



Airport Ground Access Surveys

DESCRIPTION

Airport ground access (GA) surveys collect information about how customers and employees arrive at the airport, their demographics, and their trip characteristics. Airports use these data to understand and forecast GA behavior. The results help planners make decisions about future transport investments, manage passenger flows, and project revenue from parking or other user-based fees. Key questions of GA surveys include:

- Who are our air passengers?
- What mode(s) do passengers and employees use to arrive at the airport?
- Where are trips to the airport originating from?
- How might new transportation policies or options change travel behaviors?

GA surveys are often conducted as the first step in a planning process. An airport will conduct a standard GA survey, sometimes with a stated preference (SP) component, to provide the input data to develop mode choice simulations. These tools allow airports to examine the effect of proposed landside policy changes on GA decisions.

To interview passengers, trained surveyors conduct these surveys on-site at airport departure gates to capture the relevant population of air travelers. Employees at airports are normally recruited via email outreach arranged with the assistance of their employers. Depending on the study objectives and constraints, on-site passenger surveys can be conducted by paper questionnaire; however, tablet-based techniques are most efficient from a data-collection perspective. Employee surveys are most efficiently conducted via email.



GA surveys are most effective when conducted at a regular interval (e.g., annually, biennially, or triennially). Consistent surveying aids trend analysis and improves efficiency and consistency in survey methodology and administration.

COST
Medium-Medium/High 

TIME
Medium 

METHODS
On-Site Tablet  Paper 

CHALLENGES
Representative Sample  Administration Logistics 

EXPERTISE
Sampling Design  Data Wrangling 



COST CONSIDERATIONS

GA surveys almost always require on-site intercepts to collect responses. Larger sample sizes require more surveyors working more hours. Questionnaires that include SP increase design costs and affect completion rates (longer survey). Paper surveys are generally less expensive than tablet-based surveys but limit the scope and functionality of the study (e.g., no SP).



HOW WILL THIS SURVEY HELP ME?

- > **Spot trends:** If repeated, these surveys can help spot trends in the air passenger market and in mode shares accessing the airport.
- > **Track progress:** If repeated, these surveys help examine the impact of landside policies undertaken.
- > **Identify opportunities:** With targeted standard questions or use of SP experiments, airports can forecast revenue from policy changes, such as adding fees on rideshare apps or changes to parking costs.
- > **Test feasibilities:** These surveys often lay the groundwork for establishing feasibilities for capital improvements like parking structures, transit access, or the necessity of curb-side capacity expansion projects.

> The SIDA Badging Process—High Stakes Drama

Collecting data at airports requires each surveyor to have a valid Security Identification Display Area (SIDA) badge. Acquiring badges is complicated and takes weeks—sometimes even months—to complete. Start the SIDA process early by coordinating with airport security and management to ensure paperwork, site visits, and trainings by all surveyors are done properly. Data collection success will be contingent on the orderly completion of the SIDA process. Always ensure the schedule and budget accounts for badging steps.



SUCCESS STORIES

Logan Airport Ground Access and Trip Reduction Strategy Studies (2018)

Administration Method: On-site tablet-based survey

Recruitment: Departing passengers at gate

Sampling: Flights representative of airport enplanements

Report available at:
tinyurl.com/ybzhx95y

Administered as part of a broader landside-planning initiative at Boston Logan International Airport (BOS). The SP survey sampled over 5,000 air passengers and included a mode choice SP to forecast landside arrivals by ride apps. The survey was the primary input into a Mode Choice Model and Simulator (MCMS), provided parking and ride-share fee revenue projections, and supported development of key new GA policies enacted at BOS.

STUDY ROADMAP

1 QUESTIONNAIRE DESIGN/ADMINISTRATION

A well-designed survey will include questions to ensure effective sampling, weighting, and analysis of key study objectives. Solidify the survey goals at the project's outset to ensure the proposed method and questionnaire achieve the stated goals.

Administration Methods:

Tablet: Tablet-based surveys allow for customized survey branching and language, complex question design (e.g., geocoded origin location and SP experiments), and real-time tracking of progress and results.

Paper: Paper surveys, once the primary method for these studies, lack the advantages of tablet, outlined above. Paper remains a viable option when the questionnaire is simple or when the budget precludes using the more effective tablet method.

2 SAMPLING/RECRUITMENT

The best sample and recruiting strategy will seek to accurately represent enplanements at the airport.

- **Flight selection:** Select sample flights to represent airport enplanement across key characteristics (e.g., flight type, airplane size, terminal/concourse, time of day, day of week). Assess representation in reference to reliable enplanement data (e.g., Official Aviation Guide data).
- **Respondent recruitment:** Recruit respondents at departure gates to ensure adherence to the sampling plan. Best practice may involve targeting a certain number of completions per flight or surveying all willing passengers on a flight. Survey only originating passengers (i.e., not transferring). Sampling plan (and questionnaire) should account for travel party size.
- **Employees:** Employees at airports are a big share of airport traffic but are difficult to survey. If surveying them, secure the cooperation of airport management, contractors, and tenants who can distribute the survey to their employees through email in addition to on-site surveys. Early planning to ensure outreach success is important.
- **Incentives and reaching different market segments:** Lottery incentives can be effective options to support recruitment. Additional techniques may be required to ensure accurate representation of business travelers and other frequent/business-class travelers who are less likely to linger at the gate (e.g., supplemental surveying in lounges or postcards with URLs to take the survey later).

3 ANALYSIS

Survey Weighting

Weight and expand the survey data to match enplanement data during the survey period. Weighting should account for travel party size for any analysis related to access vehicle shares and counts.

Analysis

Basic market segmentation (resident leisure, resident business, non-resident leisure, non-resident business) underpins best practice analysis. Key cross-tabulations should be done for demographics and major travel variables including mode share. Additional geographic analysis by origin location or zone is often useful.

Modeling and Simulation

GA surveys are the primary input into a Mode Choice Model and Simulator for landside planning and policy forecasting. Additional data preparation and complex statistical analysis is required to prepare the survey data for that process.



Important Considerations!

Recruit air passengers at departure gates to obtain a representative set of flights by seat count, carrier, and time of day. This ensures collection of a range of trip types and circumstances.

If conducting an SP survey, narrow policies of interest to a few key research goals. This ensures that airports receive results that are insightful and keeps experiments concise for respondents, thereby reducing burden.

> Flight Selection and Monitoring

With key flight characteristics established for sampling, real-time field monitoring for online surveys helps assess progress toward targets. Monitoring also aids on-the-fly adjustment to sampling to better match those targets.

FLIGHT TYPE	TARGET (%)	ACTUAL (%)	
Domestic Commuter	20%	5%	Need more
Domestic Noncommuter	50%	65%	Need less
International	30%	30%	



TYPICAL CHALLENGES

Sampling and Administration: Collecting a large, representative sample requires surveying many flights over multiple days. Surveying flights behind security poses logistical challenges (e.g., badging surveyors and selecting flights). Careful preparation and procedures will mitigate this risk. Ensure sufficient time to badge supervisors and surveyors before fielding. Develop a thoughtful sampling plan for efficient surveying in the terminal/concourse. The sampling plan will need to account for flight delays and cancellations by preparing backup flight options.

Business/First-Class Representation: Business and first-class passengers are less likely to spend time at the gate prior to the flight; this causes sampling bias. Additional efforts should be made to ensure representation. These methods can include collecting email addresses on tablets, distributing postcard invitations for last-minute arrivers, and potentially accessing airline lounges.



ADDITIONAL RESOURCES

ACRP Report 26: Guidebook for Conducting Airport User Surveys http://online-pubs.trb.org/onlinepubs/acrp/acrp_rpt_26.pdf

For more information visit the Statewide Survey Colloquium: <https://bit.ly/SurveyColloq>