Tracking Urban and Rural Congestion

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Topics

- Needs for Congestion Data
- Urban Congestion
  - Methodology
  - Results
- Rural Congestion
  - Methodology
  - Results
- Research Needs
Needs for Congestion Data

- Monitor highway traffic volume and travel time trends
- Guidance for prioritizing highway improvement program
- Guidance for corridor studies
- Quantify congestion costs to motorists
- Input for Benefit/Cost studies

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Urban Congestion Tracking Methodology

- Select rush hour periods
- Select routes to evaluate
- Collect Automatic traffic recorder data for routes and timeframes
- Collect travel times during congested timeframes
  - Probe car
  - External data sources
- Define congested travel as travel < 85% of posted speed limit
Urban Congestion Tracking Methodology (2)

- Use the following:
  - Travel Delay costs $24/vehicle hour (TTI, WSDOT Grey Book)
  - 250 travel days per year

- Hourly delay cost = Volume x (congested travel time - 85% speed limit travel time) x $24/vehicle-hour

- Annual delay cost = sum of hourly costs x 250

- Sum all route annual costs to calculate statewide costs
Recurring Congestion Costs by District,
Total Statewide Cost is $46.8 Million

District 1: $4,523,850
District 2: $985,437
District 3: $28,967,044
District 4: $5,003,056
District 5: $3,985,474
District 6: $3,349,051

Total Statewide Cost is $46.8 Million
Establish definition of rural congestion. Assume:
- Three or more vehicles following a slower vehicle traveling at less than 85% of the posted speed limit

Detecting rural congestion
- Instrument suspected congestion areas
  - Portable counters
  - Permanent loops or radar detectors
- Screen data to identify frequency of congestion
  - Use speed and proximity of following vehicles
In lieu of instrumentation, use criteria below to find probable congested segments to monitor:

- No more than 2 lanes
- Rolling or mountainous terrain
- Annual Average Daily Traffic greater than 2500
- Commercial vehicles > 12%
- Roadway section length > 2 miles
From the screening criteria, 3.3% to 4.5% of rural roads are likely to be congested.

ITD has demonstrated the feasibility of detecting rural congestion with ATR data.

However, installing instruments on many rural highways is cost prohibitive.

Alternate methods for data collection are needed:
- External data contractors

Quantifying rural congestion will guide the investments in turnouts, passing lanes and highway widening.
Research Needs

- Evaluation of alternate data collection methods
  - On-board cell phones
  - Fleet travel time data
- Defining rural congestion
Comments or Questions?

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