

METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS

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MEMORANDUM

TO: Travel Forecasting Subcommittee
FROM: Ron Milone
DATE: March 17, 2005
SUBJECT: V.2.1D #50 Model Performance Tests

This memorandum is a compilation of year 2000 model performance summaries that are based on observed data of improved quality. Regional count data is normally obtained from Highway Performance Monitoring System (HPMS) documents published by the three state DOTs in the Washington area. Traffic counts are published for most of the highway system from a sample of traffic count locations established by each DOT. Counts are collected either at permanent counting stations, in continuous operation throughout the year, or at program counting locations where data is collected on a multi-year cycle for a short duration, perhaps 24 to 48 hours. All counts are ultimately expressed as annualized figures. For this analysis, counting locations were identified in the MSA and three counting location groups were distinguished:

- 1) Permanent counting stations combined with all program count locations. Program counts include counts actually collected during 2000 as well as counts not collected during 2000 but adjusted to 2000 using factors determined from permanent count information or special estimation methods.
- 2) Permanent counting stations combined with program count locations where actual counts were collected during 2000.
- 3) Permanent counting station locations only.

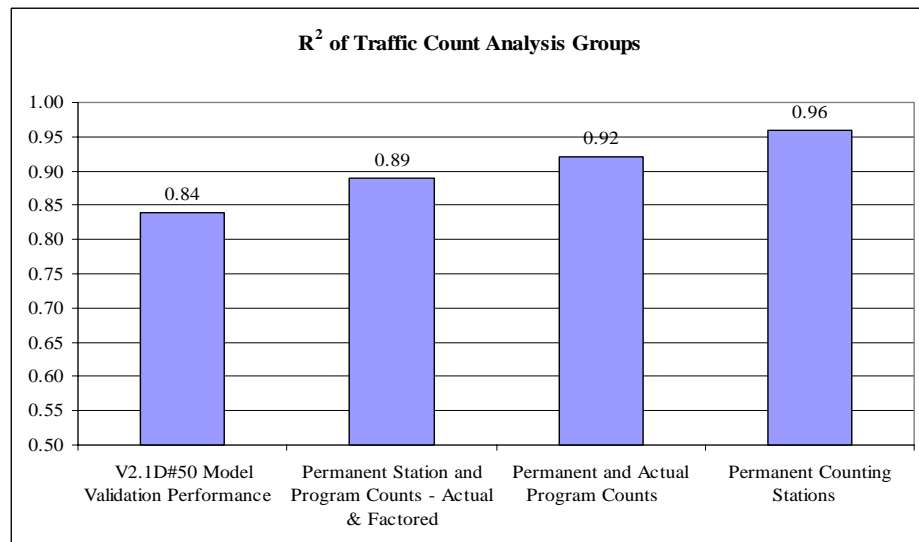
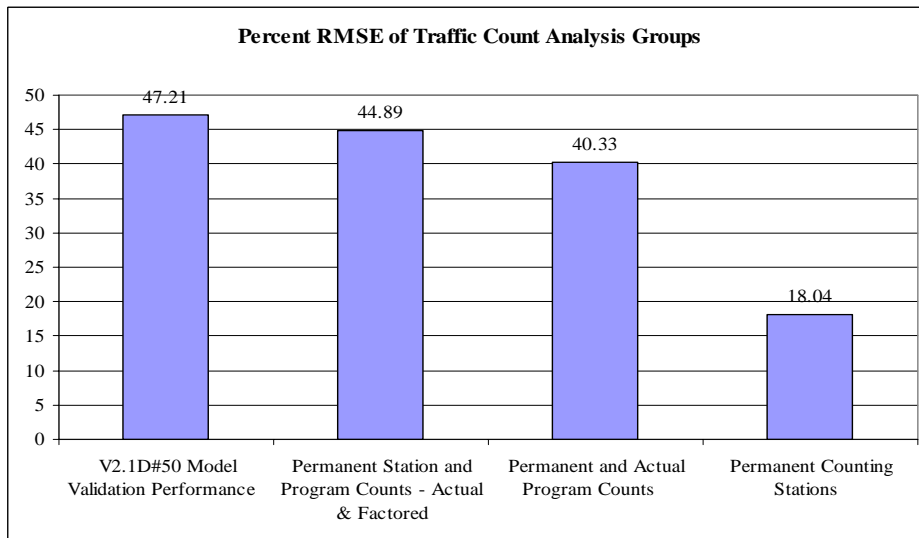
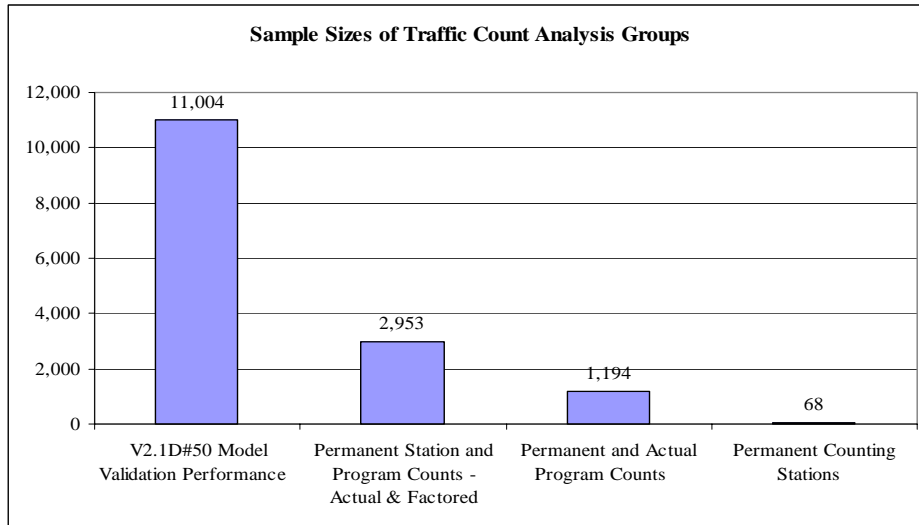
Modeling performance associated with each data group is shown on the table below and on the following pages. Note that the validation performance reflects the performance for the entire modeled area (as previously documented), while the performance results of the various observed data groups reflects locations within the MSA only. The summaries indicate that the model performance improves with observed data quality.

Comparison of Sample Size, % RMSE, and R² of Traffic Count Analysis Groups

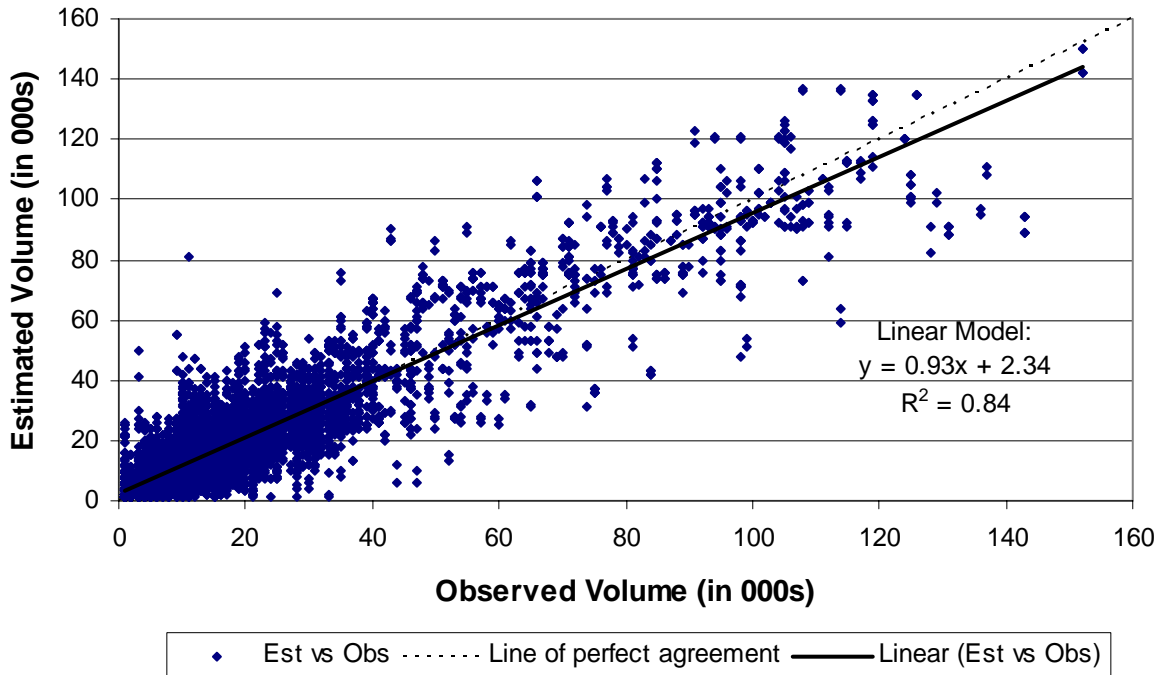
Sample Description	Obs.	RMSE	%RMSE	R²
<i>V2.1D#50 Model Validation Performance</i>	<i>11,004</i>	<i>8.01</i>	<i>47.21</i>	<i>0.84</i>
Permanent Station and Program Counts - Actual & Factored	2,953	7.12	44.89	0.89
Permanent and Actual Program Counts	1,194	5.80	40.33	0.92
Permanent Counting Stations	68	6.65	18.04	0.96

- Statistics are based on directional counts, although most observed counts are provided as non-directional figures
- Statistics are based on estimated and observed values rounded to nearest thousand
- Count locations constrained to MSA area only
- AADT factored to AAWDT using 1.05 factor (Maryland data Only)

Comparison of Sample Size, % RMSE, and R-Square of Traffic Count Analysis Groups Year 2000 Data



**Plot of Estimated and Observed Year 2000 Link Volumes
V2.1D#50 Validation Network
(Entire Modeled Area / 11,004 Obs.)**



**Scatterplot of Estimated and Observed Year 2000 Link Volumes
(All Program/Permanent Counts - 2,953 Obs
MSA Only/1.05 Ftr for ADT-to-AAWDT Conversion)**

