of transportation.

The non-auto trips will be comprised on transit, pedestrian, and bicycle trips. The estimates for the specific modes were based on data contained in the [2005 WMATA Ridership Survey](#). The resultant non-auto mode trips are summarized in Table 8.

### **New Vehicle Trips**

Taking into account the non-auto mode share, the proposed development would generate an estimated 34 new AM peak hour vehicular trips and 39 new PM peak hour vehicular trips, as shown on Table 8.

### **Site Trip Distribution and Assignment**

The distribution of new peak hour site trips generated by the proposed development was based on existing traffic patterns in the study area and general knowledge of commuter routes to/from the site. The trip distributions shown in Table 9 were applied to the new vehicle trip generation for the proposed development. The resulting traffic assignments for the proposed development are shown on Figure 14.

Table 9  
 Site Trip Distributions

Roadway	Direction	Distribution
16 <sup>th</sup> Street	North	15%
	South	30%
Euclid	East	5%
Harvard Street	East (outbound)	10%
Columbia Road	East (inbound)	10%
Florida Avenue	West	20%
U Street	East (inbound)	15%
W Street	East (outbound)	20%
V Street	East (Inbound)	5%
	West (Outbound)	5%

**PROPOSED PARKING**

**Vehicular Parking**

Based on parking requirements prescribed in ZR16, a minimum of 36 parking spaces are required for the proposed residential component and 89 spaces are required for the MIC, for a total of 125 spaces. As proposed, 158 self-parked spaces would be provided, including 39 MIC spaces in an off-site garage at 2200 17<sup>th</sup> Street. A summary of the parking required and provided for each land use is provided in Table 10.

Table 10  
 Parking Summary

Land Use	Required Parking	Proposed Parking
Residential	1 per 3 units (in excess of four units): $(111-4)/3 = 36$ spaces	72 spaces
Private School	2 spaces per 3 teachers or other employees: $106/3 = 71$ spaces 1 space per 10 seats in the largest auditorium: $175/10 = 18$ spaces	<u>Proposed Garage @ 2300 16<sup>th</sup>:</u> 47 self-parked spaces 60 including stacked spaces <u>Existing Garage @ 2200 17<sup>th</sup>:</u> 39 self-parked spaces 45 including stacked spaces
<b>Total</b>	<b>125 spaces</b>	<b>158 spaces</b> <b>177 including stacked spaces</b>

## **Bicycle Parking**

The development would also be required to provide long-term and short-term bicycle parking. Long-term bicycle parking is intended for use by employees and residents and must be located on the ground floor or the first level below grade of the building. Short-term bicycle parking is intended for use by visitors to the site and should be located in public space with input from DDOT during the public space process. The required bicycle parking for the development is summarized in Table 11 below.

Long-term bicycle parking for the residential and MIC uses will be located on the P1 level of the garage in a bike storage room, as shown on Figure 13E.

Table 11  
 Bicycle Parking Summary

Land Use	Required Parking		Proposed Parking	
	Long-term	Short-term	Long-term	Short-term <sup>2</sup>
Residential	1 per 3 units: $111/3 = 37$ spaces	1 per 20 units: $111/20 = 6$ spaces	37 long-term	6 short-term
Private School	1 per 7,500 SF: $6,000/7,500 = 1$ space	1 per 2,500 SF (but no less than eight spaces): $6,000/2,500 = 8$ spaces	1 long-term	8 short-term
<b>Total</b>	<b>38 long-term spaces</b>	<b>14 short-term</b>	<b>38 long-term</b>	<b>14 short-term</b>

<sup>1</sup> The exact number and location of short-term bicycle parking spaces will be finalized through the public space process.

Additionally, non-residential uses are required to provide shower and changing facilities. A minimum of two showers are required for non-residential uses occupying more than 25,000 SF of GFA. An additional two showers are required for every 50,000 SF of GFA over 25,000 SF. The maximum requirement is six showers. Non-residential uses greater than 25,000 SF of GFA are required to provide clothing lockers in the amount equal to 0.6 times the number of long-term bicycle spaces required. Since the proposed private school is less than 25,000 SF, the project is not required to provide any showers and lockers.

## **PROPOSED LOADING**

The loading requirements for the proposed development are prescribed by ZR16 and are summarized in Table 12 along with the proposed loading facilities. As shown below, the Applicant is not seeking relief from the loading requirements. Under the current development plan the Applicant proposes to provide one 30-foot loading berth with a 100 SF platform and one service/delivery space to serve the site.



Table 12  
 Loading Summary

Land Use	Required	Proposed
Residential	≥ 50 units 1 loading berth 1 service/delivery	1 30' loading berth 1 service/delivery
Private School	None required for uses under 30,000 SF	None
<b>Total</b>	<b>1 30' loading berth</b> <b>1 service/delivery</b>	<b>1 30' loading berth</b> <b>1 service/delivery</b>

The proposed space in the new building for the MIC does not require separate loading facilities because of its minimal size. The majority of the loading for the MIC will continue in the same manner as it does today. Events in the new MIC space, such as breakfast meetings, may require small scale deliveries, which will use the loading facilities for the project.

## TOTAL FUTURE CONDITIONS

### ROADWAY NETWORK

The Applicant proposes to abandon the existing driveway at Crescent Place and provide access to the site via a new curb cut at Belmont Street. The existing site trips currently using the Crescent Place driveway were rerouted to the proposed driveway on Belmont Street as shown on Figure 15A. The rerouted 2022 background volumes are shown on Figure 15B.

### TRAFFIC FORECASTS

Total future traffic forecasts with the proposed development were determined by combining the 2022 rerouted background traffic forecasts shown in Figure 15B with the site traffic volumes shown on Figure 14 to yield the 2022 total future traffic forecasts shown on Figure 16.

### CAPACITY ANALYSIS

Capacity analyses were performed at the study intersections using the lane use and traffic controls shown on Figure 8, the total future peak hour traffic forecasts shown on Figure 16, and existing DDOT traffic signal timings. The level of service results for the 2022 total future conditions with the proposed development are included in Appendix I and summarized in Table 5.

By comparing total future levels of service to background levels of service, the impact of the proposed development can be identified. In accordance with DDOT methodology, an impact is defined as follows:

- Degradation in approach level of service to an LOS E or LOS F or

- Increase in approach delay by more than five percent when compared to background conditions for approaches operating at an LOS E or LOS F under background conditions.

As shown on Table 5, no impacts (as defined above) result from the proposed development.

## QUEUE ANALYSIS

A queuing analysis was conducted for 2022 total future conditions. Synchro was used to conduct the analyses, using the 95<sup>th</sup> percentile queue lengths. The results are summarized in Table 6 and queue reports are provided in Appendix I.

By comparing total future queues to background queues, the impact of the proposed development can be identified. In accordance with DDOT methodology, an impact is defined as follows:

- A 95<sup>th</sup> percentile queue exceeds available storage under total future conditions but not under background conditions or
- The 95<sup>th</sup> percentile queue under total future conditions increases by more than 150 feet when compared to background conditions.

As shown in Table 6, no impacts (as defined above) result from the proposed development.

## IMPROVEMENT ANALYSES

### OVERVIEW

As described above, the proposed development is not expected to have a significant impact on the surrounding roadway network and does not require transportation mitigation based on the criteria outlined in DDOT's Design and Engineering Manual. Nonetheless, the Applicant proposes a number of transportation improvements stemming from its significant outreach to members of the community to address their traffic concerns. A series of community working groups were held to hear the community's concerns and explore possible solutions. The following measures will be implemented in conjunction with the proposed development subject to approval by DDOT:

#### Improve Pedestrian Safety –

- Install "Turning Vehicles Yield to Pedestrians" sign (R10-15) on 16<sup>th</sup> Street at Belmont Street and
- Install/upgrade crosswalk markings on Belmont Street at its intersection with 16<sup>th</sup> Street
- Coordinate with DDOT to determine whether the pedestrian timings for pedestrians crossing 16<sup>th</sup> Street at Crescent Place provide sufficient time.

### Improve Traffic Operations at Belmont Street/16<sup>th</sup> Street Intersection –

- Install “Don’t Block the Box” signs and markings at the Belmont Street/16<sup>th</sup> Street intersection,
- Extend double yellow line on Belmont Street to Beekman Place,
- Remove three non-metered RPP peaking spaces on the southside of Belmont Street between 16<sup>th</sup> Street and Beekman Place to increase the width of the travel lanes to better facilitate two-way traffic,
- Conduct a traffic signal warrant study at the Belmont Street/16<sup>th</sup> Street intersection upon completion and 85 percent occupancy of the new building,
- Pay for the cost of future installation of traffic signal at the Belmont Street/16<sup>th</sup> Street intersection ***if warrant study conducted at completion of new building indicates a traffic signal is warranted and DDOT approves signalization.***

### Transportation and Loading Management Plans –

- Implement a Loading Management Plan, including use of security cameras to monitor whether trucks are stopping on Belmont Street to load/unload,
- Implement a Transportation Demand Management Plan including the following measures:
  - 1) A member of the property management team will be designated as the Transportation Management Coordinator (TMC). The TMC will be responsible for ensuring that information is disseminated to tenants of the building. The position may be part of other duties assigned to the individual.
  - 2) An electronic display will be provided in a common, shared space in the building and will provide public transit information such as nearby Metrorail stations and schedules, Metrobus stops and schedules, car-sharing locations, and nearby Capital BikeShare locations indicating the number of bicycles available at each location.
  - 3) The property management website will include information on and/or links to current transportation programs and services.
  - 4) The property management will coordinate with local business and service providers such as grocers, pharmacies, and dry cleaners to promote delivery services that the businesses may provide to the residents of the building. A central area where residents can arrange delivery services such as dry cleaning, groceries, pharmaceuticals, and other similar amenities will be provided.
  - 5) The pick-up/drop-off for TNC vehicles (e.g. Uber, Lyft, taxis.) will take place at the porte-cochère. Likewise, the food deliveries will also take place at the porte-cochère which will alleviate vehicular impacts on the adjacent Belmont Street.
- Implementation of a Construction Management Plan (details of which will be determined after approval of the Special Exception),

- Include provision in the condominium documents that precludes residents from leasing parking spaces to outside users, and
- Strengthen Meridian’s current MOU and add enforcement mechanism (details of which are still being worked out with the community working group).

## **IMPROVEMENT FEASIBILITY ANALYSIS**

A more detailed analysis of the proposed improvement options was conducted at the request of the community. The results of these analyses are presented below.

### **Signalization of 16th Street/Belmont Street**

AM and PM peak hour traffic signal warrants for the Belmont Street/16<sup>th</sup> Street intersection were evaluated in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) under total future conditions. Due to low volumes on Belmont Street, the MUTCD peak hour warrant would not be met for either the AM or PM peak hours under existing, background, or total future conditions.

Therefore, a traffic signal cannot be installed at the Belmont Street/16<sup>th</sup> Street intersection, nor can the traffic signal at the Crescent Place/16<sup>th</sup> Street intersection be moved to this location. Regardless, the Applicant has still agreed to conduct a traffic signal warrant study upon completion of the project and 85 percent occupancy of the building. Furthermore, the developer has agreed to pay the cost of future installation of a traffic signal if signalization is warranted and approved by DDOT. Signal warrant analysis details are included in Appendix J.

### **Pedestrian Timings at 16<sup>th</sup> Street/Crescent Place**

The community raised concerns regarding the pedestrian signal timings at 16<sup>th</sup> Street/Crescent Place. According to DDOT pedestrian interval requirement, the signal is required to include a seven second “Walk” interval and a ten second “Flashing Don’t Walk” interval. The current DDOT Signal Timing Plans obtained from DDOT indicate that the required timings are provided at the intersection.

### **Evaluation of On-Street Parking**

The community expressed concerns regarding the width of Belmont Street throughout its two-way portion (i.e. between 16<sup>th</sup> Street and Beekman Place). These concerns were investigated to determine if the current travel lane width meets standards set forth in DDOT’s Design and Engineering Manual.

As shown on Figure 17, Belmont Street is 30 feet wide (measured face-of-curb to face-of-curb) with parking on both sides of the street. Since the 2017 DEM does not provide specific guidance for the widths of existing streets, the 2009 DEM was consulted. Section 32.3.9 of the DEM (2009) outlines the following requirements for lane widths:

- 1) For existing streets that are 30 feet wide with parking on both sides of the street, the minimum travel way for two-way travel is 16 feet,
- 2) For existing streets that are 30 feet wide with parking on only one side of the street, travel lanes are required to be 11 feet wide (including gutter pan).

Based on the criteria outlined above, Belmont Street does meet DDOT DEM (2009) width standards for existing streets.

Section 30.10.1 of the DEM (2017) is used to provide criteria for proposed streets. Specifically, Table 30-14 of the DEM (2017) for Local/Residential Street Cross Section Minimum Widths states that the minimum width of the roadway is required to be 34 feet. Travel lanes on proposed streets are required to be a minimum of 10 feet wide (excluding gutter pans). Section 30.10.1 of the DEM also indicates that the minimum width for a parking lane adjacent to a vehicular travel lane is seven feet. Accordingly, if Belmont Street were a proposed street, it would not meet DDOT's criteria. However, if parking were removed on one side of the roadway, the resulting width of the travel lanes would meet DDOT's criteria for minimum travel lane widths.

Based on concerns raised by the community and to better accommodate the traffic generated by the proposed redevelopment, we recommend the removal of parking on the south side of Belmont Street between 16<sup>th</sup> Street and Beekman Place (approximately three non-metered, RPP parking spaces). The removal of these spaces would increase the travel lane width to 11 feet, which would help to facilitate two-way traffic.

The removal of parking on the south side of Belmont Street is recommended as opposed to the north side since the parking on the north side is more restrictive (i.e. "Zone 1 Resident Parking Only; Monday – Friday; 7AM – 8:30 PM") than the south side (i.e. "Two Hour Parking Limit in Zone 1; 7AM – 8:30 PM; Monday – Friday; Zone 1 Permit Holders Excepted"). Additionally, due to the location of the Beekman Place curb cuts, the three spaces located on the south side of the street between 16<sup>th</sup> Street and Beekman place are the most logical to remove. However, the Applicant is open to removal of parking spaces on the north side of Belmont Street if the community and DDOT prefer that option.

Diagrams showing the swept-area diagrams for the truck maneuvers in and out of the project's loading areas are included in Appendix H.

## CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations of this study are as follows:

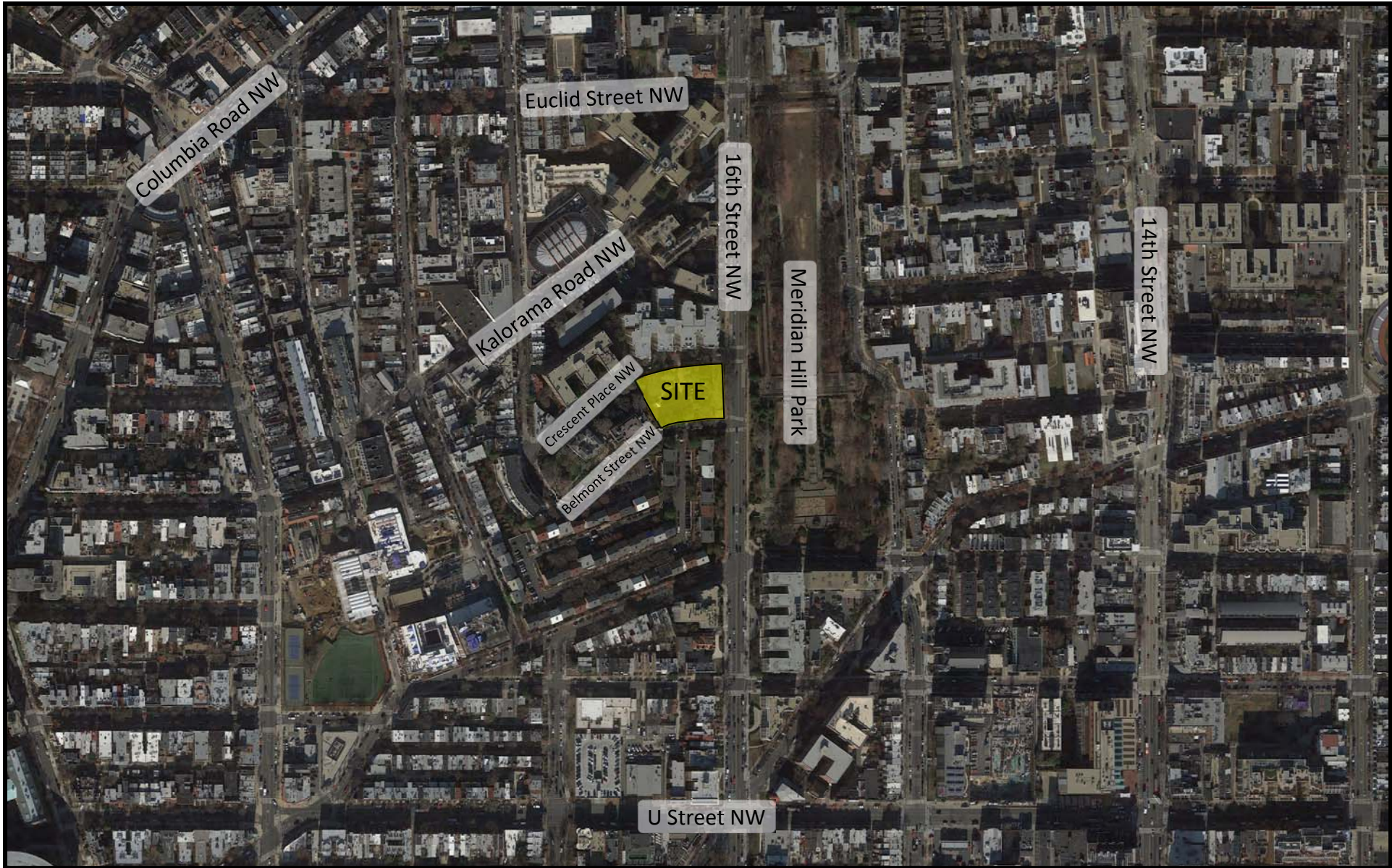
1. The subject site is situated along one of the busiest transit corridors in the District. Residence of the project will be served by four Metrobus routes that stop on 16<sup>th</sup> Street just steps from their door. Another eight Metrobus routes and the Woodley Park – Adams Morgan – McPherson Square Circulator Route also stop within an approximate ¼ mile of

the site. The site also is located less than one mile from the U Street/African-American Civil War Memorial/Cardozo Metro Station and the Columbia Heights Metro Station.

2. All vehicular access, including parking and loading, will be provided via a single curb cut on Belmont Street. The site has been designed so that trucks can enter from and exit to Belmont Street front-first.
3. The proposed development is anticipated to generate 34 AM peak hour vehicle trips and 39 PM peak hour vehicle trips.
4. Eleven off-site intersections were studied as part of the CTR. The proposed project is not anticipated to have an impact on the study area and no transportation improvements are required in accordance with DDOT's Design and Engineering Manual.
5. The Applicant has made a significant effort to work with members of the community and has identified a number of improvements to address concerns raised during a series of community working group meetings, including the following, subject to DDOT's approval:
  - Installation of signing and pavement markings at the 16<sup>th</sup> Street/Belmont Street intersection to improve visibility of and awareness of pedestrians crossing Belmont Street;
  - Installation of "Do Not Block the Box" signing and pavement markings at the 16<sup>th</sup> Street/Belmont Street intersection;
  - Removal of three on-street, RPP parking spaces on the south side of Belmont Street (between 16<sup>th</sup> Street and Beekman Place) to increase the width of the travel lanes to better accommodate two-way traffic on this portion of the street;
  - Agreement to conduct a traffic signal warrant study at the intersection of 16<sup>th</sup> Street/Belmont Street upon completion and 85 percent occupancy of the project;
  - If warranted and approved by DDOT, installation of the traffic signal at the 16<sup>th</sup> Street/Belmont Street intersection;
  - Implementation of a Transportation Demand Management Plan;
  - Implementation of a Loading Management Plan;
  - Construction Management Plan; and
  - Meridian MOU.

## FIGURES





**Figure 1**  
Site Location

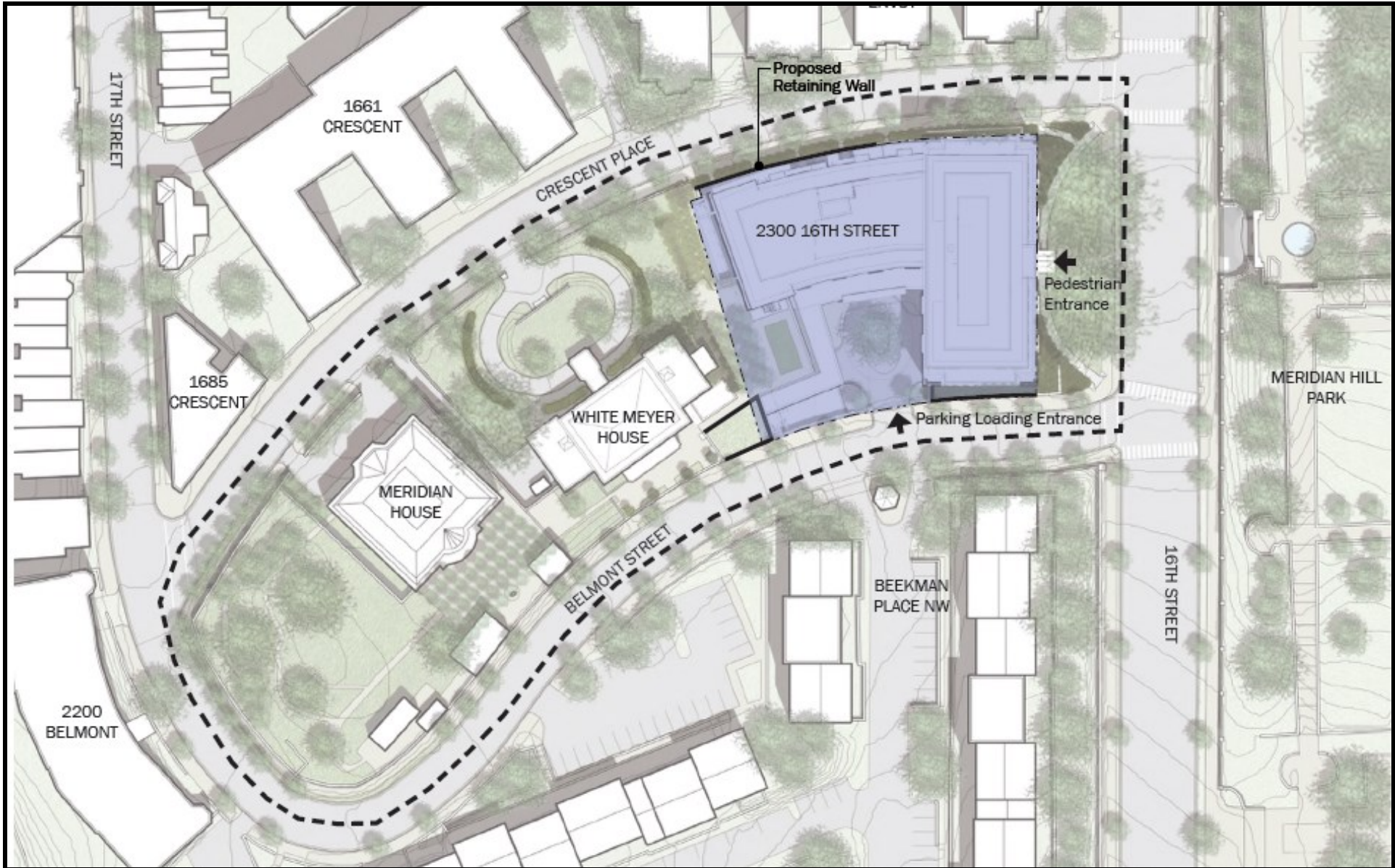


NORTH

2300 16th Street NW  
Washington, DC







**Figure 2**  
Site Plan

Source: Perkins Eastman DC  
Date: 12/11/17



**NORTH**

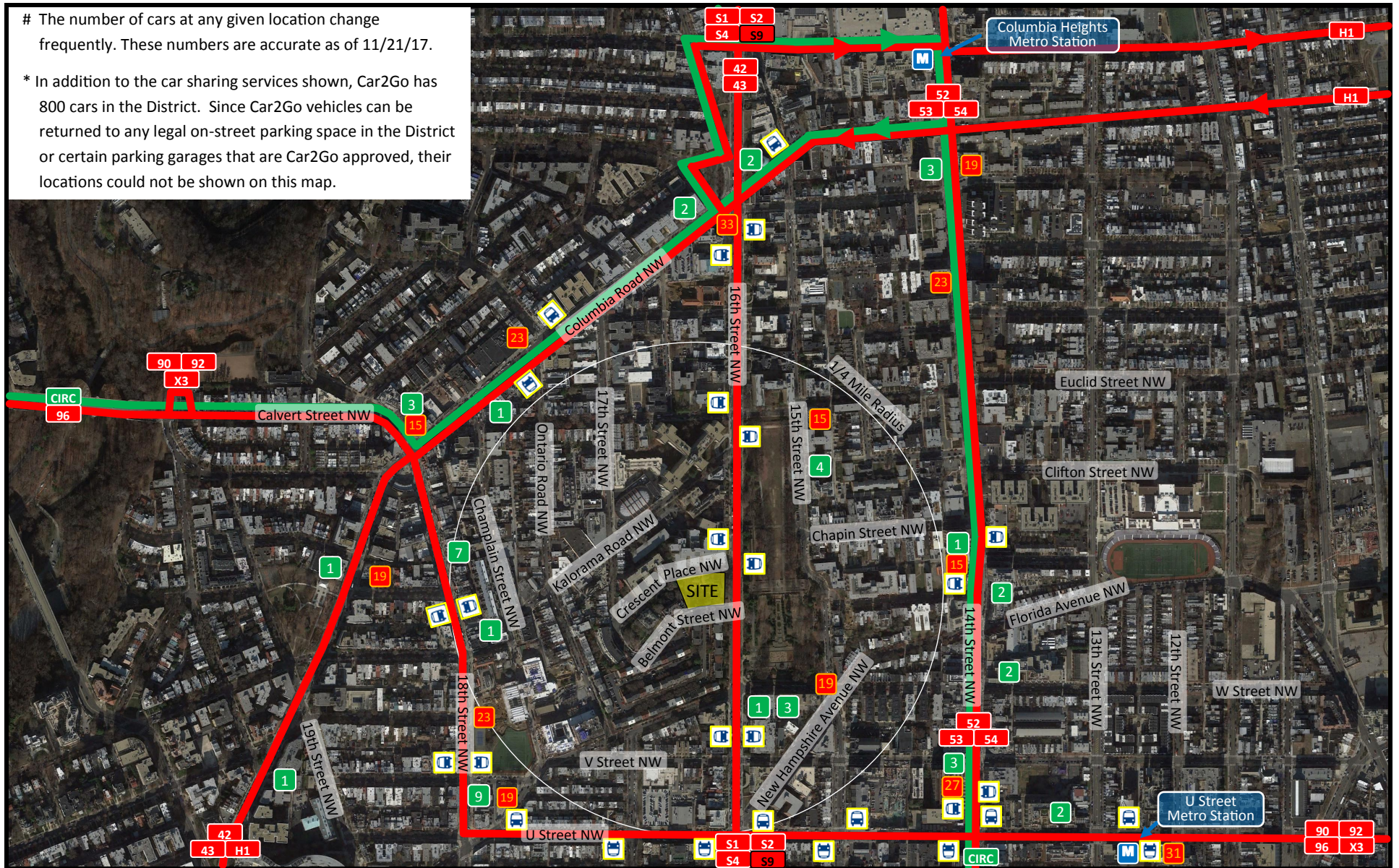
**2300 16th Street NW**  
**Washington, DC**





# The number of cars at any given location change frequently. These numbers are accurate as of 11/21/17.

\* In addition to the car sharing services shown, Car2Go has 800 cars in the District. Since Car2Go vehicles can be returned to any legal on-street parking space in the District or certain parking garages that are Car2Go approved, their locations could not be shown on this map.



**Figure 3**  
Multi-modal Transportation Options

- Zipcar Locations (Number of Zipcars)
- Capital Bikeshare Locations (Number of Docks)
- CIRC DC Circulator Route (Woodley Park-Adams Morgan-McPherson Square)
- M Metrorail Station (Green & Yellow Lines)
- XX Metrobus Route    XX MetroExtra Route    Bus Stop



2300 16th Street NW  
Washington, DC

