NextGen NHTS
Core and OD Program Update

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April 21, 2023
Overview

• NHTS/NextGen NHTS Program Overview
• OD Data Nationally and Add-on Opportunities
• Core Data Program Specifics
• TDOT Add-on to 2022 NextGen NHTS
• TDOT Add-on Data Plans
• Tools for OD and Survey Data
• Questions/Discussion
NHTS/NextGen NHTS Program Overview
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 – more than 50 years of data!
Information Derived

✓ Trip rates and trip distances for use in travel demand analysis including State DOT and MPO travel demand modeling work
✓ Travel behavior details for use in a wide range of policy issues and scenario-based analysis
✓ Insights into current topics for use in supporting legislative initiatives
✓ Trip summaries for use in various traffic data monitoring and estimation processes
✓ Vehicle Occupancy for PM3
Data Use Example—Wisconsin DOT

✓ Add-on participant in 2001, 2009, and 2017
✓ Primary use: update travel demand models at state/regional levels
  ✓ Estimate of PM3 (occupancy factor)
  ✓ Trend travel behavior overall and for specific traveler groups
  ✓ Estimate impact of proposed gas tax increase
  ✓ Support WisDOT Connect 2050 long range plan and US Bike Route Application
✓ Regional uses:
  ✓ Support crash analysis
  ✓ Fuse with local survey data to support planning and other reports
✓ Academic uses:
  ✓ Forecast autonomous vehicles/mobility as a service impact in Madison
  ✓ Estimate traffic exposure measures by demographics
Data Use Examples – Iowa MPOs

Iowa Northlands Regional COG

Des Moines Area MPO

Bicycle and Pedestrian Trip Statistics in the MPO Area.

<table>
<thead>
<tr>
<th>Bicycle and Pedestrian Trip Statistics</th>
<th>Bicycling</th>
<th>Walking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commute to work (percent)*</td>
<td>0.5%</td>
<td>4.6%</td>
</tr>
<tr>
<td>All trips (percent)</td>
<td>1.2%</td>
<td>6.8%</td>
</tr>
<tr>
<td>Annual person trips (number)</td>
<td>1,774,000 trips</td>
<td>10,359,000 trips</td>
</tr>
<tr>
<td>Annual trip distance (miles)</td>
<td>5,370,000 mi</td>
<td>6,596,000 mi</td>
</tr>
<tr>
<td>Average trip distance (miles)</td>
<td>3.03 mi</td>
<td>0.64 mi</td>
</tr>
<tr>
<td>Average trip duration (minutes)</td>
<td>22.33 min</td>
<td>17.03 min</td>
</tr>
<tr>
<td>Mode use in past 7 days (number)</td>
<td>9,167 residents</td>
<td>66,290 residents</td>
</tr>
</tbody>
</table>

*U.S. Census American Community Survey data (2012–2016) for Black Hawk County, IA. All other values are from the 2017 NHTS add-on for the MPO area.

Example of How DMAMPO Leverages Survey Results to Inform Future Planning for Safe Routes to School.

<table>
<thead>
<tr>
<th>Survey Question: Which of the following reasons would influence your decision to allow your child/children to walk/bike to school?</th>
<th>Number of Households</th>
<th>Percent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crossing guards present</td>
<td>119</td>
<td>9.2%</td>
</tr>
<tr>
<td>Presence of adult chaperones/supervision</td>
<td>114</td>
<td>8.8%</td>
</tr>
<tr>
<td>Sidewalks and crosswalks are located along the route</td>
<td>193</td>
<td>14.9%</td>
</tr>
<tr>
<td>School participates in a Safe Routes to Schools program</td>
<td>59</td>
<td>4.6%</td>
</tr>
<tr>
<td>Education and training is provided for children, parents, and others</td>
<td>13</td>
<td>1.0%</td>
</tr>
<tr>
<td>School is located within neighborhood</td>
<td>138</td>
<td>10.7%</td>
</tr>
<tr>
<td>Distance between home and school</td>
<td>231</td>
<td>17.9%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>2</td>
<td>0.2%</td>
</tr>
<tr>
<td>Refused to answer</td>
<td>3</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

Data are from the 2017 NHTS add-on for the MPO area.

Source: https://nhts.ornl.gov/assets/NextGen%20NHTS_Newsletter_Issue1_082820.pdf
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 Components

Core Data (Why, How, and When...)
- Biennial Survey Cycles

Origin Destination (Where to Where)
- Annual Data Products
OD Data Nationally & Add-on Opportunities
Passive OD Data Component

National and sub-national Origin Destination (OD) data products

1. FHWA – National OD on an annual basis, 2020-2024
   a) Truck OD Data
   b) Passenger OD Data

2. Add-on Partners – Sub-national level OD for specific year(s) between 2019-2024
   a) Passenger OD Data
These zones include:

a) 446 MSA based zones divided into state specific MSAs for these multistate MSA zones, and

b) 137 new zones created from counties of remainder of States.

TN is divided into 12 zones: 10 MSA based zones and 2 rural/remainder of state zones.
# NextGen NHTS OD Product Summary

<table>
<thead>
<tr>
<th>Specification</th>
<th>National Truck</th>
<th>National Passenger</th>
<th>Add-on Passenger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trip Count</td>
<td>Annual</td>
<td>Annual</td>
<td>Annual, monthly, weekday/weekend, and hour of day</td>
</tr>
<tr>
<td>Coverage</td>
<td>50 States + DC</td>
<td>50 States + DC</td>
<td>Agency-specified</td>
</tr>
<tr>
<td>Zone</td>
<td>FHWA’s 583 Zones</td>
<td>FHWA’s 583 Zones</td>
<td>Agency-specified</td>
</tr>
<tr>
<td>Distance</td>
<td>8 categories</td>
<td>8 categories</td>
<td>8 categories</td>
</tr>
<tr>
<td>Travel Mode (imputed)</td>
<td>N/A</td>
<td>Air, rail, vehicle, other</td>
<td>Air, rail, car, bus, walk, bike, other</td>
</tr>
<tr>
<td>Trip Purpose (imputed)</td>
<td>N/A</td>
<td>Work, non-work</td>
<td>Home-based work, home-based other, work-based other, and other</td>
</tr>
<tr>
<td>Demographics (imputed)</td>
<td>N/A</td>
<td>N/A</td>
<td>Age, gender, and income</td>
</tr>
</tbody>
</table>
National Truck and Passenger Products

✓ Data files
✓ Independent quality control and validation
✓ Technical and supporting documents
✓ Interactive analytics & visualizations
OD Component: Product Status

• 2020 National OD data products released June 2022
  • Online tool available for all users
• 2021 National OD data product development released April 2023
  • National and monthly files
• 2022 National OD data product development underway
  • Draft file for review anticipated early fall 2023
Add-on OD Component Status

Austin TX (CAMPO) - delivered

Georgia (GDOT/ARC) - delivered
Add-on OD Component Status

Second Round (Pending)

• Caltrans
• Oahu HI (OMPO)
• Champaign County, IL (CCRPC)

Customization Options

• Year of Product (2019-2024)
• Geography
  • County
  • Census Tract
  • Custom (TAZ, Census Block Group, etc.)
• Time of Day
  • 1-hour increments across 24-hours
  • Custom time groupings
• Distance
  • First distance category 0-10 miles
  • First distance category disaggregated into 0-<1, 1->2.5, 2.5-<5, 5-<10 mi
Example: Tennessee Add-on Product Geography

Estimated cost for 2022 Passenger Add-on OD Product for TN ranges from $120k to $220k

https://data.census.gov/table?g=040XX00US47&y=2021&tid=ACSST1Y2021.S0101
Core Data Program Specifics
National Survey Core Data Component

✓ National survey data collected on a biennial basis starting in 2022
✓ Probability-based sampling approaches
✓ Independent surveys every other year
✓ Smaller but more frequent data collection effort than previous NHTSs
Current Status

✓ 2022 data collection complete (collected January 2022-January 2023)
✓ Data processing and weighting underway
✓ Add-on surveys for Tennessee DOT, Virginia DOT, and Oahu MPO completed and datasets in-process
✓ Final weighted datasets and documentation to be reviewed then released.
## Data Collection Summary

<table>
<thead>
<tr>
<th>National ABS</th>
<th>National PFS</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ 72,822 invitations</td>
<td>✓ 17,624 invitations</td>
</tr>
<tr>
<td>✓ 8,210 Completed Households</td>
<td>✓ 7,500 Completed Households</td>
</tr>
<tr>
<td>✓ 74% Urban/26% Rural</td>
<td>✓ 83% Urban/17% Rural</td>
</tr>
<tr>
<td>✓ 72% Weekday/28% Weekend</td>
<td>✓ 72% Weekday/28% Weekend</td>
</tr>
</tbody>
</table>

Office of Highway Policy Information, FHWA, Washington, DC
Current Status

✓ Independent evaluation to begin spring 2023
  ✓ Assess differences in fielding and travel behavior
  ✓ Results anticipated to inform design of future NextGen NHTS core data programs
✓ Public release anticipated for summer 2023
✓ Procurement work for 2024 core data underway
2022 NextGen NHTS ABS Communications

- Welcome letter with password and FAQ insert
- $2 pre-incentive

Invite Letter

Reminder Postcard
- First reminder
- Includes password

Reminder Letter
- Similar to welcome letter with password

Reminder Postcard
- Final mail reminder
- Includes password

Email Reminder
- If email address given
- After 72 hours of inactivity

Paper Survey
- Call Help Desk to request
Core Data Collection – Mail Materials

Official Research Invitation

U.S. Department of Transportation
Federal Highway Administration
1111111111 201968801 2098 7111
CURRENT RESIDENT
1001 W WASHINGTON AVE
CHICAGO, IL 60651-4035
Dear Chicago Resident,
You are invited to complete a survey about your transportation needs and experiences. This study is sponsored by the U.S. Department of Transportation and conducted by Ipsos Research. You will receive $10 if you complete a 5-minute survey. Depending on your responses, we may ask you to complete some additional questions, for which there will be an additional compensation.
To participate, please go to the following website:

Website: www.NextGenNHTS.com
Password: *******

Why should I participate?
Now is the chance to have your voice heard! Your participation is essential to help us understand the transportation needs and experiences of Americans.

What will I need to do?
If you are 18 years of age or older, please go to the website above and use the password to complete the online survey. If you want to complete a paper survey, please call 1-888-521-2520 and we will send you one.

Is it confidential?
Yes. Any information you provide will be kept confidential as required by law. All collected data will be used for research purposes only.

How do I find out more about the study?
Please go to the study website — www.NextGenNHTS.com/FAQ — for answers to frequently asked questions or call Ipsos Research toll-free at 1-888-521-2520.

Thank you for your participation in this important nationwide study!

Sincerely,

Daniel Jenkins P.E.
National Travel Behavior Data Program Manager
U.S. DOT Federal Highway Administration

First-Class Mail

Official Research Invitation

U.S. Department of Transportation
Federal Highway Administration
1111111111 201968801 2098 7111
CURRENT RESIDENT
1001 W WASHINGTON AVE
CHICAGO, IL 60651-4035
Dear Chicago Resident,
You are invited to complete a survey about your transportation needs and experiences. This study is sponsored by the U.S. Department of Transportation and conducted by Ipsos Research. You will receive $10 if you complete a 5-minute survey. Depending on your responses, we may ask you to complete some additional questions, for which there will be an additional compensation.
To participate, please complete the survey any time between Tuesday and Saturday by going to the following website:

Website: www.NextGenNHTS.com
Password: [CODE WIDELY SPACED, TNR, BLUE]

Why should I participate?
Now is the chance to have your voice heard! Your participation is essential to help us understand the transportation needs and experiences of residents in Tennessee.

What will I need to do?
If you are 18 years of age or older, please go to the website above any time between Tuesday and Saturday and use the password to complete the online survey. If you want to complete a paper survey, please call 1-888-521-2520 and we will send you one.

Is it confidential?
Yes. Any information you provide will be kept confidential as required by law. All collected data will be used for research purposes only.

How do I find out more about the study?
Please go to the study website — www.NextGenNHTS.com/FAQ — for answers to frequently asked questions or call Ipsos Research toll-free at 1-888-521-2520.

Thank you for your participation in this important statewide study!

Sincerely,

David Lee
Study Director
National Travel Behavior Data Program Manager
Tennessee Department of Transportation

First-Class Mail
Core Data Collection – Web Program

Introduction Screen

Thank you for being part of the National Household Travel Survey. The US Department of Transportation is conducting this study to understand the daily travel needs of Americans and how well the road, highway, bus and rail systems are working and to help us plan for the future.

Your responses are important to help us understand the issues you and people in your household may face. Our initial shared section of the survey should take you about 5 to 10 minutes and as our thank you for completing this section, you will receive 2000 points.

Participating is voluntary and your responses will be kept confidential. If you have comments or suggestions about your participation in this survey, please contact Michael Howell, Information Collection Clearance Officer, Federal Highway Administration, 202-366-5707, Michael.Howell@dot.gov, 1200 New Jersey Avenue, SE, Washington, DC 20590. Please refer to OMB Control Number 2125-0545, expiration date July 31st, 2024.

Please click the ‘START’ button below to proceed to the survey:

CLICK HERE TO START THE SURVEY

Diary Day Example and Travel Day Starting Location

Next, we would like to ask you about where you went on Wednesday, January 26 from 4 am that day to 4 am the next day Thursday, January 27. This is a full 24-hour period that we’d like for you to report on.

Example Travel Day:

Were you home at 4:00am on Wednesday, January 26?

Yes
No

Next →
TDOT 2022 NextGen NHTS Add-on Study
TDOT Add-on Sample Overview

• 5000 HH add-on purchase
• Data collected across 365 days
• Day of week balance: 85% weekday/15% weekend
• Add-on questions:
  • Transportation investment priorities
  • Reasons why not walk/bike more often
  • Factors influencing transit as mode to work/school
  • Willingness to Pay (simple static stated choice design)
    • Maximum willing to pay in tolls to save x minutes of work/school commute
    • Maximum willing to pay in tolls to save x minutes traveling to shop or for entertainment
  • Agree to participate in future surveys
TDOT Add-on Survey Regions

Tennessee MPO / TPO / RPO Planning Areas
Preliminary Results (subject to change)

TDOT Goals vs. Actual: 5000 vs. 5429* HH

<table>
<thead>
<tr>
<th>TDOT Survey Region</th>
<th>TN Actual</th>
<th>TN Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bristol MPO</td>
<td>248</td>
<td>302</td>
</tr>
<tr>
<td>Johnson City MPO</td>
<td>250</td>
<td>261</td>
</tr>
<tr>
<td>Kingsport MPO</td>
<td>245</td>
<td>281</td>
</tr>
<tr>
<td>Knoxville MPO</td>
<td>250</td>
<td>264</td>
</tr>
<tr>
<td>Lakeway MPO</td>
<td>250</td>
<td>265</td>
</tr>
<tr>
<td>Region 1 Non-MPO</td>
<td>250</td>
<td>303</td>
</tr>
<tr>
<td>Chattanooga MPO</td>
<td>250</td>
<td>286</td>
</tr>
<tr>
<td>Cleveland MPO</td>
<td>250</td>
<td>287</td>
</tr>
<tr>
<td>Region 2 Non-MPO</td>
<td>250</td>
<td>287</td>
</tr>
<tr>
<td>Clarksville MPO</td>
<td>250</td>
<td>301</td>
</tr>
<tr>
<td>Nashville MPO</td>
<td>250</td>
<td>287</td>
</tr>
<tr>
<td>Region 3 Non-MPO</td>
<td>250</td>
<td>346</td>
</tr>
<tr>
<td>Jackson MPO</td>
<td>250</td>
<td>373</td>
</tr>
<tr>
<td>Memphis MPO</td>
<td>385</td>
<td>420</td>
</tr>
<tr>
<td>Region 4 Non-MPO</td>
<td>385</td>
<td>420</td>
</tr>
<tr>
<td>Region 3 Non-MPO</td>
<td>346</td>
<td>373</td>
</tr>
<tr>
<td>Region 4 Non-MPO</td>
<td>420</td>
<td>475</td>
</tr>
<tr>
<td>Region 1 Non-MPO</td>
<td>438</td>
<td>478</td>
</tr>
<tr>
<td>Region 2 Non-MPO</td>
<td>483</td>
<td>536</td>
</tr>
<tr>
<td>Region 3 Non-MPO</td>
<td>436</td>
<td>455</td>
</tr>
<tr>
<td>Region 4 Non-MPO</td>
<td>438</td>
<td>475</td>
</tr>
</tbody>
</table>

Office of Highway Policy Information, FHWA, Washington, DC
TDOT Demographics (unweighted)

**HH Income**

<table>
<thead>
<tr>
<th>Income Range</th>
<th>ACS</th>
<th>TN-NHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;$25k</td>
<td>23%</td>
<td>24%</td>
</tr>
<tr>
<td>$25-$50k</td>
<td>19%</td>
<td>23%</td>
</tr>
<tr>
<td>$50-$75k</td>
<td>18%</td>
<td>20%</td>
</tr>
<tr>
<td>$75-$100k</td>
<td>12%</td>
<td>14%</td>
</tr>
<tr>
<td>$100k+</td>
<td>22%</td>
<td>24%</td>
</tr>
</tbody>
</table>

**HH Size**

<table>
<thead>
<tr>
<th>Household Size</th>
<th>ACS</th>
<th>TN-NHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>28%</td>
<td>36%</td>
</tr>
<tr>
<td>2</td>
<td>36%</td>
<td>27%</td>
</tr>
<tr>
<td>3</td>
<td>16%</td>
<td>14%</td>
</tr>
<tr>
<td>4</td>
<td>12%</td>
<td>10%</td>
</tr>
<tr>
<td>5+</td>
<td>8%</td>
<td>7%</td>
</tr>
</tbody>
</table>

**Hispanic Status**

<table>
<thead>
<tr>
<th>Status</th>
<th>ACS</th>
<th>TN-NHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>95%</td>
<td>97%</td>
</tr>
</tbody>
</table>

**Race**

<table>
<thead>
<tr>
<th>Race</th>
<th>ACS</th>
<th>TN-NHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>78%</td>
<td>84%</td>
</tr>
<tr>
<td>Black</td>
<td>17%</td>
<td>8%</td>
</tr>
<tr>
<td>Other</td>
<td>6%</td>
<td>8%</td>
</tr>
</tbody>
</table>
Schedule

- Data collection ended January 19, 2023
- Dataset complete.
- Final dataset undergoing QC
  - Ipsos: zero trip persons, verify completes, final file QC
  - FHWA QC: structural and behavioral (receive 4/28)
  - TDOT receives unweighted base file: May*
- Weighting underway
  - FHWA receives draft weights to review: end of May
  - TDOT receives final weighted file: June/July (pending May review)

*assumes 4/28 file is complete
TDOT Add-on Data Plans
Tools for OD and Core Survey Data (Live Demonstrations)

OD Data Online Tools

NextGen NHTS National OD Data

Conducted by the Federal Highway Administration (FHWA), the NHTS is the authoritative source on the travel behavior of the American public. FHWA has launched the Next-Generation National Household Travel Survey (NextGen NHTS) to establish a more continuous travel monitoring program with national and local data products. In addition to the probabilistic core travel survey, NextGen NHTS also includes an origin-destination (OD) data program that produces multimodal passenger and truck travel OD tables at the national and local levels from passively collected data sources.

Announcements

- The updated 2021 OD data have been released. See the methodology addendum for details.
- The updated 2020 passenger OD data component (v2) have been released. See the updated methodology for details.
- The updated 2020 truck OD data component (v2) have been released. See the release note for details.

2020 Data Highlights

Distribution of Passenger Trips

By Mode

- Air
- Rail
- Active Transit/Pedestrian
- Vehicle

By Purpose

- Work
- Nonwork

By Distance

- 0-10 mi
- 11-50 mi
- 51-100 mi
- > 100 mi

Distribution of Truck Trips

By Distance

- < 100 mi
- 100-150 mi
- 150-300 mi
- > 300 mi
Steps to Generate Table:
Transit Trips by Household Respondent Race by Household Income

Step 1. Select Analysis Variable
Step 2. Select Tabulation Variables
Step 3. Select Data Subsets (in this example, transit trips only)
Step 4. Enter Report Title
Step 5. Select Statistics
Step 6. Click Submit button

2017 NHTS Transferability Variables

Size of Region
- CDIVMSAR: Grouping of household by combination of census division, MSA status, and presence of a subway system when population greater than 1 million
- MSACAT: Metropolitan Statistical Area (MSA) category for the household's home address
- MSASIZE: Population size category of the Metropolitan Statistical Area (MSA)

Claritas Variables
- HTEEMPDN: Category of workers per square mile in the census tract of the household's home location
- HTHTNRNT, HBHTNRNT: Category of the percent of renter-occupied housing in the census tract/block group of the household's home location
- HTPPOPDN, HBPPOPDN: Category of population density (persons per square mile) in the census tract/block group of the household's home location
- HTRESDN, HBRESDN: Category of housing units per square mile in the census block group of the household's home location
- HBHUR: Definition for Urbanicity: https://nhts.ornl.gov/assets/Assessing_the_Role_of_Urbanicity.pdf
- Similar variables available to describe the trip origin and destination
Questions and Discussion