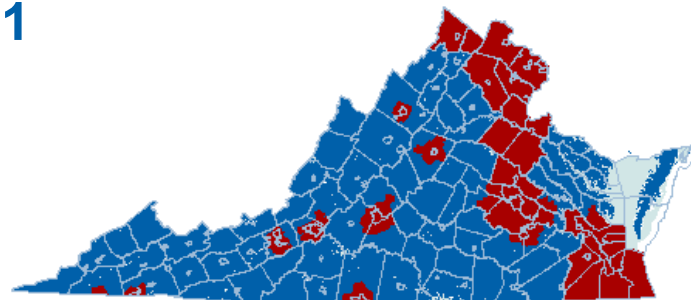




**Using NHTS Data for Model Development:
The Virginia Experience**

**Using National Household Travel Survey Data for
Transportation Decision Making: A Workshop
Washington, DC
June 6-7, 2011**

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Summary

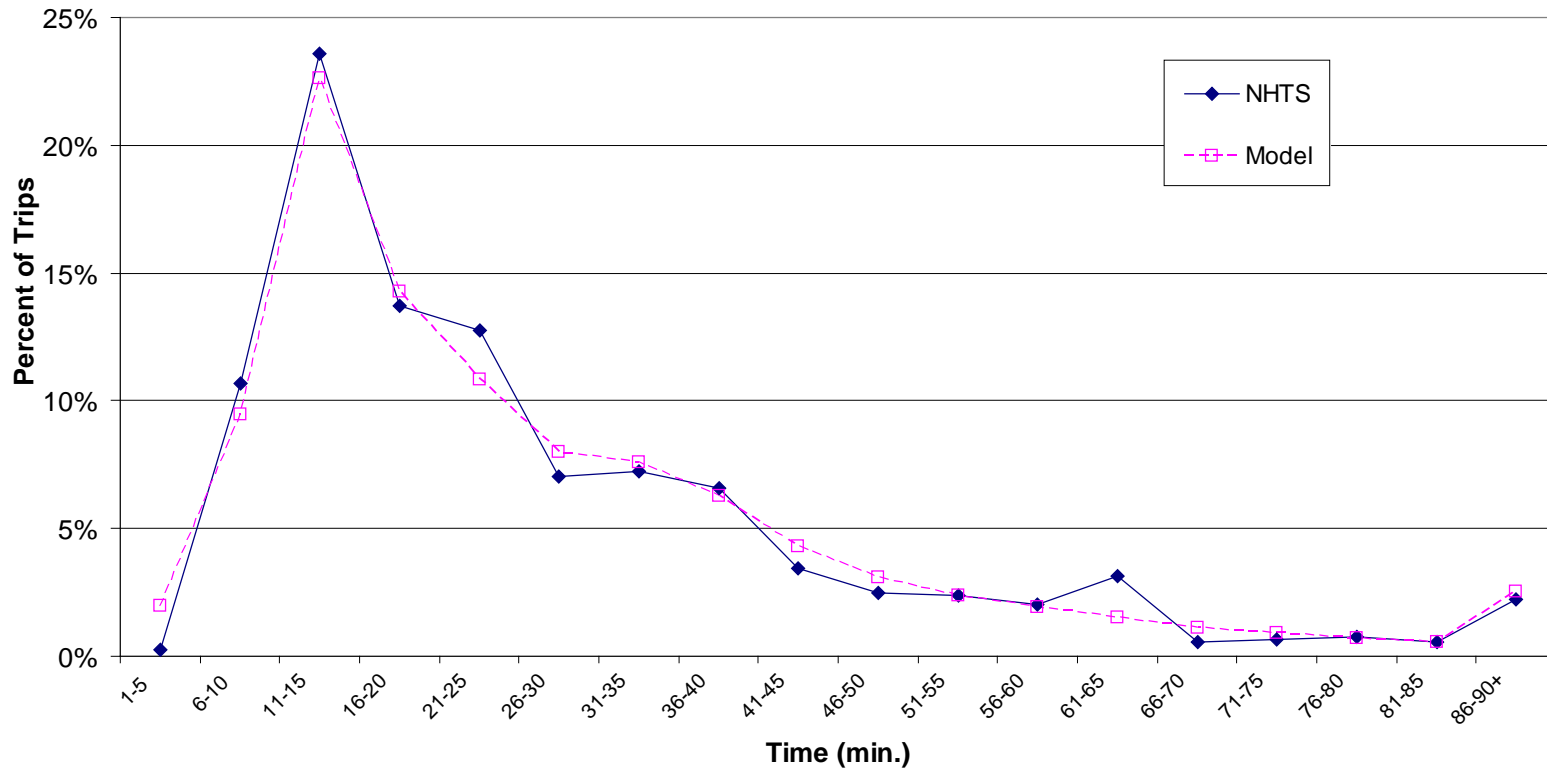
- ▶ **Use of the data**
- ▶ **Project schedule**
- ▶ **Expectations**
- ▶ **Issues with the survey**
- ▶ **Survey conduct**

Use of the Data

- ▶ Estimate new regional travel demand models
- ▶ Hampton Roads (Norfolk), Richmond, Fredericksburg
- ▶ Develop trip rates per household by purpose
- ▶ Estimate trip attraction models
- ▶ Get average trip lengths, trip length frequency distributions for gravity model estimation
- ▶ District-district trip patterns
- ▶ Aggregate mode shares

Sample Trip Length Distribution

Peak Period Work Trips



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Project Schedule

- ▶ **NHTS survey conducted March 2008 – March 2009, initially released in mid-2010**
- ▶ **VDOT purchased 6,500 add-on samples for our 3 areas and another 7,800 samples in other parts of the state**
- ▶ **Timing was right to update the 3 travel models in 2010-11**
- ▶ **Version 2 released in November 2010**
 - ◆ **Significant changes made to the weighting procedure**
- ▶ **All subsequent work used Version 2 data**

Expectations

- ▶ **2009 survey similar to the 2001 version**
- ▶ **Survey contractor is experienced**
- ▶ **Large number of surveys should lead to good data**
- ▶ **Add-on program at \$175 per household is a good deal**

Initial Examination

- ▶ **Data is distributed in SAS format**
 - ◆ VDOT converted to DBF for easier handling
- ▶ **Documentation came long after the data**
 - ◆ Final weighting report completed January 2011
 - ◆ User's Guide released February 2011
- ▶ **Data dictionaries are useful**
- ▶ **Minor inconsistencies in weighting fixed in Version 2**

Weekday vs. Weekend

- ▶ **Initial trip rates per household were low**
 - ◆ Did not compare with prior models or other areas
- ▶ **Survey conducted 7 days/week, including holidays**
- ▶ **Useful for annual analysis, not for travel models**
 - ◆ Most travel demand models focus on weekdays
- ▶ **Removing weekend/holiday records reduces sample size by 31%**
 - ◆ Critical for some analyses
- ▶ **Makes add-ons less cost-effective**
- ▶ **Using only weekdays produced usable trip rates**

Trip Purpose Definitions

- ▶ **Some definitions provided by survey contractor**
- ▶ **Logic not always clear**
 - ◆ Exactly what is “Shopping?”
- ▶ **Must be careful with NHB-Work vs. NHB-NonWork**
 - ◆ Need to look at complete tour to be sure
- ▶ **No check made against land use**
 - ◆ Work trips to a zone with no jobs?
 - ◆ Shop trips to a zone with no retail?

Survey Variables

- ▶ **NHTS meets many needs**
 - ◆ Especially Federal policy and research
- ▶ **Some questions are not relevant to travel demand modelling**
- ▶ **Survey is national in scope, not tailored to local needs and issues**
- ▶ **Must sort through many variables to find those of interest**

Sample Size and Weighting

- ▶ **Add-on survey weights may be different from “normal” survey weights**
- ▶ **Sampling rates can be very different**
- ▶ **Use caution if mixing data from add-on and normal areas**
 - ◆ **Results can be biased**
- ▶ **FHWA advises to always use weighted data**
 - ◆ **Results are more representative of the population**

NHTS Problems

- ▶ Same problems as other home interview surveys
- ▶ Low sample size
- ▶ Few transit trips
- ▶ Non-response by certain groups
- ▶ Cell phone non-response
- ▶ Geocoding quality
- ▶ Provides data only on resident travel

NHTS Advantages

- ▶ **Relatively inexpensive per HH to add on**
- ▶ **Experienced survey contractor and personnel**
- ▶ **Same methodology (survey instrument, methods) used everywhere which facilitates comparisons**
- ▶ **Pretty good data quality**
- ▶ **Help from FHWA and other data users**

Project Status

- ▶ **Travel model estimation continuing**
- ▶ **Hampton Roads complete summer 2011**
- ▶ **Other models complete fall 2011**

Questions?