IV. FUTURE CONGESTION

Year 2013 Forecasted Volume-to-Capacity (V/C) Ratios

For the purpose of this report, the traffic forecast results derived from the year 2013 Policy Area Mobility Review (PAMR) analysis were used to report future traffic conditions. This analysis was performed using the Department's TRAVEL/3 model. This tool is an adaptation of the Metropolitan Washington Council of Governments (MWCOG) modeling process and has been applied in support of various growth policy and master planning studies undertaken by the Department.

Regarding land use for the 2013 PAMR analysis, development assumptions inside Montgomery County were updated to reflect the existing base plus pipeline of approved development as of January 1, 2009. Land use assumed outside the County is an estimate of development by the year 2013 based on MWCOG's Round 7.1 cooperative land use forecast.

Within Montgomery County, the current pipeline of approved but un-built development includes some 24,000 households and 123,000 jobs. Nearly two-thirds of this development is in the northern half of the I-270 corridor, from Rockville City north to Clarksburg, including the following ten policy areas:

- Clarksburg
- Germantown West, Town Center, and East
- North Potomac
- Gaithersburg City
- Montgomery Village/Airpark
- Derwood
- R&D Village
- Rockville City

These ten policy areas currently have roughly one-third of the County's jobs and households.

The 2013 PAMR land use scenario also reflects assumed Base Realignment and Closures (BRAC)-related employment totals at the Naval Medical Center in Bethesda as well as anticipated employment development at the Food and Drug Administration in White Oak associated with Federal consolidation plans at that location.

Regarding the 2013 PAMR transportation network, projects considered to be fully-funded within the first four years of the current County Capital Improvement Program (CIP) and the State Consolidated Transportation Program (CTP) , plus those projects conditioned to be built by the private sector as part of development pipeline approvals, were assumed inside Montgomery County. In this regard, no significant changes relative to last year's 2012 PAMR analysis were identified. However, the deferral of the Intercounty Connector (ICC) "Contract D" project in the CTP resulted in the exclusion of the planned collector-distributor roadways between the ICC and MD 198 in Prince George's County from the 2013 network. This is a key change relative to the 2012 PAMR network assumed last year. For the remainder of the network located outside Montgomery County, this analysis incorporates projects identified in the MWCOG Constrained Long-Range Plan (CLRP) network that are anticipated to be completed by the year 2010.

Project planning studies are currently underway for the both the I-270 / US 15 corridor, and the Capital Beltway (from the I-270 Spur to the American Legion Bridge). However, the proposed capacity improvements associated with these facilities were not included in the year 2013 model scenario. In addition, planning studies for both the Corridor Cities Transitway (CCT) and the Purple Line (Bi-County

Transitway) projects are underway. However, their anticipated completion dates are beyond the 2013 horizon; therefore these projects were excluded from the model run as well. The PM peak period results were analyzed and compared to that of the year 2005 model run results for discussion purposes, with the primary focus on the non-freeway facilities.

Table 4.1 shows a comparison of the model run results for the year 2005 and 2013 scenarios. It should be noted that the levels of development assumed in these two scenarios are markedly different. For 2005, countywide totals for households and jobs are 347,000 and 500,000, respectively. For 2013, the countywide total for households is assumed to be 383,459 (a 10.5% increase relative to 2005). The year 2013 countywide total for jobs is assumed to be 628,153 (a 25.6% increase). Based on the results, the average volume-to-capacity (V/C) ratio on the County's transportation system is anticipated to increase by 2.6% by the year 2013. In addition, both the vehicle-miles traveled (VMT) and the vehicle-hours traveled (VHT) are anticipated to increase by 11.6% and 16.1%, respectively. Furthermore, the model predicts a 25.1% increase in the amount of congested lane-miles (V/C ratio of 1.00 or higher) during the PM peak period by the year 2013. The Intercounty Connector (ICC) and other future road improvements will account for an 8.6% increase in the roadway network's total lane-miles. These figures indicate that, although more vehicles are predicted to travel the County's roadways for longer periods of time by the year 2013, planned capacity improvements are anticipated to sufficiently accommodate future traffic resulting from planned development throughout the County and surrounding areas, as reflected in the slight increase in the average V/C ratio countywide.

Table 4.1: Comparison of County-wide 2005 and 2013 TRAVEL/3 Model Results

	2005 Network	2013 PAMR Network	% Chg from 2005
Households*	347,000	383,459	10.5%
Jobs*	500,000	628,153	25.6%
Total Lane-Miles	2,751	2,988	8. 6%
Vehicle-Miles Traveled (in 000s)	5498.5	6133.6	11.6%
Vehicle-Hours Traveled (in 000s)	317.0	367.9	16.1%
Average Speed (mph)	17.4	16.8	-3.5%
Average V/C Ratio	0.76	0.78	2.6%

*Assumed for modeling purposes

Table 4.2 compares and summarizes the model results for both the freeway and non-freeway facilities. Based on the results, the forecasted increase in the average V/C ratio is higher for the non-freeway facilities (3.3%) versus that of the freeway facilities (1.3%). Conversely, the increases in VMT and VHT on the freeway facilities (22% and 19.8% respectively) are forecasted to be higher than that of the non-

freeway facilities (6.9% and 13.4% respectively). One of the main reasons for the smaller increase in the average V/C ratio on the freeway facilities, compared to that of the non-freeway facilities, is that the ICC accounts for a significant increase in total capacity (total lane-miles) for this particular facility type.

Table 4.2: Comparison of 2005 and 2013 TRAVEL/3 Model Results – Non-freeway vs. Freeway Facilities

	Non-freeway facilities			Freeway facilities		
	2005 Network	2013 PAMR Network	% Chg	2005 Network	2013 PAMR Network	% Chg
Total Lane-Miles	2,362	2,508	6.2%	389	479	23.1%
Vehicle-Miles Traveled (in 000s)	3790.2	4050.0	6.9%	1708.3	2083.6	22.0%
Vehicle-Hours Traveled (in 000s)	238.7	270.6	13.4%	78.2	93.7	19.8%
Average Speed (mph)	15.9	14.9	-5.7%	21.9	22.3	1.8%
Average V/C Ratio	0.76	0.79	3.3%	0.76	0.77	1.3%

Figure 4.1 maps the PM peak period V/C ratios and volumes forecasted for the year 2013 on the County's transportation system. The model results indicate that 26.1% of the congested lane-miles will be located along the freeway facilities (i.e. I-495 and I-270), while the remaining 73.9% will be located along the major non-freeway facilities such as; Columbia Pike (US 29), Georgia Ave (MD 97), and Connecticut Ave (MD 185). These results help to reinforce the future need for additional capacity on some of the County's major facilities that will be needed to accommodate the anticipated increases in traffic.

Figure 4.2 provides a map depicting the forecasted PM peak period traffic volume differences between 2005 and 2013. A number of road and intersection improvements are anticipated to be completed by the year 2013. In some cases, the forecast indicates that these facilities will see an increase in their three-hour PM peak period volumes as a result of added capacity. More specifically, the model results indicate that sections of Woodfield Rd (MD 124), which has a planned widening associated with this roadway, are anticipated to see an increase of at least 4000 vehicles during the three-hour PM peak period. Similarly, Airpark Rd, between Muncaster Mill Rd (MD 115) and Woodfield Rd, is forecasted to see an increase of at least 3000 vehicles during the PM peak period.

In contrast to these findings, the opening of some new facilities is anticipated to have a beneficial effect on roadways located in the immediate vicinity, as the model results indicate a decrease in the PM peak period volumes for these facilities. The addition of the ICC as the primary east-west route alternative, is predicted to reduce PM peak period volumes on a number of major roadways in the immediate vicinity of the ICC such as; Norbeck Rd (MD 28), Spencerville Rd (MD 198), Muncaster Mill Rd (MD 115), and sections of Olney-Laytonsville Rd (MD 108). These findings demonstrate that east-west mobility in the County will be enhanced with the addition of this facility.

Figure 4.1: Map of 2013 PM Peak Hour V/C Ratios and Volumes

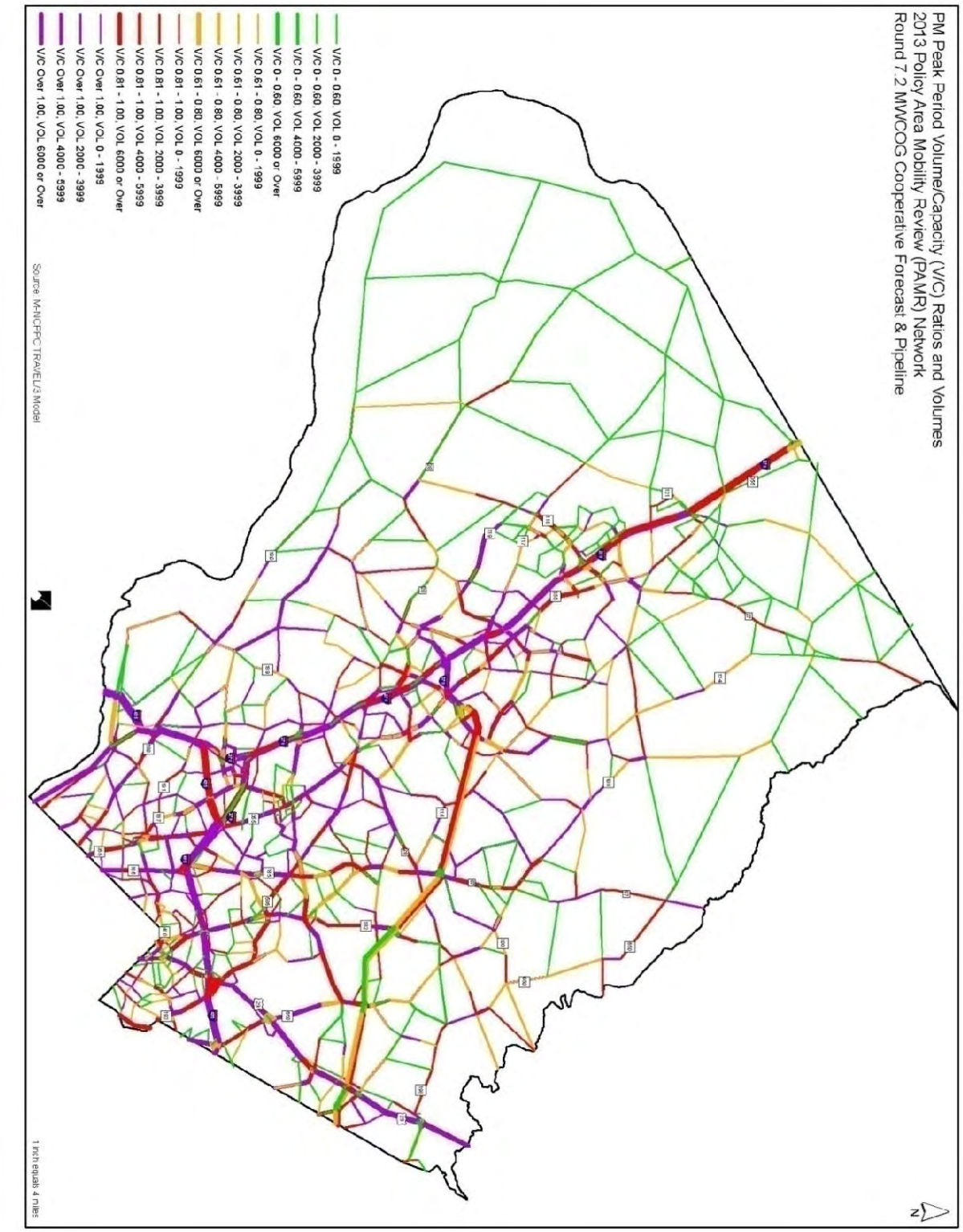
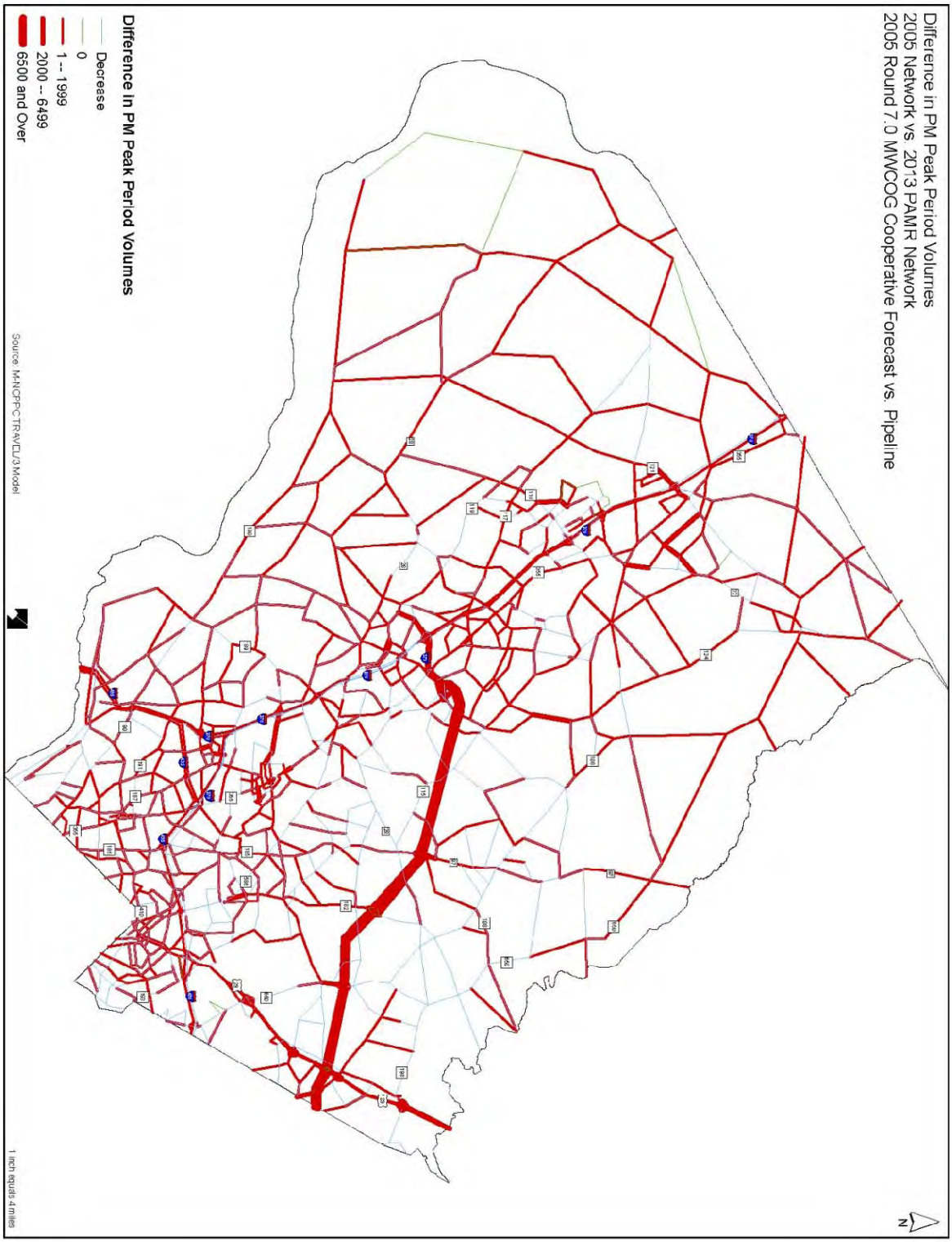


Figure 4.2: Map Showing Difference in PM Peak Volumes – 2005 vs. 2013



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Appendix A: List of Most Recent Critical Lane Volumes at Signalized Intersections

INTERSECTION NAME	Count Date	AM CLV	PM CLV	LATR Standard	Policy Area
16th St at 2nd Ave/Elkhart	6/8/2004	906	749	1600	Silver Spring/Takoma Park
16th St at Spring St	4/19/2005	700	943	1600	Silver Spring/Takoma Park
2nd Ave at Apple Ave/Cameron St	12/13/2005	626	648	1800	Silver Spring CBD
355-Somerset Ter	3/21/2007	952	799	1800	Friendship Heights
Aircraft Dr at Century Blvd	4/30/2009	490	541	1450	Germantown Town Center
Arcola Ave at Amherst Ave	6/1/2005	839	1104	1600	Kensington/Wheaton
Arcola Ave at Kemp Mill Rd	5/11/2004	1020	1290	1600	Kensington/Wheaton
Arlington Rd at Bethesda Ave	6/11/2008	881	1102	1800	Bethesda CBD
Arlington Rd at Edgemoor Ln	3/21/2007	597	823	1800	Bethesda CBD
Arlington Rd at Elm St	9/9/2008	652	810	1800	Bethesda CBD
Arlington Rd at Little Falls Pkwy	10/31/2003	420	552	1600	Bethesda/Chevy Chase
Arlington Rd at Montgomery Ln	3/28/2007	405	656	1800	Bethesda CBD
Bel Pre Rd at Beaverwood Dr	5/30/2006	876	936	1500	Aspen Hill
Bel Pre Rd at Homecrest Dr	6/1/2006	1252	842	1500	Aspen Hill
Bickerstaff/Diamondback/Story	9/7/2005	681	635	1450	Gaithersburg City
Bonifant Rd at Pebblestone Dr	3/5/2009	833	702	1475	Cloverly
Bou Ave at Chapman Ave	11/1/2005	535	721	1550	North Bethesda
Bradley Blvd at Arlington Rd	10/4/2006	932	1092	1800	Bethesda CBD
Bradley Blvd at Fairfax	10/12/2006	671	1098	1800	Bethesda CBD
Bradley Blvd at Fernwood Rd	3/4/2009	1129	1440	1600	Bethesda/Chevy Chase
Bradley Blvd at Goldsboro Rd	3/11/2009	1052	1091	1600	Bethesda/Chevy Chase
Bradley Blvd at Hill/Leland	10/12/2006	628	860	1800	Bethesda CBD
Bradley Blvd at Huntington Pkwy	6/11/2003	980	1321	1600	Bethesda/Chevy Chase
Bradley Blvd at Wilson Ln	3/12/2009	1660	1603	1600	Bethesda/Chevy Chase
Briggs Chaney Rd at Automobile/Castle	10/18/2005	889	1244	1500	Fairland/White Oak
Briggs Chaney Rd at Fairdale Rd	9/17/2008	863	790	1500	Fairland/White Oak
Briggs Chaney Rd at Old Columbia Pk	11/14/2006	1531	1209	1500	Fairland/White Oak
Broad-Calv-Cherryhill	9/6/2007	1498	1462	1500	Fairland/White Oak
Burtonsville Blv at Burtonsville Xing SC	4/14/2009	494	596	1400	Patuxent
Calverton Blvd at Galway Dr	9/6/2007	1336	977	1500	Fairland/White Oak
Capitol View Ave at Forest Glen/Seminary	2/12/2004	937	900	1600	Kensington/Wheaton
Carroll Ave (MD 195) at Flower Ave	10/10/2006	860	1046	1600	Silver Spring/Takoma Park
Carroll Ave (MD 195) at Laurel Ave	4/16/2009	406	528	1600	Silver Spring/Takoma Park
Carroll Ave (MD 195) at Tulip Ave	8/5/2004	512	553	1600	Silver Spring/Takoma Park
Cedar St at Pershing Ln	6/4/2003	304	422	1800	Silver Spring CBD
Cherry Hill Rd at Plum Orch/Clover Patch	8/30/2007	1074	967	1500	Fairland/White Oak
Cherry Hill Rd at Prosperity Dr	9/5/2007	1019	1011	1500	Fairland/White Oak
Clarksburg Rd at Gateway Center Dr	5/7/2009	699	723	1425	Clarksburg

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Clopper Rd at Firstfield Rd	4/29/2009	1258	1302	1450	Gaithersburg City
Clopper Rd at Great Seneca Hwy	3/11/2009	1111	1223	1450	Germantown West
Clopper Rd at Hopkins Ln	3/12/2009	1068	988	1450	Germantown West
Clopper Rd at Kingsview Rd	2/5/2004	962	1037	1450	Germantown West
Clopper Rd at Kingsview Village Dr	9/13/2006	944	943	1450	Germantown West
Clopper Rd at Longdraft Rd	3/17/2009	925	1070	1475	North Potomac
Clopper Rd at Mateney Rd	3/30/2004	1041	1026	1450	Germantown West
Clopper Rd at Metropolitan Grove Rd	4/19/2005	819	1069	1450	Gaithersburg City
Clopper Rd at Quince Orchard Rd	3/10/2009	1355	1463	1450	Gaithersburg City
Clopper Rd at Watkins Mill/Pheasant	3/11/2004	726	1017	1450	Gaithersburg City
Colesville Rd at 2nd/Wayne	9/25/2007	964	835	1800	Silver Spring CBD
Colesville Rd at Dale Dr	2/26/2009	1604	1645	1600	Silver Spring/Takoma Park
Colesville Rd at East West Hwy	4/30/2009	991	1385	1800	Silver Spring CBD
Colesville Rd at Fenton St	9/19/2006	943	1038	1800	Silver Spring CBD
Colesville Rd at Franklin Ave	2/3/2009	1413	1571	1600	Silver Spring/Takoma Park
Colesville Rd at Georgia Ave	9/26/2006	1378	1049	1800	Silver Spring CBD
Colesville Rd at Sligo Crk Pkwy/St Andre	3/6/2008	1508	1624	1600	Silver Spring/Takoma Park
Colesville Rd at Spring St	9/20/2006	1123	1248	1800	Silver Spring CBD
Colesville Rd at University Blvd (N)	9/13/2006	1589	1434	1600	Kensington/Wheaton
Colesville Rd at University Blvd (S)	1/22/2009	1680	1535	1600	Kensington/Wheaton
Columbia Pike at Blackburn Rd	12/6/2006	1532	1501	1400	Patuxent
Columbia Pike at Burnt Mills Ave	10/7/2004	1374	1246	1500	Fairland/White Oak
Columbia Pike at Fairland Rd	9/6/2007	1636	1604	1500	Fairland/White Oak
Columbia Pike at Greencastle Rd	11/15/2006	1607	1575	1500	Fairland/White Oak
Columbia Pike at Industrial Pkwy	9/5/2007	1061	1365	1500	Fairland/White Oak
Columbia Pike at Lockwood Dr	4/2/2009	1603	1487	1500	Fairland/White Oak
Columbia Pike at Milestone/Stewart	8/30/2007	830	1500	1500	Fairland/White Oak
Columbia Pike at Musgrove Rd	9/13/2007	1265	1279	1500	Fairland/White Oak
Columbia Pike at Prelude Dr	3/21/2006	1362	1406	1500	Fairland/White Oak
Columbia Pike at Southwood	3/5/2008	1601	1521	1600	Kensington/Wheaton
Columbia Pike at Stewart/NB Slip Ramp	1/29/2003	1318	1371	1500	Fairland/White Oak
Columbia Pike at Tech Rd	9/5/2007	1192	1411	1500	Fairland/White Oak
Connecticut Ave at Adams	5/31/2007	926	885	1600	Kensington/Wheaton
Connecticut Ave at Aspen Hill Rd	6/1/2006	1446	1417	1500	Aspen Hill
Connecticut Ave at Bel Pre Rd	6/1/2006	1069	1227	1500	Aspen Hill
Connecticut Ave at Bradley Ln	3/17/2004	1516	1577	1600	Bethesda/Chevy Chase
Connecticut Ave at Chevy Chase Lake Dr	4/28/2004	950	1080	1600	Bethesda/Chevy Chase
Connecticut Ave at Denfield	2/12/2004	1273	1173	1600	Kensington/Wheaton

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INTERSECTION NAME	Count Date	AM CLV	PM CLV	LATR Standard	Policy Area
Connecticut Ave at Dunlop St	2/2/2006	1025	999	1600	Bethesda/Chevy Chase
Connecticut Ave at East West Hwy	4/16/2009	1693	1644	1600	Bethesda/Chevy Chase
Connecticut Ave at I-495 (N)	3/9/2004	1283	1245	1600	Kensington/Wheaton
Connecticut Ave at I-495 (S)	3/10/2004	1515	1100	1600	Bethesda/Chevy Chase
Connecticut Ave at Independence	3/5/2009	1063	1120	1500	Aspen Hill
Connecticut Ave at Jones Bridge Rd	5/13/2009	1769	1618	1600	Bethesda/Chevy Chase
Connecticut Ave at Knowles Ave	2/26/2009	1364	1263	1600	Kensington/Wheaton
Connecticut Ave at Manor Rd	3/18/2009	1095	1245	1600	Bethesda/Chevy Chase
Connecticut Ave at Perry	2/11/2004	1188	1018	1600	Kensington/Wheaton
Connecticut Ave at Plyers Mill Rd	4/28/2009	1304	1825	1600	Kensington/Wheaton
Connecticut Ave at Randolph Rd	1/8/2008	1470	1804	1600	Kensington/Wheaton
Connecticut Ave at Raymond/Rosemary	1/30/2007	1201	806	1600	Bethesda/Chevy Chase
Connecticut Ave at Saul Rd	2/5/2004	1002	990	1600	Kensington/Wheaton
Connecticut Ave at University Blvd	3/11/2009	1186	1026	1600	Kensington/Wheaton
Connecticut Ave at Veirs Mill Rd	6/6/2007	1607	1535	1600	Kensington/Wheaton
Connecticut Ave at Washington St	5/26/2005	1034	819	1600	Kensington/Wheaton
Connecticut Ave at Weller Rd	12/7/2004	1286	1175	1600	Kensington/Wheaton
Crabbs Branch Way at Indianola Dr	4/25/2006	1277	1168	1800	Shady Grove
Dale Dr at Wayne Ave	4/21/2005	809	965	1600	Silver Spring/Takoma Park
Darnestown Rd at Beallsville Rd	10/5/2005	992	902	1400	Poolesville
Darnestown Rd at Darnestown-Germantn Rd	3/31/2009	1077	979	1400	Darnestown/Travilah
Darnestown Rd at Glen Mill Rd	9/27/2007	1124	1038	1500	Rockville City
Darnestown Rd at Muddy Branch Rd	1/21/2009	1417	1347	1475	North Potomac
Darnestown Rd at Potomac Valley Drwy	10/9/2007	862	722	1450	Gaithersburg City
Darnestown Rd at Quince Orchard HS	10/6/2005	744	832	1475	North Potomac
Darnestown Rd at Quince Orchard Rd	10/2/2007	1311	1123	1475	North Potomac
Darnestown Rd at Riffle Ford Rd	3/12/2009	1061	1898	1475	North Potomac
Darnestown Rd at Seneca Rd (MD 112)	2/9/2006	1152	1160	1400	Darnestown/Travilah
Darnestown Rd at Shady Grove Rd	9/11/2007	1098	794	1500	Rockville City
Darnestown Rd at Travilah Rd	2/4/2009	1108	1067	1475	North Potomac
Darnestown Rd at Tschiffely Square Rd	10/2/2007	1202	997	1475	North Potomac
Darnestown-Germantown Rd at Clopper Rd	9/13/2006	1044	1361	1450	Germantown West
Darnestown-Germantown Rd at Middlebrook	10/23/2007	1169	1427	1450	Germantown Town Center
Darnestown-Germantown Rd at Observation	3/29/2007	942	1065	1450	Germantown East
Darnestown-Germantown Rd at Richter Farm	5/6/2009	1245	1330	1450	Germantown West