

## I. EXECUTIVE SUMMARY

### *Staff Recommendation*

Transmit the 2006 Highway Mobility Report (HMR) to the County Council, in accordance with Council Resolution #15-375 Section F4.

### *Key Findings*

- In general, the findings in this report indicate that the patterns of congestion observed throughout the County this year closely resemble those reported in the chapter on Highway Mobility, which was included as part of the 2005 Annual Growth Policy (AGP) Report, excluding some locations where either infrastructure improvements have been implemented or areas where pronounced levels of development have occurred.
  - The following areas and corridors continue to experience significant levels of congestion and should be targeted for near-term congestion relief:
    - Clarksburg
    - Rockville Pike / Hungerford Dr / Frederick Rd (MD 355)
      - From the Bethesda CBD to the Capital Beltway (I-495)
      - In the City of Rockville
      - From Montgomery Village Ave (MD 124) to Ridge Rd (MD 27)
    - Georgia Ave (MD 97)
      - From the Silver Spring CBD to the Wheaton CBD
    - East-West routes
      - Norbeck Rd (MD 28)
      - Montrose Road
  - When compared to the information reported in the 2005 HMR, this year's data indicates that Georgia Ave (MD 97), from Glenmont to the Olney Town Center, is experiencing increased levels of congestion and should be monitored with a high level of scrutiny for future reporting purposes.
  - State and County transportation infrastructure improvements, as well as improvements associated with approved development, continue to help reduce congestion levels in various areas of the County.
  - There continues to be the need for additional resources to aid the provision of speed and travel time data for more detailed analysis purposes.
  - As reflected in the year 2010 traffic forecasts, east-west travel mobility in the County will be enhanced with the inclusion of the ICC as part of the transportation network.
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### ***Changes to the Report***

The format for this year's report is similar to that of the 2005 HMR. However, this report includes the analysis of year 2010 forecasted volume-to-capacity (V/C) ratios as a measure of future congestion. In addition, for analysis purposes, this report excludes the use of observed traffic data that predates January 1, 2003. These changes were made based on staff discussions with Council staff following the completion of last year's report, in addition to various internal staff discussions, which took place prior to beginning work on this year's report.

### ***Highlights***

This marks the third consecutive year that an annual report on the status of congestion in Montgomery County has been assembled. Overall, the congested locations observed this year closely resemble those, which were reported in the 2005 Highway Mobility Report (HMR). However, the implementation of both infrastructure and operational improvements have helped to reduce Critical Lane Volumes (CLVs), as well as improve travel times and speeds in some areas of the County.

Staff found that 15% of the signalized intersections sampled for this report had CLVs, which exceeded their Local Area Transportation Review (LATR) standard. In addition, increases in CLVs and travel times, as well as decreases in speeds were observed along some of the sampled routes and corridors. In most cases, much of this increase in congestion can be attributed to the pronounced levels of development in the vicinity of these routes and corridors. However, staff also observed increases in CLVs, as well as longer travel times and decreased speeds along some of the other sampled corridors that were the direct result of infrastructure improvements requiring on-street work zones, which often reduced roadway capacity. This report also identifies some intersections that have seen a recent spike in their CLVs resulting from the opening of a new or extended roadway, in or adjacent to that particular area.

Seven of this year's 10 most congested intersections in the County appear on the list for the second consecutive year. Three of these intersections were ranked in or near the top 10 in the 2004 ADAC Report, which indicates a consistent recurrence of congestion at these locations. Staff feels that these locations should be targeted for improvement via State and County improvements, master plan recommendations, as well as developer-funded improvements where possible.

The GPS-based travel time and speed data samples acquired this year suggests that recently completed infrastructure improvements have helped to reduce traffic queues during the AM peak, which were reported in 2005, for sections of Frederick Rd (MD 355) between Comus Rd and Montgomery Village Ave. Analysis of these data samples further suggest that congestion observed along the surveyed sections of MD 355 are a result of traffic growth directly related to development in the Clarksburg area. Additional data acquired for the Norbeck Rd / Spencerville Rd (MD 28 / MD 198) indicates that sections of Norbeck Rd (MD 28) between MD 355 and New Hampshire Ave (MD 650) continue to experience significant delays during the PM peak period, particularly in the eastbound direction.

The results of the year 2010 model run conducted for this report conclude that under the current Constrained Long Range Plan (CLRP) for the year 2010, which includes the Intercounty County Connector (ICC), nearly all of the roadway segments in the County's transportation network are forecasted to have V/C ratios under 1.00. This indicates that the future demand is anticipated to be less than the planned capacity for the network.

Planned land use development, coupled with the planned transportation infrastructure identified in the CLRP, will help to account for a 20.6% increase in vehicle-miles traveled (VMT) relative to the 1998 base year conditions. Most of this increase in VMT will occur on the freeways. Despite a significant increase in VMT countywide, the average V/C ratio is anticipated to have increased marginally by the year 2010 (vs. 1998 base year network). Furthermore, the forecasted average V/C ratio countywide for 2010 indicates that the planned capacity improvements will help to regulate the increase in VMT and result in a manageable increase in the percentage of congested lane-miles.

## **II. BACKGROUND**

### ***Purpose***

The purpose of this report is to provide an annual update on the status of congestion in Montgomery County, as required by Council resolution #15-375 Section F4 passed by the County Council on October 28, 2003. This report serves as a follow-up to the 2005 Highway Mobility Report (HMR), which was included as Chapter 3 in the 2005 AGP Report. This report contains information on historical, current, and future congestion trends and patterns, which is to be used by the Planning Board and County Council to comment on this year's State Consolidated Transportation Program (CTP) project priorities.

In contrast to the previous two years, this year's report will be transmitted to the County Council by June 15th, as opposed to September 1st. The revised schedule will provide the Board and Council with additional time to consider the findings in the report, prior to commenting on this year's CTP project priorities. In addition, copies of this report will be distributed to the State Highway Administration (SHA) and the Montgomery County Department of Public Works and Transportation (DPW&T) prior the development of this year's draft CTP.

### ***Performance Measurements***

Similar to the 2005 HMR, this report aims to describe the status of congestion on the County's major highway and arterials. For this reason, two key performance measurements were used to report on current congestion:

- (1) Critical Lane Volumes (CLVs), and
- (2) GPS Arterial Travel Times and Speeds

In addition, this year's report re-introduces the use of forecasted volume-to-capacity (V/C) ratios, as a measure of the near-term future performance of the County's transportation

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network. This particular measure was initially used in the 2004 ADAC Report to describe forecasted traffic congestion for the year 2010.

Critical Lane Volume (CLV) data continues to be the ideal means for identifying levels of congestion at signalized intersections throughout the County. This measure of congestion is calculated mathematically using throughput and conflicting movement volume data, in conjunction with information on the geometric configuration and signal phasing for a particular intersection, as the major variables.

Although data collection resources were limited for this year's report, the GPS arterial travel time and speed data that was acquired for the purposes of this report, once again proved to be useful in terms of measuring levels of congestion along two of the County's most heavily traveled routes and corridors. This particular measure uses travel time and speed data collected via GPS technology as routes are driven, to determine how a particular corridor performs during the peak periods of the day, relative to the off-peak period.

As mentioned in the 2005 HMR, the Department continues to transition from the current TRAVEL/2 model to the new TRAVEL/3 model, which employs the COG modeling process. Because the validation of the TRAVEL/3 model has yet to be completed, staff used output from the Department's TRAVEL/2 model for the purposes of this report. Therefore, a revised year 2010 model run was conducted, using MWCOG Round 7.0 cooperative land-use forecasts, in addition to an updated version of the Constrained Long Range Plan (CLRP) model network as the key inputs. The results of this model run were compared to the model run results for the TRAVEL/2 validation year (1998) network for analysis purposes.

Most of the County's freeway system continues to undergo project planning at the Maryland Department of Transportation (MDOT). The I-270 / US 15 Corridor Study, the Capital Beltway (I-495) HOV Study, and the Intercounty Connector (ICC) project, were all referenced in the 2005 HMR report and continue to be monitored and studied for planning purposes. Therefore, as with the scope of work for last year's report, staff once again elected to focus its resources on evaluating the major highway and arterials, where the Planning Board and County Council can work to address mobility issues in the near-term. However, it should be noted that MWCOG released a report on February 15, 2006 entitled, *Traffic Quality on the Metropolitan Washington Area Freeway System*, which describes traffic conditions on the region's freeways. Those wishing to view the report in its entirety should visit the following address on the MWCOG website to download a copy of the report:

[http://www.mwcog.org/news/press/detail.asp?NEWS\\_ID=189](http://www.mwcog.org/news/press/detail.asp?NEWS_ID=189)

### ***Data Sources and Reliability Issues***

Information provided in reports of this nature is only as reliable as its particular data source(s). There are a number of factors that will consistently contribute to certain inaccuracies in the collected source data. These factors can include device failure, human error, poor survey conditions (i.e. weather, time of day, time season), and/or unforeseen circumstances such as traffic incidents. The inevitability of these factors should always be taken into consideration when evaluating potential traffic data sources.

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The data stored in the Department's intersection analysis database provides the framework for the discussion on Critical Lane Volumes (CLVs) at signalized intersections, as a measure of performance. A majority of the CLV data stored in the database was derived from either turning movement count data acquired from SHA, or data gathered by consultants for traffic study purposes as required by the Department's LATR Guidelines. SHA's 13-hour (6:00 am - 7:00pm) turning movement count standard remains effective, while the Department continues to require 6-hour (6:30 am - 9:30 am, 4:00 pm - 7:00pm) turning movement counts for LATR purposes. It is also worth noting that the Department periodically receives and utilizes turning movement count data collected and provided by DPWT, which are conducted as part of the County's Transportation Demand Management (TDM) program. These counts tend to vary in duration from 4-hours (7:00 am - 9:00 am, 4:00 pm - 6:00 pm) to 6-hours (7:00 am - 9:00 am, 11:00 am - 1:00 pm, 4:00 pm - 6:00 pm).

As seen in the previous two years of the report, the analysis results indicate that the County's transportation system exhibits characteristics of great dynamics. Because CLVs at most intersections tend to fluctuate roughly 10% within a given 2-3 year period, staff has identified this as being the *normal variability* seen in data of this nature. That being said, it is more desirable to have more frequent count samples for locations that have CLVs that exceed what is considered to be the normal variability within a 2-3 year period. In the previous two years of the report, some citizens have raised concerns regarding the lack of monitoring of the off-peak and weekend traffic conditions along some heavily commercial corridors (e.g., MD 355). Although staff, along with various elected officials, recognize significant patterns of congestion along these roadways during these periods, the status quo remains that travel conditions continue to be far worse during the AM and PM peak periods than during the off-peak and weekends in most areas of the County. If warranted, the provision of future resources would grant staff the ability to monitor conditions outside of the typical peak periods.

With regards to the arterial travel time and speed data samples, there were very limited resources available this year either to: (a) collect and analyze new primary data and/or (b) gather and analyze new secondary travel time and speed data from other sources. New primary data was collected for only two corridors: (1) Frederick Road (MD 355) between Montgomery Village Avenue (MD 124) and Comus Road, and (2) the combined corridor of First Street (MD 911), Norbeck Road (MD 28), and the MD 29-198 Connector between Rockville Pike (MD 355) and New Hampshire Avenue (MD 650). Secondary sources, based on Global Position System (GPS) equipped probe vehicle samples conducted by other agencies, continue to be available. More specifically, a substantial amount of samples were made available by these agencies following the completion of last year's report. However, the resources to effectively analyze and summarize all of the secondary data were also limited for the purposes of this report. As a result, some of this secondary data will be retained for possible future trend analysis provided that sufficient funding is available in the future.

Staff currently uses the Department's TRAVEL/2 model to conduct both long and short-range travel forecasts. The model utilizes forecasted land use data as a key input to estimate future traffic to be generated on the County's transportation system. As both land use forecasts and the County's planned transportation infrastructure change over time, the model results will

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.