



WELLS + ASSOCIATES

2461 WISCONSIN AVENUE NW

COMPREHENSIVE TRANSPORTATION REVIEW

July 2018

Board of Zoning Adjustment
District of Columbia
CASE NO. 19816
EXHIBIT NO. 33A

2461 Wisconsin Avenue NW

Comprehensive Transportation Review

Washington, DC

July 2018

Prepared by:

Wells + Associates

(703) 917-6620

www.WellsAndAssociates.com



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INTRODUCTION

OVERVIEW

This report presents a Comprehensive Transportation Review (CTR) conducted in conjunction with a Special Exception application filed by InSite Real Estate Investment Properties L.L.C. (herein referred to as the Applicant). The proposed project will be located at 2461 Wisconsin Avenue, NW Washington, DC (Square 1299, Lot 0959). The site currently is occupied by an existing building housing Local 99 I.U.O.E. The triangular site is bounded by Calvert Street on the north, Wisconsin Avenue on the west, and the Guy Mason Park and Recreation Center on the south and east. The site location is shown on Figure 1.

The site is located in the R-12 Zoning District. The proposed project will reuse and renovate the existing 12,616 SF building and convert it to a daytime care use with a maximum enrollment of 128 children and 26 staff. Six (6) code compliant parking spaces will be provided for the proposed use, as required by the District of Columbia Zoning Regulations of 2016 (ZR16). Access to the parking lot will be provided via a single curb cut on Calvert Street. The proposed site plan is shown on Figure 2.

The purpose of this report is to:

- Evaluate existing traffic operation and safety conditions,
- Evaluate future traffic conditions without the proposed project,
- Evaluate future traffic conditions with the proposed project,
- Identify existing mode choice alternatives,
- Identify any traffic operational impacts associated with the proposed project, and
- Recommend transportation improvements (including roadway, operational, and/or demand management strategies) to mitigate the impact of the project and promote the safe and efficient flow of vehicular and pedestrian traffic associated with the proposed redevelopment.

STUDY SCOPE

This CTR was undertaken to assess the impacts of the proposed redevelopment 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 project. The following intersections were identified for detailed analysis and agreed to by DDOT:

- Wisconsin Avenue/Calvert Street/37th Street,
- Wisconsin Avenue/Edmunds Street,
- Calvert Street/36th Street,
- Massachusetts Avenue/Observatory Circle, and
- Massachusetts Avenue/34th Street NW.

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. All roadways in the study area operate as two-way streets, except for Edmunds Street, which operates as one-way westbound between Wisconsin Avenue and 35th Place, and 37th Street, which operates as one-way southbound between Wisconsin Avenue and Tunlaw Road. No left turns are permitted from northbound Massachusetts Avenue to Observatory Circle or Edmunds Street between 7:00 and 9:30 AM and between 4:00 and 6:30 PM, weekdays. Likewise, no southbound left turns are permitted from Massachusetts Avenue to 34th Street between 7:00 and 9:30 AM and between 4:00 and 6:30 PM, weekdays. DDOT staff indicated that the northbound left turn restriction at Observatory Circle is to be removed in the near future. For purposes of the analyses included herein, it was assumed that the restriction was removed.

Table 1
 Roadway Segment Details

Roadway	Functional Classification	Average Daily Traffic* (vehicles per day)	Speed Limit (miles per hour)
Wisconsin Avenue	Principal Arterial	20,000	25
Calvert Street	Collector/Minor Arterial [†]	7,200	25 [#]
Edmunds Street	Local	820 [‡]	25 [#]
37 th Street	Collector	2,390 [‡]	25
36 th Street	Local	470 [‡]	25 [#]
34 th Street	Minor Arterial	14,000	25
Observatory Circle	Collector	3,400 [‡]	25 ^{#,^}
Massachusetts Avenue	Principal Arterial	42,500	30

* The ADT volume is based on DDOT historical traffic volume data collected in 2015, which are the most recent data available.
[†] Calvert Street is classified as a Minor Arterial between Wisconsin Avenue and Tunlaw Road. The remaining portion is classified as a Collector.
[‡] ADT is not provided on DDOT's Traffic Volume Map. It was estimated using the PM peak hour traffic volume and an assumed "k" factor of 10 percent.
[#]Speed limit unposted in the study area; assumed to be 25 mph.
[^] A 15 mph curve warning speed is posted for westbound traffic.

MULTI-MODAL TRANSPORTATION FACILITIES

Public Transportation Facilities and Services

The subject site is served by public transportation, including Metrobus routes 30N, 30S, 31 and 33, which stop immediately adjacent to the site on Wisconsin Avenue, as shown on Figure 3. The D1 and D2 routes also stop within a ¼ mile radius of the site. Table 2 summarizes the minimum, maximum, and average headways for Metrobus routes in the site vicinity.

Table 2
 Metrobus Headways (in minutes)

Headway	Northbound/Westbound		Southbound/Eastbound	
	AM	PM	AM	PM
Friendship Heights Southeast Line (30N,30S)				
Min	0:09	0:04	0:01	0:06
Max	0:17	0:08	0:11	0:14
Avg	0:10	0:06	0:06	0:09
Wisconsin Avenue Line (31,33)				
Min	0:09	0:04	0:01	0:06
Max	0:17	0:08	0:11	0:14
Avg	0:10	0:06	0:06	0:09
Glover Park – Franklin Square Line (D1)				
Min	-	0:30	0:08	-
Max	-	0:30	0:12	-
Avg	-	0:30	0:09	-
Glover Park – Dupont Circle Line (D2)				
Min	0:08	0:09	0:08	0:08
Max	0:25	0:18	0:20	0:18
Avg	0:13	0:11	0:12	0:11

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. 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 3 is Wisconsin Avenue between Western Avenue and Woodley Road. None of the study intersections are included in the priority corridor.

A summary of the existing pedestrian facilities provided at each of the study intersections is presented in Table 3. Pedestrian facilities and likely walking routes to the Metro Station and nearest bus stops are shown on Figure 4. Missing sidewalks and sidewalks that currently are blocked by loading activities also are shown on Figure 4.

Table 3
 Pedestrian Inventory by Intersection

Intersection	Pedestrian Heads/ Countdown	Type of Crosswalks	One Ramp/ Crosswalk	Tactile Warning Strip
37 th Street NW/ Calvert Street NW (Signalized)	Yes	Three Legs – High Visibility ¹	Yes	Yes
Wisconsin Avenue/ Calvert Street NW (Signalized)	Yes	Three Legs – High Visibility ¹	Yes	Yes
Wisconsin Avenue/ Edmunds Street NW (Signalized)	Yes	Two Legs – High Visibility ²	Yes	Yes
36 th Street NW/ Calvert Street NW (Unsignalized)	NA	Two Legs – High Visibility ³	Yes	No
Massachusetts Avenue/ Observatory Circle NW (Unsignalized)	NA	Southern Leg – Poor Visibility ⁴	Yes	Yes
Massachusetts Avenue/ 34 th Street (Signalized)	Yes	Three Legs – High Visibility ⁵	Yes	Yes
1. Crosswalk does not exist on the middle leg of either clustered intersection. 2. Crosswalks are only present along the northern and eastern legs (T-intersection). 3. Crosswalks are only present along the northern and western legs (T-intersection). 4. Crosswalk on southern leg needs to be restriped. 5. Crosswalk does not exist on the eastern leg of the intersection.				

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 provides bicycle levels of service (BLOS) for roadways in the District where bicycles share the road with vehicles. The Bicycle Plan also reports the number of bicycle crashes that occurred between 2000 and 2002.

Finally, 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.” The Naval Observatory, generally bounded by Observatory Circle NW and Massachusetts Avenue, is labeled as a barrier area. The institution is not open to public traffic due to security of the facilities.

Bicycle facilities and biking conditions within ½ mile of the site are shown on Figure 5.

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 approximately $\frac{1}{8}$ mile of the site at the intersection of Calvert Street and Observatory Circle. This station includes 15 docks. A second Bikeshare station is located approximately $\frac{1}{4}$ mile from the site at the intersection of Calvert Street and 39th Street. This station contains 19 docks.

Car Sharing Services

Three 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 percent discount on driving (after the \$50 is used, 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, one Zipcar is located on Tunlaw Street just outside the $\frac{1}{4}$ mile radius of the site.

Maven is a new car-sharing service in the District. Cars can be rented by the hour (for as low as \$8 per hour) or by the day. The rental includes 180 miles per day. Currently, Maven does not charge a membership fee. Cars must be returned to the same designated parking spaces from which they were picked up. No Maven vehicles are located near the site at this time.

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. 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 500 vehicles in the District.

EXISTING CONDITIONS ANALYSIS

TRAFFIC VOLUMES

Existing vehicular turning movement, bicycle, and pedestrian counts were conducted at the majority of the study intersections on Wednesday, May 9, 2018 from 7:00 AM to 10:00 AM and from 4:00 PM to 7:00 PM. Counts at the Massachusetts Avenue/34th Street intersection were conducted on Wednesday, May 30, 2018. 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. Individual peak hours were selected for each intersection to provide a conservative analysis. Therefore, volumes may not balance exactly between intersections.

OPERATIONAL ANALYSIS

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, existing traffic volumes shown on Figure 6, existing pedestrian volumes shown on Figure 7, and existing traffic signal timings obtained from DDOT, included in Appendix C.

Synchro software (Version 9) 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 (HCM) 2000 reports generated by Synchro.¹ Level of service descriptions are included in Appendix D. The results of the analyses are summarized in Table 4. Capacity analysis worksheets are included in Appendix E.

As shown in Table 4, under existing conditions, all study intersections operate at acceptable overall levels of service with the exception of the intersection of Massachusetts Avenue/34th Street NW. In addition, all approaches operate at acceptable levels of service (i.e. a LOS D or better), except for the following:

- Massachusetts Avenue/Observatory Circle NW – The eastbound approach operates at a LOS F during the AM peak hour;
- Massachusetts Avenue/34th Street NW – The eastbound approach operates at a LOS E during the AM peak hour, the westbound approach at a LOS F during the PM peak hour, and the southbound approach at a LOS F during the AM and PM peak hours.

¹ The HCM 2010 methodology could be used at some study intersections due to atypical phasing and/or lane configurations. Therefore, in order to provide consistency, HCM 2000 levels of service were reported for all study intersections.

Table 4
 Level of Service Summary

Approach	Existing Conditions		Background Conditions		Total Future Conditions	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1B. 37th Street NW/Calvert Street NW						
EB	D	C	D	D	D	D
WB	C	C	C	C	C	C
SB	B	C	B	C	B	C
Overall	C	C	C	C	C	C
1C. Wisconsin Avenue/Calvert Street NW						
EB	B	B	C	B	C	B
WB	D	D	D	D	D	D
NB	B	C	B	C	B	C
SB	B	B	B	B	B	B
Overall	B	B	B	C	B	C
2. Wisconsin Avenue/Edmunds Street NW						
WB	D	D	D	D	D	D
NB	A	A	A	A	A	A
SB	B	B	B	B	B	B
Overall	B	B	B	B	B	B
3. 36th Street NW/Calvert Street NW						
EB	A	A	A	A	A	A
WB	A	A	A	A	A	A
SB	A	B	A	B	A	B
4. Massachusetts Avenue/Observatory Circle NW						
EB	F [171.2]	C	F [202.6]	C	F [351.1]	D
NB	A	A	A	A	A	A
SB	A	A	A	A	A	A
5. Massachusetts Avenue/34th Street NW						
EB	E (70.9)	B	E (79.0)	B	F (80.1)	B
WB	C	F (122.8)	C	F (132.1)	C	F (133.2)
NB	C	C	C	C	C	C
SB	F (572.8)	D	F (591.0)	D	F (591.0)	D
Overall	F (152.3)	F (89.9)	F (159.6)	F (96.3)	F (160.0)	F (96.9)
6. Calvert Street NW/Site Driveway						
WBLT	N/A				A	A
NBLR					B	B

Queue Analysis

A queue analysis was conducted under existing conditions. Queue lengths were calculated using HCM methodologies, as reported by Synchro. The results are summarized in Table 5. The longer of the 50th percentile and the 95th percentile queues are reported. Queue reports are provided in Appendix E.

As shown in Table 5, the following lane groups have queues that exceed the available storage under existing conditions:

- 37th Street NW/Calvert Street NW - the westbound through and the southbound through during the AM and PM peak hours.
- Wisconsin Avenue/Calvert Street NW – the eastbound left turn during the PM peak hour and the eastbound through during the AM and PM peak hours.
- 34th Street/Massachusetts Avenue – the eastbound through during the AM and PM peak hours, and southbound through during the AM peak hour.

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

Table 5
 Synchro Queue Summary[‡]

Approach	Available Storage [†]	Existing Conditions		Background Conditions		Total Future Conditions	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1B. 37th Street NW/Calvert Street NW							
EBT	325	214	162	218	165	220	166
WBT	30*	74	98	75	106	75	104
SBT	90	212	257	208	261	200	259
1C. Wisconsin Avenue/Calvert Street NW							
EBL	30*	2	63	2	66	2	69
EBT	30*	312	163	324	164	329	166
WBL	300	46	67	46	69	60	74
WBT	475	67	86	67	87	74	99
NBT	895	203	453	219	476	227	494
SBT	350	141	212	142	218	149	221
[‡] All storage lengths and queues are given in feet. * Storage between the two clustered intersections.							

Table 5 (continued)
 Synchro Queue Summary[‡]

Approach	Available Storage [†]	Existing Conditions		Background Conditions		Total Future Conditions	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
2. Wisconsin Avenue/Edmunds Street NW							
WBL	250	83	82	84	83	84	83
WBR	250	16	24	16	24	16	24
NBT	350	112	159	118	161	117	161
SBT	465	376	333	392	347	403	348
3. Calvert Street NW/36th Street NW							
EBLT	475	0	1	0	1	0	1
WBTR	585	0	0	0	0	0	0
SBLR	330	6	5	6	5	6	5
4. Massachusetts Avenue/Observatory Circle NW							
EBLR	635	230	50	252	56	338	92
NBL	70	18	26	19	27	22	29
5. Massachusetts Avenue/34th Street NW							
EBL	70	3	9	3	9	3	9
EBTR	190	975	237	1,006	244	1,009	248
WBLT	1,450	534	1,112	555	1,149	555	1,153
WBR	215	36	117	38	125	38	125
NBLTR	50	4	13	4	13	4	13
SBLT	600	1,230	191	1,256	195	1,256	195
SBR	145	17	18	18	20	18	20
6. Calvert Street NW/Site Driveway							
WBLT	115	N/A				1	1
NBLR	25					4	5

[‡] All storage lengths and queues are given in feet.

SAFETY ANALYSIS

Crash data at the study intersections were obtained from DDOT and are included in Appendix F. The information provided by DDOT included the total number of crashes at each intersection over the latest three years of available data (i.e. 2015, 2016, and 2017) and was further categorized by type of crash. As shown in Table 6, the crash rates at 37th Street NW/Calvert Avenue NW and Wisconsin Avenue/Calvert Street NW are above 1.0, which is considered high by DDOT.

Table 6
 Crash Data Summary

Intersection	Type of Control	No. of Crashes* (3 Years)	ADT# (veh/day)	Crash Rate (MEV)
37 th Street NW/Wisconsin Avenue	Free	7	23,040	0.28
37 th Street NW/Calvert Avenue NW	Signal	15	8,670	1.58
Wisconsin Avenue/Calvert Street NW	Signal	30	25,480	1.08
Wisconsin Avenue/Edmunds Street NW	Signal	16	26,370	0.55
36 th Street NW/Calvert Street NW	One-Way Stop	1	4,590	0.20
Massachusetts Avenue/Observatory Circle	One-way Stop	26	30,210	0.79
Massachusetts Avenue/34 th Street NW	Signal	15	40,790	0.34
Note: * 2015-2017 traffic accident data was provided by DDOT. # Intersection ADT is determined by assuming that ADT equates to 10% of Weekday AM/PM peak hour volumes, whichever is higher.				

37th Street NW/Calvert Avenue NW

A review of the crash types at the 37th Street NW/Calvert Avenue NW intersection reveals that 40 percent of the crashes at the intersection were side swipe collisions. One (1) crash involved pedestrians. No crashes involved bicycles.

The majority of collisions (54 percent) occurred during the daytime. Approximately 40 percent of the crashes occurred during the AM or PM peak periods (i.e. 7:30 – 9:30 AM and 4:00 – 6:30 PM). Several of the collisions (27 percent) also occurred under clear weather conditions.

Wisconsin Avenue/Calvert Street NW

A review of the crash types at the Wisconsin Avenue/Calvert Street NW intersection reveals that a significant percentage of collisions were unspecified (46.7%). Side swipe collisions and parked car collisions made up 30 percent and 17 percent of collisions at the intersection, respectively. Two crashes involved a pedestrian. No crashes involved bicycles.

A review of the crash data at this intersection reveals the majority of collisions (64 percent) occurred during the daytime. Approximately 40 percent of the crashes occurred during the AM and PM peak periods. More detailed information regarding the direction of travel would be required to develop specific recommendations to improve safety at the intersection.

FUTURE BACKGROUND CONDITIONS

TRAFFIC VOLUMES

Overview

In order to forecast year 2019 background traffic volumes in the study area without the proposed project, increases in traffic associated with approved but not yet constructed developments in the site vicinity (pipeline developments) and increases in traffic associated with growth outside the immediate site vicinity (regional growth) were considered.

Pipeline Developments

Several projects have been approved along the Wisconsin Avenue corridor, including the following:

- 3900 Wisconsin Avenue – Redevelopment of the Fannie Mae Headquarters to provide 1.1 MSF of mixed-use development.
- 4000 Wisconsin Avenue – Redevelopment of the existing office + ground floor retail to approximately 716 residential units + 132,186 SF of retail.
- Sidwell Friends School (SFS) – Redevelopment of the Washington Home site to relocate Sidwell’s Lower School from Bethesda to the Wisconsin Avenue campus.
- Georgetown Day School (GDS) – Redevelopment of the Safeway site to relocate GDS’s Lower/Middle School from McArthur Boulevard to the Wisconsin Avenue campus.
- 4614 Wisconsin Avenue – Redevelopment to include 60 residential units with 14,000 SF or ground floor retail.
- 4620 Wisconsin Avenue – Redevelopment of an existing office building to provide 146 residential units and 10,400 SF of retail space.
- 4700 Wisconsin Avenue – Redevelopment of the current Steak Eggs to provide 16 residential units and approximately 3,700 SF of retail.

Each of the projects are at least 1.3 miles from the subject project. As such, the traffic associated with each of the pipeline developments will be substantially dispersed prior to traveling through the proposed study area. Additionally, most (including 3900 Wisconsin, 4000 Wisconsin, SFS, and GDS) have build out years well beyond the build out year for the subject project (2019). Therefore, in lieu of considering each pipeline project explicitly, a conservative growth rate was applied to account for any additional traffic that would traverse the study area.

Regional Growth

In order to account for potential increases in traffic, a regional growth rate was applied to existing traffic volumes. DDOT's historical ADT volume maps were examined to determine an appropriate growth rate for the study area. When looking at long term growth (i.e. over the last six years or more), volumes have declined. Looking at shorter term growth (i.e. over the last year to the last five years), traffic volumes on Wisconsin Avenue have grown from 1.9 to 3.1 percent. Calvert Street volumes experienced a lower rate of growth, from 1.1 percent to 2.9 percent. Based on the data, a growth rate of 2.0 percent was used. The resulting 2019 background traffic forecasts are shown on Figure 9.

OPERATIONAL ANALYSIS

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 9, and existing DDOT traffic signal timings.

The level of service results for the 2019 background conditions without the proposed project are presented in Appendix G and summarized in Table 4. As shown in Table 4, under background conditions, many of the study intersections will experience increases in delay as a result of the background traffic growth along the corridor. Specifically, the eastbound movement at the intersection of Massachusetts Avenue/Observatory Circle NW is projected to degrade from LOS E to LOS F during the PM peak hour.

Queue Analysis

A queue analysis was conducted for 2019 conditions without the 2461 Wisconsin Avenue redevelopment. The estimated queue lengths were calculated using HCM methodologies, as reported by Synchro. The results are summarized in Table 5. Queue reports are provided in Appendix G.

As shown in Table 5, the queues at several study intersections will increase under background conditions. Specifically, the following lane groups have queues that are projected to exceed the available storage, consistent with existing conditions:

- 37th Street NW/Calvert Street NW - the westbound and southbound through movements during the AM and PM peak hours;
- Wisconsin Avenue/Calvert Street NW – the eastbound left turn during the PM peak hour and the eastbound through during the AM and PM peak hours;
- 34th Street/Massachusetts Avenue – the eastbound through during the AM and PM peak hours, and southbound through during the AM peak hour.

SITE ANALYSIS

OVERVIEW

The subject site is located in the Glover Park neighborhood of Ward 3. The redevelopment is proposed on Square 1299, Lot 0959. The site is currently zoned R-12 and is occupied by the former Local 99 I.U.O.E. Union building.

The proposed redevelopment will renovate the existing building into a daytime care use with a maximum of 128 students and 26 staff. The daycare is anticipated to serve a vital need in the neighborhood. As such, a significant portion of the students at the daycare are anticipated to live in the surrounding neighborhood. The project has received unanimous support from the Advisory Neighborhood Commission (ANC) 3B committee members as well as full support from ANC 3C members.

SITE ACCESS

Vehicular access to the surface parking lot will be provided via Calvert Street. The existing curb cut will be redesigned to meet current DDOT standards with a maximum width of 24 feet, correcting an existing non-compliant curb-cut. A diagram depicting sight distance for the proposed curb cut also is included in Appendix H. In conjunction with the redesigned, narrower curb cut, two (2) to three (3) additional on-street parking spaces can be obtained on the south side of Calvert Street. Further, additional grass area will be provided on the east side of the access point.

The parking lot has been designed to maximize the use of the lot for drop-off/pick-up operations. Morning drop-off will take place from 7:00 AM to 9:00 AM and afternoon pick-up will occur from 4:00 PM to 6:00 PM. Although not anticipated based on the number of spots available compared to historical pick-up and drop-off trends, in the event that the parking lot is full when a parent or guardian arrives to drop-off or pick-up, the Applicant is working with DDOT to provide signage for two (2) to three (3) vehicle spaces on the south side of Calvert Street indicating 15 Minute Only Parking from 7:00 to 9:00 AM and from 4:00 to 6:00 PM, subject to DDOT approval. Parking on the south side of Calvert Street currently is unrestricted and unmetered.

Pedestrian access will be provided via two entrances on Calvert Street. Figure 10 shows the vehicular, pedestrian, and bicycle circulation for the project. Swept-area diagrams for passenger vehicles and trash trucks are included in Appendix I.

TRIP GENERATION ANALYSIS

Overview

The total number of trips anticipated to be generated by the proposed daytime care use will be composed of auto trips, pedestrian trips, transit trips, and bicycle trips. The number of trips generated by the proposed project was first estimated based on the Institute of Transportation Engineers' (ITE's) Trip Generation Manual. To estimate the number of trips generated by the site, Land Use Code (LUC) 565 (Daycare) was used. The trip generation was estimated using the following independent variables: number of employees, number of students, and square footage. Since the square footage yielded the most conservative result, it was used for analysis purposes. The number of trips anticipated to be generated by the proposed daytime care use based on ITE is shown on Table 7. As shown, the proposed development would generate 139 AM peak hour trips and 140 PM peak hour trips based on standard ITE rates/equations. Because ITE estimates are based almost exclusively on suburban sites with few or no transit options and where walkability is limited, adjustments must be made to account for trips made by non-auto modes of transportation that are prevalent in urban conditions.

Per DDOT's request, the ITE trip generation estimates were converted to person trips using average vehicle occupancy (AVO) data published by the National Household Travel Survey (NHTS). NHTS information indicated that an average vehicle occupancy in the District, when child care was the trip purpose, is 2.0 during the AM peak hour and 3.0 during the PM peak hour. The resulting person trips are shown in Table 7.

Table 7
 Site Trip Generation Summary

Trip Component	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
12,616 SF Daycare (128 Students, 26 Staff) – LUC 565						
Total Trips (per ITE)	74	65	139	66	74	140
Total Person Trips ¹	148	130	278	198	222	420
1. Person trips converted from vehicle trips based on NHTS data.						

Non-Auto Mode Split

Those families that live in the surrounding neighborhood will contribute to the non-auto mode split for the daytime care use. To estimate the portion of trips that will be made by non-auto modes of transportation, data collected for four daycare sites in the District was reviewed. A summary of the data is provided in Table 8.

Table 8
 Mode Split Estimates for Daycare Facilities

Daycare Facility	Students			Employees		
	Auto	Walk/Bike	Transit	Auto	Walk/Bike	Transit
Jewish Community Center	30-35%	45-50%	15-20%	NA	NA	NA
House of Ruth	52-59%	0%	41-48%	69%	6%	25%
School for Friends	66	21	13	56%	6%	38%
Jubilee Jumpstart	NA	NA	NA	32%	NA	NA
Average	51%	34%	25%	52%	6%	32%

Based on the data collected for the four facilities, the average auto mode split for students was 51 percent. On average 34% of students were walked or biked to school and 25 percent of students were taken to school by transit.

The employee auto mode split was consistent with the students at 52 percent, on average. For the two sites for which a breakdown of the type of non-auto modes used, six percent walked or biked. An average of 32 percent of employees at the two sites used transit.

The mode splits then were applied to the number of person trips shown in Table 7 to determine the number of people using each mode of transportation. The number of trips by mode is shown in Table 9. Based on these mode split estimates and person trip conversion, the proposed daycare is expected to generate 137 AM peak hour person-trips and 206 PM peak hour person-trips by non-auto modes of transportation.

Table 9
 Site Trip Generation Summary

Trip Component	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
12,616 SF Daycare (128 Students, 26 Staff) – LUC 565						
Total Person Trips	148	130	278	198	222	420
<i>Non-auto Trips (49%)</i>	73	64	137	97	109	206
<i>Transit (21%)</i>	31	27	58	42	47	89
<i>Pedestrian/Bicycle (28%)</i>	42	37	79	55	62	117
Person Vehicle Trips (51%)	75	66	141	101	113	214
Vehicle Trips¹	38	33	71	34	37	71
1. Vehicle trips converted from person trips based on 2009 NHTS data.						

Vehicle Trips

Taking into account the non-auto mode share, the proposed daycare is expected to generate an estimated 71 AM peak hour vehicular trips and 71 PM peak hour vehicular trips, as shown on Table 9.

Site Trip Distribution and Assignment

The distribution of new peak hour site trips generated by the proposed redevelopment was based on the location of residential areas surrounding the site and the premise that a significant portion of parents dropping-off and picking-up children will do so on their way to and from work. The anticipated site trip distributions are shown in Table 10.

The anticipated distributions were applied to the trip generation. The resulting site trip assignments are shown on Figure 11.

Table 10
 Site Trip Distributions

Roadway	Direction	AM Peak		PM Peak	
		Inbound	Outbound	Inbound	Outbound
Wisconsin Avenue	To/from North	40%	15%	15%	40%
	To/from South	25%	40%	40%	15%
Massachusetts Avenue	To/from North	30%	10%	10%	30%
	To/from South	10%	30%	30%	10%
37 th Street	To/from South	5%	5%	5%	5%

PROPOSED PARKING

Vehicular Parking

Based on parking requirements prescribed in ZR16, a minimum of six parking spaces are required for the proposed redevelopment. A summary of the parking required and provided is provided in Table 11. As shown in Table 10, the Applicant is not seeking relief from the minimum parking requirements.

Table 11
 Parking Summary for Proposed Daycare

Required Parking	Proposed Parking
$\frac{12,616 \text{ SF}}{1,000 \text{ SF}} \times 0.5$ 0.5 spaces/1,000 SF (with a minimum of 1 space required) $= 12,616/1,000 \times 0.5$ 6 spaces	6 compliant spaces* *Includes 1 ADA space

It is noted that one (1) additional non-code compliant space for an employee will be provided for a total of seven (7) spaces. Two (2) of the spaces are designated as compact.

Bicycle Parking

The proposed redevelopment would also be required to provide long-term and short-term bicycle parking. Long-term bicycle parking is intended for use by employees and must be located on the ground floor or 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 12 below.

Table 12
 Bicycle Parking Summary

Required Parking		Proposed Parking	
Long-term	Short-term	Long-term	Short-term ¹
$\frac{12,616 \text{ SF}}{10,000 \text{ SF}} = 1$ 2 spaces	$\frac{12,616 \text{ SF}}{10,000 \text{ SF}} = 1$ 2 spaces	2 spaces	2 spaces
¹ The exact number and location of short-term bicycle parking spaces will be finalized through the public space process.			

Long-term bicycle parking for the employee use will be located on the first floor of the building.

PROPOSED LOADING

No loading facilities are required under ZR16 for daytime care facilities less than 30,000 SF. Trash service is expected to take place in the parking lot during off hours.

TOTAL FUTURE CONDITIONS

TRAFFIC FORECASTS

Total future traffic forecasts with the proposed redevelopment were determined by combining the background volumes shown on Figure 9 with the site traffic volumes shown on Figure 11 to yield the 2019 total future traffic forecasts shown on Figure 12.

OPERATIONAL ANALYSIS

Capacity Analysis

Capacity analyses were performed at the study intersections using the lane use and traffic control shown on Figure 8, the total future peak hour traffic forecasts shown on Figure 12, and existing DDOT traffic signal timings. The level of service results for the 2019 total future conditions with the proposed redevelopment are included in Appendix J and summarized in Table 4.

By comparing total future levels of service (with the proposed redevelopment) to background levels of service (without the proposed redevelopment), 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 LOS E or LOS F or
- Increase in approach delay by more than five seconds when compared to background conditions for intersection approaches operating at an overall LOS E or LOS F under background conditions.

As shown on Table 4, under total future conditions with the proposed redevelopment, one study intersection is projected to experience minor increases in delay of more than five seconds. Specifically, the impact is as follows:

- Massachusetts Avenue/Observatory Circle NW – The eastbound approach operates at LOS F during the AM and PM peak hours under background conditions. With the addition of site trips, the delay during both peak hours is projected to increase by more than five seconds.

Each approach at the future site driveway operates at LOS B or better during the AM and PM peak hours.

Queue Analysis

A queue analysis was conducted for 2019 total future conditions. The estimated queue lengths were calculated using HCM methodologies, as reported by Synchro. The results are summarized in Table 5 and queue reports are provided in Appendix J.

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 an increase in the queue greater than 150 feet when compared to background conditions. As shown in Table 5, the following queue would increase by more than 150 feet within the subject study area:

- Massachusetts Avenue/Observatory Circle NW – The eastbound approach queue is expected to increase by 160 feet during the PM peak hour but would be contained within available storage.

IMPROVEMENT ANALYSIS

In order to mitigate the impact of the proposed redevelopment, as outlined above, improvements were evaluated to determine their effectiveness in offsetting the impact of the proposed redevelopment. Improvements considered at the impacted intersection are discussed below.

Massachusetts Avenue/Observatory Circle NW

Impacts at the Massachusetts Avenue/Observatory Circle NW intersection are expected to be minor and are limited to the eastbound approach during the AM and PM peak hours. The eastbound approach of the intersection operates beyond capacity (LOS “F”) during the peak hours under existing conditions due to the high through volumes on Massachusetts Avenue. Additionally, a significant volume of traffic (181 vehicles) turns left, which currently is a restricted movement during peak periods, from Massachusetts Avenue onto Observatory Circle.

As shown in Table 13, if DDOT desires, separate left and right turn lanes on Observatory Circle NW would relieve a delay for the eastbound right turn movement. This improvement would bring the intersection below levels under background conditions without the proposed project. Further, the turn lane would provide a storage area for the vehicles turning left onto Massachusetts Avenue.

In order to accommodate the separate left turn lane and taper, two (2) to three (3) Residential Permit Parking (RPP) spaces would need to be removed from the north side of Observatory Circle NW. It was assumed for these analyses that the turn lane would have a total length of 50 feet plus a 50-foot taper.

The benefit of the additional capacity should be weighed against the associated loss of parking, though it is noted that the reconstruction/reconfiguration of the existing curb cut to a narrower

width will allow for the addition of two (2) to three (3) parking spaces. As such, no net loss in on-street parking would be realized.

Table 13
 Level of Service Summary
 With Improvements

Approach	Background Conditions		Total Future Conditions (No Improvements)		Total Future Conditions (Additional Turn Lane)	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
4. Massachusetts Avenue/Observatory Circle NW						
EB	F [202.6]	F [52.3]	F [351.1]	F [197.2]	F [119.3]	F [55.2]
NB	A	A	A	A	A	A
SB	A	A	A	A	A	A

As shown in Table 14, the queues at the Massachusetts Avenue/Observatory Circle NW intersection are projected to improve significantly compared to background and total future conditions with a single eastbound lane.

Table 14
 Synchro Queue Summary[‡] With Improvements

Approach	Available Storage [‡]	Background Conditions		Total Future Conditions (No Improvements)		Total Future Conditions (with Improvements)	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
4. Massachusetts Avenue/Observatory Circle NW							
EBL	100	252	137	338	297	194	192
EBR	635					0	0
NBL	70	19	27	22	29	22	29

[‡] All storage lengths and queues are given in feet.

Details of the improvement analyses conducted for the Massachusetts Avenue/Observatory Circle NW intersection can be found in Appendix K.

CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations of this study are as follows:

1. The proposed project will renovate the existing Local 99 I.U.O.E Union building located at 2461 Wisconsin Avenue and improve the surrounding community by fulfilling an existing need for a state of the art daytime care facility.
2. The subject site is well served by a variety of Metrobus routes and a connected grid of pedestrian and bicycle facilities.
3. The project will include a daycare facility with a capacity of 128 children served by 26 staff members. The proposed redevelopment is anticipated to generate 71 AM peak hour vehicle trips and 71 PM peak hour vehicle trips upon completion. Non-auto trips (including transit, walk, and bike) are expected to account for 68 AM peak hour trips and 69 PM peak hour trips, or 49 percent of the total trips.
4. Vehicular access to the site parking and trash facilities is proposed via a single, redesigned curb cut on Calvert Street NW to bring the existing non-conforming driveway into compliance with current DDOT standards. The main pedestrian access is planned just east of the intersection of Wisconsin Avenue/Calvert Street NW.
5. Six (6) code compliant surface parking spaces are proposed to serve the daycare facility, including one ADA stall. One (1) additional non-code compliant parking space is proposed for employee use. The proposed parking will meet the minimum parking requirements of ZR16.
6. The Applicant is working with DDOT to designate a number of spaces on the south side of Calvert Street as 15-minute parking from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM (the daycare's drop-off/pick-up times).
7. In order to mitigate the impact of the subject application, the eastbound approach of Observatory Circle at Massachusetts Avenue could be restriped to provide separate eastbound left and right turn lanes, subject to DDOT direction. Such an improvement would require the removal of two (2) to three (3) on-street RPP (unmetered) parking spaces on the north side of Observatory Circle NW, dependent on the ultimate design.
8. ANC 3B has provided their unanimous support of the proposed project to fill a huge need in a neighborhood that lacks Daytime Care facilities. ANC 3C has also expressed their support for the proposed project emphasizing the desperate need for this amenity.

FIGURES

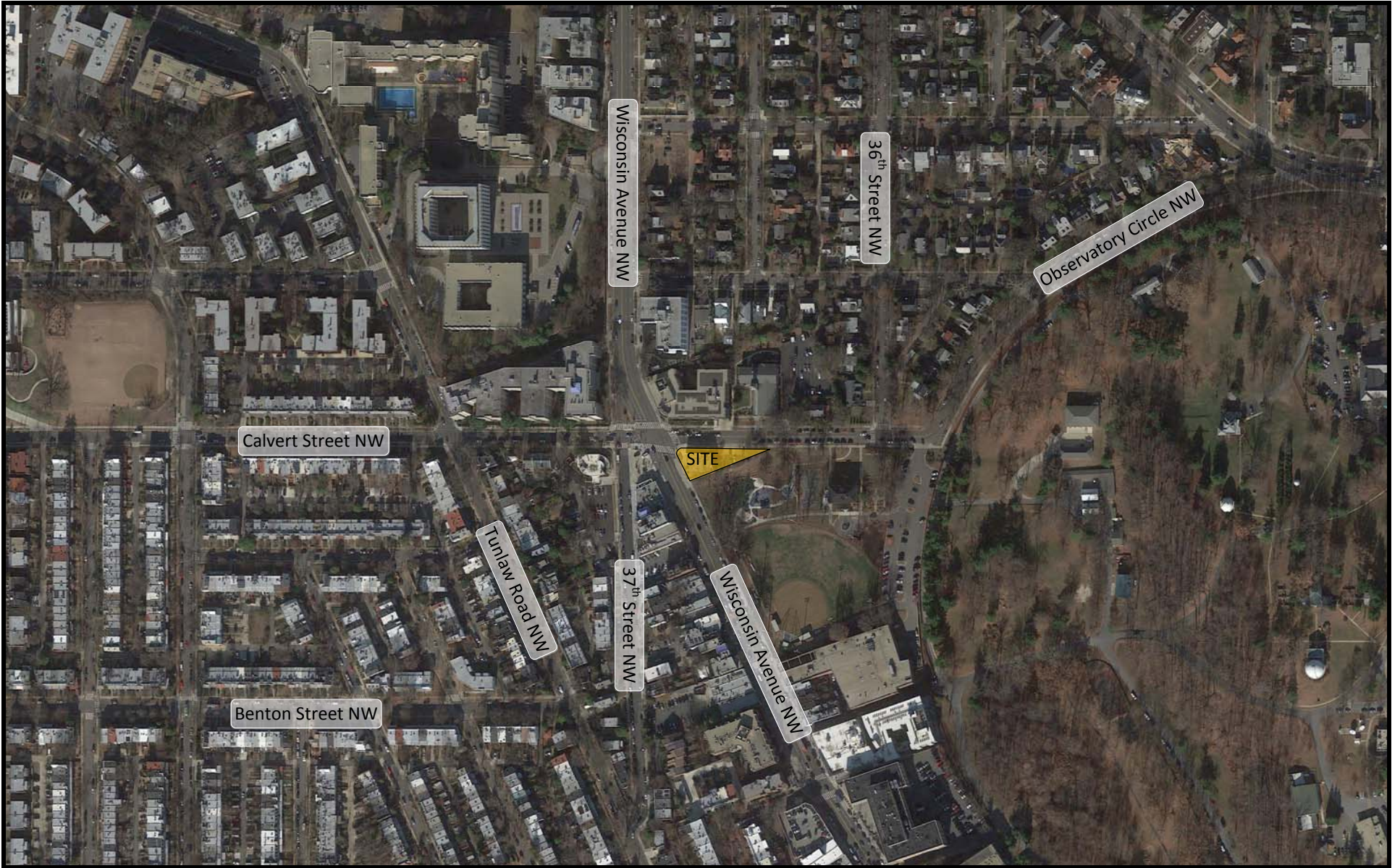


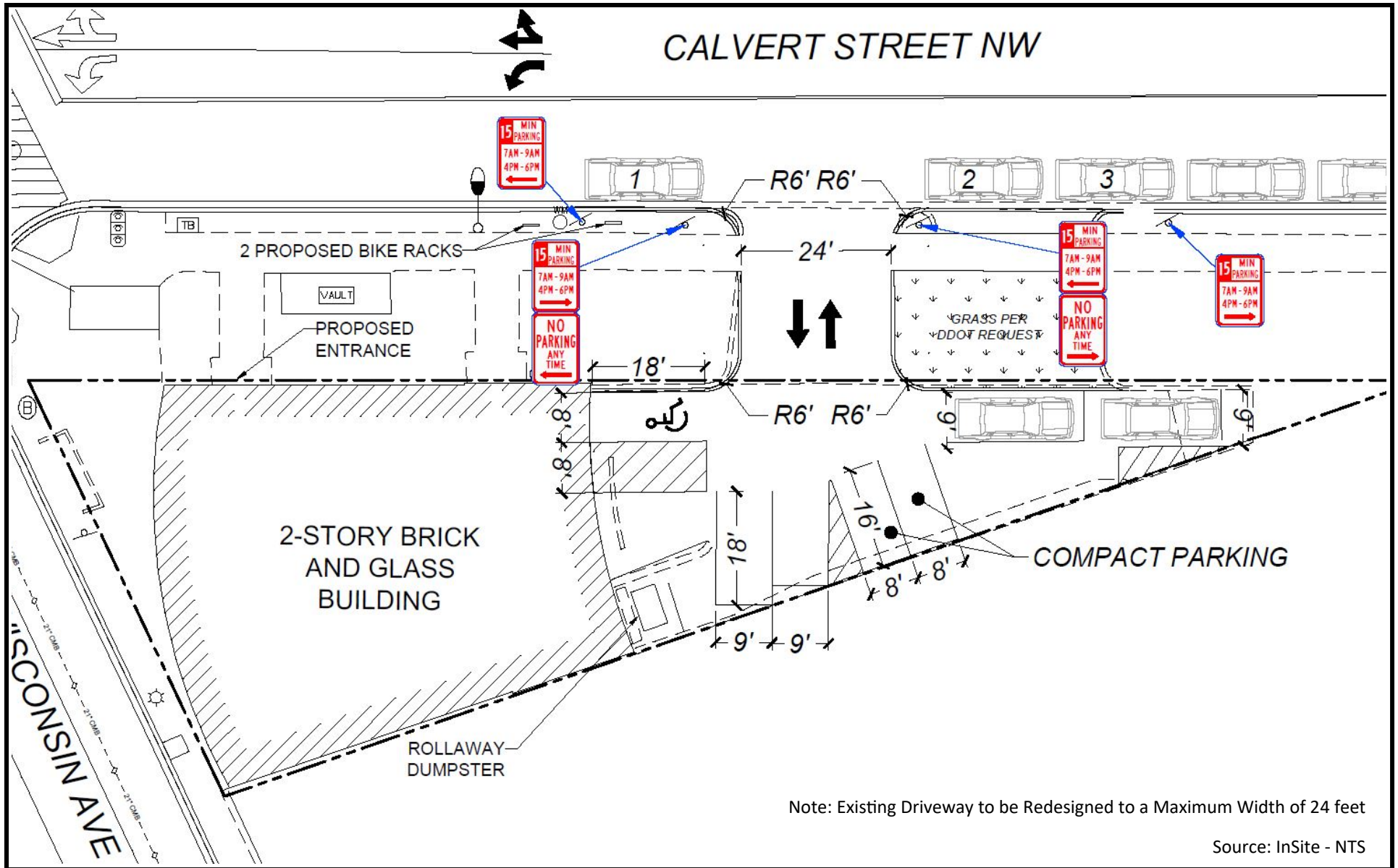
Figure 1
Site Location



NORTH

**2461 Wisonsin Avenue NW
Washington, DC**





Note: Existing Driveway to be Redesigned to a Maximum Width of 24 feet

Source: InSite - NTS

Figure 2
Site Plan



NORTH

2461 Wisconsin Avenue NW
Washington, DC



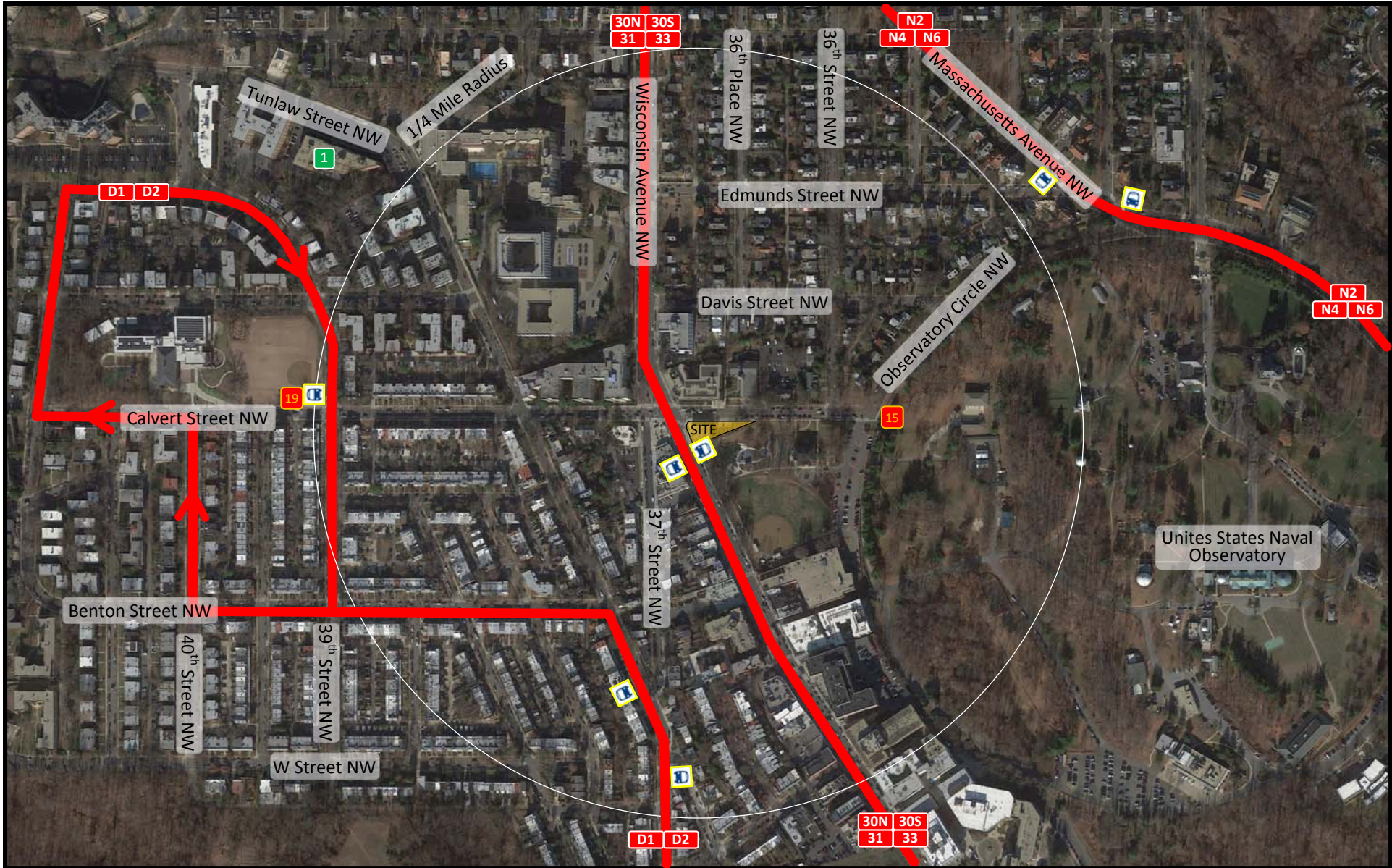


Figure 3
Multi-modal Transportation Options

- # Zipcar Locations (Number of Zipcars)
- # Capital Bikeshare Locations (Number of Docks)
- XX Metrobus Route
- Bus Stop



NORTH

2461 Wisconsin Avenue NW
Washington, DC



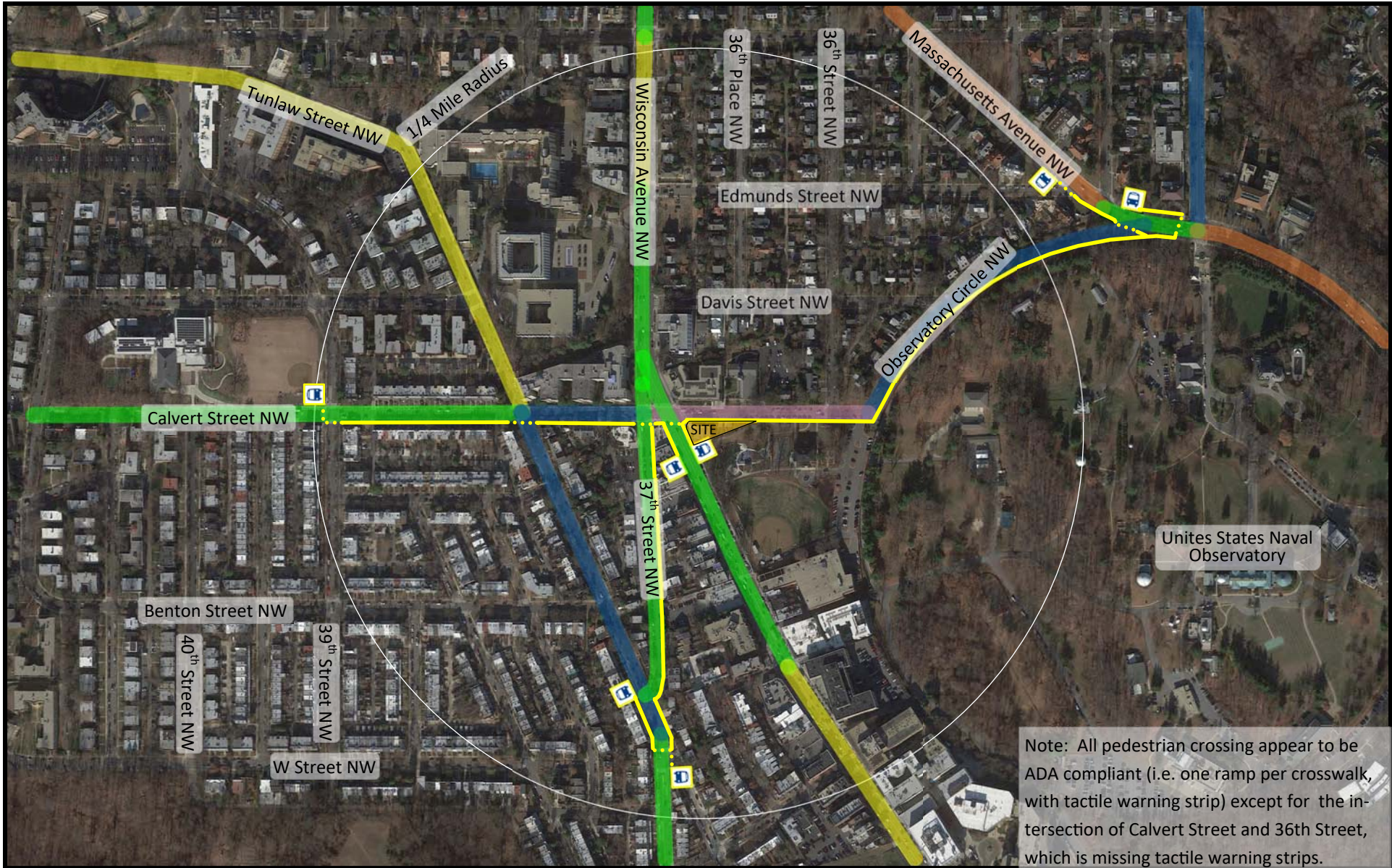







Figure 4
One Quarter Mile Walk Shed

Likely Walking Routes to/from Bus Stops/Metrorail Stations

-  Bus Stop
-  Sidewalk
-  Crosswalk
-  High Pedestrian Activity and Deficiency
-  Low Pedestrian Activity and Deficiency

Note: All pedestrian crossing appear to be ADA compliant (i.e. one ramp per crosswalk, with tactile warning strip) except for the intersection of Calvert Street and 36th Street, which is missing tactile warning strips.



NORTH

**2461 Wisconsin Avenue NW
Washington, DC**





Figure 5
One Half Mile Bike Shed



NORTH

2461 Wisconsin Avenue NW
Washington, DC



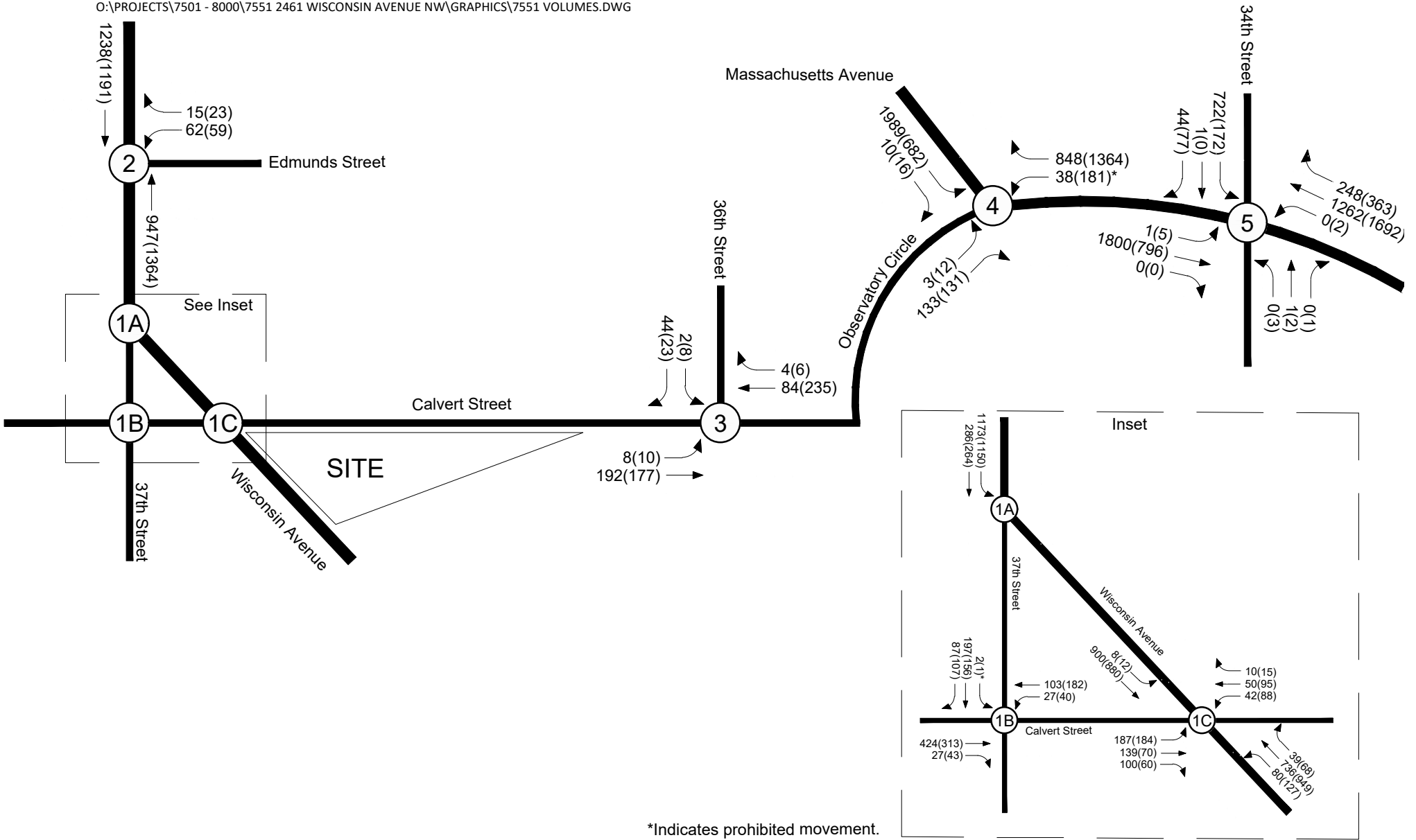


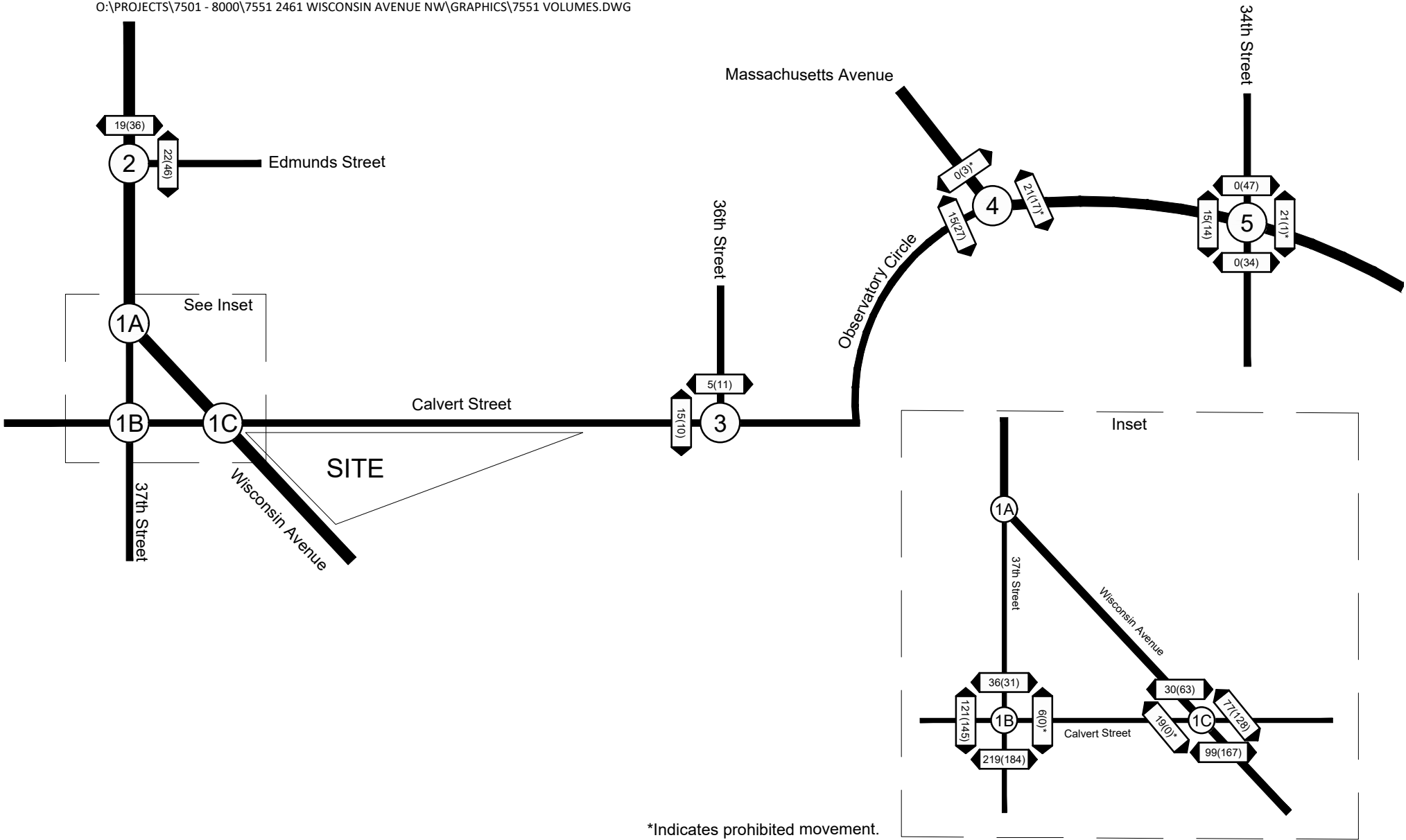
Figure 6
Existing Peak Hour Traffic Volumes

AM PEAK HOUR
PM PEAK HOUR
000(000)



2461 Wisconsin Avenue NW
Washington, DC





*Indicates prohibited movement.

Figure 7
Existing Pedestrian Volumes

AM PEAK HOUR
PM PEAK HOUR
000(000)



2461 Wisconsin Avenue NW
Washington, DC



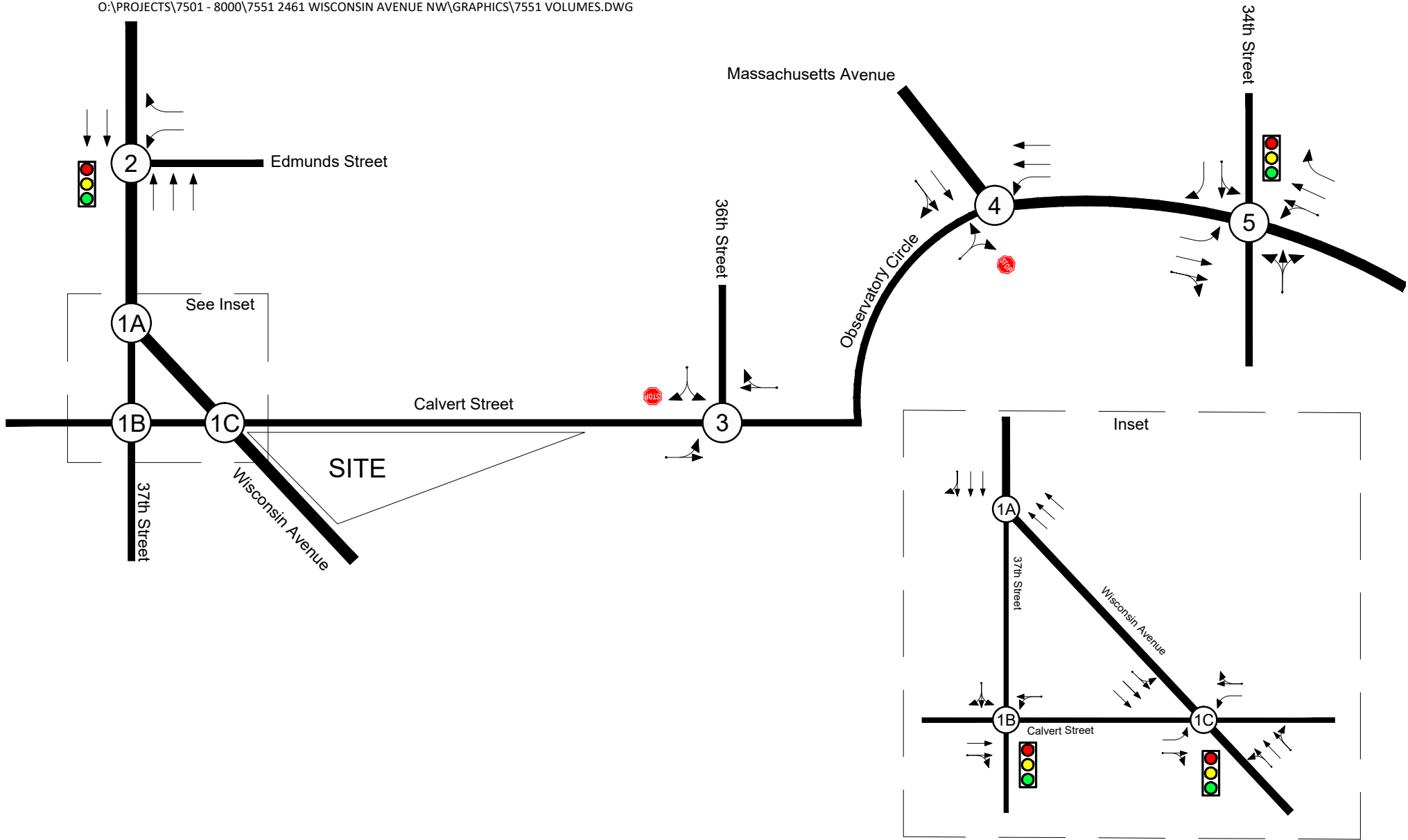


Figure 8
Existing Lane Use and Traffic Controls

- ← Represents One Travel Lane
- 🚦 Signalized Intersection
- 🛑 Stop Sign



2461 Wisconsin Avenue NW
Washington, DC



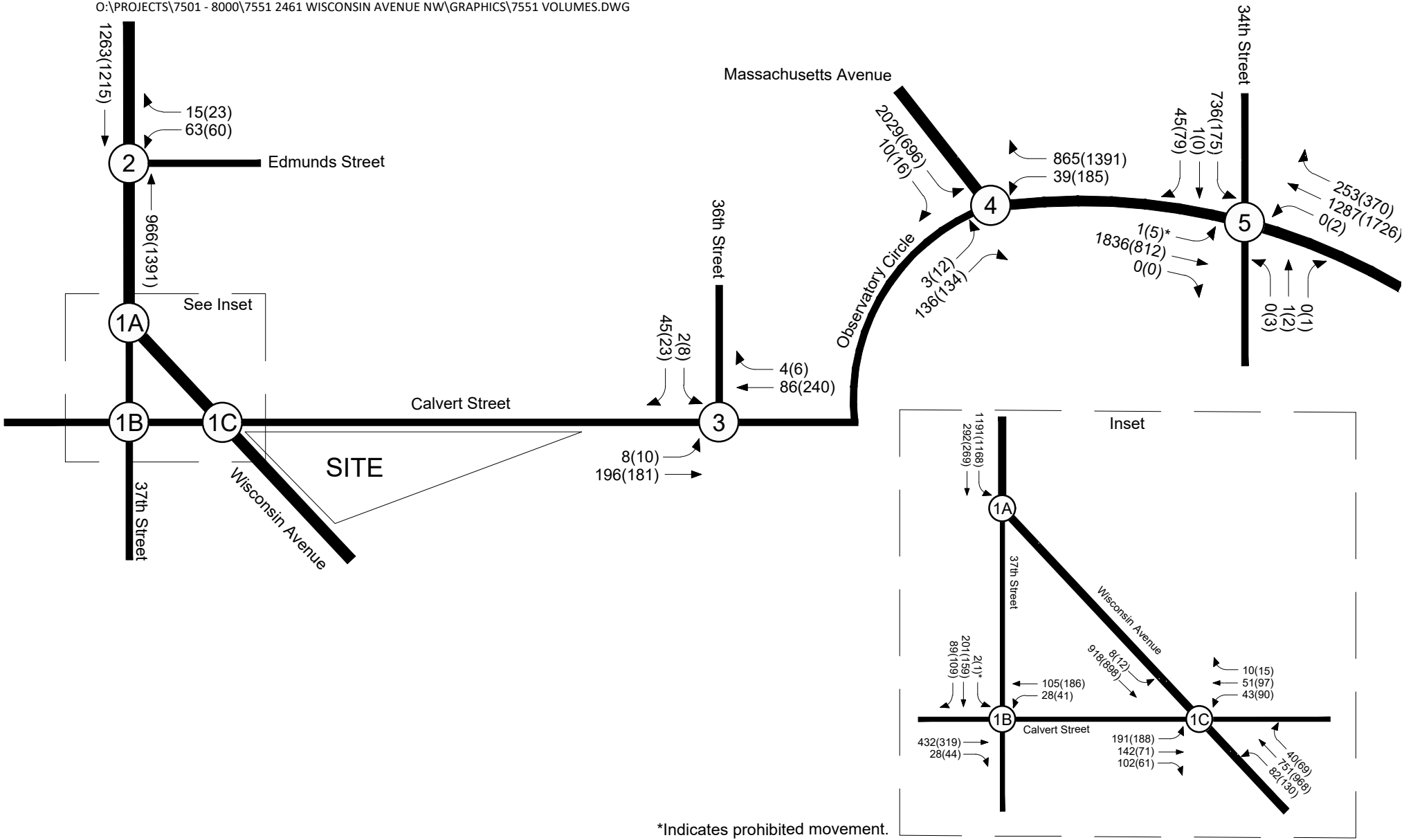


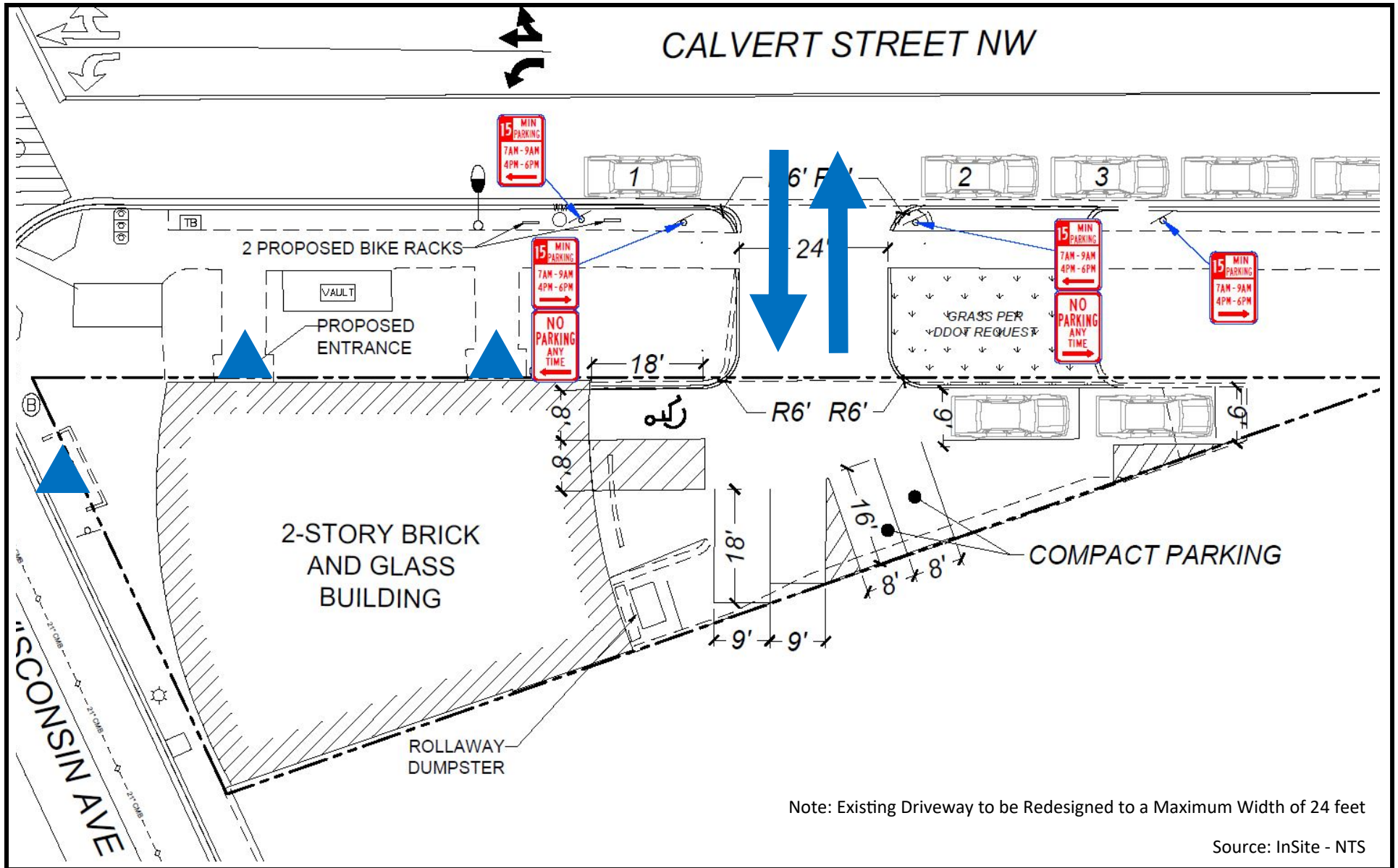
Figure 9
 2019 Background Peak Hour Traffic Volumes

— AM PEAK HOUR
 - - - PM PEAK HOUR
 000(000)



2461 Wisconsin Avenue NW
 Washington, DC

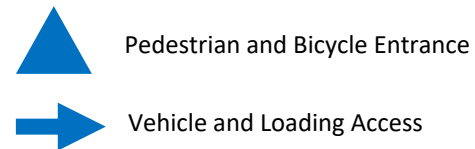




Note: Existing Driveway to be Redesigned to a Maximum Width of 24 feet

Source: InSite - NTS

Figure 10
 Vehicular, Pedestrian, and Bicycle Circulation



2461 Wisconsin Avenue NW
 Washington, DC



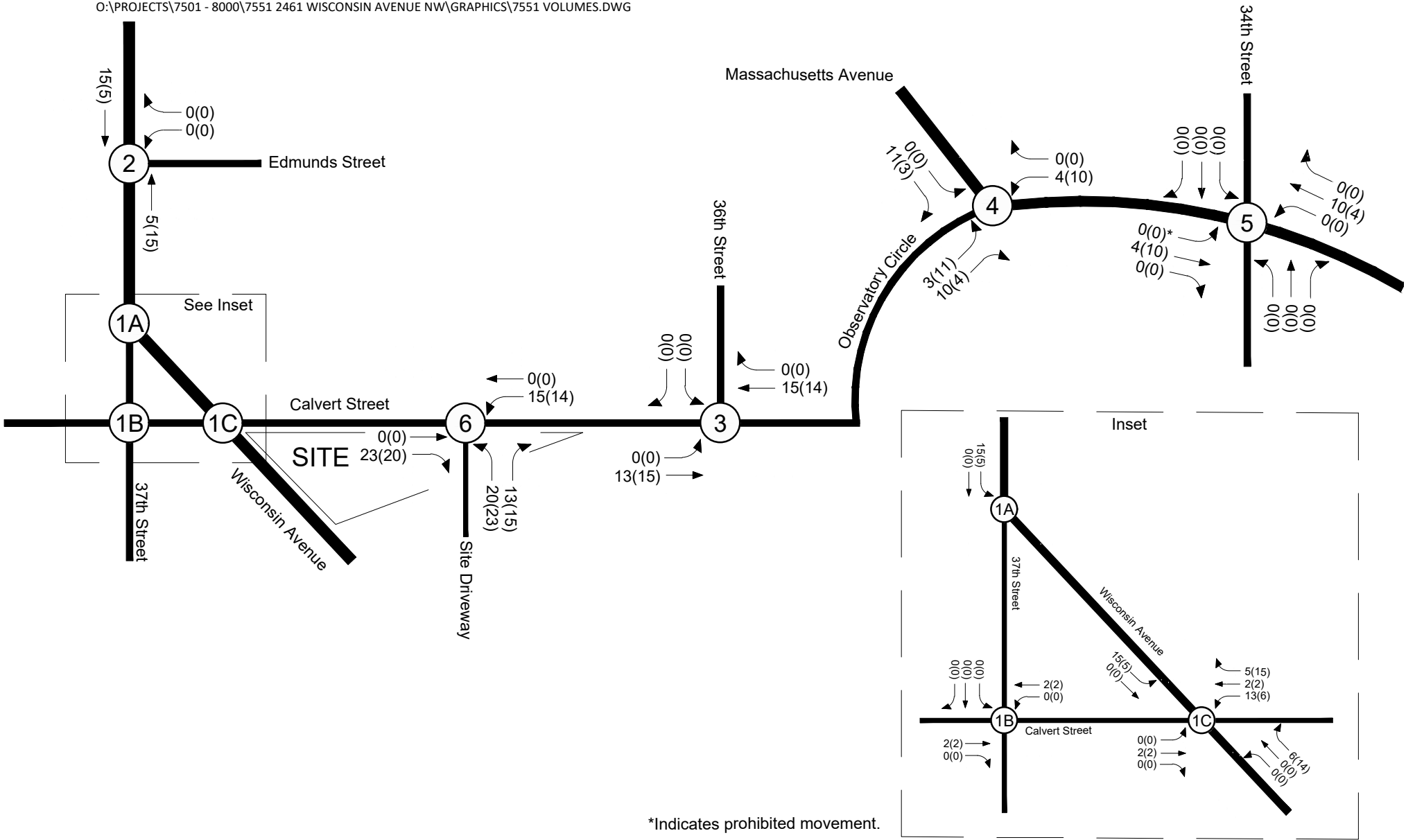


Figure 11
Site Trips

AM PEAK HOUR
PM PEAK HOUR
000(000)



2461 Wisconsin Avenue NW
Washington, DC



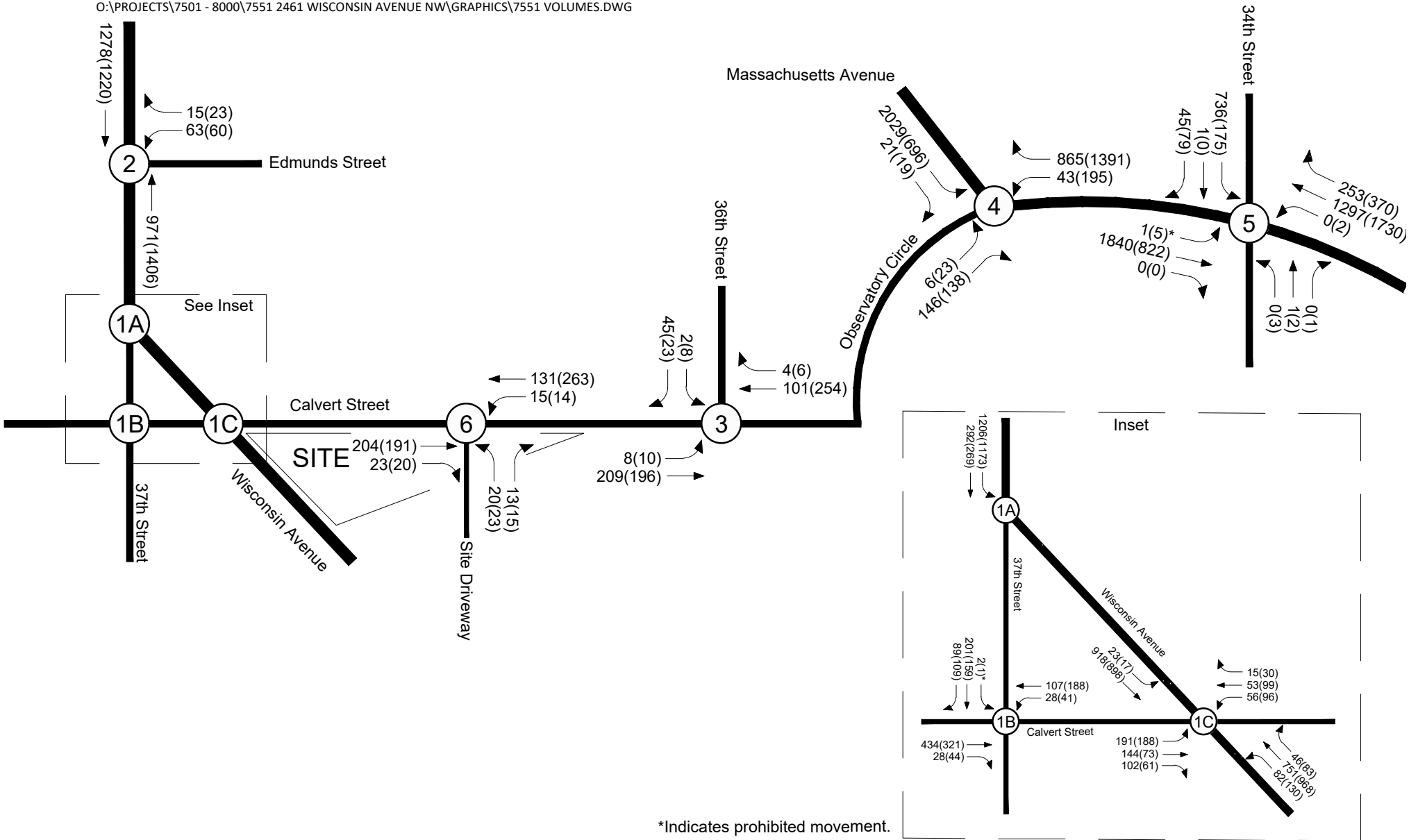


Figure 12
Total Future Peak Hour Traffic Volumes

AM PEAK HOUR
PM PEAK HOUR
000(000)



2461 Wisconsin Avenue NW
Washington, DC

