

**MacARTHUR COURT
TRANSPORTATION IMPACT STUDY
WASHINGTON, D.C.**

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November 7, 2007

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INTRODUCTION

This report presents the results of a transportation impact study of MacArthur Court, a Planned Unit Development (PUD), which is planned at 4460 MacArthur Boulevard in Square 1356 and 1357N, in the northwest section of Washington, D.C., as shown on Figure 1.

An aerial image of the site vicinity is shown on Figure 2.

The subject site is controlled by an existing Planned Unit Development (PUD) in the R-5-A zone district and presently is occupied by the Riverside Hospital. The hospital is served by surface and underground parking. Vehicular access is provided by a single driveway on MacArthur Boulevard.

Athena/Willco Residential proposes to redevelop the site with 41 townhouses. For purposes of this traffic analysis, this development was assumed to be completely built and occupied by 2010.

Tasks undertaken in this study included the following:

1. Review Athena/Willco Residential's proposed development plans, the Palisades Traffic Impact Study, and other background data.
2. A field reconnaissance of existing roadway and intersection geometrics, traffic controls, traffic signal phasing/timings, and speed limits.
3. Agreement with the District Department of Transportation (DDOT) staff regarding the traffic study scope.
4. Counts of existing traffic at six (6) key intersections.
5. Analysis of existing levels of service and queues at these intersections.
6. Background future traffic volumes were forecasted for project buildout.
7. Background levels of service were calculated at key intersections based on background traffic forecasts, existing traffic controls, and existing intersection geometrics.
8. The number of AM and PM peak hour trips that would be generated by the proposed MacArthur Court project were estimated based on Institute of Transportation Engineers (ITE) trip generation rates and experience with other comparable projects in Washington, D.C.

8. The number of AM and PM peak hour trips that would be generated by the proposed MacArthur Court project were estimated based on Institute of Transportation Engineers (ITE) trip generation rates and experience with other comparable projects in Washington, D.C.
9. Total future traffic volumes were forecasted for 2010.
10. Total future levels of service were calculated at key intersections based on total future traffic forecasts, existing traffic controls, and existing intersection geometrics.

Sources of data for this analysis included traffic counts conducted by Wells & Associates, ITE, the Washington Metropolitan Area Transit Authority (WMATA), the District of Columbia, and Athena/Willco Residential.

The conclusions of this traffic impact study are as follows:

1. ***MacArthur Court will generate fewer trips than the existing Riverside Hospital when it was operating at its peak capacity.***
2. ***MacArthur Court will generate 25 AM peak hour trips and 29 PM peak hour trips, upon completion of construction and full occupancy.***
3. ***With MacArthur Court, off site intersections along MacArthur Boulevard would continue to operate at levels of service consistent with background conditions.***
4. ***Based on existing driveway counts, at peak occupancy of 120 beds, the Riverside Hospital would generate 58 to 115 AM peak hour trips and 36 to 72 PM peak hour trips. Thus, MacArthur Court will generate at least 33 fewer trips during the AM peak hour and seven (7) fewer trips during the PM peak hour.***
5. ***Long vehicle queues were observed during the AM and PM peak hours along southbound MacArthur Boulevard at Q Street, the Riverside Hospital driveway, and at Foxhall Road due to heavy traffic demands and capacity constraints downstream on Canal Road at the Whitehurst Freeway and Key Bridge and at the Canal Road/Foxhall Road intersection. These queues cause undesirable delays along Foxhall Road and MacArthur Boulevard during the AM and PM peak hours.***

6. ***Approved but unbuilt projects in the study area will generate a total of 318 AM peak hour trips and 263 PM peak hour trips, upon completion.***
7. ***These additional trips, along with regional growth, will increase delays at the Foxhall Road/MacArthur Boulevard intersection and the study intersections along MacArthur Boulevard during the AM and PM peak hours.***
8. ***Motorists in the southbound queue that sometimes blocks the Riverside Hospital driveway are expected, as is the case presently, to allow residents and visitors to turn into and out of the MacArthur Court driveway.***

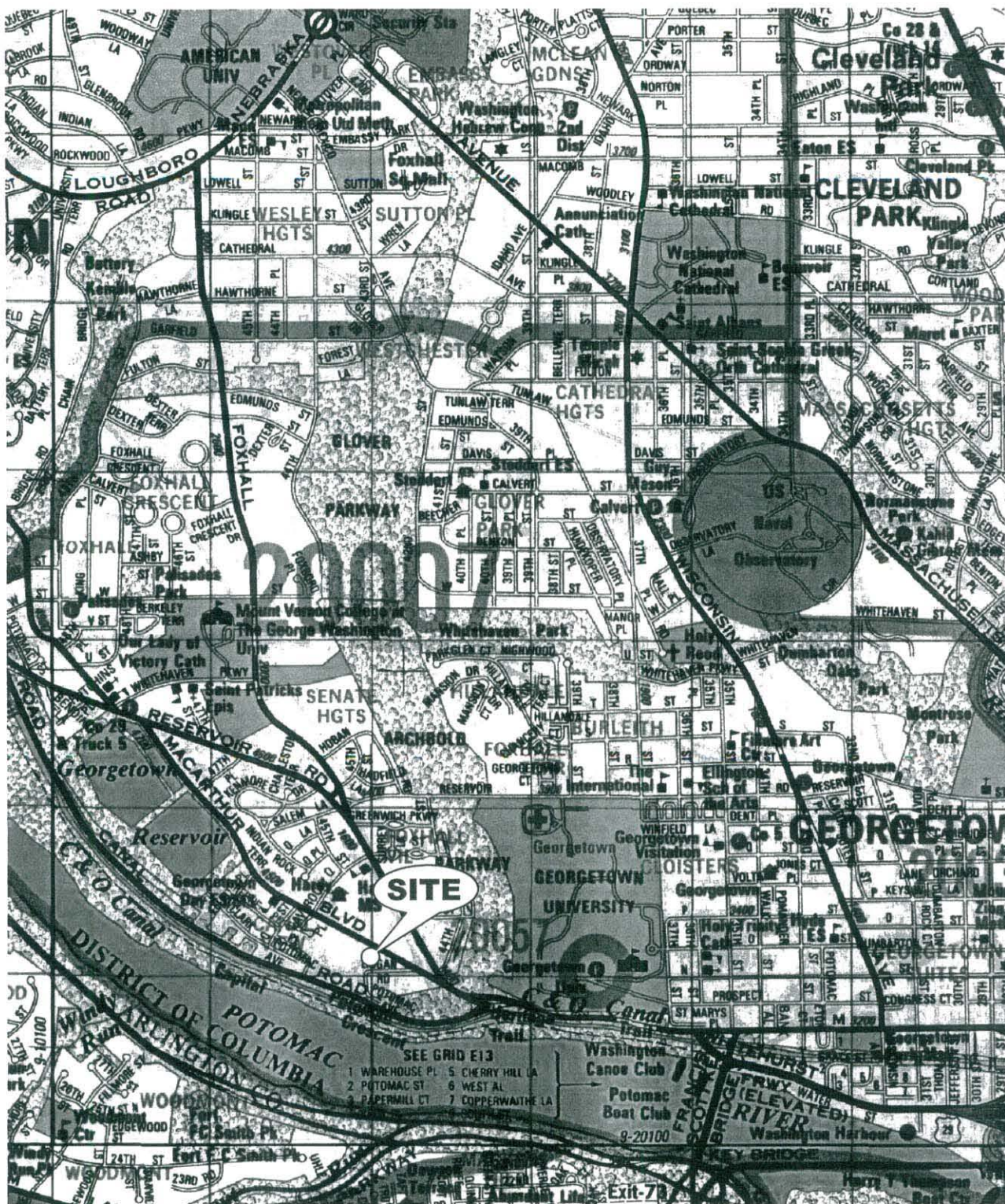


Figure 1
Site Location



North



Figure 2
Site Aerial



North

BACKGROUND DATA

Project Description

The MacArthur Court site is located at 4460 MacArthur Boulevard in Squares 1356 and 1357N, in the northwest section of Washington D.C., Ward 3. The subject site is an existing PUD in the R-5-A zone and is occupied by the Riverside Hospital. Vehicular access to surface and underground parking facilities is provided by a single driveway on MacArthur Boulevard.

The proposed PUD, MacArthur Court, would replace the existing Riverside Hospital with 41 townhouses. The proposed MacArthur Court driveway would be located approximately 75 feet north of the existing Riverside Hospital driveway. Access to individual townhouses would be provided by a private, on-site, 20-foot wide roadway.

The connection of Lingan Road and the new internal private roadway is proposed to be terminated in a manner that will prohibit through traffic. Mountable curbs and landscaping will allow emergency vehicular access, as needed. The two (2) existing single-family detached homes that are located at the south end of Lingan Road would be provided access through MacArthur Court in the future.

Neighborhood

The neighborhoods Palisades, Foxhall, Senate Heights, Foxhall Village, and Canal View, surrounding MacArthur Court are made up of commercial, institutional, and residential uses. Public and independent schools, including the nearby Key School, Georgetown Day School, River School, Our Lady of Victory, Lab School, and St. Patrick's Episcopal Day School, as well as the Mount Vernon College at The George Washington University are located in the site vicinity. Georgetown University is located to the east.

Riverside Hospital

Riverside Hospital, a psychiatric hospital, holds a maximum of 120 beds and is approved for 150 beds. The hospital is staffed by three (3) full-time-equivalent physicians and 93 other staff. It is believed that on the day of the traffic counts, Tuesday, September 25, 2007, only 25 to 50 beds were occupied. Riverside Hospital is not accepting new patients and is closing. Therefore, the trip counts taken on September 25th represent only a fraction of the hospital's historic usage of the site.

Study Scope

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

1. MacArthur Boulevard/47th Place,
2. MacArthur Boulevard/Q Street (north),
3. MacArthur Boulevard/Q Street (south),
4. MacArthur Boulevard/Riverside Hospital driveway.,
5. MacArthur Boulevard/Lingan Road, and
6. MacArthur Boulevard/Foxhall Road/44th Street.

This study also includes the following approved but incomplete development projects:

1. The Phillips Estate.
2. St. Patrick's Episcopal Day School.

The impacts of these approved projects and the subject project were evaluated at project buildout, which is anticipated to occur in 2010.

Level of service (LOS) "D" is considered the minimum acceptable level of service in urban areas such as Washington, D.C.

Public Road Network

Existing Network. Regional access to MacArthur Court is provided by MacArthur Boulevard, Foxhall Road, and Canal Road. Local access is provided by MacArthur Boulevard, Foxhall Road, and Q Street. Existing intersection lane use and traffic control at key intersections in the site vicinity are shown on Figure 3.

MacArthur Boulevard is two-way, four-lane, principal arterial providing regional access for the neighborhood and commuters to Georgetown, the Whitehurst Freeway, and Key Bridge via Canal Road; and to Palisades, Sibley Hospital, and points north in Maryland.

Sidewalks are provided on both sides of MacArthur Boulevard. On-street parking is provided on the east and west sides of the street. In the immediate site vicinity, two-hour parking is permitted along both sides of the street between 9:30 AM and 8:30 PM. North of Q Street, no on-street parking is permitted on the west side of MacArthur Boulevard from 7:00 AM until 9:30 AM, while two-hour parking is permitted on the east side from 7:00 AM to 8:30 PM. MacArthur Boulevard has a posted speed limit of 25 miles per hour (mph).

Foxhall Road is a north-south, two-way, two-lane minor arterial, extending from Loughboro Road/Nebraska Avenue to Canal Road, with a posted speed limit of 25 mph. Foxhall Road provides access for local residents and for commuters to points east, west, and south via Canal Road, the Whitehurst Freeway, and Key Bridge; and to American University and points north via Nebraska Avenue. Foxhall Road widens to two (2) lanes in each direction in the vicinity of Reservoir Road. North of the intersection with MacArthur Boulevard/44th Street two-hour on-street parking is permitted between 7:00 AM and 8:30 PM, while no parking is permitted south of the intersection.

Q Street is a two-lane collector extending from 44th Street, east of Foxhall Road, to Clark Place, west of MacArthur Boulevard, intersecting MacArthur Boulevard at two (2) off-set intersections (approximately 200 feet apart). The southern Q street intersection with MacArthur Boulevard operates under traffic signal control, while the northern intersection operates with STOP control on the Q Street approach.

47th Place is a local street connecting Reservoir Road to MacArthur Boulevard. At both Reservoir Road and MacArthur Boulevard, the 47th Street approaches are controlled by a STOP sign.

Future Improvements. Improvements to Foxhall Road between Nebraska Avenue and Canal Road are currently being made. New traffic signals will be installed along Foxhall Road including the intersection with MacArthur Boulevard. Curbs and gutters, sidewalks, wheelchair ramps, pavement markings, and traffic signs will be replaced along Foxhall Road. The existing pavement on Foxhall Road will be milled and resurfaced. Improvements will be constructed at the Reservoir Road/Foxhall intersection to provide a left-turn lane from eastbound Reservoir Road.

A new left turn lane on Canal Road at the Georgetown University entrance was recently constructed and a traffic signal was installed. However, at the time of the traffic counts, September 25, 2007, the turn lane was not open to traffic and the signal was not operational. Pavement markings and signs along Canal Road are also being improved.

The Palisades Traffic Impact Study suggested operational improvements at the MacArthur Boulevard intersections with Q Street to reduce delays and improve levels of service. Restricting on-street parking between the two intersections on the east side of MacArthur Boulevard during commuting hours would provide a second lane on northbound MacArthur. This would allow motorists continuing north on MacArthur to by-pass left turning vehicles.

Existing Traffic Counts

Vehicle Counts. Existing AM and PM peak period vehicular and pedestrian counts were conducted on Tuesday, September 25, 2007, by Wells & Associates at the following intersections:

1. MacArthur Boulevard/47th Place,
2. MacArthur Boulevard/Q Street (north),
3. MacArthur Boulevard/Q Street (south),
4. MacArthur Boulevard/Riverside Hospital driveway,
5. MacArthur Boulevard/Lingan Road, and
6. MacArthur Boulevard/Foxhall Road/44th Street.

The results are included in Appendix B and summarized on Figures 4 and 5.

The morning peak hour generally occurred at 7:30 to 8:30 AM, and the afternoon peak hour generally occurred at 6:00 to 7:00 PM.

Figure 4 indicates that MacArthur Boulevard, north of the Riverside Hospital driveway, presently carries 1,414 trips during the AM peak hour, and 928 trips during the PM peak hour. Of these trips, 58 percent travel southbound during the AM peak hour; 51 percent travel southbound during the PM peak hour.

North of 47th Place, MacArthur Boulevard carries 1,472 trips during the AM peak hour, and 871 trips during the PM peak hour. Of these trips, 62 percent travel southbound during the AM peak hour, while 58 percent travel southbound during the PM peak hour.

Q Street, west of MacArthur Boulevard, carries 19 trips during the AM peak hour, and 29 trips during the PM peak hour. Of these trips, 84 percent travel eastbound during the AM peak hour, while 69 percent travel westbound during the PM peak hour.

Q Street, east of MacArthur Boulevard carries 363 trips during the AM peak hour, and 147 trips during the PM peak hour. Of these trips, 58 percent travel eastbound during the AM peak hour, while 50 percent travel eastbound during the PM peak hour.

Lingan Road, west of MacArthur Boulevard, carries 26 AM peak hour trips and 29 PM peak hour trips.

Foxhall Road, north of MacArthur Boulevard, carries 1,162 trips during the AM peak hour, and 1,215 trips during the PM peak hour. Of these trips, 71 percent travel northbound during the AM peak hour, while 58 percent travel northbound during the PM peak hour.

Pedestrian Counts. As shown on Figure 5, 16 pedestrians crossed the Riverside Hospital driveway on MacArthur Boulevard from 7:30 to 8:30 AM, and 25 pedestrians crossed the driveway from 6:00 to 7:00 PM.

At the MacArthur Boulevard/47th Place intersection, 18 pedestrians crossed 47th Place during the AM peak hour and 31 pedestrians crossed 47th Place during the PM peak hour. Only three (3) pedestrians crossed MacArthur Boulevard during the AM peak hour, while no pedestrians were observed crossing MacArthur during the PM street peak hour.

At the southern Q Street intersection with MacArthur Boulevard, which is controlled by a traffic signal, 31 pedestrians crossed Q Street/school driveway during the AM street peak hour, while 101 pedestrians crossed MacArthur Boulevard. During the PM street peak hour, 41 pedestrians crossed Q Street and the school driveway, while 34 pedestrians crossed MacArthur Boulevard.

At the MacArthur Boulevard/Foxhall Road/44th Street intersection, three (3) and seven (7) pedestrians were observed crossing MacArthur Boulevard during the AM and PM street peak hours, while 28 and 25 pedestrians crossed 44th Street. During the AM peak hour, 21 pedestrians crossed Foxhall Road, and 33 pedestrians crossed Foxhall during the PM peak hour.

Parking Occupancy Counts

The number of parked vehicles on the surface parking lot were counted at 10:00 AM and at 2:00 PM on Tuesday, September 25, 2007.

At 10:00 AM, a total of 19 vehicles were parked on the surface lot. Of the 19 vehicles, four (4) were staff, 11 were visitors, and four (4) vans were parked. The four (4) vans were not parked in marked parking spaces.

At 2:00 PM, a total of 29 vehicles were parked on the surface lot. Of the 29 vehicles, seven (7) were staff, 18 were visitors, and four (4) vans were parked. The four (4) vans were not parked in marked parking spaces.

Public Transportation Facilities and Services

MacArthur Court is served by three (3) Metrobus lines. The D5 Metrobus line (MacArthur Boulevard – Georgetown Line) operates from the Massachusetts Avenue/Westbard Avenue intersection in Maryland, along MacArthur Boulevard and Canal Road, to the Farragut North Metro Station during the AM commute and in the opposite direction during the PM commute.

The D3 and D6 Metrobus lines operate along MacArthur Boulevard and Q Street north of the subject site, providing service between Sibley Hospital and either New York Avenue in Northeast or the Stadium Armory Metro Station, with stops at the Dupont Circle and Farragut West Metro Stations.

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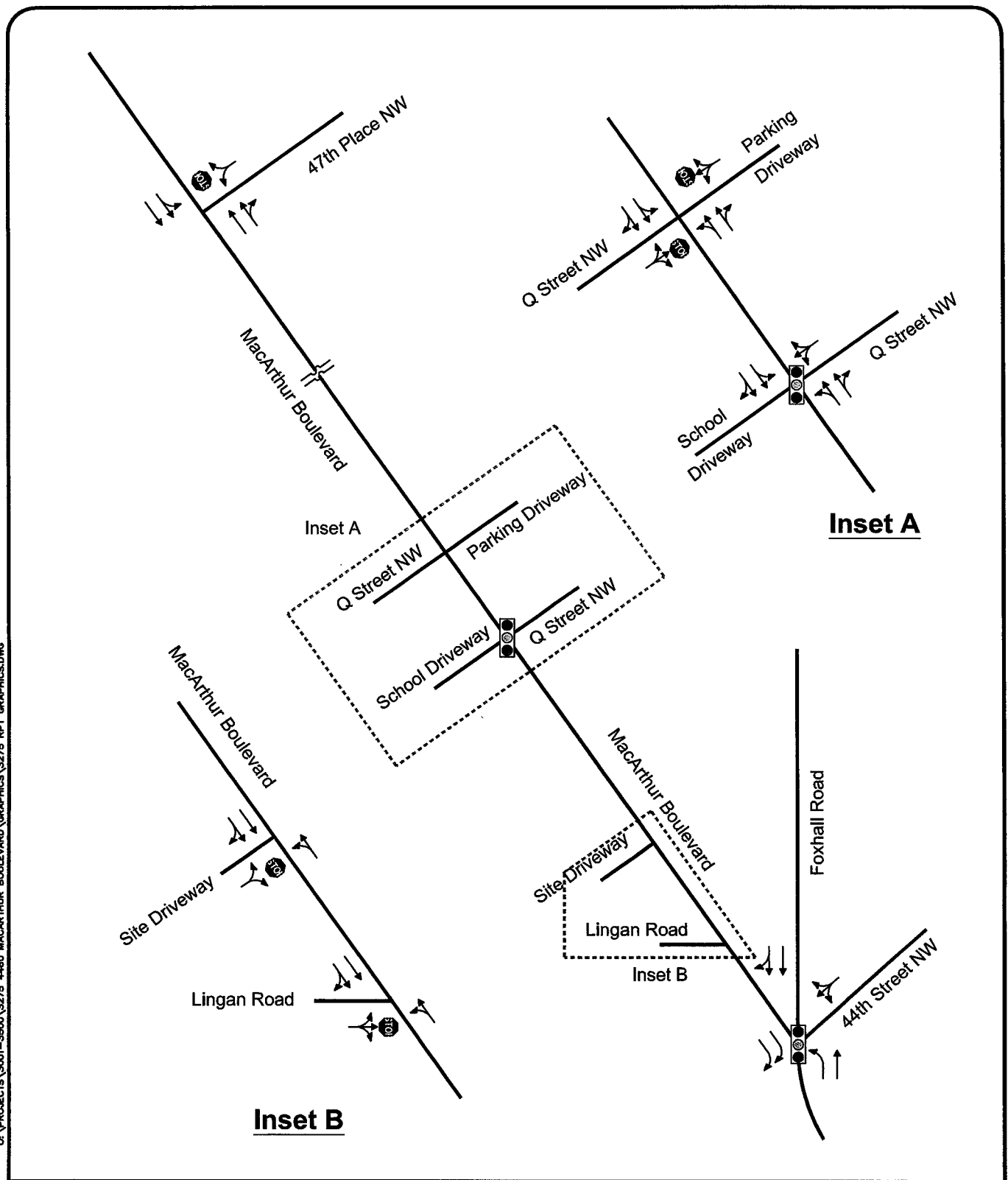


Figure 3
Existing Lane Use and Traffic Control

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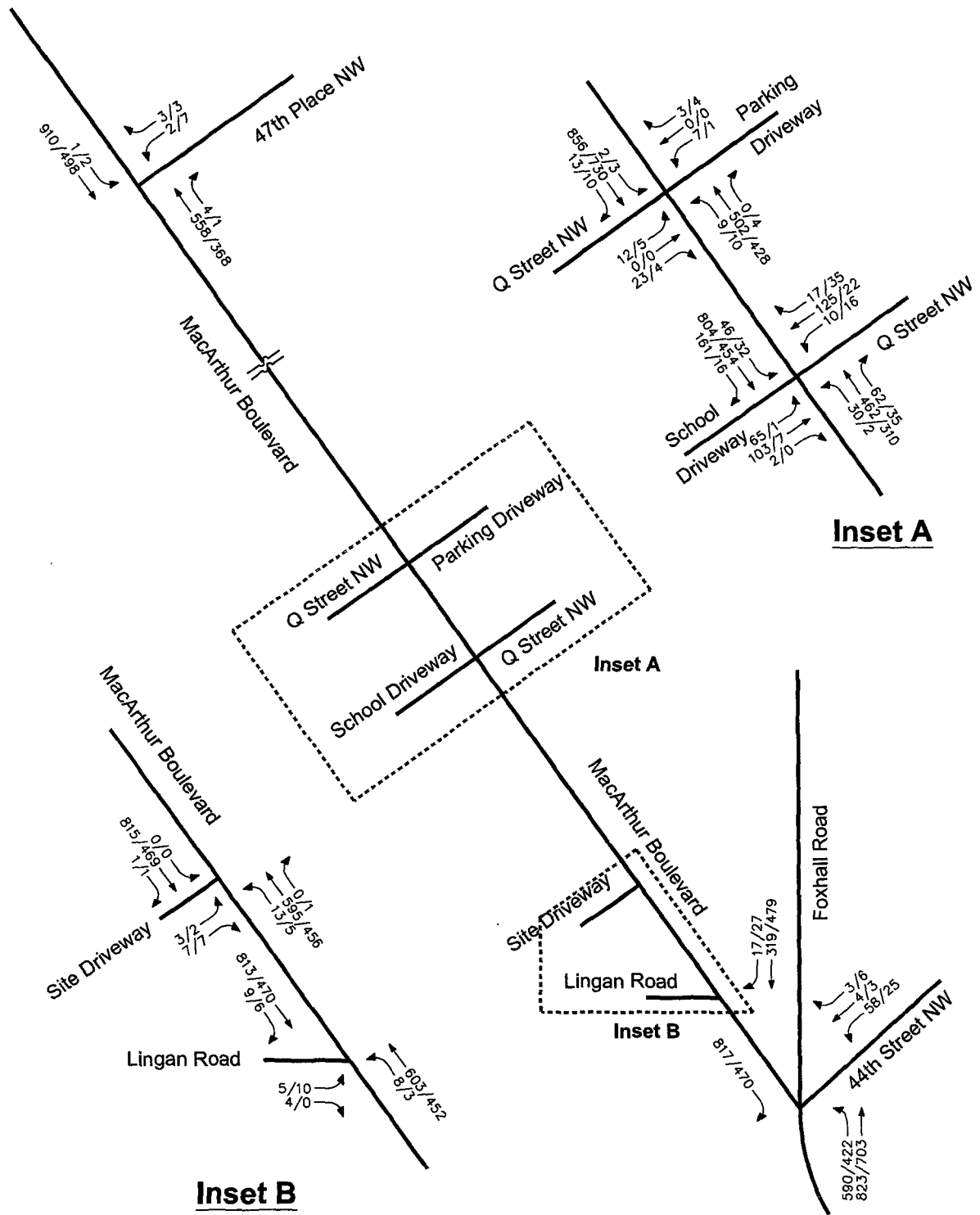


Figure 4
Existing Traffic Counts

AM PEAK HOUR
PM PEAK HOUR
000/000



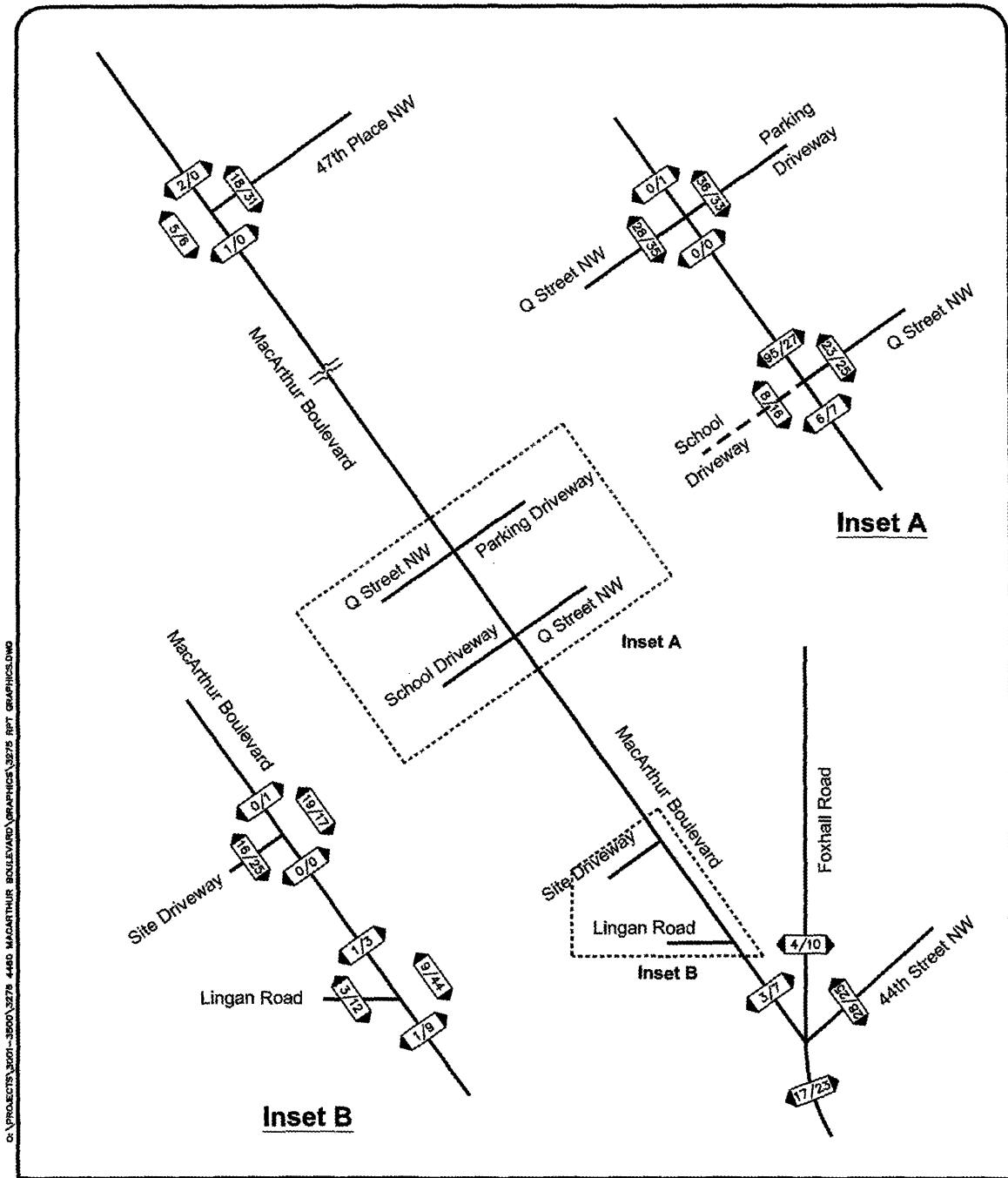


Figure 5
Pedestrian Counts

AM PEAK HOUR
PM PEAK HOUR
000/000



ANALYSIS

Existing Levels of Service and Queues

Existing peak hour levels of service were estimated at the six (6) study intersections based on the existing lane usage and traffic controls shown on Figure 4, the existing traffic counts shown on Figure 5, and the Highway Capacity Manual (HCM) methodology using Synchro software. Adjustments were made to the HCM and Synchro parameters, such as peak hour factors and the saturation flow rate, to calibrate the model results with actual field observations. The results are presented in Appendix C and summarized in Table I.

Vehicle queues were observed during the AM and PM peak hours along MacArthur Boulevard at Q Street, the Riverside Hospital driveway, and at Foxhall Road. Capacity constraints downstream on Canal Road at the Whitehurst Freeway and Key Bridge, and at the Canal Road/Foxhall Road intersection, cause queues to extend along southbound Foxhall Road and MacArthur Boulevard. Vehicle queues extend along MacArthur Boulevard from Foxhall Road past the Riverside Hospital driveway and occasionally through Q Street. Vehicles wishing to turn left into the Riverside Hospital driveway, or turn right or left out of the driveway, wait for a break in the queue to allow them to turn.

Northbound queues on MacArthur Boulevard extend from Q Street occasionally past the Riverside Hospital driveway during the peak drop off time at the Georgetown Day School.

Table I indicates that at the MacArthur Boulevard/Foxhall Road intersection, MacArthur Boulevard operates at capacity at LOS "F" during the AM peak hour and at LOS "C" during the PM peak hour. The 44th Street approach currently operates at capacity at LOS "F" during the AM peak hour and near capacity at LOS "E" during the PM peak hour. Northbound Foxhall Road operates at LOS "E" during the AM peak hour and at LOS "D" during the PM peak hour, while southbound Foxhall Road operates at LOS "B" and "C".

The northbound (or outbound) turning movements on Langan Road operate at LOS "D" during the AM peak hour and at LOS "C" during the PM peak hour. Vehicles turning to and from Langan Road wait for gaps in the queue on MacArthur Boulevard during the AM peak hour.

The northbound (or outbound) turning movements from the Riverside Hospital driveway operate at LOS "C" during the AM peak hour and at LOS "B" during the PM peak hour. Turning movements in and out of the driveway rely on gaps in the queue to allow access to the hospital.

Table I
MacArthur Court
Intersection Level of Service (1,2,3)

Intersection	Control	Approach	Existing, 2007		Background		Total Future	
			AM	PM	AM	PM	AM	PM
1. MacArthur Boulevard & Foxhall Road (Northern Light)	Signalized	44th Street WB	F (105.0)	E (60.0)	F (107.3)	E (60.8)	F (107.3)	E (61.6)
		Foxhall Road NB	E (78.1)	D (53.5)	F (91.6)	E (61.9)	F (86.9)	E (64.6)
		Foxhall Road SB	<u>B (18.4)</u>	<u>C (21.4)</u>	<u>B (18.8)</u>	<u>C (21.9)</u>	<u>B (18.8)</u>	<u>C (22.0)</u>
		Overall	E (68.0)	D (43.9)	E (78.2)	D (49.6)	E (74.5)	D (51.4)
MacArthur Boulevard & Foxhall Road (Southern Light)	Signalized	MacArthur Boulevard EB	F (109.1)	C (26.5)	F (115.7)	C (26.8)	F (116.2)	C (26.7)
		Foxhall Road NB	A (0.2)	A (0.1)	A (0.2)	A (0.1)	A (0.2)	A (0.1)
		Foxhall Road SB	<u>A (4.3)</u>	<u>A (4.0)</u>	<u>A (4.3)</u>	<u>A (4.1)</u>	<u>A (4.3)</u>	<u>A (4.1)</u>
		Overall	C (34.9)	A (6.9)	D (36.5)	A (6.9)	D (36.8)	A (6.9)
2. MacArthur Boulevard & Lingan Road	Unsignalized	MacArthur Boulevard EBTR	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]
		MacArthur Boulevard WBTL	A [0.3]	A [0.1]	A [0.3]	A [0.1]	A [0.3]	A [0.1]
		Lingan Road NBLR	D [29.7]	C [21.9]	D [31.0]	C [22.4]	D [32.0]	C [22.3]
3. MacArthur Boulevard & Existing Site Driveway	Unsignalized	MacArthur Boulevard EBTR	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]
		MacArthur Boulevard WBTL	A [0.5]	A [0.2]	A [0.5]	A [0.2]	A [0.1]	A [0.4]
		Site Access NBLR	C [23.5]	B [12.8]	C [24.4]	B [12.9]	E [40.7]	C [18.6]
4. MacArthur Boulevard & Q Street (Southbound) / Driveway	Signalized	MacArthur Boulevard EB	E (59.3)	B (12.5)	E (64.6)	B (12.6)	E (65.3)	B (12.7)
		MacArthur Boulevard WB	B (15.8)	B (10.6)	B (16.1)	B (10.7)	B (16.4)	B (10.8)
		Driveway NB	F (303.0)	D (40.2)	F (313.1)	D (40.2)	F (313.1)	D (40.2)
		Q Street SB	<u>F (261.4)</u>	<u>E (75.4)</u>	<u>F (268.1)</u>	<u>E (76.6)</u>	<u>F (268.1)</u>	<u>F (80.1)</u>
		Overall	F (84.8)	B (17.0)	F (89.1)	B (17.2)	F (89.2)	B (17.6)
5. MacArthur Boulevard & Q Street (Northbound) / Driveway	Unsignalized	MacArthur Boulevard EBLTR	A [0.1]	A [0.1]	A [0.1]	A [0.1]	A [0.1]	A [0.1]
		MacArthur Boulevard WBLTR	A [0.4]	A [0.4]	A [0.4]	A [0.4]	A [0.4]	A [0.4]
		Q Street NBLTR	E [40.1]	D [30.7]	E [42.4]	D [31.6]	E [42.7]	D [31.9]
		Driveway SBLTR	D [26.5]	B [14.1]	D [27.3]	B [14.3]	D [27.3]	B [14.3]
6. MacArthur Boulevard & 47th Place	Unsignalized	MacArthur Boulevard EBTL	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.1]
		MacArthur Boulevard WBRT	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]
		47th Place SBLR	C [17.8]	B [14.2]	C [18.0]	B [14.3]	C [18.0]	B [14.4]

Notes:

¹ Based on as Synchro version 6

² Numbers in brackets, [], represent control delay in seconds per vehicle for unsignalized intersections.

³ Numbers in parenthesis, (), represent control delay in seconds per vehicle for signalized intersections.

The MacArthur Boulevard/Q Street (southern) intersection operates at LOS "F" during the AM hour and at LOS "B" during the PM peak hour. The undesirable level of service during the AM peak hour is caused by convergence of commuter traffic and school traffic. A uniformed off-duty Metropolitan Police officer, hired by GDS, controls vehicular and pedestrian traffic at this intersection in the morning.

Northbound turning movements on Q Street at MacArthur Boulevard (northern intersection) operate at LOS "E" during the AM peak hour and at LOS "D" during the PM peak hour.

Turning movements from 47th Place operate at LOS "C" during the AM peak hour and at LOS "B" during the PM peak hour.

Other Development Traffic

The number of peak hour trips that will be generated by the two (2) of other approved but incomplete development projects were estimated based on their respective development programs and peak hour equations included in the Institute of Transportation Engineers' (ITE) Trip Generation manual, 7th Edition.

As shown in Table 2, it is estimated that these projects will generate a total of 318 AM peak hour trips, and 263 PM peak hour trips, upon completion.

Table 2
MacArthur Court
Background Trip Generation Analysis (1)

Land Use	Size	Units	Land Use Code	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
The Phillips Estates									
Single Family Home	47	D.U.		9	26	35	30	17	47
Saint Patrick's Episcopal Day School									
	29	D.U.	210	5	16	21	18	10	28
	440	Students	522	<u>164</u>	<u>98</u>	<u>262</u>	<u>56</u>	<u>132</u>	<u>188</u>
				169	114	283	74	142	216
Total Background Development				178	140	318	104	159	263

Notes: (1) Trip Generation obtained from Friends of St. Patrick's Transportation Impact Study, Wells & Associates.

Trip Distribution Analysis

The distribution of peak hour trips generated by MacArthur Court and other approved projects was determined based on existing travel patterns, origin-destination patterns reported in the Palisades Traffic Impact Study, and other traffic studies. It is estimated that approximately 40 percent of the other projects traffic would travel north and south on Foxhall Road to and from the east. The distributions for MacArthur Court are as follows:

<u>To/From</u>	<u>In</u>	<u>Out</u>
West via MacArthur Boulevard	30%	20%
North via Q Street	10%	40%
North via Foxhall Road	10%	0%
East via 44th Street	4%	0%
South and East via Canal Road and Foxhall Road	<u>46%</u>	<u>40%</u>
	100%	100%

Other Development Project Traffic Assignments

The trips shown in Table 2 were assigned to the public road network based on the trip distribution described above. The results are shown on Figure 7.

Background Traffic Growth

Annual background traffic growth was estimated at 0.5 percent per year compounded for three (3) years for project buildout (2010). This growth rate was applied to the through and turning movements on MacArthur Boulevard, 47th Place, Q Street, Foxhall Road, and 44th Street. The background growth is shown on Figure 8.

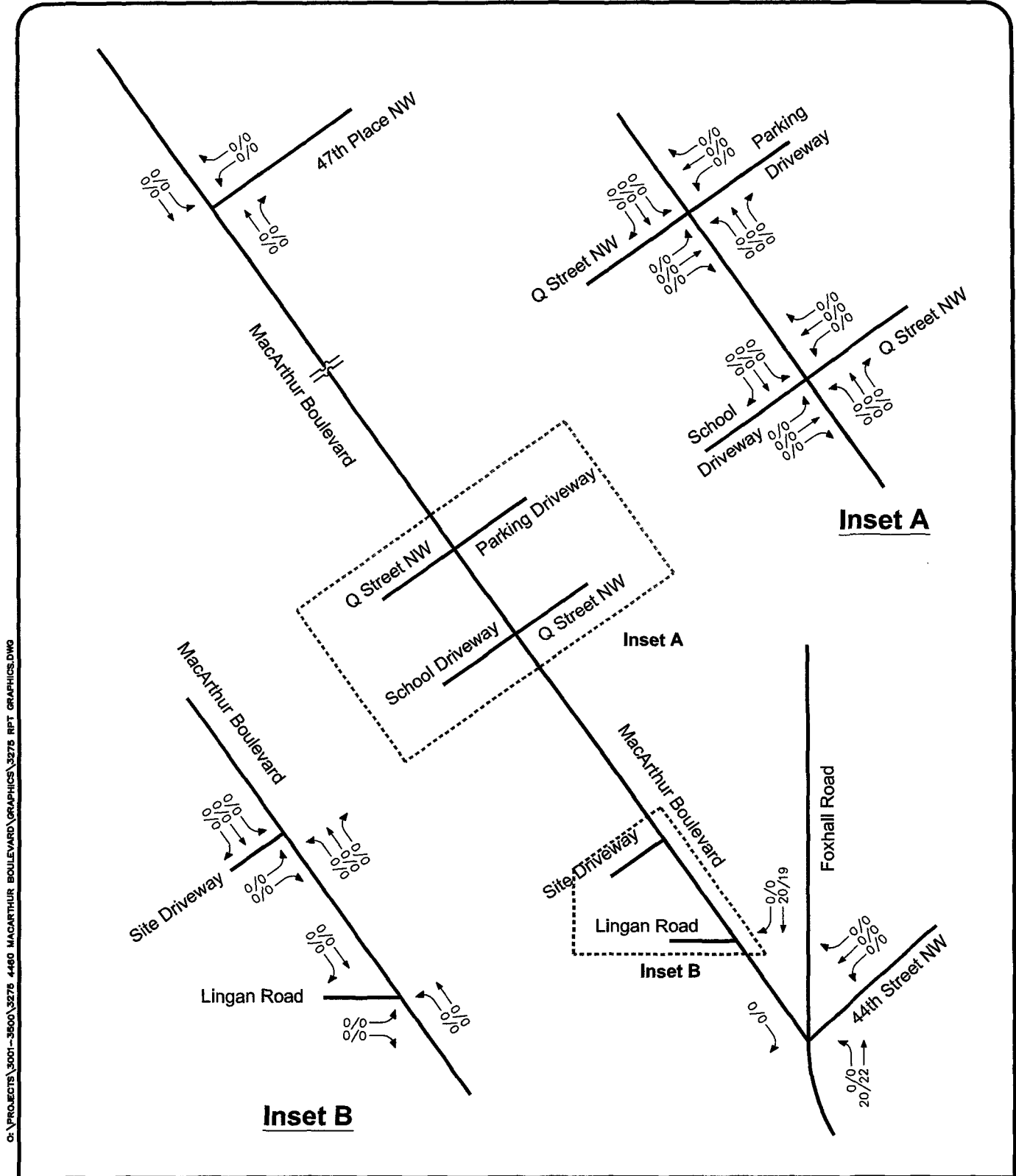


Figure 6
Pipeline Trips Subtotal

AM PEAK HOUR
PM PEAK HOUR
000/000



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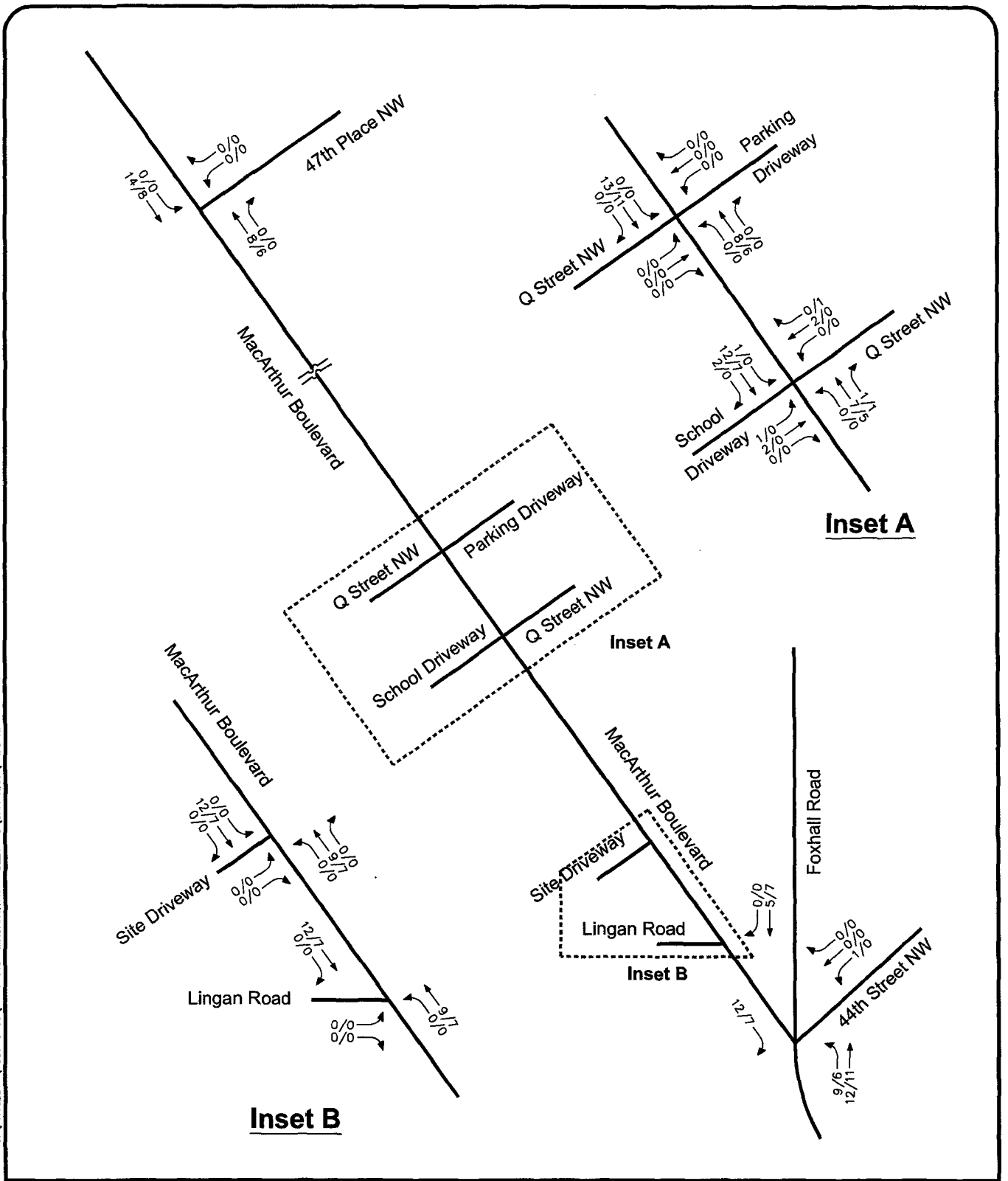


Figure 7
Regional Growth

AM PEAK HOUR
PM PEAK HOUR
000/000



Background Traffic Forecasts

Background peak hour traffic forecasts, without development of MacArthur Court, were estimated based on existing traffic counts, traffic generated by approved but incomplete developments, and historic background traffic growth. The background traffic forecasts for the year of project buildout (2010) are shown on Figure 9.

Background Future Levels of Service and Queues

Future peak hour levels of service, without MacArthur Court, were estimated at the six (6) study intersections for the year of project buildout (2010) based on: the intersection lane usage and traffic controls shown on Figure 4; the background traffic forecasts shown on Figure 9; and the Highway Capacity Manual methodology using Synchro. The results are presented in Appendix D, and are summarized in Table I.

As discussed previously, queues extend along Foxhall Road and MacArthur Boulevard during the peak hours due to capacity constraints along Canal Road at the Whitehurst Freeway and the Key Bridge, and at the Canal Road/Foxhall Road intersection. Operational improvements, such as signage and lane striping along Foxhall Road and Canal Road, are anticipated to control lane and intersection blockage and optimize operations. These operational improvements are part of the ongoing Foxhall Road and Canal Road improvements.

Table I indicates that at the MacArthur Boulevard/Foxhall Road intersection, MacArthur Boulevard would continue to operate at LOS "F" during the AM peak hour and at LOS "C" during the PM peak hour. The 44th Street approach would continue to operate at LOS "F" during the AM peak hour and at LOS "E" during the PM peak hour. Northbound Foxhall Road would operate at LOS "F" during the AM peak hour and at LOS "E" during the PM peak hour, while southbound Foxhall Road would continue to operate at LOS "B" and "C".

The turning movements on Lingan Road, Riverside Hospital driveway, Q Street, and 47th Place would continue to operate at similar levels of service as existing conditions during the AM and PM peak hours. Vehicles turning to and from the side streets on MacArthur Boulevard wait for gaps in the queue to turn to and from MacArthur Boulevard.

The signalized Q Street intersection with MacArthur Boulevard would operate at LOS "F" during the AM peak hour and at LOS "B" during the PM peak hour. The Q Street approach would operate at LOS "F" during both the AM peak hour and LOS "E" during the PM peak hour.

G:\PROJECTS\3001-3500\3275 4460 MACARTHUR BOULEVARD\GRAPHICS\3275 RPT GRAPHICS.DWG

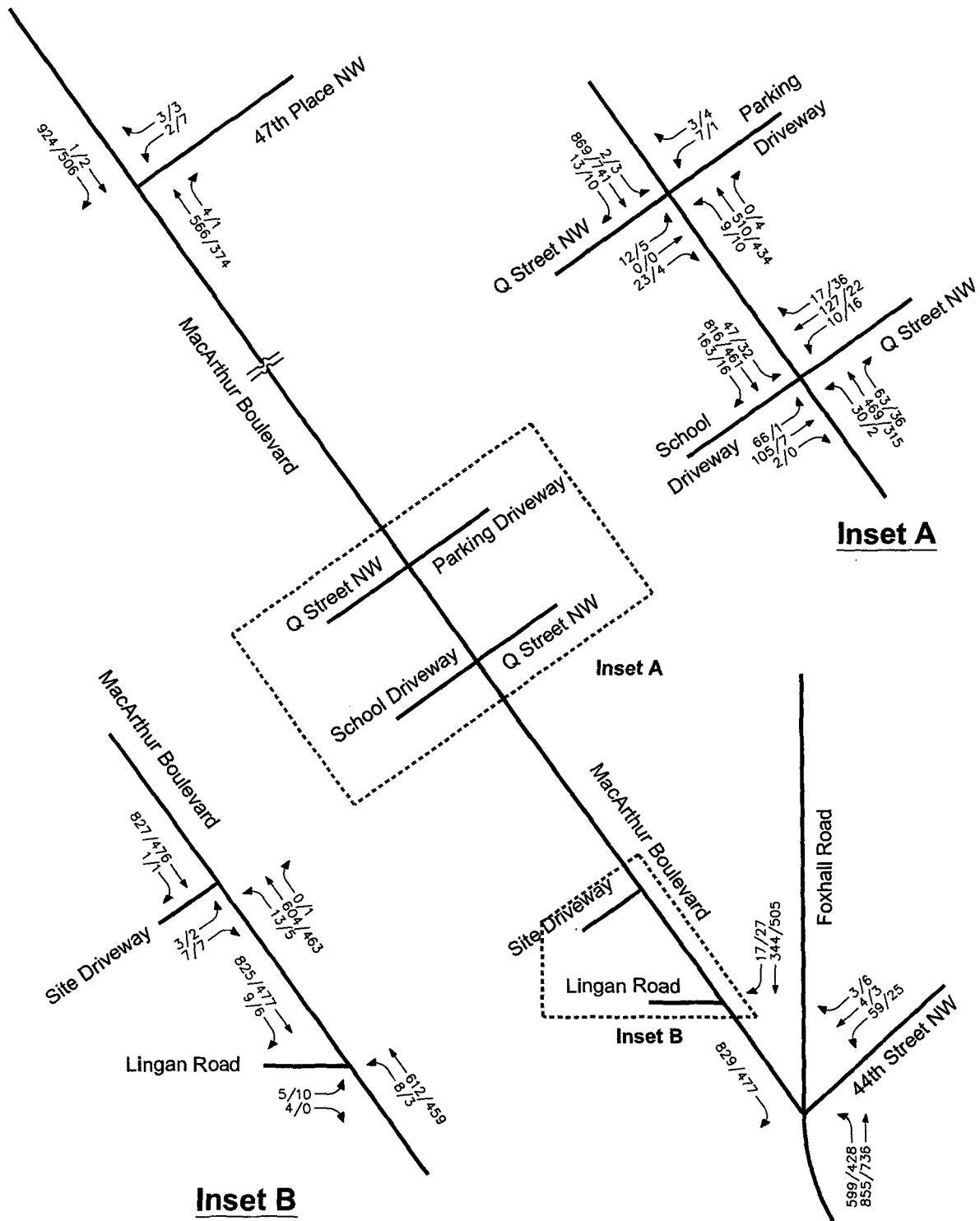


Figure 8
Background Traffic Forecast

AM PEAK HOUR
PM PEAK HOUR
000/000



Site Trip Generation Analysis

The number of trips that will be generated by MacArthur Court were estimated based on Institute of Transportation Engineers (ITE) trip generation rates and experience with other comparable projects in Washington, D.C. This development would generate 25 AM peak hour trips, and 29 PM peak hour trips, at project buildout, as shown in Table 3.

Site Traffic Assignments

The existing trips generated by Riverside Hospital were removed from the study intersections based on existing travel patterns, as shown on Figure 10. The trips associated with the two single family homes that will use the proposed site access, as opposed to Lingan Road, were reassigned from Lingan Road to the MacArthur Court site access, as shown on Figure 11. The MacArthur Court site-generated traffic volumes were assigned to the public road network according to the directional distribution described above. The resulting site traffic assignments are shown on Figure 12.

Total Future Traffic Forecasts

These site traffic assignments were added to the future background traffic volumes shown on Figure 9 and the volumes shown on Figures 11 and 12 to yield the total future traffic forecasts shown on Figure 13.

Total Future Levels of Service and Queues

Future peak hour levels of service with MacArthur Court were estimated at the key intersections in the study area based on: the lane usage and traffic controls shown on Figure 2; the total future traffic forecasts shown on Figure 7; and the Highway Capacity Manual methodology using Synchro. The results are presented in Appendix E and summarized in Table 1.

Table 1 indicates that with MacArthur Court, off site intersections along MacArthur Boulevard would continue to operate at levels of service consistent with background conditions. Turning movements out of site access would operate at LOS "E" during the AM peak hour and at LOS "C" during the PM peak hour. Motorists in the southbound queue that back up through the site driveway are expected to continue to allow site trips to turn in and out of the MacArthur Court driveway.

Table 3
MacArthur Court
Trip Generation Analysis ¹

Land Use	Land Use Code	Size	Units	In	AM Peak Hour		Total	In	PM Peak Hour		Total
						Out				Out	
Existing Driveway Counts ²				14		10	24	6		9	15
Singles Family Homes From Langan Rd	210	2	D.U.	1		1	2	1		1	2
MacArthur Court (townhouses)	230	41	D.U.	4		21	25	19		10	29
Total Trips at Site Access				5		22	27	20		11	31

Notes: (1) Trip Generation obtained from ITE's Trip Generation, 7th Edition.
(2) The existing hospital generates significantly more trips over the course of the day, but due to the nature of the hospital "shifts" only 24 and 15 trips are generated during the morning and evening peak hours.

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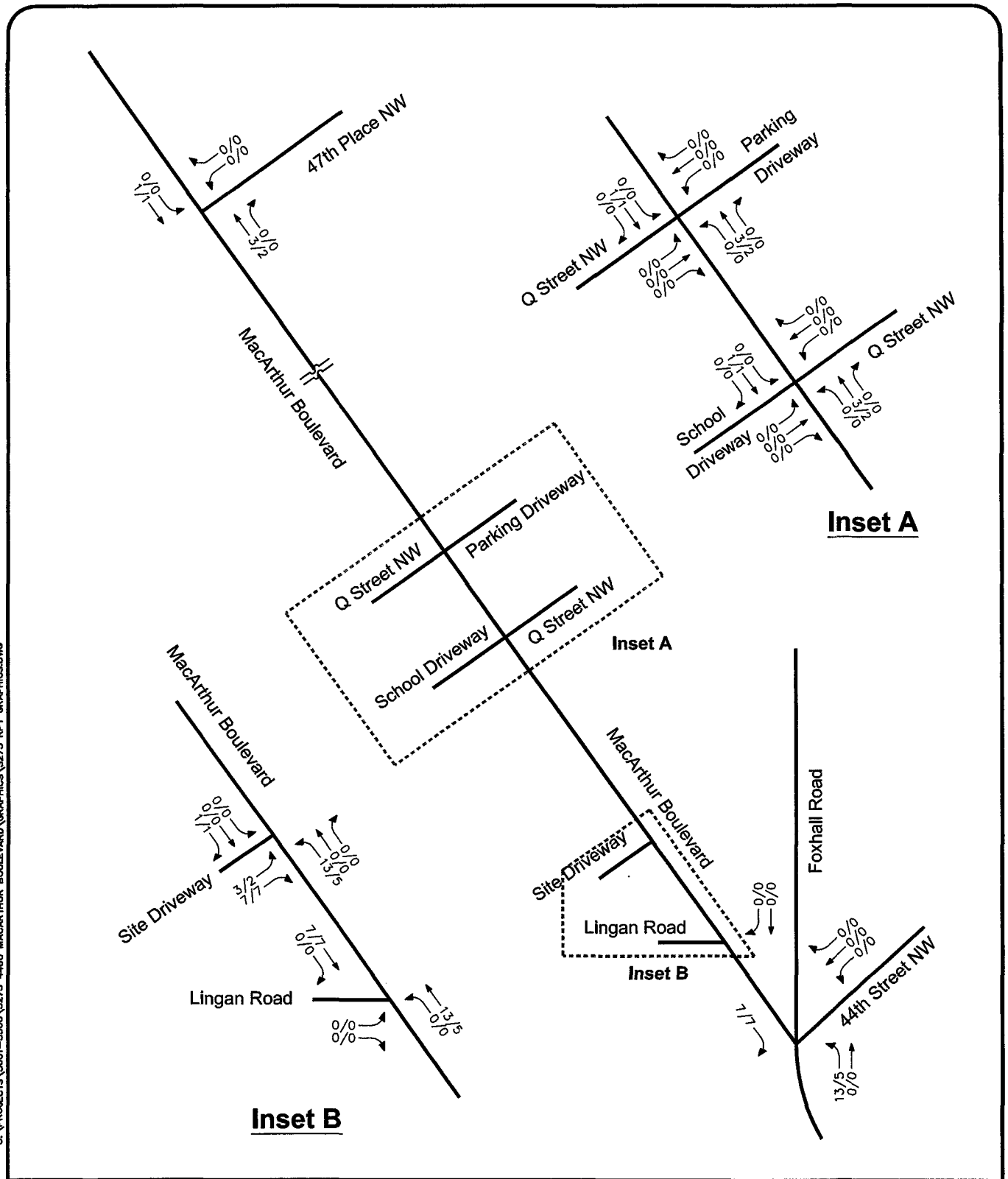


Figure 9
Minus Existing Site

AM PEAK HOUR
PM PEAK HOUR
000/000



O:\PROJECTS\3001-3500\4460 MACARTHUR BOULEVARD\GRAPHICS\3275 RPT GRAPHICS.DWG

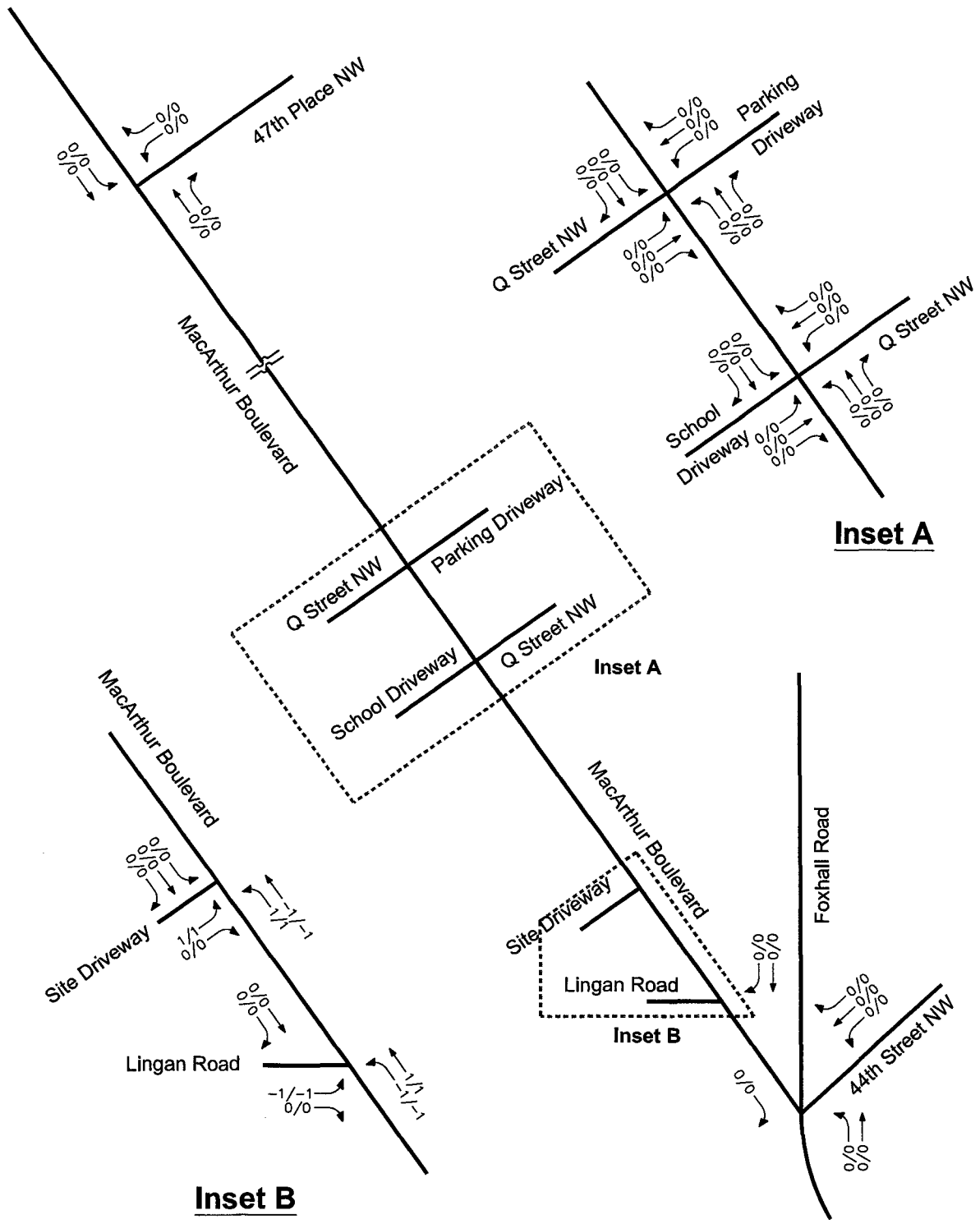


Figure 10
Redistribution of Existing Single Family Home

AM PEAK HOUR
PM PEAK HOUR
000/000

North

C:\PROJECTS\3001-3500\3275 4480 MACARTHUR BOULEVARD\GRAPHICS\3275 RPT GRAPHICS.DWG

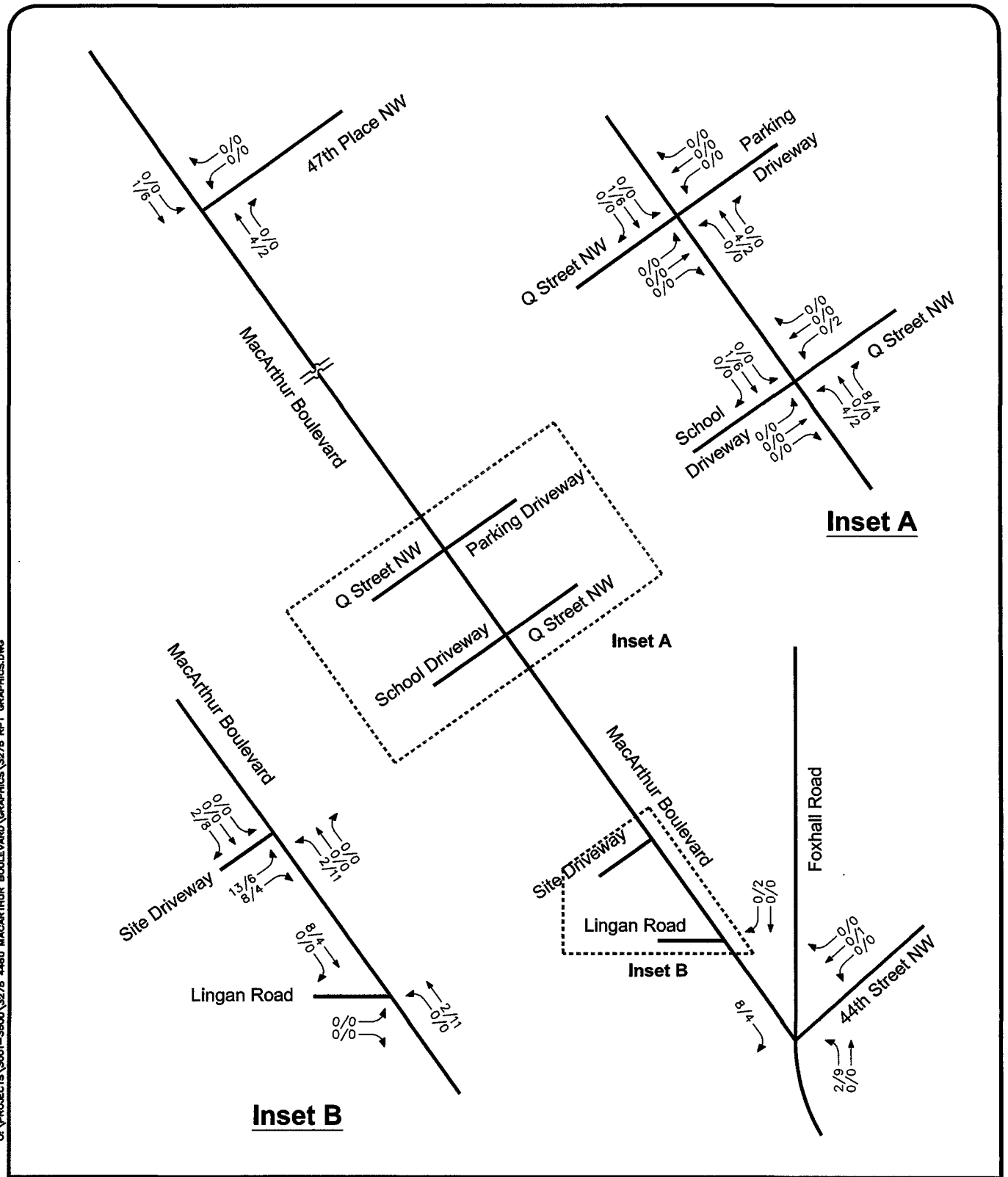


Figure 11
Site Trips

G:\PROJECTS\3001-3500\4460 MACARTHUR BOULEVARD\GRAPHICS\3275 RPT GRAPHICS.DWG

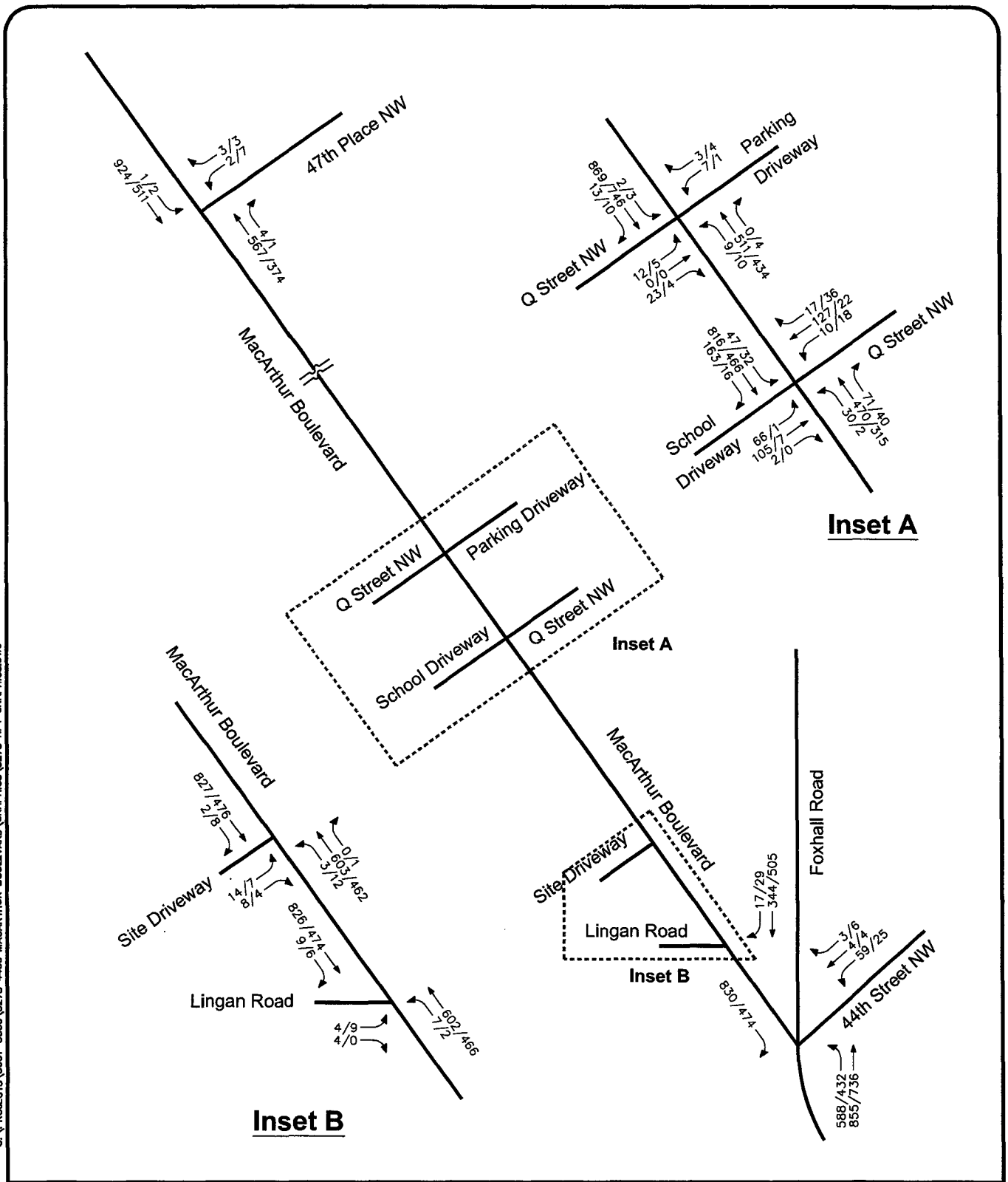


Figure 12
Total Future Traffic Forecast

Queues along MacArthur Boulevard and Foxhall Road are anticipated to remain consistent with background conditions.

Operational improvements, such as restricting on-street parking on MacArthur Boulevard between the Q Street intersections as suggested in the Palisades Traffic Impact Study, would help alleviate queues and delays during peak periods.

Driveway Traffic Analysis

The existing traffic counts taken at the Riverside Hospital driveway, shown on Figure 5 and in Table 3, were compared to the trips that will be generated by the proposed MacArthur Court townhouses. On the day of the traffic counts, Tuesday, September 25, 2007, it was assumed that 25 to 50 beds at the hospital were occupied. The numbers of trips generated by the hospital at peak occupancy was also compared to the proposed project.

As shown on Figure 5 and in Table 3, Riverside Hospital generated 24 AM peak hour trips and 15 PM peak hour trips on Tuesday, September 25. The proposed townhouses will generate 25 AM peak hour trips and 29 PM peak hour trips. MacArthur Court thus would generate one (1) more trip during the AM peak hour and 14 more trips (or 1 trip every 4 and 1/3 minutes) during the PM peak hour.

The numbers of trips generated by the hospital at peak bed occupancy were estimated based on the existing trip rates observed at the hospital driveway on September 25, 2007. Assuming 25 beds were occupied at the time of the traffic counts, the hospital generates 0.96 trips per bed ($24 \text{ trips} / 25 \text{ beds} = 0.96$) during the AM peak hour, and 0.6 trips per bed ($15 \text{ trips} / 25 \text{ beds} = 0.6$) during the PM peak hour. Assuming 50 beds were occupied, the hospital generates 0.48 trips per bed ($24/50 = 0.48$) during the AM peak hour, and 0.3 trips per bed ($15/50 = 0.3$) during the PM peak hour. Thus, at peak occupancy (120 beds), Riverside Hospital would generate 58 to 115 AM peak hour trips and 36 to 72 PM peak hour trips.

The 41 town houses at MacArthur Court will generate 25 AM peak hour trips and 29 PM peak hour. Thus, fewer trips are expected to use the proposed MacArthur Court driveway compared to the existing driveway when Riverside Hospital operated at peak occupancy.

Proportional Analysis

The composition of traffic on MacArthur Boulevard was evaluated to compare the number of trips on MacArthur Boulevard that are associated with the proposed MacArthur Court project with future forecasts without MacArthur Court.

Based on the existing traffic counts shown on Figure 5, 1,430 trips currently use MacArthur Boulevard just south of the Riverside Hospital driveway during the AM peak hour; 20 (or 1.4 percent) of these trips are associated with Riverside Hospital. During the PM peak hour, 938 trips currently use MacArthur Boulevard south of the driveway; 12 (or 1.3 percent) of these trips are associated with Riverside Hospital.

The existing traffic counts shown on Figure 5 indicate that 1,414 trips currently use MacArthur Boulevard just north of the Riverside Hospital driveway during the AM peak hour; four (4) (or 0.3 percent) of these trips are associated with Riverside Hospital. During the PM peak hour, 928 trips currently use MacArthur Boulevard north of the driveway; three (3) (or 0.3 percent) of these trips are associated with Riverside Hospital.

The total future traffic forecasts shown on Figure 13 indicate that 1,140 trips are forecasted on MacArthur Boulevard south of the site access; nine (9) (or 0.6 percent) of these trips are associated with MacArthur Court. During the PM peak hour, 952 trips are forecasted on MacArthur Boulevard south of the site access; 12 (or 1.3 percent) of these trips are associated with MacArthur Court.

The total future traffic forecasts shown on Figure 13 indicate that 1,443 trips are forecasted on MacArthur Boulevard north of the site access; 12 (or 0.8 percent) of these trips are associated with MacArthur Court. During the PM peak hour, 950 trips are forecasted on MacArthur Boulevard north of the site access; 11 (or 1.2 percent) of these trips are associated with MacArthur Court.

CONCLUSIONS

The conclusions of this traffic impact study are as follows:

1. MacArthur Court will generate fewer trips than the existing Riverside Hospital when it was operating at its peak capacity.
2. MacArthur Court will generate 25 AM peak hour trips and 29 PM peak hour trips, upon completion of construction and full occupancy.
3. With MacArthur Court, off site intersections along MacArthur Boulevard would continue to operate at levels of service consistent with background conditions.
4. Based on existing driveway counts, at peak occupancy of 120 beds, the Riverside Hospital would generate 58 to 115 AM peak hour trips and 36 to 72 PM peak hour trips. Thus, MacArthur Court will generate at least 33 fewer trips during the AM peak hour and seven (7) fewer trips during the PM peak hour.
5. Long vehicle queues were observed during the AM and PM peak hours along southbound MacArthur Boulevard at Q Street, the Riverside Hospital driveway, and at Foxhall Road due to heavy traffic demands and capacity constraints downstream on Canal Road at the Whitehurst Freeway and Key Bridge and at the Canal Road/Foxhall Road intersection. These queues cause undesirable delays along Foxhall Road and MacArthur Boulevard during the AM and PM peak hours.
6. Approved but unbuilt projects in the study area will generate a total of 318 AM peak hour trips and 263 PM peak hour trips, upon completion.
7. These additional trips, along with regional growth, will increase delays at the Foxhall Road/MacArthur Boulevard intersection and the study intersections along MacArthur Boulevard during the AM and PM peak hours.
8. Motorists in the southbound queue that sometimes blocks the Riverside Hospital driveway are expected, as is the case presently, to allow residents and visitors to turn into and out of the MacArthur Court driveway.

Appendix A
Scoping Agreement

Michael R. Pinkoske

From: Martin J. Wells
Sent: Wednesday, October 17, 2007 2:09 PM
To: Michael R. Pinkoske
Subject: FW: 4460 MacArthur

From: Martin J. Wells
Sent: Thursday, September 13, 2007 3:45 PM
To: Jennings, Jeffrey (DDOT)
Cc: Ogbeide, Patrick (DDOT); Pinn-Mills, Wanda (DDOT); phil.feola@pillsburylaw.com; gcohen@willcoresidential.com; Brian D. Friedman; Chris L. Kabatt
Subject: RE: 4460 MacArthur

This will confirm our telephone discussion earlier this week regarding the scope of the 4460 MacArthur Boulevard (a.k.a. MacArthur Court) traffic impact study.

My understanding of our scope is as follows:

1. The traffic impact study will include the following intersections along MacArthur Boulevard: Q Street, 4460 driveway, Lingan Road, and Foxhall Road.
2. We will evaluate existing traffic conditions, and future conditions (with and without the proposed 41 townhouses), during the AM and PM peak hours on a typical weekday. We will evaluate delays (in terms of seconds per vehicle), levels of service, and queues.
3. The traffic counts will be conducted on a typical weekday when independent schools and D.C. public schools are in session.
4. We will confirm the current status of the Riverside Hospital that currently occupies the site, including number of licensed beds, maximum number of beds actually occupied in the past, number of beds occupied on the count day, number of parking spaces, number of spaces occupied at mid-morning and mid-afternoon on the count day, number of staff, shift times, status of the hospital's move from this site to an alternate site(s), number of physicians, and movement of physicians between hospitals.
5. We are mindful that there are several on-going and planned road construction and real estate development projects in the site vicinity, including resurfacing and otherwise improving Foxhall Road, Canal Road, St. Patrick's residences off Foxhall Road and Hoban Street, improvements on the George Washington University Mount Vernon campus, Sibley Hospital, and the Philips Estate.
6. Background traffic growth will be estimated based on the same annual growth rate used in DDOT's Palisades Traffic Impact Study.
7. DDOT is concerned about construction traffic impacts and truck routes.

Please let me know if this scope does not convey in full our discussion. We will apprise you of our proposed count dates and schedule as we move forward on this study.

10/17/2007

Michael R. Pinkoske

From: Martin J. Wells
Sent: Wednesday, October 17, 2007 2:16 PM
To: Michael R. Pinkoske
Subject: FW: 4460 MacArthur

From: Jennings, Jeffrey (DDOT) [mailto:Jeffrey.Jennings@dc.gov]
Sent: Monday, September 17, 2007 12:14 PM
To: Martin J. Wells
Cc: Ogbeide, Patrick (DDOT); Pinn-Mills, Wanda (DDOT); phil.feola@pillsburylaw.com; gcohen@willcoresidential.com; Brian D. Friedman; Chris L. Kabatt; Khalid, Muhammed (DDOT)
Subject: RE: 4460 MacArthur

Marty:

Please include the 47th / MacArthur intersection in the study as well.
Thank you.

Jeff Jennings
DDOT - Policy & Planning

From: Martin J. Wells [mailto:Mjwells@mjwells.com]
Sent: Thursday, September 13, 2007 3:45 PM
To: Jennings, Jeffrey (DDOT)
Cc: Ogbeide, Patrick (DDOT); Pinn-Mills, Wanda (DDOT); phil.feola@pillsburylaw.com; gcohen@willcoresidential.com; Brian D. Friedman; Chris L. Kabatt
Subject: RE: 4460 MacArthur

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3. The traffic counts will be conducted on a typical weekday when independent schools and D.C. public schools are in session.
4. We will confirm the current status of the Riverside Hospital that currently occupies the site, including number of licensed beds, maximum number of beds actually occupied in the past, number of beds occupied on the count day, number of parking spaces, number of spaces occupied at mid-morning and mid-afternoon on the count day, number of staff, shift times, status

10/17/2007

of the hospital's move from this site to an alternate site(s), number of physicians, and movement of physicians between hospitals.

5. We are mindful that there are several on-going and planned road construction and real estate development projects in the site vicinity, including resurfacing and otherwise improving Foxhall Road, Canal Road, St. Patrick's residences off Foxhall Road and Hoban Street, improvements on the George Washington University Mount Vernon campus, Sibley Hospital, and the Philips Estate.
6. Background traffic growth will be estimated based on the same annual growth rate used in DDOT's Palisades Traffic Impact Study.
7. DDOT is concerned about construction traffic impacts and truck routes.

Please let me know if this scope does not convey in full our discussion. We will apprise you of our proposed count dates and schedule as we move forward on this study.

Appendix B

Existing Traffic Counts

Wells & Associates, LLC

McLean, Virginia

Existing Traffic Count

PROJECT:	4460 MacArthur Boulevard								DATE:	9/25/2007				SOUTHBOUND ROAD:				Foxhall Road			
W & A JOB NO.:	3275								DAY:	Tuesday				NORTHBOUND ROAD:				Foxhall Road			
INTERSECTION:	MacArthur Boulevard & Foxhall Road								WEATHER:	Clear				WESTBOUND ROAD:				44th St			
LOCATION:	Washington,DC								COUNTED BY:	Jim				EASTBOUND ROAD:				MacArthur Boulevard			
									INPUTED BY:	BJL											
Time Period	Turning Movements																Total	PHF	Time Period		
	Southbound Foxhall Road				Westbound 44th St				Northbound Foxhall Road				Eastbound MacArthur Boulevard							North & South	East & West
	1 Right	2 Thru	3 Left	Total	4 Right	5 Thru	6 Left	Total	7 Right	8 Thru	9 Left	Total	10 Right	11 Thru	12 Left	Total					
AM																					
7:00-7:15	3	75	0	78	0	0	7	7	0	198	90	288	87	0	0	87	366	94	460	7:00-7:15	
7:15-7:30	5	87	0	92	0	2	2	4	0	236	133	369	94	0	0	94	461	98	559	7:15-7:30	
7:30-7:45	9	92	0	101	0	0	3	3	0	215	174	389	147	0	0	147	490	150	640	7:30-7:45	
7:45-8:00	4	71	0	75	2	1	10	13	0	197	131	328	198	0	0	198	403	211	614	7:45-8:00	
8:00-8:15	2	72	0	74	1	1	16	18	0	208	122	330	189	0	0	189	404	207	611	8:00-8:15	
8:15-8:30	2	84	0	86	0	2	29	31	0	203	149	352	198	0	0	198	438	229	667	8:15-8:30	
8:30-8:45	1	71	0	72	0	1	28	29	0	177	131	308	171	0	0	171	380	200	580	8:30-8:45	
8:45-9:00	2	37	0	39	1	3	32	36	0	190	148	338	181	0	0	181	377	217	594	8:45-9:00	
9:00-9:15	3	54	0	57	0	4	26	30	0	187	110	297	138	0	0	138	354	168	522	9:00-9:15	
9:15-9:30	0	66	0	66	0	0	19	19	0	208	103	311	195	0	0	195	377	214	591	9:15-9:30	
9:30-9:45	4	66	0	70	1	1	8	10	0	212	76	288	158	0	0	158	358	168	526	9:30-9:45	
9:45-10:00	4	86	0	90	2	1	5	8	0	188	92	280	106	0	0	106	370	114	484	9:45-10:00	
3 Hour Totals	39	861	0	900	7	16	185	208	0	2,419	1,459	3,878	1,862	0	0	1,862	4,778	2,070	6,848		
1 Hour Totals																					
7:00-8:00	21	325	0	346	2	3	22	27	0	846	528	1,374	526	0	0	526	1,720	553	2,273	0.89	7:00-8:00
7:15-8:15	20	322	0	342	3	4	31	38	0	856	560	1,416	628	0	0	628	1,758	666	2,424	0.95	7:15-8:15
7:30-8:30	17	319	0	336	3	4	58	65	0	823	576	1,399	732	0	0	732	1,735	797	2,532	0.95	7:30-8:30
7:45-8:45	9	298	0	307	3	5	83	91	0	785	533	1,318	756	0	0	756	1,625	847	2,472	0.93	7:45-8:45
8:00-9:00	7	264	0	271	2	7	105	114	0	778	550	1,328	739	0	0	739	1,599	853	2,452	0.92	8:00-9:00
8:15-9:15	8	246	0	254	1	10	115	126	0	757	538	1,295	688	0	0	688	1,549	814	2,363	0.89	8:15-9:15
8:30-9:30	6	228	0	234	1	8	105	114	0	762	492	1,254	685	0	0	685	1,488	799	2,287	0.96	8:30-9:30
8:45-9:45	9	223	0	232	2	8	85	95	0	797	437	1,234	672	0	0	672	1,466	767	2,233	0.94	8:45-9:45
9:00-10:00	11	272	0	283	3	6	58	67	0	795	381	1,176	597	0	0	597	1,459	664	2,123	0.90	9:00-10:00
AM Peak	17	319	0	336	3	4	58	65	0	823	576	1,399	732	0	0	732	1,735	797	2,532	0.95	AM Peak
PM																					
4:00-4:15	5	123	0	128	1	0	3	4	0	120	72	192	128	0	0	128	320	132	452		4:00-4:15
4:15-4:30	8	113	0	121	2	1	2	5	0	115	62	177	106	0	0	106	298	111	409		4:15-4:30
4:30-4:45	2	137	0	139	1	0	3	4	0	126	64	190	106	0	0	106	329	110	439		4:30-4:45
4:45-5:00	4	129	0	133	0	1	4	5	0	147	63	210	124	0	0	124	343	129	472		4:45-5:00
5:00-5:15	2	130	0	132	0	0	3	3	0	139	67	206	140	0	0	140	338	143	481		5:00-5:15
5:15-5:30	4	139	0	143	1	0	3	4	0	129	78	207	122	0	0	122	350	126	476		5:15-5:30
5:30-5:45	9	152	0	161	2	0	7	9	0	142	80	222	118	0	0	118	383	127	510		5:30-5:45
5:45-6:00	1	132	0	133	2	1	4	7	0	101	52	153	109	0	0	109	286	116	402		5:45-6:00
6:00-6:15	3	131	0	134	1	1	6	8	0	167	93	260	96	0	0	96	394	104	498		6:00-6:15
6:15-6:30	1	145	0	146	2	0	10	12	0	153	80	233	102	0	0	102	379	114	493		6:15-6:30
6:30-6:45	17	98	0	115	2	1	1	4	0	165	88	253	97	0	0	97	368	101	469		6:30-6:45
6:45-7:00	3	105	0	108	1	1	8	10	0	218	116	334	105	0	0	105	442	115	557		6:45-7:00
3 Hour Totals	59	1,534	0	1,593	15	6	54	75	0	1,722	915	2,637	1,353	0	0	1,353	4,230	1,428	5,658		
1 Hour Totals																					
4:00-5:00	19	502	0	521	4	2	12	18	0	508	261	769	464	0	0	464	1,290	482	1,772	0.94	4:00-5:00
4:15-5:15	16	509	0	525	3	2	12	17	0	527	256	783	476	0	0	476	1,308	493	1,801	0.94	4:15-5:15
4:30-5:30	12	535	0	547	2	1	13	16	0	541	272	813	492	0	0	492	1,360	508	1,868	0.97	4:30-5:30
4:45-5:45	19	550	0	569	3	1	17	21	0	557	288	845	504	0	0	504	1,414	525	1,939	0.95	4:45-5:45
5:00-6:00	16	553	0	569	5	1	17	23	0	511	277	788	489	0	0	489	1,357	512	1,869	0.92	5:00-6:00
5:15-6:15	17	554	0	571	6	2	20	28	0	539	303	842	445	0	0	445	1,413	473	1,886	0.92	5:15-6:15
5:30-6:30	14	560	0	574	7	2	27	36	0	563	305	868	425	0	0	425	1,442	461	1,903	0.93	5:30-6:30
5:45-6:45	22	506	0	528	7	3	21	31	0	586	313	899	404	0	0	404	1,427	435	1,862	0.93	5:45-6:45
6:00-7:00	24	479	0	503	6	3	25	34	0	703	377	1,080	400	0	0	400	1,583	434	2,017	0.91	6:00-7:00
PM Peak	24	479	0	503	6	3	25	34	0	703	377	1,080	400	0	0	400	1,583	434	2,017	0.91	PM Peak
6:00-7:00																					

Wells & Associates, LLC

McLean, Virginia

Existing Traffic Count

PROJECT: 4460 MacArthur Boulevard				DATE: 9/25/2007				SOUTHBOUND ROAD: XXX				NORTHBOUND ROAD: Lingan Road									
W & A JOB NO.: 3275				DAY: Tuesday				WESTBOUND ROAD: MacArthur Boulevard				EASTBOUND ROAD: MacArthur Boulevard									
INTERSECTION: MacArthur Boulevard & Lingan Road				WEATHER: Clear				COUNTED BY: Hilda & Carlos				MACARTHUR BOULEVARD									
LOCATION: Washington,DC				INPUTED BY: BJL																	
Time Period	Turning Movements																		Total	PHF	Time Period
	Southbound XXX				Westbound MacArthur Boulevard				Northbound Lingan Road				Eastbound MacArthur Boulevard				North & South	East & West			
	1 Right	2 Thru	3 Left	Total	4 Right	5 Thru	6 Left	Total	7 Right	8 Thru	9 Left	Total	10 Right	11 Thru	12 Left	Total					
AM																					
7:00-7:15	0	0	0	0	0	92	3	95	2	0	0	2	0	93	0	93	2	188	190	7:00-7:15	
7:15-7:30	0	0	0	0	0	139	0	139	0	0	0	0	2	139	0	141	0	280	280	7:15-7:30	
7:30-7:45	0	0	0	0	0	172	1	173	1	0	1	2	1	176	0	177	2	350	352	7:30-7:45	
7:45-8:00	0	0	0	0	0	137	1	138	0	0	1	1	1	210	0	211	1	349	350	7:45-8:00	
8:00-8:15	0	0	0	0	0	140	5	145	1	0	2	3	3	216	0	219	3	364	367	8:00-8:15	
8:15-8:30	0	0	0	0	0	154	1	155	2	0	1	3	4	211	0	215	3	370	373	8:15-8:30	
8:30-8:45	0	0	0	0	0	137	2	139	1	0	2	3	5	215	0	220	3	359	362	8:30-8:45	
8:45-9:00	0	0	0	0	0	162	1	163	0	0	1	1	2	214	0	216	1	379	380	8:45-9:00	
9:00-9:15	0	0	0	0	0	113	1	114	2	0	0	2	4	187	0	191	2	305	307	9:00-9:15	
9:15-9:30	0	0	0	0	0	111	4	115	1	0	0	1	3	221	0	224	1	339	340	9:15-9:30	
9:30-9:45	0	0	0	0	0	88	1	89	1	0	3	4	1	182	0	183	4	272	276	9:30-9:45	
9:45-10:00	0	0	0	0	0	89	1	90	1	0	2	3	0	76	0	76	3	166	169	9:45-10:00	
3 Hour Totals	0	0	0	0	0	1,534	21	1,555	12	0	13	25	26	2,140	0	2,166	25	3,721	3,746		
1 Hour Totals																					
7:00-8:00	0	0	0	0	0	540	5	545	3	0	2	5	4	618	0	622	5	1,167	1,172	0.83 7:00-8:00	
7:15-8:15	0	0	0	0	0	588	7	595	2	0	4	6	7	741	0	748	8	1,343	1,349	0.92 7:15-8:15	
7:30-8:30	0	0	0	0	0	603	8	611	4	0	5	9	9	813	0	822	9	1,433	1,442	0.97 7:30-8:30	
7:45-8:45	0	0	0	0	0	568	9	577	4	0	6	10	13	852	0	865	10	1,442	1,452	0.97 7:45-8:45	
8:00-9:00	0	0	0	0	0	593	9	602	4	0	6	10	14	856	0	870	10	1,472	1,482	0.98 8:00-9:00	
8:15-9:15	0	0	0	0	0	566	5	571	5	0	4	9	15	827	0	842	9	1,413	1,422	0.94 8:15-9:15	
8:30-9:30	0	0	0	0	0	523	8	531	4	0	3	7	14	837	0	851	7	1,382	1,389	0.91 8:30-9:30	
8:45-9:45	0	0	0	0	0	474	7	481	4	0	4	8	10	804	0	814	8	1,295	1,303	0.86 8:45-9:45	
9:00-10:00	0	0	0	0	0	401	7	408	5	0	5	10	8	666	0	674	10	1,082	1,092	0.80 9:00-10:00	
AM Peak 8:00-9:00																					
8:00-9:00	0	0	0	0	0	593	9	602	4	0	6	10	14	856	0	870	10	1,472	1,482	0.98 AM Peak 8:00-9:00	
PM																					
4:00-4:15	0	0	0	0	0	66	2	68	0	0	1	1	3	116	0	119	1	187	188	4:00-4:15	
4:15-4:30	0	0	0	0	0	58	0	58	2	0	0	2	2	102	0	104	2	162	164	4:15-4:30	
4:30-4:45	0	0	0	0	0	61	1	62	1	0	0	1	0	88	0	88	1	150	151	4:30-4:45	
4:45-5:00	0	0	0	0	0	65	0	65	4	0	4	8	3	106	0	109	8	174	182	4:45-5:00	
5:00-5:15	0	0	0	0	0	63	1	64	5	0	4	9	3	137	0	140	9	204	213	5:00-5:15	
5:15-5:30	0	0	0	0	0	76	2	78	0	0	1	1	3	130	0	133	1	211	212	5:15-5:30	
5:30-5:45	0	0	0	0	0	86	1	87	2	0	1	3	4	154	0	158	3	245	248	5:30-5:45	
5:45-6:00	0	0	0	0	0	62	2	64	6	0	5	11	3	125	0	128	11	192	203	5:45-6:00	
6:00-6:15	0	0	0	0	0	99	0	99	0	0	1	1	2	135	0	137	1	236	237	6:00-6:15	
6:15-6:30	0	0	0	0	0	85	1	86	0	0	0	0	0	113	0	113	0	199	199	6:15-6:30	
6:30-6:45	0	0	0	0	0	94	0	94	0	0	4	4	0	114	0	114	4	208	212	6:30-6:45	
6:45-7:00	0	0	0	0	0	123	2	125	0	0	5	5	4	108	0	112	5	237	242	6:45-7:00	
3 Hour Totals	0	0	0	0	0	938	12	950	20	0	26	46	27	1,428	0	1,455	46	2,405	2,451		
1 Hour Totals																					
4:00-5:00	0	0	0	0	0	250	3	253	7	0	5	12	8	412	0	420	12	673	685	0.91 4:00-5:00	
4:15-5:15	0	0	0	0	0	247	2	249	12	0	8	20	8	433	0	441	20	690	710	0.83 4:15-5:15	
4:30-5:30	0	0	0	0	0	265	4	269	10	0	9	19	9	461	0	470	19	739	758	0.89 4:30-5:30	
4:45-5:45	0	0	0	0	0	290	4	294	11	0	10	21	13	527	0	540	21	834	855	0.86 4:45-5:45	
5:00-6:00	0	0	0	0	0	287	6	293	13	0	11	24	13	546	0	559	24	852	876	0.88 5:00-6:00	
5:15-6:15	0	0	0	0	0	323	5	328	8	0	8	16	12	544	0	556	16	884	900	0.91 5:15-6:15	
5:30-6:30	0	0	0	0	0	332	4	336	8	0	7	15	9	527	0	536	15	872	887	0.89 5:30-6:30	
5:45-6:45	0	0	0	0	0	340	3	343	6	0	10	16	5	487	0	492	16	835	851	0.90 5:45-6:45	
6:00-7:00	0	0	0	0	0	401	3	404	0	0	10	10	6	470	0	476	10	880	890	0.92 6:00-7:00	
PM Peak 5:15-6:15																					
5:15-6:15	0	0	0	0	0	323	5	328	8	0	8	16	12	544	0	556	16	884	900	0.91 PM Peak 5:15-6:15	

Wells & Associates, LLC

McLean, Virginia

Existing Traffic Count

PROJECT: 4480 MacArthur Boulevard		DATE: 9/25/2007		SOUTHBOUND ROAD: XXX																	
W & A JOB NO.: 3275		DAY: Tuesday		NORTHBOUND ROAD: Site Driveway																	
INTERSECTION: MacArthur Boulevard & 4460 Driveway		WEATHER: Clear		WESTBOUND ROAD: MacArthur Boulevard																	
LOCATION: Washington,DC		COUNTERS: Jeannette & Homer		EASTBOUND ROAD: MacArthur Boulevard																	
		INPUTED BY: BJL																			
Time Period	Turning Movements																Total	PHF	Time Period		
	Southbound XXX				Westbound MacArthur Boulevard				Northbound Site Driveway				Eastbound MacArthur Boulevard							North & South	East & West
	1 Right	2 Thru	3 Left	Total	4 Right	5 Thru	6 Left	Total	7 Right	8 Thru	9 Left	Total	10 Right	11 Thru	12 Left	Total					
6:00-6:15	0	0	0	0	0	35	0	35	2	0	0	2	0	20	0	20	2	55	57	6:00-6:15	
6:15-6:30	0	0	0	0	0	48	0	48	1	0	0	1	1	28	0	29	1	77	78	6:15-6:30	
6:30-6:45	0	0	0	0	0	54	1	55	0	0	0	0	0	48	0	48	0	103	103	6:30-6:45	
6:45-7:00	0	0	0	0	0	75	1	76	0	0	1	1	2	59	0	61	1	137	138	6:45-7:00	
7:00-7:15	0	0	0	0	0	84	6	90	1	0	0	1	0	89	0	89	1	179	180	7:00-7:15	
7:15-7:30	0	0	0	0	0	127	6	133	1	0	0	1	1	140	0	141	1	274	275	7:15-7:30	
7:30-7:45	0	0	0	0	0	170	4	174	0	0	2	2	0	170	0	170	2	344	346	7:30-7:45	
7:45-8:00	0	0	0	0	0	125	4	129	4	0	0	4	0	187	0	187	4	316	320	7:45-8:00	
8:00-8:15	0	0	0	0	0	133	3	136	2	0	0	2	0	230	0	230	2	366	368	8:00-8:15	
8:15-8:30	0	0	0	0	0	162	2	164	1	0	1	2	1	221	0	222	2	386	388	8:15-8:30	
8:30-8:45	0	0	0	0	0	139	1	140	0	0	0	0	2	224	0	226	0	366	366	8:30-8:45	
8:45-9:00	0	0	0	0	0	147	3	150	0	0	0	0	0	219	0	219	0	369	369	8:45-9:00	
9:00-9:15	0	0	0	0	0	84	2	86	0	0	0	0	0	2	178	0	180	0	266	266	9:00-9:15
9:15-9:30	0	0	0	0	0	93	2	95	0	0	0	0	0	1	233	0	234	0	329	329	9:15-9:30
9:30-9:45	0	0	0	0	0	74	3	77	0	0	0	0	2	141	0	143	0	220	220	9:30-9:45	
9:45-10:00	0	0	0	0	0	88	1	89	1	0	1	2	0	90	0	90	2	179	181	9:45-10:00	
10:00-10:15	0	0	0	0	0	69	3	72	2	0	0	1	3	92	0	92	3	164	167	10:00-10:15	
10:15-10:30	0	0	0	0	0	46	2	48	1	0	0	1	1	70	0	71	1	119	120	10:15-10:30	
10:30-10:45	0	0	0	0	0	49	0	49	1	0	0	1	1	55	0	56	1	105	106	10:30-10:45	
10:45-11:00	0	0	0	0	0	38	0	38	2	0	3	5	0	78	0	78	5	116	121	10:45-11:00	
11:00-11:15	0	0	0	0	0	54	2	56	1	0	0	1	1	60	0	61	1	117	118	11:00-11:15	
11:15-11:30	0	0	0	0	0	61	3	64	1	0	0	1	2	65	0	67	1	131	132	11:15-11:30	
11:30-11:45	0	0	0	0	0	49	3	52	3	0	0	3	0	51	0	51	3	103	106	11:30-11:45	
11:45-12:00	0	0	0	0	0	61	1	62	3	0	0	3	1	48	0	49	3	111	114	11:45-12:00	
12:00-12:15	0	0	0	0	0	56	1	57	2	0	0	2	4	65	0	69	2	126	128	12:00-12:15	
12:15-12:30	0	0	0	0	0	43	1	44	0	0	1	1	1	54	0	55	1	99	100	12:15-12:30	
12:30-12:45	0	0	0	0	0	44	3	47	1	0	4	5	2	68	0	70	5	117	122	12:30-12:45	
12:45-1:00	0	0	0	0	0	53	1	54	1	0	0	1	1	42	0	43	1	97	98	12:45-1:00	
1:00-1:15	0	0	0	0	0	49	3	52	1	0	0	1	0	45	0	45	1	97	98	1:00-1:15	
1:15-1:30	0	0	0	0	0	47	1	48	2	0	1	3	1	55	0	56	3	104	107	1:15-1:30	
1:30-1:45	0	0	0	0	0	29	2	31	0	0	1	1	0	59	0	59	1	90	91	1:30-1:45	
1:45-2:00	0	0	0	0	0	48	1	49	1	0	0	1	3	57	0	60	1	109	110	1:45-2:00	
2:00-2:15	0	0	0	0	0	53	1	54	1	0	0	1	0	36	0	36	1	90	91	2:00-2:15	
2:15-2:30	0	0	0	0	0	60	0	60	0	0	0	0	0	57	0	57	0	117	117	2:15-2:30	
2:30-2:45	0	0	0	0	0	63	4	67	3	0	2	5	1	60	0	61	5	128	133	2:30-2:45	
2:45-3:00	0	0	0	0	0	98	3	101	4	0	0	4	1	119	0	120	4	221	225	2:45-3:00	
3:00-3:15	0	0	0	0	0	74	3	77	1	0	0	1	0	97	0	97	1	174	175	3:00-3:15	
3:15-3:30	0	0	0	0	0	99	2	101	2	0	0	2	0	107	0	107	2	208	210	3:15-3:30	
3:30-3:45	0	0	0	0	0	77	1	78	4	0	6	10	1	136	0	137	10	215	225	3:30-3:45	
3:45-4:00	0	0	0	0	0	84	2	86	6	0	2	8	1	127	0	128	8	214	222	3:45-4:00	
4:00-4:15	0	0	0	0	0	95	3	98	5	0	6	11	1	108	0	107	11	205	216	4:00-4:15	
4:15-4:30	0	0	0	0	0	63	0	63	2	0	1	3	1	99	0	100	3	163	166	4:15-4:30	
4:30-4:45	0	0	0	0	0	70	0	70	0	0	1	1	2	107	0	109	1	179	180	4:30-4:45	
4:45-5:00	0	0	0	0	0	68	1	69	3	0	1	4	1	99	0	100	4	169	173	4:45-5:00	
5:00-5:15	0	0	0	0	0	74	3	77	0	0	2	2	0	123	0	123	2	200	202	5:00-5:15	
5:15-5:30	0	0	0	0	0	84	0	84	1	0	2	3	3	122	0	125	3	209	212	5:15-5:30	
5:30-5:45	0	0	0	0	0	103	0	103	2	0	2	4	0	151	0	151	4	254	258	5:30-5:45	
5:45-6:00	0	0	0	0	0	74	2	76	3	0	2	5	2	108	0	110	5	188	191	5:45-6:00	
6:00-6:15	0	0	0	0	0	88	1	89	4	0	1	5	1	116	0	117	5	206	211	6:00-6:15	
6:15-6:30	0	0	0	0	0	64	1	65	1	0	1	2	0	103	0	103	2	168	170	6:15-6:30	
6:30-6:45	0	0	0	0	0	96	1	97	1	0	0	1	0	107	0	107	1	204	205	6:30-6:45	
6:45-7:00	0	0	0	0	1	208	2	211	1	0	0	1	0	104	0	104	1	315	316	6:45-7:00	
12 Hour Totals	0	0	0	0	1	3,917	94	4,012	76	0	44	120	42	5,170	0	5,212	120	9,224	9,344		
1 Hour Totals																P					
AM Peak 8:00-9:00	0	0	0	0	0	581	9	590	3	0	1	4	3	894	0	897	4	1,487	1,491	0.96 AM Peak 8:00-9:00	
Mid-Day Peak 2:45-3:45	0	0	0	0	0	348	9	357	11	0	6	17	2	459	0	461	17	818	835	0.93 Mid-Day Peak 2:45-3:45	
PM Peak 6:00-7:00	0	0	0	0	1	456	5	462	7	0	2	9	1	430	0	431	9	893	902	0.71 PM Peak 6:00-7:00	

Wells & Associates, LLC

McLean, Virginia

Existing Traffic Count

PROJECT: 4460 MacArthur Boulevard				DATE: 9/25/2007				SOUTHBOUND ROAD: Q Street													
W & A JOB NO.: 3275				DAY: Tuesday				NORTHBOUND ROAD: Driveway													
INTERSECTION: MacArthur Boulevard & Q Street				WEATHER: Clear				WESTBOUND ROAD: MacArthur Boulevard													
LOCATION: Washington,DC				COUNTED BY: Jim				EASTBOUND ROAD: MacArthur Boulevard													
				INPUTED BY: BJL																	
Time Period	Turning Movements																Total	PHF	Time Period		
	Southbound Q Street				Westbound MacArthur Boulevard				Northbound Driveway				Eastbound MacArthur Boulevard								
	1 Right	2 Thru	3 Left	Total	4 Right	5 Thru	6 Left	Total	7 Right	8 Thru	9 Left	Total	10 Right	11 Thru	12 Left	Total				North & South	East & West
AM																					
7:00-7:15	4	1	2	7	3	79	1	83	0	0	0	0	5	0	5	10	7	93	100	7:00-7:15	
7:15-7:30	0	13	3	16	5	101	2	108	0	1	1	2	5	0	5	10	18	118	136	7:15-7:30	
7:30-7:45	0	23	0	23	7	129	8	144	1	19	10	30	25	0	6	31	53	175	228	7:30-7:45	
7:45-8:00	3	52	0	55	6	81	15	102	1	37	24	62	76	0	8	84	117	186	303	7:45-8:00	
8:00-8:15	8	37	2	47	17	113	7	137	0	34	26	60	55	0	10	65	107	202	309	8:00-8:15	
8:15-8:30	6	13	8	27	32	139	0	171	0	13	5	18	5	0	22	27	45	198	243	8:15-8:30	
8:30-8:45	5	1	8	14	33	103	0	136	0	0	2	2	2	0	36	38	16	174	190	8:30-8:45	
8:45-9:00	3	2	5	10	36	130	0	166	0	0	3	3	4	0	46	50	13	216	229	8:45-9:00	
9:00-9:15	1	1	12	14	28	94	0	122	0	3	1	4	0	0	39	39	18	161	179	9:00-9:15	
9:15-9:30	8	3	8	19	25	93	1	119	0	0	0	0	0	0	19	19	19	138	157	9:15-9:30	
9:30-9:45	4	1	6	11	8	82	1	91	2	3	0	5	1	0	2	3	16	94	110	9:30-9:45	
9:45-10:00	3	1	0	4	10	96	1	107	1	1	0	2	1	0	6	7	6	114	120	9:45-10:00	
3 Hour Totals	45	148	54	247	210	1,240	36	1,486	5	111	72	188	179	0	204	383	435	1,869	2,304		
1 Hour Totals																					
7:00-8:00	7	89	5	101	21	390	26	437	2	57	35	94	111	0	24	135	195	572	767	0.63	7:00-8:00
7:15-8:15	11	125	5	141	35	424	32	491	2	91	61	154	161	0	29	190	295	681	976	0.79	7:15-8:15
7:30-8:30	17	125	10	152	62	462	30	554	2	103	65	170	161	0	46	207	322	761	1,083	0.88	7:30-8:30
7:45-8:45	22	103	18	143	88	436	22	546	1	84	57	142	138	0	76	214	285	760	1,045	0.85	7:45-8:45
8:00-9:00	22	53	23	98	118	485	7	610	0	47	36	83	66	0	114	180	181	790	971	0.79	8:00-9:00
8:15-9:15	15	17	33	65	129	466	0	595	0	16	11	27	11	0	143	154	92	749	841	0.87	8:15-9:15
8:30-9:30	17	7	33	57	122	420	1	543	0	3	6	9	6	0	140	146	66	689	755	0.82	8:30-9:30
8:45-9:45	16	7	31	54	97	399	2	498	2	6	4	12	5	0	106	111	66	609	675	0.74	8:45-9:45
9:00-10:00	16	6	26	48	71	365	3	439	3	7	1	11	2	0	66	68	59	507	566	0.79	9:00-10:00
AM Peak 7:30-8:30																					
17	125	10	152	62	462	30	554	2	103	65	170	161	0	46	207	322	761	1,083	0.88	AM Peak 7:30-8:30	
PM																					
4:00-4:15	3	2	4	9	8	69	3	80	2	11	9	22	1	0	5	6	31	86	117	4:00-4:15	
4:15-4:30	2	5	4	11	4	60	3	67	1	2	9	12	4	0	6	10	23	77	100	4:15-4:30	
4:30-4:45	2	7	6	15	5	63	0	68	3	7	7	17	1	0	3	4	32	72	104	4:30-4:45	
4:45-5:00	6	5	2	13	7	48	5	60	0	13	3	16	0	0	8	8	29	68	97	4:45-5:00	
5:00-5:15	6	6	6	18	8	73	1	82	3	9	5	17	1	0	5	6	35	88	123	5:00-5:15	
5:15-5:30	5	6	9	20	6	65	3	74	0	4	3	7	3	0	15	18	27	92	119	5:15-5:30	
5:30-5:45	6	10	9	25	7	71	3	81	1	9	9	19	2	0	8	10	44	91	135	5:30-5:45	
5:45-6:00	7	3	3	13	7	60	1	68	0	7	8	15	4	0	9	13	28	81	109	5:45-6:00	
6:00-6:15	4	0	4	8	9	73	0	82	0	2	0	2	2	0	8	10	10	92	102	6:00-6:15	
6:15-6:30	5	1	3	9	3	70	0	73	0	3	0	3	4	0	5	9	12	82	94	6:15-6:30	
6:30-6:45	15	9	3	27	14	65	1	80	0	2	1	3	2	0	5	7	30	87	117	6:30-6:45	
6:45-7:00	11	12	6	29	9	102	1	112	0	0	0	0	8	0	14	22	29	134	163	6:45-7:00	
3 Hour Totals	72	66	59	197	87	819	21	927	10	69	54	133	32	0	91	123	330	1,050	1,380		
1 Hour Totals																					
4:00-5:00	13	19	16	48	24	240	11	275	6	33	28	67	6	0	22	28	115	303	418	0.89	4:00-5:00
4:15-5:15	16	23	18	57	24	244	9	277	7	31	24	62	6	0	22	28	119	305	424	0.86	4:15-5:15
4:30-5:30	19	24	23	66	26	249	9	284	6	33	18	57	5	0	31	36	123	320	443	0.90	4:30-5:30
4:45-5:45	23	27	26	76	28	257	12	297	4	35	20	59	6	0	36	42	135	339	474	0.88	4:45-5:45
5:00-6:00	24	25	27	76	28	269	8	305	4	29	25	58	10	0	37	47	134	352	486	0.90	5:00-6:00
5:15-6:15	22	19	25	66	29	269	7	305	1	22	20	43	11	0	40	51	109	356	465	0.86	5:15-6:15
5:30-6:30	22	14	19	55	26	274	4	304	1	21	17	39	12	0	30	42	94	346	440	0.81	5:30-6:30
5:45-6:45	31	13	13	57	33	268	2	303	0	14	9	23	12	0	27	39	80	342	422	0.90	5:45-6:45
6:00-7:00	35	22	16	73	35	310	2	347	0	7	1	8	16	0	32	48	81	395	476	0.73	6:00-7:00
PM Peak 5:00-6:00																					
24	25	27	76	28	269	8	305	4	29	25	58	10	0	37	47	134	352	486	0.90	PM Peak 5:00-6:00	

Wells & Associates, LLC

McLean, Virginia

Existing Traffic Count

PROJECT: 4480 MacArthur Boulevard				DATE: 9/25/2007				SOUTHBOUND ROAD: 47th Place													
W & A JOB NO.: 3275				DAY: Tuesday				NORTHBOUND ROAD: XXX													
INTERSECTION: MacArthur Boulevard & 47th Place				WEATHER: Clear				WESTBOUND ROAD: MacArthur Boulevard													
LOCATION: Washington, DC				COUNTED BY: Elsa & Tony				EASTBOUND ROAD: MacArthur Boulevard													
				INPUTED BY: BJL																	
Time Period	Turning Movements																		Total	PHF	Time Period
	Southbound 47th Place				Westbound MacArthur Boulevard				Northbound XXX				Eastbound MacArthur Boulevard				North & South	East & West			
	1 Right	2 Thru	3 Left	Total	4 Right	5 Thru	6 Left	Total	7 Right	8 Thru	9 Left	Total	10 Right	11 Thru	12 Left	Total					
AM																					
7:00-7:15	1	0	0	1	1	86	0	87	0	0	0	0	0	92	0	92	1	179	180	7:00-7:15	
7:15-7:30	0	0	0	0	1	113	0	114	0	0	0	0	0	142	0	142	0	256	256	7:15-7:30	
7:30-7:45	0	0	1	1	1	143	0	144	0	0	0	0	0	204	0	204	1	348	349	7:30-7:45	
7:45-8:00	0	0	0	0	0	116	0	116	0	0	0	0	0	281	0	281	0	397	397	7:45-8:00	
8:00-8:15	1	0	0	1	3	146	0	149	0	0	0	0	0	209	0	209	1	358	359	8:00-8:15	
8:15-8:30	2	0	1	3	0	153	0	153	0	0	0	0	0	216	1	217	3	370	373	8:15-8:30	
8:30-8:45	0	0	0	0	1	142	0	143	0	0	0	0	0	238	0	238	0	381	381	8:30-8:45	
8:45-9:00	2	0	1	3	3	140	0	143	0	0	0	0	0	221	0	221	3	364	367	8:45-9:00	
9:00-9:15	0	0	2	2	1	128	0	129	0	0	0	0	0	225	3	228	2	357	359	9:00-9:15	
9:15-9:30	0	0	0	0	6	110	0	116	0	0	0	0	0	176	0	176	0	292	292	9:15-9:30	
9:30-9:45	0	0	3	3	3	88	0	91	0	0	0	0	0	125	2	127	3	218	221	9:30-9:45	
9:45-10:00	1	0	0	1	0	102	0	102	0	0	0	0	0	86	1	87	1	189	190	9:45-10:00	
3 Hour Totals	7	0	8	15	20	1,467	0	1,487	0	0	0	0	0	2,215	7	2,222	16	3,709	3,724		
1 Hour Totals																					
7:00-8:00	1	0	1	2	3	458	0	461	0	0	0	0	0	719	0	719	2	1,180	1,182	0.74 7:00-8:00	
7:15-8:15	1	0	1	2	5	518	0	523	0	0	0	0	0	836	0	836	2	1,359	1,361	0.86 7:15-8:15	
7:30-8:30	3	0	2	5	4	558	0	562	0	0	0	0	0	910	1	911	5	1,473	1,478	0.93 7:30-8:30	
7:45-8:45	3	0	1	4	4	557	0	561	0	0	0	0	0	944	1	945	4	1,506	1,510	0.95 7:45-8:45	
8:00-9:00	5	0	2	7	7	581	0	588	0	0	0	0	0	884	1	885	7	1,473	1,480	0.97 8:00-9:00	
8:15-9:15	4	0	4	8	5	563	0	568	0	0	0	0	0	900	4	904	8	1,472	1,480	0.97 8:15-9:15	
8:30-9:30	2	0	3	5	11	520	0	531	0	0	0	0	0	860	3	863	5	1,394	1,399	0.92 8:30-9:30	
8:45-9:45	2	0	6	8	13	466	0	479	0	0	0	0	0	747	5	752	8	1,231	1,239	0.84 8:45-9:45	
9:00-10:00	1	0	5	6	10	428	0	438	0	0	0	0	0	612	6	618	6	1,056	1,062	0.74 9:00-10:00	
AM Peak 7:45-8:45																					
3	0	1	4	4	557	0	561	0	0	0	0	0	0	944	1	945	4	1,506	1,510	0.95 AM Peak 7:45-8:45	
PM																					
4:00-4:15	0	0	2	2	1	82	0	83	0	0	0	0	0	111	2	113	2	196	198	4:00-4:15	
4:15-4:30	0	0	1	1	1	80	0	81	0	0	0	0	0	101	1	102	1	183	184	4:15-4:30	
4:30-4:45	1	0	0	1	0	75	0	75	0	0	0	0	0	115	2	117	1	192	193	4:30-4:45	
4:45-5:00	2	0	0	2	0	71	0	71	0	0	0	0	0	109	0	109	2	180	182	4:45-5:00	
5:00-5:15	1	0	0	1	3	90	0	93	0	0	0	0	0	125	0	125	1	218	219	5:00-5:15	
5:15-5:30	5	0	1	6	2	76	0	78	0	0	0	0	0	144	0	144	6	222	228	5:15-5:30	
5:30-5:45	2	0	1	3	1	79	0	80	0	0	0	0	0	151	0	151	3	231	234	5:30-5:45	
5:45-6:00	1	0	1	2	1	74	0	75	0	0	0	0	0	116	0	116	2	191	193	5:45-6:00	
6:00-6:15	0	0	0	0	0	94	0	94	0	0	0	0	0	132	1	133	0	227	227	6:00-6:15	
6:15-6:30	1	0	3	4	1	78	0	79	0	0	0	0	0	125	0	125	4	204	208	6:15-6:30	
6:30-6:45	2	0	0	2	0	90	0	90	0	0	0	0	0	101	1	102	2	192	194	6:30-6:45	
6:45-7:00	0	0	4	4	0	106	0	106	0	0	0	0	0	140	0	140	4	246	250	6:45-7:00	
3 Hour Totals	15	0	13	28	10	995	0	1,005	0	0	0	0	0	1,470	7	1,477	28	2,482	2,510		
1 Hour Totals																					
4:00-5:00	3	0	3	6	2	308	0	310	0	0	0	0	0	436	5	441	6	751	757	0.96 4:00-5:00	
4:15-5:15	4	0	1	5	4	316	0	320	0	0	0	0	0	450	3	453	5	773	778	0.89 4:15-5:15	
4:30-5:30	9	0	1	10	5	312	0	317	0	0	0	0	0	493	2	495	10	812	822	0.90 4:30-5:30	
4:45-5:45	10	0	2	12	6	316	0	322	0	0	0	0	0	529	0	529	12	851	863	0.92 4:45-5:45	
5:00-6:00	9	0	3	12	7	319	0	326	0	0	0	0	0	536	0	536	12	862	874	0.93 5:00-6:00	
5:15-6:15	8	0	3	11	4	323	0	327	0	0	0	0	0	543	1	544	11	871	882	0.94 5:15-6:15	
5:30-6:30	4	0	5	9	3	325	0	328	0	0	0	0	0	524	1	525	9	853	862	0.92 5:30-6:30	
5:45-6:45	4	0	4	8	2	336	0	338	0	0	0	0	0	474	2	476	8	814	822	0.91 5:45-6:45	
6:00-7:00	3	0	7	10	1	368	0	369	0	0	0	0	0	498	2	500	10	869	879	0.88 6:00-7:00	
PM Peak 5:15-6:15																					
8	0	3	11	4	323	0	327	0	0	0	0	0	0	543	1	544	11	871	882	0.94 PM Peak 5:15-6:15	

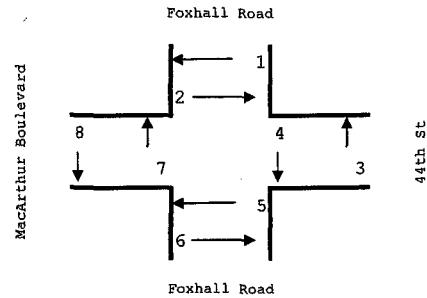
Wells & Associates, LLC

McLean, Virginia

Existing Traffic Count

PROJECT: 4460 MacArthur Boulevard				DATE: 9/25/2007				SOUTHBOUND ROAD:				Parking Lot									
W & A JOB NO.: 3275				DAY: Tuesday				NORTHBOUND ROAD:				Q Street, NW									
INTERSECTION: MacArthur Boulevard, NW & Q Street, NW				WEATHER: Clear				WESTBOUND ROAD:				MacArthur Boulevard, NW									
LOCATION: Washington,DC				COUNTED BY: Jim				EASTBOUND ROAD:				MacArthur Boulevard, NW									
				INPUTED BY: ANM																	
Time Period	Turning Movements																		Total	PHF	Time Period
	Southbound Parking Lot				Westbound MacArthur Boulevard, NW				Northbound Q Street, NW				Eastbound MacArthur Boulevard, NW				North & South	East & West			
	1 Right	2 Thru	3 Left	Total	4 Right	5 Thru	6 Left	Total	7 Right	8 Thru	9 Left	Total	10 Right	11 Thru	12 Left	Total					
AM																					
7:00-7:15	1	0	0	1	0	67	3	70	3	0	2	5	0	112	0	112	6	182	188	7:00-7:15	
7:15-7:30	3	0	1	4	1	87	1	89	4	0	1	5	1	150	1	152	9	241	250	7:15-7:30	
7:30-7:45	0	0	3	3	0	134	2	136	8	0	2	10	2	209	0	211	13	347	360	7:30-7:45	
7:45-8:00	2	0	2	4	0	105	1	106	2	0	2	4	3	253	1	257	8	363	371	7:45-8:00	
8:00-8:15	1	0	0	1	0	131	4	135	7	0	2	9	3	193	1	197	10	332	342	8:00-8:15	
8:15-8:30	0	0	2	2	0	132	2	134	6	0	6	12	5	201	0	206	14	340	354	8:15-8:30	
8:30-8:45	3	0	0	3	1	130	6	137	9	0	4	13	0	212	0	212	16	349	365	8:30-8:45	
8:45-9:00	0	0	1	1	1	79	1	81	2	0	2	4	4	169	0	173	5	254	259	8:45-9:00	
9:00-9:15	0	0	1	1	1	109	4	114	3	0	3	6	8	236	2	246	7	360	367	9:00-9:15	
9:15-9:30	0	0	0	0	1	82	4	87	9	0	2	11	2	189	0	191	11	278	289	9:15-9:30	
9:30-9:45	1	0	1	2	1	77	2	80	3	0	0	3	1	133	1	135	5	215	220	9:30-9:45	
9:45-10:00	2	0	1	3	1	97	4	102	4	0	2	6	0	143	0	143	9	245	254	9:45-10:00	
3 Hour Totals	13	0	12	25	7	1,230	34	1,271	60	0	28	88	29	2,200	6	2,235	113	3,506	3,619		
1 Hour Totals																					
7:00-8:00	6	0	6	12	1	393	7	401	17	0	7	24	6	724	2	732	36	1,133	1,169	0.79	7:00-8:00
7:15-8:15	6	0	6	12	1	457	8	466	21	0	7	28	9	805	3	817	40	1,283	1,323	0.89	7:15-8:15
7:30-8:30	3	0	7	10	0	502	9	511	23	0	12	35	13	856	2	871	45	1,382	1,427	0.96	7:30-8:30
7:45-8:45	6	0	4	10	1	498	13	512	24	0	14	38	11	859	2	872	48	1,384	1,432	0.96	7:45-8:45
8:00-9:00	4	0	3	7	2	472	13	487	24	0	14	38	12	775	1	788	45	1,275	1,320	0.90	8:00-9:00
8:15-9:15	3	0	4	7	3	450	13	466	20	0	15	35	17	818	2	837	42	1,303	1,345	0.92	8:15-9:15
8:30-9:30	3	0	2	5	4	400	15	419	23	0	11	34	14	806	2	822	39	1,241	1,280	0.87	8:30-9:30
8:45-9:45	1	0	3	4	4	347	11	362	17	0	7	24	15	727	3	745	28	1,107	1,135	0.77	8:45-9:45
9:00-10:00	3	0	3	6	4	365	14	383	19	0	7	26	11	701	3	715	32	1,098	1,130	0.77	9:00-10:00
AM Peak 7:45-8:45	6	0	4	10	1	498	13	512	24	0	14	38	11	859	2	872	48	1,384	1,432	0.96	AM Peak 7:45-8:45
PM																					
4:00-4:15	0	0	0	0	0	54	1	55	0	0	0	0	0	108	0	108	0	163	163	4:00-4:15	
4:15-4:30	3	0	0	3	3	72	0	75	2	0	0	2	0	133	0	133	5	208	213	4:15-4:30	
4:30-4:45	0	0	1	1	1	91	1	93	1	0	0	1	2	119	1	122	2	215	217	4:30-4:45	
4:45-5:00	1	0	2	3	0	125	0	125	0	0	1	1	1	148	1	150	4	275	279	4:45-5:00	
5:00-5:15	0	0	1	1	0	89	5	94	2	1	1	4	1	147	0	148	5	242	247	5:00-5:15	
5:15-5:30	1	0	0	1	1	113	1	115	2	0	1	3	0	176	0	176	4	291	295	5:15-5:30	
5:30-5:45	0	0	0	0	2	98	1	101	3	0	2	5	4	131	1	136	5	237	242	5:30-5:45	
5:45-6:00	1	0	0	1	1	91	6	98	1	0	0	1	3	160	2	165	2	263	265	5:45-6:00	
6:00-6:15	1	0	0	1	1	129	5	135	1	0	0	1	4	222	0	226	2	361	363	6:00-6:15	
6:15-6:30	1	0	0	1	1	104	3	108	3	0	1	4	3	210	2	215	5	323	328	6:15-6:30	
6:30-6:45	1	0	1	2	2	88	1	91	0	0	2	2	1	121	1	123	4	214	218	6:30-6:45	
6:45-7:00	1	0	0	1	0	107	1	108	0	0	2	2	2	164	0	166	3	274	277	6:45-7:00	
3 Hour Totals	10	0	5	15	12	1,161	25	1,198	15	1	10	26	21	1,839	8	1,868	41	3,066	3,107		
1 Hour Totals																					
4:00-5:00	4	0	3	7	4	342	2	348	3	0	1	4	3	508	2	513	11	861	872	0.78	4:00-5:00
4:15-5:15	4	0	4	8	4	377	6	387	5	1	2	8	4	547	2	553	16	940	956	0.86	4:15-5:15
4:30-5:30	2	0	4	6	2	418	7	427	5	1	3	9	4	590	2	596	15	1,023	1,038	0.88	4:30-5:30
4:45-5:45	2	0	3	5	3	425	7	435	7	1	5	13	6	602	2	610	18	1,045	1,063	0.90	4:45-5:45
5:00-6:00	2	0	1	3	4	391	13	408	8	1	4	13	8	614	3	625	16	1,033	1,049	0.89	5:00-6:00
5:15-6:15	3	0	0	3	5	431	13	449	7	0	3	10	11	689	3	703	13	1,152	1,165	0.80	5:15-6:15
5:30-6:30	3	0	0	3	5	422	15	442	8	0	3	11	14	723	5	742	14	1,184	1,198	0.83	5:30-6:30
5:45-6:45	4	0	1	5	5	412	15	432	5	0	3	8	11	713	5	729	13	1,161	1,174	0.81	5:45-6:45
6:00-7:00	4	0	1	5	4	428	10	442	4	0	5	9	10	717	3	730	14	1,172	1,186	0.82	6:00-7:00
PM Peak 5:30-6:30	3	0	0	3	5	422	15	442	8	0	3	11	14	723	5	742	14	1,184	1,198	0.83	PM Peak 5:30-6:30

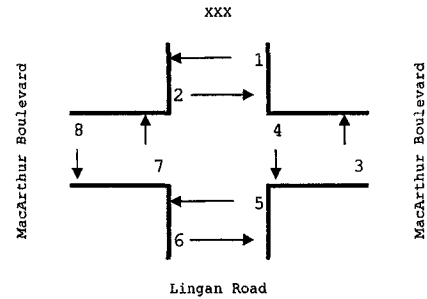
Project Name: 4460 MacArthur Boulevard
 Project Number: 3275
 Location: Washington, DC
 Intersection: MacArthur Boulevard & Foxhall Rd
 Weather: Clear
 Date: 9/25/2007
 Surveyor: Jim



Hourly Pedestrian Count

		1	2	3	4	5	6	7	8					
Time Period	From:	SE	NE	SW	SE	SW	NW	NW	NE	Total	1 & 2	3 & 4	5 & 6	7 & 8
	To:	NE	SE	SE	SW	NW	SW	NE	NW					
AM PEAK														
7:00	8:00	2	0	13	16	10	4	1	0	46	2	29	14	1
7:15	8:15	2	0	9	17	12	5	1	1	47	2	26	17	2
7:30	8:30	2	2	8	20	12	5	0	3	52	4	28	17	3
7:45	8:45	2	2	9	31	15	2	2	4	67	4	40	17	6
8:00	9:00	0	2	6	22	10	1	2	4	47	2	28	11	6
8:15	9:15	0	2	7	24	9	3	2	3	50	2	31	12	5
8:30	9:30	0	2	7	22	10	8	2	1	52	2	29	18	3
8:45	9:45	1	5	6	14	8	8	0	0	42	6	20	16	0
9:00	10:00	1	5	7	14	10	9	1	1	48	6	21	19	2
PM PEAK														
16:00	17:00	1	1	8	3	6	7	0	0	26	2	11	13	0
16:15	17:15	1	1	9	4	7	10	0	0	32	2	13	17	0
16:30	17:30	0	1	11	5	4	9	1	0	31	1	16	13	1
16:45	17:45	1	3	13	8	5	12	2	0	44	4	21	17	2
17:00	18:00	1	2	15	8	7	20	5	1	59	3	23	27	6
17:15	18:15	1	4	17	9	7	21	7	1	67	5	26	28	8
17:30	18:30	1	6	16	10	7	21	6	3	70	7	26	28	9
17:45	18:45	2	5	12	11	7	21	7	3	68	7	23	28	10
18:00	19:00	2	8	13	12	7	16	4	3	65	10	25	23	7

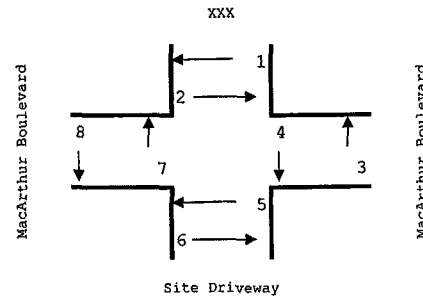
Project Name: 4460 MacArthur Boulevard
 Project Number: 3275
 Location: Washington, DC
 Intersection: MacArthur Boulevard & Lingan Road
 Weather: Clear
 Date: 9/25/2007
 Surveyor: Hilda & Carlos



Hourly Pedestrian Count

		1	2	3	4	5	6	7	8					
Time Period	From:	SE	NE	SW	SE	SW	NW	NW	NE	Total	1 & 2	3 & 4	5 & 6	7 & 8
	To:	NE	SE	SE	SW	NW	SW	NE	NW					
AM PEAK														
7:00	8:00	10	6	1	4	1	3	0	0	25	16	5	4	0
7:15	8:15	7	6	1	4	1	2	1	0	22	13	5	3	1
7:30	8:30	6	3	0	1	0	3	1	0	14	9	1	3	1
7:45	8:45	8	2	0	1	0	1	1	1	14	10	1	1	2
8:00	9:00	8	3	0	0	0	1	1	1	14	11	0	1	2
8:15	9:15	8	1	1	1	0	2	0	1	14	9	2	2	1
8:30	9:30	13	3	1	1	1	1	1	1	22	16	2	2	2
8:45	9:45	14	3	1	1	3	4	1	0	27	17	2	7	1
9:00	10:00	14	3	1	1	5	7	1	0	32	17	2	12	1
PM PEAK														
16:00	17:00	5	33	2	1	8	4	0	1	54	38	3	12	1
16:15	17:15	7	33	3	2	4	4	1	1	55	40	5	8	2
16:30	17:30	8	32	4	3	3	3	1	1	55	40	7	6	2
16:45	17:45	11	18	6	5	7	11	1	1	60	29	11	18	2
17:00	18:00	17	7	8	9	7	8	1	0	57	24	17	15	1
17:15	18:15	25	13	8	9	8	8	0	1	72	38	17	16	1
17:30	18:30	27	13	7	8	9	8	0	2	74	40	15	17	2
17:45	18:45	27	13	6	7	4	3	0	2	62	40	13	7	2
18:00	19:00	28	16	6	3	3	9	0	3	68	44	9	12	3

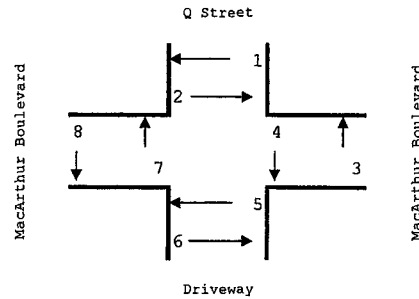
Project Name: 4460 MacArthur Boulevard
 Project Number: 3275
 Location: Washington, DC
 Intersection: MacArthur Boulevard & 4460 Drive
 Weather: Clear
 Date: 9/25/2007
 Surveyor: #REF!



Hourly Pedestrian Count

		1	2	3	4	5	6	7	8					
Time Period	From:	SE	NE	SW	SE	SW	NW	NW	NE	Total	1 & 2	3 & 4	5 & 6	7 & 8
	To:	NE	SE	SE	SW	NW	SW	NE	NW					
AM PEAK														
7:00	8:00	13	13	0	1	3	2	0	0	32	26	1	5	0
7:15	8:15	9	13	0	1	10	2	0	0	35	22	1	12	0
7:30	8:30	8	11	0	0	12	4	0	0	35	19	0	16	0
7:45	8:45	6	11	0	1	12	5	0	0	35	17	1	17	0
8:00	9:00	3	8	0	1	12	10	0	0	34	11	1	22	0
8:15	9:15	4	8	0	1	6	9	0	0	28	12	1	15	0
8:30	9:30	5	12	0	1	4	7	0	0	29	17	1	11	0
8:45	9:45	4	11	0	0	6	6	0	0	27	15	0	12	0
9:00	10:00	3	9	0	0	5	2	0	0	19	12	0	7	0
PM PEAK														
16:00	17:00	1	28	0	0	9	9	0	0	47	29	0	18	0
16:15	17:15	2	31	0	2	10	8	0	0	53	33	2	18	0
16:30	17:30	2	20	0	2	9	6	0	0	39	22	2	15	0
16:45	17:45	6	10	0	2	10	4	0	1	33	16	2	14	1
17:00	18:00	7	6	0	2	15	8	0	1	39	13	2	23	1
17:15	18:15	9	5	0	0	15	12	0	2	43	14	0	27	2
17:30	18:30	10	5	0	0	18	15	0	2	50	15	0	33	2
17:45	18:45	10	8	0	0	16	16	0	1	51	18	0	32	1
18:00	19:00	11	6	0	0	12	13	0	1	43	17	0	25	1

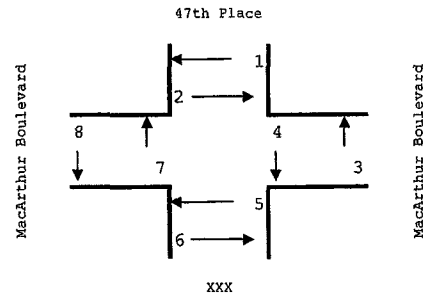
Project Name: 4460 MacArthur Boulevard
 Project Number: 3275
 Location: Washington, DC
 Intersection: MacArthur Boulevard & Q Street
 Weather: Clear
 Date: 9/25/2007
 Surveyor: Jim



Hourly Pedestrian Count

		1	2	3	4	5	6	7	8					
		SE	NE	SW	SE	SW	NW	NW	NE	Total	1 & 2	3 & 4	5 & 6	7 & 8
Time Period	From: To:	NE	SE	SE	SW	NW	SW	NE	NW					
AM PEAK														
7:00	8:00	18	14	5	3	13	4	32	8	97	32	8	17	40
7:15	8:15	12	12	3	1	7	2	61	11	109	24	4	9	72
7:30	8:30	9	14	4	2	5	3	81	14	132	23	6	8	95
7:45	8:45	8	13	5	3	6	5	81	15	136	21	8	11	96
8:00	9:00	4	11	6	4	3	6	56	15	105	15	10	9	71
8:15	9:15	9	13	7	5	4	7	29	13	87	22	12	11	42
8:30	9:30	9	8	7	3	3	5	10	7	52	17	10	8	17
8:45	9:45	10	7	3	3	2	4	12	3	44	17	6	6	15
9:00	10:00	10	4	5	2	2	3	12	2	40	14	7	5	14
PM PEAK														
16:00	17:00	17	4	9	5	7	12	21	11	86	21	14	19	32
16:15	17:15	19	6	7	4	5	9	23	12	85	25	11	14	35
16:30	17:30	21	8	11	5	10	9	21	15	100	29	16	19	36
16:45	17:45	21	10	10	7	11	9	14	15	97	31	17	20	29
17:00	18:00	14	11	9	5	10	10	10	13	82	25	14	20	23
17:15	18:15	14	13	9	5	9	9	4	10	73	27	14	18	14
17:30	18:30	15	12	3	4	6	9	4	8	61	27	7	15	12
17:45	18:45	15	9	3	3	4	12	3	13	62	24	6	16	16
18:00	19:00	16	9	3	4	3	13	6	21	75	25	7	16	27

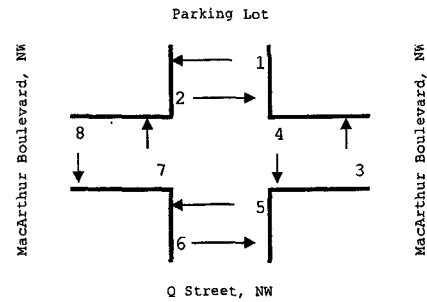
Project Name: 4460 MacArthur Boulevard
 Project Number: 3275
 Location: Washington, DC
 Intersection: MacArthur Boulevard & 47th Place
 Weather: Clear
 Date: 9/25/2007
 Surveyor: Elsa & Tony



Hourly Pedestrian Count

		1	2	3	4	5	6	7	8					
Time Period	From:	SE	NE	SW	SE	SW	NW	NW	NE	Total	1 & 2	3 & 4	5 & 6	7 & 8
	To:	NE	SE	SE	SW	NW	SW	NE	NW					
AM PEAK														
7:00	8:00	19	7	1	0	4	1	0	1	33	26	1	5	1
7:15	8:15	14	7	1	0	3	1	0	1	27	21	1	4	1
7:30	8:30	11	7	1	0	3	2	0	2	26	18	1	5	2
7:45	8:45	11	5	1	0	1	2	0	2	22	16	1	3	2
8:00	9:00	7	7	1	0	0	2	0	3	20	14	1	2	3
8:15	9:15	7	6	2	0	0	1	0	2	18	13	2	1	2
8:30	9:30	9	6	2	0	1	0	0	1	19	15	2	1	1
8:45	9:45	9	5	3	0	1	1	0	1	20	14	3	2	1
9:00	10:00	9	6	2	0	1	3	0	2	23	15	2	4	2
PM PEAK														
16:00	17:00	5	11	2	0	1	5	1	0	25	16	2	6	1
16:15	17:15	7	12	2	0	1	7	1	0	30	19	2	8	1
16:30	17:30	7	9	1	0	2	4	1	0	24	16	1	6	1
16:45	17:45	11	6	1	0	2	5	1	0	26	17	1	7	1
17:00	18:00	10	7	1	0	2	7	2	0	29	17	1	9	2
17:15	18:15	10	9	1	0	3	7	2	0	32	19	1	10	2
17:30	18:30	11	10	0	0	2	8	2	0	33	21	0	10	2
17:45	18:45	9	10	0	0	1	7	1	0	28	19	0	8	1
18:00	19:00	20	11	0	0	1	5	0	0	37	31	0	6	0

Project Name: 4460 MacArthur Boulevard
 Project Number: 3275
 Location: Washington, DC
 Intersection: MacArthur Boulevard, NW & Q Street
 Weather: Clear
 Date: 9/27/2007
 Surveyor: Roberto



Hourly Pedestrian Count

		1	2	3	4	5	6	7	8					
Time Period	From:	SE	NE	SW	SE	SW	NW	NW	NE	Total	1 & 2	3 & 4	5 & 6	7 & 8
	To:	NE	SE	SE	SW	NW	SW	NE	NW					
AM PEAK														
7:00	8:00	25	18	0	0	11	8	0	0	62	43	0	19	0
7:15	8:15	14	20	0	0	11	7	0	0	52	34	0	18	0
7:30	8:30	14	22	0	0	16	12	0	0	64	36	0	28	0
7:45	8:45	13	20	0	0	16	10	0	0	59	33	0	26	0
8:00	9:00	8	11	0	0	14	9	0	0	42	19	0	23	0
8:15	9:15	6	10	1	0	11	8	0	0	36	16	1	19	0
8:30	9:30	6	6	1	0	5	5	0	0	23	12	1	10	0
8:45	9:45	7	5	1	0	4	5	1	0	23	12	1	9	1
9:00	10:00	5	9	1	0	3	3	1	0	22	14	1	6	1
PM PEAK														
16:00	17:00	15	6	1	1	26	20	0	0	69	21	2	46	0
16:15	17:15	8	6	0	0	24	18	0	0	56	14	0	42	0
16:30	17:30	7	8	0	0	17	15	0	0	47	15	0	32	0
16:45	17:45	9	7	0	0	24	13	0	0	53	16	0	37	0
17:00	18:00	8	8	0	0	18	14	0	0	48	16	0	32	0
17:15	18:15	11	9	0	0	20	11	0	1	52	20	0	31	1
17:30	18:30	18	6	0	0	24	13	0	1	62	24	0	37	1
17:45	18:45	17	8	0	0	20	14	0	1	60	25	0	34	1
18:00	19:00	25	8	0	0	21	14	0	1	69	33	0	35	1

Appendix C
Existing Levels of Service

MacArthur Court
1: MacArthur Boulevard & Foxhall Road

Existing AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕		↕	↑			↕	
Volume (vph)	0	0	0	58	4	3	590	823	0	0	319	17
Ideal Flow (vphpl)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Total Lost time (s)					5.0		5.0	5.0			5.0	
Lane Util. Factor					1.00		1.00	1.00			0.95	
Frbp, ped/bikes					1.00		1.00	1.00			1.00	
Flpb, ped/bikes					0.94		1.00	1.00			1.00	
Frt					0.99		1.00	1.00			0.99	
Flt Protected					0.96		0.95	1.00			1.00	
Satd. Flow (prot)					1053		1114	1176			2216	
Flt Permitted					0.96		0.52	1.00			1.00	
Satd. Flow (perm)					1053		615	1176			2216	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	63	4	3	641	895	0	0	347	18
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	0	70	0	641	895	0	0	361	0
Confl. Peds. (#/hr)				17		4	3					3
Turn Type				Perm			Perm					
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					8.0		82.0	82.0			46.0	
Effective Green, g (s)					8.0		82.0	82.0			46.0	
Actuated g/C Ratio					0.08		0.82	0.82			0.46	
Clearance Time (s)					5.0		5.0	5.0			5.0	
Lane Grp Cap (vph)					84		504	964			1019	
v/s Ratio Prot								0.76			0.16	
v/s Ratio Perm					0.07		0.104					
v/c Ratio					0.83		1.27	0.93			0.35	
Uniform Delay, d1					45.3		9.0	6.8			17.4	
Progression Factor					1.00		2.04	1.91			1.00	
Incremental Delay, d2					59.7		133.3	12.5			1.0	
Delay (s)					105.0		151.7	25.4			18.4	
Level of Service					F		F	C			B	
Approach Delay (s)		0.0			105.0			78.1			18.4	
Approach LOS		A			F			E			B	
Intersection Summary												
HCM Average Control Delay			68.0				HCM Level of Service			E		
HCM Volume to Capacity ratio			1.23									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)		10.0			
Intersection Capacity Utilization			145.6%				ICU Level of Service		H			
Analysis Period (min)			15									
c Critical Lane Group												

MacArthur Court
2: MacArthur Boulevard & Foxhall Road

Existing AM

	EB	EBF	NBL	NBT	SEF	SEB
Lane Configurations		TT		TT	TT	
Volume (vph)	0	817	0	1413	377	0
Ideal Flow (vphpl)	1200	1200	1200	1200	1200	1200
Total Lost time (s)		5.0		4.0	5.0	
Lane Util. Factor		0.88		0.95	0.95	
Frt		0.85		1.00	1.00	
Flt Protected		1.00		1.00	1.00	
Satd. Flow (prot)		1760		2235	2235	
Flt Permitted		1.00		1.00	1.00	
Satd. Flow (perm)		1760		2235	2235	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	888	0	1536	410	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	888	0	1536	410	0
Turn Type	custom					
Protected Phases				Free	6	
Permitted Phases		4 8				
Actuated Green, G (s)		44.0		100.0	46.0	
Effective Green, g (s)		44.0		100.0	46.0	
Actuated g/C Ratio		0.44		1.00	0.46	
Clearance Time (s)					5.0	
Lane Grp Cap (vph)		774		2235	1028	
v/s Ratio Prot				0.69	0.18	
v/s Ratio Perm		c0.50				
v/c Ratio		1.15		0.69	0.40	
Uniform Delay, d1		28.0		0.0	17.9	
Progression Factor		1.00		1.00	0.18	
Incremental Delay, d2		81.1		0.2	1.1	
Delay (s)		109.1		0.2	4.3	
Level of Service		F		A	A	
Approach Delay (s)	109.1			0.2	4.3	
Approach LOS	F			A	A	
Intersection Summary						
HCM Average Control Delay		34.9		HCM Level of Service		C
HCM Volume to Capacity ratio		0.90				
Actuated Cycle Length (s)		100.0		Sum of lost time (s)		5.0
Intersection Capacity Utilization		145.6%		ICU Level of Service		H
Analysis Period (min)		15				
c Critical Lane Group						

MacArthur Court
3: MacArthur Boulevard & Lingan Road NW

Existing AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↘	
Volume (veh/h)	813	9	8	603	4	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	884	10	9	655	4	5
Pedestrians	1			1	3	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	1308			362		
pX, platoon unblocked					0.83	
vC, conflicting volume			896		1565	451
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			896		1579	451
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		95	99
cM capacity (veh/h)			751		82	554
Direction/Lane	EBT	EBR	WBL	NBL		
Volume Total	589	304	664	10		
Volume Left	0	0	9	4		
Volume Right	0	10	0	5		
cSH	1700	1700	751	156		
Volume to Capacity	0.35	0.18	0.01	0.06		
Queue Length 95th (ft)	0	0	1	5		
Control Delay (s)	0.0	0.0	0.3	29.7		
Lane LOS			A	D		
Approach Delay (s)	0.0		0.3	29.7		
Approach LOS				D		
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			77.4%	ICU Level of Service		D
Analysis Period (min)			15			

MacArthur Court
4: MacArthur Boulevard & Site Driveway

Existing AM

	EBT	EBP	WBL	WBT	NBL	NBP
Lane Configurations	↑↑			↑	↑	
Volume (veh/h)	815	1	13	595	3	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	886	1	14	647	3	8
Pedestrians					16	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	1109			561		
pX, platoon unblocked					0.88	
vC, conflicting volume			903		1577	459
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			903		1588	459
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		96	99
cM capacity (veh/h)			739		84	541

Direction	EBT	EBP	WBL	WBT
Volume Total	591	296	661	11
Volume Left	0	0	14	3
Volume Right	0	1	0	8
cSH	1700	1700	739	205
Volume to Capacity	0.35	0.17	0.02	0.05
Queue Length 95th (ft)	0	0	1	4
Control Delay (s)	0.0	0.0	0.5	23.5
Lane LOS			A	C
Approach Delay (s)	0.0		0.5	23.5
Approach LOS				C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	83.4%		
Analysis Period (min)	15		
ICU Level of Service	E		

MacArthur Court
5: MacArthur Boulevard & Q Street NW

Existing AM

												
Movement	EBL	EBT	EBF	WBL	WBT	WBF	NBL	NBT	NBF	SBL	SBT	SBF
Lane Configurations		↔			↔			↔			↔	
Volume (vph)	46	804	161	30	462	62	65	103	2	10	125	17
Ideal Flow (vphpl)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			0.99			1.00			0.96	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			1.00			0.99	
Flt Protected		1.00			1.00			0.98			1.00	
Satd. Flow (prot)		1930			1815			1037			993	
Flt Permitted		0.89			0.85			0.98			1.00	
Satd. Flow (perm)		1727			1542			1037			993	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	50	874	175	33	502	67	71	112	2	11	136	18
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1099	0	0	602	0	0	185	0	0	165	0
Confl. Peds. (#/hr)	23		8	8		23	95		6	6		95
Bus Blockages (#/hr)	0	5	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					10							
Turn Type	Perm			Perm			Split			Split		
Protected Phases		2			6			8	8		4	4
Permitted Phases	2			6								
Actuated Green, G (s)		61.0			61.0			12.0			12.0	
Effective Green, g (s)		61.0			61.0			12.0			12.0	
Actuated g/C Ratio		0.61			0.61			0.12			0.12	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1053			941			124			119	
v/s Ratio Prot								c0.18			c0.17	
v/s Ratio Perm		c0.64			0.39							
v/c Ratio		1.04			0.64			1.49			1.39	
Uniform Delay, d1		19.5			12.5			44.0			44.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		39.8			3.3			259.0			217.4	
Delay (s)		59.3			15.8			303.0			261.4	
Level of Service		E			B			F			F	
Approach Delay (s)		59.3			15.8			303.0			261.4	
Approach LOS		E			B			F			F	
Intersection Summary												
HCM Average Control Delay		84.8										
HCM Volume to Capacity ratio		1.15										
Actuated Cycle Length (s)		100.0							15.0			
Intersection Capacity Utilization		134.2%							H			
Analysis Period (min)		15										
c Critical Lane Group												

MacArthur Court
6: MacArthur Boulevard & Parking Driveway

Existing AM

												
Movement	EBL	EBT	EBF	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (veh/h)	2	856	13	9	502	0	12	0	23	7	0	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	930	14	10	546	0	13	0	25	8	0	3
Pedestrians								28			36	
Lane Width (ft)								12.0			12.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								2			3	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					207							
pX, platoon unblocked	0.82						0.82	0.82		0.82	0.82	0.82
vC, conflicting volume	582			973			1538	1571	500	1096	1578	582
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	381			973			1547	1587	500	1008	1595	381
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			78	100	95	95	100	99
cM capacity (veh/h)	935			688			59	82	504	140	81	491
Direction	East					West						
Lane	EBL	EBT	EBF	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume Total	467	479	555	38	11							
Volume Left	2	0	10	13	8							
Volume Right	0	14	0	25	3							
cSH	935	1700	688	140	178							
Volume to Capacity	0.00	0.28	0.01	0.27	0.06							
Queue Length 95th (ft)	0	0	1	26	5							
Control Delay (s)	0.1	0.0	0.4	40.1	26.5							
Lane LOS	A		A	E	D							
Approach Delay (s)	0.0		0.4	40.1	26.5							
Approach LOS				E	D							
Intersection Summary												
Average Delay			1.3									
Intersection Capacity Utilization			69.5%			ICU Level of Service				C		
Analysis Period (min)			15									

6: MacArthur Boulevard & Parking Driveway

												
Volume	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	PL	SL	SL
Lane Configurations												
Volume (veh/h)	3	746	10	10	434	4	5	0	4	1	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	811	11	11	472	4	5	0	4	1	0	4
Pedestrians		1						35			33	
Lane Width (ft)		12.0						12.0			12.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		0						3			3	
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)					207							
pX, platoon unblocked	0.90						0.90	0.90		0.90	0.90	0.90
vC, conflicting volume	509			857			1359	1389	446	945	1392	508
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	402			857			1344	1377	446	885	1380	401
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			94	100	99	99	100	99
cM capacity (veh/h)	1012			757			90	120	544	197	120	525
Summary												
Volume Total	409	416	487	10	5							
Volume Left	3	0	11	5	1							
Volume Right	0	11	4	4	4							
cSH	1012	1700	757	144	394							
Volume to Capacity	0.00	0.24	0.01	0.07	0.01							
Queue Length 95th (ft)	0	0	1	5	1							
Control Delay (s)	0.1	0.0	0.4	31.9	14.3							
Lane LOS	A		A	D	B							
Approach Delay (s)	0.1		0.4	31.9	14.3							
Approach LOS				D	B							
Intersection												
Average Delay			0.5									
Intersection Capacity Utilization			67.6%			ICU Level of Service				C		
Analysis Period (min)			15									

MacArthur Court
7: MacArthur Boulevard & 47th Place

Total Future PM



MacArthur Court						
Lane Configurations		↕↕	↕		↕	
Volume (veh/h)	2	511	374	1	7	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	555	407	1	8	3
Pedestrians					31	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	439				720	438
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	439				720	438
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	1089				353	552

Volume Total	187	370	408	11
Volume Left	2	0	0	8
Volume Right	0	0	1	3
cSH	1089	1700	1700	395
Volume to Capacity	0.00	0.22	0.24	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.1	0.0	0.0	14.4
Lane LOS	A			B
Approach Delay (s)	0.0		0.0	14.4
Approach LOS				B

Average Delay		0.2		
Intersection Capacity Utilization		44.7%	ICU Level of Service	A
Analysis Period (min)		15		

Appendix D

Background Future Levels of Service

MacArthur Court
1: MacArthur Boulevard & Foxhall Road

Background AM

												
Lane Configurations	EB	EB	EB	WB	WB	WB	WB	WB	WB	WB	WB	WB
Lane Configurations												
Volume (vph)	0	0	0	59	4	3	599	855	0	0	344	17
Ideal Flow (vphpl)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Total Lost time (s)					5.0		5.0	5.0			5.0	
Lane Util. Factor					1.00		1.00	1.00			0.95	
Frpb, ped/bikes					1.00		1.00	1.00			1.00	
Flpb, ped/bikes					0.94		1.00	1.00			1.00	
Frt					0.99		1.00	1.00			0.99	
Flt Protected					0.96		0.95	1.00			1.00	
Satd. Flow (prot)					1053		1114	1176			2217	
Flt Permitted					0.96		0.51	1.00			1.00	
Satd. Flow (perm)					1053		595	1176			2217	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	64	4	3	651	929	0	0	374	18
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	0	71	0	651	929	0	0	389	0
Confl. Peds. (#/hr)				17		4	3					3
Turn Type				Perm			Perm					
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					8.0		82.0	82.0			46.0	
Effective Green, g (s)					8.0		82.0	82.0			46.0	
Actuated g/C Ratio					0.08		0.82	0.82			0.46	
Clearance Time (s)					5.0		5.0	5.0			5.0	
Lane Grp Cap (vph)					84		488	964			1020	
v/s Ratio Prot								0.79			0.18	
v/s Ratio Perm					0.07		c1.09					
v/c Ratio					0.85		1.33	0.96			0.38	
Uniform Delay, d1					45.4		9.0	7.7			17.7	
Progression Factor					1.00		1.98	1.86			1.00	
Incremental Delay, d2					61.9		159.9	16.9			1.1	
Delay (s)					107.3		177.8	31.2			18.8	
Level of Service					F		F	C			B	
Approach Delay (s)		0.0			107.3			91.6			18.8	
Approach LOS		A			F			F			B	
Intersection Summary												
HCM Average Control Delay			78.2				HCM Level of Service			E		
HCM Volume to Capacity ratio			1.29									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)		10.0			
Intersection Capacity Utilization			148.1%				ICU Level of Service		H			
Analysis Period (min)			15									
c Critical Lane Group												

Background AM



MacArthur Court
10/9/2007

MacArthur Court
3: MacArthur Boulevard & Langan Road NW

Background AM

	→	↘	↙	←	↖	↗
	EBT	EBP	WBP	WBT	EBT	WBT
Lane Configurations	↑↓			↑	↘	
Volume (veh/h)	825	9	8	612	4	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	897	10	9	665	4	5
Pedestrians	1			1	3	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	1308			362		
pX, platoon unblocked					0.82	
vC, conflicting volume			910		1588	457
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			910		1607	457
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		94	99
cM capacity (veh/h)			743		78	549
Volume Total	598	309	674	10		
Volume Left	0	0	9	4		
Volume Right	0	10	0	5		
cSH	1700	1700	743	148		
Volume to Capacity	0.35	0.18	0.01	0.07		
Queue Length 95th (ft)	0	0	1	5		
Control Delay (s)	0.0	0.0	0.3	31.0		
Lane LOS			A	D		
Approach Delay (s)	0.0		0.3	31.0		
Approach LOS				D		
Average Delay			0.3			
Intersection Capacity Utilization			78.2%	ICU Level of Service		D
Analysis Period (min)			15			

MacArthur Court
4: MacArthur Boulevard & Site Driveway

Background AM

	→	↘	↙	←	↖	↗
Volume	EB	EB	WB	WB	WB	WB
Lane Configurations	↑↑			↑	↑	
Volume (veh/h)	827	1	13	604	3	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	899	1	14	657	3	8
Pedestrians					16	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					1	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	1109			561		
pX, platoon unblocked					0.87	
vC, conflicting volume			916		1600	466
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			916		1615	466
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		96	99
cM-capacity (veh/h)			730		79	536
Volume	EB	EB	WB	WB	WB	WB
Volume Total	599	301	671	11		
Volume Left	0	0	14	3		
Volume Right	0	1	0	8		
cSH	1700	1700	730	197		
Volume to Capacity	0.35	0.18	0.02	0.06		
Queue Length 95th (ft)	0	0	1	4		
Control Delay (s)	0.0	0.0	0.5	24.4		
Lane LOS			A	C		
Approach Delay (s)	0.0		0.5	24.4		
Approach LOS				C		
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			84.3%	ICU Level of Service	E	
Analysis Period (min)			15			

MacArthur Court
5: MacArthur Boulevard & Q Street NW

Background AM

Lane Configurations		↔		↔			↔		↔			
Volume (vph)	47	816	163	30	469	63	66	105	2	10	127	17
Ideal Flow (vphpl)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			0.99			1.00			0.96	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			1.00			0.99	
Flt Protected		1.00			1.00			0.98			1.00	
Satd. Flow (prot)		1930			1815			1037			994	
Flt Permitted		0.89			0.85			0.98			1.00	
Satd. Flow (perm)		1724			1541			1037			994	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	887	177	33	510	68	72	114	2	11	138	18
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1115	0	0	611	0	0	188	0	0	167	0
Confl. Peds. (#/hr)	23		8	8		23	95		6	6		95
Bus Blockages (#/hr)	0	5	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					10							
Turn Type	Perm			Perm			Split			Split		
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2			6								
Actuated Green, G (s)		61.0			61.0			12.0			12.0	
Effective Green, g (s)		61.0			61.0			12.0			12.0	
Actuated g/C Ratio		0.61			0.61			0.12			0.12	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1052			940			124			119	
v/s Ratio Prot								c0.18			c0.17	
v/s Ratio Perm		c0.65			0.40							
v/c Ratio		1.06			0.65			1.52			1.40	
Uniform Delay, d1		19.5			12.6			44.0			44.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		45.1			3.5			269.1			224.1	
Delay (s)		64.6			16.1			313.1			268.1	
Level of Service		E			B			F			F	
Approach Delay (s)		64.6			16.1			313.1			268.1	
Approach LOS		E			B			F			F	
HCM Average Control Delay		89.1										
HCM Volume to Capacity ratio		1.17										
Actuated Cycle Length (s)		100.0							15.0			
Intersection Capacity Utilization		135.4%							H			
Analysis Period (min)		15										
c Critical Lane Group												

MacArthur Court
6: MacArthur Boulevard & Parking Driveway

Existing PM

												
Lane Configurations	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Volume (veh/h)	3	730	10	10	428	4	5	0	4	1	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	793	11	11	465	4	5	0	4	1	0	4
Pedestrians		1						35			33	
Lane Width (ft)		12.0						12.0			12.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		0						3			3	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					207							
pX, platoon unblocked	0.91						0.91	0.91		0.91	0.91	0.91
vC, conflicting volume	503			839			1335	1365	437	930	1368	501
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	398			839			1318	1351	437	870	1354	397
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			94	100	99	99	100	99
cM capacity (veh/h)	1019			768			95	125	551	203	125	530
Volume Total	400	408	480	10	5							
Volume Left	3	0	11	5	1							
Volume Right	0	11	4	4	4							
cSH	1019	1700	768	150	401							
Volume to Capacity	0.00	0.24	0.01	0.07	0.01							
Queue Length 95th (ft)	0	0	1	5	1							
Control Delay (s)	0.1	0.0	0.4	30.7	14.1							
Lane LOS	A		A	D	B							
Approach Delay (s)	0.1		0.4	30.7	14.1							
Approach LOS				D	B							
Average Delay			0.5									
Intersection Capacity Utilization			67.1%			ICU Level of Service				C		
Analysis Period (min)			15									

MacArthur Court
7: MacArthur Boulevard & 47th Place

Existing PM

	EB	EB	WB	WB	SBR
Lane Configurations	↔↔	↔	↔	↔	
Volume (veh/h)	2	498	368	1	7
Sign Control		Free	Free		Stop
Grade		0%	0%		0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	541	400	1	8
Pedestrians					31
Lane Width (ft)					12.0
Walking Speed (ft/s)					4.0
Percent Blockage					3
Right turn flare (veh)					
Median type		None	None		
Median storage veh					
Upstream signal (ft)					
pX, platoon unblocked					
vC, conflicting volume	432			707	432
vC1, stage 1 conf vol					
vC2, stage 2 conf vol					
vCu, unblocked vol	432			707	432
tC, single (s)	4.1			6.8	6.9
tC, 2 stage (s)					
tF (s)	2.2			3.5	3.3
p0 queue free %	100			98	99
cM capacity (veh/h)	1095			360	557
Volume Total	183	361	401	11	
Volume Left	2	0	0	8	
Volume Right	0	0	1	3	
cSH	1095	1700	1700	403	
Volume to Capacity	0.00	0.21	0.24	0.03	
Queue Length 95th (ft)	0	0	0	2	
Control Delay (s)	0.1	0.0	0.0	14.2	
Lane LOS	A			B	
Approach Delay (s)	0.0		0.0	14.2	
Approach LOS				B	
Average Delay			0.2		
Intersection Capacity Utilization			44.2%	ICU Level of Service	A
Analysis Period (min)			15		

MacArthur Court
2: MacArthur Boulevard & Foxhall Road

Existing PM



MACARTHUR COURT						
Lane Configurations		FF		FF	FF	
Volume (vph)	0	470	0	1125	504	0
Ideal Flow (vphpl)	1200	1200	1200	1200	1200	1200
Total Lost time (s)		5.0		4.0	5.0	
Lane Util. Factor		0.88		0.95	0.95	
Frt		0.85		1.00	1.00	
Flt Protected		1.00		1.00	1.00	
Satd. Flow (prot)		1760		2235	2235	
Flt Permitted		1.00		1.00	1.00	
Satd. Flow (perm)		1760		2235	2235	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	511	0	1223	548	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	511	0	1223	548	0
Turn Type	custom					
Protected Phases				Free	6	
Permitted Phases		4 8				
Actuated Green, G (s)		44.0		100.0	46.0	
Effective Green, g (s)		44.0		100.0	46.0	
Actuated g/C Ratio		0.44		1.00	0.46	
Clearance Time (s)					5.0	
Lane Grp Cap (vph)		774		2235	1028	
v/s Ratio Prot				0.55	0.25	
v/s Ratio Perm		c0.29				
v/c Ratio		0.66		0.55	0.53	
Uniform Delay, d1		22.1		0.0	19.3	
Progression Factor		1.00		1.00	0.12	
Incremental Delay, d2		4.4		0.1	1.7	
Delay (s)		26.5		0.1	4.0	
Level of Service		C		A	A	
Approach Delay (s)	26.5			0.1	4.0	
Approach LOS	C			A	A	
INTERSECTION SUMMARY						
HCM Average Control Delay		6.9		HCM Level of Service		A
HCM Volume to Capacity ratio		0.60				
Actuated Cycle Length (s)		100.0		Sum of lost time (s)		5.0
Intersection Capacity Utilization		78.5%		ICU Level of Service		D
Analysis Period (min)		15				
c Critical Lane Group						

MacArthur Court
3: MacArthur Boulevard & Lingan Road NW

Existing PM

	→	↘	↙	←	↖	↗
Lane Configurations	↑↑			↑	↘	
Volume (veh/h)	470	6	3	452	10	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	511	7	3	491	11	0
Pedestrians	3			9	12	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			1	1	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	1308			362		
pX, platoon unblocked					0.95	
vC, conflicting volume			529		1027	280
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			529		1004	280
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		95	100
cM capacity (veh/h)			1024		224	705
Volume Total	341	177	495	11		
Volume Left	0	0	3	11		
Volume Right	0	7	0	0		
cSH	1700	1700	1024	224		
Volume to Capacity	0.20	0.10	0.00	0.05		
Queue Length 95th (ft)	0	0	0	4		
Control Delay (s)	0.0	0.0	0.1	21.9		
Lane LOS			A	C		
Approach Delay (s)	0.0		0.1	21.9		
Approach LOS				C		
Average Delay			0.3			
Intersection Capacity Utilization			58.6%	ICU Level of Service	B	
Analysis Period (min)			15			

MacArthur Court
7: MacArthur Boulevard & 47th Place

Existing AM



Volume	EB	WB	NB	SB	DB
Lane Configurations	↑↑	↑		↓↓	
Volume (veh/h)	1	910	558	4	2
Sign Control		Free	Free		Stop
Grade		0%	0%		0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	989	607	4	2
Pedestrians		2	1		18
Lane Width (ft)		12.0	12.0		12.0
Walking Speed (ft/s)		4.0	4.0		4.0
Percent Blockage		0	0		2
Right turn flare (veh)					
Median type		None	None		
Median storage (veh)					
Upstream signal (ft)					
pX, platoon unblocked					
vC, conflicting volume	629			1124	629
vC1, stage 1 conf vol					
vC2, stage 2 conf vol					
vCu, unblocked vol	629			1124	629
tC, single (s)	4.1			6.8	6.9
tC, 2 stage (s)					
tF (s)	2.2			3.5	3.3
p0 queue free %	100			99	99
cM capacity (veh/h)	935			196	418

Direction	EB	WB	NB	SB
Volume Total	331	659	611	5
Volume Left	1	0	0	2
Volume Right	0	0	4	3
cSH	935	1700	1700	287
Volume to Capacity	0.00	0.39	0.36	0.02
Queue Length 95th (ft)	0	0	0	1
Control Delay (s)	0.0	0.0	0.0	17.8
Lane LOS	A			C
Approach Delay (s)	0.0		0.0	17.8
Approach LOS				C

Average Delay	0.1			
Intersection Capacity Utilization	62.8%		ICU Level of Service	B
Analysis Period (min)	15			

MacArthur Court
1: 44th Street & Foxhall Road

Existing PM

												
Lane Configurations					↔		↖	↑			↗	
Volume (vph)	0	0	0	24	3	6	422	703	0	0	479	27
Ideal Flow (vphpl)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Total Lost time (s)					5.0		5.0	5.0			5.0	
Lane Util. Factor					1.00		1.00	1.00			0.95	
Frpb, ped/bikes					0.98		1.00	1.00			1.00	
Flpb, ped/bikes					0.94		0.99	1.00			1.00	
Frt					0.97		1.00	1.00			0.99	
Flt Protected					0.97		0.95	1.00			1.00	
Satd. Flow (prot)					1020		1111	1176			2214	
Flt Permitted					0.97		0.42	1.00			1.00	
Satd. Flow (perm)					1020		488	1176			2214	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	26	3	7	459	764	0	0	521	29
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	0	36	0	459	764	0	0	546	0
Confl. Peds. (#/hr)				23		10	7					7
Turn Type				Perm			Perm					
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					8.0		82.0	82.0			46.0	
Effective Green, g (s)					8.0		82.0	82.0			46.0	
Actuated g/C Ratio					0.08		0.82	0.82			0.46	
Clearance Time (s)					5.0		5.0	5.0			5.0	
Lane Grp Cap (vph)					82		400	964			1018	
v/s Ratio Prot								0.65			0.25	
v/s Ratio Perm					0.04		0.94					
v/c Ratio					0.44		1.15	0.79			0.54	
Uniform Delay, d1					43.9		9.0	4.6			19.4	
Progression Factor					1.00		2.62	2.71			1.00	
Incremental Delay, d2					16.1		88.6	5.7			2.0	
Delay (s)					60.0		112.2	18.2			21.4	
Level of Service					E		F	B			C	
Approach Delay (s)		0.0			60.0			53.5			21.4	
Approach LOS		A			E			D			C	
HCM Average Control Delay			43.9									
HCM Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			100.0									
Intersection Capacity Utilization			78.5%									
Analysis Period (min)			15									
c Critical Lane Group												

MacArthur Court
4: MacArthur Boulevard & Site Driveway

Existing PM



Volume	EB	WB	NB	SB
Lane Configurations	↑↑		↑	↑
Volume (veh/h)	469	1	5	456
Sign Control	Free			Free
Grade	0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	510	1	5	496
Pedestrians	1			25
Lane Width (ft)	12.0			12.0
Walking Speed (ft/s)	4.0			4.0
Percent Blockage	0			2
Right turn flare (veh)				
Median type	None		None	
Median storage veh				
Upstream signal (ft)	1109		561	
pX, platoon unblocked				
vC, conflicting volume			536	1043
vC1, stage 1 conf vol				280
vC2, stage 2 conf vol				
vCu, unblocked vol			536	1043
tC, single (s)			4.1	6.8
tC, 2 stage (s)				6.9
tF (s)			2.2	3.5
p0 queue free %			99	99
cM capacity (veh/h)			1007	219

Volume	EB	WB	NB	SB
Volume Total	340	171	501	10
Volume Left	0	0	5	2
Volume Right	0	1	0	8
cSH	1700	1700	1007	471
Volume to Capacity	0.20	0.10	0.01	0.02
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.0	0.0	0.2	12.8
Lane LOS			A	B
Approach Delay (s)	0.0		0.2	12.8
Approach LOS				B

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		54.3%	ICU Level of Service	A
Analysis Period (min)		15		

MacArthur Court
5: MacArthur Boulevard & Q Street NW

Existing PM

													
Lane Configurations		LT	TH	LT	TH	LT	TH	LT	TH	LT	TH	LT	TH
Volume (vph)	32	454	16	2	310	35	1	7	0	16	22	35	
Ideal Flow (vphpl)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Total Lost time (s)		5.0			5.0			5.0			5.0		
Lane Util. Factor		0.95			0.95			1.00			1.00		
Frb, ped/bikes		1.00			1.00			1.00			0.94		
Flpb, ped/bikes		1.00			1.00			1.00			1.00		
Frt		1.00			0.98			1.00			0.94		
Flt Protected		1.00			1.00			0.99			0.99		
Satd. Flow (prot)		1971			1823			1053			918		
Flt Permitted		0.91			0.95			0.99			0.99		
Satd. Flow (perm)		1797			1739			1053			918		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	493	17	2	337	38	1	8	0	17	24	38	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	545	0	0	377	0	0	9	0	0	79	0	
Confl. Peds. (#/hr)	25		16	16		25	27		7	7		27	
Bus Blockages (#/hr)	0	5	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					10								
Turn Type	Perm			Perm			Split			Split			
Protected Phases		2			6		8	8			4	4	
Permitted Phases	2			6									
Actuated Green, G (s)		61.0			61.0			12.0			12.0		
Effective Green, g (s)		61.0			61.0			12.0			12.0		
Actuated g/C Ratio		0.61			0.61			0.12			0.12		
Clearance Time (s)		5.0			5.0			5.0			5.0		
Vehicle Extension (s)		3.0			3.0			3.0			3.0		
Lane Grp Cap (vph)		1096			1061			126			110		
v/s Ratio Prot								c0.01			c0.09		
v/s Ratio Perm		c0.30			0.22								
v/c Ratio		0.50			0.36			0.07			0.72		
Uniform Delay, d1		10.9			9.7			39.1			42.4		
Progression Factor		1.00			1.00			1.00			1.00		
Incremental Delay, d2		1.6			0.9			1.1			33.1		
Delay (s)		12.5			10.6			40.2			75.4		
Level of Service		B			B			D			E		
Approach Delay (s)		12.5			10.6			40.2			75.4		
Approach LOS		B			B			D			E		
HCM Average Control Delay		17.0											
HCM Volume to Capacity ratio		0.47											
Actuated Cycle Length (s)		100.0											
Intersection Capacity Utilization		87.4%											
Analysis Period (min)		15											
c Critical Lane Group													
HCM Level of Service											B		
Sum of lost time (s)											15.0		
ICU Level of Service											E		

MacArthur Court
6: MacArthur Boulevard & Parking Driveway

Background AM

	EB	EB	EB	WB	WB	WB	WB	WB	WB	WB	WB	WB
	↖	→	↘	↙	←	↖	↘	↑	↗	↘	↓	↙
Lane Configurations	2	↕	13	9	↕	0	12	↕	0	23	7	↕
Volume (veh/h)	2	869	13	9	510	0	12	0	23	7	0	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	945	14	10	554	0	13	0	25	8	0	3
Pedestrians								28			36	
Lane Width (ft)								12.0			12.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								2			3	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					207							
pX, platoon unblocked	0.82						0.82	0.82		0.82	0.82	0.82
vC, conflicting volume	590			987			1561	1594	507	1112	1601	590
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	386			987			1575	1615	507	1024	1624	386
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			77	100	95	94	100	99
cM capacity (veh/h)	926			680			56	78	499	135	77	485
Volume Total	474	486	564	38	11							
Volume Left	2	0	10	13	8							
Volume Right	0	14	0	25	3							
cSH	926	1700	680	134	172							
Volume to Capacity	0.00	0.29	0.01	0.28	0.06							
Queue Length 95th (ft)	0	0	1	27	5							
Control Delay (s)	0.1	0.0	0.4	42.4	27.3							
Lane LOS	A		A	E	D							
Approach Delay (s)	0.0		0.4	42.4	27.3							
Approach LOS				E	D							
Average Delay			1.4									
Intersection Capacity Utilization			70.2%			ICU Level of Service			C			
Analysis Period (min)			15									

	EB	WB	SB	SP
Lane Configurations	↑↑	↑	↓	
Volume (veh/h)	1 924	566	4	2 3
Sign Control	Free	Free	Stop	
Grade	0%	0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92 0.92
Hourly flow rate (vph)	1 1004	615	4	2 3
Pedestrians	2	1	18	
Lane Width (ft)	12.0	12.0	12.0	
Walking Speed (ft/s)	4.0	4.0	4.0	
Percent Blockage	0	0	2	
Right turn flare (veh)				
Median type	None	None		
Median storage (veh)				
Upstream signal (ft)				
pX, platoon unblocked				
vC, conflicting volume	638		1141	637
vC1, stage 1 conf vol				
vC2, stage 2 conf vol				
vCu, unblocked vol	638		1141	637
tC, single (s)	4.1		6.8	6.9
tC, 2 stage (s)				
tF (s)	2.2		3.5	3.3
p0 queue free %	100		99	99
cM capacity (veh/h)	928		191	413
Volume Total	336	670	620	5
Volume Left	1	0	0	2
Volume Right	0	0	4	3
cSH	928	1700	1700	282
Volume to Capacity	0.00	0.39	0.36	0.02
Queue Length 95th (ft)	0	0	0	1
Control Delay (s)	0.0	0.0	0.0	18.0
Lane LOS	A			C
Approach Delay (s)	0.0		0.0	18.0
Approach LOS				C
Average Delay		0.1		
Intersection Capacity Utilization		63.5%		ICU Level of Service B
Analysis Period (min)		15		

MacArthur Court
1: 44th Street & Foxhall Road

Background PM

												
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕		↕	↑			↕	
Volume (vph)	0	0	0	25	3	6	428	736	0	0	505	27
Ideal Flow (vphpl)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Total Lost time (s)					5.0		5.0	5.0			5.0	
Lane Util. Factor					1.00		1.00	1.00			0.95	
Frbp, ped/bikes					0.98		1.00	1.00			1.00	
Flpb, ped/bikes					0.94		0.99	1.00			1.00	
Frt					0.97		1.00	1.00			0.99	
Flt Protected					0.96		0.95	1.00			1.00	
Satd. Flow (prot)					1021		1112	1176			2215	
Flt Permitted					0.96		0.40	1.00			1.00	
Satd. Flow (perm)					1021		471	1176			2215	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	27	3	7	465	800	0	0	549	29
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	0	37	0	465	800	0	0	574	0
Confl. Peds. (#/hr)				23		10	7					7
Turn Type				Perm		Perm						
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					8.0		82.0	82.0			46.0	
Effective Green, g (s)					8.0		82.0	82.0			46.0	
Actuated g/C Ratio					0.08		0.82	0.82			0.46	
Clearance Time (s)					5.0		5.0	5.0			5.0	
Lane Grp Cap (vph)					82		386	964			1019	
v/s Ratio Prot								0.68			0.26	
v/s Ratio Perm					0.04		0.99					
v/c Ratio					0.45		1.20	0.83			0.56	
Uniform Delay, d1					43.9		9.0	5.1			19.7	
Progression Factor					1.00		2.52	2.62			1.00	
Incremental Delay, d2					16.9		111.0	6.9			2.3	
Delay (s)					60.8		133.7	20.2			21.9	
Level of Service					E		F	C			C	
Approach Delay (s)		0.0			60.8			61.9			21.9	
Approach LOS		A			E			E			C	
Summary												
HCM Average Control Delay			49.6			HCM Level of Service			D			
HCM Volume to Capacity ratio			1.14									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)		10.0				
Intersection Capacity Utilization			80.2%			ICU Level of Service		D				
Analysis Period (min)			15									
c Critical Lane Group												

MacArthur Court
2: MacArthur Boulevard & Foxhall Road

Background PM



Lane Configurations		↑↑		↑↑	↑↑	
Volume (vph)	0	477	0	1164	530	0
Ideal Flow (vphpl)	1200	1200	1200	1200	1200	1200
Total Lost time (s)		5.0		4.0	5.0	
Lane Util. Factor		0.88		0.95	0.95	
Frt		0.85		1.00	1.00	
Flt Protected		1.00		1.00	1.00	
Satd. Flow (prot)		1760		2235	2235	
Flt Permitted		1.00		1.00	1.00	
Satd. Flow (perm)		1760		2235	2235	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	518	0	1265	576	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	518	0	1265	576	0
Turn Type	custom					
Protected Phases				Free	6	
Permitted Phases		4 8				
Actuated Green, G (s)		44.0		100.0	46.0	
Effective Green, g (s)		44.0		100.0	46.0	
Actuated g/C Ratio		0.44		1.00	0.46	
Clearance Time (s)					5.0	
Lane Grp Cap (vph)		774		2235	1028	
v/s Ratio Prot				0.57	0.26	
v/s Ratio Perm		c0.29				
v/c Ratio		0.67		0.57	0.56	
Uniform Delay, d1		22.2		0.0	19.6	
Progression Factor		1.00		1.00	0.12	
Incremental Delay, d2		4.6		0.1	1.8	
Delay (s)		26.8		0.1	4.1	
Level of Service		C		A	A	
Approach Delay (s)	26.8			0.1	4.1	
Approach LOS	C			A	A	
HCM Average Control Delay		6.9		HCM Level of Service		A
HCM Volume to Capacity ratio		0.62				
Actuated Cycle Length (s)		100.0		Sum of lost time (s)		5.0
Intersection Capacity Utilization		80.2%		ICU Level of Service		D
Analysis Period (min)		15				
c Critical Lane Group						

MacArthur Court
3: MacArthur Boulevard & Lingan Road NW

Background PM

	EB	WB	NB	SB	WB	EB
Lane Configurations	↑↑			↑	↑	
Volume (veh/h)	477	6	3	459	10	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	518	7	3	499	11	0
Pedestrians	3			9	12	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			1	1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	1308			362		
pX, platoon unblocked					0.95	
vC, conflicting volume			537		1042	284
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			537		1018	284
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		95	100
cM capacity (veh/h)			1017		218	701

	EB	WB	NB	SB
Volume Total	346	179	502	11
Volume Left	0	0	3	11
Volume Right	0	7	0	0
cSH	1700	1700	1017	218
Volume to Capacity	0.20	0.11	0.00	0.05
Queue Length 95th (ft)	0	0	0	4
Control Delay (s)	0.0	0.0	0.1	22.4
Lane LOS			A	C
Approach Delay (s)	0.0		0.1	22.4
Approach LOS				C

Average Delay	0.3			
Intersection Capacity Utilization	59.3%		ICU Level of Service	B
Analysis Period (min)	15			

MacArthur Court
4: MacArthur Boulevard & Site Driveway

Background PM

	→	↘	↙	←	↖	↗
Movement	EB	WB	NB	SB	WB	NB
Lane Configurations	↑↑			↑	↑	↑
Volume (veh/h)	476	1	5	463	2	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	517	1	5	503	2	8
Pedestrians	1				25	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				2	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	1109			561		
pX, platoon unblocked						
vC, conflicting volume			543		1058	284
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			543		1058	284
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	99
cM capacity (veh/h)			1000		214	698
Volume Total	345	174	509	10		
Volume Left	0	0	5	2		
Volume Right	0	1	0	8		
cSH	1700	1700	1000	464		
Volume to Capacity	0.20	0.10	0.01	0.02		
Queue Length 95th (ft)	0	0	0	2		
Control Delay (s)	0.0	0.0	0.2	12.9		
Lane LOS			A	B		
Approach Delay (s)	0.0		0.2	12.9		
Approach LOS				B		
Average Delay			0.2			
Intersection Capacity Utilization			54.9%		ICU Level of Service	A
Analysis Period (min)			15			

MacArthur Court
5: MacArthur Boulevard & Q Street NW

Background PM

	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	
Lane Configurations												
Volume (vph)	32	461	16	2	315	36	1	7	0	16	22	36
Ideal Flow (vphpl)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Total Lost time (s)	5.0				5.0		5.0				5.0	
Lane Util. Factor	0.95				0.95		1.00				1.00	
Frbp, ped/bikes	1.00				1.00		1.00				0.94	
Flpb, ped/bikes	1.00				1.00		1.00				1.00	
Frt	1.00				0.98		1.00				0.93	
Flt Protected	1.00				1.00		0.99				0.99	
Satd. Flow (prot)	1972				1823		1053				917	
Flt Permitted	0.91				0.95		0.99				0.99	
Satd. Flow (perm)	1797				1739		1053				917	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	501	17	2	342	39	1	8	0	17	24	39
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	553	0	0	383	0	0	9	0	0	80	0
Confl. Peds. (#/hr)	25		16	16		25	27		7	7		27
Bus Blockages (#/hr)	0	5	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	10											
Turn Type	Perm				Perm				Split		Split	
Protected Phases	2				6				8		4	
Permitted Phases	2				6				8		4	
Actuated Green, G (s)	61.0				61.0				12.0		12.0	
Effective Green, g (s)	61.0				61.0				12.0		12.0	
Actuated g/C Ratio	0.61				0.61				0.12		0.12	
Clearance Time (s)	5.0				5.0				5.0		5.0	
Vehicle Extension (s)	3.0				3.0				3.0		3.0	
Lane Grp Cap (vph)	1096				1061				126		110	
v/s Ratio Prot									c0.01		c0.09	
v/s Ratio Perm	c0.31				0.22							
v/c Ratio	0.50				0.36				0.07		0.73	
Uniform Delay, d1	11.0				9.8				39.1		42.4	
Progression Factor	1.00				1.00				1.00		1.00	
Incremental Delay, d2	1.7				1.0				1.1		34.1	
Delay (s)	12.6				10.7				40.2		76.6	
Level of Service	B				B				D		E	
Approach Delay (s)	12.6				10.7				40.2		76.6	
Approach LOS	B				B				D		E	
Intersection Summary												
HCM Average Control Delay	17.2		HCM Level of Service		B							
HCM Volume to Capacity ratio	0.47											
Actuated Cycle Length (s)	100.0		Sum of lost time (s)		15.0							
Intersection Capacity Utilization	87.8%		ICU Level of Service		E							
Analysis Period (min)	15											
c Critical Lane Group												

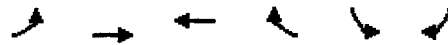
MacArthur Court
6: MacArthur Boulevard & Parking Driveway

Background PM

Movement	EB	EB	EB	EB	EB	EB	EB	EB	EB	EB	EB	EB
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (veh/h)	3	741	10	10	434	4	5	0	4	1	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	805	11	11	472	4	5	0	4	1	0	4
Pedestrians		1						35			33	
Lane Width (ft)		12.0						12.0			12.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		0						3			3	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					207							
pX, platoon unblocked	0.90						0.90	0.90		0.90	0.90	0.90
vC, conflicting volume	509			851			1353	1383	443	942	1386	508
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	403			851			1338	1371	443	882	1374	402
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			94	100	99	99	100	99
cM capacity (veh/h)	1012			760			91	122	546	198	121	525
Volume Total	406	414	487	10	5							
Volume Left	3	0	11	5	1							
Volume Right	0	11	4	4	4							
cSH	1012	1700	760	145	395							
Volume to Capacity	0.00	0.24	0.01	0.07	0.01							
Queue Length 95th (ft)	0	0	1	5	1							
Control Delay (s)	0.1	0.0	0.4	31.6	14.3							
Lane LOS	A		A	D	B							
Approach Delay (s)	0.1		0.4	31.6	14.3							
Approach LOS				D	B							
Average Delay			0.5									
Intersection Capacity Utilization			67.6%		ICU Level of Service					C		
Analysis Period (min)			15									

MacArthur Court
7: MacArthur Boulevard & 47th Place

Background PM



Intersection	EB	WB	NB	SB	WB	SB
Lane Configurations		↑↑	↑		↑↑	
Volume (veh/h)	2	506	374	1	7	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	550	407	1	8	3
Pedestrians					31	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	439				717	438
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	439				717	438
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	1089				354	552

Intersection	EB	WB	NB	SB
Volume Total	186	367	408	11
Volume Left	2	0	0	8
Volume Right	0	0	1	3
cSH	1089	1700	1700	397
Volume to Capacity	0.00	0.22	0.24	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.1	0.0	0.0	14.3
Lane LOS	A			B
Approach Delay (s)	0.0		0.0	14.3
Approach LOS				B

Average Delay	0.2			
Intersection Capacity Utilization	44.7%		ICU Level of Service	A
Analysis Period (min)	15			

Appendix E
Total Future Levels of Service

MacArthur Court
1: MacArthur Boulevard & Foxhall Road

Total Future AM

												
	EB	EB	EB	WB	WB	WB	WB	EB	EB	EB	WB	WB
Lane Configurations												
Volume (vph)	0	0	0	59	4	3	588	855	0	0	344	17
Ideal Flow (vphpl)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Total Lost time (s)					5.0		5.0	5.0			5.0	
Lane Util. Factor					1.00		1.00	1.00			0.95	
Frpb, ped/bikes					1.00		1.00	1.00			1.00	
Flpb, ped/bikes					0.94		1.00	1.00			1.00	
Frt					0.99		1.00	1.00			0.99	
Flt Protected					0.96		0.95	1.00			1.00	
Satd. Flow (prot)					1053		1114	1176			2217	
Flt Permitted					0.96		0.51	1.00			1.00	
Satd. Flow (perm)					1053		595	1176			2217	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	64	4	3	639	929	0	0	374	18
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	0	71	0	639	929	0	0	389	0
Confl. Peds. (#/hr)				17		4	3					3
Turn Type				Perm			Perm					
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					8.0		82.0	82.0			46.0	
Effective Green, g (s)					8.0		82.0	82.0			46.0	
Actuated g/C Ratio					0.08		0.82	0.82			0.46	
Clearance Time (s)					5.0		5.0	5.0			5.0	
Lane Grp Cap (vph)					84		488	964			1020	
v/s Ratio Prot								0.79			0.18	
v/s Ratio Perm					0.07		c1.07					
v/c Ratio					0.85		1.31	0.96			0.38	
Uniform Delay, d1					45.4		9.0	7.7			17.7	
Progression Factor					1.00		2.00	1.88			1.00	
Incremental Delay, d2					61.9		149.4	17.0			1.1	
Delay (s)					107.3		167.4	31.5			18.8	
Level of Service					F		F	C			B	
Approach Delay (s)		0.0			107.3			86.9			18.8	
Approach LOS		A			F			F			B	
Intersection Summary												
HCM Average Control Delay			74.5				HCM Level of Service			E		
HCM Volume to Capacity ratio			1.27									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)		10.0			
Intersection Capacity Utilization			147.6%				ICU Level of Service		H			
Analysis Period (min)			15									
c Critical Lane Group												

MacArthur Court
2: MacArthur Boulevard & Foxhall Road

Total Future AM



WB		NB		SB	
Lane Configurations	FF		↑↑	↑↑	
Volume (vph)	0 830	0	1443	403	0
Ideal Flow (vphpl)	1200 1200	1200	1200	1200	1200
Total Lost time (s)	5.0		4.0	5.0	
Lane Util. Factor	0.88		0.95	0.95	
Frt	0.85		1.00	1.00	
Flt Protected	1.00		1.00	1.00	
Satd. Flow (prot)	1760		2235	2235	
Flt Permitted	1.00		1.00	1.00	
Satd. Flow (perm)	1760		2235	2235	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0 902	0	1568	438	0
RTOR Reduction (vph)	0 0	0	0	0	0
Lane Group Flow (vph)	0 902	0	1568	438	0
Turn Type	custom				
Protected Phases			Free	6	
Permitted Phases	4 8				
Actuated Green, G (s)	44.0		100.0	46.0	
Effective Green, g (s)	44.0		100.0	46.0	
Actuated g/C Ratio	0.44		1.00	0.46	
Clearance Time (s)				5.0	
Lane Grp Cap (vph)	774		2235	1028	
v/s Ratio Prot			0.70	0.20	
v/s Ratio Perm	c0.51				
v/c Ratio	1.17		0.70	0.43	
Uniform Delay, d1	28.0		0.0	18.1	
Progression Factor	1.00		1.00	0.17	
Incremental Delay, d2	88.2		0.2	1.2	
Delay (s)	116.2		0.2	4.3	
Level of Service	F		A	A	
Approach Delay (s)	116.2		0.2	4.3	
Approach LOS	F		A	A	
HCM Average Control Delay	36.8		HCM Level of Service	D	
HCM Volume to Capacity ratio	0.92				
Actuated Cycle Length (s)	100.0		Sum of lost time (s)	5.0	
Intersection Capacity Utilization	147.6%		ICU Level of Service	H	
Analysis Period (min)	15				
c Critical Lane Group					

MacArthur Court
3: MacArthur Boulevard & Langan Road NW

Total Future AM

	EBT	EBL	WBL	WBT	NBL	NBT
Lane Configurations	↑↑			↑↑	↑↑	↑↑
Volume (veh/h)	826	9	7	602	4	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	898	10	8	654	4	4
Pedestrians	1			1	3	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	1308			362		
pX, platoon unblocked					0.84	
vC, conflicting volume			911		1576	458
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			911		1591	458
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		95	99
cM capacity (veh/h)			742		82	548
Volume Total	599	309	662	9		
Volume Left	0	0	8	4		
Volume Right	0	10	0	4		
cSH	1700	1700	742	142		
Volume to Capacity	0.35	0.18	0.01	0.06		
Queue Length 95th (ft)	0	0	1	5		
Control Delay (s)	0.0	0.0	0.3	32.0		
Lane LOS			A	D		
Approach Delay (s)	0.0		0.3	32.0		
Approach LOS				D		
Average Delay			0.3			
Intersection Capacity Utilization			75.9%	ICU Level of Service	D	
Analysis Period (min)			15			

MacArthur Court
4: MacArthur Boulevard & Site Driveway

Total Future AM

	→	↘	↙	←	↖	↗
	EB	WB	NB	SB	WB	NB
Lane Configurations	↑↑			↑	↘	
Volume (veh/h)	827	2	3	603	14	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	899	2	3	655	15	9
Pedestrians					16	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	1109			561		
pX, platoon unblocked				0.89		
vC, conflicting volume			917	1578	467	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			917	1587	467	
tC, single (s)			4.1	6.8	6.9	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			100	82	98	
cM capacity (veh/h)			730	86	536	
Volume Total	599	302	659	24		
Volume Left	0	0	3	15		
Volume Right	0	2	0	9		
cSH	1700	1700	730	124		
Volume to Capacity	0.35	0.18	0.00	0.19		
Queue Length 95th (ft)	0	0	0	17		
Control Delay (s)	0.0	0.0	0.1	40.7		
Lane LOS			A	E		
Approach Delay (s)	0.0		0.1	40.7		
Approach LOS				E		
Average Delay			0.7			
Intersection Capacity Utilization			70.0%	ICU Level of Service	C	
Analysis Period (min)			15			

MacArthur Court
7: MacArthur Boulevard & 47th Place

Total Future AM



Variable	EB	WB	SB	SB
Lane Configurations	4↑	1↑	2↑	3
Volume (veh/h)	1 924	567	4	2
Sign Control	Free	Free	Stop	
Grade	0%	0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1 1004	616	4	2
Pedestrians	2	1	18	
Lane Width (ft)	12.0	12.0	12.0	
Walking Speed (ft/s)	4.0	4.0	4.0	
Percent Blockage	0	0	2	
Right turn flare (veh)				
Median type	None	None		
Median storage veh				
Upstream signal (ft)				
pX, platoon unblocked				
vC, conflicting volume	639		1142	638
vC1, stage 1 conf vol				
vC2, stage 2 conf vol				
vCu, unblocked vol	639		1142	638
tC, single (s)	4.1		6.8	6.9
tC, 2 stage (s)				
tF (s)	2.2		3.5	3.3
p0 queue free %	100		99	99
cM capacity (veh/h)	927		191	412

Variable	EB	WB	SB	SB
Volume Total	336	670	621	5
Volume Left	1	0	0	2
Volume Right	0	0	4	3
cSH	927	1700	1700	281
Volume to Capacity	0.00	0.39	0.37	0.02
Queue Length 95th (ft)	0	0	0	1
Control Delay (s)	0.0	0.0	0.0	18.0
Lane LOS	A			C
Approach Delay (s)	0.0		0.0	18.0
Approach LOS				C

Average Delay	0.1			
Intersection Capacity Utilization	63.6%		ICU Level of Service	B
Analysis Period (min)	15			

MacArthur Court
1: 44th Street & Foxhall Road

Total Future PM

Lane Configurations												
Volume (vph)	0	0	0	25	4	6	432	736	0	0	505	29
Ideal Flow (vphpl)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Total Lost time (s)					5.0		5.0	5.0			5.0	
Lane Util. Factor					1.00		1.00	1.00			0.95	
Frpb, ped/bikes					0.99		1.00	1.00			1.00	
Flpb, ped/bikes					0.94		0.99	1.00			1.00	
Frt					0.98		1.00	1.00			0.99	
Flt Protected					0.97		0.95	1.00			1.00	
Satd. Flow (prot)					1024		1112	1176			2213	
Flt Permitted					0.97		0.40	1.00			1.00	
Satd. Flow (perm)					1024		469	1176			2213	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	27	4	7	470	800	0	0	549	32
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	0	38	0	470	800	0	0	577	0
Confl. Peds. (#/hr)				23		10	7					7
Turn Type	Perm Perm											
Protected Phases	8 2 6											
Permitted Phases	8 2											
Actuated Green, G (s)	8.0 82.0 82.0 46.0											
Effective Green, g (s)	8.0 82.0 82.0 46.0											
Actuated g/C Ratio	0.08 0.82 0.82 0.46											
Clearance Time (s)	5.0 5.0 5.0 5.0											
Lane Grp Cap (vph)	82 385 964 1018											
v/s Ratio Prot	0.68 0.26											
v/s Ratio Perm	0.04 c1.00											
v/c Ratio	0.46 1.22 0.83 0.57											
Uniform Delay, d1	43.9 9.0 5.1 19.7											
Progression Factor	1.00 2.50 2.61 1.00											
Incremental Delay, d2	17.7 117.5 7.0 2.3											
Delay (s)	61.6 140.1 20.2 22.0											
Level of Service	E F C C											
Approach Delay (s)	0.0 61.6 64.6 22.0											
Approach LOS	A E E C											
HCM Average Control Delay	51.4 HCM Level of Service D											
HCM Volume to Capacity ratio	1.15											
Actuated Cycle Length (s)	100.0 Sum of lost time (s) 10.0											
Intersection Capacity Utilization	80.7% ICU Level of Service D											
Analysis Period (min)	15											
c Critical Lane Group												

MacArthur Court
2: MacArthur Boulevard & Foxhall Road

Total Future PM



Movement	EB	WB	NB	SB	EB	WB
Lane Configurations		TT		TT	TT	
Volume (vph)	0	474	0	1164	530	0
Ideal Flow (vphpl)	1200	1200	1200	1200	1200	1200
Total Lost time (s)		5.0		4.0	5.0	
Lane Util. Factor		0.88		0.95	0.95	
Frt		0.85		1.00	1.00	
Flt Protected		1.00		1.00	1.00	
Satd. Flow (prot)		1760		2235	2235	
Flt Permitted		1.00		1.00	1.00	
Satd. Flow (perm)		1760		2235	2235	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	515	0	1265	576	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	515	0	1265	576	0
Turn Type	custom					
Protected Phases				Free	6	
Permitted Phases	4 8					
Actuated Green, G (s)	44.0			100.0	46.0	
Effective Green, g (s)	44.0			100.0	46.0	
Actuated g/C Ratio	0.44			1.00	0.46	
Clearance Time (s)					5.0	
Lane Grp Cap (vph)	774			2235	1028	
v/s Ratio Prot				0.57	0.26	
v/s Ratio Perm	0.29					
v/c Ratio	0.67			0.57	0.56	
Uniform Delay, d1	22.2			0.0	19.6	
Progression Factor	1.00			1.00	0.12	
Incremental Delay, d2	4.5			0.1	1.8	
Delay (s)	26.7			0.1	4.1	
Level of Service	C			A	A	
Approach Delay (s)	26.7			0.1	4.1	
Approach LOS	C			A	A	
HCM Average Control Delay	6.9			HCM Level of Service		
HCM Volume to Capacity ratio	0.62			A		
Actuated Cycle Length (s)	100.0			Sum of lost time (s)		
Intersection Capacity Utilization	80.7%			5.0		
Analysis Period (min)	15			ICU Level of Service		
c Critical Lane Group				D		

MacArthur Court
3: MacArthur Boulevard & Lingan Road NW

Total Future PM



Lane Configurations	↑↑			↑	↑	
Volume (veh/h)	474	6	2	466	9	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	515	7	2	507	10	0
Pedestrians	3			9	12	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			1	1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	1308			362		
pX, platoon unblocked					0.95	
vC, conflicting volume			534		1044	282
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			534		1023	282
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	100
cM capacity (veh/h)			1020		218	703

Volume Total	343	178	509	10
Volume Left	0	0	2	10
Volume Right	0	7	0	0
cSH	1700	1700	1020	218
Volume to Capacity	0.20	0.10	0.00	0.04
Queue Length 95th (ft)	0	0	0	4
Control Delay (s)	0.0	0.0	0.1	22.3
Lane LOS			A	C
Approach Delay (s)	0.0		0.1	22.3
Approach LOS				C

Average Delay		0.2		
Intersection Capacity Utilization		58.5%	ICU Level of Service	B
Analysis Period (min)		15		

MacArthur Court
4: MacArthur Boulevard & Site Driveway

Total Future PM

	EB	WB	VB	NB
	→	↘	↙	←
	↘	→	↙	↗
Movement	EB	WB	VB	NB
Lane Configurations	↑↑		↑	↑
Volume (veh/h)	476	8	12	462
Sign Control	Free		Free	Stop
Grade	0%		0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	517	9	13	502
Pedestrians	1			25
Lane Width (ft)	12.0			12.0
Walking Speed (ft/s)	4.0			4.0
Percent Blockage	0			2
Right turn flare (veh)				
Median type	None		None	
Median storage veh				
Upstream signal (ft)	1109		561	
pX, platoon unblocked				
vC, conflicting volume		551	1076	288
vC1, stage 1 conf vol				
vC2, stage 2 conf vol				
vCu, unblocked vol		551	1076	288
tC, single (s)		4.1	6.8	6.9
tC, 2 stage (s)				
tF (s)		2.2	3.5	3.3
p0 queue free %		99	96	99
cM capacity (veh/h)		994	207	694
	EB	WB	VB	NB
Volume Total	345	181	515	12
Volume Left	0	0	13	8
Volume Right	0	9	0	4
cSH	1700	1700	994	278
Volume to Capacity	0.20	0.11	0.01	0.04
Queue Length 95th (ft)	0	0	1	3
Control Delay (s)	0.0	0.0	0.4	18.6
Lane LOS			A	C
Approach Delay (s)	0.0		0.4	18.6
Approach LOS				C
	EB	WB	VB	NB
Average Delay			0.4	
Intersection Capacity Utilization		63.8%		ICU Level of Service
Analysis Period (min)		15		B

MacArthur Court
5: MacArthur Boulevard & Q Street NW

Total Future PM

												
Lane Configurations		↔			↔			↔			↔	
Volume (vph)	32	466	16	2	315	40	1	7	0	18	22	36
Ideal Flow (vphpl)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			0.99			1.00			0.94	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.98			1.00			0.94	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		1972			1819			1053			920	
Flt Permitted		0.91			0.95			0.99			0.99	
Satd. Flow (perm)		1797			1735			1053			920	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	507	17	2	342	43	1	8	0	20	24	39
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	559	0	0	387	0	0	9	0	0	83	0
Confl. Peds. (#/hr)	25		16	16		25	27		7	7		27
Bus Blockages (#/hr)	0	5	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					10							
Turn Type	Perm		Perm		Split		Split		Split		Split	
Protected Phases	2		6		8		8		4		4	
Permitted Phases	2		6									
Actuated Green, G (s)	61.0		61.0				12.0				12.0	
Effective Green, g (s)	61.0		61.0				12.0				12.0	
Actuated g/C Ratio	0.61		0.61				0.12				0.12	
Clearance Time (s)	5.0		5.0				5.0				5.0	
Vehicle Extension (s)	3.0		3.0				3.0				3.0	
Lane Grp Cap (vph)	1096		1058				126				110	
v/s Ratio Prot							c0.01				c0.09	
v/s Ratio Perm	c0.31		0.22									
v/c Ratio	0.51		0.37				0.07				0.75	
Uniform Delay, d1	11.0		9.8				39.1				42.6	
Progression Factor	1.00		1.00				1.00				1.00	
Incremental Delay, d2	1.7		1.0				1.1				37.5	
Delay (s)	12.7		10.8				40.2				80.1	
Level of Service	B		B				D				F	
Approach Delay (s)	12.7		10.8				40.2				80.1	
Approach LOS	B		B				D				F	
HCM Average Control Delay	17.6		HCM Level of Service				B					
HCM Volume to Capacity ratio	0.48											
Actuated Cycle Length (s)	100.0		Sum of lost time (s)				15.0					
Intersection Capacity Utilization	88.9%		ICU Level of Service				E					
Analysis Period (min)	15											
c Critical Lane Group												

MacArthur Court
5: MacArthur Boulevard & Q Street NW

Total Future AM

												
MOVEMENT	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Lane Configurations		LT			LT		TH				TH	
Volume (vph)	47	816	163	30	470	71	66	105	2	10	127	17
Ideal Flow (vphpl)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			0.99			1.00			0.96	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			1.00			0.99	
Flt Protected		1.00			1.00			0.98			1.00	
Satd. Flow (prot)		1930			1811			1037			994	
Flt Permitted		0.89			0.85			0.98			1.00	
Satd. Flow (perm)		1722			1539			1037			994	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	887	177	33	511	77	72	114	2	11	138	18
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1115	0	0	621	0	0	188	0	0	167	0
Confl. Peds. (#/hr)	23		8	8		23	95		6	6		95
Bus Blockages (#/hr)	0	5	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					10							
Turn Type	Perm			Perm			Split			Split		
Protected Phases	2			6			8			4		
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	61.0			61.0			12.0			12.0		
Effective Green, g (s)	61.0			61.0			12.0			12.0		
Actuated g/C Ratio	0.61			0.61			0.12			0.12		
Clearance Time (s)	5.0			5.0			5.0			5.0		
Vehicle Extension (s)	3.0			3.0			3.0			3.0		
Lane Grp Cap (vph)	1050			939			124			119		
v/s Ratio Prot							c0.18			c0.17		
v/s Ratio Perm	c0.65			0.40								
v/c Ratio	1.06			0.66			1.52			1.40		
Uniform Delay, d1	19.5			12.7			44.0			44.0		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	45.8			3.7			269.1			224.1		
Delay (s)	65.3			16.4			313.1			268.1		
Level of Service	E			B			F			F		
Approach Delay (s)	65.3			16.4			313.1			268.1		
Approach LOS	E			B			F			F		
SUMMARY												
HCM Average Control Delay	89.2			HCM Level of Service			F					
HCM Volume to Capacity ratio	1.17											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)			15.0					
Intersection Capacity Utilization	135.4%			ICU Level of Service			H					
Analysis Period (min)	15											
c Critical Lane Group												

MacArthur Court
6: MacArthur Boulevard & Parking Driveway

Total Future AM

													
Movement		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane Configurations		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (veh/h)	2	869	13	9	511	0	12	0	23	7	0	3	
Sign Control		Free			Free			Stop			Stop		
Grade		0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	945	14	10	555	0	13	0	25	8	0	3	
Pedestrians								28			36		
Lane Width (ft)								12.0			12.0		
Walking Speed (ft/s)								4.0			4.0		
Percent Blockage								2			3		
Right turn flare (veh)													
Median type		None			None								
Median storage (veh)													
Upstream signal (ft)					207								
pX, platoon unblocked	0.81						0.81	0.81		0.81	0.81	0.81	
vC, conflicting volume	591			987			1562	1595	507	1113	1602	591	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	381			987			1577	1617	507	1023	1626	381	
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9	
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	100			99			76	100	95	94	100	99	
cM capacity (veh/h)	925			680			55	78	499	135	77	486	
Volume Total	474	486	565	38	11								
Volume Left	2	0	10	13	8								
Volume Right	0	14	0	25	3								
cSH	925	1700	680	133	172								
Volume to Capacity	0.00	0.29	0.01	0.29	0.06								
Queue Length 95th (ft)	0	0	1	28	5								
Control Delay (s)	0.1	0.0	0.4	42.7	27.3								
Lane LOS	A		A	E	D								
Approach Delay (s)	0.0		0.4	42.7	27.3								
Approach LOS				E	D								
Average Delay			1.4										
Intersection Capacity Utilization			70.3%		ICU Level of Service					C			
Analysis Period (min)			15										