SQUARE 80 PUD
TRANSPORTATION IMPACT STUDY
WASHINGTON, D.C.

Prepared for:
The George Washington University
and
The District of Columbia Public Schools

Prepared by:
Wells & Associates, LLC

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SQUARE 80 PUD
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WASHINGTON, D.C.

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SECTION 1
INTRODUCTION

OVERVIEW

This transportation impact study was prepared in support of The George Washington University (GW) and DC Public School's (DCPS) joint Planned Unit Development (PUD) application for Square 80.

This PUD application includes two components:

1. A new GW apartment style residence hall building will be located between 2125 and 2135 F Street, with access to a below grade parking garage and internal loading dock directly off F Street. The residence hall will contain approximately 474 undergraduate beds and approximately 178 parking spaces, serving the general GW population. The new GW residence hall will be located south of the existing SWW structure. The site is currently improved with a parking lot serving the SWW and two tennis courts owned by GW, as shown on Figure 1-1.

2. The renovation and expansion of the School Without Walls (SWW), located at 2130 G Street, which is currently improved with a single education building with a parking lot to the east and south of the building. The renovation and expansion includes additions to the east and south of the existing school structure (classrooms, laboratories, and a common area), and may include an increase of up to 23-percent in the student and faculty population (from 340 to 440 students). A total of 30 parking spaces will be provided to SWW by GW at a nearby location, per an agreement between the two parties.

The existing SWW parking lot is accessible from a single entrance on G Street, located just east of the school structure.

For purposes of this transportation impact study, both projects were assumed to be completely built and occupied by 2009.

STUDY OBJECTIVES

Objectives undertaken in this study included the following:

1. Review the GW and SWW proposed development program, site plans, and other background data provided.

2. A field reconnaissance of existing roadway and intersection geometrics, traffic controls, traffic signal phasing/timings, and speed limits.

3. AM and PM peak hour traffic count of existing vehicular and pedestrian traffic were

conducted at the existing SWW parking lot driveway on G Street. Seven (7) additional off-site intersection counts were obtained from the work conducted in conjunction with the George Washington University Foggy Bottom Campus Plan: 2006-2025.

4. Analysis of existing levels of service at these eight (8) key intersections.

5. Background future traffic volumes were forecasted for project buildout (2009), and included pipeline projects and background traffic growth. Two scenarios were analyzed: (1) the first scenario studied the existing campus plan (2009) as a pipeline development, and (2) the second scenario studied the proposed campus plan (2025) as a pipeline development.

6. Background levels of service were calculated for both scenarios at key intersections based on background traffic forecasts, existing traffic controls, and existing intersection geometrics.

7. The number of AM and PM peak hour vehicle-trips that would be generated by the SWW and GW development projects were estimated based on: (1) the proposed number of parking spaces and observed GW peak hour turnover rates (as determined in the transportation impact study for the Foggy Bottom Campus Plan Update: 2006-2025, dated February 16, 2006), and (2) the SWW student/faculty trip generation rates obtained from the peak hour traffic counts.

8. Total future traffic volumes were forecasted for the buildout year 2009 based on the proposed developments, and analyzed under both scenarios described in step 5 above.

9. Total future levels of service were calculated at key intersections based on the total future traffic forecasts, existing traffic controls, and existing intersection geometrics.

10. Vehicular and pedestrian improvements required to adequately accommodate the total future traffic forecasts were identified.

Sources of data for this analysis included traffic counts conducted by Wells & Associates, information provided by GW, SWW, DMJM/CGS, AMT, EEK, the Washington Metropolitan Area Transit Authority (WMATA), the District of Columbia, U. S. Census Bureau, and previous transportation impact studies prepared for other area developments by Wells & Associates.

The conclusions of this traffic impact study are as follows:

1. ***All of the key intersections currently operate at an overall acceptable level of service (LOS) "D" or better during both the AM and the PM peak hours.***

2. ***The approved pipeline projects in the study area can be adequately accommodated at all the key intersections in the study area.***

3. ***The expansion/renovation of the SWW and the construction of the GW residence hall and underground parking garage will generate 54 additional AM peak hour trips and 36 additional PM peak hour trips.***

4. ***These additional site-generated trips can be adequately accommodated at the key intersections in the study area during both the AM and PM peak hours. The new GW garage entrance on F Street is anticipated to operate at a LOS "B" and "A" during the AM and PM peak hours, respectively.***

5. ***The number of parking spaces provided to DCPS by GW pursuant to the MOU meets the current parking needs for the school and essentially replaces the spaces used by the faculty and students on the site. Although the school may expand, potentially generating an additional 10 space requirement under the Zoning Regulations, the school anticipates that the potential increase in population will not require additional parking permits since the majority of the students either use public transit or will be dropped off by parents or guardians. DCPS is seeking relief from the additional parking requirement through the PUD process.***

Figure 1–1
Site Location

North

O:\Projects\3001-3500\3169 SWW (Square 80)\Graphics\3169 rpt graphics.dwg\DAO

SECTION 2
BACKGROUND DATA

SQUARE 80 PUD OVERVIEW[1]

SWW High School was established in 1971 and provides a "real world" classroom environment for students to experiment, examine, inquire and discuss. It is located within the boundaries of The George Washington University's Foggy Bottom Campus and includes Grades 9 through 12 with a total of 340 students. Classes are held Monday through Friday from 8:45 AM to 3:15 PM.

The school consists of a single structure with a gated parking lot located to the east and south of the structure. Access to the school is provided via the main entrance on G Street and two side entrances (one of each side of the school). Field observations indicate that the majority of the students use the main entrance on G Street. Any faculty/staff/students parking in the SWW lot will use the east side entrance into the school due to convenience.

A total of 50 parking spaces are available in the SWW parking lot (marked spaces directly to the east of the school and unmarked spaces in the rear of the school). Parking permits are issued to nineteen (19) out of twenty-six (26) faculty/staff members and twelve (12) senior students, for a total of 31 parking permits. Parking spaces for the Principal and Assistant Principal are specially designated, a small number of parking for the faculty/staff are marked closest to the G Street entrance, and the rest of the faculty/staff and students park in the lot located at the rear of the school.

Field observations and SWW staff interviews indicated that approximately 80-percent of the students use public transit, with the remaining being dropped off by parents or a school bus, driving alone, walking, or biking to school. A Drop-Off zone for school buses is located in front of the school and also allows parents to park when dropping students off (approximately 6-7 vehicles can park in the Drop-Off zone at one time.)

A maximum of five (5) vehicles were observed in the Drop-Off zone at one time just a few minutes before morning classes began. No queues along G Street were observed during the morning drop off or afternoon pick up times.

On Wednesdays, SWW invites faculty members and students from other DC schools to SWW, as part of their elective course program. Other faculty members are authorized to park in the SWW parking lot at this time. In addition, evening classes are held by GW at SWW from 7:00 PM to 10:00 PM, Monday through Thursday. Any SWW student is allowed to attend these classes, for a total attendance of 50 to 75 students.

The "GW Deli" is located across from SWW and a DC Firehouse is just northeast of the school. Parking along G Street is allowed from 7:00 AM to 8:30 PM, Monday through Friday, for two-hour limits

[1] Sources of information include field observations by Wells & Associates staff, discussions with SWW staff, and the SWW website.

(Zone 2 Residents Excluded). Parking is prohibited in the vicinity of the Firehouse and in front of SWW (School Bus Tow-Away Zone, Monday through Friday, 7:00 AM to 6:30 PM).

STUDY SCOPE

This traffic study includes the following intersections:

1. G Street/22nd Street,
2. G Street/SWW Parking Lot Driveway,
3. G Street/Lot 1 Parking Driveway,
4. G Street/21st Street,
5. 21st Street/public alley,
6. F Street/21st Street,
7. F Street/Dakota Parking Driveway,
8. F Street/22nd Street.

This study also includes the following planned development projects:

1. ***IMF Headquarters 2***. At the time of the traffic counts, the existing PEPCO office building (420,000 S.F.) was proposed to be expanded to 649,350 S.F. This development is located in the vicinity of 20th and H Streets. According to the International Monetary Fund Headquarters 2 – Planned Unit Development Application report, the proposed expansion will generate 129 net new AM peak hour trips and 128 net new PM peak hour trips. The trip generation for the IMF Headquarters includes a 57-percent non-auto trip reduction, according to the report. This relocation was completed in the fall 2005.

2. ***Columbia House Apartments I and II***. Columbia House Apartments I and II will be developed with 142 and 213 residential units, respectively, on M Street, between 24th and 25th Streets. Columbia House Apartments I will generate 36 AM peak hour trips and 48 PM peak hour trips. Columbia House Apartments II will generate 54 AM peak hour trips and 68 PM peak hour trips. These estimates reflect a 50-percent non-auto trip reduction, as calculated using the Development Related Ridership Survey II, published by WMATA.

3. ***2425 L Street, N.W***. This building will contain 200 luxury condominiums and 28,000 S.F. of retail space on the site of the former Columbia Hospital for Women, which is bounded by 24th Street on the east, 25th Street on the west, and L Street on the south. According to the 2425 L Street Traffic Impact Study, the proposed development will generate 99 AM peak hour trips and 195 PM peak hour trips. These estimates reflect a 45-percent non-auto trip reduction for residents and a 50-percent non-auto trip reduction for the retail portions.

As requested by DDOT, two scenarios were analyzed in this study: the first scenario studied the existing Foggy Bottom Campus Plan: 2000-2009 as a pipeline development, and the second scenario

studied the proposed Foggy Bottom Campus Plan: 2006-2025 as a pipeline development.

Both scenarios studied the impact of the three planned development projects described above; however, the second scenario also included the impact of the GW on-campus parking changes associated with the Foggy Bottom Campus Plan: 2006-2025, as described in the Transportation Impact Study for the George Washington Foggy Bottom Campus Plan: 2006-2025.

The impacts of these approved developments and the two proposed site developments were evaluated at the project buildout, which is anticipated to occur by 2009.

PUBLIC ROAD NETWORK

Vehicular access to and from the subject site is provided by F, G, 21st and 22nd Streets. Existing intersection lane use and traffic control at the key intersections in the site vicinity are shown on Figure 2-1.

F Street is a one-way eastbound collector with a single travel lane and a posted speed limit of 35 mph. The intersection of F Street with 21st Street is controlled by a traffic signal and the intersection of F Street with 22nd Street is stop-controlled. The Average Daily Traffic (ADT) along F Street ranges from 1,700 to 3,400 vehicles per day (vpd) within the GW campus boundaries. Metrobus Line 80 provides service along F Street from 21st Street to 23rd Street.

G Street is a one-way collector, with one travel lane in the westbound direction with a posted speed limit of 35 mph. The intersections of G Street with 21st and 22nd Street are controlled by traffic signals. The ADT along G Street ranges from 1,400 to 2,000 vpd within the GW campus boundaries.

21st Street is a one-way collector, with two travel lanes in the southbound direction and a posted speed limit of 35 mph. The ADT along 21st Street ranges from 5,900 to 6,500 vpd within the GW campus boundaries. Metrobus line 80 provides service along 21st Street within the vicinity of F Street.

22nd Street is a one-way collector, with two northbound lanes south of Eye Street and a posted speed limit of 35 mph. The ADT along 22nd Street ranges from 5,100 to 5,900 vpd within the GW campus boundaries.

EXISTING TRAFFIC COUNTS

Overview. Existing AM and PM peak period vehicular and pedestrian traffic counts were conducted on Wednesday, September 21, 2005, by Wells & Associates at the following intersections:

1. G Street/22nd Street,
3. G Street/Lot 1 Parking Driveway,
4. G Street/21st Street,
5. 21st Street/Public Alley,
6. F Street/21st Street,

7. F Street/Dakota Parking Driveway,
8. F Street/22nd Street.

Additional AM and PM peak period vehicular and pedestrian traffic counts were conducted on Wednesday, March 8, 2005, by Wells & Associates, at the existing SWW parking lot driveway on G Street.

Vehicular and pedestrian traffic counts are summarized in Figure 2-2 and 2-3, respectively.

The street AM peak hour generally occurred between 8:30 AM to 9:30 AM and the street PM peak hour generally occurred between 5:30 PM to 6:30 PM.

Figure 2-2 indicates that G Street, east of the existing SWW parking lot driveway presently carries 154 AM peak hour vehicle trips and 520 PM peak hour vehicle trips. F Street, just west of 21st Street, presently carries 166 AM peak hour vehicle trips and 114 PM peak hour vehicle trips.

Existing SWW Parking Lot Driveway. AM and PM peak period vehicular traffic counts were conducted at the SWW parking lot driveway from 6:00 AM to 10:00 AM and from 2:00 PM to 7:00 PM. The counts indicate that the SWW parking lot generates 17 trips (14 inbound and 3 outbound) during the street AM peak hour and 16 trips (4 inbound and 12 outbound) during the street PM peak hour. The AM peak hour of the SWW parking lot occurs between 8:00 AM to 9:00 AM with 26 trips (21 inbound and 5 outbound) and the PM peak hour of the SWW parking lot occurs between 4:45 PM to 5:45 PM with 21 trips (8 inbound and 13 outbound).

Mid-Block Pedestrian Counts. Pedestrian activity is not limited to public sidewalks and pedestrian street crossings. The "GW Deli", located directly across from SWW encourages high mid-block pedestrian activity. Mid-block pedestrian traffic counts were performed along G Street, between 21st and 22nd Streets, by Wells & Associates, on Wednesday, March 8, 2005, between 6:00 AM to 10:00 AM and from 2:00 PM to 7:00 PM.

The counts indicate that the pedestrian AM peak period occurs between 9:00 AM to 10:00 AM with approximately 447 pedestrians crossing mid-block, and the PM peak period occurs between 3:00 PM to 4:00 PM with approximately 448 pedestrians crossing mid-block, as shown in Figure 2-3. The majority of the mid-block crossings occur in the southbound direction (towards SWW) during the AM peak hour as students and staff enters the school. Similarly, the majority of the mid-block crossings occur in the northbound direction (away from SWW) during the PM peak hour as students and staff leaves the school.

The counts also indicate a high number of northbound and southbound mid-block crossings between the 1st and 2nd periods from 9:45 AM to 9:50 AM, as SWW students and staff visit the "GW Deli" for snacks and drinks between classes.

EXISTING ON-STREET PARKING

Curb parking is generally prohibited on the north and south sides of F Street between 19th and 21st Streets due to driveways and bus stops. It is generally permitted at most times of the day on the north and south sides between 21st and 23rd Streets for two-hour periods, except for Zone 2 permit holders. Motorcycle parking is permitted at most times of the day on the north side of F Street, just west of 22nd Street.

Parking along G Street is allowed from 7:00 AM to 8:30 PM, Monday through Friday, for two-hour limits (Zone 2 Residents Excluded). Parking is prohibited in the vicinity of the Firehouse and in front of SWW (School Bus Tow-Away Zone, Monday through Friday, 7:00 AM to 6:30 PM). Four (4) parking spaces are reserved for police vehicles on the north side of G Street, just east of 21st Street.

Along the west side of 21st Street, parking is prohibited, except between F and G Streets where parking is allowed at most times of the day in two-hour periods. Along the east side of 21st Street, parking is allowed at most times of the day in two-hour periods between G and Eye Streets, but is restricted to off-peak hours between F and G Streets.

Curb parking is permitted on the west side of 22nd Street during off-street peak hours in two-hour periods, except between G and H Streets, where parking is prohibited. Curb parking is allowed during the AM peak hour through 4:00 PM in two-hour periods between F and G Streets.

PUBLIC TRANSPORTATION FACILITIES AND SERVICES

Square 80 is served by Metrobus line 80 (North Capitol Street), which operates on F Street between 21st and 23rd Streets. The Foggy Bottom-GWU Metrorail station is located on the northwest quadrant of the 23rd Street/Eye Street intersection. This station was used by nearly 41,000 passengers on an average weekday in 2002, according to WMATA passenger surveys.

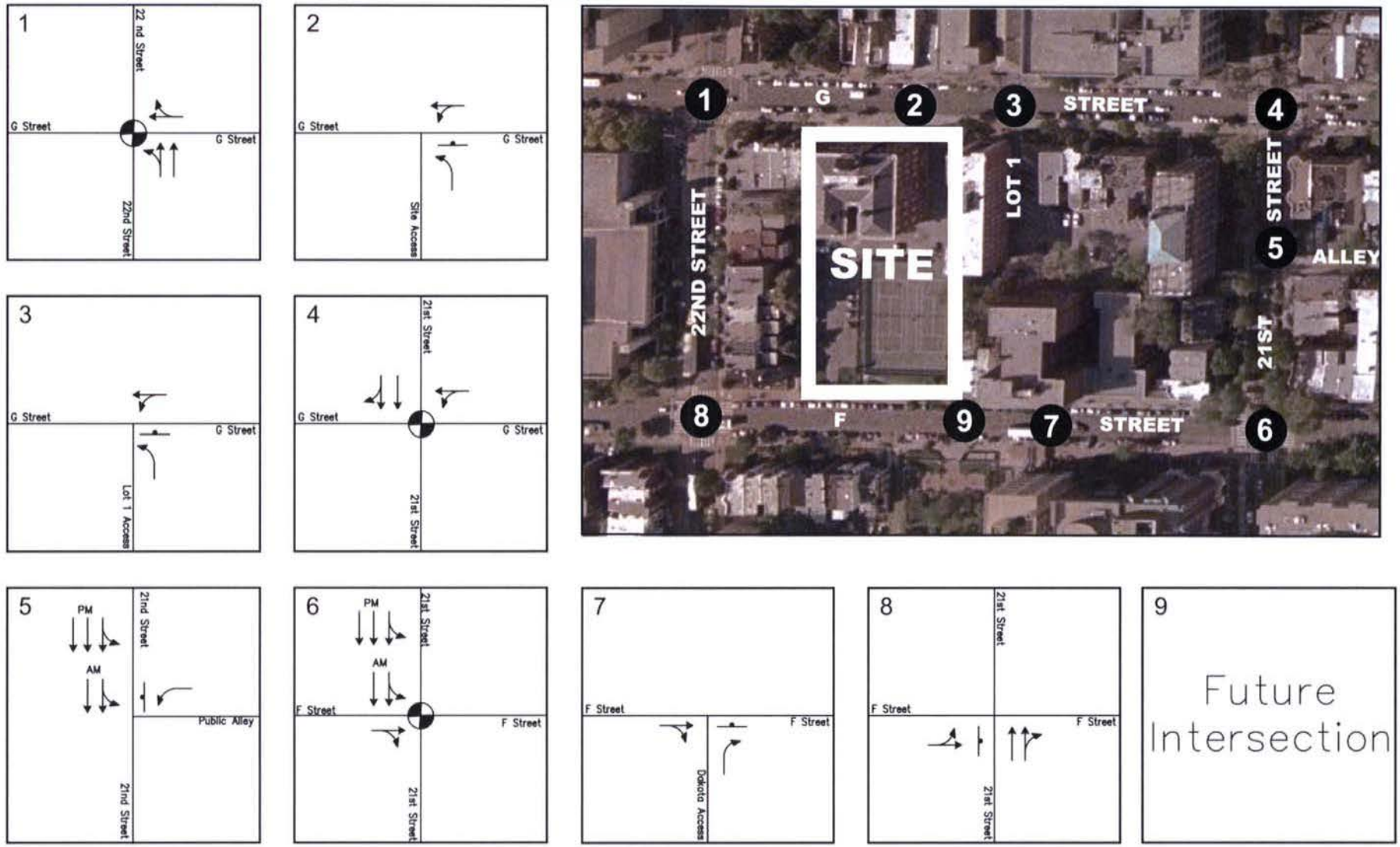

Figure 2–1
Existing Lane Use and Traffic Control

← Represents One Travel Lane
Signalized Intersection
Stop Sign

North

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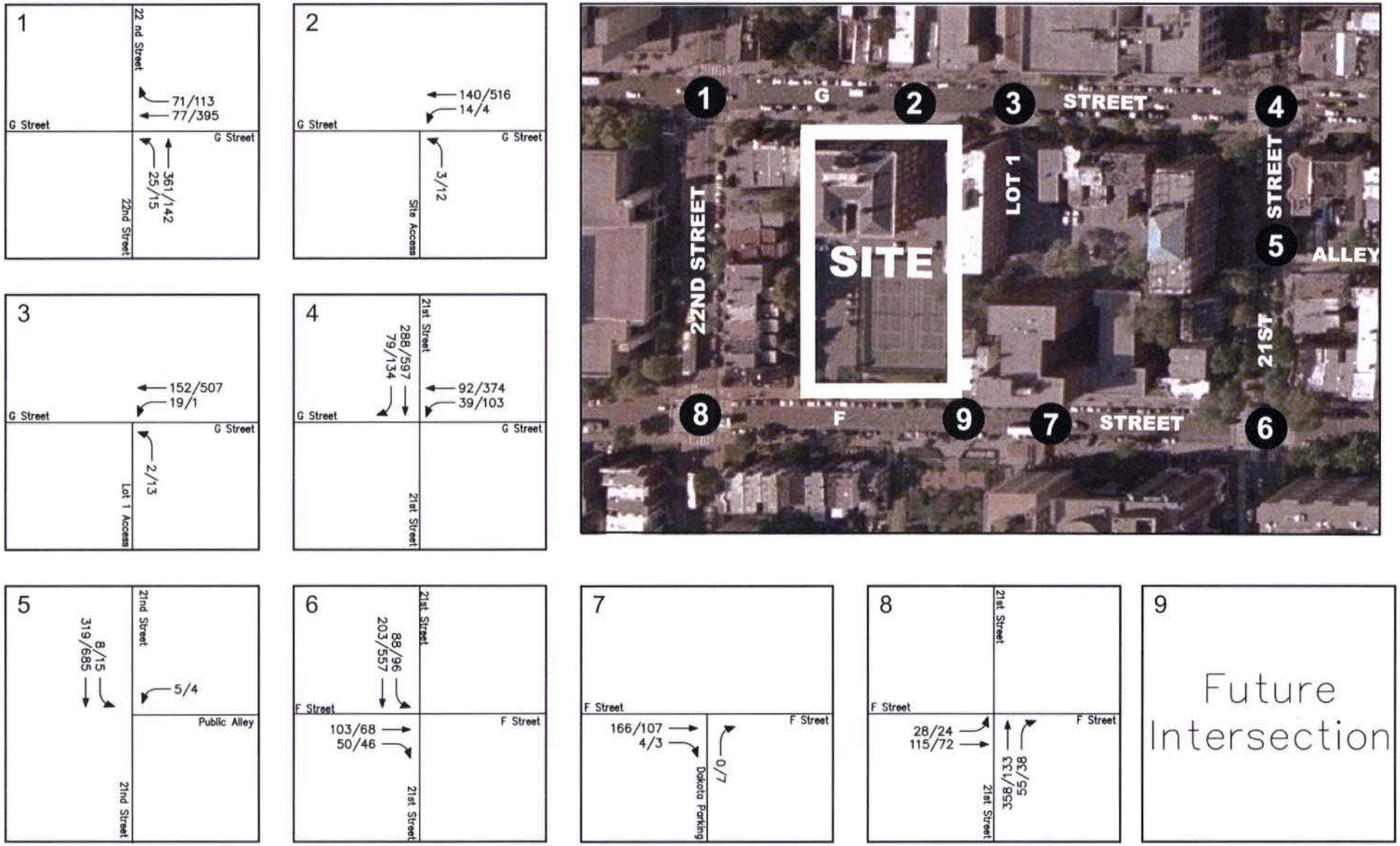

Figure 2–2
Existing Peak Hour Vehicular Counts

AM PEAK HOUR
PM PEAK HOUR
000/000

North

Square 80 PUD
Washington, D.C.

WELLS & ASSOCIATES, LLC

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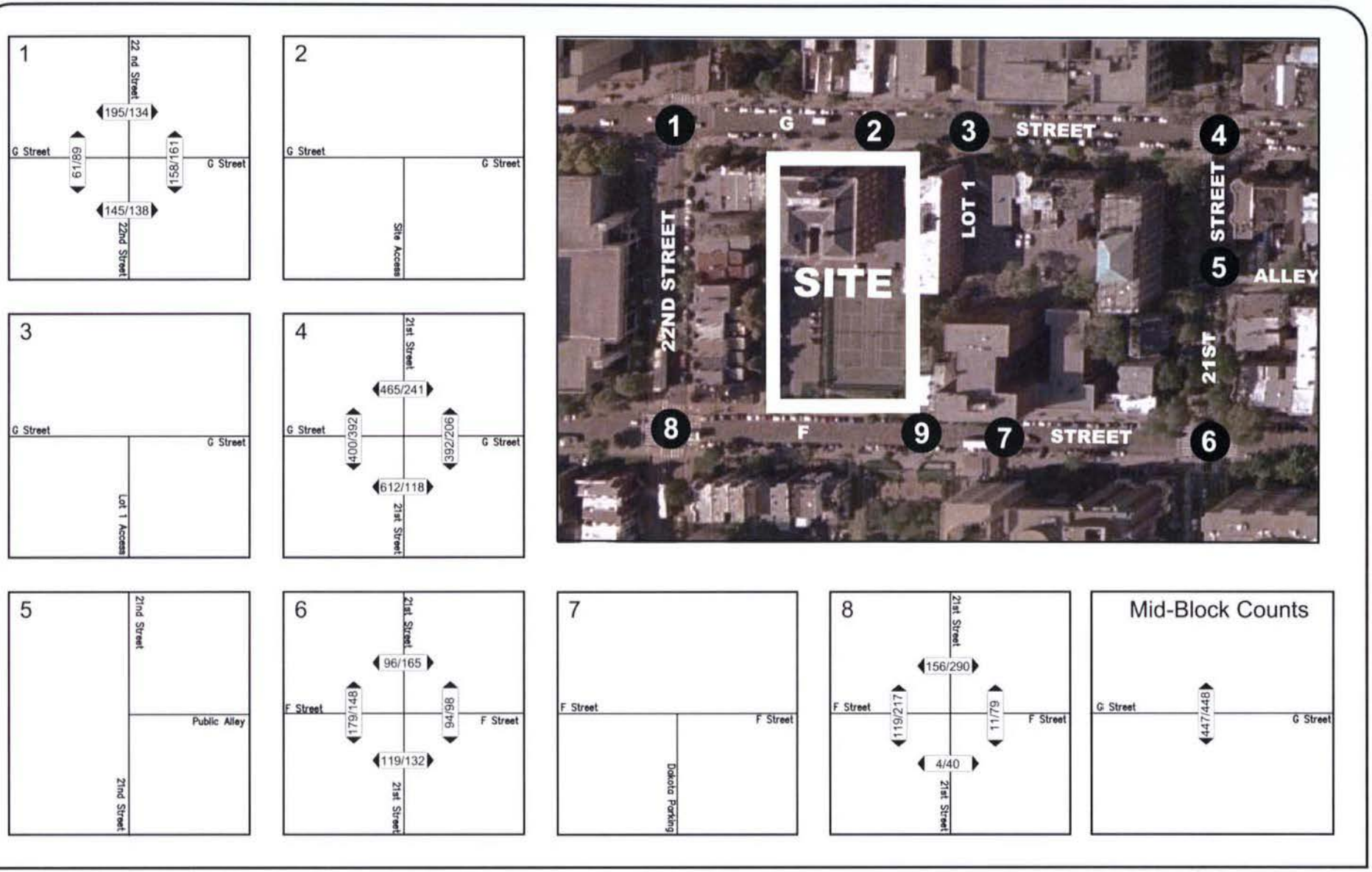

Figure 2–3
Existing Pedestrian Counts

AM PEAK HOUR
PM PEAK HOUR
000/000

North

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SECTION 3
ANALYSIS

EXISTING LEVELS OF SERVICE

Existing peak hour levels of service were estimated at the eight (8) key intersections in the study area based on the existing lane usage and traffic control shown on Figure 2-1, the existing traffic volumes shown on Figure 2-2, and the Highway Capacity Manual. The results are summarized in Table 3-1.

Table 3-1 indicates that all of the key intersections currently operate at an overall acceptable level of service (LOS) "D" or better during both the AM and PM peak hours.

OTHER DEVELOPMENT TRIP GENERATION

In addition to the IMF Headquarters 2, Columbia House Apartments I and II, and 2425 L Street planned development projects, this analysis examined two scenarios previously described as the existing (2009) campus plan scenario, and the proposed (2025) campus plan scenario.

Existing Foggy Bottom Campus Plan Scenario. The number of peak hour trips that will be generated by the IMF Headquarters 2, Columbia House Apartments I and II, and 2425 L Street planned development projects were estimated based on previously approved traffic impact studies. As shown on Table 3-2, it is estimated that these projects will generate a total of 318 AM peak hour trips, and 439 PM peak hour trips, upon completion. Note that even though the three approved development projects are in the vicinity of the subject site, none of the approved development site-generated trips utilize the key intersections.

Proposed Foggy Bottom Campus Plan Scenario. The number of peak hour trips that will be generated by the IMF Headquarters 2, Columbia House Apartments I and II, 2425 L Street development projects, as well as the impact of the GW on-campus parking changes associated with the Campus Plan for 2006-2025 were estimated based on previously conducted traffic impact studies.

OTHER DEVELOPMENT TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENTS

The distribution of the planned development projects were determined based on previously approved traffic impact studies. The approved development project trips for the existing Foggy Bottom Campus Plan scenario and the proposed Foggy Bottom Campus Plan scenario were assigned to the public road network and the results are shown in Figures 3-1a and 3-1b, respectively.

Table 3-1
Intersection Levels of Service
Square 80 PUD

Intersection	Type of Control	Existing Conditions AM	Existing Conditions PM	Background Conditions (Existing Foggy Bottom Campus Plan Scenario) AM	Background Conditions (Existing Foggy Bottom Campus Plan Scenario) PM	Background Conditions (Proposed Foggy Bottom Campus Plan: 2006-2025 Scenario) AM	Background Conditions (Proposed Foggy Bottom Campus Plan: 2006-2025 Scenario) PM	Total Future Conditions (Existing Foggy Bottom Campus Plan Scenario) AM	Total Future Conditions (Existing Foggy Bottom Campus Plan Scenario) PM	Total Future Conditions (Proposed Foggy Bottom Campus Plan: 2006-2025 Scenario) AM	Total Future Conditions (Proposed Foggy Bottom Campus Plan: 2006-2025 Scenario) PM
1 G Street and 22nd Street	Signal										
Westbound		B(16.8)	B(14.3)	B(16.9)	B(15.2)	B(17.6)	B(15.7)	B(16.8)	B(14.9)	B(17.8)	B(15.4)
Northbound		B(17.1)	B(18.8)	B(17.2)	B(18.8)	B(17.4)	B(18.8)	B(17.2)	B(18.8)	B(17.4)	B(18.8)
Overall		**B(17.0)**	**B(15.4)**	**B(17.1)**	**B(16.0)**	**B(17.4)**	**B(16.4)**	**B(17.1)**	**B(15.8)**	**B(17.5)**	**B(16.2)**
2 G Street and SWW Parking Drwy	Stop Sign										
Westbound TL		A[0.7]	A[0.1]	A[0.7]	A[0.1]	A[0.7]	A[0.1]	N/A	N/A	N/A	N/A
Northbound L		A[9.5]	B[13.4]	A[9.5]	B[13.6]	A[9.6]	B[14.0]	N/A	N/A	N/A	N/A
3 G Street and Lot 1 Parking Drwy	Stop Sign										
Westbound TL		A[0.9]	A[0.0]	A[1.1]	A[0.0]	A[1.0]	A[0.0]	A[1.1]	A[0.0]	A[1.0]	A[0.0]
Northbound L		A[9.7]	B[13.2]	A[9.8]	B[13.4]	A[9.9]	B[13.9]	A[9.8]	B[13.4]	A[9.9]	B[13.8]
4 G Street and 21st Street	Signal										
Westbound		B(10.6)	D(53.6)	B(10.7)	E(57.0)	B(10.5)	E(62.0)	B(10.6)	E(56.6)	B(10.5)	E(61.5)
Southbound		A(5.8)	A(5.0)	A(5.8)	A(6.3)	A(5.9)	A(5.4)	A(5.8)	A(6.3)	A(5.9)	A(5.4)
Overall		**A(7.0)**	**C(25.9)**	**A(7.1)**	**C(26.3)**	**A(7.0)**	**C(28.1)**	**A(7.0)**	**C(26.1)**	**A(7.0)**	**C(27.8)**
5 21st Street and Alley	Stop Sign										
Westbound L		A[9.7]	B[10.3]	A[9.7]	B[10.5]	A[9.8]	B[10.4]	A[9.7]	B[10.5]	A[9.8]	B[10.4]
Southbound TL		A[0.2]	A[0.2]	A[0.2]	A[0.2]	A[0.3]	A[0.1]	A[0.2]	A[0.2]	A[0.3]	A[0.1]
6 F Street and 21st Street	Signal										
Eastbound		B(10.6)	B(11.6)	B(10.7)	B(11.6)	B(10.7)	B(11.9)	B(10.7)	B(12.0)	B(10.8)	B(12.4)
Southbound		A(7.7)	A(9.4)	A(7.8)	A(8.5)	A(8.1)	A(8.4)	A(7.8)	A(8.5)	A(8.1)	A(8.5)
Overall		**A(8.7)**	**A(9.7)**	**A(8.8)**	**A(8.9)**	**A(9.0)**	**A(9.0)**	**A(8.9)**	**A(9.1)**	**A(9.1)**	**A(9.2)**
7 F Street and Dakota Parking Drwy	Stop Sign										
Northbound R		A[0.0]	A[8.9]	A[0.0]	A[8.9]	A[0.0]	A[9.0]	A[0.0]	A[9.1]	A[0.0]	A[9.2]
8 F Street and 22nd Street	Stop Sign										
Eastbound TL		C[21.7]	C[21.1]	C[22.1]	C[21.3]	C[23.9]	C[21.4]	D[25.1]	C[21.8]	D[27.6]	C[22.0]
9 F Street and Proposed Garage Access	Stop Sign										
Eastbound TL		N/A	N/A	N/A	N/A	N/A	N/A	A[1.5]	A[0.8]	A[1.5]	A[0.7]
Southbound L		N/A	N/A	N/A	N/A	N/A	N/A	B[10.2]	A[9.5]	B[10.2]	A[9.6]
10 F Street and Lot 80B Parking Driveway	Stop Sign										
Eastbound TL		N/A	N/A	N/A	N/A	A[0.7]	A[0.4]	N/A	N/A	A[0.6]	A[0.4]
Southbound L		N/A	N/A	N/A	N/A	A[9.8]	A[9.3]	N/A	N/A	B[10.1]	A[9.4]

Notes [1] Analysis performed using Synchro/Simtraffic Version 6.0

Table 3-2

Square 80 PUD

Trips Generated by Other Approved Developments [1]

Background Project	Trip Type/ Land Use	Development Program [4]	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
IMF 2 Headquarters	Office	649,350	S.F.	737	101	838	137	669	806
	Non-Auto Reduction [2]	*57%*		*421*	*57*	*478*	*78*	*381*	*459*
	New Office Trips			*316*	*44*	*360*	*59*	*288*	*347*
	Existing PEPCO Building [2]	420,000	S.F.	202	29	231	38	181	219
	Net New Office Trips			**114**	**15**	**129**	**21**	**107**	**128**
Columbia House Apartments I	Residential	142	D.U.	15	58	73	62	34	96
	Non-Auto Reduction [3]	*50%*		*7*	*30*	*37*	*31*	*17*	*48*
	Net New Residential Trips			**8**	**28**	**36**	**31**	**17**	**48**
Columbia House Apartments II	Residential	213	D.U.	22	86	108	88	47	135
	Non-Auto Reduction [3]	*50%*		*11*	*43*	*54*	*44*	*24*	*68*
	Net New Residential Trips			**11**	**43**	**54**	**44**	**23**	**68**
2425 L Street, NW [4]	Luxury Condominiums	200	D.U.	14	47	61	37	23	60
	Retail	28,000	S.F.	23	15	38	65	70	135
				37	**62**	**99**	**102**	**93**	**195**
Total Other Approved Developments Trips				**170**	**148**	**318**	**198**	**240**	**439**

Notes:

1 Based on ITE, Trip Generation, 7th Edition.

2 The PEPCO trip generation and non-auto reduction percentage for this development was obtained from "International Monetary Fund Headquarters 2 - Planned Unit Development Application"; dated May 11, 2001; prepared by O.R. George & Associates, Inc.

3 The non-auto reduction percentages were calculated based on information provided in the Developm Related Ridership Survey II, published by the Washington Metropolitan Area Transit Authority.

4 Information taken from the Wells & Associates Traffic Impact Study, "2425 L Street", dated May 1, 2003. Includes residential condo non-auto mode split of 45% and retail non-auto mode split of 50%.

BACKGROUND TRAFFIC GROWTH

In order to account for regional traffic growth outside the immediate site vicinity, a 0.5 percent growth rate, compounded annually, was applied for four (4) years to the project buildout year (2009). This growth rate was applied to all movements at the key intersections.

Proposed Foggy Bottom Campus Plan: 2006-2025 Scenario. In order to remain consistent with the Transportation Impact Study for the George Washington Foggy Bottom Campus Plan: 2006-2025, the regional growth was applied to the non-GW traffic only.

BACKGROUND TRAFFIC FORECASTS

The background peak hour traffic forecasts, without the development of the GW residence hall and the expansion/renovation of SWW, were estimated based on the existing traffic counts, traffic generated by the planned developments, and the background regional traffic growth. The background traffic forecasts for the year of project buildout (2009) for both the existing campus plan scenario and the proposed campus plan scenario are shown on Figures 3-2a and 3-2b, respectively.

BACKGROUND LEVELS OF SERVICE

Background peak hour levels of service were estimated at the eight (8) key intersections in the study area for the year of project buildout (2009) based on: the intersection lane usage and traffic control shown on Figure 2-1, the background traffic forecasts shown on Figures 3-2a and 3-2b, and the Highway Capacity Manual. The results are summarized in Table 3-1.

Existing Foggy Bottom Campus Plan Scenario. All key intersections will continue to operate at an overall acceptable level of service (LOS) "D" or better during both the AM and PM peak hours.

Proposed Foggy Bottom Campus Plan Scenario. All key intersections will continue to operate at an overall acceptable LOS "D" or better during both the AM and PM peak hours.

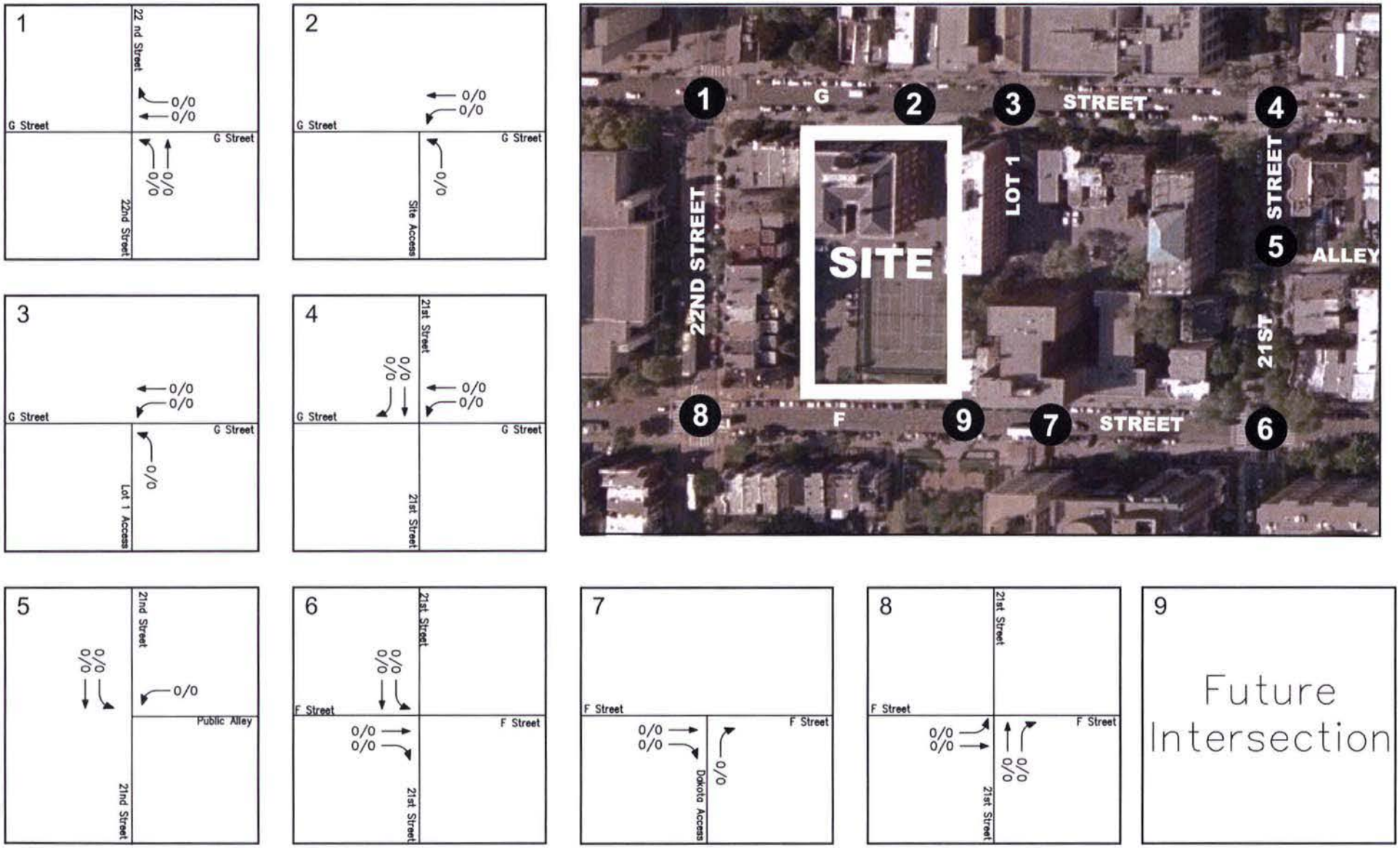

Figure 3–1a
Other Approved Developments
(Existing Campus Plan Scenario)

AM PEAK HOUR
PM PEAK HOUR
000/000

North

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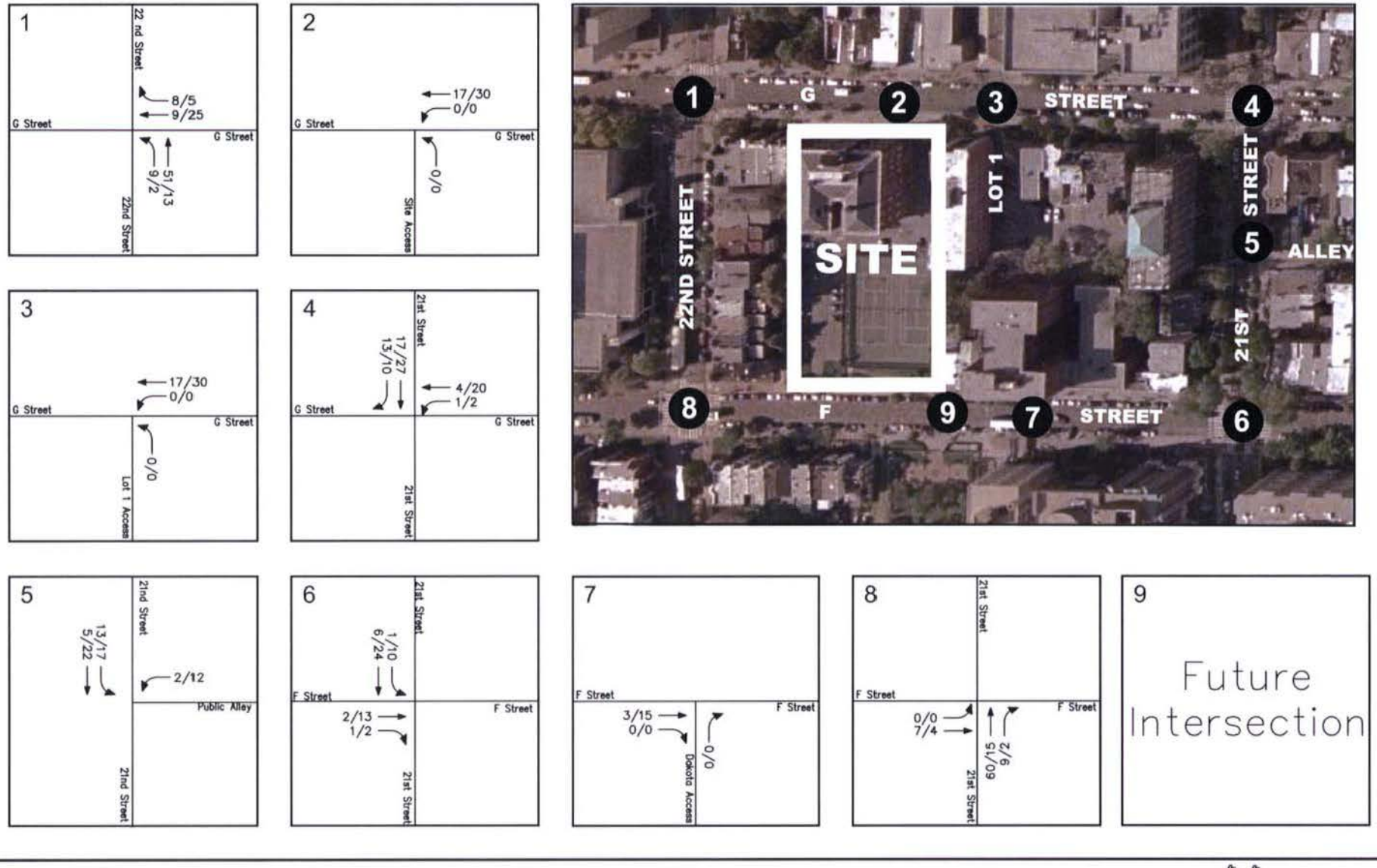

Figure 3–1b
Other Approved Developments
(Proposed Campus Plan Scenario)

AM PEAK HOUR
PM PEAK HOUR
000/000

North

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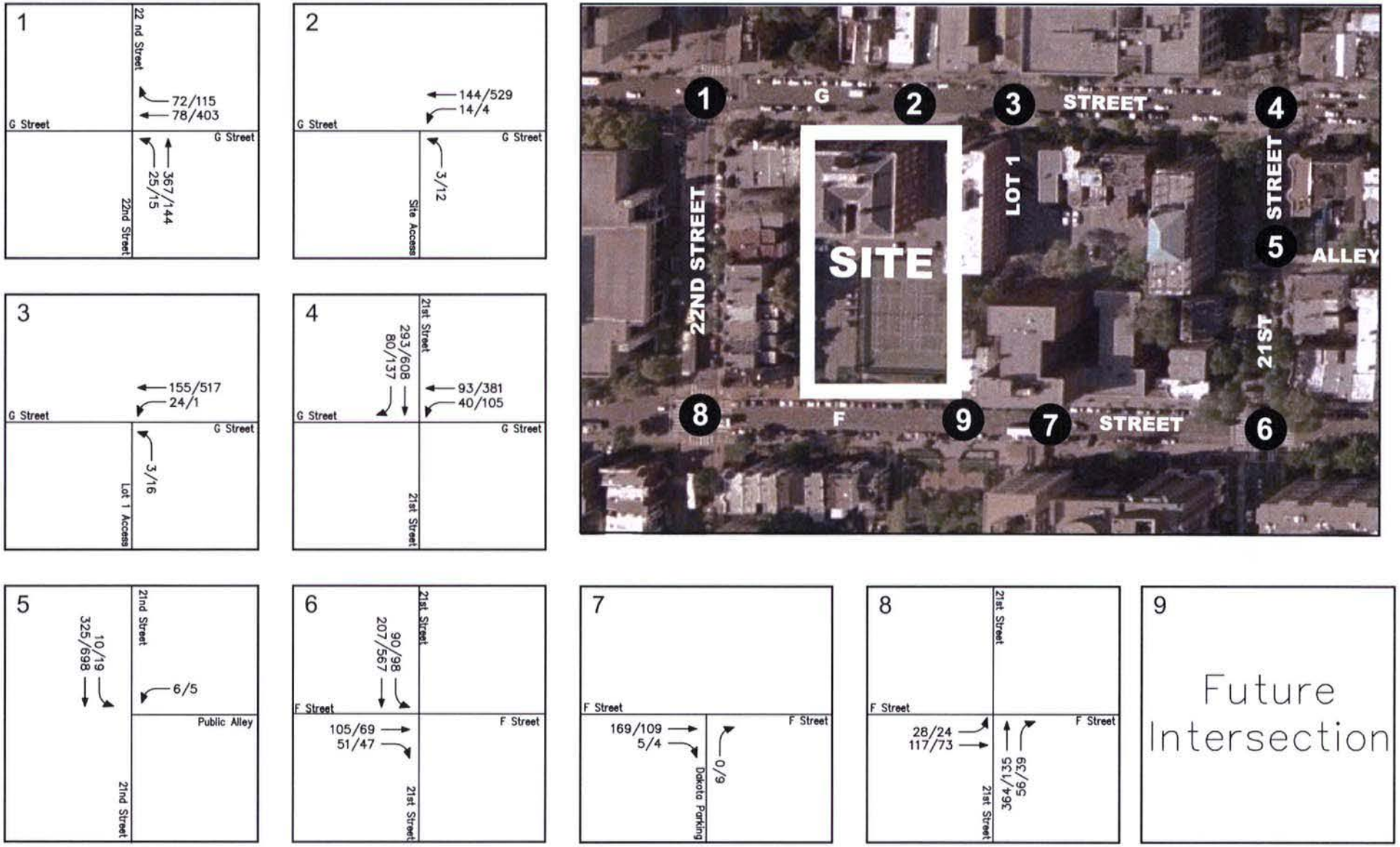

Figure 3–2a
Background Peak Hour Forecasts
(Existing Campus Plan Scenario)

AM PEAK HOUR
PM PEAK HOUR
000/000

North

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Washington, D.C.

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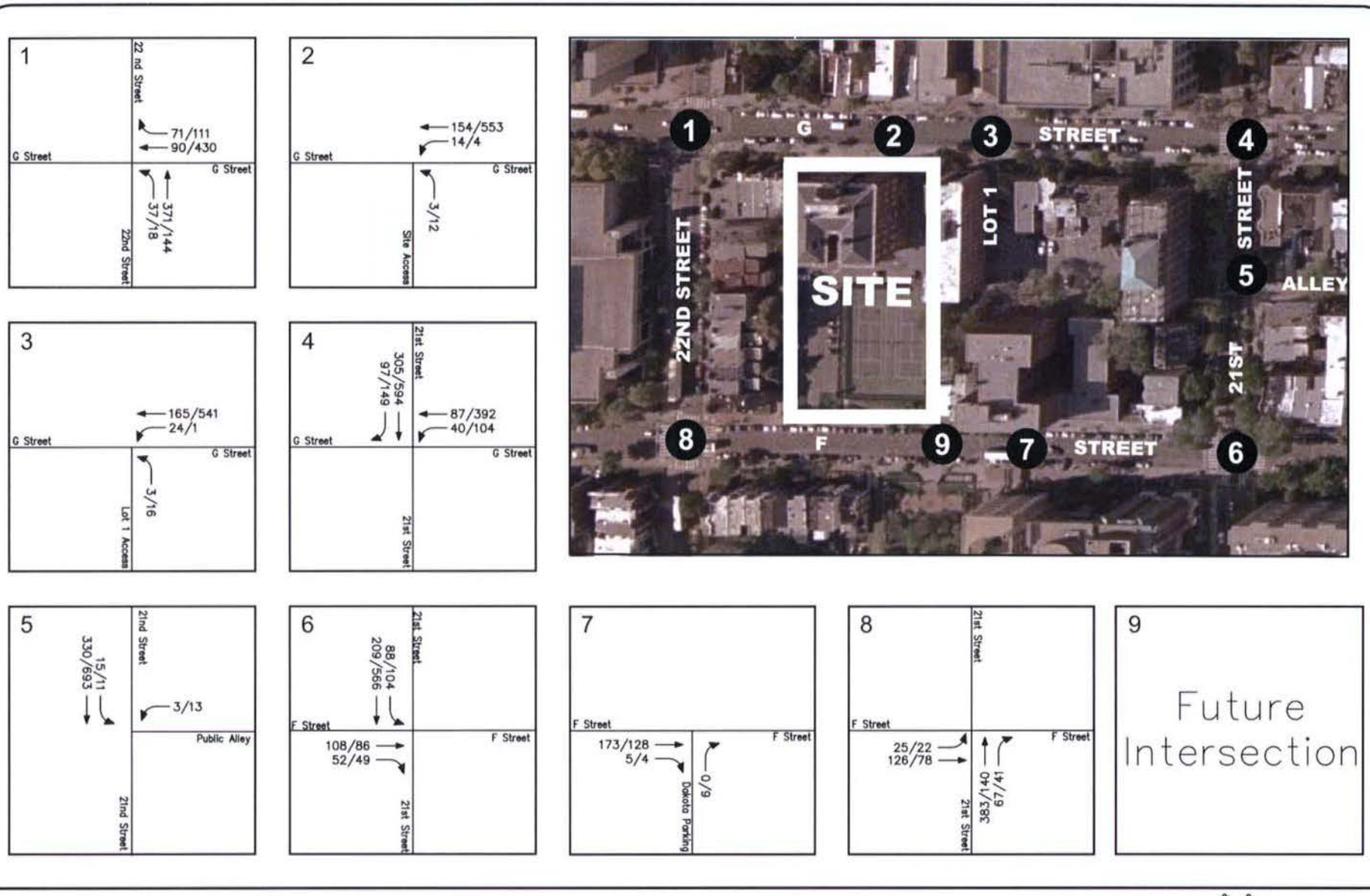

Figure 3–2b
Background Peak Hour Traffic Forecasts
(Proposed Campus Plan Scenario)

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SITE TRIP GENERATION ANALYSIS

The existing SWW parking lot trips were relocated from the G Street entrance to another nearby GW facility based on existing travel patterns. Under the agreement between DCPS and GW, GW will provide SWW with 30 parking spaces (free of charge) at a nearby location. Therefore, a maximum of 30 parking permits can be distributed to SWW students and faculty/staff at a time. Since there are currently 31 parking permits being held by students and faculty/staff member, it was assumed for purposes of this analysis that no additional parking permits would be issued to new students and faculty/staff.

The number of trips that will be generated by the possible expansion of the SWW population were estimated based on the existing number of vehicles trips currently utilizing the existing SWW parking lot, the school bus trips, and the vehicle carpooling trips. A vehicle-trip rate was determined based on the existing vehicle-trips per the existing student population, and was applied to the expected increase in the population. As shown in Table 3-3a, the increase in the student population is anticipated to generate 25 AM peak hour trips and 6 PM peak hour trips. These additional trips were then assigned to the designated Drop Off zone in front of SWW.

The number of trips that will be generated by the new GW parking garage located underneath the proposed GW residence hall were estimated by using a per parking space trip rate based on the extended counts conducted at the UPG on Thursday, November 10, 2005. The UPG supports a representative mix of parking users found throughout the GW campus, including students, faculty, staff, and visitors; therefore, the per parking space trip rate would be conservative when applied to the new GW parking garage that will likely be a controlled-access facility.

The residence hall parking garage would provide a total of 178 spaces. According to an agreement between GW and SWW, GW will provide SWW with 30 parking spaces at a nearby location[2]. As shown in Table 3-3b, the parking garage is anticipated to generate 29 AM peak hour trips (26 in and 3 out) and 30 PM peak hour trips (9 in and 21 out).

SITE TRAFFIC ASSIGNMENTS

The relocated existing SWW parking trips, the new SWW drop-off trips and the new GW parking generated trips were assigned to the public road network based on existing travel patterns. The resulting SWW and GW site traffic assignments are shown on Figures 3-3 and 3-4, respectively.

TOTAL FUTURE TRAFFIC FORECASTS

The new GW and SWW site generated trips were added to the background traffic forecasts shown on Figures 3-2a and 3-2b to yield the total future traffic forecasts shown on Figure 3-5a and 3-5b.

[2] For purposes of this traffic analysis, it was assumed that these 30 parking spaces would be located in the proposed GW residence hall parking garage.

TOTAL FUTURE LEVELS OF SERVICE

Future peak hour levels of service were estimated at the key intersections in the study area based on the lane usage and traffic controls shown on Figure 2-1, the total future traffic forecasts shown on Figures 3-5a and 3-5b, and the Highway Capacity Manual. The results are summarized in Table 3-1. Existing Foggy Bottom Campus Plan Scenario. All key intersections will continue to operate at an overall LOS "D" or better during both the AM and PM peak hours with the expansion/renovation of the SWW and the construction of the GW residence hall and underground parking garage. The new GW garage entrance on F Street is anticipated to operate at a LOS "B" and "A" during the AM and PM peak hours, respectively.

Proposed Foggy Bottom Campus PlanScenario. All key intersections will continue to operate at an overall LOS "D" or better during both the AM and PM peak hours with the expansion/renovation of the SWW and the construction of the GW residence hall and underground parking garage. The new GW garage entrance on F Street is anticipated to operate at a LOS "B" and "A" during the AM and PM peak hours, respectively.

PEDESTRIAN PLAN

Due to the high number of mid-block crossings on G Street, between 21st and 22nd Streets, special pedestrian treatments (such as pavement markings, etc) may be appropriate at this location as a preventative measure.

Since the majority of the pedestrian crossings consist of SWW and GW students, the design of pedestrian facilities would promote safe pedestrian circulation and provide safe access to existing transit facilities and services.

BICYCLE PROGRAM

A small number of students use bicycles as their primary mode of transportation and field observations indicated that no bicycle racks or lockers were available at SWW. Students used stair-railings or street signs to secure their bicycle.

The installation of a bike rack at SWW would promote their regular use by students and faculty/staff.

Table 3-3a
Square 80 PUD
SWW Net New Vehicle-Trip Generation Analysis [1]

Mode	AM Peak Hour (8:00-9:00 AM)			School PM Peak Hour (3:15-4:15 PM)			Commuter PM Peak Hour (4:45-5:45 PM)		
	In	Out	Total	In	Out	Total	In	Out	Total
Passenger Car Trips	28	28	56	6	6	12	-	-	-
School Bus Trips	1	1	2	1	1	2	-	-	-
Parking Lot Driveway Trips	21	5	26	4	15	19	8	13	21
Total Vehicle Trips	50	34	84	11	22	33	8	13	21
Vehicle-Trip Rate (340 students)	0.15	0.10	0.25	0.04	0.06	0.10	0.02	0.04	0.06
New Vehicle-Trips (100 new students)	15	10	25	4	6	10	2	4	6

Note: [1] Based on counts conducted by Wells & Associates on Wednesday, March 8, 2006

Table 3-3b
Square 80 PUD
GW Residence Hall and Parking Garage Vehicle-Trip Generation Analysis

Mode	Number of Parking Spaces	AM Peak Hour (7:30-8:30 AM)			Commuter PM Peak Hour (5:15-6:15 PM)		
		In	Out	Total	In	Out	Total
UPG Parking Garage Trips [1]	1,482	265	24	289	90	213	303
Parking Space Trip Rate		*0.18*	*0.02*	*0.20*	*0.06*	*0.14*	*0.20*
New SWW (Square 80) Parking Garage Vehicle-Trips	148	26	3	29	9	21	30

Note: [1] Based on extended counts conducted by Wells & Associates at the GW UPG on Thursday, November 10, 2005

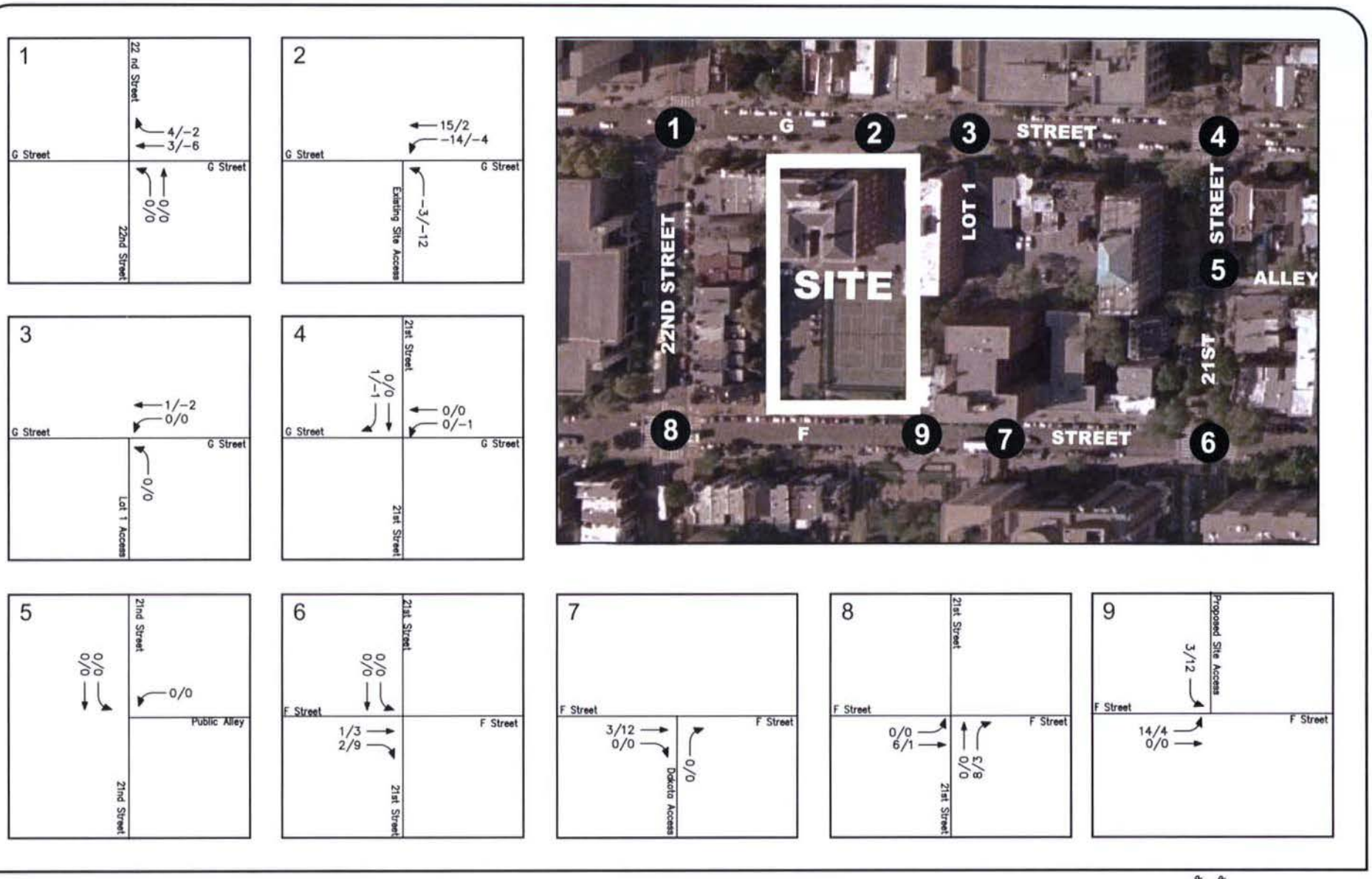

Figure 3–3
SWW Relocated Existing Parking Trips and Site–Generated Traffic Assignments

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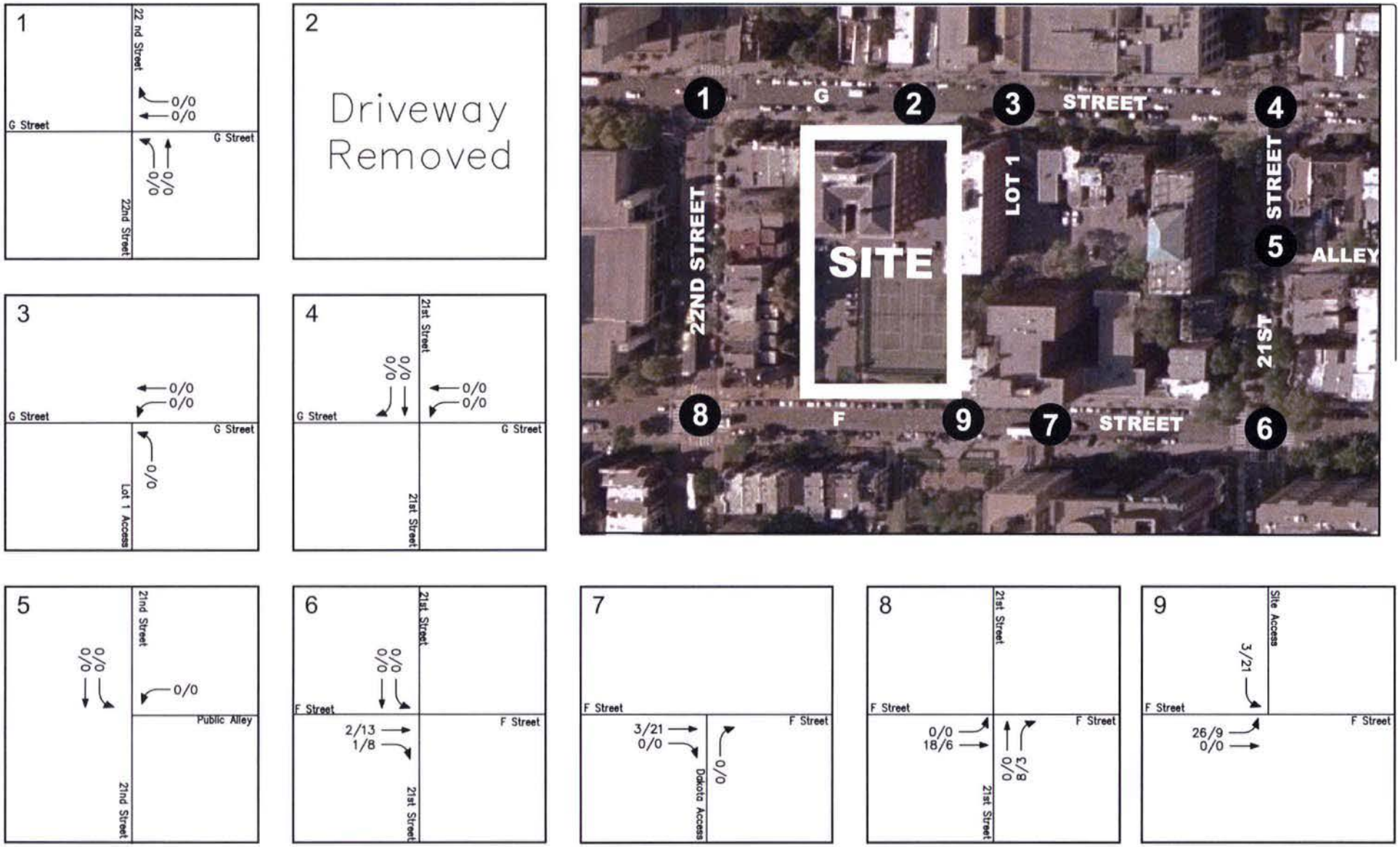

Figure 3–4
GW Site–Generated Traffic Assignments

AM PEAK HOUR
PM PEAK HOUR
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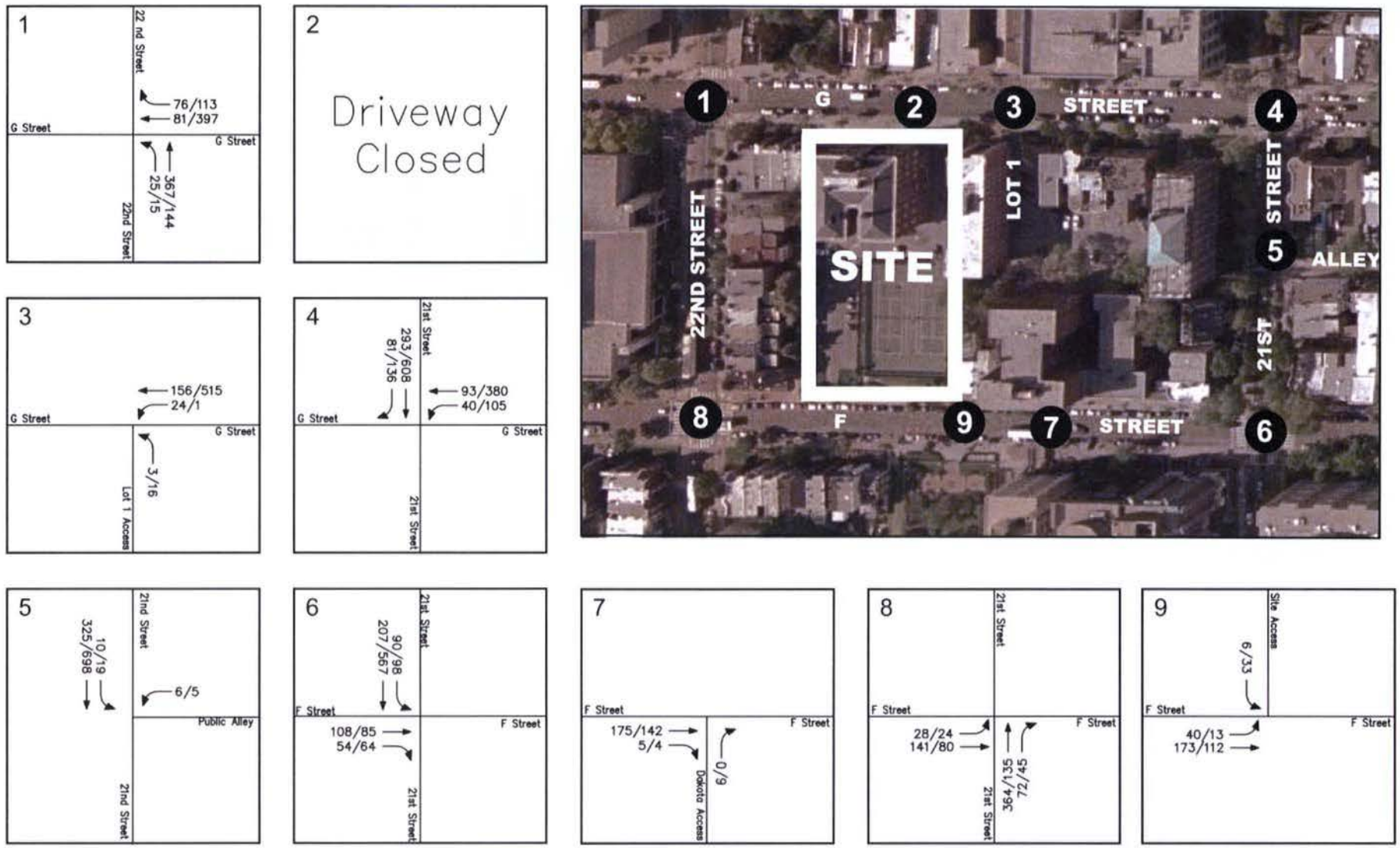

Figure 3–5a
Total Future Peak Hour Forecasts
(Existing Campus Plan Scenario)

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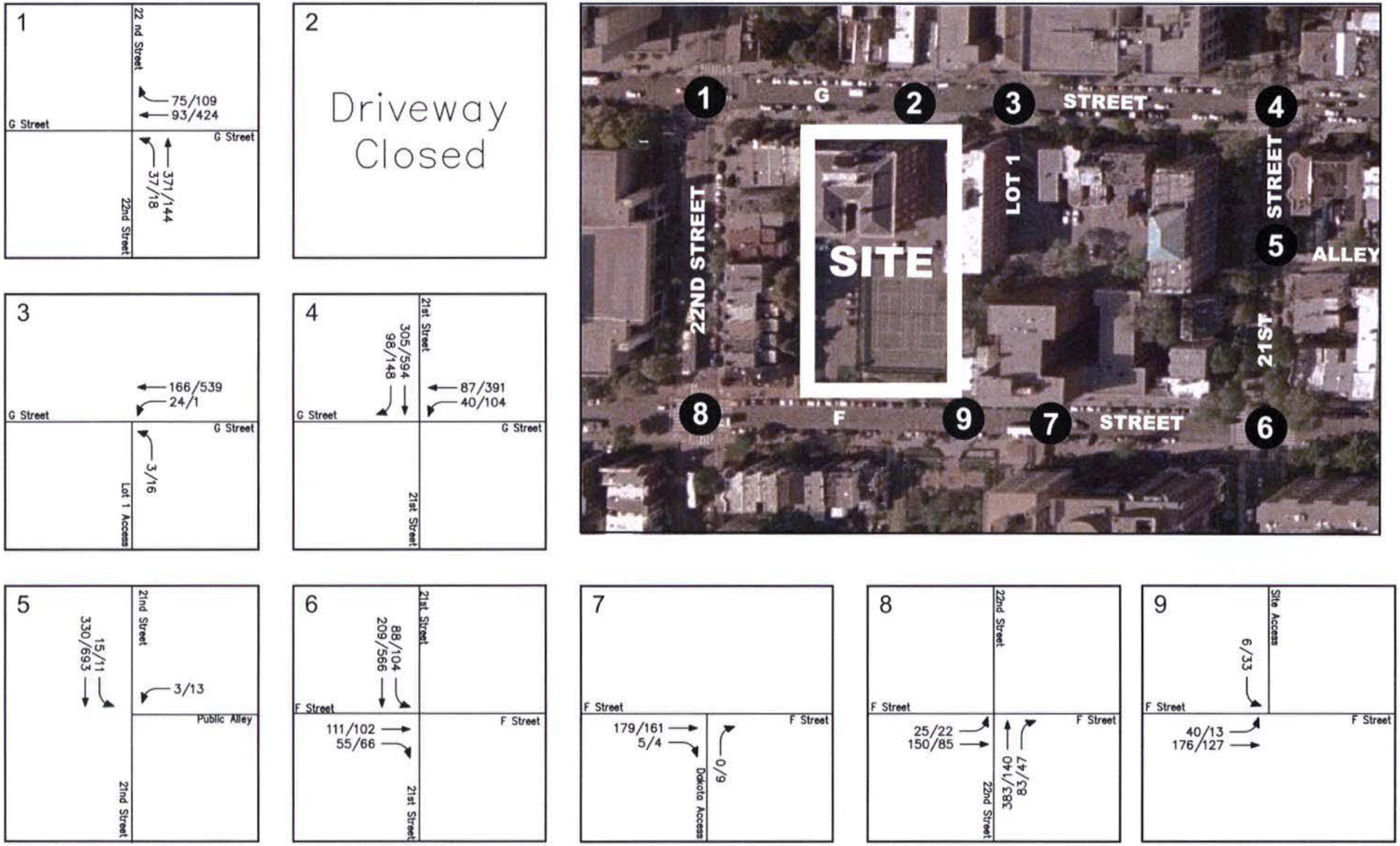

Figure 3–5b
Total Future Peak Hour Forecasts
(Proposed Campus Plan Scenario)

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PARKING

Chapter 21 of the D.C. Zoning Regulations establishes the minimum parking requirements for high schools. The requirement is two (2) spaces for every three (3) faculty and other employees, plus one (1) space for each 20 classroom seats or one (1) space for each 10 seats in the largest gym, auditorium, or area useable for public assemblies, whichever is greater.

A total of 18 spaces for 26 SWW faculty and staff members are required. There are currently no gyms, cafeterias, or auditoriums at SWW; therefore, the number of parking spaces required for the students was based on the actual number of students attending the school (assuming the number of students is equal to the number of classroom seats available). A total of 22 parking spaces would be required for the students, for a total of 40 parking spaces.

Pursuant to the MOU between DCPS and GW, GW will provide a minimum of 30 parking spaces (free of charge) to SWW at a nearby location which replaces the current parking used by the school. Although the school may increase its student enrollment by up to 23%, triggering an additional parking requirement of up to 10 spaces, the school anticipates that the increase in population will not require any additional parking due to the use of public transit by students and the fact that many are dropped off by parents or guardians.

DCPS is seeking relief from the aforementioned parking requirement through this PUD process.

LOADING

The loading area for the GW residence hall will be located at the southeast corner of the building with access via F Street. The access ramp for the parking garage will be located just east of the loading area. As shown in Figure 3-6, the loading area can satisfactorily accommodate an SU (30-foot) delivery truck. The loading area will be primarily for trash pick-up and other service functions.

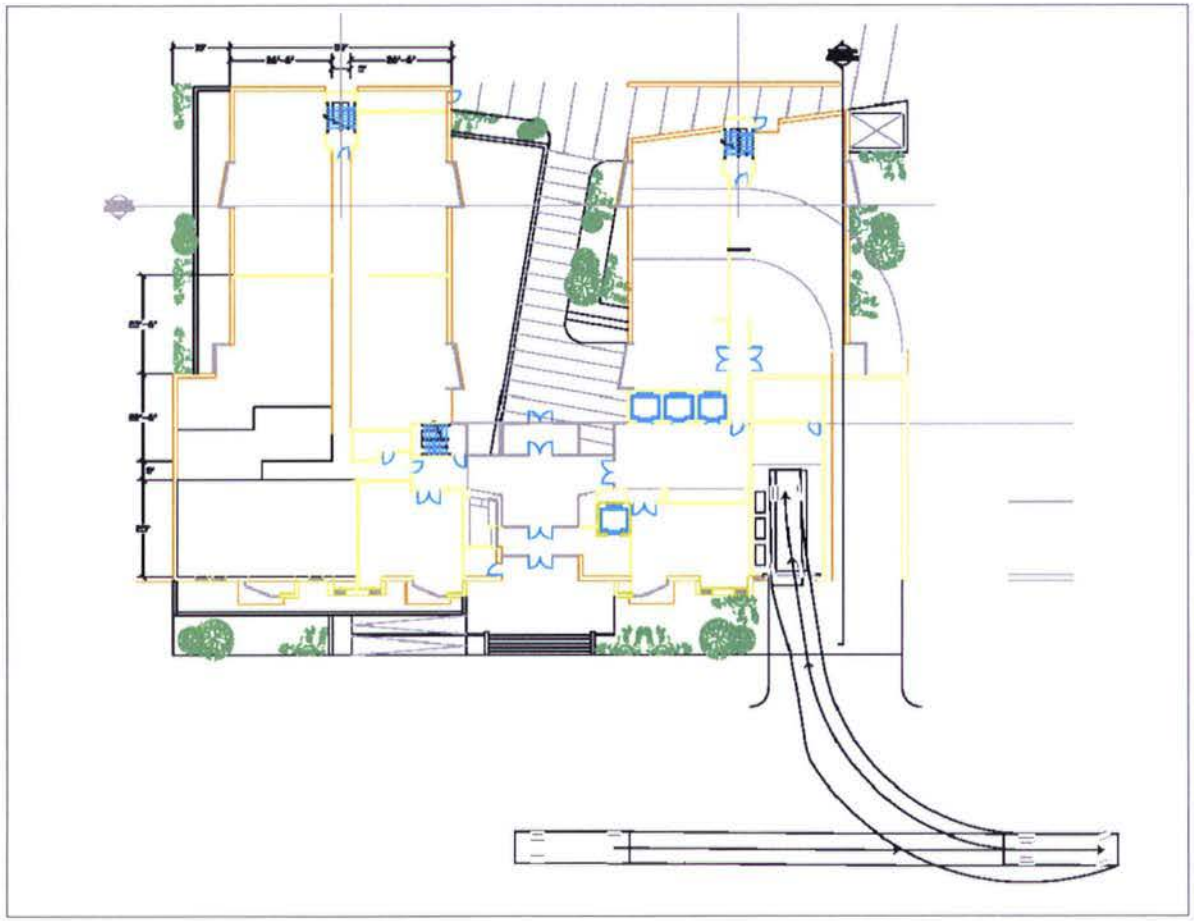

Figure 3–6
Truck Maneuvers

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SECTION 4
CONCLUSIONS

The conclusions of this traffic impact study are as follows:

1. All of the key intersections currently operate at an overall acceptable level of service (LOS) "D" or better during both the AM and the PM peak hours.

2. The approved but unbuilt projects in the study area can be adequately accommodated at all the key intersections in the study area.

3. The expansion/renovation of the SWW and the construction of the GW residence hall and underground parking garage will generate 54 additional AM peak hour trips and 36 additional PM peak hour trips.

4. These additional site-generated trips can be adequately accommodated at the key intersections in the study area during both the AM and PM peak hours. The new GW garage entrance on F Street is anticipated to operate at a LOS "B" and "A" during the AM and PM peak hours, respectively.

5. The number of parking spaces provided to DCPS by GW pursuant to the MOU meets the current parking needs for the school and essentially replaces the spaces used by the faculty and students on the site. Although the school may expand, potentially generating an additional 10 space requirement under the Zoning Regulations, the school anticipates that the potential increase in population will not require additional parking permits since the majority of the students either use public transit or will be dropped off by parents or guardians. DCPS is seeking relief from the additional parking requirement through the PUD process.