

Section 2 BACKGROUND DATA

Study Scope

This traffic study was conducted in accordance with the scoping agreement between Wells & Associates and DDOT staff. This study includes the following intersections:

1. Foxhall Road/Garfield Street,
2. Foxhall Road/Field School Driveway,
3. Foxhall Road/W Street,
4. Foxhall Road/Whitehaven Parkway,
5. Reservoir Road/MacArthur Boulevard (West),
6. Reservoir Road/Whitehaven Parkway,
7. Reservoir Road/MacArthur Boulevard (East)/Lab School Driveway,
8. Foxhall Road/Reservoir Road,
9. Foxhall Road/ FOSP School Driveway, and
10. Foxhall Road/ FOSP Residential Driveway,

Other intersections were added by Wells & Associates to this list:

1. Foxhall Road/Hoban Road,
2. Foxhall Road/45th Street,
3. Reservoir Road/Hoban Road, and
4. Foxhall Road/Phillips Estate Driveway.

This study also reflects the traffic impacts of redevelopment of the Phillips Estate with 47 single-family detached homes. The impacts of this project and the subject project were evaluated at project build out, which is anticipated to occur in 2012.

Level of service (LOS) "D" is considered the minimum acceptable level of service in urban areas such as Washington, D.C. LOS "E" is considered acceptable during peak hours in urbanized areas, such as the subject neighborhood.

Public Road Network

Overview. The Brady Estate is located within a connected network of local, collector, and arterial streets. Existing intersection lane use and traffic control at key intersections in the site vicinity are shown on Figure 2-1.

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Foxhall Road is a minor arterial street that connects MacArthur Boulevard to the south with Nebraska Avenue to the north. Foxhall Road is two (2) lanes wide north of Whitehaven Parkway and four (4) lanes wide south of Whitehaven Parkway, with no parking. A sidewalk exists on the west side of the street; no sidewalk exists on the east side of the street, along the Brady Estate frontage. Traffic signals are located along Foxhall Road at MacArthur Boulevard, Reservoir Road, Whitehaven Parkway, The Field School driveway, Garfield Street, and Nebraska Avenue. Foxhall Road has a posted speed limit of 25 miles per hour (mph).

Foxhall Road carried 19,000 vehicles per day (vpd) south of Reservoir Road, 10,300 vpd north of Reservoir Road, 15,300 vpd south of Garfield Street, and 14,300 vpd north of Garfield Street, in 2002, according to DDOT.

Foxhall Road is approximately 45 feet wide along the site frontage. It is striped for four (4) lanes: two (2) northbound lanes and two (2) southbound lanes. The leftmost northbound lane is used as a de facto exclusive left turn lane at Whitehaven Parkway. All northbound through traffic must merge into a single lane north of Whitehaven Parkway. The existing driveway to the Brady Estate is located approximately 160 feet north of Hoban Road.

Foxhall Road recently was widened to provide a separate southbound lane at the Field School driveway. A new traffic signal recently was installed at the Foxhall Road/Field School driveway intersection.

The following improvements to Foxhall Road were recommended in the Palisades Traffic Impact Study:

- Replace all pavement markings to improve visibility and safety,
- Construct an eastbound left-turn lane on Reservoir Road to allow for an eastbound lane configuration consisting of an exclusive left and through lanes, and a shared through/right lane,
- Modify signal phasing and optimize signal timings,
- Convert Salem Lane to one way eastbound to prohibit right turns from southbound Foxhall Road and increase safety,
- Construct sidewalk on the east side of Foxhall Road between Hoban Road and Reservoir Road to increase pedestrian safety,
- Install a "Yield to Pedestrians While Turning" sign for westbound right turns to increase pedestrian safety, and
- Eliminate 200 feet of parking on the north side of Reservoir Road west of Foxhall Road to allow for easier left turns from Kenmore Drive onto Reservoir Road.

The proposed developers of the Philips Estate propose to construct a new, full-movement, signalized site driveway on Foxhall Road just south of W Street.

All vehicular access to **Colony Hill** is provided by Hoban Road and 45th Street. Hoban Road is posted one-way eastbound (or inbound) at Foxhall Road and one-way southbound (or outbound) at Reservoir Road. (This thwarts westbound-Reservoir-to-northbound-Foxhall-Road cut-through traffic). 45th Street intersects Foxhall Road north of Reservoir Road and south of Hoban Road. Hoban Road, 45th Street, and Hadfield Lane within Colony Hill are classified by DDOT as local streets.

Reservoir Road is an east-west street that connects Canal Road and Wisconsin Avenue. Reservoir Road between MacArthur Boulevard and Wisconsin Avenue is classified by DDOT as a minor arterial street. Traffic signals are located at the MacArthur Boulevard and Foxhall Road intersections. Reservoir Road carried 19,200 vpd east of Foxhall Road, and 4,000 vpd west of MacArthur Boulevard, in 2002, according to DDOT.

Whitehaven Parkway is a local street that provides access to the St. Patrick's lower school campus (Whitehaven campus), the George Washington University Mount Vernon Campus, the Lab School, Our Lady of Victory, and a small number of single-family detached homes.

MacArthur Boulevard is a four-lane, median-divided, north-south, minor arterial street with a posted speed limit of 25 mph. The intersection of MacArthur Boulevard with Reservoir Road is controlled by traffic signal. Whitehaven Parkway is controlled by a stop sign at MacArthur Boulevard. MacArthur Boulevard carried 19,800 vehicles per day (vpd) north of Reservoir Road, and 23,100 vpd south of Reservoir Road, in 2002, according to DDOT.

W Street is an east-west local street that intersects Foxhall Road approximately 1,000 feet north of Whitehaven Parkway and 1,625 feet north of the proposed St. Patrick's middle and upper school driveway. W Street is controlled by stop signs at Foxhall Road. Sight distances for motorists turning off of W Street onto Foxhall Road are restricted by roadside obstacles and the alignment of Foxhall Road. The developers of the Philips Estate propose to construct short separate eastbound and westbound right turn bays on W Street at Foxhall Road.

Garfield Street is classified as a local street west of Foxhall Road and as a collector street east of Foxhall Road. The Foxhall Road/Garfield Street intersection is controlled by a traffic signal. Garfield Street carried 1,300 vehicles per day between Foxhall Road and New Mexico Avenue in 2002, according to DDOT.

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Existing Traffic Counts

Vehicular Traffic Counts. Existing vehicle and pedestrian traffic counts were conducted by Wells & Associates at the following intersections on the following days:

1. Foxhall Road/Garfield Street (Tuesday, November 16, 2004),
2. Foxhall Road/Field School Driveway (Tuesday, November 16, 2004),
3. Foxhall Road/W Street (Tuesday, November 16, 2004),
4. Foxhall Road/Whitehaven Parkway (Tuesday, November 16, 2004),
5. Foxhall Road/Reservoir Road (Tuesday, November 16, 2004),
6. Reservoir Road/MacArthur Boulevard (East)/Lab School Driveway (Tuesday, November 16, 2004),
7. Reservoir Road/Whitehaven Parkway (Tuesday, November 16, 2004),
8. Reservoir Road/MacArthur Boulevard (West), (Tuesday, November 16, 2004),
9. Foxhall Road/Hoban Road (Wednesday, April 27, 2005),
10. Foxhall Road/45th Street (Wednesday, April 27, 2005), and
11. Reservoir Road/Hoban Road (Wednesday, April 27, 2005).

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These counts were taken from 7:00 to 9:00 AM and from 2:00 to 7:00 PM. The counts are presented in Appendix A and summarized on Figure 2-2.

These counts reflect:

1. Recent construction of the Field School on the east side of Foxhall Road,
2. Installation of new traffic signals on Foxhall Road at the Field School driveway and Whitehaven Parkway,
3. Implementation of a carpool initiative and traffic management plan at the St. Patrick's lower school campus (Whitehaven campus),
4. Shuttle bus service between the St. Patrick's lower school campus (Whitehaven campus) and MacArthur Boulevard campuses,
5. Expansion of the George Washington University Mount Vernon campus, and
6. Traffic generated by the Lab School, Our Lady of Victory, River School, Rock Creek International School, Georgetown Day School, Key Elementary School, and Mann Elementary School.

Peak Hours. Peak times varied across the many study intersections, as shown on Figure 2-2. Along Foxhall Road, the AM peak hour generally occurred from 7:30 to 8:30 AM, the school PM peak hour occurred from 2:45 to 3:45 PM; and the commuter PM peak hour generally occurred from 5:00 to 6:00 PM.

Foxhall Road Traffic Counts. Figure 2-2 indicates that Foxhall Road, south of Whitehaven Parkway, presently carries 1,622 vehicle-trips during the AM peak hour, 1,162 vehicle-trips during the school PM peak hour, and 1,281 vehicle-trips during the commuter PM peak hour. This traffic is nearly evenly split in the northbound and southbound directions. The north/south splits are 52/48, 52/48, and 55/45 percent during the AM, school PM, and commuter PM peak hours, respectively.

Colony Hill Neighborhood Traffic Counts. The number of peak hour vehicle-trips entering and exiting the Colony Hill neighborhood was estimated based on traffic counts at each of the three (3) entrances/exits to/from the neighborhood: (1) Hoban Road at Foxhall Road, (2) Hoban Road at Reservoir Road, and (3) 45th Street at Foxhall Road. A total of 56 vehicle-trips entered or exited the neighborhood during the AM peak hour from 8:00 to 9:00 AM, 52 vehicle-trips during the school PM peak hour from 2:45 to 3:45 PM, and 66 vehicle-trips during the commuter PM peak hour from 5:15 to 6:15 PM, as shown in Table 2-1.

When compared to the Institute of Transportation Engineers (ITE) or other high-end residences such as Foxhall Crescent, these counts suggest a higher trip generation for Colony Hill. However, based on the results of an origin-destination study at these three locations, a significant portion of the traffic is cut-through traffic, using Hoban Road that travels from southbound Foxhall Road to eastbound Reservoir Road. Approximately three, nine, and 20-percent of the total traffic was determined to be cut-through traffic during the AM, school PM, and commuter PM peak hours, respectively.

Approximately 70 to 85 percent of the Colony Hill traffic enters the site from the north via Hoban Road and 45th Street; 15 to 30 percent enters from the east and the south via 45th Street and Hoban Road. Approximately 70 to 85 percent of all Colony Hill traffic exits to the north via 45th Street, 10 to 20 percent exits to the south via 45th Street, and 5 to 10 percent exits to the east via Hoban Road onto Reservoir Road.

Pedestrian Traffic Counts. Pedestrian traffic counts are presented in Appendix B and summarized on Figure 2-3. Due to the lack of sidewalks along most segments of Foxhall Road, pedestrian volumes along and across Foxhall Road are low.

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Vehicle Queues

Vehicles queues in the left lane on northbound Foxhall Road at Whitehaven Parkway were measured by Wells & Associates on Thursday, May 9, 2005, during each signal cycle from 7:00 to 9:00 AM and from 2:00 to 7:00 PM. The minimum, maximum, and average queues during the AM peak hour were 1.0, 6.0, and 2.2 vehicles, respectively, or 25, 150, and 55 feet, respectively, based on an average vehicle length of 25 feet (including spacing). The minimum, maximum, and average queues during the PM peak hour were zero, 6.0 and 1.8 vehicles, respectively, or zero, 150, and 45 feet, respectively, based on an average vehicle length 25 feet (including spacing).

Public Transportation Facilities and Services

The nearest Metrobus service operates on Reservoir Road (Lines D3, D6), MacArthur Boulevard (Lines D3, D5, and D6), and Nebraska Avenue (Line M4). No Metrobus service presently operates on Foxhall Road along the site frontage.

The nearest Metrorail stations are the Foggy Bottom-GWU and Dupont Circle stations. The Foggy Bottom-GWU station is located approximately 2.3 miles to the southeast on 23rd Street at Eye Street. The Dupont Circle station is located approximately 2.5 miles to the east on Connecticut Avenue at Q Street. Both of these stations are well beyond convenient walking distance from the subject site.

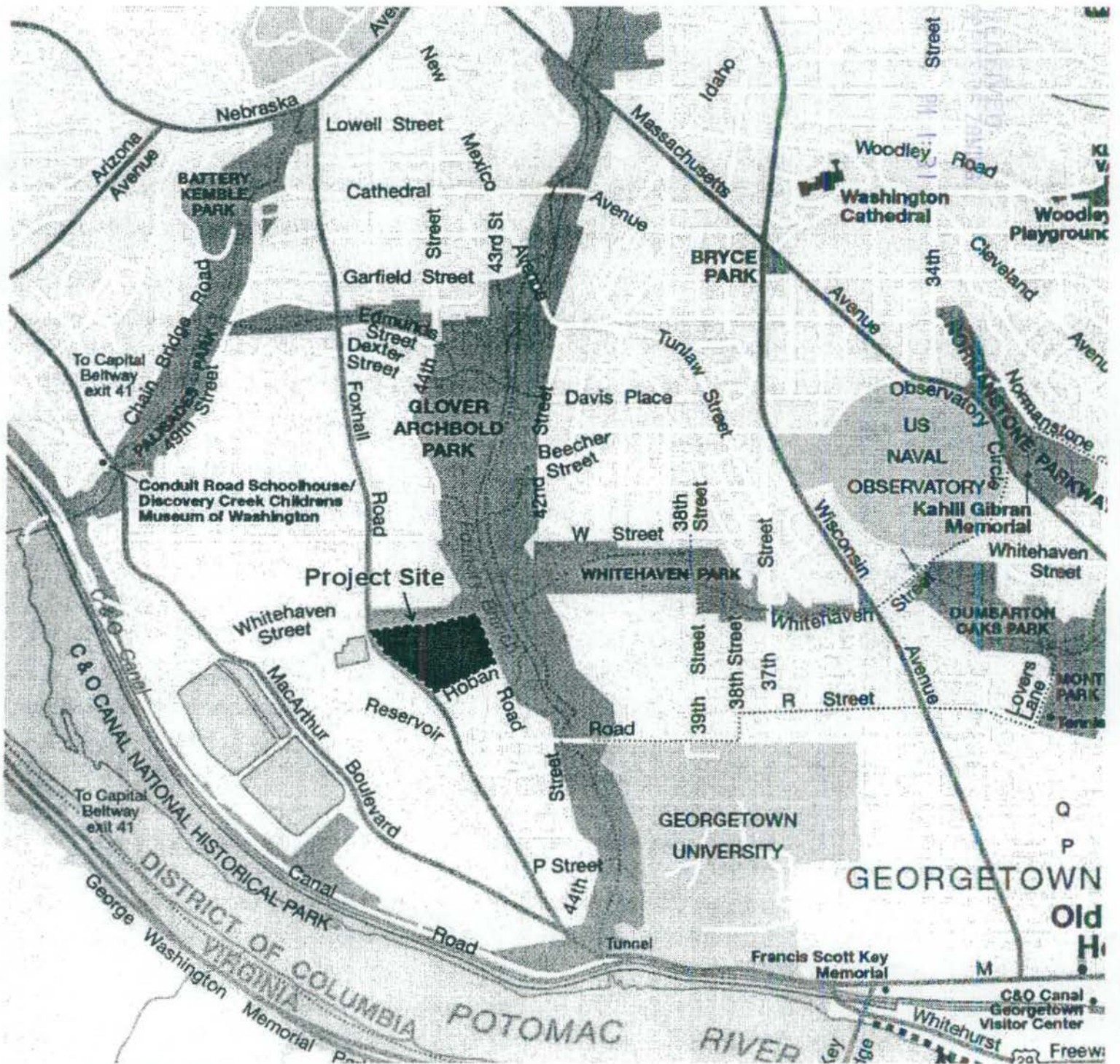
Bike Facilities

DDOT recently published the District of Columbia Bicycle Master Plan². This plan evaluates existing bicycle conditions in the District of Columbia, establishes goals, and recommends various policies and facility improvements to promote bicycle usage.

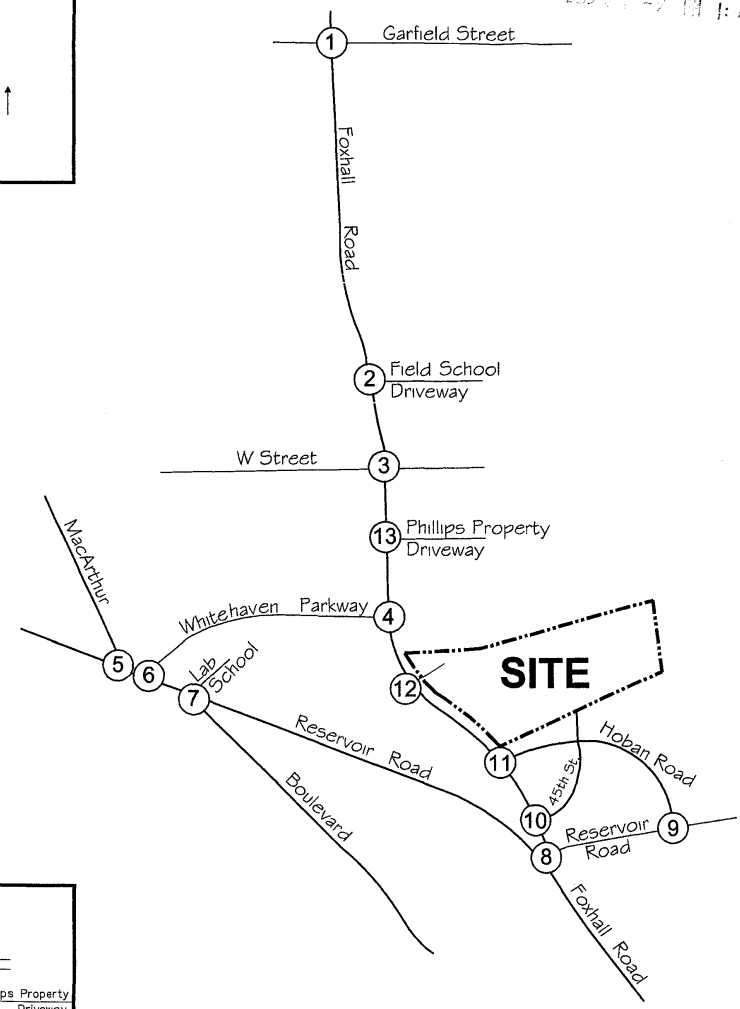
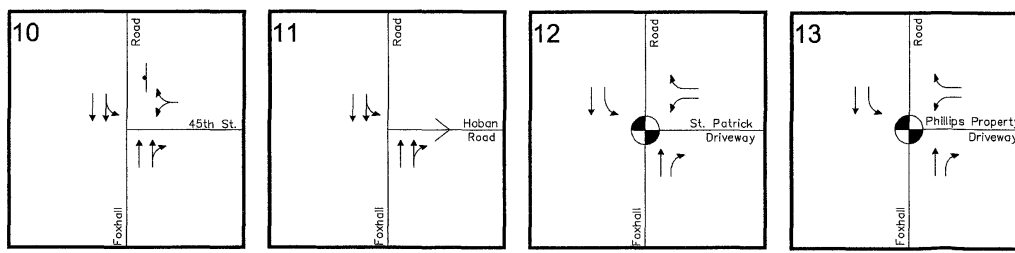
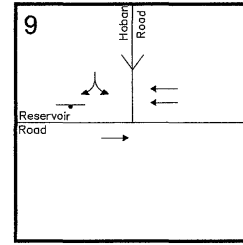
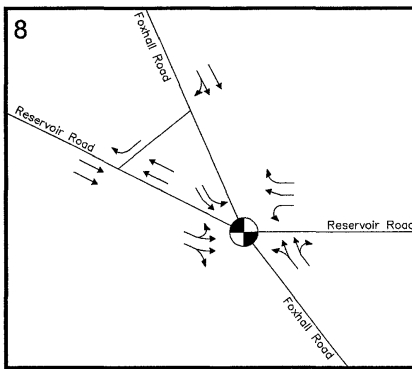
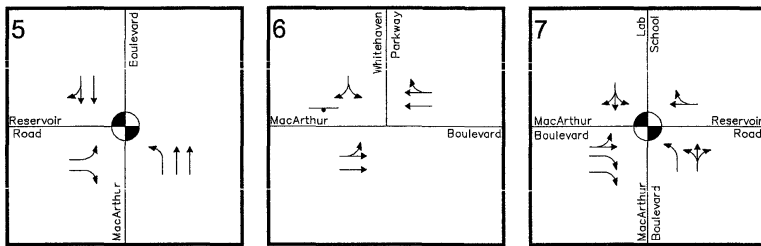
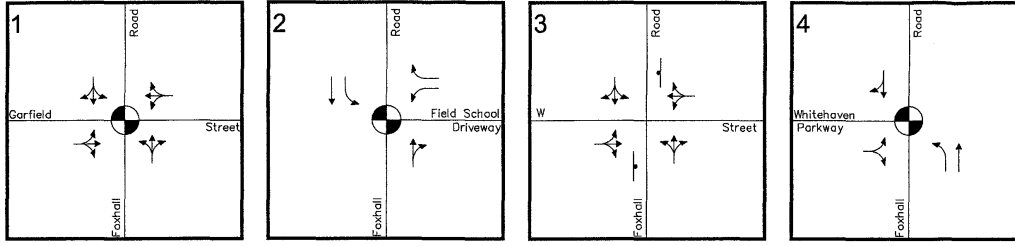
There are no bike lanes or multi-use trails existing or proposed by DDOT in the study area. The nearest signed bike routes are on MacArthur Boulevard, north of Reservoir Road, and on Reservoir Road, between MacArthur Boulevard and 37th Street.

² District Department of Transportation, District of Columbia Bicycle Master Plan, April, 2005.

Project Location Map



Source: National Park Service, 2003; EDAW, 2005.



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North

← Represents One Travel Lane

● Represents Signalized Intersection

T Stop Sign

WELLS & ASSOCIATES, LLC

PLANNING, ENGINEERING, AND ARCHITECTURE

Transportation Impact Study

Friends of Saint Patrick's

Washington, D.C.

Figure 2-1

Intersection Lane Use

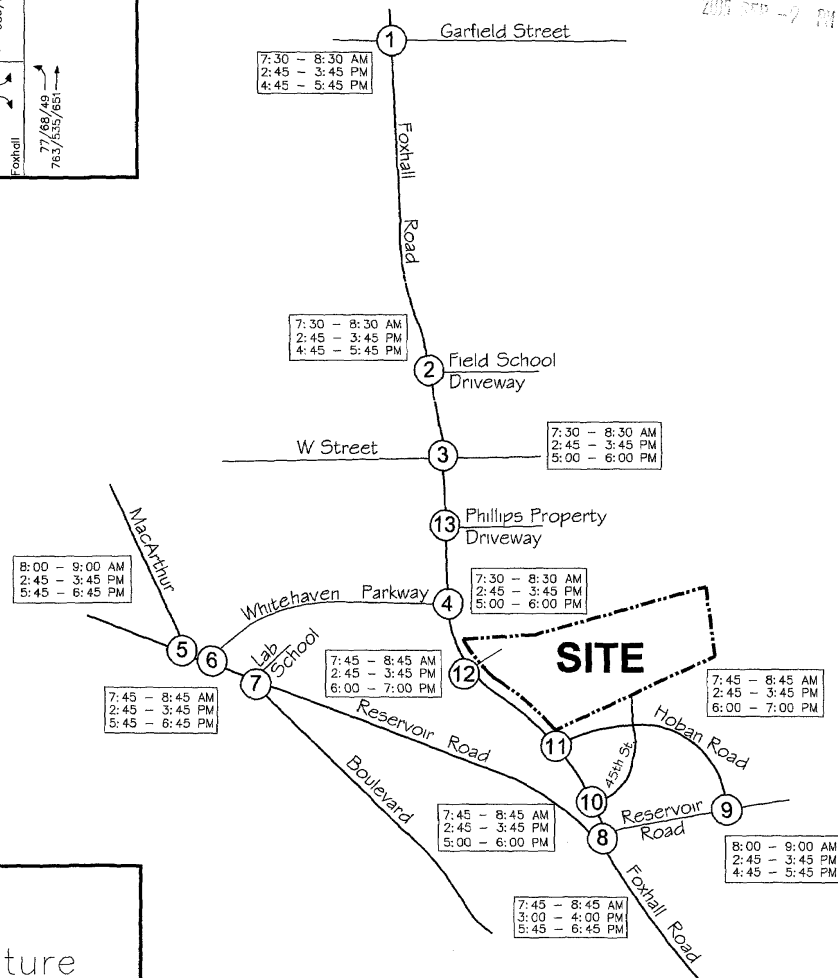
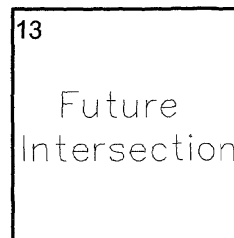
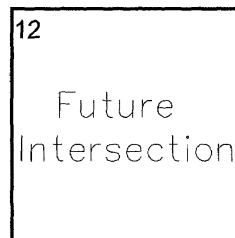
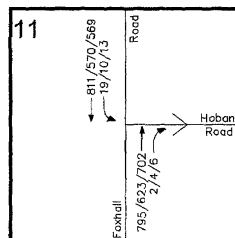
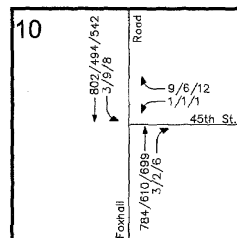
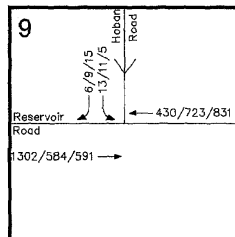
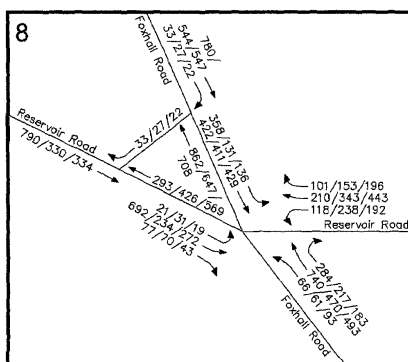
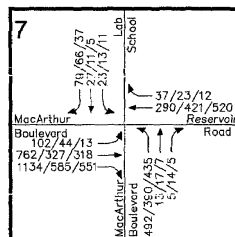
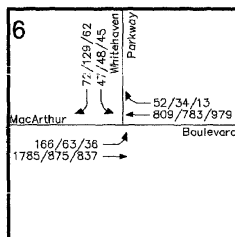
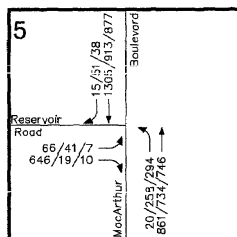
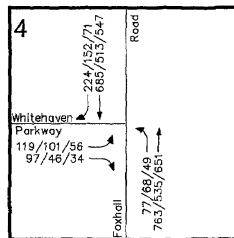
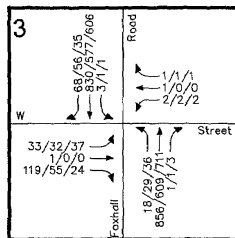
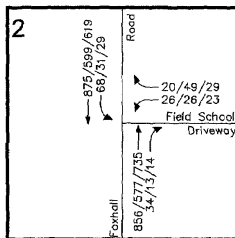
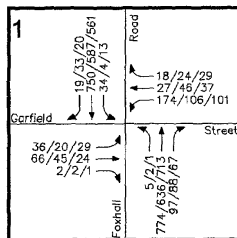
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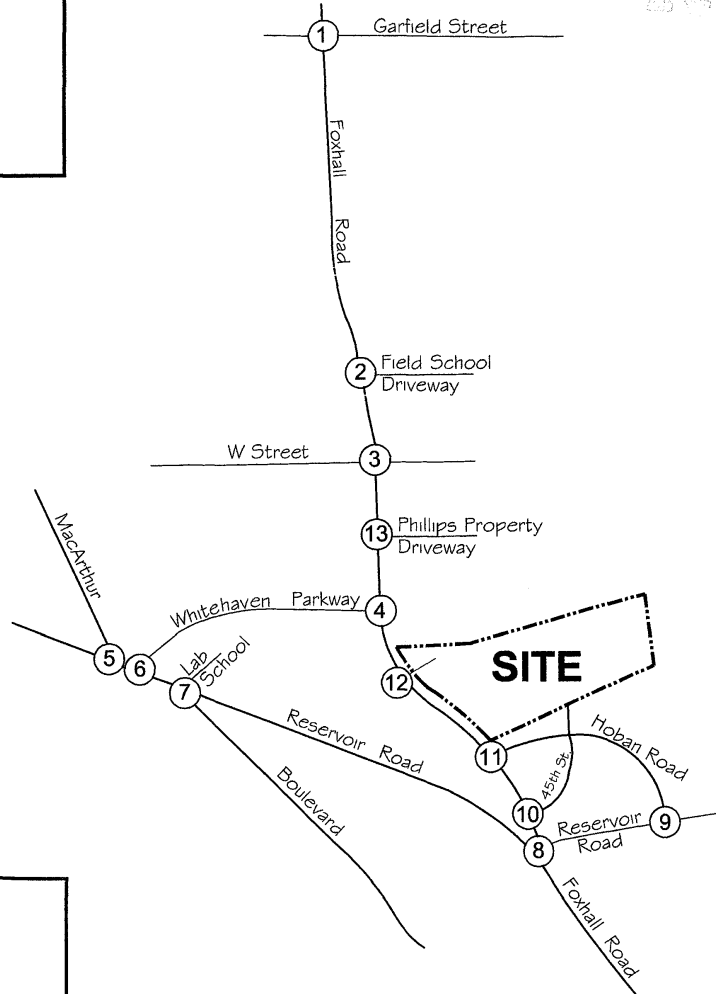
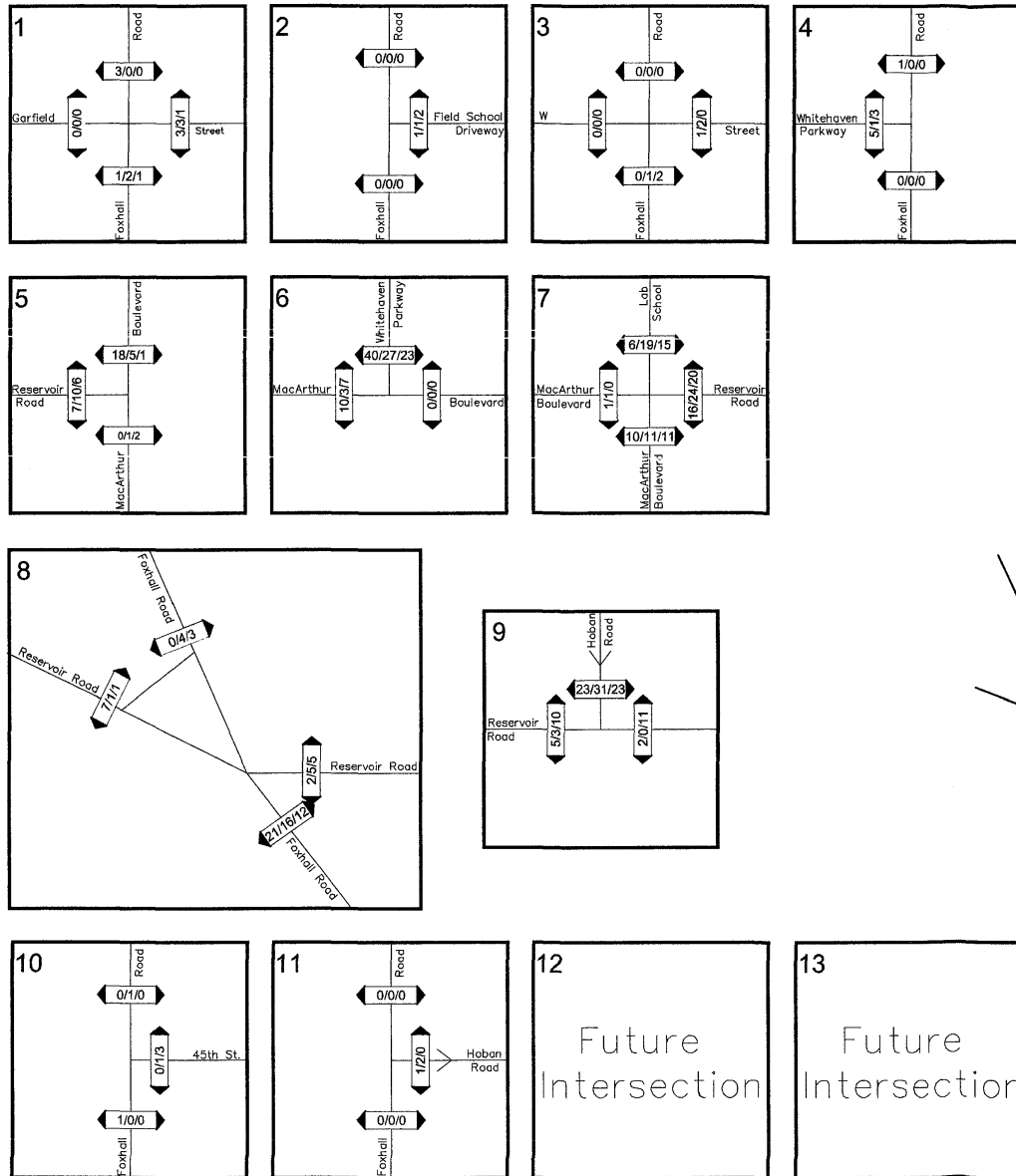
DATE: 08-12-2005

DESIGNED BY: J. WELLS

CHECKED BY: J. WELLS

PROJECT NO.: 0508





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Table 2-1

Friends of St. Patrick's

Colony Hill Peak Hour Vehicle-Trip Generation

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15-Minute Interval	Hoban Rd. at Foxhall Rd.		Hoban Rd. at Reservoir Rd.		45th Street at Foxhall Rd.		Total Trips		
	In	Out	In	Out	In	Out	In	Out	Total
Morning Peak Period									
6:00-6:15	0	0	0	0	0	0	0	0	0
6:15-6:30	0	0	0	0	0	0	0	0	0
6:30-6:45	0	0	0	1	0	1	0	2	2
6:45-7:00	3	0	0	1	2	0	5	1	6
7:00-7:15	5	0	0	4	1	2	6	6	12
7:15-7:30	1	0	0	5	2	1	3	6	9
7:30-7:45	1	0	0	1	2	6	3	7	10
7:45-8:00	5	0	0	7	0	1	5	8	13
8:00-8:15	2	0	0	2	1	1	3	3	6
8:15-8:30	6	0	0	4	0	4	6	8	14
8:30-8:45	6	0	0	9	3	4	9	13	22
8:45-9:00	7	0	0	4	2	1	9	5	14
Total	36	0	0	38	13	21	49	59	108
AM Peak Hour (8:00 - 9:00 AM)	21	0	0	19	6	10	27	29	56
Afternoon Peak Period									
2:00-2:15	0	0	0	2	0	1	0	3	3
2:15-2:30	2	0	0	4	2	3	4	7	11
2:30-2:45	2	0	0	4	0	0	2	4	6
2:45-3:00	4	0	0	4	5	1	9	5	14
3:00-3:15	3	0	0	4	0	1	3	5	8
3:15-3:30	2	0	0	4	3	4	5	8	13
3:30-3:45	5	0	0	8	3	1	8	9	17
3:45-4:00	6	0	0	4	1	1	7	5	12
4:00-4:15	5	0	0	5	4	3	9	8	17
4:15-4:30	4	0	0	4	0	1	4	5	9
4:30-4:45	4	0	0	6	2	4	6	10	16
4:45-5:00	3	0	0	2	7	2	10	4	14
5:00-5:15	1	0	0	5	3	0	4	5	9
5:15-5:30	5	0	0	12	5	4	10	16	26
5:30-5:45	6	0	0	3	3	2	9	5	14
5:45-6:00	1	0	0	3	2	3	3	6	9
6:00-6:15	7	0	0	2	4	4	11	6	17
6:15-6:30	3	0	0	0	2	0	5	0	5
6:30-6:45	1	0	0	6	4	7	5	13	18
6:45-7:00	2	0	0	3	4	2	7	5	12
Total	67	0	0	85	54	44	121	129	250
School PM Peak Hour (2:45 - 3:45 PM)	14	0	0	20	11	7	25	27	52
Commuter PM Peak Hour (5:15 - 6:15 PM)	19	0	0	20	14	13	33	33	66

Notes: Counts conducted on Wednesday, April 27, 2005, by Wells & Associates, LLC

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Section 3

ANALYSIS OF EXISTING CONDITIONS

Existing Intersection Levels of Service

Existing peak hour levels of service were estimated at the eleven (11) key intersections in the study area based on the existing lane usage and traffic control shown on Figure 2-1, the existing vehicular and pedestrian traffic counts shown on Figures 2-2 and 2-3, respectively, and the Highway Capacity Manual. The results are presented in Appendix C and summarized in Table 3-1.

Table 3-1 indicates that the signalized Foxhall Road/Garfield Street, Foxhall Road/Field School Driveway, and Foxhall Road/Whitehaven Parkway presently operate at an acceptable overall level of service (LOS) "D" or better during all times of day.

The signalized Reservoir Road/MacArthur Boulevard (West) intersection operates at an overall LOS "F" during the AM peak hour and at an acceptable overall LOS "A" during the school and commuter PM peak hours. The signalized Reservoir Road/MacArthur Boulevard (East) intersection operates near capacity at an overall LOS "E" during the AM peak hour and at an acceptable overall LOS "B" during the school and commuter PM peak hours.

The signalized Foxhall Road/Reservoir Road intersection operates at capacity at an overall LOS "F" during the AM peak hour and near capacity at an overall LOS "E" during the school and commuter PM peak hours.

It is difficult to turn onto Foxhall Road from either direction on W Street during peak hours due to high traffic volumes on Foxhall Road and limited sight distances. Eastbound and westbound W Street traffic operates near or at capacity at a LOS "E" or "F" during commuter peak hours.

Whitehaven Parkway intersects MacArthur Boulevard between the east and west legs of Reservoir Road. The two (2) Reservoir Road intersections with MacArthur Boulevard are controlled by traffic signals. Whitehaven Parkway is controlled by a stop sign. Westbound traffic on Whitehaven Parkway theoretically operates at capacity at LOS "F" during peak hours; however, field observations indicate that westbound motorists on Whitehaven Parkway rely on the gaps in MacArthur Boulevard traffic created by upstream and downstream traffic signals and driver courtesy to make turns onto MacArthur Boulevard.

Motorists turning into and out of Colony Hill via 45th Street and Hoban Road rely on gaps in Foxhall Road and Reservoir Road traffic created by nearby traffic signals and driver courtesy. It generally is easier to turn into Colony Hill than out of Colony Hill. The Colony Hill intersections presently operate at acceptable LOS "C" or better at all times of day.

These findings generally are consistent with the findings reported in the August, 2002 Palisades Traffic Impact Study.

Bicycle Levels of Service

The District of Columbia Bicycle Master Plan indicates that Foxhall Road north of Reservoir Road presently operates at a Bicycle Level of Service (BLOS) "E". This is due to relatively high traffic volumes, narrow pavement widths, and no shoulders. No bicycle level of service is reported for Whitehaven Parkway.

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Table 3-1
 Friends of St. Patrick's
 Existing Peak Hour Intersection Levels of Service ¹

Intersection	Type of Control	Existing Volumes		
		AM	PM (School)	PM
1. Foxhall Road/Garfield Street	Signal	Eastbound C(23.3) D(43.5) B(12.7) Southbound C(11.9) Overall B(16.3)	Westbound C(24.0) C(31.2) A(7.7) A(6.5) B(10.5)	Northbound C(24.2) C(30.8) A(8.3) A(7.3) B(10.6)
2. Foxhall Road/Field School Driveway	Signal	Westbound C(27.0) D(17.1) A(6.0) B(11.8)	Northbound D(45.6) A(6.5) A(4.3) A(7.7)	Southbound D(47.8) A(6.2) A(3.8) A(6.7)
3. Foxhall Road/W Street	Stop Sign	Eastbound RTL F(158.0) F(108.9) A(1.6) A(0.2)	Westbound RTL D(30.2) D(32.0) A(1.0) A(0.0)	Northbound RTL F(54.2) F(37.5) A(1.2) A(0.0)
4. Foxhall Road/Whitehaven Parkway	Signal	Eastbound C(22.6) B(14.8) B(11.0) Overall B(14.2)	Westbound D(49.3) A(1.9) A(6.8) A(9.1)	Southbound D(50.2) A(2.2) A(4.2) A(6.2)
5. Reservoir Road/MacArthur Boulevard (west)	Signal	Westbound A(8.0) A(8.8) F(421.8) Overall F(111.9)	Northbound A(2.4) A(4.0) D(42.8) A(4.4)	Southbound A(1.6) A(3.5) D(44.8) A(3.0)
6. Reservoir Road/Whitehaven Parkway	Stop Signs	Eastbound TL A(2.6) F(*)	Westbound TL A(1.1) F(62.4)	Southbound TL A(0.7) F(72.4)
7. Reservoir Road/Late School MacArthur Boulevard (east)	Signal	Eastbound E(78.1) B(14.3) D(46.3) D(47.0) Overall E(64.0)	Westbound B(13.9) A(7.7) D(39.1) D(42.0) B(19.3)	Northbound B(13.1) B(11.0) D(38.8) D(42.0) B(19.3)
8. Foxhall Road/Reservoir Road	Signal	Eastbound F(89.1) D(42.8) F(92.8) F(76.7) Overall F(80.8)	Westbound D(53.8) D(36.5) C(29.1) F(54.2) E(64.7)	Northbound E(57.8) D(37.1) C(29.8) F(166.2) E(67.8)
9. Reservoir Road/Hoban Road	Stop Sign	Southbound LR C(20.9)	Southbound LR C(19.4)	Southbound LR C(16.4)
10. Foxhall Road/45th Street	Stop Sign	Westbound LR B(11.4) A(0.0)	Westbound LR B(11.8) A(0.2)	Westbound LR B(10.9) A(0.1)
11. Foxhall Road/Hoban Road	Stop Sign	Southbound TL A(0.3)	Southbound TL A(0.2)	Southbound TL A(0.2)

Notes:
¹ Analysis performed using Synchro 5/SimTraffic, Version 8.0.
² An asterisk (*) indicates delays greater than 999.9 seconds.

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Section 4

ANALYSIS OF FUTURE CONDITIONS, WITHOUT REDEVELOPMENT OF THE BRADY ESTATE

Overview

This section presents an analysis of future transportation conditions, without redevelopment of the Brady Estate. The traffic impacts of redeveloping the nearby Philips Estate and background traffic growth over the next five (5) years are evaluated below.

Pipeline Project Trips

The Philips Estate, which is located east of Foxhall Road, south of W Street, and north of the Brady Estate, is planned to be redeveloped with 47 single-family detached homes (received approval from the BZA in July 2005). Vehicular access to the Philips Estate is proposed at a new driveway on W Street and a new signalized intersection on Foxhall Road. This new driveway would be located approximately 300 feet north of Whitehaven Parkway and 700 feet south of W Street.

The number and distribution of vehicle-trips anticipated to be generated by this project were obtained from the traffic impact study prepared by the applicant³. This development is anticipated to generate 35 AM peak hour trips (nine inbound and 26 outbound), and 47 PM peak hour trips (30 inbound and 17 outbound), according to the traffic impact study. It was assumed by Wells & Associates that these homes would generate 29 trips during the school's PM peak hour (16 inbound and 13 outbound).

Approximately 60 percent of all AM peak hour trips and 45 percent of all PM peak hour trips were assumed to approach the site from the north on Foxhall Road, 30 percent of all AM peak hour trips and 40 percent of all PM peak hour trips were assumed to approach from the south on Foxhall Road, and 10 percent of all AM peak hour trips and 15 percent of all PM peak hour trips were assumed to approach from the west on W Street (as stated in the Gorove/Slade Associates traffic impact study, Phillips Property, dated October 7, 2004). The Philips Estate trip assignments at the study area intersections are shown on Figure 4-1.

³ Gorove/Slade Associates, Traffic Impact Analysis, Phillips Property, October 7, 2004.

Background Traffic Growth

Existing traffic counts are expected to increase in the future as a result of additional new development elsewhere in the city and the region and general traffic growth trends. Annual background traffic growth was estimated at one (1) percent per year for seven (7) years to 2012. Background traffic growth was, therefore, estimated at seven (7) percent over the seven-year period for project buildout. This growth rate was applied to all movements at all study intersections.

Background Traffic Forecasts

Background peak hour traffic forecasts, without redevelopment of the Brady Estate, were estimated based on existing traffic counts, traffic generated by redevelopment of the Brady Estate, and background traffic growth. The 2012 background traffic forecasts are shown on Figure 4-2.

Background Future Levels of Service

Future peak hour levels of service, without redevelopment of the Brady Estate, were estimated at the key intersections in the study area for the year of project buildout (2012) based on the intersection lane usage and traffic control shown on Figure 2-1; the background traffic forecasts shown on Figure 4-2; and the Highway Capacity Manual. The results are presented in Appendix D, and are summarized in Table 4-1.

Table 4-1 indicates that redevelopment of the Philips Estate and background traffic growth would have a small impact on intersection levels of service. The signalized Foxhall Road/Garfield Street, Foxhall Road/Field School Driveway, and Foxhall Road/Whitehaven Parkway intersections would continue to operate at an acceptable overall level of service (LOS) "D" or better during all times of day.

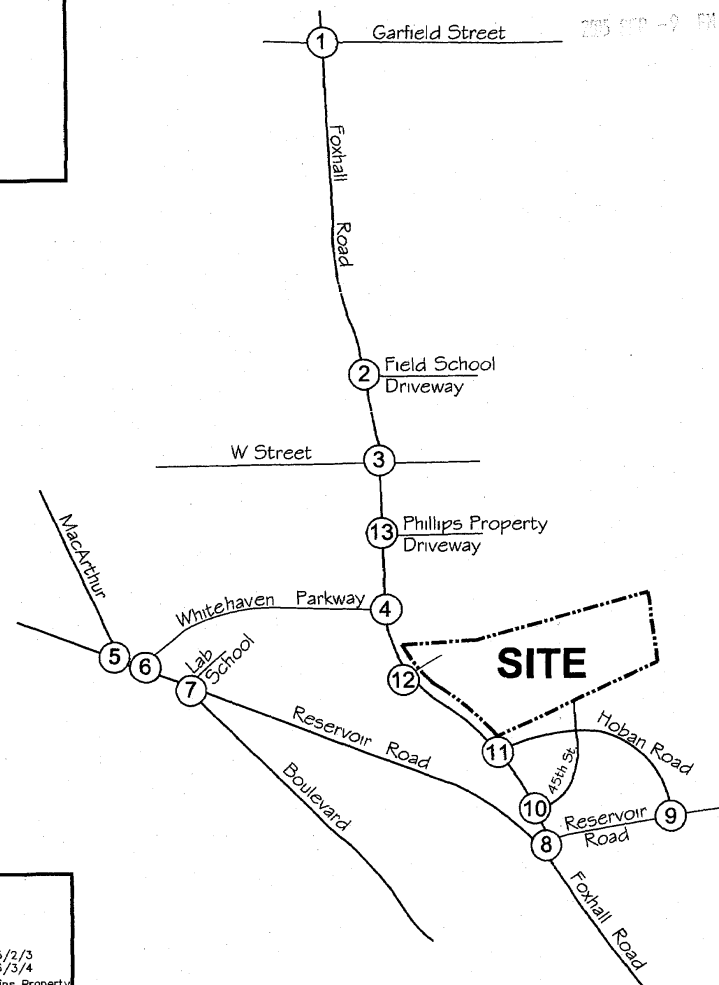
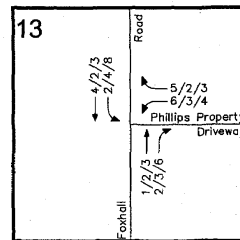
The signalized Foxhall Road/Reservoir Road intersection would continue to operate at capacity at an overall LOS "F" during the AM peak hour and near capacity at an overall LOS "E" during the school and commuter PM peak hours, even with the improvements recommended in the Palisades Traffic Impact Study.

The signalized Reservoir Road/MacArthur Boulevard (West) intersection would continue to operate at capacity at an overall LOS "F" during the AM peak hour and at an overall LOS "A" during the school and commuter PM peak hours. The signalized Reservoir Road/MacArthur Boulevard (East) intersection would operate at capacity at an overall LOS "F" during the AM peak hour and at an overall LOS "B" and "C" during the school and commuter PM peak hours, respectively.

Eastbound and westbound W Street traffic would continue to operate near or at capacity at LOS "E" or "F" during peak hours. The Phillips Estate improvement (short eastbound and westbound right turn bays) would improve the eastbound levels of service during the school PM peak hour.

Westbound traffic on Whitehaven Parkway will continue to operate at capacity at LOS "F" during peak hours. The Colony Hill intersections would continue to operate at acceptable levels of service during all times of day.

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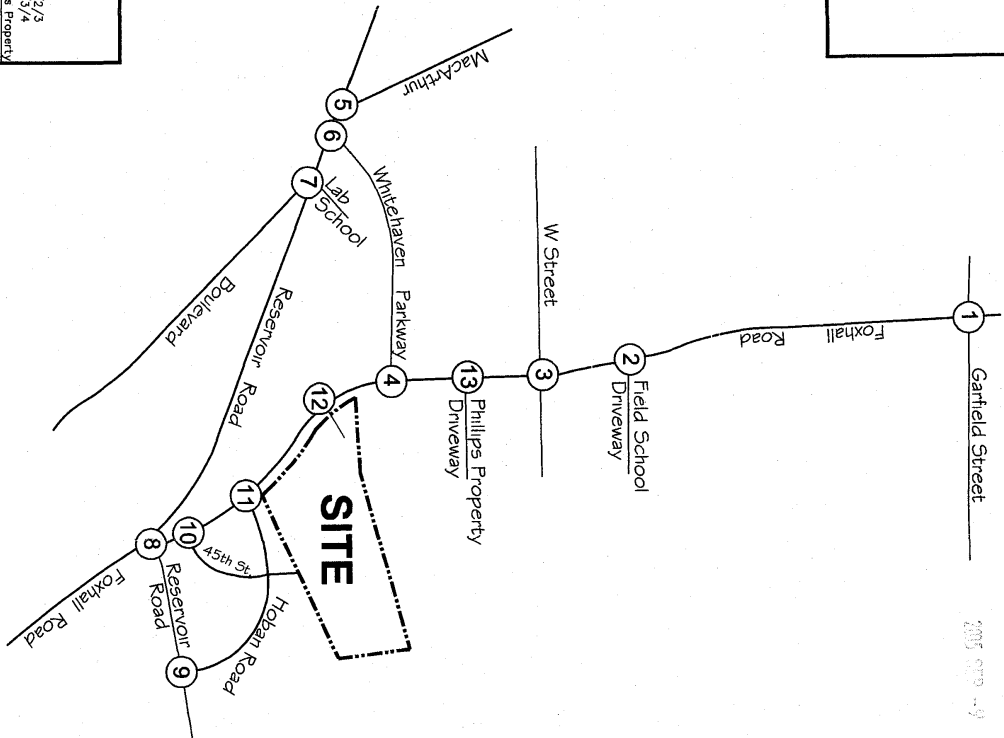
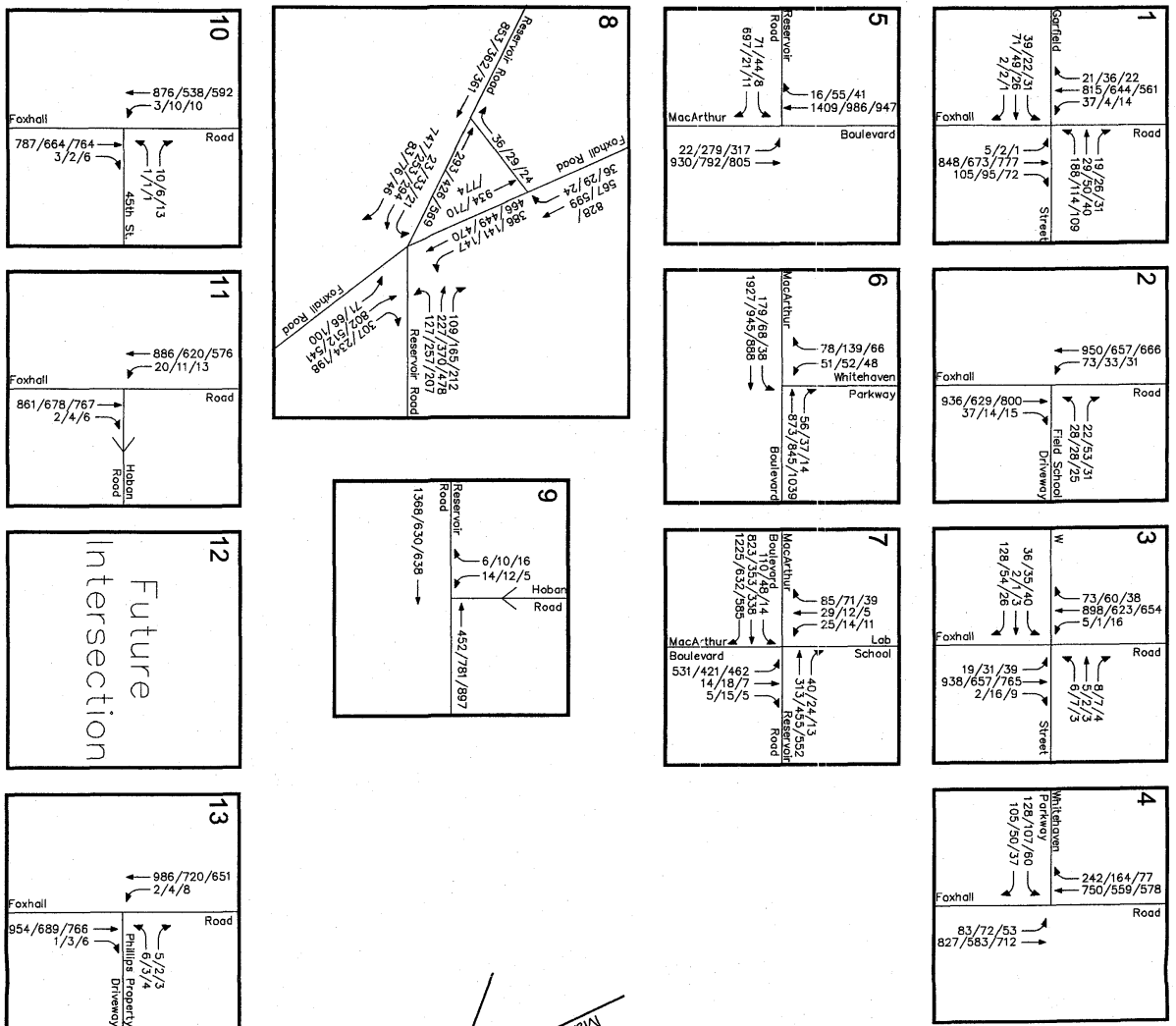


Figure 4-2
2012 Background Future
Peak Hour Traffic Forecasts

Transportation Impact Study
Friends of Saint Patrick's
Washington, D.C.

000/000/000 AM/SCHOOL/PM PEAK HOURS

WELLS & ASSOCIATES, LLC
PROJECT, TRANSPORTATION, AND PLANNING SERVICES

North
SCALE: Notation
DATE: 04-28-2009
DESIGNED BY: CAEW
DRAWN BY: CA
CHECKED BY: CAEW
PROJECT NO: 2608

Table 4-1
 Friends of St. Patrick's
 Future Intersection Levels of Service Without Redevelopment of the Brady Estate¹

Intersection	Type of Control	Existing Volumes			2012 Background Volumes SYNCHRO Approach Delay (sec)		
		AM	PM (School)	PM	AM	PM (School)	PM
1. Foxhall Road/Garfield Street	Signal	C(23.3) D(43.5) B(12.7) C(11.9) B(16.3)	C(24.6) C(31.2) A(7.7) A(6.5) B(10.5)	C(24.2) C(30.9) A(8.3) A(7.3) B(10.6)	C(23.9) D(52.9) B(16.9) B(15.8) C(20.5)	C(23.7) C(32.9) A(8.7) A(7.4) B(11.5)	C(23.9) C(31.6) A(9.9) A(7.6) B(11.6)
2. Foxhall Road/Field School Driveway	Signal	C(27.0) B(11.1) A(9.0) B(11.8)	D(45.6) A(6.5) A(4.3) A(7.7)	D(47.8) A(6.2) A(3.8) A(6.7)	C(27.1) C(24.1) A(6.8) B(15.5)	D(45.7) A(6.2) A(4.4) A(7.6)	D(45.7) A(8.0) A(4.3) A(7.7)
3. Foxhall Road/VW Street	Stop Sign	F(158.0) F(106.9) A(1.6) A(0.2)	D(30.2) D(32.0) A(1.0) A(0.0)	F(34.2) E(37.5) A(1.2) A(0.0)	F(21.1) F(1) B(10.9) A(3.2)	E(43.7) E(35.8) A(1.1) A(0.0)	F(109.5) F(44.1) A(1.5) A(0.7)
Philips Property Improvement - add short EB and WB right turn bays	Stop Sign	N/A N/A N/A N/A	N/A N/A N/A N/A	N/A N/A N/A N/A	F(431.8) F(1) B(10.9) A(3.2)	D(32.7) E(35.7) A(1.1) A(0.0)	F(84.4) E(42.5) A(1.5) A(0.7)
4. Foxhall Road/Whitehaven Parkway	Signal	C(22.6) B(14.8) B(11.6) B(14.2)	D(49.3) A(1.9) A(6.8) A(9.1)	D(50.2) A(2.2) A(4.2) A(6.2)	C(22.8) B(18.1) B(17.6) B(18.4)	D(50.2) A(2.2) A(5.6) A(8.7)	D(49.8) A(2.6) A(3.4) A(6.0)
5. Reservoir Road/MacArthur Boulevard (west)	Signal	A(8.0) A(8.8) F(131.8) F(111.9)	A(2.4) A(4.0) D(42.8) A(4.4)	A(1.9) A(3.5) D(48.3) A(3.0)	A(8.6) A(9.0) F(134.8) F(132.4)	A(2.5) A(6.8) D(42.9) A(5.8)	A(1.7) A(6.0) D(44.9) A(4.4)
6. Reservoir Road/Whitehaven Parkway	Stop Sign	A(2.6) F(1)	A(1.1) F(62.4)	A(0.7) F(73.4)	A(3.2) F(1)	A(1.2) F(119.8)	A(0.8) F(116.4)
7. Reservoir Road/Lab School MacArthur Boulevard (east)	Signal	E(78.1) B(14.3) D(46.3) D(43.0) E(64.0)	B(13.9) A(7.7) D(39.1) D(42.0) B(19.3)	B(13.1) B(11.0) D(38.9) D(42.0) B(19.3)	F(136.7) B(15.4) D(48.5) D(41.1) F(104.1)	B(15.2) A(8.7) D(38.5) D(42.1) B(20.1)	B(13.8) B(12.7) D(38.6) D(42.1) C(20.0)
8. Foxhall Road/Reservoir Road	Signal	F(89.1) D(42.8) F(92.8) F(76.7) F(80.8)	D(53.8) D(36.5) C(29.1) E(154.2) E(64.7)	E(57.8) D(37.1) C(28.8) F(166.7) E(67.8)	F(119.0) D(47.0) F(128.4) F(102.3) F(108.0)	D(55.4) D(41.6) C(30.6) F(121.2) E(75.9)	F(76.9) D(41.2) C(31.5) F(207.3) E(81.8)
Convert EB movements to separate right-through, through and left lanes	Signal	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A	E(83.7) D(47.0) F(128.4) F(102.3) F(99.0)	D(45.3) D(39.5) C(30.6) F(189.4) E(73.4)	D(50.6) D(40.8) C(31.5) F(204.3) E(77.5)
9. Reservoir Road/Hoban Road	Stop Sign	C(20.9) C(19.4) C(16.4)	C(23.2) C(21.4) C(17.5)	C(23.2) C(21.4) C(17.5)	C(23.2) C(21.4) C(17.5)	C(23.2) C(21.4) C(17.5)	C(23.2) C(21.4) C(17.5)
10. Foxhall Road/45th Street	Stop Sign	B(11.4) A(0.0)	B(11.8) A(0.2)	B(10.9) A(0.1)	B(11.5) A(0.0)	B(12.3) A(0.2)	B(11.1) A(0.2)
11. Foxhall Road/Hoban Road	Stop Sign	A(0.3) A(0.2) A(0.2)	A(0.3) A(0.2) A(0.2)	A(0.3) A(0.2) A(0.2)	A(0.3) A(0.2) A(0.2)	A(0.3) A(0.2) A(0.2)	A(0.3) A(0.2) A(0.2)
13. Foxhall Road/Philips Property Driveway	Signal	N/A N/A N/A N/A	N/A N/A N/A N/A	N/A N/A N/A N/A	C(30.2) A(2.9) A(3.0) A(3.6)	C(29.5) A(2.2) A(2.3) A(2.4)	C(29.7) A(2.6) A(2.0) A(2.5)

Notes:
¹ Analysis performed using Synchro 8.00, Version 8.0
² All volumes [T] with zero design speed (that is, 0.00 seconds)

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Section 5

ANALYSIS OF FUTURE CONDITIONS WITH REDEVELOPMENT OF THE BRADY ESTATE

Overview

This section presents an analysis of future transportation conditions, with redevelopment of the Brady Estate as proposed by FOSP. It presents St. Patrick's travel demand management and traffic management plans, a site trip generation analysis, and evaluation of future intersection levels of service.

Travel Demand Management Plan

Overview. St. Patrick's proposes to implement a Travel Demand Management (TDM) Plan that promotes efficient travel and minimizes vehicular traffic added to the public street network. The TDM plan consists of the following elements:

1. Walk Initiative,
2. Carpool Initiatives,
3. Shuttle Bus Service,
4. Parking Controls, and
5. Staggered start and dismissal times.

Walk Initiative. Walking is the most efficient and environmentally sound mode of travel. This mode: reduces traffic congestion, noise, and fossil fuel consumption; promotes physical exercise; and reduces the cost and adverse environmental impacts of automobile parking. St. Patrick's would promote walking as the preferred mode of travel to and from the campus.

St. Patrick's proposes to construct a sidewalk on the east side of Foxhall Road along the subject site frontage. A marked crosswalk would connect the existing sidewalk on the south side of Whitehaven Parkway with the proposed sidewalk on the east side of Foxhall Road. An on-site pedestrian network would connect Foxhall Road, school buildings, and playfields. These measures would promote safe and direct pedestrian traffic between the St. Patrick's lower school campus (Whitehaven campus) and the middle/upper school campus (Foxhall campus) and circulation on the Foxhall campus.

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Carpool Initiative. St. Patrick's implemented a carpool initiative at the Lower School campus on Whitehaven Parkway in Fall 2002. That program increased the average vehicle occupancy (AVO) by 43 to 54 percent, from 1.33 to 1.41 students per vehicle during peak hours before the program to 1.91 to 2.05 students per vehicle after the program, based on the most recent AVO counts. Periodic surveys conducted on behalf of the school by Wells & Associates on: September 25, 2002; January 28, 2003; November 5, 2003; April 7, 2004; May 26, 2004; November 10, 2004; April 13, 2005; and May 25, 2005 have demonstrated that the school consistently has exceeded the program's 1.60 AVO goal across time. A similar program will be implemented at the Foxhall Road campus.

Shuttle Bus Service. St. Patrick's owns a 28-passenger and a 32-passenger bus. St. Patrick's operates shuttle bus service between the Lower School campus on Whitehaven Parkway and the MacArthur campus for 7th and 8th graders. Parents and guardians in automobiles drop off 7th and 8th grade students in the morning and pick them up in the afternoon at the Whitehaven Parkway campus.

One bus makes two (2) trips in the morning, at approximately 7:40 AM and 7:55 AM, picking up students at the Whitehaven Parkway campus and delivering them to MacArthur Boulevard at the Metrobus stop south of Ashby Place. Conversely, one bus makes a single trip in the afternoon, picking up students on MacArthur Boulevard and delivering them back at the Whitehaven Parkway campus. Some students are driven to the Whitehaven campus in the afternoon in faculty cars. St. Patrick's proposes to add one bus trip in the morning and one bus trip in the afternoon when enrollment is increased over a three-year period from 40 to 60 students.

St. Patrick's proposes to operate shuttle bus service between the Whitehaven and Foxhall campuses, and to nearby off campus locations (e.g. Metro stations). Parents/guardians would drop off students in the morning at one or more satellite locations. St. Patrick's buses would then shuttle the students from these locations to the Whitehaven and Foxhall campuses. Conversely, in the afternoon students would be shuttled from St. Patrick's to the satellite locations where they would be picked up by their parents/guardians.

St. Patrick's could independently operate this service, or operate it in cooperation with other nearby independent schools.

Parking Supply. St. Patrick's proposes to construct approximately 170 parking spaces in a single level in a structure beneath the middle and upper school buildings.

Chapter 21 of the D.C. Zoning Regulations set the minimum parking requirements for private schools. For middle schools, the requirement is two (2) spaces for every three (3) faculty and other employees. For upper 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 assembly, whichever is greater. A total of 112 parking spaces, therefore, are required for the proposed middle and upper schools, as shown in Table 5-1.

The proposed parking supply exceeds this requirement by 58 spaces, or 53 percent. The proposed parking supply would adequately accommodate projected parking demands and ensure there is no overflow parking in adjacent residential neighborhoods.

Parking Controls. St. Patrick's would require all high school students who are allowed to drive to school to park on campus. Parking on nearby public streets would be prohibited, even if the student has a valid Zone 3 residential parking permit. St. Patrick's students would be required to display a school sticker on their vehicle.

St. Patrick's will offer a full lunch program on campus. It is the school's expectation that students, faculty, and staff will take lunch on campus. Faculty and staff may leave and re-enter the campus during the middle of the school day for off campus appointments and other business.

Class Times. Middle and upper school class start and dismissal times will be separated by at least 20 minutes in order to spread peak period traffic volumes. This will reduce or mitigate peak 15-minute traffic volumes and queues on and off of the campus.

Coordination with Others. St. Patrick's plans to coordinate their parking and transportation program with other neighboring institutions. St. Patrick's will explore the feasibility of jointly operating a shuttle bus system between nearby off campus parking lots, and the schools.

Monitoring. St. Patrick's will monitor the middle and upper school traffic and parking impacts through: periodic faculty, staff, and student transportation surveys; driveway traffic counts, on-site parking occupancy counts, observation of on- and off-site queues, and measurement of transportation impacts of special events.

Communication. St. Patrick's will periodically meet with neighbors to review school impacts on the surrounding neighborhood (if any), apprise the community of upcoming events and special occasions, etc.

Enforcement. Compliance with the St. Patrick's TDM program will be made a provision of the enrollment contract between the school and students' families. St. Patrick's will develop a schedule of sanctions against those who violate provisions of the program.

Traffic Management Plan

Overview. The proposed St. Patrick's middle/upper school circulation plan is presented on Figure 5-1. The plan includes improvements to Foxhall Road along the site frontage, an on-site loop road, and adequate on-site parking, as described below.

Off-Site Traffic. All vehicular access to the school would be provided at a new, full-movement, signalized intersection on Foxhall Road, which would be located approximately 700 feet south of Whitehaven Parkway and 1,300 feet north of Reservoir Road. Timing of this new signal would be coordinated with other, existing signals along Foxhall Road. All vehicular access to the residences would be provided at a new driveway on Hoban Road opposite 45th Street.

The Foxhall Road/St. Patrick's Episcopal Day School Driveway intersection is proposed to be configured as shown on Figure 5-1. One (1) northbound through lane, one (1) northbound shared through-right lane and two (2) southbound through lanes would be maintained on Foxhall Road. A new southbound left turn lane would be constructed on Foxhall Road at the St. Patrick's driveway. Motorists could be stopped in the left turn lane without impeding the flow of southbound through traffic on Foxhall Road.

It is anticipated that the proposed school signal would be timed similar to the existing Whitehaven Parkway signal. As proposed, the signalized intersection would operate as an actuated coordinated three-phase signal with a cycle length of 60 seconds during the AM peak period and a cycle length of 100 seconds during the PM peak hour.

Loop detectors would be installed in the southbound left turn lane on Foxhall Road to ensure that the left turn lane is adequate to service the actual left turning traffic demand and that the queue of vehicles waiting to turn left does not spill over the left turn lane into the adjacent southbound through lane on Foxhall Road.

Subject to DDOT approval, loop detectors also would be installed in both lanes of the school driveway. These loops would detect the presence or absence of vehicles waiting to turn onto Foxhall Road. If one or more vehicles are present, traffic on Foxhall Road would receive a red indication permitting these vehicles to safely turn onto Foxhall Road. If no vehicle is present, the signal controller would skip the side street signal phase and would not stop Foxhall Road traffic. This demand-actuated feature would minimize disruption of the flow of through traffic in both directions of Foxhall Road.

Appropriate school and new traffic signal warning signs and pavement markings would be furnished and installed along Foxhall Road. The 15 mile per hour school zone speed limit would have a calming effect on prevailing speeds on Foxhall Road.

On-Site Traffic. The campus would be served by a two-lane, private, loop road that would operate one-way counter-clockwise. This 1,175-foot-long driveway could accommodate 47 vehicles in a single file or 94 vehicles in double file (assuming a vehicle length of 25 feet).

A drop-off/pick-up lane would be provided on the west (or right) side of the loop road in front of the middle school campus. Passengers would be dropped off directly onto the sidewalk, like passengers currently are dropped off from the carpool lane onto the sidewalk in front of the St. Patrick's lower school campus (Whitehaven campus) on Whitehaven Parkway.

A drop-off/pick-up lane would be provided on the east (or left) side of the loop road in front of the high school. Passengers would be dropped off onto the loop road, like passengers currently are dropped off into the carpool lane in front of Maret School, for example.

A 200- foot long, median-divided driveway would connect Foxhall Road and the on-site loop road. The single inbound lane would be 16 feet wide.

The north leg of the driveway/loop road four-leg intersection would be controlled by a stop sign. Entering traffic could drive directly onto the loop road without stopping thus avoiding queues at a stop sign that could otherwise potentially spill back onto Foxhall Road.

Site Trip Generation Analysis

Overview. The number of trips that would be generated by the St. Patrick's Middle and Upper School campus were estimated based on: (1) projected numbers of faculty, staff, and students and (2) the St. Patrick's TDM program. The person- and vehicle-trip generation parameters used to estimate school trips are presented in Table 5-2.

The number of trips that would be generated by the proposed residential dwellings were estimated based on: (1) the proposed number of dwelling units and (2) Institute of Transportation Engineers' trip generate rates. These estimates were corroborated by observations at other comparable residential neighborhoods in the site vicinity.

St. Patrick's School. It is estimated that the St. Patrick's middle and upper school campus (Foxhall campus) would generate approximately 257 AM peak hour vehicle-

trips, 175 school PM peak hour vehicle-trips, and 188 commuter PM peak hour vehicle-trips, as shown in Table 5-3. This is equivalent to 0.59 vehicle-trips per student during the AM peak hour, 0.40 vehicle-trips per student during the school PM peak hour, and 0.43 vehicle-trips per student during the commuter PM peak hour.

The St. Patrick's middle and upper school campus (Foxhall campus) vehicle-trip generation estimates are conservatively high, since it is likely that some St. Patrick's families would enroll siblings in both the lower school campus (Whitehaven campus) and middle/upper school campus (Foxhall campus). For example, eight (or 20 percent) of the 40 middle school students who attend classes at St. Patrick's MacArthur Boulevard campus have one or more siblings who attend classes at the Whitehaven Parkway campus. Actual driveway counts at the St. Patrick's middle/high school campus driveway would be less than projected in this report to the extent that middle and upper school students who are dropped off with their siblings at the Whitehaven Parkway campus walk or are shuttled in groups to the Foxhall campus.

Residences. As shown on Table 5-4, the 28 new homes would generate approximately 21 AM peak hour vehicle-trips, 17 school PM peak hour vehicle-trips, and 28 commuter PM peak hour vehicle-trips based on standard ITE trip generation rates. Counts of the number of vehicle-trips generated per home in nearby Foxhall Crescent confirm that the ITE are applicable to high-end homes in this neighborhood.

Total. Together, the school and homes would generate approximately 278 AM peak hour vehicle-trips, 192 school PM peak hour vehicle-trips, and 216 commuter PM peak hour vehicle-trips, as shown on Table 5-4.

Trip Distribution

The distribution of trips that would be generated by the school was based on the home zip code distribution of existing St. Patrick's families and the most direct and logical travel routes between each zip code and the school driveway. It is estimated that approximately 79 percent of all school traffic would approach/depart the campus from the north, and 21 percent would approach from the south, on Foxhall Road. This is similar to the 69/31 north/south inbound traffic, and 61/39 outbound traffic, distributions observed during the AM and PM school peak hours at the Field School driveway on Foxhall Road.

The distribution of trips that would be generated by the proposed new residents was based on the distribution of traffic entering and exiting the Colony Hill neighborhood, and is shown on Figure 5-3.

Site Traffic Assignments

The site-generated traffic volumes were assigned to the public road network according to the directional distribution described above. The resulting school traffic assignments are shown on Figure 5-2. The residential traffic assignments are shown on Figure 5-3.

The proposed school would increase peak hour traffic on Foxhall Road north of the driveway by five to 14 percent, and would increase peak hour traffic on Foxhall Road south of the driveway by two to four percent.

Total Future Traffic Forecasts

These site traffic assignments were added to the future background traffic volumes shown on Figure 4-2 to yield the total future traffic forecasts shown on Figure 5-4.

Total Future Levels of Service

Future peak hour levels of service, with redevelopment of the Brady Estate, 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 Figure 5-4; and the Highway Capacity Manual. The results are presented in Appendix E and summarized in Table 5-5.

Table 5-5 indicates that the redevelopment of the Brady Estate would have a small impact on intersection levels of service. The signalized Foxhall Road/Garfield Street, Foxhall Road/Field School Driveway, and Foxhall Road/Whitehaven Parkway intersections would continue to operate at an acceptable overall level of service (LOS) "C" or better during all times of day.

The signalized Foxhall Road/Reservoir Road intersection would operate at capacity at an overall LOS "F" during the AM and commuter PM peak hour, and near capacity at an overall LOS "E" during the school PM peak hour.

The signalized Reservoir Road/MacArthur Boulevard (West) intersection would continue to operate at capacity at an overall LOS "F" during the AM peak hour and at an overall LOS "A" during the school and commuter PM peak hours. The signalized Reservoir Road/MacArthur Boulevard (East) intersection would continue to operate at capacity at an overall LOS "F" during the AM peak hour and at an overall LOS "B" and "C" during the school and commuter PM peak hours, respectively.

Eastbound and westbound W Street traffic would continue to operate near or at capacity at LOS "E" or "F" during peak hours. Westbound traffic on Whitehaven

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Parkway will continue to operate at capacity at LOS "F" during peak hours. The Colony Hill intersections will continue to operate at acceptable levels of service during all times of day.

Redevelopment of the Brady Estate, as proposed by the FOSP, would add fewer than twelve (12) seconds of additional average vehicle delay for motorists passing through the signalized intersections on Foxhall Road and MacArthur Boulevard. It would add fewer than three seconds of additional average vehicle delay for Colony Hill motorists.

The proposed Foxhall Road/St. Patrick's signalized intersection is forecasted to operate at an overall LOS "A" at all times of day. Traffic turning left into the driveway from Foxhall Road also would operate at a LOS "C" or "D" and traffic turning right into the driveway from Foxhall Road would operate at a LOS "A" or "B". Traffic turning left or right to exit the driveway onto Foxhall Road would operate at acceptable LOS "A".

Vehicle Queues

Vehicle queues on Foxhall Road in the southbound left turn lane at the St. Patrick's school driveway, and in the northbound left turn lane at Whitehaven Parkway, were estimated based on projected traffic volumes with the proposed re-development of the Brady Estate, the proposed lane configurations, signal timings, and the Synchro analysis methodology.

The maximum 95th percentile left turn queue in the southbound Foxhall Road left turn lane at the school driveway is estimated at 52 feet (or approximately 2.1 vehicles) during the AM peak hour. The maximum 95th percentile left turn queue in the northbound Foxhall Road left turn lane at Whitehaven Parkway is estimated at 175 feet (or approximately seven (7) vehicles) during the AM peak hour. Adequate left turn lane storage will be provided to adequately accommodate these projected queues.

Sight Distances

The proposed new school driveway was located to provide safe sight distances in both directions along Foxhall Road. Sight distances were evaluated in accordance with American Association of State Highway and Transportation Officials (AASHTO) and DDOT policies.

The posted speed limit on Foxhall Road is 25 mph. The design speed is five (5) mph greater than the posted speed limit for an existing roadway, and 10 mph greater than the posted speed limit for reconstructed roadways, according to the DDOT Design and Engineering Manual. Accordingly, the location of the proposed new school driveway was determined based on a design speed of 35 mph.

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The following are the AASHTO policies and actual sight distances, as measured in the field by the project civil engineers, Macris, Hendricks and Glascock, P.A, at the proposed driveway location:

<u>Movement</u>	AASHTO Policy <u>(Feet)</u>	Actual Distance <u>(Feet)</u>	<u>Adequate?</u>
Left turn from Site Access:	390	450	Yes
Left Turn into Site Access:	350	450	Yes
Right Turn from Site Access:	375	400	Yes
Stopping Sight Distance:	250	400	Yes

The proposed school driveway will exceed the AASHTO policies in each instance.

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D.C. Zoning Regulations
 2005 SFP - 9 M 1:45

Table 5-1
 Friends of St. Patrick's
 D.C. Zoning Regulations Parking Requirements

Component	Number	Parking Requirement Ratio	Spaces
<u>Middle School</u>			
Faculty/Staff	23	2 spaces for every 3 faculty and other employee	15.33
<u>High School</u>			
Faculty/Staff	77	2 spaces for every 3 faculty and other employee	51.33
High School Classroom Seats	320	1 space for each 20 classroom seats	16.00
or Assembly Seats	450	1 space for each 10 seats	45.00
<u>Total</u>			111.67 or 112

c:\projects\2501-3000\2608 Friends of St. Patrick\Graphics\2608 Site Plan.dwg \JAC

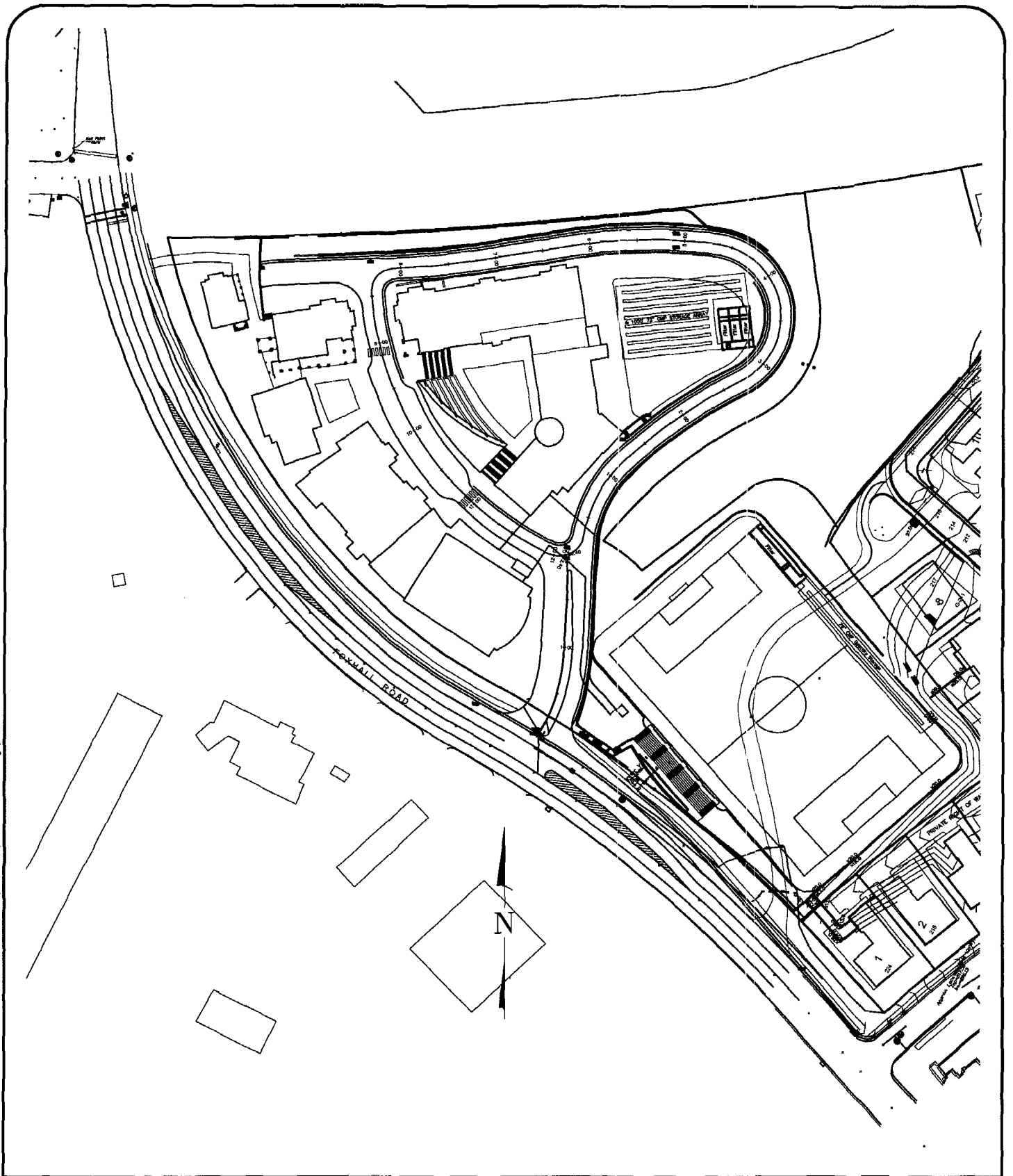


Figure 5.1
Foxhall Improvement Plan

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Table 5-2

Friends of St. Patrick's

Person- and Vehicle-Trip Generation Parameters (Buildout, 2012)

Measure	<u>Students</u>		Faculty/ Staff (F/S)
	Middle School	High School	
Population (Persons) ¹	120	320	100
Grades	2	4	
Students Per Grade	55 - 65	68 - 90	
Mode Splits			
Auto Driver	0%	20%	90%
Auto Passenger			
In Auto Driven by Another Student or F/S	10%	20%	5%
In Auto Driven by Parent/Guardian	58%	28%	0%
Shuttle Bus	30%	30%	3%
Walk/Bike	<u>2%</u>	<u>2%</u>	<u>2%</u>
Total	100%	100%	100%
Average Vehicle Occupancy ²	1.75	1.75	
(In Autos Driven by Parents/Guardians)			
Absenteeism on Average Day	5%	5%	0%
Percent Students Participating in After-School Programs	20%	80%	
Percent Staff Arriving During AM Peak Hour			0%
Percent Staff Leaving During School PM Peak Hour			70%
Percent Staff Leaving During Commuter PM Peak Hour			30%

Notes:

¹ Source: Friends of St. Patrick's.² Based on current peak hour average vehicle occupancy at St. Patrick's Lower School.

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D.C. OFFICE OF THE ATTORNEY GENERAL

Vehicle-Trip Generation Analysis (Buildout, 2012)

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Table 5-4

Friends of St. Patrick's

Brady Estate Redevelopment Vehicle-Trip Generation Analysis

Mode	<u>AM Peak Hour</u>			<u>School PM Peak Hour</u>			<u>Commuter PM Peak Hour</u>		
	In	Out	Total	In	Out	Total	In	Out	Total
St. Patrick's Middle and High Schools	159	98	257	50	125	175	56	132	188
28 Single Family Detached Homes	5	16	21	9	8	17	18	10	28
Total	164	114	278	59	133	192	74	142	216

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 01/10/2011 1:45 PM

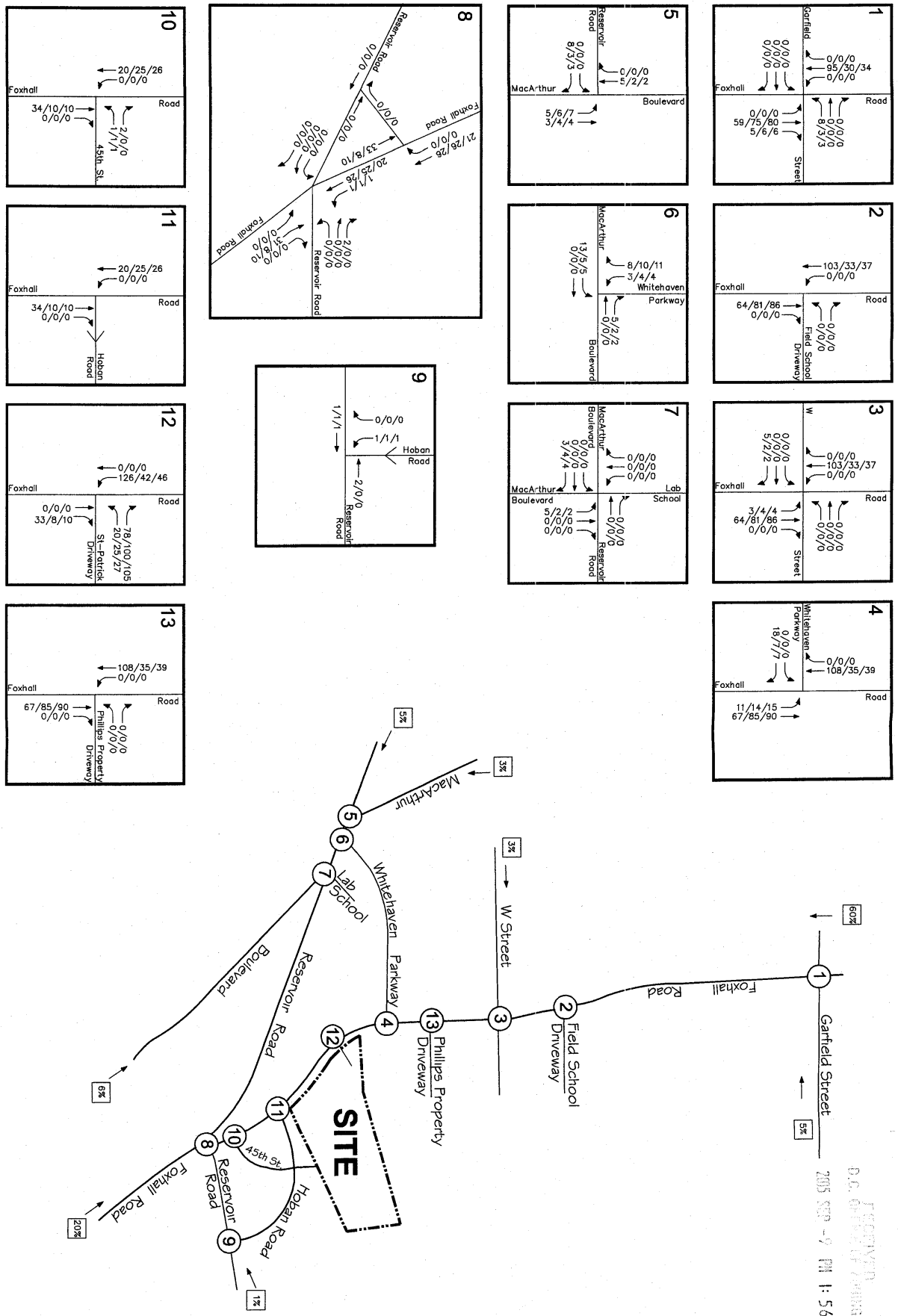
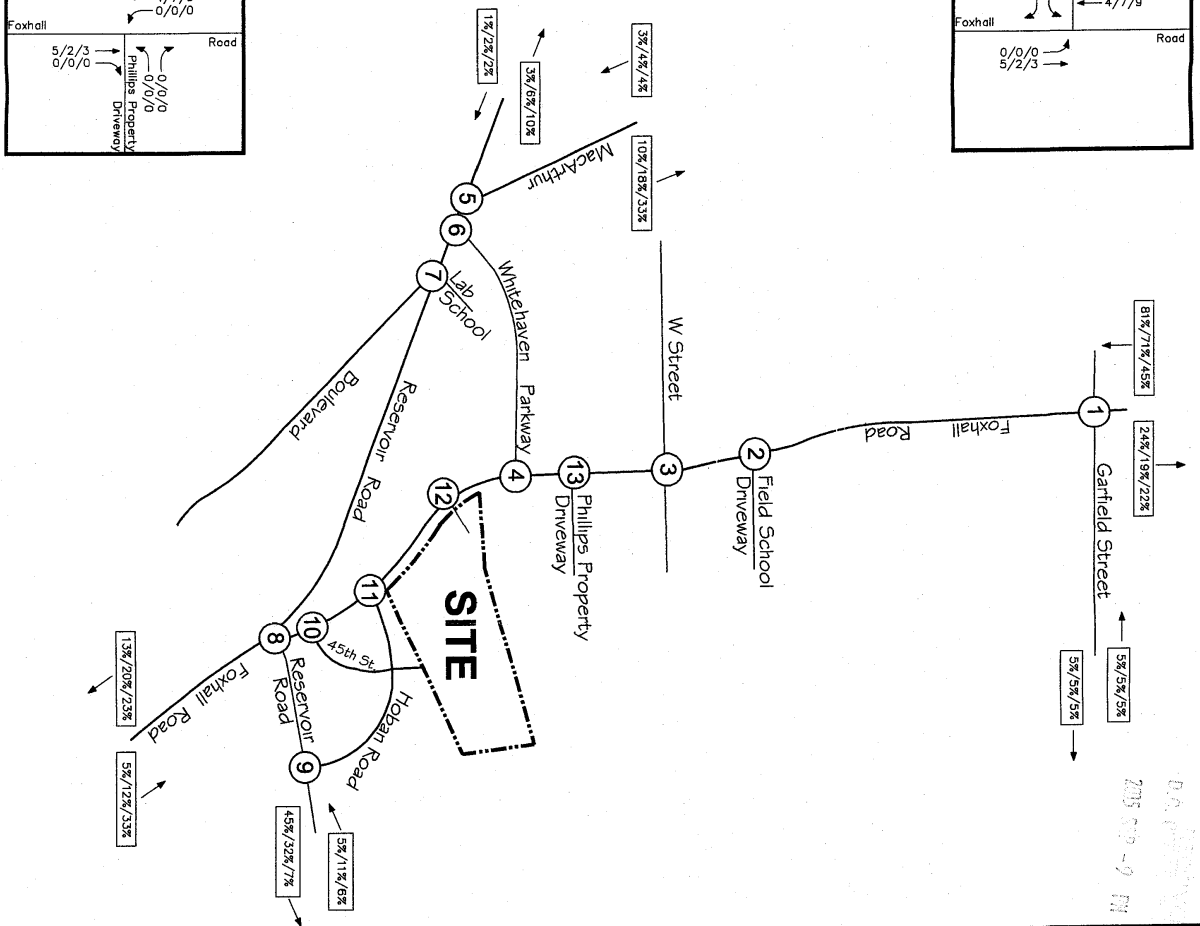
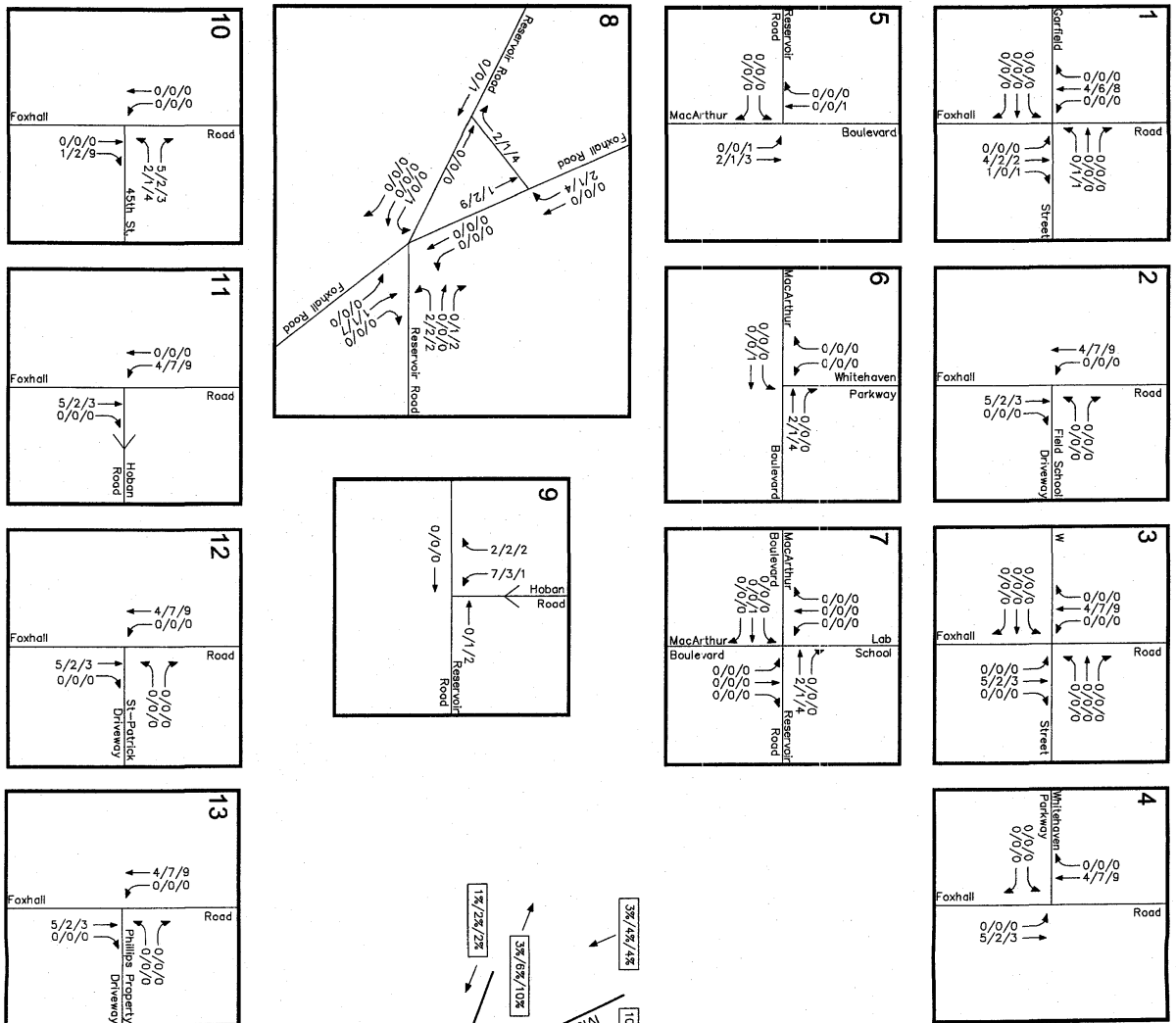


Figure 5-2
School-Generated
Traffic Assignments and
Directional Distribution

Transportation Impact Study
Friends of Saint Patrick's
Washington, D.C.

000/000/000 AM/SCHOOL/PM PEAK HOURS

WELLS & ASSOCIATES, LLC
TRAFFIC ENGINEERS, ARCHITECTS, AND PLANNERS



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Analysis performed using Spectralsoft 1.6.0 (Version 1.0 for Windows 95) software. Software details given in Table 1000-2 are used.

Section 6 CONCLUSIONS

The conclusions of this study are as follows:

1. *The Brady Estate is located on Foxhall Road, within a connected network of arterial, collector, and local streets.*
2. *All vehicular access to the school would be provided at a new, full-movement, signalized intersection on Foxhall Road. Timing of this new signal would be coordinated with other, existing signals along Foxhall Road. Vehicular access to the residences would be provided at a new driveway on Hoban Road, opposite 45th Street.*
3. *The signalized Foxhall Road/Garfield Street, Foxhall Road/Field School Driveway, and Foxhall Road/Whitehaven Parkway presently operate at an acceptable overall level of service (LOS) "D" or better during all times of day.*

The signalized Reservoir Road/MacArthur Boulevard (West) and Reservoir Road/MacArthur Boulevard (East) intersections operate near or at capacity at an overall LOS "E" or "F" during the AM peak hour and at an acceptable overall LOS "A" or "B" during the school and commuter PM peak hours.

The signalized Foxhall Road/Reservoir Road intersection operates at capacity at an overall LOS "F" during the AM peak hour and near capacity at LOS "E" during the school and commuter PM peak hours.

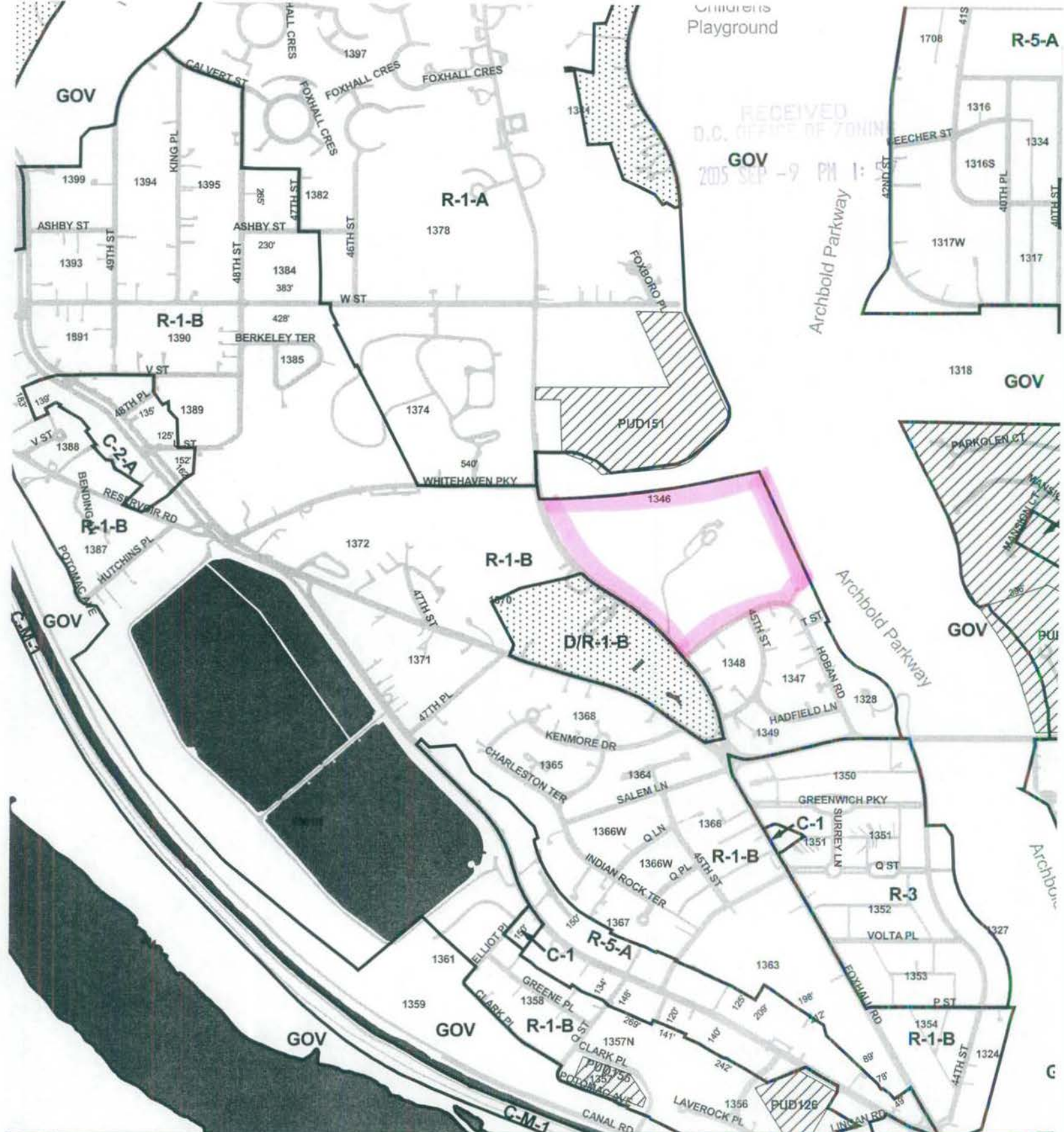
Side street traffic generally operates near or at capacity at stop sign controlled intersections.

4. *Redevelopment of the Philips Estate and background traffic growth would have a small impact on intersection levels of service.*

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5. ***The St. Patrick's Travel Demand Management (TDM) Plan would consist of the following elements:***
 - a. ***Walk initiative.***
 - b. ***Carpool initiatives.***
 - c. ***Shuttle bus service.***
 - d. ***Parking controls.***
 - e. ***Staggered class start and dismissal times.***
6. ***The St. Patrick's middle and upper schools would generate approximately 257 AM peak hour vehicle-trips, 175 school PM peak hour vehicle-trips, and 188 commuter PM peak hour vehicle-trips, at the ultimate enrollment of 120 middle school and 320 upper school students.***
7. ***The school will ultimately increase peak hour traffic on Foxhall Road north of the driveway by five to 14 percent, and would increase peak hour traffic on Foxhall Road south of the driveway by two to four percent.***
8. ***The 28 new homes would generate approximately 21 AM peak hour vehicle-trips, 17 school PM peak hour vehicle-trips, and 28 commuter PM peak hour vehicle-trips.***
9. ***Redevelopment of the Brady Estate would have a small impact on intersection levels of service. It would add 12 or fewer seconds of additional average vehicle delay for motorists passing through the signalized intersections on Foxhall Road and MacArthur Boulevard.***
10. ***The proposed school would add fewer than three seconds of additional average vehicle delay for Colony Hill motorists.***
11. ***The proposed new Foxhall Road/St. Patrick's signalized intersection would operate at an overall acceptable LOS "A" or "B" at all times of day. Traffic turning left into the driveway from Foxhall Road also would operate at an acceptable LOS "C" or "D" and traffic turning right into the driveway from Foxhall Road would operate at an acceptable LOS "A" or "B". Traffic turning left or right to exit the driveway onto Foxhall Road would operate at an acceptable LOS "A".***

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Map 9

Dimensions shown on this map are measured from property lines not shown. Buildings and streets are extracted from the 1999 ortho photography.

at the address or number listed below.

0 400 800 Feet

Federal Tracts



Areas of Overlay Districts

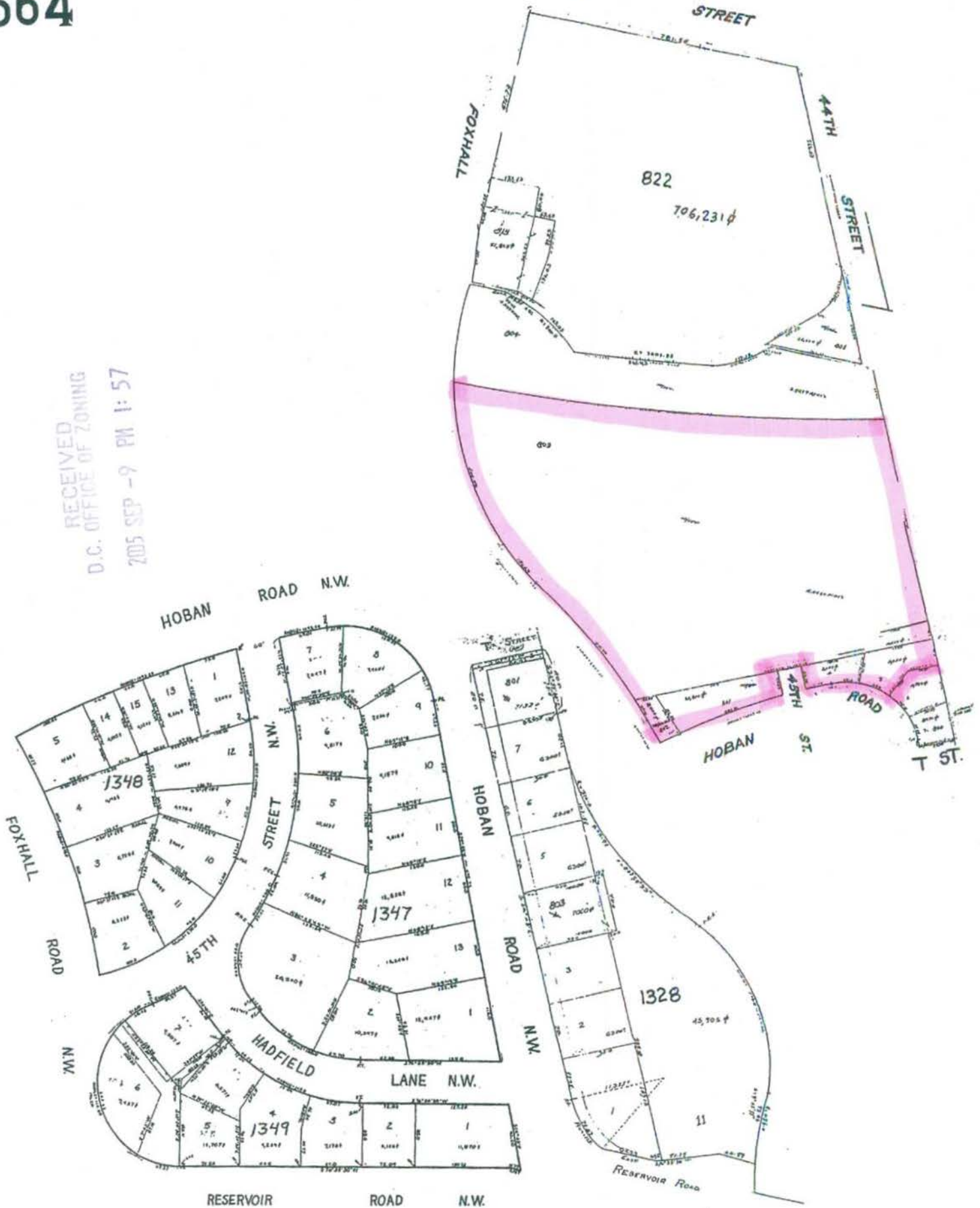
Water

Buildings

Overlay	Description
ARTS	Uptown Arts
CAP	Capitol Interest
CBUT	Chain Bridge University Terrace
CP	Cleveland Park
D	Diplomatic
DC	Dupont Circle
DD	Downtown Development
FB	Foggy Bottom
FT	Fort Totten

Overlay	Description
HR	Hotel Residential
LO	Langdon
MW	Neighborhood Commercial-Macomb-Wisconsin
NO	Naval Observatory
RC	Reed Cooke
SSH	Sixteenth Street Heights
TSP	Tree and Slope Protection
WH	Tree and Slope Protection-Wesley Heights
WP	Neighborhood Commercial-Woodley Park

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sq. 1350

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
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44th

532

FOXHALL RD. N.W.
WHITE HAVEN PWY.

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W. ST. N.W.

563

1346

WHITEHAVEN HWY N.W.

1346

532

569

45TH

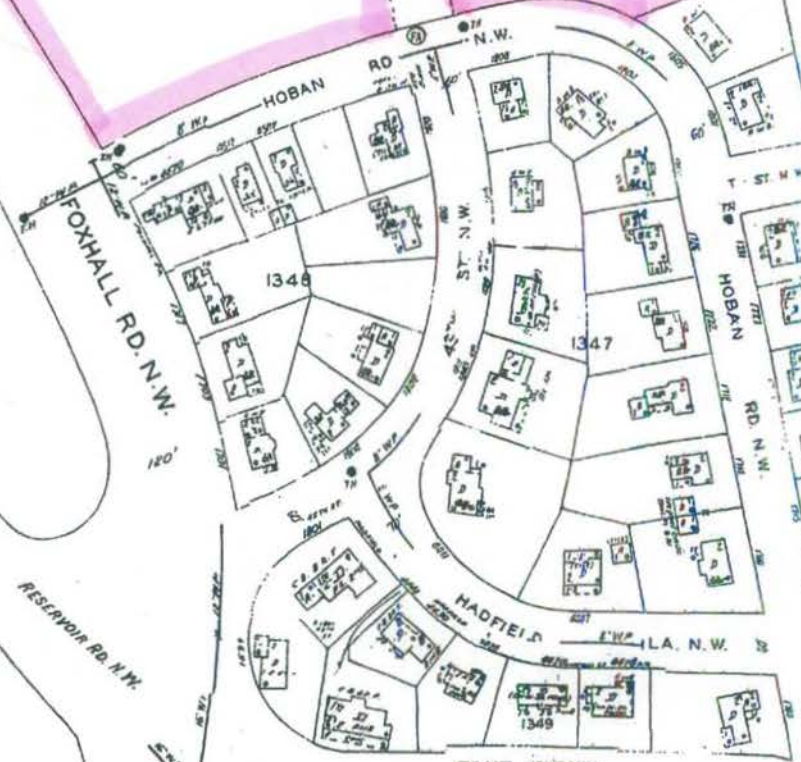
ST. N.W. NOT OPEN

44TH ST. N.W.



1331

GLOVER ARCHBOLD PARK



SALEM LA.

RESERVOIR RD. N.W.

1328