Transportation Impact Study
for
Emerson Park Phase 2
Washington, D.C.

Prepared by:
Wells & Associates, LLC

August 2006

ZONING COMMISSION
District of Columbia
CASE NO.06-26
EXHIBIT NO.14B1

TABLE OF CONTENTS

PAGE

Section 1
INTRODUCTION 1
OVERVIEW 1
STUDY SCOPE 1

Section 2
EXISTING CONDITIONS 5
LAND USE 5
TRANSPORTATION FACILITIES 5
TRAFFIC VOLUMES 7
LICENSE PLATE SURVEY 9
OPERATIONAL ANALYSIS 9
Table 2-1: Existing Levels of Service 11
PEAK HOUR WARRANT ANALYSIS 11

Section 3
FUTURE BACKGROUND CONDITIONS 12
LAND USE 12
FUTURE BACKGROUND TRAFFIC FORECASTS 12
Table 3-1: Pipeline Development Trip Generation Summary 15
OPERATIONAL ANALYSIS 15
Table 3-2: Background Levels of Service 18
PEAK HOUR WARRANT ANALYSIS 18

Section 4
SITE ANALYSIS 19
TRIP GENERATION ANALYSIS 19
Table 4-1: Site Trip Generation Summary 19
SITE TRIP DISTRIBUTION 19
SITE TRAFFIC ASSIGNMENTS 20
PROPOSED SITE ACCESS 20
PEDESTRIAN ACCESS 20
PARKING REQUIREMENTS 20

Section 5
TOTAL FUTURE CONDITIONS 23
TOTAL FUTURE TRAFFIC FORECASTS 23
Table 5-1: Breakdown of ADT for Private Roadway Connection 23
TURN LANE EVALUATION 25
OPERATIONAL ANALYSIS 25
Table 5-2: Total Future Levels of Service 25
PEAK HOUR WARRANT ANALYSIS 26

Section 6
CONCLUSIONS AND RECOMMENDATIONS 27

REFERENCES 28

LIST OF FIGURES

FIGURE	TITLE
1-1	Site Location Map
1-2	Proposed PUD Concept Plan
2-1	Existing Lane Use and Traffic Control
2-2	Proposed Bicycle Facilities Map
2-3	Existing Peak Hour Traffic Volumes
3-1	Location of Pipeline Developments
3-2	2009 Peak Hour Regional Growth Traffic Forecasts
3-3	Peak Hour Site Trip Assignments – Pipeline Developments
3-4	2009 Background Peak Hour Traffic Forecasts
4-1	Peak Hour Site Trip Distribution and Assignments – Emerson Park Phase 2
4-2	Pedestrian Circulation Plan
5-1	2009 Total Future Peak Hour Traffic Forecasts

LIST OF APPENDICES

APPENDIX	TITLE
A	Scope of Work
B	Traffic Counts
C	DDOT Traffic Signal Timings
D	Level of Service Descriptions
E	Existing Capacity Analyses
F	Peak Hour Warrant Analysis
G	Peak Hour Site Trip Assignments – Pipeline Developments
H	2009 Future Background Capacity Analyses
I	Turn Lane Evaluation
J	2009 Total Future Capacity Analyses

Section 1
INTRODUCTION

OVERVIEW

Rocky Gorge Development has filed a PUD application to develop Emerson Park Phase 2, a 35-unit townhouse development, on a 4.19-acre tract of land located on Lot 814 of Square 3788 in northeast Washington, D.C. The site generally is bounded by Emerson Park Phase 1 (currently under construction) to the north, the Thos. Somerville Co. to the west, detached dwellings fronting 6th Street to the south, and a strip of properties fronting 7th Street to the east. The site location map is shown on Figure 1-1.

The subject site currently is vacant with remnants of a shed and concrete slab on the site. The property is in the Fort Totten overlay district and is zoned R-2 (Residential) and C-M-1 (Low Bulk Commercial Light Manufacturing). The pending application would rezone the property to the R-4 District (Residential).

For the purposes of this study, build out of Emerson Park Phase 2 was assumed to occur in 2009. Access to the proposed development would be provided via a private road connecting Emerson Street to 6th Street/Puerto Rico Avenue, through Emerson Park Phase 1. The proposed site plan for the development is shown on Figure 1-2.

STUDY SCOPE

Overview

In order to assess the impacts of the proposed rezoning on the surrounding roadway network, the Applicant commissioned this transportation impact study.

Representatives of the development team corresponded with representatives of the District Department of Transportation (DDOT) to identify the study scope and agree on specific study parameters. A summary of the scope of work is included in Appendix A.

Study Area

The study area was selected based on those intersections that potentially could be affected by the proposed development and/or the proposed connection of Emerson Street to 6th Street/Puerto Rico Avenue. The following intersections were selected for detailed analysis:

1. South Dakota Avenue/8th Street
2. South Dakota Avenue/Delafield Street
3. Buchanan Street/6th Street/Puerto Rico Avenue
4. Emerson Street/6th Place
5. Emerson Street/Phase 1 Driveway
6. Emerson Street/8th Street
7. Delafield Street/8th Street
8. South Dakota Avenue/Gallatin Street
9. South Dakota Avenue/Buchanan Street

Study Objectives and Methodology

The objectives of this study were to: (1) evaluate existing transportation conditions, (2) evaluate future (2009) transportation conditions with and without the proposed redevelopment, and (3) identify transportation impacts related to the proposed redevelopment.

Tasks undertaken in this study included the following:

1. Review of development plans provided by Rocky Gorge Development.
2. Correspondence with DDOT staff regarding the traffic study scope.
3. A field reconnaissance of existing roadway and intersection geometrics, traffic controls, and speed limits.
4. Turning movement counts at the study intersections during the AM and PM peak periods.

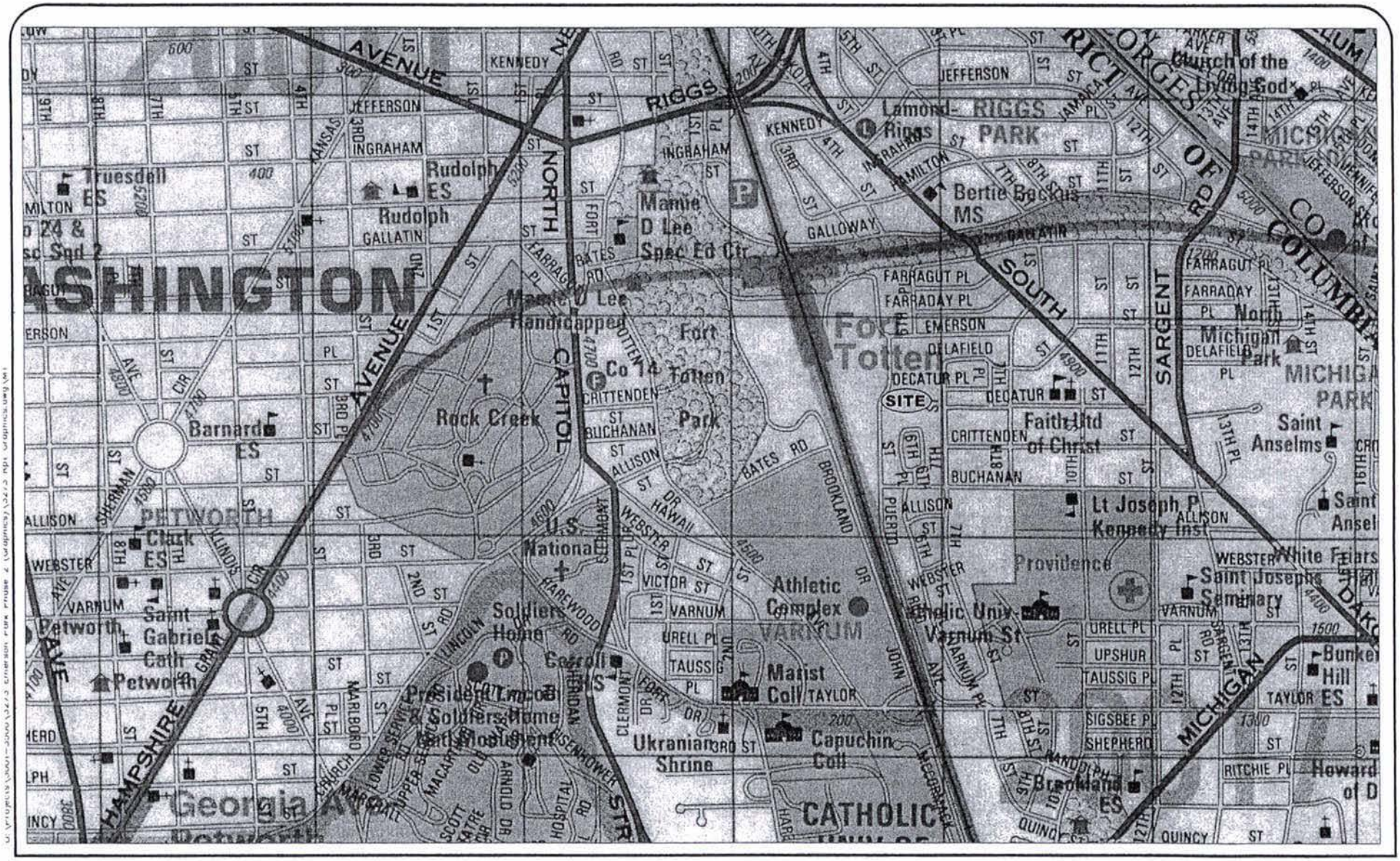

Figure 1-1
Site Location Map

North

Emerson Park - Phase 2
Washington, D.C.

WELLS & ASSOCIATES, LLC
TRAFFIC, TRANSPORTATION, and PARKING CONSULTANTS

Figure 1-2
Proposed PUD Concept Plan

North

Emerson Park - Phase 2
Washington, D.C.

WELLS & ASSOCIATES, LLC
TRAFFIC, TRANSPORTATION, AND PARKING CONSULTANTS

O:\Projects\3001-3500\3273 Emerson Park Phase 2 (Graphics)\3273 Rpt Graphics.dwg\MT

5. A license plate survey to determine the volume of existing traffic that potentially would be rerouted as a result of connecting 6th Street to Puerto Rico Avenue, through Phase 1.

6. Analysis of existing and projected levels of service at the study intersections.

7. Estimation of the number of AM and PM peak hour trips that would be generated by the proposed development and the other planned developments in the area.

8. Recommendation of improvements required to mitigate the impact of the proposed development.

9. A review of site access, egress, and on-site circulation.

The conclusions and recommendations of this study are as follows:

1. Currently, all study intersections operate at acceptable levels of service (i.e. LOS D or better), with the exception of the following intersections:

   - South Dakota Avenue/8th Street
   - South Dakota Avenue/Buchanan Street

2. The South Dakota Avenue/8th Street and South Dakota Avenue/Buchanan Street intersections currently do not meet peak hour traffic signal warrants, nor will they under projected 2009 conditions with or without the proposed Emerson Park development.

3. Under background conditions (with pipeline developments), levels of service at the study intersections are expected to remain relatively unchanged from existing conditions during the AM and PM peak hours.

4. The Emerson Park Phase 2 development is anticipated to generate 11 AM peak hour vehicle-trips and 14 PM peak hour vehicle-trips.

5. Thirty-five on-site parking spaces would be required for the 35 residential units, according to the DCMR. A total of 77 on-site parking spaces, including garage spaces, driveway spaces, and visitor spaces, are proposed.

6. The proposed Phase 2 development will have a negligible effect on the traffic operations of the study intersections.

7. The ADT on the proposed private road connecting Emerson Street to 6th Street/Puerto Rico Avenue is projected to be 650 vehicles per day (vpd).

8. Truck access on the proposed private road will be significantly limited due to the weight limit restrictions currently posted on Emerson Street, 6th Place, and 8th Street.

9. The increase in traffic at the Buchanan Street/Puerto Rico Avenue/6th Street intersection would not have an effect on the levels of service at the intersection.

Section 2
EXISTING CONDITIONS

LAND USE

The subject site currently is vacant with remnants of a shed and concrete slab on the site. The property is in the Fort Totten overlay district and currently is zoned R-2 (Residential) and C-M-1 (Low Bulk Commercial Light Manufacturing).

The area surrounding the site is residential to the northeast, east, and south. Emerson Park Phase 1 currently is under construction immediately to the north of the site. Industrial uses, including the Thos. Somerville Co., are located to the west and northwest of the site. Access to the Thos. Somerville Co. is provided via 6th Street. The main access is located at the Puerto Rico Avenue/6th Street/Buchanan Street intersection. A secondary access is provided further north on 6th Street.

TRANSPORTATION FACILITIES

Roadway Network

Regional access to the site would be provided via Riggs Road, New Hampshire Avenue, Eastern Avenue, and South Dakota Avenue. Emerson Street, 6th Place/Gallatin Street, 8th Street, Faraday Street, Delafield Street, and Buchanan Street provide local vehicular access. A description of roadways in the immediate study area is provided below. The existing lane use and traffic control for each study intersection is shown on Figure 2-1.

South Dakota Avenue is a four-lane, undivided principal arterial with a posted speed limit of 25 miles per hour (mph) in the vicinity of the site. This facility provides a major northeast-southwest connection in the City, carrying an average daily traffic volume of 16,500 vpd between Delafield Street and 11th Street.

Buchanan Street is a two-lane collector roadway. Between 7th Street and 8th Street, Buchanan Street carries an average daily traffic volume of 2,700 vpd.[1] A 15-mph school zone speed limit is posted between 7th Street and 8th Street.

Delafield Street is a two-lane local roadway. A 15-mph speed limit is posted on the roadway. Between South Dakota Avenue and 8th Street, Delafield Street is one-way eastbound. The intersection of Delafield Street and South Dakota Avenue is controlled by a traffic signal.

Emerson Street is a two-lane local roadway with a posted speed limit of 25-mph within the site vicinity. Emerson Street dead-ends just west of the proposed site. The roadway is posted "No Through Trucks Over 1-¼ Ton Capacity" in both the eastbound and westbound directions.

Puerto Rico Avenue is a two-lane collector roadway that extends from Buchanan Street to Taylor Street. North of Buchanan Street, the roadway is named 6th Street and dead ends at the driveway for the Thos. Somerville Co..

6th Place is a two-lane local roadway that runs between Emerson Street and Gallatin Street north of the subject site. 6th Place is posted "No Through Trucks" in both the northbound and southbound direction. South of the subject site, 6th Place intersects Buchanan Street and provides access to a small circle of homes. Sixth Place does not connect Buchanan Street and Emerson Street.

8th Street is a two-lane local roadway with a posted speed limit of 25-mph in the vicinity of the site. At its intersection with South Dakota Avenue, 8th Street is controlled by a stop sign. The roadway is posted "No Through Trucks Over 1-¼ Ton Capacity" in both the northbound and southbound directions.

Public Transportation Facilities and Services

The subject site is located approximately ¼-mile "as the crow flies" from the Fort Totten Metro Station. The Red and Green lines provide service at the Fort Totten Station.

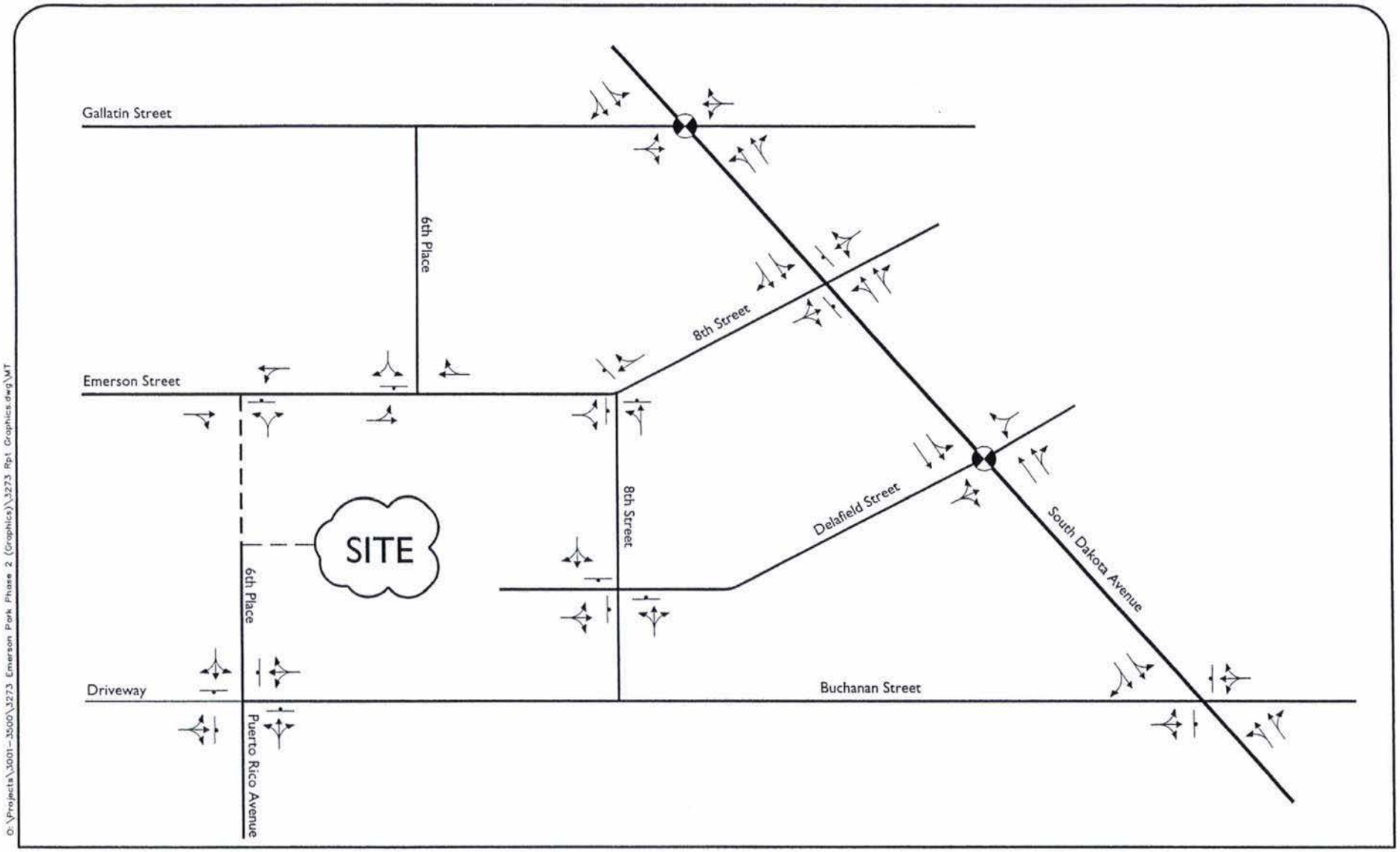

Figure 2-1
Existing Lane Use and Traffic Control

← Represents One Travel Lane
Signalized Intersection
Stop Sign

North

Emerson Park - Phase 2
Washington, D.C.

WELLS & ASSOCIATES, LLC
TRAFFIC, TRANSPORTATION, and PARKING CONSULTANTS

The area also is served by several Metrobus routes. The North Capitol Street Line (Metrobus Route 80) currently provides bus service in the immediate study area. Bus stops are located on South Dakota Avenue at its intersections with 8th Street and Delafield Street and at the intersection of South Dakota Avenue and Gallatin Street. Route 80 provides service to the Fort Totten Metro Station, the Brookland-CUA Metro Station, the Gallery Place-Chinatown Metro Station, the McPherson Square Metro Station, and the Farragut North and West Metro Stations.

The Military Road – Crosstown Line (Route E2/E3) also provides service in the area with stops at the intersection of South Dakota Avenue and Gallatin Street. The route provides service to the Friendship Heights and Fort Totten Metro Stations, Ivy City, and Riggs Park.

Additionally, the Brookland and Bunker Hill School Line (Metrobus Route B51) provides service to Brookland School and Bunker Hill School when public school is in session. The nearest stops to the subject site are located at the Buchanan Street/12th Street and South Dakota Avenue/Gallatin Street intersections.

North of the site, at the Fort Totten Metro Station, several additional routes also can be accessed. They include the Fort Totten – Petworth Line (Route 60/64), the Greenbelt – Fort Totten Line (Route R3), the Takoma – Fort Totten Line (Route K2, and the New Hampshire Avenue – Maryland Line (Route K6).

Pedestrian Routes

Sidewalks currently are present within the existing residential neighborhoods adjacent to the Emerson Park development. Specifically, sidewalks are present along 6th Place (north of Emerson Street), Emerson Street, Faraday Place, Farragut Place, Decatur Place, Decatur Street (west of 10th Street), 7th Street, 8th Street, Delafield Street, and Buchanan Street (east of 7th Street).

Bicycle Routes

DDOT published a draft District of Columbia Bicycle Master Plan in August 2002.[2] That document evaluates existing bicycling facilities, policies, and other bicycle-related matters. It also establishes goals, makes recommendations for achieving those goals, and presents an implementation plan.

According to the Master Plan, the Bicycle Level of Service (BLOS) on South Dakota Avenue and on Buchanan Street in the vicinity of the site is BLOS "D".

The Plan recommends a new multi-use trail north of the site on Galloway Street and recommends a multi-use trail connection located west of the site along the west side of the CSX Railroad tracks. The multi-use trail recommendations are shown on Figure 2-2.

TRAFFIC VOLUMES

Turning movement counts were conducted at the following intersections on Tuesday, July 11, 2006 from 6:30 AM to 9:30 AM and from 4:00 PM to 7:00 PM:

- South Dakota Avenue/8th Street
- South Dakota Avenue/Delafield Street
- Buchanan Street/6th Street
- Emerson Street/6th Place
- Emerson Street/Driveway to Industrial Use
- Emerson Street/8th Street
- Delafield Street/8th Street

Based on the data collected, a common AM peak hour and a common PM peak hour were selected for the entire study area. The common AM peak hour occurred from 7:45 AM to 8:45 AM and the common PM peak hour occurred from 5:30 PM to 6:30 PM.

Turning movement counts were conducted at the South Dakota Avenue/Gallatin Street and South Dakota Avenue/Buchanan Street intersections on Tuesday, August 1, 2006 from 7:15 AM to 8:45 AM and from 4:45 PM to 6:45 PM.

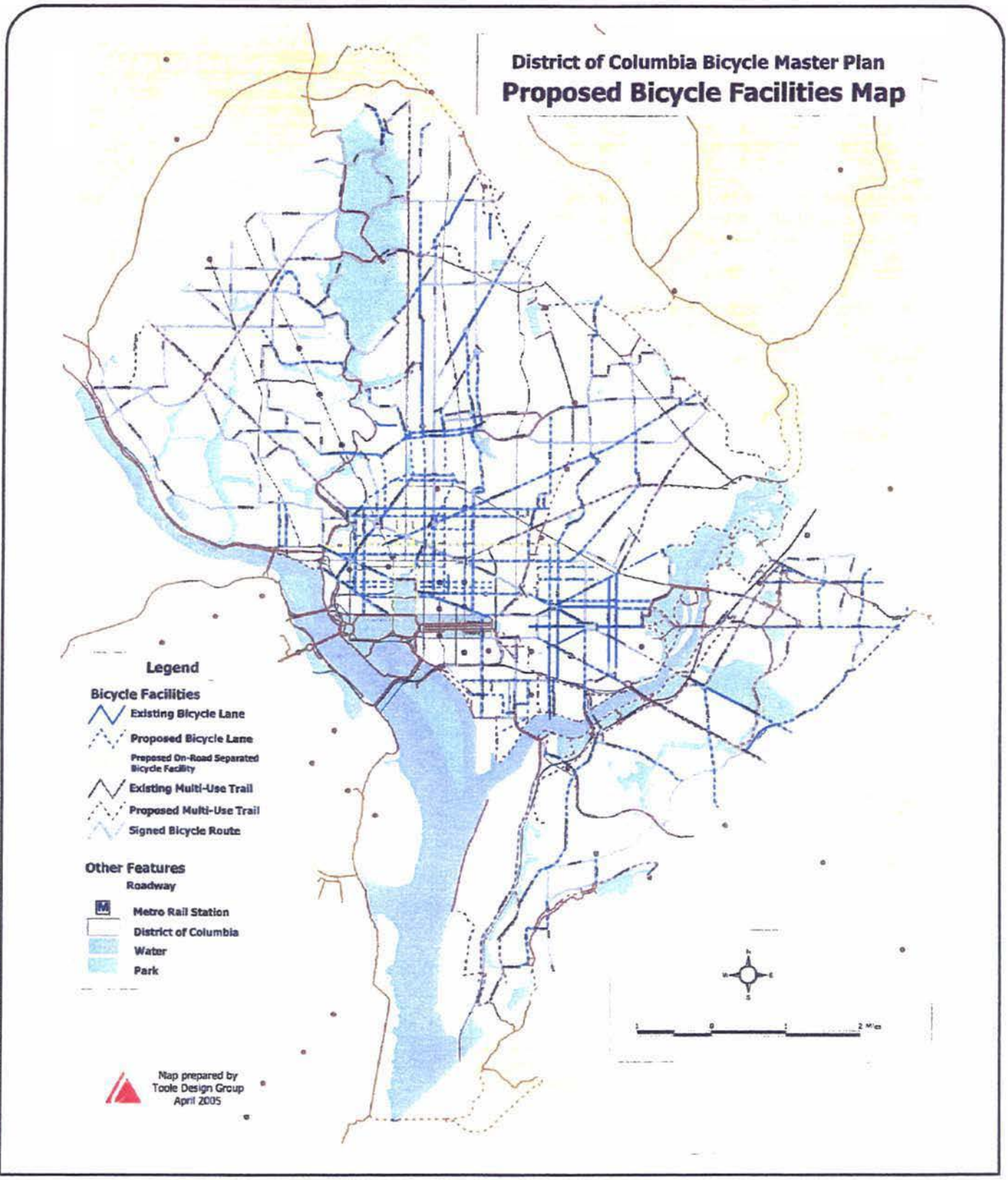

Figure 2-1
Proposed Bicylcle Facilities Map

North

Emerson Park - Phase 2
Washington, D.C.

WELLS & ASSOCIATES, LLC
TRAFFIC, TRANSPORTATION, and PARKING CONSULTANTS

The counts for the South Dakota Avenue/8th Street, South Dakota Avenue/Delafield Street, and Emerson Street/6th Place intersections were compared to counts obtained in February 2004 and were found to be lower. Therefore, the February 2004 counts were used for these intersections. A growth rate of one percent per year, compounded annually, was used to factor the 2004 counts to 2006.

The traffic volumes at adjacent intersections also were increased to balance with adjacent intersections with some allowance for driveways or roadways located between the study intersections.

Peak hour baseline traffic volumes are summarized on Figure 2-3. Traffic count data are included in Appendix B.

LICENSE PLATE SURVEY

To help determine the volume of existing traffic that may be re-routed as the result of the proposed private road connecting Emerson Street and 6th Street/Puerto Rico Avenue, a license plate survey was conducted at select locations to determine what percentage, if any, of traffic entering the study area currently is cut-through traffic between South Dakota Avenue and the Taylor Street Bridge. To gain a representative sample, license plates were recorded from 6:30 AM to 9:30 AM and from 4:00 PM to 7:00 PM on July 11, 2006 at the following locations:

- Southbound right turn from South Dakota Avenue onto Decatur Street
- Southbound right turn from South Dakota Avenue onto 13th Street
- Eastbound left turn from Decatur Street onto South Dakota Avenue
- Eastbound left turn from 13th Street onto South Dakota Avenue
- Eastbound at the Taylor Street Bridge
- Westbound at the Taylor Street Bridge

License plates recorded for the southbound right turn movements from South Dakota Avenue onto Decatur Street and 13th Street were compared to the license plates recorded for the westbound movement at the Taylor Street Bridge. Likewise, license plates recorded for the northbound left turn movements from Decatur Street and 13th Street onto South Dakota Avenue were compared to the license plates recorded for the eastbound movement at the Taylor Street Bridge.

Based on the data collected, the amount of cut-through traffic between South Dakota Avenue and the Taylor Street Bridge was determined to be negligible. This may be attributable to the number of all-way stops that motorists would incur making the cut-through less desirable.

OPERATIONAL ANALYSIS

Capacity/level of service (LOS) analyses were conducted at the study intersections based on the existing lane use and traffic control shown on Figure 2-1, existing vehicular traffic volumes shown on Figure 2-3, and existing DDOT traffic signal timings provided in Appendix C.
Highway Capacity Software (HCS) versions 4.1d (unsignalized intersections) and 4.1e (signalized intersections) were used to evaluate levels of service at each of the study intersections during the AM and PM peak hours. The levels of service reported were based on methodology published in the Highway Capacity Manual (HCM).[3] Level of service descriptions are provided in Appendix D.

The HCS worksheets are presented in Appendix E and summarized in Table 2-1.

As shown in Table 2-1, the following intersections currently operate at acceptable levels of service (i.e. LOS D or better) and have additional capacity to accommodate increases in traffic:

- Emerson Street/Existing Driveway (Phase I Site)
- Emerson Street/6th Place
- 8th Street/Emerson Street
- South Dakota Avenue/Delafield Street
- 8th Street/Delafield Street
- Buchanan Street/6th Street
- South Dakota Avenue/Gallatin Street

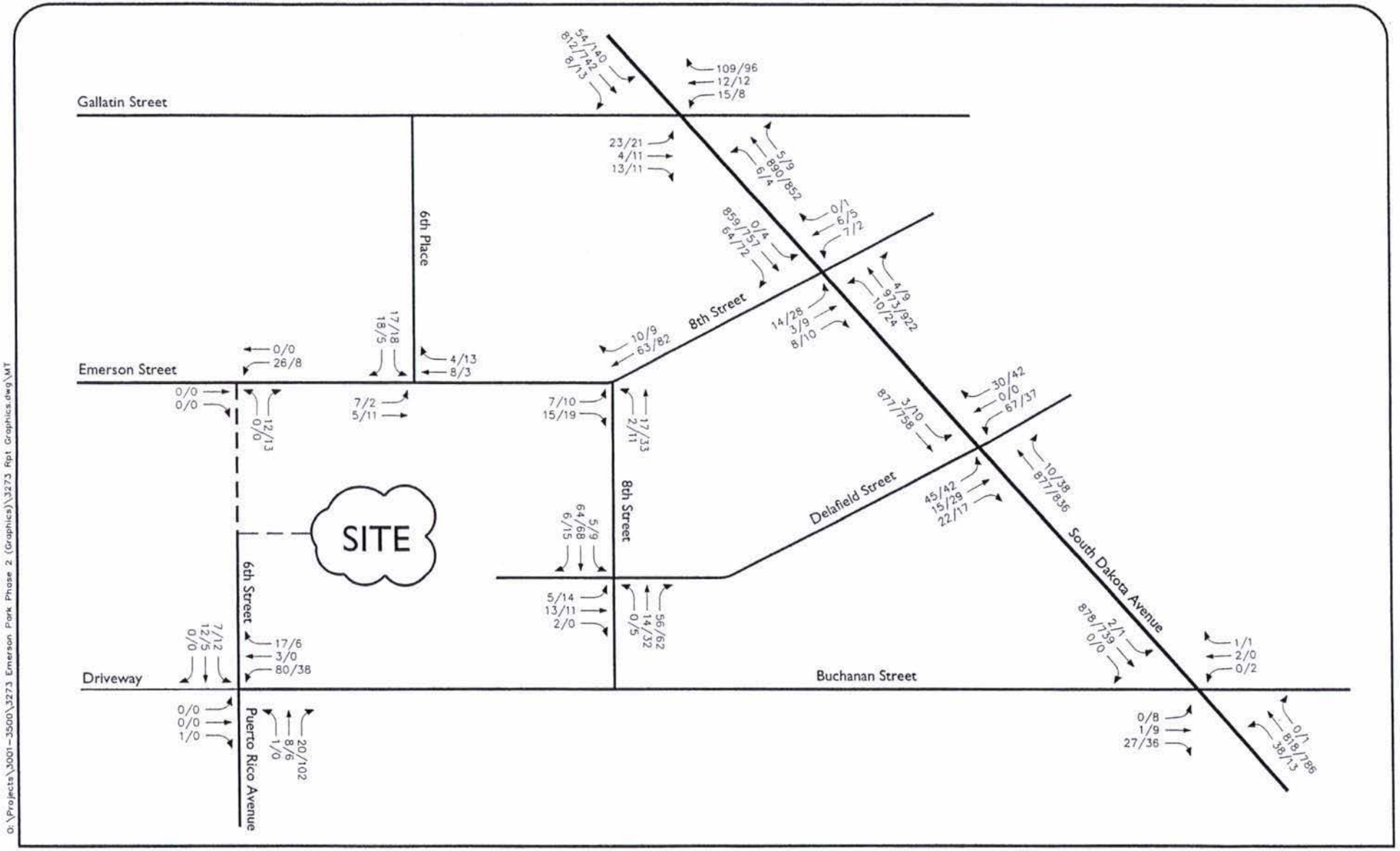

Figure 2-3
Existing Peak Hour Traffic Volumes

Emerson Park - Phase 2
Washington, D.C.

WELLS & ASSOCIATES, LLC
TRAFFIC, TRANSPORTATION, and PARKING CONSULTANTS

O:\Projects\3001-3500\3273 Emerson Park Phase 2 (Graphics)\3273 Rpt Graphics.dwg\MT

Each lane group at these intersections operates at a LOS D or better during both the AM and PM peak hours.

As shown in Table 2-1, the South Dakota Avenue/8th Street and South Dakota Avenue/Buchanan Street intersections have lane groups that are operating deficiently under existing conditions.

Table 2-1
Existing Levels of Service

Approach	AM Peak	PM Peak
Emerson Street/Existing Driveway		
WBLT	A [7.3]	A [7.2]
NBLR	A [8.4]	A [8.4]
Emerson Street/6th Place		
EBLT	A [7.3]	A [7.3]
SBLR	A [8.6]	A [8.7]
8th Street/Emerson Street		
EBLR	A [6.88]	A [7.07]
NBLT	A [7.17]	A [7.39]
SBTR	A [7.30]	A [7.49]
OVERALL	A [7.20]	A [7.39]
South Dakota Avenue/8th Street		
EBLTR	F [61.3]	F [87.7]
WBLTR	F [85.9]	F [66.9]
NBLT	B [10.4]	B [10.1]
SBLT	B [10.6]	B [10.4]
South Dakota Avenue/Delafield Street		
EBLTR	C (30.4)	C (30.5)
WBLR	C (32.2)	C (31.0)
NBTR	A (9.3)	A (9.3)
SBLT	A (9.5)	A (8.9)
OVERALL	B (11.4)	B (11.1)
8th Street/Delafield Street		
EBLTR	A [7.35]	A [7.62]
NBLTR	A [6.87]	A [7.19]
SBLTR	A [7.42]	A [7.53]
OVERALL	A [7.18]	A [7.39]
Buchanan Street/6th Street		
EBLTR	A [6.52]	A [7.25]
WBLTR	A [7.71]	A [7.56]
NBLTR	A [6.98]	A [6.95]
SBLTR	A [7.58]	A [7.38]
OVERALL	A [7.55]	A [7.15]

[23.3] = unsignalized intersection control delay in veh/sec
(23.3) = signalized intersection control delay in veh/sec

Table 2-1 (continued)
Existing Levels of Service

Approach	AM Peak	PM Peak
South Dakota Avenue/Buchanan Street		
EBLTR	B [14.4]	D [25.7]
WBLTR	E [50.0]	D [32.7]
NBLT	B [10.5]	A [9.6]
SBLT	A [9.9]	A [9.7]
South Dakota Avenue/Gallatin Street		
EBLTR	D (38.1)	D (37.7)
WBLTR	D (45.4)	D (42.9)
NBLTR	B (13.8)	B (13.5)
SBLTR	A (7.3)	A (8.6)
OVERALL	B (13.6)	B (13.5)

[23.3] = unsignalized intersection control delay in veh/sec
(23.3) = signalized intersection control delay in veh/sec

PEAK HOUR WARRANT ANALYSIS

In accordance with the Manual on Uniform Traffic Control Devices (MUTCD),[4] an evaluation of the peak hour traffic signal warrant was conducted for the South Dakota Avenue/8th Street and South Dakota Avenue/Buchanan Street intersections. This analysis showed that the peak hour traffic signal warrant is not met for either of these intersections under the existing traffic volumes during the AM or PM peak hours. The traffic signal warrant analysis is included in Appendix F.

Section 3
FUTURE BACKGROUND CONDITIONS

LAND USE

In addition to the Emerson Park Phase 2 development, three other residential developments are planned in and around the study area and were considered as part of the background traffic growth. Emerson Park Phase 1 is proposed (and currently is under construction) on the south side of Emerson Street between 7th Street and the CSX Rail Lines and will consist of 16 duplexes permitted as a matter-of-right under the existing R-2 zoning and 75 townhouses proposed under the approved PUD.

Clark Realty Capital has plans to construct a 356-unit apartment complex known as the Fort Totten Park Apartments, on 3rd Street between Hamilton Street and Kennedy Street.

The Cafritz Foundation also plans to construct a residential development on a tract of land bounded by South Dakota Avenue on the east, Galloway Street on the south, the Clark property on the west, and Kennedy Street on the north. At full build-out, the development will consist of 1,027 apartment units housed in several different buildings along with community serving retail space, a grocery store, and a day care facility. However, only Phase A (Fort Totten Towers) of the proposed development is expected to be complete by 2009. The existing 233 apartments comprising Riggs Plaza would be razed to accommodate the proposed redevelopment.

The location of each pipeline development is shown on Figure 3-1.

FUTURE BACKGROUND TRAFFIC FORECASTS

In order to account for regional traffic growth outside the immediate site vicinity, an annual growth rate was determined. Based on previous traffic studies in the area, a one percent growth rate, compounded annually over three years, was applied to the 2006 baseline traffic volumes. The resulting volumes are shown on Figure 3-2.

Additionally, traffic volumes from three planned developments were included in the future traffic forecasts. The number of trips that would be generated by these pipeline developments was taken from the traffic impact study for the respective development, as noted below.

The Emerson Park Phase 1 matter-of-right development is projected to generate six AM peak hour vehicle-trips, seven PM peak hour vehicle-trips, and 67 daily vehicle-trips, based on the Traffic Impact Study for the Emerson Street Townhouses.[5] The Emerson Park Phase 1 PUD is projected to generate 20 AM peak hour vehicle-trips and 30 PM peak hour vehicle-trips, based on the Traffic Impact Study for the Emerson Street Townhouses.[6]

According to the Fort Totten Metro Apartments Traffic Impact Study and subsequent updates[7] the Fort Totten Park Apartments development is projected to generate 119 AM peak hour vehicle-trips and 142 PM peak hour vehicle-trips.

Phase 1 of the Cafritz – Fort Totten development is projected to generate 57 AM peak hour vehicle-trips and 71 PM peak hour vehicle-trips based on the Draft Transportation Impact Study for the Fort Totten Redevelopment.[8]

The trip generation for each pipeline development is summarized in Table 3-1.

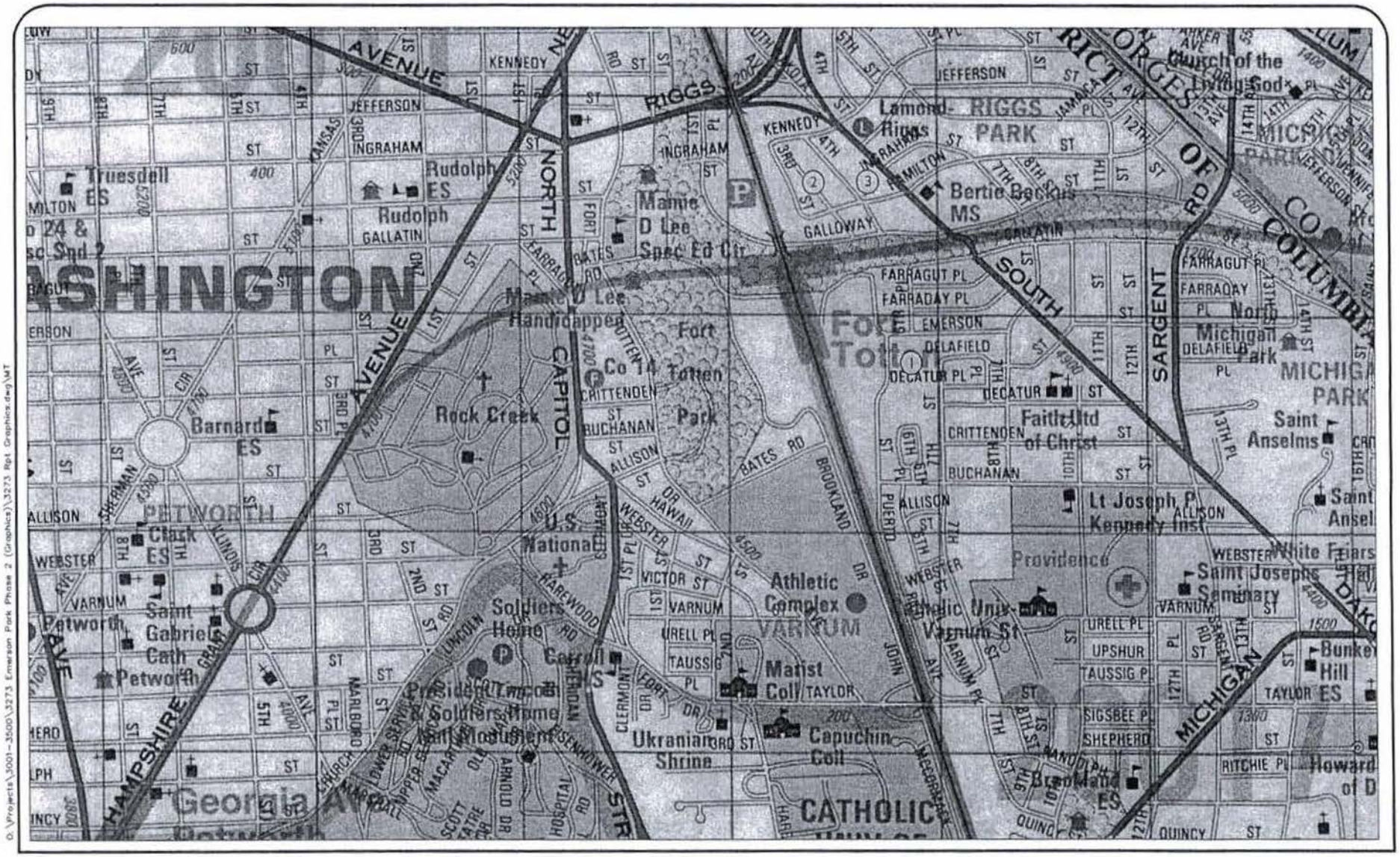

Figure 3-1
Pipeline Location Map

① Emerson Park - Phase 1
② Fort Totten Park Apartments (Clark)
③ Fort Totten Apartments (Cafritz)

North

Emerson Park - Phase 2
Washington, D.C.

WELLS & ASSOCIATES, LLC
TRAFFIC, TRANSPORTATION, and PARKING CONSULTANTS

O:\Projects\3001-3500\3273 Emerson Park Phase 2 (Graphics)\3273 Rpt Graphics.dwg\MT

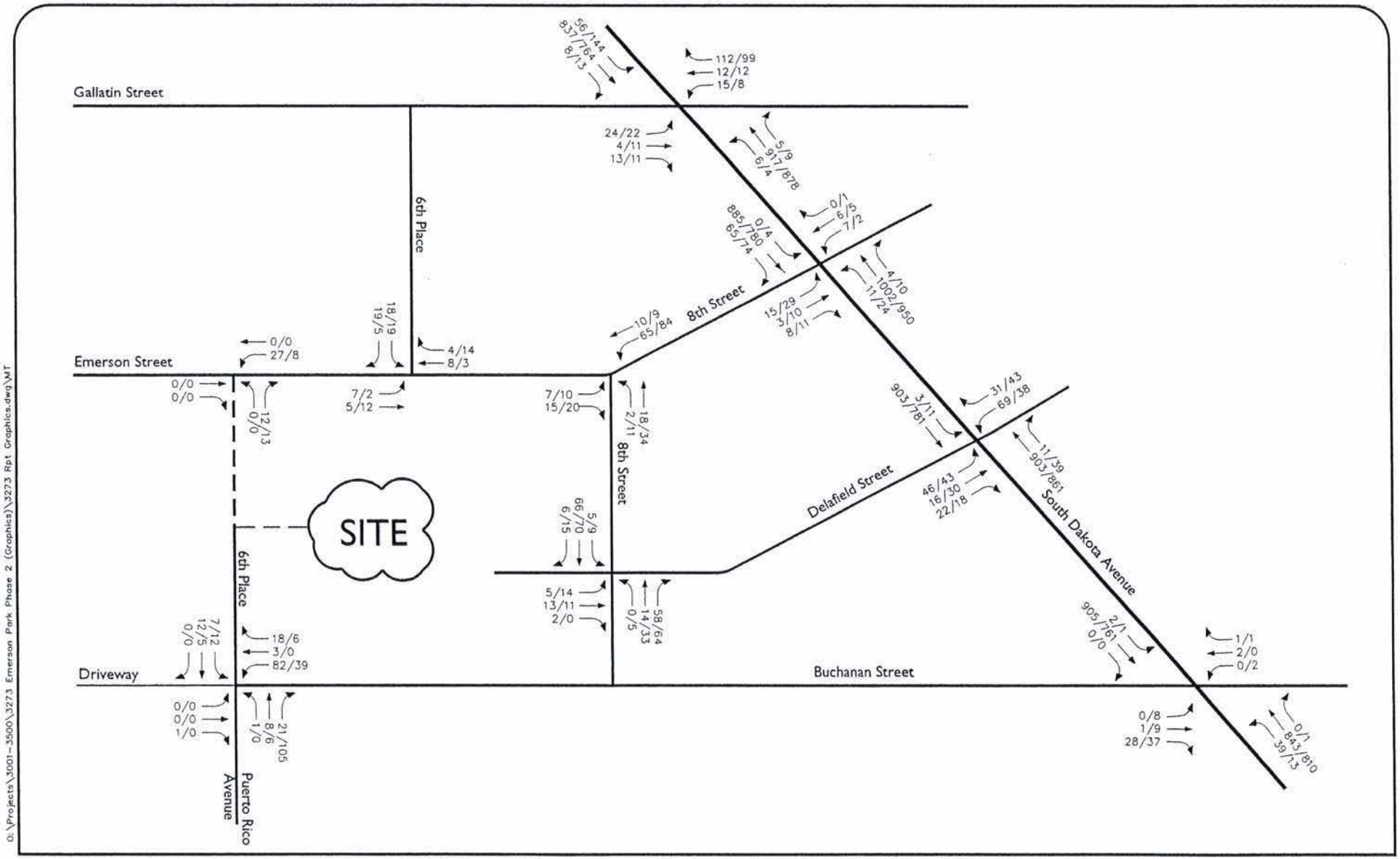

Figure 3-2
2009 Peak Hour Regional Growth Traffic Forecasts

Emerson Park - Phase 2
Washington, D.C.

WELLS & ASSOCIATES, LLC
TRAFFIC, TRANSPORTATION, and PARKING CONSULTANTS

0:\Projects\3001-3500\3273 Emerson Park Phase 2 (Graphics)\3273 Rpt Graphics.dwg\MT

Table 3-1
Pipeline Development Trip Generation Summary

Land Use	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Emerson Park Phase I						
16 Duplexes	2	9	11	9	5	14
75 Townhouses	3	17	20	20	10	30
Fort Totten Park Apartments (Clark)						
373 Apartments	20	99	119	95	47	142
Fort Totten Towers (Cafritz)						
229 Apartments	11	46	57	45	25	71

The traffic assignments associated with each of the pipeline developments are included in Appendix G. The combined peak hour site trips associated with the pipelines is shown on Figure 3-3.

The factored traffic volumes shown on Figure 3-2 were combined with the pipeline developments traffic assignments shown on Figure 3-3 to yield the 2009 future background traffic forecasts shown on Figure 3-4.

OPERATIONAL ANALYSIS

Capacity/level of service (LOS) analyses were conducted at the study intersections based on the existing lane use and traffic control shown on Figure 2-1, future background traffic forecasts shown on Figure 3-4, and existing DDOT traffic signal timings provided in Appendix C.

Highway Capacity Software (HCS) versions 4.1d and 4.1e were used to evaluate levels of service at each of the study intersections during the AM and PM peak hours. The levels of service reported were based on methodology published in the Highway Capacity Manual (HCM).[9]

The HCS worksheets are presented in Appendix H and summarized in Table 3-2.

As shown in Table 3-2, under 2009 conditions without the proposed residential development, the levels of service at the majority of the study intersections would remain unchanged from the levels of service under existing conditions. However, the levels of service at the South Dakota Avenue/8th Street and South Dakota Avenue/Buchanan Street intersections would continue to operate with deficiencies under background conditions.

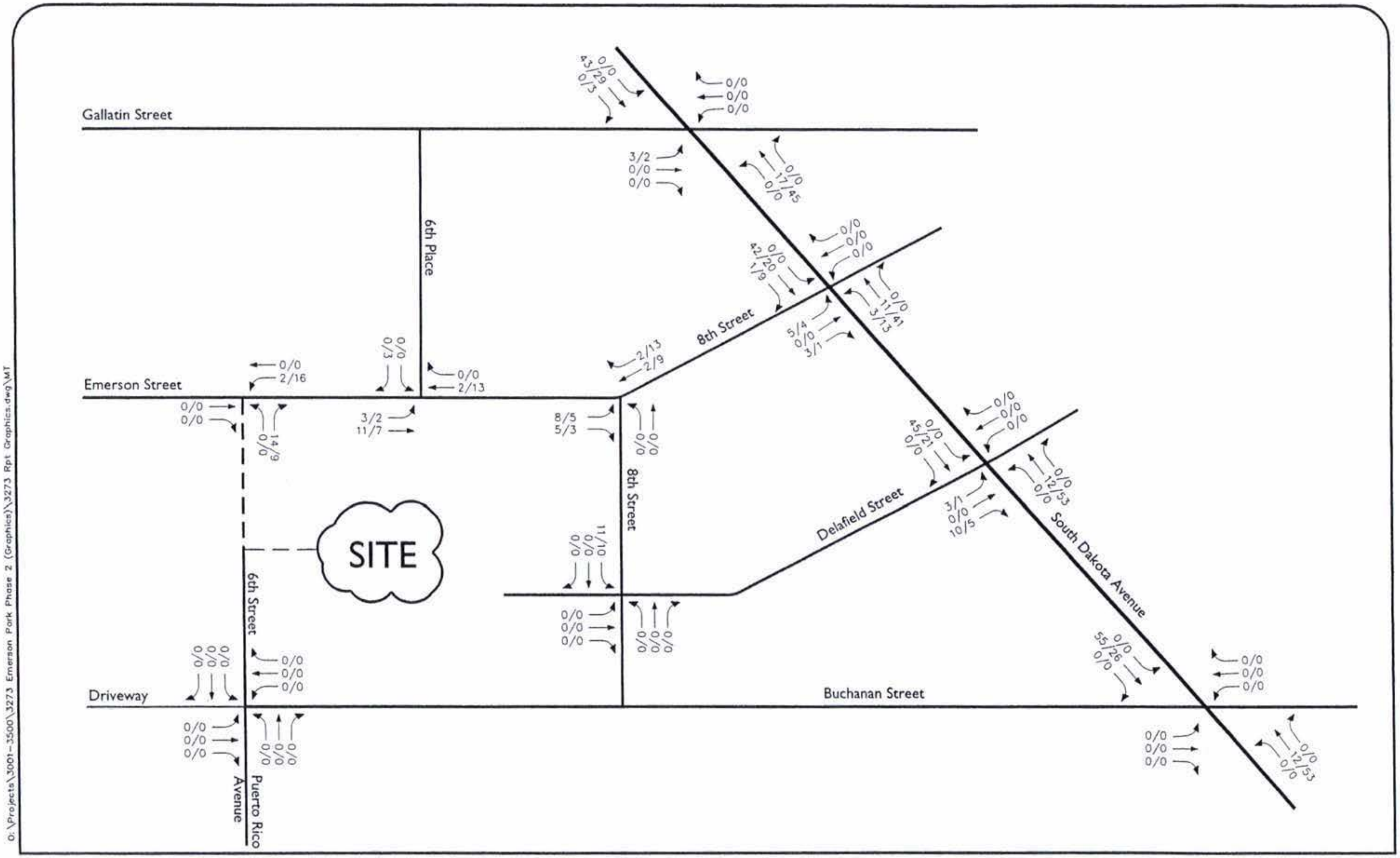

Figure 3-3
Peak Hour Site Trip Assignments - Pipeline Developments

Emerson Park - Phase 2
Washington, D.C.

WELLS & ASSOCIATES, LLC
TRAFFIC, TRANSPORTATION, and PARKING CONSULTANTS

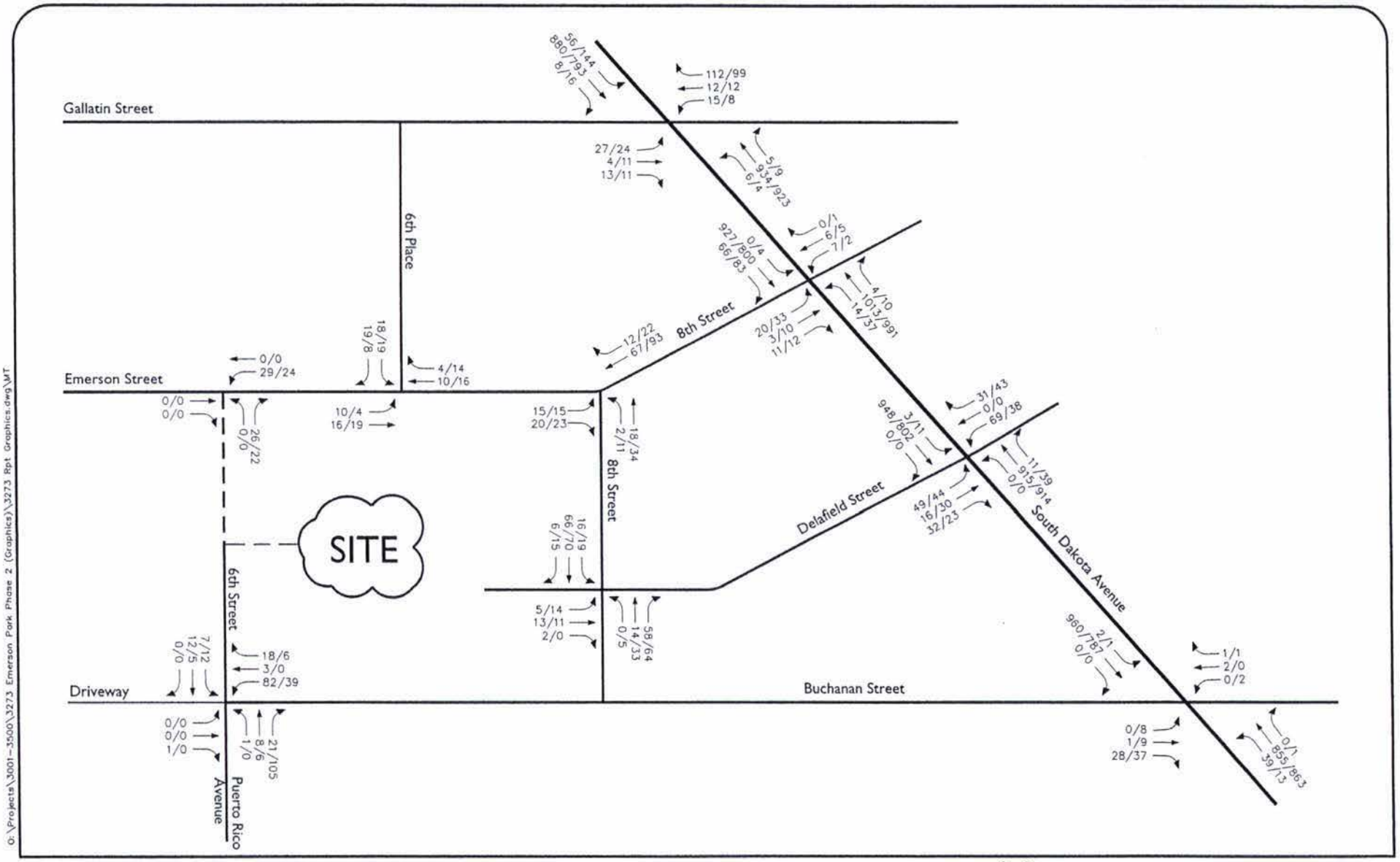

Figure 3-4
2009 Background Peak Hour Traffic Forecasts

Emerson Park - Phase 2
Washington, D.C.

WELLS & ASSOCIATES, LLC
TRAFFIC, TRANSPORTATION, and PARKING CONSULTANTS

O:\Projects\3001-3500\3273 Emerson Park Phase 2 (Graphics)\3273 Rpt Graphics.dwg\WT

Table 3-2
Background Levels of Service

Approach	AM Peak	PM Peak
Emerson Street/Existing Driveway		
WBLT	A [7.3]	A [7.3]
NBLR	A [8.4]	A [8.4]
Emerson Street/6th Place		
EBLT	A [7.3]	A [7.3]
SBLR	A [8.7]	A [8.8]
8th Street/Emerson Street		
EBLR	A [7.07]	A [7.21]
NBLT	A [7.22]	A [7.44]
SBTR	A [7.36]	A [7.60]
OVERALL	A [7.26]	A [7.49]
South Dakota Avenue/8th Street		
EBLTR	F [92.8]	F [155.1]
WBLTR	F [108.6]	F [90.2]
NBLT	B [10.9]	B [10.5]
SBLT	B [10.9]	B [10.8]
South Dakota Avenue/Delafield Street		
EBLTR	C (30.9)	C (30.8)
WBLR	C (32.4)	C (31.1)
NBTR	A (9.5)	A (9.7)
SBLT	A (9.9)	A (9.2)
OVERALL	B (11.8)	B (11.4)
8th Street/Delafield Street		
EBLTR	A [7.39]	A [7.66]
NBLTR	A [6.89]	A [7.23]
SBLTR	A [7.54]	A [7.65]
OVERALL	A [7.26]	A [7.46]
Buchanan Street/6th Street		
EBLTR	A [6.53]	A [7.26]
WBLTR	A [7.76]	A [7.57]
NBLTR	A [6.99]	A [6.96]
SBLTR	A [7.59]	A [7.39]
OVERALL	A [7.58]	A [7.16]

[23.3] = unsignalized intersection control delay in veh/sec
(23.3) = signalized intersection control delay in veh/sec

Table 3-2 (continued)
Background Levels of Service

Approach	AM Peak	PM Peak
South Dakota Avenue/Buchanan Street		
EBLTR	C [15.5]	D [30.0]
WBLTR	F [60.4]	E [39.3]
NBLT	B [11.0]	A [9.8]
SBLT	B [10.0]	B [10.1]
South Dakota Avenue/Gallatin Street		
EBLTR	D (38.7)	D (38.1)
WBLTR	D (45.8)	D (43.1)
NBLTR	B (14.2)	B (14.1)
SBLTR	A (8.1)	A (9.6)
OVERALL	B (14.0)	B (14.3)

[23.3] = unsignalized intersection control delay in veh/sec
(23.3) = signalized intersection control delay in veh/sec

PEAK HOUR WARRANT ANALYSIS

In accordance with the Manual on Uniform Traffic Control Devices (MUTCD),[10] an evaluation of the peak hour traffic signal warrant was conducted for the South Dakota Avenue/8th Street and South Dakota Avenue/Buchanan Street intersections. This analysis showed that the peak hour traffic signal warrant is not met for either of these intersections under the projected background traffic volumes during the AM or PM peak hours. The traffic signal warrant analysis is included in Appendix F.

Section 4
SITE ANALYSIS

TRIP GENERATION ANALYSIS

The number of trips anticipated to be generated by the proposed residential development (35 townhouses) was estimated based on ITE's Trip Generation.[11] Land Use Code 230, Residential Condominium/Townhouse, was used with the number of dwelling units as the independent variable.

A portion of the trips generated by the Emerson Park Phase 2 development would be made via non-auto modes of transportation. The percentage of site-generated trips that would utilize public transportation is dependent on the proximity of the site to transit stops and the degree to which the use of public transit is encouraged, such as by implementation of a transportation demand management (TDM) program.

According to WMATA's 2005 Ridership Survey, the transit mode share for residential developments is related to the distance from the development to the nearest transit station. In this case, the transit mode share was determined to be 32 percent. Additionally, based on information contained in the Ridership Survey, Metrobus, other transit, walking, and other non-auto forms of transportation were assumed to account for 18 percent of residential trips, on average at non-CBD locations inside the beltway. Therefore, a non-auto mode split of 50 percent was used.

The average auto occupancy was projected at 1.3 persons per vehicle.

As shown in Table 4-1, the Emerson Park Phase 2 development is expected to generate a total of 11 AM peak hour vehicle-trips, 14 PM peak hour-vehicle trips, and 129 daily vehicle-trips at project build out.

Table 4-1
Site Trip Generation Summary

Land Use	AM Peak			PM Peak			ADT
	In	Out	Total	In	Out	Total	
Emerson Park Phase 2							
Vehicle Trips	4	18	22	19	10	29	263
Person Trips[1]	4	24	28	25	12	37	336
Site Specific Vehicle Trips[2]	2	9	11	9	5	14	129

[1] Based on a non-auto mode split of 10% and an average auto occupancy of 1.15.
[2] Based on a non-auto mode split of 50% and an average auto occupancy of 1.30.

SITE TRIP DISTRIBUTION

The distribution of peak hour trips generated by the proposed development was based on existing traffic patterns in the study area and the premise that commuters will select routes that minimize travel time. The distribution of site trips also accounted for the proposed private road connecting Emerson Street and 6th Street/Puerto Rico Avenue.

An estimated 35 percent of the site-generated traffic would approach/depart the site to/from the north on South Dakota Avenue via 8th Street, while an estimated 15 percent would approach/depart the site to/from the north on South Dakota Avenue via Gallatin Street and 6th Place.

Approximately 32 percent of site-generated traffic would approach/depart the site to/from the southeast via South Dakota Avenue, while an estimated 18 percent would approach/depart the site to/from the south on Puerto Rico Avenue.

SITE TRAFFIC ASSIGNMENTS

The site-generated traffic volumes were assigned to the public roadway network according to the directional distribution described above. The resulting site traffic assignments are shown on Figure 4-1.

PROPOSED SITE ACCESS

Vehicular access to the site would be provided via a private road connecting Emerson Street to 6th Street/Puerto Rico Avenue, through Phase 1. Direct access to each townhouses would be provided to/from the internal, private roadway network.

PEDESTRIAN ACCESS

Due to the development's proximity to the Fort Totten Metro Station, pedestrian accommodations will be essential. Pedestrian activity will be promoted and facilitated by connecting sidewalks within the proposed development to existing sidewalks along 6th Place, north of the site. Sidewalks are also proposed along 6th Street, south of the proposed site.

Figure 4-2 shows the proposed pedestrian circulation plan.

PARKING REQUIREMENTS

According to the District of Columbia Municipal Regulations (DCMR),[12] one parking space for each dwelling unit is required in the R-4 zoning district. Therefore, a total of 35 parking spaces is required for the Emerson Park Phase 2 development. The proposed development would provide a total of 77 parking spaces. As proposed, 53 parking spaces of the Phase 2 residential development would be contained in the garages of individual units. The remaining 24 parking spaces would be surface spaces provided throughout the development.

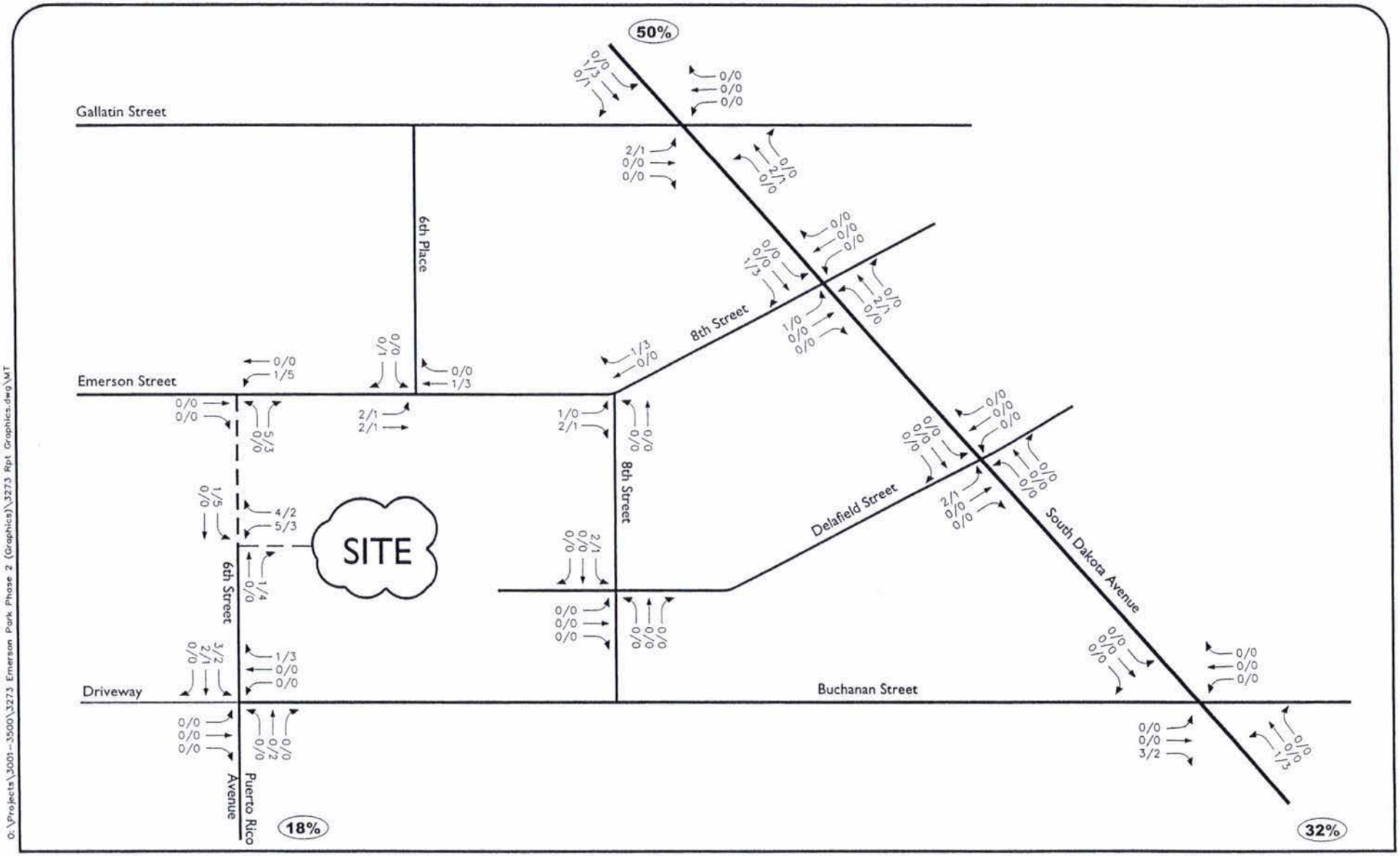

Figure 4-1
Site Trip Distribution and Assignment - Emerson Park Phase 2

AM PEAK HOUR
PM PEAK HOUR
000/000

North

Emerson Park - Phase 2
Washington, D.C.

WELLS & ASSOCIATES, LLC
TRAFFIC, TRANSPORTATION, and PARKING CONSULTANTS

O:\Projects\3001-3500\3273 Emerson Park Phase 2 (Graphics)\3273 Rpt Graphics.dwg\MT

O:\Projects\3001-3500\3273 Emerson Park Phase 2 (Graphics)\3273 Rpt Graphics.dwg\WT

Figure 4-2
Pedestrian Circulation Plan

North

Emerson Park - Phase 2
Washington, D.C.

WELLS & ASSOCIATES, LLC

Section 5
TOTAL FUTURE CONDITIONS

TOTAL FUTURE TRAFFIC FORECASTS

Total future traffic forecasts with the proposed development were determined by combining the 2009 background traffic forecasts shown in Figure 3-4 with the site traffic volumes shown on Figure 4-1 to yield the 2009 total future traffic forecasts shown on Figure 5-1.

6th Street/Puerto Rico Avenue Connection

To determine the volume of traffic that will utilize the proposed local road connecting Emerson Street and 6th Street/Puerto Rico Avenue, traffic generated by Emerson Park Phase 1 was re-routed. Consistent with the distributions utilized for Emerson Park Phase 2, 18 percent of the Phase 1 traffic was assumed to approach/depart the site from the south via Puerto Rico Avenue and the new connection. Approximately half of the Phase 1 traffic oriented to/from the southwest on South Dakota Avenue (16 percent) also was assumed to use the new connection. As a result, six AM peak hour vehicle-trips, ten PM peak hour vehicle-trips, and 65 daily vehicle-trips would be expected to use the proposed local roadway.

As previously mentioned, the license plate survey revealed negligible cut-through traffic through the study area under existing conditions. Therefore, traffic from South Dakota Avenue is not expected to divert across Emerson Street to utilize the new private roadway connection. Thus, the increase in vehicles on Emerson Street, east of 6th Place is expected to be negligible.

A percentage of traffic generated by the residential area north of Emerson Street and west of South Dakota Avenue would, however, be expected to utilize the new connection. The number of trips generated by the 256 existing homes was estimated utilizing the ITE Trip Generation[13] manual. Consistent with the methodology described in Section 4, a 50 percent mode split and an average vehicle occupancy of 1.3 people per vehicle were assumed.

Accordingly, the trip generation for the existing residential neighborhood was estimated at 54 vehicle-trips during the AM peak hour and 103 vehicle-trips during the PM peak hour. Of these, 18 percent, or ten vehicle-trips during the AM peak hour and 19 vehicle-trips during the PM peak hour were assumed to utilize the new connection. On a daily basis, 200 vehicle-trips from the existing residential neighbor hood would be expected to use the proposed local road.

Accounting for the existing traffic generated by the Thos. Somerville Co., which is estimated at 290 vpd, a portion of the Emerson Park Phase 1 and Phase 2 site traffic, and some re-routing of existing traffic (as described above), the average daily traffic volume (bi-directional) of the new connection is estimated at approximately 650 vpd. The breakdown of ADT is summarized below in Table 5-1.

Table 5-1
Breakdown of ADT
For Private Roadway Connection

Component	ADT (vpd)
6th Street – South of Phase 2 Site Access	
Existing	290
Re-routed Existing	200
Phase 1	88
Phase 2	64
Total	642
6th Street – North of Phase 2 Site Access	
Existing	230
Re-routed Existing	200
Phase 1	65
Phase 2	163
Total	658

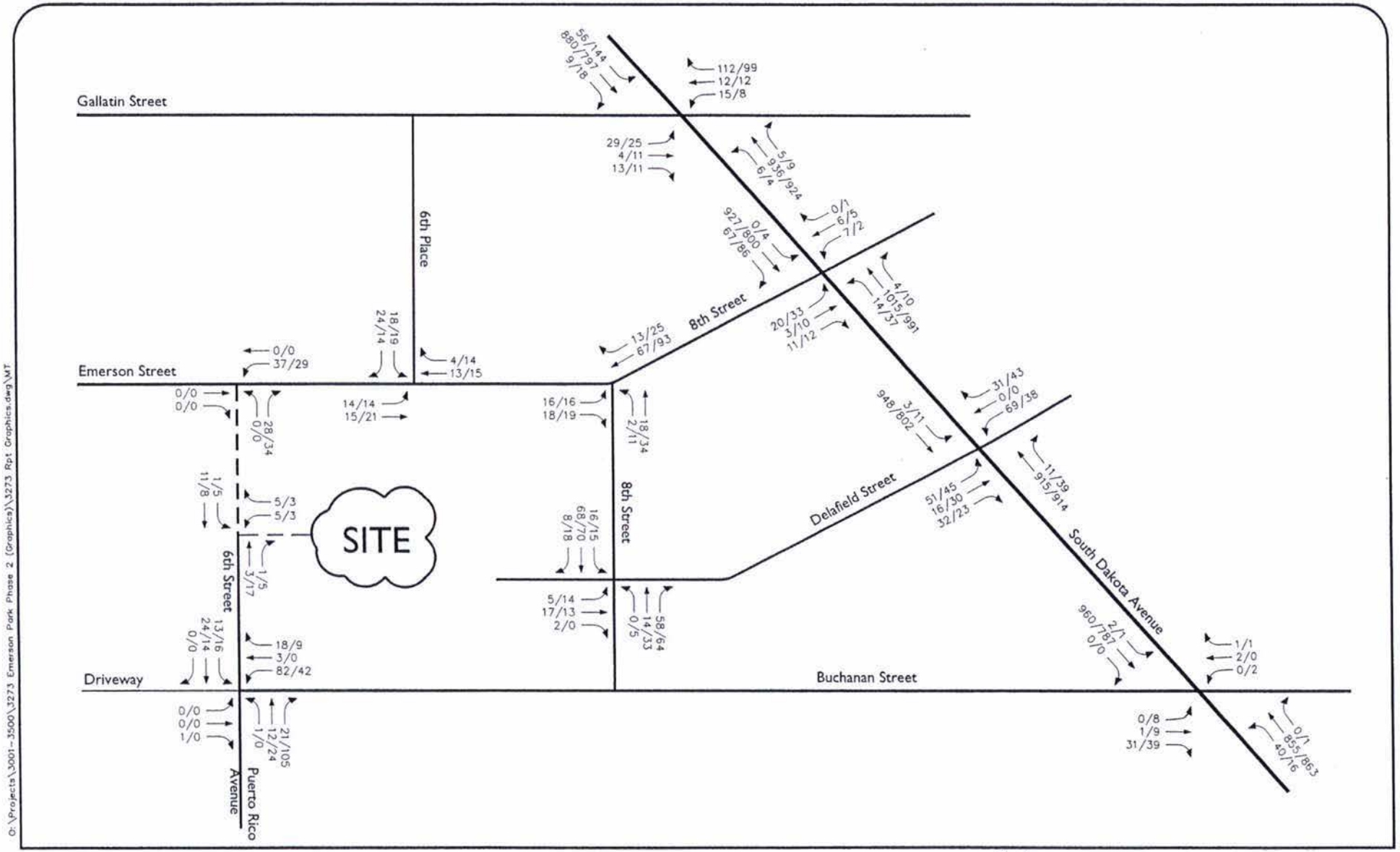

Figure 5-1
2009 Total Future Traffic Forecasts

Emerson Park - Phase 2
Washington, D.C.

WELLS & ASSOCIATES, LLC
TRAFFIC, TRANSPORTATION, and PARKING CONSULTANTS

O:\Projects\3001-3500\3273 Emerson Park Phase 2 (Graphics)\3273 Rpt Graphics.dwg\MT

The number of trucks utilizing the new connection is expected to be limited to trucks traveling to/from the Thos. Somerville Co. and delivery (e.g. FedEx, UPS) trucks and moving trucks traveling to/from Emerson Park. Truck access from the north would be significantly limited due to the weight limit restrictions posted on Emerson Street, 6th Place, and 8th Street.

Approximately ten trucks currently travel to/from the Thos. Somerville Co. during the AM peak hour. The facility closes at 2:00 PM; therefore, no trucks travel to/from the site during the PM peak hour.

TURN LANE EVALUATION

The need for a left-turn lane at the site driveway was evaluated using the Volume Warrants for Left Turn Storage Lanes at Unsignalized Grade Intersections by Harmelink.[14] Under the 2009 conditions with the proposed development, a left turn lane into the site would not be warranted at the site driveway. The detailed left-turn lane analysis is included in Appendix I.

OPERATIONAL ANALYSIS

A future conditions capacity analysis, with the proposed development, was performed at the study intersections utilizing 2009 projected total future traffic volumes shown on Figure 5-1, existing lane configurations and traffic controls shown on Figure 2-1, and existing DDOT traffic signal timings shown in Appendix C. The analysis is summarized in Table 5-2 and the results are included in Appendix J.

Table 5-2
Total Future Levels of Service

Approach	AM Peak	PM Peak
Emerson Street/Existing Driveway		
WBLT	A [7.3]	A [7.3]
NBLR	A [8.4]	A [8.4]
Emerson Street/6th Place		
EBLT	A [7.3]	A [7.3]
SBLR	A [8.8]	A [8.9]
8th Street/Emerson Street		
EBLR	A [7.10]	A [7.25]
NBLT	A [7.22]	A [7.44]
SBTR	A [7.36]	A [7.59]
OVERALL	A [7.27]	A [7.50]
South Dakota Avenue/8th Street		
EBLTR	F [92.8]	F [159.5]
WBLTR	F [108.6]	F [90.2]
NBLT	B [10.9]	B [10.5]
SBLT	B [10.9]	B [10.8]
South Dakota Avenue/Delafield Street		
EBLTR	C (31.0)	C (30.9)
WBLR	C (32.4)	C (31.1)
NBTR	A (9.5)	A (9.7)
SBLT	A (9.9)	A (9.2)
OVERALL	B (11.8)	B (11.4)

[23.3] = unsignalized intersection control delay in veh/sec
(23.3) = signalized intersection control delay in veh/sec

Table 5-2 (continued)
Total Future Levels of Service

Approach	AM Peak	PM Peak
8th Street/Delafield Street		
EBLTR	A [7.39]	A [7.67]
NBLTR	A [6.90]	A [7.23]
SBLTR	A [7.56]	A [7.65]
OVERALL	A [7.28]	A [7.47]
Buchanan Street/6th Street		
EBLTR	A [6.59]	A [7.34]
WBLTR	A [7.84]	A [7.65]
NBLTR	A [7.10]	A [7.20]
SBLTR	A [7.72]	A [7.46]
OVERALL	A [7.67]	A [7.35]
South Dakota Avenue/Buchanan Street		
EBLTR	C [15.4]	D [30.0]
WBLTR	F [62.1]	E [39.9]
NBLT	B [11.0]	A [9.8]
SBLT	B [10.0]	B [10.1]
South Dakota Avenue/Gallatin Street		
EBLTR	D (39.0)	D (38.2)
WBLTR	D (45.8)	D (43.1)
NBLTR	B (14.3)	B (14.1)
SBLTR	A (8.1)	A (9.7)
OVERALL	B (14.1)	B (14.3)
6th Street/Site Driveway		
WBLR	A [8.5]	A [8.6]
SBLT	A [7.2]	A [7.3]

[23.3] = unsignalized intersection control delay in veh/sec
(23.3) = signalized intersection control delay in veh/sec

As shown in Table 5-2, under 2009 conditions with the proposed residential development, all of the study intersections would continue to operate at levels of service consistent with the background conditions. Additionally, the increase in traffic at the Buchanan Street/Puerto Rico Avenue/6th Street intersection would not have an effect on the levels of service at the intersection.

PEAK HOUR WARRANT ANALYSIS

Although not needed from a mitigation standpoint, an evaluation of the peak hour traffic signal warrant was conducted for the South Dakota Avenue/8th Street and South Dakota Avenue/Buchanan Street intersections in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).[15] This analysis showed that the peak hour traffic signal warrant is not met for either of these intersections under the projected total future traffic volumes during the AM or PM peak hours. The traffic signal warrant analysis is included in Appendix F.

Section 6

CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations of this study are as follows:

1. Currently, all study intersections operate at acceptable levels of service (i.e. LOS D or better), with the exception of the following intersections:
   - South Dakota Avenue/8th Street
   - South Dakota Avenue/Buchanan Street
2. The South Dakota Avenue/8th Street and South Dakota Avenue/Buchanan Street intersections currently do not meet peak hour traffic signal warrants, nor will they under projected 2009 conditions with or without the proposed Emerson Park development.
3. Under background conditions (with pipeline developments), levels of service at the study intersections are expected to remain relatively unchanged from existing conditions during the AM and PM peak hours.
4. The Emerson Park Phase 2 development is anticipated to generate 11 AM peak hour vehicle-trips and 14 PM peak hour vehicle-trips.
5. Thirty-five on-site parking spaces would be required for the 35 residential units, according to the DCMR. A total of 77 on-site parking spaces, including garage spaces, driveway spaces, and visitor spaces, are proposed.
6. The proposed Phase 2 development will have a negligible effect on the traffic operations of the study intersections.
7. The ADT on the proposed private road connecting Emerson Street to 6th Street/Puerto Rico Avenue is projected to be 650 vpd.
8. Truck access on the proposed private road will be significantly limited due to the weight limit restrictions currently posted on Emerson Street, 6th Place, and 8th Street.
9. The increase in traffic at the Buchanan Street/Puerto Rico Avenue/6th Street intersection would not have an effect on the levels of service at the intersection.

REFERENCES

[1] 2002 Traffic Volumes, District Department of Transportation, Traffic Services Administration, Washington, D.C., [http://ddot.dc.gov/ddot/frames.asp?doc=/ddot/lib/ddot/information/maps/2002_citywide.pdf].

[2] District Department of Transportation, District of Columbia Bicycle Master Plan, August 2002.

[3] Highway Capacity Manual, Transportation Research Board, Washington D.C., 2000.

[4] Manual on Uniform Traffic Control Devices, U.S. Department of Transportation, Federal Highway Administration, 2003 Edition with Revision No. 1 Incorporated, effective July 21, 2004.

[5] Traffic Impact Study for the Emerson Street Townhouses, Wells & Associates, LLC, March 2004.

[6] Traffic Impact Study for the Emerson Street Townhouses, Wells & Associates, LLC, March 2004.

[7] Fort Totten Metro Apartments Traffic Impact Study, Wells & Associates, LLC, February 2002, and subsequent updates.

[8] Transportation Impact Study for the Fort Totten Redevelopment (Draft), Wells & Associates, LLC, May 2006.

[9] Highway Capacity Manual, Transportation Research Board, Washington D.C., 2000.

[10] Manual on Uniform Traffic Control Devices, U.S. Department of Transportation, Federal Highway Administration, 2003 Edition with Revision No. 1 Incorporated, effective July 21, 2004.

[11] Trip Generation, 7th Edition, Volume 2, Institute of Transportation Engineers, Washington, D.C., 2003.

[12] District of Columbia Municipal Regulations, Title 11-Zoning, Section 2101.1, 2001 Edition.

[13] Trip Generation, 7th Edition, Volume 2, Institute of Transportation Engineers, Washington, D.C., 2003.

[14] Harmelink, M.D., Volume Warrants for Left Turn Storage Lanes at Unsignalized Grade Intersections, RR122, Department of Highways, Ontario, 1967.

[15] Manual on Uniform Traffic Control Devices, U.S. Department of Transportation, Federal Highway Administration, 2003 Edition with Revision No. 1 Incorporated, effective July 21, 2004.

APPENDIX A

Scope of Work

WELLS & ASSOCIATES, LLC
TRAFFIC, TRANSPORTATION, and PARKING CONSULTANTS

July 26, 2006

Abdoulaye Bah
District Department of Transportation
2000 14th Street, NW
7th Floor
Washington, DC 20009

RE: Traffic Study – Emerson Park Phase 2
Washington, DC

Dear Mr. Bah:

I am providing herein an outline of our proposed scope of work for the Emerson Park Phase 2 Traffic Study in accordance with my phone conversation with Sharlene Reed on Thursday, July 20th. The proposed site currently is split-zoned, with a portion subject to R-2 zoning and a portion subject to C-M-1 zoning and further subject to the Fort Totten overlay. The site is located on 4.19 acres of the Somerville property and is generally bounded by Phase I of the Rocky Gorge at Fort Totten Emerson Park development to the north, another portion of the Somerville property to the west, detached dwellings fronting 6th Place to the south, and a strip of properties fronting 7th Street NE to the east, as shown on the attached Site Plan. Rocky Gorge Development proposes to rezone the property to the R-4 District and develop 35 single family townhouses. Access to the development would be provided via a private road connecting 6th Street to Puerto Rico Avenue, through Phase 1.

The following outline is a summary of our proposed scope of work for the traffic study.

11420 Spring Hill Road, Suite 600 - McLean, Virginia 22102 - 703/916-6620 - Fax: 703/917-0739

1. Study Area: The study will focus on the following intersections:

   a. South Dakota Avenue/8th Street
   b. South Dakota Avenue/Delafield Street
   c. Buchanan Street/6th Street
   d. Emerson Street/6th Place
   e. Emerson Street/Driveway to Industrial Use
   f. Emerson Street/8th Street
   g. Delafield Street/8th Street

2. Field Work: Intersection turning movement counts for the intersections in the study area will be conducted in the AM and PM peak periods on a typical weekday. Weekday counts will be conducted between the hours of 6:30 to 9:30 AM, and 4:00 to 7:00 PM. Summer counts will be compared to counts obtained in February 2004 for several study intersections. In the event that the summer counts are significantly lower than the counts obtained during the school year, the February 2004 counts will be used and a one percent growth rate will be applied. The counts at the remaining study intersections will be adjusted to balance within reason with adjacent intersections. In order to determine the volume of existing traffic that potentially would be rerouted as the result of connecting 6th Street to Puerto Rico Avenue, through Phase 1, a license plate survey will be conducted at the following intersections during the AM and PM peak periods:

   h. South Dakota Avenue/Decatur Street
   i. South Dakota Avenue/13th Street
   j. Taylor Street/Bridge near Puerto Rico Avenue

3. Trip Generation: Standard Institute of Transportation Engineer trip generation rates/equations will be utilized to evaluate the number of trips generated by the proposed residential units.

4. Traffic Volume Projections: The study will provide existing and projected weekday AM peak hour and PM peak hour traffic volumes for the projected build out year, 2009. A growth factor of one percent, which is consistent with other studies in the area, will be used to account for regional growth in the area. Additionally, site traffic for the following specific planned developments, which are anticipated to be completed in the next few years, will be included in the future traffic projections:

   - Emerson Park Phase I – located on the south side of Emerson Street between 7th Street and the CSX Rail Lines, the proposed residential development will consist of 16 duplexes permitted as a matter of right under the existing R-2 zoning and 75 townhouses proposed under the PUD.
   - Fort Totten Park Apartments – located on 3rd Street, N.E., between Hamilton and Kennedy Street, N.E., the proposed residential development will consist of up to 356 apartments.
   - Cafritz-Fort Totten development – located in the southwest quadrant of the Riggs Road/South Dakota Avenue intersection, the proposed residential development will consist of 1,027 apartment units housed in several buildings. The existing apartment buildings, housing 233 units, would be raised to accommodate the proposed redevelopment.

   Trip assignments for these developments will be taken from the traffic impact study for the respective development as prepared by Wells & Associates.

5. Trip Distributions: Site-generated traffic will be assigned to the surrounding street system based on existing traffic counts, local knowledge, and engineering judgment. A redistribution of existing traffic to account for the 6th Street connection to Puerto Rico Avenue will be based on the license plate survey.

6. LOS Analysis: Level of service calculations for existing and projected conditions will be provided. Highway Capacity Software will be used to calculate the levels of service. Existing signal timings obtained from DDOT will be used for existing conditions.

7. Mode Split: Transit reductions under both the existing and proposed zoning will be made based on information contained in WMATA's 2005 Ridership Survey.

8. Identification of Potential Impacts: The impact to the study area resulting from additional traffic generated by the change in zoning will be identified. If necessary, improvements required to mitigate the impact will be identified.

Please advise if you are in agreement with our understanding of the traffic study scope as outlined above. As always, your timely review and comments on the scope are respectfully requested.

Should you require any additional information, please do not hesitate to call me at (724) 933-9010.

Sincerely,

Jami L. Milanovich

Jami L. Milanovich, P.E.
Senior Associate

c: Sharlene Reed, District Department of Transportation
Derrick Hardy, District Department of Transportation
Ogechi Elekwachi, District Department of Transportation
John Anderson, Rocky Gorge Development, LLC

APPENDIX B

Traffic Counts

Wells & Associates, LLC

1420 Spring Hill Road, Suite 600
McLean, Virginia 22102

Counter: Wells & Associates, LLC
Counted By: Admir
Weather: Clear
Other: 164

File Name : Emerson Street & 6th Place, Alley, Industrial Drivewa
Site Code : 00003273
Start Date : 7/11/2006
Page No : 1

Groups Printed- Bank 2

	x Southbound					Emerson Street - NE Westbound					Industrial Driveway Northbound					x Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	0	0	0	0	0	0	0	6	0	6	2	0	0	0	2	0	0	0	0	0	8
06:45 AM	0	0	0	0	0	0	0	5	0	5	3	0	0	0	3	0	0	0	0	0	8
Total	0	0	0	0	0	0	0	11	0	11	5	0	0	0	5	0	0	0	0	0	16
07:00 AM	0	0	0	0	0	0	0	4	0	4	1	0	0	0	1	0	0	0	0	0	5
07:15 AM	0	0	0	0	0	0	0	3	0	3	1	0	0	0	1	0	0	0	0	0	4
07:30 AM	0	0	0	0	0	0	0	2	0	2	3	0	0	0	3	0	0	0	0	0	5
07:45 AM	0	0	0	0	0	0	0	4	0	4	2	0	0	0	2	0	0	0	0	0	6
Total	0	0	0	0	0	0	0	13	0	13	7	0	0	0	7	0	0	0	0	0	20
08:00 AM	0	0	0	0	0	0	0	1	0	1	5	0	0	0	5	0	0	0	0	0	6
08:15 AM	0	0	0	0	0	0	0	4	0	4	2	0	0	0	2	0	0	0	0	0	6
08:30 AM	0	0	0	0	0	0	0	1	0	1	4	0	0	0	4	0	0	0	0	0	5
08:45 AM	0	0	0	0	0	0	0	2	0	2	5	0	0	0	5	0	0	0	0	0	7
Total	0	0	0	0	0	0	0	8	0	8	16	0	0	0	16	0	0	0	0	0	24
09:00 AM	0	0	0	0	0	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	3
09:15 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	6
Total	0	0	0	0	0	0	0	1	0	1	8	0	0	0	8	0	0	0	0	0	9
04:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
04:30 PM	0	0	0	0	0	0	0	2	0	2	3	0	0	0	3	0	0	0	0	0	5
04:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	2	0	2	6	0	0	0	6	0	0	0	0	0	8
05:00 PM	0	0	0	0	0	0	0	1	0	1	3	0	0	0	3	0	0	0	0	0	4
05:15 PM	0	0	0	0	0	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	3
05:30 PM	0	0	0	0	0	0	0	1	0	1	6	0	0	0	6	0	0	0	0	0	7
05:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	3	0	3	12	0	0	0	12	0	0	0	0	0	15
06:00 PM	0	0	0	0	0	0	0	1	0	1	4	0	0	0	4	0	0	0	0	0	5
06:15 PM	0	0	0	0	0	0	0	1	0	1	3	0	0	0	3	0	0	0	0	0	4
06:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
06:45 PM	0	0	0	0	0	0	0	1	0	1	3	0	0	0	3	0	0	0	0	0	4
Total	0	0	0	0	0	0	0	3	0	3	12	0	0	0	12	0	0	0	0	0	15
Grand Total	0	0	0	0	0	0	0	41	0	41	66	0	0	0	66	0	0	0	0	0	107
Apprch %	0	0	0	0		0	0	100	0		100	0	0	0		0	0	0	0		
Total %	0	0	0	0	0	0	0	38.3	0	38.3	61.7	0	0	0	61.7	0	0	0	0	0	

Wells & Associates, LLC

1420 Spring Hill Road
Suite 600
McLean, Virginia 22102

2.

Counter: Wells & Associates, LLC
Counted By: Admir
Weather: Clear
Other: 164

File Name : Emerson Street & 6th Place, Alley, Industrial Drivewa
Site Code : 00003273
Start Date : 7/11/2006
Page No : 1

Groups Printed- Unshifted

	x Southbound					Emerson Street - NE Westbound					Industrial Driveway Northbound					x Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	3	0	3	0	6	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	9
06:45 AM	0	0	3	0	3	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	6
Total	3	0	6	0	9	0	2	0	0	2	0	0	0	0	0	0	3	1	0	4	15
07:00 AM	1	0	2	0	3	2	6	0	0	8	0	0	0	0	0	0	0	2	0	2	13
07:15 AM	1	0	1	0	2	3	1	0	0	4	0	0	0	0	0	0	0	0	0	0	6
07:30 AM	1	0	2	0	3	1	0	0	0	1	0	0	0	0	0	0	1	3	0	4	8
07:45 AM	0	0	3	0	3	2	5	0	0	7	0	0	0	0	0	0	1	0	0	1	11
Total	3	0	8	0	11	8	12	0	0	20	0	0	0	0	0	0	2	5	0	7	38
08:00 AM	0	0	3	0	3	1	2	0	0	3	0	0	0	0	0	0	3	1	0	4	10
08:15 AM	1	0	1	0	2	1	1	0	0	2	0	0	0	0	0	0	0	1	0	1	5
08:30 AM	1	0	1	0	2	2	0	0	0	2	0	0	0	0	0	0	2	1	0	3	7
08:45 AM	2	0	2	0	4	2	2	0	0	4	0	0	0	0	0	0	0	2	0	2	10
Total	4	0	7	0	11	6	5	0	0	11	0	0	0	0	0	0	5	5	0	10	32
09:00 AM	0	0	3	0	3	3	0	0	0	3	0	0	0	0	0	0	1	0	0	1	7
09:15 AM	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4	9
Total	0	0	8	0	8	3	0	0	0	3	0	0	0	0	0	0	4	1	0	5	16
04:00 PM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
04:15 PM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	3	0	0	3	5
04:30 PM	1	0	2	0	3	2	0	0	0	2	0	0	0	0	0	0	2	0	0	2	7
04:45 PM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	3
Total	1	0	4	0	5	6	0	0	0	6	0	0	0	0	0	0	5	1	0	6	17
05:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
05:15 PM	1	0	1	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
05:30 PM	1	0	2	0	3	2	0	0	0	2	0	0	0	0	0	0	4	1	0	5	10
05:45 PM	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	1	0	1	5
Total	2	0	4	0	6	7	0	0	0	7	0	0	0	0	0	0	5	2	0	7	20
06:00 PM	1	0	1	0	2	3	0	0	0	3	0	0	0	0	0	0	2	1	0	3	8
06:15 PM	0	0	2	0	2	2	0	0	0	2	0	0	0	0	0	0	0	1	0	1	5
06:30 PM	1	0	0	0	1	5	0	0	0	5	0	0	0	0	0	0	0	2	0	2	8
06:45 PM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	3
Total	3	0	3	0	6	11	0	0	0	11	0	0	0	0	0	0	2	5	0	7	24
Grand Total	16	0	40	0	56	41	19	0	0	60	0	0	0	0	0	0	26	20	0	46	162
Apprch %	28.6	0	71.4	0		68.3	31.7	0	0		0	0	0	0		0	56.5	43.5	0		
Total %	9.9	0	24.7	0	34.6	25.3	11.7	0	0	37	0	0	0	0	0	0	16	12.3	0	28.4	

Wells & Associates, LLC

1420 Spring Hill Road, Suite 600
McLean, VA 22102

3,

Counter: Wells & Associates, LLC
Counted By: Belen
Weather: Clear
Other: 53

File Name : 8th Street & Emerson Stree
Site Code : 00003273
Start Date : 7/11/2006
Page No : 1

Groups Printed- Unshifted

	8th Street - NE From North					x From East					8th Street From South					Emerson Street - NE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	1	5	0	0	6	0	0	0	0	0	0	1	1	0	2	4	0	2	0	6	14
06:45 AM	0	6	0	0	6	0	0	0	0	0	0	5	1	0	6	6	0	2	0	8	20
Total	1	11	0	0	12	0	0	0	0	0	0	6	2	0	8	10	0	4	0	14	34
07:00 AM	3	5	0	0	8	0	0	0	0	0	0	6	4	0	10	3	0	1	0	4	22
07:15 AM	1	7	0	0	8	0	0	0	0	0	0	3	3	0	6	0	0	1	0	1	15
07:30 AM	0	13	0	0	13	0	0	0	0	0	0	8	1	0	9	7	0	1	0	8	30
07:45 AM	5	15	0	0	20	0	0	0	0	0	0	7	1	0	8	3	0	3	0	6	34
Total	9	40	0	0	49	0	0	0	0	0	0	24	9	0	33	13	0	6	0	19	101
08:00 AM	3	16	0	0	19	0	0	0	0	0	0	2	0	0	2	5	0	2	0	7	28
08:15 AM	1	13	0	0	14	0	0	0	0	0	0	5	1	0	6	2	0	1	0	3	23
08:30 AM	1	11	0	0	12	0	0	0	0	0	0	3	0	0	3	1	0	1	0	2	17
08:45 AM	3	20	0	0	23	0	0	0	0	0	0	1	1	0	2	4	0	1	0	5	30
Total	8	60	0	0	68	0	0	0	0	0	0	11	2	0	13	12	0	5	0	17	98
09:00 AM	3	8	0	0	11	0	0	0	0	0	0	7	0	0	7	4	0	1	0	5	23
09:15 AM	1	8	0	0	9	0	0	0	0	0	0	3	0	0	3	6	0	2	0	8	20
Total	4	16	0	0	20	0	0	0	0	0	0	10	0	0	10	10	0	3	0	13	43
04:00 PM	2	8	0	0	10	0	0	0	0	0	0	5	0	0	5	1	0	0	0	1	16
04:15 PM	3	14	0	0	17	0	0	0	0	0	0	8	2	0	10	2	0	2	0	4	31
04:30 PM	2	16	0	0	18	0	0	0	0	0	0	5	1	0	6	3	0	2	0	5	29
04:45 PM	1	10	0	0	11	0	0	0	0	0	0	6	1	0	7	0	0	1	0	1	19
Total	8	48	0	0	56	0	0	0	0	0	0	24	4	0	28	6	0	5	0	11	95
05:00 PM	1	22	0	0	23	0	0	0	0	0	0	7	1	0	8	2	0	2	0	4	35
05:15 PM	0	15	0	0	15	0	0	0	0	0	0	3	3	0	6	2	0	0	0	2	23
05:30 PM	4	14	1	0	19	0	0	0	0	0	0	3	0	0	3	6	0	1	0	7	29
05:45 PM	2	22	0	0	24	0	0	0	0	0	0	7	5	0	12	0	0	1	0	1	37
Total	7	73	1	0	81	0	0	0	0	0	0	20	9	0	29	10	0	4	0	14	124
06:00 PM	1	13	0	0	14	0	0	0	0	0	0	7	4	0	11	0	0	2	0	2	27
06:15 PM	2	14	0	0	16	0	0	0	0	0	0	6	2	0	8	4	0	1	0	5	29
06:30 PM	1	11	0	0	12	0	0	0	0	0	0	4	4	0	8	0	0	1	0	1	21
06:45 PM	1	6	0	1	8	0	0	0	0	0	0	2	1	0	3	1	0	0	0	1	12
Total	5	44	0	1	50	0	0	0	0	0	0	19	11	0	30	5	0	4	0	9	89
Grand Total	42	292	1	1	336	0	0	0	0	0	0	114	37	0	151	66	0	31	0	97	584
Apprch %	12.5	86.9	0.3	0.3		0	0	0	0		0	75.5	24.5	0		68	0	32	0		
Total %	7.2	50	0.2	0.2	57.5	0	0	0	0	0	0	19.5	6.3	0	25.9	11.3	0	5.3	0	16.6	

Wells & Associates, LLC

1420 Spring Hill Road, Suite 600
McLean, VA 22102

Counter: Wells & Associates, LLC
Counted By: Jorge & Lucia
Weather: Clear
Other: 100

File Name : South Dakota Avenue & 8th Stree
Site Code : 00003273
Start Date : 7/11/2006
Page No : 1

Groups Printed- Unshifted

	South Dakota Avenue - NE From North					8th Street - NE From East					South Dakota Avenue - NE From South					8th Street - NE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	0	99	1	0	100	0	1	1	0	2	1	138	1	0	140	1	1	4	0	6	248
06:45 AM	3	110	0	0	113	1	0	0	0	1	0	188	4	0	192	1	0	1	0	2	308
Total	3	209	1	0	213	1	1	1	0	3	1	326	5	0	332	2	1	5	0	8	556
07:00 AM	2	104	0	0	106	1	2	0	0	3	0	189	1	0	190	1	0	6	0	7	306
07:15 AM	6	138	0	0	144	1	0	0	0	1	0	226	1	0	227	0	1	5	0	6	378
07:30 AM	11	169	0	0	180	1	0	0	0	1	0	200	0	0	200	1	0	4	0	5	386
07:45 AM	6	212	0	0	218	0	2	0	0	2	0	196	3	0	199	2	0	8	0	10	429
Total	25	623	0	0	648	3	4	0	0	7	0	811	5	0	816	4	1	23	0	28	1499
08:00 AM	13	198	1	0	212	0	1	0	0	1	1	222	5	0	228	0	0	6	0	6	447
08:15 AM	12	178	0	0	190	2	1	0	0	3	0	219	4	0	223	0	1	3	0	4	420
08:30 AM	7	184	0	0	191	1	1	0	0	2	0	204	2	0	206	3	0	5	0	8	407
08:45 AM	13	195	0	0	208	0	2	0	0	2	2	187	6	0	195	1	0	5	0	6	411
Total	45	755	1	0	801	3	5	0	0	8	3	832	17	0	852	4	1	19	0	24	1685
09:00 AM	7	178	3	0	188	1	2	0	0	3	3	188	4	0	195	1	0	2	0	3	389
09:15 AM	8	183	0	0	191	0	1	0	0	1	1	184	7	0	192	2	0	3	0	5	389
Total	15	361	3	0	379	1	3	0	0	4	4	372	11	0	387	3	0	5	0	8	778
04:00 PM	14	181	0	0	195	0	1	0	0	1	1	163	8	0	172	3	1	7	0	11	379
04:15 PM	10	176	2	0	188	1	0	1	0	2	0	188	8	0	196	4	1	7	0	12	398
04:30 PM	6	195	1	0	202	0	0	1	0	1	0	202	5	0	207	0	1	4	0	5	415
04:45 PM	5	189	1	0	195	0	1	1	0	2	2	174	6	0	182	2	0	7	0	9	388
Total	35	741	4	0	780	1	2	3	0	6	3	727	27	0	757	9	3	25	0	37	1580
05:00 PM	14	186	1	0	201	0	1	0	0	1	1	188	6	0	195	2	0	6	0	8	405
05:15 PM	13	188	1	0	202	0	3	1	0	4	4	194	6	0	204	2	1	6	0	9	419
05:30 PM	22	213	1	0	236	0	0	4	0	4	3	222	1	0	226	2	1	4	0	7	473
05:45 PM	21	165	1	0	187	1	1	0	0	2	2	207	5	0	214	1	2	12	0	15	418
Total	70	752	4	0	826	1	5	5	0	11	10	811	18	0	839	7	4	28	0	39	1715
06:00 PM	14	184	3	0	201	2	3	3	0	8	2	200	2	0	204	0	1	8	0	9	422
06:15 PM	11	183	0	0	194	1	1	0	0	2	0	209	4	0	213	0	2	8	0	10	419
06:30 PM	7	177	0	0	184	1	3	0	0	4	0	177	3	0	180	1	3	2	0	6	374
06:45 PM	8	191	1	0	200	0	3	1	0	4	0	137	5	0	142	3	1	6	0	10	356
Total	40	735	4	0	779	4	10	4	0	18	2	723	14	0	739	4	7	24	0	35	1571
Grand Total	233	4176	17	0	4426	14	30	13	0	57	23	4602	97	0	4722	33	17	129	0	179	9384
Apprch %	5.3	94.4	0.4	0		24.6	52.6	22.8	0		0.5	97.5	2.1	0		18.4	9.5	72.1	0		
Total %	2.5	44.5	0.2	0	47.2	0.1	0.3	0.1	0	0.6	0.2	49	1	0	50.3	0.4	0.2	1.4	0	1.9	

Wells & Associates, LLC

1420 Spring Hill Road, Suite 600
McLean, VA 22102

5.

Counter: Wells & Associates, LLC
Counted By: Colleen
Weather: Clear
Other: 160

File Name : South Dakota Avenue & Delafield Stre
Site Code : 00003273
Start Date : 7/11/2006
Page No : 1

Groups Printed- Unshifted

	South Dakota Avenue - NE From North					10th Street - NE From East					South Dakota Avenue - NE From South					Delafield Street - NE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	0	98	1	0	99	4	0	3	0	7	2	131	0	0	133	2	0	5	0	7	246
06:45 AM	0	112	1	0	113	3	0	7	0	10	1	178	0	0	179	4	0	11	0	15	317
Total	0	210	2	0	212	7	0	10	0	17	3	309	0	0	312	6	0	16	0	22	563
07:00 AM	0	108	1	0	109	4	0	10	0	14	1	182	0	0	183	2	1	7	0	10	316
07:15 AM	0	127	1	0	128	2	0	8	0	10	0	217	0	0	217	1	0	9	0	10	365
07:30 AM	0	156	2	0	158	3	0	9	0	12	1	191	0	0	192	1	0	9	0	10	372
07:45 AM	0	210	0	0	210	2	0	8	0	10	2	191	0	0	193	1	0	8	0	9	422
Total	0	601	4	0	605	11	0	35	0	46	4	781	0	0	785	5	1	33	0	39	1475
08:00 AM	0	194	0	0	194	1	0	4	0	5	0	217	0	0	217	2	0	11	0	13	429
08:15 AM	0	174	1	0	175	5	0	6	0	11	1	212	0	0	213	4	0	7	0	11	410
08:30 AM	0	184	2	0	186	3	0	4	0	7	0	196	0	0	196	4	0	4	0	8	397
08:45 AM	0	196	1	0	197	6	0	7	0	13	2	177	0	0	179	6	0	14	0	20	409
Total	0	748	4	0	752	15	0	21	0	36	3	802	0	0	805	16	0	36	0	52	1645
09:00 AM	0	175	1	0	176	6	0	3	0	9	1	190	0	0	191	2	2	7	0	11	387
09:15 AM	0	180	0	0	180	4	0	3	0	7	1	176	0	0	177	1	1	4	0	6	370
Total	0	355	1	0	356	10	0	6	0	16	2	366	0	0	368	3	3	11	0	17	757
04:00 PM	0	180	2	0	182	3	0	7	0	10	7	155	0	0	162	6	6	8	0	20	374
04:15 PM	0	171	4	0	175	2	0	6	0	8	3	180	0	0	183	4	5	6	0	15	381
04:30 PM	0	198	4	0	202	3	0	7	0	10	7	190	0	0	197	9	4	6	0	19	428
04:45 PM	0	188	2	0	190	4	0	6	0	10	5	178	0	0	183	6	12	7	0	25	408
Total	0	737	12	0	749	12	0	26	0	38	22	703	0	0	725	25	27	27	0	79	1591
05:00 PM	0	184	3	0	187	1	0	6	0	7	3	184	0	0	187	11	7	10	0	28	409
05:15 PM	0	183	3	0	186	5	0	4	0	9	5	189	0	0	194	13	7	9	0	29	418
05:30 PM	0	204	6	0	210	9	0	9	0	18	7	216	0	0	223	4	11	9	0	24	475
05:45 PM	0	149	7	0	156	9	0	6	0	15	4	178	0	0	182	4	6	8	0	18	371
Total	0	720	19	0	739	24	0	25	0	49	19	767	0	0	786	32	31	36	0	99	1673
06:00 PM	0	177	6	0	183	5	0	3	0	8	6	191	0	0	197	6	7	6	0	19	407
06:15 PM	0	182	7	0	189	6	0	8	0	14	7	206	0	0	213	3	7	7	0	17	433
06:30 PM	0	179	7	0	186	6	0	2	0	8	6	166	0	0	172	7	5	4	0	16	382
06:45 PM	0	189	5	0	194	6	0	2	0	8	4	131	0	0	135	4	4	4	0	12	349
Total	0	727	25	0	752	23	0	15	0	38	23	694	0	0	717	20	23	21	0	64	1571
Grand Total	0	4098	67	0	4165	102	0	138	0	240	76	4422	0	0	4498	107	85	180	0	372	9275
Apprch %	0	98.4	1.6	0		42.5	0	57.5	0		1.7	98.3	0	0		28.8	22.8	48.4	0		
Total %	0	44.2	0.7	0	44.9	1.1	0	1.5	0	2.6	0.8	47.7	0	0	48.5	1.2	0.9	1.9	0	4	

Wells & Associates, LLC

1420 Spring Hill Road, Suite 600
McLean, VA 22102

6.

Counter: Wells & Associates, LLC
Counted By: David
Weather: Clear
Other: 22

File Name : 8th Street & Delafield Stree
Site Code : 00003273
Start Date : 7/11/2006
Page No : 1

Groups Printed- Unshifted

	8th Street - NE From North					Delafield Street - NE From East					8th Street - NE From South					Delafield Street - NE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	0	6	0	0	6	0	0	0	0	0	5	4	0	0	9	0	1	1	0	2	17
06:45 AM	3	4	6	0	13	0	0	0	0	0	5	3	0	0	8	0	4	2	0	6	27
Total	3	10	6	0	19	0	0	0	0	0	10	7	0	0	17	0	5	3	0	8	44
07:00 AM	0	7	2	0	9	0	0	0	0	0	7	9	0	0	16	0	2	2	0	4	29
07:15 AM	0	8	1	0	9	0	0	0	0	0	8	6	0	0	14	0	2	1	0	3	26
07:30 AM	6	11	1	0	18	0	0	0	0	0	7	8	0	0	15	0	2	1	0	3	36
07:45 AM	1	19	0	0	20	0	0	0	0	0	8	5	0	0	13	0	1	1	0	2	35
Total	7	45	4	0	56	0	0	0	0	0	30	28	0	0	58	0	7	5	0	12	126
08:00 AM	2	16	5	0	23	0	0	0	0	0	5	2	0	0	7	1	3	1	0	5	35
08:15 AM	2	17	0	0	19	0	0	0	0	0	9	4	0	0	13	0	2	1	0	3	35
08:30 AM	1	12	0	0	13	0	0	0	0	0	7	3	0	0	10	1	1	2	0	4	27
08:45 AM	4	13	3	0	20	0	0	0	0	0	14	4	0	0	18	0	3	0	0	3	41
Total	9	58	8	0	75	0	0	0	0	0	35	13	0	0	48	2	9	4	0	15	138
09:00 AM	1	13	1	0	15	0	0	0	0	0	6	4	0	0	10	1	5	1	0	7	32
09:15 AM	2	8	1	0	11	0	0	0	0	0	6	6	0	0	12	0	0	0	0	0	23
Total	3	21	2	0	26	0	0	0	0	0	12	10	0	0	22	1	5	1	0	7	55
04:00 PM	4	9	2	0	15	0	0	0	0	0	14	6	1	0	21	0	5	2	0	7	43
04:15 PM	3	6	5	0	14	0	0	0	0	0	10	9	0	0	19	0	5	1	0	6	39
04:30 PM	8	9	2	0	19	0	0	0	0	0	8	5	0	0	13	0	5	2	0	7	39
04:45 PM	4	8	0	0	12	0	0	0	0	0	9	5	0	0	14	1	6	4	0	11	37
Total	19	32	9	0	60	0	0	0	0	0	41	25	1	0	67	1	21	9	0	31	158
05:00 PM	5	18	1	0	24	0	0	0	0	0	11	8	1	0	20	0	8	0	0	8	52
05:15 PM	6	16	3	0	25	0	0	0	0	0	8	7	0	0	15	0	7	3	0	10	50
05:30 PM	4	18	4	0	26	0	0	0	0	0	16	5	0	0	21	0	3	0	0	3	50
05:45 PM	5	22	1	0	28	0	0	0	0	0	12	15	3	0	30	0	1	2	0	3	61
Total	20	74	9	0	103	0	0	0	0	0	47	35	4	0	86	0	19	5	0	24	213
06:00 PM	4	13	0	0	17	0	0	0	0	0	19	5	1	0	25	0	2	7	0	9	51
06:15 PM	2	15	4	0	21	0	0	0	0	0	11	7	1	0	19	0	4	5	0	9	49
06:30 PM	1	7	1	0	9	0	0	0	0	0	8	7	0	0	15	1	2	5	0	8	32
06:45 PM	2	15	2	0	19	0	0	0	0	0	5	7	0	0	12	0	1	0	0	1	32
Total	9	50	7	0	66	0	0	0	0	0	43	26	2	0	71	1	9	17	0	27	164
Grand Total	70	290	45	0	405	0	0	0	0	0	218	144	7	0	369	5	75	44	0	124	898
Apprch %	17.3	71.6	11.1	0		0	0	0	0		59.1	39	1.9	0		4	60.5	35.5	0		
Total %	7.8	32.3	5	0	45.1	0	0	0	0	0	24.3	16	0.8	0	41.1	0.6	8.4	4.9	0	13.8	

3800

3960

Wells & Associates, LLC

1420 Spring Hill Road, Suite 600
McLean, VA 22102

7.

Counter: Wells & Associates, LLC
Counted By: Matt
Weather: Clear
Other: 40

File Name : 6th Street & Buchanan Stree
Site Code : 00003273
Start Date : 7/11/2006
Page No : 1

Groups Printed- Unshifted

	6th Street - NE From North					Buchanan Street - NE From East					6th Street - NE From South					Driveway From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	0	5	3	0	8	0	0	16	1	17	0	0	0	0	0	0	0	0	0	0	25
06:45 AM	0	1	0	0	1	2	0	16	0	18	1	2	0	0	3	0	0	0	0	0	22
Total	0	6	3	0	9	2	0	32	1	35	1	2	0	0	3	0	0	0	0	0	47
07:00 AM	0	0	0	0	0	2	0	16	0	18	5	0	0	0	5	0	1	0	0	1	24
07:15 AM	0	1	0	0	1	0	1	12	0	13	3	3	0	0	6	0	1	0	0	1	21
07:30 AM	0	3	1	0	4	2	1	19	0	22	4	0	0	0	4	0	0	0	0	0	30
07:45 AM	0	1	0	0	1	4	2	18	0	24	5	0	0	0	5	0	0	0	0	0	30
Total	0	5	1	0	6	8	4	65	0	77	17	3	0	0	20	0	2	0	0	2	105
08:00 AM	0	2	0	0	2	4	1	26	0	31	6	3	0	0	9	0	0	0	0	0	42
08:15 AM	0	6	3	0	9	2	0	16	0	18	2	3	0	0	5	0	0	0	0	0	32
08:30 AM	0	3	4	0	7	7	0	20	0	27	7	2	1	0	10	1	0	0	0	1	45
08:45 AM	0	5	1	0	6	3	0	34	0	37	10	3	0	0	13	0	0	0	0	0	56
Total	0	16	8	0	24	16	1	96	0	113	25	11	1	0	37	1	0	0	0	1	175
09:00 AM	0	3	5	0	8	3	1	21	0	25	9	1	0	0	10	0	0	0	0	0	43
09:15 AM	0	3	6	0	9	3	0	9	0	12	8	1	0	0	9	0	0	0	0	0	30
Total	0	6	11	0	17	6	1	30	0	37	17	2	0	0	19	0	0	0	0	0	73
04:00 PM	0	4	5	1	10	2	0	5	0	7	16	2	0	0	18	0	1	0	0	1	36
04:15 PM	0	1	2	0	3	2	0	3	0	5	7	2	2	0	11	0	0	0	0	0	19
04:30 PM	0	0	1	0	1	1	0	8	0	9	10	3	0	0	13	0	0	0	0	0	23
04:45 PM	0	2	3	0	5	2	0	5	0	7	11	2	0	0	13	0	1	1	0	2	27
Total	0	7	11	1	19	7	0	21	0	28	44	9	2	0	55	0	2	1	0	3	105
05:00 PM	0	4	3	0	7	3	1	14	0	18	27	3	0	0	30	1	0	0	0	1	56
05:15 PM	0	3	4	0	7	0	0	11	0	11	30	3	0	0	33	0	0	0	0	0	51
05:30 PM	0	0	4	0	4	3	0	10	0	13	25	3	0	0	28	0	0	0	0	0	45
05:45 PM	0	4	2	0	6	1	0	14	0	15	24	1	0	0	25	0	0	0	0	0	46
Total	0	11	13	0	24	7	1	49	0	57	106	10	0	0	116	1	0	0	0	1	198
06:00 PM	0	0	4	0	4	1	0	7	0	8	30	1	0	0	31	0	0	0	0	0	43
06:15 PM	0	1	2	0	3	1	0	7	0	8	23	1	0	0	24	0	0	0	0	0	35
06:30 PM	0	0	5	0	5	0	0	17	0	17	17	1	0	0	18	0	0	0	0	0	40
06:45 PM	0	0	1	0	1	0	0	11	0	11	16	0	0	0	16	0	0	0	0	0	28
Total	0	1	12	0	13	2	0	42	0	44	86	3	0	0	89	0	0	0	0	0	146
Grand Total	0	52	59	1	112	48	7	335	1	391	296	40	3	0	339	2	4	1	0	7	849
Apprch %	0	46.4	52.7	0.9		12.3	1.8	85.7	0.3		87.3	11.8	0.9	0		28.6	57.1	14.3	0		
Total %	0	6.1	6.9	0.1	13.2	5.7	0.8	39.5	0.1	46.1	34.9	4.7	0.4	0	39.9	0.2	0.5	0.1	0	0.8	

Wells & Associates, LLC

1420 Spring Hill Road, Suite 600, McLean, Virginia 22102

Counter: Wells & Associates, LLC
Counted By: Homer, Janet
Weather: Clear
Other: 75

File Name : South Dakota Avenue & Buchanan Street
Site Code : 00003273
Start Date : 8/1/2006
Page No : 1

Groups Printed- Unshifted

	South Dakota Avenue - NE Southbound				13th Place - NE Westbound				South Dakota Avenue - NE Northbound				Buchanan Street - NE Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:15 AM	0	128	0	0	0	1	2	0	0	183	6	0	1	0	1	0	322
07:30 AM	0	99	0	0	0	0	0	0	0	194	7	0	6	0	0	0	306
07:45 AM	0	128	1	0	0	1	0	0	0	228	13	0	6	0	0	0	377
Total	0	355	1	0	0	2	2	0	0	605	26	0	13	0	1	0	1005
08:00 AM	0	116	0	0	0	0	0	0	0	192	7	0	6	0	0	0	321
08:15 AM	0	132	0	0	0	1	0	0	0	191	9	0	6	0	0	0	339
08:30 AM	0	102	0	0	1	0	0	0	0	207	9	0	9	1	0	0	329
Total	0	350	0	0	1	1	0	0	0	590	25	0	21	1	0	0	989
04:45 PM	0	160	1	0	0	1	0	0	1	136	4	0	10	1	1	0	315
Total	0	160	1	0	0	1	0	0	1	136	4	0	10	1	1	0	315
05:00 PM	0	140	1	0	0	0	0	0	1	164	7	0	6	1	0	0	320
05:15 PM	0	146	0	0	0	0	2	0	1	165	4	0	11	0	0	0	329
05:30 PM	0	134	0	0	1	0	0	0	0	128	7	0	10	0	0	0	280
05:45 PM	0	149	0	0	0	0	0	0	1	158	4	0	5	1	1	0	319
Total	0	569	1	0	1	0	2	0	3	615	22	0	32	2	1	0	1248
06:00 PM	0	161	0	0	0	0	0	0	0	173	2	0	13	1	2	0	352
06:15 PM	0	156	1	0	1	0	2	0	0	139	3	0	8	7	0	0	317
06:30 PM	0	160	0	0	0	0	0	0	0	150	4	0	10	0	3	0	327
Grand Total	0	1911	4	0	3	4	6	0	4	2408	86	0	107	12	8	0	4553
Apprch %	0	99.8	0.2	0	23.1	30.8	46.2	0	0.2	96.4	3.4	0	84.3	9.4	6.3	0	
Total %	0	42	0.1	0	0.1	0.1	0.1	0	0.1	52.9	1.9	0	2.4	0.3	0.2	0	

	South Dakota Avenue - NE Southbound					13th Place - NE Westbound					South Dakota Avenue - NE Northbound					Buchanan Street - NE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	128	1	0	129	0	1	0	0	1	0	228	13	0	241	6	0	0	0	6	377
08:00 AM	0	116	0	0	116	0	0	0	0	0	0	192	7	0	199	6	0	0	0	6	321
08:15 AM	0	132	0	0	132	0	1	0	0	1	0	191	9	0	200	6	0	0	0	6	339
08:30 AM	0	102	0	0	102	1	0	0	0	1	0	207	9	0	216	9	1	0	0	10	329
Total Volume	0	478	1	0	479	1	2	0	0	3	0	818	38	0	856	27	1	0	0	28	1366
% App. Total	0	99.8	0.2	0		33.3	66.7	0	0		0	95.6	4.4	0		96.4	3.6	0	0		
PHF	.000	.905	.250	.000	.907	.250	.500	.000	.000	.750	.000	.897	.731	.000	.888	.750	.250	.000	.000	.700	.906
Peak Hour Analysis From 12:00 PM to 06:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:45 PM																					
05:45 PM	0	149	0	0	149	0	0	0	0	0	1	158	4	0	163	5	1	1	0	7	319
06:00 PM	0	161	0	0	161	0	0	0	0	0	0	173	2	0	175	13	1	2	0	16	352
06:15 PM	0	156	1	0	157	1	0	2	0	3	0	139	3	0	142	8	7	0	0	15	317
06:30 PM	0	160	0	0	160	0	0	0	0	0	0	150	4	0	154	10	0	3	0	13	327
Total Volume	0	626	1	0	627	1	0	2	0	3	1	620	13	0	634	36	9	6	0	51	1315
% App. Total	0	99.8	0.2	0		33.3	0	66.7	0		0.2	97.8	2.1	0		70.6	17.6	11.8	0		
PHF	.000	.972	.250	.000	.974	.250	.000	.250	.000	.250	.250	.896	.813	.000	.906	.692	.321	.500	.000	.797	.934

Wells & Associates, LLC

1420 Spring Hill Road, Suite 600, McLean, Virginia 22102

Counter: Wells & Associates, LLC
Counted By: Belen, Metin
Weather: Clear
Other: 58, 60

File Name : South Dakota Avenue & Gallatin Street
Site Code : 00003273
Start Date : 8/1/2006
Page No : 1

Groups Printed- Unshifted

	South Dakota Avenue - NE Southbound				Gallatin Street - NE Westbound				South Dakota Avenue - NE Northbound				Gallatin Street - NE Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:15 AM	2	124	12	0	19	4	3	0	0	198	3	0	1	3	2	0	371
07:30 AM	0	160	15	0	23	5	4	0	1	174	3	0	6	3	5	0	399
07:45 AM	2	186	9	0	19	4	2	0	2	226	2	0	7	2	6	0	467
Total	4	470	36	0	61	13	9	0	3	598	8	0	14	8	13	0	1237
08:00 AM	0	165	18	0	31	2	3	0	1	216	2	0	1	0	5	0	444
08:15 AM	2	171	10	0	39	3	2	0	1	221	2	0	2	1	5	0	459
08:30 AM	4	165	17	0	20	3	6	0	1	227	0	0	1	1	7	0	452
Total	6	501	45	0	90	8	11	0	3	664	4	0	4	2	17	0	1355
04:45 PM	2	162	33	0	24	3	0	0	1	180	0	0	0	1	8	0	414
Total	2	162	33	0	24	3	0	0	1	180	0	0	0	1	8	0	414
05:00 PM	0	183	33	0	32	0	2	0	3	184	4	0	4	4	7	0	456
05:15 PM	5	185	31	0	17	5	3	0	2	223	0	0	5	2	3	0	481
05:30 PM	6	204	43	0	23	4	3	0	2	182	0	0	2	4	3	0	476
05:45 PM	0	176	31	0	21	3	6	0	1	162	0	0	0	3	4	0	407
Total	11	748	138	0	93	12	14	0	8	751	4	0	11	13	17	0	1820
06:00 PM	0	165	30	0	10	2	3	0	4	166	1	0	0	3	1	0	385
06:15 PM	2	180	30	0	15	6	6	0	1	161	0	0	1	4	0	0	406
06:30 PM	1	175	20	0	24	3	3	0	3	155	0	0	0	0	2	0	386
Grand Total	26	2401	332	0	317	47	46	0	23	2675	17	0	30	31	58	0	6003
Apprch %	0.9	87	12	0	77.3	11.5	11.2	0	0.8	98.5	0.6	0	25.2	26.1	48.7	0	
Total %	0.4	40	5.5	0	5.3	0.8	0.8	0	0.4	44.6	0.3	0	0.5	0.5	1	0	

	South Dakota Avenue - NE Southbound					Gallatin Street - NE Westbound					South Dakota Avenue - NE Northbound					Gallatin Street - NE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	2	186	9	0	197	19	4	2	0	25	2	226	2	0	230	7	2	6	0	15	467
08:00 AM	0	165	18	0	183	31	2	3	0	36	1	216	2	0	219	1	0	5	0	6	444
08:15 AM	2	171	10	0	183	39	3	2	0	44	1	221	2	0	224	2	1	5	0	8	459
08:30 AM	4	165	17	0	186	20	3	6	0	29	1	227	0	0	228	1	1	7	0	9	452
Total Volume	8	687	54	0	749	109	12	13	0	134	5	890	6	0	901	11	4	23	0	38	1822
% App. Total	1.1	91.7	7.2	0		81.3	9	9.7	0		0.6	98.8	0.7	0		28.9	10.5	60.5	0		
PHF	.500	.923	.750	.000	.951	.699	.750	.542	.000	.761	.625	.980	.750	.000	.979	.393	.500	.821	.000	.633	.975
Peak Hour Analysis From 12:00 PM to 06:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	2	162	33	0	197	24	3	0	0	27	1	180	0	0	181	0	1	8	0	9	414
05:00 PM	0	183	33	0	216	32	0	2	0	34	3	184	4	0	191	4	4	7	0	15	456
05:15 PM	5	185	31	0	221	17	5	3	0	25	2	223	0	0	225	5	2	3	0	10	481
05:30 PM	6	204	43	0	253	23	4	3	0	30	2	182	0	0	184	2	4	3	0	9	476
Total Volume	13	734	140	0	887	96	12	8	0	116	8	769	4	0	781	11	11	21	0	43	1827
% App. Total	1.5	82.8	15.8	0		82.8	10.3	6.9	0		1	98.5	0.5	0		25.6	25.6	48.8	0		
PHF	.542	.900	.814	.000	.876	.750	.600	.667	.000	.853	.667	.862	.250	.000	.868	.550	.688	.656	.000	.717	.950