



MEMORANDUM

TO: Aviation Technical Subcommittee
FROM: Kenneth Joh, Ph.D., AICP, Senior Statistical Survey Analyst
SUBJECT: Regional Air Passenger Survey (APS) Recommendations
DATE: November 18, 2021

Regional Air Passenger Survey (APS) Recommendations

On October 25, 2021, Tim Canan, Nicole McCall, and Ken Joh discussed the staff recommendations for implementation in the next APS that were presented to the Aviation Technical Subcommittee on September 23, 2021. There were five key recommendations that were presented to the subcommittee:

- Recommendation #1: Conduct experiments on all new methods
- Recommendation #2: Transition to electronic data collection
- Recommendation #3: Offer incentives to participants
- Recommendation #4: Reduce item nonresponse (e.g., origin address question)
- Recommendation #5: Include airport employees in the survey

The purpose of this document is to briefly describe each recommendation and to provide scenarios for each, along with an estimated consultant budget/cost for each option.

Recommendation #1: Conduct experiments on all new methods

The next APS (expected in 2022) will likely involve several key methodological changes:

- Transition from a paper survey to electronic data collection using a mobile device
- Adopt an alternative sampling framework based on clusters of gates (zones) instead of individual gates/flights
- Offer a survey participation incentive such as a gift card
- Changes to survey questionnaire and how ground trip information is collected

Given the changes that are proposed in the next APS, the staff recommendation is to conduct a pretest, following best practices in survey methodology. There are three alternative plans/scenarios for conducting a pretest: 1) full scale pretest in the field at one airport; 2) internal pretest with COG staff and airport partners; 3) internal pretest with COG/DTP staff only. The scenarios are shown in the table below:

Table 1: Pretest Scenarios

	Advantages	Disadvantages	Considerations	Consultant Budget/Cost
Scenario 1: Full Scale Pretest in the Field	Allows for more comprehensive analysis of how changes in methodology can impact trend data or key estimates	Additional time and effort needed to analyze pretest data, logistical challenges and cost considerations	Timing of the pretest versus the main data collection effort, sufficient sample sizes, logistical challenges for data collectors	\$5,000 - 10,000 (rough estimate)

Subcommittee decision: Full-scale pretest conducted in the field

Scenario 2: Internal Pretest with COG staff and airport partners	Allows for user experience and cognitive testing for the survey questionnaire, relatively simple to conduct	Limited opportunity to test in the field	Timing of the pretest, how many internal participants to invite, coordination with airport partners	N/A (no cost to consultant)
Scenario 3: Internal Pretest with COG/DTP staff only	Allows for user experience and cognitive testing for the survey questionnaire, simplest to conduct	Limited opportunity to test in the field, no input from airport partners	Timing of the pretest, how many internal participants to invite	N/A (no cost to consultant)

Based on these scenarios, we would recommend either Scenario 1 (full scale pretest) or Scenario 2 (internal pretest with COG staff and airport partners). We would welcome a discussion of the advantages and disadvantages of conducting a full-scale pretest versus a scaled-down pretest that would be conducted mostly internally with COG staff and airport partners.

Recommendation #2: Transition to electronic data collection

Previous APS efforts have been conducted using a paper survey. The next APS will most likely involve electronic data collection which offers many advantages over a traditional paper survey, and would eliminate printing, data entry, and QA/QC costs. Electronic surveys can be conducted on the user's smartphone using QR codes or on a shared tablet device administered by the data collector.

Table 2: Data Collection Scenarios

	Advantages	Disadvantages	Considerations	Consultant Budget/Cost
Scenario 1: Paper Survey	Have extensive experience conducting paper surveys, tested methodology	Additional time, resources and effort needed to manually punch in responses, increasing the possibility of error, printing costs for surveys, staff time needed to clean the database and perform logic checks	Are there any reasons to continue a paper survey? Should a paper survey still be offered as an alternative option?	<p>\$13,500 including printing costs and data entry costs:</p> <p>\$5,000 for data entry costs (200 hours of labor at \$20 an hour multiplied by 1.25 for overhead) +</p> <p>\$8,500 (WBA budget for printing from 2019 APS)</p> <p><i>* Note that staff time needed to clean the database and perform logic checks is not included in this estimate</i></p>

Subcommittee decision:
 Electronic data collection using QR code, but consider testing additional options during pretest

<p>Scenario 2: Electronic Survey using QR Code only</p>	<p>Provides all of the benefits of electronic surveys such as incorporating skip logic, reducing respondent burden; also, minimal cost since survey will be taken on users' smartphone</p>	<p>Need to ensure that user experience is optimal and that internet connectivity is available and reliable</p>	<p>What are the potential risks of electronic data collection? Is there a need to pretest?</p>	<p>\$12,000 (based on RSG budget for developing online survey) * Note that this cost reflects the R&D cost of developing a new online survey platform. The actual cost may be considerably less if the consultant developed similar platforms for other airport surveys.</p>
<p>Scenario 3: Electronic Survey using QR Code and tablets</p>	<p>Provides all of the benefits of electronic surveys described in Scenario 2; provides option for those who do not want to take the survey on their smartphone or do not have one</p>	<p>Costs of purchasing tablets, need to follow hygiene protocols</p>	<p>Is it necessary to purchase tablets? Would the budget for tablets be better used elsewhere, such as incentives?</p>	<p>\$12,000 (based on RSG budget for developing online survey) + \$3,000 (estimated) for purchasing tablets * Note that this cost reflects the R&D cost of developing a new online survey platform. The actual cost may be considerably less if the consultant developed similar platforms for other airport surveys.</p>

Based on these scenarios, we would recommend Scenario 2 (Electronic Survey using QR Code only). The budget required for purchasing tablet devices would be better spent on survey incentives.

Recommendation #3: Offer Incentives to Participants

Previous APS efforts did not offer a survey participation incentive. Offering an incentive would likely improve response rates; survey incentives are widely known to increase participation and is considered a best practice in survey methodology. Survey incentives can be given to all participants or selected participants in a raffle or drawing.

Table 3: Survey Incentive Scenarios

Subcommittee decision: Offer incentive to randomly selected survey participants in a raffle drawing, but consider testing the number of drawings and incentive amounts during the pretest to optimize effectiveness

	Advantages	Disadvantages	Considerations	Consultant Budget/Cost
Scenario 1: No incentive	Have previous experience, no cost for incentives	Low response rates, response rates have been declining in recent survey efforts	Are there any reasons not to offer an incentive?	N/A
Scenario 2: Incentive to all survey participants	Every participant will be rewarded for participating in the survey, likely to boost response rate	High cost of providing incentive to all participants, may be cost prohibitive	Would offering a small incentive to all participants yield a higher response?	\$15,000 (\$5 incentive for 3,000 participants)
Scenario 3: Incentive to randomly selected survey participants in a raffle drawing	Since not every participant will be receiving an incentive, a larger incentive can be offered	May not encourage some to take the survey unless incentive amount is large enough	What should be a large enough incentive to draw attention? Should there be a choice of incentives?	\$3,000 (2 \$500 gift cards for each of the three airports)

Based on these scenarios, we would recommend Scenario 3 (incentive to randomly selected participants in a drawing).

Recommendation #4: Reduce item nonresponse (e.g., origin address question)

Previous APS efforts collected detailed ground trip origin information such as home address, which raises privacy concerns. A higher rate of nonresponse was observed for the ground trip origin question. For aviation planning and long-range regional transportation planning, collecting trip origin information at the TAZ level would be needed for modeling purposes.

Table 4: Reduce Item Nonresponse Scenarios

	Advantages	Disadvantages	Considerations	Consultant Budget/Cost
Scenario 1: No change to ground trip origin question	Have address information for ground trip origin	Lower response rates due to perceived invasiveness of question, privacy concerns	Is it necessary to collect detailed address information for aviation planning and long-range transportation planning?	N/A
Scenario 2: Collect information at larger level of geography (e.g., zip code, jurisdiction, neighborhood)	May reduce item nonresponse, lessen privacy concerns	Some level of geography may be too coarse (e.g., county jurisdiction) or difficult for participants to identify (e.g., zip code)	What would be the appropriate level of geography that would balance privacy concerns/non-response with aviation and regional transportation planning needs?	N/A

Subcommittee decision: Further investigate how to optimize response while also obtaining accurate ground access trip information at a geographical level that can be used to support regional travel demand modelling and airport planning activities. Staff will investigate options on how to best achieve this.

Scenario 3: Provide an interactive map in the survey for respondents to identify trip origin location	May reduce item nonresponse, lessen privacy concerns	Some respondents may not be able to accurately identify trip origin location on a map	Are there any potential QA/QC issues?	N/A
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Based on these scenarios, we would recommend providing both Scenario 2 (collect information at a larger level of geography) and Scenario 3 (providing an interactive map).

Recommendation #5: Include airport employees in the survey

Previous APS efforts have not included airport employees in the survey. Including airport employees in the survey may provide a more comprehensive picture of ground access information. The airport survey should be different from the survey for air passengers, and would be a supplement to the main APS effort.

Table 5: Including Airport Employees Scenarios

	Advantages	Disadvantages	Considerations	Consultant Budget/Cost
Scenario 1: Do not include airport employees in the survey (no change)	Simpler to administer the survey, no need to devote resources to an airport employee survey	May be a missed opportunity to collect ground access information from airport employees	What would be gained from conducting a separate airport employees survey? Are there any other surveys or administrative processes (e.g., badging) that are already collecting this information?	N/A
Scenario 2: Include airport employees in the survey	May provide a more comprehensive picture of ground access for an underrepresented group, reinforce equity/diversity goals	Increased time and effort required to conduct an airport survey, may increase burden for airport employees who have work duties	What would be the overall purpose of the airport employee survey? What has been done in the past to collect this information?	\$5,000 - \$10,000 (rough estimate)

Based on these scenarios, we would recommend further investigation and discussion with our airport partners before making a decision.

Subcommittee decision: Do not conduct additional survey of airport employees. While interesting, obtaining this information would require additional resources. Staff to consider investigating other airport employee survey efforts in the region, conducting specialized analysis of these efforts, and reporting the findings to the Subcommittee as a future agenda item.