Appendix B: User Needs Survey

Executive Summary

- A total of 102 travelers with disabilities responded to the user needs survey. *Almost all respondents had traveled by air in the past two years.* Nearly half of the respondents reported they would require assistance in the terminal when flying. The most requested help by respondents was at the airport check-in.

- Respondents reported the following problems or obstacles at each of the touchpoints during air travel: 1) at booking: inconvenient website/apps; 2) at ground transportation: lack of accessible transportation; 3) at terminal and check-in: staff's lack of knowledge about disability; 4) at security checkpoint: staff's lack of knowledge about disability and improper service; 5) using airport amenities, shops or restaurants: crowded spaces/aisles; 6) at gate and boarding: staff's lack of knowledge about disability.

- Services respondents would like an airport, airline and airline service company to provide are accessible restrooms (mainly to have more large stalls), accessible onboard restrooms, and well-trained staff who know how to interact with people with disabilities, respectively.

- Best practices that were mentioned by multiple respondents are with regard to visual paging/visual signs for PA announcements, service animal relief areas, and seating policy.

Introduction

- Respondents offered open-ended answers to report problems or obstacles they have encountered when traveling by air, services they would like to have that are not currently available, and best practices and innovations they have seen. All open-ended answers were analyzed using a thematic approach. That is, patterns or themes are identified among data collected by multiple analysts. The tables include the main categories of the identified themes, brief descriptions of the categories, and frequencies of responses for each theme/category. Categories with only one response are not included in the tables listing the problems or obstacles encountered while traveling by air that respondents reported.

- It is important to note that not all respondents reported problems and obstacles at each touchpoint in the air travel process, and the survey did not ask how frequently respondents encountered the problems/obstacles while traveling by air.

- Caution should be exercised with interpreting the frequencies. Since data collected are qualitative, frequencies should only be used as a guide to compare a particular question's response categories.

- Data analysts are PhD students from the School of Public Health at Indiana University-Bloomington.

Abbreviations:
PwD = people/passengers with disabilities; **SA** = service animal; **SD** = service dog; **WC** = wheelchair

I. **Results**

Of the 102 survey respondents, 56 percent were female and 44 percent were male, ranging in age from 16 to 72 years old, with most respondents in their 50s. Figure 1 indicates that a majority of respondents reported having reduced mobility or a mobility disability (73 percent), while 7 percent were deaf or hard of hearing, 4 percent were blind or have low vision, and 4 percent have learning disabilities. Over half of respondents (56 percent) have had their disability for more than 10 years and approximately one quarter of the respondents (28 percent) were born with their disability.
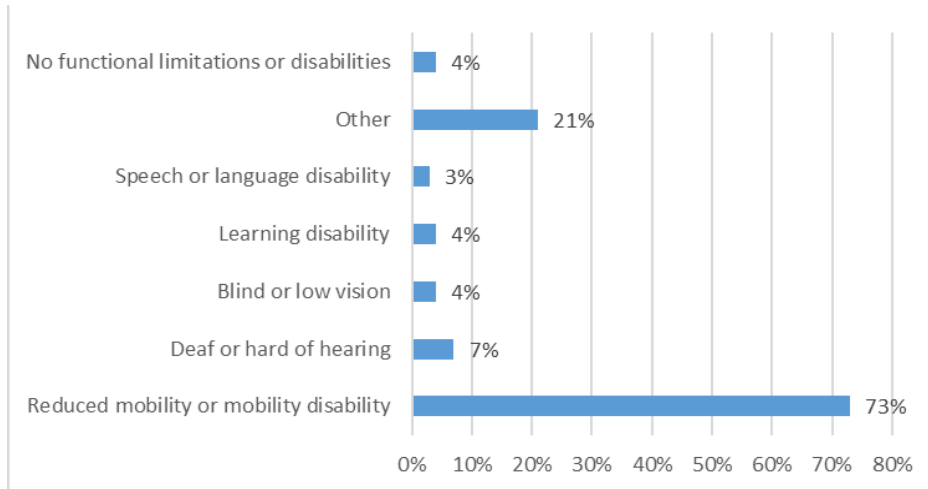

Figure 1: Types of functional limitations or disabilities

Most of the respondents (80 percent) use an assistive or mobility device, with 83 percent using the device full time. Table 1 lists the types of assistive devices used by respondents, a majority of whom use a wheelchair, followed by a service animal. Of the respondents who reported using an assistive device, approximately 15 percent use multiple devices. Wheelchairs remain the most common primary device, while other types of devices include walkers, canes, service animals, and assistive technology such as screen readers.

Assistive/Mobility Devices		**Frequency**	**Total Frequency**
Wheelchair	Manual chair	25	63
	Power chair/scooter, modified manual chair (power assist)	18	
	Sports wheelchair	2	
	Chair type unspecified	18	
Service animal		14	14
Cane (or two canes at the same time)		10	10
Walkers		8	8
Crutches or braces		8	8
Prosthetics or orthotics		3	3
Monocular or iPhone/computer with screen reader		2	2

Total	**108**
*Respondents may use multiple devices.	

Table 1: Types of assistive/mobility devices

As shown in Table 2, nearly 40 percent of respondents use a service animal. Psychiatric service animals are the most common type of service animal, followed by service animals that provide mobility assistance, guidance for people with vision loss, and hearing assistance.

Function of Service Animal	Description	Frequency
Psychiatric service	For bipolar, PTSD, dissociation, medical alert/response	18
Mobility assistance	For balance, picking up items, pulling WC, medical alert and response	13
For both mobility & psychiatric help		2
Guide dog	for people who are blind	3
Hearing assistance	Alerts to sound, fetch items	2
Total		**38**

Table 2: Task or function performed by service animal

II. Respondents' Travel Patterns

Nearly all respondents (94 percent) have traveled by air in the past two years and of this group, 47 percent have flown six or more times. Nearly half of the respondents (47.5 percent) stated that they require assistance in the terminal, and approximately 26 percent reported occasionally requiring assistance. When assistance is needed, respondents reported most often needing assistance transferring on and off the aircraft in a boarding chair, followed by assistance with luggage (22.7 percent) and transport in an airport wheelchair throughout the terminal (14.7 percent). Additional assistance needs can be found in Figure 2.
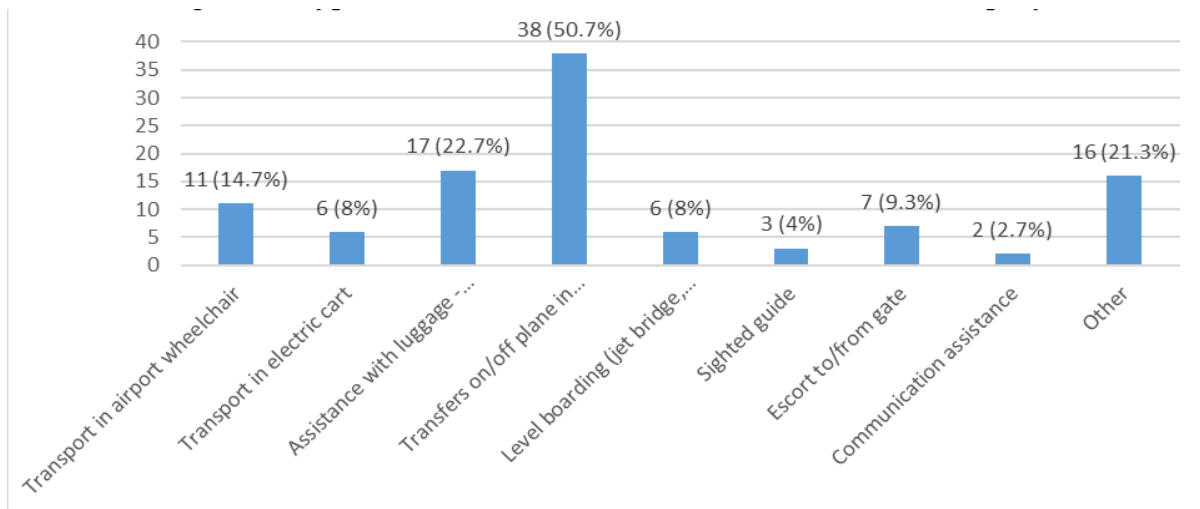
Figure 2: Types of assistance used in air travel

Over half of respondents (56.6 percent) reported making assistance requests at the airport during check-in, followed by online when booking the airline ticket (31.6 percent), by phone after booking their ticket (30.3 percent), by phone after booking through a third-party website (15.8 percent), and by phone when buying the ticket from the airline's reservation call center (7.9 percent).
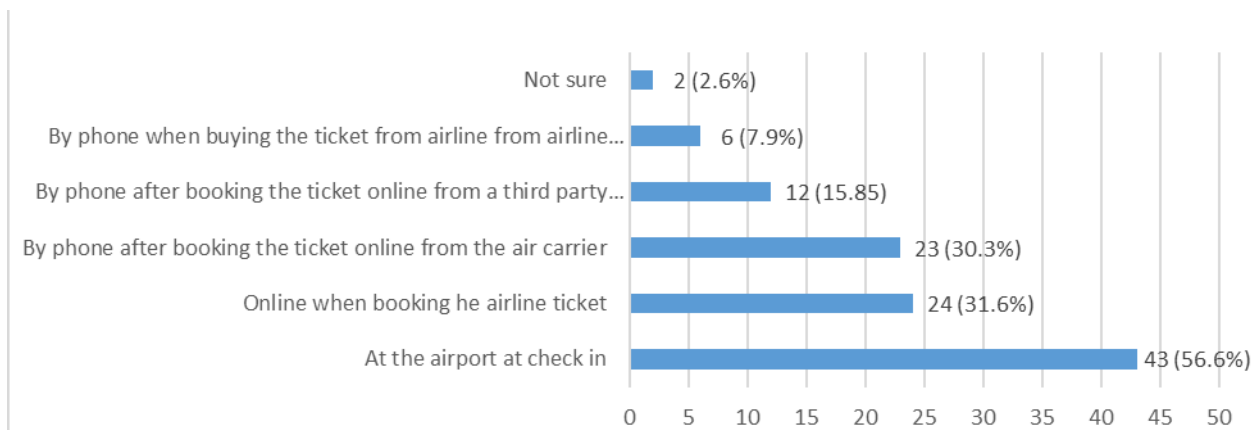

Figure 3: Method of requesting assistance

Nearly all respondents (98 percent) use a mobile device at home or when traveling, with 90 percent using a smartphone and 33 percent also using a tablet. As shown in Figure 4, 72 percent of respondents most often use mobile devices in pre-trip planning to visit the airline's website. Other common uses for mobile devices are receiving text alerts from airlines (64.9 percent) and using maps or GPS software (64.9 percent), followed by accessing mobile boarding passes (62.9 percent), and using airline apps (56.7 percent).
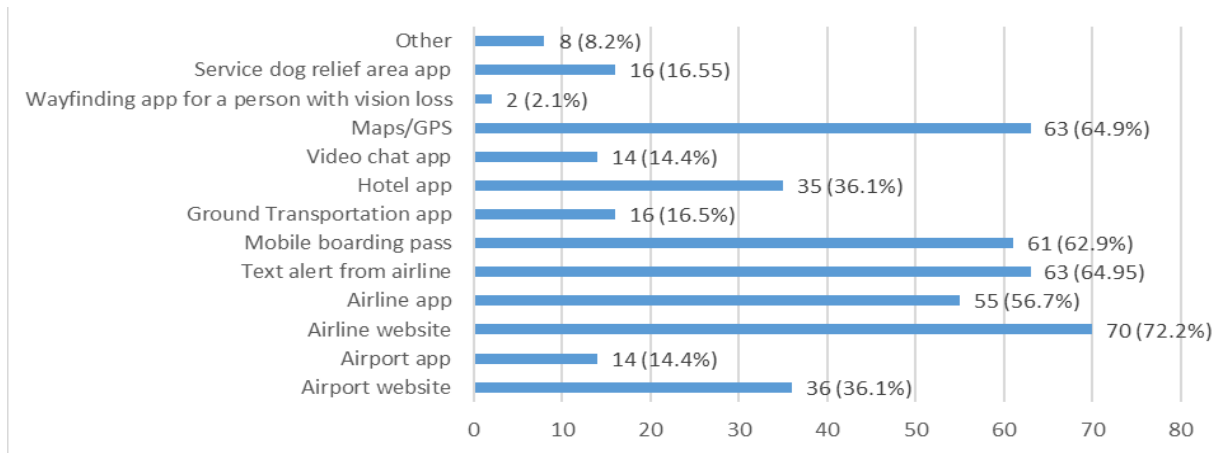
Figure 4: Use of mobile device for trip planning

When asked about the type of ground transportation used to get to/from the airport (Figure 5), 60 percent of respondents reported having someone drop them off and pick them up. Half of the respondents (51.5 percent) also reported driving their own vehicle and parking at the airport. Other types of ground transportation used include shared ride services (26.7 percent), renting a car (25.7 percent), using a taxi/limousine (24.8 percent) and taking public transportation such as a local train or bus service (23.8 percent).

Figure 5: Types of ground transportation used
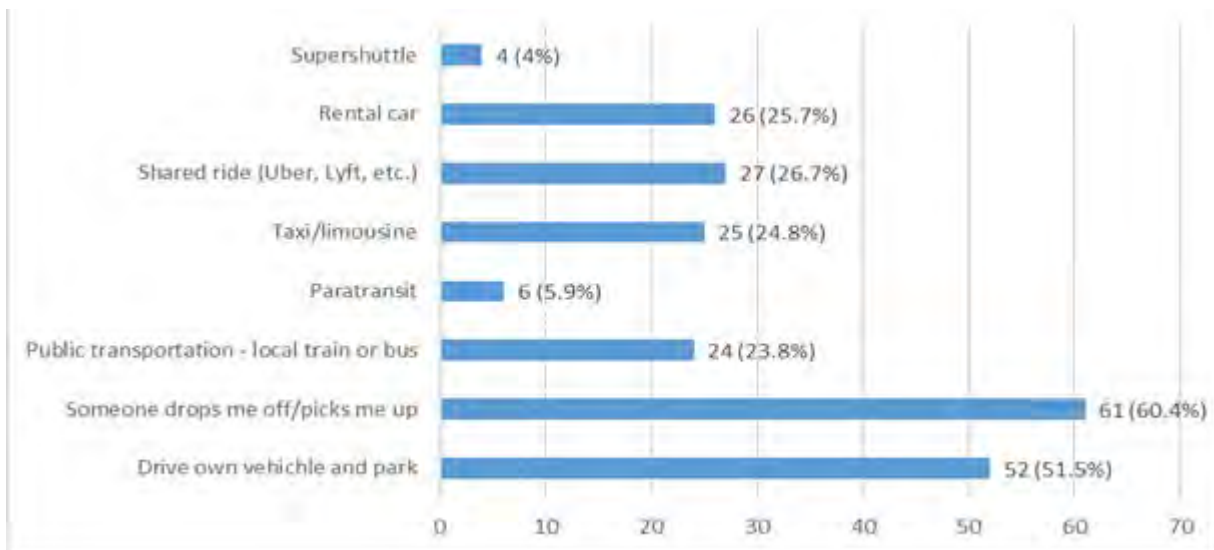
III. Problems/Obstacles Encountered When Traveling by Air

Table 3 summarizes the problems and obstacles respondents have encountered when planning or booking a trip by air. The most common obstacle faced by respondents is difficulty using airline/airport apps and websites (20 percent). Unreliable service, such as disability information missing from a reservation and

Category	Description	Frequency	Total Frequency	Percentage
Inconvenient Website/app	App/website load slowly, not user friendly, hard to read, not accessible	7	15	20 percent
	Online booking does not have options to input disability/SA/WC info	8		
Unreliable service	For example, disability/service animal/wheelchair info did not transfer into system; multiple calls for clarification; long wait for transfer service	12	12	16 percent
Convenient seats	Hard to reserve seats needed/wanted (e.g. bulkhead, front seats)	9	9	12 percent
Service animal	Time needed to go to relief area and have to come back through security, paperwork/ID needed; extra explanation	7	7	10 percent
Staff's lack of knowledge	Staff don't listen to the person with disability, not well trained to serve PwD, don't know what accommodations are available, not knowledgeable about service animals	7	7	10 percent
Lack of accessible information	Difficulty to find accessible ground transportation	2	6	8 percent
	Need info about jetway (with railing?), type of plane, distance from terminal	4		
Extra waiting time	Extra waiting due to disability (waiting for transfer, boarding/departing plane, hold on phone)	5	5	7 percent
Extra cost	Extra cost due to disability (e.g. avoiding stop over)	4	4	5 percent
Wheelchair	Concerns for storage & damage (fear)	4	4	5 percent
Layover time	Hard to find flights with proper connection time	3	3	4 percent
Lack of assistance	Need security contact info, 24-hour assistance	2	2	3 percent
Total			**74**	**100 percent**

long wait times to receive assistance, was reported by 16 percent of respondents. Other common problems include difficulties reserving airplane seats to accommodate individual needs, service animal issues due to additional documentation or identification requests, and lack of adequate staff training.

Table 3: Obstacles encountered when planning or booking a trip by air

Obstacles encountered when using ground transportation to/from/while at the airport (Table 4) include a lack of accessible transportation options, such as accessible shuttles, buses, taxis and rental cars—the biggest concern of respondents (37 percent). Respondents also noted the unsatisfactory service of some drivers who showed a negative attitude toward disability (15 percent); some having been denied service when traveling with service animals (7 percent). Respondents also reported a long wait time for accessible transportation to arrive (15 percent).

Category	Description	Frequency	Total Frequency	Percentage
Lack of accessible transportation	Unavailable accessible transportation, limited number of buses	8	22	37 percent
	Lack of accessible shuttles	5		
	Lack of accessible taxis	2		
	Lack of accessible rental car shuttles to the outside shop	3		
	Unavailable hand control for rental car	4		
Poor service by drivers	Negative attitude, lack of communication with driver	9	9	15 percent
Long wait	Delays/long wait for accessible transportation	9	9	15 percent
Directions & signage	Orientation when being dropped off, locating the ride, difficulty to read ground transportation signs	6	6	10 percent
Service animal issue	Being refused a ride, had to negotiate with driver, denial of service	4	4	7 percent
Distance	Ride hailing areas are far from terminal so hard to find	4	4	7 percent
Extra cost	Expensive for accessible transportation	3	3	6 percent
Lack of assistance	Need help to ground transportation/at curbside	2	2	3 percent
Total			**59**	**100 percent**

Table 4: Obstacles encountered when using ground transportation to/from/while at the airport

Upon arrival at the terminal (Table 5), the most common problem experienced is the staff's lack of knowledge about how to assist people with disabilities (26 percent). This is followed by unreliable/lack of service (19 percent) and extra effort at check-in due to luggage or service animal issues (17 percent). Respondents also reported having problems with staff not knowing how to help people with disabilities, and difficulties finding assistance with luggage as well as from their car to check-in.

Category	Description	Frequency	Total Frequency	Percentage
Staff's lack of knowledge about disability	Staff's unawareness of people's disability needs (not knowing how to serve PwD and their SA, refusing to help, not listening, asking for unnecessary info)	15	15	26 percent

Category	Description	Frequency	Total Frequency	Percentage
Unreliable and lack of service	Staff left PwD there, info is not in system, not ready to help	3	11	19 percent
	Lack of assistance with luggage, with WC, from car to check-in, lack of curbside assistance	8		
Extra effort to check-in	Extra effort required to check-in (e.g. explain SA issue, luggage)	10	10	17 percent
Poorly designed accessible facilities	Inaccessible kiosks, ramps, sidewalks, terminals	6	6	10 percent
Long wait times	Long lines at security and waiting times	6	6	10 percent
Negative attitudes	Discrimination against PwD; stereotypes	5	5	9 percent
Lack of signage	Lack of signage for directions	5	5	9 percent
Total			**58**	**100 percent**

Table 5: Obstacles encountered when getting assistance at terminal entrance and checking in

In terms of problems or obstacles encountered while going through the security checkpoint, Table 6 shows nearly half of the responses (48 percent) pertain to staff's lack of knowledge about how to assist and interact with passengers with disabilities.

Category	Description	Frequency	Total Frequency	Percentage
Staff's lack of knowledge about disability and improper service	Improper manner of TSA agent (rude, impatient, aggressive, rough, overzealous, improper language, negative attitude)	14	44	48 percent
	Staff's lack of knowledge on how to serve PwD	13		
	Staff not knowledgeable about modified pat-down or pat-down procedure, extra transfer for pat-down	9		
	Staff not accompanying PwD and their belongs, no help with luggage on conveyor	5		
	Unreliable service (misinformation, being forgotten, needs ignored)	3		

Taking too long	Pat-down takes too long, causing delays	19	19	21 percent
Service animal issues	Being asked to remove dog vest/collar, improper protocol/not knowing the protocol for SA; inconsistent rules about SA; security dogs aggressive toward SA	11	11	12 percent
Inconsistent instructions	TSA's inconsistent instructions on security check process	9	9	10 percent
Luggage	Have to separate from luggage and belongings	6	6	7 percent
Poor signage	Unclear markings for lines	2	2	2 percent
Total			**91**	**100 percent**

Table 6: Obstacles encountered when going through the security checkpoint

As illustrated in Table 7, respondents who encountered problems or obstacles when using airport amenities, shops and restaurants stated that some shops and restaurants were too crowded, with tables too close together or aisles too narrow (28 percent) and the facility overall was poorly designed (28 percent). The height of counters, tables/stools, and sinks and hand driers in restrooms was also mentioned as not meeting individual needs.

Category	Description	Frequency	Total Frequency	Percentage
Crowded space/aisles	Limited space/aisles (crowded restaurants, close tables, narrow aisles in shops, limited maneuvering space)	18	18	28 percent
Poorly designed facilities	Steep ramps, high sink/hand dryers, limited number of large bathroom stalls, height of counter, table/stool, inaccessible charging stations	18	18	28 percent
Public's ignorance of disability needs	Abled people using accessible bathroom stall or table	7	7	11 percent
Service animal issues	Denied service; harassing SA, asking for SA identification	7	7	11 percent
Poor signage	Lack of signage/direction; not knowing airport layout; not knowing when food is ready for pick up	5	5	7 percent
Lack of assistance	Lack of assistance	2	5	7 percent
	Hassle with luggage	3		
Poor service	Poor customer service; no respect	3	3	5 percent
Non-English-speaking staff	Non-English-speaking staff in restaurant/shop	2	2	3 percent

			65	100
Total			65	100

Table 7: Obstacles encountered while using airport amenities, shops or restaurants

The two main problems respondents experience while at the gate and during the boarding process (Table 8) are the staff's lack of knowledge of how to serve passengers with disabilities (32 percent) and unreliable and/or lack of service in general (22 percent). Respondents reported staff's lack knowledge of how to handle wheelchairs, of the boarding procedures for passenger with disabilities, in addition to not listening to how the passenger wants to be helped. Problems with service include staff not informing passengers with disabilities about any flight or gate changes, the requested wheelchair service was not available upon landing, and they were not offered the opportunity to pre-board.

Category	Description	Frequency	Total Frequency	Percentage
Staff's lack of knowledge about disability	Staff do not know how to tag/handle wheelchair/equipment	6	28	32 percent
	Staff don't know how to help, don't know policy/rules or boarding process, use improper questioning, don't know how to handle SA, ask caregiver questions	10		
	Staff ignorant of PwD needs (misunderstanding of needs; fail to listen, improper touch, refusing to help, not allowing SA to pre-board)	12		
Unreliable and lack of service	Forget to inform about changes, not offering pre-boarding, unfriendly staff, disability info not in system, assistance/aisle chair not there, lack of transfer/boarding assistance	19	19	22 percent
Inaccessible waiting and boarding area	Inaccessible counter/seat, power outlets, no place to sit close to gate, stairs, no handrails, steep ramps	10	10	11 percent
Long waiting time	Takes a long time to board or depart the plane	8	8	9 percent
Aisle chair	Difficulty of using aisle chair (too narrow, clumsy, not padded)	8	8	9 percent
General public's attitude toward disability	General public negative attitude, ignorant of disability needs, staring	6	6	7 percent
Unclear instructions	Unclear instructions and announcements; lack of visual messaging	4	4	5 percent
Service animal issues	SA needs extra time, not always allowed to pre-board	4	4	5 percent

Total		**87**		**100 percent**

Table 8: Obstacles encountered while at the gate and during the boarding process

IV. Desired services not currently available

Table 9 shows the services that respondents would like to have at airports that are not currently available. Most suggestions relate to physical accessibility, including increasing the number of large stalls in restrooms, transportation (e.g. vehicles and in-terminal carts) throughout terminals, accessible percent/pick-up zones, kiosks and waiting areas (30 percent). Respondents also emphasized the need for better staff training to provide proper and timely service to passengers with disabilities (17 percent). Respondents also suggested that airports add audible signs, tactile maps, GPS-based apps, and visual/audio boarding information (12 percent). Additional animal relief areas inside the terminal and consistent procedures for service animals (12 percent) were also mentioned.

Category	Description	Frequency	Total Frequency	Percentage
Accessible restrooms & places	Multiple large stalls, family restrooms, universal design	14	28	30 percent
	Accessible drop off/pick up zone/ curb cuts	3		
	Accessible transport to/from terminals, cart in terminals	4		
	Accessible tables/counters/kiosks	4		
	Designated waiting space for wheelchairs, quiet place	3		
Staff training	Consistent training for staff on proper and timely service	15	15	17 percent
Digital signs/maps	Clear signs (audible signs/digital direction system, tactile maps and maps for direction; iBeacons, GPS-based airport app) visual and audio boarding information	11	11	12 percent
Service animal	More inside relief space for SA, consistent procedure for SA	11	11	12 percent
Assistance	More assistance to PwD for luggage, transport between terminals, security	7	7	8 percent
Stronger law enforcement	Enforcement of accessibility-related rules (police, signage to designate priority, accessibility officer on-site, video screening device)	5	5	5 percent
Accessible parking	More accessible parking, closer parking	4	4	4 percent
More quality aisle chair	More aisle chairs, more comfortable chairs	3	3	3 percent
Accessible security check	Designated wheelchair accessible security check	2	2	2 percent

Category	Description	Frequency	Total Frequency	Percentage
Shorter wait	Quick equipment transfer system, quick-response assistance	2	2	2 percent
Recovery service	Recovery service for wheelchair repair	1	1	
Adult-size changing table	Adult size changing table	1	1	
Reservations w/ disability profile	Be able to confirm disability tag/profile after reservation	1	1	5 percent
Video phones	Ability to call shuttle or hotel	1	1	
Allow a practice run through the airport	Practice run though airport/security before flying	1	1	
Total			**93**	**100**

Table 9: Currently unavailable services that are needed at airports

Table 10 presents services that respondents would like to see airlines provide, including the need for accessible aircraft restrooms (18 percent), additional staff training on how to assist people with disabilities, better facility/device design (15 percent), improved service animal relief areas (9 percent), and improved in-cabin wheelchair stowage (9 percent).

Category	Description	Frequency	Total Frequency	Percentage
Onboard restrooms	Have accessible onboard restrooms	16	16	18 percent
Knowledgeable staff	Well-trained staff with proper knowledge on how to interact with PwD (knowledgeable on ACAA, handling equipment, empathy)	13	13	15 percent
Improved design of device/facilities	Aisle chair (more comfortable, on-board all flights)	6	13	15 percent
	Accessible check-in counter, wider aisle, moveable arm rest, accessible lounge area, trays for bulkhead seats	7		
Service dog service	SA relief area in terminal, best seats for SA, larger relief area	8	8	9 percent
Wheelchair storage	Store wheelchair in cabin	4	7	8 percent
	Transport the wheelchair properly	3		
Shorter wait	Reduce waiting time (readily available transfer/chair help, quick transport of WC, better airline/airport coordination; allow pre-boarding)	7	7	8 percent

	Handout to offer necessary information, safety info, make info available online	5	5	6 percent
Accessible information				
On-site assistance	Supervisor on-site; apps for immediate on-site support	2	4	5 percent
	Help with carry-on, stronger help	2		
More legroom	Reservable bulkhead seating/ more leg room at no extra cost	4	4	5 percent
Better signs/maps	Maps for plane	2	3	3 percent
	Captioning for movie/announcement	1		
Better communication	Apps for reporting issues, flight delays to connecting flight, between contractors and airline	3	3	3 percent
Better compliance	Better compliance with ADA/ACA	2	2	2 percent
More free bag check-in	More free bag check-in	1	1	
Online ticketing	Online ticketing	1	1	3 percent
video phone	Video phones in public area	1	1	
Total			**88**	**100**

Table 10: Currently unavailable services that are needed from airlines

Table 11 outlines the services that respondents would like to see provided by airline service companies. The main suggestion is improved staff training to better prepare staff to assist and interact with passengers with disabilities. (40 percent).

Category	Description	Frequency	Total Frequency	Percentage
Better trained staff	Better educated staff on how to interact with PwD needs	19	19	40 percent
Service animal services	Better ability to identify seating to accommodate SA, trained staff to deal with SA, more relief areas	4	4	8 percent
Accessible transportation	More accessible transportation, car rental	3	3	6 percent
Accessible lavatory	Lavatory design on safety menu	1	3	6 percent
	Accessible lavatory	2		
Reliable assistance	Meet landing plane on time	1	2	4 percent
	Stronger helper	1		
More/Better aisle chairs	On-board aisle chairs on all flights; better designed	2	2	4 percent
Shorter wait	On-time assistance between flights, quick equipment transport	2	2	4 percent

Better information	Sync website disability section with team; connection gate information before landing	2	2	4 percent
More leg room	Larger space for legs	1	1	24 percent
Apps to support on-site issue	Apps for onsite support (confirmation, aisle chair, issues)	1	1	
Food delivery	Food delivery at gate	1	1	
Accessible emergency exits	Accessible emergency exits	1	1	
Accessible counter	Lower counters	1	1	
More parking	More accessible parking	1	1	
Dedicated waiting areas	Dedicated waiting areas	1	1	
Online options for assistance	Consistent options to request WC assistance	1	1	
Adjustable thermostat	Adjustable thermostat	1	1	
Visual displays	More visual displays	1	1	
Wheelchair in cabin	Take power chair to cabin	1	1	
Other		1	1	
Total			**48**	**100 percent**

Table 11: Currently unavailable services that are needed from an airline service company

V. Innovations and Best Practices

Respondents were asked to list and describe innovations or best practices they've seen from an airport, airline or service company. Innovations with multiple responses include visual paging with high contrast displays, service animal relief areas with good design, and non-restrictive airline seating policies for passengers with disabilities (i.e. bulkhead seats available for any person with a disability).

Respondents were asked for any additional comments about their air travel experiences. Topics most often referenced were service animal issues such as maintenance of relief areas and difficulties with other travelers and illegitimate service animals, staff education and the need for mandatory disability assistance training, and wheelchair stowage training for ground handlers.