

Arterial Highway Congestion Monitoring Pilot Program

Daivamani Sivasailam & Erin Morrow
Department of Transportation Planning

TPB Technical Committee
June 1, 2007

Arterial Highway Congestion Monitoring Pilot Program

- Background

- Existing program

- Monitors congestion on National Highway System (NHS) arterial highways during the afternoon peak and off-peak hours using paid temporary workers

- Proposed program

- Use voluntary drivers and collect speed data during the am and pm peak periods for many days in a week on more highways.

Arterial Highway Congestion Monitoring Pilot Program

- Pilot Program Steps
 - Selection of routes to be monitored
 - GPS hardware and software
 - Volunteer selection and training
 - Data collection approach/protocol
 - Data analysis
 - Findings and Reporting

Arterial Highway Congestion Monitoring Pilot Program

- Selection of routes to be monitored
 - Commuter Connections ride sharing data base
 - Studied top origins, top destinations, top origin destination pairs at TAZ, TAD and Regional Activity Center (RAC) level
 - Regional Travel Demand Model
 - Similar exercise with 2010 model data
 - Reviewed links with failing V/C ratios

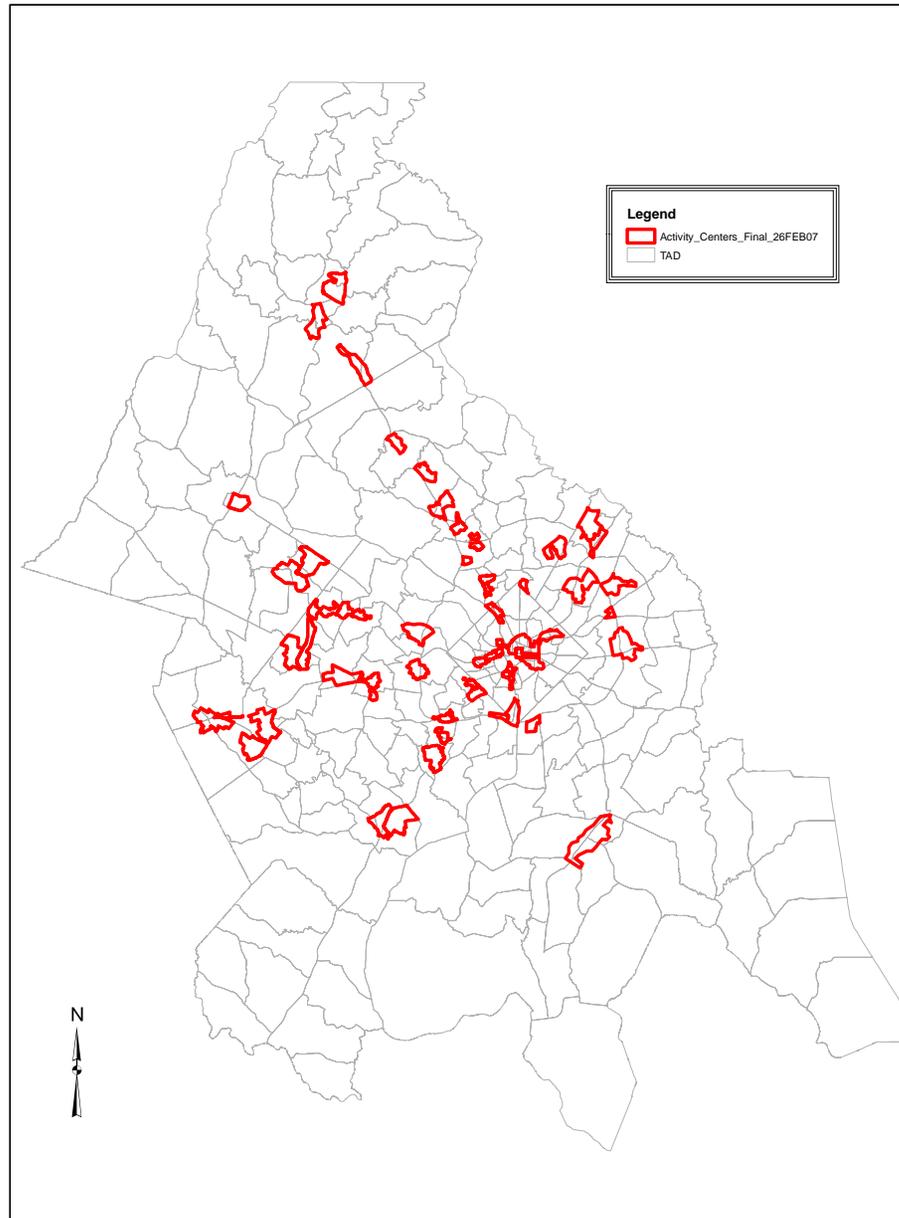
Arterial Highway Congestion Monitoring Pilot Program

- Selection of routes to be monitored
 - Findings from travel demand model analysis of TAD interchanges
 - Top 100 interchanges are short trips
 - No state to state interchanges among the top 100
 - No trips from east side of beltway to west side of beltway among the top 100
 - Majority of the top interchanges west of I-95
 - Not to be the primary source for determining route choices

Arterial Highway Congestion Monitoring Pilot Program

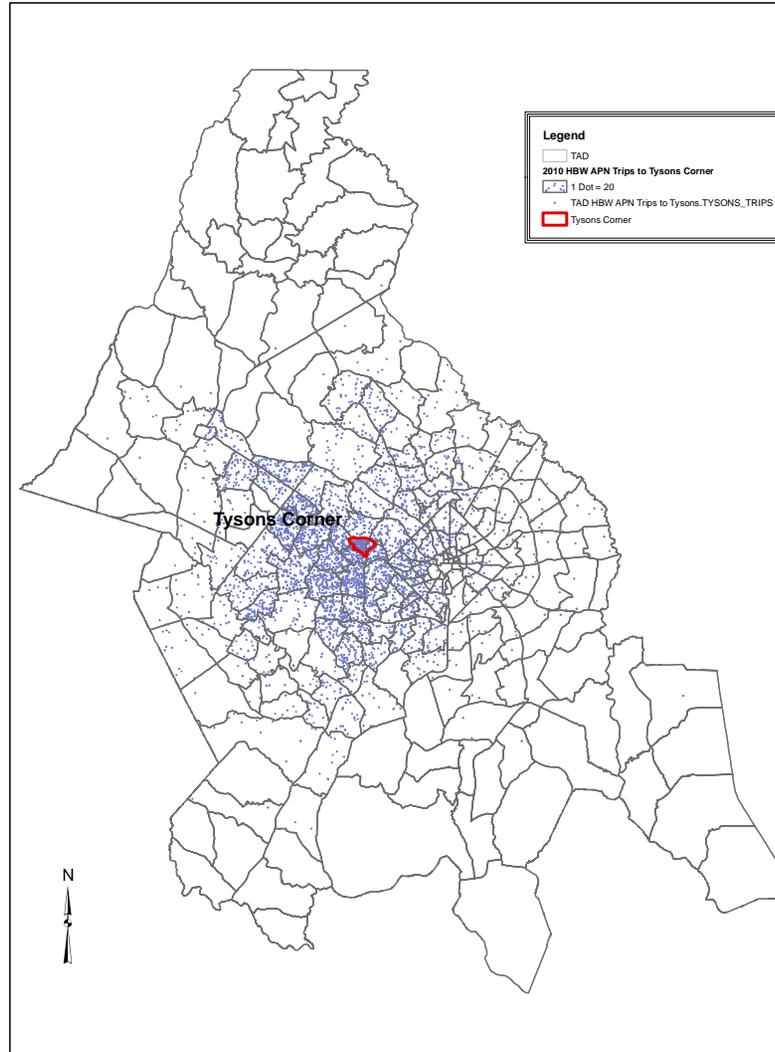
- Selection of routes (cont'd)
 - Recommended Approach
 - Select top destinations (TAD/RAC) spread throughout the region
 - Identify the top origin zones of vehicle trips destined to the selected TAD/RAC
 - Origin zones with arterial access will have priority over zones with freeway access
 - Compile list of O-D pairs, and identify potential routes
 - Compile the list of O-D's and develop multi-year program

Regional Activity Centers



Regional Activity Center Attractions

2010 Model HBW Auto Person Trips
Trip Productions to Tysons Corner



Arterial Highway Congestion Monitoring Pilot Program

- GPS hardware and software
 - Existing hardware/software
 - Tested and reviewed three different systems
 - Garmin IQue M4 selected
 - Selected system will collect and save
 - date, time, position fix, velocity, and heading every two seconds.

Arterial Highway Congestion Monitoring Pilot Program

Proposed – Garmin IQue M-4 Integrated GPS, PC, Antenna, and power cable



Arterial Highway Congestion Monitoring Pilot Program

- Volunteer selection and training
 - COG, local/state government staff, general public volunteers for pilot study
 - Volunteers selection based on preferred destination and origin locations
 - Instructions and training on how to operate the system.

Arterial Highway Congestion Monitoring Pilot Program

- Data collection approach/protocol
 - Pilot will test one week and two week of data collection
 - Equipment will be shipped to government volunteers but follow the HIS approach for other volunteers
 - No private information will be collected and liability issues will be addressed

Arterial Highway Congestion Monitoring Pilot Program

- Data Analysis
 - Data to be collected using volunteers from COG staff, and three jurisdictions
 - Data to be analyzed using current approach, and system performance of the routes surveyed will be determined.
- Findings and Reporting
 - Report with emphasis on what was learned during the pilot study and any modifications or changes to the elements prior to the full implementation of the program.