

# NHTS Add-On Data Program: Experience of Stakeholders and Best Practices for Maximizing Program Benefits

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## Presentation Outline

- Project Scope
- About the National Household Travel Survey (NHTS)
- NHTS Add-on Program
- Preliminary Survey of Add-on Participants
- Interview of FHWA Personnel
- **Phone Interview Survey of Add-on Participants**
- **Best Practices for Maximizing Program Benefits**

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## Project Scope

- **Goal:** Obtain information from previous participants of the NHTS Add-on Program to aid TDOT/TN MPOs in their use of the add-on data purchased for TN in 2008/9.
- Project phases include:
  - Literature review (completed October 2010)
  - Preliminary survey of past add-on participants (completed January 2011)
  - Interview of FHWA personnel (completed January 2011)
  - Detailed survey of past add-on participants via direct call (completed March - July 2011)
  - Final presentation (November 2011)

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## NHTS Add-on Program

- NHTS data good for travel analysis at the **national level**
  - Not adequate** to provide **statewide** or **local area-specific** estimates
- For states and local jurisdictions interested in developing travel estimates for their specific areas, **FHWA offers the opportunity to purchase additional samples specific to their area**
- Jurisdictions that purchase these additional samples are referred to as the "Add-on" areas, and the program is called, "Add-on Program"

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## NHTS Add-on Program

2008 NHTS Add-On Program Participants



- Program began with the 1990 NPTS
- 20 participants in the 2009 NHTS Add-on Program (including Tennessee).

<p><b>Deliverables</b></p> <ul style="list-style-type: none"> <li>Edited, weighted data</li> <li>O-D geocodes for all trip purposes and modes</li> <li>Odometer readings</li> <li>Transit, walk, bike trips</li> <li>Documentation and User's Guide</li> <li>Web-based retrieval system</li> </ul>	<p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>No contracting or oversight hassles</li> <li>Economies of scale</li> <li>Contractors coordinated centrally</li> <li>SP&amp;R and PL funds can be used</li> <li>High data quality/ low risk</li> <li>Consistent local and national data</li> <li>Data on demand</li> </ul>
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Source: <http://nhts.ornl.gov/index.shtml> (FHWA, 2011)

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## NHTS Add-on Program

- 2009 add-on participants could include up to **5 additional questions in the survey** (not included in public use dataset).
- 2009 dataset is most extensive published to date, with 150,000+ households including add-on data (125,000).

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### Preliminary Survey of Add-on Participants

- A list of participating DOTs/MPOs and contact information was compiled, and representatives from each agency were contacted regarding the survey (22 agencies)
- Survey consisted of 10 questions (4 requesting information on agency type, contact details, and participation information; 6 specific to NHTS add-on experience)
- 14 agencies completed the survey (9 state DOTs, 5 MPOs) and 2 provided a reason for not doing so

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### Preliminary Survey of Add-on Participants

- Responding agency NHTS Add-on participation:
  - 11 participated in 2009
  - 6 participated in 2001
  - 1 participated in 1995
  - 1 participated in 1990.
- 10 agencies agreed to participate in a further detailed interview
- Sample size purchased in 2008/9 survey ranged from 2,000 to 18,000 households

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### FHWA Perspective

- **Interview of Adella Santos, NHTS Program Manager, FHWA**
  - **Conduct of survey:**
    - New for 2009 participants- an online reporting tool was available so that participants could track progress of their sample throughout the process
  - **Content of survey:**
    - Most additional questions included by participants dealt with regional issues
  - **Issues:**
    - Communication between FHWA and add-on participants can be improved
    - Many agencies do not know what to do with the data, or do not have the resources to use it effectively
    - FHWA feels there is a need to provide more guidance/tools so that agencies do not have to be burdened with developing this with their own resources
  - **Feedback from this study:**
    - FHWA would like all feedback so that it can be used to make changes/improvements for the next survey event

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## FHWA Perspective

- **Lessons Learned**
  - For the next survey event:
    - Provide more general information to Add-on participants **regarding questions they need to be asking** so that they get the design/data they want, and are making informed decisions
    - Provide more **hands on learning experience with the data and more tools/resources** to support Add-on participants → E.g., workshops
- **FHWA questions for add-on participants**
  - What more could FHWA do to keep participants informed of progress and improve communication?
  - In which area(s) do participants need more guidance?
  - Are there any other resources that participants need that FHWA could provide (i.e. webinars, etc.)?

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## Phone-Interview of Add-on Participants

- Questionnaire had 17 questions on:
  - Motivation for participation in add-on program
  - Funding source(s)
  - Sampling protocol
  - Applications of the data
  - The 3 questions posed by FHWA
- 9 of the 10 agencies participated in the survey

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## Phone-Interview of Add-on Participants

Agency Name	Year of Participation
Baltimore Metropolitan Council	2001
California Department of Transportation	2009
Corridor MPO	2009
Florida Department of Transportation	2009
Kentucky Transportation Cabinet	2001
North Carolina Department of Transportation	2009
New York State Department of Transportation	1995, 2001, 2009
Pima Association of Governments	2009
Virginia Department of Transportation	2009
Wisconsin DOT	1990, 2001, 2009

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**Phone-Interview of Add-on Participants -Results**

- **Motivation**
  - Well established survey procedures that have been validated
  - Consistency of local data with national sample
  - Need for data from rural areas
  - Economies of scale
  - Ability to purchase samples using SPR and PL funds with local match waived
  - Lack of staff to conduct a similar survey
  - Need to update statewide travel demand models
  - Need for data relating to bicycle and pedestrian modes
  - Need to determine seasonal variations in travel
  - Need to compare travel data for a specific population from different sources

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**Phone-Interview of Add-on Participants -Results**

- **Funding**
  - MPO Planning (PL) funds – indicated by about 50% of respondents
  - State Planning and Research (SPR) funds
- **Sampling Protocol**
  - Criteria for determining size of sample:
    - 1. **Affordability**; and
    - 2. **Statistical significance** – FHWA indicates a minimum of between 300-400 households

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**Phone-Interview of Add-on Participants -Results**

- **Sampling Protocol (continued)**
  - Mostly **stratified random sampling** with areas of greater population being sampled at a higher rate
  - Local jurisdiction interests also had an impact. *E.g.*,
    - KYTC focused on rural trips and therefore carefully selected rural areas “typical” in growth and economic development. Thus, no samples were taken from the eastern portion of the state
    - In some states, sampling rate was based on MPO contribution to a pooled fund

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**Phone-Interview of Add-on Participants -Results**

- **Applications of add-on data**
  - Travel patterns in a region, and trend analysis – E.g., BMC, MWCOG
  - Safe Routes to Schools initiative – E.g., VDOT
  - Bicycle/pedestrian plan development – E.g., VDOT
  - Brand/mode of transit used – E.g., New York City
  - Activity-based model development – E.g. Pima Association of Governments

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**Phone-Interview of Add-on Participants -Results**

- **Applications of add-on data (continued)**
  - Calibration of 4-step UTMS model – E.g. Pima Association of Governments
  - Transit ridership analysis – E.g., Corridor MPO
  - Statewide model development – E.g., NCDOT
  - Development of time of day parameters – E.g., FDOT
  - Highway safety planning – E.g., Caltrans

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**Phone-Interview of Add-on Participants -Results**

- **Lessons Learned**
  - Review survey questions to ensure responses to them are what are desired → helps in identifying what additional questions need to be asked
  - Group smaller MPOs instead of purchasing a separate sample for each MPO → leads to a better overall dataset
  - Recognize that data is collected on all days of the week → significant portion of the sample will be for travel on “non-typical” travel days

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**Phone-Interview of Add-on Participants -Results**

- **Lessons Learned** (continued)
  - Possibility of significant bias in the data because of the use of telephone to recruit participants
  - Be prepared to invest time to understand the data collected → data file and documentation received is complex
  - Data must be processed/filtered to get it in a format suitable for modeling

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**Phone-Interview of Add-on Participants -Results**

- **Guidance Needed from FHWA/Resources Needed**
  - Types of analyses that can be accomplished with the data
  - Clear guidance on the methodology for developing weights
  - Guidance on possible funding mechanisms for the program
  - Schedule for data availability
  - Host regional workshops, webinars, and online training/dissemination of uses and applications of the data

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**Phone-Interview of Add-on Participants -Results**

- **Guidance Needed from FHWA/Resources Needed** (continued)
  - Agencies want options for a reduced survey instrument design, data collection only on typical travel days, and customization of sampling plan to suit specific needs
  - Provide standard errors of estimates of measures of travel so that confidence intervals can be developed
  - Creating a pooled fund for add-on research analysis that is open to all add-on participants would be beneficial

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### Phone-Interview of Add-on Participants -Results

- **Guidance Needed from FHWA/Resources Needed** (continued)
- Create templates for tables that are frequently requested and provide greater functionality for applying this to subsets of data through the virtual analysis engine available through Oak Ridge National Labs
- FHWA should engage add-on participants on a continuing basis to identify areas of need and tools that FHWA may be able to provide

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### Benefits and Limitations of Program

- **Benefits**
  - Good data collected and post-processed by FHWA which has the personnel and finances to make it possible
  - Data collected using the same methodology, standards, and questions as the national dataset
- **Limitations**
  - Changes in survey instrument between program years can impact comparability
  - Possible biases in the data because of differences in response rates among sub-populations.
    - For NHTS, non-response bias has found to be high for low-income, minority, and younger populations

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### Benefits and Limitations of Program

- **Limitations** (continued)
  - Underreporting of trips in surveys making use of travel diaries
    - Studies show a range of 10-60% fewer trips than actually occur
    - NYSDOT found VMT from 2001 NHTS data not to be consistent with VMT from ground-count studies
  - Data is collected on all days of the week (including weekends and holidays), which may significantly impact the size of the sample available for modeling purposes.
  - Freight and other non-household flows not considered in survey

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### Best Practices

- **Early planning for the survey**
  - Identify data that is needed based on planned applications
  - Determine additional questions to be included in survey
  - Decide on geographic areas to be sampled and sampling rate
- **Have good communication with FHWA staff**
  - Define expectations; and
  - Document requests in writing – E.g., data collection methodology, data to be delivered, etc

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### Best Practices

- **Be aware of the impact of sample size on analysis options**
  - Work with statistician to develop data collection and analysis standards
- **Be familiar with data documentation**
  - Important to being able to process the data for any analysis
- **Be familiar with how “weights” are developed**
- **Data verification**
  - Have an internal plan for verifying data geocoding, travel times, data consistency, etc to allow quick identification of any problems

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### Best Practices

- **Data sharing policies should be established and formalized**
- **Facilitate greater exchange of information**
  - FHWA should expand guidance documents, host more workshops, provide online training opportunities and other means of knowledge transfer
  - Establish community (via regular conference calls, online interaction such as a yahoo forum, etc.) consisting of FHWA and add-on participants
    - Share best practices and lessons learned on a continuing basis;
    - Share analysis options and explore and refine available tools; and
    - Undertake collaborative research

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