

# MARRIOTT MARQUIS HOTEL

NW WASHINGTON, DC



## TRAFFIC IMPACT STUDY REPORT

AMT Project File 108-029.01T

**PREPARED FOR:**  
Marriott International, Inc.

**PREPARED BY:**  
  
A. Morton Thomas and Associates, Inc.  
Consulting Engineers

**DATE:**  
April 21, 2008

ZONING COMMISSION  
District of Columbia

CASE NO. 08-13  
EXHIBIT NO. \_\_\_\_\_  
ZONING COMMISSION  
District of Columbia  
CASE NO.08-13  
EXHIBIT NO.6A1



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APPENDIX C	Existing Conditions Analyses
APPENDIX D	Pipeline Developments
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## **INTRODUCTION**

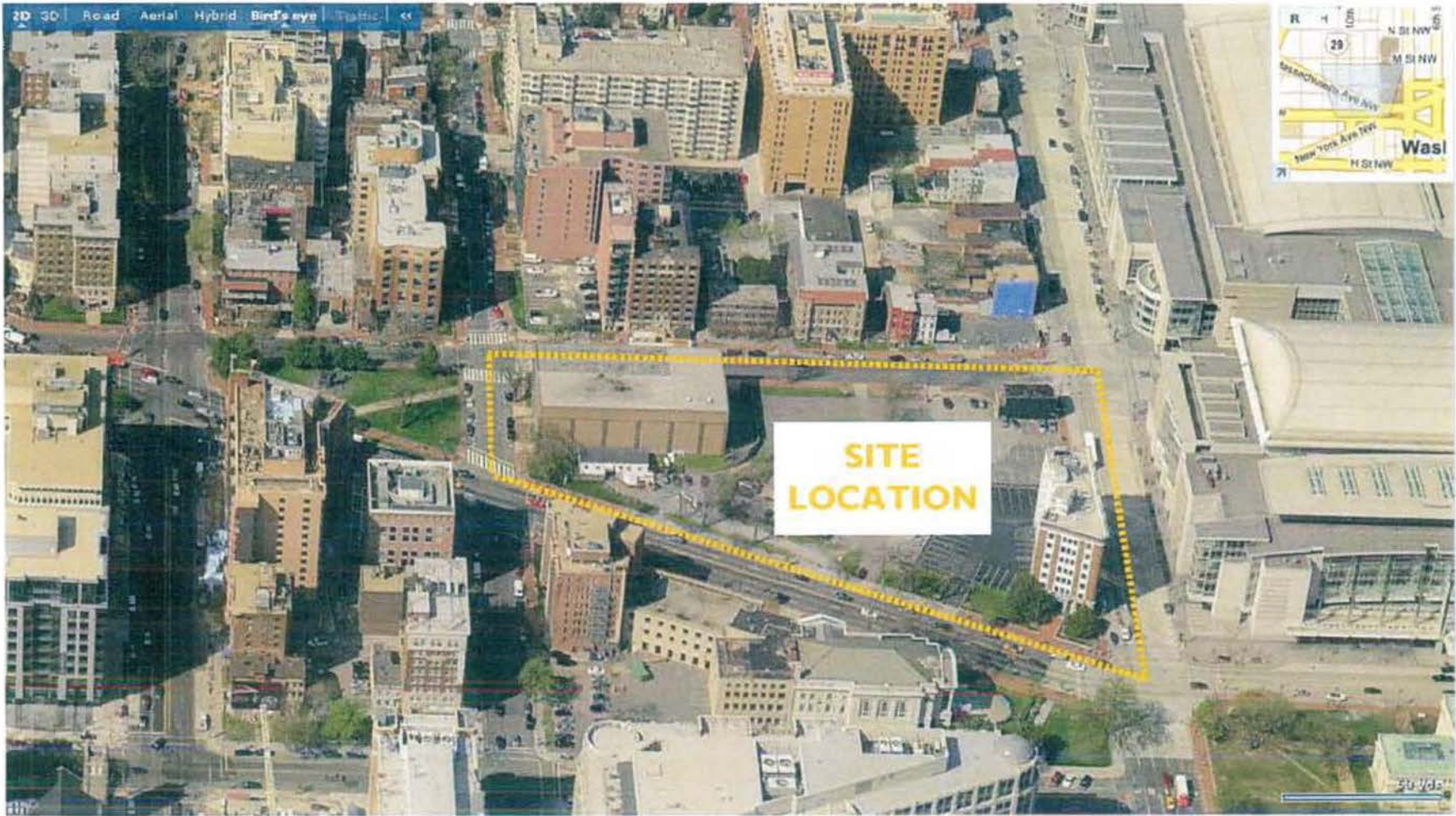
This report presents the results of the traffic impact analyses conducted in support of the proposed Marriott Marquis Hotel along Massachusetts Avenue, in northwest Washington, D.C. The site is located on Square 370 directly across from the Washington Convention Center, and is bounded by Massachusetts Avenue to the south, L Street to the north, 9<sup>th</sup> Street to the east, and 10<sup>th</sup> Street to the west, as shown on Figure 1. The site is currently zoned as DD/C-2-C and DD/C-3-C, and is planned to be re-zoned entirely as DD/C-3-C.

Currently, the existing land uses on the 103,216 square-foot (S.F.) site include a “PMI” parking lot with overflow, a PEPCO Substation, and a 7-story office building with private parking (Plumbers and Pipe Fitters Building). The “PMI” and private parking lots are planned to be eliminated, the office building will be converted into hotel rooms, and the PEPCO Substation will remain.

The site is planned to be redeveloped with approximately 765,400 G.S.F. of hotel use, with approximately 1,125 rooms (including 125 rooms in the existing office building) on 13 floors. Valet-parking will be provided in a two-story underground garage beneath the hotel with 388 parking spaces, with full porte-cochere access via Massachusetts Avenue. Access for taxis will also be provided via the same access with a drop-off/pick-up area across from the hotel front doors. Additional access for shuttle and tour buses will be provided via a lay-by area along the southern side of L Street (closer to 9<sup>th</sup> Street), which is planned to be converted from one-way (westbound) to two-way between 9<sup>th</sup> and 10<sup>th</sup> Streets.

The main loading docks for the proposed Marriott Marquis Hotel will be located underground, accessible via an underground tunnel off N Street. This tunnel is currently being accessed by delivery trucks for the Washington Convention Center and provides sufficient maneuverability for WB-50 sized trucks. In addition, a loading dock for smaller SU-30 sized trucks (FedEx, flowers, etc) will be located along L Street, just west of the bus lay-by area.

The proposed site plan is shown on Figure 2.



**SITE  
LOCATION**



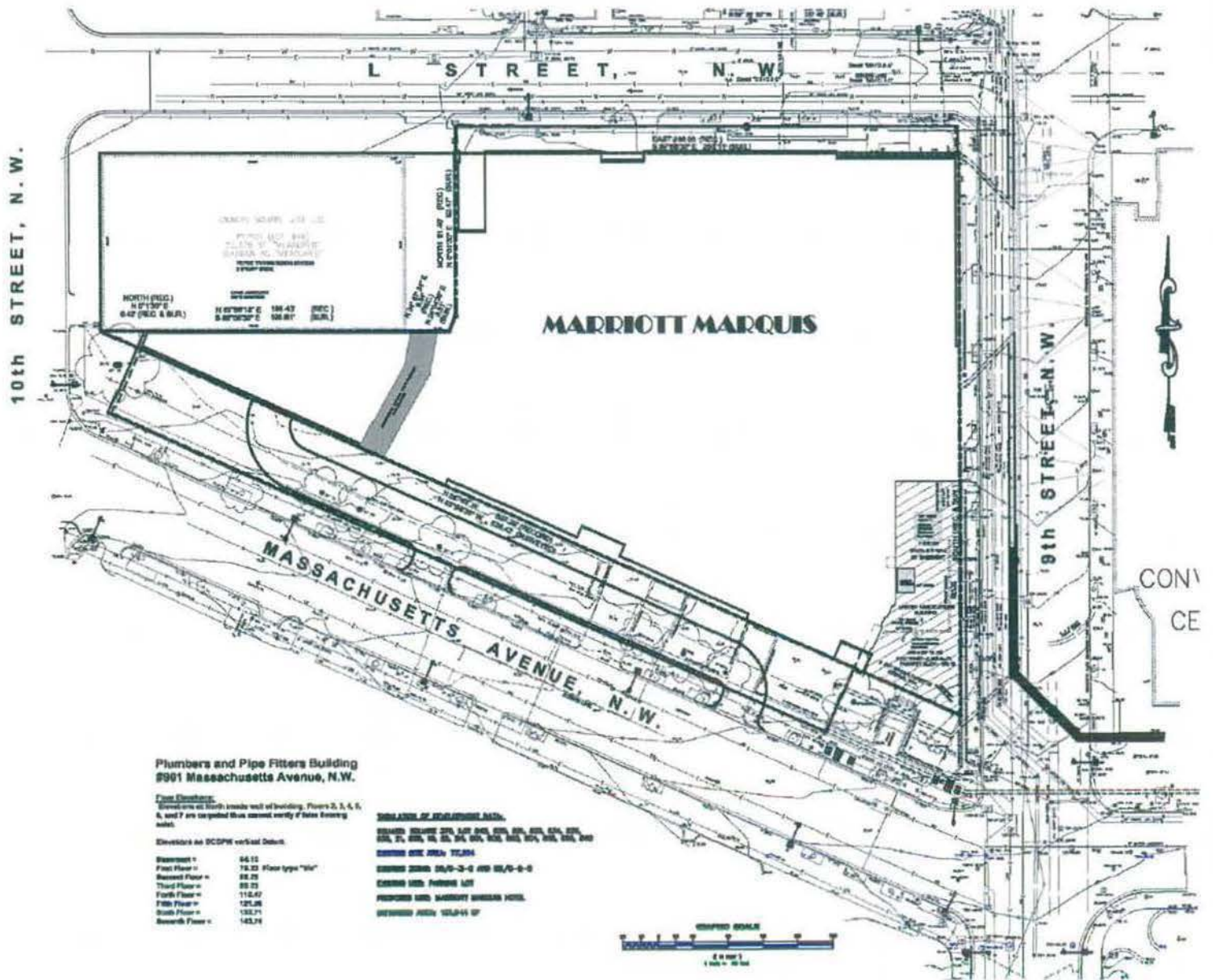
ENGINEERS - PLANNERS - SURVEYORS -  
LANDSCAPE ARCHITECTS  
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REL	AMT	SURV	AMT	COMP	AMT	DES	AMT	DAN	ACAD	CHK	AMT	DATE	REVISION	BY	APP.

MARRIOT MARQUIS - TRAFFIC IMPACT STUDY

**FIGURE I  
SITE LOCATION**

SCALE	CONTOUR INTERVAL	A.M.T. FILE No.
	N/A	108-029.01E
DATE	TAX MAP No.	SHEET
MAY 2008	N/A	



**Plumbers and Pipe Fitters Building  
9901 Massachusetts Avenue, N.W.**

**Floor Elevations:**  
Elevations on North inside wall of building. Floors 2, 3, 4, 5, 6, and 7 are targeted thus correct verify if later bearing notes.

Developed as RCDPW vertical Datum

Basement +	64.15
First Floor +	78.33 Floor type "sl"'
Second Floor +	88.25
Third Floor +	98.15
Fourth Floor +	112.47
Fifth Floor +	125.28
Sixth Floor +	138.71
Seventh Floor +	143.74

**TABLE OF FLOOR AREA DATA**

RECORDED VOLUME 278, LOT 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.



 <b>ENGINEERS - PLANNERS - SURVEYORS - LANDSCAPE ARCHITECTS</b> 3 EAST READ STREET, BALTIMORE, MD 21202 P(410) 752-4552 F(410) 752-4553										MARIOT MARQUIS - TRAFFIC IMPACT STUDY  <b>FIGURE 2 PROPOSED SITE PLAN</b>		SCALE CONTOUR INTERVAL N/A	A.M.T. FILE No. 108-029.01E					
RES.	AMT	SURV.	AMT	COMP.	AMT	DRS.	AMT	DRN.	ACAD	CHK.	AMT	DATE	REVISION	BY	APPR.	DATE	TAX MAP No.	SHEET
																MAY 2008	N/A	

**EXISTING CONDITIONS**

**Existing Road Network**

Regional access to the site is provided via Massachusetts Avenue, while local access is provided via L Street, 9<sup>th</sup> Street, and 10<sup>th</sup> Street.

Massachusetts Avenue is a generally a four-lane east/west roadway stretching from Southern Avenue in the eastern District of Columbia (D.C.) to Goldsboro Road (MD 614) in Montgomery County, Maryland. It provides access to Lincoln and Stanton Parks, Union Station, the Washington Convention Center, Dupont Circle, etc. Parking is prohibited from 7:00AM to 6:30PM, Monday-Friday along Massachusetts Avenue. The intersections of Massachusetts Avenue with 9<sup>th</sup> Street and 10<sup>th</sup> Street are signalized.



L Street is one-way two-lane westbound street providing local access to residential areas between 9<sup>th</sup> and 10<sup>th</sup> Streets. The posted speed limit is 25 mph. Parking is allowed for a two-hour limit from 7:00AM to 8:30PM (Zone 2 Permit Holders Excepted), except on Tuesdays from 9:30AM to 11:30 AM for street cleaning (Zone 2 Permit Holders Excepted). Parking is prohibited near the 10<sup>th</sup> Street intersection during peak hours due to a left turn lane.

9<sup>th</sup> Street is a north/south four-lane street providing access to both local residential streets and Massachusetts Avenue. The posted speed limit is 25 mph. Parking is varied with commercial loading/unloading spaces alternating with 2-hour limit parking meters. The intersections of 9<sup>th</sup> Street with L Street and M Street are signalized.





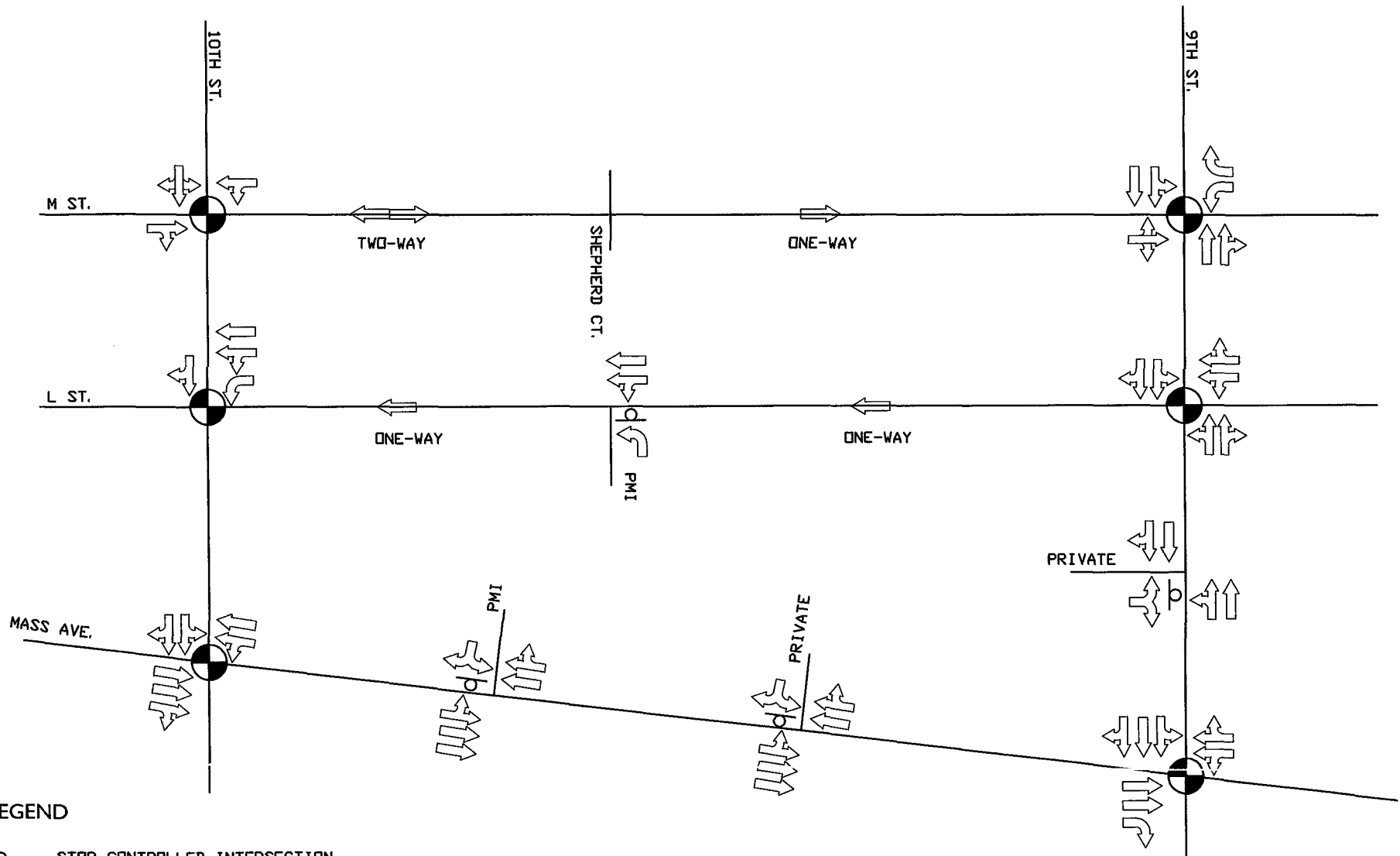
10<sup>th</sup> Street is a one-way southbound street providing local access to residential areas in the vicinity of the site. The posted speed limit is 25 mph. Parking is allowed for a two-hour limit from 7:00AM to 8:30PM (Zone 2 Permit Holders Excepted), except on Wednesdays from 12:30PM to 2:30PM for street cleaning (Zone 2 Permit Holders Excepted). The intersections of 10<sup>th</sup> Street with L Street and M Street are signalized.

The existing lane use and traffic control is shown on Figure 3.



### Existing Site Use

As mentioned in the introduction, the site is currently occupied with a PMI parking lot with overflow, a PEPCO Substation, and a 7-story office building with private parking (Plumbers and Pipe Fitters Building). The PMI parking lot is served by two entrances/exits; one located along Massachusetts Avenue and the second located along L Street. The office building is also served by two entrances/exits; one located along Massachusetts Avenue, just east of the PMI entrance/exit, and the second located along 9<sup>th</sup> Street.

The PMI and private parking lots are planned to be eliminated, the office building will be converted into hotel rooms, and the PEPCO Substation will remain.



**LEGEND**

-  STOP-CONTROLLED INTERSECTION
-  SIGNAL-CONTROLLED INTERSECTION



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**FIGURE 3**  
EXISTING LANE USE AND TRAFFIC CONTROL

SCALE	CONTOUR INTERVAL	A.M.T. FILE No.
	N/A	108-029.01E
DATE	TAX MAP No.	SHEET
MAY 2008	N/A	

RES.	AMT	SURV.	AMT	COMP.	AMT	DES.	AMT	DRN. ACAD	CHK.	AMT	DATE	REVISION	BY	APPL.

DATE: 5-1-08

## **Existing Traffic, Pedestrian, and Bicycle Counts**

### Existing Traffic Counts

Existing AM and PM peak hour turning movement counts were collected by A. Morton Thomas & Associates, Inc. on Tuesday, February 26, Wednesday, February 27, and Thursday, April 3, 2008, from 6:00AM to 9:00AM and from 4:30PM to 6:30PM at the following intersections:

1. L Street/9<sup>th</sup> Street,
2. L Street/10<sup>th</sup> Street,
3. Massachusetts Avenue/9<sup>th</sup> Street,
4. Massachusetts Avenue/10<sup>th</sup> Street,
5. Massachusetts Avenue/Private Lot,
6. Massachusetts Avenue/PMI Lot,
7. L Street/PMI Lot,
8. 9<sup>th</sup> Street/Private Lot,
9. M Street/9<sup>th</sup> Street, and
10. M Street/10<sup>th</sup> Street.

The existing turning movement count sheets, as well as pictures of the intersections are located in Appendix A.

The existing traffic counts at the ten (10) key intersections were balanced. The existing AM and PM peak hour traffic volumes are shown on Figure 4.

Based on the counts conducted, the AM peak hour occurs generally between 8:00AM and 9:00AM, and the PM peak hour occurs generally between 5:00PM and 6:00PM.

### Existing Pedestrian Counts

Pedestrian counts were also conducted during the AM and PM peak hours at the key intersections listed above, and are located in Appendix A and shown on Figure 5. Field observations indicated the following:

- Generally, pedestrian signal heads and marked crosswalks are provided at all key intersections for pedestrian crossings.
- Existing sidewalks were observed to be in good condition and are provided on both sides of all roadways in the vicinity of the site.
- Sufficient WALK and FLASHING DON'T WALK time was observed to be provided for all pedestrian movements, even at the heavier movements along Massachusetts Avenue at 9<sup>th</sup> Street.
- The majority of the pedestrian crossings occur at the intersection of Massachusetts Avenue and 9<sup>th</sup> Street, especially during the PM peak hour.

Existing Bicycles Counts

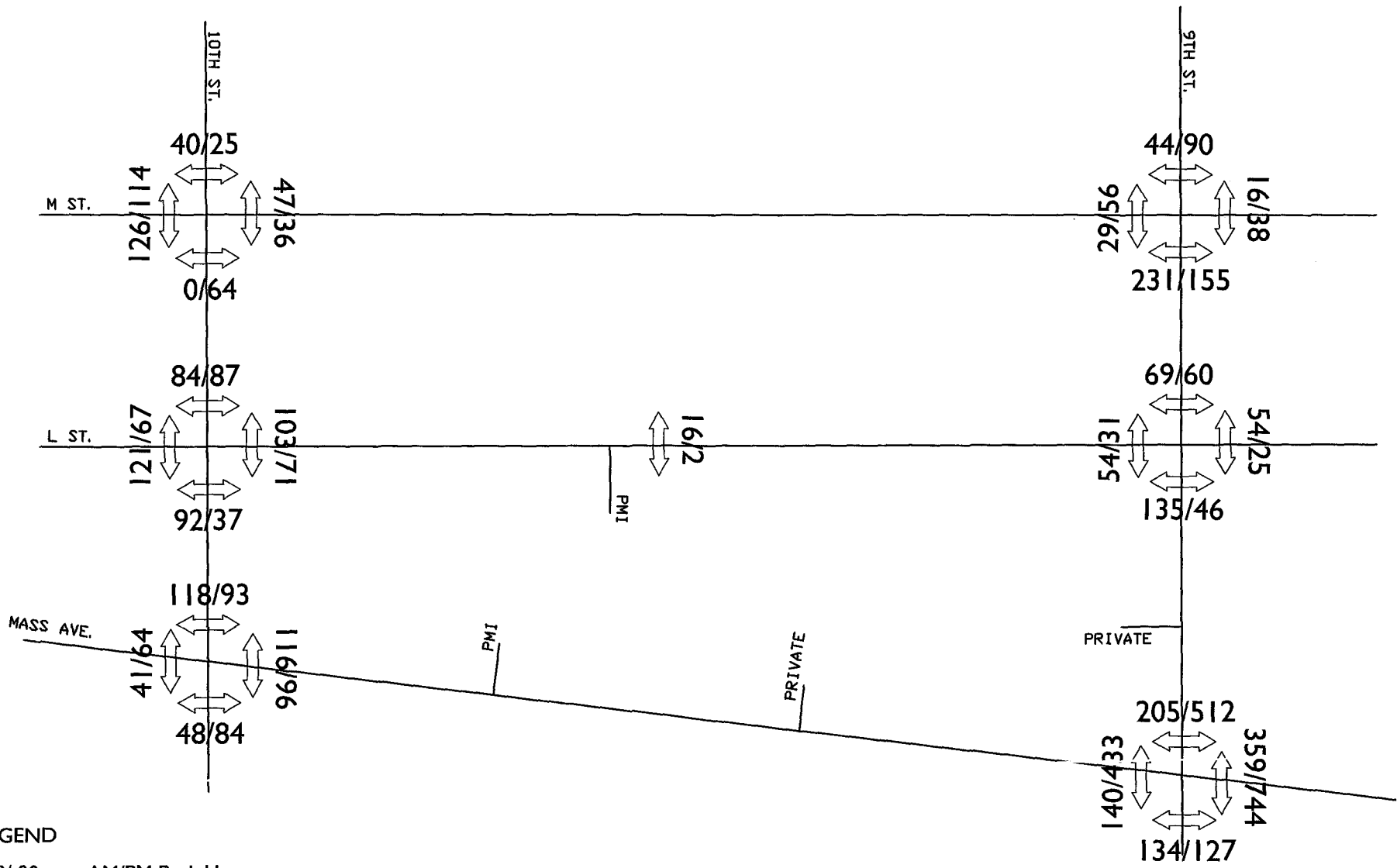
During the AM and PM peak hour turning movement and pedestrian counts conducted on Tuesday, February 26, Wednesday, February 27 and Thursday, April 3, 2008, field observations indicated that bicycles were present along the residential local streets, but very few bicycles were observed along Massachusetts Avenue. The following table summarizes the field observations:

Table 1: Existing Bicycle Counts

Street	# of Bicyclists Observed	
	AM Peak Hour	PM Peak Hour
9 <sup>th</sup> Street	4	2
10 <sup>th</sup> Street	7	5
L Street	5	4
M Street	10	11

Field observations indicated that bicyclists shared the road with vehicles and a small percentage used the sidewalk. On average, the number of bicyclists observed was deemed to be relatively low, likely due to the cold weather and rain/sleet experienced during the count days.





LEGEND

00/00 AM/PM Peak Hour



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FIGURE 5  
EXISTING AM/PM PEDESTRIAN PEAK HOUR VOLUMES

SCALE	CONTOUR INTERVAL	A.M.T. FILE No.
	N/A	108-029.01E
DATE	TAX MAP No.	SHEET
MAY 2008	N/A	

RES. AMT	SURV. AMT	COMP. AMT	DES. AMT	DRN. ACAD	CHK. AMT	DATE	REVISION	BY	APPR.

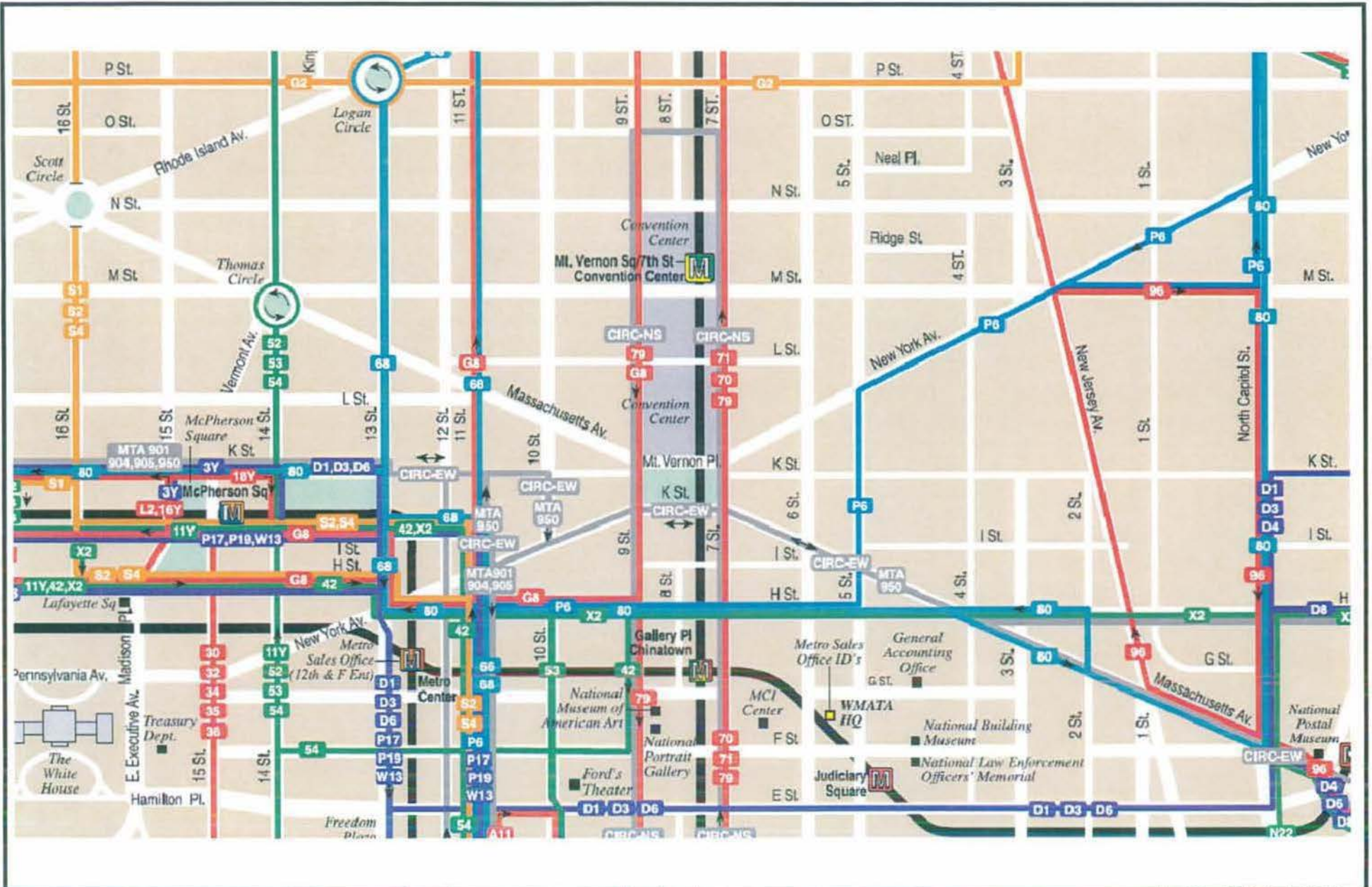
## **Public Transportation**

Various forms of public transportation are available in the vicinity of the site, including:

1. Metro Station Mt. Vernon Sq/7<sup>th</sup> St. – Convention Center (located approximately 2 blocks from the site). Metrobus Route 5A provides direct service from Washington Dulles International Airport to L'Enfant Plaza Station, three metro stops from the proposed site.
2. DC Bus Circulator – Convention Center – SW Waterfront Route, providing service along 7<sup>th</sup> and 9<sup>th</sup> Streets, 7:00AM to 9:00PM, daily. Fares are \$1.00 with free transfers.
3. DC Bus Circulator – Georgetown – Union Station Route, providing service along K Street, 7:00AM to 9:00PM, daily. Fares are \$1.00 with free transfers.
4. Metrobus Route 70, 71 – Georgia Ave. – 7<sup>th</sup> Street Line provides service along 7<sup>th</sup> Street near the site vicinity, with bus service approximately every 10-20 minutes during weekdays and every 10-30 minutes during weekends.
5. Metro Extra Route 79 provides the same service as Metrobus Route 70, 71 with service every 10-12 minutes during weekdays only with limited stops at the same fare as the regular bus line.
6. Metrobus Route G8 – Rhode Island Avenue Line provides service along 9<sup>th</sup> Street directly across the site, with bus service every 10-30 minutes during weekdays and every 30 minutes during weekends.
7. The MARC Train Penn Line provides weekday service between Union Station and New Carrollton Metro Stations and the BWI Airport.
8. Special Convention Center shuttles pick-up and drop-off convention attendees/guests from various hotels around the convention center area and drop them off at the main Convention Center entrances along L Street (just east of 9<sup>th</sup> Street).

The existing transit/Metrobus routes are shown on Figure 6. The majority of the hotels in downtown DC widely promote the existing public transportation services, which are generally not as expensive as using a taxi cab to and from any of the three major airports in the area. Baltimore-Washington International Airport, Dulles International Airport, and Ronald Reagan Airport provide detailed routes, schedules, and fee information of all available forms of transit into downtown DC for all arriving passengers (see Appendix B).

It is anticipated that the Marriott Marquis Hotel will follow similar steps to promote public transportation usage to and from the hotel, and this was taken into consideration when determining the trip generation.



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		ENGINEERS - PLANNERS - SURVEYORS - LANDSCAPE ARCHITECTS 3 EAST READ STREET, BALTIMORE, MD 21202 PH: (410) 752-4552 FAX: (410) 752-4553				MARIOTT MARQUIS - TRAFFIC IMPACT STUDY FIGURE 6 EXISTING TRANSIT/METROBUS SERVICES		SCALE CONTOUR INTERVAL DATE MAY 2008		A.M.T. FILE No. 108-029.01E TAX MAP No. N/A SHEET	
DES. AHT	SKY. AHT	COMP. AHT	DIR. AHT	DRN. ACAD	CHK. AHT	DATE	REVISION	BY	APPX.		

## Existing Conditions Analyses

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

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

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

Table 2: Level of Service and Delay Criteria (Vehicles)

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

The Synchro results of the existing analyses are located in Appendix C and summarized in Table 3. The results indicate the following:

- ⇒ All key intersections currently operate at overall acceptable LOS "D" or better during both the AM and PM peak hours, except the intersection of Massachusetts Ave at 10<sup>th</sup> Street. This intersection operates at unacceptable LOS "F" during the AM peak hour due to high westbound through and left turning traffic (in a shared through/left turning lane).

Table 3  
 Intersection Level of Service Summary<sup>1</sup>  
 Marriott Marquis TIS

Location	Control	Existing Conditions	
		AM Peak Hour	PM Peak Hour
1. L Street and 9th Street Westbound Northbound Southbound <b>Overall</b>	Signal	C(22.0) B(12.3) D(41.9) <b>D(36.0)</b>	C(20.8) B(15.5) A(9.1) <b>B(12.3)</b>
2. L Street and 10th Street Westbound Southbound <b>Overall</b>	Signal	A(7.5) C(26.0) <b>B(11.4)</b>	A(8.6) C(25.6) <b>B(13.1)</b>
3. Mass. Avenue and 9th Street Eastbound Westbound Southbound <b>Overall</b>	Signal	A(7.5) B(11.9) F(99.7) <b>D(35.4)</b>	B(10.1) A(9.3) C(23.8) <b>B(13.1)</b>
4. Mass. Avenue and 10th Street Eastbound Westbound Southbound <b>Overall</b>	Signal	B(12.5) F(255.7) B(15.0) <b>F(123.8)</b>	C(25.0) D(43.7) B(14.4) <b>C(29.6)</b>
5. Mass. Avenue and Private Lot Eastbound LT Southbound LR	Stop Sign	A[0.1] A[0.0]	A[0.1] B[11.4]
6. Mass. Avenue and PMI Lot Eastbound LT Southbound LR	Stop Sign	A[0.6] C[15.1]	A[0.0] D[25.4]
7. L Street and PMI Lot Westbound LT Northbound L	Stop Sign	A[0.9] A[10.0]	A[0.2] A[9.3]
8. 9th Street and Private Lot Eastbound LR Northbound LT	Stop Sign	A[0.0] A[9.4]	C[19.9] A[0.0]
9. M Street and 9th Street Eastbound Westbound Northbound Southbound <b>Overall</b>	Signal	A(7.9) B(11.0) A(9.7) C(32.7) <b>C(28.7)</b>	D(36.4) A(9.8) A(9.6) B(19.6) <b>C(20.3)</b>
10. M Street and 10th Street Eastbound Westbound Southbound <b>Overall</b>	Signal	B(15.6) B(14.1) B(16.2) <b>B(15.8)</b>	B(17.0) A(0.0) B(16.4) <b>B(16.8)</b>

<sup>1</sup> Based on the Synchro/SimTraffic 6.0 methodology

## **BACKGROUND CONDITIONS**

### Annual Growth Rate

Based on previous traffic impact studies conducted in the vicinity of the site, a 1.0 % growth rate (compounded annually) was applied to all turning movements to the year 2030, as requested by DDOT.

### Pipeline Developments (Trip Generation, Modal Splits, Trip Assignment)

In addition to the annual growth rate, five (5) pipeline developments were taken into consideration as requested by DDOT:

1. Old Convention Center (office, retail, apartments/condos, 9<sup>th</sup> Street)
2. 901 K Street (office, retail, K Street)
3. 1099 New York Avenue (office, retail, 11<sup>th</sup> Street/NY Avenue)
4. 1050 K Street (office, retail, K Street)
5. 9<sup>th</sup> Street Retail Project (retail, 9<sup>th</sup> Street)

A traffic impact study was conducted for the Old Convention Center Site by Gorove/Slade Associates, Inc., dated April 4, 2008, for an EISF submittal. The trip generation, distribution, and assignments were taken directly from this report and included in our pipeline development trips. For the other four (4) pipeline developments, site trips were generated per the Institute of Transportation Engineers (ITE) Trip Generation Rate Manual, 7<sup>th</sup> Edition. The trips for the three predominant office developments and the one predominant retail development were distributed along the existing roadway network per existing travel patterns. The overall trip generation summary for the pipeline developments is shown on Table D-1, located in Appendix D.

The trip distribution for each pipeline development is located in Appendix D (Figures D-1 to D-3) and the total pipeline trip generation and distribution is shown on Figure 7.

### Background Conditions Forecasts

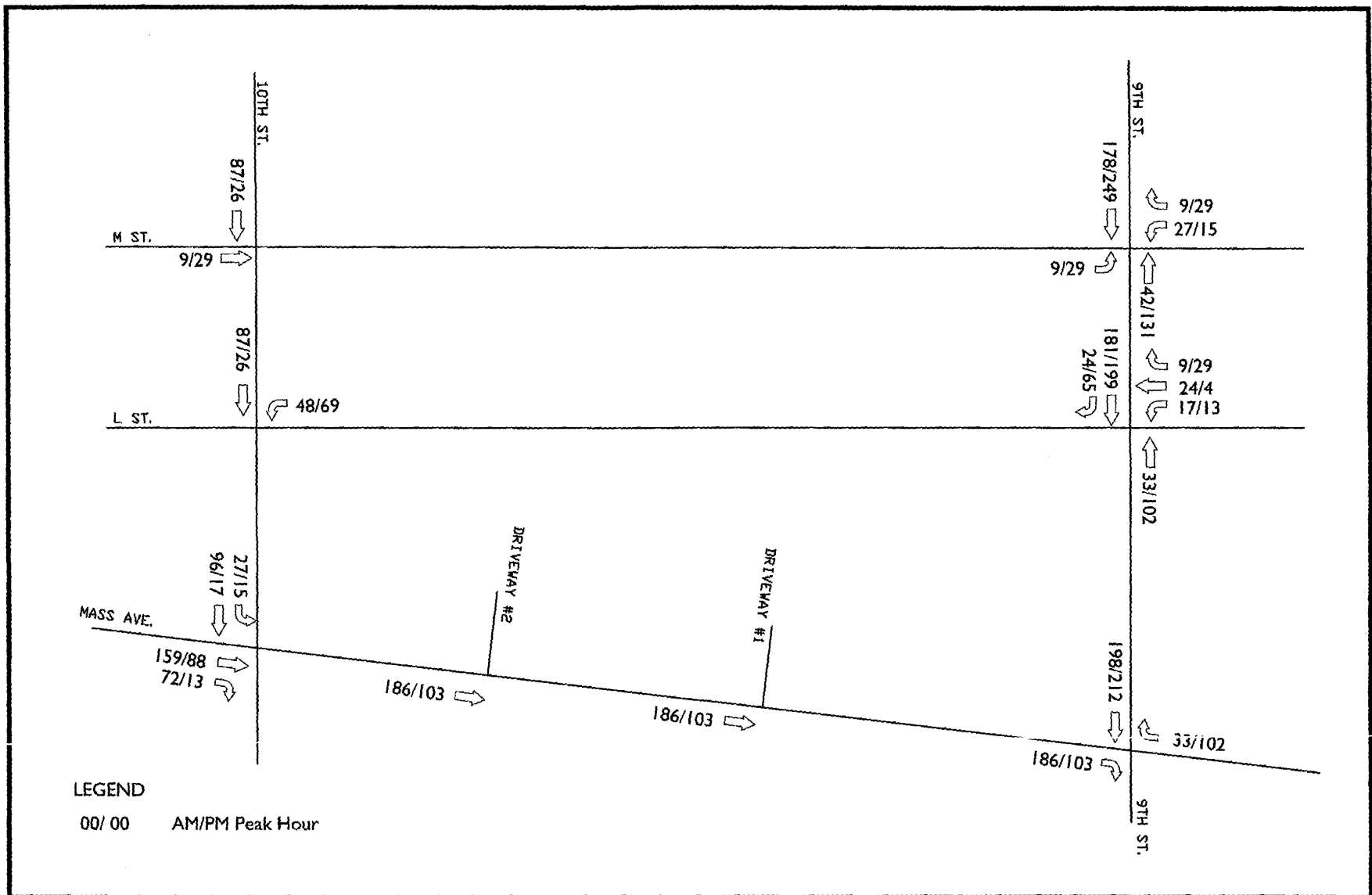
The background conditions forecasts were determined based on the existing peak hour counts (Figure 4), the annual growth rate, and the pipeline developments (Figure 7). The background conditions forecasts are shown on Figure 8.

### Background Conditions Analyses


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

The Synchro results of the background conditions analyses are located in Appendix E and summarized on Table 4. The results indicate the following:

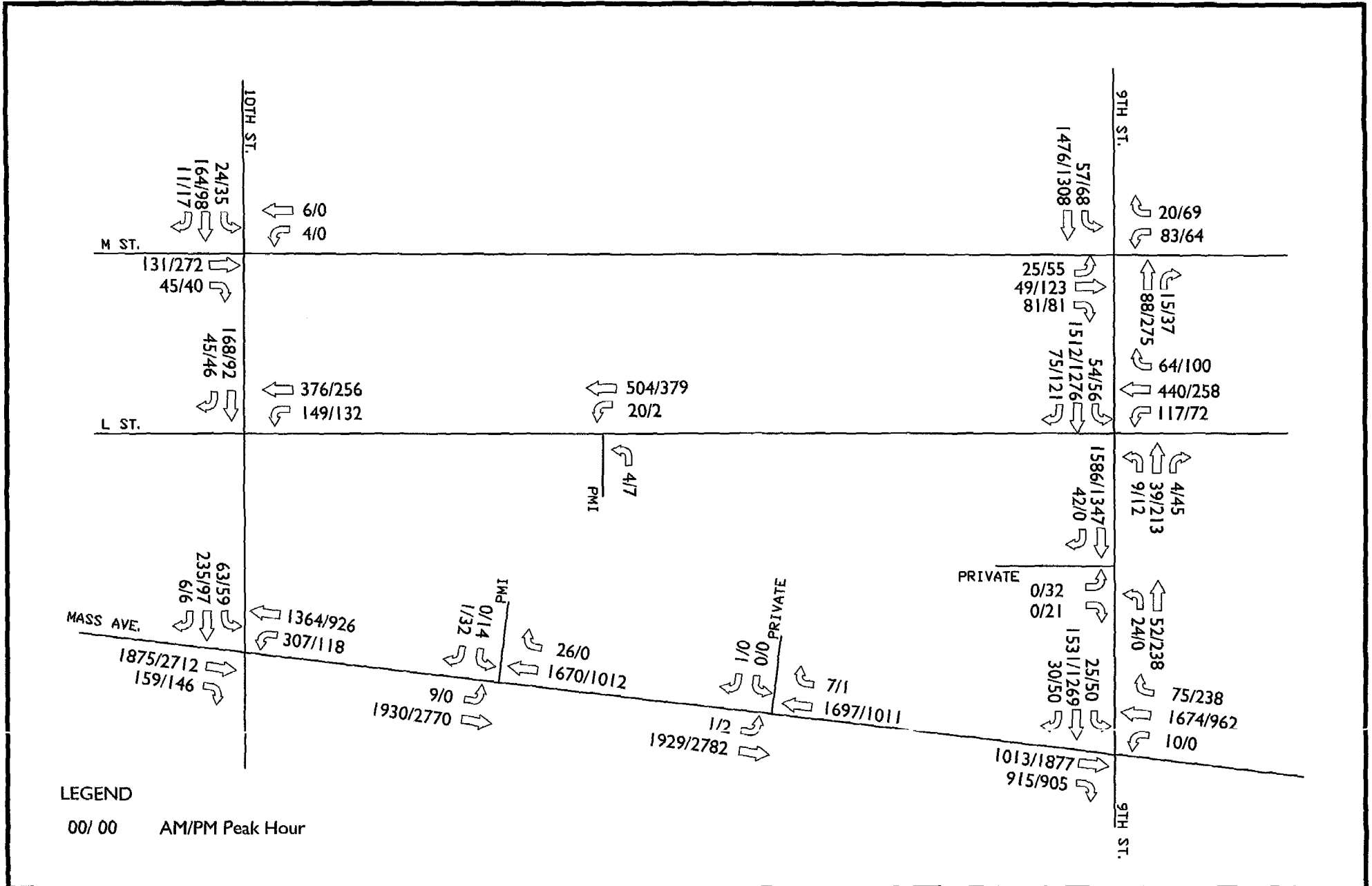
- ⇒ The intersections of L Street/9<sup>th</sup> Street, Massachusetts Avenue/9<sup>th</sup> Street, Massachusetts Avenue/10<sup>th</sup> Street, Massachusetts Avenue/PMI Driveway, and M Street/9<sup>th</sup> Street are anticipated to operate at unacceptable LOS “E” or “F” during either or both the AM and PM peak hours in 2030 background conditions. This is due to the addition of the trips from the approved pipeline development studies, as well as the 1% annual growth rate.
  
- ⇒ The remainder intersections are anticipated to continue operating at acceptable LOS “D” or better during both the AM and PM peak hours.



**LEGEND**  
00/00 AM/PM Peak Hour

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DATE MAY 2008										TAX MAP No. N/A										SHEET															
DES.	CHK.	APP.	DATE	REVISION	BY	APP.	DATE	REVISION	BY	APP.	DATE	REVISION	BY	APP.	DATE	REVISION	BY	APP.	DATE	REVISION	BY	APP.													

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LEGEND  
 00/ 00 AM/PM Peak Hour



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FIGURE 8  
 BACKGROUND CONDITIONS FORECASTS

SCALE	CONTOUR INTERVAL	A.M.T. FILE No.
	N/A	108-029.01E
DATE	TAX MAP No.	SHEET
MAY 2008	N/A	

Table 4  
Background Conditions Level of Service Summary<sup>1</sup>  
Marriott Marquis TIS

Location	Control	Existing Conditions		Background Conditions	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1. L Street and 9th Street	Signal				
Westbound		C(22.0)	C(20.8)	C(24.5)	C(22.3)
Northbound		B(12.3)	B(15.5)	B(11.6)	B(14.9)
Southbound		D(41.9)	A(9.1)	F(122.7)	F(92.5)
<b>Overall</b>		<b>D(36.0)</b>	<b>B(12.3)</b>	<b>F(93.9)</b>	<b>E(70.6)</b>
2. L Street and 10th Street	Signal				
Westbound		A(7.5)	A(8.6)	A(6.8)	A(7.6)
Southbound		C(26.0)	C(25.6)	C(32.7)	C(24.9)
<b>Overall</b>		<b>B(11.4)</b>	<b>B(13.1)</b>	<b>B(14.3)</b>	<b>B(13.7)</b>
3. Mass. Avenue and 9th Street	Signal				
Eastbound		A(7.5)	B(10.1)	C(32.1)	E(57.7)
Westbound		B(11.9)	A(9.3)	C(22.5)	B(12.3)
Southbound		F(99.7)	C(23.8)	F(322.3)	F(165.9)
<b>Overall</b>		<b>D(35.4)</b>	<b>B(13.1)</b>	<b>F(116.1)</b>	<b>E(75.2)</b>
4. Mass. Avenue and 10th Street	Signal				
Eastbound		B(12.5)	C(25.0)	B(17.4)	F(106.3)
Westbound		F(255.7)	D(43.7)	F(410.2)	F(140.0)
Southbound		B(15.0)	B(14.4)	B(11.9)	B(14.0)
<b>Overall</b>		<b>F(123.8)</b>	<b>C(29.6)</b>	<b>F(180.8)</b>	<b>F(108.0)</b>
5. Mass. Avenue and Private Lot	Stop Sign				
Eastbound LT		A[0.1]	A[0.1]	A[0.1]	A[0.1]
Southbound LR		A[0.0]	B[11.4]	A[0.0]	B[11.4]
6. Mass. Avenue and PMI Lot	Stop Sign				
Eastbound LT		A[0.6]	A[0.0]	A[1.0]	A[0.0]
Southbound LR		C[15.1]	D[25.4]	C[18.3]	F[54.8]
7. L Street and PMI Lot	Stop Sign				
Westbound LT		A[0.9]	A[0.2]	A[0.9]	A[0.1]
Northbound L		A[10.0]	A[9.3]	B[10.6]	A[9.8]
8. 9th Street and Private Lot	Stop Sign				
Eastbound LR		A[0.0]	C[19.9]	A[0.0]	B[11.8]
Northbound LT		A[9.4]	A[0.0]	A[9.9]	A[0.0]
9. M Street and 9th Street	Signal				
Eastbound		A(7.9)	D(36.4)	A(8.6)	D(36.8)
Westbound		B(11.0)	A(9.8)	B(11.3)	A(9.2)
Northbound		A(9.7)	A(9.6)	B(15.4)	A(7.6)
Southbound		C(32.7)	B(19.6)	F(124.8)	C(34.5)
<b>Overall</b>		<b>C(28.7)</b>	<b>C(20.3)</b>	<b>F(103.2)</b>	<b>C(29.1)</b>
10. M Street and 10th Street	Signal				
Eastbound		B(15.6)	B(17.0)	B(16.2)	B(18.5)
Westbound		B(14.1)	A(0.0)	B(14.2)	A(0.0)
Southbound		B(16.2)	B(16.4)	B(17.9)	B(17.1)
<b>Overall</b>		<b>B(15.8)</b>	<b>B(16.8)</b>	<b>B(17.0)</b>	<b>B(18.0)</b>

<sup>1</sup> Based on the Synchro/SimTraffic 6.0 methodology

## **SITE DEVELOPMENT**

### Site Trip Generation

The proposed site is planned to be redeveloped with approximately 1,035,721 S.F. of hotel use, with approximately 1,125 rooms (including 125 rooms in the existing office building). Trip generation was determined using the ITE Trip Generation Rate Manual, 7<sup>th</sup> Edition, and is summarized in Table 5. Overall, the site is anticipated to generate 377 AM peak hour trips (218 in and 159 out), 394 PM peak hour trips (193 in and 201 out), and 5,018 average annual daily trips.

### Transit Reduction

A transit reduction was applied to the baseline trip generation summary to account for the extensive public transportation services provided in the vicinity of the site. The following was assumed for the area:

- ⇒ 10% of users would walk (from adjacent parking lots, Metro Station, Metrobus stops, etc)
- ⇒ 20% of users would drive (from MD, VA, etc)
- ⇒ 60% of users would fly and use either public transportation (30%), rent a vehicle (10%), board a chartered bus/shuttle (5%), or take a taxi (15%)
- ⇒ 10% of users would use public transportation (Metro, Metrobus, MARC, etc)

Approximately 50% of users would access the site either with a vehicle or a taxi, and the remainder 50% would access the site using public transportation or walking (resulting in a 50% trip reduction, as shown in Table 5).

### Trip Distribution/Assignment

As previously noted, the bus lay-by area is proposed to be located along L Street, which is proposed to be converted from one-way (westbound) to two-way between 9<sup>th</sup> and 10<sup>th</sup> Street, mainly for safety reasons to ensure that users being unloaded from the bus do not have to cross L Street to access the hotel lobby. In addition, 10<sup>th</sup> Street is proposed to be converted from one-way southbound to two-way between Massachusetts Avenue and L Street, to allow chartered buses further access to the hotel from Massachusetts Avenue.

Three scenarios were studied, as requested by DDOT, and the respective trip distributions/assignments are shown on Figures 9a, 9b, and 9c:

1. L Street one-way westbound, 10<sup>th</sup> Street one-way (southbound) - Figure 9a
2. L Street two-way, 10<sup>th</sup> Street one-way (southbound) - Figure 9b
3. L Street two-way, 10<sup>th</sup> Street two-way - Figure 9c

For all three scenarios, the site access driveways (porte-cochere) along Massachusetts Avenue were assumed to operate with full turning movements allowed (i.e. lefts and rights in and out). Since the hotel peak hours are anticipated to occur outside of the regular AM and PM roadway peak hours, allowing full turning movements at the driveways is not anticipated to deteriorate existing or future roadway operating conditions during the AM and PM peak hours.

Table 5

Marriot Marquis, Washington DC

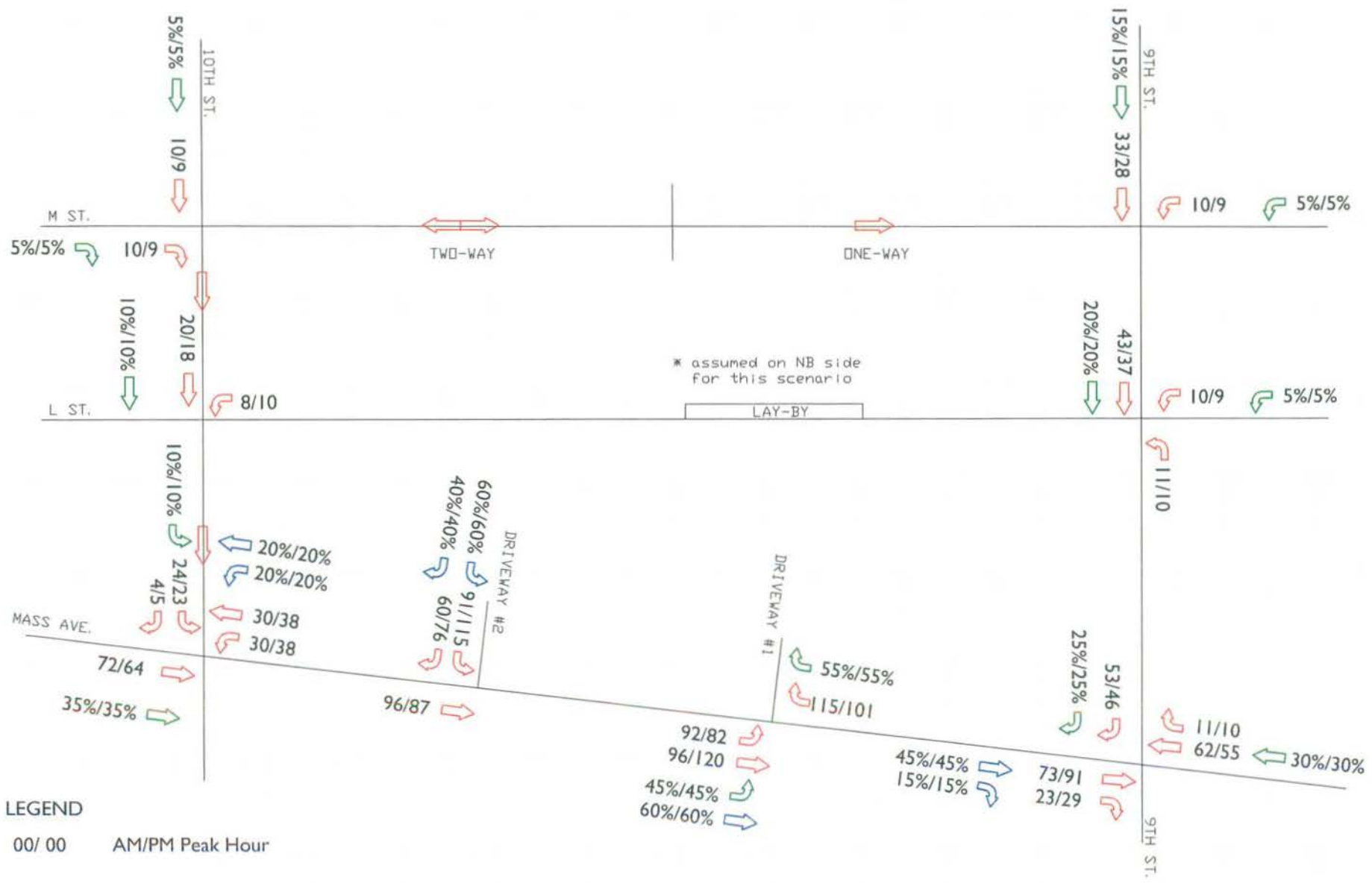
Site Development Trip Generation Analysis <sup>1</sup>

Land Use	Land Use Code	Amount	Units	AM Peak Hour			PM Peak Hour			AADT
				In	Out	Total	In	Out	Total	
Hotel	310	1,125	rooms	437	317	754	386	402	788	10,035
	<i>Trip Reductions</i> <sup>2</sup>	50%		219	158	377	193	201	394	5,018
	Total			218	159	377	193	201	394	5,018

Notes:

<sup>1</sup> Trips based on ITE Trip Generation Manual, 7th Edition, All rooms are considered to be occupied.

<sup>2</sup> Based on a existing transit services reduction as described in the report.



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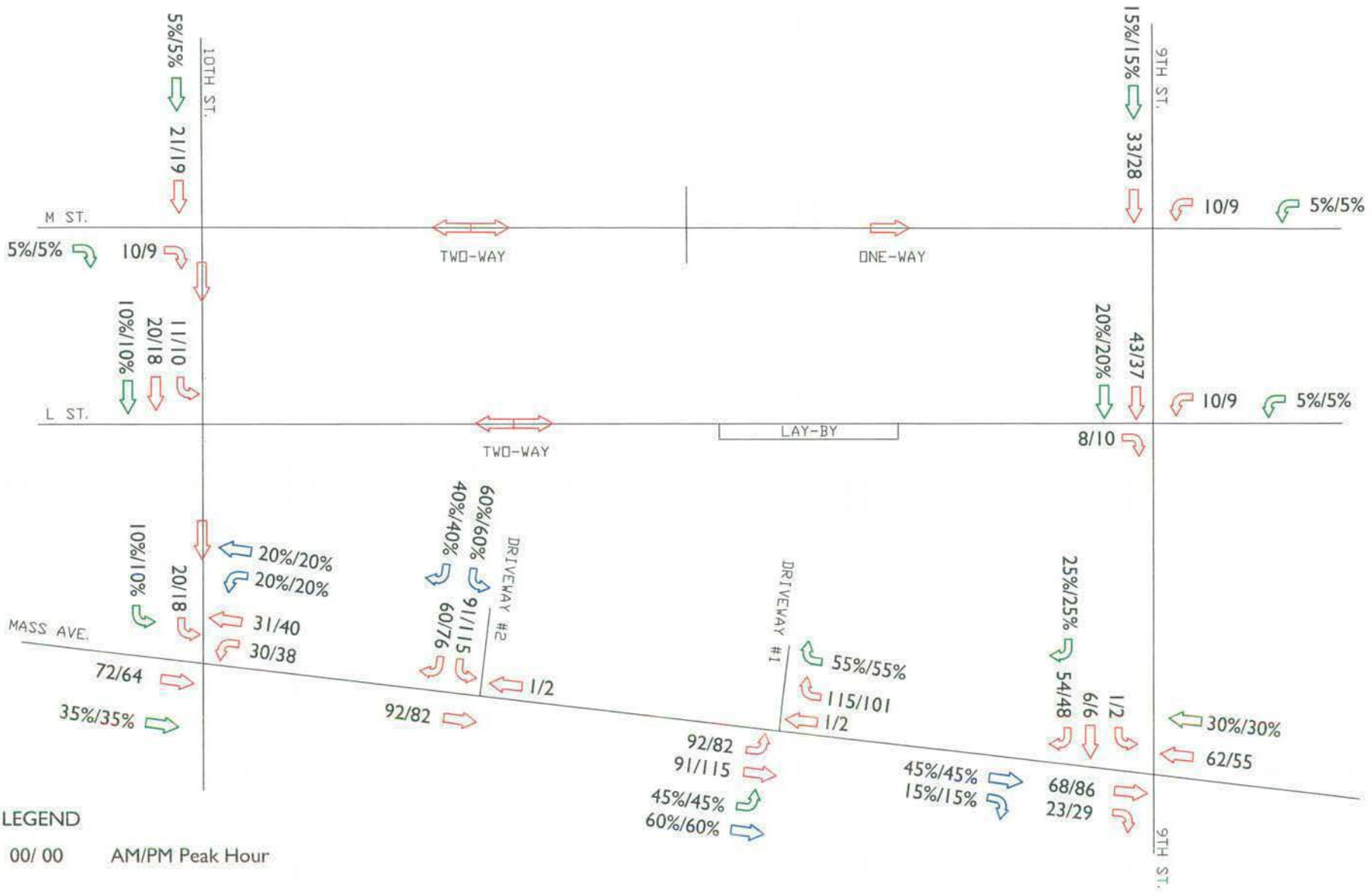
MARRIOT MARQUIS - TRAFFIC IMPACT STUDY

FIGURE 9a  
SITE GENERATED TRIPS  
SCENARIO I

SCALE	CONTOUR INTERVAL	A.M.T. FILE No.
	N/A	108-029.01E
DATE	TAX MAP No.	SHEET
MAY 2008	N/A	

RES	AMT	SURV	AMT	COMP	AMT	DES	AMT	DRN	ACAD	CHK	AMT	DATE	REVISION	BY	APPX

D-11-00-433



**LEGEND**  
00/00 AM/PM Peak Hour

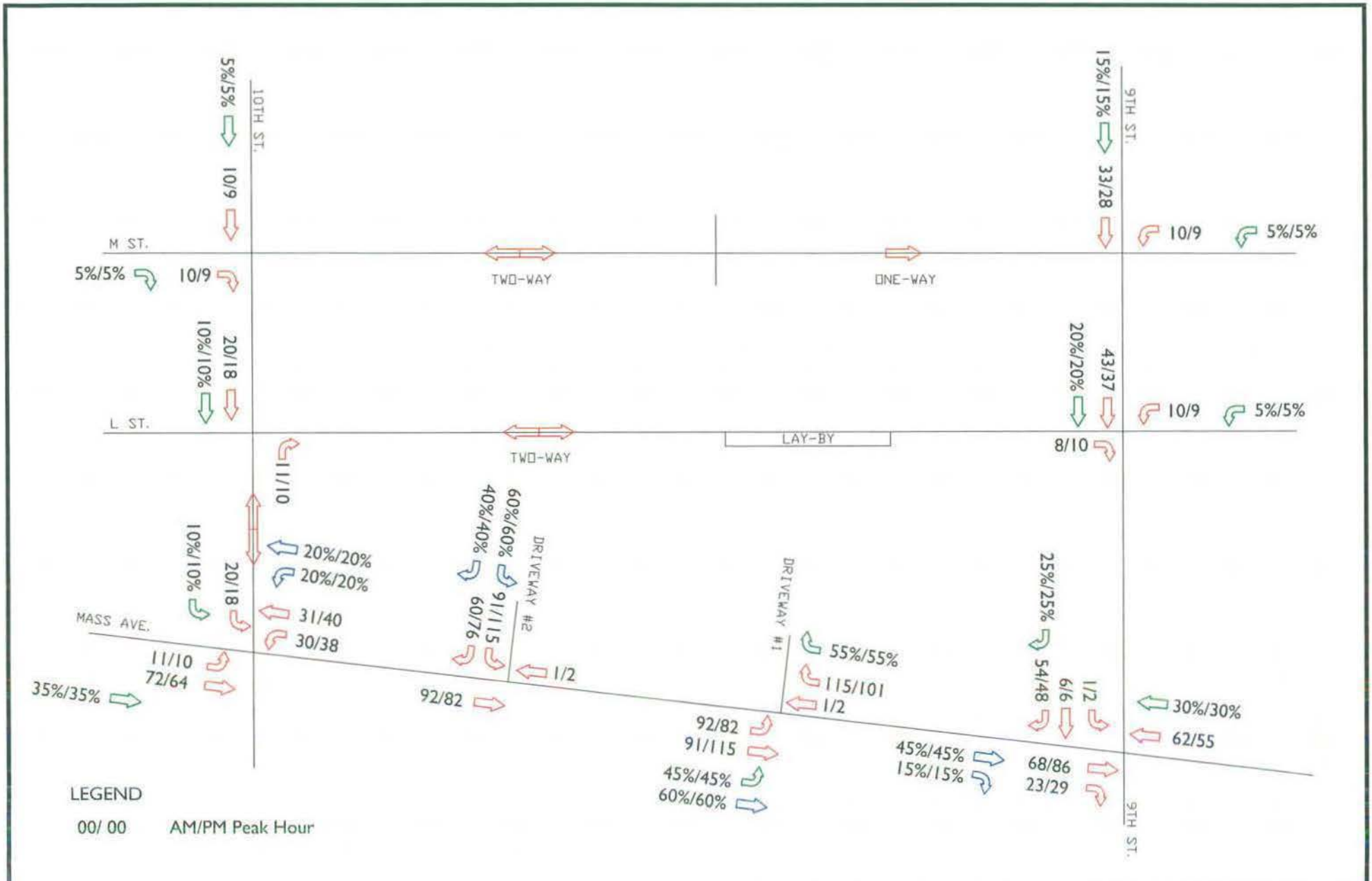
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FIGURE 9b  
SITE GENERATED TRIPS  
SCENARIO 2 - L ST. 2 WAY

SCALE	CONTOUR INTERVAL	A.M.T. FILE No.
	N/A	108-029.01E
DATE	TAX MAP No.	SHEET
MAY 2008	N/A	

RES.	AMT.	SURV.	AMT.	COMP.	AMT.	DES.	AMT.	DRN.	ACAD.	CHK.	AMT.	DATE	REVISION	BY	APPL.



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MARRIOTT MARQUIS - TRAFFIC IMPACT STUDY  
**FIGURE 9c**  
SITE GENERATED TRIPS  
SCENARIO 3 - L ST. 2 WAY & 10th ST. 2 WAY

SCALE	CONTOUR INTERVAL	A.M.T. FILE No.
	N/A	108-029.01E
DATE	TAX MAP No.	SHEET
MAY 2008	N/A	

REV.	AMT	SURV.	AMT	CONF.	AMT	DES.	AMT	DRAW ACAD.	CHK.	AMT	DATE	REVISION	BY	APP.

## **FUTURE CONDITIONS**

### Modified Existing AM and PM Peak Hour Volumes

To account for the removal of the existing PMI parking lot and existing office building/private parking lot, the existing trips at the site driveways were removed from the existing roadway network using existing travel pattern distribution. The modified existing AM and PM peak hour volumes are shown on Figure F-1 in Appendix F.

In addition, the conversion of L Street and 10<sup>th</sup> Street from one-way to two-way will result in the modification of the existing travel patterns along 9<sup>th</sup> Street, 10<sup>th</sup> Street, and M Street. Figures F-2 and F-3 in Appendix F indicate the modified travel patterns based on Scenario 2 and 3, respectively.

### Future Conditions Forecasts

The future conditions forecasts for all three scenarios were determined based on the modified existing peak hour counts (Figures F-1, F-2, and F-3, respectively), the annual growth rate, the pipeline development site trips (Figure 7), and the Marriott Marquis Hotel site trips (Figures 9a, 9b, and 9c). The future conditions forecasts are shown on Figures 10a, 10b, and 10c.

### Future Conditions Analyses

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

The Synchro results of the future conditions analyses are located in Appendix F and summarized on Table 6. The results indicate the following:

#### Scenario 1:

- ⇒ The intersections of L Street/9<sup>th</sup> Street, Massachusetts Avenue/9<sup>th</sup> Street, Massachusetts Avenue/10<sup>th</sup> Street, Massachusetts Avenue/PMI Driveway #2, and M Street/9<sup>th</sup> Street are anticipated to operate at unacceptable LOS “E” or “F” during either or both the AM and PM peak hours. These conditions are very similar to the 2030 background conditions.
- ⇒ The remainder intersections are anticipated to continue operating at acceptable LOS “D” or better during both the AM and PM peak hours.

#### Scenario 2:

- ⇒ The intersections of L Street/9<sup>th</sup> Street, Massachusetts Avenue/9<sup>th</sup> Street, Massachusetts Avenue/10<sup>th</sup> Street, Massachusetts Avenue/PMI Driveway #2, and M Street/9<sup>th</sup> Street are anticipated to operate at unacceptable LOS “E” or “F” during either or both the AM and PM peak hours. These conditions are very similar to the 2030 background conditions as well.

- ⇒ The remainder intersections are anticipated to continue operating at acceptable LOS “D” or better during both the AM and PM peak hours.

Scenario 3:

- ⇒ The intersections of L Street/9<sup>th</sup> Street, Massachusetts Avenue/9<sup>th</sup> Street, Massachusetts Avenue/10<sup>th</sup> Street, Massachusetts Avenue/PMI Driveway #1, and M Street/9<sup>th</sup> Street are anticipated to operate at unacceptable LOS “E” or “F” during either or both the AM and PM peak hours. These conditions are similar to Scenario 2 except that the intersection of Massachusetts Avenue/PMI Driveway #1 will operate under unacceptable conditions and Massachusetts Avenue/PMI Driveway #2 will operate under acceptable conditions.

Scenario 3 (with improvements):

- ⇒ The intersections of Massachusetts Avenue/9<sup>th</sup> Street, Massachusetts Avenue/10<sup>th</sup> Street, and Massachusetts Avenue/PMI Driveway #1 are anticipated to operate at unacceptable LOS “E” or “F” during either or both the AM and PM peak hours. These conditions will require the following improvements:
- Modify signal timings, since L Street and 10<sup>th</sup> Street have been converted to 2-way.
  - Change the lane use along the EB approach of Massachusetts Avenue at 10<sup>th</sup> Street. The lane use should be altered to include a left turn lane, a through lane, and a shared through-right lane.
  - Modify signage for L Street to be used as “Hotel Traffic Only”. Massachusetts Avenue at 9<sup>th</sup> Street operates at unacceptable conditions due to the cut-through traffic along L Street (2-way). If the cut-thru traffic can be minimized, the unacceptable conditions can be avoided.
  - Allow the intersection of Massachusetts Avenue at 10<sup>th</sup> Street to continue to operate under unacceptable conditions in the future, since the 2030 background conditions result in the same unacceptable conditions (site generated traffic has minimal effect on the intersection). This is due to the addition of the trips from the approved pipeline development studies, as well as the 1% annual growth rate.

### Proposed Off-Street Parking

The proposed site is currently zoned as DD/C-2-C and DD/C-3-C. The site is proposed to be rezoned as DD/C-3-C, which per the DC Zoning Municipal Regulations requires the following off-street parking spaces:

- ⇒ One (1) space for each 4 hotel rooms usable for sleeping, and
- ⇒ One (1) space for each 300 S.F. of floor area in the largest exhibit space.

Therefore, per the DC Zoning Municipal Regulations, approximately 382 parking spaces are required to sufficiently serve the proposed site.

Valet-parking will be provided in a two-story underground garage beneath the hotel with 388 parking spaces, with full porte-cochere access via Massachusetts Avenue. Access for taxis will also be provided via the same access with a drop-off/pick-up area across from the hotel front doors.

A comparison between DC Zoning requirements and proposed parking spaces indicates that a sufficient number of parking spaces will be provided to accommodate all the site trips made by rental or private vehicles.

### Proposed Off-Street Loading

The proposed site, currently zoned as DD/C-2-C and DD/C-3-C, requires the following loading facilities per DC Zoning Municipal Regulations for DD/C-3-C once rezoned as such:

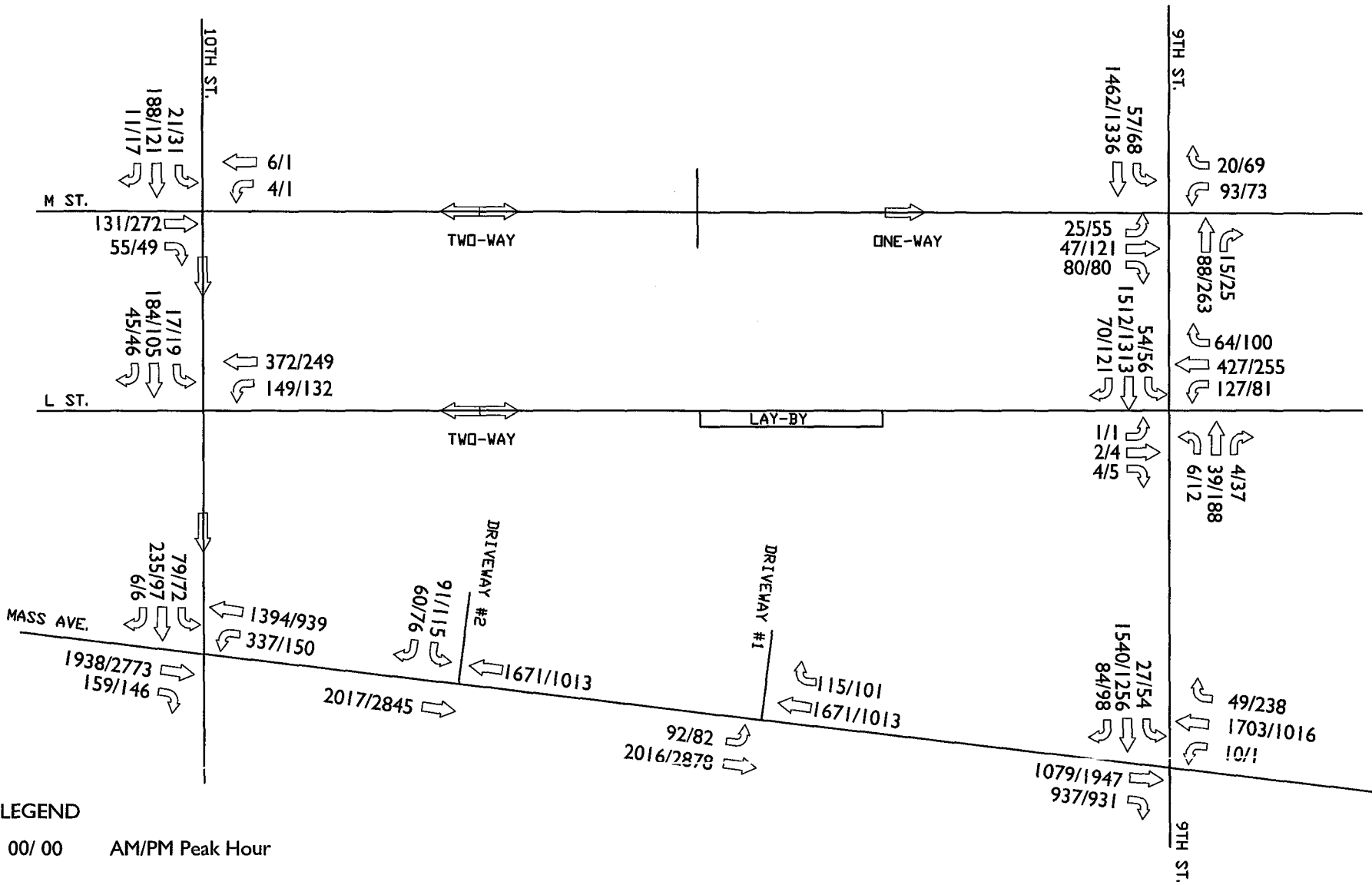
- ⇒ One (1) 30-foot deep loading berth,
- ⇒ One (1) 55-foot deep loading berth,
- ⇒ Two (2) loading platforms: 100 S.F. and 200 S.F., and
- ⇒ One (1) 20-foot deep service/delivery loading space.

Approximately four to five 55-foot loading berths will be located underground exclusively for the Marriott Marquis Hotel, accessible via an underground tunnel off N Street. This tunnel is currently being accessed by delivery trucks for the Washington Convention Center and provides sufficient maneuverability for WB-50 sized trucks. The underground loading facilities will also meet the required platform and loading space criteria.

In addition, a loading dock for smaller SU-30 sized trucks (FedEx, flowers, etc) will be located along L Street, just west of the bus lay-by area. At the time of the submittal of the traffic impact analysis report, turning movement diagrams are not available for the loading dock located along L Street; however, they will be submitted to DDOT at a later stage once the site design is completed.

No other loading areas will be required to serve the hotel or any proposed ground-level retail/restaurant areas.





**LEGEND**

00/ 00 AM/PM Peak Hour



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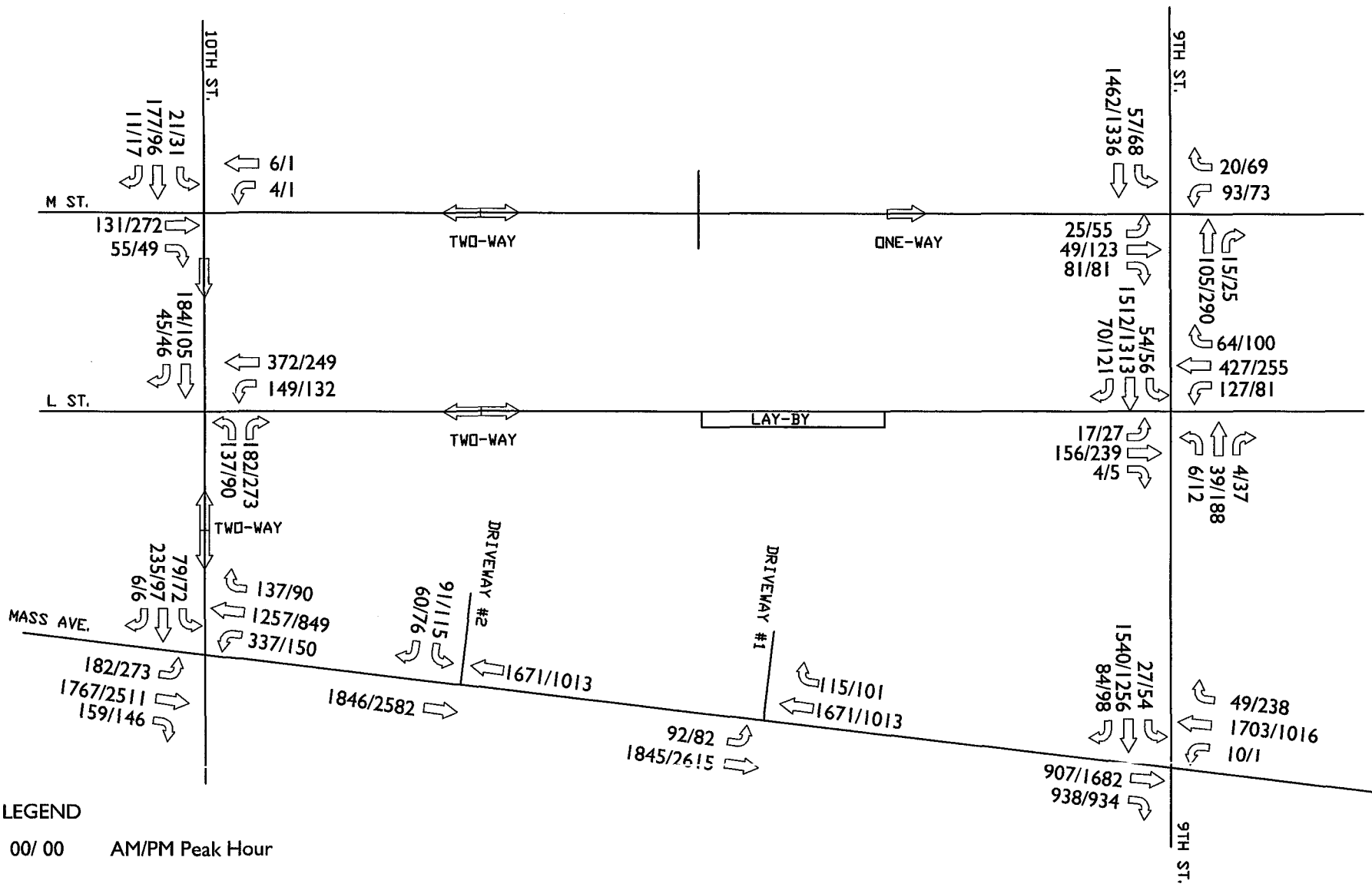
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**FIGURE 10b**  
FUTURE CONDITIONS FORECASTS  
SCENARIO 2 - L ST. 2-WAY

SCALE	CONTOUR INTERVAL	A.M.T. FILE No.
DATE	TAX MAP No.	SHEET
MAY 2008	N/A	108-029.01E
	N/A	

RES. AMT	SURV. AMT	COMP. AMT	DES. AMT	DRN. ACAD	CHK. AMT	DATE	REVISION	BY	APPR.



**LEGEND**

00/ 00 AM/PM Peak Hour



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MARRIOT MARQUIS - TRAFFIC IMPACT STUDY

**FIGURE 10c**  
FUTURE CONDITIONS FORECASTS  
SCENARIO 3- L ST. 2-WAY & 10th ST. 2-WAY

SCALE	CONTOUR INTERVAL	A.M.T. FILE No.
	N/A	108-029.01E
DATE	TAX MAP No.	SHEET
MAY 2008	N/A	

Table 6  
 Future Conditions Level of Service Summary <sup>1</sup>  
 Marriott Marquis TIS

Location	Control	Existing Conditions		Background Conditions		Future Conditions								
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	Scenario 1		Scenario 2		Scenario 3		Scenario 3 (w. Impr.)		
						AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
1. L Street and 9th Street	Signal	Eastbound	N/A	N/A	N/A	N/A	N/A	D(49.2)	B(18.1)	B(16.6)	B(15.5)	B(16.4)	C(21.7)	
		Westbound	C(22.0)	C(20.8)	C(24.5)	C(22.3)	C(24.5)	C(22.4)	C(26.3)	C(23.1)	C(20.7)	B(17.0)	C(32.9)	C(27.6)
		Northbound	B(12.3)	B(15.5)	B(11.6)	B(14.9)	A(6.4)	C(22.7)	B(11.9)	C(22.3)	B(12.0)	C(34.1)	B(10.5)	A(6.9)
		Southbound	D(41.9)	A(9.1)	F(122.7)	F(92.5)	F(118.6)	D(49.1)	F(119.5)	E(67.7)	F(200.3)	F(165.3)	D(51.4)	D(39.7)
		Overall	D(36.0)	B(12.3)	F(93.9)	E(70.6)	F(90.6)	D(40.7)	F(92.1)	D(53.3)	F(138.0)	F(109.3)	D(43.5)	C(32.4)
2. L Street and 10th Street	Signal	Westbound	A(7.5)	A(8.6)	A(6.8)	A(7.6)	A(6.9)	B(10.7)	A(9.7)	B(12.5)	B(10.9)	B(11.6)	B(14.8)	B(10.6)
		Northbound	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	B(18.7)	C(31.1)	B(19.5)	C(21.6)
		Southbound	C(26.0)	C(25.6)	C(32.7)	C(24.9)	C(32.5)	C(25.7)	C(33.5)	C(27.5)	C(31.5)	C(25.0)	C(31.5)	C(25.0)
		Overall	B(11.4)	B(13.1)	B(14.3)	B(13.7)	B(14.7)	B(15.3)	B(17.4)	B(17.2)	B(17.6)	C(21.8)	B(19.8)	B(17.5)
		3. Mass. Avenue and 9th Street	Signal	Eastbound	A(7.5)	B(10.1)	C(32.1)	E(57.7)	B(19.5)	B(15.2)	B(19.2)	B(14.4)	D(43.0)	F(104.2)
Westbound	B(11.9)	A(9.3)		C(22.5)	B(12.3)	C(22.6)	B(14.1)	C(22.2)	B(13.8)	C(22.0)	B(13.8)	C(30.1)	B(13.8)	
Southbound	F(99.7)	C(23.8)		F(322.3)	F(165.9)	F(359.8)	F(196.0)	F(365.5)	F(201.6)	F(359.0)	F(201.2)	F(273.5)	F(176.5)	
Overall	D(35.4)	B(13.1)		F(116.1)	E(75.2)	F(123.1)	E(60.3)	F(125.5)	E(61.9)	F(135.1)	F(108.6)	F(115.8)	F(100.4)	
4. Mass. Avenue and 10th Street	Signal	Eastbound		B(12.5)	C(25.0)	B(17.4)	F(106.3)	B(18.3)	F(117.0)	B(18.3)	F(117.0)	F(159.1)	F(112.8)	D(50.2)
Westbound		F(255.7)	D(43.7)	F(410.2)	F(140.0)	F(426.9)	F(138.0)	F(426.9)	F(139.6)	F(439.0)	B(17.8)	F(511.1)	E(56.7)	
Southbound		B(15.0)	B(14.4)	B(11.9)	B(14.0)	B(16.4)	B(19.5)	C(21.4)	C(20.0)	C(23.2)	E(66.6)	C(22.5)	D(47.8)	
Overall		F(123.8)	C(29.6)	F(180.8)	F(108.0)	F(189.5)	F(118.6)	F(189.0)	F(118.8)	F(265.1)	F(86.2)	F(239.8)	E(65.6)	
5. Mass. Avenue and Private Lot/ Driveway # 1		Stop Sign	Eastbound LT	A[0.1]	A[0.1]	A[0.1]	A[0.1]	B[12.7]	A[4.2]	B[12.7]	A[4.2]	F[53.8]	A[4.5]	F[48.9]
Southbound LR	A[0.0]		B[11.4]	A[0.0]	B[11.4]	A[0.0]	A[0.0]	A[0.0]	A[0.0]	A[0.0]	N/A	A[0.0]	N/A	
6. Mass. Avenue and PMI Lot/ Driveway # 2	Stop Sign	Eastbound LT	A[0.6]	A[0.0]	A[1.0]	A[0.0]	A[0.0]	B[14.1]	A[0.0]	B[14.1]	A[0.0]	A[0.0]	A[0.0]	A[0.0]
Southbound LR		C[15.1]	D[25.4]	C[18.3]	F[54.8]	C[21.9]	F[65.2]	C[21.9]	F[65.2]	B[12.3]	B[11.1]	B[13.1]	B[11.1]	
7. L Street and PMI Lot	Stop Sign	Westbound LT	A[0.9]	A[0.2]	A[0.9]	A[0.1]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Northbound L		A[10.0]	A[9.3]	B[10.6]	A[9.8]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8. 9th Street and Private Lot	Stop Sign	Eastbound LR	A[0.0]	C[19.9]	A[0.0]	B[11.8]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Northbound LT		A[9.4]	A[0.0]	A[9.9]	A[0.0]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
9. M Street and 9th Street	Signal	Eastbound	A(7.9)	D(36.4)	A(8.6)	D(36.8)	A(8.7)	D(36.5)	A(8.3)	D(37.1)	A(8.4)	D(37.2)	C(26.8)	D(37.2)
Westbound		B(11.0)	A(9.8)	B(11.3)	A(9.2)	B(11.7)	A(9.9)	B(11.7)	A(9.9)	B(11.7)	A(9.9)	B(11.7)	A(9.9)	
Northbound		A(9.7)	A(9.6)	B(15.4)	A(7.6)	B(17.4)	B(15.8)	B(18.7)	B(15.9)	B(16.3)	B(14.2)	A(5.5)	C(20.8)	
Southbound		C(32.7)	B(19.6)	F(124.8)	C(34.5)	F(120.3)	D(36.4)	F(120.3)	B(15.2)	F(121.0)	B(15.2)	D(46.3)	B(15.2)	
Overall		C(28.7)	C(20.3)	F(103.2)	C(29.1)	F(99.0)	C(31.8)	F(99.2)	B(19.8)	F(98.8)	B(19.3)	D(40.3)	C(21.2)	
10. M Street and 10th Street	Signal	Eastbound	B(15.6)	B(17.0)	B(16.2)	B(18.5)	B(16.3)	B(18.7)	B(16.3)	B(18.7)	B(16.3)	B(18.7)	B(16.3)	B(18.7)
Westbound		B(14.1)	A(0.0)	B(14.2)	A(0.0)	B(14.2)	B(14.1)	B(14.2)	B(14.1)	B(14.2)	B(14.1)	B(14.2)	B(14.1)	
Southbound		B(16.2)	B(16.4)	B(17.9)	B(17.1)	B(18.0)	B(17.2)	B(18.2)	B(17.4)	B(18.0)	B(17.0)	B(18.0)	B(17.0)	
Overall		B(15.8)	B(16.8)	B(17.0)	B(18.0)	B(17.1)	B(18.2)	B(17.3)	B(18.2)	B(17.1)	B(18.1)	B(17.1)	B(18.1)	

<sup>1</sup>Based on the SynchroSimTraffic 6.0 methodology

## CONCLUSIONS

The conclusions and recommendations of the traffic analyses conducted in support of the proposed Marriott Marquis Hotel are as follows:

- The 103,216 square-foot (S.F.) site is currently occupied by a PMI parking lot with overflow, a PEPCO Substation, and a 7-story office building with private parking (Plumbers and Pipe Fitters Building). The PMI and private parking lots are planned to be eliminated, the office building will be converted into hotel rooms, and the PEPCO Substation will remain.
- The site is planned to be redeveloped with approximately 1,035,721 S.F. of hotel use, with approximately 1,125 rooms (including 125 rooms in the existing office building). Valet-parking will be provided in a two-story underground garage beneath the hotel with approximately 384 parking spaces, with full porte-cochere access via Massachusetts Avenue.
- During existing conditions, all key intersections currently operate at overall acceptable LOS "D" or better during both the AM and PM peak hours, except the intersection of Massachusetts Ave at 10<sup>th</sup> Street. This intersection operates at unacceptable LOS "F" during the AM peak hour due to high westbound through and left turning traffic (in a shared through/left turning lane).
- During background conditions, the intersections of L Street/9<sup>th</sup> Street, Massachusetts Avenue/9<sup>th</sup> Street, Massachusetts Avenue/10<sup>th</sup> Street, Massachusetts Avenue/PMI Driveway #2, and M Street/9<sup>th</sup> Street are anticipated to operate at unacceptable LOS "E" or "F" during either or both the AM and PM peak hours in 2030 background conditions. This is due to the addition of the trips from the approved pipeline development studies, as well as the 1% annual growth rate.
- The proposed site is anticipated to generate 377 AM peak hour trips (218 in and 159 out), 394 PM peak hour trips (193 in and 201 out), and 5,018 average annual daily trips. Approximately 50% of users would access the site either with a vehicle, taxi, or chartered bus, and the remainder 50% would access the site using public transportation or walking.
- During future conditions (Scenario 1), the intersections of L Street/9<sup>th</sup> Street, Massachusetts Avenue/9<sup>th</sup> Street, Massachusetts Avenue/10<sup>th</sup> Street, Massachusetts Avenue/PMI Driveway #2, and M Street/9<sup>th</sup> Street are anticipated to operate at unacceptable LOS "E" or "F" during either or both the AM and PM peak hours in 2030 future conditions (Scenario 1). These conditions are very similar to the 2030 background conditions.
- During future conditions (Scenario 2), the intersections of L Street/9<sup>th</sup> Street, Massachusetts Avenue/9<sup>th</sup> Street, Massachusetts Avenue/10<sup>th</sup> Street, Massachusetts Avenue/PMI Driveway #2, and M Street/9<sup>th</sup> Street are anticipated to operate at unacceptable LOS "E" or "F" during either or both the AM and PM peak hours in 2030 future conditions (Scenario 2). These conditions are very similar to the 2030 background conditions as well.
- During future conditions (Scenario 3), the intersections of L Street/9<sup>th</sup> Street, Massachusetts Avenue/9<sup>th</sup> Street, Massachusetts Avenue/10<sup>th</sup> Street, Massachusetts Avenue/PMI Driveway #1, and M Street/9<sup>th</sup> Street are anticipated to operate at unacceptable LOS "E" or "F" during either or both the AM and PM peak hours in 2030 future conditions (Scenario 3). These conditions are similar to the 2030 future conditions (Scenario 2) except that the intersection of

Massachusetts Avenue/PMI Driveway #1 will operate under unacceptable conditions and Massachusetts Avenue/PMI Driveway #2 will operate under acceptable conditions.

- During future conditions (Scenario 3 – with improvements), the intersections of Massachusetts Avenue/9<sup>th</sup> Street, Massachusetts Avenue/10<sup>th</sup> Street, and Massachusetts Avenue/PMI Driveway #1 are anticipated to operate at unacceptable LOS “E” or “F” during either or both the AM and PM peak hours in 2030 future conditions (Scenario 3 – with improvements). These conditions will require the following improvements:
  - Modify signal timings, since L Street and 10<sup>th</sup> Street have been converted to 2-way.
  - Change the lane use along the EB approach of Massachusetts Avenue at 10<sup>th</sup> Street. The lane use should be altered to include a left turn lane, a through lane, and a shared through-right lane.
  - Modify signage for L Street to be used as “Hotel Traffic Only”. Massachusetts Avenue at 9<sup>th</sup> Street operates at unacceptable conditions due to the cut-through traffic along L Street (2-way). If the cut-through traffic can be minimized, the unacceptable conditions can be avoided.
  - Allow the intersection of Massachusetts Avenue at 10<sup>th</sup> Street to continue to operate under unacceptable conditions in the future, since the 2030 background conditions result in the same unacceptable conditions (site generated traffic has minimal effect on the intersection). This is due to the addition of the trips from the approved pipeline development studies, as well as the 1% annual growth rate.
- A comparison between DC Zoning requirements and proposed parking spaces (388) indicates that a sufficient number of parking spaces will be provided to accommodate all the site trips made by rental or private vehicles. In addition, all proposed above-and below-ground loading facilities will also meet the required platform and loading space criteria.



**Appendix A**

**Existing AM and PM Turning Movement and Pedestrian Counts**

**A. Morton Thomas & Associates, Inc.**

2 East Read Street, 4th Floor

Baltimore, MD 21202

P: (410) 752-6552

File Name : 9th St at L St

Site Code : 108-029

Start Date : 2/27/2008

Page No : 1

Groups Printed- Unshifted

Start Time	9th Street From North					L Street From East					9th Street From South					L Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	3	65	1	4	73	4	13	11	2	30	0	0	3	4	7	0	0	0	1	1	111
06:15 AM	4	73	1	2	80	5	8	5	3	21	3	1	0	8	12	0	0	0	8	8	121
06:30 AM	4	116	0	4	124	3	33	5	4	45	1	1	1	3	6	0	0	0	6	6	181
06:45 AM	12	142	4	2	160	5	33	11	3	52	0	4	3	3	10	0	0	0	2	2	224
<b>Total</b>	<b>23</b>	<b>396</b>	<b>6</b>	<b>12</b>	<b>437</b>	<b>17</b>	<b>87</b>	<b>32</b>	<b>12</b>	<b>148</b>	<b>4</b>	<b>6</b>	<b>7</b>	<b>18</b>	<b>35</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>17</b>	<b>17</b>	<b>637</b>
07:00 AM	5	159	1	3	168	4	35	24	3	66	1	2	1	13	17	0	0	0	5	5	256
07:15 AM	6	168	5	5	184	9	48	9	8	74	1	3	0	2	6	0	0	0	3	3	267
07:30 AM	14	192	6	3	215	9	29	25	6	69	0	2	2	6	10	0	0	0	1	1	295
07:45 AM	16	242	4	6	268	15	49	11	4	79	1	1	1	14	17	0	0	0	5	5	369
<b>Total</b>	<b>41</b>	<b>761</b>	<b>16</b>	<b>17</b>	<b>835</b>	<b>37</b>	<b>161</b>	<b>69</b>	<b>21</b>	<b>288</b>	<b>3</b>	<b>8</b>	<b>4</b>	<b>35</b>	<b>50</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>1187</b>
08:00 AM	6	255	5	14	280	11	52	18	14	95	1	1	1	16	19	0	0	0	14	14	408
08:15 AM	10	272	11	13	306	15	96	12	19	142	0	0	2	41	43	0	0	0	18	18	509
08:30 AM	12	266	12	9	299	8	88	28	13	137	1	3	4	31	39	0	0	0	12	12	487
08:45 AM	13	276	15	33	337	10	98	22	8	138	1	1	0	47	49	0	0	0	10	10	534
<b>Total</b>	<b>41</b>	<b>1069</b>	<b>43</b>	<b>69</b>	<b>1222</b>	<b>44</b>	<b>334</b>	<b>80</b>	<b>54</b>	<b>512</b>	<b>3</b>	<b>5</b>	<b>7</b>	<b>135</b>	<b>150</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>54</b>	<b>54</b>	<b>1938</b>
*** BREAK ***																					
04:30 PM	8	166	14	21	209	14	49	6	9	78	4	5	2	6	17	0	0	0	5	5	309
04:45 PM	12	174	12	11	209	15	40	14	9	78	1	2	1	11	15	1	0	0	6	7	309
<b>Total</b>	<b>20</b>	<b>340</b>	<b>26</b>	<b>32</b>	<b>418</b>	<b>29</b>	<b>89</b>	<b>20</b>	<b>18</b>	<b>156</b>	<b>5</b>	<b>7</b>	<b>3</b>	<b>17</b>	<b>32</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>12</b>	<b>618</b>
05:00 PM	10	192	6	19	227	14	56	16	5	91	7	4	0	20	31	0	0	0	11	11	360
05:15 PM	8	190	3	9	210	14	59	11	2	86	3	1	1	9	14	0	0	0	9	9	319
05:30 PM	3	157	5	14	179	11	51	9	17	88	2	0	0	13	15	0	0	0	4	4	286
05:45 PM	6	150	10	14	180	24	53	4	15	96	0	1	0	15	16	0	0	0	4	4	296
<b>Total</b>	<b>27</b>	<b>689</b>	<b>24</b>	<b>56</b>	<b>796</b>	<b>63</b>	<b>219</b>	<b>40</b>	<b>39</b>	<b>361</b>	<b>12</b>	<b>6</b>	<b>1</b>	<b>57</b>	<b>76</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>28</b>	<b>28</b>	<b>1261</b>
06:00 PM	12	142	10	33	197	11	40	9	33	93	1	0	0	26	27	0	0	0	8	8	325
06:15 PM	6	173	9	5	193	17	49	18	6	90	2	4	1	32	39	0	0	0	5	5	327
<b>Grand Total</b>	<b>170</b>	<b>3570</b>	<b>134</b>	<b>224</b>	<b>4098</b>	<b>218</b>	<b>979</b>	<b>268</b>	<b>183</b>	<b>1648</b>	<b>30</b>	<b>36</b>	<b>23</b>	<b>320</b>	<b>409</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>137</b>	<b>138</b>	<b>6293</b>
Apprch %	4.1	87.1	3.3	5.5		13.2	59.4	16.3	11.1		7.3	8.8	5.6	78.2		0.7	0	0	99.3		
Total %	2.7	56.7	2.1	3.6	65.1	3.5	15.6	4.3	2.9	26.2	0.5	0.6	0.4	5.1	6.5	0	0	0	2.2	2.2	

**A. Morton Thomas & Associates, Inc.**

2 East Read Street, 4th Floor

Baltimore, MD 21202

P: (410) 752-6552

File Name : 9th St at L St

Site Code : 108-029

Start Date : 2/27/2008

Page No : 2

Start Time	9th Street From North					L Street From East					9th Street From South					L Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	6	255	5	14	280	11	52	18	14	95	1	1	1	16	19	0	0	0	14	14	408
08:15 AM	10	272	11	13	306	15	96	12	19	142	0	0	2	41	43	0	0	0	18	18	509
08:30 AM	12	266	12	9	299	8	88	28	13	137	1	3	4	31	39	0	0	0	12	12	487
08:45 AM	13	276	15	33	337	10	98	22	8	138	1	1	0	47	49	0	0	0	10	10	534
Total Volume	41	1069	43	69	1222	44	334	80	54	512	3	5	7	135	150	0	0	0	54	54	1938
% App. Total	3.4	87.5	3.5	5.6		8.6	65.2	15.6	10.5		2	3.3	4.7	90		0	0	0	100		
PHF	.788	.968	.717	.523	.907	.733	.852	.714	.711	.901	.750	.417	.438	.718	.765	.000	.000	.000	.750	.750	.907

Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	8	166	14	21	209	14	49	6	9	78	4	5	2	6	17	0	0	0	5	5	309
04:45 PM	12	174	12	11	209	15	40	14	9	78	1	2	1	11	15	1	0	0	6	7	309
05:00 PM	10	192	6	19	227	14	56	16	5	91	7	4	0	20	31	0	0	0	11	11	360
05:15 PM	8	190	3	9	210	14	59	11	2	86	3	1	1	9	14	0	0	0	9	9	319
Total Volume	38	722	35	60	855	57	204	47	25	333	15	12	4	46	77	1	0	0	31	32	1297
% App. Total	4.4	84.4	4.1	7		17.1	61.3	14.1	7.5		19.5	15.6	5.2	59.7		3.1	0	0	96.9		
PHF	.792	.940	.625	.714	.942	.950	.864	.734	.694	.915	.536	.600	.500	.575	.621	.250	.000	.000	.705	.727	.901

A-2



**9<sup>th</sup> Street – NB**



**9<sup>th</sup> Street - SB**



**L Street – EB**



**L Street - WB**

# A. Morton Thomas & Associates, Inc.

2 East Read Street, 4th Floor

Baltimore, MD 21202

P: (410) 752-6552

File Name : 10th St at L St

Site Code : 108-029

Start Date : 2/27/2008

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## Groups Printed- Unshifted

Start Time	10th Street From North					L Street From East					10th Street From South					L Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	0	2	0	2	4	0	12	6	0	18	0	0	0	0	0	0	0	0	1	1	23
06:15 AM	1	3	0	6	10	1	7	4	6	18	0	0	0	5	5	0	0	0	7	7	40
06:30 AM	4	10	0	4	18	0	28	11	9	48	0	0	0	3	3	0	0	0	4	4	73
06:45 AM	2	9	0	19	30	0	25	15	6	46	0	0	0	0	0	0	0	0	7	7	83
<b>Total</b>	<b>7</b>	<b>24</b>	<b>0</b>	<b>31</b>	<b>62</b>	<b>1</b>	<b>72</b>	<b>36</b>	<b>21</b>	<b>130</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>19</b>	<b>19</b>	<b>219</b>
07:00 AM	5	3	0	6	14	0	26	11	8	45	0	0	0	5	5	0	0	0	15	15	79
07:15 AM	3	7	0	6	16	0	37	6	15	58	0	0	0	1	1	0	0	0	13	13	88
07:30 AM	5	9	0	8	22	0	43	7	11	61	0	0	0	8	8	0	0	0	19	19	110
07:45 AM	8	15	0	12	35	0	57	10	9	76	0	0	0	13	13	0	0	0	22	22	146
<b>Total</b>	<b>21</b>	<b>34</b>	<b>0</b>	<b>32</b>	<b>87</b>	<b>0</b>	<b>163</b>	<b>34</b>	<b>43</b>	<b>240</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>27</b>	<b>27</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>69</b>	<b>69</b>	<b>423</b>
08:00 AM	5	14	0	10	29	0	44	12	12	68	0	0	0	16	16	0	0	0	23	23	136
08:15 AM	3	10	0	13	26	0	76	16	20	112	0	0	0	31	31	0	0	0	33	33	202
08:30 AM	10	8	0	17	35	0	70	22	23	115	0	0	0	17	17	0	0	0	32	32	199
08:45 AM	7	13	0	44	64	0	85	31	48	164	0	0	0	28	28	0	0	0	33	33	289
<b>Total</b>	<b>25</b>	<b>45</b>	<b>0</b>	<b>84</b>	<b>154</b>	<b>0</b>	<b>275</b>	<b>81</b>	<b>103</b>	<b>459</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>92</b>	<b>92</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>121</b>	<b>121</b>	<b>826</b>
*** BREAK ***																					
04:30 PM	8	9	0	19	36	0	49	6	10	65	0	0	0	6	6	0	0	0	15	15	122
04:45 PM	2	9	0	15	26	0	44	9	15	68	0	0	0	2	2	0	0	0	14	14	110
<b>Total</b>	<b>10</b>	<b>18</b>	<b>0</b>	<b>34</b>	<b>62</b>	<b>0</b>	<b>93</b>	<b>15</b>	<b>25</b>	<b>133</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>29</b>	<b>29</b>	<b>232</b>
05:00 PM	8	14	0	33	55	0	47	15	17	79	0	0	0	10	10	0	0	0	18	18	162
05:15 PM	7	7	0	10	24	0	63	8	8	79	0	1	0	5	6	0	0	0	6	6	115
05:30 PM	3	7	0	20	30	0	46	3	20	69	0	0	0	11	11	0	0	0	23	23	133
05:45 PM	11	12	0	11	34	0	55	12	13	80	0	0	0	3	3	0	0	0	9	9	126
<b>Total</b>	<b>29</b>	<b>40</b>	<b>0</b>	<b>74</b>	<b>143</b>	<b>0</b>	<b>211</b>	<b>38</b>	<b>58</b>	<b>307</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>29</b>	<b>30</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>56</b>	<b>56</b>	<b>536</b>
06:00 PM	5	5	0	30	40	0	42	12	25	79	0	0	0	6	6	0	0	0	15	15	140
06:15 PM	5	8	0	26	39	0	45	19	13	77	0	0	0	17	17	0	0	0	20	20	153
<b>Grand Total</b>	<b>102</b>	<b>174</b>	<b>0</b>	<b>311</b>	<b>587</b>	<b>1</b>	<b>901</b>	<b>235</b>	<b>288</b>	<b>1425</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>187</b>	<b>188</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>329</b>	<b>329</b>	<b>2529</b>
Approch %	17.4	29.6	0	53		0.1	63.2	16.5	20.2		0	0.5	0	99.5		0	0	0	100		
Total %	4	6.9	0	12.3	23.2	0	35.6	9.3	11.4	56.3	0	0	0	7.4	7.4	0	0	0	13	13	

A-A

# A. Morton Thomas & Associates, Inc.

2 East Read Street, 4th Floor

Baltimore, MD 21202

P: (410) 752-6552

File Name : 10th St at L St

Site Code : 108-029

Start Date : 2/27/2008

Page No : 2

Start Time	10th Street From North					L Street From East					10th Street From South					L Street From West					Int. Total	
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total		
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 08:00 AM																						
08:00 AM	5	14	0	10	29	0	44	12	12	68	0	0	0	16	16	0	0	0	23	23	136	
08:15 AM	3	10	0	13	26	0	76	16	20	112	0	0	0	31	31	0	0	0	33	33	202	
08:30 AM	10	8	0	17	35	0	70	22	23	115	0	0	0	17	17	0	0	0	32	32	199	
08:45 AM	7	13	0	44	64	0	85	31	48	164	0	0	0	28	28	0	0	0	33	33	289	
Total Volume	25	45	0	84	154	0	275	81	103	459	0	0	0	92	92	0	0	0	121	121	826	
% App. Total	16.2	29.2	0	54.5		0	59.9	17.6	22.4		0	0	0	100		0	0	0	100			
PHF	.625	.804	.000	.477	.602	.000	.809	.653	.536	.700	.000	.000	.000	.742	.742	.000	.000	.000	.917	.917	.715	

Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 05:30 PM																						
05:30 PM	3	7	0	20	30	0	46	3	20	69	0	0	0	11	11	0	0	0	23	23	133	
05:45 PM	11	12	0	11	34	0	55	12	13	80	0	0	0	3	3	0	0	0	9	9	126	
06:00 PM	5	5	0	30	40	0	42	12	25	79	0	0	0	6	6	0	0	0	15	15	140	
06:15 PM	5	8	0	26	39	0	45	19	13	77	0	0	0	17	17	0	0	0	20	20	153	
Total Volume	24	32	0	87	143	0	188	46	71	305	0	0	0	37	37	0	0	0	67	67	552	
% App. Total	16.8	22.4	0	60.8		0	61.6	15.1	23.3		0	0	0	100		0	0	0	100			
PHF	.545	.667	.000	.725	.894	.000	.855	.605	.710	.953	.000	.000	.000	.544	.544	.000	.000	.000	.728	.728	.902	

A-5



**10<sup>th</sup> Street – NB**



**10<sup>th</sup> Street - SB**



**L Street – EB**



**L Street - WB**

A-6

# A. Morton Thomas & Associates, Inc.

2 East Read Street, 4th Floor

Baltimore, MD 21202

P: (410) 752-6552

File Name : 9th St at Mass. Ave

Site Code : 108-029

Start Date : 2/26/2008

Page No : 1

## Groups Printed- Unshifted

Start Time	9th Street From North					Mt. Vernon Pl. From East					9th Street From South					Mass. Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	4	64	2	5	75	1	171	0	12	184	0	0	0	1	1	38	94	2	0	134	394
06:15 AM	1	92	3	3	99	3	184	5	10	202	0	0	0	4	4	55	82	2	3	142	447
06:30 AM	2	137	2	7	148	5	232	3	12	252	0	0	0	9	9	60	105	2	2	169	578
06:45 AM	1	161	5	8	175	4	257	1	21	283	0	0	0	14	14	67	139	0	0	206	678
<b>Total</b>	<b>8</b>	<b>454</b>	<b>12</b>	<b>23</b>	<b>497</b>	<b>13</b>	<b>844</b>	<b>9</b>	<b>55</b>	<b>921</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>28</b>	<b>28</b>	<b>220</b>	<b>420</b>	<b>6</b>	<b>5</b>	<b>651</b>	<b>2097</b>
07:00 AM	0	170	11	13	194	1	222	1	16	240	0	0	0	6	6	96	144	0	7	247	687
07:15 AM	1	189	7	4	201	3	240	1	17	261	0	0	0	6	6	115	142	1	7	265	733
07:30 AM	3	224	11	6	244	3	271	3	25	302	0	0	0	10	10	134	183	0	3	320	876
07:45 AM	2	232	11	11	256	2	265	3	34	304	0	0	0	13	13	151	179	0	10	340	913
<b>Total</b>	<b>6</b>	<b>815</b>	<b>40</b>	<b>34</b>	<b>895</b>	<b>9</b>	<b>998</b>	<b>8</b>	<b>92</b>	<b>1107</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>35</b>	<b>35</b>	<b>496</b>	<b>648</b>	<b>1</b>	<b>27</b>	<b>1172</b>	<b>3209</b>
08:00 AM	3	246	7	34	290	0	303	2	43	348	0	0	0	17	17	143	203	0	23	369	1024
08:15 AM	5	277	4	31	317	3	298	3	66	370	0	0	0	27	27	138	225	2	32	397	1111
08:30 AM	4	281	5	73	363	28	360	1	87	476	0	0	0	32	32	149	171	1	40	361	1232
08:45 AM	12	263	4	67	346	3	384	2	163	552	0	0	0	58	58	154	213	1	45	413	1369
<b>Total</b>	<b>24</b>	<b>1067</b>	<b>20</b>	<b>205</b>	<b>1316</b>	<b>34</b>	<b>1345</b>	<b>8</b>	<b>359</b>	<b>1746</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>134</b>	<b>134</b>	<b>584</b>	<b>812</b>	<b>4</b>	<b>140</b>	<b>1540</b>	<b>4736</b>
*** BREAK ***																					
04:30 PM	1	198	23	50	272	12	195	0	83	290	0	0	0	38	38	141	285	0	41	467	1067
04:45 PM	2	187	14	92	295	18	155	1	92	266	0	0	0	28	28	151	328	0	78	557	1146
<b>Total</b>	<b>3</b>	<b>385</b>	<b>37</b>	<b>142</b>	<b>567</b>	<b>30</b>	<b>350</b>	<b>1</b>	<b>175</b>	<b>556</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>66</b>	<b>66</b>	<b>292</b>	<b>613</b>	<b>0</b>	<b>119</b>	<b>1024</b>	<b>2213</b>
05:00 PM	3	174	7	61	245	15	205	0	94	314	0	0	0	24	24	154	355	0	64	573	1156
05:15 PM	2	184	11	72	269	19	183	0	98	300	0	0	0	28	28	161	350	0	69	580	1177
05:30 PM	5	176	7	109	297	4	221	0	163	388	0	0	0	25	25	169	380	0	90	639	1349
05:45 PM	11	160	8	218	397	17	166	0	306	509	0	0	0	45	45	148	375	0	167	690	1641
<b>Total</b>	<b>21</b>	<b>694</b>	<b>33</b>	<b>460</b>	<b>1208</b>	<b>55</b>	<b>795</b>	<b>0</b>	<b>661</b>	<b>1511</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>122</b>	<b>122</b>	<b>632</b>	<b>1460</b>	<b>0</b>	<b>390</b>	<b>2482</b>	<b>5323</b>
06:00 PM	11	158	8	113	290	9	183	0	177	369	0	0	0	29	29	166	403	0	107	676	1364
06:15 PM	4	164	16	51	235	11	223	0	97	331	0	0	0	4	4	157	362	2	50	571	1141
<b>Grand Total</b>	<b>77</b>	<b>3737</b>	<b>166</b>	<b>1028</b>	<b>5008</b>	<b>161</b>	<b>4738</b>	<b>26</b>	<b>1616</b>	<b>6541</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>418</b>	<b>418</b>	<b>2547</b>	<b>4718</b>	<b>13</b>	<b>838</b>	<b>8116</b>	<b>20083</b>
Apprch %	1.5	74.6	3.3	20.5		2.5	72.4	0.4	24.7		0	0	0	100		31.4	58.1	0.2	10.3		
Total %	0.4	18.6	0.8	5.1	24.9	0.8	23.6	0.1	8	32.6	0	0	0	2.1	2.1	12.7	23.5	0.1	4.2	40.4	

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**A. Morton Thomas & Associates, Inc.**

2 East Read Street, 4th Floor

Baltimore, MD 21202

P: (410) 752-6552

File Name : 9th St at Mass. Ave

Site Code : 108-029

Start Date : 2/26/2008

Page No : 2

Start Time	9th Street From North					Mt. Vernon Pl. From East					9th Street From South					Mass. Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	3	246	7	34	290	0	303	2	43	348	0	0	0	17	17	143	203	0	23	369	1024
08:15 AM	5	277	4	31	317	3	298	3	66	370	0	0	0	27	27	138	225	2	32	397	1111
08:30 AM	4	281	5	73	363	28	360	1	87	476	0	0	0	32	32	149	171	1	40	361	1232
08:45 AM	12	263	4	67	346	3	384	2	163	552	0	0	0	58	58	154	213	1	45	413	1369
Total Volume	24	1067	20	205	1316	34	1345	8	359	1746	0	0	0	134	134	584	812	4	140	1540	4736
% App. Total	1.8	81.1	1.5	15.6		1.9	77	0.5	20.6		0	0	0	100		37.9	52.7	0.3	9.1		
PHF	.500	.949	.714	.702	.906	.304	.876	.667	.551	.791	.000	.000	.000	.578	.578	.948	.902	.500	.778	.932	.865

Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:15 PM																					
05:15 PM	2	184	11	72	269	19	183	0	98	300	0	0	0	28	28	161	350	0	69	580	1177
05:30 PM	5	176	7	109	297	4	221	0	163	388	0	0	0	25	25	169	380	0	90	639	1349
05:45 PM	11	160	8	218	397	17	186	0	306	509	0	0	0	45	45	148	375	0	167	690	1641
06:00 PM	11	158	8	113	290	9	183	0	177	369	0	0	0	29	29	166	403	0	107	676	1364
Total Volume	29	678	34	512	1253	49	773	0	744	1566	0	0	0	127	127	644	1508	0	433	2585	5531
% App. Total	2.3	54.1	2.7	40.9		3.1	49.4	0	47.5		0	0	0	100		24.9	58.3	0	16.8		
PHF	.659	.921	.773	.587	.789	.645	.874	.000	.608	.769	.000	.000	.000	.706	.706	.953	.935	.000	.648	.937	.843

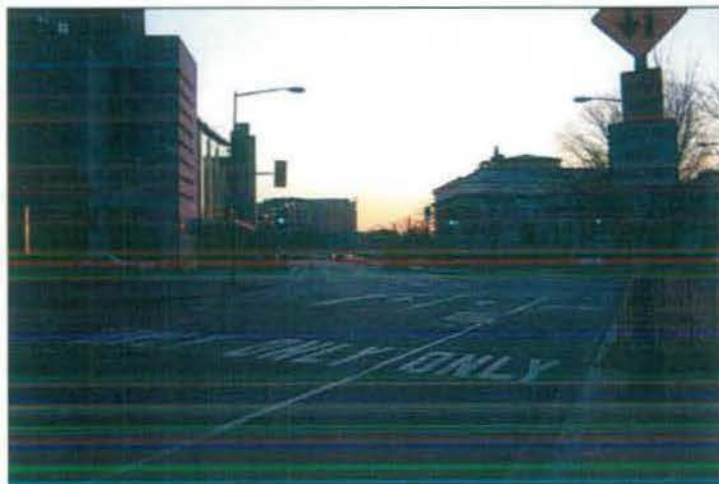
A-8



**9<sup>th</sup> Street – NB**



**9<sup>th</sup> Street - SB**



**Mass. Avenue – EB**



**Mt. Vernon Place - WB**

**A. Morton Thomas & Associates, Inc.**

2 East Read Street, 4th Floor

Baltimore, MD 21202

P: (410) 752-6552

File Name : 10th at Mass. Ave

Site Code : 108-029

Start Date : 2/26/2008

Page No : 1

Groups Printed- Unshifted

Start Time	10th Street From North					Mass. Avenue From East					10th Street From South					Mass. Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	0	8	0	5	13	0	121	44	2	167	0	0	0	3	3	19	144	0	2	165	348
06:15 AM	1	9	1	4	15	0	133	40	4	177	0	0	0	3	3	11	153	0	8	172	367
06:30 AM	0	11	2	11	24	0	167	50	8	225	0	0	0	3	3	5	156	0	3	164	416
06:45 AM	1	5	5	7	18	0	195	38	5	238	0	0	0	1	1	10	203	0	5	218	475
Total	2	33	8	27	70	0	616	172	19	807	0	0	0	10	10	45	656	0	18	719	1606
07:00 AM	0	4	2	4	10	0	154	39	15	208	0	0	0	7	7	10	254	0	7	271	496
07:15 AM	1	9	3	4	17	0	195	40	15	250	0	0	0	10	10	12	224	0	13	249	526
07:30 AM	0	12	13	9	34	0	204	39	14	257	0	0	0	7	7	15	301	0	7	323	621
07:45 AM	0	14	6	20	40	0	225	33	19	277	0	0	0	3	3	17	310	0	3	330	650
Total	1	39	24	37	101	0	778	151	63	992	0	0	0	27	27	54	1089	0	30	1173	2293
08:00 AM	0	17	7	24	48	0	214	56	24	294	0	0	0	16	16	13	317	0	9	339	697
08:15 AM	2	28	4	30	64	0	175	40	27	242	0	0	0	17	17	13	292	0	9	314	637
08:30 AM	1	33	6	35	75	0	213	53	24	290	0	0	0	10	10	17	306	0	10	333	708
08:45 AM	0	24	5	29	58	0	224	37	41	302	0	0	0	5	5	27	323	0	13	363	728
Total	3	102	22	118	245	0	826	186	116	1128	0	0	0	48	48	70	1238	0	41	1349	2770
*** BREAK ***																					
04:30 PM	0	10	9	25	44	0	176	22	18	216	0	0	0	16	16	29	418	0	17	464	740
04:45 PM	1	12	6	14	33	0	145	23	22	190	0	0	0	17	17	33	435	0	13	481	721
Total	1	22	15	39	77	0	321	45	40	406	0	0	0	33	33	62	853	0	30	945	1461
05:00 PM	0	16	11	16	43	0	176	23	19	218	0	0	0	8	8	24	445	0	14	483	752
05:15 PM	0	13	2	20	35	0	158	19	20	197	0	0	0	7	7	26	458	0	16	500	739
05:30 PM	0	9	9	26	44	0	196	22	22	240	0	0	0	11	11	31	431	0	18	480	775
05:45 PM	1	21	8	23	53	0	175	23	31	229	0	0	0	36	36	29	417	0	13	459	777
Total	1	59	30	85	175	0	705	87	92	884	0	0	0	62	62	110	1751	0	61	1922	3043
06:00 PM	3	11	7	24	45	0	174	25	23	222	0	0	0	30	30	21	442	0	17	480	777
06:15 PM	0	18	5	21	44	0	169	10	19	198	0	0	0	19	19	17	421	0	12	450	711
Grand Total	11	284	111	351	757	0	3589	676	372	4637	0	0	0	229	229	379	6450	0	209	7038	12661
Apprch %	1.5	37.5	14.7	46.4		0	77.4	14.6	8		0	0	0	100		5.4	91.6	0	3		
Total %	0.1	2.2	0.9	2.8	6	0	28.3	5.3	2.9	36.6	0	0	0	1.8	1.8	3	50.9	0	1.7	55.6	

01-4

**A. Morton Thomas & Associates, Inc.**

2 East Read Street, 4th Floor

Baltimore, MD 21202

P: (410) 752-6552

File Name : 10th at Mass. Ave

Site Code : 108-029

Start Date : 2/26/2008

Page No : 2

Start Time	10th Street From North					Mass. Avenue From East					10th Street From South					Mass. Avenue From West					Int. Total	
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total		
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 08:00 AM																						
08:00 AM	0	17	7	24	48	0	214	56	24	294	0	0	0	16	16	13	317	0	9	339	697	
08:15 AM	2	28	4	30	64	0	175	40	27	242	0	0	0	17	17	13	292	0	9	314	637	
08:30 AM	1	33	6	35	75	0	213	53	24	290	0	0	0	10	10	17	306	0	10	333	708	
08:45 AM	0	24	5	29	58	0	224	37	41	302	0	0	0	5	5	27	323	0	13	363	728	
Total Volume	3	102	22	118	245	0	826	186	116	1128	0	0	0	48	48	70	1238	0	41	1349	2770	
% App. Total	1.2	41.6	9	48.2		0	73.2	16.5	10.3		0	0	0	100		5.2	91.8	0	3			
PHF	.375	.773	.786	.843	.817	.000	.922	.830	.707	.934	.000	.000	.000	.706	.706	.648	.958	.000	.788	.929	.951	

Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 05:15 PM																						
05:15 PM	0	13	2	20	35	0	158	19	20	197	0	0	0	7	7	26	458	0	16	500	739	
05:30 PM	0	9	9	26	44	0	196	22	22	240	0	0	0	11	11	31	431	0	18	480	775	
05:45 PM	1	21	8	23	53	0	175	23	31	229	0	0	0	36	36	29	417	0	13	459	777	
06:00 PM	3	11	7	24	45	0	174	25	23	222	0	0	0	30	30	21	442	0	17	480	777	
Total Volume	4	54	26	93	177	0	703	89	96	888	0	0	0	84	84	107	1748	0	64	1919	3068	
% App. Total	2.3	30.5	14.7	52.5		0	79.2	10	10.8		0	0	0	100		5.6	91.1	0	3.3			
PHF	.333	.643	.722	.894	.835	.000	.897	.890	.774	.925	.000	.000	.000	.583	.583	.863	.954	.000	.889	.960	.987	



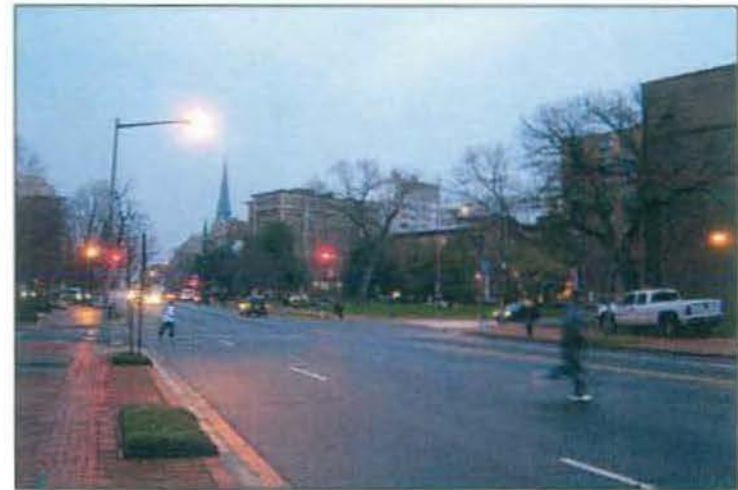
**10<sup>th</sup> Street – NB**



**10<sup>th</sup> Street - SB**



**Mass. Avenue – EB**



**Mass. Avenue - WB**

**A. Morton Thomas & Associates, Inc.**

2 East Read Street, 4th Floor

Baltimore, MD 21202

P: (410) 752-6552

File Name : Parking Lots at Mass. Ave

Site Code : 108-029

Start Date : 2/26/2008

Page No : 1

Groups Printed- Class 1

Start Time	Parking Lot#2 exit From North					Parking Lot#2 entry From East					Parking Lot#1 exit From South					Parking Lot#1 entry From West					Int. Total
	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	
06:00 AM	0	0	0	0	0	0	0	8	0	8	0	0	0	0	0	0	0	0	0	0	8
06:15 AM	0	0	0	0	0	0	0	7	0	7	0	0	0	0	0	0	0	1	0	1	8
06:30 AM	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	4
06:45 AM	2	0	3	0	5	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	10
Total	2	0	3	0	5	0	0	24	0	24	0	0	0	0	0	0	0	1	0	1	30
07:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
07:15 AM	0	0	0	0	0	10	0	2	0	12	0	0	0	0	0	0	0	0	0	0	12
07:30 AM	0	0	0	0	0	2	0	2	0	4	0	0	0	0	0	1	0	0	0	1	5
07:45 AM	0	0	0	0	0	2	0	2	0	4	0	0	0	0	0	2	0	1	0	3	7
Total	0	0	1	0	1	14	0	6	0	20	0	0	0	0	0	4	0	1	0	5	26
08:00 AM	1	0	0	0	1	7	0	1	0	8	0	0	0	0	0	3	0	0	0	3	12
08:15 AM	0	0	0	0	0	1	0	3	0	4	0	0	0	0	0	2	0	0	0	2	6
08:30 AM	0	0	0	0	0	0	0	2	0	2	2	0	0	0	2	2	0	1	0	3	7
08:45 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	2	3
Total	1	0	0	0	1	8	0	7	0	15	2	0	0	0	2	8	0	2	0	10	28
09:00 AM	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
09:15 AM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
09:30 AM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
*** BREAK ***																					
Total	0	0	0	0	0	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	7
*** BREAK ***																					
04:30 PM	0	0	2	0	2	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	4
04:45 PM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
Total	1	0	2	0	3	0	0	1	0	1	1	0	0	0	1	1	0	0	0	1	6
05:00 PM	1	0	3	0	4	2	0	1	0	3	0	0	0	0	0	2	0	1	0	3	10
05:15 PM	7	0	1	0	8	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	10
05:30 PM	5	0	4	0	9	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	10
05:45 PM	7	0	3	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Total	20	0	11	0	31	2	0	2	0	4	0	0	1	0	1	3	0	1	0	4	40
06:00 PM	5	0	1	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
06:15 PM	9	0	3	0	12	0	0	0	0	0	1	0	0	0	1	0	0	2	0	2	15
Grand Total	38	0	21	0	59	31	0	40	0	71	4	0	1	0	5	16	0	7	0	23	158
Apprch %	64.4	0	35.6	0		43.7	0	56.3	0		80	0	20	0		69.6	0	30.4	0		
Total %	24.1	0	13.3	0	37.3	19.6	0	25.3	0	44.9	2.5	0	0.6	0	3.2	10.1	0	4.4	0	14.6	

**A. Morton Thomas & Associates, Inc.**

2 East Read Street, 4th Floor

Baltimore, MD 21202

P: (410) 752-6552

File Name : Parking Lots at Mass. Ave

Site Code : 108-029

Start Date : 2/26/2008

Page No : 2

Start Time	Parking Lot#2 exit From North					Parking Lot#2 entry From East					Parking Lot#1 exit From South					Parking Lot#1 entry From West					Int. Total	
	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total		
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:15 AM																						
07:15 AM	0	0	0	0	0	10	0	2	0	12	0	0	0	0	0	0	0	0	0	0	0	12
07:30 AM	0	0	0	0	0	2	0	2	0	4	0	0	0	0	0	0	0	0	0	0	0	5
07:45 AM	0	0	0	0	0	2	0	2	0	4	0	0	0	0	0	0	0	1	0	0	0	7
08:00 AM	1	0	0	0	1	7	0	1	0	8	0	0	0	0	0	0	0	0	0	0	0	12
Total Volume	1	0	0	0	1	21	0	7	0	28	0	0	0	0	0	6	0	1	0	0	7	36
% App. Total	100	0	0	0		75	0	25	0		0	0	0	0		85.7	0	14.3	0			
PHF	.250	.000	.000	.000	.250	.525	.000	.875	.000	.583	.000	.000	.000	.000	.000	.500	.000	.250	.000	.583	.750	

Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 05:30 PM																						
05:30 PM	5	0	4	0	9	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	10
05:45 PM	7	0	3	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
06:00 PM	5	0	1	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
06:15 PM	9	0	3	0	12	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	2	15
Total Volume	26	0	11	0	37	0	0	0	0	0	1	0	0	0	1	1	0	2	0	0	3	41
% App. Total	70.3	0	29.7	0		0	0	0	0		100	0	0	0		33.3	0	66.7	0			
PHF	.722	.000	.688	.000	.771	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.250	.000	.250	.000	.375	.683	

A-12

**A. Morton Thomas & Associates, Inc.**

2 East Read Street, 4th Floor

Baltimore, MD 21202

P: (410) 752-6552

File Name : Parking Lot at L St

Site Code : 108-029

Start Date : 3/6/2008

Page No : 1

Groups Printed- Class 1

Start Time	From North					L Street From East					Parking Lot#1 From South					L Street From West					Int. Total
	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	
*** BREAK ***																					
06:45 AM	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	0	0	0	0	18
Total	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	0	0	0	0	18
07:00 AM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	0	0	0	0	17
07:15 AM	0	0	0	0	0	0	28	0	0	28	0	0	0	0	0	0	0	0	0	0	28
07:30 AM	0	0	0	0	0	0	44	5	0	49	0	0	0	0	0	0	0	0	0	0	49
07:45 AM	0	0	0	0	0	0	34	0	0	34	0	0	0	0	0	0	0	0	0	0	34
Total	0	0	0	0	0	0	123	5	0	128	0	0	0	0	0	0	0	0	0	0	128
08:00 AM	0	0	0	0	0	0	39	3	0	42	0	0	0	0	0	0	0	0	0	0	42
08:15 AM	0	0	0	0	0	0	51	4	0	55	0	0	0	0	0	0	0	0	0	0	55
08:30 AM	0	0	0	0	0	0	56	2	0	58	0	0	0	0	0	0	0	0	0	0	58
08:45 AM	0	0	0	0	0	0	52	5	0	57	0	0	0	0	0	0	0	0	0	0	57
Total	0	0	0	0	0	0	198	14	0	212	0	0	0	0	0	0	0	0	0	0	212
09:00 AM	0	0	0	0	0	0	90	2	0	92	0	0	0	0	0	0	0	0	0	0	92
09:15 AM	0	0	0	0	0	0	108	2	0	110	0	0	1	0	1	0	0	0	0	0	111
09:30 AM	0	0	0	0	0	0	100	7	0	107	0	0	2	0	2	0	0	0	0	0	109
09:45 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	298	12	0	310	0	0	3	0	3	0	0	0	0	0	313
*** BREAK ***																					
04:30 PM	0	0	0	0	0	0	58	0	0	58	0	0	4	0	4	0	0	0	0	0	62
04:45 PM	0	0	0	0	0	0	50	0	0	50	0	0	1	0	1	0	0	0	0	0	51
Total	0	0	0	0	0	0	108	0	0	108	0	0	5	0	5	0	0	0	0	0	113
05:00 PM	0	0	0	0	0	0	61	0	0	61	0	0	3	0	3	0	0	0	0	0	64
05:15 PM	0	0	0	0	0	0	64	1	0	65	0	0	1	0	1	0	0	0	0	0	66
05:30 PM	0	0	0	0	0	0	59	1	0	60	0	0	0	0	0	0	0	0	0	0	60
05:45 PM	0	0	0	0	0	0	65	0	0	65	0	0	2	0	2	0	0	0	0	0	67
Total	0	0	0	0	0	0	249	2	0	251	0	0	6	0	6	0	0	0	0	0	257
06:00 PM	0	0	0	0	0	0	48	0	0	48	0	0	7	0	7	0	0	0	0	0	55
06:15 PM	0	0	0	0	0	0	55	0	0	55	0	0	8	0	8	0	0	0	0	0	63
Grand Total	0	0	0	0	0	0	1097	33	0	1130	0	0	29	0	29	0	0	0	0	0	1159
Apprch %	0	0	0	0	0	0	97.1	2.9	0	97.5	0	0	100	0	100	0	0	0	0	0	
Total %	0	0	0	0	0	0	94.7	2.8	0	97.5	0	0	2.5	0	2.5	0	0	0	0	0	

A-15

**A. Morton Thomas & Associates, Inc.**

2 East Read Street, 4th Floor

Baltimore, MD 21202

P: (410) 752-6552

File Name : Parking Lot at L St

Site Code : 108-029

Start Date : 3/6/2008

Page No : 2

Start Time	From North					L Street From East					Parking Lot#1 From South					L Street From West					Int. Total	
	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total		
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 08:45 AM																						
08:45 AM	0	0	0	0	0	0	52	5	0	57	0	0	0	0	0	0	0	0	0	0	0	57
09:00 AM	0	0	0	0	0	0	90	2	0	92	0	0	0	0	0	0	0	0	0	0	0	92
09:15 AM	0	0	0	0	0	0	108	2	0	110	0	0	1	0	1	0	0	0	0	0	0	111
09:30 AM	0	0	0	0	0	0	100	7	0	107	0	0	2	0	2	0	0	0	0	0	0	109
Total Volume	0	0	0	0	0	0	350	16	0	366	0	0	3	0	3	0	0	0	0	0	0	369
% App. Total	0	0	0	0	0	0	95.6	4.4	0		0	0	100	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.810	.571	.000	.832	.000	.000	.375	.000	.375	.000	.000	.000	.000	.000	.000	.831

Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 05:00 PM																						
05:00 PM	0	0	0	0	0	0	61	0	0	61	0	0	3	0	3	0	0	0	0	0	0	64
05:15 PM	0	0	0	0	0	0	64	1	0	65	0	0	1	0	1	0	0	0	0	0	0	66
05:30 PM	0	0	0	0	0	0	59	1	0	60	0	0	0	0	0	0	0	0	0	0	0	60
05:45 PM	0	0	0	0	0	0	65	0	0	65	0	0	2	0	2	0	0	0	0	0	0	67
Total Volume	0	0	0	0	0	0	249	2	0	251	0	0	6	0	6	0	0	0	0	0	0	257
% App. Total	0	0	0	0	0	0	99.2	0.8	0		0	0	100	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.958	.500	.000	.965	.000	.000	.500	.000	.500	.000	.000	.000	.000	.000	.000	.959

A-16

# A. Morton Thomas & Associates, Inc.

2 East Read Street, 4th Floor

Baltimore, MD 21202

P: (410) 752-6552

File Name : 9th St at M St

Site Code : 108-029

Start Date : 4/3/2008

Page No : 1

## Groups Printed- Unshifted

Start Time	9th Street From North					M Street From East					9th Street From South					M Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
05:00 AM	0	62	4	3	69	4	0	2	7	13	1	3	0	7	11	3	3	2	3	11	104
05:15 AM	0	74	4	2	80	4	0	2	2	8	2	6	0	10	18	2	6	0	2	10	116
05:30 AM	0	86	4	5	95	0	0	6	4	10	1	4	0	24	29	7	7	0	4	18	152
05:45 AM	0	144	5	4	153	1	0	6	4	11	2	7	0	24	33	8	4	4	3	19	216
<b>Total</b>	<b>0</b>	<b>366</b>	<b>17</b>	<b>14</b>	<b>397</b>	<b>9</b>	<b>0</b>	<b>16</b>	<b>17</b>	<b>42</b>	<b>6</b>	<b>20</b>	<b>0</b>	<b>65</b>	<b>91</b>	<b>20</b>	<b>20</b>	<b>6</b>	<b>12</b>	<b>58</b>	<b>588</b>
06:00 AM	0	77	4	6	87	1	0	7	7	15	2	4	0	19	25	13	4	2	8	27	154
06:15 AM	0	143	10	3	156	2	0	4	3	9	4	5	0	33	42	11	9	9	7	36	243
06:30 AM	0	198	14	2	214	4	0	4	1	9	3	10	0	30	43	4	11	2	0	17	283
06:45 AM	0	237	11	5	253	0	0	4	1	5	0	12	0	43	55	7	19	2	2	30	343
<b>Total</b>	<b>0</b>	<b>655</b>	<b>39</b>	<b>16</b>	<b>710</b>	<b>7</b>	<b>0</b>	<b>19</b>	<b>12</b>	<b>38</b>	<b>9</b>	<b>31</b>	<b>0</b>	<b>125</b>	<b>165</b>	<b>35</b>	<b>43</b>	<b>15</b>	<b>17</b>	<b>110</b>	<b>1023</b>
07:00 AM	0	257	12	5	274	3	0	7	6	16	2	6	0	56	64	10	8	2	0	20	374
07:15 AM	0	222	12	9	243	1	0	13	3	17	0	8	0	60	68	16	10	7	8	41	369
07:30 AM	0	260	12	3	275	3	0	12	4	19	2	10	0	53	65	9	8	2	2	21	380
07:45 AM	0	277	10	27	314	2	0	4	3	9	8	13	0	62	83	19	13	2	19	53	459
<b>Total</b>	<b>0</b>	<b>1016</b>	<b>46</b>	<b>44</b>	<b>1106</b>	<b>9</b>	<b>0</b>	<b>36</b>	<b>16</b>	<b>61</b>	<b>12</b>	<b>37</b>	<b>0</b>	<b>231</b>	<b>280</b>	<b>54</b>	<b>39</b>	<b>13</b>	<b>29</b>	<b>135</b>	<b>1582</b>
*** BREAK ***																					
03:45 PM	0	153	9	12	174	5	0	7	5	17	3	25	0	15	43	8	29	5	7	49	283
<b>Total</b>	<b>0</b>	<b>153</b>	<b>9</b>	<b>12</b>	<b>174</b>	<b>5</b>	<b>0</b>	<b>7</b>	<b>5</b>	<b>17</b>	<b>3</b>	<b>25</b>	<b>0</b>	<b>15</b>	<b>43</b>	<b>8</b>	<b>29</b>	<b>5</b>	<b>7</b>	<b>49</b>	<b>283</b>
04:00 PM	0	213	17	22	252	5	0	5	5	15	6	20	0	26	52	24	23	3	9	59	378
04:15 PM	0	192	10	27	229	7	0	17	21	45	6	29	0	58	93	19	33	8	18	78	445
04:30 PM	0	234	12	15	261	8	0	7	8	23	11	36	0	42	89	13	22	4	13	52	425
04:45 PM	0	212	16	26	254	12	0	10	4	26	7	31	0	29	67	9	21	6	16	52	399
<b>Total</b>	<b>0</b>	<b>851</b>	<b>55</b>	<b>90</b>	<b>996</b>	<b>32</b>	<b>0</b>	<b>39</b>	<b>38</b>	<b>109</b>	<b>30</b>	<b>116</b>	<b>0</b>	<b>155</b>	<b>301</b>	<b>65</b>	<b>99</b>	<b>21</b>	<b>56</b>	<b>241</b>	<b>1647</b>
05:00 PM	0	215	9	21	245	3	0	3	7	13	5	27	0	32	64	12	19	7	11	49	371
05:15 PM	0	197	24	29	250	9	0	15	10	34	13	28	0	36	77	21	33	10	19	83	444
05:30 PM	0	118	18	16	152	8	0	12	7	27	3	33	0	26	62	23	19	7	14	63	304
<b>Grand Total</b>	<b>0</b>	<b>3571</b>	<b>217</b>	<b>242</b>	<b>4030</b>	<b>82</b>	<b>0</b>	<b>147</b>	<b>112</b>	<b>341</b>	<b>81</b>	<b>317</b>	<b>0</b>	<b>685</b>	<b>1083</b>	<b>238</b>	<b>301</b>	<b>84</b>	<b>165</b>	<b>788</b>	<b>6242</b>
<b>Apprch %</b>	<b>0</b>	<b>88.6</b>	<b>5.4</b>	<b>6</b>		<b>24</b>	<b>0</b>	<b>43.1</b>	<b>32.8</b>		<b>7.5</b>	<b>29.3</b>	<b>0</b>	<b>63.3</b>		<b>30.2</b>	<b>38.2</b>	<b>10.7</b>	<b>20.9</b>		
<b>Total %</b>	<b>0</b>	<b>57.2</b>	<b>3.5</b>	<b>3.9</b>	<b>64.6</b>	<b>1.3</b>	<b>0</b>	<b>2.4</b>	<b>1.8</b>	<b>5.5</b>	<b>1.3</b>	<b>5.1</b>	<b>0</b>	<b>11</b>	<b>17.4</b>	<b>3.8</b>	<b>4.8</b>	<b>1.3</b>	<b>2.6</b>	<b>12.6</b>	

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**A. Morton Thomas & Associates, Inc.**

2 East Read Street, 4th Floor

Baltimore, MD 21202

P: (410) 752-6552

File Name : 9th St at M St

Site Code : 108-029

Start Date : 4/3/2008

Page No : 2

Start Time	9th Street From North					M Street From East					9th Street From South					M Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 05:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	257	12	5	274	3	0	7	6	16	2	6	0	56	64	10	8	2	0	20	374
07:15 AM	0	222	12	9	243	1	0	13	3	17	0	8	0	60	68	16	10	7	8	41	369
07:30 AM	0	260	12	3	275	3	0	12	4	19	2	10	0	53	65	9	8	2	2	21	380
07:45 AM	0	277	10	27	314	2	0	4	3	9	8	13	0	62	83	19	13	2	19	53	459
Total Volume	0	1016	46	44	1106	9	0	36	16	61	12	37	0	231	280	54	39	13	29	135	1582
% App. Total	0	91.9	4.2	4		14.8	0	59	26.2		4.3	13.2	0	82.5		40	28.9	9.6	21.5		
PHF	.000	.917	.958	.407	.881	.750	.000	.692	.667	.803	.375	.712	.000	.931	.843	.711	.750	.464	.382	.637	.862
Peak Hour Analysis From 12:00 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	213	17	22	252	5	0	5	5	15	6	20	0	26	52	24	23	3	9	59	378
04:15 PM	0	192	10	27	229	7	0	17	21	45	6	29	0	58	93	19	33	8	18	78	445
04:30 PM	0	234	12	15	261	8	0	7	8	23	11	36	0	42	89	13	22	4	13	52	425
04:45 PM	0	212	16	26	254	12	0	10	4	26	7	31	0	29	67	9	21	6	16	52	399
Total Volume	0	851	55	90	996	32	0	39	38	109	30	116	0	155	301	65	99	21	56	241	1647
% App. Total	0	85.4	5.5	9		29.4	0	35.8	34.9		10	38.5	0	51.5		27	41.1	8.7	23.2		
PHF	.000	.909	.809	.833	.954	.667	.000	.574	.452	.606	.682	.806	.000	.668	.809	.677	.750	.656	.778	.772	.925

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9<sup>th</sup> Street – NB



9<sup>th</sup> Street - SB



M Street – EB



M Street - WB

A-19

# A. Morton Thomas & Associates, Inc.

2 East Read Street, 4th Floor

Baltimore, MD 21202

P: (410) 752-6552

File Name : 10th St at M St

Site Code : 108-029

Start Date : 4/3/2008

Page No : 1

## Groups Printed- Unshifted

Start Time	From North					From East					From South					From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	2	1	1	0	4	0	0	0	1	1	0	0	3	0	3	1	9	0	2	12	20
06:15 AM	2	4	0	3	9	0	0	1	1	2	0	0	6	0	6	2	12	0	4	18	35
06:30 AM	0	7	0	2	9	0	0	0	7	7	0	0	7	0	7	6	19	0	8	33	56
06:45 AM	4	3	4	3	14	0	1	0	6	7	0	0	10	0	10	6	22	0	11	39	70
<b>Total</b>	<b>8</b>	<b>15</b>	<b>5</b>	<b>8</b>	<b>36</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>15</b>	<b>17</b>	<b>0</b>	<b>0</b>	<b>26</b>	<b>0</b>	<b>26</b>	<b>15</b>	<b>62</b>	<b>0</b>	<b>25</b>	<b>102</b>	<b>181</b>
07:00 AM	0	9	2	4	15	0	2	0	9	11	0	0	9	0	9	6	23	0	7	36	71
07:15 AM	2	4	3	4	13	0	0	0	8	8	0	0	12	0	12	8	21	0	23	52	85
07:30 AM	3	9	1	6	19	0	1	0	3	4	0	0	10	0	10	4	19	0	26	49	82
07:45 AM	3	9	6	8	26	0	1	0	18	19	0	0	18	0	18	13	24	0	19	56	119
<b>Total</b>	<b>8</b>	<b>31</b>	<b>12</b>	<b>22</b>	<b>73</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>38</b>	<b>42</b>	<b>0</b>	<b>0</b>	<b>49</b>	<b>0</b>	<b>49</b>	<b>31</b>	<b>87</b>	<b>0</b>	<b>75</b>	<b>193</b>	<b>357</b>
08:00 AM	1	12	6	9	28	0	1	0	10	11	0	0	14	0	14	11	27	0	25	63	116
08:15 AM	2	10	5	10	27	0	2	2	10	14	0	0	20	0	20	6	27	0	26	59	120
08:30 AM	3	20	5	10	38	0	2	1	16	19	0	0	23	0	23	7	29	0	40	76	156
08:45 AM	3	20	3	11	37	0	0	0	11	11	0	0	28	0	28	12	15	0	35	62	138
<b>Total</b>	<b>9</b>	<b>62</b>	<b>19</b>	<b>40</b>	<b>130</b>	<b>0</b>	<b>5</b>	<b>3</b>	<b>47</b>	<b>55</b>	<b>0</b>	<b>0</b>	<b>85</b>	<b>0</b>	<b>85</b>	<b>36</b>	<b>98</b>	<b>0</b>	<b>126</b>	<b>260</b>	<b>530</b>
<b>*** BREAK ***</b>																					
04:30 PM	6	5	4	9	24	0	1	1	6	8	0	0	0	9	9	7	59	0	22	88	129
04:45 PM	0	22	8	3	33	0	0	0	8	8	0	0	0	15	15	5	49	0	12	66	122
<b>Total</b>	<b>6</b>	<b>27</b>	<b>12</b>	<b>12</b>	<b>57</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>14</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>24</b>	<b>12</b>	<b>108</b>	<b>0</b>	<b>34</b>	<b>154</b>	<b>251</b>
05:00 PM	4	11	9	11	35	0	0	0	8	8	0	0	0	20	20	8	67	0	26	101	164
05:15 PM	4	10	4	3	21	0	0	0	11	11	0	0	0	9	9	9	40	0	37	86	127
05:30 PM	6	15	7	8	36	0	0	0	9	9	0	0	0	20	20	10	39	0	39	88	153
05:45 PM	6	16	2	7	31	0	0	0	9	9	0	0	0	10	10	8	42	0	20	70	120
<b>Total</b>	<b>20</b>	<b>52</b>	<b>22</b>	<b>29</b>	<b>123</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>37</b>	<b>37</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>59</b>	<b>59</b>	<b>35</b>	<b>188</b>	<b>0</b>	<b>122</b>	<b>345</b>	<b>564</b>
06:00 PM	6	17	3	6	32	0	0	0	6	6	0	0	0	7	7	6	54	0	27	87	132
06:15 PM	3	12	6	11	32	0	0	0	11	11	0	0	0	20	20	6	38	0	30	74	137
<b>Grand Total</b>	<b>60</b>	<b>216</b>	<b>79</b>	<b>128</b>	<b>483</b>	<b>0</b>	<b>11</b>	<b>5</b>	<b>168</b>	<b>184</b>	<b>0</b>	<b>0</b>	<b>160</b>	<b>110</b>	<b>270</b>	<b>141</b>	<b>635</b>	<b>0</b>	<b>439</b>	<b>1215</b>	<b>2152</b>
Apprch %	12.4	44.7	16.4	26.5		0	6	2.7	91.3		0	0	59.3	40.7		11.6	52.3	0	36.1		
Total %	2.8	10	3.7	5.9	22.4	0	0.5	0.2	7.8	8.6	0	0	7.4	5.1	12.5	6.6	29.5	0	20.4	56.5	

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**A. Morton Thomas & Associates, Inc.**

2 East Read Street, 4th Floor

Baltimore, MD 21202

P: (410) 752-6552

File Name : 10th St at M St

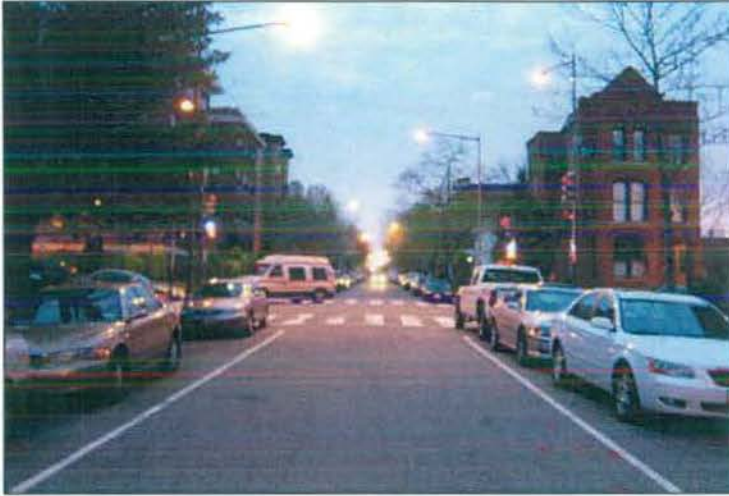
Site Code : 108-029

Start Date : 4/3/2008

Page No : 2

Start Time	From North					From East					From South					From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	1	12	6	9	28	0	1	0	10	11	0	0	14	0	14	11	27	0	25	63	116
08:15 AM	2	10	5	10	27	0	2	2	10	14	0	0	20	0	20	6	27	0	26	59	120
08:30 AM	3	20	5	10	38	0	2	1	16	19	0	0	23	0	23	7	29	0	40	76	156
08:45 AM	3	20	3	11	37	0	0	0	11	11	0	0	28	0	28	12	15	0	35	62	138
Total Volume	9	62	19	40	130	0	5	3	47	55	0	0	85	0	85	36	98	0	126	260	530
% App. Total	6.9	47.7	14.6	30.8		0	9.1	5.5	85.5		0	0	100	0		13.8	37.7	0	48.5		
PHF	.750	.775	.792	.909	.855	.000	.625	.375	.734	.724	.000	.000	.759	.000	.759	.750	.845	.000	.788	.855	.849
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	22	8	3	33	0	0	0	8	8	0	0	0	15	15	5	49	0	12	66	122
05:00 PM	4	11	9	11	35	0	0	0	8	8	0	0	0	20	20	8	67	0	26	101	164
05:15 PM	4	10	4	3	21	0	0	0	11	11	0	0	0	9	9	9	40	0	37	86	127
05:30 PM	6	15	7	8	36	0	0	0	9	9	0	0	0	20	20	10	39	0	39	88	153
Total Volume	14	58	28	25	125	0	0	0	36	36	0	0	0	64	64	32	195	0	114	341	566
% App. Total	11.2	46.4	22.4	20		0	0	0	100		0	0	0	100		9.4	57.2	0	33.4		
PHF	.583	.659	.778	.568	.868	.000	.000	.000	.818	.818	.000	.000	.000	.800	.800	.800	.728	.000	.731	.844	.863

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**10<sup>th</sup> Street – NB**



**10<sup>th</sup> Street - SB**



**M Street – EB**



**M Street - WB**