

change accordingly. In addition, significant modifications in the model's key inputs must occur before major differences will be seen in the model results. For these reasons, modeled traffic data tends to be more useful in terms of analyzing significant changes in traffic trends over longer periods of time, versus using the data to observe year-to-year variations. Traffic forecasts are *estimates* of future traffic conditions, which are based on assumptions about land use patterns and the County's transportation network for the future. Therefore, this information is generally not as useful as information based on observed (current) traffic conditions for near-term planning purposes.

### ***Future Data Sources***

As mentioned in the 2005 HMR, staff continues to coordinate with SHA and DPWT on the development of a Memorandum of Understanding (MOU) in which all three agencies would enter into an agreement to use the SHA traffic count guidelines which require the collection of turning movement counts for a 13-hour duration. This process has been placed on hold, as SHA must first resolve some internal coordination issues prior to the development of the MOU. Provided that this initiative moves forward, the Department will be required to revise its current LATR guidelines in order to accommodate the terms of this agreement.

The 2005 HMR also alluded to the potential 24/7/365 availability of archived electronic traffic data, which is continuing to be developed by the University of Maryland Center for Advanced Transportation Technology Laboratory (UMD-CATT Lab) for SHA's Coordinated Highways Action Response Team (CHART). Staff recently provided the UMD-CATT Lab with traffic data obtained from the County's Advanced Transportation Management System (ATMS), which the Department had been archiving (under the now defunct "DASH system") for analysis purposes. When available, these combined data sources will allow a much more detailed investigation of the variability in traffic volumes along some of the County's major highways and arterials. Because the UMD-CATT Lab has the work program, staff, and resources that will allow the maintenance of an archiving system of this nature, staff remains optimistic about the availability of data from this particular source for future reports.

### III. CURRENT CONGESTION

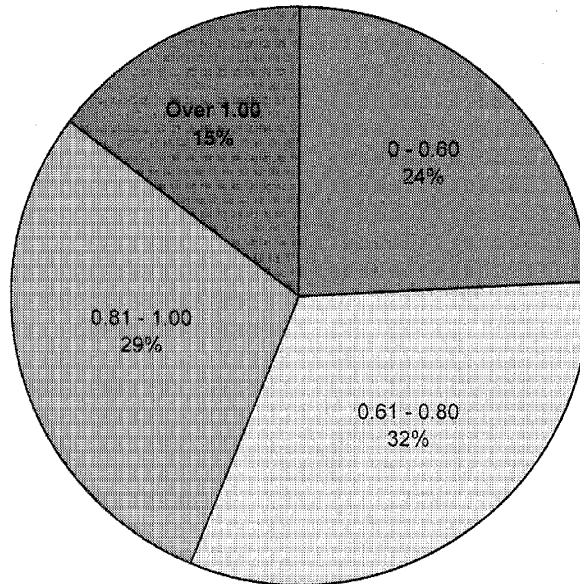
#### *Critical Lane Volumes (CLVs) at Signalized Intersections*

The Department's intersection database currently contains count samples for 506 of the 762 (both existing and planned) signalized intersections in the County, which date back to March 1, 2001. The total number of samples is up from the 435 samples that were in the database at the time of last year's report. The Priority Funding Areas (PFAs) continue to be well monitored as roughly 71% of the intersections located in these areas have been sampled in recent years. Staff feels that it is acceptable to utilize turning movement count data dating as far back as 3 years for reporting purposes, primarily because the percent change in CLV seen at most locations during this time frame tends to fall within what is considered to be the normal variability. In addition, the Department routinely utilizes CLV data dating back the same length of time to conduct intersection trend analyses for LATR purposes. That being said, staff elected to remove data from this year's sampling, which was dated prior to January 1, 2003. Therefore, only 457 of the 506 intersections were sampled for the purposes of this report (see Appendix 5.1A for the complete list of samples in the database). Staff acknowledges that some count samples, which are dated prior to 2003, may hold some degree relevancy to the current-day traffic conditions. However, it is preferred that more up-to-date samples for these locations are obtained prior to re-reporting on them. It should be noted however that a small set of count data samples, which predate 2003, were used to analyze CLV trends at some locations for this report. Prior to assembling this year's report, staff was able to acquire updated turning movement count data for 49 intersections located along some of the major State roads from SHA's database. These counts were all conducted between the dates of 1/1/2004 and 12/31/2005.

The findings in this year's study indicate that approximately 15% of the 457 intersections sampled had a CLV that exceeded their respective LATR standard, or a CLV/LATR ratio of greater than 1.00. In addition, staff found that 29% of the intersections sampled had a CLV/LATR ratio between 0.80 and 1.00. Figure 3.1 shows the full distribution of CLV/LATR ratios for all of the intersections sampled. It should be noted that 13 of the 47 intersections in the database, which have count samples predating 2003, had CLVs that exceeded their designated LATR standard. Therefore, staff plans to acquire more recent count data for these locations before re-reporting on their status.

Figure 3.1: CLV/LATR Ratio Distribution

Higher of the AM and PM Peak Hour CLV/LATR Standard Ratio  
(sample size = 457)



It is worth noting that, last year's report indicated that 22% of the 435 intersections sampled had a CLV that exceeded its respective LATR standard. The 7% decrease (between 2005 and 2006) in the number of intersections with a CLV/LATR ratio of greater than 1.00 can be explained in several ways. Roadway and intersection infrastructure improvements (i.e. the new US 29 interchanges) performed by both the State and County, as well as improvements related to development; have helped to reduce CLVs at a number of problematic locations. These locations will be discussed in greater detail later in this report. Also, prior to assembling this report, staff conducted an audit of a small set of CLV data in the database, which either appeared to be questionable, or had values that were found to be incorrect. After performing a thorough quality assessment and control (QA/QC) exercise, it was found that some of this CLV data had been previously miscalculated, as a result of incorrect input parameters and/or erroneous raw count data. Therefore, staff proceeded to revise input parameters (i.e. geometrics, signal phasing, number of lanes, etc.) for the intersections in question, prior to recalculating their CLVs. Another reason for this decrease has to do with the range of dates for which the most recent counts were sampled. By excluding all counts from the sample set that predate January 1, 2003, a number of questionable counts, as well as counts with CLVs that may no longer reflect current day conditions, were removed from the sample set. A number of the earlier counts in the database were collected before the Department had stringent QA/QC measures in place that would ensure the validity of the counts, as well as the CLV data.

A majority of the change in CLVs over the last 2-3 years is within the normal variability of 10%. However, it is important to note that when comparing this year's CLV/LATR ratios to

those reported in the 2005 report, notable differences are seen particularly in the upper two class ranges (0.81 – 1.00, and Over 1.00) (see figure 3.2). According to this year’s data, the total number of intersections with a CLV/LATR of greater than 1.00 decreased by roughly 7% when compared to the data presented in last year’s report. In contrast, the number of intersections with a CLV/LATR ratio between 0.81 and 1.00 increased by roughly 5.5% since last year. This would indicate that some of the locations that were extremely congested the previous year have seen their CLV/LATR ratios decrease to less than 1.00. As mentioned earlier, much of this contrast in year-to-year variation of CLV/LATR ratios can be attributed to the impact of infrastructure improvements, a more refined data sampling, and the re-calculation of CLVs at a few locations.

Figure 3.2: Year-to-Year Comparison of CLV/LATR ratios

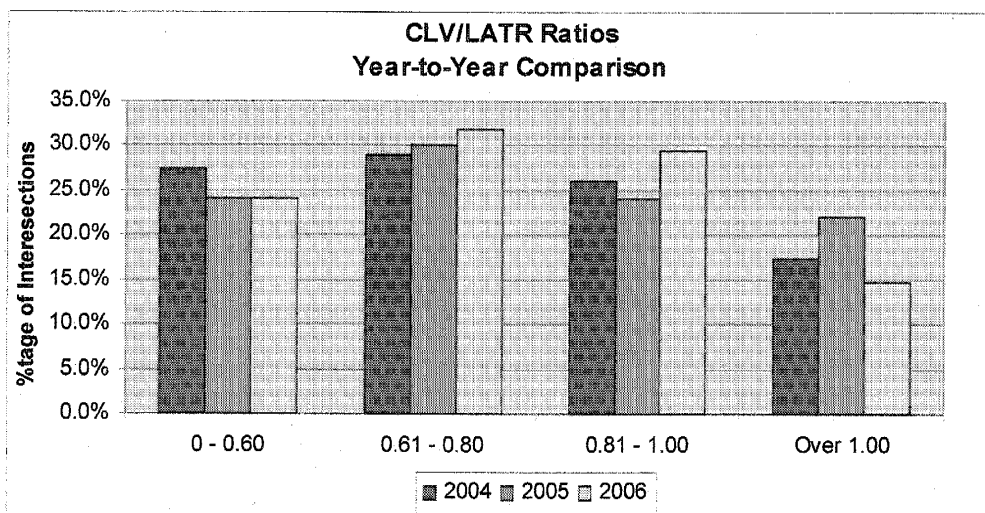


Table 3.1 shows the LATR congestion standards for all (34) policy areas of the County. Nine of the County’s 34 policy areas are designated Central Business Districts (CBDs). County policy promotes high levels of growth and development in the CBDs, mainly because these areas have the transportation infrastructure to accommodate higher levels of congestion, hence a LATR standard of 1800.

Table 3.1: LATR Congestion Standards

Congestion (CLV) Standard	Policy Area
1400	Rural Areas (Poolesville, Damascus, Goshen, Patuxent, Darnestown / Travilah)
1450	Clarksburg, Damascus, Gaithersburg City, Germantown East, Germantown Town Center, Germantown West, Montgomery Village / Airpark
1475	Cloverly, Derwood, Olney, North Potomac, Potomac, R&D Village
1500	Aspen Hill, Fairland / White Oak, Rockville City
1550	North Bethesda
1600	Bethesda / Chevy Chase, Kensington / Wheaton, Silver Spring / Takoma Park
1800	Bethesda CBD, Friendship Heights CBD, Glenmont, Grosvenor, Shady Grove, Silver Spring CBD, Twinbrook, Wheaton CBD, White Flint

Table 3.2 lists the 10 most congested intersections in the County, as of April 28, 2006. As seen in the previous two reports, the intersections are ranked by absolute CLV as opposed to the CLV/LATR standard ratio. Staff has concluded in previous years that absolute CLV tends to be a better determinant of the severity of congestion. That is, a CLV of 1500 typically indicates some degree of congestion, but may not be viewed as severe in some policy areas (e.g. CBDs) when compared to less stringent standards. See figure 3.3 for a detailed map of these locations.

Table 3.2: Top 10 Most Congested Intersections in 2006

RANKING			INTERSECTION NAME	COUNT DATE	CLV	LATR STAN	POLICY AREA
2006	2005	2004					
1	2	*	<i>Georgia Ave at Forest Glen Rd</i>	8/28/03	2106	1600	Kensington/Wheaton
2	3	1	<i>Rockville Pike at W Cedar Ln</i>	4/5/05	2103	1600	Bethesda/Chevy Chase
3	11	64	<i>Great Seneca Hwy at Muddy Branch Rd</i>	10/5/05	2073	1450	Gaithersburg City
4	5	*	Rockville Pike at South/Wood/NNMC	6/9/04	2022	1600	Bethesda/Chevy Chase
5	6	11	Columbia Pike at Southwood Ave	10/28/04	2015	1600	Kensington/Wheaton
6	7	81	<i>Frederick Rd at Ridge Rd</i>	9/8/04	1981	1450	Germantown East
7	8	9	Connecticut Ave at Jones Bridge Rd	6/11/03	1974	1600	Bethesda/Chevy Chase
8	62	59	Connecticut Ave at University Blvd	10/18/05	1970	1600	Kensington/Wheaton
9	10	*	Frederick Rd (MD 355) at King Farm Blvd	4/15/04	1952	1800	Shady Grove
10	13	53	Rockville Pike (MD 355) at Pooks Hill Rd	6/8/04	1923	1600	Bethesda/Chevy Chase

\* Intersection was unranked b/c data was unavailable or CLV did not exceed standard  
 Entries in *italics* indicates special notes for this particular location

Notes for Table 3.2 (by rank)

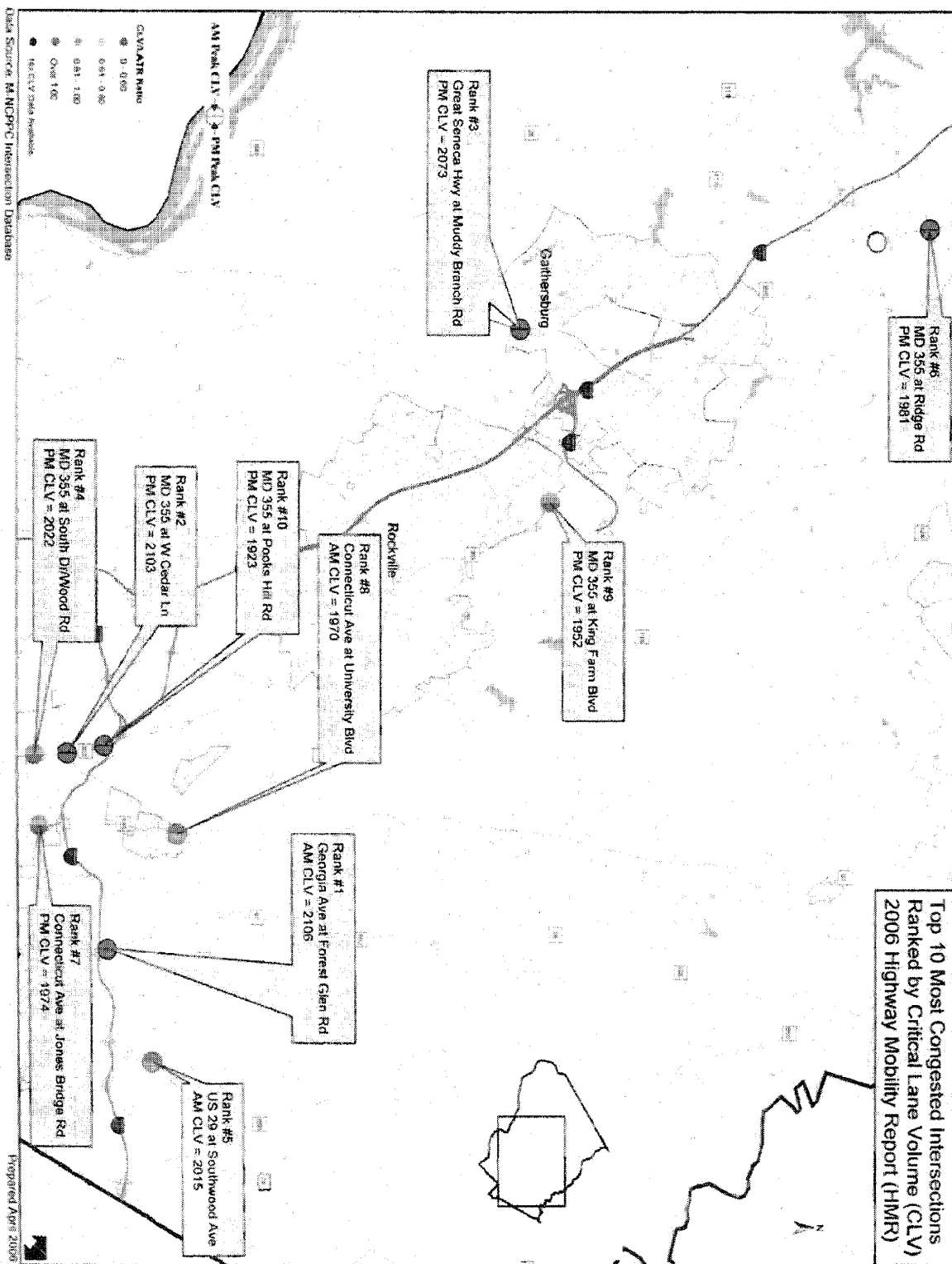
Intersection #1: Signal phasing changed since the count was taken

Intersection #2: Grade-separated interchange recommended in MP

Intersection #3: Roadway improvement was nearing completion when count was taken

Intersection #6: Grade-separated interchange recommended in MP

Figure 3.3: Map of the Top 10 Most Congested Intersections



This year's ranking indicates that three intersections have moved into the top 10 most congested list, while the remaining seven intersections are on the list for, at least the second consecutive year. Connecticut Ave (MD 185) at University Blvd (MD 193) shifted significantly in the rankings, as it moved from #62 on the previous year's list to #9 on this year's list. As a result of increased volumes (through movements) during both the AM and PM peak periods, in addition to increased volumes opposite the peak (AM and PM) direction flow along Connecticut Ave, the CLV at this location increased 18.3% between 2001 and 2005 (most recent count). Great Seneca Hwy (MD 119) at Muddy Branch Rd has also moved into the list at #4 from a #11 ranking last year. As a result of increased volumes along both Great Seneca Hwy and Muddy Branch Rd, the CLV at this location increased 6.4% between 2004 and 2005 (most recent count). The increase in volumes along these roads can be partially attributed to some of the recently completed office and commercial development concentrated in the R&D village. In addition, the recently completed widening of Great Seneca Hwy has more than likely contributed to the increased volumes along this roadway. Further monitoring of this location will be necessary in order to determine the degree to which the widening will impact the CLV over time. The third intersection to move into the top 10 ranking is Rockville Pike (MD 355) and Pooks Hill Rd / Bellevue Dr. This intersection is appearing on the list after being ranked #13 during the previous year. This location, which has a calculated CLV of 1923, is located just to the north of two intersections (MD 355 at Cedar Ln, MD 355 at South Dr / Wood Rd) that are ranked among the top 10 most congested for the second consecutive year. The consistent increase in volumes along MD 355 during both the AM and PM peaks, have helped to sustain this corridor as one of the most congested in the County.

Tables 3.3 and 3.4 rank the remaining intersections that have CLVs, which exceed their respective LATR standard. It is important to note that 30 of the 72 intersections listed in this table either have recommended improvements, or ongoing/recently completed improvements associated with them, which could impact or have impacted the CLVs at these locations. See appendix 5.3 in the back of the report for the complete list of planned, active, and recently completed State and County infrastructure improvements. Similar to the table (above), which ranks the top 10 most congested intersections, these tables display the ranking (by absolute CLV) for each intersection by year. By doing so, staff was able to highlight intersections that shifted significantly in the rankings as a result of both past and recent infrastructure improvements. In addition, staff was able to identify locations that shifted in the rankings (from a CLV standpoint) as a result of on-street work zones related to ongoing infrastructure improvements, which ultimately reduced mobility at these locations.

Table 3.3: Congested Intersections (11-33)

RANKING			INTERSECTION NAME	COUNT DATE	CLV	LATR STAN	POLICY AREA
2006	2005	2004					
11	14	66	<i>Colesville Rd at Sligo Creek Pkwy/St Andrews</i>	12/8/2005	1917	1600	Silver Spring/Takoma Park
12	41	*	Colesville Rd at University Blvd (N)	10/28/2004	1917	1600	Kensington/Wheaton
13	16	*	<i>Georgia Ave at Norbeck Rd</i>	9/11/2003	1896	1500	Aspen Hill
14	21	*	Georgia Ave at East-West/Burlington/13 <sup>th</sup> St	11/4/04	1868	1800	Silver Spring CBD
15	25	*	<i>Columbia Pike at Stewart/NB Slip Ramp</i>	1/29/2003	1849	1500	Fairland/White Oak
16	28	30	<i>Connecticut Ave at East West Hwy</i>	3/18/2004	1831	1600	Bethesda/Chevy Chase
17	29	32	<i>Veirs Mill Rd at First St</i>	3/18/2003	1818	1500	Rockville City
18	*	*	Norbeck Rd (MD 28) at Avery Rd	10/12/2005	1815	1500	Rockville City
19	30	55	<i>Colesville Rd at University Blvd (S)</i>	10/28/2004	1810	1600	Kensington/Wheaton
20	31	139	MD 355 at Indianola Dr/Watkins Pond	10/6/04	1789	1500	Rockville City
21	34	89	<i>Columbia Pike at Briggs Chaney Rd</i>	2/4/2004	1770	1500	Fairland/White Oak
22	35	92	<i>Darnestown Rd at Riffle Ford Rd</i>	11/9/2004	1769	1475	North Potomac
23	48	43	Old Georgetown Rd at Tuckerman Ln	5/26/2005	1746	1550	North Bethesda
24	38	77	<i>Veirs Mill Rd at Twinbrook Pkwy</i>	6/9/2004	1743	1550	North Bethesda
25	39	*	Georgia Ave at Emory Ln	9/9/2003	1741	1475	Olney
26	40	*	Hungerford Dr at N Washington St	7/8/2004	1736	1500	Rockville City
27	*	*	Key West Ave at Shady Grove Rd	9/27/2005	1733	1500	Rockville City
28	*	*	Georgia Ave at MD 108	12/14/2005	1722	1475	Olney
29	43	8	<i>Connecticut Ave at Veirs Mill Rd</i>	3/3/2004	1717	1600	Kensington/Wheaton
30	67	*	Cherry Hill Rd at Broadbirch/Calverton Blvd	5/18/2004	1716	1500	Fairland/White Oak
31	27	21	<i>Norbeck Rd at Bauer Dr</i>	10/20/2005	1710	1500	Aspen Hill
32	*	*	Piney Branch Rd at Philadelphia Ave	4/20/2005	1704	1600	Silver Spring/Takoma Park
33	45	35	Columbia Pike at Lockwood Dr	10/26/2004	1699	1500	Fairland/White Oak

\* Indicates that intersection was not ranked due to lack of data

Entries in *italics* indicates special notes for this particular location

Notes for Table 3.3 (by rank)

Intersection #11: Work zone existed north of intersection when count this was taken

Intersection #13: Grade-separated interchange in project planning

Intersection #15: Grade-separated interchange under study

Intersection #16: Count taken prior to intersection improvement

Intersection #17: Grade-separated interchange/intersection improvements under study

Intersection #19: Work zone existed south of intersection when this count was taken

Intersection #21: Grade-separated interchange under construction

Intersection #22: Roadway has been improved since this count was taken

Intersection #24: Road improvements south of intersection have been completed since this count was taken

Intersection #29: Intersection improvements completed since this count was taken

Intersection #31: Intersection improvements recommended in MP



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Table 3.4: Congested Intersections (34-72)

34	47	37	<i>University Blvd at Piney Branch Rd</i>	5/3/2005	1676	1600	<i>Silver Spring/Takoma Park</i>
35	50	145	Rockville Pike at Wilson/NIH	6/10/2004	1675	1600	Bethesda/Chevy Chase
36	49	51	Old Georgetown Rd at Beech St	10/5/2004	1675	1600	Bethesda/Chevy Chase
37	*	*	<i>Colesville Rd at Franklin Ave</i>	4/13/2005	1670	1600	<i>Silver Spring/Takoma Park</i>
38	*	*	<i>Georgia Ave at Arcola Ave</i>	5/3/2005	1661	1600	<i>Kensington/Wheaton</i>
39	52	7	<i>Hungerford Ln (MD 355) at Gude Dr</i>	10/26/2004	1656	1500	<i>Rockville City</i>
40	93	68	Frederick Rd at Clarksburg Rd	8/24/2005	1653	1450	Clarksburg
41	*	*	<i>New Hampshire Ave at Lockwood Dr</i>	11/17/2004	1644	1500	<i>Fairland/White Oak</i>
42	*	*	<i>Montrose Rd at Tildenwood Ln</i>	3/9/2005	1643	1550	<i>North Bethesda</i>
43	54	47	Old Georgetown Rd at W Cedar Ln	4/30/2003	1639	1600	Bethesda/Chevy Chase
44	59	56	Muncaster Rd at MD 108	6/3/2004	1638	1400	Patuxent
45	*	*	Layhill Rd at Belpre/Bonifant Rd	9/15/2005	1633	1500	Aspen Hill
46	55	17	Connecticut Ave at Randolph Rd	3/3/2004	1631	1600	Kensington/Wheaton
47	42	29	Georgia Ave at Columbia Blvd/Seminary Ln	5/10/2005	1631	1600	Silver Spring/Takoma Park
48	56	*	<i>Columbia Pk at Burtonsville Xing SC</i>	6/2/2004	1628	1400	<i>Patuxent</i>
49	57	52	Georgia Ave at Plyers Mill Rd	11/18/2003	1626	1600	Kensington/Wheaton
50	58	80	<i>Woodfield Rd at Fieldcrest/Hadley Farms</i>	3/10/2005	1620	1450	<i>Montgomery Village/Airpark</i>
51	4	5	<i>Montrose Rd at E Jefferson St</i>	3/9/2005	1617	1550	<i>North Bethesda</i>
52	60	269	<i>Mont. Village Ave at Chris/Lost Knife</i>	11/4/2004	1613	1450	<i>Montgomery Village/Airpark</i>
53	*	*	Georgia Ave at Connecticut Ave	2/19/2004	1611	1500	Aspen Hill
54	63	60	<i>Veirs Mill Rd at Aspen Hill Rd</i>	3/22/2003	1608	1500	<i>Aspen Hill</i>
55	*	*	First St at Baltimore Rd	1/13/2005	1602	1500	Rockville City
56	72	75	MD 355 at Edmondston Ln	3/20/2003	1556	1500	Rockville City
57	*	*	Olney-Laytons Rd at Queen Elizabeth Dr	12/15/2005	1555	1475	Olney
58	75	71	E Gude Dr at Southlawn Ln	9/28/2004	1545	1500	Rockville City
59	77	38	<i>Columbia Pike at Fairland Rd</i>	11/20/2003	1541	1500	<i>Fairland/White Oak</i>
60	78	*	Frederick Rd at Montgomery Village Ave	3/3/2004	1540	1450	Gaithersburg City
61	79	113	Rockville Pike at Congressional Ln	6/3/2004	1538	1500	Rockville City
62	83	*	<i>Columbia Pike at Greencastle Rd</i>	2/5/2004	1524	1500	<i>Fairland/White Oak</i>
63	*	*	Shady Grove Rd at Epsilon/Tupelo	4/6/2005	1518	1475	Derwood
64	*	*	Muncaster Mill Rd at Needwood Rd	4/12/2005	1510	1400	Rock Creek
65	66	61	Midcounty Hwy at Washington Grove Ln	3/22/2005	1508	1475	Derwood
66	84	149	<i>Great Seneca Hwy at Quince Orchard Rd</i>	3/9/2004	1507	1450	<i>Gaithersburg City</i>
67	86	*	Hungerford Dr (MD 355) at Manakee St	10/27/2004	1504	1500	Rockville City
68	36	31	Georgia Ave at Old Baltimore Rd	4/7/2005	1498	1475	Olney
69	91	247	New Hampshire Ave at Bonifant/Good Hope	5/25/2004	1476	1475	Cloverly
70	*	*	Georgia Ave at New Hampshire Ave	2/14/2006	1457	1400	Patuxent
71	92	*	Great Seneca Hwy at Kentlands Blvd	5/11/2005	1454	1450	Gaithersburg City
72	95	*	Sandy Spring Rd at McKnew Rd	9/10/2003	1401	1400	Patuxent

\* Indicates that intersection was not ranked due to lack of data

Entries in *italics* indicates special notes for this particular location

Notes for Table 3.4 (by rank)

- Intersection #34: Work zone existed north of intersection when this count was taken
- Intersection #37: Work zone existed north of intersection when this count was taken
- Intersection #38: Intersection improvements in project planning
- Intersection #39: Grade separated interchange recommended in MP
- Intersection #41: Intersection/roadway improvements completed since this count was taken
- Intersection #42: Intersection improvement under construction
- Intersection #48: Grade-separated interchange completed at US 29/MD198 after count was taken
- Intersection #50: Roadway improvement under study
- Intersection #51: Intersection improvement was nearing completion when count was taken
- Intersection #52: Intersection improvements completed since this count was taken
- Intersection #54: Intersection improvements completed since this count was taken
- Intersection #59: Grade-separated interchange in project planning
- Intersection #62: Grade-separated interchange in MP
- Intersection #66: Intersection improvements completed since this count was taken

The availability of archived count data enabled staff to conduct a CLV trend analysis for a selected group of intersections. This analysis was done primarily to illustrate the impact of infrastructure improvements on CLVs. Table 3.5 lists locations where CLVs decreased as a result of infrastructure improvements by at most 15% over a 4-year period. State (SHA) improvements such as; the widening of Darnestown Rd (MD 28) and Great Seneca Hwy (MD 119), have helped to significantly reduce CLVs at a number of intersections located in the Gaithersburg and R & D Village areas of the County. Improvements related to development such as; the improvement of the intersection at Wayne Ave and Cedar St (in the Silver Spring CBD) helped to reduce the CLV at this location by roughly 40% between late 2003 and late 2005. Analyses of this nature helps to further justify the need for and effectiveness of various forms of infrastructure improvements.

Table 3.5: CLV % Change <= -15%

INTERSECTION	CLV	DATE	O CLV	O DATE	PCI CHG	JUSTIFICATION/REASONING
Darnestown Rd (MD 28) at Key West Ave	1111	9/21/2005	2225	5/8/2001	-100%	MD 28 widening was completed just prior to '05 count
Wisconsin Ave (MD 355) at Jones Bridge/Center Dr	1536	12/22/2005	2299	4/24/2003	-49%	Result of '04 intersection improvements
Wayne Ave at Cedar St	776	4/12/2005	1094	6/5/2003	-40%	Development-related improvements made at Wayne/Fenton prior to '05 count
Rockville Pike (MD 355) at Marinelli Rd	998	3/8/2005	1394	6/12/2003	-39%	White Flint Metro parking garage was relocated just prior to '05 count
Darnestown Rd (MD 28) at Muddy Branch Rd	1178	12/20/2005	1505	2/24/2004	-27%	MD 28 and MD 119 widenings were completed prior to '05 count
Montrose Rd at Executive/E Jefferson St	1617	3/9/2005	2061	5/22/2003	-27%	Intersection improvement was nearing completion when '05 count was taken
Great Seneca Hwy (MD 119) at Key West Ave (MD 28)	1230	9/27/2005	1556	2/11/2003	-26%	MD 119 widening, reconstruction was being completed when '05 count was taken
Veirs Mill Rd (MD 586) at Randolph Rd	1314	9/29/2005	1613	10/31/2002	-22%	Intersection improvement was nearing completion when '05 count was taken
Connecticut Ave (MD 185) at Veirs Mill Rd (MD 586)	1717	3/3/2004	1975	9/19/2001	-15%	MD185/MD586 improvement was nearing completion when '04 count was taken

The availability of archived data also allowed staff to identify locations where CLVs have increased as the result of new development, or the expansion of existing development. Staff was also able to identify locations where CLVs have increased as result of on-street work zones related to ongoing construction, which typically decrease roadway capacity, and ultimately impact traffic flow. It is important to note that despite the increases in CLVs as a result of development, traffic mitigation measures have been implemented at a number of these locations. Moreover, the absence of these traffic mitigation measures would have resulted in much more drastic increases in CLVs at these locations. Table 3.6 lists locations where CLVs have increased by at least 15% between 2001 and 2005. The CLV at the intersection of Key West Ave (MD 28) and W Gude Dr increased roughly 49% between 2004 and 2005, as a result of the opening of Falls Grove Dr as the northbound leg of the intersection. Comparably, the CLV at Democracy Blvd and Rockledge Dr increased 35% between 2004 and 2005 as a result of the opening of the Rockledge Dr extension to I-270.

Table 3.6: CLV % Change  $\geq$  15%

INTERSECTION	CLV	DATE	O CLV	O DATE	PCT CHG	JUSTIFICATION/REASONING
Fenton St at Ellsworth Ave	503	4/19/2005	253	6/12/2003	49%	Eastbound Ellsworth Ave was reopened prior to '05 count
Key West Ave (MD 28) at W Gude Dr	1231	9/28/2005	616	12/8/2004	49%	Falls Grove Dr (new) opened prior to '05 count
Fenton St at Cameron St	644	11/16/2005	394	5/26/2005	38%	Fenton St garage exit re-opened prior to '05 count
Muncaster Mill Rd (MD 115) at Needwood Rd	1510	4/12/2005	955	1/17/2001	36%	MD 115 safety, geometric improvements were underway when '05 count was taken
Democracy Blvd at Rockledge Dr	1013	4/21/2005	650	2/26/2004	35%	Rockledge Dr (new) was opened prior to '05 count
Fenton St at Thayer St	930	4/14/2005	636	5/20/2003	31%	CBD work zones along Fenton St removed prior to '05 count
Key West (MD 28) at Shady Grove Rd	1733	1/26/2005	1222	10/29/2002	30%	Traffic resulting from development in the R&D Village
Fenton St at Sligo Ave	1087	9/27/2005	770	5/20/2003	29%	CBD work zones along Fenton St removed prior to '05 count
Burlington Ave (MD 410) at Fenton St	1169	3/3/2005	861	6/9/2004	26%	CBD work zones along Fenton St removed prior to '05 count
Coleseville Rd at 2nd/Wayne Ave	1088	5/12/2005	849	6/10/2004	21%	Traffic resulting from ongoing development in Silver Spring CBD prior to '05 count
Old Georgetown Rd at Rock Spring Dr	1368	5/25/2005	1099	6/2/2004	19%	Rockledge Dr (new) was opened prior to '05 count
Old Georgetown Rd at Executive Blvd	1620	3/10/2005	1341	5/22/2003	17%	Traffic resulting from ongoing development at LCOR site seen in '05 count
Rockville Pike (MD 355) at Tuckerman Lane (N)	1586	5/10/2005	1314	3/25/2003	17%	I-495/270 PM bail-out traffic; development impacts at Strathmore site seen in '05 count
Darnestown Rd (MD 28) at Riffle Ford Rd/Seurat Dr	1769	11/9/2004	1493	4/24/2001	15%	MD 28 widening was underway when '04 count was taken
Old Georgetown Rd (MD 187) at Democracy Blvd	1440	4/19/2005	1234	6/2/2004	14%	MD 187 safety, resurfacing improvements were underway when '04 count was taken

Using this year's available CLV data, staff has assembled a list of locations that exhibit definitive patterns of congestion. Based on this information, it is discernable that this year's congested locations tend to mirror those seen in the 2005 Highway Mobility Report (HMR). These corridors tend to have a significant number of intersections, which have CLVs that either are exceeding or are close to exceeding their LATR standard. As seen in the previous two reports, these intersections tend to be located along the major thoroughfares (e.g. State routes), which provide linkages to the various activity centers (e.g. CBDs) of the County. In some instances, some congested intersections are located at the gateway points to the major job and activity centers. There are a number of projects that are either master-planned, or already in project planning, which should help to improve mobility in these areas. Based on this year's analysis, the following areas and corridors are experiencing significant levels of congestion:

- **Rockville Pike (MD 355)** between the Capital Beltway (I-495) and the intersection of Jones Bridge Rd / Center Dr, where four signalized intersections (Pooks Hill Rd / Bellvue Dr, Cedar Ln / W Cedar Ln, Wilson Dr / NIH, South Dr / Wood Rd) all have CLVs exceeding the LATR standard. Three of these intersections (Cedar Ln / W Cedar Ln, South Dr / Wood Rd, Pooks Hill Rd / Bellvue Dr) rank among the 10 most congested intersections in the County with CLVs of 2103, 2022, and 1923 respectively. The intersection of Rockville Pike and Cedar Ln / W Cedar Ln is ranked among the 10 most congested intersections in the County for the third consecutive year. The master-planned grade-separated interchange for this location was recommended by the County Executive, for addition to the State's Development & Evaluation (D&E) program in the fall of 2005.
- **Rockville Pike / Hungerford Dr / Frederick Rd (MD 355)** between Shady Grove Rd and Twinbrook Pkwy / Rollins Ave, where five intersections (King Farm Blvd, Gude Dr, N Washington St, Edmonston Ln, Congressional Ln) all have CLVs that exceed their respective LATR standard. All, but one of these intersections (King Farm Blvd), are located in the **City of Rockville**. The City of Rockville has its own review procedures and is not subject to the County's LATR guidelines. However, the Department uses the LATR standard for travel monitoring purposes within the city limits. The master-planned grade-separated interchange for the MD 355/Gude Dr intersection was recommended by the County Executive, for addition to the State's Development & Evaluation (D&E) program in the fall of 2005. It should also be noted that Twinbrook Pkwy / Rollins Ave intersection improvement project is currently in the property acquisition phase.
- **Frederick Rd (MD 355)** from Montgomery Village Ave (MD 124) in the **City of Gaithersburg** to points north (Germantown, Clarksburg), where four intersections (Montgomery Village Ave, Christopher St, Ridge Rd (MD 27), Clarksburg Rd (MD 121)) all have CLVs, which exceed their respective LATR standards. The CLVs at these intersections have increased uniformly over the past few years as a result of ongoing development in Clarksburg and the surrounding vicinities. Therefore, this corridor should continue to be monitored with the highest level of scrutiny, as a significant amount of development in this area has been approved, but has yet to be built. There is a significant amount of additional transportation infrastructure planned for these areas, both developer-funded and through traditional funding sources, but travel conditions will likely worsen until those facilities are actually constructed. Staff should note that the Stringtown Rd extension project recently began construction, while the Midcounty Hwy (M-83) extension project from Montgomery Village Ave north to Ridge Rd is currently in phase I facility planning by DPWT.
- **Colesville Road / Columbia Pike (US 29)**, where 10 intersections from the Howard County line to Sligo Creek Pkwy have CLVs exceeding their respective LATR standards. Construction of the new grade-separated interchanges at Sandy Spring Rd (MD 198) and Randolph Rd / Cherry Hill Rd were completed in late 2005. Construction of the new grade-separated interchange at Briggs Chaney Rd is to be completed by mid-to-late 2007. Four additional grade-separated interchanges

(Blackburn Rd, Fairland Rd / Musgrove Rd, Greencastle Rd, Stewart Ln, Tech Rd) are either master planned or in project planning. However, in accordance with the Council Master Plan guidance, SHA is conducting a monitoring program in the vicinity of and downstream from the new interchanges before additional interchanges are funded for construction.

- **Georgia Avenue (MD 97)** between the Wheaton and Silver Spring CBDs, where four intersections (Columbia Blvd / Seminary Ln, Forest Glen Rd, Plyers Mill Rd) all have CLVs exceeding their LATR standard. The intersection at Arcola Ave also has a CLV that exceeds its LATR standard. Five intersections (Connecticut Ave (MD 185), Norbeck Rd (MD 28), Emory Ln, Old Baltimore Rd, Olney-Sandy Spring Rd (MD 108)) from the Glenmont area to the Olney Town Center also have CLVs that exceed their respective LATR standards. New grade-separated interchanges for the Randolph Rd and Norbeck Rd intersections are currently in project planning by SHA. Intersection improvements for Georgia Ave (MD 97) at Arcola Ave are also in project planning. The Forest Glen Road intersection, which ranks #2 on the list of the most congested intersections for the second consecutive year with a CLV of 2106, had its signal phasing plan updated following its most recent count and conditions have improved following the new phasing plan, but a new count with a current CLV is not yet available.
- **Norbeck Rd (MD 28)** from Georgia Ave (MD 97) to Veirs Mill Rd (MD 586), where 5 of the 10 signalized intersections (Georgia Ave, Bauer Dr, Avery Rd, Baltimore Rd, Veirs Mill Rd) have CLVs that exceed their LATR standard. A grade-separated interchange for the Georgia Ave intersection is currently in project planning by SHA. In addition, at-grade and grade-separated improvement options for the Norbeck Rd / First St / Veirs Mill Rd intersection are currently under study by SHA
- **Veirs Mill Rd (MD 586)** from Georgia Ave to Norbeck Rd / First St, where four intersections (Georgia Ave, Aspen Hill Rd, Twinbrook Pkwy, Norbeck Rd / First St) all have CLVs exceeding their respective LATR standards. The master-planned widening of Veirs Mill Rd from Randolph Rd to Twinbrook Pkwy was recommended by the County Executive, for addition to the State's Development & Evaluation (D&E) program in the fall of 2005.
- **Montrose Rd** where the intersections at Tildenwood Ln and E Jefferson St both have CLVs, which exceed their LATR standard. The intersection at E Jefferson St was recently improved with the additions of a second southbound right turn lane, and a second eastbound left turn lane. Therefore, staff will need to obtain new data for this intersection to determine the effectiveness the recent improvements. The County recently began construction of the new Montrose Pkwy West (from Tildenwood Ln to Old Georgetown Rd), which will serve as a bypass around the existing Montrose / Randolph Rd. This project also involves the widening of an existing segment of Montrose Rd between Tower Oaks Blvd and Tildenwood Ln. The Montrose Parkway East (from Old Georgetown Rd to Veirs Mill Rd (MD 586)) extension of this project is currently in phase II facility planning by DPWT. A grade-separated interchange for the

intersection at Rockville Pike (MD 355) and the CSX railroad crossing is currently in project planning by SHA.

- **River Road (MD 190)** from Seven Locks Rd to Winston Dr / Whittier Blvd, where four signalized intersections (Seven Locks Rd, I-495 E access ramp, Beech Tree Rd / Nevis Rd, Winston Dr / Whittier Blvd) all have CLVs exceeding the their LATR standard. The counts for these intersections all predate 2003. Therefore, staff would like to obtain more recent count data for these locations to determine the accuracy of the reported conditions, for future reporting purposes.

Although CLV data is useful for identifying levels of congestion at signalized intersections and along some of the more heavily signalized corridors, it does not always clearly describe the issue of congestion at the link or roadway segment level. In some cases, an intersection may have a CLV, which indicates that it is performing at an acceptable level relative to the LATR standard. However, if the approach volume at that intersection is being impeded or diminished by the lack of flow along the approaching link or links, then the issue of congestion can be attributed to conditions along the link. The next section of this report discusses the results of GPS travel time and speed runs, which were conducted for a selected group of well-traveled routes and corridors throughout the County. The information to be discussed in this section will help to identify congestion at the link level along some of the aforementioned congested corridors.

### *Arterial Travel Times and Speeds*

This performance measure was introduced in the 2004 ADAC Report and was perceived as an indicator that could be easily understood by transportation system users. People are usually very aware of the travel times and speeds that they experience while traveling from place-to-place at different times of the day, during different days of the week. GPS-equipped probe vehicles are used to conduct structured samples of different roadways at specific times of the day to yield measures such as representative speeds and travel times, variations in speeds and travel times, and average speed and travel times over specific sampling periods. Because roadway users experience and internalize these measures of traffic congestion during their own travel, they can understand how well the results of sampling and characterization of congestion levels agree with their own experiences.

The Planning Board has expressed sentiments in previous reviews that the cumulative summary of collected GPS-based travel time and speed data provides a good enough representation of the overall traffic congestion patterns in the County to support continuing data collection efforts with slight variations in the study scope from year to year. For the previous two reports, the consultant had structured the travel time and speed samples to include many well-traveled routes and reported the results on a route-by-route basis, so that readers could easily check the range of the results against their own travel experiences. The summaries tend to emphasize the variations in congestion in terms of: (a) its duration over time, (b) extent along the route, and (c) its intensity at different places and times. The analysis is less concerned with average conditions and recognizes that congestion can have many causes. A significant amount of congestion does not recur from day-to-day; rather it can be

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