



**Summary of Response to RFI #NYMTC-01-2022
Long-term Regional Household Travel Survey Program
March 2023**

A. Document Purpose

This document, produced in March 2023, summarizes the main ideas that emerged from the responses to RFI #NYMTC-01-2022. Therein NYMTC requested information regarding long-term Regional Household Travel Survey (RHTS) programs. NYMTC received these responses through December 14, 2022 to January 20, 2023.

NYMTC made information requests in the form of 16 questions. After receiving responses to these questions from various industry experts, NYMTC is interested in sharing the non-proprietary “key takeaways” for the benefit of others who are interested in RHTS and related subjects.

B. NYMTC’s Key Take Aways

<u>Question</u>	<u>Key Take Aways</u>
1. Do you feel that transportation planning organizations/public transportation providers still need to conduct a cross-sectional regional household travel survey to obtain data needed to update and validate their travel demand models? Why/why not?	Yes, traditional travel surveys still need to be conducted. ➤ Traditional surveys provide highly detailed information such as demographic data that is unavailable in passively collected data but is critical for the development and calibration of travel models.
2. Have you had experience using different frequency of data refreshment for capturing change in travel behavior and for informing public policy in the 2020s, or earlier? If yes, please explain and provide your thoughts on what might be the optimal frequency of data refreshment.	Two years emerged as a consensus for optimal frequency of data-refreshment amongst the respondents to this question.



3. Do you have experience using “big data”? If yes, please tell us how and provide a brief description of your experience	Some uses/experience with big data include: ➤ Creating Origin-Destination (O-D) trip matrices to update travel models. ➤ Validation/calibration of travel models. ➤ Regional scale network simulation. ➤ Capturing sub-population patterns that might not be captured in survey.
4. Based on your experience, what elements of traditional household travel survey data may be replaced by big data and how/how easily?	The consensus was that big data can complement, but not replace the Household Travel Survey. However: ➤ Model components where demographic information is not critical were mentioned as components that could possibly be replaced by big data. ➤ O-D trips and travel behavior patterns were also mentioned as components that could possibly be replaced. ➤ The cost effectiveness of replacing some survey elements with big data should be studied carefully.
5. Have you found that it is possible to infer demographic segmentation from big data? If so, are certain demographic segments better represented in big data products than others? If yes, please explain	It is possible to infer demographic segmentation from big data, but at a high level & the accuracy may not be good. ➤ By overlaying the big data with census data, it can be tagged to trip makers based on their home location. ➤ The efficiency, effectiveness, and ethics of inferring demographics from big data is unclear.
6. Have you used big data to replace traditional travel survey samples for well-represented populations? If so, what did you do to mitigate under-representation issues? And/or how did you develop a sampling strategy to collect travel surveys on under-represented populations?	The consensus seems to be that big data can complement - but not replace- traditional travel survey samples. ➤ Big data can increase representation in terms of mode or geo-markets but not in terms of demographics.



7. Do you have experience using a combination of data from diverse sources (e.g., traditional surveys combined with big data or crowd sourced data) in any survey efforts? Is any of that experience specifically related to the development of travel behavior data that can be used for travel models? If yes, please provide a brief description of your experience.	Based on the responders that answered this question, this does not seem to be common practice. ➤ However, one responder noted that they did combine the two sources along with Artificial Intelligence (AI) tools to simulate travel demand data. ➤ AI and big data combination was mentioned. Crowdsourced data was not mentioned. However, crowdsourcing was mentioned as a respondent recruitment method. ○ In response to Question 11, it was mentioned that combining data from various sources— including those collected through crowdsourcing methods such as public service announcements and social media-based invitations— may introduce unpredictable biases in surveys.
8. What are some of the advancements in travel behavior data that you feel we can expect in the very near future? How will modeled travel behavior data products be improved in the near term?	Data availability and the frequency of data refreshment will increase. ➤ More real time data will be available as more data will be collected by smartphones. ➤ More strategically sourced panel surveys & non-probability samples might be used in the future.
9. Do you have experience pooling travel survey data over multiple collection cycles (e.g., American Community Survey 5-year aggregation)? If yes, please provide examples of where this is being done and discuss any methodological challenges or concerns	Several Metropolitan Planning Organization (MPO) and other survey efforts were mentioned. ➤ The National Household Travel Survey (NHTS) was given as an example. ➤ Several MPOs—including Puget Sound, Raleigh-Durham, Seattle & Minneapolis—have collected survey data over cycles & pooled the data.



10. Do you have experience developing a base survey design with standardized variables and questionnaire formats that can be used both over time and across agencies?	Different approaches to base survey combination were mentioned: ➤ NHTS has a base survey with standardized variables across years and states. ➤ A respondent noted that they have core/base surveys that can be customized based on client need. But they have not combined different surveys.
11. Do you have experience combining surveys that were conducted based on different sampling strategies?	Probability based and non-probability based strategies can be combined. The challenge is in getting the weights right. ➤ Probability-based address sampling has been combined with other methods when the questions were the same. ➤ Main risk is in introducing unknown biases. ➤ For combining sampling approaches, bias may be mitigated using statistical methods. However, care must be taken at every step.
12. Do you have experience harmonizing data collection from the use of multiple types of survey tools? If yes, please provide a brief description of your experience and thoughts on the best approach.	It is common to conduct a survey using a variety of tools, such as smartphone, online, & telephone. ➤ Setting clear guidelines and metrics is necessary in designing consistency across a variety of collection methods. ➤ For seamless data combination, the methods of data collection should be designed from the outset with cross-modal compatibility in mind.
13. What are some of the most cost-effective (including consultant and agency labor costs) travel survey methods? How do they compare?	Some of the common themes from previous questions were reiterated as some of the most cost-effective methods: ➤ Using passively collected O-D and waypoint data is more cost effective than the traditional travel survey. ➤ Using recurrent and frequent data collection and development of a core/base survey instrument. ➤ Building a custom internal panel & blending sample sources. ➤ Using multi-day smartphone data collection. ➤ Combining a large proportion of address-based sampling (ABS) with a small proportion of convenience sampling where big data complements, not replaces, traditional household travel survey.



14. What are some commonly observed risks associated with the newer, more innovative survey methods and what are some strategies to identify, monitor, and mitigate these risks?	All survey modes and methods include some level of bias and risk. A flexible design can help mitigate these risks. ➤ Methods such as smartphones reduce survey fatigue. ➤ Augmenting address-based sampling with passive data can mitigate declining response rates. ➤ Having multi-method real time response monitoring gives insight about responder burden. ➤ Pilot surveys also help to reduce risks by complementing our understanding of bias.
15. What are some emerging practices you have employed in building user-friendly, accessible survey tools?	Accessibility and user-friendliness were discussed for both surveyors and survey respondents: ➤ The survey tool can be optimized for the device the participants are using. This also reduces declining participation rates. ➤ Dashboards or other data visualization tools can make data analysis easier. ➤ The use of Artificial Intelligence (AI) to aid data analysis was also mentioned.
16. Have you used innovative strategies, such as incentives or other marketing strategies, to increase response rates in general, and specifically, for under-represented populations?	Incentives - usually in the form of gift cards - are common & recommended. Certain techniques that have been used: ➤ Differential incentives for under-represented/hard to reach populations. ➤ Using pilot surveys to test and refine incentive strategies. ➤ Using a dynamic incentive and reminder strategy that can be changed and adjusted in real time based on response rates. ➤ Using strategically targeted communications and social media advertising.