



Seattle-Tacoma International Airport Accessibility Assessment and Research Project

Open Doors Organization
2017



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Executive Summary

As the Seattle-Tacoma International Airport (Sea-Tac) continues to see a significant increase in travelers, from 42 million passengers in 2015 to over 45 million in 2016, the Port of Seattle accepted the challenge of becoming the “most accessible airport” in the country. The continued growth of Sea-Tac is important as upcoming construction on the new International Arrivals Terminal will bring more visitors from around the world, many having different needs, and inclusion will grow in importance. The Port Commission and the people of Seattle-Tacoma believe that access and inclusion is of utmost importance and therefore commissioned the project.

The first step in this process was contracting the Open Doors Organization (ODO) to conduct the *Seattle-Tacoma International Airport Accessibility Assessment and Research Project* to determine the current state of airport access for travelers with disabilities, older adults, non-English speakers and families with small children. Following this determination, ODO would develop recommendations for addressing any identified areas of improvement to be used as a resource in current and future facility enhancements.

In order to develop a comprehensive understanding of access at Sea-Tac, the research project had four major components: (1) four airport walkthroughs to assess the accessibility of all airport facilities with focus on physical accessibility, wayfinding and navigation, ease of independence, and overall airport experience; (2) six feedback meetings with nearly 70 members of Seattle’s disability community to gain insight into the barriers and obstacles travelers with disabilities face at the airport; (3) thirteen feedback meetings with nearly 50 Port and airport employees, vendors and stakeholders to gather feedback about how they feel access can be improved in all facets of the airport experience; and (4) research into US and international airports on best practices currently in place to improve the accessibility of their facilities and services.

As the information from feedback meetings and walkthroughs was evaluated, a number of common themes emerged as key focus areas for improvement. Improvement areas with the most identified challenges are: (1) *Wayfinding and Signage* (2) *Personnel and Training* (3) *Communication and Provided Information*; and (4) *Service Provision (Wheelchair Service and Carts)*. Other focus areas include *Elevators, Escalators and Moving Walkways, Lighting, and Restrooms*. A total of 25 focus areas are detailed in the final report.

The final section of the report categorizes each recommendation into two, five, and ten year goal ranges based on priority and ease of implementation. The goal ranges are to be read as “complete within two years”, “complete within five years”, and “complete within ten years”. It should be noted that among the identified recommendations, only some are a compliance requirement of the Americans with Disabilities Act (ADA) and 2010 Americans with Disabilities Act Accessibility Guidelines (ADAAG). A majority of Sea-Tac’s facilities were built prior 1990 when the ADA was signed into law, which allows alterations for compliance to be completed during planned renovations. With that said, the recommendations pertaining to ADA compliance identified in this report should be implemented as soon as readily achievable*.

* *Per the ADA, readily achievable means that barrier removal is easily accomplishable and able to be carried out without much difficulty or expense.*

Report Overview

The following report details the assessment process and the means at which improvement areas were identified, a comprehensive list of each improvement area and its related recommendation for improvement, and a suggested timeline classifying each recommendation into a 2, 5 or 10 year goal range. In order to prioritize recommendations, each recommendation falls into a “Primary” or “Secondary” classification. Although all challenges expressed in feedback meetings are important, “Primary” recommendations pertain to challenges that benefit a larger population and/or significantly affect a traveler group and “Secondary” recommendations are less essential to a positive traveler experience and may affect a much smaller demographic.

Accessibility Assessment Methodology

In order to complete a full assessment of the accessibility of Sea-Tac’s facilities and operations, ODO conducted four comprehensive facility walk-throughs, six feedback meetings with members of Seattle’s disability community, and thirteen meetings with Sea-Tac employees, vendors and stakeholders. Obtaining feedback from those who use the airport most often, whether as a traveler or as someone who works in the airport, quickly became an essential factor in identifying areas of improvement. All of the feedback gathered from each meeting has been included at the end of this report.

Sea-Tac Facility Walk-Through

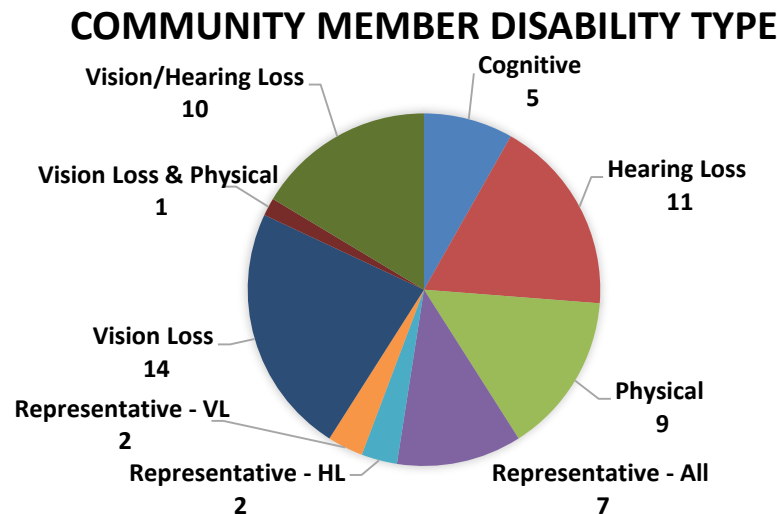
Conducting multiple airport walk-throughs allowed ODO to see Sea-Tac operations and the built environment in its entirety. During the walk-throughs, each concourse was assessed, including the North and South Satellites. In addition, ODO visited the following major touch points:

- | | |
|--|--|
| - Rental Car Facility | - Hotel shuttle drop off |
| - Parking garage | - Journey to transit light rail system |
| - Curbside service (departures/arrivals) | - Ticketing/check in |
| - Security | - Restrooms |
| - Dining/retail | - Service animal relief areas |
| - North/South Satellite transit system | - Baggage claim |
| - “Back of house” operations | - Taxi, rideshare and shuttle areas |

While the criteria for necessary accessibility features differs from one space to another, the general criteria included lighting, signage, wayfinding, design, layout, walking paths, restrooms, ambience, sensory impact, and provided information (visual and audible). In addition to these, seating and overall ease of independent navigation and use of a space or service were also considered. The last walk-through included members of Seattle’s disability community representing individuals with vision loss, autism and reduced mobility. Findings from the walk-throughs have been included in the combined feedback from the community and Port feedback meetings and noted throughout this report with supplemental photos.

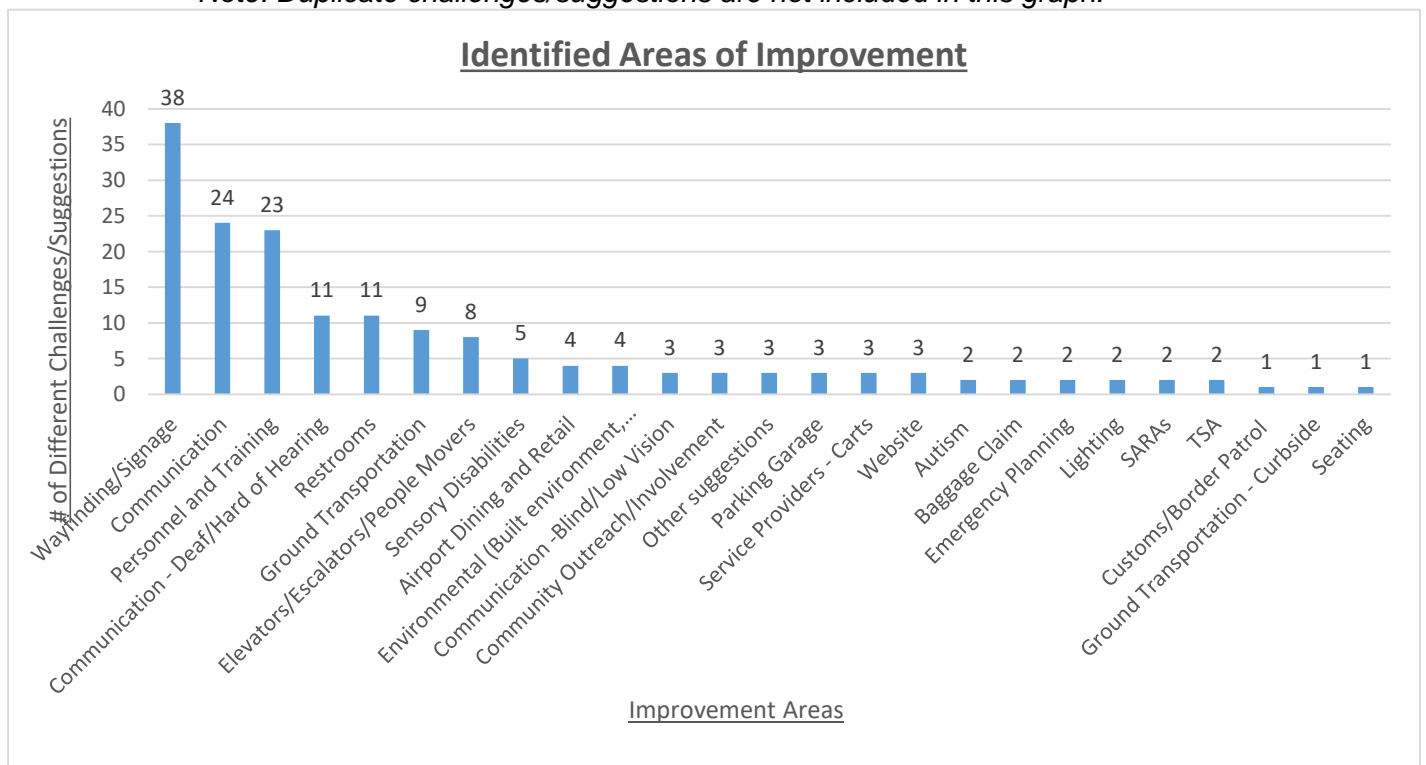
Seattle Disability Community Feedback Meetings

Following the start of the project, the involvement of Seattle's disability community and their insight surrounding challenges they face while traveling through Sea-Tac became a crucial aspect of identifying and addressing each improvement area. Over a three month span, ODO conducted six separate community meetings and met with nearly seventy people, some of whom had disabilities themselves and others who represent individuals with disabilities. Among this group, each major disability type was represented as shown in the chart below.



With each disability type represented, the feedback gathered from these meetings addressed a variety of challenges faced by a vast array of travelers. During the community meetings, attendees were asked to share their Sea-Tac travel experiences, both positive and negative, and to provide specific examples for areas they feel need to be improved. The following graph shows the number of challenges or suggestions under each identified area of improvement.

**Note: Duplicate challenges/suggestions are not included in this graph.*



Sea-Tac Employee, Vendor and Stakeholder Feedback Meetings

In addition to obtaining feedback from those who travel through Sea-Tac, it was also important to gather insight from those who work at the airport who personally experience, see and/or hear about challenges faced by employees and travelers. To gather this insight, ODO conducted thirteen meetings with nearly fifty representatives from various Port and airport departments and vendors and stakeholders that operate within the airport. The meeting groups were separated into the following categories:

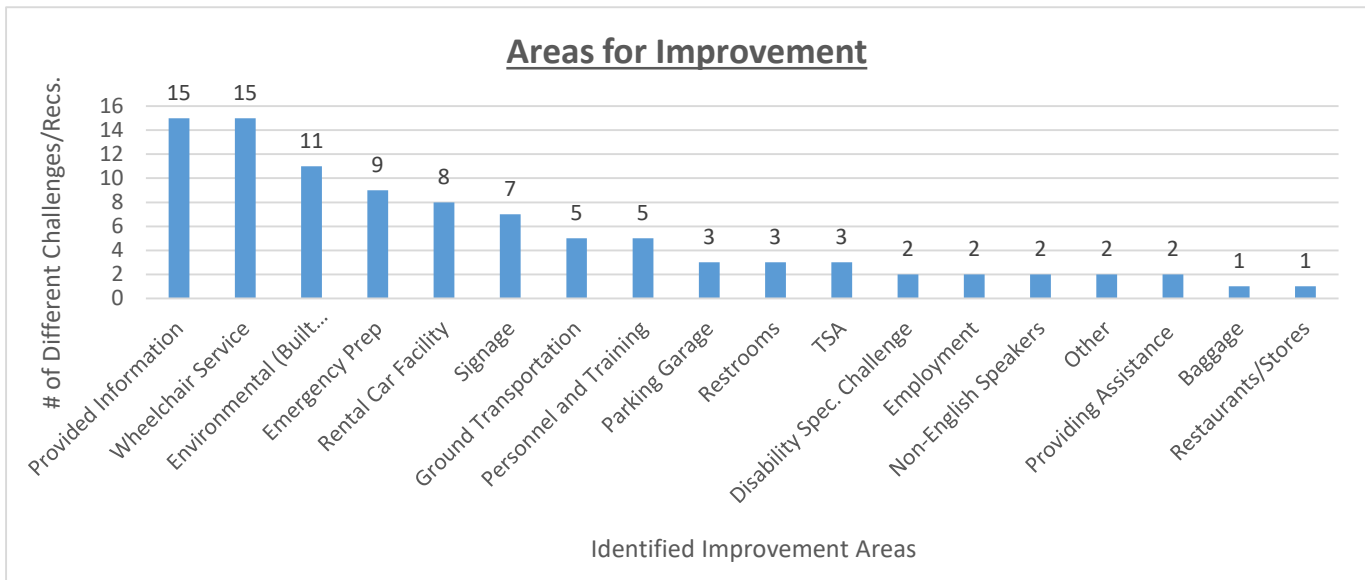
- Airport Dining and Retail, Janitorial and Maintenance
- Customer Service, Pathfinders and Volunteers
- Transportation Security Administration (TSA), Customs and Border Patrol (CBP)
- Architects, Planning, Signage/Wayfinding, Management
- Ground Transportation
- Operations and Customer Service
- Police
- Technology
- Ground Transportation Providers
- International Airlines
- HR and Public Affairs
- Individual meetings with US airline representatives

Attendees in these meetings were presented with general questions about the airport's accessibility along with questions specific to their department's operations as related to access at Sea-Tac. They also had the opportunity to think freely and give creative ideas to how they view access and inclusion. Among these questions were the following:

- What is your department currently doing to accommodate travelers with disabilities?
- What feedback does your department receive, both positive and negative?
- Where do you see areas for improvement in facilities and operations?
- When determining new projects, does your department include accessibility in the plan?
- What is your interpretation of accessibility in airports?

Similar to the community meetings, all of the feedback obtained from the employee, vendor and stakeholder meetings was categorized into "common themes". The following graph shows the identified improvement areas and number of suggestions within each area.

**Note: Duplicate suggestions are not included in this graph.*



Accessibility Challenges Already Addressed by Sea-Tac

Although many improvement areas were identified during walkthroughs and feedback meetings, Sea-Tac is not an inaccessible airport. The airport is quickly outgrowing itself and with space constraints, providing seamless service and easy navigation for all travelers is difficult, which is why many of the identified improvement areas surround *airport experience* rather than a *general lack of access*.

As Sea-Tac continues to grow, new projects and programs consistently address the needs of travelers with disabilities, older adults, international/non-English speaking travelers, and families with small children. This is apparent in currently planned construction projects, upgrades to technology, and past facility enhancements, and now, this airport accessibility research project that will be used as a resource for the future. The following is a brief outline of what Sea-Tac has done, or plans to do, to address accessibility.

- “Ask Me” Buttons – In an effort to make identifying Port employees and volunteers (Pathfinders) easier, employees and volunteers now wear “Ask Me” buttons to encourage travelers to approach them with questions. These buttons have already had a positive impact as airport employees expressed an increase in the number of questions they are asked when the “Ask Me” button is worn.
- Restrooms – A full restroom renovation project is currently being planned. During the planning stage, a group of airport planners and architects spent a week visiting airports with newly renovated restrooms to get design ideas specifically related to accessibility for travelers with disabilities and families.
- Adult Changing Tables – Within the restroom renovation project, at least one adult changing table will be added to a family restroom in the North Satellite, the main terminal, and the International Arrivals Facility.
- Children’s Play Area – To accommodate families with small children, Sea-Tac built a centrally located children’s play area with an adjoining private room.

- McDonald's Ordering Technology – McDonald's has installed technology that allows travelers to order quickly through a machine rather than waiting in line. While the technology is a touch screen computer, a call button was also installed for travelers needing extra assistance.
- Airport Train System – There are current plans to upgrade the North/South Satellite train systems. The upgrade will include visual and audio announcements and additional signage to help with navigation.
- Mamavas – Accessible lactation suites called Mamavas have been added to each airside building to provide a private nursing space for mothers.
- Wayfinding Application – Currently in development with technology company LocusLabs, Sea-Tac is building a smartphone/tablet application that will assist travelers in navigating through the airport with turn-by-turn directions and a comprehensive airport map. The app will also have information about available services, and dining and retail options. This app can also allow travelers who are blind or have low vision to navigate the airport independently with the inclusion of location services.
- Website – Sea-Tac is currently working on a new website layout and reviewing content to later include more detailed accessibility information.
- Hard Stand Gates – In new hard stand holding areas, converted trucks and passenger lifts have been built into plans to accommodate travelers with wheelchairs and scooters. These would be considered an extra step in helping the airlines accommodate their passengers in an efficient manner and thus encourage carriers to consider flying into Sea-Tac versus other airports.
- Therapy Dog Program – Every two weeks, a volunteer therapy dog program visits the airport to provide comfort for anxious travelers. This program has been well received by the public with a lot of the feedback surrounding the appreciation and joy the dogs bring to travelers.
- Wings for Autism – In Fall 2017, Sea-Tac hosted a Wings for Autism program which invites people with autism to visit the airport and experience the airport travel process. The Arc, a national advocacy organization for individuals with intellectual disabilities and their families, is providing training for TSA agents in preparation for this program. Alaska Airlines also conducts an autism program that the airport is involved in.
- Emergency Preparedness – Every three years, Sea-Tac has an emergency plane evacuation simulation that includes people with physical disabilities. Sea-Tac has also installed emergency evacuation chairs in stairwells at the Airport Office Building that can be used to evacuate anyone unable to independently get down the stairs in case of an emergency.
- Non-English Speakers – In the North and South Satellites, audio paging is zoned to use languages spoken by incoming international flights. TSA agents have foreign language resource books with common phrases to communicate with non-English speakers. Interpretation services are available upon request with 170 interpreted languages available 24/7.

- Customer Experience – A Customer Experience Partners Council has been formed that includes representatives from various airport departments to enhance customer experience overall.
- Signage/Wayfinding – There is a study being done on the current state of signage and wayfinding features in the airport which will be used to enhance seamless navigation.
- Community Involvement – Sea-Tac currently consults with the Lighthouse for the Blind and other disability advocacy groups on new projects and orientation programs.
- Check-In Kiosks – All common use kiosks will be updated to reflect the new regulation stating that 25% of the kiosks in each bank of kiosks must be accessible.

Areas of Improvement and Recommendations

As shown in the graphs above, a number of “common themes” emerged with various suggestions and specific challenges within each theme. The following recommendations are separated by theme or focus area and identify the expressed challenge or suggestion, the reasoning behind the need to address this challenge, the means by which Sea-Tac can address this challenge, and if applicable, a cost analysis for implementing the recommendation.

**Note: The “Provided Information” category from the employee/stakeholder meetings has been added to the “Communication” category from the community meetings as the expressed challenges and subsequent recommendations address similar needs.*

Airport Dining and Retail (ADR)

A number of different aspects of ADR operations need to be addressed in order to provide a more inclusive environment and experience for all travelers. While ADR covers Sea-Tac as a whole, a majority of the challenges are experienced in the Central Terminal. This space, frequently referred to as a “nightmare”, “cluster”, and “free for all” by travelers, is very difficult to navigate, specifically for travelers with sensory disabilities such as vision loss and autism. In this space, tables are not bolted down in a fixed position and instead are placed where there’s room for them, there is no clear direction for check-out lines, and the high ceiling gives the space a significant echo which presents a wayfinding challenge for people with vision loss and an overwhelming environment for those with hearing loss and autism. With regard to the echo, someone with autism becomes quickly overwhelmed by the abundance of noise. Someone with vision loss, because of the noise level, is unable to use their hearing adequately for navigation assistance. In addition to the general use and navigation of the Central Terminal, the restaurants in this section of the airport also have room for improvement. In most fast food restaurants, the menus are placed near the ceiling and behind the cashier which is difficult for someone with vision loss to read as the menu has fairly small font and poor color contrast. This, in addition to the lack of braille menus, makes it nearly impossible for many people with vision loss to order independently. This also affects ADR operations because often times, the restaurant worker has to verbally give each menu item to the customer which can be time consuming for the traveler, employee and others waiting in line.

Throughout the rest of the airport, ADR presents challenges aside from navigation and menu accessibility. In many restaurants, wheelchair accessible seating is often limited to dining room

tables only without many options for a wheelchair user to sit at the bar. At airports in general, if there is access to a lower section of the bar or counter, it is typically placed out of the way and used for alternative purposes. Wheelchair access at tables is also a challenge in the Central Terminal as people with protruding wheelchair footplates are unable to pull very far under the table because the table stand is too large. This can be fixed with a smaller base or with tables with legs on the four corners. Additionally, travelers who use wheelchairs and people of short stature are often faced with high check-out counters and merchandise shelves in retail shops, making it difficult not just to pay for their purchases, but to even find what they need. Many ADR's are short staffed so if there is only one person working, giving personal, specialized service or reasonable accommodation to people with disabilities and non-English speakers becomes difficult. Time is always an important barometer of an airport and it is because of this that taking time to help an individual is often diluted.

Primary Recommendations:

- Restaurants should have Braille menus available and where menus are posted behind a counter, a large print hard copy should be available either as a book or posted on the counter to be viewed closely.
- In stores, a clipboard should be available for cashiers to give wheelchair users a hard surface to use.
- Training should be adjusted to include aspects of the ADA and reasonable accommodations. There should also be a disability/older adult awareness component with tips and ideas on how to properly help these passengers.
- Add tables with four legs (open center) or smaller bases for wheelchair access.

Secondary Recommendations:

- Require ADR's to go through a checklist supplied by the airport with necessary access features in ADR locations. This will help with consistency and provide a quick resource for employees.
- Increase the number of accessible seating options at bar counters.
- Identify accessible counter space with universal sign of accessibility sticker/sign placed directly on top of the counter, on a wall adjacent to the counter, and/or on front vertical face of the counter.

Autism Spectrum Disorder

According to the National Institute of Child Health and Human Development, approximately 1 in 68 children in the United States currently has autism. With the number of diagnoses on a steady increase, it's important to address the needs of individuals with autism, especially in a typically overwhelming environment such as an airport. While the range and severity of symptoms differ from one person to another, a common challenge for the autism population is processing sensory input such as loud noises, flashing lights, and being touched. With this challenge, a person can quickly become overwhelmed and often times, if a person is unable to calm

themselves down, they essentially lose behavioral control which may be expressed verbally and/or physically.

A community member with autism and sensory processing disorder (SPD), a diagnosis often accompanying an autism diagnosis, described airports as a “sensory hell”. The unexpected sounds, typically fluorescent lighting that flickers and buzzes, large crowds, and overall size of the airport become very overwhelming, very quickly when there’s difficulty processing and making sense of an environment. For travelers without these challenges, hearing an announcement, walking to a security line, and seeing a large crowd are just another part of being in an airport. But for someone with a sensory processing disorder, they are trying to identify and understand what the announcement is saying, trying to figure out which line to go to, and are getting nervous about the large crowd, all while being hustled through a fast paced environment. It is because of these reasons that air travel is often avoided by people with autism and their families.

The quote “If you’ve met one person with autism, you’ve met one person with autism” rings true in that each person’s needs and preferences are different, making it nearly impossible to make changes that will benefit everyone. Subtle changes to lighting and signage should be made to address autism in general but one of the best ways to help someone cope with their stress is to give them a private space to do it. The following are recommendations for addressing challenges the autism population experiences:

- Quiet rooms are becoming an increasingly popular amenity in public places, specifically in overwhelming places like stadiums and airports. A quiet room gives people with autism and their families a convenient space, away from other people, to take a break from the commotion. Quiet rooms should be dimly lit, have minimal echo, be somewhat spacious, and should have multiple seating options, with both hard seats and soft seats to choose from. A potential space already built is the room next to the children’s play area. The cost to retro fit this space is under \$5,000. If another space is found it may cost around \$10,000 - \$25,000 to properly build out.
- Flashing lights can be overwhelming and their use should be kept to a minimum. Sea-Tac has flashing/revolving lights above doorways and on the wheelchair service provider carts and while it is not recommended that these lights be removed, the flashing pattern should be addressed. Lights that flash in a pattern are known to trigger seizures for people with epilepsy, a seizure disorder common with an autism diagnosis. A common trigger is a light that flashes between 5 and 30 times per second, a pattern that overwhelms the brain causing a seizure. If flashing lights throughout the airport could flash inconsistently or at a pace of 1-2 flashes per second, this would decrease the likelihood of a seizure.
- To minimize confusion, specifically in the ticketing area, it would be beneficial for all airlines to make their ticketing/check-in process as easy to follow as possible. Alaska Airlines does a good job of this as they have numbers on their signs indicating step “1” and step “2”. Alaska could go a bit further and specifically state what is entailed in step “1” and step “2” on their signage but for now, other airlines should follow suit. People with autism are very literal and like to have things laid out exactly how they should be done. If each airline had a “Step 1” or “1 – Get Boarding Passes Here” sign then “Step 2”

or “2 – Check Bags Here”, for example, this would provide travelers with clear direction on how to get started.

- Fluorescent lights often flicker and make buzzing noises while illuminated., These noises are difficult for people with autism and SPD to ignore. Because the airport is noisy in general, the buzzing sound was not identified as being as much of an issue as the flickering lights. In baggage claim, fluorescent lights line the ceiling and when walking through the area with the community member with autism, he said his head immediately started hurting and the flickering was getting too overwhelming so he wanted to move on. A simple, low cost solution used in schools across the country are flame resistant shades, also known as “light filters”, that are placed under ceiling lights with magnets to tone down the hue and glare and cover the flickering. The community member stated that putting these shades on the lights, even just on every other row, would significantly improve how he was feeling. The shades can be found online and in some stores, and come in a variety of colors so Sea-Tac can continue the green theme or designs are also available like clouds and blue skies, essentially making the ceiling a piece of art while greatly impacting the autism population.

Product Name(s): Cozy Shades, Fluorescent Light Cover, or Fluorescent Light Filter

Size: Sizes vary, products below are 4.5'L x 2'W

Price: Approximately \$20.00-50.00 for a four pack

Crayola or Cozy Shades Softening Light Filters (photos below)



Primary Recommendations:

- Designate “Quiet Room” locations in terminals.

- Explore options for reducing impact of fluorescent lighting.
- Require sensitivity training for airport personnel and airport vendors.
- Include “autism friendly” information on the website.

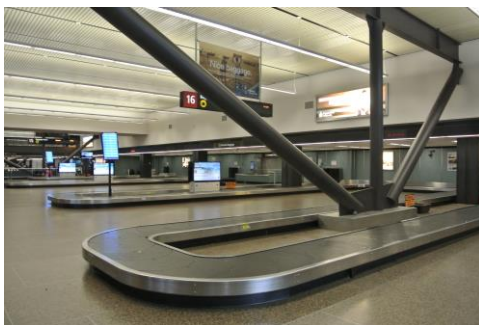
Secondary Recommendations:

- Enhance instructional signage in ticketing areas.
- Explore alternative options for flashing lights on carts, baggage carousels and emergency exits.

Baggage Claim

Feedback regarding the baggage claim area was obtained from the community member meetings, with nearly everyone in agreement that there is room for improvement. Specifically for travelers who are blind, trying to find their luggage on the luggage carousel independently is time consuming and frankly, worries other travelers looking for their luggage because in order to find their bag, a person who is blind needs to touch every bag that goes by them. The only way to recognize their luggage is by physically trying to locate the luggage.

Luggage carousels with a flat conveyer belt rather than a sloped belt presents a challenge as there is no consistency with where the luggage is sitting on the belt nor how it is loaded so luggage can be difficult to get if it is sitting on the inner portion of the belt or sitting in a direction where the handle is difficult to find. This affects little people, people who are blind or have low vision, people with reduced mobility and dexterity limitations. Currently, Sea-Tac has both sloped and flat carousels. The most important change would be creating consistency among all luggage carousels. This may be achieved during any remodel or redesign.



Sea-Tac flat luggage carousel



Sea-Tac sloped luggage carousel

As a reasonable accommodation, and alternative solution to replacing flat luggage carousels, adding airport personnel in the baggage claim area would be helpful as people with vision loss can describe their bag and the employee or volunteer can help find it. For those challenged by different types of belts, personnel can also assist with getting their luggage. In addition to physical assistance, just having a staff presence in baggage claim would benefit all travelers as there would be someone to approach with questions.

Primary Recommendations:

- Station employees or volunteers in the baggage claim area.

Secondary Recommendations:

- Replace sloped luggage carousels with consistent low ridged, slightly sloped, conveyer belts.

Communication

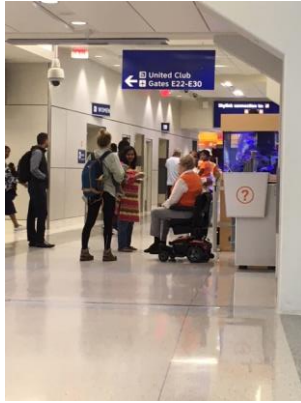
Communication needs to take a variety of forms because of the variety of needs among airport travelers and employees. During the walk-throughs, the presence of verbal, virtual and visual communication was assessed depending on the space. Ideally, any information being communicated to the general public should at least have a verbal and visual element and where possible, virtual communication, or communication using technology, should also be included. The following section includes general feedback about communication, how to best provide information to travelers, specific information for communicating with travelers with hearing loss and vision loss, and available technologies that could assist with communication challenges.

General Feedback

Even for frequent travelers, airports are confusing because no two airports are the same. This is especially the case for those who don't travel often, not only with navigation but also with knowing how the whole process works from planning their travel to arriving at the airport and boarding their flight. Although it's not the responsibility of the airport to ensure travelers are prepared, there is some element of responsibility for making the necessary information available, whether online, in printed materials and signs, or through onsite personal assistance. The more ways and channels this information is available, the more inclusive it becomes.

To make finding information easier, Sea-Tac should utilize the current information booths or kiosks with stationed staff or volunteers during normal hours of operation, and add more throughout the airport. Currently, the two information desks pre-security are typically unstaffed and the overall look is unapproachable as the only visual indicator is a question mark and there are not any printed materials available to take. In fact these information booths are not even marked on the airport map online. While there are volunteers that walk the airport, there is no way to find one unless you know how to identify them. By simply adding a physical description of volunteers online, i.e. green vest and "Ask Me" button, more travelers will know how to locate them. While it isn't feasible to have a lot of these desks throughout the airport due to space constraints, there should be a smaller desk or stand at each major decision point so travelers have ample opportunities to get information. Sea-Tac does have a small information desk in the South Satellite train lobby but as shown in the photo below, this also isn't always staffed. At Dallas-Fort Worth airport, small stands are placed throughout the airport that have staff/volunteers stationed at them (photo below). At Minneapolis-St. Paul International Airport (MSP), information booths are located throughout the main terminal and are staffed by volunteers, or Passenger Service Assistants, seven days a week, from 6:00am to midnight. Aside from being able to obtain directions and information

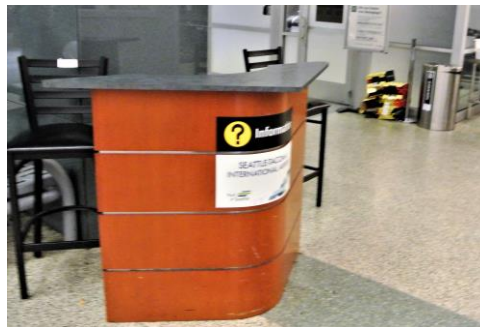
about the airport, airlines and local tourist attractions, travelers can also review the airport-wide audio pages on the visual paging system, use the free American Sign Language and foreign language interpreting services, and can request infant care supplies in times of emergency.



DFW Information Kiosk



MSP Information Desk



Sea-Tac South Satellite Information Desk

The MSP program, referred to as the “Travelers Assistance Program”, generally keeps the volunteers at the booths but they do have roaming volunteers who wear vests to show they can be asked for help. However, the success of this program has much to do with a designated place to seek assistance rather than hoping travelers approach a volunteer walking throughout the airport. This is especially true for travelers with vision loss who are unable to see someone who can help and for foreign travelers who may not equate a person wearing a vest to a person they can approach for help. While the “Ask Me” button program recently implemented at Sea-Tac is a step in the right direction, there should still be easily identifiable, permanent locations for travelers to go. With a permanent desk, specific locations can be included on the website and on a map so they can easily be found by anyone.

During the community feedback meetings, there were a few concerns shared by community members about the lack of various services. However, some of the services mentioned *are* available at Sea-Tac and they were just not aware of them. This incorrect feedback is a perfect example of there not being enough information available about the airport. In addition to this, there are small, easily overlooked signs near at least one elevator (to Mezzanine level) that have information for foreign language interpreting services. This is likely another service not being utilized because people do not know it

exists. Enhanced signage and print material with all of the accessibility services available in multiple formats and in multiple places would greatly enhance traveler knowledge. For example, the airporter assistance phone located on the south end of the main terminal and the assistance phones in the parking garage are not accessible.



Sea-Tac Interpretation Services sign

Primary Recommendations:

- Increase number of information desks, and signage, throughout airport, both airside and landside.
- Staff the current information desks with at least one staff member during the day.
- Develop accessibility services pamphlet as a handout for travelers.
- Make all accessibility service information available on the website.
- Enhance signage for accessibility services.
- Add accessible assistance telephones.

Secondary Recommendations:

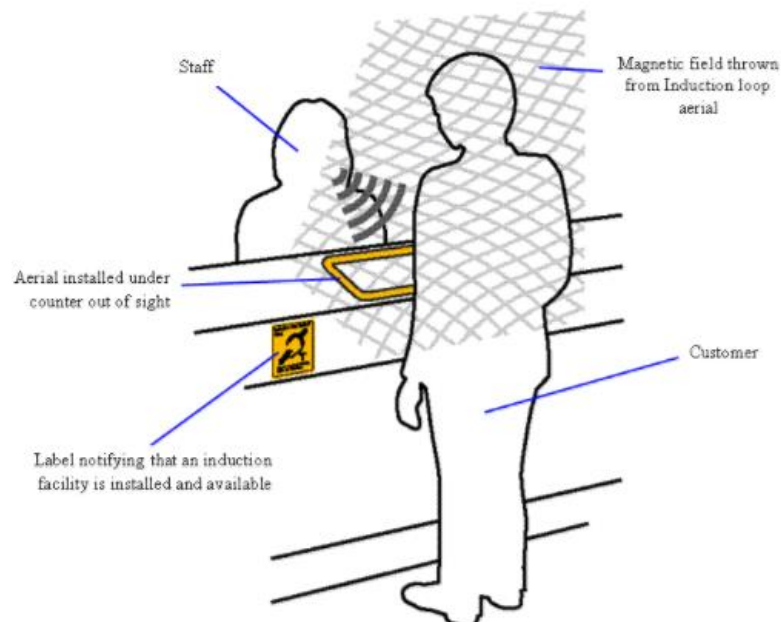
- Work with local tourism organizations to obtain information about Seattle to encourage travelers to use information desks.

Travelers with Hearing Loss

Communication with travelers who have hearing loss can be difficult for both the traveler and airport personnel without the right information, resources or processes. Specifically in the customs and border patrol (CBP) area, community members expressed difficulty in knowing how to proceed through this point in their travel with questions including “Where do you bring your passport?” and “Where do you bring the customs form?” Because most of the direction in this space is verbal, travelers with hearing loss are often faced with trying to follow what others are doing. When it is time to approach the officer, the lack of interpreting services requires the traveler to communicate by writing or typing messages into a phone which then makes an already stressful environment even

more stressful. In general, wherever there is an interpreting service available for foreign travelers, there should also be an interpreting service available for travelers who use sign language with simply writing down information as a backup. It can also be difficult for travelers to know when it's their turn to approach the officer, especially for those with both hearing and some vision loss. A red light/green light system where the green light would indicate it was OK to approach the desk would be helpful in knowing when it's their turn. Charles de Gaulle International Airport in France uses this system in the customs and border patrol area, with a person-shaped light that switches from red to green when the traveler can approach the desk (pictures unavailable due to airport photo restrictions). Visual resources overall, regardless of complexity, are useful. While a red and green light system may be helpful in CBP, communication cards or signs in other areas would also help.

A hearing loop, also known as an audio induction loop, is a wire-based magnetic system that connects to hearing aids and cochlear implants with telecoils (t-coils) to enhance the sound transmitted through a public address system to the hearing device. Hearing loops are the most cost effective way to reach the majority of travelers who are hard of hearing. For smaller areas, installation does not typically require a facility to make architectural modifications or major changes to an area's layout as a small loop system only requires placement near a microphone and a desk or counter for wire installation. As shown in the diagram below, a loop system's wiring and sound amplifier are installed near the area where most of the sound is transmitted such as an airline's ticketing counter. When the t-coil in a hearing aid or cochlear implant is switched to "on", the words spoken into a microphone or public address system are transmitted to the amplifier and wires, which then magnetically connect to the t-coil and enhanced volume and clarity of the spoken words is the result.



HearingLink.org - Hearing Loop System installation diagram

While a hearing loop system is compatible only with hearing aids and cochlear implants that have t-coils, a majority of these devices do have the needed equipment. In

instances where a trial-period is needed to determine whether a loop system is feasible for a facility, there is a lot of flexibility in installation location. Loop systems can be installed in fairly small spaces such as one ticket counter per airline or in large auditorium-style rooms such as a church or theater. In a larger space, the loop system's wires are typically installed at the base of the wall and under flooring so some construction may be required. Following installation, each space with an installed loop system has the label below stating its availability. Currently, a majority of Sea-Tac's FIDS have the symbol below on them without the letter "T". This is confusing as it looks like a hearing loop may be available when it isn't.

The cost of loop system installation varies greatly depending on the size of the space and provider. According to the hearing loop organization American Hearing Loops, small installations may cost \$2,500.00-\$4,500.00 and larger venues can cost between \$5,000.00 and up to \$35,000.00 depending on size and construction of the room. These price ranges are approximations but various providers should be contacted for quotes.

"Let's Loop Seattle", LoopSeattle.org, has installed loop systems at facilities throughout the state of Washington. The organization does install temporary systems to show the ease at which they are installed and demonstrate how the system as a whole works. They can be contacted through their website for more information.



Primary Recommendations:

- Install Hearing Loop Systems at ticketing counters, holding rooms, and wherever announcements are made.
- Make communication cards available at TSA and CBP.

Secondary Recommendations:

- Install "red light, green light" or alternative visual notification system in areas where travelers are notified that they can approach a desk (TSA, CBP).
- Loop the entire airport facility.

Travelers with Vision Loss

Communicating with travelers with vision loss becomes much less of a challenge when the necessary resources are available. People with vision loss frequently go online prior to traveling to review the airport layout, what services are available, and when included online, the specific locations of various facilities such as service animal relief areas, restrooms near their gate, security checkpoints in relation to their gate, and any other amenity they may have interest in visiting. To this point, specific location information should be made available for any service or amenity listed online. Currently, some location information is available for the service animal relief areas, but the information is vague and incomplete. When looking at the dining and retail options, location information stops at which concourse the restaurant or store is located in, but additional information would be much more helpful. For example, “*Maki of Japan is located in the Central Terminal between Pallino Pastaria and Wendy’s.*” When this information isn’t available prior to their date of travel, the need for assistance at the airport increases. This is also why it is so important to make maps on the website accessible to people using alternative devices to read their computer screen. Maps should work with screen reading software such as JAWS and Kurzweil, and the dozens of others available. It should be noted that when making this information available, putting the information in PDF form makes it less accessible to most screen readers.

Although the internet is a good resource, not everything can be made available online. When certain information is only provided at the airport, there should be ways for someone with low vision to read it. During a community meeting, the customs declaration document was used as an example of an item that challenges people with low vision. If a magnifier machine was available in the CBP area, travelers could enlarge the text, make the page brighter, and depending on the screen, alter the color contrast to their preferences. This would really only be needed in areas where documents cannot be printed with larger font, like a customs form. It should be noted that a magnifier is a table-top machine that needs to be plugged into a power outlet to operate. To this point, if a magnifier is made available, a table or desk near a power source will be required. In areas where the airport provides hard copies of information, alternative options with large font should be available upon request.

Mezzo High Definition Electronic Magnifier

Price: \$3,714.50



A number of concerns were expressed regarding airport announcements and how difficult it is to hear them. Travelers with vision loss depend heavily on hearing airport announcements because often times hearing the announcement is the only way they'll receive the information. The Central Terminal is difficult to address given the height of the ceiling and the number of people there at any time. However, the public address

(PA) system throughout the rest of the airport should be looked at to ensure the equipment used and placement of the speakers are optimal. While specific speaker placement was not addressed on the walkthroughs, frequent announcements were missed both in busy areas like Central Terminal and in fairly quiet areas like Gate S5.

There are a number of best practices for optimizing the clarity of public address announcements. The following excerpt is from the “Indoor Airport Wayfinding for Blind and Visually Impaired Travelers” technical note from the US Department of Transportation and Federal Aviation Administration:

“All airport travelers rely heavily on public address (PA) announcements. These announcements are particularly significant for the BVI traveler who may not be able to see and read critical announcements on flight status displays at the gate and elsewhere. The acoustic quality of PA announcements is also obviously critical to people with hearing loss. The intelligibility of PA announcements depends on many elements ranging from the environmental condition, the specifics of the infrastructure, and the sound system used. One of the most critical elements affecting the clarity is to minimize background noise at the source. It is suggested that announcements be made from a quiet environment, ideally in a voice-over quality booth. While this may be possible for terminal-wide announcements from a centralized location, it would not be viable for localized announcements within the individual gate areas. Nevertheless, design of the podium areas from which announcements are made could help minimize the likelihood of background noise and include a high-quality directional microphone. Additionally, it is recommended that the cables and the loud speakers for the PA system be of high quality, and the cables need to be shielded. Finally, the loudspeaker system and interior acoustics of the terminal need to be integrally designed for best acoustic clarity. This requires a coordinated design effort where reverberation qualities of the terminal are considered when specifying the type, location, and orientation of PA loudspeakers. Efforts could be made to target reverberation times in the terminal in range of 1.5 to 2.5 seconds, which will also help with overall loudness during high-activity periods. Loudspeakers with higher degrees of pattern control are needed for more reverberant spaces. Integrated models of room acoustics and loudspeaker simulators could be built to calculate and map intelligibility on the occupied areas of the floor base on loudspeaker specifications, while taking reverberant level, late acoustic reflections, and background noise into account. This same process and level of care and specificity could be required for systems that are to be developed through design/build procurement systems. PA system integration design should never be made on generalized assumptions of room acoustics.” – *Page 7-8*

Primary Recommendations:

- Address PA system and make placement changes if necessary.
- Make directional information about specific airport locations available online.

Secondary Recommendations:

- Explore text magnifier options for areas with unalterable documents.

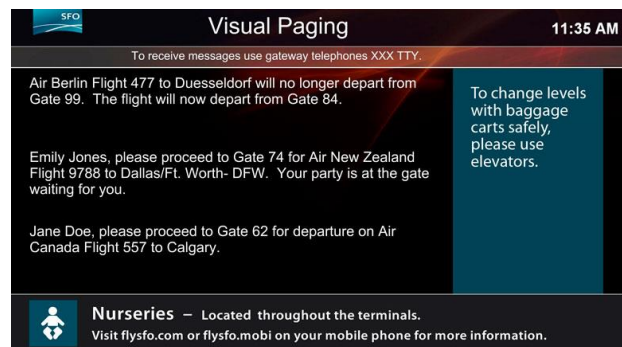
Technologies

Technology to facilitate communication and provide information to travelers is the most efficient way to connect with travelers. Travelers with smartphones, regardless of disability type, would prefer to have information available directly on their phones because their phones are customized to meet their needs. For travelers without a smartphone, visual paging and announcements on screens across the airport are much easier to notice than attempting to listen to them. Aside from what the airport is communicating to travelers, staff and volunteers are expected to communicate with travelers of all walks of life including foreign language speakers and people who are deaf but this is difficult without technology. The following are technological innovations to assist with communication:

- Flight Information Displays (FIDS) and video monitors across the airport should all have visual paging and captioned announcement capabilities. Visual paging systems are located in dozens of airports across the globe and could be considered a staple product for access and inclusion at the airport. At present, FIDS at Sea-Tac only display lost luggage notifications and do not incorporate any other announcements. Many announcements are missed because they only come across verbally and they are typically inaudible. If adding displays to each bank of screens for visual paging is not feasible, there are alternative options that have been adopted by other airports. At PHL, their FIDS are placed in banks of six screens with one screen designated as the information screen, displaying visual pages and airport announcements. At SFO, the designated visual paging screens also have additional information such as the availability and location of family restrooms and service animal relief areas. At MSP, visual pages are available on a designated screen at each information booth. If a passenger missed their page, they can visit the information booth and scroll through each of the messages to find theirs. In addition to this, MSP also puts all of their announcements on their website so they can be viewed online. Some airports such as SAN and MCO have screens that rotate between a visual page and flight information. These screens change roughly every 10-15 seconds. This design is good for saving space and not having to dedicate one screen to visual paging.



MSP Visual Paging with scrolling button



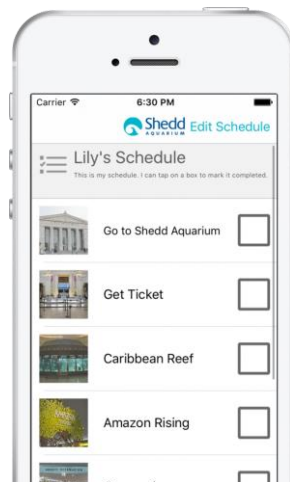
SFO Visual Paging

- MSP has a text messaging service available that allows travelers to text questions directly to a MSP representative. The number is posted throughout the airport and when a traveler has a question, they simply text the airport and a live airport employee responds to their question.
- Although Sea-Tac does have language phone lines available that connect travelers to interpreters, portable technologies may provide more efficient translations. There are many foreign translation programs available for download on iPads and tablets (recommended programs below). If tablets were placed at information booths, TSA and CBP, language barriers would be less of a challenge. While applications vary in the number of available languages, the software allows the user to select the initial spoken language then choose what language to translate it to. Other varying features between applications are the number of languages available offline, camera use for translating text, and handwriting translation.
 - Google Translate, Free – This program has the highest rating on many websites. When connected to the internet, it can translate typing in 103 languages and when offline, 52 languages. It also allows for two-way conversation speech translation in 30 languages, will translate text when a camera is pointed at printed text such as a menu or sign, and can also translate handwriting directly on the tablet in 93 languages.
 - iTranslate Voice (Lite), Free – This program can be downloaded on iOS and Android devices and allows for both text-to-text translation and voice-to-voice translation. It can translate 44 languages and slightly less when used offline. One of the best features in this program is that it allows the user to save common phrases for quick access, a feature that could be useful in the airport. While this program has lower ratings than Google Translate, some reviews do state that it has better voice input and output.
- MSP travelers who use American Sign Language (ASL) now have access to Video Remote Interpreting (VRI) services in the airport which allows for real-time translation between an airport volunteer and the traveler. VRI is an outsourced, web-based software that connects a user with a live translator so the translator can help facilitate communication between the person speaking with ASL and the person they're talking to. MSP has VRI on a tablet at one of the main information desks and it can be used daily, between 8:00am and 8:00pm, and at no charge to the traveler as the facility assumes any associated cost. Generally, in-person sign language interpreting costs between \$50.00 per hour per person and can reach to well over \$100.00 per hour per person, typically with two-hour minimums regardless of if the interpreters are used the whole time. While most VRI providers do not make their pricing public, Language Line Solutions' website states that there is an initial installation fee then the service is \$3.95 per minute. Major VRI providers in the US are:
 - Language Line Solutions – Languageline.com/interpreting/video-languageuc

- Purple Communications, Inc. – Signlanguage.com/vri/
- Certified Languages International – CertifiedLanguages.com/video-remote-interpreting-services/
- Infiniteach is a technology company that helps businesses develop custom-branded iOS and Android applications to better engage individuals with cognitive disabilities while making them feel more comfortable in a new environment. The app can include tools such as social guides to set expectations for an experience, a visual schedule to help ease anxiety, engaging games to help with waits in long lines, and “sensory friendly” maps to alert users of quiet areas around the facility. Each of these features are customizable to the facility so pictures and terminology, like facility names and amenities, match facility maps and signage.

Major tourist attractions such as the Shedd Aquarium, The Field Museum, and Guaranteed Rate Field (White Sox Stadium) in Chicago as well as the Minnesota Zoo and Long Island Children’s Museum have worked with Infiniteach to develop an application for their visitors.

Businesses that work with Infiniteach to develop this app are billed monthly for software maintenance following an initial content development fee. The Infiniteach team is made up of experts in the autism spectrum disorder field and are a great resource for content suggestions and wording in the app development stage. More information can be found at Infiniteach.com.



Sample Infiniteach picture schedule

Primary Recommendations:

- Make foreign language translation software available at information desks and TSA/CBP.
- Make Video Remote Interpreting services available at airside information desk.

- Enhance visual paging capabilities as visual paging is a primary function that must be available to be inclusive.
- Turn on captioning on all television screens throughout terminals.

Secondary Recommendations:

- Implement text message service for travelers to ask questions directly to Sea-Tac employee.
- Develop Infiniteach application.

Community Outreach/Involvement

Although changes in processes and technologies enhance the accessibility of the built environment, the accessibility of a space is also largely dependent on how disability is perceived in that space. The inclusion of individuals with disabilities and older adults in marketing campaigns and promotional items demonstrates an attitude of acceptance for all travelers and, as related to Sea-Tac, shows the disability community that they are not a forgotten demographic. In July 2018, Sea-Tac will see hundreds of travelers with disabilities and their families as the 2018 Special Olympics USA Games will be held in Seattle. Implementing a marketing plan to include individuals with disabilities will have a positive impact on the confidence Special Olympic athletes and their families have in traveling to and from Seattle.

Because confidence in traveling is often low among individuals with disabilities and older adults, it was recommended in multiple community meetings that Sea-Tac offer airport tours to those who may be nervous about traveling. Similar to what Sea-Tac currently does with the Lighthouse for the Blind, working with community groups to set up an airport walk-through to orient future travelers and essentially let them experience the full airport journey would greatly decrease the anxiety felt by those who don't travel often or become easily overwhelmed in such a complex place. For example, Alaska Airlines works with The Arc to bring children with autism through the air travel process from arriving at the airport and going through security to navigating the path to a gate and boarding the plane. This program allows participants to experience the airport firsthand, at their own pace, before taking their trip and from this experience, travelers and their families are more comfortable with traveling.

Additionally, the notion of "Nothing about us without us" is highly regarded as the way public businesses and entities should view accessibility among people with disabilities. What this means is that the needs and preferences of people with disabilities should be included in any decision that affects the disability community and in order to obtain this information, people with disabilities should be consulted and directly involved. Already implemented by Minneapolis-St. Paul International Airport (MSP), Atlanta Hartsfield Jackson (ATL), Los Angeles International (LAX) and Pittsburgh International (PIT) and quickly becoming a component of airports nationwide, is an advisory board or group made up solely of people with disabilities and experts on disability and inclusion.. The goal of this type of advisory board is to ensure that the airport is obtaining reliable feedback directly from people with disabilities or those who represent the disability community. At MSP, the "Travelers with Disabilities Advisory Committee" meets on a bi-monthly basis and includes representatives from each major disability type and disability-

related organizations. There are also members of the airport community who attend including airport customer service representatives and wheelchair service providers.

Primary Recommendations:

- Form disability advisory committee with representatives from the Port of Seattle, individuals with disabilities and disability organization representatives.
- Include individuals with disabilities and older adults in marketing campaign.

Secondary Recommendations:

- Work with additional disability organizations to provide more airport experience/walk-through opportunities.

Customs/Border Patrol (CBP)

While challenges with CBP are addressed in other sections of this report, one challenge specific to CBP is the lack of accessible technology for travelers who are blind. Currently, the self-serve kiosk that uses facial recognition software with a traveler's passport does not allow independent operation for travelers with severe vision loss as it does not have voice activation or a touchpad similar to the "Easy Access Pad" now found on check-in kiosks. CBP technology is currently being reviewed for the future with plans for biometric technologies to take the place of the current kiosks. While new technologies are being explored, Sea-Tac should station Volunteers in this area to assist travelers who need help using the current kiosks. In the future, because someone with vision loss may need to be guided to the new CBP screening technology, Volunteers should remain stationed in this area.

Recommendations:

- Station additional employees or volunteers in CBP area to help direct travelers.

Elevators, Escalators, Moving Walkways

Common themes within this category ultimately concluded with the need for additional and larger elevators in high traffic areas, the need for enhanced signage for elevators, the need for enhanced communication about elevator maintenance and outages, and the need for visual and auditory indicators in elevators and on escalators. While Sea-Tac does not currently have moving walkways aside from Concourse A, some feedback from the community meetings mentioned the need for adding moving walkways to assist with the distance between the light rail and terminal. An important factor in elevators and escalators is consistency. By having some consistency with elevators and escalators, people will only need to become familiar with those features once then the same configuration and features will be in place for other areas of the airport.

Number of Elevators

Given the space restriction Sea-Tac already experiences, adding elevators may not be feasible. However, to ensure all recommendations are included in this report, additional,

larger elevators have been identified as a recommendation for increasing the accessibility of Sea-Tac. Specifically for travelers leaving the international terminal, the lack of elevators causes major delays. There is currently one elevator for all incoming international flights; flights that are known to frequently have numerous wheelchair requests. With only one elevator for this whole terminal, travelers are faced with lines just to get to CBP. Further, in the new plans for connecting passengers going on a cruise with their respective cruise line, these travelers will also be faced with the challenge of only one conveniently placed elevator to the bridge that leads to the parking garage where they meet the cruise line bus. While there are other elevators that can be used, whether freight or an elevator further away, the one on the south end of the terminal is the only convenient one. Special attention should also be paid to the fact that when a traveler is using wheelchair service in the airport, they are also using a service provider's employee so the longer wait times and distances means staff are being occupied for long periods of time. If adding more elevators is feasible, Sea-Tac should do whatever possible to make these elevators larger. Currently, one traveler with a wheelchair and their family/friends fit somewhat comfortably in an elevator. Two passengers, both with wheelchairs and attendants is very snug before trying to also fit family members or friends with them. This operation, where only one to two passengers with wheelchairs can fit in an elevator at once, is not effective nor efficient.

Another challenge related to the number of elevators is when travelers land at Sea-Tac and their wheelchair was stowed in the cargo hold of the plane. There are not many elevators for baggage handlers to use when transporting a wheelchair from the aircraft to the aircraft door. So when they get a wheelchair out of the plane, there might be a fairly long distance to walk just to reach the elevator that takes them to the concourse and once they're in the concourse, they need to push the chair to the gate so the wheelchair can be brought to the door of the plane. This process, while time consuming for baggage handlers, leaves passengers waiting for long periods of time to receive their wheelchair. Baggage handlers are working against a clock and have a certain amount of time to turn a plane around for the next flight. Community members stated that they have been told by baggage handlers that there aren't any elevators for them to use so the wheelchair has to go to baggage claim. While this may be an excuse to avoid the time it takes to bring the wheelchair up, the reasoning behind it is because of the lack of elevators.

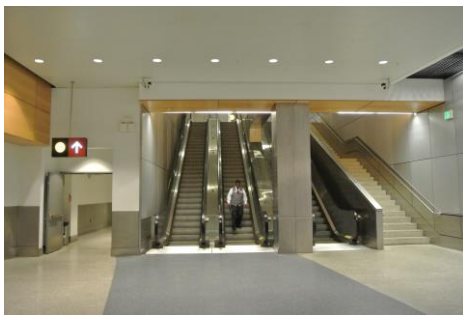
Signage

Adequate signage is lacking throughout the airport, specifically signage providing information about elevators in the baggage claim area and the North/South Satellites. In baggage claim, some elevators are located in dimly lit corridors and the signage does not easily indicate how to get to the elevator. However, the majority of signage issues are in the North/South satellites. In these facilities, elevators do not clearly indicate that they can be used by travelers *and* airport employees. Additionally, the process of navigating from ground transportation to the gate area is difficult to understand not only with the directions being fairly brief but with the placement of the signage being difficult to see from different viewing perspectives. There are also issues with signage from the main terminal and concourses to ground transportation, which is located in the parking garage and only accessible via skyway. The process requires passengers go up and

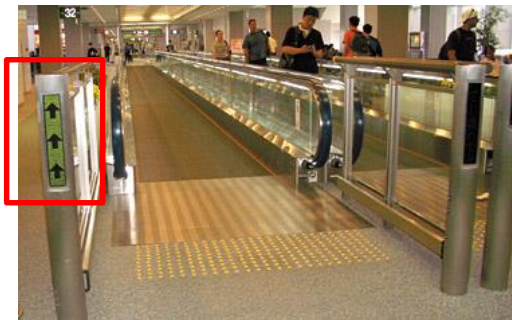
down multiple elevators and escalators to reach the different ground transportation pick up zones. In the Rental Car Facility, there have been instances where older adults have fallen using the escalator and with a lack of signage directing travelers to the elevators, the number of escalator users, who perhaps should not be using escalators, is greater than it should be. With adequate signage, the number of inappropriate users could be decreased and as a result, the number of injuries would also decrease.

Usage

The “usage” challenges surround both a traveler’s ability to safely use an escalator as well as the airport community as a whole being made aware of elevator and escalator outages. As shown in the image below, escalator banks throughout the airport typically have more than two escalators and when approaching the escalator from the top, it’s difficult to know which direction its going. Visual indicators (image below) that identify the direction of the escalator make using escalators easier and safer. Specifically in the rental car facility and both satellites, the escalators are long and quite steep so knowing which side is correct before approaching it would be helpful for travelers. This is also a challenge near the skybridge entrances going down to baggage claim or up to ticketing.



Sea-Tac escalator bank



Example of visual indicator



Example of visual indicator

In addition to travelers physically being able to safely use elevators and escalators, it has also been mentioned that often times the airport community as a whole is not aware of outages. For airline service companies, an unscheduled outage greatly affects their service time as they have to find an alternate route to bring their passengers to their next destination. Whether it’s additional signage or airport-wide messages through text, visual paging, etc., the entire airport community should be aware of any elevator or escalator outage.

Technology

People with vision loss depend greatly on audible indicators, specifically in elevators. Simply having a “beep” as an audible floor indicator does not provide enough information to someone. Instead, elevator floor numbers should be announced and ideally, these announcements should also say what is on that floor. For example, at St. Louis Lambert International Airport, the elevators have audible information such as “Lower Level: Baggage Claim” prior to people exiting. This additional information greatly increases the ability for a person with vision loss to independently navigate through the airport. Audible technology should also be on moving walkways, trains and shuttle buses, where available.

Moving Walkways

Although cart service is available to transport travelers between the light rail and terminal, the carts can only comfortably fit 5 people without large luggage. Moving walkways would greatly help with the walking distance.

Primary Recommendations:

- Add audible announcements on elevators that identify floor level.
- Add visual indicators (red stop and green arrow) for escalator direction.
- Increase signage for elevators.
- Develop communication standard for elevator/escalator outages.

Secondary Recommendations:

- Install audible announcements on elevators that identify what is on the floor level.
- Install moving walkway between the terminal and light rail.
- Increase number of elevators.

Emergency Planning and Preparedness

As emergency preparedness continues to be an increasingly popular topic, Sea-Tac needs to make emergency preparedness and planning a comprehensive, inclusive priority. Currently, a small, two person department has a general emergency evacuation plan in place for the entire airport. However, in this plan, stakeholders such as airline service companies, airlines, vendors or airport users are not involved in the planning process. Instead, an evacuation map is placed throughout the airport with hopes that it will be followed. In addition to involving general stakeholders, special attention needs to be paid to travelers with disabilities and older adults as their communication and mobility needs are often overlooked when planning for, or during, an emergency. All airport personnel, from wheelchair pushers up to director level staff, need to be included in the safety plan so all personnel know how to respond to an emergency. There should also be individual, comprehensive plans for how to move, and where to locate, people with disabilities and older adults.

Although Sea-Tac has emergency preparedness plans in place, the lack of involvement from people who work in the airport should be addressed. Specifically with airline service providers and their employees who are spread throughout the facility during all hours of operation, there needs to be a clear plan in place so they know what to do and where to go if there is an evacuation. If this information is difficult to provide to the number of people that need it, there needs to be a centralized place where the information can be found. In this plan, all airport personnel should be trained to essentially wear both their “typical job hat” and a “safety hat”. At both SFO and JFK, all airport personnel at all levels are trained in emergency response so there are ample employees available, and capable, of assisting. Per feedback from the Port’s Emergency Preparedness Department, the airport cannot require any vendor to complete emergency preparedness training and instead can only supply them with the tools necessary to prepare themselves. The Emergency Preparedness Department stated that while the ADR group does have an airport emergency guide that goes through the basics of emergency preparedness, the department is not able to require any additional training. In order to ensure all personnel can assist in the case of an emergency, formal training should be a requirement to provide service of any kind within the airport.

Sea-Tac is currently reassessing the need for “Areas of Rescue Assistance”, or ARA, as the current spaces do not meet the requirements that a technical ARA should. While the areas are signed appropriately, all ARA are also required to have a wheelchair accessible two-way communication system that is also accessible to people with hearing and vision loss, a requirement not currently met by Sea-Tac. Additionally, per the Emergency Preparedness Department, response plans for the airport fire department do not have the ARA included as a place to check for people. The International Building Code states that a public space is only required to have a designated ARA if it does not have an automatic sprinkler system. With that said, an ARA would not be required within Sea-Tac’s facilities. Instead, Sea-Tac could consider designating an area for each concourse where emergency response information can be found and emergency equipment is available such as first aid supplies, AED, and fire extinguishers. These locations should also be shown on all maps and information kiosks.

Given Sea-Tac’s size, with the number of separate facilities, airport transportation options, and various services provided throughout, an emergency notification system should be in place to ensure the entire airport community is aware of an emergency. The Los Angeles International Airport (LAX) has a system in place called the Emergency Mass Notification (EMN) system that allows anyone to opt-in to receive text messages about major emergencies at the airport. When an incident occurs in the airport that only employees need to be aware of, LAX has an Incident Management Notification system that sends information to employees detailing events or incidents that happen throughout the day. This type of system would be also beneficial for Sea-Tac if there is an elevator outage so all airport personnel are made aware.

The last consideration to be made regarding emergency preparedness is the availability, and current lack, of the necessary equipment and supplies. At present, there are only two stairwells equipped with emergency evacuation chairs for the airport, both of which are located in the Airport Office Building (AOB). Emergency evacuation chairs in these stairwells were purchased by the Emergency Preparedness Department off of Amazon for a fairly reasonable price and Port employees have already been required to watch an online training on how to use them. Emergency evacuation chairs are easily stowed as they are collapsible and lightweight so they can easily be affixed to a wall. These chairs are used to assist in getting a person up or down

stairs when they are unable to independently do so. In each concourse, with the exception of North and South Satellites, there are exits that allow access to the tarmac by stairs so in the event that an evacuation is needed, ambulatory travelers in the concourse can leave the building through these exits. At minimum, one emergency evacuation chair should be available at one of the exits in each concourse to accommodate travelers unable to walk down the stairs. Currently available in each concourse and baggage claim areas are trauma kits located in marked emergency supply cabinets. These supply cabinets should be clearly identified on airport directories with the universal first aid symbol. For reference, trauma kits traditionally include bandages, Z-pack style dressings, gloves, and duct tape but to address the potential needs of individuals with disabilities, families with small children, and older adults, the following supplies may be included in an emergency supply box: adult and child size diapers, catheters, foods for people with low blood sugar, foods for service animals, blankets, and antibacterial supplies.

Primary Recommendations:

- Require all airport personnel to complete emergency preparedness training during SIDA initial training and annual refresh.
- Add emergency evacuation chairs to concourses.
- If Sea-Tac chooses not to keep the Areas of Rescue Assistance, a designated emergency information location should be in each major area of the airport.
- Emergency Preparedness Department should have open communication with ADR representatives to develop comprehensive response plan.
- Develop mass notification system for emergencies.
- Add universal first aid symbol to airport directories for trauma kit/emergency supply locations.

Employees and Volunteers with Disabilities

With reasonable accommodation laws in place, there were not many identified barriers to people with disabilities working or volunteering at the airport. Sea-Tac's human resources representative and customer service representative both indicated that while not many people with disabilities apply for employment or volunteer positions, as long as they could complete the required tasks, with or without reasonable accommodation, there would be no reservations to hiring someone with a disability. It was also recommended that people with hearing loss who speak sign language be recruited for passenger assistance positions as they can help with translation and communication with travelers with hearing loss. While considering potential barriers for employment, the following were identified:

- In the Airport Office Building (AOB), only some floors have automatic door opener switches (buttons) leading into the restrooms. Based on feedback from Port employees, these switches may have only been added in the past because there was an employee working on that floor who used a wheelchair and needed them installed. In order to make the building more accessible, any door that automatically closes after it is released should have an automatic door opener switch on both sides of the door. These switches

must be placed within 1-5 feet of the door, between 34 and 48 inches above the floor and must also allow a person to push the switch without being in the path of the swinging door.

- The lack of elevators throughout the airport has been identified as a challenge area across a number of areas in this report, with employees and volunteers with disabilities also facing challenges. The lack of back of house elevators on the secure side does inhibit people with mobility disabilities from working in some areas of the airport. In the event that someone who cannot ascend or descend stairs were to apply and be qualified for a position that required the use of stairs, a reasonable accommodation could be an alternative work space until a more complex solution, such as additional elevators, is implemented.

Primary Recommendations:

- Install automatic door opener for any AOB room with an automatically closing door.
- Begin outreach to disability community with current job postings.

Secondary Recommendations:

- Install more elevators so employees with wheelchairs can work in any location of the airport. If this isn't feasible, an alternative work location should be assigned as a temporary solution.

Environmental – Built Environment and Usability of Airport

The airport overall is usable for travelers with disabilities, but there are areas that could be improved to make it easier to be at the airport.

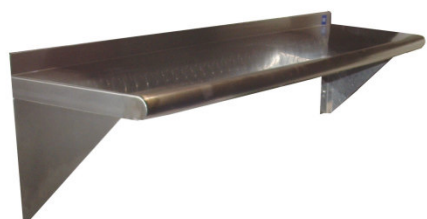
- Low tables are occasionally placed among rows of seats in the gate areas but often times they're placed in the middle of the row and not easily accessed by someone with a wheelchair or scooter. Additional tables or counters placed in unobstructed areas would be easier for wheelchair/scooter users to approach and use. Sea-Tac does have some gate areas with accessible tables (shown in the picture below) but this Delta departure lounge is unique with its inclusion of this side table



Delta holding room with accessible table

Philadelphia International Airport (PHL) has mounted shelves on columns throughout their concourses to be used as desks. Shelves placed above 27" also have chairs but there are a number of wheelchair accessible shelves, labeled with the appropriate signage and without chairs. Installing shelves, like the one below, to columns throughout Sea-Tac would be a simple way to address this issue without any added footprint.

Universal WS1224 - Stainless Steel Wall Shelf - 12" X 24"



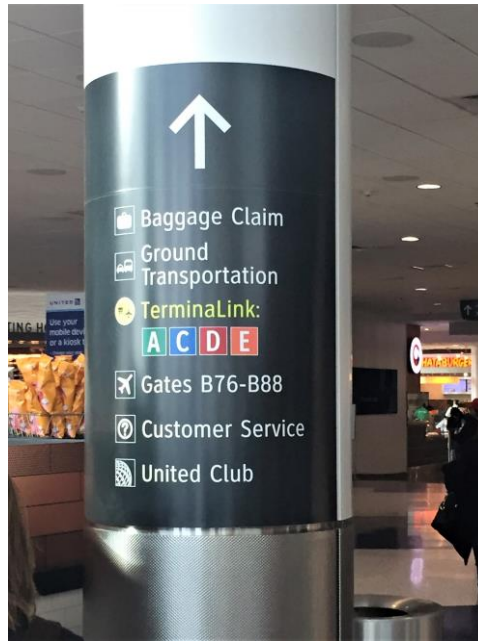
<div> <div>\$63.98</div> <div>\$37.86</div> <div>1</div> <div>Add to Cart</div> </div>	
Manufacturer:	UNIVERSAL
Item:	Universal WS1224 - Stainless Steel Wall Shelf - 12" X 24"
Availability:	In Stock
Shipping:	Usually Ships In 1-2 Business Days
SKU:	WS1224
Condition:	New
Length:	24"
Width:	12"
Height:	10 Inches

Airport seating and furniture manufacturers like Arconas have wheelchair accessible tables with power outlets available. One Arconas design, the inPower Bar, stands at 32" tall and the table legs are positioned at 30" apart to accommodate a wheelchair. This model has power outlets on both sides of the table so there would need to be enough space around the table for a wheelchair user to move around it and use the power.



Arconas inPower Bar

- Feedback from the community meetings indicated that the columns throughout the airport are difficult to see for travelers with low vision. There are many people with vision loss that do not use a cane so if someone is unable to identify that a pillar is there, they may walk into it. It was suggested that columns either have a painted design that includes bright, easy to see colors or even better, lights on the pillars. George Bush Intercontinental Airport (IAH) uses concourse columns for directional signage, as shown in the photo below.



IAH airside column with directional signage

- Additional curb cuts should be added to both departures and arrivals drive levels so there is less limitation to where travelers needing curb cuts can be dropped off and picked up. Curb cuts were created for people with wheelchairs and scooters but now they benefit, and are used by, nearly every type of traveler. People with balance challenges would rather walk up a small ramp than step up on a curb, people traveling with strollers and small children use these ramps, people with large, heavy luggage would rather roll their bag up a ramp and in general, able-bodied people see a ramp as the path of least resistance and frequently use curb cuts. Ideally, the drive would have a level transition from the sidewalk to the loading zone, with brightly colored truncated domes in between to notify people with vision loss that they're approaching the road. If leveling the sidewalk is not a feasible solution for Sea-Tac, additional, clearly labeled curb cuts should be added, especially near the international airlines where there are not any curb cuts nearby. Curb cuts need to be clearly marked on the ground, have signage above the location and at minimum, should be provided for every 100 feet of continuous sidewalk.

While the arrivals level clearly identifies accessible loading zones with cones and striped paint, there are a few curb cuts/accessible loading zones that should be addressed:

- Door 31: Curb cut, no signage (*departures level*)
- Door 19: Curb cut, no signage (*departures level*)
- International Airlines: No curb cuts (*departures level*)
- Paratransit Loading Zone: No curb cuts (*arrivals level*)

It is apparent that the accessible loading zones on the departures level are at Doors 11 and 25 as those areas are clearly labeled with signage and markings on the drive.

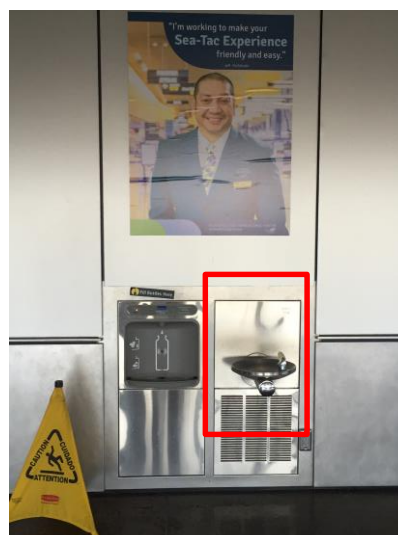
However, the other curb cuts should also be labeled so travelers know that there are more than two spots with a curb cut.

Paratransit transportation typically drops travelers off right at the curb, either allowing them to walk directly off the bus onto the sidewalk or the lift lowers people with wheelchairs or scooters onto the sidewalk so a curb cut may not seem necessary. However, this is a space designated for people with disabilities and a curb cut should be easily accessible in the event that they need to enter the drive.

- Some of the airport's water fountains are not cane detectable as their lowest point sits above 27" from the ground and protrude more than 4" from the wall. These can be found in Concourse D, South Satellite, and train lobbies, to name a few. All water fountains should be checked to ensure they meet ADA requirements. There are a couple of ways to make an object, such as a water fountain, cane detectable. One solution is to add cane bars (photo below) that are placed directly below a protruding object so someone using a cane will hit the bar as they approach the object. Another solution specifically for water fountains is adding hardware called "cane aprons" to the bottom of the fountain. This addition hangs low enough to meet the 27" requirement and can be detected by a cane. Cane aprons come in multiple sizes and colors to meet the height needs while maintaining an attractive look. *Product example below.*



Cane bar below protruding object



Sea-Tac South Satellite protruding water fountain

Elkay / Halsey Taylor 98324C Cane Apron, Stainless Steel for EMABF, LMABF, VRC, VRCGRN, HAC and HVR Models



Lead Time - 3 to 7 business days
List Price: \$232.00
Our Price: **\$154.23**
Save \$77.77!

Qty: 1

Add to cart ➤

★ Add to Wish List

This item qualifies for FREE SHIPPING!



ProDrinkingFountains.com – Manufacturer: Elkay

- The ramps leading inside/outside near baggage claim have inconsistent slopes, all of which are steeper than the 1:12, one inch incline for every foot of length, ratio they should be. A level was used at Door 24 to determine the degree of the slope then the ratio was calculated. Three different angles were found on one ramp:
 - Top of Ramp: 6 degree slope, 1:9.5 ratio, 10.51% grade
 - Middle of Ramp: 8 degree slope, 1:7.1 ratio, 14.05% grade
 - Bottom of Ramp: 7.5 degree slope, 1:7.5 ratio, 13.16% grade

Each of the lower level ramps should be assessed to identify which need to be fixed. Additionally, ADAAG requires a 60" landing space at the top and bottom of every ramp. The ramps near baggage claim all end with a sliding door outside and do not have the required bottom landing. There were also concerns about ramps in Concourse D, both in the ODO and ODO with community member walkthroughs. However after calculating the slope, this ramp is at a 1:12.16 ratio so while it seems steep, it is within the 1:12 ratio needed.

- There are no tactile detection surfaces at the top or bottom of staircases. Without this, people with vision loss are not aware that they are approaching stairs. Brightly colored, tactile flooring should be installed at the base and top of each staircase.
- During the community member walkthrough, it was mentioned that people with vision loss generally prefer handrails that end with a downward curve as opposed to ending into a wall. The reason for this is because if a person is using the handrail as a guide, the turn at the end leading to a wall may be disorientating. If instead, the handrail ends in a downward curve, there is less chance of this.

Primary Recommendations:

- Increase accessible table options throughout concourses and in gate areas.

- Ramps near baggage claim need to be assessed and when too steep, reconfigured.
- Address water fountains and alter noncompliant fountains to be cane detectable.
- Place tactile detection surfaces at the top and bottom of staircases.
- More curb cuts should be added to both departure and arrival levels.
- Enhance signage for accessible loading zones.

Secondary Recommendations:

- Explore alternative handrail options based on preferences of people with vision loss.

Ground Transportation

Challenges related to ground transportation mainly focused on three areas, including curbside loading/unloading, accessible taxis, and bus systems. Feedback not related to these focus areas is included at the end of this section.

- Community members stated that there needs to be more strict enforcement on vehicles parking in the accessible loading zones. While illegal parking was not seen during the walk-throughs, even one person illegally parked on the departures level brings the number of designated accessible loading zones down to one. To address this, there should be more provision on the loading zones and there shouldn't be any cars parked after their passenger has left the vehicle.
- The other concern with curbside loading is where people using UberAssist have to go to meet their Uber driver. UberAssist is an option that people with disabilities can select on the Uber app where they will have a driver that has gone through Open Doors Organization's training on how to assist passengers with disabilities. Currently, anyone requesting a ride through a rideshare company has to go to the parking garage but navigating from baggage claim to the rideshare area can be difficult to do independently. The request of the community is that Sea-Tac allow UberAssist and other accessible TNC programs and vehicles to pick up passengers curbside, on the arrivals level.
- Concerns arose about the limitations faced by wheelchair accessible taxi drivers and subsequently, the challenges faced by travelers requiring these vehicles. Although all taxis are required to pick up passengers on the third floor of the parking garage, there are only two spots for accessible taxis to park while waiting for passengers and they are not centrally located, resulting in an even further distance to reach them. Because of this, community members requested that accessible taxis be allotted at least one additional space, centrally located, in the parking garage.
- The designated loading zone for paratransit and city busses does not have airport personnel available to assist travelers. Although this drop off is on the arrivals level, enhanced signage, a SmarteCarte station, and a volunteer stationed nearby would be helpful to travelers using public transportation. This area would be a good location for a call button, similar to the one at the light rail station, to reach Prospect Airport Services for assistance to the main terminal.

- Accessible shuttle operators do not have designated parking spots in the parking garage. This presents a challenge because if they are not able to secure a spot prior to a passenger with a wheelchair arriving, their loading space is very limited so they may have to load a passenger into the vehicle from the sidewalk or further into the garage.

Primary Recommendations:

- Increase number of centrally located accessible taxi parking spots in parking garage.

Secondary Recommendations:

- Work with Uber to allow for UberAssist pick-ups curbside.
- Station volunteers at paratransit/city bus drop offs to assist when needed.
- Designate parking spots for accessible shuttles.

Lighting

Overall, the lighting throughout the airport is somewhat inconsistent. Consistent lighting is important for anyone seeking easy navigation, but specifically for travelers with low vision, inconsistent lighting presents unnecessary challenges for two reasons; one, the type of vision loss may prolong the amount of time it takes for the eye to adjust to different lighting levels and two, if the vision loss affects the ability to see lower color contrasts, a change in lighting may make seeing low contrast features nearly impossible. It is apparent that Sea-Tac has tried to make use of as much natural light as possible, a feature that airport patrons seem to enjoy in the Central Terminal and at the arrivals end at the south end of the main terminal where natural light is the main light source. However, the inconsistent use of natural light throughout concourses makes it difficult for travelers with vision loss to comfortably navigate down a concourse and for all travelers to read past the glare on FIDS and directional signage. As shown below, a bank of FIDS is placed directly under a large window causing two different challenges. One challenge is that with this window, there is a brighter light source during the day halfway through the concourse and the varying brightness levels are difficult to readjust to. The other challenge is with the placement of the FIDS, the glare from the window makes the font difficult to read.



Sea-Tac High FIDS with glare



Sea-Tac concourse with varying light levels

Generally, the more consistent the lighting levels can be throughout the facility, the less challenges they'll present to travelers. Ticketing is a fairly dim area and when it's bright outside, the large windows produce a significant glare throughout the terminal. However, once past ticketing and near security, the area is fairly bright with little variance in lighting.



Age 20



Age 60



Age 75

Human vision deteriorates with age, with older adults often experiencing significant vision problems in low-light environments. The above images show how much aging changes the relative transmission of light through the optic media for viewers of ages 20, 60 and 75

→ departures

→ departures

The photos above are an example of the effect low lighting can have on the ability to clearly read a sign. Specifically for individuals with vision loss, whether diagnosed or not, dim lighting blurs images seen from a distance. With adequate lighting levels on signage, either backlit or with bright surrounding light, signage is more clear.

Sea-Tac already has future plans to address, and eventually replace, the lighting throughout the airport. The "Design Guidelines for the Visual Environment" report from the Low Vision Design Program with the National Institute of Building Sciences (link below) is a good resource for determining appropriate lighting based on the area with details specific to atriums, hallways, restrooms, etc.

Design Guidelines for the Visual Environment:

https://c.ymcdn.com/sites/www.nibs.org/resource/resmgr/LVDC/LVDP_Guidelines_052815.pdf

Recommendations:

- Relocate FIDS placed near natural light sources to minimize glare or use anti-glare filter.
- Enhance lighting throughout airport to maintain consistent lighting levels.

Other Suggestion

Among suggestions from the feedback meetings this topic did not fit in the other categories, and while important, should be considered a secondary recommendation.

It was indicated that Sea-Tac plans to build designated lactation rooms for nursing mothers. As a temporary solution, accessible Mamava pods have been placed throughout the airport and based on feedback from Port employees, there has not been much discussion about if or how the Mamavas will be used after the lactation rooms are built. During the community member walkthrough, the idea of using these pods as “quiet rooms” was brought up. The interior of the Mamavas could be designed to have comfortable seating, padded walls to reduce echo and the lighting could be dimmed to serve as a small space where someone can be alone for a short time.

See “Quiet Rooms” in Autism section on page 14.

Parking Garage

The parking garage is a main facility at the airport as it houses taxis, rideshare companies, hotel and private shuttles, general parking, employee parking and its the connection between the terminal and the light rail station. In order to enhance the accessibility and usability of the parking garage, the following improvement areas were identified:

- A lot of frustration could be avoided if there were accessible parking spaces on each level, rather than only on levels one, four and five. Although there are enough spots to meet requirements, accessible parking availability on each floor gives the same choices to people requiring accessible parking as those who do not.
- With the exception of wheelchair assistance, which requires travelers to make a reservation with Prospect Airport Services prior to arrival, receiving assistance in the parking garage is difficult to come across. There are signs placed periodically throughout the parking garage, with a “difficult to read” phone number for Prospect Airport Services, but wheelchair assistance isn’t always the type of help that’s needed. Some airports, such as Phoenix Sky Harbor and Chicago O’Hare, have blue lighted “Assistance Call Boxes” located throughout their parking facilities that allow travelers to either call the 24-hour parking hotline or push a button and speak to a live person to get assistance. When a TTY number is not available and a traveler is hard of hearing and unable to use the phone or call box, a blue light also flashes at the top of the box and security will go to the traveler. Through the “Assistance Call Box”, travelers can get help finding their vehicle, getting keys out of a locked vehicle, and at Sky Harbor, staff will also provide jump starts and put air in a flat tire at no cost to the traveler. Currently, Sea-Tac has some “Help” phones near elevator banks but these are not clearly labeled, do not have tactile components for someone who is blind and they do not have TTY information for someone with hearing loss. Placing assistance phones or boxes throughout the parking garage would help travelers with and without disabilities. The following photos show the PHX assistance call box and two other examples of alternative call box options.



Left-Right: Sample assistance call box; PHX Assistance Call Box; Sample assistance call box

- Electric vehicles are continuing to grow in popularity among people with and without disabilities. The current ADA Standards do not include electric vehicle stalls however, as noted later in this report, the International Building Code (IBC) adopted the ANSI A117.1 standard in 2017 which does include guidelines for electric vehicle charging station design. In an effort to adhere to general ADA accessible parking space number requirements, Sea-Tac could make a minimum of 2 electric vehicle stalls accessible, one of which is van accessible. As shown in the table below, standard parking lots/garages have various minimum total numbers of accessible parking spaces required based on the total number of spots in a parking facility. With Sea-Tac's 48 current electric vehicle stalls, 2 accessible spaces (one van space) would be in line with ADA requirements. The following link provides a detailed outline of electric vehicle charging station guidelines from Virginia Clean Cities and Sustainable Vehicle Strategies groups:
<http://vacleancities.org/wp-content/uploads/EV-Charging-ADA-Version-1.0s.pdf>

Total Number of Parking Spaces in Parking Facility (Lot or Garage)	Minimum Total Number of Accessible Parking Spaces Required	Minimum Number of Van Accessible Parking Spaces
1 - 25	1	1
26 - 50	2	1
51 - 75	3	1
76 - 100	4	1
101 - 150	5	1
151 - 200	6	1

ADA National Network, Accessible Parking Requirements

- Although Sea-Tac may not be responsible for ground transportation services operating within the parking garage, the airport could influence these companies to enhance the customer service accessibility. Currently, taxi stands, shuttle services and ridesharing companies do not have an effective means to communicate with non-English speakers or individuals with hearing loss. There are a couple of different solutions to this barrier, both of which can either be provided by Sea-Tac or can be easily obtained by these companies. The first, and most cost effective solution, is for frontline, customer service

representatives to have a resource book, similar to what TSA agents use, that has a number of key phrases for various foreign languages. With this tool, relevant questions and phrases can be located in the book and the language barrier will be minimized. The other solution, while more costly, is to use tablets to communicate with travelers. Programs like Google Translate could be used by non-English speakers, and applications as simple as “Notes” or any text-based program would allow travelers with hearing loss to communicate with these companies through text.

- There is little color contrast between the sidewalk near the elevator banks and the roadway where vehicles can drive. Without a more pronounced contrast, it’s difficult to see where the sidewalk ends and where the road begins. To reduce the financial burden that accompanies modifying the concrete completely, truncated domes, caution lines and wording should be painted on the ground to notify travelers of when the sidewalk and road meet. The photo below shows a parking garage at Fort Lauderdale International Airport (FLL) and the clear distinction between the walkway and roadway.



FLL parking garage with visual and tactile indicators

- In addition to increasing visual indicators on the parking garage floor, consideration should be made to enhancing the graphics on the elevator banks. Currently, the colored line across the banks does not clearly communicate that this is where the elevators can be found. Simply putting the word “Elevator” and the standard elevator symbol found on directional airport signage would greatly help travelers locate the elevators.

Primary Recommendations:

- Designate accessible parking spots on each level of the parking garage.
- Add visual and tactile indicators separating separate sidewalk from roadway.
- Add identifying text and/or symbols on elevator banks.

Secondary Recommendations:

- Equip parking garage personnel with resource book or technology to assist with communicating with non-English speakers and people with hearing loss.

- Add accessible charging stations for electric vehicles.
- Place assistance telephones throughout parking garage.

Personnel and Training

While the goal is to make it possible for anyone, regardless of disability, to get through the airport independently, there is still a human factor that is necessary for a positive experience. Airport personnel, whether employees or volunteers, are the go-to resource for travelers and in order to appropriately assist travelers, adequate training is essential. Seattle will be hosting the 2018 Special Olympic Games in July 2018 so the airport will be seeing a significant increase in travelers with disabilities and will need a greater volunteer presence and with the increase in volunteer presence, there will be a need for new specialized training for this event. Feedback from both community and Port meetings indicated that there is a need for more Volunteers now, with only 14 Pathfinders to cover a 24/7 operation, but the resources aren't available to recruit new people. The necessary resources need to be allocated to increasing these numbers soon to first meet the current traveler assistance needs then to build a large Volunteer team for the upcoming Special Olympics athletes and their families.

The challenges faced by airport travelers can often be eliminated when personnel are available to answer questions and provide additional assistance. Wayfinding is one of the biggest challenges, specifically for international travelers and those with vision loss but if their questions are quickly answered or if they're given personal assistance throughout the process, this is less of a challenge. Much of the necessary training involves how to best interact with and assist individuals with disabilities and older adults, a training component not currently included for Volunteers. Disability awareness and etiquette training does just this as it covers appropriate language, general common courtesies, disability types and the "dos" and "don'ts" of assisting someone with each type of disability. Open Doors Organization conducts an airport training that includes this information then also takes trainees on a facility walk-through to identify various accessibility services and amenities throughout the airport such as family restrooms, accessible seating and elevators while pointing out other features that maybe wouldn't be otherwise noticed like tactile signage and surfaces. With this tour, trainees are actually seeing these services and as a result, are better prepared to point travelers in the right direction. Aside from the training material, Open Doors Organization, and the disability community in general, strongly believe that individuals with disabilities should be included in disability related training so it is recommended that Sea-Tac work with disability organizations to provide any disability-related training to airport personnel.

While disability awareness and general customer service skills should be included in initial training, a consistent training schedule, requiring airport personnel to attend annual disability awareness trainings, should also be implemented moving forward. With high turnover rates, specifically in airline service companies, it's difficult to ensure each employee and volunteer has gone through the training. PHL wanted their employees to go through disability awareness training so over the course of 16 weeks, PHL held 11 trainings during each shift to accommodate all schedules, and representatives from each department were able to attend. In some airports, personnel that are not typically in contact with the public participate in a web-based training instead of a live disability awareness training. Both Airports Council International

(ACI) and Open Doors Organization have self-paced, online training courses focused on accommodating and interacting with travelers with disabilities.

Feedback from community members focused heavily on the need for additional training in a few areas. The following outlines specific suggestions for airlines, TSA, airline service companies and volunteers.

- Airlines
 - “Airline employees are so hands off that they sometimes avoid people with disabilities all together. There should be an ambassador program to assist in initiating interactions.”
 - “Gate agents forget that they’re not telling everyone important information.”
 - “Agents hide behind podiums.”
- TSA
 - “TSA should be more engaged in training for their employees. Past training was for management and whether or not it was passed on to the agents is unknown.”
 - “Can there be disability assistance ambassadors that can help get through security?”
 - *Note: The TSA Cares program provides travelers with a passenger support specialist (PSS) who will meet them at the curb and assist them through security. This service is already available but Sea-Tac travelers are not aware of it. More information should be provided about this service.*
- Volunteers and Pathfinders
 - “Volunteers should wear an access symbol that shows that they’re able to help people with disabilities.”
 - “People like to be asked how someone can assist them, not ‘do you need help?’”
 - “Not only does there need to be more training, there need to be more people in general because there isn’t enough human interaction.”
- Service Providers
 - “There’s too much assumption with the wheelchair providers that someone will always need a wheelchair. When someone says they don’t need the wheelchair, they make it seem like they’re undeserving of assistance.”
 - “Needs more training... sometimes talking behind people’s head so a person with hearing loss wouldn’t know they’re being talked to.”
 - “Could the airport require airlines to include a training mandate in the contract with service providers?”

Primary Recommendations:

- Increase Volunteer base.
- Implement recurrent disability awareness and etiquette training for all airport personnel.
- Commission specialized training for upcoming Special Olympics.
- Advertise TSA Cares program online and in the airport.

Secondary Recommendations:

- Work with airlines and service providers to develop a service and communication standard.

Rental Car Facility

Feedback regarding the rental car facility mainly pertained to the lack of available luggage carts and wheelchairs along with minor environmental challenges.

- A common issue in airports across the country, including Sea-Tac, is the confusion of which entity is responsible for wheelchair service outside of the main airport footprint. Often times, there's a finger-pointing situation where airline service companies and airlines feel that service requirements stop at the curb and airports feel that service continues through all airport facilities. At Sea-Tac, Prospect Airport Services is only responsible for assisting passengers from the parking garage to the terminal where they meet their airline's service provider, AirServ is responsible for running the cart between the terminal and light rail, and as related to the Rental Car Facility, the rental car companies are responsible for gathering and staging wheelchairs and luggage carts left around the facility and parking lots. Based on feedback from the Port meetings, the wheelchairs and luggage carts are rarely gathered and as a result, travelers who need this equipment are unable to find them. Aside from luggage carts not being returned to their designated locations, it was also mentioned that there are not enough luggage carts available. From this feedback, it is recommended that the Port work with the rental car companies and service providers to determine a procedure for ensuring this equipment is readily available when passengers arrive at the facility. There should also be coordinated efforts to keep these moving parts in sync and their shortfalls less obvious to the passengers.
- With regard to the built environment, the Rental Car Facility is one of the newer parts of the airport and while the general layout is easy to navigate, there are a couple of barriers to be addressed. Specifically in the restrooms, the door to the accessible stall swings in to the stall instead of out. When the door swings in to the stall, a person wheels in and then has to find a space to move their wheelchair where they'll be out of the way of the closing door so changing the hinge to swing outward should be considered. Another necessary stall change is the placement of the vertical grab bar next to the toilet. The bar is too far from the toilet, making it difficult for someone to reach when sitting down. ADA standards state that a vertical grab bar should be placed 39" from the rear wall.

- The FIDS located near the escalators are placed high and have poor color contrast between the font and background of the screen. The preferred color combination is bright yellow on fairly dark blue. White on black or dark blue is also a commonly accepted combination.

Recommendations:

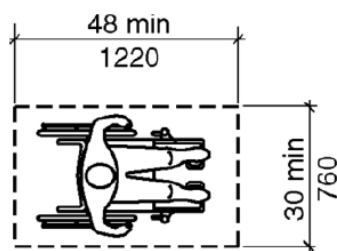
- Sea-Tac to open communication between the Rental Car Facility and service companies to develop new processes for service provision.
- Fix accessible restroom hardware in Rental Car Facility.

Restrooms

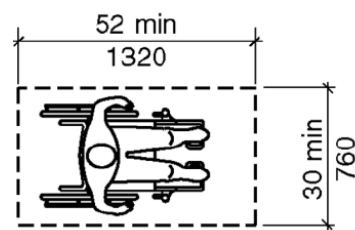
There is already a restroom improvement project planned for the future modeled from various airport restrooms across the country. One of the airports Sea-Tac representatives visited was MSP which took various traveler needs into consideration when developing the restroom plans. Often times, facilities are built to meet the minimum requirements in order to be compliant, specifically when looking at floor space and turning radius in a restroom. It is recommended that Sea-Tac go beyond simply complying with design standards in an effort to accommodate people with varying needs and wheelchair/scooter sizes. The ADAAG/ANSI minimum design standard for a 180 degree turn is 60 inches of clear space. However, this minimum is much easier to work with for a small manual wheelchair user than it is for a large power wheelchair user. In a study written by HomeAbility.com "Clear Floor Space" Guidelines for Accessible Bathrooms", the preferred amount of space is greater than 60" for a manual wheelchair user and greater than 94" for a power wheelchair or scooter user. The International Building Code adopted the ANSI A117.1 standard in 2017 where many of the accessibility standards exceed 2010 ADA Standards. The new sizes listed in A117.1 do not apply to existing buildings or facilities but do apply to new construction so they should be referenced in the restroom renovation. The following diagrams detail new floor space requirements.

- Clear Floor Space

Existing:

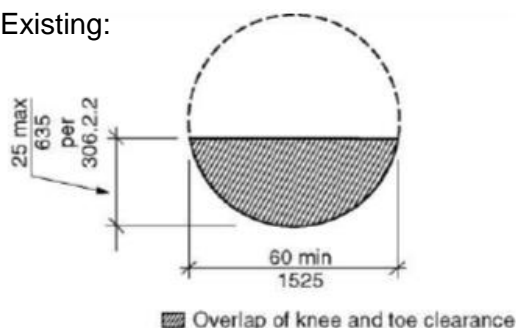


New:



- Circular Turning Space

Existing:

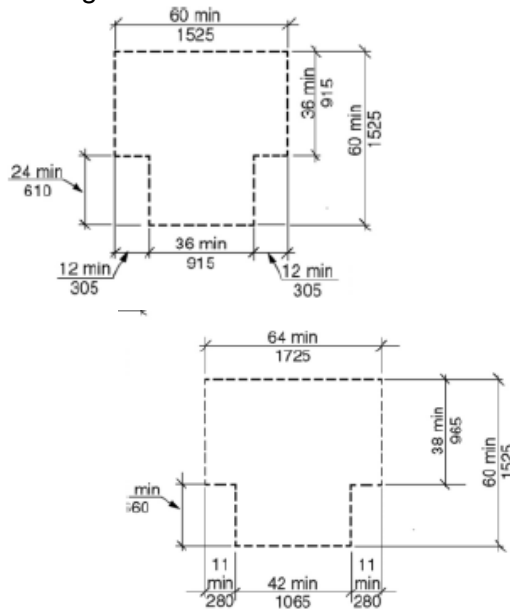


New:

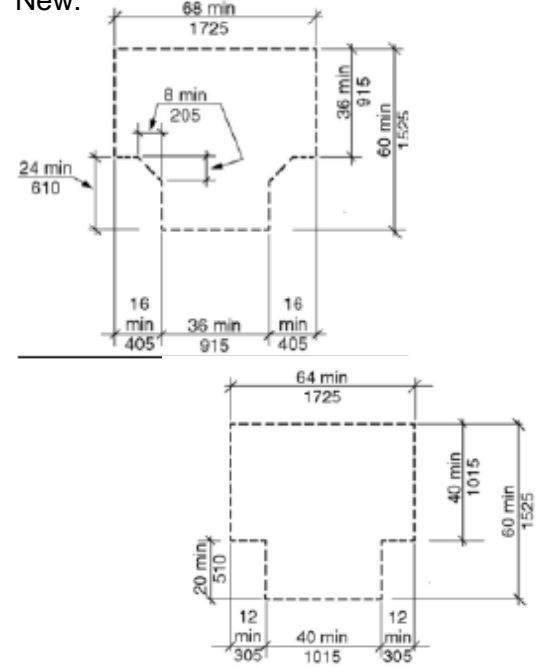


- T-Shaped Turning Space

Existing:



New:



With this redesign already in progress, the following are identified improvements and suggestions for the current facilities to be considered for the future.

- Restrooms are a challenge for travelers with vision loss so consistency is important as it helps orient the traveler to the space. The current restrooms have multiple layouts with soap and paper towel dispensers and garbage cans located in varying locations so for the future, consistent placement of these items could make a big difference. Color contrast between sinks and counter tops was mentioned by community members as also being beneficial for travelers with vision loss. The entrance to the newer restroom design, where someone can enter on the left or right side of an oval shaped column, can also be a challenge for this population. If the inside wall, or column, is being used as a guide to get into the restroom, the column's circular shape will cause confusion as it never leads into the restroom and subsequently guides a person in a circle.
- Community members expressed often having to wait for a wheelchair accessible stall because able-bodied people were using the few stalls available so their luggage would fit. While adding wheelchair accessible stalls would take up a significant amount of space, the MSP design should be considered as all of their stalls are larger and accessible stalls aren't being used by people who don't need them. These larger stalls also accommodate people traveling with small children so if the family restroom is occupied, the larger stalls could fit an adult and child together. MSP has designed all stalls to be accessible (picture below). Some are wheelchair accessible but all are ambulatory accessible as laid out in the ADA Accessible Guidelines (ADAAG).

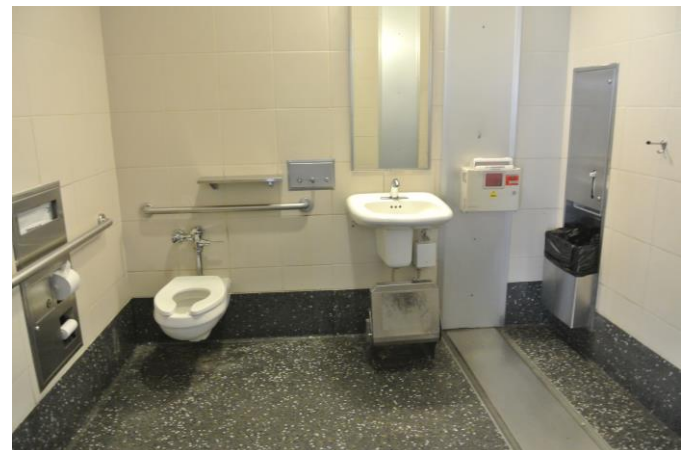


MSP "Typical Stall"

- *Note: When considering stall sizes for wheelchair accessible stalls, simply complying with current standards should be avoided as they don't accommodate all wheelchair sizes. Wherever possible, the maximum space possible should be allocated to accessible stalls.*
- The hardware in restroom stalls should be usable by all occupants. To lock the door, a latch should be used instead of a knob to accommodate those with poor fine motor skills. Coat hooks should be placed at a height on the door that can be reached by a little person, typically towards the middle of the door to still avoid coats touching the ground. To accommodate little people and families with young children, step stools, similar to what is included in the South satellite family restroom, should be made available at sinks for easy reach. This step stool design folds down when needed and can be folded back up so it's not in the way of other bathroom users.



Sample accessible restroom



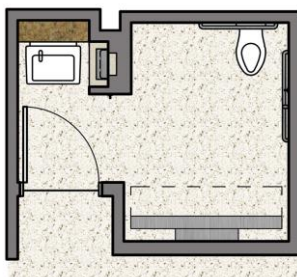
Accessible restroom with step stool under sink

- No restrooms are planned for the South Satellite (S gates) as travelers deplane aircraft then walk a considerable distance to the new International Arrivals Facility. Consideration should be made to add restrooms in this area because of the inevitable long lines travelers will be required to wait in following a very long flight. A lack of

restrooms could be a challenge for these travelers, especially for older adults as aging often results in more frequent restroom visits.

- Quickly gaining popularity around the world, adult changing rooms were identified multiple times as an improvement area for Sea-Tac's restrooms. Adult changing rooms are bathroom facilities that have the equipment necessary for a family or caregiver to assist an adult with their toileting needs. Before adult changing rooms, and in facilities where they are not yet available, people requiring extra assistance with toileting are placed on the bathroom floor to be changed because the typical child changing table will not hold an adult's weight safely. In these enhanced facilities, at minimum, an adult sized changing table is available so the floor is no longer the only option and there is additional floor space for a larger turning radius. Sea-Tac currently has plans to install at least 3 wheelchair accessible, adult changing rooms with changing tables and ideally, the following will also be included:
 - Powered changing table that allows for easy raising and lowering to make transferring easier for caregivers.
 - Hoyer lift system with ceiling track: A hoist lift connects to the user's personal sling and lifts them from their wheelchair to the changing table. With this system, a caregiver can perform the transfer by themselves whereas a typical transfer requires at least two people.

The Changing Places Campaign is an advocacy group based in the United Kingdom that has worked to encourage public facilities to install adult changing rooms with, at minimum, an adult changing table. The Changing Spaces Campaign, based in Atlanta, is an extension of Changing Places and has started the advocacy movement in the United States. Both groups have information online about how to best build an adult changing room, with Changing Places also having a guidebook available with room layout examples and dimension recommendations. This can be found at Changing-Places.org.



Photos (left to right): height adjustable adult-sized changing table; restroom layout example with changing table opposite toilet; sample adult changing room layout.

Additional feedback:

- The family restroom doors in the South Satellite, S55010C and S55011C, are too heavy to open easily. Especially when a parent is carrying a small child, opening and holding these doors open independently will be difficult.

- The restrooms in Concourse B have sharp edges along the product dispensers. This can be a hazard for anyone, especially those with vision loss and small children.
- The family restroom near baggage carousel 12 may be large enough for an adult changing table. This should be explored in the restroom redesign project.

Formal recommendations not included as improvement plans are already in place.

Satellite Transit System

The usability of the satellite transit system and terminal shuttle would be greatly increased by enhancing the audible announcements and adding supplementary visual announcements and signage. There is already a project in place to improve this system using ATL as a model so in knowing that improvements are planned, this section will briefly outline the improvement areas in the current system.

- Audible announcements are quiet and difficult to hear. The announcement stating that the doors are closing is not only difficult to hear, it also states that the doors are closing with only 3 seconds between the announcement and the closing of the doors. To give travelers more notice, it would be helpful if the announcement played with at least 5 seconds to the door closing and also a countdown for anyone who missed the initial announcement.
- Travelers with vision loss do not have any knowledge about the layout of the train, including if there are doors on both sides or just one. The Sea-Tac trains have doors on only one side but to help travelers not aware of this, the exiting announcement should state that the exit is on the “driver’s right side”.
- Any information provided to travelers audibly should also be relayed visually for travelers with hearing loss. This can either be a permanent sign on the wall or in the future, on LED displays.
- The maps of the train system are a little difficult to understand and although the colors on the map coincide with the color of the wall outside of the train, this is only helpful when it’s easily noticeable. Perhaps Sea-Tac should consider naming the stations and including the names of the stations on the maps as well as on the walls in the train lobbies. This information should also be relayed in the audio announcements.

Formal recommendations not included as improvement plans are already in place.

Seating

The more seating available throughout the airport, the better. Although the Central Terminal has ample seating and table options, dispersing chairs with arms throughout the terminal would benefit travelers who need additional support when sitting down and standing up. Seating should also be provided with no arm rests, or with moveable arm rests, to allow someone to transfer out of their wheelchair and into the airport seat. Throughout the rest of the airport,

seating should be available along concourses and near restrooms and trains. Especially when flying out of the North and South Satellites, the walk from security to a given gate can be difficult and while seating is available in holding areas, these are often filled with passengers for the next flight. A row of three seats, available sporadically against the wall to save space, would be very beneficial.

Seating should also be available anytime travelers may be faced with a wait. For example, people are often seen waiting near restrooms for their families and friends so having a spot to sit in close proximity to the restroom would be beneficial. There should also be seating in the train lobbies. When someone has walked a distance to get to the train and they have to wait for it to arrive, having seating available would give them a quick break from being on their feet.

The placement of seating within hold rooms should also be addressed. "Priority Seating" or seating specifically marked for people with disabilities is often placed near the gate agent's podium or within the podium's sight line. However, if these seats are on the opposite side of where pre-boarding occurs, they become less of a convenience. People waiting to board a plane are typically in line long before their boarding group has been called and when this happens, the large crowd of people becomes a barrier for anyone needing to get through or around them to get to the pre-boarding line. If seating was placed along the wall, adjacent to the loading bridge door, there would be less of a crowd to navigate through.

Seating with power outlets is becoming increasingly popular and does benefit travelers as a whole. When adding seats with a power supply, the following should be addressed:

- The outlets should be placed close to the ground. This allows a charging cord for a wheelchair or scooter to easily reach the outlet and also gives the least distance for someone with limited reach abilities to use the power supply.
- When possible, power outlets should be placed at the end of a row of seats so someone with a wheelchair can easily access the outlet. Often times, outlets are placed in between seats and in the unlikely case that there's enough room in between rows for a wheelchair user to get through, both the wheelchair user and the other passengers sitting in the seats are dealing with limited space.

Example: Delta Airlines' seating in the South Satellite does a good job of placing the outlets low to the ground but each outlet is between seats, with nothing on the end of the rows. This makes it very difficult to access if you are a chair user.

Recommended Seating Design

Arconas, a furniture design and manufacturing company, created the inPower Flex module that can be added to back-to-back seating units. The end-mount power was purposely designed to allow a wheelchair user to access outlets at arm height.



Arconas inPower Flex module

When choosing seating design preferences, it is recommended that at least one end seat not have an arm rest. Removing the arm rest allows for an easier lateral transfer from a wheelchair to the seat.



Arconas accessible seating option

Primary Recommendations:

- Additional seating throughout concourses, specifically near areas where travelers wait in line such as restrooms.
- As seating is replaced, power outlets should be in the middle of rows and on the ends, near seat level.
- Accessible/priority seating should be near jetbridge door.

Service Animal Relief Areas (SARA)

Sea-Tac is currently in the process of designing and choosing locations for airside service animal relief areas so the suggestion to increase the number, and enhance the design, of SARAs post-security is already being addressed. However, there is also a need to address the state of the SARAs pre-security. While each SARA has specific issues to address, both areas need additional, clear signage to help travelers find these spaces.

- North end SARA – The SARA located outside, at the north end of the terminal is not an easily used or accessed relief area. Although the website describes this area as “a sandy area”, the surface is a somewhat deep gravel surface which is difficult for a

wheelchair user to move on. While there are bags available to clean up after the animal, the bags are placed against the back wall, making it difficult for someone with a wheelchair to approach and someone with vision loss to locate.

- Additional Notes: When construction on the north end of the terminal began, the original SARA was relocated to this space. Although this SARA is wheelchair accessible (the previous was not), a potential alternative, more usable solution is the Proctor Productions SARA that PHL has placed throughout their facility. However, attention should be paid to the design of this space as it does not allow for wheelchair access and the fire hydrant in the middle of the space is not recommended. If wheelchair access is not an option, adding accessories like “pooper scoopers” or an assistive reach device, both connected to the SARA with a chain, would be helpful.



Original north end SARA at Sea-Tac



Proctor Production SARA at PHL

- South end SARA – This SARA has been relocated twice to avoid the construction of the new International Arrivals Facility. Following this relocation, the exact location of the SARA is not listed on the website, airport maps or directories. Additionally, the only indicators that this is a relief area are the bag dispenser with waste container and the white picket fence. In order to better inform travelers of this location, signage should be added to the SARA, inside the terminal, and on the approach, and the “Accessibility Services” section on the website should list location information.

As SARA design and location are currently in the planning stages, a number of factors should be considered to make these spaces not only compliant, but also universally usable. The following are ODO suggestions included in the FAA guidance for building a noteworthy SARA:

- Must be wheelchair accessible and large enough for the animal to circle its handler (approximately 60 square feet).
- Provide bags, preferably biodegradable, and a trash receptacle in easy reach location.
- In large terminals, multiple locations may be necessary to minimize handler effort/fatigue, time required to use SARA, and dog’s activity before boarding the plane.
 - *Note: The FAA suggests SARAs be located no further than 15 minutes from any gate to accommodate the connecting traveler and avoid the noted points above.*

- Directional signage should clearly indicate the SARA location, information that should also be available on the airport website and maps.
- Items to enhance ease of usage such as “pooper scooper” with long handle (especially important for those with mobility limitations), water bowls to reduce animal dehydration, and accessories to encourage relief such as shrubs, a large rock, or fire hydrants.
 - *Note: Although some animals benefit from a “relief encouraging accessory”, service animals are trained to relieve themselves without one. If Sea-Tac feels that an object, such as a fire hydrant, is necessary, it should be placed in the corner of the area so it doesn’t interfere with a person with vision loss and their dog using the SARA. Often times, fire hydrants are placed in the middle of the area and with this placement, people with vision loss can be injured by walking into the hydrant and leashes are easily wrapped around the hydrant, making it difficult for those with vision loss to untangle their dog.*
- A sink with a faucet for hand washing and water that is potable as a drinking water supply for animals.
- An adequate drainage system should be in place to assist with maintenance.
- Braille and raised print signage should be installed adjacent to the side of door and gates opposite the hinges.
- Safety lighting as needed.
- A tactile map should be considered so people with vision loss can acquaint themselves to the layout of the SARA.



Haneda Airport tactile bathroom map

The following airports have built relief areas using some of the previously mentioned best practices:

- Pittsburgh International Airport (PIT)
 - Push button automatic door.
 - Large area with two surfaces, sink, good drainage and maintenance equipment.

- Located next to a companion restroom and convenient to central terminal area.



PIT airside SARA

- Dulles International Airport (IAD)
 - Drainage systems that allow handlers to push a button on exit to rinse area.



IAD airside SARA, left to right: sign with drainage system instructions; fenced entrance; fire hydrant out of the way

- Baltimore/Washington International Airport (BWI)
 - Seating available inside of SARA.
 - Fire hydrant placed out of the way of animal and owner.
 - Accessible to wheelchair users with slight transition into turf area.
 - Trench drain.
 - Waste receptacle with clearly identified usage guidelines.
 - Accessories with long handles available for cleaning up after animals.



BWI airside SARA

Design issues to avoid:

- Relief boxes that are too small for larger breeds that typically service persons who are blind or use a wheelchair.
- Limited space for wheelchairs to maneuver making it difficult to clean up or reach controls/amenities.
- “Relief encouraging accessories” placed in the middle of the relief area.

Formal recommendations not included as improvement plans are already in place. ODO did review design plans for the new SARAs and has provided feedback on these plans. For additional reference, the ODO Service Animal Relief Guide is included in the appendices at the end of this report.

Service Provision – Wheelchair Service and Carts

A majority of the feedback regarding airline service providers came from the meetings with Port and airport personnel. The following outlines recommendations for service improvement based on this feedback.

- The loss of curbside service appears to have greatly affected the efficiency of airport operations and subsequently lower service quality for travelers. Specifically for ground transportation providers, the curbside service was additional help for helping load and unload passengers from busses, including allowing for more focus on assisting travelers with disabilities. Without this service, drivers are expected to help all passengers with luggage, wheelchairs, and other items, then drive to the parking lot or rental car facility in a timely manner. The lack of help significantly increases wait time for all passengers and delays ground transportation operations. While the timeliness of this process isn't

directly related to accessibility, having additional staff on hand to meet and assist the travelers with disabilities using ground transportation would be a great help to the traveler. If there were someone there to answer questions immediately, there would be much less confusion.

- When travelers don't preplan, they don't know what services they may need or what services are available. Because of this, travelers sometimes go through security without wheelchair service only to realize they do need assistance and at that point, going back to the ticket counter to request service is too much of a hassle. Two suggestions arose to address this, with one suggesting travelers have the ability to request wheelchair service once through security and the other suggesting that rental wheelchairs be available airside to be borrowed by travelers. While ODO does not feel that these services are necessary, both suggestions would enhance the accessibility of the airport. The following are considerations that should be made if Sea-Tac chooses to provide one or both of these services.
 - If wheelchair service could be requested post-security, the Port would need to develop a communication plan where the employee stationed at the request desk would have a designated contact person for each airline so the request could go directly through the airline to the service provider. Although Sea-Tac uses Prospect as a "back-up" provider, using them for this service would cause a lot of confusion among the airlines because the traveler's need for wheelchair service wouldn't be relayed to the airline, and consequently the service provider, and there wouldn't be a wheelchair waiting for them at their destination.
 - Rental wheelchairs in airports are currently not common but there are airports that are piloting this idea. Haneda Airport in Tokyo has wheelchairs available for rent by using terminal information phones to contact the airport and request one. After a traveler talks with the airport representative, an airport employee brings the chair directly to the traveler and they can use it until they board their plane. There are a couple of aspects to address before providing this service including liability issues and inspection protocols, storage space, maintenance and how the wheelchairs are returned after use.
- There is a common concern that there are not adequate staffing numbers among the service providers to accommodate all of the traveler requests. When cruise line busses drop off passengers at the airport, there's often a long time for passengers to wait before airlines will allow them to check in. When travelers use Prospect Airport Services to transport them to the terminal, the wheelchair pushers have to stay with the travelers until they can be "handed off" to the next service provider after check-in, which keeps them tied up and unable to move on to the next job. There is also a concern for low staff numbers in the international terminal. Incoming international flights often have many wheelchair requests and when there aren't enough staff available to assist, travelers are stuck waiting for someone to meet them. While the passengers may be frustrated that they need to wait, there's often a communication barrier so they may also be confused about what to do next. Sometimes there is also a language barrier which can be side stepped by using the free wheelchair service. It's important to figure out if communication is the problem or if disability comes into play.

- The “holding pens” near ticketing often have staff sitting in them which takes up seats for people who need them so there should be more provision for this.
- Although airports are not typically involved in contracts between airlines and service companies, poor service reflects on both Sea-Tac and the airlines. If Sea-Tac were to set service standards for operating within the airport, some issues may finally be addressed; starting with required staff training and pay. Regardless of the passenger speaking a foreign language, has a diagnosed disability, or is an older adult, etiquette and assistance training is essential for good service. It is somewhat typical to see a wheelchair pusher insisting that a person who is blind should use a wheelchair and it’s even more common to see little to no interaction between the pusher and the traveler. Access goes beyond being able to physically use a service or space and extends through customer service and general acceptance. When the first person who greets a traveler with a disability is impersonal, doesn’t know how to interact with them, and simply treats them as a job, a poor impression is left on the traveler. Sea-Tac should bring airlines and service providers to the table to open much needed communication lines between the three parties. There should also be guidance or service standards that reflect the local airport and community. The airlines and service providers operate within the airport and therefore their service standards should meet and reflect the Port’s mission. When service standards are set, and concerns are shared and addressed, operations can run much more smoothly. To facilitate this communication between all parties, an advisory group should be formed with representatives from each stakeholder group that meets regularly to discuss challenges, upcoming service interruptions, and other relevant airport operations.

Other comments and concerns expressed:

“There are a lot of empty wheelchairs going through TSA which causes a lot of backups.”

“The carts can’t get to North or South Satellite trains so that service can’t be available.”

“It would be helpful if there was a common service provider for the airlines. Having so many different ones is difficult to manage.”

“Can we regulate how many wheelchair service providers are in the airport? Is anyone else doing this?”

“There isn’t a single company that everyone works with so it’s a struggle to pass off people with disabilities.” – Ground Transportation Representative

“Terminal halls are very narrow and with the electric carts, it’s really crowded. Especially with people boarding planes and having the lines jet out into the concourse.”

The only feedback community members had about this service pertained to the carts used by service companies to transport travelers around the airport. The feedback generally surrounded safety, with comments including “It would be best if carts weren’t driving where people were walking.” and “The carts are fast and the beeping can’t be heard by people with hearing loss.” To address these concerns, the following is recommended:

- Carts should continue to use horns and a light so people know they're coming. However, if a cart is approaching someone with hearing loss from behind, the horn is not going to be effective in alerting them that it's approaching. Cleveland International Airport has added convex mirrors, similar to those found in parking garages, to their concourses so when travelers are walking through the airport, they can simply look at the mirror to see what's behind them.

Product: Garage Mirror

Price: starting at \$64.99 for 26", starting at \$102.99 for 30"

Additional Info: Company recommends 1.5" diameter mirror for every foot of distance you will view

Company: National Safety Mirror



- The other recommendation from the community group was that the terminal-light rail cart driver should be more vocal about where he's going and offering rides. For people with vision loss, they may not know what the cart is for if they can hear it and if they don't see it at all, they can't take advantage of this service. The cart driver should communicate with travelers, both vocally and visually with a sign stating what the cart is for.

Primary Recommendations:

- Develop an advisory board for service provision within the airport.
- Install mirrors so travelers can see approaching carts.
- Sea-Tac to work with service companies and airlines to improve current cruise line passenger assistance.
- Increase supervision over "priority seating" area for travelers waiting for wheelchair service.
- Develop employee training requirements for airline service companies.

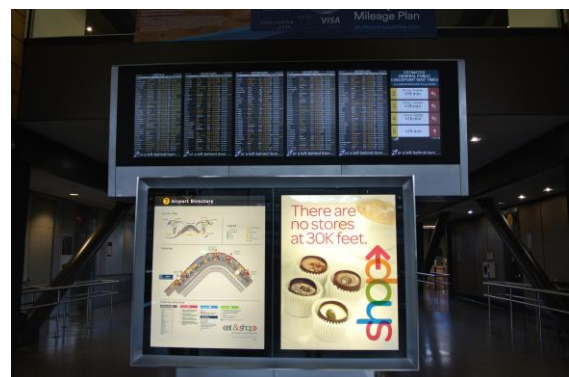
Secondary Recommendations:

- Make wheelchair rental and request available post-security.
- Address potential for reinstating curbside service.

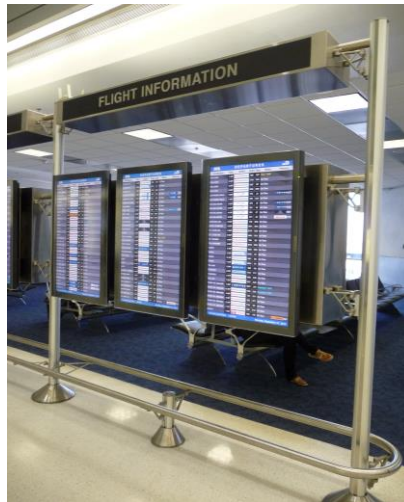
Technology

Much of the feedback surrounding technology has been included in other sections throughout this report. While FIDS have been mentioned in multiple areas, the positioning and font size has not been addressed. As shown in photos below, most display screens throughout Sea-Tac that provide information to travelers are placed fairly high, have relatively small font, and when there's a glare, the font color contrast is not easily seen. According to the aforementioned "Indoor Airport Wayfinding for Blind and Visually Impaired Travelers" FAA report, it is recommended that display screens be placed within "kissable" access which essentially means someone can walk right up to the screen and view it up close. While this isn't a standard, it is a preference for people with vision loss that benefits a majority of travelers. The FIDS throughout Sea-Tac are not easy to read due to FIDS placement, font size and glare. If the font size was increased, all of the flight information would likely not fit on the screens. However, scrolling information that *can* be seen may be preferred over small information that cannot. Consistent color contrast is also important. Throughout the past decade, ODO has recommended blue background with mildly bright yellow font. Many airports across the globe have adapted this color standard including KLA Kuala Lumpur, DEN Denver International Airport, SFO San Francisco International, ORD Chicago O'Hare and PHX Phoenix International.

The photos below are examples of Sea-Tac signage with small font and/or high placement.



The following photos are FIDS with preferred design.



Close approach from standing or sitting, high contrast/low glare, and located away from direct sunlight.



IAH – Close approach with designated visual paging screen.



Close approach, low glare, accompanied by additional information.

Primary Recommendations:

- Enlarge font on FIDS.
- Adjust height of FIDS to allow for close approach.

Transportation Security Administration (TSA)

Feedback regarding TSA was minimal but the feedback that was received affects both travelers and service providers. As the process is now, service providers bring their own wheelchairs to wherever their next passenger pick up is. Sometimes this means going through a security checkpoint with an empty wheelchair in order to get to an arriving flight. Per feedback from the Port meetings, TSA occasionally limits the number of empty wheelchairs they will allow through security and service providers are running out of wheelchairs post-security which then presents travelers with long wait times to receive assistance. This situation is another opportunity for Sea-Tac to facilitate communication between both parties to find a solution that's best for all involved.

Space also creates an obstacle for TSA. The layout of the main terminal does not allow for good traffic flow into TSA checkpoints and allows for very little space to maneuver outside of the lines without entering the checkpoint. There should be a traffic flow assessment completed for the secure side of the main terminal with focus on where pedestrian walkway space significantly decreases due to placement of security checkpoint lines. In addition to assessing the walking space surrounding the checkpoints, the amount of space within the lines should also be assessed as the stanchions are not placed wide enough for comfortable movement in a wheelchair or scooter. Because space is so limited, there is not an ideal alternative place to direct passenger traffic as the other side of the main terminal is frequently busy with ticketing and check-in. If travelers had information about wait times for each checkpoint with directional signage, crowds could be more dispersed. Presently, the space for through traffic is very narrow and only allows for one-way passage. This limited space could also cause confusion in an emergency situation as there could be trouble clearing the area and keeping the checkpoint secure during an evacuation.

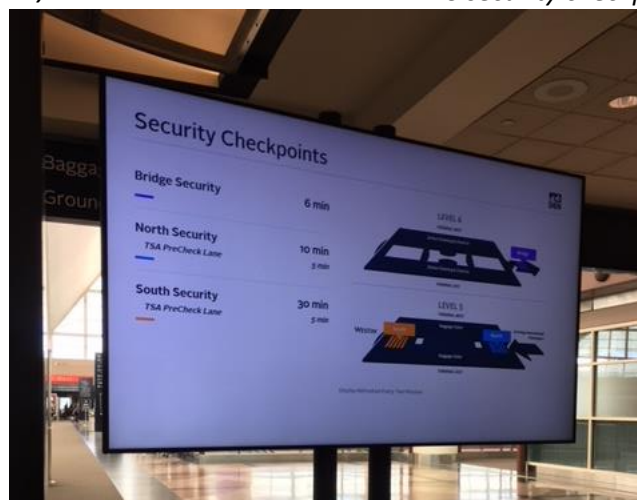
Amsterdam Schiphol, Denver International, Cincinnati/Northern Kentucky and Houston Airport Systems have displays located in various areas where traffic flow to security checkpoints is heavy (photos below). These signs can also take the place of stationing airport personnel either there to direct people to quicker TSA lines or having to place and replace temporary signage. There are currently no standards for this type of signage so accessibility of font size and type, contrast and colors should be considered when programming. Sea-Tac is currently testing passenger tracking software at Checkpoint 2 to better understand passenger flow and wait times.



CVG security wait times



AMS security checkpoint wait time



Security checkpoint wait times with location information

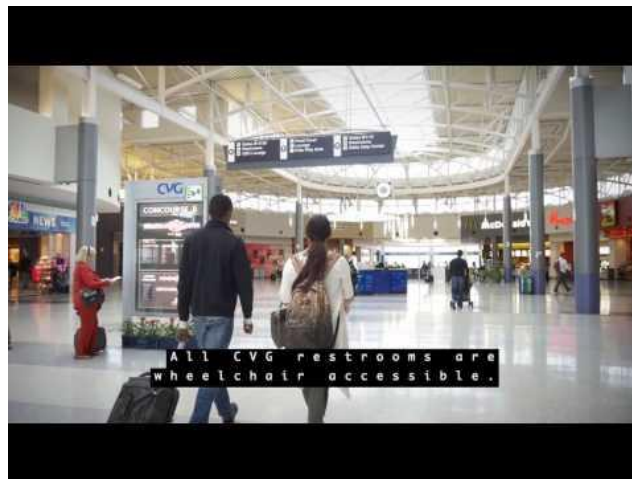
Recommendation:

- Sea-Tac to facilitate communication between TSA and service provider to address challenges.
- Create traffic flow study to find most efficient way to use space for security checkpoints.

Wayfinding/Signage – Project Currently In Progress

Wayfinding and signage are areas that present unique challenges to nearly all travelers as preferences and needs vary from person to person. A traveler with vision loss relies heavily on provided information and their hearing to wayfind, a traveler with hearing loss relies on signage and visual information, and a non-English speaker relies on signage with universal symbols. In this section, commonly identified challenges and improvement areas have been separated by focus area, with further explanation on how to best accommodate the affected population.

- Maps and airport directories, whether online or at the airport, are used by a majority of travelers to assist with wayfinding. For travelers with vision loss, reviewing an airport map provides a source of comfort in having some idea of where things are located. However, when a screen reader is required to read information online, a typical airport map is not compatible with screen reader software so a text version of the map should be available. A text map is a narrative description of a map that includes a global spatial description and directions around the location shown on the map. For example, “Ticketing is shaped like a curved up arrow. The north end of the terminal begins on the far right with Alaska Airlines then moves south, or left, through Southwest, Delta, Virgin....” With this information available on each map, the traveler can orient themselves to the layout of the space. Cincinnati-Northern Kentucky International Airport (CVG) has text maps available online with text descriptions from a visual wayfinding service they recently made public. CVG brought drones into the facility to help with pre-trip planning where future travelers could go online and watch a video that shows the interior of the airport. To make this video accessible, CVG included captioning and from the captioned descriptions of wayfinding in the video, their text map descriptions were created.



CVG visual wayfinding video

In addition to online maps, tactile maps are also useful for orienting travelers with vision loss to the airport layout. A tactile map is a raised print version of the general airport map. While a tactile map of Sea-Tac would be difficult to have in one place due to the multiple levels in each facility, one map per area (i.e. baggage claim) that can be visited when the traveler enters that area, possibly near the airport directory, would be helpful. Tactile maps of smaller areas, such as restroom layouts, are also helpful and can be located in convenient areas that are easy to find. For example these maps can be placed directly next to the restroom sign so a person can learn the layout prior to entering the room.

Aside from alternative map options, navigation information, such as accessible routes, that are based on maps are useful for a variety of travelers. If the airport made a MapQuest-like resource that gives specific directions for the accessible route from, for example, the light rail to security, and everything in between, this would help greatly with navigation.

The airport directories placed throughout the terminal, while helpful, do have some room for improvement. While the directory allows for a close approach, or ‘kissable access”, the font is still very small and the white font has poor contrast against the background colors, specifically the orange, light blue and green. With the amount of blank space on the directories, there is a lot of room for enlarged fonts and pictures so the use of this should be maximized. To allow for even more space, Sea-Tac could consider removing the descriptions of the dining and shopping choices. These descriptions take up 3-4 lines when a word or two could be sufficient and save space. Making the map larger overall, with text included on the map and a more generalized key would make the directory more useable. Additionally, the font should be adjusted to be larger and have higher contrast between font and background color. The ideal color combinations are bright yellow font on a deeper blue or black background, or white font on dark backgrounds. As shown in the right-side photo below, PHX has directories that have minimal text allowing for a larger display of the area.



Sea-Tac airport directory



PHX airport directory

- Including wayfinding features in the environment is a great way to assist travelers with vision loss. For those who use white canes, grooves, raised tiles or surface changes in the floor help to navigate through an area, especially if they are unable to use the wall as a guide, the typical practice for navigating. At Sea-Tac, stores and restaurants have signs placed in entrances, carts are parked off to the side, and FIDS are placed against the wall, all of which cause a barrier to people using the wall to navigate. The path from the light rail to the terminal has grooves in the ground to help with wayfinding, a practice that can be brought inside the airport too. Throughout concourses, grooved or raised tile along the outer edge of the walkway would give travelers another path to follow to avoid the mentioned obstacles. In addition to this, a tactile indicator for a store or restaurant entrance would be useful in knowing that they were no longer in the concourse.

Navigating through lines with ropes and stanchions also presents challenges for travelers with vision loss. For white cane users, the ropes placed at waist level are not cane detectable so to avoid running into the rope, they follow it with their hand to move through. This may be difficult in an airport environment since travelers typically have at least one piece of luggage so using their cane, holding the rope, and pulling their luggage is a difficult task. To make lines more accessible, a second rope can be added to the stanchion to make it cane detectable, as San Francisco International Airport has done. SFO photo and product example below:



Two-rope line stanchion



Indolutions, Inc.

StanchionWholesaler.com

Price: approx. \$150.00 each

Travelers with vision loss are also challenged with stairs and distinguishing where each step is located. Adding a contrasting line of color to the edge of each step will make it easier to see them. In addition to steps, the black ropes for lines can also be difficult to see. Based on feedback from the community meetings, adding a bright colored design or wording to the ropes would make them easier to see.

A good wayfinding feature already at Sea-Tac is the occasional large circle design on the ground that gives additional direction. The directions are simple to follow with the arrow, are easy to see and include the same symbol that is used on signage and airport maps. If designs like this were included at major decision points, it would help a variety of travelers navigate. A more complex design can be found at the Narita Airport in Japan. As shown below, travelers can follow color coded tracks to their respective destination in the airport. This wayfinding feature is also found in hospitals, however the design is less overwhelming and instead has small colored arrows, thinner lines or footprints to follow.



Sea-Tac directional floor signage



Wayfinding tracks at Narita Airport



Directional paths at Denver Children's Hospital

- Sea-Tac is currently working with LocusLabs to develop a wayfinding application to be used inside of the airport. Airport wayfinding systems that should be referenced for innovative features are Miami International Airport (MIA) app, developed with SITA, and George Bush Intercontinental Airport (IAH) app-free system, developed with LocusLabs. In MIA's app, users are given information about walk times to gates, dining and retail information, and intuitive wayfinding software that uses the phone's compass to know which way the user is facing. IAH created an app-free indoor navigation system that allows travelers to simply visit the airport's website to receive turn-by-turn navigation assistance. The website maps give live direction for the quickest way to reach a destination along with the estimated time needed to walk there. Another feature to pay

attention to is that Sea-Tac's layout is not a grid so in some areas, a "turn left" or "turn right" direction will not work for someone with vision loss. When giving direction to someone with vision loss, the numbers on a clock can be used for more precise direction so if there are turns that require a diagonal turn, perhaps the app can also include this specific information. For example, "The Wendy's is on your left at 9:00." Using the clock face for reference is a common practice with people who are blind or have low vision.

Airports across the globe are in the beginning stages of testing beacon technology and triangulation of Wi-Fi signals to create methods to push and pull information for those who use smartphones, tablets or computers. Currently, many airports are testing beacon technologies because they are cost effective, quick to install and are dynamic in their ability to be programmed. Triangulation using Wi-Fi is used less because the technology has yet to be proven as secure enough to be used in such a large setting. This technology pulls Wi-Fi signals from throughout the airport which allows them to locate the passenger who is connected to the application. Both beacon and triangulation bring a new type of GPS wayfinding in an airport, both having the ability to give turn-by-turn directions to the passenger moving throughout the facility.

- Directional signage throughout the airport is inconsistent overall, specifically with backlighting. Only some signs are backlit and for those that are not, they're difficult to see. In some areas, signage is easy to read as it has large, backlit font and is placed low enough to give travelers a good sight line (see photo A). In other areas, the signage is placed directly under the ceiling, at times under a light, and the font and symbols are small (see photos B and C). In spaces with low ceiling height, signage should be placed directly under the ceiling for a good sight line. However, it's in these areas that lighting affects large print so placement away from light sources that produce a glare is important.



Photo A



Photo B



Photo C

Photo A is a good example of signage without glare, internal backlighting, and font and symbols that are easy to read. Other examples of good signage are below:



San Francisco International Airport



Singapore Changi Airport



Minneapolis-St. Paul International Airport

Identified improvement areas for signage include baggage claim, signage for elevators, AED identifiers, international terminal, and more directional signage overall. Pathfinders feel that many of the challenges travelers express could be avoided if there were better signage. One of the most common questions the Pathfinders receive is “Where is the bathroom?” showing that the small symbols directly outside of the bathroom are not easily seen.

- Based on feedback from the service provider meeting, travelers are easily confused about where they should go and who they should contact to receive assistance. It appears that travelers assume they can simply pull up to the curb and they’ll immediately receive help but this isn’t working. Signage in the rental car facility and parking garage with contact information for Prospect Airport Services should be larger and more frequent to alleviate confusion. When passengers are dropped off at departures, enhanced signage that indicates where to go for assistance would be helpful as well. With a designated arrival spot, travelers would be assisted faster and the service providers would have an easier time finding them. At MSP, dynamic signage was added to the departures level that informs travelers of where to go to receive assistance. This has greatly helped their service provision as it has created a centralized space for travelers and service providers. At ORD, there are clearly marked loading zones for travelers needing assistance.



Minneapolis-St. Paul International Airport

- Additional feedback:
 - With the new cruise line processing system, there will be a need for more signage in the parking garage to direct travelers where to go.
 - The elevator lobby located on the south end of the main terminal near the South Satellite train station has little signage and upon entering, looks like an area that travelers shouldn't be in. This space can be enhanced by adding more signage down the hall. *(When looking at an airport map, this lobby is located near the "Checkpoint 1" icon, on the train station level of the terminal.)*
 - Informing travelers of walking distances is a helpful wayfinding *and* planning tool. This would be especially helpful for travelers needing to go to one of the satellite buildings. As shown in the photo below, Charlotte-Douglas International Airport (CLT) has average walking times listed with their directories.



CLT airport directory with walking times to concourses

Primary Recommendations:

- Make accessible route guide available for print online.

- Make text maps available online.
- Increase frequency of directional floor signage.
- Add visual indicators for each step on staircases.
- Modify font on airport directories.
- Improve quality, consistency and frequency of directional signage throughout airport. This should be ongoing as the airport continues to grow.
- Enhance parking garage signage for to new cruise processing locations in garage.
- Explore potential, and provide signage, for designated drop-off locations to receive assistance.

Secondary Recommendations:

- Add tactile maps for major airport areas and restroom layouts.
- Develop online visual wayfinding video.
- Add a cane-detectable second rope to all line stanchions.
- Add signage indicating average walking times.
- Enhance signage in elevator lobby at south end of terminal, lower level.

Website

Travelers want to plan for their trip prior to traveling and the main resource for this planning is the internet. The easier it is to access information and the more information available, the more beneficial it is for travelers. To achieve this, the UK's "2 Click Rule" should be followed, which allows a person to access the accessibility information in less than 2 clicks from the homepage. Sea-Tac can go even further and like ATL and CVG, include a link to accessibility information directly on the homepage. In an effort to meet the needs of non-English speakers, website translation services through Google Translate can also be available on the website, a service now available on BWI's website.

The current site layout and content are in the process of being redone so upon completion of the website, individuals with disabilities should be consulted to review website content and ease of navigation. This test group should include people with vision loss who use screen reader software and who have low vision, people with cognitive disabilities, and people with mobility disabilities who use assistive technologies.

The following user feedback details general "wants" for a website and content suggestions for the future:

- "The more information that can be printed at home, the better."
- "High contrast with easily read fonts. The print should be fairly large or able to be adjusted to individual preference."

- “The website should have as much information about every airport feature as possible. This should include where it’s located, what it is, times it’s open, the layout of the bathroom, best pathway to the light rail, etc. Any pictures should have alt. text so if someone is blind and look at the layout of the airport, the alt. text could give specific directions about it.”

Note: Alt. text is “alternative text” that can be added to images in a document to provide in-depth description for people using screen reader software. Alt. text is used so the caption of an image does not need too much description.

- “Typical wait time for this time of day information for TSA lines.”
- “Wheelchair symbol on the front page that takes someone directly to accessibility information.”
- “Some people find wheelchair service contact information online but there should also be information about how the whole process works.”

Website Content Suggestions

The following details specific information that should be included on the new website. As a reference during planning, Sea-Tac should visit the following airport’s websites as they have ample information and resources available online: BWI, ATL, CVG, MSP and SFO.

Accessibility Section Titles

Suggestions:

- | | |
|--|-------------------------------------|
| - Accessible Ground Transportation | - Accessible Parking |
| - Deaf and Hard of Hearing Services | - Accessibility FAQs |
| - Accessibility Services/Access at Sea-Tac | - Medical Disabilities |
| - Reduced Mobility and Wheelchair Assistance | - Airline Accessibility Information |
| - Emergency Preparedness | |

Content Suggestions

Accessible Ground Transportation

- Contact information for companies with wheelchair accessible vehicles and shuttles
 - Taxi affiliations
 - Limousine companies
 - Shared-ride shuttles
 - Hotel shuttles
 - Off-airport parking shuttles
- Bus and lightrail transportation information
- Drop-off/pick-up Locations for people with disabilities

- LAX has this listed with photos of their signage

Accessible Parking

- Location of accessible parking spaces
- If someone needs assistance in a parking garage, how do they get it?

Deaf and Hard of Hearing Services

- Visual paging information
- Any available interpreting services
- Closed captioning availability

Accessibility FAQs

- To be sure necessary information is covered, MSP has a FAQ page with their frequent questions for reference.
 - <https://www.mspairport.com/airport/accessibility/accessibility-faqs>

Accessibility Services or Access at Sea-Tac

- List of locations for each accessible and family restroom (ATL example below)

Restrooms

All restroom facilities are fully equipped for wheelchair access. Four sets of "Men/Women" restrooms are located on each concourse. One set is located at either end, and two sets are centrally located on each concourse. Two sets are in the Airport's Domestic Terminal atrium, including one set in the arrival's lobby. Additional restrooms are located at the International Terminal, with a set on both the departure and arrival levels.

Unisex family restrooms for those traveling with an attendant are located throughout the Airport:

- Domestic terminal arrival's lobby (2)
- T2, T4, T8 and T12
- A6 and A27
- B9, B23 and B27
- C15, C18 and C37
- D4 and D32
- F4, F6, F9, F12 Concourse F mezzanine level, departure level and arrival level

An adult changing table is located in the family bathroom at Concourse F departure level near French Meadow Cafe.

- Service animal relief area with exact location, including stores/restaurants next to them
 - Include what accessories are available in SARAs such as waste bags, sinks/hand sanitizer, etc.
- Availability of accessible or "priority" seating throughout concourses
- Airport map
 - Should have all accessible services and facilities noted on the map
- Text maps
 - Where maps are provided on the airport website or mobile app, include narrative, text-based descriptions to enable blind travelers to create a cognitive map of the airport. These should include a description of the overall airport layout as well as

detailed descriptions of terminals and concourses and how passengers can move between them (interior or exterior walkways, automated people mover, shuttle buses, etc.). Include cardinal directions, left/right or clock face directions and approximate distances or walking times. See the Sample Text Map for ABIA we wrote for the ACRP 07-13 wayfinding project.

SAMPLE TEXT MAP - AUSTIN-BERGSTROM INTERNATIONAL AIRPORT

By Laurel Van Horn and Pat Pound, Open Doors Organization

Airport overview

Austin Bergstrom International Airport has one terminal which lies on an east-west axis with the terminal entrances facing north. The terminal has two main levels: departures for departing flights on the upper level and arrivals for arriving flights on the lower level. Each level is accessed by a roadway called Presidential Boulevard that approaches from the west. Doors are numbered from west to east: Door 1 is furthest west.

Garage and Parking

Directly across the roadway on both levels is a parking garage. Level 3 of the garage, currently used for rental car pick up and drop off, connects to the terminal departures level via two raised pedestrian crossings. Level 1 of the garage connects to the terminal arrivals level via five crosswalks, three of which are raised pedestrian crossings at sidewalk level. There are no traffic signals or truncated domes to warn that one is entering the roadway. There is a traffic island at the midway point on both roadways. Service animal relief areas or dog parks are located in front of the garage at both ends on the ground level, close to pedestrian entries.

Accessible parking spaces are adjacent to East and West pedestrian entries on levels 1 and 2 of the garage, i.e., closest to terminal entrances and the elevator. Other onsite parking facilities include lots A for short term parking and B to G for long term parking, located north of the garage. Each lot is served by lift-equipped parking shuttles with accessible parking spaces situated next to the covered shuttle stops. Not all shuttles are accessible but the driver will call for one as needed. Valet parking is also available.

Ground Transportation – Departures or Upper Level

The curbside area along the terminal is used for passenger drop off by automobile. Hotel shuttles stop at the far east end. Drop off by parking shuttles and for valet parking is on the garage side of the traffic island. Only three airlines offer curbside check in: United, Southwest and Delta.

Departures Level – Pre-Security

The departures level is the upper level of the terminal. On elevator buttons the departures level is labeled “T” for Terminal. This long, relatively narrow area before security is aligned east to west, or left to right as one enters the space from passenger curbside dropoff. The 7 sets of entry doors from the roadway are numbered from west to east, with Door 1 furthest west, Door 7 furthest east. Curbside check in locations are as follows: United outside Door 2; Southwest outside Door 4; and Delta outside Door 5.

There are two main security checkpoints, numbered 1 and 2, that are centrally located in the terminal on the south side of the space. Checkpoint 1 is located east of Checkpoint 2. At the far west end is an additional checkpoint, number 3, to provide access to gates 15 to

- Another example comes from Cincinnati/Northern Kentucky International Airport which now features ten captioned wayfinding videos on its website and posts the captions separately as "Step by Step Directions".
<http://www.cvgairport.com/terminal/access/steps>
- Social stories
 - For people with autism and cognitive disabilities, a social story explaining the airport journey is helpful. Gatwick Airport and Vancouver Airport, for example, both have online stories available that walk through each major point of the airport travel process.
 - Gatwick:
<http://gatwickairport.com/globalassets/documents/passengers/prm/autism/guidetogatwick.pdf>
 - Vancouver: <http://www.yvr.ca/en/passengers/navigate-yvr/accessibility-at-yvr/accessibility-travel-planning>

Medical Disabilities

- Information for travelers who are traveling with medical devices (LAX website example below)



- Availability of receptacles for medical supplies (i.e. needles)
- Availability of charging stations for battery dependent devices
- What medical services are available such as first aid and pharmacy

Reduced Mobility and Wheelchair Assistance

- Information on how to request wheelchair assistance
 - Noting importance of requesting assistance through airline but if in parking garage, contact phone numbers for Prospect
- Cart service from light rail to terminal
- Availability of charging stations for battery dependent devices

Airline Accessibility Information

- Information on each Sea-Tac airline's disability programs/policies
 - LAX has a link to each airline's disability page
 - MSP has the phone number for each airline's disability department

Emergency Preparedness

- Emergency contact numbers
- Path of egress in each concourse, if available
- What to do in an emergency
- LAX has a brochure available with emergency information specifically for people with disabilities
 - <https://www.lawa.org/uploadedFiles/LAWA/ADA/ADA%20-%20BROCHURE%20-%20EVAC%20FM%20TERMS%200510.pdf>

Additional Information for Consideration

- Walking distances from security checkpoints to concourses
- Directions to key interest points (i.e. train to North/South Satellites, security end point to parking garage and light rail, etc.)
- Environmental conditions
 - Elevators out of order
 - Terminal/concourse construction locations
- Special alerts
 - Specific information for travelers with disabilities
 - LAX has a tab for this: <http://lawa.org/ADA.aspx?id=14906>

Suggested Timeline – 2, 5, 10+ Year Goals

The following goal ranges are based on both priority and ease of implementation. The goal ranges are intended to suggest that the recommendation should be completed within the next two years, within the next five years, within the next ten years and beyond. It should be noted that among the identified recommendations, only some are a compliance requirement of the Americans with Disabilities Act (ADA) and 2010 Americans with Disabilities Act Accessibility Guidelines (ADAAG). A majority of Sea-Tac's facilities were built prior 1990 when the ADA was signed into law, which allows alterations for compliance to be completed during planned renovations. With that said, the recommendations pertaining to ADA compliance identified in this report should be implemented as soon as readily achievable*. For clear identification, all recommendations pertaining to ADA compliance have been highlighted in grey.

With the number of recommendations, those with the highest priority are listed below as a quick reference. These recommendations are italicized and shown with a double asterisk (**) in their respective goal ranges.

* *Per the ADA, readily achievable means that barrier removal is easily accomplishable and able to be carried out without much difficulty or expense.*

Highest Priority Recommendations (in no order of importance):

- Place tactile detection surfaced at the top and bottom of staircases. (Within 2 years) – p.38
- Fix hardware in accessible restroom stalls in rental car facility. (Within 2 years) – p.47
- Ramps near baggage claim need to be assessed. (Within 10 years) – p.38
- Enhance visual paging capabilities. (Within 5 years) – p.26
- Additional curb cuts should be added to both departure and arrival levels. (Within 5 years) – p.38
- Implement recurrent disability awareness and etiquette training policy for all airport personnel. (Within 2 years) – p.46

Primary Recommendations

Completed within 2 years

- Restaurants should have Braille menus available and where menus are posted behind a counter, a large print hard copy should be available either as a book or posted on the counter for close viewing. (p.12)
- In stores, a clipboard should be available for cashiers to give wheelchair users a hard surface to use. (p.12)
- Designate “Quiet Room” locations in terminals. (p.14)
- Implement sensitivity training for airport personnel and airport vendors. (p.15)
- Include “autism friendly” information on the website. (p.15)
- Explore options for reducing impact of fluorescent lighting. (p.15)
- Station employees or volunteers in baggage claim area. (p.16)
- Increase number of information desks throughout airport, both airside and landside. (p.18)
- Enhance signage for accessibility services. (p.18)
- ADR training should be adjusted to include aspects of the ADA and reasonable accommodations. There should also be a disability/older adult awareness component with tips and ideas on how to properly help these passengers. (p.12)
- Staff the current information desks with at least one person during the day (8:00a-8:00p). (p.18)
- Address non-accessible assistance telephones. (p.18)
- Make communication cards available at TSA and CBP. (p.20)

- Make directional information about specific airport service locations available online. (p.22)
- Make foreign language translation software available at information desks and TSA/CBP. (p.25)
- Make Video Remote Interpreting services available at airside information desk. (p.25)
- Include all accessibility service information on the website. (p.18)
- Form disability advisory committee with representatives from Port of Seattle and individuals with disabilities/disability organization representatives. (p.27)
- Include individuals with disabilities and older adults in marketing campaign. (p.27)
- Turn on captioning on all television screens throughout terminals. (p.26)
- Station additional employees or volunteers in CBP area to help direct travelers. (p.27)
- Add visual indicators (red stop sign and green arrow) for escalator direction. (p.30)
- Increase signage for elevators airport wide. (p.30)
- Begin outreach to disability community with current job postings. (p.33)
- Develop communication standard for elevator/escalator outages. (p.30)
- Require all airport personnel to complete emergency preparedness training during SIDA initial training and annual refresh. (p.32)
- Add emergency evacuation chairs to concourses. (p.32)
- If Sea-Tac chooses not to keep the Areas of Rescue Assistance, a designated emergency information location should be provided in each major area of the airport. (p.32)
- Emergency Preparedness Department should have open communication with ADR representatives to develop comprehensive response plan. (p.32)
- Add universal first aid symbol to airport directories for trauma kit/emergency supply locations. (p.32)
- Install automatic door opener for any AOB room with an automatically closing door. (p.33)
- Address water fountains and alter noncompliant fountains to be cane detectable. (p.38)
- *** Place tactile detection surfaces at the top and bottom of staircases. (p.38)*
- Enhance signage for accessible loading zones. (p.38)
- Increase number of allocated accessible taxi parking spots in parking garage. (p.39)
- Add visual and tactile indicators separating sidewalk from roadway in parking garage. (p.43)

- Increase Volunteer base. (p.46)
- *** Implement recurrent disability awareness and etiquette training policy for all airport personnel. (p.46)*
- Add tables with four legs (open center) or smaller bases for wheelchair access. (p.12)
- Commission specialized training for upcoming Special Olympics. (p.46)
- Advertise TSA Cares program online and in the airport. (p.46)
- *** Fix hardware in accessible restroom stalls in Rental Car Facility. (p.47)*
- Place priority/accessible seating near loading bridge door. (p.53)
- Develop advisory board for service provision within the airport. (p.60)
- Install convex wall mirrors so travelers can see approaching carts. (p.60)
- Increase supervision over “priority seating” area for travelers waiting for wheelchair service. (p.60)
- Increase font size on FIDS. (p.62)
- Sea-Tac should facilitate conversation between TSA and service provider to address challenges. (p.64)
- Make an accessible route guide available for print online. (p.70)
- Increase frequency of directional floor signage. (p.70)
- Install visual indicators for each step on staircases. (p.70)

Completed within 5 years

- Develop accessibility services pamphlet as a handout for travelers. (p.18)
- Enhance signage for accessibility services. (p.18)
- Install Hearing Loop Systems at ticketing counter, gate hold rooms, and wherever announcements are made. (p.20)
- Address PA system and make placement changes if necessary. (p.22)
- *** Enhance visual paging capabilities. (p.26)*
- Install audible announcements on elevators that identify floor level. (p.30)
- Develop mass notification system for emergencies. (p.32)
- Increase accessible table options throughout concourses and in gate areas. (p.37)
- *** Additional curb cuts should be added to both departure and arrival levels. (p.38)*

- Relocate FIDS placed near natural light sources to minimize glare or use anti-glare filter. (p.40)
- Enhance lighting throughout airport to maintain consistent lighting levels. (p.40)
- Designate accessible parking spots on each level of the parking garage. (p.43)
- Add identifying text and/or symbols on elevator banks in parking garage. (p.43)
- Sea-Tac to facilitate communication between rental car facility and service companies to develop new processes for service provision gaps. (p.47)
- Place additional seating through concourses, specifically near areas where travelers wait in line such as restrooms. (p.53)
- As seating is replaced, power outlets should be in the middle and ends of rows near seat level. (p.53)
- Sea-Tac to work with service companies and airlines to improve current cruise line passenger assistance. (p.60)
- Develop employee training requirements for airline service companies. (p.60)
- Adjust height of FIDS to allow close approach. (p.62)
- Modify font on airport directories. (p.70)
- Enhance and add parking garage signage prior to new cruise system. (p.70)
- Explore potential for designated drop-off locations to receive wheelchair assistance. (p.70)

Completed within 10+ years

- *** Ramps near baggage claim need to be assessed and when too steep, reconfigured.* (p.38)
- Improve quality, consistency and frequency of directional signage throughout airport. (Ongoing process with new construction) (p.70)

Secondary Recommendations

Completed within 2 years

- Identify accessible counter space with universal sign of accessibility sticker/sign placed directly on top of the counter, on a wall adjacent to the counter, and/or on front vertical face of the counter. (p. 12)
- Require ADRs to go through a checklist supplied by the airport with necessary access features in ADR locations. This will help with consistency and provide a quick resource for employees. (p.12)

- Work with local tourism organizations to obtain information about Seattle to encourage travelers to use information desks. (p.18)
- Develop Infiniteach application. (p.26)
- Work with additional disability organizations to provide more airport experience/walk-through opportunities. (p. 27)
- Work with Uber to allow for UberAssist pick-ups curbside. (p.39)
- Station volunteers at paratransit/city bus loading zones. (p.39)
- Designate parking spots for accessible shuttles in the parking garage. (p.39)
- Equip parking garage personnel with resource book or technology to assist with communicating with non-English speakers. (p.43)
- Work with airlines and service providers to develop a service and communication standard. (p.46)
- Enhance signage in elevator lobby at south end of terminal, lower level. (p.70)

Completed within 5 years

- Increase the number of accessible seating options at bar counters in restaurants. (p.12)
- Enhance instructional signage at ticketing areas. (p.15)
- Explore alternative options for flashing lights on carts, baggage carousels and emergency exits. (p.15)
- Replace flat luggage carousels with consistent low ridged, slightly sloped, conveyer belts. (p.16)
- Explore text magnifier options for areas with unalterable documents. (p.22)
- Implement text message service for travelers to ask questions directly to Sea-Tac employee. (p.26)
- Add audible announcements on elevators that identify what is on the floor level. (p.30)
- Explore alternative handrail options based on preferences of people with vision loss. (p.38)
- Add accessible charging stations for electric vehicles. (p.44)
- Make wheelchair rental and request available post-security. (p.60)
- Address potential for reinstating curbside service. (p.60)
- Create traffic flow study to find most efficient way to use space for security checkpoints. (p.64)

- Add tactile maps for major airport areas and restroom layouts. (p.70)
- Add a cane detectable second rope to all line stanchions. (p.70)
- Add signage indicating average walking times. (p.70)

Completed within 10+ years

- Install “red light, green light” or alternative visual notification system in areas where travelers are notified that they can approach a desk (TSA, CBP). (p.20)
- Install hearing loop system in all airport facilities. (p.20)
- Install moving walkway between the terminal and light rail. (p.30)
- Increase number of elevators. (p.30)
- Install more “back of house” elevators so employees with wheelchairs can work in any location. (p.33)
- Place assistance/help telephones throughout parking garage. (p.44)
- Develop online visual wayfinding video. (p.70)

SERVICE ANIMAL RELIEF AREAS IN AIRPORTS: A GUIDE FROM ODO

**By
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**November 2009
Updated June 2011**



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1. Introduction:

What is a Service Animal Relief Area (SARA) and who uses it?

For more than 100 years, people with disabilities have relied on service animals and service animals to live and travel independently. These animals provide assistance such as

- guiding for people who are blind or visually impaired
- alerting to sounds for people who are deaf or hard of hearing
- alerting to medical conditions such as seizures
- providing physical assistance such as picking up dropped items, pulling wheelchairs for people with mobility disabilities.



When people with disabilities using service animals travel by air, they must plan for the care and feeding of their animals. Like their human handlers, the service animals' greatest need when arriving after a long flight is to be relieved, so handlers always seek "relief areas" (bathrooms) at the airport.

SARAs are locations in airports where passengers with disabilities can allow their service animals to relieve themselves. As of May 13, 2009, airlines are required to insure that the airports they use provide such relief areas. Relief areas vary greatly so this guide provides direction and instruction to increase the universal use and functionality of your relief area.

2. Statistics:

Who travels with a service animal?

Approximately 10,000 people who are blind or visually impaired in the U.S. use service animals as guides, and 5,000 people in Great Britain use them. Many other individuals with disabilities use service animals for alerting them to sounds, retrieving objects, or for balance. There is not sufficient data for this segment of teams but we estimate about 4,000 teams in the US and 2000 in Great Britain. Data does not exist regarding how many service animal teams travel by air.

However, relief areas will also be enjoyed by the 2 million U. S. passengers traveling with animals, in addition to the unknown portion of the 55 million U.S. Americans with disabilities who travel by air, and marketing your relief area to this clientele is just good business.

3. Laws and regulations:

What are the federal requirements?

As of May 13, 2009, the Nondiscrimination on the Basis of Disability in Air Travel Final Rule, Part 382 amendment to the Department of Transportation's Federal Register to the Air Carriers Access Act, section Subsection D, 382.51.5, reads "In cooperation with the airport operator and in consultation with local service animal training organizations, [the airline and airport] must provide animal relief areas for service animals that accompany passengers departing, connecting, or arriving at an airport on [that airline's] flights."

In compliance with the Americans with Disabilities Act, these relief areas must be accessible to and accommodate all persons with disabilities. Handlers should be escorted to this area should they need assistance, and the distance to get to this area should not delay the standard one-hour layover time for persons on connecting flights.

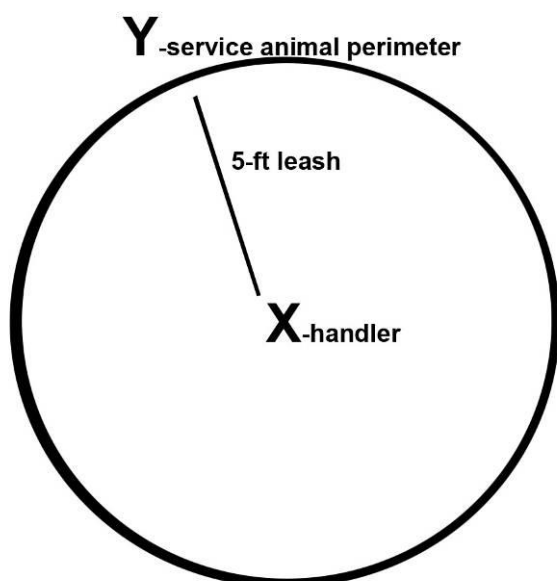
All domestic *and* foreign carriers must meet these requirements within one year of the release date of this Rule, May 13, 2010.

4. Animal behaviors:

How are service animals trained?

Service animals are trained by a wide variety of organizations, with more than 100 of them accredited by an international organization. Additionally individuals can self-train a service animal. However, service animals are generally trained not to relieve themselves inside. The two largest schools for animals that guide blind handlers train their animals to relieve on concrete and asphalt.

Once home, many individuals with disabilities do not reinforce this flexible training, allowing their animals to relieve in a fenced yard with grass, thus the animal develops a preference for grass.



Escort stands outside animal's perimeter

Animals are typically trained to relieve themselves by walking around their handlers on an extended, 5-foot leash. Once they relieve, the handler then moves to the animal, picks up after them, and looks for a trash receptacle. Escorts assisting people with disabilities using animals to guide for vision should step back from the person during the relieving process, to allow the animal to make the circle.

Escorts should also offer assistance pointing the handler towards the trash receptacle.

5. People who use Service Animals:

How do we meet their needs?



People who use service animals know their animals' needs best, so staff should always ask first how they can assist every individual. People who use animals as sight guides may either ask to take the escort's left arm or may ask the individual to walk behind their right shoulder and provide verbal directions.

Others may choose to have the animal follow the escort. Relieving can often be accomplished while waiting on baggage so little extra time is needed if airport relief areas are convenient to baggage claim. However if travelers are connecting through

the airport to another location, their needs and the needs of their service animal should be met within reasonable time during the standard 1-hour layover.

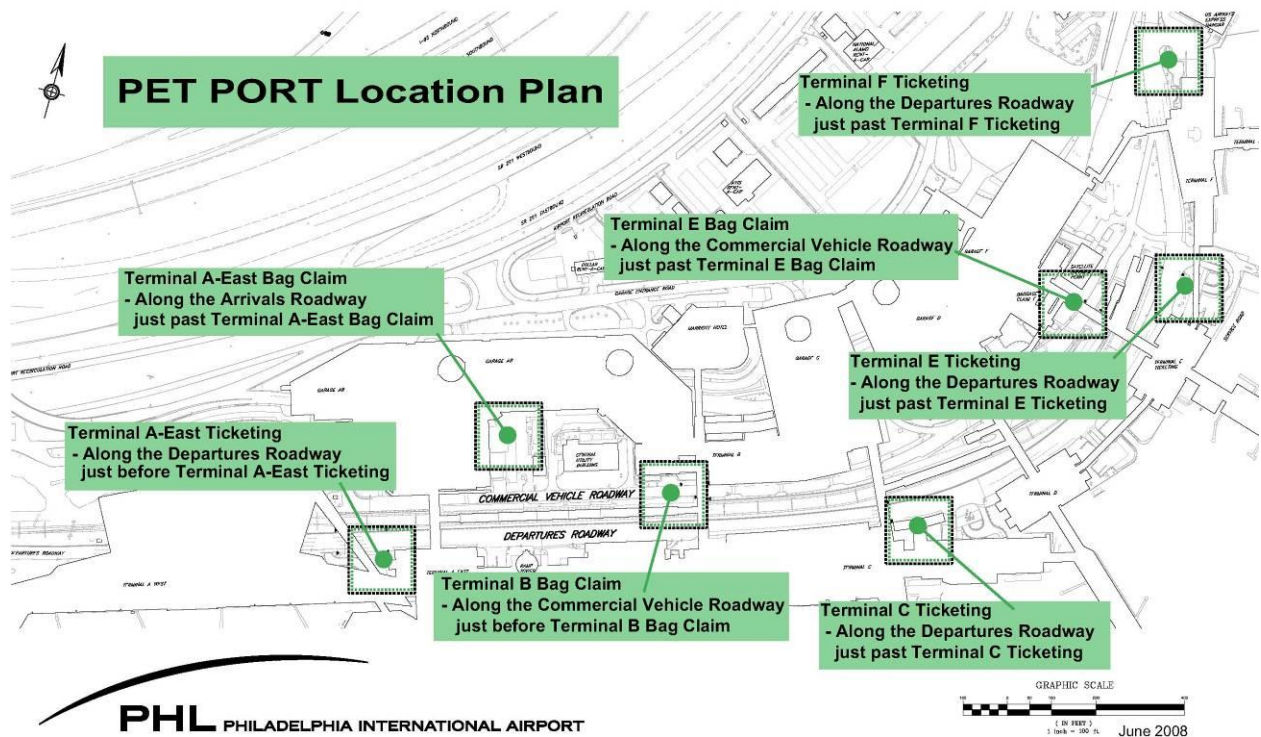
6. Location:

How do we make the areas easy to find?

Per the statement in CFR 14 Part 382, "...animals that accompany passengers departing, connecting, or arriving at an airport," you must consider all travel scenarios when building your animal relief area(s). Based on the size of your airport, the number of animal relief areas should be in ratio to comply with the time allowance of a standard one-hour layover for connecting travelers.

For smaller, regional airports, a single animal relief area at the central check-in and baggage claim location is sufficient.

For larger and hub airports, multiple animal relief areas will be needed in order to meet the time requirements for connecting passengers. If a passenger cannot disembark the plane (accounting that passengers with disabilities are often last of the plane), visit the animal relief area, and return to their connecting flight prior to boarding within the standard one-hour layover period, additional relief areas must be developed. For some airports, these locations will be inside security for connecting passengers at every terminal or centrally located between two terminals if the distance is permissible.



7. Design and materials:

How do we make this area appealing to animals?

To be appealing to the animals, we recommend that service animal relief areas should include the following:

- Approximately 60 square feet to allow a service animal on leash to walk around its handler
- Grass surface if possible since many animals are not trained to relieve on bark or concrete
- Accessible entrance and features for ease of use by wheelchair users

- Pooper Scooper with long handle
- Pick-up bags (preferably biodegradable)
- Trash receptacle
- Water source and drainage for maintenance
- Water bowls as most traveling animals get dehydrated
- Signage about usage and responsible behavior (use of pick-up bags)
- Safety lighting as needed
- Accessories that encourage relief such as shrubs or fire hydrants are exceptional.



Indoor locations must be more carefully designed and maintained to be effective, but can often prove to be tidier and easier to maintain.

Materials like water bowls and scoopers can be permanently attached to avoid theft.

8. Signage:

What signs do we need at our area?

Your relief area is of no use to your customers if they cannot find it!

The signage for your service animal relief area(s) should be placed throughout your airport at central locations, such as where locator maps, information booths, and other

location devices exist. Signage should direct both sighted and blind users to the area, including talking signage or Braille where funds are available.

Escorts and airport personnel should be educated regularly on locations to further assist blind handlers with service animals, and should be trained to ask handlers if they need the relief area, to assist travelers who might not know these areas exist. Example: “Sir, I see you’re traveling with your service animal and there is an animal relief area nearby, would you like me to escort you and your animal to this area?”

In addition, signage at the relief area should educate on the location of the pick-up bags and trash receptacle, as well as the usage of these two items with accompanying text regarding responsibility and keeping the area tidy for other users.



9. Maintenance:

How do we keeping the area clean and operable?

The Animal Relief Area must be maintained regularly in order to keep it clean and operable, keeping in mind that many users will be blind and unable to see waste on the ground, therefore keeping it clean is even more important.

All service animal owners are taught to pick up after themselves, and your signage and pick-up bags will further encourage this so that the area is not full of animal waste. Visible and locatable trash receptacles are vital at keeping the area free of waste as well. “Green bags” for biodegradable waste can be used to reduce odors.

As grass will need to be watered regularly to stay green, creating areas with a watering system will not only keep the area alive, but will regularly dilute the liquid waste as well.

In addition, a designated maintenance crew should regularly check the area for trash and waste, empty the trash receptacles, and refill the animal waste pick-up bag dispensers.

Indoor facilities will need to be checked more often than outdoor facilities, but if worked into the existing plumbing system, should be generally cleaner and easier to maintain.

10. Marketing:

How do we promote our animal relief area?

Marketing these areas further promotes the willing compliance and achievements of your airport and air carriers, and can even be used to draw more customers to your airport for use of this area. We suggest you highlight the new relief area in your advertisements, at information booths, in written materials, and on the World Wide Web. We suggest you photograph your relief area in use, and publicize this addition, not only for persons with disabilities but for all persons who travel with their animals.

Airport maps are routinely offered on airport web sites but are often not accessible to travelers who are blind. Text descriptions of airport layout are easily crafted and should include what basic services (check in, security, baggage, etc.) are on which levels. They also can include which restaurants are across from which gates along with locations of bathrooms, water fountains and ATMs. For example: “Across from Gate 5 in Terminal C are restrooms, water fountains and the Big Burger Restaurant.”

Instructions for animal relief areas might read something like: “The service animal relief area is located out the doors closest to baggage claim, to the left about sixty feet.”

11. Resources:

Where can I find more information?

Airport-Specific Information

www.servicedogcentral.org/content/node/513

www.petfriendlytravel.com/airports

Service Animal Organizations/Schools

Assistance Animals International

www.assistanceanimalsinternational.org/membersstatecountry.php

Canine Companions for Independence

www.cci.org

Delta Society

www.deltasociety.org

Guide Animals for the Blind

www.guideanimals.com

Guide Animal Users, Inc.

<http://www.gdui.org>

International Guide Animal Federation

www.igdf.org.uk

International Association of Assistance Animal Partners

www.iaadp.org

The Seeing Eye

www.seeingeye.org/

Equipment Suppliers

Mutt Mitts -- www.muttmitt.com

Poop pickup – www.yuckos.com

Green Bags – www.poopbags.com

Fire Hydrants – www.pawesome.net

Animal Bowls -- www.onlypetsupplies.com/AutoFeeders

Airport Accessibility Study Meeting Schedule

Wednesday, April 12		Thursday, April 13		Friday, April 14	
Time.	Group No.	Time	Group No.	Time	Group No.
11:00am-12:00pm	3 and 4 / 12	9:00-10:00am	8	9:00-10:00am	
12:30-1:30pm		10:30-11:30am	2	10:30-11:30am	9 and 7
2:00-3:00pm	5.1	12:00-1:00pm		12:00-1:00pm	11
3:30-4:30pm	1	1:15-2:15pm	5	1:15-2:15pm	
		2:30-3:30pm	10	2:30-3:30pm	6?
		4:00-5:00pm		4:00-5:00pm	6?

Group 1: Architects, Planning, Signage/Wayfinding, Management	Group 2: Customer Service	Group 3: Airport Dining and Retail	Group 4: Janitorial and Maintenance	Group 5: Law Enforcement	Group 6: Wheelchair Service Providers
Keith Gillin	Jim Peterson	Kim Fisher	Doug Bean	Bill McAteer	Clarence Johnson
Heather Karch	Susan Goodspeed	Tudor Tafuni	Arland Fagerstrom	Keith Gillin	Mark Lissak
Tom Hooper	Dan Zenk	Chris Keaton	Gilbert Green		
John Biddinger	Keith Gillin	Max Heigh		Group 5.1	
Michelle Brantley	Sue Hansen-Smith	Mark Walsh		Patty Mundy	
Jeff Nelson	Patty Bergstedt			Ed Takushi	
				TSA Rep w/ Patty	

Group 7: Int'l Airlines	Group 8: Ground Transportation	Group 9: GT Providers	Group 10: Technology	Group 11: Employee Relations and PR	Group 12: Cust. Service with Volunteer Groups
Anthony Arms	Stacy Mattson	Ari Emami-Yeganeh	Krista Sadler	Brian DeRoy	Sue Hansen Smith
Nichole Schmitt	Vicky Ausbun	Raj Bal		Laura Smith-Huda	Volunteer
Sue Haksukfree	Jason Johnson	Wesley Marks			Volunteer
		Diane Santiago			Cynthia Alvarez

<u>Community Feedback Meeting Attendees</u>	
2/28/2017 Meeting	
<u>Name</u>	<u>Organization</u>
Steven Lewis	Alliance for People with Disabilities
Kimberly Heymann	Alliance for People with Disabilities
Brian Brooke	Sound Transit
Cheri Prazzoli	Hearing Loss Association
Shaun Bickley	Seattle Commission for People with Disabilities
3/1/2017 Meeting	
<u>Name</u>	<u>Organization</u>
James McIntosh	Washington Council of the Blind
Laura Gramer	Open Doors Org. and person with a disability
3/2/2017 Meeting	
<u>Name</u>	<u>Organization</u>
Kristy Vess	Hearing, Speech & Deafness Center
Elizabeth Luttrell	Hamilton Relay
Kristina Sawyckyj	
Marci Carpenter	National Federation of the Blind of Washington
Chris Iona	CL Design Online
Michael Richardson	Northwest, ADA Center
Robert Canamar	Seattle Commission for People with Disabilities
Barry Long	Talk & Roll Enterprises
Clark Roberts	Ultimate Vision
Hugh Boyd	
Robin Loen	WA St. Dept. Services for the Blind OTC O&M
Abbie Reesor	WA St. Dept. Services for the Blind OTC O&M
Julian Wheeler	Pierce County Accessible Communities Advisory Committee
4/20/2017 Meeting - Deaf, Hard of Hearing, DeafBlind	
<u>Name</u>	<u>Organization</u>
Robert Roth	
Bruce Visser	
Echo Greenlee	
Cammi Dockter	
Diane Poulin	DBSC
Alberto Gonzales	
Roy Rios	
Sarah McMillen	Lighthouse for the Blind

John Remish	Lighthouse for the Blind
Warren Weissman	Hearing Loss Association -Washington
Bob Blumenau	
Camille Peterson	
David Miller	Lighthouse DeafBlind Program Services
Angela Theriault	
Mike Smith	DRW
5/18/2017 Meeting	
<u>Name</u>	<u>Organization</u>
Charmaine Dancy	Alliance for People with Disabilities
Todd Holloway	Center for Independent Living
Cynthia Stewart	Hearing Loss Association - Washington
Nancy Jackman	Lighthouse for the Blind
Jim Meck	Alliance for People with Disabilities
Kimberly Heymann	Alliance for People with Disabilities
Ryan Troyer	DDC
Gary Lieberg	Northwest PVA Chapter
Marlaina Lieberg	Guide Dog Users of WA State
Julian Wheeler	Pierce County Accessible Communities Advisory Committee
5/19/2017 Meeting	
<u>Name</u>	<u>Organization</u>
Meghan Bartosovsky	Seattle Commission for People with Disabilities
Jim House	HSDC
Kenny Salvini	Here and Now Project
Shawn Henning	Deloitte Digital
Joel Hernandez	
Yang-Su Cho	Washington State Services for the Blind
Cleo Brooks	Seattle Public Libraries
Robert Canamar	Seattle Commission for People with Disabilities
Dorene Carnwell	
Cindy VanWinkle	WCB
Mike May	Lighthouse for the Blind - Washington
Patricia Copeland	Vision Loss Connections
Karen Braitmayer	Karen Braitmayer FAIA
Cheri Perizzoli	HLAA-WA
Christine Seymour	CS-DHRS, HLAA-WA
Peggy Martinez	Creative Inclusion

	Category	Feedback	Key
			Walkthrough
1	Airport Dining and Retail	The food court is a nightmare because there's no rhyme or reason to the set up. It's just a free for all with space and lines. It's difficult to know which restaurant or store you're going into if you're blind. There aren't any indicators of where you are or where you're entering.	Port Meetings
2	Airport Dining and Retail	Menus need to have bigger print, be at eye level, and for fast food restaurants, menus should be on the counter so someone could point to what they want to order	Community
3	Airport Dining and Retail	Accessible seating could be more than just lower tables, can there be lower bar areas so someone can sit alone at the bar rather than at a table?	
4	Airport Dining and Retail	The Hudson Bay Snack Bar area is built too high for a little person or person with a wheelchair. There needs to be something that people can write on.	
5	Airport Dining and Retail	Braille or raised print menus	
6	Airport Dining and Retail	The echo throughout the building is hard for people with Autism	
7	Autism	There is a lot of natural lighting but where there are fluorescent lights, the floor is reflective	
8	Autism	Because of the commotion of an airport, there should be quiet rooms set aside for people with Autism to go to relax. These should be in each area of the airport including departures, concourses, baggage claim, etc.	
9	Autism	The flickering and buzzing of fluorescent lights in baggage claim is overwhelming and distracting.	
10	Baggage Claim	The baggage claim area needs more staff there to assist. For someone who's blind, people are concerned about them touching all of the bags to find their own. For someone with a wheelchair, it's difficult to reach the bags.	
11	Baggage Claim	All of the carousels should be the angled style.... it's easier for everybody.	
12	Baggage Claim	Flat belts on carousels near door 26	
13	Communication	There's a system in place you're already supposed to know.. People who travel often know this system but new travelers don't. Next steps aren't always known so this needs to be taken into consideration in each touch point of the airport.	
14	Communication	Customs - this area is very convoluted and not very deaf/blind friendly. Where do you bring your passport? Where do you bring your customs form? It's difficult to feel comfortable at that area because they don't have interpreters there so we have to try and communicate by writing but this takes a long time	
15	Communication	If there's an interpreting service for various languages, there needs to be inclusion of video chat for sign language and all interpreting needs to be available any time the airport is open	
16	Communication	There's a type of self-tickering machine that is easily missed but if it's available, and it had a flashing light, then it would be more accessible to know that it's their turn.	
17	Communication	Could there be phones around the airport where someone could pick it up to contact someone if they needed help? Parking lots have them for contacting police, big department stores have them for asking for help. This would also be helpful for people who have invisible disabilities and aren't necessarily going to be approached to see if they need help	
18	Communication	There needs to be a communication and interaction standard across the board for all departments.	
19	Communication	It would be helpful to have a button once you're across the skywalk so you can push it for assistance once you're in the airport	
20	Communication	Redundancy is OK, especially in transportation so as much information as possible should be provided - multiple times.	
21	Communication	There should be signs posted or info somewhere that states that an elevator is out	
22	Communication	Division of who covers what jurisdiction should be more clear	
23	Communication	There are videos or pictures of people saying "welcome to Seattle", this should also be in other languages and with someone using ASL	
24	Communication	Information redundancy is preferred. If you think you're giving too much information, you're not. Info needs to be provided in as many ways as possible.	

25	Communication	Not all of the TVs in the airport are captioned
		For people traveling independently, there should be an information center with a very large sign that says information and has an access symbol, a person with a cane, or anything that would indicate anyone who needs any kind of help can go to the info counter
26	Communication	Not everyone uses a smartphone so information provided to the public needs to be accessible from more than just an app or the internet
27	Communication	More monitors should be placed around the airport for visual paging, relaying information, letting people know where info desks or SARAs are, etc.
28	Communication	Like in SFO, there could be a bulletin runner screen at each gate that is constantly updated with new information about gate changes or other needed info
29	Communication	If there's a change at baggage claim, how does someone with HL or DB know this?
30	Communication	There should be visual announcements in the bathrooms
31	Communication	There should be more information about concourses to help with pre-trip planning.
32	Communication	Could there be kiosks that will help to reroute a passenger if, for example, an elevator is down?
33	Communication	Currently with visual paging, only lost items are displayed
34	Communication	It would be great to have a resource guide for volunteers to point PWD in the right direction for various services
35	Communication	People don't always self-identify or know that they should to receive help
36	Communication	The airport info desks, while few, are rarely staffed and don't appear welcoming when they are staffed. These could have information to be given to people, like maps, or act as a resource for getting directions
37	Communication	The most frequent question to volunteers and pathfinders is asking where the bathrooms are.
38	Communication	There needs to be more consistent communication to passengers to help them prepare for their airport experience
39	Communication	Announcements are not clear - could not hear announcement in South satellite, specifically at S5
40	Communication	Captioning at all gates, for all announcements airport wide
41	Communication	The echo in the atrium area is difficult for someone who's blind to hear announcements and for someone with Autism to handle all of that extra input.
42	Communication	The information desks should have an iPad or tablet of some sort so people can communicate with airport staff better. This could also include Google translate.
43	Communication	
		In customs, they have a card that asks if you have brought any food or materials back to the country but the print is so small. We need larger print or other options for reading this. This could be a magnifier machine or even a magnifying glass
44	Communication - B/LV	Some braille readers are not supported with the Wifi in the airport
45	Communication - B/LV	There should be a tactile map of the airport and everything that's provided in print should also be provided in braille
46	Communication - B/LV	People have such an urgency to get out of the airport that it gets chaotic in baggage claim. There are minimal overhead messages and if there is a message, it isn't relayed on screens.
47	Communication - Baggage Claim	Anywhere that you have or are adding verbal indicators, there also needs to be visual indicators. And vice versa.
48	Communication - D/HOH	Carts that transport people around airport don't have any visual indicators that they're there... some people have almost been hit by them.
49	Communication - D/HOH	Also with carts notifying people that they're there, maybe there can be alert lights on the wall and when a cart is approaching, they light up and when they're passed, they stop flashing.
50	Communication - D/HOH	Also with the carts, to help with communication between cart drivers and passengers, maybe just a communication card to be given to them that says "do you need a ride?" and any other info that might need to be relayed like where the pax needs to go
51	Communication - D/HOH	
52	Communication - D/HOH	There should be TTY phones or something similar in each terminal. Most people have videophones anyway but this would need to be there if there's an emergency, if the wifi isn't working... really just as a backup or 'just in case'

53	Communication - D/HOH	People want Hearing Loops in SeaTac There are phones available to call for a bus or if you need transportation but they're not accessible for someone who's deaf. Even if it's not a video phone, if there are certain buttons you can push that just indicate the need for a ride, that would be much easier than having to rely on a stranger to get you a bus
54	Communication - D/HOH	There needs to be visual text for gate announcements or make it easier for people to lip read
55	Communication - D/HOH	For someone with low vision and who's deaf, it's difficult to know at a ticket counter, customs, TSA, etc. when it's OK to approach the counter so it would be helpful if there was a light that was green and red to let someone know when it's OK to move forward
56	Communication - D/HOH	Hearing loops should be installed across the airport, beginning with check-in desks and gates
57	Communication - D/HOH	Although many people travel with their own device, there should be backup video relay or caption phones just in case someone either doesn't have their own or their battery runs out
58	Communication - D/HOH	The announcements made in the airport are hard for volunteers to hear so if someone asks them what was said, they don't always know. It would be helpful if announcements included the airline, were repeated, and were available on a screen so that could be referenced.
59	Communication - D/HOH	When doing a walkthrough for the project, a group of people with disabilities should be involved to provide feedback.
60	Community Outreach/Involvement	The Lighthouse for the Blind brings groups in for orientation tours that the airport assists with but the airport never reaches out to do this with them or anyone else. If they offered these programs, more groups would take part in them.
61	Community Outreach/Involvement	People with disabilities should be included in airport plans more than just for this project. They should be on a committee to address issues specifically facing PWD
62	Community Outreach/Involvement	The technology with facial recognition does not have voice activation - it's not accessible for someone who's blind.
63	Customs/Border Patrol	It's important to have the ability to take your time with things... controlling your interactions with your environment. Some people need more time to formulate an answer so a rushed environment is difficult to be successful in.
64	Disability - General	Elevators - The wait times are horrible.
65	Elevators/Escalators/People Movers	Elevators - In the baggage claim area, they're tucked back in corridor areas so they're difficult to find. Spaces around the elevators aren't wide enough for guiding someone.
66	Elevators/Escalators/People Movers	Structural barriers: when elevators aren't working, it needs to be relayed to all airport users, including employees, so everyone is aware and can plan for it
67	Elevators/Escalators/People Movers	Elevators - the elevators are too small to fit more than one wheelchair in them so if they're being replaced, they need to be bigger.
68	Elevators/Escalators/People Movers	There should be a transportation hub with the light rail
69	Elevators/Escalators/People Movers	The elevators should have auditory announcements of floor numbers and what is on each floor - where applicable
70	Elevators/Escalators/People Movers	There are so many elevators that need to be taken to go from one space to another. It's a pain to have a mobility disability and have to rely on elevators that are small and not very frequent. We're elevator happy at this airport.
71	Elevators/Escalators/People Movers	Comment from a wheelchair user - She has been told that airline workers say that the airport limits the use of elevators for ground handlers and her chair being returned is often delayed because the handler can't find an elevator to bring her chair up on. If this is the case, the airport should either determine a different policy to avoid this or install more elevators/lifts for assistive devices.
72	Elevators/Escalators/People Movers	The distance between each gate is too long for a lot of people to walk. More people movers?
73	Elevators/Escalators/People Movers	Elevators - When you get off the train in the North satellite, there's only one elevator so if it's broken, you either take the freight elevator (if you can find someone to help you) or you go up the escalator with a wheelchair. NOT SAFE.
74	Elevators/Escalators/People Movers	Escalators are a problem for PWD and older adults. There seem to be quite a few falls.
75	Elevators/Escalators/People Movers	In Int'l arrivals terminal, the facility is a bit awkward and any given int'l flight can have 30-40 wheelchair requests. With one elevator going from int'l corridor to passport processing, this process takes a really long time. This facility also services more than one flight at a time so that's even more people.
76	Elevators/Escalators/People Movers	

77	Elevators/Escalators/People Movers	In the International arrivals terminal, the elevators are really small so with the number of pushes through that terminal, it takes a long time to get people from point A to point B
78	Elevators/Escalators/People Movers	The south satellite needs more elevators
79	Elevators/Escalators/People Movers	Unless there's a scheduled outage, service companies are not made aware of any problems at the airport like broken elevators
80	Elevators/Escalators/People Movers	No audible warnings at end of people movers
81	Elevators/Escalators/People Movers	Need more elevators and good signage for the new hard stand room
82	Elevators/Escalators/People Movers	There should be directional indicators on escalators
83	Elevators/Escalators/People Movers	There is not tactile detection surface to stairs and escalators
84	Elevators/Escalators/People Movers	The elevators to get to South gates are too far... Complex process to get through the security checkpoint back-way
85	Elevators/Escalators/People Movers	Elevator situation is confusing... doesn't appropriately label that more than just employees can use elevator
86	Elevators/Escalators/People Movers - Rental Car Facility	The escalators have been an issue with people getting injured... Typically rider error and older adults are falling the most. Have temporary signs now for the elevators but need to have permanent
87	Emergency Planning	Need emergency preparedness plans that all airport personnel are trained in and that's visually available to all airport travelers.
88	Emergency Planning	If there's an emergency, who is being trained to help? And with that, there should be designated places around the airport where PWD can go if there's an emergency and people there will be prepared to help
89	Emergency Planning	Emergency notification system has capability of sending emergency messages to people's phones, even outside of the Port, as long as people are subscribed. This could also be used for alerting people of an elevator outage
90	Emergency Planning	Areas of refuge are not to code and do not have any communication tools for someone with a disability
91	Emergency Planning	Emergency kits need to have materials for PWD including adult diapers, catheters, foods for low blood sugar... Things for service animals. Babies.. Etc.
92	Emergency Planning	Evac chairs are only located in the AOB and at transit system for satellites
93	Emergency Planning	Evac chairs would ideally be located at every exit point on each concourse
94	Emergency Planning	Need a plan for wheelchair pushers... they state they can only go from ticket counter to gate but what about in an emergency?
95	Emergency Planning	The ADR group has an airport emergency guide and goes through the basics of emergency management but the Emergency Dept. for the airport cannot require them to have any extra training
96	Emergency Planning	Trauma kits - want to have at least one person on each concourse to report to the kit in an emergency and have the training to assist
97	Emergency Planning	Very minimal staff in this dept. to make big changes
98	Emergency Planning	Wheelchair service providers are not included in emergency prep planning but should be
99	Environmental	Cue lines wider if possible
100	Environmental	Baggage claim water fountains not compliant
101	Environmental	At bottom of south end of terminal elevator, not inviting, not much signage, very open space that may confuse people about if they're in the right place
102	Environmental	Handrails that end down instead of into a wall
103	Environmental	Central terminal tables base are a little large for wheelchairs to go under
104	Environmental (Built environment, ambiance, etc.)	Carpet on ramps is difficult to be on with a wheelchair. There are anti-slip flooring materials that won't send you flying with your stuff but is easier to wheel on than carpet is.
105	Environmental (Built environment, ambiance, etc.)	The counters are too high for someone with a wheelchair. It would be nice to see more surfaces at a lower height.
106	Environmental (Built environment, ambiance, etc.)	If there could be tables dispersed throughout the terminals and holding areas, aside from what's built into the rows of chairs. A wheelchair can't pull up to one of those small tables.

107	Environmental (Built environment, ambiance, etc.)	If we're not able to have lights on the pillars, maybe painting them a brighter color would be easier to see. The green goes with the Port's theme but it isn't functional
108	Environmental (Built environment, ambiance, etc.)	Protruding water fountain by train
109	Environmental (Built environment, ambiance, etc.)	Water fountain protruding
110	Environmental (Built environment, ambiance, etc.)	The slope into baggage claim area is too steep
111	Environmental (Built environment, ambiance, etc.)	The ramp near door 26 has less of an incline but does not have good signage to know it's an exit/entrance
112	Environmental (Built environment, ambiance, etc.)	Door 24 - Inconsistent slopes with 8 degrees in the middle, 7.5 degrees on the bottom, 6 degrees at top left
113	Environmental (Built environment, ambiance, etc.)	The slope near D1 is 4.7 degrees
114	Environmental (Built environment/ambiance/etc.)	The walk from the light rail is too long for many people
115	Environmental (Built environment/ambiance/etc.)	The walk is only going to get longer with the new terminals... need to figure out how to make this process faster for pax and pushers
116	Environmental (Built environment/ambiance/etc.)	Curb cuts aren't wide enough or frequent enough
117	Environmental (Built environment/ambiance/etc.)	Need more curb cuts
118	Environmental (Built environment/ambiance/etc.)	There are only automatic door opening buttons for the restrooms on certain floors of the AOB. This causes a barrier for employees or visitors with disabilities.
119	Ground transportation	There have been tickets given to WAV taxis who are parking to pick someone up. It's difficult to get to the third floor just for accessible taxis so this not being available elsewhere takes a long time.
120	Ground transportation	There needs to be more enforcement for sitting in accessible loading and unloading zones
121	Ground transportation	The connectivity of the busses and the consistency of where they stop is difficult
122	Ground transportation	It would be helpful if something indicated when the next light rail or cart from light rail to airport is going to arrive
123	Ground transportation	Light rail has become so popular but the walk from light rail to the airport is extremely long
124	Ground transportation	There are currently two spots for accessible cabs to park but there needs to be at least one more, centrally located. It takes long enough to get to that area and to get there only to have to travel even further because accessible transportation isn't front and center, it's frustrating.
125	Ground transportation	When riding the train, it's unclear for someone who is deaf/blind, or even just deaf, to figure out where to get off the train at. It's also difficult to figure out where you're supposed to go once you're off the train to get to the airport. There's no visual information about which direction to go. Color coded options could be helpful for this with making direction more identifiable.
126	Ground Transportation	There needs to be better navigation tools (other than the wall) to navigate from the light rail to the airport
127	Ground Transportation	If someone selects the Uber Assist service, that driver should be able to pick them up at the curb rather than have the passenger go all the way to the garage. The location of the rideshare service is tough to find and get to anyway.
128	Ground Transportation	No curb cuts for paratransit loading area
129	Ground transportation	In airport trains, the announcement for doors opening should state which side the doors are on
130	Ground transportation	Airport train doors stay open for a while
131	Ground Transportation	Due to airport growth, the bussing service to the rental car facility isn't a good plan. A people mover to that facility would be great but right now people are waiting in line for almost an hour.
132	Ground Transportation	For the GT providers and their accessible vans, there's not always a spot for loading a person with a wheelchair so they have to block a spot off when they see it's available.
133	Ground Transportation	Paratransit drops people off at the same space as city busses... there aren't any assistants at the city bus drop off
134	Ground Transportation	There aren't any assistants at the city bus drop off
135	Ground Transportation - Rental Car Facility	Shuttle busses - the route is very long and if there's a lot of people going aback and forth, and if it's a busy time at the airport, it can be a 45 minute trip

136	Ground Transportation - Rental Car Facility	Shuttle busses - there is a shortage of drivers for the busses so not as many are running
137	Ground Transportation - Wayfinding/Signage	Door 31 has curb cut, no signage
138	Ground Transportation - Wayfinding/Signage	Door 25 has all markings and signage
139	Ground Transportation - Wayfinding/Signage	Door 25 has sign "guide dogs permitted", change this to service animals?
140	Ground Transportation - Wayfinding/Signage	Door 19 - cut but no signage
141	Ground Transportation - Wayfinding/Signage	Door 11 - all signage and markings
142	Ground Transportation - Wayfinding/Signage	No curb cuts or signage near international drop offs
143	Ground Transportation/Curb side	Curbs make it difficult for everyone and there aren't enough curb cuts for mobility disabilities
144	Lighting	The lighting is poor - there is no consistency in lighting.
145	Lighting	In the baggage claim area, the lighting is really dark and feels unsafe. Brightly lit areas feel much safer than dark spaces
146	Lighting	The lighting produces a glare on signs. Maybe this could be fixed by adjusting the height of the signs or making more signage available at a lower height
147	Lighting	Lighting in ticketing area is dim and has a glare
148	Lighting	In south satellite, the lighting in the store is much brighter than lighting outside
149	Other	Want to have statistics on what the needs and challenges are for travelers with disabilities
150	Other	Mamava - door is heavy and mamava is not accessible
151	Other	With the amount of space above ticketing counters, there could be scrolling messages
152	Other suggestions	Could there be a pin for someone to self identify that they're D or HOH to help with gate changes or employees in restaurants or shops
153	Other suggestions	Can there be more assistive devices available to use other than wheelchairs? Maybe a walker/rollator/cane?
154	Other suggestions	The train from the North/South satellite areas doesn't allow for enough time to enter and exit. The doors should be open longer for someone who needs more time to board.
155	Other suggestions	There needs to be attitudinal reminders about disability.. Make "not all disabilities are visible".
156	Parking Garage	People with disabilities should be included in promotional and marketing throughout the airport to minimize attitudinal barriers
157	Parking Garage	There should be accessible parking on each floor, not just on three floors
158	Parking Garage	It's difficult to differentiate the sidewalk and the road.. They're the same color and there isn't a bright indicator of a curb. It's difficult to navigate through parking anyway, the large line across the elevator banks isn't enough of an indicator that you should go there.
159	Parking Garage	The ramps in the garage seem too steep for the requirements.
160	Parking Garage	It could be helpful to have "help buttons" in the parking garage so people can ask for help. The phone number to call isn't always an obvious way to tell people where to go for help
161	Parking Garage	There are a lot of questions that come up about where accessible parking is and what someone should do with their parking placard when they're parking in an accessible space but need to take their placard with them
162	Parking Garage	There should be accessible electric vehicle stalls added
163	Parking Garage	The garage doesn't have any equipment for communicating with non-English speakers. Some employees will use their own phones for Google translate to help.
164	Personnel and Training	Purple 4 - police car parked in accessible loading zone
165	Personnel and Training	Engage TSA in having a conversation about training. In the past, Kimberley with Seattle CIL has trained supervisors but did not train frontline staff
166	Personnel and Training	Airline employees are so hands off that they sometimes avoid PWD all together. There should be an ambassador program to assist in initiating interactions

166	Personnel and Training	There's too much assumption with the wheelchair pushers that someone will always need a wheelchair. Then when someone just needs assistance and no wheelchair, they make it seem like they're undeserving of assistance
167	Personnel and Training	There needs to be focus on the human factors involved in a PWD airport experience... the airline staff, TSA, airport staff, vendor employees, etc.
168	Personnel and Training	There needs to be more information areas that are manned, not just roaming pathfinders
169	Personnel and Training	There needs to be people with disabilities involved in developing and conducting trainings related to PWD
170	Personnel and Training	Volunteers should wear an access symbol that shows that they're able to help people with disabilities
171	Personnel and Training	Gate agents may forget but many times they aren't sharing important info with everyone.
172	Personnel and Training	There needs to be more training for the wheelchair service company employees. Not everyone who needs assistance also needs a wheelchair
173	Personnel and Training	People like to be asked how they can be of assistance, not "do you need help?"
174	Personnel and Training	A lot of jobs within the airport have a high turnover rate and disability needs to be addressed in each training and recurrent trainings. Having trainings just once per year is not sufficient.
175	Personnel and Training	training needs to be revamped for everyone at the airport, not just TSA but even to people who greet pax arriving at the airport
176	Personnel and Training	People in the airport telling other people "it's not their job to help"
177	Personnel and Training	We need more people to staff the airport as helpers or sitting at info desks. Just the bright blue jackets don't help indicate who is there to help
178	Personnel and Training	Even if people are walking around with buttons on or special jackets showing that they can help, there needs to be a way for people with VL to know where someone could help them
179	Personnel and Training	Instead of pax looking for the helpers, the helpers should be looking for the passenger
180	Personnel and Training	training needs to also focus on communicating with people who are deaf/blind because it seems like airport employees are uncomfortable with the touch aspect of communicating that goes with talking to someone who has both HL and VL
181	Personnel and Training	Not only does there need to be more training with communicating with people with HL/VL/both, there needs to be more people in general because there isn't enough human interaction
182	Personnel and Training	There should be special attention paid to hiring people who are deaf or HOH. They need jobs AND they can provide that extra assistance to those who use ASL
183	Personnel and Training	Needs more training... sometimes talking behind people's head so a person with HL wouldn't know they're being talked to
184	Personnel and Training	Could there be disability assistance ambassadors to help getting through TSA lines or to the disability specific line?
185	Personnel and Training	Could the airport require airlines to include a training mandate in the contract with service providers?
186	Personnel and Training	Training for working with people who are deaf/blind
187	Personnel and Training	More volunteers or staff in these areas would be helpful
188	Personnel and Training	Ask Me buttons are good but T-shirts with large words would be even better
189	Personnel/Training	The Port would welcome having PWD as employees and volunteers but the job descriptions don't allow for much diversity with abilities
190	Personnel/Training	There aren't enough volunteers but there isn't enough money budgeted to add more pathfinders. Currently only 14 pathfinders to cover almost 24/7 operation.
191	Personnel/Training	There doesn't seem to be enough help from the curb to the ticket counter for PWD. There's also a gap between the parking garage to ticket counter... where are people getting assistance?
192	Personnel/Training	There's a hope to add more volunteers but there aren't enough resources available to do outreach and training for more.

193	Personnel/Training	Volunteer training does not include disability awareness or etiquette training
194	Personnel/Training	We need to justify the reasoning for needing staffed airport info desks
195	Personnel/Training - Rental Car Facility	They have equipment for assisting non-English speakers but don't use them
196	Rental Car Facility	Bathroom doors in facility swing in and not out so this should be fixed
		Some people have said the problem is that there aren't enough wheelchairs but that isn't the problem, necessarily. The bigger problem is that people aren't requestign the service ahead of time.
197	Rental Car Facility	The rental car companies are responsible for running luggage carts and wheelchairs to where they belong but often times don't do this
198	Rental Car Facility	There aren't enough baggage carts available at the rental car facility.. There needs to be more..
199	Rental Car Facility	Access. Stall vertical grab bar needs to be closer to toilet
200	Rental Car Facility	FIDS are very high and have poor contrast
201	Rental Car Facility	The bathroom stalls are large enough but it would be helpful if there was a bench available in the stall if someone needs to sit and receive help
202	Restrooms	There should be a family changing space for people who are adults or need more space for changing. This should include a hoyer lift.
203	Restrooms	Is there somewhere that someone could get change for purchasing bathrooming products?
204	Restrooms	There isn't enough color contrast to decipher where the sink starts, the faucet is, the counter is, etc.
205	Restrooms	
206	Restrooms	The curve going into the bathroom is hard to follow and someone who is blind almost always runs into someone else
		Keep in mind that there are new accessibility provisions being incorporated into the ICC A117.1 and are adopted into the International Building Code. We need to keep in mind that people's chairs are only getting bigger so the minimum turning radius isn't always enough anymore.
207	Restrooms	The restrooms are difficult for someone who is blind because when you walk in, if you're following the wall as a guide, you walk right out again. There should be an indicator that there are two ways to enter.
208	Restrooms	There should be more consistency in placement of soap, paper towel dispensers, garbage cans, etc. in bathrooms. The lack of consistency is confusing.
209	Restrooms	Increase the number of wheelchair accessible stalls. Everyone wants to have more room so a lot of times these are used by non-wheelchair users
210	Restrooms	The soap dispensers/papertowel holders/etc. need to be placed in a spot that's easier to reach for little people, wheelchair users, and children.
211	Restrooms	Need to have family restrooms or spaces that have adult-sized changing tables.
212	Restrooms	In current plans, there aren't any restrooms in the border patrol/passport check halls
213	Restrooms	The coat hooks aren't at the right height so a little person or person w/ a wheelchair can't reach them
214	Restrooms	There should be an adult changing room
215	Restrooms	Restrooms - Sharp edges on product dispensers
216	Restrooms	Family restrooms - doors are too heavy (55010C and 55011C)
217	Restrooms	Carousel 12 family restroom is large enough to have adult changing table
218	Restrooms	Lower coat hooks on doors and shelves that fold down
219	Restrooms	Step stools near the sinks would be good for little people and children
220	Restrooms	Hardware on doors should not require a grip... should be able to be used just by pushing
221	Restrooms	Need more relief areas
222	SARA	
223	SARA	The relief area outside, south end of the terminal is awful. There also needs to be a revamp of the indoor relief area.
224	SARAs	SARA is bad
225	SARAs	Need a relief area closer than "grassy area" indicated on website

226	SARAs	SARA - not wheelchair accessible and made of all dirt/gravel
227	SARAs	SARA - there is not signage inside or outside stating location of SARA
228	Seating	There should be more seating along the concourses for people to take breaks
229	Seating	There should be more seating options throughout the airport, not just in holding areas
230	Seating	Seating along edge of podium doesn't allow for easily getting through crowds during boarding
231	Seating	Delta seating has good power, low to the ground but it's all in between seats. Some should be on outer seats
232	Sensory Disabilities	Lighting that projects reflection on the floor is distracting and makes information sorting difficult
233	Sensory Disabilities	Screening areas are in high ceiling areas so someone with a sensory disability or hearing loss is bombarded with echos.
234	Sensory Disabilities	The airport is a "sensory hell" from the sounds, lighting, busyness, finding things
235	Sensory Disabilities	There is a large Deaf/Blind community in Seattle so there needs to be more visual alerts like flashing lights, blinking that something is coming behind them, the ceiling mirrors to see behind you, etc.
236	Sensory Disabilities	There should be multiple quiet rooms throughout the airport to go and get away from the business of the airport.
237	Service Provider - Carts	The carts are fast and the beeping can't be heard by people with hearing loss. If it had both a flashing light and a beep, that would be more helpful.
238	Service Provider - Carts	It would be best if the carts weren't driving where people are walking. If there are an alternative path that the carts would go to so they weren't in the middle of crowds.
239	Service Provider - Carts	If the cart driver could approach people and ask if they would like a ride, rather than waiting for someone to approach them, that would be helpful for people who either don't know what the cart is there for or for people who are blind and don't know that the cart is there at all.
240	Service Providers	The curbside service needs to be reinstated
241	Service Providers	When curbside assistance was still around, there was more help. Now, drivers are expected to help people with their luggage, wheelchairs, etc. and then drive the bus. This is making the whole process take so much longer.
242	Service Providers	Wheelchair service providers assume that all people who need assistance need a wheelchair. Someone who's blind should be told they need to sit in a wheelchair to get assistance.
243	Service Providers	Can there be a checkpoint inside security for people to request wheelchair service?
244	Service Providers	Can we let people rent wheelchairs throughout the airport so we don't have to worry about wheelchair service providers being available?
245	Service Providers	Can we regulate how many wheelchair service providers are in the airport? Is anyone else doing this?
246	Service Providers	Especially during cruise season, Prospect will push all of the pax to the staging area to pass off to their airline or bring them directly to the gate but these areas aren't big enough and the pass off process is messy
247	Service Providers	Ground transportation - There isn't a single company that everyone works with so it's a struggle to pass off PWD
248	Service Providers	It doesn't seem like there are enough pushers for the amount of wheelchair needs in International terminal
249	Service Providers	It would be helpful if there was a common service provider for the airlines. Having so many different ones is difficult to manage.
250	Service Providers	Once prospect brings the passenger to the gate and "logs off", it's out of Prospects hands. But then the gate agent doesn't always notify passengers of gate changes so they're left there. Need some sort of notification system, like a flag or something, to show that the person is the gate agent's responsibility.
251	Service Providers	Some people don't request wheelchair service at first but then when they get through security, they realize it's a far walk and then decide they need assistance
252	Service Providers	Sometimes the cruise people get dropped at the airport up to 6 hours ahead of their flight but airlines won't allow them to check in early so that ties up Prospect employees because they can't do a "hand off"

253	Service Providers	The carts "damage" decorative parts of the airport because they're placed in bad spots. Wheelchair and cart service needs to be taken into consideration when designers come in to the concourses
254	Service Providers	The carts can't get to the North or South satellites trains so that service can't be available until later
255	Service Providers	The holding pens for passengers typically have employees sitting in them instead of passengers.
256	Service Providers	The terminal halls are very narrow and with the electric carts, it's really crowded. Especially with people boarding planes and having the lines jet out into the concourse
257	Service Providers	There are a lot of empty wheelchairs going through TSA which causes a lot of backups
258	Technology	There should be more courtesy phones for PWD
259	Technology	Power outlets - few and out of reach
260	Technology	FIDS - too high, outdoor lighting above them produces glare
261	Technology	The airport phone is not accessible
262	Technology	Alaska Airlines customer center screens 1 and 2 have very small font, difficult to read
263	Technology	Information telephones are not accessible - do not have TTY
264	TSA	The TSA card isn't available at the airport and only online
265	TSA	Denver has a line specifically for PWD - this would be nice at SeaTac
266	TSA	Could there be a specific line for PWD so wheelchair pushers aren't being held up for 45 minutes in the pre-check lane?
267	TSA	The TSA used to have a line specifically dedicated to people traveling with young children and disabilities. It would be great to have that back.
268	TSA	There's a lot of conflict with wheelchair providers and TSA because TSA is restricting their being able to go through the lines with an empty wheelchair. But post-security, they're running out of wheelchairs so they have to have a better system
269	Wayfinding/Signage	Maps, specifically tactile maps, should be available at each information station
270	Wayfinding/Signage	There should be an accessible route guide available for print online so someone can print it and bring it with them, and someone who is blind can print it in braille if they need to.
271	Wayfinding/Signage	There could be videos on the SeaTac website about the accessibility of the airport OR there could be a video that orients someone to getting through the airport
272	Wayfinding/Signage	The roped off areas for security/food court/etc. are not can detectable so it's hard to navigate through those.
273	Wayfinding/Signage	The roped off areas for security/food court/etc. are not always wide enough if you're traveling with a sighted guide.
274	Wayfinding/Signage	There are braided grooves in the ground toward the light rail but could this be done throughout the whole airport?
275	Wayfinding/Signage	If there was a tactile underfoot when you're entering a store or restaurant area, then someone who's blind/LV would know that they had entered a business and can ask about where they're at.
276	Wayfinding/Signage	As the airport develops an app to assist with wayfinding, it should not only tell you where you're going, but it should also tell you what you're passing to you can orient yourself to the space
277	Wayfinding/Signage	The airport has a lot of pillars that are difficult to see so it would be helpful if there were lights on each pillar
278	Wayfinding/Signage	Having textured floors and different colors helps with navigating through the airport
279	Wayfinding/Signage	There needs to be more awareness of services at the airport... where should kids go if they're lost? Where can people traveling alone go if they need help?
280	Wayfinding/Signage	There needs to be better communication when on the train from A to B, C, because it's hard to know when you're at each place to get off the train
281	Wayfinding/Signage	If there's a long line or there's a shift change, really anything that makes the lines change, it needs to be relayed to everyone what the new path is

282	Wayfinding/Signage	The airport is visually disorientating with the amount of levels and lack of good signage. There should be more maps that show all components of the airport, including location of light rail.
283	Wayfinding/Signage	If someone comes to the airport with their boarding pass, they won't need to stop anywhere to talk to someone so asking for help isn't right in front of them. Finding the correct gate can be overwhelming, especially since FIDs are too high for someone with low vision to walk directly up to.
284	Wayfinding/Signage	Elevator banks should say that they're elevator banks rather than just a line across the wall.
285	Wayfinding/Signage	There needs to be better striping on the ground so people can see the difference between the walkway and roadway. This includes for drivers.
286	Wayfinding/Signage	The ticket machines in the garage all say where electric car parking is, 5th floor, but doesn't mention accessible parking spots at all.
287	Wayfinding/Signage	There needs to be more direction and signage for accessible parking and parking for large vehicles in the parking garage.
288	Wayfinding/Signage	At the directories, if you're not able to have a whole map in braille or raised, maybe you can push parts of the map and it will talk to you about what you're pushign, where you are, and how you can get there.
289	Wayfinding/Signage	There are so many forms of vision loss and when you're losing your vision, one of the first things to go is depth perception and things with low contrast. So there needs to be indicators a every step or level change with an orange or yellow line.
290	Wayfinding/Signage	Lines (like at TSA or coffee places) need to have ropes or dividers that are brightly colored so they can be seen by people with low vision
291	Wayfinding/Signage	The signs are difficult to read - they're too high and they don't have enough pictures on them.
292	Wayfinding/Signage	There isn't any braille on signage throughout the airport.
293	Wayfinding/Signage	Ideally, signs should be white front on black background or yellow font on blue background
294	Wayfinding/Signage	Elevators are not clearly labeled so they're difficult to locate since they're typically tucked out of the way. The only time you can clearly see elevators if when you're coming across the skybridge.
295	Wayfinding/Signage	There should be bigger signs with higher contrast and larger print, preferred white on blue or white on black
296	Wayfinding/Signage	Signage should incorporate more universal symbols
297	Wayfinding/Signage	Signage at eye level - Identified as most important access feature for community member with low vision
298	Wayfinding/Signage	In elevators, there should be raised print and braille for each button. When you get off the elevator, there's a directory so that should also be in braille and with raised print. Ideally, in the elevator, there would also be audio cues telling you which floor you're on
299	Wayfinding/Signage	The font size on the signs in baggage claim needs to be bigger, especially since it sits so high up
300	Wayfinding/Signage	If there was a strip for guidance around the lines, instead of the waist level guidance, it would be much easier to get through the lines
301	Wayfinding/Signage	The airport has many level changes and a lot of trains. It's a difficult airport to navigate through even without a disability.
302	Wayfinding/Signage	With Autism, finding things can be difficult and visual cues are extremely helpful. Like in movie theaters or on airplanes, there are lights that guide you to an exit so you're getting visual directions. In an airport, any kind of obvious texture variation, surface change, arrows on the ground, etc. would help everyone navigate.
303	Wayfinding/Signage	It's difficult to find the bus station location
304	Wayfinding/Signage	The signs are not consistent across each concourse... once you leave a gate area, the signs for different gates are all in different locations
305	Wayfinding/Signage	A tactile map of the airport would be extremely helpful
306	Wayfinding/Signage	If there could be tactile maps of each space, next to the sign of what it is, that would be helpful too. For example, a tactile map of a restroom next to the sign stating that it's a restroom.
307	Wayfinding/Signage	A lot of the questions that volunteers and pathfinders are asked could be solved if the signage was better

308	Wayfinding/Signage	Better signage for identifying AED
309	Wayfinding/Signage	Signage for the elevators is lacking... it's not always easy to find them and people often ask where they are
310	Wayfinding/Signage	The signs are difficult to see for someone who uses a wheelchair
311	Wayfinding/Signage	The visibility of signage and wayfinding for int'l terminal should be improved. Signs should also be in multiple languages.
312	Wayfinding/Signage	They need more help with finding their way from one concourse to another... maybe following colored lines or pictures to get to each spot?
313	Wayfinding/Signage	Improperly placed signage for accessible nursing stations
314	Wayfinding/Signage	Gates 12-14 signage is bad and off to the left... signage forward doesn't tell how or where to get to the light rail for transfers
315	Wayfinding/Signage	Terminal direct parking needs better signage that states it can be accessed on level 5
316	Wayfinding/Signage	The signs near elevators that state interpreter services are available need to be more visible and frequent
317	Wayfinding/Signage	Gate 52 - the sign with connection info has bad font contrast and is too high
318	Wayfinding/Signage	It's a complicated process to get from the south satellite to the north because of the transfers. This should be spelled out better
319	Wayfinding/Signage	Better signage that indicates which line is for what
320	Wayfinding/Signage	Rumble strips on sides of ticketing area would be helpful
321	Wayfinding/Signage	When people come up to baggage claim, there are many signs for where they go next
322	Wayfinding/Signage	Signage is not consistently back lit
323	Wayfinding/Signage	Airport directory has poor color contrast. Should get rid of the pink and orange fonts. Need font to be larger
324	Wayfinding/Signage	More airport directories should have 'you are here' stickers
325	Wayfinding/Signage	Because of objects in the way, people can't follow walls much throughout the airport
326	Wayfinding/Signage - Parking Garage	Need more signage in the parking garages, especially with the new cruise lot plan. People are already getting lost when getting off busses but to make it further and more complicated is going to make the whole process harder for everyone
327	Wayfinding/Signage - Service Providers	People assume they can pull up the curb and then they'll receive help because they've arrived. This 'door bell' thought process isn't working so how can we address this? Can we place more dynamic signage for a certain door to enter?
328	Wayfinding/Signage - Service Providers	There should be more signage indicating who someone should contact for help including in the rental car bus drop off area and the parking garage
329	Website	The more information from boarding passes to maps that can be printed at home, the better.
330	Website	Port's website: The higher the contrast, the better. Print should be fairly large or able to be adjusted. There's no need to make the websites so busy.
331	Website	Website - the links need to be checked for correct information after clicking each link. For example, there's a link on Sound Transit's site that says to call a specific company to get help but it's not clear if that number is still accurate and working.
332	Website	The website should have as much information about every airport feature as possible. This should include where it's located, what it is, timeframes it's open if applicable, the layout of the bathroom, best pathway to the light rail, etc. Any pictures should have alt. text so if someone is blind and looking at the layout of the airport, the alt. text could give specific directions about it.
333	Website	For TSA wait times, times are manually entered on the website but if people are looking at the site at home and not when they're in the airport, maybe we include what is a "typical wait time for this time of day" feature
334	Website	On the website, it's been suggested to provide as much information to passengers as possible. Redundancy is good. The goal is to have announcements on the website

335	Website	Some people are finding information online about the wheelchair service but there should be more information that includes how the whole process works.
336	Website	The website doesn't have information about access easily seen. There should be a wheelchair symbol on the front page that takes someone to info about accessibility needs
337	Website	The website should have alternative language options for international travelers like the train systems have
338	Website	Map on app should be same as map on website



Accessibility Assessment for STIA

Interim Report & Preliminary Recommendations

Overview

The following summary is an interim report on each completed aspect of the assessment including airport walkthrough, community meetings, and airport employee/stakeholder meetings.

Since the January 10, 2017 start date of the Sea-Tac Airport Accessibility Assessment, Open Doors Organization (ODO) has completed each component of “Task 1.0 - Assessment of Existing Conditions” along with feedback meetings for both Seattle’s disability community and airport employees and stakeholders. Following completion of Task 1.0 and multiple meetings, ODO has identified common “themes” in improvement areas which have been outlined below.

Airport Walkthrough

ODO conducted a full airport walkthrough, visiting each touch point in a travelers’ airport experience, both airside and landside. Aside from exploring each concourse, including the North and South satellites, the following areas were also looked at:

- | | |
|--|--|
| - Rental Car Facility | - Hotel shuttle drop off |
| - Parking garage | - Journey to transit light rail system |
| - Curbside service (depart./arrivals) | - Ticketing/Check in |
| - Security | - Restrooms |
| - Restaurants/retail | - Service Animal Relief Areas (pre/post) |
| - North/South satellite transit system | - Baggage claim |

During the walkthrough, ODO evaluated each area’s presence, or absence, of relevant accessibility features. While the necessary features differ from one space to another, the general criteria included lighting, signage, wayfinding, design, layout, walking paths, ambience, sensory impact, and provided information (visual and audible). Aspects such as seating and overall ease of independently navigating/using a space or service were also considered. The following are initial improvement areas generally applicable to the airport:

- Seating:
 - Power outlets/connectivity
 - Location

- Types
- Design
- Signage
 - Inconsistencies
 - Lack in detail
 - Wayfinding symbols
 - People flow
 - Paths of travel
- Flight Information Displays:
 - Placement
 - Contrast
 - Visual paging
 - Fonts
 - Types
- Accessible loading/unloading zones at arrivals and departures
 - Location
 - Markings
 - Wayfinding
 - Quantity

Included below (p. 5-8) are specific preliminary recommendations based on feedback from community and Port meetings and the airport walkthroughs. The final report will include a comprehensive list of all findings with recommendations and supplemental photos taken during the walkthrough.

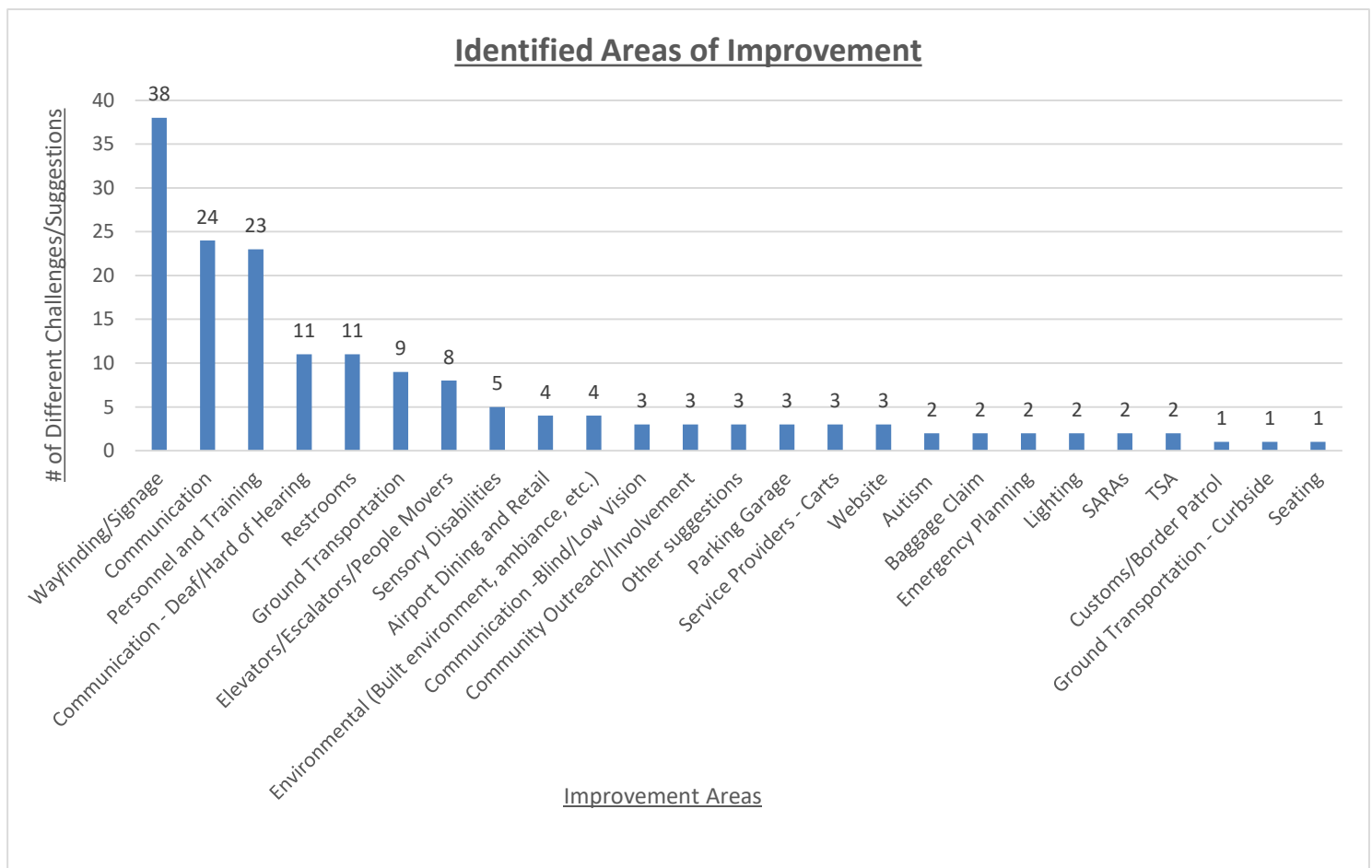
Community Meetings

In an effort to identify improvement areas from the user's point of view, six separate meetings have been held with members of Seattle's disability community. Of the six meetings, five were open to the general public and one was specifically held for individuals with hearing loss, some of whom were deaf-blind. Thus far, over 70 people have shared their feedback on access at Sea-Tac, either as a person with a disability or as a person representing people with disabilities.

While each meeting produced new issues, a number of “common themes” have emerged as areas of improvement. The graph below shows the identified improvement areas along with the number of *different* challenges within each area. Meeting attendees were asked to think about the full airport experience, focusing on each touch point in the journey from arriving at the airport to boarding the plane. Some of the feedback would require the airport to implement longer term construction plans, specifically regarding elevators, escalators, and people movers. This feedback included the hope for additional, larger elevators, auditory cues for elevator floor levels and when a person is entering or leaving an escalator or people mover, and a new path of travel so not as many elevators or escalators would need to be used to get from one point to another.

There are, however, a handful of suggestions or improvement areas that are easier to address on a short-term level. This includes disability awareness and etiquette training for all airport personnel, making information available online to assist with pre-trip planning, and redesigning the pre-security service animal relief area on the South end of the terminal.

**Note that duplicate recommendations or expressed challenges are not included in the graph.*



Much of the feedback received has pertained to challenges faced by travelers with disabilities but among the challenges were also suggestions to enhance access. Among the “other suggestions”

was the inclusion of individuals with disabilities in marketing and promotional items, and extending the length of time the doors remain open on the train connecting the North and South satellites.

Airport Employee and Stakeholder Meetings

In mid-April, ODO conducted 13 meetings with nearly 50 Port and airport employees, vendors, and stakeholders with representatives from departments ranging from ground transportation to architects, and wheelchair service providers to airport dining and retail. During these meetings, attendees discussed the current state, and future of, accessibility at Sea-Tac both in their own departments and in general.

Questions presented to attendees included:

What is your department currently doing to accommodate travelers with disabilities?

What feedback does your department receive, both positive and negative?

Where do you see areas for improvements in facilities and operations?

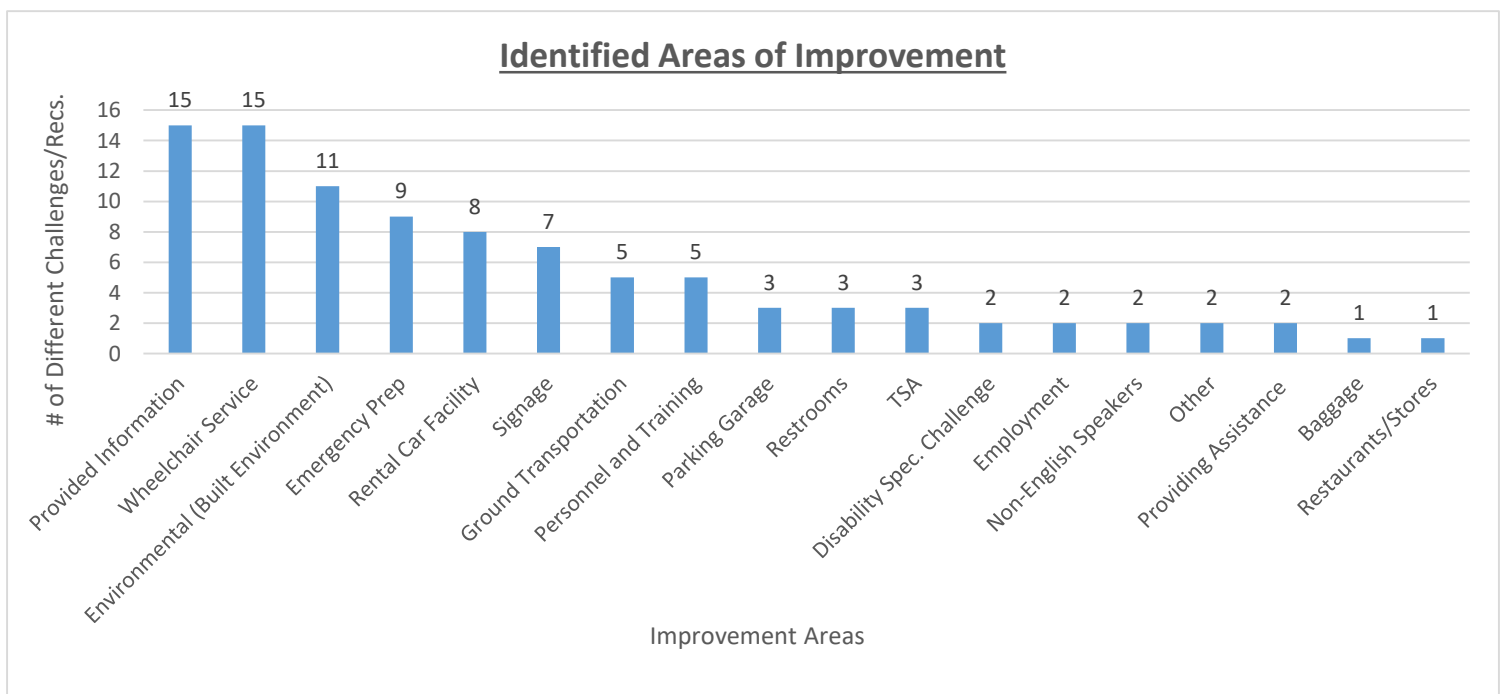
When determining new projects does your department include accessibility in the plan?

What is your interpretation of accessibility in airports?

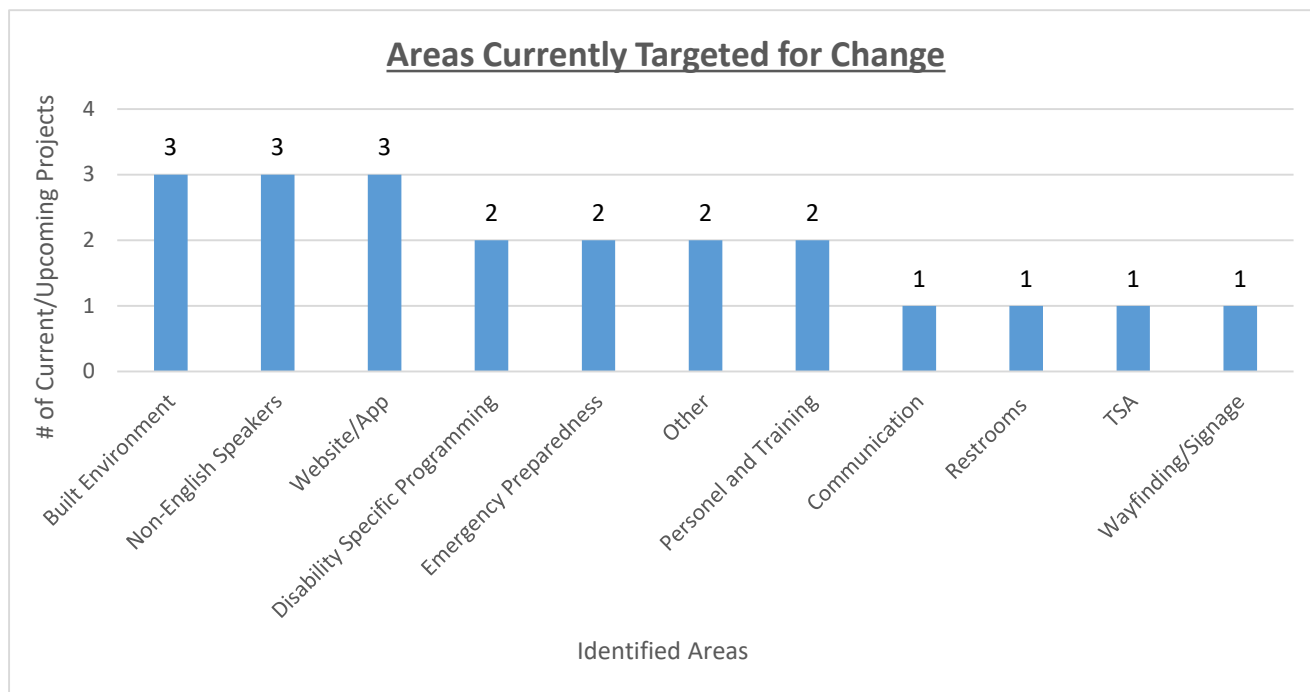
Employees involved in these meetings addressed concerns from all aspects of the airport experience, looking at what may be challenging for a traveler and what challenges their department faces. Due to the extent of detailed feedback received from attendees, many meetings went beyond the allotted time. In an effort to avoid missing feedback, all who participated in the meetings have received contact information for ODO.

The following graph shows an all-encompassing look at identified improvement areas.

**Note that duplicate recommendations or expressed challenges are not included in the graph.*



While there were improvement areas identified in these meetings, there were also a number of identified areas that have already been targeted for change which will, or currently, take the needs and preferences of travelers with disabilities into consideration. Current projects include restroom redesign, new international arrivals building, new hold room seating, Customer Experience Partners Council, signage and wayfinding project and website update.



Many participants were anxious to learn new information, especially for consideration for current projects, regardless of its tie to government regulation. While it was recognized that not all of the new ideas or information *could* be applied to current projects, there was still expressed interest in sharing takeaways with colleagues. Additionally, most of the participants exhibited a fairly profound knowledge of the issues facing accessibility but have struggled to overcome the obstacles associated with airport building and design that achieves full inclusion. A “common theme” among employee meetings was the need for more space, however the actual footprint of the airport and SIDA presents a major challenge. Space has long plagued the airport’s ability to grow, making it necessary to “think outside the box” and get creative with plans for the future. Given the increase in international routes, domestic carrier expansion, and the growth in tourism for the Northwest as a destination for cruise, hospitality and tourism industries, either an airport expansion or a second regional airport seems necessary.

Preliminary Recommendations

Through initial analysis of the feedback received from all of the meetings, a number of themes have emerged either as areas that can be easily addressed in the short term or as areas that should be addressed with SeaTac’s upcoming construction projects.

Disability Awareness and Etiquette Training

A common suggestion among the community members was the need for disability awareness and etiquette training for all airport personnel who may have interactions with passengers with disabilities. There is a lot of change that can happen simply from educating employees about proper language, to always ask how they can help, and a general understanding of different disability types. This is especially important as the Special Olympics Games will be held in Seattle in July 2018. These trainings should include proper language, appropriate assistance techniques, general disability awareness, and an orientation to various areas of the airport specifically relevant to travelers with disabilities such as family restrooms, service animal relief areas, and emergency evacuation areas. Although the Port does not have extensive authority over training requirements for personnel other than airport employees and volunteers, vendors and stakeholders should be encouraged to also participate in this training, i.e. TSA agents, service providers, ADR employees, etc.

Service Animal Relief Areas (SARA)

SeaTac is currently working to increase the number of SARAs post-security however, the relief area currently located pre-security on the South end of the terminal needs improvement. The area is not wheelchair accessible, the lack of signage makes it difficult to find the space, and the surface is a hard dirt and rock mixture which is not only unattractive but also uncomfortable for animals to use. In addition to improving the current relief area, it would be beneficial to build an additional SARA on the North end of the terminal, potentially near the large seating area. Not only is it a long walk from one end of the terminal to the other, but paratransit users are dropped off on the North end of the terminal so they would have a long walk from their drop-off point to the current SARA. Since it's more likely that handlers would relieve their animal anywhere, it's in the airports interest to provide a designated area with appropriate materials such as waste bags and receptacles.

Cane Detectable Belts for Lines or Queues

Currently, the single-belt crowd control barriers at check in counters, TSA, and various restaurants and coffee shops are not cane detectable. The strap for the divider sits at waist level so someone using a white cane is not able to easily follow the path of the line unless they walk into the divider strap. An additional, lower strap or belt, set at 27", should be placed in each of these lines to help someone independently navigate through the line. At a minimum, one should place double belts at all outer control barriers along paths of travel to prevent accidents as single belts are also not detectable by guide dogs who will simply walk underneath.

Customer Service/Information Desks

Currently, there are no customer service/information desks inside the secure area. Pre-security, there are two but they are frequently unmanned and, due to their simplicity, are not very noticeable. Adding staff or volunteers and information desks, specifically at major decision points throughout the airport, would be extremely beneficial to travelers with and without disabilities alike. While SeaTac has deployed the “Ask Me” buttons for airport personnel to wear, there is a major benefit in having a designated spot for a traveler to visit if they have questions, rather than looking for a staff member to help. Because of SeaTac’s space constraint, these desks can be smaller kiosks that have a large “?” on them or another identifier so that travelers will know they can approach the desk with questions. In the future, these desks should also be equipped with airport maps, tablets to support communication with non-English speakers and deaf/hard of hearing travelers and possibly also counter hearing loops (see below).

Wheelchair Service Providers – Carts

A common concern among the community members was the carts operated by the airline service companies, specifically when it comes to travelers who are deaf or hard of hearing. The cart drivers frequently use the cart’s horn to alert people that they are approaching but for those with hearing loss, a horn isn’t effective. Given SeaTac’s space constraint, the suggestion of having a specific path or area where the carts can drive isn’t a realistic solution. To address this issue in the short term, convex safety mirrors (like those frequently used in parking garages) could be placed throughout the airport so the carts and the flashing lights can be seen by looking in the mirror.

Hearing Loop System

Hearing announcements in an airport is difficult for everyone, but it’s nearly impossible for those with hearing loss. A hearing loop system is easy to install and while it is best to have throughout an entire facility, it can be incorporated in designated spaces such as ticket counters, gates, and restaurants. A majority of hearing aid devices have a telecoil, or t-coil, which enhances the functionality of the device as it enables the user to directly connect to other technologies, basically creating a personal, wireless loud speaker. “Looping” the airport would greatly decrease the instances of missed gate change and flight announcements but even more, it would allow people with hearing loss to travel independently without needing to disclose that they’re hard of hearing. Counter hearing loops, which require no installation of a loop in the ceiling or floor, offer an immediate or short term solution at ticket counters and gate podiums.

Accessibility Information on the Website

Pre-trip planning is an important part of travel for individuals with disabilities, older adults, and families traveling with young children. The airport website is an easily accessed resource for most travelers so making it fully accessible and functional for individuals with disabilities and

having a section dedicated to accessibility and airport services is crucial. The website should include all things relevant to individuals with disabilities such as:

- Airport Map (and accompanying text map for those with vision loss)
- Parking Information (number and location of accessible parking spots)
- Parking Garage Information (rideshare, taxi, and shuttle locations)
- Location of all pre/post security SARAs
- Location, and description, of companion restrooms
- Wheelchair Service Information with note to contact airline directly for assistance
- Contact Information for TSA Cares and other disability related programs
- Location of Child Play Areas
- Information about the cart service from the light rail to the airport
- Note that volunteers are always available to help

Although not an immediate need, additional information or tools to include on the website in the future are:

- Social story with pictures of major airport touch points for someone with Autism
- Directions for accessible paths of travel (i.e. from Parking Garage to TSA checkpoint)

**Note: This list includes only some, not all, of the information that should be available on the website.*

Restrooms

With the current restroom redesign project, the following are suggestions to be considered moving forward:

- Family restroom(s) equipped with an adult-sized changing table
- Defined color contrast on the counters to easily decipher the sink from the countertop
- Note the new accessibility provisions incorporated into the ICC A117.1 and adopted into the international building code. With the ever-changing design and size of wheelchairs, building to the minimum turning radius is not adequate for larger wheelchairs/scooters.
- Consistency in restroom layout and placement of soap dispenser, paper towels, hand dryer, etc. to improve wayfinding by individuals with visual and cognitive disabilities

- Increase the number of accessible stalls, if possible, or the size of standard stalls to improve the usability for travelers with luggage. The larger stalls are often used by people who don't necessarily need them (i.e. with luggage) so either mentioned increases would be beneficial for all travelers, likely freeing up the accessible stalls for travelers who actually need them. One solution at MSP was to make all non-wheelchair stalls meet ADA "ambulatory stall" requirements with doors that swing out and easily accommodate roller boards.
- Soap dispensers, faucets and paper towel holders should be placed where wheelchair users, little people and children can independently reach them.

Next Steps

Task 2.0 – Research:

Moving forward, ODO will further evaluate feedback from the community and Port meetings, compare findings from the meetings and the walkthrough, then determine short and long term goal recommendations for the necessary improvement areas. Following research into current innovations and best practices, each recommendation will include examples of US and international airports excelling in each improvement area along with a product description and cost analysis for any potential enhancements or upgrades, if applicable.

Task 3.0 – Final Report

The final report will include the following:

- All feedback from community and Port meetings
- All findings from the airport walkthrough
- Recommended improvement areas based on all findings
- Recommendations separated into 2, 5, and 10 year+ goals that include;
 - What is the improvement area?
 - Why does it need modification?
 - What should be done to enhance this area?
 - What have other airports done to address this issue?
 - What products and/or technologies will be needed?
 - What is the estimated cost for this recommendation?

As requested, ODO will present findings and recommendations from the final report to the Port of Seattle Commissioners and necessary airport employees. Following completion of the Accessibility Assessment, ODO will remain a resource for the Port as it works towards the goal of becoming “the most accessible airport”.