

IL PALAZZO

2700 16TH STREET, NW, WASHINGTON, DC 20009

TRANSPORTATION IMPACT STUDY REPORT

MAY 19TH, 2011



PREPARED BY:



WASHINGTON DC, ROCKVILLE, BALTIMORE



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INTRODUCTION

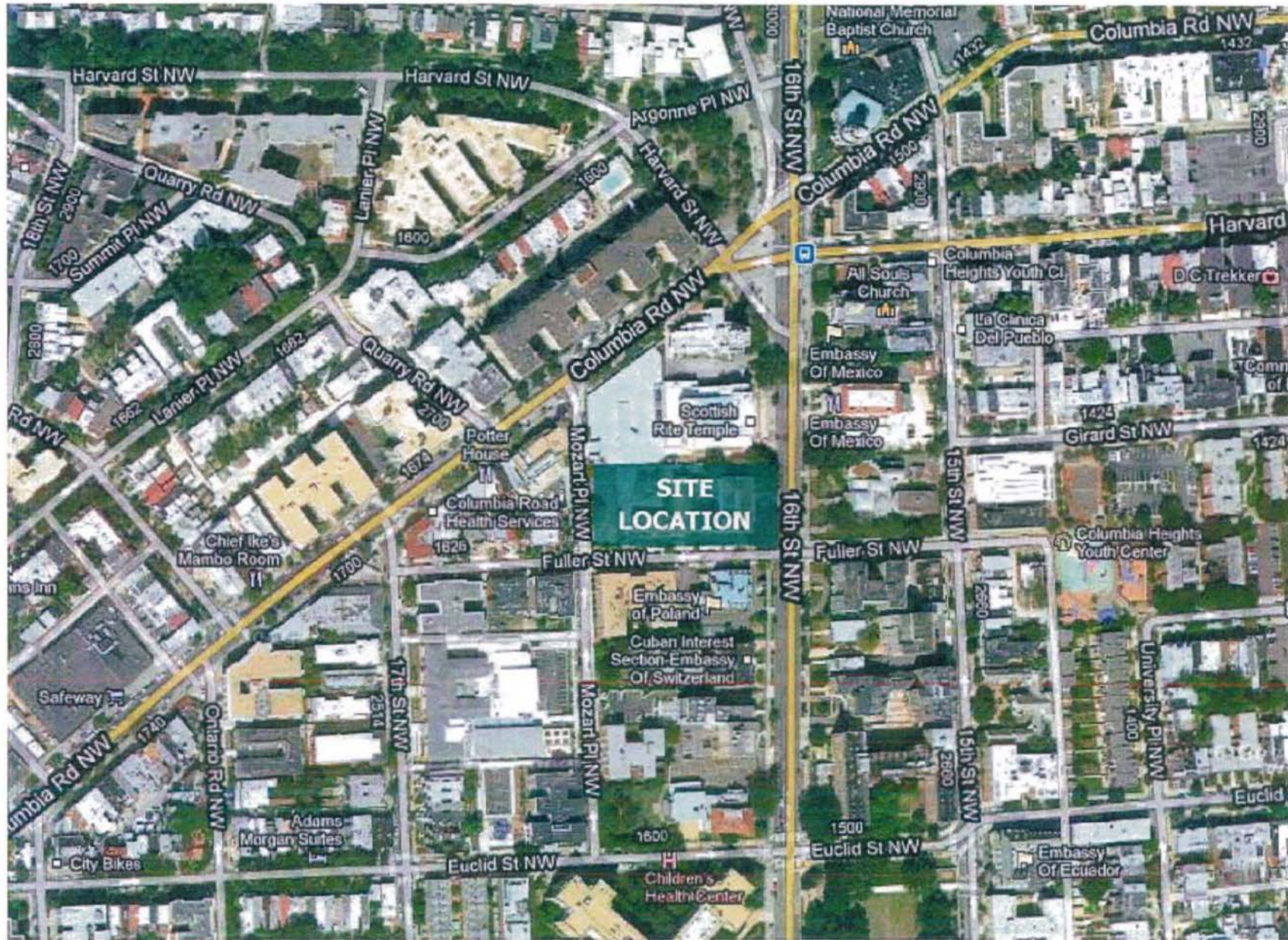
This report presents the findings of the transportation impacts analyses conducted in support of the Planned Unit Development (PUD) submission for the proposed Il Palazzo development, in northwest Washington, D.C. The site is located on Square 2578, directly south of the Scottish Rite Temple, and is bounded by 16th Street to the east, Fuller Street to the south, and Mozart Place to the west, as shown on the site location diagram (Figure 1). The western half of the site is zoned as R-5-B and the eastern half of the site is zoned as R-5-D. The applicant is proposing to rezone the entirety of the property to R-5-D.

The site is currently occupied by an existing historic structure and a surface parking lot to the west of the historic structure. A vehicular access point serves the site via Fuller Street, as well as via a existing entrance/exit driveway along 16th Street.

The existing historic structure is planned to remain on-site, while the parking lot will be re-developed into a new residential tower with underground parking. The residential tower is planned to be eight (8) storeys high, in addition to an English basement. A maximum total of one-hundred and thirty-five (135) residential units are planned to be provided between the new residential tower and the existing historic structure. The underground garage will provide approximately 60 to 90 parking spaces for the residents. Ingress to the parking garage will be provided via Fuller Street (using the existing curb cut for the site) and egress from the parking garage will be provided via Mozart Place. The curb cut for the egress is planned to be located just south of the curb cut for the trash removal for the Scottish Rite Temple.

A loading area will be provided just south of the exit ramp from the parking garage along Mozart Place. This loading area is planned to be utilized for trash removal, as well as possible local grocery deliveries, FedEx and UPS deliveries, etc.

The proposed site plan is shown on Figure 2.



IL PALAZZO PUD - TRANSPORTATION IMPACT STUDY

FIGURE I
SITE LOCATION

SCALE	CONTOUR INTERVAL	A.M.T. FILE No.
	N/A	104-179.009T
DATE	TAX MAP No.	SHEET
APRIL 2011	N/A	

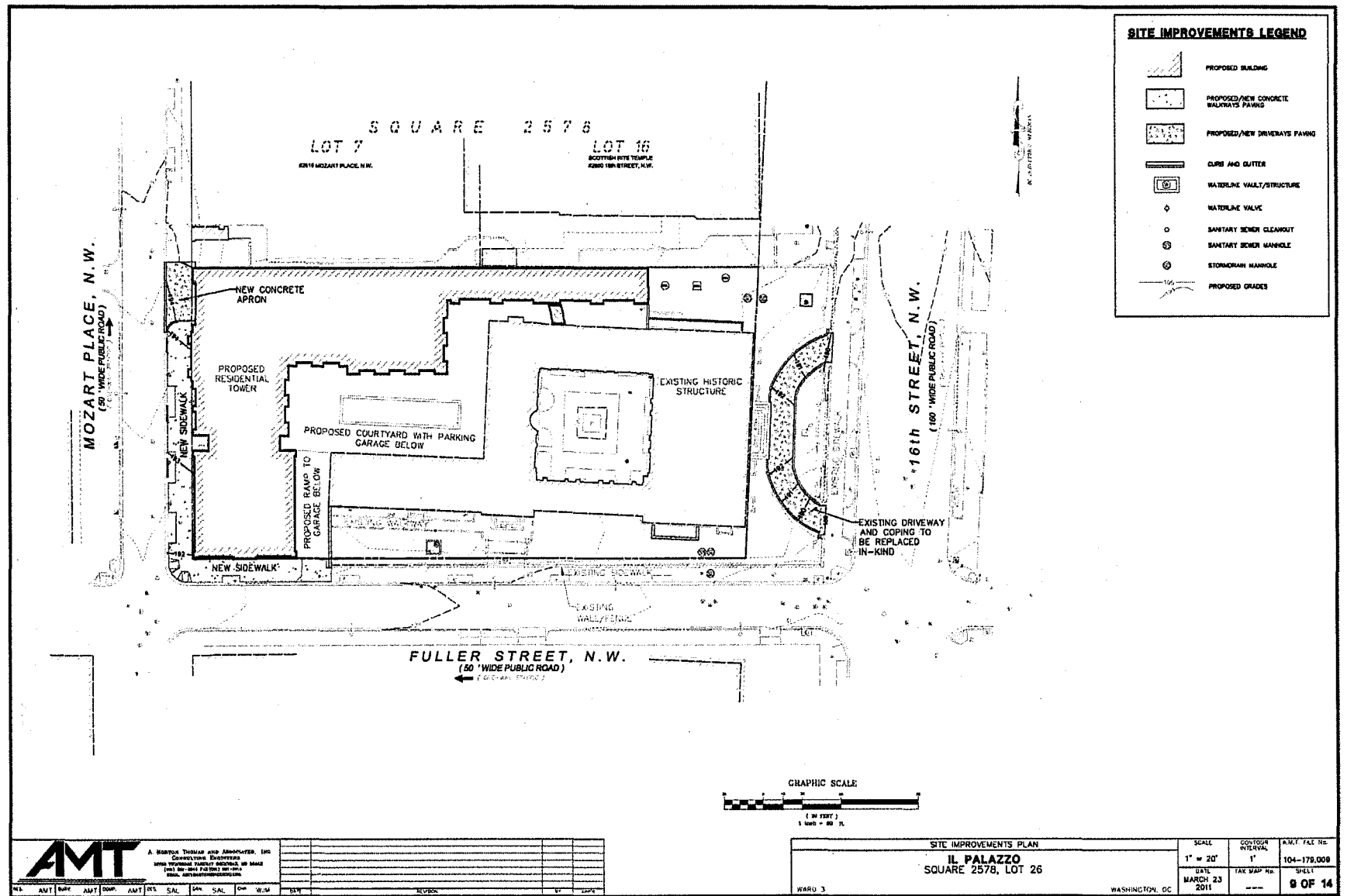
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DES.	AMT	SURV.	AMT	CONS.	AMT	DES.	AMT	DRA.	ACAD	CHK.	AMT	DATE	REVISION	BY	APP.
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EXISTING CONDITIONS

Existing Road Network

Regional access to the site is provided via 16th Street, Columbia Road, and Harvard Street, while local access is provided via Fuller Street and Mozart Place.

16th Street is generally a five-lane north/south road (two-lanes northbound and three-lanes southbound) providing regional access to residential neighborhoods, retail/local businesses, offices, embassies, schools, amongst many other land uses. The posted speed limit is 30 miles per hour (mph) during all times of the day. Parking is generally prohibited along both sides of 16th Street throughout the vicinity of the site, except along the eastern side just north of Columbia Road. No separate bicycle lanes are provided. The intersections of 16th Street with Mount Pleasant Street, Columbia Road, Harvard Street, and Fuller Street are signal-controlled. The intersection of 16th Street with Harvard Street (south) is stop-controlled.



Columbia Road is a two-lane east/west street west of 16th Street and westbound-only street east of 16th Street, providing regional access to local businesses and residential neighborhoods. The posted speed limit is 25 mph during all times of the day. Marked bicycle lanes are provided in both travel directions along Columbia Road just west of its intersection with Mozart Place. In addition, a bus-only lane is provided eastbound just west of Mozart Place. Parking is generally allowed on both sides of the street during all times of the day (two-hour limit in Zone I; 7:00AM to 8:30PM; Monday-Friday; Zone I Permit Holders Excepted), except on the southern side of the street between Mozart Place and 16th Street where parking is prohibited during certain times of the day on school days (No Parking School Days; 7AM – 9AM and 4PM-6:45PM). The intersection of Columbia Road and Harvard Street is signal-controlled, while the intersection



with Mozart Place is stop-controlled.

Harvard Street is generally a two-lanes east/west street eastbound of 16th Street with respective turn lanes at each major intersection. Parking is generally prohibited in the vicinity of 16th Street at Columbia Road, but is allowed on both sides of the road just north of Columbia Road and east of 16th Street (two-hour limit in Zone I; 7:00AM to 8:30PM; Monday-Friday; Zone I Permit Holders Excepted). The posted speed limit was noted to be 25 mph during all times of the day. No separate bicycle lanes are provided.



Fuller Street is a one-way one-lane westbound street providing local access to residential areas and embassies between 16th Street and Mozart Place. The posted speed limit along Fuller Street is 15 mph during the school peak hours and was noted to be 25 mph during all other times. Parking is generally



allowed on both sides of the street during all times of the day (two-hour limit in Zone I; 7:00AM to 8:30PM; Monday-Friday; Zone I Permit Holders Excepted), except on Mondays from 7AM to 7PM for street cleaning. Parking is restricted on the south side of the street near the 16th Street intersection as two to three parking spaces are reserved for the Embassy of the Republic of Poland (No Parking; 7AM-6:30PM; Monday to Friday). No separate bicycle lanes are provided. The intersection of Fuller Street and Mozart Place is stop-controlled.

Mozart Place is a one-way one-lane northbound street providing local access to local businesses and the Scottish Rite Temple between Fuller Street and Columbia Road. The posted speed limit along Mozart Place was noted to be 25 mph at all times. Parking is allowed on both sides of the street during all times of the day (two-hour limit in Zone I; 7:00AM to 8:30PM; Monday-Friday; Zone I Permit Holders Excepted), except on Mondays from 7AM to 7PM for street cleaning. No separate bicycle lanes are provided.



The existing peak hour lane use and traffic control in the vicinity of the site is shown on Figure 3.

Existing Site Usage

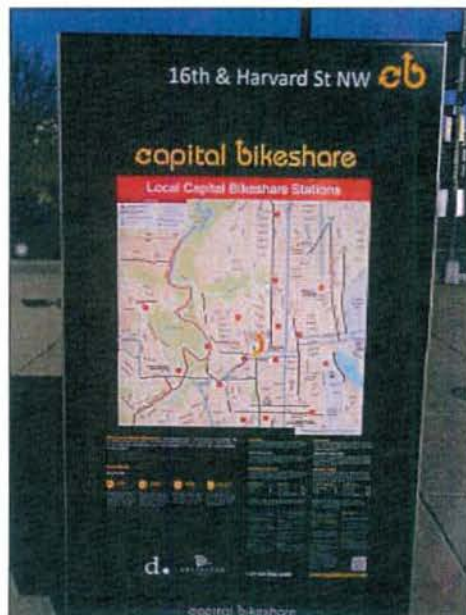
As mentioned in the introduction, the site is currently occupied by an existing historic structure and a surface parking lot to the west of the historic structure. A vehicular access point serves the site via Fuller Street, as well as via a existing entrance/exit driveway along 16th Street.

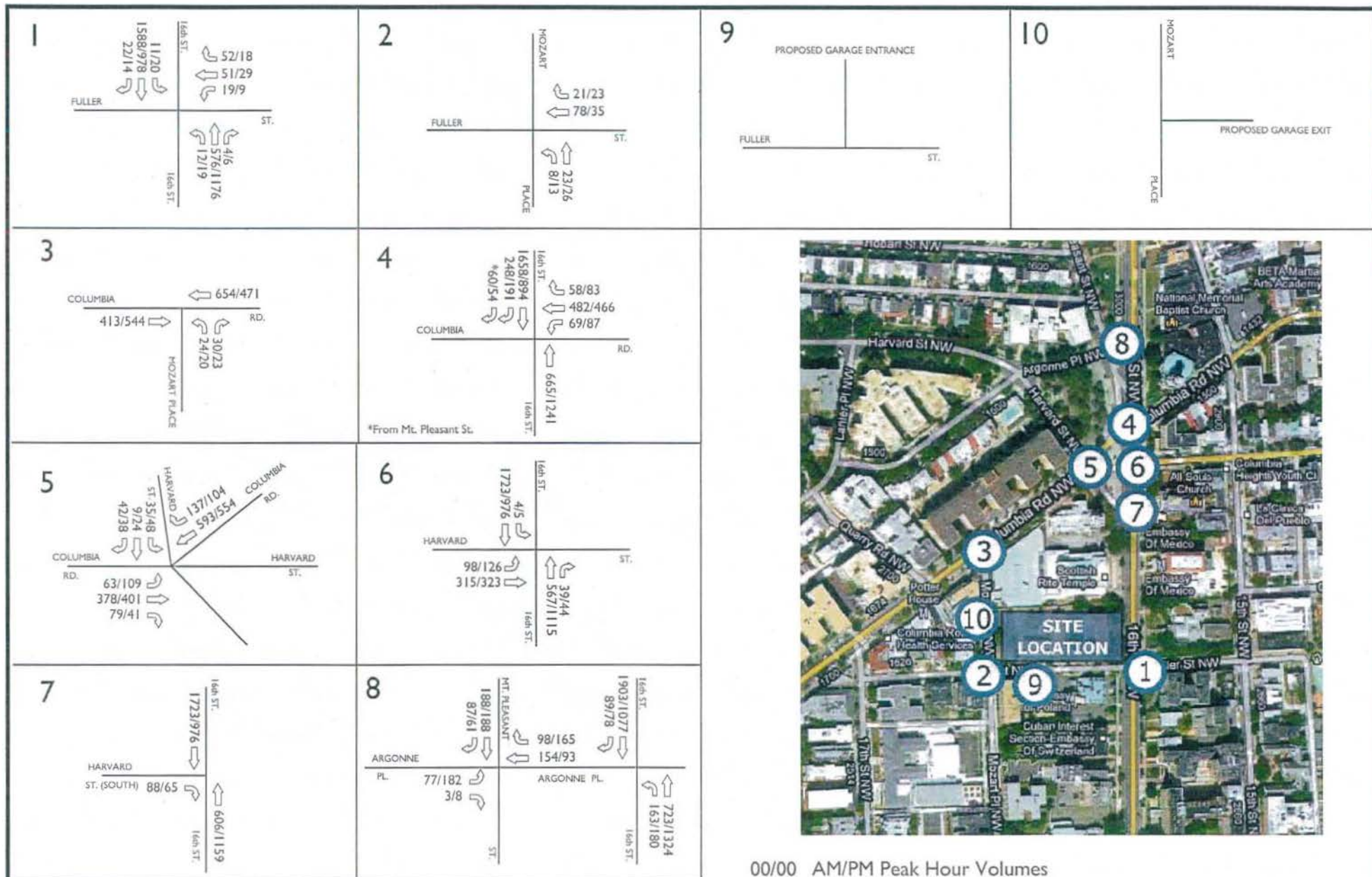
- Field observations also noted that ADA compliance is not provided everywhere in the vicinity of the site. For example, sidewalks to cross Columbia Road at Mozart Place are not ADA compliant.
- Sufficient WALK and FLASHING DON'T WALK time was observed to be provided for all pedestrian movements, even at the heavier movements along 16th Street, Columbia Road, and Harvard Street.
- The majority of the pedestrian crossings occur at the intersections of 16th Street, Harvard Street and Columbia Road during both the AM and PM peak hours.

Existing Bicycle Counts and Facilities

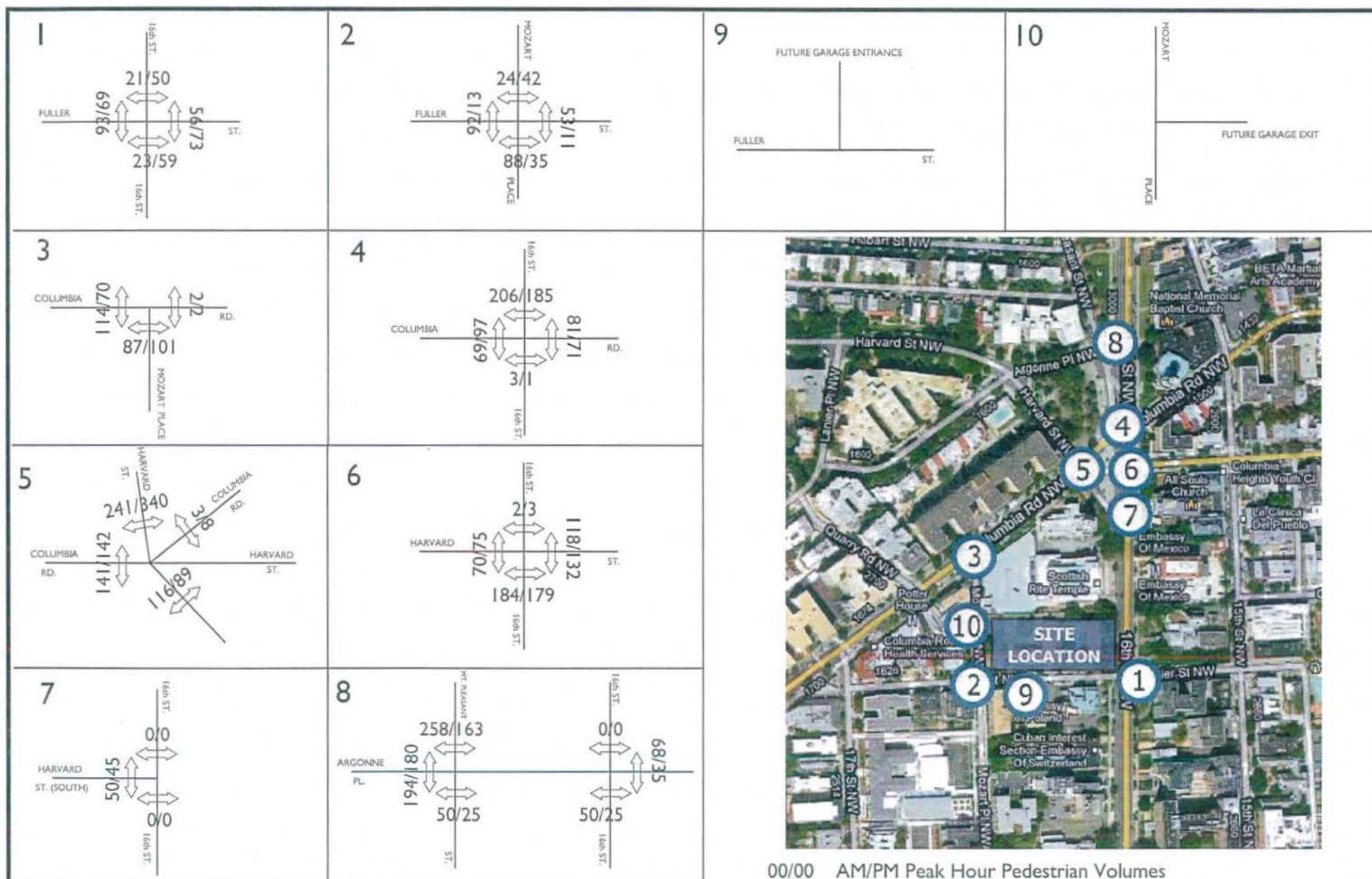
Bicycle peak hour counts were also collected at the key intersections and are shown on Figure 6. Field observations indicated the following:

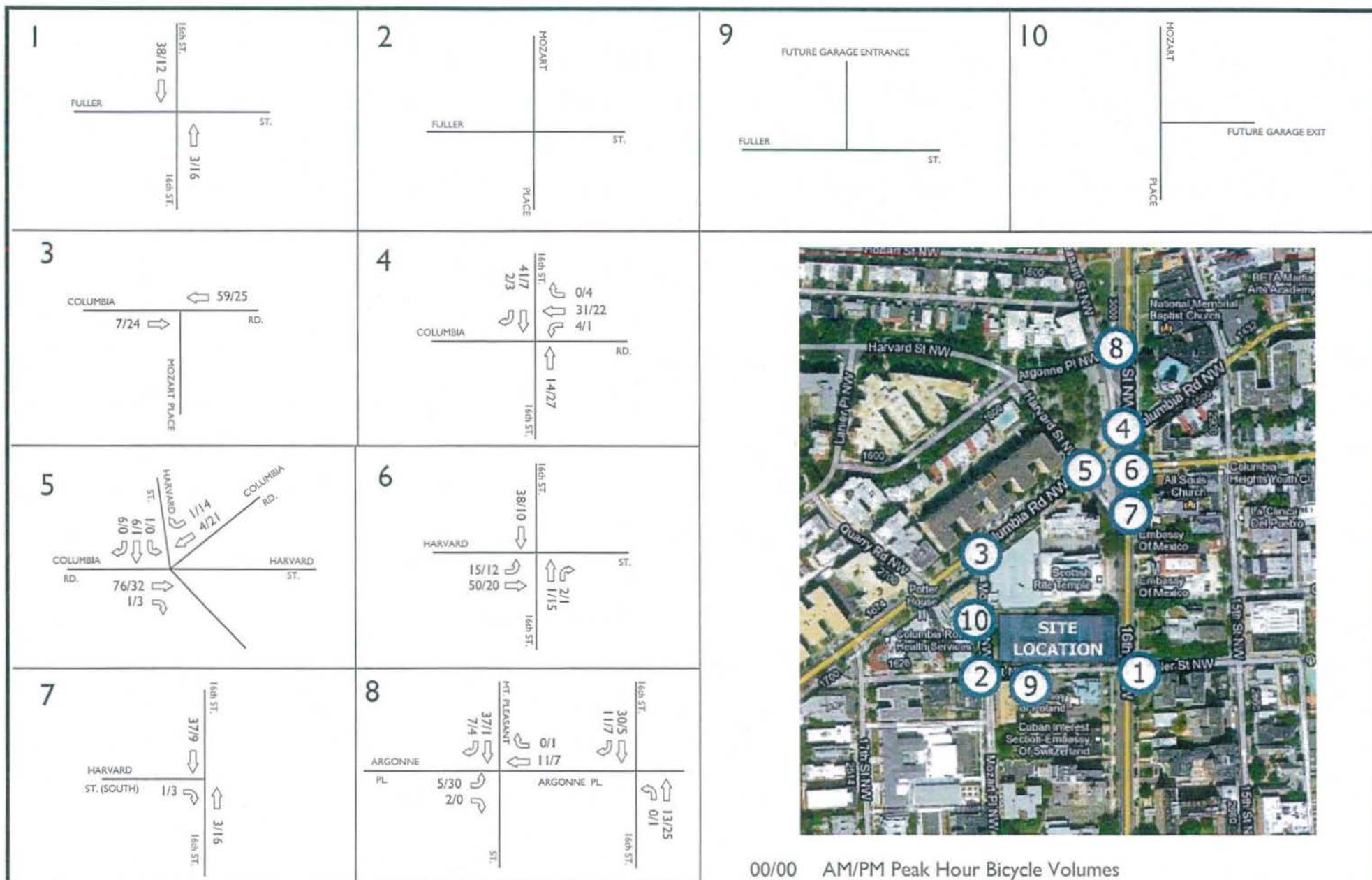
- Bicyclists were observed to travel predominantly along the regional roadways (16th Street, Columbia Road, Harvard Street, and Mount Pleasant), while no bicycles were observed to travel along Fuller Street and Mozart Place during the peak count hours.
- A Capital BikeShare station is currently located at the intersection of 16th Street and Harvard Street (south) and provides the general public with a total of fifteen (15) bikes for rent by the hour or the day. At the time of our counts, the majority of the bicycles were rented by various users, so it is correct to state that bicycle usage is very high in the vicinity of the proposed site.





00/00 AM/PM Peak Hour Volumes





		ENGINEERS - PLANNERS - SURVEYORS - LANDSCAPE ARCHITECTS 2 EAST READ STREET, BALTIMORE, MD 21202 P(410) 752-4552 F(410) 752-4553		IL PALAZZO PUD - TRANSPORTATION IMPACT STUDY FIGURE 6 EXISTING PEAK HOUR BICYCLE VOLUMES NW WASHINGTON DC		SCALE	CONTOUR INTERVAL	A.M.T. FILE No.
						DATE	TAX MAP No.	SHEET
REL. AMT	SURV. AMT	CONR. AMT	DEL. AMT	DRN. ACAD	CH. AMT	DATE	APRIL 2011	N/A

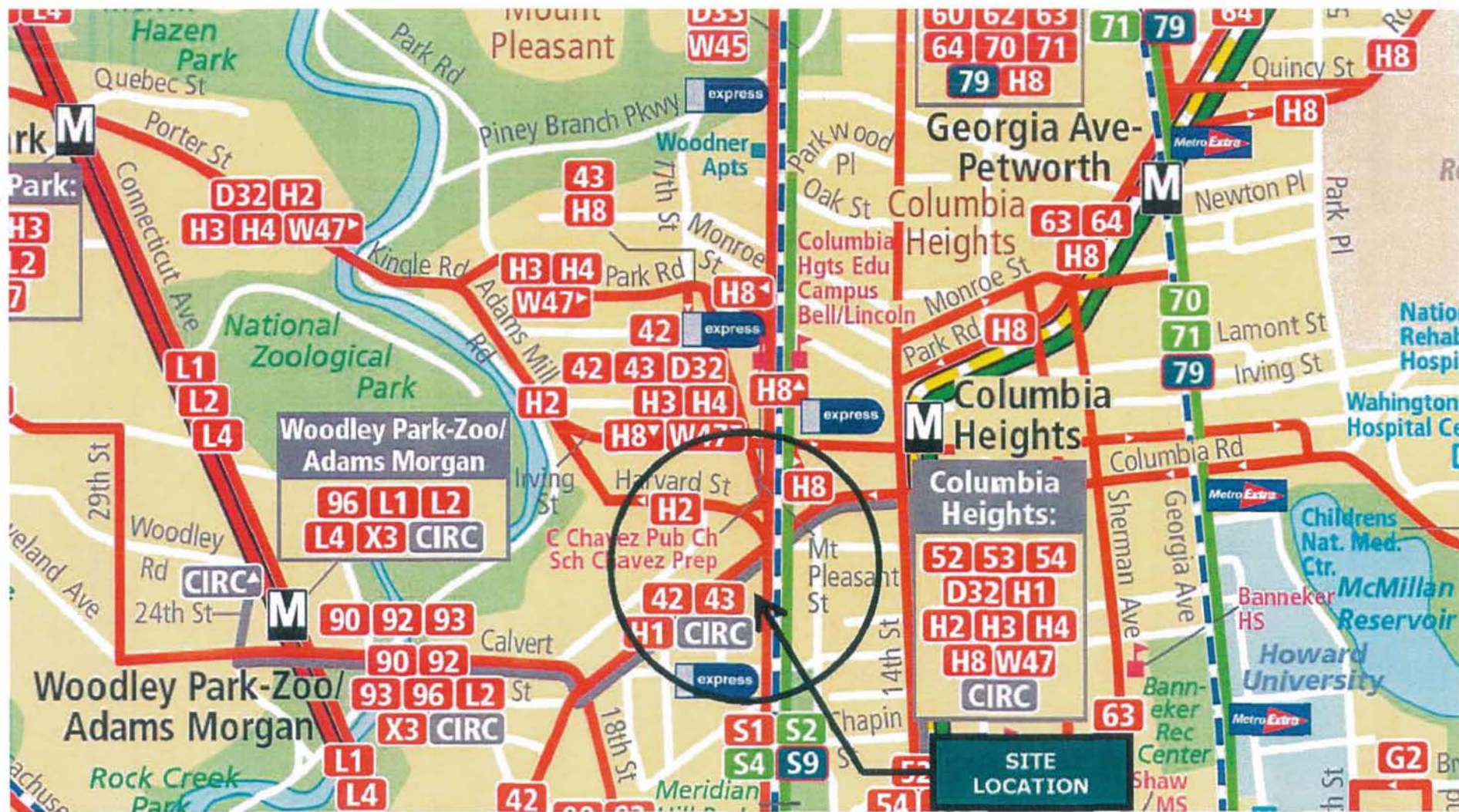
Public Transportation

Extensive forms of public transportation are available in the vicinity of the site and include the following:

1. Metrobus H1 – Brookland-Potomac Park Line provides service along Mount Pleasant Street and Columbia Road, with bus service approximately every 15 minutes traveling southbound during the AM peak period and every 20 minutes traveling northbound during the PM peak period during the weekdays only.
2. Metrobus H2, 3, 4 – Crosstown Line provides service along Mount Pleasant Street, Harvard Street, and Columbia Road, with bus service approximately every 5-15 minutes during the weekdays and every 15-20 minutes during the weekends.
3. Metrobus H8, 9 – Park Road-Brookland Line provides service along Mount Pleasant Street, with bus service approximately every 10-20 minutes during the weekdays and every 15-25 minutes during the weekends.
4. Metrobus 42, 43 – Mount Pleasant Line provides service along Mount Pleasant Street, Harvard Street, and Columbia Road, with bus service approximately every 5-10 minutes during weekdays and every 10-25 minutes during weekends.
5. Metrobus S1 – 16th Street-Potomac Park Line and S2, 4 – 16th Street Line provides service along 16th Street, with bus service approximately every 5-10 minutes during weekdays and weekends.
6. Metrobus S9 – 16th Street Express provides services along 16th Street (closest stop is at 16th Street/Euclid Street), with bus service every 10 minutes in the mornings (6:30AM to 10:30AM) and every 10 minutes in the afternoons/evenings (3:00PM to 7:30PM). No weekend service is provided.
7. Circulator (Woodley Park – Adams Morgan – McPherson Square Metro) provides service along Columbia Road, with service every weekday and weekend starting at 7:00AM until midnight or later.

A combination of transit stops-only and stops with shelters and benches are provided throughout the vicinity of the proposed site. Field observations indicated that many residents and workers utilize the existing transportation facilities in this area.

The existing public transportation facilities and routes are shown on Figure 7 and the respective schedules and maps are included in Appendix B. Future residents would presumably use the available public transportation and this assumption was taken into consideration for the trip generation analyses pertaining to this site and will be discussed later in the report.



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DATE REVISION BY APPR.

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FIGURE 7
EXISTING PUBLIC TRANSPORTATION FACILITIES

NW WASHINGTON DC

SCALE

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TAX MAP No.

SHEET

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104-179.009T

Existing Conditions Analyses

Existing conditions levels of service (LOS) and delays were determined at each of the key intersections based on the existing lane use and traffic control (Figure 3), the existing AM and PM peak hour volumes (Figure 4), and the Synchro methodology based on the 2000 Highway Capacity Manual (HCM). All existing signal timings and phasing for the signalized intersections were obtained from DDOT, were field-checked, and are included in the Synchro analyses.

Synchro is a macroscopic capacity analysis and optimization modeling program, where the user can enter the traffic data into a single file and obtain a measure of delays, queues, and levels of service at unsignalized and signalized intersections. Synchro considers all the intersections along a road network and can optimize traffic signals, as well as minimize delays and stops.

Levels of service are a qualitative measure of the operations of an intersection whereby a letter grade of A through F is assigned in order of decreasing performance. "Average control delay per vehicle" or average delay per vehicle due to any intersection traffic control device is used to select the appropriate LOS. Two-way stop-controlled and signalized intersections use slightly different threshold values as follows:

Table 1: Level of Service and Delay Criteria (Vehicles)

Level of Service	Description	Delay per Vehicle (Seconds/Vehicle)	
		Signalized Intersection	Stop-Sign Controlled Intersection
A	Free Flow	≤ 10	0 - 10
B	Stable Flow (slight delay)	> 10 - 20	> 10 - 15
C	Stable Flow (acceptable delay)	> 20 - 35	> 15 - 25
D	Approaching Unstable Flow (tolerable delay)	> 35 - 55	> 25 - 35
E	Unstable Flow (approaching intolerable delay)	> 55 - 80	> 35 - 50
F	Forced Flow (jammed)	> 80	> 50

The Synchro results of the existing analyses are located in Appendix C and summarized in Table 2. The results indicate the following:

- All key intersections currently operate at overall acceptable LOS "D" or better during both the AM and PM peak hours, except the signalized intersections of 16th Street at Columbia Road and Mount Pleasant Street at Argonne Place. 16th Street at Columbia Road operates at a LOS "F" during both the AM and PM peak hours due to a high westbound movement and insufficient green time. Mount Pleasant Street at Argonne Place operates at a LOS "F" during the AM peak hour due to a high southbound movement and insufficient green time.
- Pedestrian LOS analyses were also conducted at the signalized key intersections and are contained in Appendix C. The results indicate that all signalized intersections currently operate at acceptable LOS from a pedestrian standpoint.

Table 2

Existing Conditions Intersection Level of Service and Delay (veh/sec) Summary ¹

Location	Control	2011 Existing Conditions	
		AM Peak Hour	PM Peak Hour
1. 16th St. at Fuller St. Westbound Northbound Southbound Overall	Signal	C(23.6) B(13.9) A(3.8) A(7.4)	C(22.2) C(22.9) B(20.0) C(21.6)
2. Fuller St. at Mozart Pl. Westbound Northbound	Stop	A[7.4] A[7.4]	A[7.1] A[7.3]
3. Columbia Rd. at Mozart Pl. Eastbound Westbound Northbound	Stop	A[0.0] A[0.0] D[32.0]	A[0.0] A[0.0] C[24.0]
4. 16th St. at Columbia Rd. Westbound Northbound Southbound Overall	Signal	F(526.0) A(5.0) A(7.1) F(106.0)	F(584.1) A(5.2) B(10.7) F(131.6)
5. Columbia Rd. at Harvard St. Eastbound Westbound Southbound Overall	Signal	A(8.5) C(20.2) C(34.1) B(17.0)	B(11.6) B(16.9) D(37.7) B(16.1)
6. 16th St. at Harvard St. Eastbound Northbound Southbound Overall	Signal	E(71.8) A(9.5) A(1.6) B(13.9)	E(75.9) A(3.3) A(2.3) B(15.5)
7. 16th St. at Harvard St. (South) Eastbound	Stop	B[10.3]	A[9.2]
8a. Mt Pleasant at Argonne Pl. Eastbound Westbound Southbound Overall	Signal	A(6.5) A(2.7) F(180.4) F(83.7)	A(8.4) A(7.0) F(136.9) D(53.7)
8b. 16th St. at Argonne Pl. Northbound Southbound Overall	Signal	D(49.2) B(12.7) C(23.9)	D(40.6) A(8.5) C(26.6)

Notes: ¹ Analyses based on Synchro/SimTraffic (Version 7.0) methodology

Existing Conditions Analyses

Existing conditions levels of service (LOS) and delays were determined at each of the key intersections based on the existing lane use and traffic control (Figure 3), the existing AM and PM peak hour volumes (Figure 4), and the Synchro methodology based on the 2000 Highway Capacity Manual (HCM). All existing signal timings and phasing for the signalized intersections were obtained from DDOT, were field-checked, and are included in the Synchro analyses.

Synchro is a macroscopic capacity analysis and optimization modeling program, where the user can enter the traffic data into a single file and obtain a measure of delays, queues, and levels of service at unsignalized and signalized intersections. Synchro considers all the intersections along a road network and can optimize traffic signals, as well as minimize delays and stops.

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D	Approaching Unstable Flow (tolerable delay)	> 35 - 55	> 25 - 35
E	Unstable Flow (approaching intolerable delay)	> 55 - 80	> 35 - 50
F	Forced Flow (jammed)	> 80	> 50

The Synchro results of the existing analyses are located in Appendix C and summarized in Table 2. The results indicate the following:

- All key intersections currently operate at overall acceptable LOS "D" or better during both the AM and PM peak hours, except the signalized intersections of 16th Street at Columbia Road and Mount Pleasant Street at Argonne Place. 16th Street at Columbia Road operates at a LOS "F" during both the AM and PM peak hours due to a high westbound movement and insufficient green time. Mount Pleasant Street at Argonne Place operates at a LOS "F" during the AM peak hour due to a high southbound movement and insufficient green time.
- Pedestrian LOS analyses were also conducted at the signalized key intersections and are contained in Appendix C. The results indicate that all signalized intersections currently operate at acceptable LOS from a pedestrian standpoint.



BACKGROUND CONDITIONS

Annual Growth Rate

Based on previous transportation impact studies conducted in the vicinity of the site, a 1.0% growth rate (compounded annually) was applied to all turning movements to the year 2013 (the assumed built-out year for the development).

Pipeline Developments

During the project scoping with DDOT staff, a total of three pipeline developments were identified. These are studies that are considered approved or will be approved in the near future by DDOT.

1. Marriott-Edition Hotel (Euclid and Champlain Streets NW): This project's original program included approximately 150 hotel rooms, 30,000 S.F. of restaurant and fitness space, and 200 parking spaces. After speaking to the traffic consultant for this project, we were informed that the study has been shelved indefinitely; therefore, this pipeline project was not included in the background conditions forecasts.
2. 2329/2335 Champlain Street NW: This project includes 31 dwelling units and 20 parking spaces. Due to the insignificant number of trips anticipated to be generated by this development, no traffic analyses were provided. The additional trips from this pipeline project are taken into consideration through the annual growth rate.
3. 1444 Irving Street NW (Highland Park West): This project includes 143 residential units and no private on-site parking. No traffic analyses were conducted for this planned development and to remain conservative, additional trips from this pipeline project were taken into consideration through the annual growth rate.

Background Conditions Forecasts

The background conditions forecasts were determined based on the existing peak hour counts (Figure 4) and the annual growth rate. The background conditions peak hour forecasts are shown on Figure 8.

Background Conditions Analyses

Background conditions LOS and delays were determined at each of the key intersections based on the existing lane use and traffic control (Figure 3), the background conditions peak hour forecasts (Figure 8), and the Synchro methodology based on the 2000 Highway Capacity Manual (HCM).



The Synchro results of the background conditions analyses are located in Appendix D and summarized on Table 3. The results indicate the following:

- All key intersections will continue to operate at overall acceptable LOS “D” or better during both the AM and PM peak hours, except the signalized intersections of 16th Street at Columbia Road, 16th Street at Harvard Street, and Mount Pleasant Street at Argonne Place. 16th Street at Columbia Road will continue to operate at a LOS “F” during both the AM and PM peak hours due to a high westbound movement and insufficient green time. Mount Pleasant Street at Argonne Place will continue to operate at a LOS “F” during the AM peak hour due to a high southbound movement and insufficient green time.
- Pedestrian analyses at the signalized key intersections are also anticipated to continue to operate at acceptable LOS during background conditions. No significant increase in the number of pedestrians in the vicinity of the site is expected.

Table 3

Background Conditions Intersection Level of Service and Delay (veh/sec) Summary ¹

Location	Control	2011 Existing Conditions		2013 Background Conditions	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1. 16th St. at Fuller St.	Signal				
Westbound		C(23.6)	C(22.2)	C(23.7)	C(22.2)
Northbound		B(13.9)	C(22.9)	B(14.0)	C(23.7)
Southbound		A(3.8)	B(20.0)	A(3.9)	C(20.2)
Overall		A(7.4)	C(21.6)	A(7.5)	C(22.1)
2. Fuller St. at Mozart Pl.	Stop				
Westbound		A(7.4)	A(7.1)	A(7.4)	A(7.1)
Northbound		A(7.4)	A(7.3)	A(7.4)	A(7.3)
3. Columbia Rd. at Mozart Pl.	Stop				
Eastbound		A(0.0)	A(0.0)	A(0.0)	A(0.0)
Westbound		A(0.0)	A(0.0)	A(0.0)	A(0.0)
Northbound		D(32.0)	C(24.0)	D(34.0)	C(24.7)
4. 16th St. at Columbia Rd.	Signal				
Westbound		F(526.0)	F(584.1)	F(544.1)	F(602.5)
Northbound		A(5.0)	A(5.2)	A(5.0)	A(5.3)
Southbound		A(7.1)	B(10.7)	A(7.1)	B(10.7)
Overall		F(106.0)	F(131.6)	F(109.5)	F(135.5)
5. Columbia Rd. at Harvard St.	Signal				
Eastbound		A(8.5)	B(11.6)	A(8.9)	B(12.2)
Westbound		C(20.2)	B(16.9)	C(20.9)	B(17.5)
Southbound		C(34.1)	D(37.7)	C(34.3)	D(37.9)
Overall		B(17.0)	B(16.1)	B(17.5)	B(16.5)
6. 16th St. at Harvard St.	Signal				
Eastbound		E(71.8)	E(75.9)	E(76.1)	F(80.3)
Northbound		A(9.5)	A(3.3)	A(9.5)	A(3.3)
Southbound		A(1.6)	A(2.3)	A(1.6)	A(2.3)
Overall		B(13.9)	B(15.5)	B(14.6)	B(16.3)
7. 16th St. at Harvard St. (South)	Stop				
Eastbound		B(10.3)	A(9.2)	B(10.4)	A(9.2)
8a. Mt Pleasant St. at Argonne Pl.	Signal				
Eastbound		A(6.5)	A(8.4)	A(6.6)	A(8.5)
Westbound		A(2.7)	A(7.0)	A(2.8)	A(7.3)
Southbound		F(180.4)	F(136.9)	F(192.4)	F(145.8)
Overall		F(83.7)	D(53.7)	F(89.2)	E(57.1)
8b. 16th St. at Argonne Pl.	Signal				
Northbound		D(49.2)	D(40.6)	D(50.8)	D(42.1)
Southbound		B(12.7)	A(8.5)	B(13.0)	A(8.5)
Overall		C(23.9)	C(26.6)	C(24.6)	C(27.5)

Notes: ¹ Analyses based on Synchro/SimTraffic (Version 7.0) methodology



SITE DEVELOPMENT

Site Trip Generation

As previously noted, the existing historic structure is planned to remain on-site, while the parking lot will be re-developed into a new residential tower with underground parking. The residential tower is planned to be eight (8) storeys high, in addition to an English basement. A maximum total of one-hundred and thirty-five (135) residential units are planned to be provided between the new residential tower and the existing historic structure.

The trip generation for the site was determined based on the Institute of Transportation Engineers (ITE) Trip Generation Rate Manual, 8th Edition, and is summarized below in Table 4.

Site Development Trip Generation Analysis ¹

Land Use	Land Use Code	Amount	Units	In	AM Peak Hour		In	PM Peak Hour	
					Out	Total		Out	Total
Residential Units	233	135	D.U.	16	55	71	50	30	80

Notes: ¹ Trips based on ITE Trip Generation Manual, 8th Edition.

Overall, the site is anticipated to generate 71 AM peak hour trips (16 in and 55 out) and 80 PM peak hour trips (50 in and 30 out).

While 70-80 parking spaces are planned to be provided to serve the site, it is anticipated that only approximately half of the residents will utilize their personal vehicles to travel to/from work. Based on the US Census Data (included in Appendix E) for this particular census tract, only 49% of individuals travel to/from work using a private car or carpool. The remainder (51%) relies on public transportation, walks, or bikes during the weekdays.



Trip Distribution/Assignment

The site trips were assigned to the existing road network based on existing travel patterns:

16 th Street southbound	53%
16 th Street northbound	15%
Columbia Road	10%
Harvard Street	13%
Mount Pleasant	5%
Fuller Street	2%
Mozart Place	2%
Total	100%

Ingress to the parking garage will be provided via Fuller Street (using the existing curb cut for the site) and egress from the parking garage will be provided via Mozart Place. The site trip generation assignments are shown on Figure 9.

FUTURE CONDITIONS

Future Conditions Forecasts

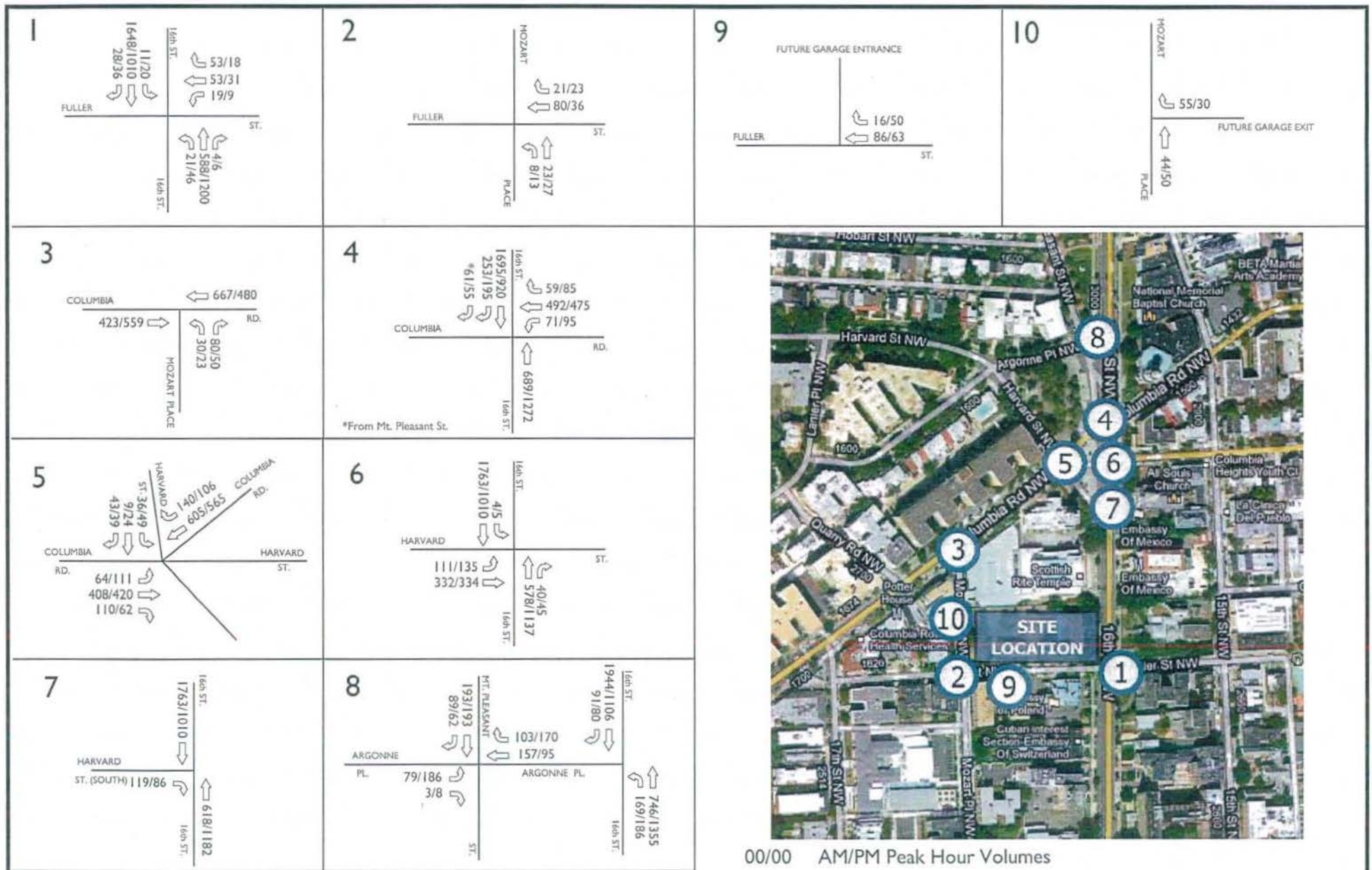
The future conditions forecasts were determined based on the existing peak hour volumes (Figure 4) the annual growth rate, and the II Palazzo site trips (Figure 9). The future conditions peak hour forecasts are shown on Figure 10.

Future Conditions Analyses

Future conditions LOS and delays were determined at each of the key intersections based on the existing lane use and traffic control (Figure 3), the future conditions peak hour forecasts (Figure 10), and the Synchro methodology based on the 2000 Highway Capacity Manual (HCM).

The Synchro results of the future conditions analyses are located in Appendix F and summarized on Table 5. The results indicate the following:

- All key intersections will continue to operate at overall acceptable LOS "D" or better during both the AM and PM peak hours, except the signalized intersections of 16th Street at Columbia Road and Mount Pleasant Street at Argonne Place. 16th Street at Columbia Road will continue to operate at a LOS "F" during both the AM and PM peak hours due to a high westbound movement and insufficient green time. Mount Pleasant Street at Argonne Place will continue to operate at a LOS "F" during the AM peak hour due to a high southbound movement and insufficient green time.
- A slight increase in delay is expected due to the site impacts at the intersections of 16th Street and Columbia Road (+2.1 seconds during the PM peak hour) and at the intersection of Mount Pleasant Street and Argonne Place (+0.7 seconds during the AM peak hour). Since these delay increases are insignificant, no signal timing/phasing modifications are recommended.
- Both the future garage entrance and exit are anticipated to operate at acceptable LOS during the AM and PM peak hours once the proposed site is in operation and fully-occupied.
- Pedestrian analyses at the signalized key intersections are also anticipated to continue to operate at acceptable LOS during future conditions. No significant increase in the number of pedestrians in the vicinity of the site is expected and no modifications to the existing signal timings/phasing are proposed at any of the key intersections.



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FIGURE 10
FUTURE CONDITIONS PEAK HOUR FORECASTS

NW WASHINGTON DC

SCALE	CONTOUR INTERVAL	A.M.T. FILE No.
	N/A	104-179.009T
DATE	TAX MAP No.	SHEET
APRIL 2011	N/A	

Table 5

Future Conditions Intersection Level of Service and Delay (veh/sec) Summary ¹

Location	Control	2011 Existing Conditions		2013 Background Conditions		2013 Future Conditions	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1. 16th St. at Fuller St.	Signal						
Westbound		C(23.6)	C(22.2)	C(23.7)	C(22.2)	C(23.7)	C(22.2)
Northbound		B(13.9)	C(22.9)	B(14.0)	C(23.7)	B(14.6)	C(32.6)
Southbound		A(3.8)	B(20.0)	A(3.9)	C(20.2)	A(4.6)	C(20.3)
Overall		A(7.4)	C(21.6)	A(7.5)	C(22.1)	A(8.1)	C(26.8)
2. Fuller St. at Mozart Pl.	Stop						
Westbound		A[7.4]	A[7.1]	A[7.4]	A[7.1]	A[7.4]	A[7.1]
Northbound		A[7.4]	A[7.3]	A[7.4]	A[7.3]	A[7.4]	A[7.3]
3. Columbia Rd. at Mozart Pl.	Stop						
Eastbound		A[0.0]	A[0.0]	A[0.0]	A[0.0]	A[0.0]	A[0.0]
Westbound		A[0.0]	A[0.0]	A[0.0]	A[0.0]	A[0.0]	A[0.0]
Northbound		D[32.0]	C[24.0]	D[34.0]	C[24.7]	D[34.7]	C[24.4]
4. 16th St. at Columbia Rd.	Signal						
Westbound		F(526.0)	F(584.1)	F(544.1)	F(602.5)	F(545.5)	F(611.1)
Northbound		A(5.0)	A(5.2)	A(5.0)	A(5.3)	A(5.4)	A(5.4)
Southbound		A(7.1)	B(10.7)	A(7.1)	B(10.7)	A(7.2)	B(10.7)
Overall		F(106.0)	F(131.6)	F(109.5)	F(135.5)	F(109.5)	F(137.6)
5. Columbia Rd. at Harvard St.	Signal						
Eastbound		A(8.5)	B(11.6)	A(8.9)	B(12.2)	A(8.9)	B(12.2)
Westbound		C(20.2)	B(16.9)	C(20.9)	B(17.5)	C(20.9)	B(17.6)
Southbound		C(34.1)	D(37.7)	C(34.3)	D(37.9)	C(34.3)	D(37.9)
Overall		B(17.0)	B(16.1)	B(17.5)	B(16.5)	B(17.3)	B(16.4)
6. 16th St. at Harvard St.	Signal						
Eastbound		E(71.8)	E(75.9)	E(76.1)	F(80.3)	F(83.0)	F(83.0)
Northbound		A(9.5)	A(3.3)	A(9.5)	A(3.3)	A(9.5)	A(2.3)
Southbound		A(1.6)	A(2.3)	A(1.6)	A(2.3)	A(1.6)	A(2.4)
Overall		B(13.9)	B(15.5)	B(14.6)	B(16.3)	B(16.1)	B(16.6)
7. 16th St. at Harvard St. (South)	Stop						
Eastbound		B[10.3]	A[9.2]	B[10.4]	A[9.2]	B[10.7]	A[9.3]
8a. Mt Pleasant St. at Argonne Pl.	Signal						
Eastbound		A(6.5)	A(8.4)	A(6.6)	A(8.5)	A(6.6)	A(8.5)
Westbound		A(2.7)	A(7.0)	A(2.8)	A(7.3)	A(3.0)	A(7.6)
Southbound		F(180.4)	F(136.9)	F(192.4)	F(145.8)	F(194.1)	F(147.3)
Overall		F(83.7)	D(53.7)	F(89.2)	E(57.1)	F(89.9)	E(57.7)
8b. 16th St. at Argonne Pl.	Signal						
Northbound		D(49.2)	D(40.6)	D(50.8)	D(42.1)	D(53.7)	D(43.1)
Southbound		B(12.7)	A(8.5)	B(13.0)	A(8.5)	B(13.0)	A(8.6)
Overall		C(23.9)	C(26.6)	C(24.6)	C(27.5)	C(25.6)	C(28.1)
9. Fuller St at Future Garage Entrance	Stop						
Westbound		N/A	N/A	N/A	N/A	A[0.0]	A[0.0]
10. Mozart Pl at Future Garage Exit	Stop						
Westbound		N/A	N/A	N/A	N/A	A[8.7]	A[8.7]

Notes: ¹ Analyses based on Synchro/SimTraffic (Version 7.0) methodology



Future Conditions Pedestrian Facilities

Once construction of the site is completed, ADA compliant sidewalks and crosswalks will be provided for all pedestrians along 16th Street, Fuller Street and Mozart Place in the vicinity of the site. Access into the proposed new residential building will also be fully ADA compliant, as well be the connection between the proposed new and existing historic buildings.

It is expected that most residents will access the area existing uses by foot or bicycle due to extensive sidewalk connectivity from the site towards 16th Street and Columbia Road. Existing land uses of importance include numerous local restaurants, grocery stores, pharmacies, other retail stores, schools, churches, amongst many others.

Future Conditions Bicycle Facilities

To complement the existing bicycle facilities in the vicinity of the site, additional bicycle racks will be provided on site for both residents and visitors. The total number of on-site bicycle racks to be provided is equal to approximately 15% of the building occupancy. The proposed racks for the visitors will be located outdoors along 16th Street, while the racks for the residents will be located on the terrace level parallel to Mozart Place, as well as inside the parking garage at selected locations.

Proposed Off-Street Parking

The proposed site is currently zoned as R-5-B and R-5-D, which per the DC Zoning Municipal Regulations requires the following off-street parking spaces:

- ⇒ One (1) space for each 2 dwelling units for the R-5-B zoning, and
- ⇒ One (1) space for each 3 dwelling units for the R-5-D zoning.

The applicant proposes to rezone the entirety of the site to R-5-D zoning. Therefore, per the DC Zoning Municipal Regulations, approximately twenty-eight (28)¹ parking spaces are required to sufficiently serve the proposed site.

Approximately 60-90 parking spaces are proposed to be provided in the underground parking garage. These parking spaces are intended to serve the residents at Il Palazzo only. As discussed during the trip generation analyses, it is anticipated that only approximately half of the residents will utilize their personal vehicles to travel to/from work. As determined by the US Census Data, only 49% of individuals travel to/from work using a private car or carpool, while the remainder (51%) relies on public transportation, walks, or bikes during the weekdays. Therefore, even though a surplus of parking spaces is proposed to serve the residents, it is anticipated that over half of the residents will rely on public transportation to/from work during the weekdays, as noted in the previous sections of this report.

A comparison between DC Zoning requirements and proposed parking spaces indicates that a sufficient number of parking spaces will be provided to accommodate all the site trips made by the residents at Il Palazzo.

Proposed Off-Street Loading

A loading area will be provided just south of the exit ramp from the parking garage along Mozart Place. This loading area is planned to be utilized for trash removal, as well as local grocery deliveries, FedEx and UPS deliveries, etc.

The loading requirements for the proposed site as per the DC Zoning Municipal Regulations require the following:

- ⇒ One (1) 55' deep loading berth,
- ⇒ One (1) 200 S.F. loading platform, and
- ⇒ One (1) 20' deep service/delivery loading space.

¹ The site has a one (1) space parking credit from the historic use of the building.

CONSTRUCTION IMPACTS

To alleviate the construction impacts on the existing neighborhoods, the residents, existing businesses, and ensure the safety of both workers and motorists, the following strategies are recommended to be implemented throughout the construction period:

Temporary Traffic Control Strategies (TTC):

- *Construction phasing/staging* – the construction equipment/materials should be positioned such that they hinder the traveling public as little as possible. If a lane of parking along Fuller Street and/or Mozart Place must be used for construction staging, possible parking alternatives should be in place for the existing residents. Options include shared-parking with existing uses in the immediate vicinity of the site during the construction period.
- *Night and weekend work* – neither are recommended since the site is located within a residential neighborhood.
- *Peak hour work* – recommended to be allowed based on the traffic analyses and results at Fuller Street and Mozart Place.
- *Pedestrian/Bicycle Improvements* – recommended as needed to ensure that full access is provided to pedestrians and bicyclists along at least one side of Fuller Street and Mozart Place.
- *Temporary warning signs* – to be used to warn motorists of an approaching work zone area.

Public Information Strategies (PI):

- *Coordination with existing businesses and residents* – to inform them of the projects impacts, expected timeline and construction phases, anticipated parking and pedestrian access impacts, amongst many others.

Transportation Operations Strategies (TO):

- *Parking restrictions* – discussed above.
- *Temporary traffic barriers* – to protect workers, motorists, pedestrians, and bicycles in the vicinity of the work zone area.



CONCLUSIONS

The conclusions and recommendations of the transportation impact analyses conducted in support of the proposed Il Palazzo site are as follows:

Existing Conditions:

- The site is currently occupied by an existing historic structure and a surface parking lot to the west of the historic structure. A vehicular access point serves the site via Fuller Street, as well as via a existing entrance/exit driveway along 16th Street.
- The existing historic structure is planned to remain on-site, while the parking lot will be re-developed into a new residential tower with underground parking. The residential tower is planned to be eight (8) storeys high, in addition to an English basement. A maximum total of one-hundred and thirty-five (135) residential units are planned to be provided between the new residential tower and the existing historic structure.
- All key intersections currently operate at overall acceptable LOS "D" or better during both the AM and PM peak hours, except the signalized intersections of 16th Street at Columbia Road and Mount Pleasant Street at Argonne Place.

Background Conditions:

- All key intersections will continue to operate at overall acceptable LOS "D" or better during both the AM and PM peak hours, except the signalized intersections of 16th Street at Columbia Road, 16th Street at Harvard Street, and Mount Pleasant Street at Argonne Place.

Proposed Site:

- The proposed site is anticipated to generate 71 AM peak hour trips (16 in and 55 out) and 80 PM peak hour trips (50 in and 30 out). While 60-90 parking spaces are planned to be provided to serve the site, it is anticipated that only approximately half of the residents will utilize their personal vehicles to travel to/from work. Based on the US Census Data (included in Appendix E) for this particular census tract, only 49% of individuals travel to/from work using a private car or carpool. The remainder (51%) relies on public transportation, walks, or bikes during the weekdays.

Future Conditions:

- All key intersections will continue to operate at overall acceptable LOS "D" or better during both the AM and PM peak hours, except the signalized intersections of 16th Street at Columbia Road and Mount Pleasant Street at Argonne Place. A slight increase in delay is expected due to the site impacts at the intersections of 16th Street and Columbia Road (+2.1 seconds during the PM peak hour) and at the intersection of Mount Pleasant Street and Argonne Place (+0.7 seconds during the AM peak hour). Since these delay increases are insignificant, no signal timing/phasing modifications are recommended.
- Both the future garage entrance and exit are anticipated to operate at acceptable LOS during the AM and PM peak hours once the proposed site is in operation and fully-occupied.