NextGen NHTS:
Redesigning the Largest Household Travel Survey in the US

Daniel E. Jenkins, PE
Travel Monitoring and Surveys Division
Office of Highway Policy Information, FHWA

Stacey G. Bricka, PhD
MacroSys, NHTS Program Support

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Agenda

✓ Introduction to the National Household Travel Survey (NHTS)
✓ NHTS Program Evolution
✓ Motivations for Redesign
✓ NextGen NHTS Design
✓ Discussion Points
✓ Future Plans
What is the NHTS?

The National Household Travel Survey (NHTS) is a periodic national survey providing travel behavior data to support transportation policy and planning efforts. The survey has been conducted every 5-8 years since 1969 – 50 years of data!
What is the NHTS?

Core data elements

• Demographic characteristics
  • Household (size, vehicles)
  • Person (age, gender, status)

• Vehicle Fleet composition
  • Year, make, model
  • Fuel type

• Attitudinal data
  • Typical travel details
  • Online shopping

• Travel Behavior details

Cyclical topics

• Key policy questions at the time of survey design.

• Prior topics included:
  • Emerging travel modes
  • Health and Physical Activity
  • Safe Routes to School
  • Transit usage
What is the NHTS?

Travel Behavior Data

• Trip details
  • Trip origins and destinations
  • Time of day
  • Travel mode
  • Trip Purpose

• Design elements
  • All HH members ages 5+ report travel using diary
  • 24-hour “travel period”
  • Travel periods spread across all 7 days of week/365 days of the year.
NHTS Uses/Users

- Conditions & Performance Report to Congress (FHWA)
- Safety analyses (NHTSA, IIHS, AAA)
- Fuel consumption and efficiency (EPA, EIA)
- Active travel, children’s travel to school, health (CDC)
- State and regional transportation agencies
  - Travel behavior patterns
  - Travel demand models to support long range planning
  - Travel mode usage
NHTS Website - www.nhts.ornl.gov

- Program updates, announcements
- Frequently used statistics
- Data Tools
- Documentation and FAQs
- Data Downloads
- Publications
- Compendium of Uses
NHTS Program Evolution

- Conducted by Census Bureau
- CPS panelists
- In-home interviews
- One-stage survey
- RR > 80%

1990
- Conducted by Research Triangle Institute (RTI)
- RDD sample
- CATI
- One-stage survey
- RR = 73%

1995
- Conducted by RTI
- RDD sample
- CATI
- Two-stage survey
- RR = 37%

2001, 2009
- Conducted by Westat
- RDD sample
- CATI
- Two-stage survey
- RR = 41%, 20%

2017
- Conducted by Westat
- ABS sample
- CATI/SAWI
- Two-stage survey
- RR = 16%
NHTS Program Evolution: 2017 Design

• 2-stage survey
  1. Recruitment (short mail survey)
  2. Retrieval (30+ minute phone/web survey)

• Incentives
  • Recruitment mailout ($2)
  • Travel log mailout ($5)
  • Thank you/completed “retrieval” survey ($20)
NHTS Program Evolution: 2017 Design

- Survey modes included phone (33%) and web (67%).
- Telephone interviewers used the same web interface as respondents.

Source: screen shots of 2017 online program, Westat
Motivations for Redesign

- Release data more frequently
- Capture emerging trends and travel modes
- Take advantage of passive data availability
- Provide local and long-distance trip information
- Improve response rates
- Reduce survey cost/respondent burden
NextGen NHTS Design

✓ Probability-based sample
✓ Independent surveys every other year
✓ Smaller data collection effort
  ✓ Fewer national samples (approx. 7,500)
  ✓ Fewer, but more targeted questions
  ✓ Long distance travel to be included
✓ Similar products/summaries to previous NHTSs
✓ Benchmarking to national data (ACS and FHWA, FTA, BTS data)
2020 NextGen NHTS Design

✓ Competitive contracting process ➔ Ipsos
✓ Sampling frame ➔ Knowledge Panel
✓ Data collection method ➔ 100% online
# 2020 NextGen NHTS Design

<table>
<thead>
<tr>
<th>Design Element</th>
<th>2017</th>
<th>2020 NextGen NHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampling frame</td>
<td>ABS</td>
<td>Knowledge Panel (built using ABS)</td>
</tr>
<tr>
<td>Survey design</td>
<td>Two-stage</td>
<td>One-stage</td>
</tr>
<tr>
<td>Survey mode</td>
<td>Phone (33%) / Web (67%)</td>
<td>On-line (100%)</td>
</tr>
<tr>
<td>Built in quality checks</td>
<td>Yes</td>
<td>Enhanced</td>
</tr>
<tr>
<td>Response rates</td>
<td>17%</td>
<td>50% (expected)</td>
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</tbody>
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2020 NextGen NHTS Design – Sampling Frame

Ipsos’ Knowledge Panel
• Online probability-based survey panel
• Panelists recruited from enhanced ABS sampling frame
• Non-internet households given tablet and internet access to participate.

Benefits
• Enhanced level of trust with Ipsos/KP anticipated to improve response rates
• Familiarity with online software anticipated to reduce burden
• Cost savings (households are pre-recruited)
• Organically representative sample (minimizes weighting impact)
Ipsos KnowledgePanel® is the original, largest and broadest-based online probability-based research panel in the US

1. An accurate representation of the current demographic make-up of adults 18+ currently living in the United States, including offline households, Spanish-speaking households and cell phone only households.

2. With approximately 60,000 members the panel is built on a probability-based sample of residential addresses using a process called “address-based sampling.” Unlike most online panels our members do not “opt-in.”

3. Because all US households have an equal probability of selection for recruitment into KnowledgePanel, thus allowing measurable inference about the US population.

4. KnowledgePanel is not susceptible to the “professional respondent” problem and other hazards of “opt-in” online panels based on convenience sampling.

Source: Ipsos
KnowledgePanel surveys have many advantages over telephone surveys

- Minimal survey burden: Use of profile data reduces fatigue and attrition. Respondents complete, on average, 2–4 surveys per month
- Improve reliability of answers to sensitive topics
- Respondent friendly administration, respondents take surveys at their convenience
- Random assignment of sample to different treatments, or implementation of other complex sample designs
- Embed audio and/or video integrated into surveys
- Highly flexible survey platform with extensive profile data, ease of integration with third party and administrative data

Source: Ipsos
2020 NextGen NHTS Design – Simplified process

2017 NHTS
- Mail recruit survey
- Mail travel logs
- Phone/Web retrieval

2020 NextGen NHTS
- Email notice of new survey
- Web retrieval

Shorter collection cycle, increased response, known demographic biases
Discussion Points

Migrating from ABS to probability-based panel sample
- Improving response rates
- Reducing non-response bias

Implementing newer methods but still maintaining trend-ability
- Smaller sample size per data collection cycle (but same size when combined over 3 cycles)
- Trending key metrics – VMT, trips, online shopping

Understanding impacts on trends due to the ongoing health crisis
- Telework/long distance learning
- Online shopping
Future Plans

✓ 2020 Survey design currently undergoing OMB review
✓ Post-OMB: pilot then conduct full survey effort over 12-month period
✓ Preparing for next survey (2023-ish)
  ✓ New competitive bid process
  ✓ Revisit data elements
  ✓ Refresh secondary/passive data sources
  ✓ Continue to refine design and process
FHWA National Travel Behavior Data Program

Overall Program/Core Survey Data Manager
Danny Jenkins, PE
202-366-1067
Daniel.Jenkins@dot.gov