

IV. FUTURE CONGESTION

Year 2012 Forecasted Volume-to-Capacity (V/C) Ratios

For the purpose of this report, a year 2012 traffic forecast was conducted using the Department's new TRAVEL/3 model. The TRAVEL/3 model, which was adopted in late 2006, employs the Metropolitan Washington Council of Governments (MWCOC) modeling process and was first used as an application in support of the MD 355/I-270 Corridor Study, which was conducted during the latter part of 2006. This forecast updates last year's Policy Area Mobility Review (PAMR) growth policy analysis to reflect an estimate of year 2012 conditions.

Regarding land use, development assumptions inside Montgomery County were updated to reflect the existing base plus pipeline of approved development as of January 1, 2008. Land use outside the County is an estimate of development by the year 2012 based on MWCOC's Round 7.1 cooperative land use forecast.

Within Montgomery County, the current pipeline of approved but unbuilt development includes some 38,000 households and 127,000 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

For comparison purposes, these ten policy areas currently have about one-third of the County's jobs and households.

It should be noted that 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 transportation network, projects considered to be fully-funded within the first four years of the current County Capital Improvement Program and the State Consolidated Transportation Program, plus those conditioned to be built by the private

sector as part of development pipeline approvals, were assumed inside Montgomery County. In this regard, a significant change relative to last year's PAMR analysis is the inclusion of the "eastern segment" of the Intercounty Connector between Georgia Avenue (MD 97) and US Route 1. Outside the 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 2012 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 have yet to be determined; 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 forecasts for the year 2005 and 2012 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 2012, the countywide total for households is assumed to be 389,237 (a 12.2% increase relative to 2005). The year 2012 countywide total for jobs is assumed to be 626,080 (a 25.2% increase). Based on the results, the average volume-to-capacity (V/C) ratio on the County's transportation system is anticipated to increase by 3.9% by the year 2012. In addition, both the vehicle-miles traveled (VMT) and the vehicle-hours traveled (VHT) are anticipated to increase by 12.3% and 16.1% respectively. Furthermore, we predict a 24.6% increase in the amount of congested lane-miles (V/C ratio of 1.00 or higher) during the PM peak period by the year 2012. The Intercounty Connector (ICC) and other future road and intersection improvements will account for an 8.5% increase in the roadway network's total lane-miles. These figures indicate that, although more vehicles are predicted travel the County's roadways for longer periods of time by the year 2012, 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 TRAVEL/3 Model Results

	2005 Network	2012 PAMR Network	% Chg
Households*	347,000	389,237	12.2%
Jobs*	500,000	626,080	25.2%
Total Lane-Miles	2,751	2,986	8.5%
Vehicle-Miles Traveled (in 000s)	5498.5	6175.4	12.3%
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	0.79	3.9%

*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 (3.9%) versus that of the freeway facilities (2.6%). Conversely, the increases in VMT and VHT on the freeway facilities (22.7% and 20.3% respectively) are forecasted to be higher than that of the non-freeway facilities (7.6% and 14.7% 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 TRAVEL/3 Model Results – Non-freeway vs. Freeway Facilities

	Non-freeway facilities			Freeway facilities		
	2005 Network	2012 PAMR Network	% Chg	2005 Network	2012 PAMR Network	% Chg
Total Lane-Miles	2,362	2,507	6.1%	389	479	23.1%
Vehicle-Miles Traveled (in 000s)	3790.2	4080.0	7.6%	1708.3	2095.4	22.7%
Vehicle-Hours Traveled (in 000s)	238.7	273.9	14.7%	78.2	94.1	20.3%
Average Speed (mph)	15.9	14.9	-6.3%	21.9	22.3	1.8%
Average V/C Ratio	0.76	0.79	3.9%	0.76	0.78	2.6%

Figure 4.1 maps the PM peak period V/C ratios and volumes forecasted for the year 2012 on the County's transportation system. The model results indicate that 6.4% of the congested lane-miles will be located along the freeway facilities (i.e. I-495 and I-270), while the remaining 19.6% 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.

A number of road and intersection improvements are anticipated to be completed by the year 2012. In some cases, the forecast indicates that these facilities will see an increase in their three-hour PM peak hour 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 it, are anticipated to see an increase of at least 4000 vehicles during the three-hour PM peak period. On a related note, 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. Some of this may reflect an a potential change in travel patterns as a result of the widening, as indicated by a forecasted decrease in the PM peak volumes for Muncaster Mill Rd, which serves as the alternative connection to Woodfield Rd. Refer to Figure 4.2 for a map which shows the forecasted differences in PM peak volumes, when comparing the results of the year 2005 and 2012 scenarios.

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 volumes for these facilities. The addition of the ICC as the primary east-west route alternative is predicted to reduce PM peak volumes on a number of major roadways in the immediate vicinity 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 confirm that east-west mobility in the County will be enhanced with the addition of this facility.

Figure 4.1: Map of 2012 PM Peak Hour V/C Ratios and Volumes

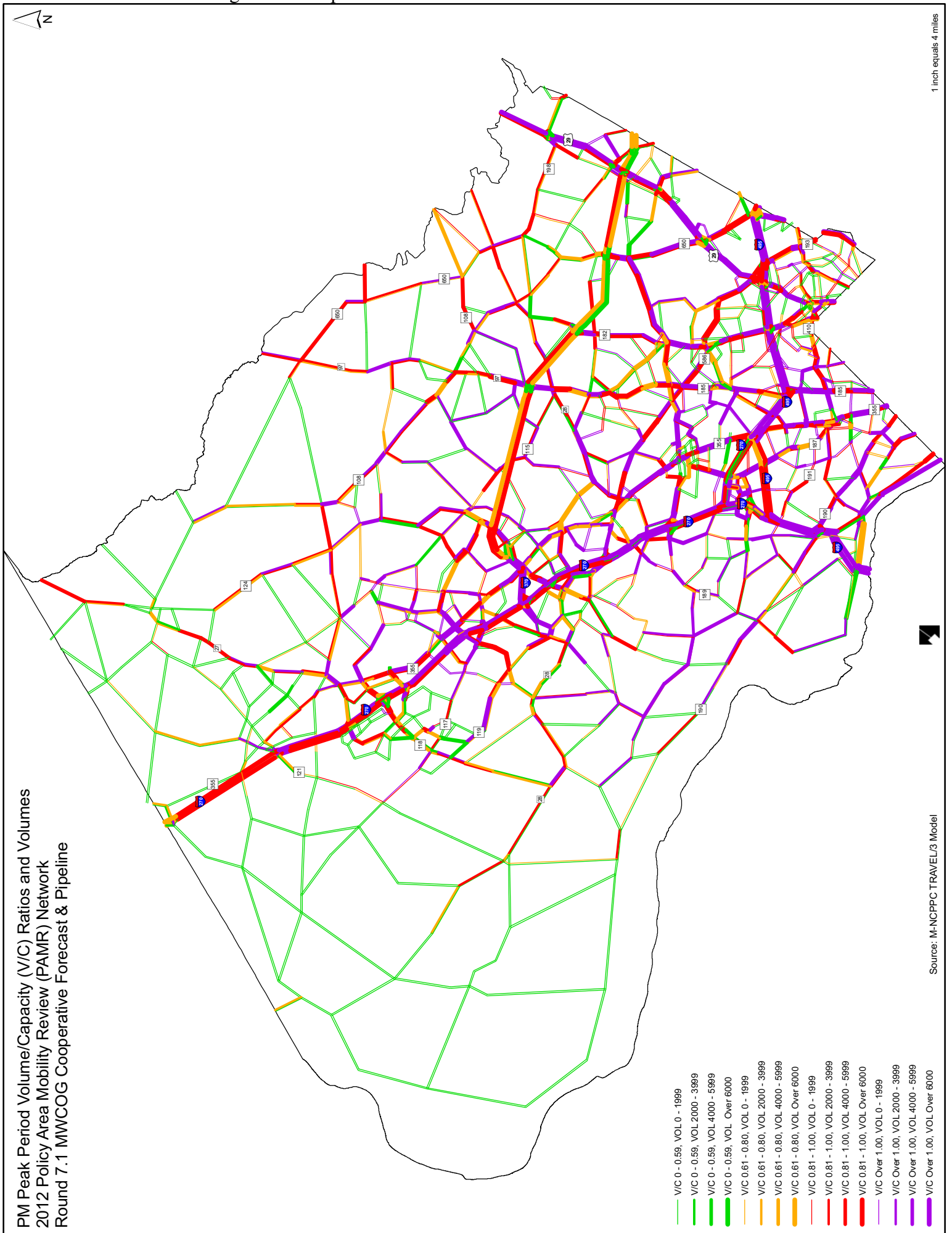
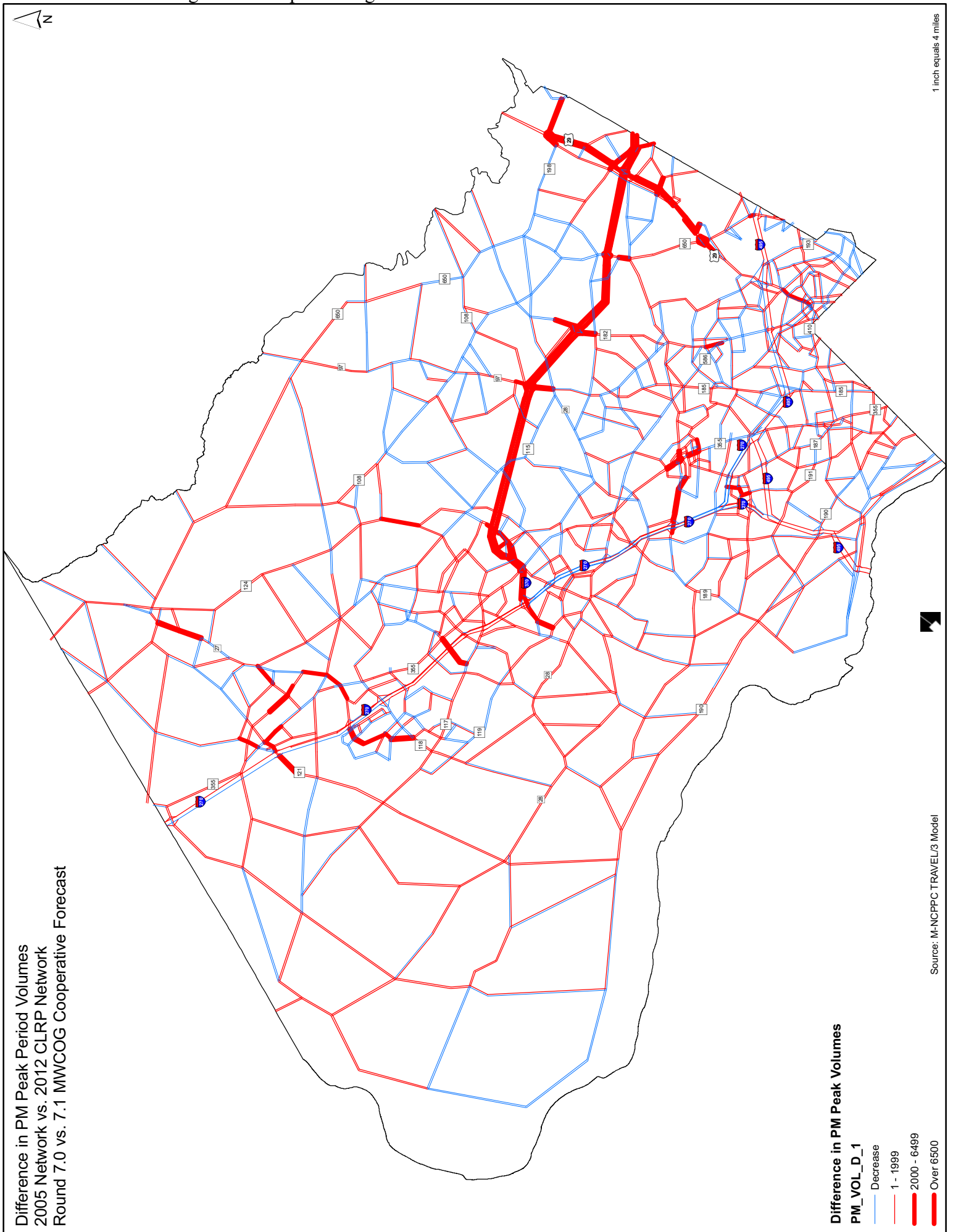


Figure 4.2: Map Showing Difference in PM Peak Volumes – 2005 vs. 2012



Year 2012 Policy Area Mobility Review (PAMR) Analysis Results

Using the TRAVEL/3 transportation model, planning staff has computed the year 2012 relationship between the set of transportation facilities currently funded in the four-year capital program and the geographic pattern of existing and approved jobs and housing units in the County. The framework for this analysis is described in more detail in the preceding discussion of year 2012 forecasted volume-to-capacity ratios. The transportation model tests this future land use pattern for its traffic impact, comparing the resulting traffic volumes and distribution to the arterial level of service standard for each policy area.

This analysis results in a finding of acceptable with full mitigation for a policy area if the level of service on local roads in the policy area is expected to exceed the arterial level of service standard.

The key year 2012 PAMR-related transportation model results used to perform the PAMR analysis are reported in Appendix 5.3B. The resultant year 2012 PAMR chart is displayed in Figure 4.3. As can be observed, four (4) policy areas fall into the acceptable with full mitigation area on the chart: (1) Germantown East; (2) Gaithersburg City; (3) North Potomac and; (4) Montgomery Village/Airpark. Concurrent with this finding, eleven (11) policy areas fall into the acceptable with partial mitigation area in the chart. These policy areas, along with the FY 2009 trip mitigation percentages required in these areas, are listed in Table 4.3.

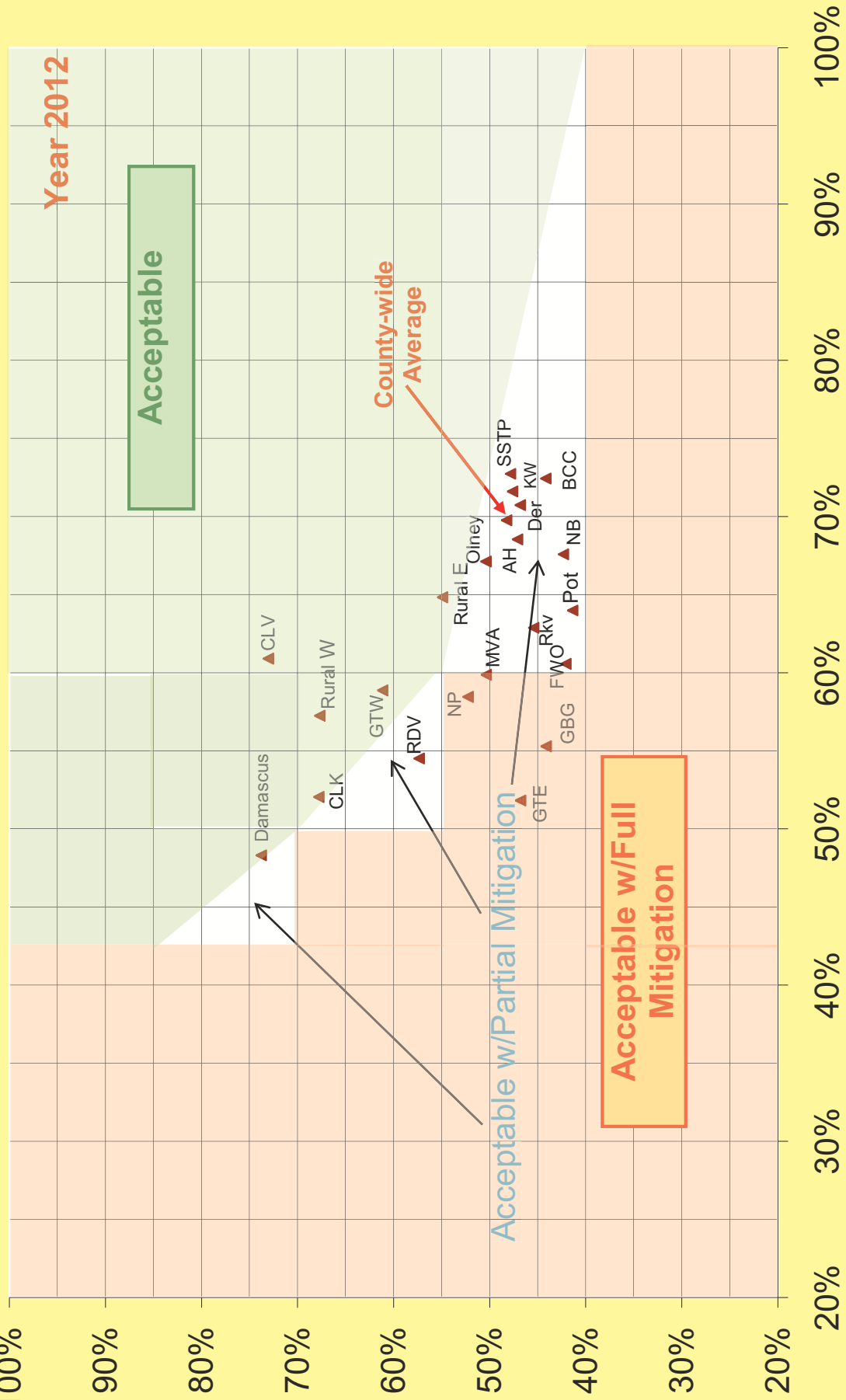
Table 4.3: 2012 PAMR Results - Required Trip Mitigation by Policy Area

Policy Area	Trip Mitigation Required
Aspen Hill	20%
Bethesda/Chevy Chase	30%
Derwood	20%
Fairland/White Oak	45%
Gaithersburg City	100%
Germantown	100%
Kensington/Wheaton	15%
Montgomery Village/Airpark	100%
North Bethesda	40%
North Potomac	100%
Olney	10%
Potomac	45%
R&D Village	35%
Rockville	30%
Silver Spring/Takoma Park	10%

Figure 4.3: Year 2012 PAMR Analysis Results Chart

Year 2012 PAMR Chart

Relative Arterial Mobility: (Congested Arterial Speed Relative to Arterial Free Flow Speed)



Relative Transit Mobility: (Overall Transit Speed Relative to Overall Speed Using Arterials)

The 2012 PAMR results reflect updates to both demographic and transportation system assumptions. In this regard, there are two notable changes between 2011 and 2012:

- The assumed levels of development in Montgomery County are higher in 2012 than that assumed for the 2011 analysis. This is due in part to the fact that the full pipeline of development assumed in the year 2013 analysis was not correctly transferred, as intended, to the year 2011 analysis conducted last fall. The levels of required mitigation in the 2007-2009 Growth Policy were therefore slightly lower, particularly in the I-270 corridor, than they would have been if the pipeline had been correctly transferred from 2013 to 2011 conditions.
- The ICC will be fully open to traffic by 2012, whereas only the section west of Georgia Avenue (MD 97) was assumed open to traffic in 2011.

The combination of these changes has a slightly positive effect in the central portion of the County (notably Aspen Hill and Olney) and a negative effect in many other areas of the County (notably Montgomery Village/Airpark, North Potomac and R&D Village).