

# WASHINGTON-BALTIMORE REGIONAL AIR PASSENGER SURVEY (APS) RESPONSE RATE AND QUALITY STUDY

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# Regional Air Passenger Survey Overview

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- TPB has conducted a regional air passenger survey (APS) at the Washington-Baltimore region's three commercial airports (BWI, DCA, IAD) approximately every two years (last survey was in 2019)
- Provides critical data on air passenger characteristics, ground access information, and factors that influence airport choice
- Key source of observed data for regional air systems planning and informs long-range regional transportation planning
- Conducted as a paper-based intercept survey at boarding gates using a stratified sampling approach



# Comprehensive Evaluation of the APS

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- In recent APS efforts, TPB observed a decline in the overall response rate and the quality of survey responses
  - Partially completed or incomplete surveys
  - Respondents are less willing to provide origin information
  - Length of the questionnaire and survey response burden
- There were also challenges to fielding the APS, including the lengthy process to receive ID badges, shortened training schedule for field staff, and interviewing late arriving passengers
- In response to these methodological concerns, ICF was contracted by TPB to conduct a comprehensive evaluation of the APS



# APS Evaluation Methodology

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- The APS evaluation assessed the factors behind the observed declines in the response rate and to gather which strategies may be most effective for future APS efforts:
- This multi-pronged methodology consisted of the following tasks:
  - Task 1: Technical Advisory Committee (TAC) Meetings
  - Task 2.1a: Interviews with six key informants who oversee surveys within airports
  - Task 2.1b: A literature review of current/past APS methodology
  - Task 2.2: A review of “big data” sources
  - Task 3: Airport site visits
  - Task 4: Final comprehensive report



# List of Recommendations

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- Based on the evaluation, ICF provided 25 actionable recommendations for the TPB to consider in future APS surveys
- Broad groups of recommendations include overall approach, survey design and mode, sampling, questionnaire, training, discussion of an employee-inclusive survey, and big data sources
- TPB staff evaluated which recommendations would be feasible for implementation in the next APS



# APS Evaluation Methodology

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- 5 recommendations were presented at the May 27, 2021 Aviation Technical Subcommittee Meeting
  - Conduct experiments on all new methods
  - Transition to electronic data collection
  - Offer incentives to participants
  - Reduce item nonresponse
  - Include airport employees in the survey



# Conduct Experiments on All New Methods

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- Conduct experimental and non-experimental pre-tests on new methods
- Experimental pre-tests would require a pilot test using a randomized experiment in which the current methods are tested against new methods, with both fielding occurring at the same time (i.e., factorial randomized control experiments)
- Non-experimental pre-tests would be non-randomized field pilots that would be conducted before or simultaneously with full-scale data collection



# Conduct Experiments on All New Methods

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- Benefits:
  - Analyze how changes in methodology can impact trend data
  - Test out the logistics of new procedures before implementing them in the full-scale collection
  - Isolate the effects of any changes on data quality and response rates





# Conduct Experiments on All New Methods

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- Costs / Considerations:
  - Sample sizes need to be sufficient to make comparisons across experimental groups
  - Additional time and effort needed to analyze experimental data
  - Logistical challenges for data collectors to implement multiple procedures
  - Entail additional costs to conduct a pilot test
  - May slow down the adoption of new design features



# Conduct Experiments on All New Methods

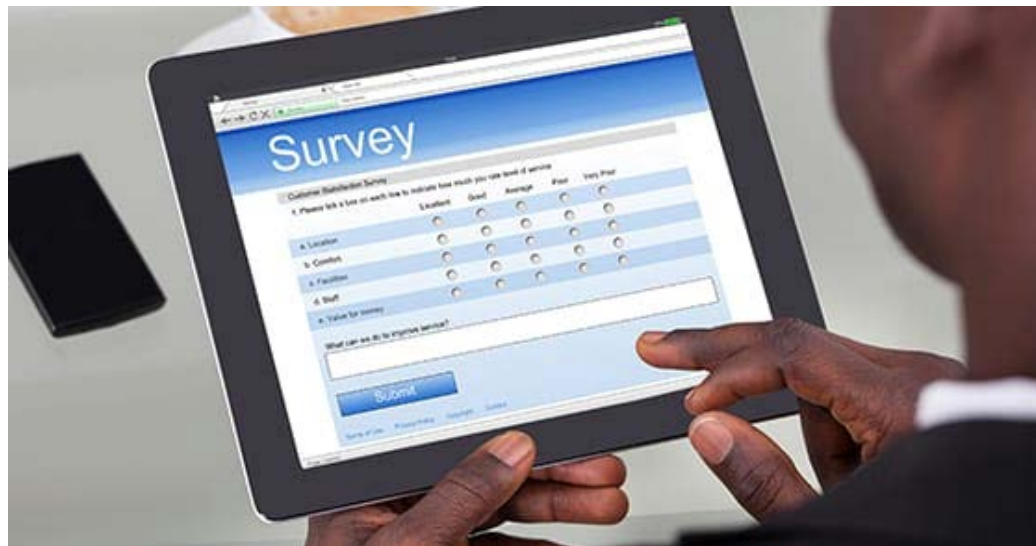
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- Staff Recommendations:
  - Conduct a pre-test before the administration of the main survey
  - Controlled experiments are not feasible given cost and logistical challenges
  - A nonrandomized pre-test fielded before full-scale data collection may be most cost effective and feasible for the 2022 APS



# Transition to Electronic Data Collection

- Use the web as the primary mode of data collection
- Design questionnaire to be viewed on tablets and mobile phones
- Respondents provided with the option to complete the survey on a shared tablet or their own mobile device



# Transition to Electronic Data Collection

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- Benefits:
  - Better data quality due to skip logic which only shows questions that apply to the respondent
  - Reduced errors in data processing, particularly in interpreting handwriting
  - Potential lower costs because of savings on printing and data processing
  - Simpler multilingual administration in a wider variety of languages



# Transition to Electronic Data Collection

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- Costs / Considerations:
  - Need to follow hygiene protocols for tablet devices
  - Electronic data collection should be tested to ensure accurate recording of responses
  - Survey should be self-administered for maximum efficiency with data collector providing hands-on oversight



# Transition to Electronic Data Collection

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- Staff Recommendations:
  - Utilize electronic data collection using a web-based survey for the next APS
  - Provide respondents with an option to complete the survey on their own device (providing a URL or QR code) or on a tablet provided by the data collector
  - Follow COVID hygiene protocol when administering the survey using a tablet
  - Test the efficacy of the electronic data collection method in a pre-test



# Offer Incentives to Participants

- Incentives are often used in surveys to increase participation
- Incentives can be offered in the form of a cash payment or a gift card (e.g., Amazon, Visa Gift Card)
- Incentives may be given to every participant or randomly selected participants



# Offer Incentives to Participants

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- Benefits:
  - Can help boost overall survey response
  - May motivate people who would otherwise not be interested in participating
- Costs / Considerations:
  - Greater overall cost of administering the survey, although the cost per completed survey may decrease from a higher response rate





# Offer Incentives to Participants

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- Staff Recommendations:
  - Offer an incentive in the next APS which would likely boost response rate
  - Use a raffle incentive for a gift card (up to \$500) which would be easy to administer and easy for the respondent to use
  - Use the pre-test as an opportunity to test different incentive levels



# Reduce Item Nonresponse

- Item nonresponse is problematic in surveys because it may introduce bias
- Item nonresponse is often observed in survey questions that respondents perceive to be invasive or sensitive
- Previous APS efforts showed a high level of item nonresponse for trip and origin questions

2. What is the address of the place you started your trip today?

Street Number	Street Name	City Quadrant (e.g., SW, NE)
City	State	Zip Code
Hotel/Motel or Business Name		

4. How many people live in your household, including yourself?

\_\_\_\_\_ Person(s) (Write '1' if you live alone)

**B. ABOUT YOUR GROUND TRIP TO RONALD REAGAN WASHINGTON NATIONAL AIRPORT:**

1. Where did you start your ground trip to this airport (DCA)? (Check ONE answer)

01 Private residence

02 Hotel/Motel

03 Short term rental (e.g., Airbnb, VRBO)

04 My regular place of employment

05 Another place of business

06 Other: \_\_\_\_\_

1. If you live locally, how many nights will you be away?

\_\_\_\_\_ Night(s) (Write '0' if you will return today)



# Reduce Item Nonresponse

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- The current survey collects the following trip and origin information that may be sensitive to respondents:
  - Origin address
  - Whether origin is a private residence
  - Whether the respondent lives alone
  - How long the home will be empty (length of trip)
- The current survey protocol says little about privacy and data security
- Reducing item nonresponse to these questions may require redesigning the instrument (i.e., removing questions and/or collecting this information in a different way)



# Reduce Item Nonresponse

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- Benefits:
  - Improves data quality by reducing nonresponse on critical data items about trip origin
  - Assuring privacy and confidentiality in the survey may increase likelihood to respond overall
- Costs / Considerations:
  - Programming a revised origin question on a tablet may increase the burden of administering the survey
  - Not collecting the origin address may not provide detailed enough origin information for ground access planning purposes



# Reduce Item Nonresponse

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- Staff Recommendations:
  - Improve the language on privacy and confidentiality and make it explicit on the survey
  - Drop the origin address question and collect trip origin information at the zip code level
  - Revise the language on the survey questions to reduce perceived invasiveness (e.g., “private residence”) and drop questions that are not essential to ground access planning purposes



# Include Airport Employees in the Survey

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- In addition to regional air passengers, airport employees would be included in the overall APS effort
- Airport employees have often been omitted in other airport surveys due to lack of budget and other considerations
- Airport employees comprise a sociodemographically diverse group that is often different from air passengers



# Include Airport Employees in the Survey

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- Benefits:
  - Including airport employees in ground access studies may improve representation and accuracy of the resulting data
  - Including airport employees in the APS aligns the project with COG's focus on social and racial equity
- Costs / Considerations
  - There may be some barriers to reaching this group and a different methodology may need to be employed other than an intercept survey



# Include Airport Employees in the Survey

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- Staff Recommendations:
  - Conduct an employer survey via a web survey
  - Coordinate with employers at the airport to provide the survey link to their staff via email
  - Provide a survey participation incentive
  - Modify the survey questionnaire to focus on ground access
  - Reduce the survey length for airport employees to increase participation and reduce respondent burden





# Summary of Staff Recommendations

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- Conduct a pre-test before full-scale data collection
- Discontinue the paper survey and replace with a web survey that can be taken on a tablet or a mobile device
- Offer a participation incentive in the form of a raffle or drawing
- Include stronger language for privacy and confidentiality in the survey and drop sensitive trip origin questions
- Conduct a web survey for airport employees



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