

COPAFS Quarterly Meeting

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

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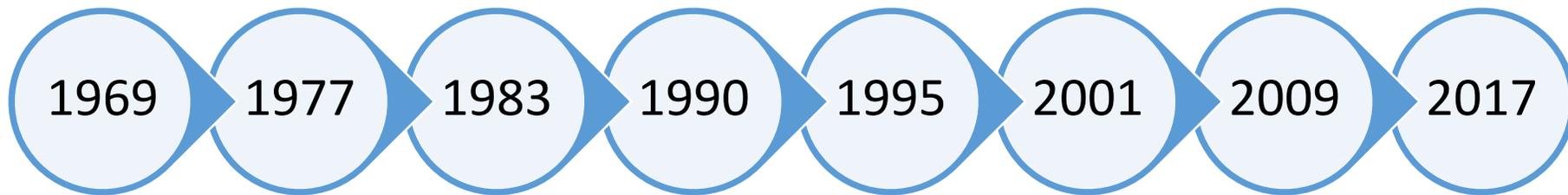
Agenda

- ✓ 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

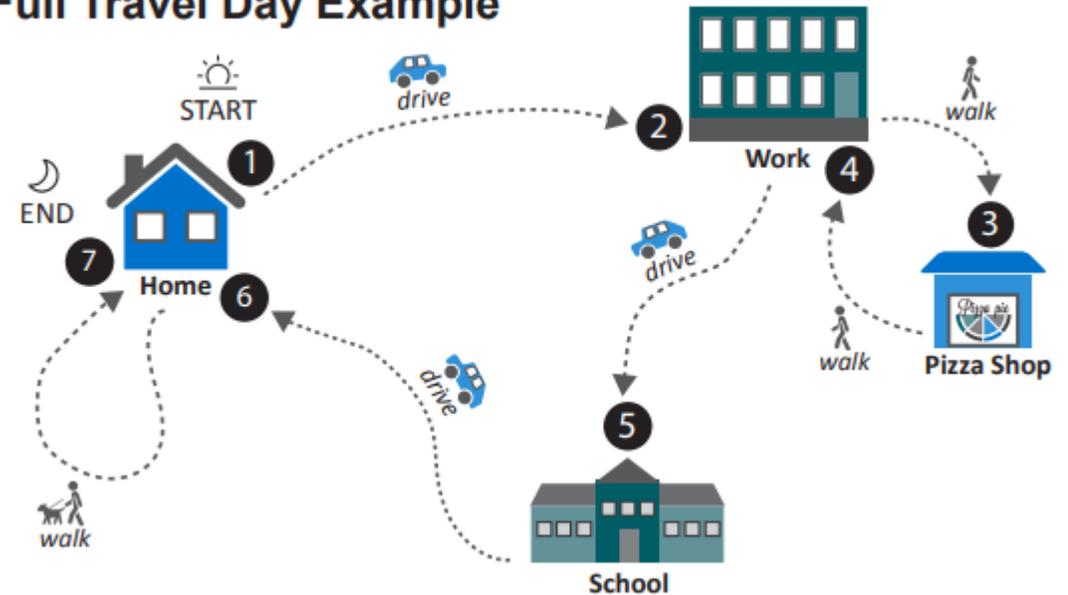


What is the NHTS?

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.

A Full Travel Day Example





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



National Household Travel Survey

Compendium of Uses

January 2020–June 2020



NHTS Website - www.nhts.ornl.gov

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

The screenshot shows the NHTS website homepage. At the top, there is a navigation bar with links for Home, FAQ, Login, Compendium of Uses, Documentation, Downloads, Publications, Legacy NHTS, and Contact Us. The main content area features a blue header with the title "National Household Travel Survey" and the Federal Highway Administration logo. Below this, there is a "News" section with links to "2017 NHTS Version 1.2 Update Now Available!", "The Summer 2020 NextGen NHTS Newsletter", and "The 2020 NHTS Compendium of Uses". An "Announcements" section follows, mentioning the awarding of the NextGen NHTS 2020 core data collection contract to Ipsos. Below the announcements, there are two buttons: "Download Now!" and "Explore NHTS Data". A grey bar highlights "2017 Summary Statistics for Demographic Characteristics and Travel". The main content area is divided into two columns: "Frequently Used National Statistics" and "2017 Documentation". The "Frequently Used National Statistics" section includes a description and a grid of icons for Vehicles, Persons, Households, Vehicle Trips, Person Trips, and Workers. The "2017 Documentation" section lists various documents such as the Users' Guide, Technical Release Notes, Codebook, and Data Dictionary. At the bottom, there is a dark teal section titled "Explore NHTS Data - 2017 Table Designer or Use the Classic View" with a link to the "Online Codebook Browser". Below this, there is a form with an "Email Address" field (with a placeholder "Optional - Enter email") and an "Analysis Variable" dropdown menu (with a placeholder "-- Select --").



NHTS Program Evolution

1969, 1977,
1983

- 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 same web interface as respondents.

Joe / 55 / Male

Search Click On Map

1 What is the business name of your workplace?

Location Name:

e.g., Walmart, Acme Consulting, Mercy Hospital

2 What is the address or nearest cross streets of your workplace?

Address:

e.g., 875 Bourbon St, New Orleans, LA or Bourbon St & Dumaines St, New Orleans, LA

3 Search for the address. Show Search Tips

1 possible addresses found. Click an address to zoom map.

4 Select the best address below and click **Use this Address**

Westat (1600 Research Blvd, Rockville, MD 20850, United States)

5

Joe / 44 / Male

Search Click On Map

1 What is the business name of your workplace?

Location Name:

e.g., Walmart, Acme Consulting, Mercy Hospital

2 What is the address or nearest cross streets of your workplace?

Address:

e.g., 875 Bourbon St, New Orleans, LA or Bourbon St & Dumaines St, New Orleans, LA

3 Search for the address. Show Search Tips

Joe / 55 / Male

Search

1 What is the business name of your workplace?

Location Name:

e.g., Walmart, Acme Consulting, Mercy Hospital

2 What is the address or nearest cross streets of your workplace?

Address:

e.g., 875 Bourbon St, New Orleans, LA or Bourbon St & Dumaines St, New Orleans, LA

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« Back Next » Ver en español

Need Help? Contact Us Call Us: 1-855-950-6487

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

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



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)



2020 NextGen NHTS Design – Knowledge Panel

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.



2020 NextGen NHTS Design – Sampling Frame

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



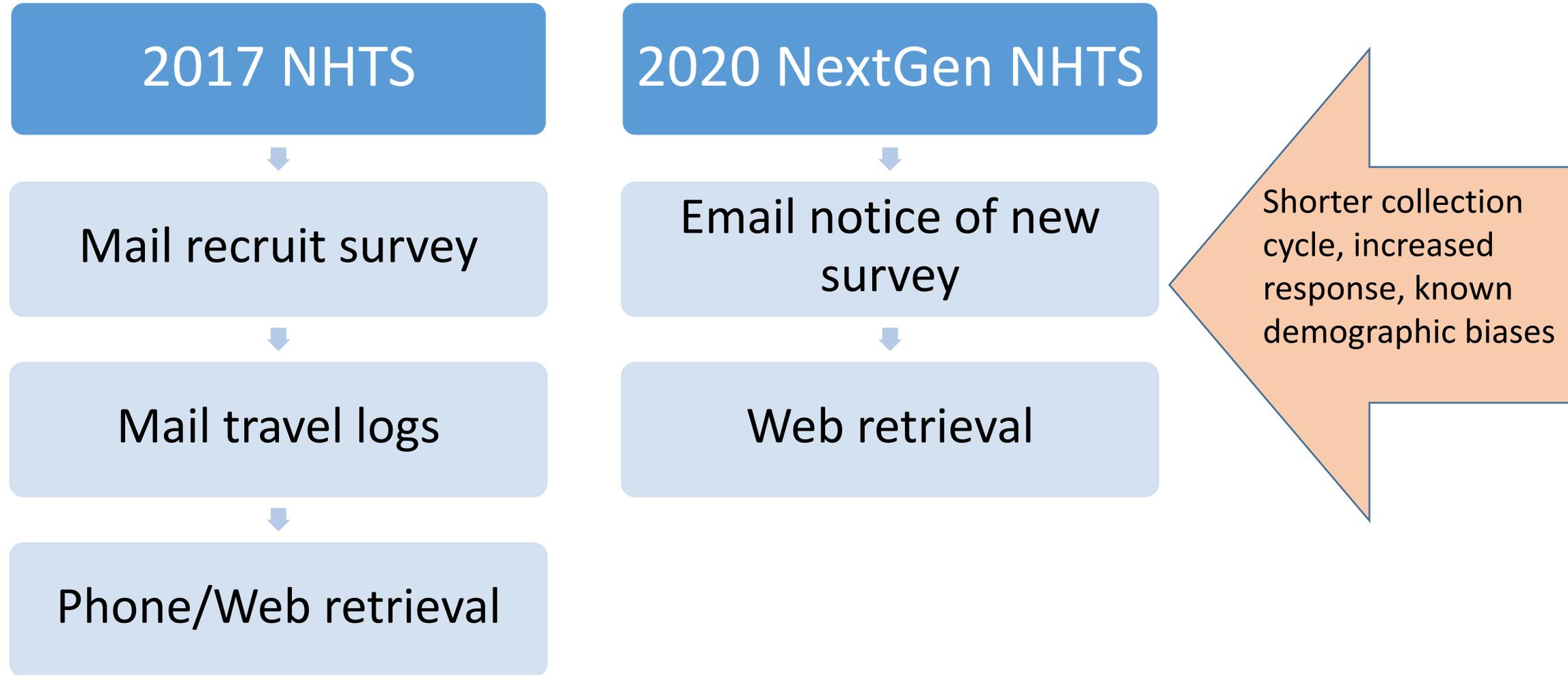
Embed audio and/or video integrated into surveys



Highly flexible survey platform with extensive profile data, ease of integration with third party and administrative data



2020 NextGen NHTS Design – Simplified process





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

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