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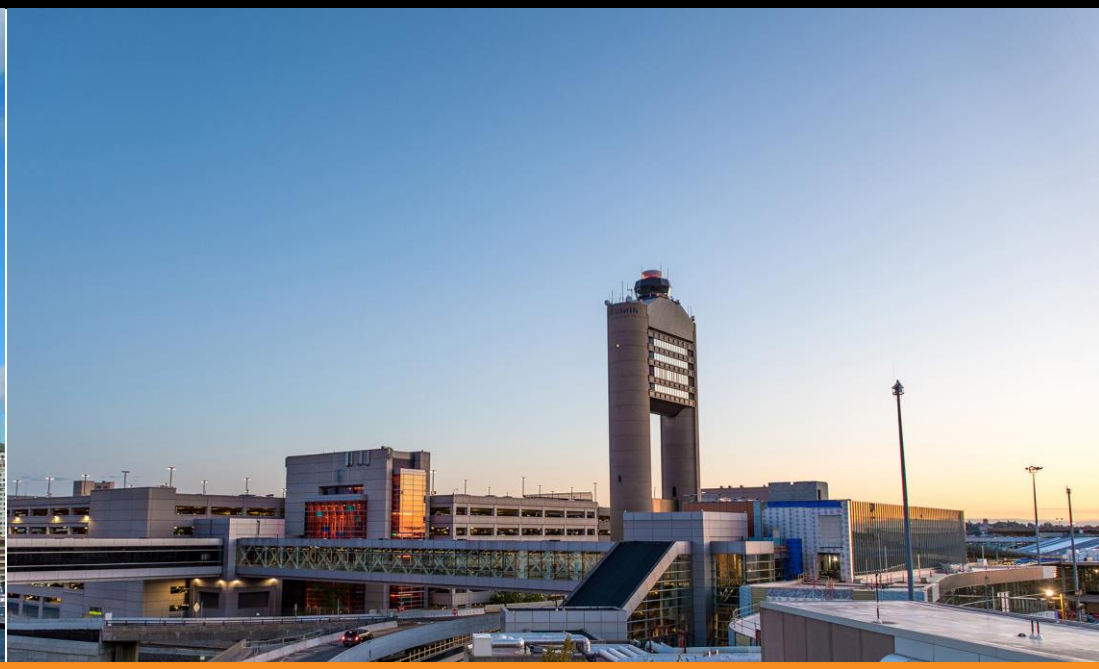
Massport

2024 LOGAN AIR PASSENGER GROUND ACCESS SURVEY

July 15, 2024



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1.0 INTRODUCTION

The following sections provide an overview of Boston Logan International Airport (to be referenced as the airport or Logan Airport) and the study of passenger ground access conducted by RSG.

1.1 BACKGROUND AND PURPOSE

Overview of Logan Airport

The Massachusetts Port Authority (Massport) owns and operates Logan Airport, serving greater Boston and much of the surrounding region as New England's largest airport. The airport served a peak of 42.5 million passengers in 2019 (Massachusetts Port Authority, 2019) and has since recovered to 96% of pre-COVID activity, with nearly 41 million passengers traveling through the airport in 2023 (Massachusetts Port Authority, 2023).

As a major aviation hub for the Northeast and a gateway to New England as a whole, Logan Airport is a key transportation link that generates a high volume of private automobile, ride-for-hire, and transit trips. To accommodate this demand, Logan Airport continuously updates its ground access strategy and identifies service changes and roadway management approaches to reduce trips and promote a mode shift from single-occupancy vehicles to transit.

The airport is served by two routes of the Massachusetts Bay Transportation Authority's (MBTA) rapid transit system. The Silver Line SL1 bus rapid transit (BRT) provides direct access to the airport terminals from Boston's South Station and Seaport District, while the Blue Line heavy rail rapid transit connects to Airport Station with shuttle buses linking the station to the terminals.

Other ground transportation options serving Logan Airport are extensive including high-occupancy vehicle (HOV) modes like Massport's Logan Express bus network, scheduled buses and vans, water transportation via the MBTA ferry system and commercial water taxis, and charter buses. Additionally, Massport operates six shuttle bus routes that serve all four terminals, Airport Station, the Economy Garage, the Rental Car Center, the Logan Office Center, and the Water Transportation Dock.

The airport is also accessible by private automobiles, taxis, rental cars, ride apps, limos, and private vans. Massport operates garage parking and limited surface parking for automobile users, in addition to off-airport options provided by third parties. Electric vehicle (EV) charging stations and reserved parking spaces for hybrid, electric, and alternative fuel vehicles are available in Massport operated garages. EV charging stations are also available for ride app vehicles, taxis, and limos.

Massport prioritizes a shift towards more sustainable modes of transportation and away from environmentally undesirable drop-off/pickup modes. Trips made by private vehicles, taxis, limos, and ride apps can often generate up to four trips per airport passenger due to the need for drivers to travel to pick-up locations and then to another destination from their drop-off location, known as “deadhead” trips.

To aid in trip reduction, Massport has implemented several notable initiatives, including centralized ride-app pick-up in the Central Parking Garage to reduce deadhead trips by using a rematch system to connect drivers with outbound passengers, and free service on the MBTA Silver Line SL1 and the Back Bay Logan Express bus outbound from Logan Airport.

1.2 CURRENT GROUND ACCESS INITIATIVES

Massport employs a wide range of strategies to reach its trip reduction and sustainability goals. A selection of these initiatives is described below.

HOV Vehicle Access

Massport is undertaking several improvements to enhance access to the airport by high occupancy vehicles, several of which have already been implemented. These initiatives include:

- **New Electric Buses:** Massport has purchased ten new enhanced electric buses for service on the MBTA Silver Line and has worked with the MBTA to enhance frequency.
- **Financial Support for the Silver Line:** Massport provides subsidies for the MBTA Silver Line SL1, helping offset operating costs. This support allows free boarding at all four airport terminals, providing free inbound service to South Station and onwards to other areas served by the MBTA’s rapid transit network.
- **“Ticket to Skip” Program:** An expedited security option has been introduced for passengers arriving at Logan by water transportation, including MBTA ferries and water taxis.

Logan Express

Massport operates express bus services between various Boston suburbs and the airport’s terminals. Recent changes include:

- **Reintroduction of the Back Bay Route:** Logan Express’s Back Bay route, the network’s only service to the urbanized area of Boston, was suspended during the COVID-19 pandemic, but was reintroduced in October 2022.
- **“Ticket to Skip” Program:** expedited security has been introduced for passengers arriving on Logan Express from Back Bay. Massport continues to evaluate the impact of

this program and is exploring other improvements to customer convenience and service for all Logan Express services to increase ridership.

- **Online Ticketing Discount:** Online ticketing for Logan Express is available with a 25% discount. The base price for tickets between Logan Airport and any of the four suburban stations is $12 one-way for an adult, while tickets purchased online cost only $9.
- **Free Outbound Service to Back Bay:** Outbound Logan Express service to Back Bay allows free boarding, providing easy access to the Back Bay business district and the transit and rail hub at Back Bay station.
- **New Employee Shuttle:** A new employee shuttle from Quincy has been introduced to shift employees away from the Braintree Logan Express and increase passenger capacity.

Ride App Access and Pricing

As ride app usage continues to grow, Massport continues to revise current operation and pricing policies to mitigate their environmental impact and reduce airport congestion. Key initiatives include:

- **Consolidate Ride App Operations:** Ride app operations have been consolidated at dedicated areas to remove vehicles from the terminal curb, reducing congestion. Centralized operations also promote vehicle “rematch” where drivers dropping off passengers can more easily pick up new passengers ultimately reducing “deadhead” trips.
- **Expanded Ride App Space:** While most ride app operations have been consolidated on the ground floor of the Central Parking Garage, additional space has recently been dedicated to ride app operations in Terminal B Garage.
- **Support for Electric Vehicles:** Massport is supporting the transition to electric vehicles by providing high-speed charging stations for taxis and ride app vehicles and granting front-of-line privileges to fully electric taxis.

Parking Rates and Reservation System

Massport has implemented reserved parking at Logan Airport’s garages and lots, allowing passengers to ensure a spot is available and optimize the use of spaces close to terminal entrances. Parking at the airport reduces the number of trips per group of passengers when compared to pick-up and drop-off. While a private vehicle that is parked at the airport generates only two trips, one picking up and dropping off passengers generates four, with vehicles needing to travel from the airport after a drop-off and to the airport before a pick-up.

- **Advance Parking Reservation:** A limited number of parking spots are available for the general public to reserve through Advanced Parking Reservation, with limited discounts to encourage parking over pick-up and drop-off during periods when airport garages are less full.
- **Parking PASSport Gold Program:** Frequent flyers can enroll in the annual Parking PASSport Gold program, providing access to dedicated areas in the Central and Terminal B Parking Garages close to terminal elevators along with touchless payment options.

Roadways and Circulation

In addition to these initiatives, Massport has recently completed or is working on several capital projects to improve circulation on terminal roadways:

- **Terminal B to C Roadways Project:** Massport is working to reconfigure roadways at these terminals to create more curb space, improve traffic flow, reduce queueing on roadways, and minimize interactions between vehicles and pedestrians.
- **Exclusive Terminal B Roadway Access:** The Terminal B roadway "horseshoe" will soon exclude private vehicles, improving access for the Silver Line, Massport shuttles, and other buses.
- **Terminal B to C Connector:** Massport has recently completed the Terminal B to Terminal C Connector, an airside connection between these two previously separate terminals. This allows passengers to freely walk between Terminals B, C, and E, reducing the number of passengers walking along roadways or through garages to access other areas of the airport.

1.3 SURVEY OBJECTIVES

The primary objectives of the 2024 survey were as follows:

- **Examine Ground Access Mode Share:** This survey is the primary means of estimating the proportion of air passengers arriving at the airport using various modes of transportation. Combined with other metrics, it serves as a fundamental tool for developing future policies.
- **Update Existing Data and Assess Changing Behaviors:** The COVID-19 pandemic caused long-lasting effects on travel patterns, which are still not fully understood and continue to evolve. The 2022 Logan Ground Access Survey, the first study conducted after the beginning of the pandemic, revealed significant changes from previous surveys. Since then, the number of passengers travelling through Logan Airport has nearly

recovered to pre-pandemic levels. The 2024 Ground Access Survey aims to continue to investigate ongoing changes to travelers' behaviors.

- **Provide Information on Air Passenger Characteristics:** The results of this survey provide a profile of air passengers, crucial given the shift in business travel created by the pandemic. This helps Massport to understand what influences passengers' mode choices.
- **Develop the Mode Choice Model and Simulator (MCMS):** The results of the revealed and stated preference sections of the report will be used to build a model that predicts mode share changes in response to a set of policy variables. This model will measure passenger sensitivity to price and time changes, as well as the potential influence of new services and other incentives on mode choice.

By comparing the results of this study with prior triennial and other ad hoc surveys, trends in ground access can be more clearly identified. This information provides Massport with valuable insights to be used in operational and capital planning.

1.4 OVERVIEW OF SURVEY ADMINISTRATION

Like the prior surveys, this survey was fielded at airport terminal gates using tablets.

The fielding of this survey lasted 21 days, from April 19th to May 9th, and 6,214 surveys were collected. After data cleaning processes, the survey consists of 6,000 usable records.

1.5 ORGANIZATION OF REPORT

Chapter 2 details the survey methodology, including information about questionnaire design, sampling, and weighting. Chapter 3 summarizes survey results, focusing on changes among key metrics, and Chapter 4 explores these results in further detail. Finally, Chapter 5 provides conclusions regarding survey results and recommendations for future surveys.

2.0 SURVEY METHODOLOGY

This chapter details the methodology used for the 2024 iteration of Logan Airport's Air Passenger Ground Access Survey. This includes information about the development and design of the questionnaire, sampling, administration of the survey, data cleaning, weighting, and creation of the survey database.

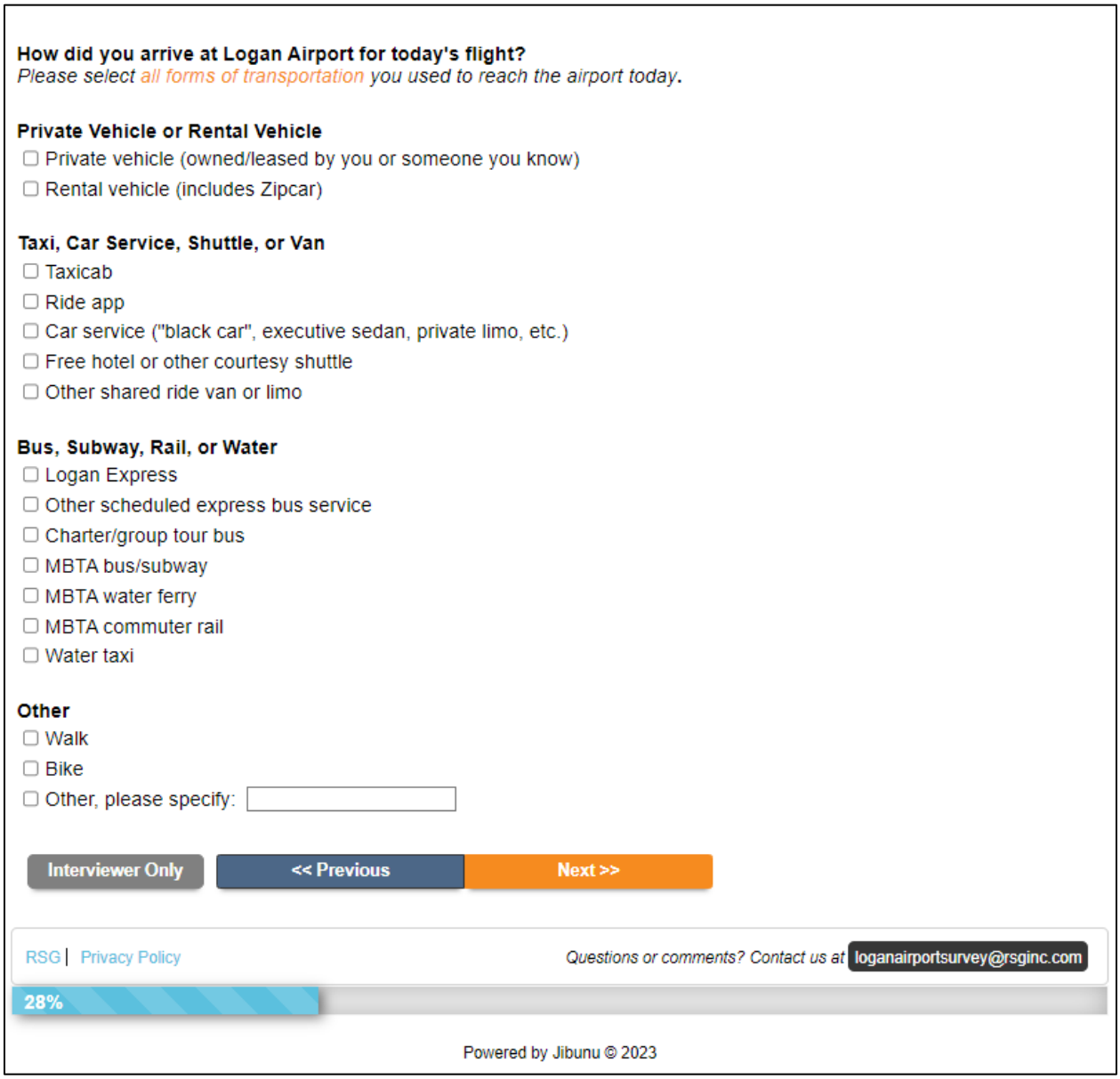
Some key elements of the procedure used in this study include:

- Only passengers departing from Logan Airport were surveyed, and only those sitting in the areas surrounding each gate; connecting passengers were ineligible.
- A robust and representative sampling plan of flights was created to accurately represent the flights departing from the airport over the study period.
- Questionnaires were designed to be self-completed on tablets and were distributed to all eligible passengers assembled in the gate areas surrounding selected flights. Completed questionnaires were received from most passengers before boarding and departure.
- Passengers unable to complete the survey before departing were handed a postcard with a unique link to allow them to complete the survey on their personal devices.
- Passengers unwilling to complete the survey on the tablet were provided with an option to scan a QR code to take a version of the survey which did not include the stated preference exercise.
- Boarding counts provided by airline gate agents were used to help weight the sample to originating passengers.

2.1 QUESTIONNAIRE DESIGN

The survey conducted for this study consisted of two primary parts: the revealed preference section and the stated preference section. The revealed preference section gathered detailed information about the respondent's actual trip to the airport, including origin address (full addresses, street corners, and landmarks were considered valid), type of origin place (e.g., work, home, hotel), trip purpose, mode of transportation, parking costs, time of day, party size, length of trip, location of stay, frequency of flying in and out of Logan Airport, passengers' experience at the airport, and demographic information. An example of a question from the revealed preference section is shown below in Figure 1.

FIGURE 1. SCREENSHOT OF REVEALED PREFERENCE QUESTION



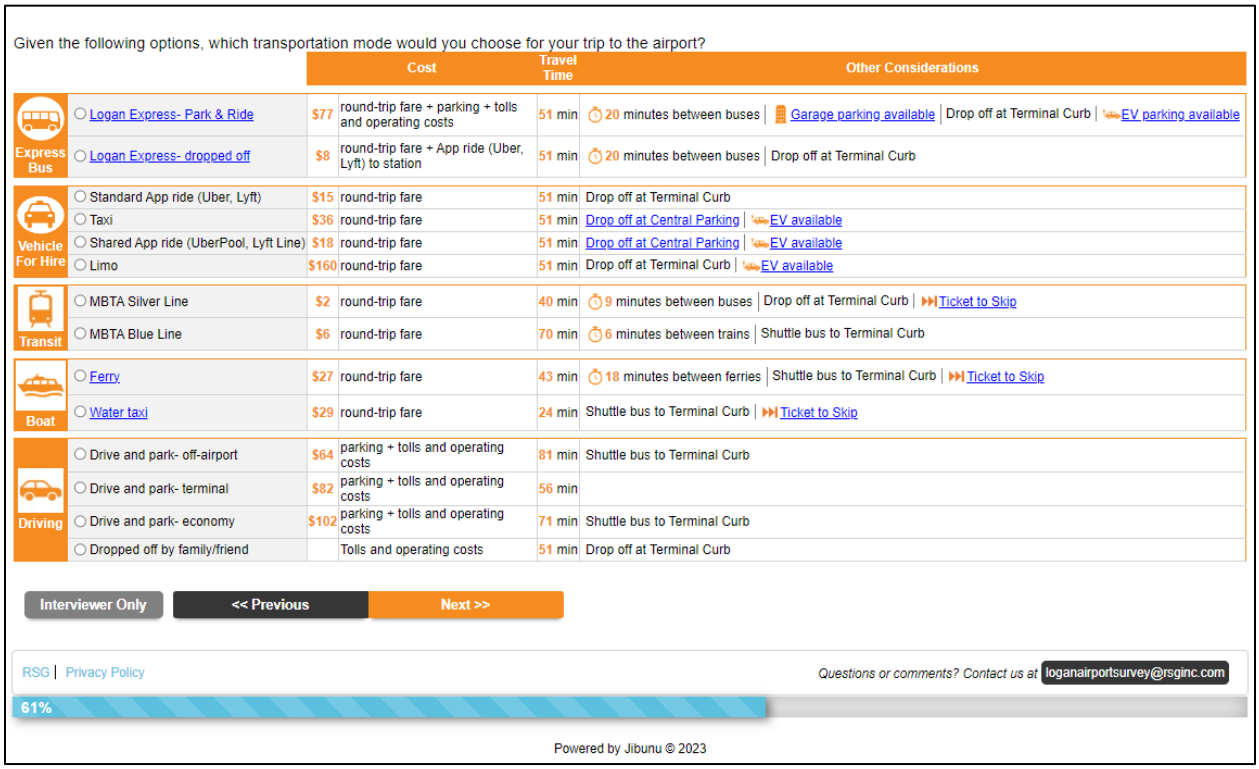
The stated preference section of the survey used the detailed data obtained by the origin-to-airport section to customize a set of hypothetical choice experiments. Each experiment represented a mode choice that a respondent would have to make for a given trip and the survey sought to obtain a respondent's mode choice under a range of travel times, costs, and other factors. In order to determine what options are shown to respondents, a set of experiments were created based on a statistically based efficient experimental design; this design ensures that a choice model can be estimated from the survey data and minimized the

number of required responses. This experimental design comprised 48 designs, each with ten unique blocks of six experiments each, for a total of 2,880 experiments. Each respondent was randomly assigned to one of the ten blocks. Each of these six experiments from the block presented between five and sixteen options for modes that could be selected by respondents. An example of this is shown below in Figure 2. Only viable mode options were shown to a respondent; for example, if the respondent did not have a car available, they were not shown the option to drive a private vehicle. The modes that a respondent was shown on the screen in the stated preference experiments were determined using the following logic:

- Each respondent was shown the mode they used for their trip to the airport.
- All respondents who indicated a private vehicle was available for this trip were shown private vehicle drop-off and parking options, including Logan Express drop-off and parking if originating outside the MBTA subway service area.
- All respondents except those originating beyond Interstate 495 were shown taxi, standard ride app, and shared ride app.
- All respondents were shown limousine.
- All respondents were presented with at least one of the two Logan Express options (pick-up/drop-off and park-and-ride).
- Respondents' originating from within the MBTA subway service area were shown the MBTA Blue Line, MBTA Silver Line, MBTA Ferry, and water taxis.
- Respondents originating outside of the MBTA subway service area were shown rental car, Logan Express, and other scheduled bus service.
- Respondents from the South Shore were shown MBTA ferry.

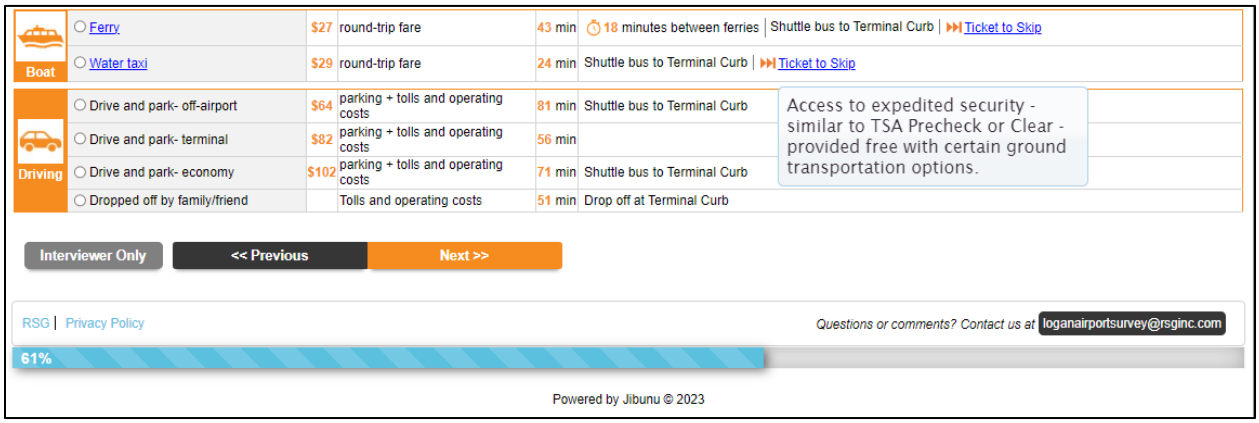
For each alternative presented, several associated trip characteristics were displayed. Core characteristics included travel time, cost, and, if applicable, headways and shuttle bus transfers, but additional considerations like electric vehicle availability and parking, availability of garage parking, and remote check-in or "ticket to skip" (expedited security) were included for some modes. Across all the scenarios, the respondent was presented with different levels of each attribute—each attribute varied independently of the others—and was asked to choose from the alternatives.

FIGURE 2. SCREENSHOT OF STATED PREFERENCE EXERCISE



If the respondent wanted more information about an attribute in the stated preference experiment, clicking an attribute revealed more information, as shown in Figure 3.

FIGURE 3. EXAMPLE OF EXPLANATORY "POP-UP"



2.2 SAMPLE DESIGN AND SELECTION OF SAMPLE FLIGHTS

The air passenger survey was conducted over three weeks beginning on April 19th, 2024 and ending May 9th, 2024. Surveying occurred seven days per week during this period and was organized into two or three shifts: an early morning shift, mid-day shift, or an afternoon/evening shift. Early morning shifts ran from 5:00 a.m. to 1:00 p.m., mid-day shifts ran from 8:00 a.m. to 4:00 p.m. and afternoon/evening shifts ran from 2:00 p.m. to 10:00 p.m. Survey staff surveyed four departures per eight-hour shift to ensure a wide distribution of departure times within each shift.

Flights were sampled proportional to air passenger volumes within the following classifications:

- **Flight Type:** Domestic commuter, domestic non-commuter, and international. Commuter flights were defined as those for which the marketing airline was different than the operating airline (e.g., a United Airlines flight operated by Republic Airlines), usually short-haul flights to nearby cities like New York; Philadelphia; and Washington, DC. Domestic non-commuter and international flights were classified by destination.
- **Day of Week:** Weekday and weekend. Weekdays consisted of Monday through Thursday, and weekend consisted of Friday through Sunday. Friday was included under weekend because a significant portion of business travel ends on Thursday, with Friday flights serving primarily leisure travelers.
- **Time of Day:** Morning, midday, afternoon/evening, and night. Periods were defined to align with previous studies: morning was 5:00 a.m. to 8:59 a.m., midday was 9:00 a.m. to 1:59 p.m., afternoon/evening was 2:00 p.m. to 6:59 p.m., and night was 7:00 p.m. onwards.
- **Airline:** JetBlue, Southwest, legacy carriers, and others. Legacy carriers (American, Delta, and United) were grouped together due to their similar operating and pricing strategies. JetBlue and Southwest, the other two major airlines at the airport, remained separate, while all other airlines were grouped as “others.”
- **Plane Size:** Small, medium, and large. Small flights were defined as having fewer than 100 seats, medium as 100-199 seats, and large as 200 or more seats.

Terminal was not chosen as an additional criterion because airlines at the airport provide a near-perfect proxy for the distribution of passengers across terminals, but the sampling plan was devised to ensure that every terminal was surveyed at least three full days during the fielding effort and reached its approximate share of the population of flights departing from the airport.

For each survey date, one or more terminals were selected and flights within these terminals were randomly selected. After selecting flights, RSG manually inspected each shift to ensure there was enough time between flights across the eight-hour period. Any selection that did not allow enough time between flights was swapped for another flight until daily schedules were spaced sufficiently. RSG continued to iterate the final flight list to ensure the distribution closely matched that of segment targets. Where variances were observed in this process, flights in overrepresented segments were swapped with other similarly timed and located flights in underrepresented segments. As collected survey totals are likely to deviate from the targets, survey data was weighted by the classifications described above to more closely resemble the true distribution of passengers originating at Logan Airport.

In line with the number of completed surveys received in 2018, a completion target of 6,000 surveys was set. Load factor was assumed to be 80% and the proportion of passengers originating at Logan Airport was assumed to be 75%, both in line with previous surveys. Seating capacity averaged 141 seats across all flights, and a response rate of 30% was assumed based off response rates from 2018. Taking this information into account, RSG arrived at an expectation of around 32 completed surveys per flight.

Characteristics of Sample

By analyzing Logan Airport flight departure data from April 19th to May 9th, RSG segmented total air passenger flight seats for each of the criteria detailed in the section above.

In total, RSG surveyed 345 flights, and received data from passengers from over 600 flights. In order to achieve a sample target of 6,000 survey completes the initial 345 flights were sampled according to plan in addition to many matching backup flights and the flights of smaller numbers of passengers who obtained a postcard but were not on one of the selected flights. Table 1 compares the flights that were surveyed and the total population of flights across the study period. The survey sample showed an underrepresentation of morning flights and an overrepresentation of midday, afternoon/evening, and night flights, with afternoon/evening flights particularly over-sampled. These discrepancies were corrected during the weighting process, which adjusts the data to align with the actual distribution of flight times. Weighting ensures that these initial imbalances do not bias the results.

TABLE 1. COMPARISON OF SURVEYED FLIGHTS AND ALL DEPARTING FLIGHTS

Segment		% of Surveyed Flights	% of All Flights
Day of Week	Weekday	56.2%	58.3%
	Weekend	43.8%	41.7%
Flight Type	Domestic Commuter	17.2%	16.3%

	Domestic Non-commuter	70.4%	68.5%
	International	12.5%	15.2%
Airplane Size	Large	9.5%	10.3%
	Medium	71.3%	65.7%
	Small	19.2%	24.0%
Time of Day	Morning	7.6%	27.0%
	Midday	28.9%	25.7%
	Afternoon/Evening	44.7%	31.3%
	Night	18.8%	15.9%
Airline Classification	Legacy	47.4%	47.6%
	JetBlue	31.7%	25.7%
	Southwest	4.1%	3.5%
	Other	16.9%	23.3%

2.3 SURVEY EXECUTION

The survey was administered every day during the study period, and fieldwork was conducted by two subcontractors: the Central Transportation Planning Staff (CTPS), an organization associated with the Boston region's Metropolitan Planning Organization (MPO), and Boston Research Group, a market research firm.

Preparations for Survey Administration

Twenty-four surveyors from the two subcontractors participated in survey fieldwork, including four supervisors. All members of the survey team were badged by Massport Security and Badging Office to allow them access to the departure lounge areas of the airport.

All surveyors that were able to attend participated in a training session on the first day of fielding at Logan Airport. This training session was conducted to familiarize staff with airport security processes, the objectives of the survey, survey procedures, and the survey itself.

Massport informed airline station managers about the timing of the survey in advance of the fielding and requested that they ask staff to cooperate with surveyors to ensure boarding numbers were available from gate agents for future weighting. Surveyors also carried authorization letters from Massport explaining the project and the nature of their involvement in case of any suspicion from airline staff or security personnel.

Daily schedules for each team were prepared by RSG for distribution by supervisors to survey staff. Each schedule identified four unique flights to be surveyed, and a list of backup flights

were prepared for supervisors in case of flight delays or cancellations. Surveyor teams were determined by supervisors, with at least two surveyors per team in all cases.

Survey Process

The team of interviewers approached passengers waiting to board selected flights at departure gates within the secure area of the terminals in the airport. Each potential respondent was screened to ensure that they were on the sampled flight, that they were beginning their air travel at Logan Airport (i.e., were not connecting passengers), and that they were willing to participate. If a passenger was not eligible or not willing to participate in the study, then interviewers thanked them for their time and approached the next person. Eligible participants willing to participate were handed a tablet, which allowed them to complete the survey on their own. Each surveyor had three or four tablets that he or she distributed to departing passengers.

Each interviewer team remained at designated gate areas until the departing flight prepared to board, at which time interviewers collected the tablets from respondents. If a participant was not finished with the survey but was willing to complete it at a later point, then the interviewer selected a “Continue Later” button on the bottom of the survey page, which allowed them to record the respondent’s email address. Emailed invitations contained a unique survey link for the respondent to continue the survey where they had left off. Similarly, for late-arriving passengers (i.e., those arriving less than 10 minutes prior to boarding), interviewers were instructed to provide either a postcard to complete the survey later or to have respondents scan a QR code, allowing them to complete the survey at their leisure with their own device.

The survey process faced limitations, including the potential under-sampling of passengers who arrived during or near the end of the boarding process, a group that often includes those utilizing airport lounges, as well as non-English-speaking passengers, as the survey was only available in English. To address accessibility, interviewers were available on-site to assist respondents who required help completing the survey. However, some individuals may not have felt comfortable asking for assistance and may have chosen not to participate.

2.4 SAMPLE WEIGHTING

The responses collected across the study period required weighting to more accurately represent the 1.2 million originating at Logan Airport during the survey period. As noted in the sampling plan, flights were sampled to approximate the share of originating Logan Airport passengers across various categories including time of day, airline, and flight type. While the sampling was conducted as much as possible according to plan, load factors and response rates inherently varied across flights and various logistics (e.g. staffing morning shifts, lower staff presence on certain days) affected the survey team’s ability to obtain our targeted number of surveys from all flights, therefore necessitating weighting. Additionally, to obtain a more accurate understanding of the originating passengers at Logan Airport, surveyors attempted to

solicit the number of originating and connecting passengers on each flight from cooperating gate agents; these counts were used to help build weights which brought the sample further in line with the proportion of originating passengers, rather than simply the number of available airplane seats.

TABLE 2. TABLE OF WEIGHTING CHARACTERISTICS

Time Group	Flight Type	Flights	Seats	Load Factor	Total Passengers	Connecting Rate	Connecting Passengers	Originating Passengers
Morning (5AM-8:59AM)	Domestic Non-Commuter	2,261	340,029	76.4%	259,684	1.4%	3,590	256,094
	Domestic Commuter	350	26,588	88.1%	23,430	1.5%	351	23,079
	International	260	42,695	74.3%	31,719	4.1%	1,300	30,419
Midday (9AM-1:59PM)	Domestic Non-Commuter	1,946	268,908	87.6%	235,633	2.5%	5,829	229,804
	Domestic Commuter	488	36,709	88.2%	32,377	4.5%	1,453	30,924
	International	299	41,821	74.4%	31,102	3.9%	1,221	29,881
Afternoon/ Evening (2PM-6:59PM)	Domestic Non-Commuter	2,250	330,001	83.8%	276,651	4.2%	11,654	264,997
	Domestic Commuter	619	46,501	92.1%	42,836	5.7%	2,442	40,394
	International	456	97,354	77.7%	75,624	11.4%	8,619	67,005
Night (7PM-10:59PM)	Domestic Non-Commuter	815	117,337	64.2%	75,272	5.1%	3,874	71,398
	Domestic Commuter	279	22,424	67.2%	15,064	4.1%	612	14,452
	International	595	147,201	76.4%	112,518	12.5%	14,093	98,425
Total		**10,618**	**1,517,568**	**79.9%**	**1,211,910**	**4.5%**	**55,038**	**1,156,872**

Once all the data were compiled as above, two factors were calculated to develop the “Party Expanded” expansion weight included in the survey dataset:

- Party Factor—the number of originating passengers represented by the survey record. It was based on the party size reported by each respondent, with the caveat that if the respondent reported that multiple people in their party answered the survey and the reported party size was two or more, the value of the Party Factor was halved to account for these additional survey responses. RSG divided by two as it was assumed that it was unlikely that everyone in a large party would take the survey. RSG determined it was most likely that only two people would take the survey based on the small number of multiple responses from parties.
- Party Weight—the total originating passengers for the weighting group (combinations of airline type, flight type, time of day, and day of week) divided by the total party members in that weighting group. These party members represent the sum of all passengers who were surveyed or who were represented via the survey of someone else in their party. This is shown in Table 3 as “Total Party Members.”

By multiplying these two factors, we obtained a final expansion weight, the “Party Expanded” weight. This allows both the size of a party and the size of each weighting group into account and when summed equals the total number of originating passengers in the survey period, which was 1.2 million passengers. This was then applied to survey results, allowing RSG to approximate the share of originating passengers indicating specific survey answers, as shown in the final results.

TABLE 3. WEIGHTING FIGURES

Segment	Weighting Characteristic	Flights	Originating Passengers	# of Flights	Respondents	Total Party Members	Party Weight
Airline	Legacy	3,200	415,017	190	1,881	3,069.0	135.2
	JetBlue	2,371	237,091	201	1,936	3,506.5	62.4
	Southwest	371	49,729	28	257	481.5	75.1
	Other	1,330	120,456	61	456	787.5	193.4
Flight Type	Domestic Non-Commuter	7,272	822,293	480	4,530	7,844.5	104.8
	Domestic Commuter	1,736	108,849	117	796	1,168.5	93.2
	International	1,610	225,730	85	674	1,224.5	184.3
Time Group	Morning (5AM-8:59AM)	2,871	309,592	52	522	912.5	339.3
	Midday (9AM-1:59PM)	2,733	290,609	197	1,924	3,353.5	86.7
	Afternoon/Evening (2PM-6:59PM)	3,325	372,396	305	2,444	4,147.5	89.8
	Night (7PM-10:59PM)	1,689	184,275	128	1,110	1,824.0	101.0

2.5 CREATION OF FINAL SURVEY DATABASE

As described previously, the raw data provided by the survey underwent a robust cleaning process to create the final database used for analysis and mode building. Across the survey period a total of 6,214 respondents participated in the survey. From this

- 35 responses from passengers under the age of 16 were removed,
- 5 responses were removed because their final mode used was not possible (i.e., MBTA commuter rail),

- 139 responses were removed due to implausible origin locations,
- 15 responses were removed for having Logan Express as a mode that was not their final mode,
- 20 responses were removed for indicating a passenger arrived on a connecting flight,
- And after removing these responses, 6,000 responses remained

Data cleaning screened for several potential issues:

- Erroneous origins: some answers under “Other” in arrival mode and origin type alerted us that the respondent arrived on a connecting flight, something we want to exclude from our analysis.
- Unreasonable origin locations: even if they did not mark a connecting flight as arrival mode or origin type, some origins were located very far from Logan Airport, which may indicate a misunderstanding of the survey.
- Answers in “Other” similar to above, some answers under “Other” were able to be quickly reassigned to one of the existing modes, e.g., “Friend picked me up” when “Private Vehicle (owned/leased by someone you know)” was an option. Answers like these were reassigned to existing categories where they lined up; when not clear which specific answer these might refer to, they were left unchanged.
- Various illogical answers: throughout the survey, some answers and results may not have made sense or were impossible but did not impact the integrity of the entire survey record. In these cases, illogical responses were recoded to a missing value, and only the individual answers were excluded from analysis.
    - Vehicle occupancy, a key metric, was cleaned so illogically high answers were recoded as missing.

With the introduction of scannable QR badges to increase the ease of completing the survey on one’s own device, a greater proportion of surveys were completed online later than in previous iterations of the survey; while 98.4% of surveys were completed on tablets at the airport in 2022, during the 2024 survey 88.5% of surveys were completed on tablets in the terminal and 11.5% of surveys were completed by respondents on their own device via a postcard or QR code.

3.0 SUMMARY OF RESULTS

This chapter compares key results from the 2024 survey with those from prior iterations of the study — Spring 2016, Fall 2018, Spring 2019, and Spring 2022 — specifically focusing on key market segments including resident business travelers, resident leisure travelers, visitor business travelers and visitor leisure travelers. Residents are classified as respondents who indicated that Logan Airport was the "home" end of their trip, while business passengers were classified as those whose primary trip purpose was business.

Given that some questions were asked only to a subset of respondents based on previous answers (e.g., transit users were not asked where they parked their car) and certain questions, such as those about arrival and return modes offered many options, there is a potential for sample error. For instance, small numbers of survey responses from less common travel modes—like ferry or water taxi users, who represented only 0.3% of passengers— might not fully capture the preferences and travel behavior of these smaller segments of the air passenger population.

All result tables in this section and following sections have been weighted using the procedures described previously in Section 2.4. Table 4 compares the share of passengers classified as residents and non-residents across the five studies. Unlike the 2022 survey, where non-residents made up almost half of the share of passengers, the 2024 survey found that residents represented a substantial majority, increasing to two-thirds of the total air passenger volume. This shift aligns with earlier study findings and may be due to the addition of a clarifying contextual note to the residency question, which helped reduce potential respondent error.

TABLE 4. SHARE OF RESIDENTS AND NON-RESIDENTS AMONG AIR PASSENGERS

Residency	Share Estimate					Absolute Δ 2022-2024	Relative Δ 2022-2024
	Spring 2016	Fall 2018	Spring 2019	Spring 2022	Spring 2024		
Resident	61.5%	54.4%	63.7%	50.7%	66.5%	15.8%	31.2%
Non-Resident	38.5%	45.6%	36.3%	49.3%	33.5%	-15.8%	-32.1%

Table 5 compares the shares of passengers classified as business and non-business travelers. While the share of business travelers has increased to 21% from 18% in the 2022 survey, this result, along with the 2022 findings, indicates a lasting shift away from business travel in the post-COVID era.

TABLE 5. SHARE OF BUSINESS AND NON-BUSINESS TRAVELERS AMONG AIR PASSENGERS

Purpose	Share Estimate					Absolute Δ 2022-2024	Relative Δ 2022-2024
	Spring 2016	Fall 2018	Spring 2019	Spring 2022	Spring 2024		
Business	38.1%	32.6%	39.6%	18.4%	21.2%	2.80%	15.22%
Non-Business	61.9%	67.4%	60.4%	81.6%	78.8%	-2.80%	-3.43%

Table 6 compares the share of passengers across four market segments—resident business, resident non-business, non-resident business, and non-resident non-business—over several survey periods from Spring 2016 to Spring 2024. The data reveals a substantial change from 2022 to 2024. Although both business travel segments have decreased from pre-COVID levels, there has been an increase in resident travelers, which has increased the share of resident business travelers from 8.7% in 2022 to 13.1% in 2024. Despite this increase, the share of resident business travelers remains below pre-pandemic levels. The most significant change is observed in the increase of resident non-business travelers, who now represent 53.4% of the departing passenger base, highlighting a shift towards more leisure and local travel as the airport adapts to post-pandemic conditions.

TABLE 6. SHARE OF MARKET SEGMENTS AMONG AIR PASSENGERS

Segment	Share Estimate					Absolute Δ 2022-2024	Relative Δ 2022-2024
	Spring 2016	Fall 2018	Spring 2019	Spring 2022	Spring 2024		
Resident Business	18.1%	19.1%	21.3%	8.7%	13.1%	4.4%	50.6%
Resident Non-Business	43.4%	35.3%	42.4%	42.1%	53.4%	11.3%	26.8%
Non-Resident Business	20.0%	13.5%	18.3%	9.7%	8.1%	-1.6%	-16.5%
Non-Resident Non-Business	18.5%	32.1%	18.0%	39.5%	25.4%	-14.1%	-35.7%

Finally, Table 7 compares estimates of the shares of passengers using different arrival modes across the various studies. Compared to 2022, ride apps, Logan Express, and other scheduled express buses have all captured a greater share of ground access mode split; both express bus options have roughly doubled their mode shares. Rental vehicles and private vehicle drop-off have experienced pronounced decreases in use since 2022, their shares are similar to earlier figures, perhaps suggesting some level of reversion to prior patterns after the COVID-19 pandemic.

TABLE 7. MODE SHARE AMONG AIR PASSENGERS

Mode	Share Estimate					Absolute Δ 2022-2024	Relative Δ 2022-2024
	Spring 2016	Fall 2018	Spring 2019	Spring 2022	Spring 2024		
Private Vehicle – Drop-Off	21.3%	18.4%	21.2%	25.4%	22.7%	-2.7%	-10.6%
Private Vehicle – Parked On-Airport	11.4%	8.3%	9.3%	7.4%	8.5%	1.1%	14.9%
Private Vehicle – Parked Off-Airport	1.8%	1.7%	1.5%	1.2%	1.1%	-0.1%	-8.3%
Rental Vehicle	10.9%	13.6%	10.7%	16.2%	9.7%	-6.5%	-40.1%
Taxicab	9.8%	5.7%	3.9%	2.8%	2.0%	-0.8%	-28.6%
Ride App (Uber, Lyft)	14.4%	25.4%	29.5%	27.7%	28.5%	0.8%	2.9%
Other Car Service/Shared Ride Van	8.1%	5.9%	5.3%	3.3%	4.0%	0.7%	21.2%
Logan Express	5.2%	4.6%	3.8%	4.1%	7.4%	3.3%	80.5%
MBTA Blue Line	3.1%	1.9%	1.5%	1.0%	2.0%	1.0%	100.0%
MBTA Silver Line	3.3%	1.9%	1.8%	2.0%	1.6%	-0.4%	-20.0%
Other Scheduled Bus	4.5%	2.4%	4.5%	3.7%	7.1%	3.4%	91.9%
Hotel/Courtesy Shuttle	3.3%	3.4%	2.6%	2.5%	3.4%	0.9%	36.0%
Charter Bus	1.5%	1.9%	2.6%	0.5%	0.5%	0.0%	0.0%
Water Ferry/Taxi	0.2%	0.2%	0.1%	0.3%	0.3%	0.0%	0.0%
Other	1.1%	2.2%	0.9%	1.9%	1.3%	-0.6%	-31.6%

4.0 DETAILED RESULTS

This chapter explores detailed results from the 2024 iteration of the Ground Access Study. This section will provide a summary profile of passengers who participated in the survey including travel purposes, trip origins, and demographic information. Followed this overview, the chapter will explore several key areas: various ground access modes, experiences of passengers with disabilities, observations of passenger experiences in the terminal, egress modes, and overall passenger attitudes towards the airport and its services.

4.1 AIR PASSENGER PROFILE

Market Segments and Travel Purpose

Table 8 compares the shares of key market segments across various surveys, highlighting the changes from 2022 to 2024. As briefly discussed in the previous chapter, the share of residents among departing passengers has increased from 50.7% in 2022 to 66.5% in 2024. This sizeable shift indicates a partial reversion to pre-COVID patterns, as previous surveys conducted around the same time of year also found that around two-thirds of departing passengers were residents. It is important to consider that the 2022 survey was conducted later in the year than those in Spring 2016, 2019, and 2024, overlapping with college graduations rather than Massachusetts and New Hampshire school vacations, which may skew its results toward a higher proportion of non-residents.

In terms of business travel, there has been only a modest recovery from the lows experienced in 2022, with business passengers still significantly below pre-COVID levels. This shift, combined with the increase in resident travelers, has resulted in a transformation of passenger segments. Specifically, the resident non-business traveler segment has grown to represent a slight majority of departing passengers at 53.4%. In contrast, non-resident non-business travelers now account for approximately 25.4% of passengers. Resident business travelers and non-resident business travelers, represent only 13.1% and 8.1% of passengers, respectively, which is notably lower than pre-COVID levels.

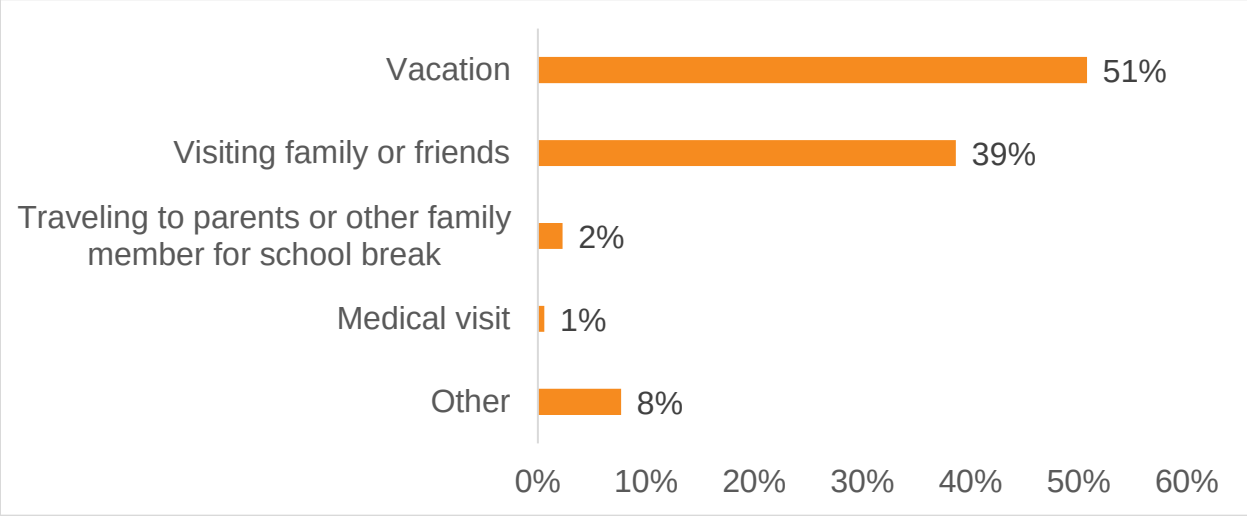
Overall, while there is a clear trend of returning to pre-COVID residency patterns, the business travel segment has not yet fully recovered to its previous levels, resulting in a shift in the composition of departing passengers at Logan Airport.

TABLE 8. MARKET SEGMENTS BY SURVEY

Segment	Share Estimate					Absolute Δ 2022-2024	Relative Δ 2022-2024
	Spring 2016	Fall 2018	Spring 2019	Spring 2022	Spring 2024		
Resident Business	18.1%	19.1%	21.3%	8.7%	13.1%	4.4%	50.6%
Resident Non-Business	43.4%	35.3%	42.4%	42.1%	53.4%	11.3%	26.8%
Non-Resident Business	20.0%	13.5%	18.3%	9.7%	8.1%	-1.6%	-16.5%
Non-Resident Non-Business	18.5%	32.1%	18.0%	39.5%	25.4%	-14.1%	-35.7%
Subtotal—Resident	*61.5%*	*54.4%*	*63.7%*	*50.7%*	*66.5%*	*15.8%*	*31.2%*
Subtotal—Non-Resident	*38.5%*	*45.6%*	*36.3%*	*49.3%*	*33.5%*	*-15.8%*	*-32.0%*
Subtotal—Business	*38.1%*	*32.6%*	*39.6%*	*18.4%*	*21.2%*	*2.8%*	*15.2%*
Subtotal—Non-Business	*61.9%*	*67.4%*	*60.4%*	*81.6%*	*78.8%*	*-2.8%*	*-3.4%*

Non-business travel covers a wide variety of trip purposes, as shown in Figure 4. Vacation makes up just over half of all non-business passengers' travel, while trips to visit family or friends account for nearly 40% of non-business travel. Student travel and medical visits represent less than 3% of non-business travel.

FIGURE 4. DETAILED NON-BUSINESS TRIP PURPOSES



Trip Origins

As one of the Northeast's largest airports, Logan Airport serves as a major hub attracting passengers from across the region and visitors from around the world. Figure 5 illustrates the states of origin for departing passengers, indicating where they began their trip to the airport. As expected, a sizable majority of passengers started their journey in Massachusetts, accounting for 79% of passengers. Other New England states accounted for more than a fifth of origin locations with 11% from New Hampshire, 5% from Maine, and 1-2% each from Connecticut, Rhode Island, and Vermont. Only a small number of passengers, less than 1% each, traveled from further away including Pennsylvania and New York.

FIGURE 5. ORIGIN STATES OF DEPARTING PASSENGERS

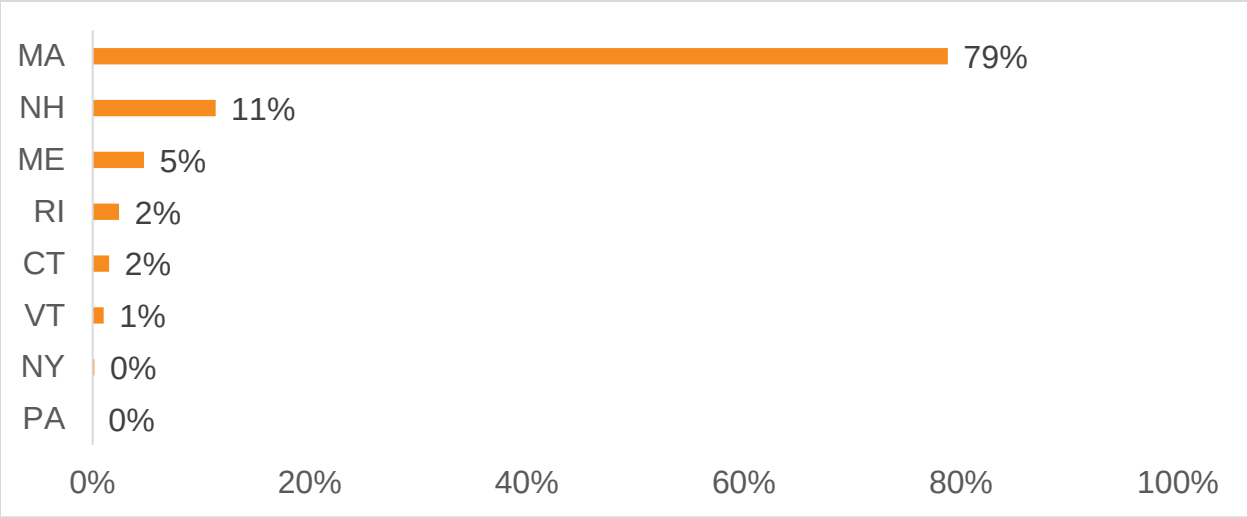


Figure 6 provides a more detailed breakdown of passenger origins by classifying locations into distinct zones. The largest proportion of trips to the airport originated from the urban core of the Greater Boston region—comprising Boston, Brookline, Cambridge, and Somerville—which accounted for one-third (33%) of all departing passengers. The suburban belt between Route 128 and Interstate 495 (I-495) generated 21% of passenger trips, while 13% of passengers came from the inner suburbs between the urban core and Route 128, and 11% of passengers originated from areas of Massachusetts beyond I-495.

FIGURE 6. ORIGIN ZONES OF DEPARTING PASSENGERS

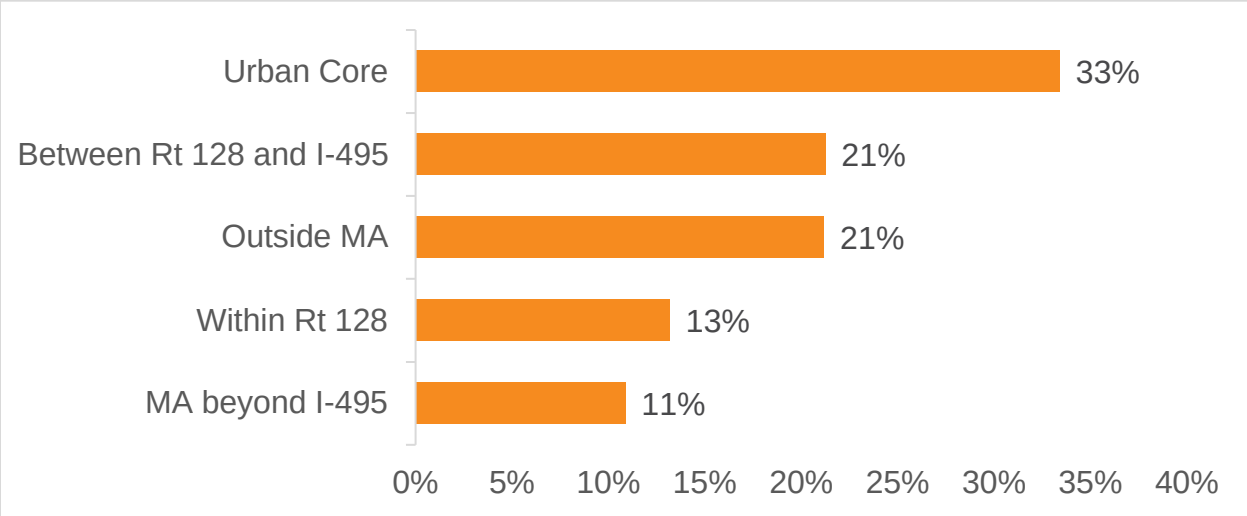
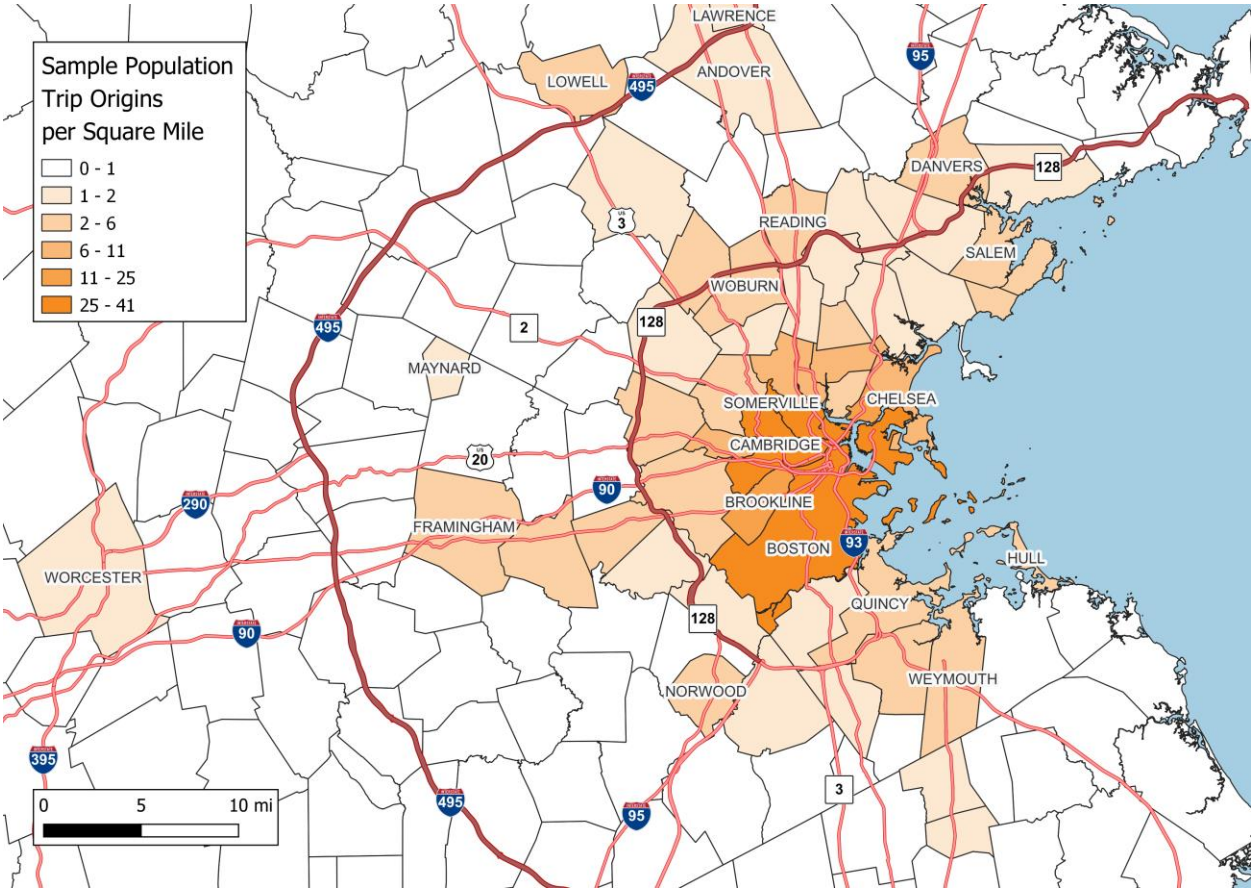


Figure 7 shows the density of survey responses by Massachusetts municipalities. Most trip origins are from Boston and its inner suburbs, such as Cambridge, Somerville, and Chelsea. The entire area within the Route 128 loop remains fairly dense with survey responses. Beyond this core area, satellite cities like Lowell, Lawrence, and Worcester contributed a proportionally large number of respondents, alongside the MetroWest communities along the Massachusetts Turnpike.

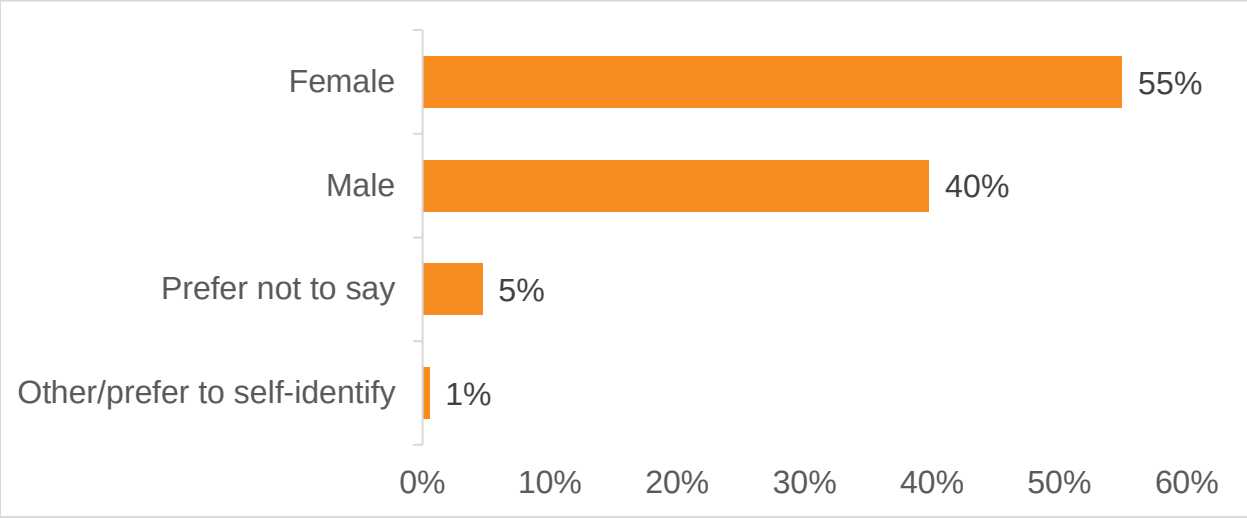
FIGURE 7. SURVEY DENSITY BY MUNICIPALITY



Demographics

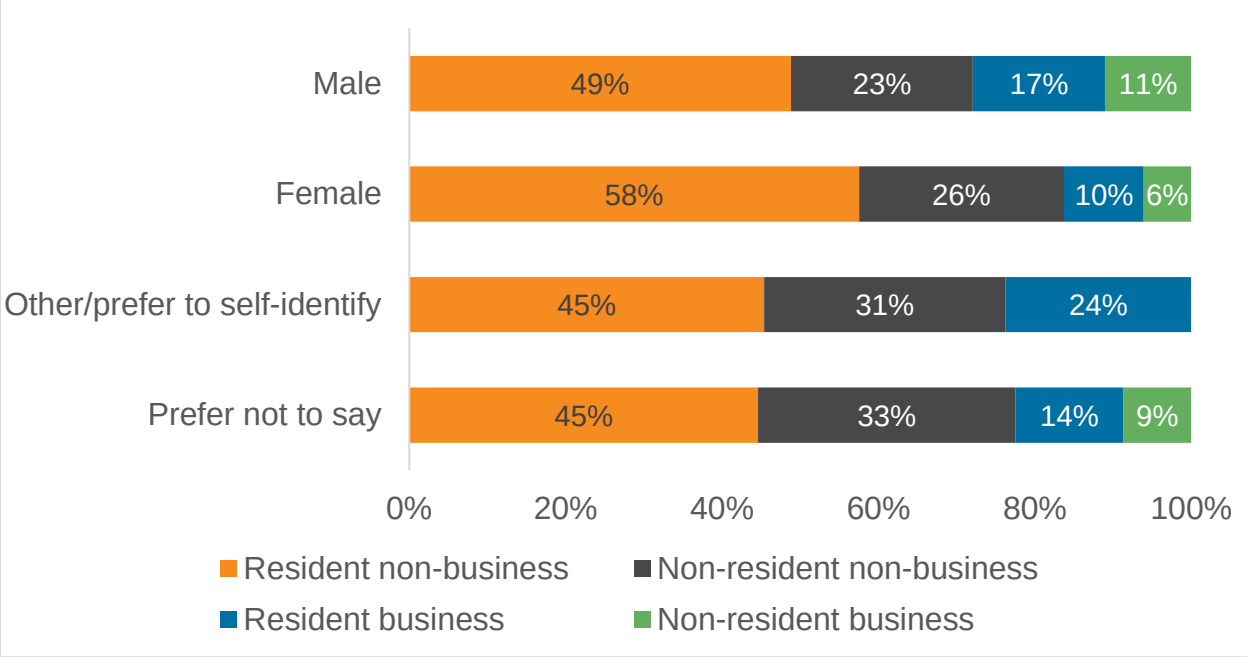
Overall, women made up a slightly larger share of air passengers compared to men, with women comprising 55% of travelers and men 40%, as illustrated in Figure 8. A small percentage of respondents (1%) preferred to self-identify their gender, while an additional 5% preferred not to share their gender.

FIGURE 8. GENDER DISTRIBUTION OF AIR PASSENGERS



Interesting dynamics appeared when exploring market segments by gender as shown in Figure 9. While resident non-business travelers overall made up a slight majority of departing passengers, this group had a notably higher share of women with nearly 60% falling into this category, compared to less than half (49%) of men. Other groups, those preferring to self-identify or declining to identify their gender, made up only a small portion of respondents and their data may be subject to sample error.

FIGURE 9. MARKET SEGMENTS BY GENDER



As seen below in Figure 10, the average age of passengers remained fairly consistent across the four key market segments. Most segments were close to the overall average age of 44.5 years. The only notable exception was resident business travelers, who had a slightly younger average age of 43.2 years. This minor deviation indicates that while age profiles are generally consistent across different passenger groups, resident business travelers tend to be marginally younger than other travelers.

FIGURE 10. AVERAGE AGE BY MARKET SEGMENT

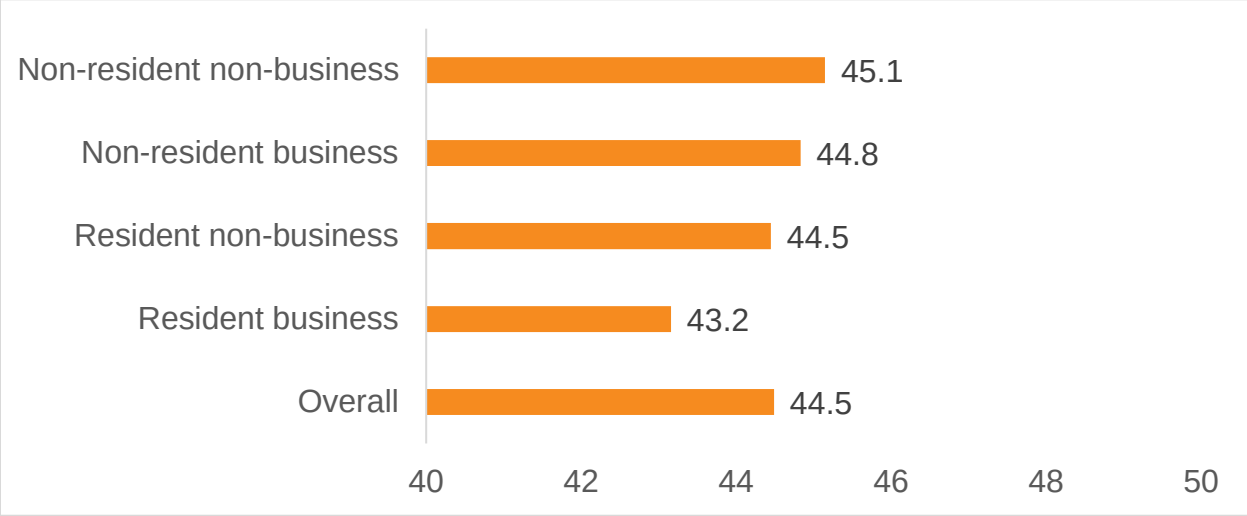
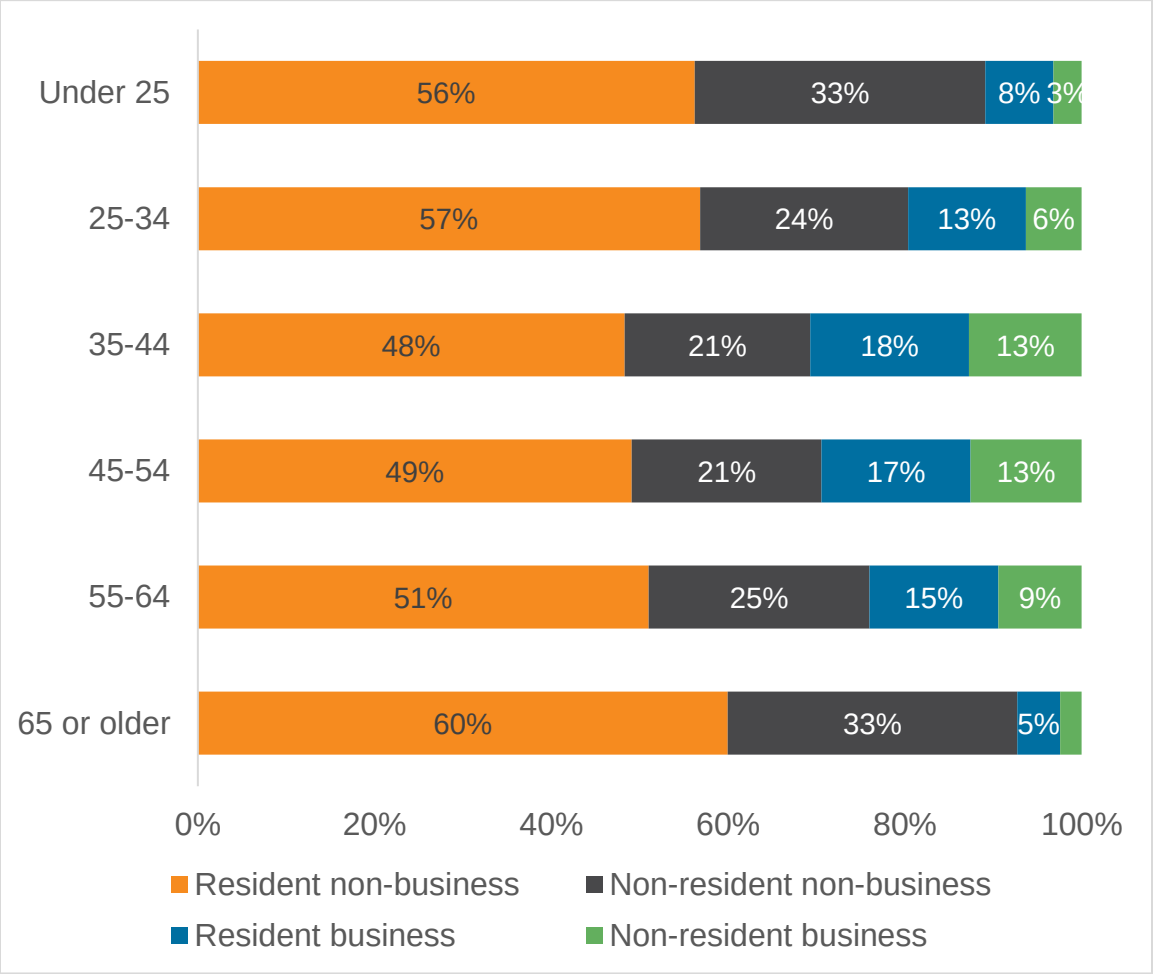


Figure 11 illustrates the breakdown of the four market segments among various age groups. As expected, both the youngest and oldest age groups were more likely to be non-business travelers, while the middle-aged groups had a higher proportion of business travelers. Travelers aged 65 and older were predominantly non-business travelers, with more than 90% in this age group traveling for non-business purposes and 60% classified as resident non-business travelers. Similarly, younger travelers, those aged under 25 and 25-34, were more likely to be resident non-business travelers, whereas those aged 35-44 and 45-54 were more frequently classified as business travelers.

FIGURE 11. MARKET SEGMENTS BY AGE



When comparing air travelers at Logan Airport with the general population of Greater Boston and New England, air passengers tend to have a higher household income. As illustrated by Figure 12, approximately 60% of respondents indicated an annual household income of $120,000 or more, significantly higher than the approximately $99,000 median income for Boston-Cambridge-Newton Metropolitan Statistical Area—the US Census Bureau's definition of Greater Boston. Additionally, about 30% of passengers reported household incomes greater than $200,000, compared to only 23% of residents in the region with incomes in this range (U.S. Census Bureau, 2022).

FIGURE 12. HOUSEHOLD INCOME OF AIR PASSENGERS

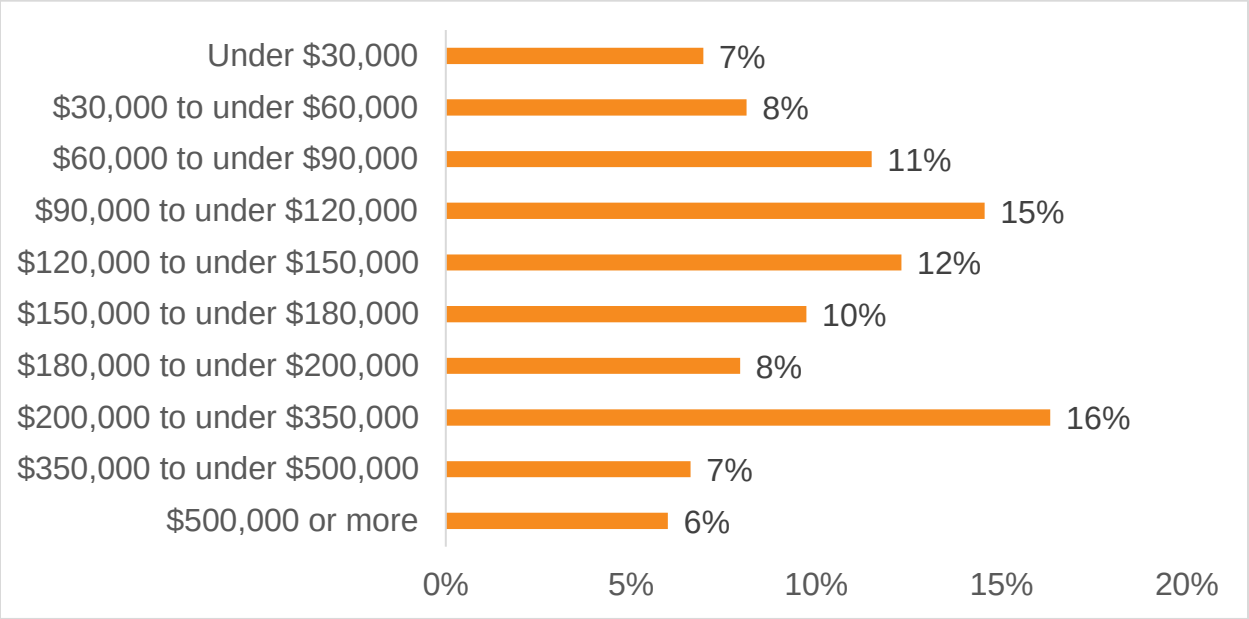


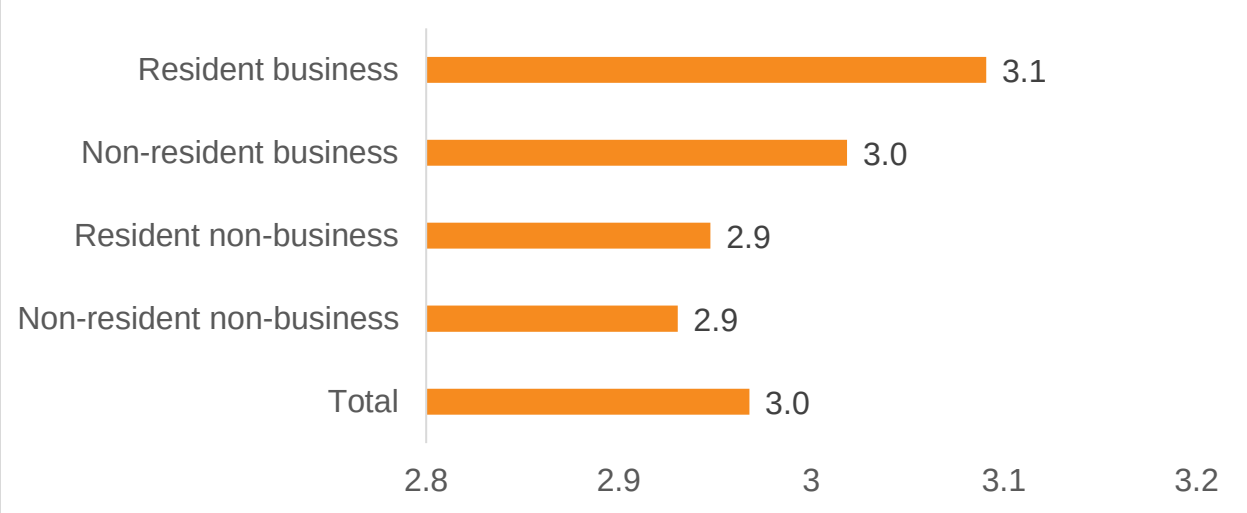
Table 9 illustrates the distribution of aggregated household incomes across the four market segments. Resident non-business travelers, who made up the majority of travelers during the study period, show a similar income distribution to the overall passenger body. Notably, 31% of resident non-business travelers reported household incomes between $60,000 and $119,999, compared to 26% of all passengers. Both business traveler segments report higher income levels compared to the general passenger population: 32% of resident business travelers and 32% of non-resident business travelers have household incomes between $200,000 and $499,999, versus 23% of passengers overall. Additionally, 11% of resident business travelers and 9% of non-resident business travelers earn $500,000 or more, compared to only 6% of all passengers.

TABLE 9. AIR PASSENGER HOUSEHOLD INCOMES BY MARKET SEGMENT

Income	Resident Business	Resident Non-Business	Non-Resident Business	Non-resident Non-business	% of all Passengers
Under $60,000	9.2%	14.7%	7.3%	21.3%	15.1%
$60,000-$119,999	19.2%	30.6%	20.1%	21.8%	26.0%
$120,000-$199,999	28.9%	29.3%	31.2%	31.6%	30.0%
$200,000-$499,999	31.9%	21.2%	32.4%	18.8%	22.9%
$500,000 or more	10.7%	4.1%	9.1%	6.5%	6.0%

As illustrated by Figure 13, household size was fairly consistent between the four market segments. Overall, passengers lived in households of three members on average. The largest households were those of resident business travelers, with an average of 3.1 members, and the lowest was among non-resident non-business travelers, with an average of 2.9 members.

FIGURE 13. HOUSEHOLD SIZE BY MARKET SEGMENT



As shown in Figure 14, the number of vehicles owned or leased by passenger households also did not show much variation among market segments. Households overall owned or leased an average of 2.2 vehicles; this was shared by non-resident business, resident non-business, and resident business travelers, while non-resident non-business travelers owned or leased 2.3 vehicles on average.

FIGURE 14. VEHICLES OWNED/LEASED BY HOUSEHOLDS BY MARKET SEGMENT

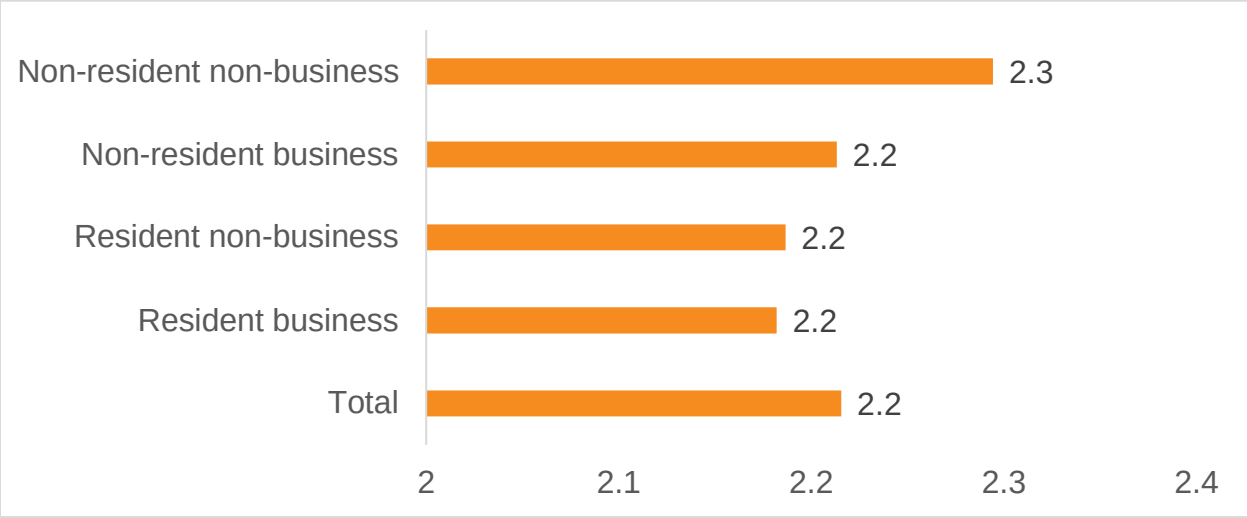
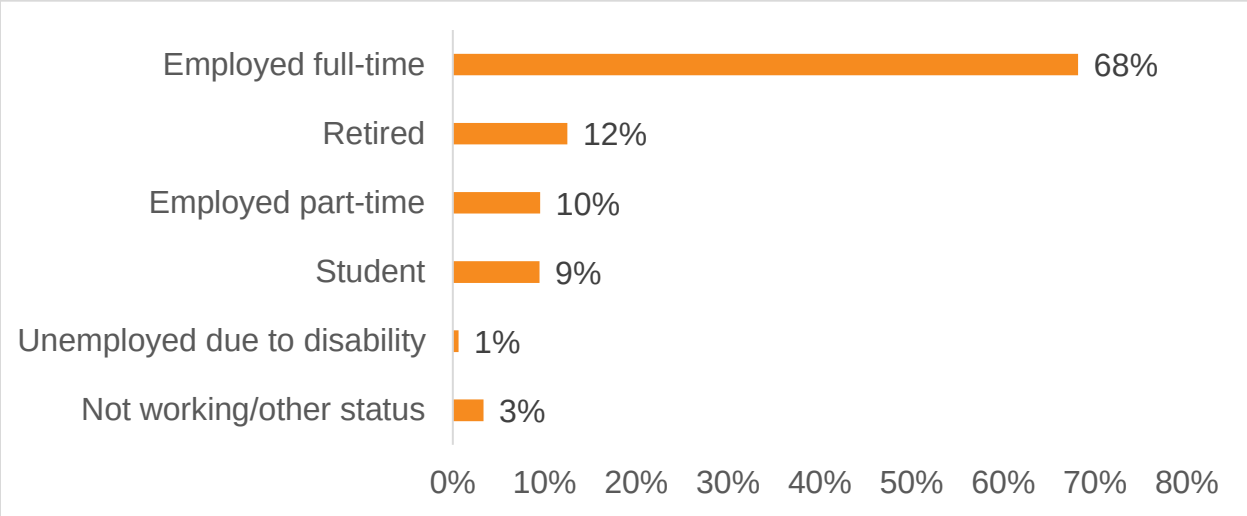


Figure 15 illustrates the employment status reported by departing passengers. The majority of passengers (68%) were employed full-time, and 10% of passengers were employed part-time. Additionally, 12% of passengers reported being retired and 9% were students. Those unemployed due to a disability or not working for another reason comprised only around 4% of travelers. Respondents could select multiple employment statuses if they were not mutually exclusive (e.g., being both a student and employed part-time or full-time was permitted, but selecting both retired and employed full-time was not). About 20% of students also indicated that they work part-time, 2% of students work full-time, and 3.5% of retirees responded that they also work part-time.

FIGURE 15. EMPLOYMENT STATUS OF AIR PASSENGERS



The 2024 survey asked respondents who indicated that they were students if the educational institution they attend is located in the region surrounding Logan Airport. Of the respondents who indicated that they were students, 76% attend a local institution, while 24% do not attend an educational institution in the region.

FIGURE 16. LOCATION OF STUDENTS' EDUCATIONAL INSTITUTIONS

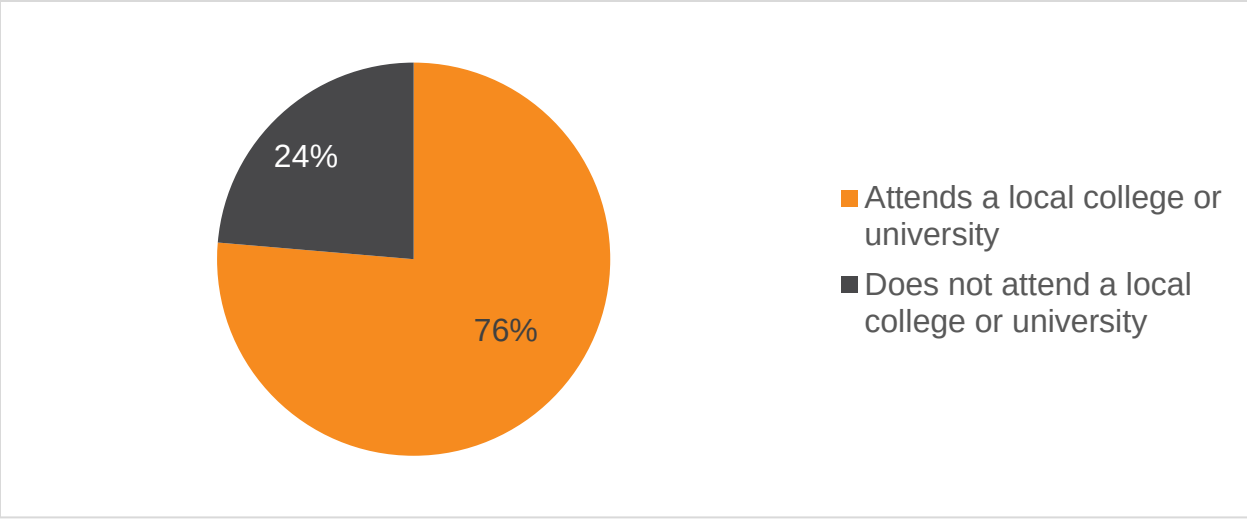
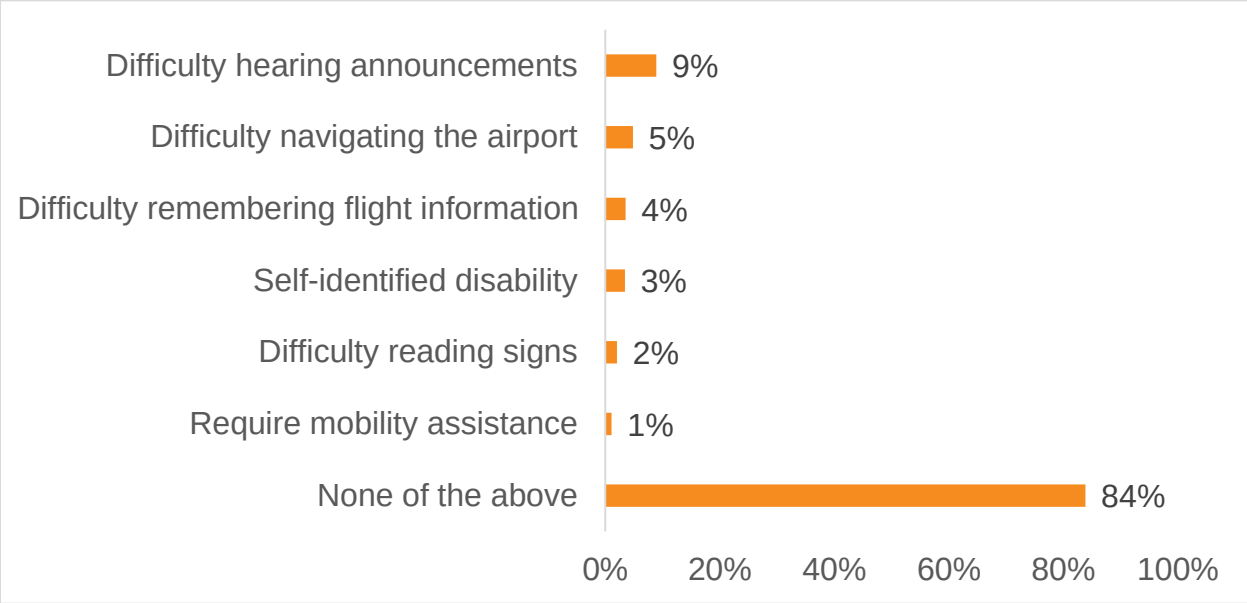


Figure 17 displays the proportion of passengers indicating their status with respect to a range of disabilities and challenges. A sizable majority of passengers (84%) indicated that they did not experience any of the difficulties listed and did not self-identify as someone with a disability. Among those who did, 3% self-identified as having a disability, and 9% reported difficulty hearing announcements. Another 5% experienced challenges with airport navigation, with other

reported difficulties affecting less than 5% of passengers. Respondents were permitted to select multiple disabilities and challenges.

FIGURE 17. DISABILITY STATUS OF AIR PASSENGERS



4.2 GROUND ACCESS MODE

Mode Share

Due to differences in the availability of transportation options in the areas where Logan Airport passengers originate it is unsurprising that the mix of modes used to access the airport differed across the market segments, as illustrated in Table 10. Ride apps emerged as the most commonly used mode overall, with approximately one-quarter to one-third of resident business, resident non-business, and non-resident non-business travelers selecting this option. However, non-resident business travelers showed a higher preference for ride apps, with approximately half of this segment selecting this option as their final mode, likely due to the ease of reimbursement for business travel expenses and the difficulty of navigating an unfamiliar city and/or region.

Rental vehicles were also notably more common among non-residents than residents, while only 2% of resident business travelers and 3% of non-business travelers, used rental cars as their primary means of reaching Logan Airport, over 20% of non-residents used a rental vehicle. Transit and other HOV modes were predominantly used by resident non-business travelers, with 27% of this segment opting for one of these modes, compared to 21% of non-resident non-business travelers, 14% of resident business travelers, and 10% of non-resident business travelers. More than 10% of resident non-business travelers used Logan Express as their

primary mode, with a similar share of 9% using other scheduled buses (e.g., Plymouth and Brockton or Concord Coach) and around 3% using the MBTA Blue or Silver Lines.

TABLE 10. PRIMARY MODE BY MARKET SEGMENT

Mode	Resident Business	Resident Non-Business	Non-Resident Business	Non-Resident Non-Business	Total
Private Vehicle- Drop-Off	20.8%	27.1%	6.7%	19.5%	22.7%
Private Vehicle-Parked On-Airport	22.7%	9.5%	0.8%	1.4%	8.5%
Private Vehicle-Parked Off-Airport	2.1%	1.5%	0.0%	0.2%	1.1%
Rental Vehicle	1.9%	2.6%	21.3%	24.9%	9.7%
Taxicab	1.7%	1.3%	6.6%	2.0%	2.0%
Ride app (Uber, Lyft)	30.3%	24.8%	51.5%	28.2%	28.5%
Other Car Service/Shared Ride Van	5.4%	4.7%	2.6%	2.2%	4.0%
Subtotal - Automobiles	*84.9%*	*71.5%*	*89.6%*	*78.3%*	*76.5%*
Logan Express	4.6%	10.9%	1.9%	3.0%	7.4%
MBTA Blue Line	1.1%	1.5%	1.6%	3.5%	2.0%
MBTA Silver Line	1.3%	1.4%	1.3%	2.4%	1.6%
Other Scheduled Bus	4.9%	9.4%	2.0%	5.1%	7.1%
Hotel/Courtesy Shuttle	1.3%	2.7%	2.2%	6.2%	3.4%
Charter Bus	1.0%	0.3%	1.2%	0.3%	0.5%
Water Ferry/Taxi	0.1%	0.4%	0.0%	0.1%	0.3%
Subtotal—HOV and Transit	14.4%	26.7%	10.2%	20.7%	22.2%
Other*	*0.7%*	*1.8%*	*0.2%*	*1.0%*	*1.3%*

**Other includes Walking and Biking*

The mode preferences of passengers with disabilities also differed somewhat from passengers overall, as shown by Table 11, something that can be reasonably expected given the relative difficulty of accessing certain modes, even with accommodations provided for by federal and state regulations. Those passengers that did indicate they were a person with a disability were somewhat more likely than passengers overall to have used a rental vehicle, ride app, or car service, and were somewhat less likely to have used a private vehicle (either for drop-off or parked at the airport) or Logan Express, and much less likely to have used a taxicab. Due to the

small number of respondents indicating that they required mobility assistance or were a person with a disability, results for these groups may be prone to sample error.

TABLE 11. PRIMARY MODE BY DISABILITY STATUS

Mode	I am a person with a disability	Passengers requiring mobility assistance	Passengers indicating any other challenge	All Passengers
Private Vehicle (drop-off)	18.6%	27.0%	21.3%	22.7%
Private Vehicle (parked at airport)	1.6%	7.5%	0.4%	8.5%
Private Vehicle (parked off airport)	1.2%	0.5%	0.0%	1.1%
Rental vehicle (includes Zipcar)	11.8%	12.7%	7.8%	9.7%
Taxicab	0.3%	1.7%	1.0%	2.0%
Ride app (Uber, Lyft)	34.5%	21.6%	17.0%	28.5%
Other Car Service	5.0%	4.8%	11.6%	4.0%
Logan Express	5.4%	7.7%	16.2%	7.4%
MBTA Blue Line*	2.8%	1.5%	0.0%	2.0%
MBTA Silver Line	1.1%	1.8%	0.0%	1.6%
Other Scheduled Bus	9.5%	8.4%	18.5%	7.1%
Hotel or Courtesy Shuttle	2.9%	3.2%	4.7%	3.4%
Charter Bus	1.4%	0.1%	0.0%	0.5%
Water Ferry or Water Taxi	0.2%	1.3%	0.0%	0.3%
Other	3.9%	0.4%	1.6%	1.3%

Logan Express

Logan Express is most popular among residents, particularly resident non-business travelers. This disparity is largely due to differing levels of familiarity with the service, as detailed in Table 12. Most non-residents are unfamiliar with Logan Express, with two-thirds of non-resident non-business travelers and nearly 80% of non-resident business travelers indicating they were unaware of it. In contrast, familiarity among residents is almost the inverse; only about 30% of resident non-business and business travelers indicated they were not familiar with Logan Express. Additionally, 39% of resident business travelers and 32% of resident non-business

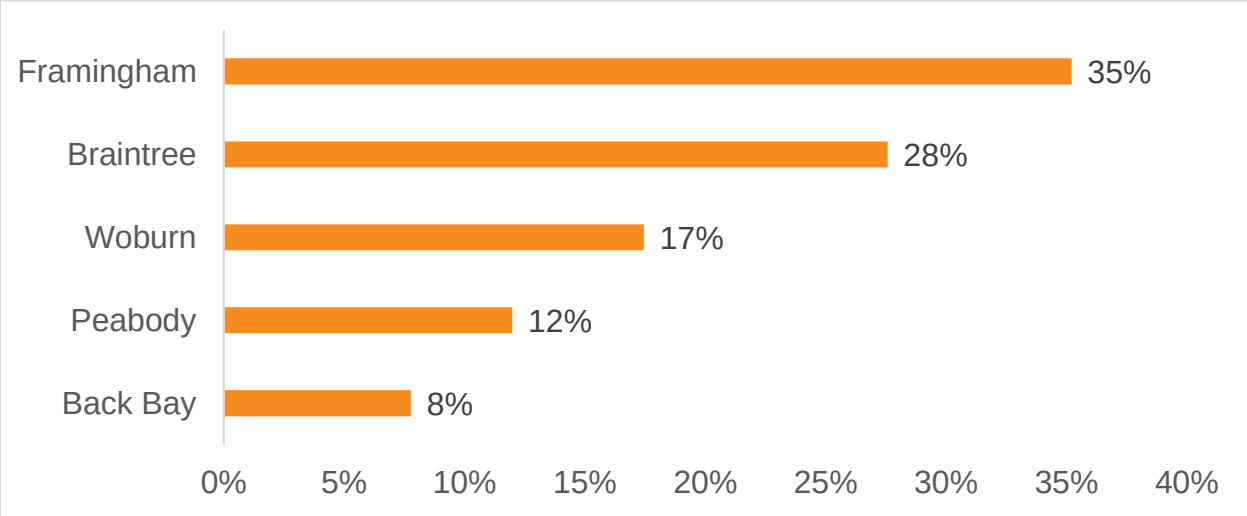
travelers were aware of the service but had not used it. Approximately 30% of each group of residents had used Logan Express before.

TABLE 12. FAMILIARITY WITH LOGAN EXPRESS

Mode	Resident Business	Resident Non-Business	Non-Resident Business	Non-Resident Non-Business	Total
Not familiar with this service	30.3%	33.1%	79.2%	66.0%	45.4%
Yes, but I have never used this service	39.0%	32.4%	11.3%	16.9%	27.4%
Yes, I have used this service before	30.7%	34.5%	9.5%	17.1%	27.2%

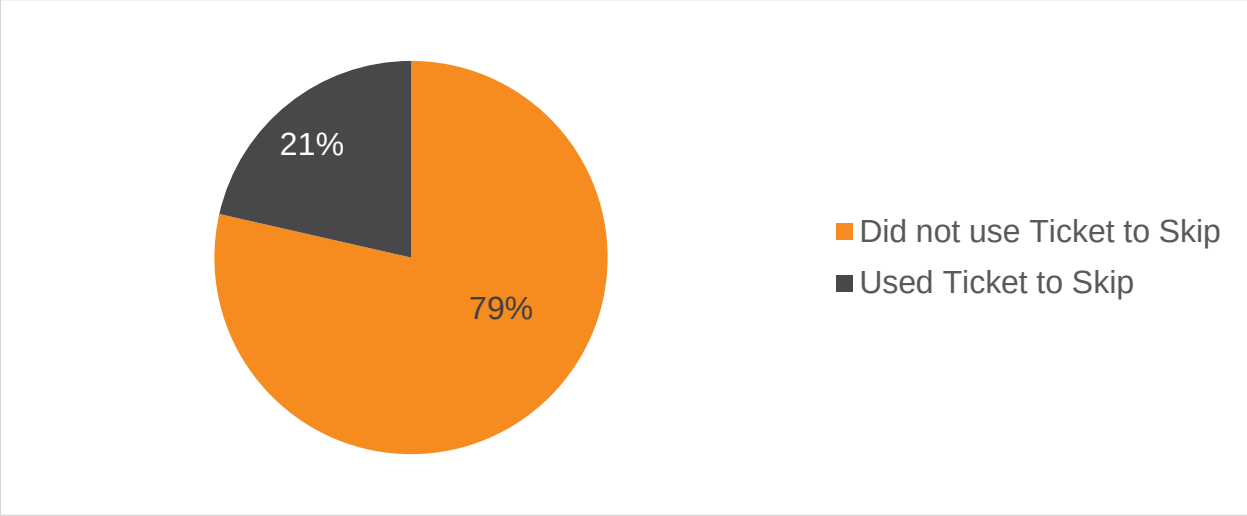
Figure 18: logan express boarding locations shows the boarding locations among Logan Express users. Among those respondents who used Logan Express as their primary mode of transportation to the airport, Framingham was the most popular of the five boarding locations, with 35% of Logan Express users boarding here. Braintree followed closely with 28% of Logan Express users, while Woburn and Peabody were less used, each serving less than 20% of riders. Logan Express's Back Bay service had the lowest usage, with only 8% of riders boarding there. This route was reintroduced in October 2022 after a hiatus during the COVID-19 pandemic, which may explain its relatively low popularity due to a lack of an established rider base.

FIGURE 18: LOGAN EXPRESS BOARDING LOCATIONS



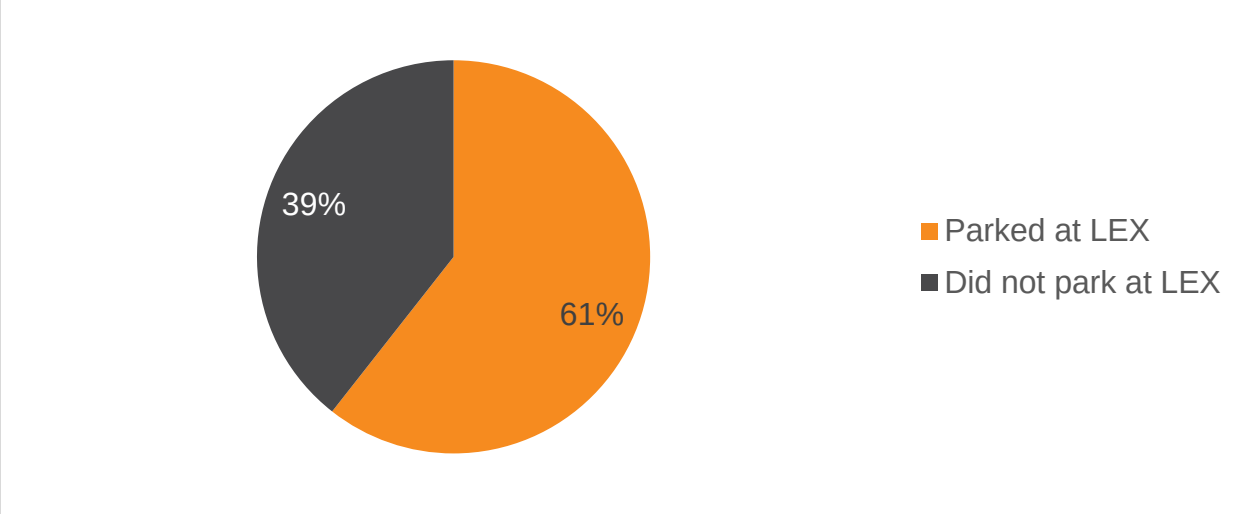
In order to encourage use of high occupancy modes, Massport has piloted passes for expedited security, known as “Ticket to Skip” for passengers arriving on the Back Bay Logan Express. While the sample of Back Bay Logan Express users is small and results should be interpreted with some caution, Figure 19 shows that many riders are either unaware of this perk or have forgotten to use it, with only 21% of riders doing so.

FIGURE 19. USE OF "TICKET TO SKIP" AMONG BACK BAY LOGAN EXPRESS PASSENGERS



For those boarding the Logan Express at suburban stations, 61% made use of the available parking facilities, as shown in Figure 20.

FIGURE 20. USE OF SUBURBAN LOGAN EXPRESS PARKING FACILITIES



Parking Behavior

Table 13 presents the parking and drop-off behaviors of passengers who arrived at Logan Airport in private or rental vehicles. Over half (53%) of passengers reported arriving in a private vehicle that was driven away by someone else without being parked, while 5% arrived in a vehicle that was parked temporarily before being driven away—both scenarios reflecting pick-up or drop-off activity.

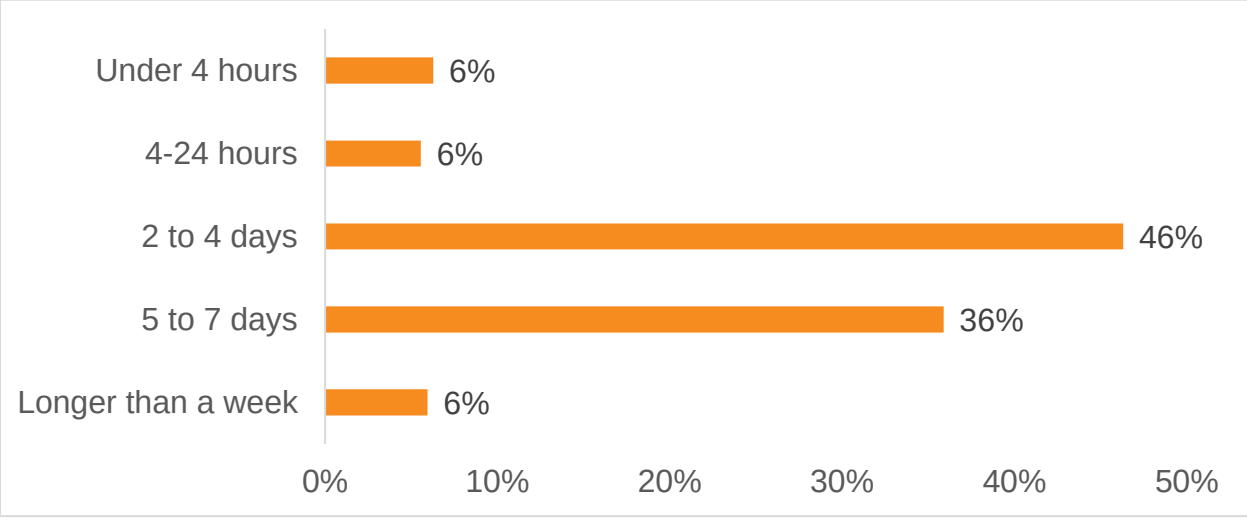
Business travelers were less likely than non-business travelers to have been dropped off in a vehicle that was immediately driven away, with 38% of resident business travelers and 31% of non-resident business travelers being dropped off at the curb, compared to 64% of resident non-business travelers and 44% of non-resident non-business travelers being dropped off at the curb. Resident business travelers were more likely than any other segment to have parked at terminal garages or lots, with 45% resident business travelers doing so compared to 18% overall. Non-residents, regardless of travel purpose, were much more likely to have returned a vehicle to the rental car center, with 55% of business and 45% of non-business travelers returning a rental vehicle.

TABLE 13. PARKING BEHAVIOR OF PASSENGERS WHO USED PRIVATE AND RENTAL VEHICLES TO ACCESS LOGAN AIRPORT

Parking Status	Resident Business	Resident Non-business	Non-resident Business	Non-resident Non-business	Overall
Driven away from the airport by someone else without being parked	38.1%	63.8%	30.6%	43.7%	52.5%
Returned to the Rental Car Center	2.1%	3.6%	55.3%	45.8%	18.0%
Parked at the airport in a terminal garage or lot	44.6%	18.6%	6.6%	4.8%	17.9%
Temporarily parked at the airport in a terminal garage or lot and driven away from the airport by someone else	6.9%	4.4%	5.1%	3.9%	4.7%
Parked in a lot off the airport grounds	4.4%	4.4%	0.7%	0.5%	3.1%
Parked at the airport in the economy parking garage (preferred)	3.4%	4.5%	0.8%	0.3%	3.0%
Parked at the airport in the economy parking garage (directed)	0.2%	0.5%	0.4%	0.8%	0.6%
Parked in overflow	0.4%	0.2%	0.6%	0.0%	0.2%

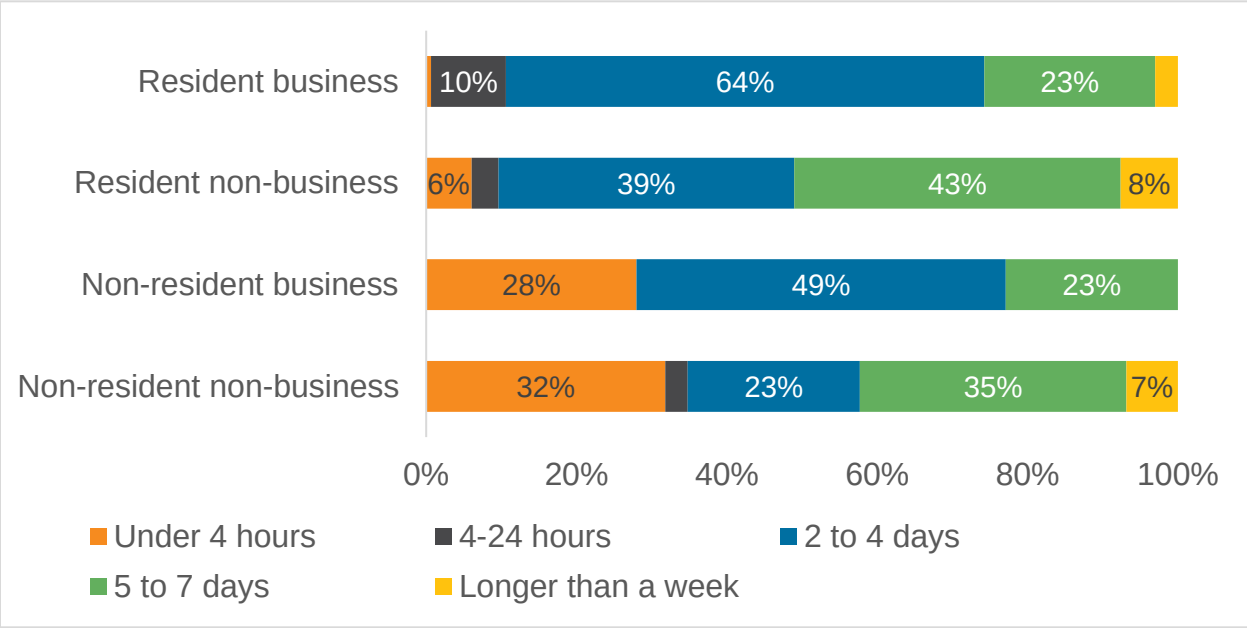
Among those that parked at any Logan Airport facility, almost half (46%) parked for two to four days, as shown in Figure 21, and an additional 36% of those parking at the airport parked between five and seven days.

FIGURE 21. PARKING DURATION OF PASSENGERS WHO PARKED ON AIRPORT PROPERTY



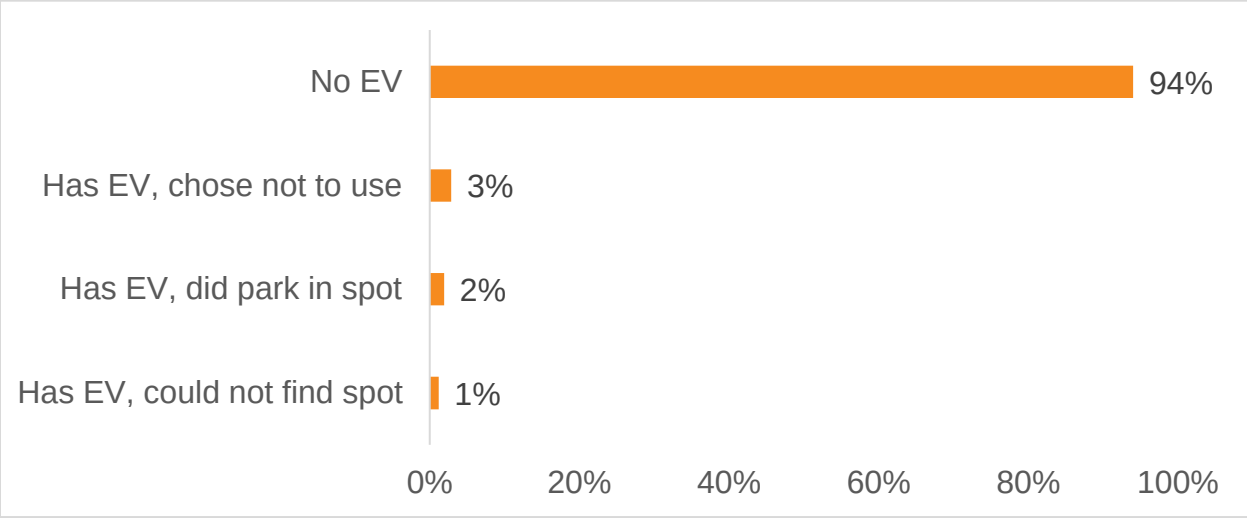
Parking duration, and thus usually trip length, did vary between market segments. Resident business travelers were much more likely than other segments to park for a short duration of only two to four days, with 64% doing so. Conversely, non-business travelers were most likely to park for five to seven days, with 43% of residents and 35% of non-residents doing so, compared to 23% of either group of business travelers. Non-resident non-business travelers were also most likely to park for under four hours, with 32% of this group doing so. It is worth noting that some passengers who were dropped off may have parked temporarily in nearby locations to say goodbyes or receive assistance before departing. This behavior was reflected in the responses from those who indicated being dropped off as their primary mode, contributing to the higher percentage of passengers parking for less than four hours.

FIGURE 22. ON-AIRPORT PARKING DURATION BY MARKET SEGMENT



In pursuit of some of its sustainability goals, Massport has expanded the availability of electric vehicle charging spots in its parking facilities in addition to pre-existing spots reserved for low-emissions vehicles. Figure 23 below shows the use of EV parking among those parking at the airport. Most parkers (94%) did not own an EV. Only 2% of respondents used a charging spot, with 3% opting not to do so and 1% unable to find a spot.

FIGURE 23. USE OF ELECTRIC VEHICLE PARKING SPOTS AT AIRPORT GARAGES AND LOTS



Occupancy

Table 14 shows the mean occupancy by mode for non-transit transportation options. Car services had the highest occupancy at 3.2 passengers on average. Ride apps, however, contained the fewest passengers on average, with 2.1 passengers per vehicle.

TABLE 14. MEAN OCCUPANCY BY MODE

Mode	Mean Occupancy	Number of Valid Party Size Responses
Private Vehicle (drop off)	2.8	1,373
Private Vehicle (parked at airport)	2.5	486
Private Vehicle (parked off airport)	2.2	56
Rental vehicle (includes Zipcar)	2.9	540
Taxicab	2.4	119
Ride App (Uber, Lyft)	2.1	1,849
Other Car Service	3.2	218
Logan Express	-	-
MBTA Blue Line	-	-
MBTA Silver Line	-	-
Other Scheduled Bus	-	-
Hotel or Courtesy Shuttle	-	-
Charter Bus	-	-
Water Ferry or Water Taxi	-	-
Other	-	-

Table 15 displays the single and high occupancy shares by primary access mode. High occupancy vehicles are defined as transit vehicles or any non-transit vehicles carrying at least two departing passengers. Logan Express, MBTA, ferries or water taxis, other scheduled buses, charter buses, and shuttles were classified as high occupancy vehicles in all situations. Of the respondents that used a ride app to access the airport, 60% arrived alone. The majority of passengers (55%) that parked at the airport also arrived alone.

TABLE 15. SINGLE AND HIGH OCCUPANCY SHARES BY MODE

Mode	Percent Single Occupancy Vehicles	Percent High Occupancy Vehicles
Private Vehicle (drop off)	23.7%	76.3%
Private Vehicle (parked at airport)	54.6%	45.4%
Private Vehicle (parked off airport)	41.5%	58.5%
Rental vehicle (includes Zipcar)	31.2%	68.8%
Taxicab	46.4%	53.6%
Ride app (Uber, Lyft)	59.3%	40.7%
Other Car Service	45.7%	54.3%
Logan Express	0%	100%
MBTA Blue Line*	0%	100%
MBTA Silver Line	0%	100%
Other Scheduled Bus	0%	100%
Hotel or Courtesy Shuttle	0%	100%
Charter Bus	0%	100%
Water Ferry or Water Taxi	0%	100%
Other	-	-

Table 16 shows the median party size and share of party sizes of two or more people for each market segment. Resident business travelers arrived in the smallest parties among the four groups, with a median party size of 1 person and only 7.4% arriving in parties of two or more people. Conversely, the majority of resident non-business travelers (59%) arrived in parties of two or more passengers.

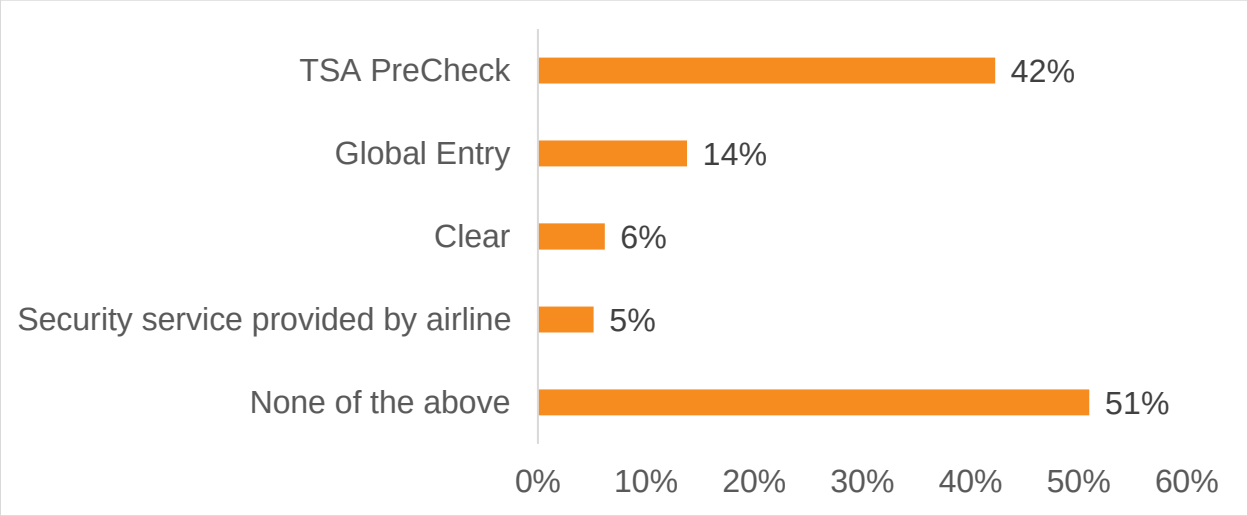
TABLE 16. PARTY SIZE AND VEHICLE OCCUPANCY BY MARKET SEGMENT

Market Segment	Median Party Size	Percent travelers in 2+ passenger parties
Resident Business	1	7.4%
Resident Non-Business	2	58.6%
Non-Resident Business	2	6.3%
Non-Resident Non-Business	2	27.7%

4.3 EXPERIENCE AT TERMINAL

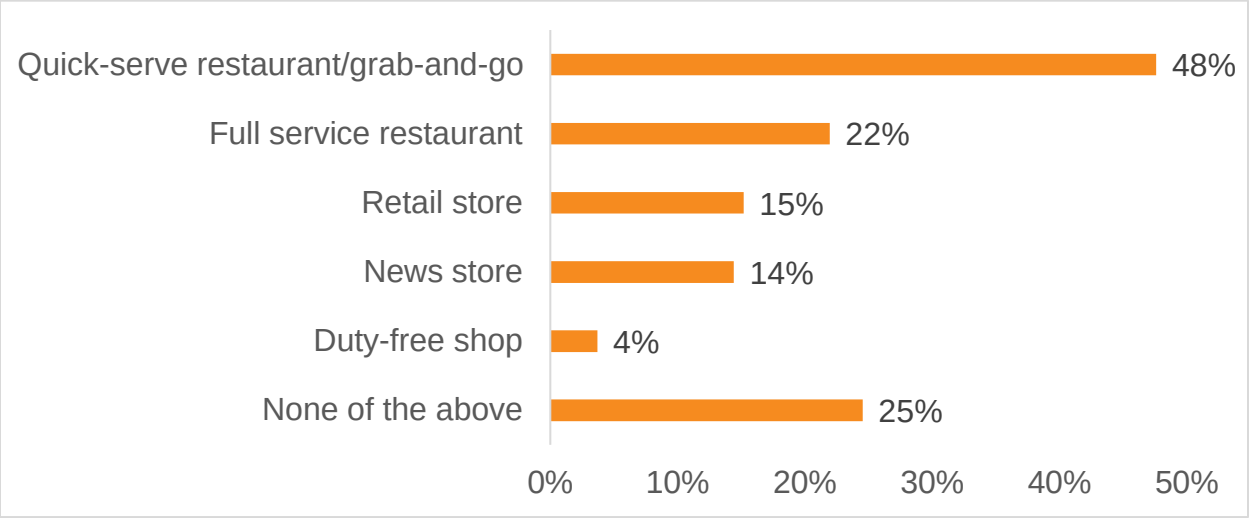
Figure 24 illustrates the shares of departing passengers that participate in expedited security programs. The market for these programs, both those provided by the Department of Homeland Security and those offered by private companies, has significantly expanded since the introduction of TSA PreCheck in 2013 (Transportation Security Administration, n.d.). Among all passengers departing from Logan Airport during the study period, almost half participated in at least one of these programs, with 51% of respondents indicating that they did not participate in an expedited security program. The most commonly used program was TSA PreCheck, with a sizable proportion of 42% of passengers participating. Global Entry, which includes expedited customs in addition to security, was used by a further 14% of passengers, with 6% of passengers using Clear and 5% of passengers using a security service provided by an airline.

FIGURE 24. USE OF EXPEDITED SECURITY PROGRAMS



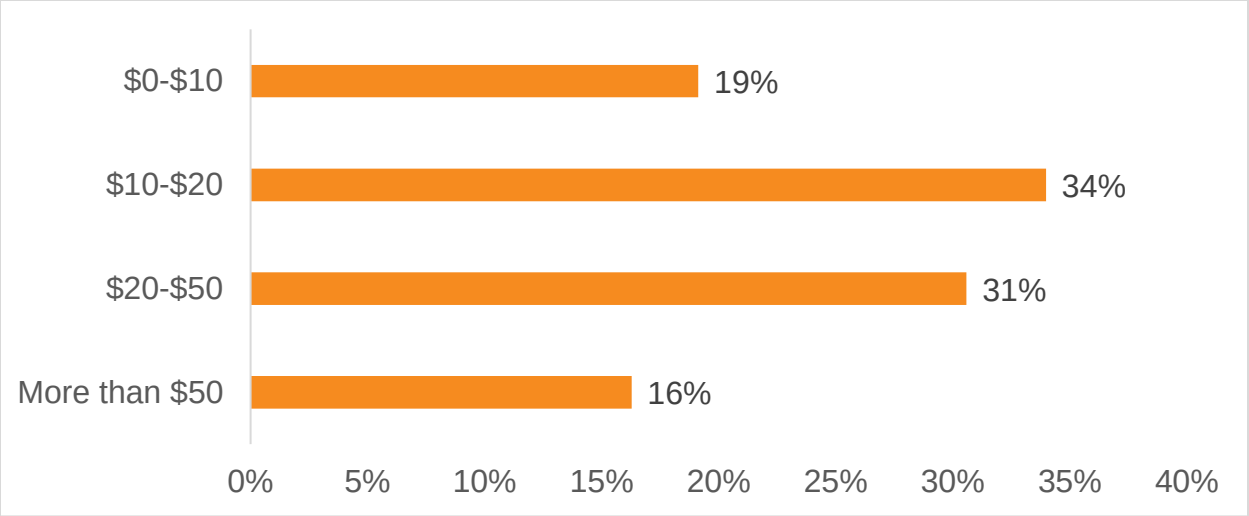
Respondents were asked what types of airport concessions they visited at Logan Airport, shown in Figure 25. One-quarter of passengers did not visit any airport concessions; however, among the three-quarters of passengers that did, quick-serve restaurants and grab-and-go locations were most common, being visited by 48% of passengers. Full-service restaurants were visited by 22% of passengers, 15% of passengers visited retail stores and 14% of passengers visited news stores. Only 4% of passengers visited duty-free shops, which are restricted to international departures. It is important to note that passengers visited more than one concession.

FIGURE 25. TYPES OF AIRPORT CONCESSIONS VISITED



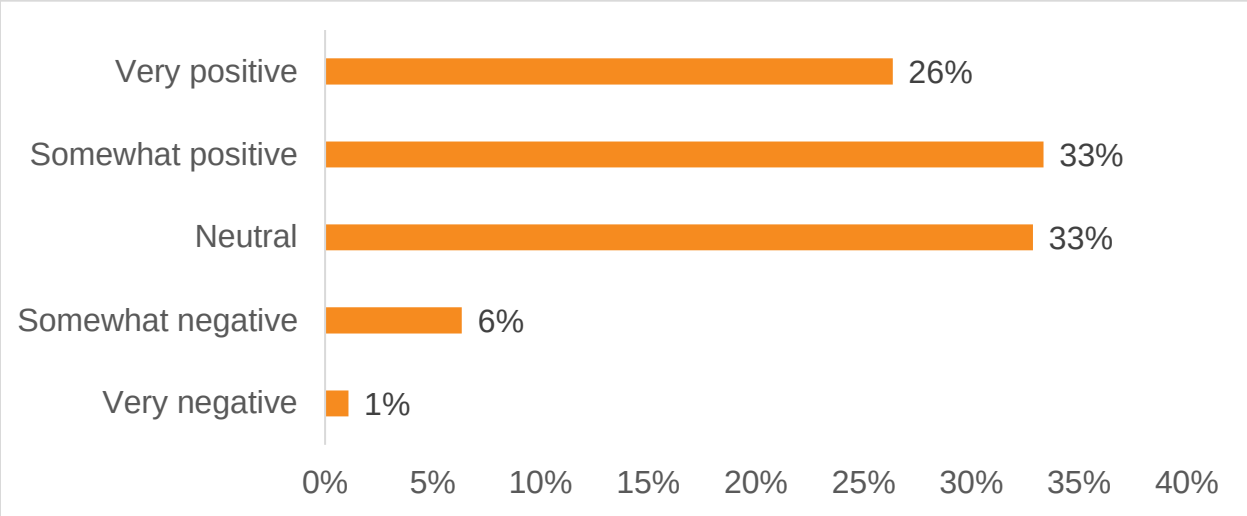
Among those that did visit an airport concession location, about one-third spent between $10 and $20, as shown in Figure 26. Nearly one out of every six passengers spent more than $50.

FIGURE 26. MONEY SPENT AT AIRPORT CONCESSIONS LOCATIONS



Passengers visiting airport concessions also reported generally positive interactions, as illustrated by Figure 27. A majority of passengers visiting concession locations (59%) reported somewhat or very positive interactions with airport concessions, with 33% indicating a neutral attitude. Only 7% of passengers indicated a negative interaction.

FIGURE 27. ATTITUDE TOWARDS EXPERIENCES WITH AIRPORT CONCESSIONS



4.4 EGRESS MODE

In addition to inquiring about the modes passengers used to arrive at Logan, the survey included questions about how passengers expected to depart from the airport upon their return (for residents) or had departed from the airport upon their arrival (for non-residents).

Table 17 breaks down egress modes by market segment, revealing distinct patterns in travel behaviors. Private vehicles emerged as the predominant mode of egress for both resident business and non-business travelers, 47% and 38% of these groups, respectively, planning to use a private vehicle. This trend likely reflects the higher access to private vehicles among local residents compared to non-residents.

In contrast, non-resident business travelers were more likely to use ride apps compared to other segments, with more than half of this segment using ride apps compared to 25% overall. Additionally, 11% of non-resident business travelers used a taxicab compared to 4% of all passengers. The increased reliance on ride apps and taxis among non-resident business travelers is likely influenced by the convenience of expense reimbursement for business travel, which makes these higher-cost options more feasible.

While arrival and egress modes generally show consistency, some variations are evident. Non-resident non-business travelers were less likely to use express bus services for egress than for arrival, with about 5% using this mode to arrive at the airport, compared to only 2.4% using it to leave. Additionally, ride apps were used slightly less for egress (25.4%) than for arrival (28.5%), with resident non-business travelers showing a more noticeable decrease in usage (20.1% for egress compared to 24.8% for arrival).

TABLE 17: MODES USED TO DEPART FROM LOGAN AIRPORT BY MARKET SEGMENT

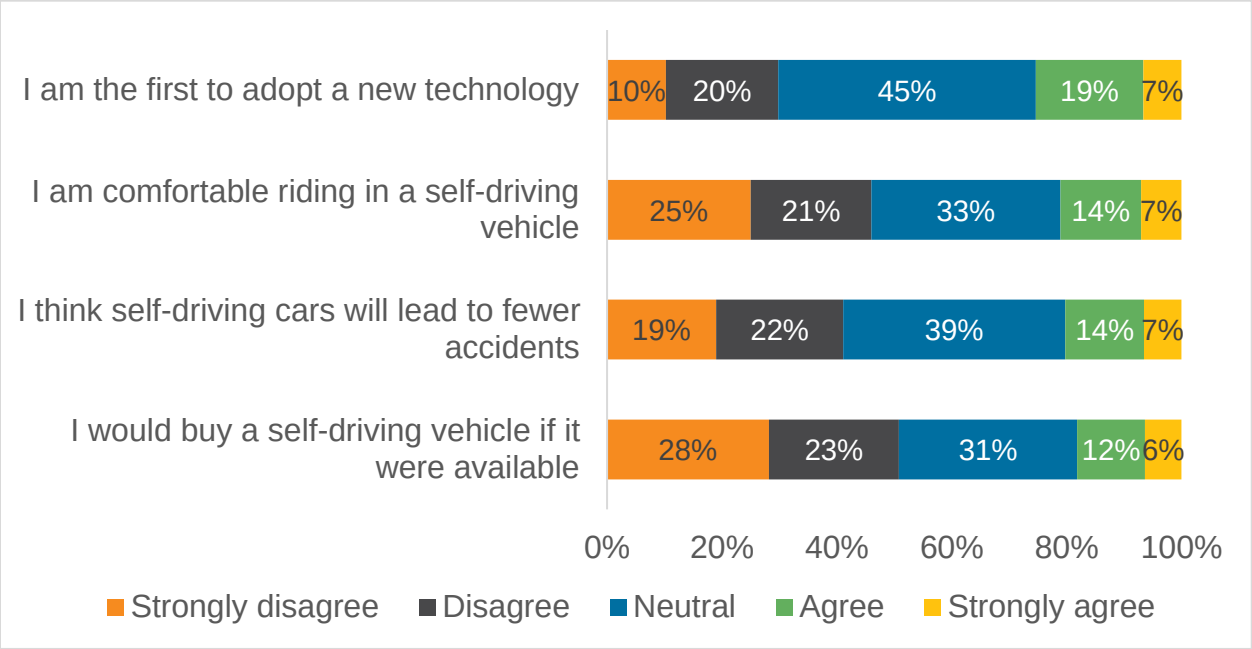
Mode	Resident Business	Resident Non-business	Non-resident Business	Non-resident Non-business	Overall
Private vehicle	46.8%	38.4%	5.3%	19.7%	32.5%
Rental vehicle	0.5%	0.7%	22.3%	28.4%	8.8%
Taxicab	4.0%	1.9%	10.7%	5.3%	3.7%
Ride app	27.1%	20.1%	51.6%	27.6%	25.4%
Other car service	4.3%	4.3%	1.7%	1.8%	3.5%
Logan Express	5.0%	12.1%	1.5%	2.1%	8.0%
MBTA bus/subway	2.6%	3.4%	2.2%	5.8%	3.7%
Other scheduled express bus service	4.2%	9.1%	1.0%	2.4%	6.2%
Free hotel or other courtesy shuttle	1.0%	2.3%	0.9%	3.4%	2.3%
Charter/group tour bus	1.1%	0.3%	0.7%	0.0%	0.4%
Water Ferry or Water Taxi	0.1%	0.2%	0.0%	0.0%	0.1%
Other	0.5%	1.4%	0.8%	2.0%	1.4%
Don't know	2.8%	5.8%	1.2%	1.4%	4.0%

4.5 ATTITUDES AND POLICIES

The following section discusses the attitudes of respondents to a variety of transportation-related statements, broken down by theme.

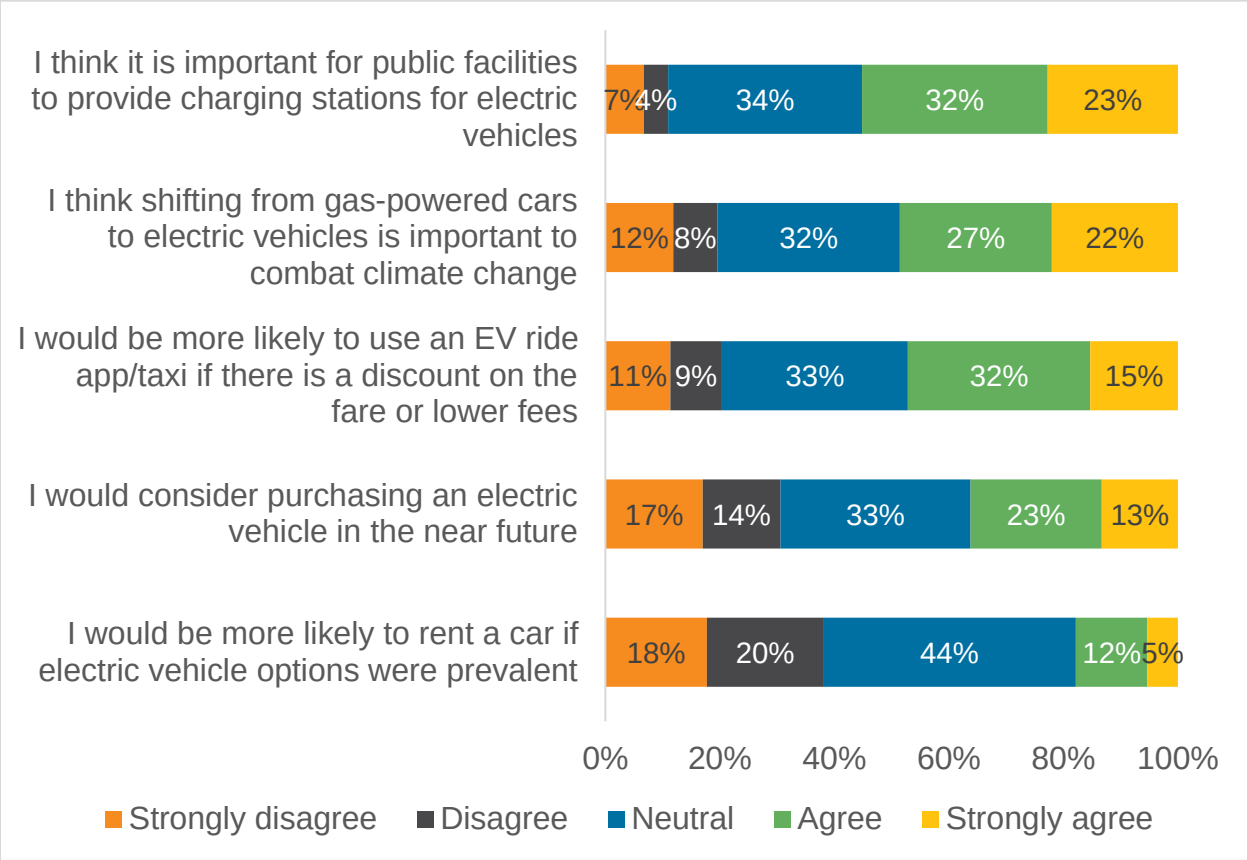
While still not widely adopted, the development and adoption of self-driving technologies means that transportation policymakers will need to consider these new technologies as potential mode options. Respondents were asked to indicate their attitudes to a number of questions relating to new transportation technologies, particularly self-driving vehicles. As shown in Figure 28, while 26% of respondents agreed with the statement that they are the first to adopt new technologies, attitudes to self-driving vehicles themselves were not as strong. Only 21% of respondents agreed they were comfortable riding in a self-driving vehicle and that self-driving vehicles would lead to fewer accidents, and 18% of respondents agreed they would buy a self-driving vehicle.

FIGURE 28: PASSENGER ATTITUDES REGARDING NEW TRANSPORTATION TECHNOLOGIES



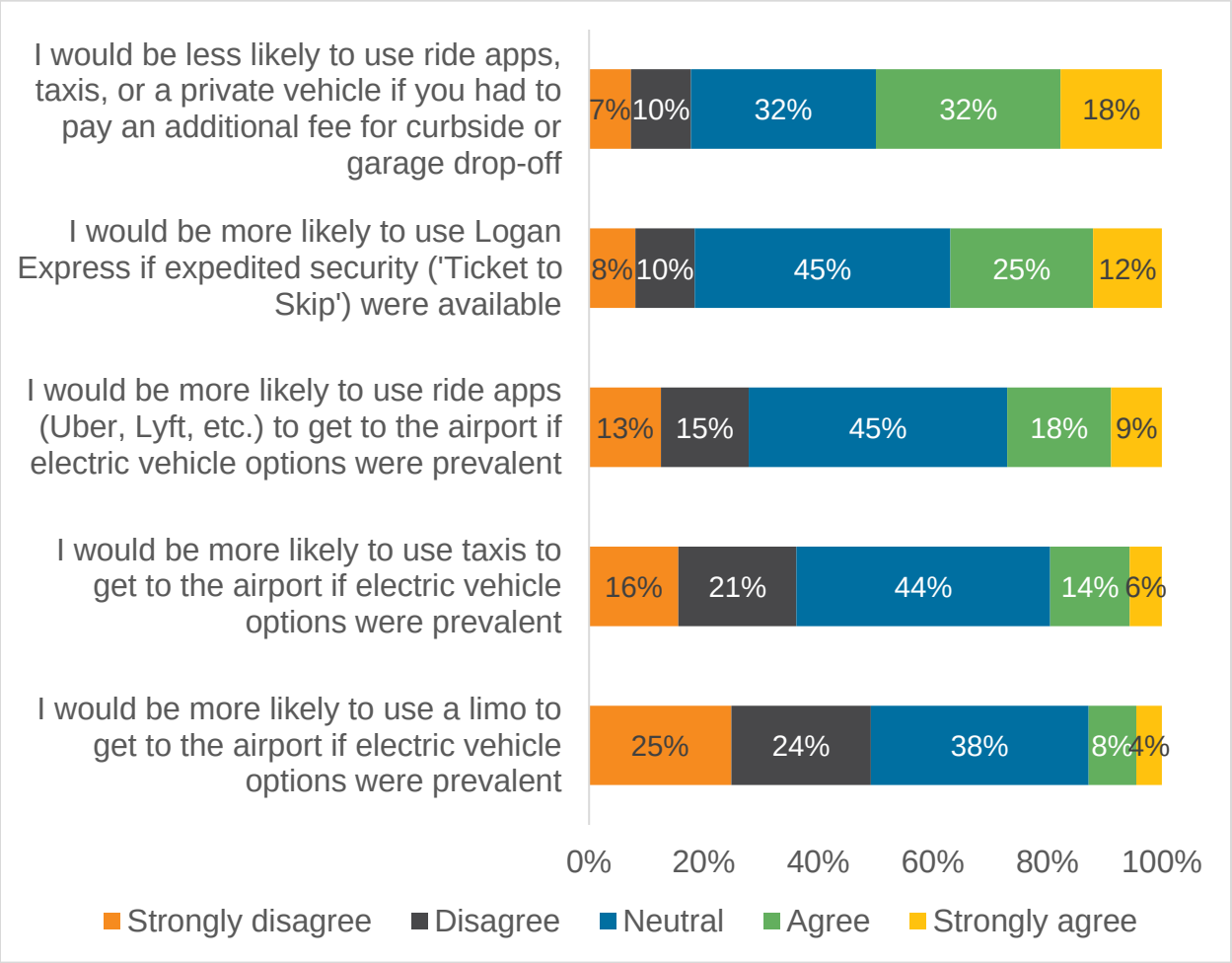
With EVs becoming increasingly widespread as charging infrastructure has expanded and prices have decreased, it is important to consider public attitudes towards their adoption and expansion of charging infrastructure in planning efforts. As shown in Figure 29 below, respondents held much more positive attitudes towards EVs as compared to self-driving cars; 55% of respondents agreed it was important for public facilities to provide charging, 49% of respondents agreed the shift from gas to electric powered vehicles was important to combat climate change, and 47% of respondents agreed that they would be more likely to use an EV ride app or taxi if there was a discount available. Even with these positive attitudes, however, only 36% of respondents agreed that they would consider purchasing an EV in the near future, with barriers like high prices and developing charging infrastructure likely contributing to this. Lastly, only 17% of passengers agreed they would be more likely to rent a car if EV options were prevalent.

FIGURE 29. PASSENGER ATTITUDES REGARDING ELECTRIC VEHICLES



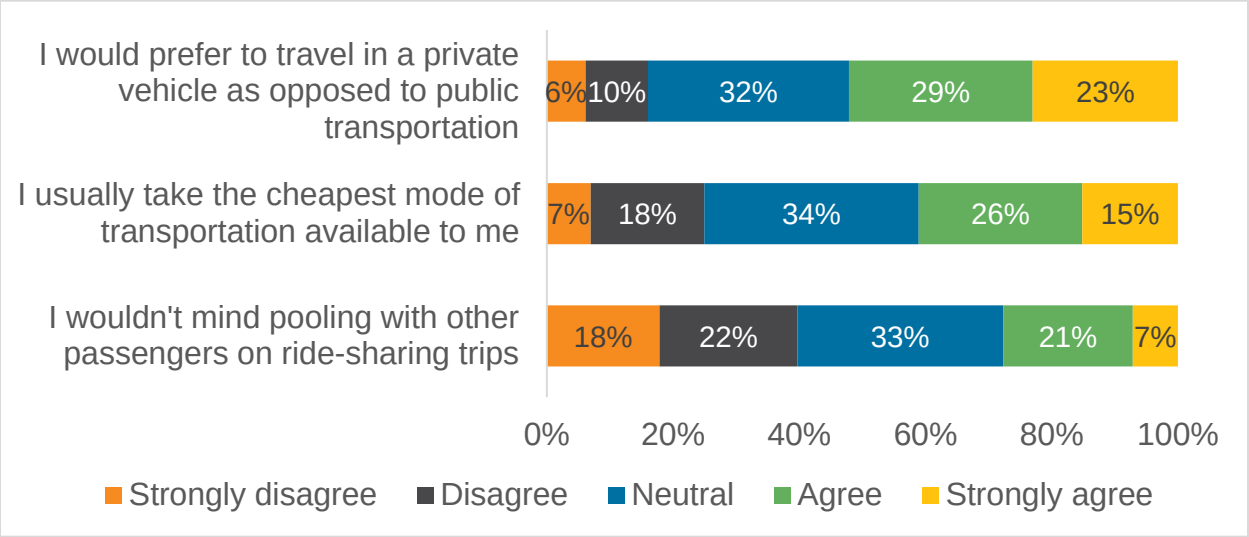
Respondents were also queried about their attitudes towards a number of hypothetical policies relating to other modes, explored in Figure 30. Fees that may apply to ride apps, taxis, and private vehicles dropping passengers off at garages or curbside seem to be a potentially significant driver in passengers' transportation choices, with 50% of respondents indicating they would be less likely to use these modes if such a fee were in place. However, 37% of respondents agreed that they would be more likely to use Logan Express if expedited security were available.

FIGURE 30. PASSENGER ATTITUDES REGARDING LIKELIHOOD TO CHOOSE MODES



Finally, with Massport's SOV-reduction goals and changes in pooled ride app options during and after the COVID-19 pandemic, respondents were also presented with statements regarding their preferences surrounding pooled ride app options and public transportation, as well as price. As illustrated by Figure 31, 52% of respondents agreed that they would prefer to travel in a private vehicle rather than take public transportation and only 28% of respondents agreed they wouldn't mind pooling with other passengers on a ride app trip; whereas 41% of respondents agreed that they usually take the cheapest mode available to them.

FIGURE 31. PASSENGER ATTITUDES REGARDING MODE OPTIONS



5.0 CONCLUSIONS AND RECOMMENDATIONS

The 2024 Logan Air Passenger Ground Access Survey was conducted at Logan Airport between April 19th and May 9th, 2024. A total of 6,214 completed responses were obtained, a figure above the targeted number of 6,000 completes that ensured at least 6,000 responses remained after conducting the data cleaning process.

Sampling processes, the programmed questionnaire, and survey methodology all closely matched earlier iterations of the survey conducted in 2018, 2019, and 2022. Compared to the 2022 survey, which occurred at the tail end of the COVID-19 pandemic, there was greater success in recruiting passengers to take the survey in 2024. Survey staff reported higher levels of interest and less hesitancy from passengers at gates, with around 2,000 more surveys obtained this year than in 2022 across a similar three-week survey period. Additionally, flight cancellations and delays were less common, allowing most sampled flights to be surveyed and allowing the survey team to survey many backup flights to attain additional completes when waiting to obtain boarding numbers.

Some notable changes were observed in the results of this survey as compared to earlier iterations. Among these, while business travel was slightly more prevalent than in 2022, the depressed level of business travel experienced post-COVID and accompanying increased dominance of non-business travel has been maintained in 2024. The decrease of this market segment will certainly require some consideration in the development of transportation policy, especially given the oftentimes different transportation preferences of those traveling for business as compared to those traveling for other reasons. Additionally, the share of residents as compared to non-residents has reverted to patterns seen before 2022, though the dynamics of this breakdown likely vary significantly across different times of year, and this may not reflect a change in the body of travelers across the entire year.

Likely related to the above changes, some more pronounced changes have occurred in respondents' mode choices; use of rental vehicles has decreased by 40% compared to 2022 and the already low use of taxis has decreased by 29%. However, the use of Logan Express has increased by 81% and the use of other similar express buses (e.g., Concord Coach, Plymouth and Brockton) has increased by 92% since the 2022 survey. While use of the Blue Line has also increased compared to 2022, it is important to note that the service was interrupted for a significant part of the 2022 survey period and only a few days during this iteration of the survey.

5.1 LESSONS LEARNED

In conducting the survey, surveyors and RSG staff identified some positive changes and remaining issues during the design, administration, and analysis of the 2022 and 2024 surveys.

These may warrant consideration in planning subsequent iterations of the survey, and this section summarizes such findings.

Survey Administration

Compared to 2022, survey staff experienced significantly less hesitancy when recruiting respondents and were more easily able to obtain boarding counts from airline staff at departure gates. The accompanying increase in survey responses and improved ability to create weights based on boarding numbers in turn allowed the research team to be more confident of the accuracy of the results presented in this report.

Questionnaire Design

The design of the questionnaire for this survey generally followed the design of 2022's questionnaire and maintained many of the changes made from 2018 and 2019; this includes collapsing MBTA buses and subways into one category, the breakdown of private vehicle use into several segments (e.g., parked at airport or pick-up/drop-off), and the dedication of specific categories to walking and biking. While collapsing MBTA buses and subways entails a small amount of additional work for those performing the analysis and data cleaning later, it may reduce the burden placed on respondents when presented with mode options. As respondents can select which lines they used after the main mode-choice question, this approach may offer benefits in flexibility and decreased burden while still ensuring adequate information was collected.

While otherwise broadly unchanged, two important improvements were made to the stated preference section of the survey: functions determining travel time and price for Logan Express options were updated to reflect the re-introduction of Logan Express service from Back Bay and different colors were used to indicate each of the six stated preference screens to allow respondents to more easily differentiate them.

Unfortunately, many respondents expressed fatigue and frustration with the survey in comments and directly in conversations with surveyors. This centered around two issues: the stated preference section generally and the length of the survey. Despite the changes made to improve user experience with the stated preference section, many respondents still found this section confusing and time-consuming to complete. While collecting more information in a longer survey and incorporating a stated preference section, the added length makes it difficult to survey a large number of respondents, especially those arriving closer to flight boarding times, and increases the challenge of ensuring that respondents complete their surveys before returning them to survey staff.

5.2 RECOMMENDATIONS

Taking the above into consideration, the research team offers the following recommendations for future iterations of the Air Passenger Survey at Logan Airport:

1. *Decrease survey length and complexity or adjust sampling to reflect a more involved survey than prior iterations.* While the number of surveys completed in 2024 increased considerably from 2022, an extension of the survey field was required to hit the target of 6,000 completed surveys. Additionally, as discussed above, many respondents indicated frustration with the length of the survey; a median completion time of around 15 minutes did somewhat limit the ability to turn over tablets and collect surveys at departure gates. Adjustments may need to be made to the survey to reflect the desire to collect a high number of surveys in a two-week survey period or targets for a study period of this length may need to be adjusted if it is deemed important to collect all the information currently included in the survey.
2. *Improve user experience.* Despite changes to the stated preference section to make it easier for respondents to differentiate the six screens presented, many still indicated that they found this section confusing to complete. The number of attributes for each mode, while important for learning which amenities passengers value, may need to be decreased to create a more streamlined exercise, and other miscellaneous changes to this section should be considered. In addition, respondents variously indicated other frustration with the passenger attitude statements. Attitude questions may need to be split into multiple screens or reduced in future iterations of this study.
3. *Consider changes to staffing and sampling.* While survey staff were able to capture considerably more morning flights than in 2022, difficulties in staffing these shifts persisted. Future iterations may consider different approaches to scheduling and staffing to ensure a representative sample is collected.