
# Airport Emergency Communications for People with Disabilities and Others with Access and Functional Needs (2019)



## DETAILS

140 pages | 8.5 x 11 | PAPERBACK
ISBN 978-0-309-48049-9 | DOI 10.17226/25507

## CONTRIBUTORS

IEM; Airport Cooperative Research Program; Transportation Research Board; National Academies of Sciences, Engineering, and Medicine

## SUGGESTED CITATION

National Academies of Sciences, Engineering, and Medicine 2019. *Airport Emergency Communications for People with Disabilities and Others with Access and Functional Needs*. Washington, DC: The National Academies Press. https://doi.org/10.17226/25507.

AIRPORT COOPERATIVE RESEARCH PROGRAM

ACRP RESEARCH REPORT 201

# Airport Emergency Communications for People with Disabilities and Others with Access and Functional Needs

**IEM**
Research Triangle Park, NC

*Subscriber Categories*
Aviation • Operations and Traffic Management • Security and Emergencies

Research sponsored by the Federal Aviation Administration

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2019

## AIRPORT COOPERATIVE RESEARCH PROGRAM

Airports are vital national resources. They serve a key role in transportation of people and goods and in regional, national, and international commerce. They are where the nation's aviation system connects with other modes of transportation and where federal responsibility for managing and regulating air traffic operations intersects with the role of state and local governments that own and operate most airports. Research is necessary to solve common operating problems, to adapt appropriate new technologies from other industries, and to introduce innovations into the airport industry. The Airport Cooperative Research Program (ACRP) serves as one of the principal means by which the airport industry can develop innovative near-term solutions to meet demands placed on it.

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## ACRP RESEARCH REPORT 201

Project 04-21
ISSN 2572-3731 (Print)
ISSN 2572-374X (Online)
ISBN 978-0-309-48049-9
Library of Congress Control Number 2019942016



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*are available from*

Transportation Research Board
Business Office
500 Fifth Street, NW
Washington, DC 20001

*and can be ordered through the Internet by going to*

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Printed in the United States of America

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# FOREWORD

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*ACRP Research Report 201: Airport Emergency Communications for People with Disabilities and Others with Access and Functional Needs* provides guidance and tools for airports to aid in effective communication with passengers and persons with disabilities, including those with cultural and language differences.

The guidance incorporates a primer that discusses issues, techniques, and the unique requirements and challenges of communicating with people with disabilities and others who have access or functional needs. It discusses uses of technology and other methods that incorporate ADA considerations and communication challenges with airport stakeholders, and training programs for airport personnel, including templates for development of curricula. There are case study examples of methods of emergency communication at airports and in other industries, and for universal messaging for emergency communications. Included are templates for airport emergency plans specifically addressing individuals with limited English proficiency, step-by-step tools that include a needs assessment tool that airports can use to determine what steps must to be taken to comply with ADA requirements concerning communications, and templates/worksheets/checklists for planning tabletop exercises that focus on communicating with people with disabilities and access or functional needs during emergency events.

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Emergency situations place demands on airports to communicate effectively with passengers and airport personnel. These challenges increase when communicating with persons with disabilities and language differences. Airports of all types and sizes, especially Part 139 airports, need guidance, technological solutions, and practical models for making emergency communications more effective. Airport operators and their stakeholders can benefit from practical guidance to assist populations with disabilities and people with access or functional needs (DAFN) in emergencies.

The foundation for the management guide, developed under ACRP Project 04-21, was extensive research including interviews, case studies, and surveys. Innovative Emergency Management (IEM) was the research agency, with assistance from Smith-Woolwine and Rock Park, Inc.

Additional worksheets and checklists are described in the appendices and can be found on the report web page at www.trb.org by searching for "ACRP Research Report 201." They include inventory checklists, an Accessibility Walkthrough Worksheet, the FAA Airport Accessibility checklist, an Accessibility Strategy Quick Reference Guide, and an Emergency Communications Concept of Operations (CONOPS) template, among other resources.

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CHAPTER 1

# Introduction

In an emergency, accurate and effective communication can save lives. In August 2016, two separate active-shooter situations were reported at two major international airports—first at John F. Kennedy International Airport (JFK) and later at Los Angeles International Airport (LAX). Both incidents were deemed false reports, but they caused mass chaos, delayed operations, and diverted hundreds of aircraft. Less than 6 months later, a mass shooting at Florida's Fort Lauderdale–Hollywood International Airport (FLL) left five people dead and six others wounded. More than 30 people sustained injuries from the panic caused by the shooting.

During an emergency, communication challenges often are compounded by chaos and panic. People with disabilities and others with access and functional needs (people with DAFN), including people with limited English proficiency (LEP), may require assistance with day-to-day travel communications in a busy and bustling airport setting. For these individuals, additional consideration and accommodations may be required to communicate lifesaving, time-sensitive emergency information. In critical emergencies, it is vital that airports be equipped and prepared to disseminate information quickly through multiple means to reach as many people as possible with accurate and actionable emergency instructions. For simplicity, this guidebook uses the phrase *people with DAFN* to include people with disabilities or access and functional needs and people with LEP. To avoid confusion, the phrase "limited English proficiency" appears in content that addresses the communications needs of this specific community, and use of the abbreviation LEP has been reserved for model documentation.

An airport is a unique environment because most of the people in an airport at any given time are only passing through, and, in most cases, doing so very quickly. Because of the transient nature of an airport, training travelers on safety procedures for a facility they will likely occupy for a few hours at the most is nearly impossible. Moreover, because travelers come from various backgrounds and cultures, communication can be complicated by language barriers and misinterpretation. Therefore, airports must have communications processes, procedures, messaging, and tools that can reach all populations, including individuals who may need assistance or accommodation in receiving, understanding, or acting on emergency information.

The guidance, recommendations, and resources included in this guidebook are based on extensive research, in-person interviews with industry professionals, round-table discussions with representatives of the DAFN community and subject matter experts (SMEs), and airport case studies.

## Guidebook Objectives

The objectives of this guidebook are (1) to help identify the emergency communication needs of people with DAFN, and (2) to identify strategies for airports to accommodate those needs. This guide focuses on communications strategies for people with DAFN and does

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not cover all aspects of an airport's crisis communications plan. The guide profiles real-world examples of communication strategies that include people with DAFN and that come from airports across the country. The guide also uses best practices as the basis for checklists, templates, and supplemental emergency planning resources, which are appended to the guide.

As airport and emergency management staff work through this document, they are encouraged to consider using the accessible emergency warning strategies discussed in this document for everyday operations, not only for emergency communications. Investing in the autonomy and independence of people who visit airports will pay huge dividends when it comes to customer satisfaction, thereby contributing to increased passenger numbers.

## Intended Audience

This guide is intended to help airport staff assess and improve airport services for people with DAFN. The strategies presented in this document are applicable to airports of all sizes and in all locations. The following airport staff may find this guidebook helpful:

- Emergency managers can customize the concept of operations (CONOPS) template (presented in Appendix F) and the exercise toolkit (presented in Appendix I) to develop and test the emergency communications processes.
- ADA coordinators can use the self-assessment checklists and convene a community-based DAFN advisory group to identify areas for improvement.
- Human Resources (HR) staff can use interactive staff training materials and printable outreach materials to promote awareness of people with DAFN among employees and volunteers.
- Public information officers can review the strategies recommended for public outreach to ensure that people with DAFN are considered in crisis communication planning.

## Guidebook Overview and Contents

This guidebook focuses on an actionable three-step process that airport staff can use to build a comprehensive emergency communications strategy that accommodates the needs of people with DAFN (see Figure 1). Checklists, templates, and other tools supplement each step and facilitate the process.

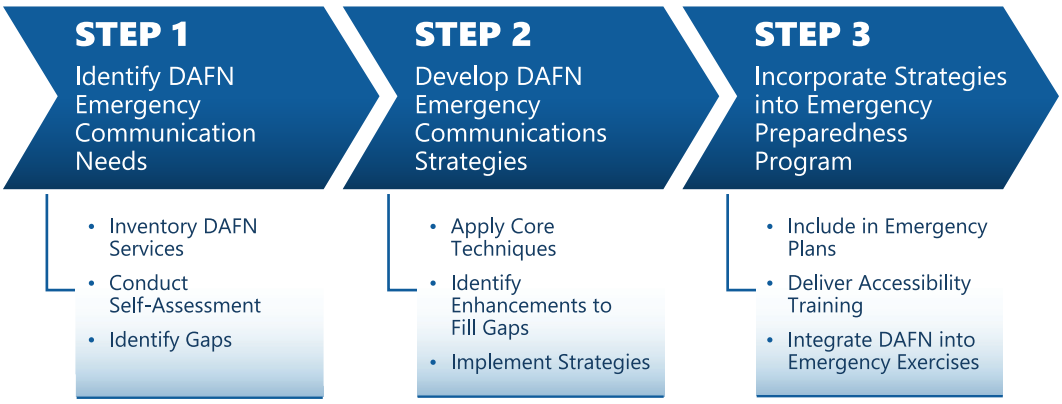


***Figure 1. Three steps for integrating accessibility into airport emergency communications programs.***

The guidebook includes the following sections:

- **Chapter 2: Understanding Airport Accessibility.** This chapter outlines the overarching concepts behind airport emergency communications planning for people with DAFN, including regulatory considerations, terminology best practices, and developing a planning team.
- **Chapter 3: Identifying the Emergency Communications Needs of People with DAFN.** This chapter provides resources to conduct an inventory of existing accessibility plans, programs, and services currently used in the airport and ways to identify areas for improvement.
- **Chapter 4: Developing Emergency Communications Strategies That Include People with DAFN.** This chapter provides brief descriptions of core, enhanced, and emerging solutions for accessible emergency communications that were identified through research, through interviews with industry representatives, and through consultation with members of various DAFN advocacy groups.
- **Chapter 5: Incorporating the Strategies into an Emergency Preparedness Program.** This chapter focuses on how the airport can apply accessibility techniques to enhance emergency plans, exercises, and training. This chapter is supplemented by a CONOPS emergency communications plan template (Appendix F) and an exercise toolkit (Appendix I), which incorporate accessibility techniques and associated training materials.
- **Chapter 6: Conclusions and Recommendations.** This chapter summarizes key findings and outlines final recommendations for improving emergency communications strategies based on this research.
- **Appendices.** The following appendices to this guidebook provide tools such as checklists and templates, which can be used to enhance airport emergency communications programs:
  - Appendix A: Inventory Checklists
  - Appendix B: Accessibility Walkthrough Worksheet
  - Appendix C: FAA Airport Accessibility Checklist
  - Appendix D: Accessibility Strategy Quick Reference Guide
  - Appendix E: Potential Solutions
  - Appendix F: Emergency Communications CONOPS Template
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  - Appendix H: Sample Staff Training Flyer and Brochure
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CHAPTER 2

# Understanding Airport Accessibility

On any given day, diverse travelers, airport employees, tenants, airline staff, and members of the public occupy an airport. For most of these people, traditional communications, procedures, and wayfinding methods will be sufficient to help them successfully navigate the airport. However, the noise, crowds, and bustle of an airport can easily distract and overwhelm the senses, causing people to miss important information conveyed using signs, announcements, and text alerts. Regular, day-to-day communications are challenging for an airport, but emergency communications are even more difficult. Airports must provide real-time, accurate information that meets the diverse needs of their populations in a fluid manner to ensure the safety of travelers and staff.

All communication happens on an individual level, regardless of the method of transmission. Ultimately, a message is received and deciphered by a single individual, and each individual interprets a message differently based on his or her education, background knowledge of the subject, and personal experience. For this reason, emergency communications must be as clear, concise, and direct as possible, leaving the least possible room for interpretation. An example would be the "Run, Hide, Fight" communication model used for an active-shooter response. These three simple commands quickly and clearly communicate the strategies for responding to an active-shooter incident in order to save lives.

The successful interpretation of emergency communications depends on a recipient's ability to receive and comprehend the message. Traditional communications methods, such as public address (PA) systems or static signage, are designed to meet the needs of travelers who speak and read English fluently and may not be understood by individuals with LEP. For individuals who do not speak English, messages may need to be transmitted through other means, such as written translation, visual demonstration, or interpretation. During day-to-day operations, airports may have the time to find an interpreter to translate a message. During an emergency, however, interpreters may not be available within the critical evacuation timeframe or may not have access to the airport PA system. This is an example of how current communications accommodations used in airports for people with DAFN may not be sufficient in an emergency. All communications methods, particularly ones used to disseminate messages to people with DAFN, must be evaluated in light of an emergency to determine if an enhancement or alternative strategy is needed to succeed in reaching the target population.

For all airports, effective emergency communications encompass a variety of differing dissemination methods and formats. Emergency information must reach everyone, and the most effective way to do that is to provide messages using a variety of tools, channels, and strategies. To determine effective communications strategies, those developing and implementing emergency communications systems must understand the needs of people with DAFN. The best way to understand what members of the DAFN community need in an airport is to ask them.

At many airports, people with DAFN are already working onsite. Involving these individuals throughout the emergency communications planning process—including the steps outlined in this guidebook—will improve the ability of emergency planners to determine which strategies are the most effective. Gaining first-hand knowledge of the benefits and challenges related to specific accessibility strategies can help emergency planners justify the need for improvements and make a stronger case for necessary enhancements to airport administration.

## Compliance and Accessibility

During the course of this research project, airport representatives, as well as advocates for and members of the DAFN community, commonly cited the need for new or alternative mindsets for accommodating people with DAFN. Current compliance-driven and mobility-focused planning around airport emergencies, they averred, was generally insufficient. This approach is particularly inadequate as it relates to communicating with people with DAFN in airport emergencies.

Varying regulations related to meeting the needs of people with DAFN were cited as a significant challenge. One interviewee stated that the differences range from exceedingly prescriptive, such as placement and size requirements for braille notices, to exceedingly vague. For example, one airport administrator stated, "Even the strictest interpretation of [the] ADA . . . [does not] require ASL [American Sign Language] speakers to be considered within the category of LEP." It is true that individuals who are deaf and hard of hearing are not normally included in the definition of people with LEP, but ASL also can be considered a unique language, separate from English. Currently, these and other considerations are open to interpretation, and such variations lead airports to focus on regulations that are easier to meet.

Even meeting the general, non-emergency, non-communications–specific needs of people with DAFN can be significantly challenging for airport personnel. Thus, most airports are in the early stages of evaluating the potential emergency-related needs of people with DAFN. In that regard, they have not begun to evaluate specifics related to effective, efficient, and actionable emergency communications strategies. Airport administrators are becoming increasingly proactive in improving accessibility because they realize that serving people with DAFN is an essential part of customer service. Successfully accommodating passengers of all types will allow more patrons to use the airport and add to airport revenue.

### ADA Compliance in Emergency Communications

The Department of Justice published revised final regulations implementing the ADA in 2010. As a Title III entity, an airport must meet the requirements in order to adequately support the communication needs of people with DAFN. Even though requirements exist for communicating with people with DAFN under the rules and regulations of ADA, minimal guidance is specific to *emergency* communications. ADA guidance continues to evolve, so airports should regularly review guidelines for updates.

As part of the ADA requirements, an airport must provide "auxiliary aids and services" when needed to communicate effectively with people with DAFN. These aids and services must also apply to communications with the parents, spouses, or companions of individuals with DAFN.

When determining what aid or service is needed, it is important to consider the nature, length, complexity, and content of the communication and the person's day-to-day methods of communication. Airport personnel are encouraged to ask the individual who has a DAFN what aid or service would be most effective. In an emergency, however, that is not always feasible.

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Therefore, it is important that the airport make available a variety of aids and services during non-emergency conditions that also can also effectively reach people with DAFN in a timely manner during an emergency. Some examples of aids and services cited in the ADA that could be used to accommodate people with DAFN under *emergency* conditions include:

- Audio recording of emergency information
- Information and signage in large print
- Information and signage in braille
- Screen reader software, magnification software, and optical readers
- Qualified interpreters, including sign language interpreters, oral interpreters, cued-speech interpreters, or tactile interpreters
- Written materials and emergency signage
- Printed script of emergency messages
- Assistive listening systems and devices
- Open captioning, closed captioning, real-time captioning, and closed caption decoders and devices
- Telephone handset amplifiers
- Hearing aid compatible telephones
- Text telephones (TTYs), videophones, captioned telephones, and other voice-, text-, and video-based telecommunications products
- Videotext displays

It bears noting that to be considered "qualified" an interpreter must be able to interpret effectively, accurately, and impartially, both receptively (i.e., understanding what the person with the disability is saying) and expressively (i.e., having the skill needed to convey information back to that person) using any necessary specialized vocabulary.

For the aids and services to be considered effective in a normal day-to-day situation, the individual who has a DAFN should not have to bring someone to interpret or facilitate the communication. An exception to this rule occurs during emergency situations. In that case, because it may be impossible to ensure that a qualified interpreter can be made available in a timely manner, the airport may rely on a companion to interpret information. For example, given the urgency of an emergency, the child or companion of an individual who is deaf may need to use sign language to alert the person with the DAFN of the emergency.

## Respectful Communication

Creating an environment that fosters respect is the first step toward improving all communications, whether they consist of day-to-day customer service messages or emergency messaging. The practice of using "people-first" language is the first step toward breaking communications barriers. People-first language puts a person before his or her disability. The practice of using people-first language is a method of improving communications that can be implemented immediately to improve the customer experience and foster a more inclusive environment. Figure 2, adapted from content provided by the Texas Council for Developmental Disabilities, gives examples of people-first language.

## Whole-Community Planning

The term "whole community" describes an inclusive philosophical approach for conducting the business of emergency management. The Federal Emergency Management Agency (FEMA) has established a whole-community framework that emphasizes the value in understanding


*Source:* Texas Council for Developmental Disabilities (2018)

***Figure 2. Examples of "people-first" language.***

and meeting the actual needs of the whole community, including members of the DAFN community, engaging and empowering all parts of the community, and strengthening what works well in communities. This approach applies directly to airports' efforts to ensure that their emergency planning fosters an environment that is inclusive of all employees, travelers, and others using the facility.

An example of how the whole-community approach applies to airport emergency planning is the development of evacuation plans that outline specific accommodations for individuals who use wheelchairs and other mobility devices. By working with community members or advocacy groups representing the DAFN community, airports can identify barriers to mobility

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that could present issues during an evacuation and determine ways to address these barriers. Doing so helps emergency planners take into account the needs of this segment of the whole community.

An extension of the whole-community framework is the motto "Nothing about us without us." In other words, no policy should be decided without the full and direct participation of members of the group affected by the policy. This slogan, born out of the disability rights movement, is directly applicable to emergency management planning. Incorporating people with DAFN into emergency preparedness activities better clarifies needs and associated interventions in disasters.

## Community Partnerships

An effective way to ensure that airport emergency planning encompasses the whole-community approach is to establish partnerships with community advocacy and non-profit groups representing the DAFN community. These groups can provide support and information to help develop emergency strategies that incorporate considerations for people with DAFN. Representatives from these organizations can provide valuable input into emergency plans, review and submit comments on plans, help review and develop training, and coordinate the participation of community members in airport exercises.

**Coordination with Community Non-Profits to Better Serve Travelers**

Airports are beginning to focus on opportunities to pre-plan for accommodations and enhance services for people with DAFN. One airport coordinates with local organizations that train guide dogs to bring puppies-in-training to the airport. This helps the dogs develop an understanding of navigating their airport from the curb to the plane. Another airport has partnered with a local hospital to work with patients with traumatic brain and spinal injuries. Before the patients are released from the hospital, airport staff offer tours and airline orientation, teach airport procedures, explain the TSA Cares program, and conduct a trial security screening. The hospital has reported that this removes significant anxiety for family members who will be traveling with their loved ones once they are discharged.

Representatives from these community advocacy and non-profit organizations also can provide valuable consulting services, such as reviewing design plans for retrofits or new construction with professional building and design personnel to provide feedback on the accessibility of airport spaces.

## DAFN Advisory Group

Advocates strongly suggest that airport emergency planners establish a DAFN advisory group that incorporates members from local community advocacy and non-profit organizations representing people with DAFN. The group should include a committee of representatives from these organizations, airport employees with DAFN, airport emergency management staff, and airport managers and administrators. Coordinators of services for people with DAFN and emergency managers from the state, county, and/or city also can be invited to participate. The

DAFN advisory group plays a vital role in developing an effective emergency communications strategy, conducting the airport needs assessment (detailed in Chapter 3), evaluating solutions (detailed in Chapter 4), assisting with exercises, and integrating considerations for people with DAFN into emergency preparedness programs (detailed in Chapter 5). The group also can help write preparedness exercises to address identified issues and after-action reports and improvement plans following actual emergencies.

Representatives from a variety of DAFN advocacy organizations shared observations, planning considerations, and recommendations for whole-community emergency planning during the preparation of this guidebook. Their input demonstrates the valuable and innovative solutions these groups can contribute to the emergency planning process. Some of the observations and recommendations received from these representatives include:

- **Enhanced evacuation training is needed,** particularly for wheelchair and mobility-services providers. For example, people who use wheelchairs need evacuation assistance from airplanes and/or buildings. Additionally, evacuating individuals who are blind should be done in such a way that they are not separated from their service dogs.
- **Messages must be sent using multiple methods and multiple languages** to reach a broader audience. No single emergency communications solution applies to all populations.
- **Employees who interact with people with DAFN must be compassionate, caring, and perceptive.** One representative suggested that Transportation Security Administration (TSA) personnel could be asked to be more patient when assisting passengers with liquid feeding and medical equipment through security checkpoints.
- **People with DAFN should participate in emergency exercises.** Including people with DAFN, together with their durable medical equipment and service animals, will test accessibility strategies in real-world conditions.

**Innovative Community Partnerships**

Medical tourism—families and patients traveling to seek high-quality or specialized medical treatment—is increasingly significant as a customer base for airports. One airport reported providing a medical concierge line, assigning a special liaison, and conducting question-and-answer sessions with hospitals and medical institutions to learn the issues and needs of these patients and their families so that they can be included in customer service procedures or protocols. This process also has improved relationships between the airport and local medical centers in ways that can enhance coordination for emergency management efforts in response to disasters and mass casualty events.

## Universal Design

Airports should aim to design facilities using universal design ("Design for All") principles, a strategy of product and service development based on the recognition that it is often easier and more cost-effective to address, incorporate, and integrate accessibility features during the design phase rather than to add such features for specific groups after construction has been completed. The aim of universal design is to design environments and products that, to the greatest extent possible, can be used by most people without the need for adaptation or specialized design at extra cost.

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One round-table participant stated, "To view the issue in a useful way, it is fundamental to understand that there is no such thing as a disabled person; rather, a person who is confronted by a disabling environment. We should therefore focus on changing the environment, not on trying to change people."

Another participant said, "If new airports first considered how people will be moved around, especially those needing assistance, the whole design would be more efficient for everyone."

Meeting the needs of people with DAFN through universal design means making spaces functional for everyone, regardless of cognitive, physical, sociocultural, or other characteristics. Because it is not always possible to reconstruct spaces or replace products, people with DAFN and whole-community representatives must evaluate existing and proposed airport spaces, messaging, and communications tools to look for ways they can be improved.

## Communication Methods and Limitations for Emergencies

Historically, communications needs for people with DAFN were categorized and described according to a "condition" or "diagnosis." Today, disability advocacy and service organizations recommend focusing on the functions that a person must perform in order to maintain health and well-being before, during, and after an emergency. Functions differ from needs in that functions refer to the actions or tasks that the person will take rather than to needs based on the person's perceived vulnerability related to a diagnostic category or characteristic.

A functions-based approach reduces stigmatization of population groups and provides emergency managers with clear and actionable information. This approach supports an integrated planning process for the whole community as opposed to separating a portion of the community as "special" or "vulnerable."

This guidebook applies a functions-based approach to present visual, audio, tactile, and human-to-human communications that serve the whole community rather than individuals with a specific "diagnosis." This approach allows airports to develop effective communications programs that support all travelers and employees during or as a result of an emergency. For example, following a bomb blast, individuals who previously were able to hear may become temporarily hard of hearing and may not be able to receive information from a PA system. In this example, visual communication methods are important not only for individuals who are deaf.

The remaining sections in this chapter discuss the benefits and limitations of visual, audio, tactile, and human-to-human communication formats. Accessible emergency communications requires a multi-modal, redundant approach. Ideally, airports should be able to implement several strategies for each of the four formats during an emergency, including one or more that are not reliant on power or Internet.

### Visual Communications

Visual communications bombard airport passengers and employees in every area of the airport: signs, video monitors, electronic notice boards, and other technologies are ubiquitous.

The implementation of emergency communications through visual means often can be accomplished using existing, off-the-shelf products and technologies with relatively simple modifications. Technologies such as video monitors and electronic notice boards are intuitive to most users, and many travelers will know to look for these resources at the first sign of an emergency, particularly when announcements are inaudible due to alarms or noise. For this reason, visual communications methods are some of the most effective strategies for transmitting emergency communications accurately and effectively.

Visual technologies are versatile and efficient in sharing both pre-planned and evolving emergency communications during an incident. They allow for the display of information in multiple languages simultaneously. Visual technologies also can use icons or other graphical designs to convey emergency messaging to people with LEP. Standardization of signage, such as exit signs and wheelchair-accessible placards, conveys messaging that is immediately recognized. Examples of standardized signage can be found in Appendix M.

Visual communication strategies for emergency communications strive to provide simple and clear messaging without extraneous colors, graphics, or fonts. Pre-scripted messages, such as instructions for sheltering in place or directions to evacuation assembly areas, can be developed for different types of emergencies and in various languages ahead of time. Procedures for displaying emergency messages through visual displays should be documented, trained, and tested.

The most significant limitation regarding visual technologies for emergency communications is that they are not accessible to people with visual impairments. Visual displays with text-only messages (as opposed to displays using icons or graphics) are not accessible to people with limited language capabilities or with limited literacy skills in that language. Visual displays also are accessible only to those people who are within the line of sight of the technology, meaning that only people in area immediately surrounding the visual display can see the message. Airports may have too few monitors to disseminate visual messaging widely and effectively. During an emergency, message boards and displays may be blocked or inaccessible, or they could break or have errors, further limiting the number of people who are able to view crucial messages.

## Audio Communications

The use of PA systems is ubiquitous in airports, serving as the primary—and often sole—source of verbal messaging. Often, PA systems are also the primary method of verbal communication in emergencies. Adapting PA systems for use during an emergency requires prior development of emergency communications protocols, procedures, and pre-scripted messaging.

It is important to determine the *who*, *what*, and *when* of PA emergency information—*who* is authorized to disseminate messages, *what* will those messages say, and *when* will they be sent. These policies must be included in plans and standard operating procedures. The process for disseminating emergency messages through the PA system should be documented, trained, and tested.

Care should be taken to ensure that all persons using the PA system know how to communicate using clear speech. Clear speech occurs when the speaker deliberately expresses every word and sentence in a precise, accurate, and fully formed manner. Additionally, knowing how to use the microphone at a proper distance and reducing background noise can increase the comprehensibility of PA messaging.

Verbal communication will be a critical source of information during an emergency. It is important to consider how airport personnel will transmit emergency messaging. In an

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emergency, travelers will look to airport staff for information; therefore, it is important to train employees properly and prepare them to address inquiries effectively.

Individuals who are deaf or hard of hearing may not be able to effectively receive verbal messages. Verbal communication via the PA system is limited to the areas the system serves, and the system may be inaudible during an emergency or inoperable in the event of power loss or communications interference. Supplementing visual and audio or verbal communications with tactile and human-to-human communications supports a more comprehensive strategy for emergency communications.

## Tactile Communications

The use of tactile technologies for emergency communications in airports has limited applications. The ADA mandates that braille and other tactile communications technologies be used on most signage throughout an airport. In an emergency, however, an individual who is blind may not have the time or means to locate this signage. Instead, it is likely that these individuals will rely on audio messaging or information relayed verbally from others in the area.

No technologies currently employed at airports allow for the immediate transmission of emergency messages through tactile communications. Specialized devices and certain types of mobile phones can, however, translate messages into braille or other tactile messaging (such as tactile maps), and these devices may be available to individual travelers who are blind or who have visual impairments.

Textured flooring often is used to support wayfinding in airports and other public places. Textured sections of walkways can be used to indicate changes in elevation or street entrances. Textured flooring offers an effective way to provide accessible wayfinding through an airport that also may be useful during an emergency or evacuation situation.

## Human-to-Human Communications

Enhancing an airport's human-response capability—rather than relying on advanced technology—can be one of the most effective ways to support emergency communication with people with DAFN. This method involves using a group of trained and certified individuals to provide one-on-one communication in the event of an emergency. During an emergency, these individuals can provide human-to-human emergency communications that may include shouting directions (in English or in other languages); pointing to direct people to exits or designated sheltering zones; or physically leading persons who need assistance to evacuate the area. As explained by one airport representative, "most often, human interaction has proven to be the best way to communicate at our airport. Signs and visual paging get overlooked, probably due to several factors. . . . Those with limited English have been observed reaching out to someone in their area to assist or to inquire into what is going on."

Additional types of human-to-human communication include speech reading and lip-reading, which can be especially useful for individuals who are deaf or hard of hearing. Speech reading and lip-reading are most effective when both parties have been trained; however, in an emergency that may not be possible. Techniques that any speaker can use to help another person lip-read are to (1) speak normally and (2) use gestures or movements to emphasize speech.

Gesturing can be an effective method of communicating urgent information in crisis situations. Verbal directions are more easily and quickly understood when they are accompanied with associated gestures. For example, when telling people to move in a certain direction it is helpful to point in that direction, and when telling people to stop it is helpful to place one's

**Facilitate Speech or Lip Reading**

Many people who are deaf or hard of hearing can read lips. Some techniques speakers can use to make it easier for them to lip read are:

1. Talk at a normal rate and do not over-enunciate or exaggerate pronunciation. Talking too slowly or too quickly makes lip reading more difficult.
2. Never shine a light source in the face or eyes of a person with a hearing loss while trying to communicate with them.
3. Ensure the speaker's face is well lit when speaking.
4. State the topic up front so that the person with a hearing loss has context.
5. Ensure that the speaker is on the same eye level as the person with the hearing loss. If the person is sitting down, then the speaker should also sit or bend down. It is more difficult to lip read when looking up at a person.
6. If possible, move the person with a hearing loss to an area away from distractions.
7. If the speaker has facial hair, such as a beard or mustache, try to find another person without facial hair to speak. Reading the lips of someone with facial hair is very difficult, if not impossible. If no one else is around, the speaker can use pen and paper to communicate.
8. The speaker should not chew gum or have anything in his or her mouth while speaking.

hands palm forward and fingers up while saying the word "stop." Emergency training for airport staff and volunteers should recommend using gestures that accompany verbal commands to reinforce the message.

Several groups can provide human-to-human emergency communications during an incident or emergency. Existing employees can receive training that enables them to incorporate this into their duties, and/or new staff can be hired to perform this task (and can be assigned other tasks when they are not performing these duties). Airports may also consider developing a team of dedicated volunteers who can be trained to provide this service (e.g., through Airport Ambassador Programs). Several Canadian airports have stationed volunteers throughout the airport to provide assistance to travelers. These volunteers can be identified by their distinctive clothing (e.g., a hat or a vest of a specific color). The volunteers receive training prior to beginning their service, and their training could easily include instructions on how to communicate emergency information and how to assist people with DAFN during an emergency.

**"Help Others Who Need Assistance"**

By adding this simple request to existing emergency warnings, airports can empower passengers to become a resource to others as well. This "crowd-sourced" solution also can become a force multiplier during an emergency, as many people who are present in an airport but who do not work there will have skills and abilities that could greatly help others during an emergency.

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Human-to-human communication has the benefit of providing immediate feedback to the message originator so that he or she can be sure the message has been received and properly understood. Some limitations of human-to-human communication during an emergency are those of scope (the number of recipients), accuracy (whether the person has actual evidence to support the messaging), and control (ensuring that the message is transmitted to the intended recipient or recipients).

Because most human-to-human communication is transmitted through speech, it is therefore limited by the language abilities of the people sending and receiving the messages. It also is limited with regard to distance (that is, the distance from which a speaker can be heard and understood). As the number of people receiving and interpreting any given message increases, so do the chances that the message will be misunderstood or interpreted incorrectly.

CHAPTER 3

# Identifying the Emergency Communications Needs of People with DAFN

> "It is impossible to anticipate the needs of every individual person on a one-off basis. Instead, you have to plan strategically from the bottom up."
>
> —Interviewee

During interviews conducted in preparation for this guidebook, some respondents admitted that meeting the needs of individuals whose disabilities or functional needs are not apparent is difficult. Fully understanding the populations who need assistance and the type of assistance that is needed is complicated. Although it may not always be obvious *who* needs accommodations, it is incumbent on airport personnel to know *how* to provide accommodations for people with disabilities. The most cost-effective, efficient, and simplest way to do this is to ask people with DAFN.

Engaging in whole-community planning and establishing a DAFN advisory group are keys to fully understanding the needs of people with DAFN in airport facilities. Establishing the DAFN advisory group will be the most important step in identifying the emergency communication needs of people with DAFN in the airport and pinpointing the gaps in existing services (see Figure 3).

## Inventory Existing Emergency Management Communications Programs and Services

Airport emergency management staff and the designated ADA coordinator(s) should first take inventory of existing plans, reports, and documents to identify how emergency communications is addressed. Many existing airport emergency communications protocols may be documented in various plans, procedures, and other resources. It is important to have a solid understanding of existing emergency communications documentation and how it may already incorporate accessibility strategies.

The checklist shown in Figure 4 presents many of the relevant documents that will likely contain information on the airport's current emergency communications methods and procedures and how they apply to or accommodate people with DAFN. A printable version of this checklist is provided in Appendix A. During review of these documents, the following questions should be considered:

- Do planning documents adequately address emergency communications for people with DAFN?
- Which plans or procedures incorporate communications strategies that include people with DAFN and which do not?
- How are existing emergency communications methods used and/or adapted to accommodate people with DAFN?


***Figure 3. Step 1: Identify gaps in services.***

- Do emergency training and exercise programs address emergency communications with people with DAFN?
- Has the airport created documentation of identified areas of need for communicating with people with DAFN, even in non-emergencies?

Emergency management and ADA coordinators should also review existing programs and services for people with DAFN that are in use at the airport. The checklist shown in Figure 5 identifies areas that may be addressed already in current operations. In determining whether these methods are currently in place, planners are encouraged to take into account which items may have additional room for improvement. Reviewing these items will give airport emergency managers and ADA coordinators a good starting place for identifying additional needs for

| Plans, Reports, and Documents Inventory Checklist | |
|---|---|
| ☐ | Americans with Disabilities Act (ADA) Compliance Plan |
| ☐ | Airport Emergency Plan (AEP), particularly those sections referring to people with disabilities and others with access and functional needs, including those with limited English proficiency (DAFN) |
| ☐ | Language Assistance Plan (LAP) |
| ☐ | Comprehensive Crisis Communications Plan, Emergency Communications Plan, and/or AEP section on emergency communications |
| ☐ | List of training topics pertinent to ADA, access and functional needs, or limited English proficiency |
| ☐ | Training schedule that includes regularly scheduled accessibility trainings |
| ☐ | Exercise scenarios that include people with DAFN |
| ☐ | After-action reports or lessons learned from actual incidents, drills, or exercises involving people with DAFN |
| ☐ | Demographic information on airport passengers and/or populations surrounding the airport (i.e., catchment area) |
| ☐ | Design and use of non-verbal emergency communications (e.g., visual paging, Flight Information Display System, Baggage Information Display System, Gate Information Display System, pictographs, and so forth) |
| ☐ | Specifications on any electronic translation or interpretation aids used |
| ☐ | Copies of contracts with vendor(s) and/or contractor(s) supplying specialized services for people with DAFN |
| ☐ | Self-audits |
| ☐ | FAA audits |
| ☐ | FAA Title VI inspection documents |

***Figure 4. Sample checklist for planning (inventory of plans, reports, and documents).***

| | Programs and Services* Inventory Checklist |
|---|---|
| | **General Programs and Services** |
| ☐ | Active DAFN advisory group |
| ☐ | Disability awareness and sensitivity training (DAST) for airport employees |
| ☐ | Person-to-person wayfinding assistance |
| ☐ | Ensuring staff have paper and pencil on hand to communicate one-on-one with individuals |
| ☐ | Pre-flight orientation program that provides emergency information |
| ☐ | Airport website detailing accessibility services and important emergency information |
| ☐ | Emergency preparedness drills and exercises that include participants with DAFN |
| | **Audio Services for Emergency Communications** |
| ☐ | Pre-scripted or pre-recorded audio messages* |
| ☐ | Auditory emergency alarms that include emergency instructions |
| ☐ | Beacon technology for wayfinding |
| ☐ | Audio two-way communications in elevators and areas of rescue assistance |
| ☐ | Assistive listening systems and devices* |
| ☐ | Telephone handset amplifiers* |
| ☐ | Hearing aid compatible telephones* |
| ☐ | Induction loop systems and accompanying signage |
| ☐ | Emergency communication devices in parking areas or other areas of the airport that are hearing aid or loop compatible |
| | **Visual Services for Emergency Communications** |
| ☐ | Visual paging and the use of Flight Information Display System, Baggage Information Display System, and Gate Information Display System for emergency messaging* |
| ☐ | Qualified sign language interpreter* |
| ☐ | Written emergency information and wayfinding signage* |
| ☐ | Beacon technology for wayfinding |
| ☐ | Emergency information and signage in large print* |
| ☐ | Emergency information and signage in braille* |
| ☐ | Pictograph signage demonstrating emergency procedures |
| ☐ | Pre-scripted emergency messages* |
| ☐ | Open captioning, closed captioning, real-time captioning, and closed caption decoders and devices* |
| ☐ | Text telephones (TTYs), videophones, captioned telephones, and other voice, text, and video-based telecommunications products* |
| | **Visual Services for Emergency Communications, continued** |
| ☐ | Videotext displays* |
| ☐ | Visual alarms (e.g., flashing lights) |
| ☐ | Use of airport social media to disseminate emergency information |
| ☐ | Use of text messaging to disseminate emergency messages |
| ☐ | Visual two-way communications in elevators and areas of rescue assistance |
| | **Multilingual Services for Emergency Communications** |
| ☐ | Emergency information signage in multiple languages |
| ☐ | Pre-recorded emergency messages in foreign languages |
| ☐ | Onsite foreign language interpreters |

*Items flagged by an asterisk are considered “auxiliary aids and services” according to Title III of the ADA. These auxiliary aids and services enable effective communications with people with DAFN.

***Figure 5. Sample checklist for reviewing existing programs.***

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building an accessible emergency communications strategy. A printable version of this checklist also appears in Appendix A.

## Accessibility Self-Assessment

As previously discussed, the DAFN advisory group will be the best resource for identifying areas for improvement or gaps in accessibility services for people with DAFN. Airports should invite planning partners from the airport and the surrounding community. Participants may include airport emergency managers and ADA compliance staff; airport employees with DAFN; representatives from community advocacy and non-profit organizations representing people with DAFN in their community; and city, county, or state ADA coordinators. State and local agencies that serve people with DAFN (e.g., through centers for independent living, divisions that focus on services for people with developmental disabilities and people who are deaf or hard of hearing, or commissions or councils for people with blindness or visual impairments) also may be willing to participate.

After the inventory process has been completed, the DAFN advisory group should conduct a walkthrough of the facility to determine accessibility needs. The group leader who facilitates the walkthrough—ideally a member of emergency management staff or an ADA coordinator—should have knowledge of the ADA and knowledge of accommodations for people with DAFN. The amount of time required for the walkthrough will depend on the complexity and size of the airport, as well as the time commitment available from group members. The walkthrough can be conducted during normal business hours.

During the walkthrough, the group leader should take the DAFN advisory group through the various areas of the airport—including, at a minimum, curbside, ticketing, security, concourse, terminal, baggage claim, and gate areas. At each location, the group leader should propose an incident scenario that represents a possible real-life emergency in the airport and ask the DAFN advisory group to discuss the following questions:

- How would you expect to receive notification that an emergency has occurred?
- How would you expect to receive information about what actions should be taken (e.g., evacuation, shelter in place)?
- Where else would you look for information (e.g., social media, airport staff, and fellow passengers)?
- What would you do if you suspected there was an emergency (e.g., heard shots fired) but did not receive notification of an emergency?

The advisory group's responses to these questions can help identify modes of communication that are available at each location and gaps or areas for improvement to support emergency messaging. Vignettes presenting sample emergency scenarios that can be used during the walkthrough are included in Appendix J. The next section of this chapter discusses the Accessibility Walkthrough Worksheet, a tool that can be helpful in documenting the group's findings and in developing an overall evaluation of the airport's current capabilities.

### Accessibility Walkthrough Worksheet: Overview

The purpose of the accessibility walkthrough is to identify the current emergency communication capabilities of the airport and identify opportunities to make emergency messaging more accessible to people with DAFN. Figure 6 presents a three-section Accessibility Walkthrough Worksheet that can be used as a guide to conduct the assessment and record observations. This tool was developed in accordance with ADA requirements and recommendations as

**Accessibility Walkthrough Worksheet**

**Section 1: Visual Assessment** **Location:** _____ **Date:** _____

| Visual Assessment | Signage | Monitors/ Displays | Electronic Notice Boards | Visual Paging System | Mobile Applications (specify) | Video Remote Interpreting | Captioned Phones | Other: |
|---|---|---|---|---|---|---|---|---|
| Is this mode available at this location? | | | | | | | | |
| Is this mode used for emergency communications? | | | | | | | | |
| If no, can this mode be used for emergency communications? | | | | | | | | |
| Are messages provided in languages other than English? | | | | | | | | |
| If no, can messages be provided in languages other than English? | | | | | | | | |
| Are messages provided in ASL? | | | | | | | | |
| If no, can messages be provided in ASL? | | | | | | | | |
| Are messages conveyed through graphics or icons? | | | | | | | | |
| If no, can messages use graphics or icons? | | | | | | | | |
| Does this mode support display of messages via video? | | | | | | | | |
| If no, can messages be displayed via video? | | | | | | | | |
| Are there physical barriers that obstruct the line of sight? | | | | | | | | |
| If yes, would the movement/adjustment of this mode improve lines of sight? | | | | | | | | |
| Is this mode used to disseminate pre-scripted messages? | | | | | | | | |
| If no, can pre-scripted messages be used? | | | | | | | | |
| **ACCESSIBILITY RATING (1, 2, 3, or 4)** | | | | | | | | |
| **Notes:** | | | | | | | | |

**Accessibility Walkthrough Worksheet**

**Section 2: Audio Assessment** **Location:** _____ **Date:** _____

| Audio Assessment | Public Address System | Direct-Line Telephones | Over-the-Phone Translation Services | Induction Loop | Alarms | Megaphone | Other: |
|---|---|---|---|---|---|---|---|
| Is this mode available at this location? | | | | | | | |
| Is this mode used for emergency communications? | | | | | | | |
| If no, can this mode be used for emergency communications? | | | | | | | |
| Are messages provided in languages other than English? | | | | | | | |
| If no, can messages be provided in languages other than English? | | | | | | | |
| Is this mode used to disseminate pre-recorded messages? | | | | | | | |
| If no, can pre-recorded messages be used? | | | | | | | |
| **ACCESSIBILITY RATING (1, 2, 3, or 4)** | | | | | | | |
| **Notes** | | | | | | | |

*..... (This worksheet page allows additional space for notes.) .....*

***Figure 6. Accessibility Walkthrough Worksheet.***

*(continued on next page)*

**Accessibility Walkthrough Worksheet**

**Section 3: Human-to-Human Assessment** **Location:** _____ **Date:** _____

| Human-to-Human Assessment | Information Desk | Volunteer Customer Assistance | Wheelchair Service Provider | ASL Interpreter | Foreign Language Translator | Other: |
|---|---|---|---|---|---|---|
| Is this resource available at this location? | | | | | | |
| Does this person have a unique identifier (e.g., ID badge, colored vest/hats) for easy identification? | | | | | | |
| If no, would distinguishing this person help? | | | | | | |
| Does this person disseminate information in the event of an emergency? | | | | | | |
| If yes, is this person trained on communications protocols and messaging? | | | | | | |
| If yes, is this person trained on assisting people with DAFN? | | | | | | |
| If no, could this person disseminate information in the event of an emergency? | | | | | | |
| Are members of this group identified as having non-English language capabilities? | | | | | | |
| If yes, does this person have a unique identifier (e.g., button/sticker) for easy identification? | | | | | | |
| Are passengers notified that these individuals are available to assist (e.g., via website, signage, etc.)? | | | | | | |
| Is there signage offering their services in this location? | | | | | | |
| Do these individuals assist with wayfinding? | | | | | | |
| Are they trained on tools and strategies to assist people with DAFN with wayfinding? | | | | | | |
| Are there individuals in this group that represent people with DAFN? | | | | | | |
| Would it be helpful to include representatives of people with DAFN at this location? | | | | | | |
| **ACCESSIBILITY RATING (1, 2, 3, or 4)** | | | | | | |

..... *(This worksheet allows another page for notes.)* .....

***Figure 6. (Continued).***

described in the U.S. Department of Justice's *ADA Requirements: Effective Communication* bulletin. A full-size, printable version of this worksheet is available in Appendix B.

The assessment should be conducted by the airport's DAFN advisory group, ADA coordinator, and/or emergency management staff. The walkthrough can be conducted in the following areas of the airport: curbside, ticketing, security, concourse, terminal, gate, baggage claim, and staff office areas. One copy of the worksheet will be required for each location. At each location, one member of the assessment team should be responsible for filling out the worksheet and recording the group's answers to each question in the worksheet.

Based on the group's observations, an accessibility rating should be assigned to each communication mode or resource. The accessibility rating should indicate how well each mode or resource meets the needs of people with DAFN based on its **current condition, location, and use.** The group should take into account whether the current technique and/or system is simple, intuitive, and appropriate in terms of size and space. Modes of communication that receive a low accessibility rating should be evaluated to identify potential improvements that will increase accessibility. Modes of communication that the group identifies as helpful to people

with DAFN and that are **not currently present** in certain locations should be evaluated with regard to the feasibility of obtaining or implementing them.

**Accessibility ratings** can be assigned on a scale of one to four, as follows:

1 = Significant barrier(s) to access or understanding for people with DAFN
2 = Potential barrier(s) to access and/or understanding for people with DAFN
3 = Accessible and/or understood by most people with DAFN
4 = Universally accessible to all individuals

## Identify Gaps

The information gathered from the accessibility walkthrough can be used to identify gaps where the airport can improve current techniques or provide additional services. To that end, following the walkthrough, the group leader can facilitate a "debriefing" by posing the following additional questions to the group:

- In your opinion, what are the most significant barriers to providing emergency information to people with DAFN at this airport?
- What have you experienced at other airports that may be helpful for this airport in terms of different services and communication strategies to assist people with DAFN?
- As travelers, what additional experiences have you or your organization identified as challenges for people with DAFN?

The results of the walkthrough and the information gathered in the debriefing can be used to determine the most significant gaps to address in developing an effective, accessible emergency communications strategy. The group leader should prepare a list of key gaps to distribute for validation by the DAFN advisory group. Once the list has been validated, the DAFN advisory group can prioritize the issues and identify appropriate solutions.

CHAPTER 4

# Developing Emergency Communications Strategies That Include People with DAFN

Many communications tools and technologies are used by airports to improve emergency messaging for people with DAFN. Chapter 3 of this guide discussed how DAFN advisory groups could work to identify gaps where such tools and technologies do not meet the needs of the whole community. The next step is to develop an emergency communications strategy by identifying accessibility options that address these identified gaps (see Figure 7).

Each airport will need to evaluate and choose the correct mix of options to address its specific gaps, depending on the resources available for implementation. Technology of all types is susceptible to its dependence on critical infrastructure over which airports may or may not have control, including electricity, audio and video services, and Internet and network connectivity. A key consideration when developing an accessible communications strategy is to identify backup solutions for disseminating critical and potentially lifesaving information when the airport facility is without these services.

Figure 8 lists *core, enhanced,* and *emerging* techniques discussed in this chapter. All airports should incorporate several core techniques as part of an accessible emergency communications strategy. Implementing these core techniques involves leveraging existing technologies and services to be more inclusive of members of the DAFN community. Several of these techniques can be implemented at low or no cost using existing airport resources.

To build an emergency communications strategy that includes people with DAFN, airports first should verify that they currently are providing core strategies. If not, airports should implement them as a top priority. After core strategies have been applied, airports should review enhanced techniques to identify those that fill identified gaps in accommodations to people with DAFN. Enhanced techniques are identified best practices that are currently being successfully applied in airports across the world. Once core and enhanced techniques are in use, airports can explore implementing emerging techniques. Emerging techniques are new and innovative solutions that are becoming more common.

A summary of all techniques and benefits, barriers to implementation, resource requirements, and airports that currently implement the strategy is included in Appendix D. The techniques listed in Figure 8 are described in the next section of this guidebook.

## Core Techniques

### DAFN Advisory Group

Airports that are not currently engaging with a DAFN advisory group should develop one and begin using its expertise to inform emergency management planning, training, and exercise. The disability community employs the motto "Nothing about us without us" to advocate that


***Figure 7. Step 2: Evaluate solutions to fill gaps identified during the needs assessment process.***

planning to meet the needs of people with disabilities should be developed in concert and collaboration with the people who will be affected by the approaches. One of the most useful ways an airport can better understand the needs of these individuals is to establish a DAFN advisory group, composed of airport employees with DAFN who can represent a variety of disabilities and/or functional needs, airport emergency managers, ADA coordinators, and members of local non-profit organizations that represent people with DAFN. The DAFN advisory group can assist in determining appropriate safety measures at the airport. Airports of any size can assemble a DAFN advisory group. These individuals will know the facilities intimately and are invaluable resources to the emergency planning process.

## Visual Paging Systems

A visual paging system supports individuals who are deaf or hard of hearing by displaying transcriptions of audio pages on monitors. It is more effective to display the entire message on monitors than it is to have the message scroll across the bottom of weather screens and/or flight information displays. Many airports position dedicated screens used only for visual paging near

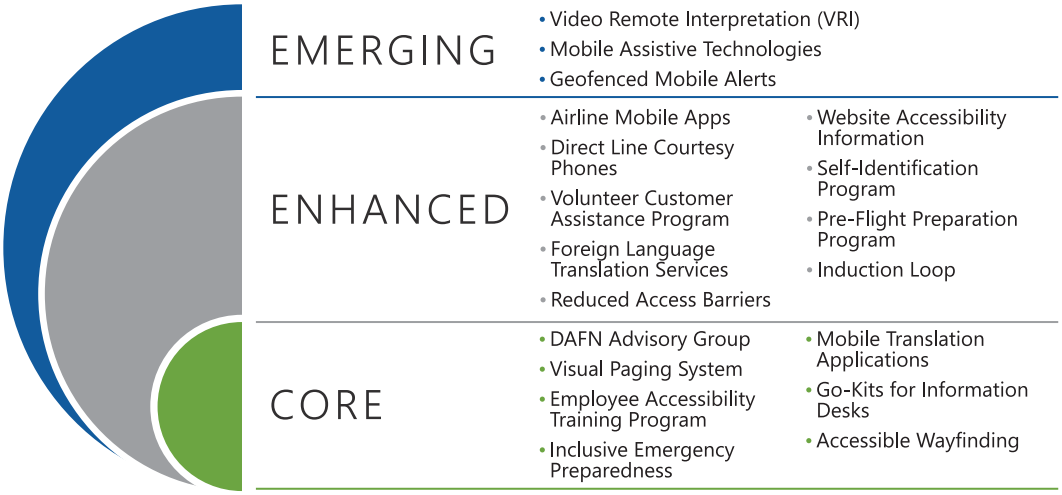


***Figure 8. Core, enhanced, and emerging techniques for accessible emergency communications.***

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**Minneapolis–St. Paul International Airport's Travelers with Disabilities Advisory Committee** has accomplished many initiatives to make the airport's emergency communications more accessible. Highlights include beacon technology using Bluetooth iBeacons (which are superior to a global positioning system [GPS] in indoor settings) to communicate location information to smartphone apps and provide voiceover guidance for people with low or no vision; video relay interpreting; induction loop technology to assist individuals who are deaf with cochlear implants or who are hard of hearing; and improved dynamic (digital) signage.

flight information displays and in other locations throughout the airport. The messages can also be logged in a "paging history" screen located at each airport information booth and posted on the airport's public website.

A key aspect of ensuring that the visual paging system is effective for emergency communications is to ensure that it is linked to and controlled by a central command point with the ability and authority to disseminate emergency messages in a timely fashion. The central command point should determine the timing of messaging, the location or locations where it will be displayed, and the amount of time the message will remain on the monitors. Using pre-scripted emergency messages to expedite the dissemination process as quickly as possible has been noted as a successful best practice.

## Employee Accessibility Training Program

Employees receive training on ADA requirements, often through videos and/or written materials that demonstrate how to accommodate requests for assistance, such as requests for wheelchair services. This training aims to help employees better understand the needs of people with DAFN.

Two additions to this training can enhance staff capabilities for assisting people with DAFN during an emergency. First, a training module could be added that explains what modes of emergency communication will be implemented during an emergency and what populations may need additional assistance in receiving and understanding them. Second, disability equality training (DET) should be delivered to employees and volunteers responsible for customer care.

**Wings for Autism®/Wings for All®**

Many airports have acknowledged the need to increase their ability to assist individuals with autism. Wings for Autism®/Wings for All® is a program that provides airport "rehearsals" designed to alleviate the stress experienced in an airport by children with autism and their families. Administered by The Arc, the program also allows airport, airline, TSA, and other personnel to participate in the rehearsal and is a great way to provide additional accessibility training. The program travels to airports all over the United States, and their schedule is updated on the program website: https://www.thearc.org/wingsforautism.

Focusing on training staff to be sensitive to people with DAFN will help foster an environment of compassion. DET can be developed and/or delivered by airport staff (see Appendix G for sample DET training materials) or provided by an outside organization. The Open Doors Organization, for example, provides DET specifically geared toward airport and airline staff.

### Inclusive Emergency Preparedness

Methods and procedures for communicating emergency information to people with DAFN should be integrated into an airport's emergency preparedness program. Emergency plans, particularly crisis communications plans and emergency operations plans (EOPs) should incorporate processes for disseminating messages through multiple formats that accommodate people with DAFN. Pre-scripted messages can be translated into foreign languages, and ASL interpretation of such messages can be pre-recorded for rapid deployment. Emergency exercises should test communications procedures and incorporate participants with DAFN together with their equipment and service animals. More information about planning, training, and exercising communication techniques is provided in Chapter 5 of this report.

The cruise line Royal Caribbean International uses a comprehensive, inclusive preparedness approach that includes collaboration with an integrated planning committee. This approach creates multiple opportunities for individuals to identify any additional accommodations they might require so that operations can be adjusted to ensure the needs of all passengers are met. The cruise line is continually identifying accessibility approaches by engaging with customers on an ongoing basis. Recent improvements have included creating indoor seated areas for muster drills to accommodate individuals who have mobility challenges, including difficulty standing for longer periods.

### Mobile Translation Applications

International travelers pass through airports every day. The availability of translation services can be limited, and mobile translation applications (apps) can be a simple way to supplement formal interpretation services. Guest services coordinators can install translation apps or bookmark translation websites on tablets or mobile devices as a quick and easy way of ensuring that they can communicate with any guest. Guest services representatives, information booths, and volunteers generally have access to devices with web browsers, and Google Translate™ can be used on any device with network connectivity. Implementation of this technique requires informal training, which can be communicated via email to employees or through printed flyers reminding staff that this simple strategy can offer a quick and easy solution.

In an emergency, individuals with LEP may have a difficult time understanding what is happening or reading emergency messages. Usually, the closest airport employee will be the first person they go to for information. Translation apps can provide an efficient way to inform those individuals of the situation and ensure that they take proper precautions.

### Go-Kits for Information Desks

To supplement use of mobile translation apps, airports can equip information desks with additional tools to support people with DAFN. FEMA has outlined a list of accessibility

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resources for Disaster Recovery Centers that can be adapted to airports (FEMA 2015). The following items can be pre-packaged in a "Go-Kit"—a box or duffle bag at the information desk that is available for both day-to-day operations and under emergency conditions.

- **Signage with universal symbols** for wayfinding and to provide direction for people with LEP or who are deaf or hard of hearing. A copy of the signage representing evacuation can be retrieved by an information desk representative and held up to notify others. Appendix M includes more information about universal symbols.
- A **"Just Ask"** poster that lists types of assistive technology devices and accommodations that are available in the airport. The poster can be placed on information desks, ticket counters, or gate desks at all times to help build all travelers' awareness of available assistance.
- **Materials in braille, large print, and multiple languages,** including pre-scripted emergency messages and evacuation and sheltering procedures.
- A **megaphone** to amplify emergency messages when power, Internet, or cell phone reception is unavailable. The megaphone should be used by authorized staff and in accordance with emergency protocols.
- **Pen and paper or whiteboards and markers** are simple and effective tools to write or draw information. In a one-on-one situation, pen and paper can be used to communicate quickly without speech; also, the traveler can take the paper with them for reference after leaving the information desk, ticket counter, or gate desk. Whiteboards or flipcharts can be moved to appropriate locations quickly and can be updated to reflect changing information. A whiteboard can be particularly useful during a power outage or when other communications infrastructure is unavailable.

## Accessible Wayfinding

The importance of getting around at the airport safely and quickly cannot be overstated. Clear, multi-formatted, and dynamic wayfinding information becomes much more important in an emergency. ADA guidelines for wayfinding signage recommend the following:

- Positioning signs perpendicular to paths of travel
- Using raised and braille characters and pictorial symbols
- Using signage with sufficient color contrast and size

The most effective readability is achieved by using light-colored characters or symbols on a dark background (U.S. Department of Justice 2007). Figure 9 provides an example of a facility communications-via-signage color-coding scheme.

Although wayfinding is most often helpful for day-to-day airport operations, effective wayfinding techniques can be crucial in an emergency. People with DAFN will need to comprehend available wayfinding resources that communicate emergency information quickly and efficiently. Making this possible includes providing easily understood signage and messaging


*Source: Airport Sign Standard Manual*, The Port Authority of New York & New Jersey

***Figure 9. Color-coded signing system at JFK (Harding et al. 2017).***

for evacuation paths, safe areas, and exits. Best practice strategies for accessible wayfinding include:

- Low-level signage and maps
- Color-coded exit pathways and exit doors
- Glow-in-the-dark signs and lines on floors showing the evacuation routes
- Evacuation and exit signage displayed in accessible formats (e.g., braille, tactile characters, large print, and multiple languages

The use of standard and consistent coloring and icons throughout the facility is suggested (see Appendix M).

Airport personnel play an important role in helping individuals who may need wayfinding assistance during an emergency. Instilling the mentality that "everyone is a first responder" can encourage staff to stay aware of their surroundings and look for those who may appear to need help following emergency instructions. Training activities can help airport employees to better understand how to respectfully offer assistance to people with DAFN (see Appendix G).

## Enhanced Techniques

### Airline Mobile Applications

Many travelers, especially frequent travelers, now use airline mobile applications throughout their journeys and are accustomed to receiving notifications through them. Using existing airline mobile applications as a method to disseminate emergency communications allows airports an additional means of outreach while keeping operating costs low. Integration of emergency communications into an airline's mobile application requires that the airport execute an agreement with the airline to share its emergency notifications through an application-programming interface (API) or other networked solution. Through this arrangement, each airline operating at a specific airport would receive the emergency communication and could distribute it through its proprietary application.

### Direct-Line Courtesy Phones

Many airports locate direct-line telephones strategically throughout their terminals. The direct-line telephones connect directly to airport information booths or customer service representatives. When a traveler picks up the phone the connection is immediate; moreover, the caller can immediately be located within the airport, and assistance can be dispatched to the exact location. Having each phone identifiable by its location is a crucial feature of the system because a person using the phone to report an emergency may not be able to identify his/her location. If the phones are tied to specific locations, airport staff can relay the correct location of the caller to first responders. People accepting calls from direct-line telephones should be knowledgeable about the layout of the facility, emergency procedures, and accessibility services offered so they are prepared to give accurate emergency information during an incident. To improve accessibility to all users, these phones should be hearing aid compatible and volume controlled to allow amplification. People accepting the calls should be able and prepared to connect callers with LEP to appropriate translation services.

### Volunteer Customer Assistance Program

In addition to providing airport, airline, and tourism information, traveler assistance program volunteers can be trained to provide accessibility services during emergencies. Because

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Minneapolis–St. Paul International Airport (MSP) is home to the **Travelers Assistance Program**, sponsored by the non-profit MSP Airport Foundation group. This program uses more than 400 volunteers for a variety of projects throughout the airport, including the MSP Animal Ambassadors (registered therapy canine teams), MSP Navigators (who provide customer assistance in areas outside of security), and Service Specialists (who are located in Terminal 1 and Terminal 2).

such volunteers are placed throughout the facility, they are well positioned to provide help to individuals who may need assistance in understanding emergency communications. Some volunteers may have foreign language proficiency or be able to provide ASL interpreting services, and those volunteers can be identified with a sticker or button to inform travelers of their skills. Volunteers can also be encouraged to identify senior passengers or people with DAFN during an emergency and offer to help them. Most volunteers will be carrying cell phones, which can be used to easily translate or type messages. Keeping a small notepad or loose paper and pens handy also can help volunteers to communicate with people who are deaf or hard of hearing.

## Foreign Language Translation Services

Communicating with people with LEP is a constant challenge for airports where international travelers pass through on a daily basis. Recorded public announcements often include translations that correspond to the demographics of airport personnel and the surrounding service areas, and written information for wayfinding often can be provided in several languages. Many airports employ staff who speak two or more languages and who can provide interpretation services when possible. This resource can be leveraged in emergencies to provide assistance for evacuations and ongoing incident information.

Some airports also may provide a phone or video-interpretation service at the airport information desks or other centralized locations that allow public access to phones and/or computers. These services are used to connect a traveler with a bilingual or multilingual individual who will act as an interpreter. These services also may be available on a mobile platform.

During an emergency, pre-recorded translation messages can be disseminated easily through the PA system. Efficient use of this technique requires proficient translators and audio and/or video production capabilities.

## Reducing Barriers to Access

A simple improvement to transmitting emergency communications to people with DAFN is to reduce, to the extent possible, some of the impediments to viewing, hearing, or comprehending the messages. Strategies to reduce access barriers include the following:

- **Monitors** can be placed at eye level, allowing people using wheelchairs to see this information at a better viewing angle and allowing people with low vision to read the screen at very close range. Ensuring proper color contrast for text improves clarity for all passengers and is especially important for passengers with low vision or color blindness.
- **Clear visual information** also is crucial for people who cannot hear spoken announcements. Incorporating universal design features gives everyone the opportunity to navigate a terminal independently when they might otherwise require assistance.

- **Alarms** that notify occupants of an emergency using both visual and audible formats help convey the urgency of the situation in multiple ways.
- **Accessible exit signs,** provided in a clear and simple format (that includes tactile and braille components) helps ensure that wayfinding information can lead people to suitable exits.

## Website Accessibility Information

Websites offer one of the most important methods an airport can use to convey information. For the benefit of all passengers, information about the accessible features of the airport—including maps and instructions, when possible—should be made available on airport websites. Websites should be made accessible to people with disabilities through the application of Section 508 of the Rehabilitation Act of 1973 (updates of which went into effect on January 18, 2018), in coordination with the voluntary WCAG 2.0 standards of the World Wide Web Consortium (W3C) and the ICT Standards of the European Commission. The U.S. Department of Health and Human Services provides a checklist to evaluate a website's compliance with Section 508 standards. The checklist can be found online at https://www.hhs.gov/web/section-508/making-files-accessible/checklist/html/index.html.

### Manchester Airport (MAG) Special Assistance Webpage

MAG has created a webpage dedicated to providing information about the airport's special assistance services and technologies. The webpage includes descriptions and instructions for requesting assistance, including transportation (e.g., parking, accessible bus services), wheelchairs, security, location of changing places (equipped with hoist system and mobile hydraulic height adjustable changing bench), assistance dogs, and "hidden disabilities" lanyards. The airport also has worked in collaboration with DisabledGo to create a detailed guide for each area of the airport to describe the accessibility features and assist people with DAFN on how to navigate the facilities. This type of webpage provides valuable information that reduce barriers to access during day-to-day operations, and can also feature information on how emergency information will be communicated in accessible formats for people with DAFN.

Airport websites also can be used to connect travelers to emergency alert "Opt-In" programs. Many airlines send digital "Know Before You Go" documents to their travelers in the days before they travel using links to the facility's website. Some airlines also call travelers ahead of time to ask if assistance will be needed for their trip. Along with standard discussions of luggage restrictions, traveling with animals, liquids, flammables, and so forth, these messages can include embedded links that enable travelers to opt in to receive the airport's emergency messages via text or email alerts. If there is an airport incident, travelers who have opted in will be given immediate instructions with precise actions to execute.

## Self-Identification Programs

If someone chooses to self-identify as a person with a DAFN, airports should be prepared to provide accommodations to that individual during an emergency. In practice, this preparation may involve pre-arranged accommodations, such as reserved wheelchair access. Many airports also provide lanyards, stickers, or brightly colored bracelets to individuals who self-identify.

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**Self-Identification**

At Los Angeles International Airport (LAX), the self-identification program instituted by Los Angeles World Airports (LAWA) allows people with autism to share that information to help airport staff better understand and consider the challenges they face in an airport environment. The self-identification program is the result of input received from families who expressed a fear of flying with their family members with autism. They were concerned that loved ones with autism might become confused in an airport environment, creating outbursts that could result in a negative security response. In actuality, the person may only be trying to communicate or may be reacting to the stress of an unfamiliar environment.

Participants in this free program receive autism self-identification stickers from the ticket desks of participating airlines. One sticker is placed on the upper left chest and one sticker is placed on the upper right back, so that the person with autism can be easily identified at a distance by responding airline or law enforcement personnel. Airline personnel and law enforcement agents are trained to recognize people wearing these stickers as someone with autism. While this program was not created specifically for emergency situations, having this program in place during emergencies would allow airport personnel and law enforcement to better serve these passengers during an emergency.

These items function as signals, helping airport employees quickly recognize individuals who have self-identified as people with DAFN and who may need assistance in case of emergency.

## Pre-Flight Preparation Programs

From fire and security alarms to emergency medical service (EMS) responses to radio or television "emergency warning system" tests, many emergency communications systems have relied on loud sounds, sometimes paired with flashing lights, to attract attention. These familiar techniques are useful for many people, but they are not universally effective. An important consideration when communicating with people with autism or sensory processing disorders is they can be easily overwhelmed by loud noises and flashing lights. This may cause them to freeze or become unresponsive to emergency notifications of any type. When designing emergency communications systems, airports must work collaboratively and deliberately with their communities to consider a wide range of needs. Some airports may encourage travelers with sensory disorders to wear headphones to avoid an adverse response to alarms and loud noises.

## Induction Loops

Induction loop technology is an existing technology that has been used successfully in other settings for many years. For people who are deaf with cochlear implants or hard of hearing, induction and/or hearing loops can increase listening comprehension and safety while maintaining independence and privacy. Induction loops send an audio signal to activated telecoils (t-coils) already present in existing hearing aids. Hearing loop technology is widely regarded as the most effective, user-friendly, universal, and cost-effective assistive listening technology.

**Helping People with DAFN Prepare for Flights**

Travelers passing through the Montréal–Pierre Elliott Trudeau International Airport (YUL) can use the Airport Wayfinder™ to make a virtual visit to the airport in advance of travel to know what passenger services are available. This is an Internet-based service that offers virtual tours of airport terminals. It provides information on such topics as departure, arrival, security, customs, immigration procedures, and directions when making connections.

Saint John Airport (YSJ), in collaboration with the local chapter of the Canadian National Institute for the Blind, invites people to bring their guide dogs to the airport to familiarize them with the environment before they come to the airport to travel. The guided tour begins at the curb and continues through the check-in process right to the aircraft, as well as any other location within the airport terminal that travelers with guide dogs may wish to visit.

With as many as one in six people experiencing some form of hearing loss, this technology could benefit a great number of individuals. Current research indicates that nine U.S. airports are using loop systems, and several are in the process of proposing or planning to install a system.

A loop system can be used to assist individuals who are deaf or hard of hearing to receive emergency communications from the PA system. Turning the PA system to the "T" mode turns off the microphone that ordinarily picks up the surrounding ambient noise. The electromagnetic field of the loop system picks up the audio message from the PA system and directs the loop signal to the t-coils that are part of the internal mechanism of users' hearing aids or cochlear implants. In effect, the loop creates a customized signal that is consistent with the programming of the individual's hearing aid or implant. Because the loop's electromagnetic field creates a powerful signal with a larger signal-to-noise ratio, the clarity of the announcement

**Gerald R. Ford International Airport (GRR) Induction Loop Technology**

GRR uses induction loop technology to provide messages to patrons using compatible assistive hearing devices. This technology is available in the public areas of the main terminal Grand Hall and in Concourses A and B. The induction loop technology broadcasts messages from the airport's PA system directly into the hearing aid, thus greatly reducing interference from background noises and other competing sounds. Messages can be focused to a certain gate or to the entire Grand Hall and two concourses. Although not all hearing aids can receive messages through induction loop technology, the majority of hearing aids now have the telecoils (t-coils) required to receive the messaging, and all cochlear implants are able to receive the messaging. Other airports with loop systems include Kalamazoo/Battle Creek International Airport (AZO), South Bend International Airport (SBN), Hartsfield–Jackson Atlanta International Airport (ATL), Detroit Metropolitan Wayne County Airport (DTW), Phoenix Sky Harbor International Airport (PHX), Minneapolis–St. Paul International Airport (MSP), Austin-Bergstrom International Airport (AUS), and Greater Rochester International Airport (ROC).

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also is improved in comparison to what a hearing aid could normally provide. The technology for the type of loop systems used for PA announcements can be placed in the ceiling or below floor coverings.

*Counter loops* also are useful at airport point-of-service counters (e.g., at gates, ticket counters, information desks, and so forth). Counter loops facilitate one-to-one communications with people who are standing at the counter but whose hearing aids or implants will not pick up announcements made using the PA system.

Induction loop technology requires highly specialized equipment and knowledge to implement, especially if multiple loops will be used in the same facility. Although off-the-shelf technology exists, it is specific to equipment types and uses, and installation of a system or retrofitting an existing facility to include loop technology should be undertaken by professionals experienced in designing and installing these systems in an airport setting. Airports that have this technology should incorporate its application into emergency plans, training, and exercises to ensure that the technology is integrated into the airport's emergency communications strategy.

## Emerging Techniques

### Video Remote Interpreting

Video remote interpreting (VRI) assists travelers who are deaf or hard of hearing by using devices, such as web cameras or videophones, to provide real-time sign language interpreting services on computer tablets and other devices at information desks and customer service desks. VRI services require equipment (e.g., tablets or computers) with Internet access and webcams. Although most information desks can be equipped to have this capability, on-demand VRI during an emergency may not be as quickly accessible as needed. The timely use of VRI requires both that these resources be available and that travelers who are deaf or hard of hearing know where to locate them. Outreach often is needed to inform passengers of this service.

VRI is identified as an auxiliary aid or service under ADA requirements. In fulfillment of ADA guidelines, the VRI must provide real-time, full-motion video and audio over a dedicated high-speed, wide-bandwidth video connection or wireless connection that does not produce lags; choppy, blurry, or grainy images; or irregular pauses. The size of the monitor must allow the face, arms, hands, and fingers of both the interpreter and the user to be displayed. The system must transmit clear, audible voices, and airport staff must be trained to ensure a quick set-up and proper operation of the equipment.

As a complement or alternative to VRI, pre-recorded sign language interpretation can be displayed on screens throughout the airport during an emergency. Scripted messages can be pre-recorded by trained and certified ASL interpreters and subsequently played on screens concurrently with recorded audio messages or warnings. This strategy is relatively easy to implement because it simply requires the translation of a message that is already prepared. Preparing the pre-recorded interpretation will require access to a trained and certified ASL interpreter and video production capabilities. The DAFN advisory group may be able to identify a qualified ASL interpreter, and many large airports have access to video production resources or are able to source them from local vendors. Disseminating the message during an emergency requires a priority interrupt system to override the standard signal to the screen.

Because it is limited to a pre-defined set of messages, pre-recorded sign language interpretation may not meet the communications needs of people who are deaf or hard of hearing during a highly fluid situation or one where standard instructions are not appropriate. Moreover, like many other communications techniques, the ability to play pre-recorded messages

depends on access to electrical power and functioning technology, which may be outside the control of the message originator or unavailable during an emergency.

## Mobile Assistive Technologies

Mobile assistive technologies are becoming ubiquitous in daily life, as is evidenced by the increased use of smart speakers and smartphone virtual assistants. Assistive technologies, which perform tasks or services in real time, can be installed on computers and mobile devices to enhance visual, verbal, and virtual communications in ways that support people with DAFN. Smartphone apps are the most common application of assistive technologies and allow for people with DAFN to navigate and communicate in unfamiliar environments, such as airports. These technologies can be used both in daily life and to provide real-time communications for people with DAFN during an emergency. Implementation of assistive technologies generally occurs at the user level; however, airports can provide assistive technology equipment and/or services to travelers, or can distribute information on assistive technologies that may enhance customer satisfaction in the airport.

Smartphone apps exist that can support people who are deaf or hard of hearing by using the microphone in the phone to alert the user of distress or even to alert family members or emergency services. More comprehensive services also are available that can notify users through digital signage, desktop computer (e.g., PC) alert messaging, audio/visual public announcements, short message service (SMS) alerts, voice over Internet protocol (VoIP), automated telephony, smart LED signaling, panic buttons, and so forth. Several software options can provide real-time transcription of conversations in multiple languages.

Many visual assistive technologies use text-to-speech capabilities for reading incoming texts or messages. Some smartphones can be modified to improve communication through touch and sound as opposed to visual information. Other tools, such as video-equipped smart glasses, can be used in conjunction with a smartphone app to connect individuals who are blind with trained professional guides. Camera-based smartphone apps also can provide guide services

**Aira Airport Network**

Aira is a company that offers subscription-based services that connect people who are blind or visually impaired with trained agents via smartphone apps and/or proprietary smart glasses. Once connected, the agents assist the users (called "Explorers") with specific tasks.

Agreements executed between participating airports and Aira allow users (including non-subscribers) to access features of the service at no charge while they are in the airport. For example, users connected to the Aira Airport Network may enlist the remote agents to help guide them through the airport, obtain flight information, navigate security, use self-service kiosks, or execute other tasks.

Any airport can join the Aira Airport Network. Current members include the Memphis International Airport (MEM), Minneapolis–St. Paul International Airport (MSP), George Bush Intercontinental Airport (IAH), William P. Hobby Airport (HOU), Denver International Airport (DEN), and Seattle-Tacoma International Airport (SEA).

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that connect users to volunteer guides. Some wearable devices can convert visual information into speech, and some devices can translate eye movements into verbal communication.

Specific assistive technologies with capabilities to enhance emergency communications for people with DAFN are listed in Appendix E.

## Geofenced Mobile Alerts

*Geofencing* is the practice of using GPS, radio frequency identification, Wi-Fi, or cellular data of a mobile device to define a geographic virtual boundary. An app or software can be preprogrammed to trigger an action when a mobile device enters or exits the geofenced area.

Two primary systems are designed for geofenced mobile alerts and SMS alerts: *Push* and *Opt-In.* Push alerts are executed through the national Integrated Public Alert and Warning System (IPAWS), which pushes emergency communications out to every phone that is capable of receiving them within the geofenced area. Opt-In alerting consists of a database of contacts maintained by the airport through a software-as-a-service (SaaS) vendor. Several vendors currently offer Opt-In service, and most allow for self-registration by end users (e.g., passengers). Registration—even on a temporary basis—can be achieved via the opt-in process used to allow airport users access to the facility's Wi-Fi system. Some vendors also offer two-party verification on geofenced emergency alert messaging to ensure message validation and clarity.

## Push Alerts (IPAWS)

Because this technology is an element of the federal IPAWS, individual airports do not have the ability to change the design of this system. The airport must access it through the same portal as every other user, and messages must maintain commonality with other alerts in terms of length and format. Once an airport has received local or state government authorization to use the system, no further implementation steps are required except to maintain proficiency in the use of the system. The system has been fully implemented across the United States by FEMA.

Because IPAWS is federally funded and operated, there are no specific charges for airports to use IPAWS for emergency communications. It is also a familiar method by which people receive emergency notifications, so most people will be accustomed to it.

In relation to emergency communications with people with disabilities and others with access or functional needs (DAFN), geofenced mobile or SMS alerts issued through IPAWS have some significant limitations. The most obvious limitation is that receiving the messages requires the use of mobile phones. People who do not have a mobile phone, whose phones are not capable of receiving these alerts, or whose phones have limited functionality for people with DAFN will be unable to receive emergency messaging through this system.

IPAWS also limits the size of messages and prohibits the inclusion of URLs in messages. The current limit is set at 90 characters. These restrictions prevent an airport facility from using IPAWS to direct alert recipients to an incident-specific website or social media page for further information. Unlike some other technologies included in this section, IPAWS does not provide a confirmation method to ensure that the message has been delivered. Some users also have noted that the system makes it easy to disseminate initial messages, but it can be challenging to stop or update the messages. IPAWS also has limited functionality when trying to send emergency communications to people who do not speak English.

### Opt-In Mobile and SMS Alerts

To use Opt-In geofenced mobile and SMS alerts, an airport must contract with a SaaS vendor that can provide a platform from which the alerts can be issued. The airport must work collaboratively with the vendor to optimize the system for their needs. This type of system also can be integrated into the daily operations of the airport and used for communication with staff, assisting with filling shifts, sending out urgent alerts to staff that passengers do not need (e.g., alerts about a ground stop due to lightning), and replacing traditional phone trees or fan-out lists.

Many SaaS vendors also include the ability to perform status checks on employees after an incident that affects the area but not the airport directly. The majority of SaaS vendors that provide Opt-In alert services also have a mechanism for self-registration that can empower employees to maintain their own information and select how they want to be contacted by this system. This flexibility could also allow passengers to register on a temporary (for transient passengers) or permanent (for regular passengers) basis.

Implementation of this technology would require an airport to establish a hierarchy of alerts that can be customized to specific groups. Opt-In systems also require that recipients agree to receive the communications. Consequently, effective implementation would require some degree of media and awareness efforts to make sure that the public is aware of the system and how to register for it. Both administrators and agents would need training to be able to send messages. Finally, templates for standard messages would need to be created, maintained, and updated as needed to ensure timely and accurate notifications throughout an incident.

## Technique Evaluation

The options for adding services or techniques may seem overwhelming, but it is likely that many techniques already are in use. Once the DAFN advisory group has identified key gaps that need to be filled, the next step is to identify which potential strategies can fill those gaps to improve airport communication capabilities.

ADA coordinators and emergency management staff should start by identifying the strategies that address the needs identified by the DAFN advisory group. The process of evaluating solutions will depend on multiple factors—mainly resources, including time, staff, and funding. It is suggested that ADA coordinators and emergency management staff gain an understanding of the resources available—and required—to implement these solutions. A general range of resource requirements is provided in Appendix D. It is important to note that the resource requirements to implement these strategies may depend on factors that are unique to each airport, including airport size, existing systems and equipment, and existing staffing and staff capabilities.

Once the ADA coordinator and emergency management staff have identified realistic potential solutions, they should circulate the proposal to members of the DAFN advisory group for feedback and verification. It also may be useful to provide advisory group members with the strategies detailed in Appendix D so they can see a variety of techniques in addition to the ones identified as promising.

Having reached consensus with the DAFN advisory group regarding which strategies to implement, the ADA coordinator and emergency management staff will need to outline an implementation plan. The worksheet shown in Figure 10 can be used to document the process

| Strategy | Gap Addressed/ Population Served | Steps for Implementation | Responsible Party | Timeline | Estimated Cost | Funding Source | Priority |
|---|---|---|---|---|---|---|---|
| ***Sample*** *Mobile Translation Applications* | *Lack of translation tools in international terminal* | • *Place bookmark to Google Translate™ on home screen of all volunteer tablets*<br>• *Include use of online translation in Volunteer Orientation presentation*<br>• *Include use of online translation tools in Volunteer Orientation packet* | Guest Services | 2 weeks | N/A | N/A | N/A |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

***Figure 10. Preparing an implementation plan to address accessibility gaps.***

steps for implementing new or enhanced strategies for accessible communications. A printable version of this worksheet is provided in Appendix B.

## Common Challenges to Implementation

Limited staff and limited funding are the most commonly cited barriers to implementation of new communications strategies. Nonetheless, many airports express interest in learning more and engaging more successfully to meet the emergency communication needs of people with DAFN. Even with limited resources, conducting the needs assessment and implementing the core strategies presented in this report will provide significant value in better understanding and accommodating the needs of people with DAFN.

Most airports assign ADA compliance responsibilities to specific staff, but this role often is assigned in addition to other responsibilities. Among the airports interviewed for this project, ADA responsibilities were assigned to positions in the following departments:

- Airside operations and communications
- Emergency management
- HR
- Department of transportation (DOT) compliance and small claims.

Many of these individuals conduct ADA compliance in addition to their main job functions, and a good portion have responsibilities that cross over to emergency management. As reported by interviewees, the overall focus of these roles is on compliance, complaint resolution, minimization of liability, and avoidance of "bad press." Understandably, given

their multiple responsibilities and regulatory requirements, these individuals have limited time—which is why a DAFN advisory group can be a cost-effective resource for providing information and implementation support to enhance accessibility within the airport.

Many airports interviewed for this study reported that they receive few complaints related to providing services for people with DAFN, and this may inhibit the ability to gain buy-in from administration to make investments in the cause. Most interview respondents expressed institutional or organizational interest in including people with DAFN in DAFN advisory groups for the purposes of drawing on the associated experience and expertise of these populations, but the lack of documented historical incidents where problems and challenges were reported tends to minimize the importance of prioritizing such inclusion when it comes to planning. It is difficult to determine whether the lack of reported complaints provides a true reflection of individuals' experiences, results from under-reporting, or simply reflects complacency about inadequate services. This lack of clarity makes the support of a DAFN advisory group critical in making the case to airport administrations that sufficient attention and investment are needed in this area.

CHAPTER 5

# Incorporating the Strategies into an Emergency Preparedness Program

To ensure that accessible communications strategies will meet the needs of the intended users during an emergency, the strategies the airport has chosen to implement must be incorporated into the airport's existing emergency preparedness programs (see Figure 11). Specifically, this involves integrating the new strategies into existing emergency plans, operational training, and emergency exercises:

- **Emergency plans** like the airport's Emergency Operations Plan (EOP) can be updated, or new CONOPs or Functional Annex documents can be developed that describe the airport's strategies, policies, and processes for disseminating emergency communications in accessible formats.
- **Training** (including accessibility training) must be provided as operational training for both the individuals who are responsible for disseminating messaging and the airport employees who will support emergency communications for people with DAFN in real time.
- **Emergency exercises** can be expanded to test the airport's policies and processes for supporting people with DAFN in all aspects of assistance, including emergency communications.

## Emergency Planning

Equipment and technology are key aspects to enhancing the accessibility of communication during an emergency. However, preparedness measures, such as planning, training, and exercises, are critical to ensure the airport uses the equipment and technology effectively.

### Revision of Existing Plans

According to FAA Advisory A/C 150/5200-31C, airport emergency plans (AEPs) must address "special needs" populations (sight or hearing, mobility impairments, and unaccompanied children). However, many AEPs do not yet go beyond basic, minimum ADA accessibility standards. Due to changing regulations, facility construction and improvements, and emerging research on technologies and threats, an AEP is a "living document" that must be kept up to date. The required annual plan maintenance schedule offers a regular opportunity for the integration of accessibility content.

Procedures and processes for developing and disseminating emergency notifications may be captured in existing documents that involve notification, messaging, and public information, including AEPs and crisis communications plans. A template for creating a CONOPS for Emergency Communications for People with DAFN is included with this report as Appendix F.

The policies and procedures in existing plans that relate to the dissemination of emergency information through visual methods (e.g., monitors or displays, social media, and so forth) and


***Figure 11. Step 3: Ongoing planning, training, and exercises ensure that accessible emergency communications strategies are relevant, accurate, and effective.***

**Going Beyond the Basics**

Formulating a robust emergency plan is no small task. For example, the Airport Emergency Plan (AEP) Checklist posted online by FAA's Great Lakes Region Airports Division is 33 pages long, but it mentions "special needs" populations only four times (FAA 2010). Nonetheless, existing emergency plan documents and checklists provide a framework that, with input from the DAFN advisory group, can be expanded to address the needs of people with DAFN.

audio methods (e.g., PA systems) should be updated to include relevant accessibility strategies, such as:

- Foreign translation of audio announcements based on the needs of the airport population/traveling population
- Foreign translation of digital messages pushed out on social media (e.g., Twitter, Facebook, and so forth) and via text messaging
- Dissemination of real-time or pre-recorded audio and video messages in multiple languages
- Development and dissemination of pre-recorded video messages in ASL
- Development and dissemination of pre-recorded video messages using picture boards and/or text with large print
- Development and dissemination of pre-scripted messages in braille that have been placed in strategic locations of the airport
- Adaptations of messages or the development of additional messages that cater to the needs of people with DAFN (see text box below)
- Adaptations of messages or the development of additional messages that are simple enough for children to understand
- Availability and application of specialized technology to assist people with DAFN in accessing communications (e.g., loop technology)

## Effective Emergency Messaging

At many airports, emergency messages are developed in coordination with the public information officer (PIO), the communications office, the external affairs office, the emergency

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**Adapting Messaging for People with DAFN**

Emergency communications designed for people with DAFN must consider the additional challenge of having to account for the varying capabilities of individuals receiving the messages to carry out emergency instructions. Not only is it necessary to use a variety of communications methods that provide instructions in differing ways—it may also be necessary to provide different instructions altogether. For example, the general instruction may be to evacuate a concourse, but the instruction for people who are mobility impaired may be to shelter in place. Emergency communications are highly context-sensitive.

management department, and/or airport administration. Messages can be developed for a variety of audiences and support various emergency functions, including:

- Emergency warnings and notifications for employees
- Emergency notifications for airport occupants, tenants, airlines, and the traveling public
- Protective action instructions for evacuation and sheltering in place
- Evacuation wayfinding
- Social media messaging and website content
- Press releases and/or press conferences

Critical questions for developing effective messaging include the following:

- What is the simplest and most effective text that will convey the message and that includes information about the current situation and actions that need to be taken by the intended audience?
- What airport employee (position title) is responsible for disseminating the message?
- What tools, technologies, or systems are required to transmit the message?
- When will this message be disseminated, and what specific conditions will trigger dissemination of the message?

## Training

Two types of training are crucial for implementing a successful accessible communications response: (1) emergency operations training and (2) disability equality training (DET), which includes disability awareness and sensitivity training (DAST). Operations training ensures that the individuals responsible for carrying out policies and procedures for creating, disseminating, and updating emergency messages in accessible formats know how to fulfill their duties. DET encourages all airport employees to have the skills needed to support people with DAFN in receiving, understanding, and acting on these messages.

### Emergency Operations Training

Once processes and procedures have been written, it is essential to train primary, secondary, and tertiary personnel to know the procedures to follow and activate the correct processes for communicating emergency messages. Training is a crucial element of developing effective emergency response plans and messaging. Industries touted as being more effective in their response to emergencies tend to be those that regularly train and conduct exercise drills with security employees, first responders, and volunteers from the public.

## DET

DET goes beyond the traditional DAST approach, which relies on an outmoded medical model of disability that focuses on the "impairments" or "limitations" of people with disabilities. DET incorporates elements of DAST, but DET is based on the social model of disability that asks people to try to understand how current society and physical infrastructure perpetuates discriminatory practices.

Most airport employees have daily experience interacting with a variety of people with DAFN. However, most of those interactions relate to the transit of people through the airport rather than assisting people with DAFN during emergencies. Every airport employee, including contractors and vendors, plays an important role in an emergency. During an emergency, people with communications needs may not be able to hear verbal announcements, see directional signs to emergency services, or understand messages. If they are well prepared, airport staff can assist the travelers in their immediate area to comply with emergency instructions without jeopardizing their own safety.

Instilling the mentality that "everyone is a first responder" is an essential part of enhancing support to people with DAFN. When airport employees understand how to help, they will feel empowered to take action during an emergency. Appendix G includes an interactive DET empathy activity that can be conducted with employees to help them understand how to interact with people with DAFN to better support them under non-emergency and emergency conditions. When evaluating an airport's internal accessibility awareness training, ADA coordinators and emergency management staff are encouraged to consider integrating the DET activity and other accessibility outreach materials (such as the brochure and poster included in Appendix H) into the existing curricula and materials.

It is also suggested that airports solicit feedback from airlines and airline training providers to identify improvements to wheelchair services in the airport. In the research for this report,

### Awareness and Outreach Materials

Outreach materials can be distributed to airport employees to help build awareness about how to assist people with DAFN. Brochures or flyers can be distributed to employees during orientation, as part of DET training activities, or on a periodic basis. Posters can be hung in staff areas, such as kitchens and break rooms. Sample training outreach materials—notably, a poster and brochure—have been provided included in Appendix H.

Some key points that should be included as part of outreach materials are:

- Treat a person with DAFN as considerately as you would like to be treated.
- Ask the person how he or she prefers to communicate (e.g., through speaking, notes, gestures, pictures, an interpreter, or some other means).
- Look at and speak directly to the person with DAFN.
- Ask the person if he or she would like help.
- Do not make assumptions.

It is also important to remember that individuals may have invisible disabilities that may or may not be worsened during an emergency. These disabilities could include asthma, chronic immune and pain-related conditions (e.g., fibromyalgia) or cardiac conditions.

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respondents mentioned a lack of coordination between air carriers and airports concerning training. Respondents indicated that airlines use established training providers to train their staff on how to accommodate people with DAFN, but that the airline training is not coordinated with the airport's wheelchair or mobility service providers. Several interviewees stated that wheelchair providers are not included in the planning and decision-making processes conducted by airlines. "It is essential to get airlines to understand how important wheelchair providers are as an asset," one respondent stated.

## Exercises

Emergency preparedness, including emergency exercises or drills, are necessary to test how effective communications strategies and accommodations to include people with DAFN would be during an actual emergency incident and to determine ways to improve those services. As part of conducting these exercises, it is critical that airports, airlines, and agencies clearly outline all responsibilities toward passengers. Emergency drills are more realistic when the DAFN community is involved (Smith and Haines 2018).

The DAFN advisory group or committee can help an airport find various ways to integrate communication strategies that include members of the DAFN community into emergency exercises. Some suggestions are:

- Include at least one objective in each exercise that relates to meeting the needs of people with DAFN. (For additional guidance, see Appendix I).

**Valuable Exercise Feedback**

During the research for this report, one airport provided detailed notes from a full-scale emergency exercise that had included one participant who is deaf and another participant who speaks Spanish. The airport has allowed the full document (minus identifying details) to be included as Appendix K.

Following the exercise, the "crash victim" who is deaf reported experiencing a near-total communications breakdown. After the initial encounter with first responders, during which the participant communicated using only sign language, no information regarding this person's communication needs was relayed to subsequent emergency or operations personnel. No one attempted to communicate with this individual after the first encounter, and he was never offered any form of writing instrument, paper, or cell phone to type on or use as a means of communication. The participant expressed concern that if people did not attempt to communicate with him during an exercise, it was likely they would not try during an actual emergency. This participant's experience highlights an example in which use of a very basic technology—pen and paper—would have made a world of difference to effective communications.

For this airport, a major "takeaway" from conducting this full-scale exercise was that it is the *human* element that is especially key to meeting the emergency communications needs of people with DAFN. The exercise reinforced that human engagement and efforts—and effective training to facilitate those efforts—are essential to communicating with people with DAFN during emergencies.

- Include people with DAFN in the exercise or drill to enhance the awareness and understanding of airport staff, regional partners, and first responders with respect to planning considerations for people with DAFN.
- Integrate a variety of accessibility considerations for people with DAFN into the drills, including emergency communications, transportation, mass care, and search and rescue.
- Craft a scenario that includes considerations for people with DAFN. (For examples, see the vignettes included in Appendix J).
- Encourage relevant airport staff to participate in emergency exercises for the county or surrounding cities to take advantage of additional opportunities to test accessible communication systems and processes.

Exercises and drills provide helpful information about areas for improvement in accommodations for people with DAFN. Conducting exercises to test how well the airport's emergency strategies include people with DAFN is an effective way to avoid issues during an actual incident.

CHAPTER 6

# Conclusions and Recommendations

During an emergency, communications must be received, understood, and acted on by the whole community, including people with disabilities, people with access and functional needs, and people with limited English proficiency (DAFN). Airports must develop and implement a communications strategy that reaches as broad an audience as possible through visual, audio, and human-to-human methods. By focusing on improving universal design, airports can provide emergency communications for everyone, regardless of cognitive, physical, sociocultural, or other characteristics.

By taking three actionable steps, airports can build a comprehensive emergency communications strategy that considers the needs of people with DAFN (see Figure 12).

1. **Conduct a self-assessment to identify the airport's emergency communication needs.** An inventory of the airport's current communication capabilities and consultations with a DAFN advisory group can identify gaps where improvements should be made. Establishing a DAFN advisory group is a key tool for ensuring the emergency communication needs of people with DAFN are met.
2. **Develop the communications strategy to ensure that it includes core techniques for communicating with people with DAFN.** Once "core" techniques have been applied, airports are encouraged to review "enhanced" and "emerging" techniques to fill identified gaps and develop a more comprehensive strategy.
3. **Incorporate accessible communications strategies into the airport's emergency preparedness program.** Procedures and guidelines that ensure communications methods are accessible to people with DAFN should be included in emergency plans. Training and exercises should be used to ensure proper implementation during an emergency.

The following actions can lay the foundation for an effective emergency communications strategy:

- **Establish a DAFN advisory group.** Airports are encouraged to develop working partnerships with organizations that provide services to and/or advocate on behalf of members of DAFN groups. These organizations should be engaged actively and meaningfully in emergency planning. This inclusive emergency management strategy has been shown to yield products that are better matched to the needs of the people they are designed to support.
- **Support "everyone is a first responder."** All airport personnel have the opportunity to share information during an emergency. If properly trained, staff can be an additional resource for communicating with people with DAFN during an emergency. Airport personnel, customer service employees, and volunteers should receive training on how to support people with DAFN in emergency incidents and how to communicate in a compassionate, caring, and perceptive manner.


***Figure 12. The three key steps to building a comprehensive emergency communication strategy that considers the needs of people with DAFN.***

- **Implement a variety of strategies.** Messages must be communicated multiple ways, using multiple methods, in multiple languages. Using the principles of universal design will help ensure that messages reach the intended audiences. There is no single solution for communicating with a diverse population.
- **Do not overlook the simple solutions.** Many individuals keep devices that help them communicate (e.g., smartphones, text-to-speech devices, and pocket translators) with them at all times. Although these technologies have limitations, such as battery life and Internet access, airports can help ensure their availability by making charging stations and Wi-Fi available throughout the airport. It is particularly helpful to provide these amenities in areas frequented by people with DAFN, such as quiet rooms or areas designated for people who have service animals. Charging stations also can serve as effective places to hang emergency preparedness outreach materials, such as posters encouraging travelers to sign up for emergency alerts.
- **Take advantage of airport renovations as an opportunity to enhance accessible design.** Often, accessible communications technologies are more cost-effective when they are installed during the construction and design phases of a project rather than as part of a retrofit. The design stage is an excellent time to engage the DAFN advisory group to explore opportunities to enhance accessible communications.
- **Develop the plans and procedures needed for successful implementation.** Airport emergency management and safety staff need to understand how communications strategies that accommodate people with DAFN fit in to their existing emergency communications protocols and procedures. Plans should outline how these methods are controlled and implemented by the airport's emergency operations center and how they interface with existing systems and processes. Other departments, such as public affairs, will need to be involved to ensure that consistent, applicable messaging is pushed across all technologies.
- **Procedures need to be tested early and often.** Exercises are necessary to test whether emergency communications will reach people with DAFN during an actual emergency. Airports can incorporate communications strategies through injects or as part of exercise scenarios and should invite people with DAFN (together with their equipment and service animals) to participate in exercises conducted. Airports also can participate in emergency exercises for the county or surrounding cities to test regional coordination systems and processes.

# Abbreviations

| | |
|---|---|
| ABQ | Albuquerque International Sunport |
| AEP | Airport Emergency Plan |
| ALS | amyotrophic lateral sclerosis (Lou Gehrig's disease) |
| ANSI | American National Standards Institute |
| API | application-programming interface |
| ASL | American Sign Language |
| ATL | Hartsfield–Jackson Atlanta International Airport |
| AUS | Austin-Bergstrom International Airport |
| AVL | Asheville Regional Airport |
| AZO | Kalamazoo/Battle Creek International Airport |
| BLD | Boulder City Municipal Airport |
| BUR | Hollywood Burbank (Bob Hope) Airport |
| CBP | U.S. Customs and Border Protection |
| CID | Eastern Iowa Airport |
| CCTV | closed-circuit television |
| CFR | Code of Federal Regulations |
| CLT | Charlotte Douglas International Airport |
| CONOPS | Concept of Operations |
| CVA | cerebrovascular accident (stroke) |
| DAFN | Abbreviation used to represent people with disabilities and others with access and functional needs (including, for the purpose of this document, people with limited English proficiency) |
| DAST | disability awareness and sensitivity training |
| DEN | Denver International Airport |
| DET | disability equity training |
| DFW | Dallas/Fort Worth International Airport |
| DIK | Dickinson Theodore Roosevelt Regional Airport |
| DTW | Detroit Metropolitan Wayne County Airport |
| EFD | Ellington Airport |
| EOP | Emergency Operations Plan |
| FEMA | Federal Emergency Management Agency |
| FLL | Fort Lauderdale–Hollywood International Airport |
| GIS | geographic information system |
| GRR | Gerald R. Ford International Airport |
| HKG | Hong Kong International Airport |
| HOU | William P. Hobby Airport |
| IAH | George Bush Intercontinental Airport |

| | |
|---|---|
| ICS | Incident Command System |
| ICT | information and communications technology |
| IoT | Internet of things |
| IPAWS | Integrated Public Alert and Warning System |
| ISO | International Organization for Standardization |
| JAX | Jacksonville International Airport |
| LAP | Language Assistance Plan |
| LAS | McCarran International Airport |
| LAX | Los Angeles International Airport |
| LAWA | Los Angeles World Airports |
| LEP | limited English proficiency |
| MAG | Manchester Airports Group (UK) |
| MSEL | master scenario events list |
| MSP | Minneapolis–St. Paul International Airport |
| MKE | Mitchell International Airport |
| n.d.a. | no date available |
| NRT | Narita International Airport |
| NUQ | Moffett Federal Airport (Moffett Field) |
| NWS | National Weather Service |
| ORD | O'Hare International Airport |
| PA | public address |
| PDX | Portland International Airport |
| PHX | Phoenix Sky Harbor International Airport |
| PIO | public information officer |
| PIT | Pittsburg International Airport |
| RDU | Raleigh–Durham International Airport |
| RFD | Chicago Rockford International Airport |
| ROC | Greater Rochester International Airport |
| RSW | Southwest Florida International Airport |
| SaaS | Software as a Service |
| SAME | specific area message encoding |
| SARA | standing and raising aid |
| SBN | South Bend International Airport |
| SEA | Seattle-Tacoma International Airport (SEA) |
| SMF | Sacramento International Airport |
| SMS | short message service (in relation to text messaging) |
| STT | speech-to-text |
| STL | Saint Louis Lambert International Airport |
| STX | Henry E. Rohlsen International Airport |
| TDD | telecommunication device for the deaf |
| TTS | text-to-speech |
| TTY | text telephone or teletypewriter |
| TUL | Tulsa International Airport |
| UFAS | Uniform Federal Accessibility Standards |
| VoIP | Voice over Internet Protocol (also called IP telephony) |
| VRI | video remote interpreting |
| W3C | World Wide Web Consortium |
| YEG | Edmonton International Airport |
| YHZ | Halifax Stanfield International Airport |
| YOW | Ottawa/Macdonald–Cartier International Airport |

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| | |
|---|---|
| YQT | Thunder Bay International Airport |
| YSJ | Saint John Airport |
| YUL | Montréal–Pierre Elliott Trudeau International Airport |
| YVR | Vancouver International Airport |
| YWG | Winnipeg James Armstrong Richardson International Airport |
| YYC | Calgary International Airport |
| YYZ | Toronto Pearson International Airport |

# References and Suggested Reading

## References


Accessible Icon Project. n.d.a. Website: *ACCESSIBLE ICON PROJECT: Design, Art Direction*. Created by asmallpercent for the Accessible Icon Project. Online: http://cargocollective.com/asmallpercent/ACCESSIBLE-ICON-PROJECT (accessed May 11, 2018).

American National Standards Institute (ANSI). 2018. ANSI webstore. Washington, DC. Online: https://webstore.ansi.org/default.aspx (accessed May 11, 2018).

Ampetronic. 2016. "What Are Hearing Loops." Video available on YouTube. Online: https://www.youtube.com/watch?v=pOHBhKu7pO8 (viewed December 3, 2017).

Centre for Excellence in Universal Design. 2014. "The 7 Principles." Webpage on *What Is Universal Design* Website. Centre for Excellence in Universal Design, National Disability Authority, Dublin, Ireland. Online: http://universaldesign.ie/What-is-Universal-Design/The-7-Principles (accessed May 11, 2018).

Department of Justice. 2010. *Americans with Disabilities Act Title III Regulations: Nondiscrimination on the Basis of Disability by Public Accommodations and in Commercial Facilities*. Department of Justice, Washington, D.C. Online: https://www.ada.gov/regs2010/titleIII_2010/titleIII_2010_regulations.pdf (accessed August 24, 2018).

FAA. n.d.a "Airport Accessibility for People with Disabilities." Document. Office of Civil Rights, Federal Aviation Administration, Washington, D.C. Online: https://www.faa.gov/about/office_org/headquarters_offices/acr/eeo_training/past_conferences/airport_civil_rights_training_seventh_national_2016_conference/media/ADA/ADA_Self_Assessment_Form.pdf (accessed May 11, 2018).

FAA. 2010. "Certification Bulletin: Airport Emergency Plan Checklist." Document. Federal Aviation Administration, Washington, D.C. Online: https://www.faa.gov/airports/great_lakes/airports_resources/certification_bulletin_archive/media/10-06-attachment.pdf (accessed July 12, 2017).

Federal Emergency Management Agency (FEMA). 2015. "Template: Emergency Communication Plans and IPAWS." Document template. Federal Emergency Management Agency, U.S. Department of Homeland Security, Washington, D.C. Online: https://www.fema.gov/media-library-data/1463674830481-16ed0020684ba8cd263ba88f54a48c95/TemplateEmergencyCommPlans_IPAWS-508_05192016.pdf (accessed May 14, 2018).

Harding Jr., J. R.; S. J. Bosch; W. P. Rayfield, Jr.;J. Florie. 2017. *ACRP Research Report 177: Enhancing Airport Wayfinding for Aging Travelers and Persons with Disabilities.* Transportation Research Board. Washington, D.C. Online: https://www.nap.edu/catalog/24930/enhancing-airport-wayfinding-for-aging-travelers-and-persons-with-disabilities (accessed December 3, 2017).

International Organization for Standardization (ISO). 2013. *The International Language of ISO Graphical Symbols.* Booklet. ISO, Geneva, Switzerland. Online: https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/graphical-symbols_booklet.pdf (accessed May 11, 2018).

Johnson, C. R. 2018. "Identifying and Assisting Persons in Need." Online: https://docs.google.com/presentation/d/1aI5ku-GZMnxs57O-draJx1UbVkFbXe35n4rvY67-1uc/edit?usp=sharing (accessed May 14, 2018).

Loop New Mexico. 2017. "Airports and Hearing Loop Technology." Online: Online: http://www.hearingloop.org/Airports%20and%20Hearing%20Loop%20Technology.b.pdf (accessed December 3, 2017).

Manualise. 2017. "American Standards Regarding Instructions for Use." Delft, Germany. Online: https://www.manualise.com/nl/blog/wet-en-regelgeving/ansi-z535-6/ (accessed May 11, 2018).

My Safety Labels. 2018. "ISO Prohibited Action Labels." Brooklyn, NY. Online: https://www.mysafetylabels.com/iso-prohibited-actions-labels (accessed May 11, 2018).

50 Airport Emergency Communications for People with Disabilities and Others with Access and Functional Needs

OTOjOY. 2015. "How Hearing Loops Work: What Is a Hearing Loop and How Does It Work?" Online: https://www.youtube.com/watch?v=hlnx3ZImTw0 (viewed December 3, 2017).

Roe, R. 2010. "Design Standards for Safety Warning Messages in Manuals: Increasing Design Saliency and Adapting for a Broader Range of Professional Communication Settings." *Graduate Theses and Dissertations.* 11342. Online: https://lib.dr.iastate.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=2326&context=etd (accessed May 11, 2018).

Section 508 of the Rehabilitation Act of 1873. GSA Government-wide IT Accessibility Program. Online: https://www.section508.gov/manage/laws-and-policies (accessed September 6, 2018).

Smith, J. F., and T. W. Haines. 2018. *ACRP Synthesis 90: Integrating ADA in Emergency Exercises.* Transportation Research Board, Washington, D.C. Online: http://www.trb.org/Main/Blurbs/177917.aspx (accessed September 6, 2018).

Texas Council of Developmental Disabilities. n.d.a. "People First Language." Online: www.tcdd.texas.gov/resources/people-first-language (accessed May 10, 2018).

U.S. Department of Health and Human Services. 2018. *HTML 508 Checklist.* Website. Online: https://www.hhs.gov/web/section-508/making-files-accessible/checklist/html/index.html.

U.S. Department of Justice Civil Rights Division. 2007. "ADA Best Practices Tool Kit for State and Local Governments: Chapter 3—General Effective Communication Requirements under Title II of the ADA." Online: https://www.ada.gov/pcatoolkit/chap3toolkit.htm (accessed December 3, 2017).

World Wide Web Consortium (W3C). 2018. "Accessibility." Online: http://www.w3.org/standards/webdesign/accessibility (accessed May 11, 2018).

## Suggested Reading

Aedo, I., Yu, S., Diaz, P., Acuña, P., and Onorati, T. 2012. "Personalized Alert Notifications and Evacuation Routes in Indoor Environments." *Sensors 12*: 7804–7827. Online: Accessed online May 11, 2018. http://www.mdpi.com/1424-8220/12/6/7804

Arditi, A. 2018. "Designing for People with Partial Sight and Color Deficiencies." New York, NY: Lighthouse International. Online: http://li129-107.members.linode.com/accessibility/design/accessible-print-design/effective-color-contrast/ (accessed May 11, 2018).

Canadian Association of the Deaf–Association des Sourds du Canada and Deaf Wireless Canada Committee. 2016. "Participation by Wireless Service Providers in the National Public Alerting System." Online: http://www.deafwireless.ca/wp-content/uploads/2016/06/INTERVENTION-CRTC-TNC-2016-115-National-Public-Alerting-System.pdf (accessed May 11, 2018).

Civil Aviation Authority. 2016. "CAA Guidance for Airports on Providing Assistance to People with Hidden Disabilities." West Sussex, UK. Online: http://publicapps.caa.co.uk/docs/33/CAP%201411%20DEC16.pdf (accessed May 11, 2018).

Department of Justice. 2016. *Americans with Disabilities Act Title II Regulations: Part 35 Nondiscrimination on the Basis of Disability in State and Local Government Services.* Online: https://www.ada.gov/regs2010/titleII_2010/titleII_2010_regulations.htm#a35161 (accessed May 15, 2018).

Department of Justice. 2017. *Part 36 Nondiscrimination on the Basis of Disability in Public Accommodations and Commercial Facilities.* Online: https://www.ada.gov/regs2010/titleIII_2010/titleIII_2010_regulations.htm (accessed May 15, 2018).

Ferreira, M. 2016. "Emergency Evacuation from Airports: Rethinking the Standard of Care." International Airport Review. Online: https://www.internationalairportreview.com/article/25852/emergency-evacuation-airports/ (accessed May 11, 2018).

Fraustino, J. D., B. Liu, and Y. Jin. 2012. "Social Media Use during Disasters: A Review of the Knowledge Base and Gaps." College Park, Md.: National Consortium for the Study of Terrorism and Responses to Terrorism. Online: https://www.start.umd.edu/sites/default/files/files/publications/START_SocialMediaUseduringDisasters_LitReview.pdf (accessed May 11, 2018).

International Air Transport Association. 2014. "Crisis Communications and Social Media: A Best Practice Guide to Communicating in an Emergency." Online: https://www.iata.org/publications/Documents/social-media-crisis-guidelines.pdf (accessed May 11, 2018).

Kuligowski, E. D. and H. Omori. 2014. *General Guidance on Emergency Communication Strategies for Buildings,*" 2d ed. National Institute of Standards and Technology, Washington, D.C. Online: https://nvlpubs.nist.gov/nistpubs/TechnicalNotes/NIST.TN.1827.pdf (accessed May 11, 2018).

Memphis International Airport 2016 Emergency Exercise After-Action Report. The Airport Communications Center (Comm Center). Online: https://media.myfoxmemphiscom.cmgdigital.com/document_dev/2017/02/09/MEM%202016%20Emergency%20Exercise%20AAR_7277891_ver1.0.pdf (accessed August 24, 2018).

National Academies of Science, Engineering, and Medicine. 2018. *Emergency Alert and Warning Systems: Current Knowledge and Future Research Directions*. Washington, DC: National Academies Press. https://doi.org./10.17226/24935.

Smith, J. F., R. E. Garcia, J. M. Sawyer, and K. A. Kenville. 2016. *ACRP Synthesis of Airport Practice 72: Tabletop and Full-Scale Emergency Exercises for General Aviation, Non-Hub, and Small Hub Airports.* Transportation Research Board, Washington, D.C. Online: http://www.trb.org/Publications/Blurbs/174692.aspx (accessed May 15, 2018).

University of New Mexico Center for Development and Disability. n.d.a. *Tips for First Responders*, 5th ed. Online: http://cdd.unm.edu/dhpd/pdfs/FifthEditionTipsSheet.pdf (accessed May 11, 2018).

APPENDIX A

# Inventory Checklists

| Plans, Reports, and Documents Inventory Checklist | |
|---|---|
| ☐ | Americans with Disabilities Act (ADA) Compliance Plan |
| ☐ | Airport Emergency Plan (AEP), particularly those sections referring to people with disabilities and others with access and functional needs, including those with limited English proficiency (DAFN) |
| ☐ | Language Assistance Plan (LAP) |
| ☐ | Comprehensive Crisis Communications Plan, Emergency Communications Plan, and/or AEP section on emergency communications |
| ☐ | List of training topics pertinent to ADA, access and functional needs, or limited English proficiency |
| ☐ | Training schedule that includes regularly scheduled accessibility trainings |
| ☐ | Exercise scenarios that include people with DAFN |
| ☐ | After-action reports or lessons learned from actual incidents, drills, or exercises involving people with DAFN |
| ☐ | Demographic information on airport passengers and/or populations surrounding the airport (i.e., catchment area) |
| ☐ | Design and use of non-verbal emergency communications (e.g., visual paging, Flight Information Display System, Baggage Information Display System, Gate Information Display System, pictographs, and so forth) |
| ☐ | Specifications on any electronic translation or interpretation aids used |
| ☐ | Copies of contracts with vendor(s) and/or contractor(s) supplying specialized services for people with DAFN |
| ☐ | Self-audits |
| ☐ | FAA audits |
| ☐ | FAA Title VI inspection documents |

| Programs and Services* Inventory Checklist | |
|---|---|
| | **General Programs and Services** |
| ☐ | Active DAFN advisory group |
| ☐ | Disability awareness and sensitivity training (DAST) for airport employees |
| ☐ | Person-to-person wayfinding assistance |
| ☐ | Ensuring staff have paper and pencil on-hand to communicate one-on-one with individuals |
| ☐ | Pre-flight orientation program that provides emergency information |
| ☐ | Airport website detailing accessibility services and important emergency information |
| ☐ | Emergency preparedness drills and exercises that include participants with DAFN |
| | **Audio Services for Emergency Communications** |
| ☐ | Pre-scripted or pre-recorded audio messages* |
| ☐ | Auditory emergency alarms that include emergency instructions |
| ☐ | Beacon technology for wayfinding |
| ☐ | Audio two-way communications in elevators and areas of rescue assistance |
| ☐ | Assistive listening systems and devices* |
| ☐ | Telephone handset amplifiers* |
| ☐ | Hearing aid compatible telephones* |
| ☐ | Induction loop systems and accompanying signage |
| ☐ | Emergency communication devices in parking areas or other areas of the airport that are hearing aid or loop compatible |
| | **Visual Services for Emergency Communications** |
| ☐ | Visual paging and the use of Flight Information Display System, Baggage Information Display System, and Gate Information Display System for emergency messaging* |
| ☐ | Qualified sign language interpreter* |
| ☐ | Written emergency information and wayfinding signage* |
| ☐ | Beacon technology for wayfinding |
| ☐ | Emergency information and signage in large print* |
| ☐ | Emergency information and signage in braille* |
| ☐ | Pictograph signage demonstrating emergency procedures |
| ☐ | Pre-scripted emergency messages* |
| ☐ | Open captioning, closed captioning, real-time captioning, and closed caption decoders and devices* |
| ☐ | Text telephones (TTYs), videophones, captioned telephones, and other voice, text, and video-based telecommunications products* |

| Programs and Services* Inventory Checklist (continued) | |
|---|---|
| | **Visual Services for Emergency Communications (continued)** |
| ☐ | Videotext displays* |
| ☐ | Visual alarms (e.g., flashing lights) |
| ☐ | Use of airport social media to disseminate emergency information |
| ☐ | Use of text messaging to disseminate emergency messages |
| ☐ | Visual two-way communications in elevators and areas of rescue assistance |
| | **Multilingual Services for Emergency Communications** |
| ☐ | Emergency information signage in multiple languages |
| ☐ | Pre-recorded emergency messages in foreign languages |
| ☐ | Onsite foreign language interpreters |

* Items flagged by an asterisk are considered “auxiliary aids and services” according to Title III of the ADA. These auxiliary aids and services enable effective communications with people with DAFN.

APPENDIX B

# Accessibility Walkthrough Worksheet

The purpose of the accessibility walkthrough is to identify the current emergency communication capabilities of the airport and identify opportunities to make emergency messaging more accessible to people with DAFN. This worksheet can be used as a guide to conduct the assessment and record observations. This tool was developed in accordance with ADA requirements and recommendations as described in the U.S. Department of Justice's *ADA Requirements: Effective Communication* bulletin.

The assessment should be conducted by the airport's DAFN advisory group, ADA coordinator, and/or emergency management staff. The walkthrough can be conducted in the following areas of the airport: curbside, ticketing, security, concourse, terminal, gate, baggage claim, and staff office areas. One copy of the worksheet will be required for each location. At each location, one member of the assessment team should be responsible for filling out the worksheet and recording the group's answers to each question in the worksheet.

Based on the group's observations, an accessibility rating should be assigned to each communication mode or resource. The accessibility rating should indicate how well each mode or resource meets the needs of people with DAFN based on its **current condition, location, and use.** The group should take into account whether the current technique and/or system is simple, intuitive, and appropriate in terms of size and space. Modes of communication that receive a low accessibility rating should be evaluated to identify potential improvements that will increase accessibility. Modes of communication that the group identifies as helpful to people with DAFN and that are **not currently present** in certain locations should be evaluated with regard to the feasibility of obtaining or implementing them.

**Accessibility ratings** can be assigned on a scale of one to four, as follows:

1 = Significant barrier(s) to access or understanding for people with DAFN

2 = Potential barrier(s) to access and/or understanding for people with DAFN

3 = Accessible and/or understood by most people with DAFN

4 = Universally accessible to all individuals

# Accessibility Walkthrough Worksheet

**Section 1: Visual Assessment** **Location:** _____ **Date:** _____

| Visual Assessment | Signage | Monitors/ Displays | Electronic Notice Boards | Visual Paging System | Mobile Applications (specify) | Video Remote Interpreting | Captioned Phones | Other: |
|---|---|---|---|---|---|---|---|---|
| Is this mode available at this location? | | | | | | | | |
| Is this mode used for emergency communications? | | | | | | | | |
| If no, can this mode be used for emergency communications? | | | | | | | | |
| Are messages provided in languages other than English? | | | | | | | | |
| If no, can messages be provided in languages other than English? | | | | | | | | |
| Are messages provided in ASL? | | | | | | | | |
| If no, can messages be provided in ASL? | | | | | | | | |
| Are messages conveyed through graphics or icons? | | | | | | | | |
| If no, can messages use graphics or icons? | | | | | | | | |
| Does this mode support display of messages via video? | | | | | | | | |
| If no, can messages be displayed via video? | | | | | | | | |
| Are there physical barriers that obstruct the line of sight? | | | | | | | | |
| If **yes,** would the movement/adjustment of this mode improve lines of sight? | | | | | | | | |
| Is this mode used to disseminate pre-scripted messages? | | | | | | | | |
| If no, can pre-scripted messages be used? | | | | | | | | |
| **ACCESSIBILITY RATING (1, 2, 3, or 4)** | | | | | | | | |

**Notes:**

## Accessibility Walkthrough Worksheet

**Section 2: Audio Assessment** **Location:** _____ **Date:** _____

| Audio Assessment | Public Address System | Direct-Line Telephones | Over-the-Phone Translation Services | Induction Loop | Alarms | Megaphone | Other: |
|---|---|---|---|---|---|---|---|
| Is this mode available at this location? | | | | | | | |
| Is this mode used for emergency communications? | | | | | | | |
| If no, can this mode be used for emergency communications? | | | | | | | |
| Are messages provided in languages other than English? | | | | | | | |
| If no, can messages be provided in languages other than English? | | | | | | | |
| Is this mode used to disseminate pre-recorded messages? | | | | | | | |
| If no, can pre-recorded messages be used? | | | | | | | |
| **ACCESSIBILITY RATING (1, 2, 3, or 4)** | | | | | | | |

**Notes**

# Accessibility Walkthrough Worksheet

**Section 3: Human-to-Human Assessment** **Location:** _____ **Date:** _____

| Human-to-Human Assessment | Information Desk Personnel | Volunteer Customer Assistance | Wheelchair Service Provider | ASL Interpreter | Foreign Language Translator | Other: |
|---|---|---|---|---|---|---|
| Is this resource available at this location? | | | | | | |
| Does this person have a unique identifier (e.g., ID badge, colored vest/hats) for easy identification? | | | | | | |
| If no, would distinguishing this person help? | | | | | | |
| Does this person disseminate information in the event of an emergency? | | | | | | |
| If **yes,** is this person trained on communications protocols and messaging? | | | | | | |
| If **yes,** is this person trained on assisting people with DAFN? | | | | | | |
| If no, could this person disseminate information in the event of an emergency? | | | | | | |
| Are members of this group identified as having non-English language capabilities? | | | | | | |
| If **yes,** does this person have a unique identifier (e.g., button/sticker) for easy identification? | | | | | | |
| Are passengers notified that these individuals are available to assist (e.g., via website, signage, etc.)? | | | | | | |
| Is there signage offering their services in this location? | | | | | | |
| Do these individuals assist with wayfinding? | | | | | | |
| Are they trained on tools and strategies to assist people with DAFN with wayfinding? | | | | | | |
| Are there individuals in this group that represent people with DAFN? | | | | | | |
| Would it be helpful to include representatives of people with DAFN at this location? | | | | | | |
| **ACCESSIBILITY RATING (1, 2, 3, or 4)** | | | | | | |

# Accessibility Walkthrough Worksheet

## Section 3: Human-to-Human Assessment (Continued)

| Human-to-Human Assessment | Information Desk Personnel | Volunteer Customer Assistance | Wheelchair Service Provider | ASL Interpreter | Foreign Language Translator | Other: |
|---|---|---|---|---|---|---|
| **Notes:** | | | | | | |

### Identify Gaps

The information gathered from the accessibility walkthrough can be used to identify gaps where the airport can improve current techniques or provide additional services. To that end, following the walkthrough, the group leader can facilitate a "debriefing" by posing the following additional questions to the group:

- In your opinion, what are the most significant barriers to providing emergency information to people with DAFN at this airport?
- What have you experienced at other airports that may be helpful for this airport in terms of different services and communication strategies to assist people with DAFN?
- As travelers, what additional experiences have you or your organization identified as challenges for people with DAFN?

The results of the walkthrough and the information gathered in the debriefing can be used to determine the most significant gaps to address in developing an effective, accessible emergency communications strategy. The group leader should prepare a list of key gaps to distribute for validation by the DAFN advisory group. Once the list has been validated, the DAFN advisory group can prioritize the issues and identify appropriate solutions.

### Technique Evaluation

Once the DAFN advisory group has identified key gaps that need to be filled, the next step is to identify which potential strategies can fill those gaps to improve airport communication capabilities.

The ADA coordinators and emergency management staff should identify the strategies that address the needs identified by the DAFN advisory group. Evaluating strategic solutions will depend on multiple factors—mainly resources, including time, staff, and funding. It is suggested that ADA coordinators and emergency management staff gain an understanding of the resources that are available—and required—to implement these solutions. Appendix D presents a general range of resource requirements. It is important to note that resource requirements for these techniques may depend on the unique factors of each airport, including airport size, existing systems and equipment, existing staffing and staff capabilities, and other factors.

Once the ADA coordinator and emergency management staff have identified realistic potential solutions, they should circulate the proposal to members of the DAFN advisory group for feedback and verification. It may be useful to provide group members with information on the strategies detailed in Appendix D so they can see a variety of techniques in addition to the ones identified as promising. With the consensus of the DAFN advisory group, the ADA coordinator and emergency management staff will need to outline an implementation plan. The following worksheet can be useful in documenting the process steps for implementing new or enhanced strategies for accessible communications.

## Preparing an Implementation Plan

This worksheet can be used by the ADA coordinator and emergency management staff to document the process steps for implementing new or enhanced strategies for accessible communications.

| Strategy | Gap Addressed/ Population Served | Steps for Implementation | Responsible Party | Timeline | Estimated Cost | Funding Source | Priority |
|---|---|---|---|---|---|---|---|
| ***Sample*** *Mobile Translation Applications* | *Lack of translation tools in international terminal* | • *Place bookmark to Google Translate™ on home screen of all volunteer tablets*<br>• *Include use of online translation in Volunteer Orientation presentation*<br>• *Include use of online translation tools in Volunteer Orientation packet* | Guest Services | 2 weeks | N/A | N/A | N/A |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

APPENDIX C

# FAA Airport Accessibility Checklist

The following checklist was developed by the FAA Office of Civil Rights as part of the Seventh National Civil Rights Training Conference for Airports. The document can be downloaded from: https://www.faa.gov/about/office_org/headquarters_offices/acr/eeo_training/past_conferences/airport_civil_rights_training_seventh_national_2016_conference/.


# Airport Accessibility for People with Disabilities

| Topic | Applicable Regulations | Yes/No |
|---|---|---|
| **A. Administrative Requirements** | | |
| A1. **Coordinator:** Designated employee to coordinate requirements under ADA/Section 504 | 28 CFR Part 35.107<br>49 CFR Part 27.13 | |
| A2. **Complaints:** Procedures adopted and published with name/contact information of ADA/Section 504 coordinator. Complaints must be kept on file for 1 year; the actual complaint or a summary must be kept for 5 years | 28 CFR Part 35.107<br>49 CFR Part 27.13<br>49 CFR Part 27.121 | |
| A3. **Notice:** All published public information (notifications, posters, brochures, website) include notice of nondiscrimination on the basis of disability | 28 CFR Part 35.106<br>49 CFR Part 27.15 | |
| A4. **Poster:** Unlawful Discrimination poster furnished by FAA posted at multiple locations in terminal(s) | 49 CFR Part 21.9 | |
| A5. **Self-Assessment:** Completed, modifications to be made noted and implemented along with ongoing monitoring | 28 CFR Part 35.105<br>49 CFR Part 27.11 | |
| A6. **Contractual Agreements (all lessees):** Include language addressing nondiscrimination on the basis of disability in provision of services | 49 CFR Part 27.7<br>28 CFR Part 35.130 | |
| A7. **Contractual Agreements (air carriers):** Include language addressing boarding and deplaning assistance and boarding equipment ownership and maintenance responsibilities | 49 CFR Part 27.72<br>14 CFR Part 382.99 | |
| **B. Program and Structural Accessibility** | | |
| B1. **Communications:** Furnish appropriate auxiliary aides and services to ensure effective communication (e.g., visual paging, large print, braille, interpretative services, closed captioning) | 28 CFR Part 35.160<br>28 CFR Part 36<br>49 CFR Part 27.71 | |
| B2. **Signage:** Complies with height, symbols, finish, and location requirements | 28 CFR Part 36 | |
| B3. **Parking:** Adequate number of accessible parking spaces at each location and located closest to accessible entrance | 28 CFR Part 36 | |
| B4. **Loading/Unloading Zones:** Meet requirements regarding policy of use, location, access aisle, pull-up space, curb ramps, etc. | 28 CFR Part 36 | |
| B5. **Telephones:** Meet requirements for text telephone, mounting height, clear floor space, volume control, etc. | 28 CFR Part 36 | |

| Topic | Applicable Regulations | Yes/No |
|---|---|---|
| B6. **Circulation Path:** Accessible route coincides with the circulation path for the general public and meets requirements regarding protruding objects, slope, etc. If different, then directional signage complies with signage requirements. | 28 CFR Part 36<br>49 CFR Part 27.71 | |
| B7. **Elevators:** Meet requirements regarding hoistway braille characters, raised call buttons, door protective/reopening device, car controls, car size, emergency communications, etc. | 28 CFR Part 36 | |
| B8. **Ticketing Areas:** Designed to allow people with disabilities to obtain tickets and check baggage | 28 CFR Part 36 | |
| B9. **Boarding and Deplaning Assistance:** Provide assistance, in cooperation with air carriers, to individuals with disabilities via lifts, ramps, jet bridges, or other devices | 49 CFR Part 27.72<br>14 CFR Part 382 | |
| B10. **Baggage Retrieval:** Route of travel is accessible | 28 CFR Part 36 | |
| B11. **Interior Doors:** Meet requirements regarding door pull force, clear space, hardware, etc. | 28 CFR Part 36 | |
| B12. **Toilet Rooms:** Meet requirements regarding wheelchair-accessible stall, door operation, signage, grab bars, toilet seat height, mirror height, faucet operation, water supply and drain pipe insulation, maneuverable space, etc. | 28 CFR Part 36 | |
| B13. **Drinking Fountains:** Meet requirements regarding spout location, height, clear floor space, controls, etc. | 28 CFR Part 36 | |
| B14. **Emergency Evacuation:** Meet requirements regarding alarms ( visual and audible), exits clearly marked with accessible symbols, floor plans clearly marked with accessible exits and refuge areas, etc. | 28 CFR Part 36 | |
| B15. **Service Animal Relief Area(s):** The Air Carrier Access Act regulations require carriers, in cooperation with the airport operator and in consultation with local service animal training organizations, to provide animal relief areas for service animals. At least one SARA should be located in the sterile (post-security) area of each terminal by August 4, 2016. | 49 CFR Part 27.71<br>14 CFR Part 382 | |
| B.16. **Transportation Services:** If and when operated by the airport, they meet accessibility requirements for fixed and demand responsive. | 49 CFR Parts 37.5, 37.7, 37.23, 37.33, 37.129, 37.131, 37.163, 37.165, 37.167, 37.173 | |

**Applicable sections of the Code of Federal Regulations (CFR) are available at www.gpo.gov/fdsys/.**

- 28 CFR Part 35: Nondiscrimination on the Basis of Disability in State and Local Government Services (Americans with Disabilities Act—Title II)

- 49 CFR Part 27: Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance (Section 504 of the Rehabilitation Act)
- 49 CFR Part 21: Nondiscrimination in Federally-Assisted Programs of Department of Transportation
- 14 CFR Part 382: Nondiscrimination on the Basis of Disability in Air Travel (Air Carrier Access Act)
- 28 CFR Part 36: Nondiscrimination on the Basis of Disability by Public Accommodations and in Commercial Facilities (1991 and 2010 ADA Standards for Accessible Design)
- 49 CFR Part 37: Transportation Services for Individuals with Disabilities (ADA Title II and Title III)

The regulations listed in this appendix constitute a starting point to evaluate facilities' compliance with applicable regulations concerning nondiscrimination on the basis of disability. Not all nondiscrimination-related regulations (including employment-related regulations) are included here. Design standards for elements within a facility may differ based on the construction date of the specific area. These include the 1991 and 2010 standards available at www.ada.gov.

This list does not reference all structural elements at airports or differentiate requirements under Uniform Federal Accessibility Standards (UFAS) or requirements for new construction versus alterations. Review the 1991 and 2010 ADA Standards for Accessible Design and the UFAS to ensure that all applicable structural requirements are implemented and the airport is readily accessible to and usable by individuals with disabilities, others with access and functional needs, and those with limited English proficiency (LEP).

APPENDIX D

# Accessibility Strategy Quick Reference Guide

The table on the following pages gives a summary of the key aspects of the core, enhanced, and emerging strategies described in Chapter 4 of this report. These strategies have been identified as promising practices through the research, surveys, and interviews conducted for the development of this guide. Airports confirmed to be using the identified strategies are included in the table, but other airports may be using the technology that are not listed. This table can be used as a quick reference guide to identify strategies to help fill gaps identified through the needs assessment process. Details on how the research team collected the information have been provided at the end of the table. The table is constructed to provide key information in six columns, as follows:

- **Strategy:** The technology, method, or resource available.
- **Enhanced Airport Capabilities:** The benefits of serving people with DAFN when the strategy is implemented.
- **Description:** How the user engages with the resource.
- **Commitment of Airport Resources:** An estimate of time and resources required for implementation, evaluated on the following scale:
  - Low = Implementation of the strategy can occur using existing airport resources (i.e., personnel and equipment) or with minimal additional costs; implementation causes little to no impact on airport operations.
  - Medium = Implementation of the strategy requires a time commitment from existing personnel and purchases of equipment or other resources; implementation causes some impact to airport operations.
  - High = Implementation of the strategy requires long-term planning, additional personnel or contract support, and substantial funding; implementation causes significant impact to airport operations.
- **Barriers to Implementation and/or Use:** Self-identified challenges to implementation of a particular technology by providers or use by the target population.
- **Airports:** Airports that have been identified as users of this strategy. Please note that the airports listed in this table represent only those airports that have been confirmed through research, interviews, and surveys conducted as part of this research project. There are likely additional airports implementing these strategies that are not included in this list.

## Accessibility Strategy Quick Reference Guide

| Strategy | Enhanced Airport Capabilities | Description | Commitment of Airport Resources * | Barriers to Implementation and/or Use | Airports |
|---|---|---|---|---|---|
| DAFN Advisory Group | The airport gathers more accurate information about the airport's design and service accessibility needs, improvements, and challenges. | Airport administrators, emergency management staff, and others coordinate with representatives of DAFN groups to provide input on design attributes and services to accommodate people with DAFN. | Low | • Group members may have limited time for participation.<br>• Group may have difficulty getting approval to implement recommendations. | GRR<br>JAX<br>LAX<br>MSP |

* Low = Implementation of the strategy can occur using existing airport resources (i.e., personnel and equipment) or with minimal additional costs; Medium = Implementation of the strategy requires a time commitment from existing personnel and purchases of equipment or other resources; High = Implementation of the strategy requires long-term planning, additional personnel or contract support, and substantial funding.

## Accessibility Strategy Quick Reference Guide (Continued)

| Strategy | Enhanced Airport Capabilities | Description | Commitment of Airport Resources * | Barriers to Implementation and/or Use | Airports |
|---|---|---|---|---|---|
| Visual Paging | The airport transcribes important audio information so it is visually displayed. | Airport occupants receive audio notifications and are also able to read the messages on monitors in the facility. | Medium | • Requires airport occupants to know to look for transcriptions.<br>• Limited use to individuals with limited English proficiency (LEP) because messages are rarely translated. | AUS<br>ATL<br>BUR<br>CLT<br>DEN<br>DFW<br>EFD<br>FLL<br>HOU<br>IAH<br>JAX<br>LAX<br>MKE<br>ORD<br>PDX<br>RFD<br>RSW<br>SEA<br>STL<br>YEG<br>YVR<br>YWG |

* Low = Implementation of the strategy can occur using existing airport resources (i.e., personnel and equipment) or with minimal additional costs; Medium = Implementation of the strategy requires a time commitment from existing personnel and purchases of equipment or other resources; High = Implementation of the strategy requires long-term planning, additional personnel or contract support, and substantial funding.

## Accessibility Strategy Quick Reference Guide (Continued)

| Strategy | Enhanced Airport Capabilities | Description | Commitment of Airport Resources* | Barriers to Implementation and/or Use | Airports |
|---|---|---|---|---|---|
| Employee Accessibility Training Program | Airport employees are skilled in assisting occupants with DAFN during emergency and non-emergencies. | Airports develop a training curriculum and deliver training courses to employees either in person or via pre-recorded training videos. | Medium | • Requires employee time and ongoing training maintenance.<br>• Limited use for tenants and concessionaires. | JAX<br>LAX<br>YWG |
| Inclusive Emergency Preparedness | The airport can identify areas for improving accessibility during emergency operations. | Airport employees coordinate with representatives of DAFN groups to conduct emergency planning, training, and exercises. | Low | • Requires implementation of regular emergency planning, training, and exercise activities.<br>• Implementation must be in coordination with airport administration. | JAX<br>LAX<br>MSP<br>YYZ |
| Mobile Translation Applications | The airport can provide important information to individuals with LEP. | Airport occupants with limited English proficiency can communicate with customer service staff by using translation applications on web-enabled devices (e.g., tablets, phones) at the information desks. | Low | • Requires travelers to find a customer service representative or information booth.<br>• Requires availability of mobile devices and chargers. | BLD<br>DIK<br>GRR<br>MSP |
| Go-Kits for Information Desks | Customer service staff have additional tools to enhance communications during emergencies and during day-to-day operations. | A duffel bag or box with the following items can be placed at information desks: signage with universal symbols; materials in braille, large print, or multiple languages; megaphone; pen and paper and/or whiteboard and markers. | Low | • Requires travelers to find a customer service representative or information booth.<br>• Requires training to staff to use the items. | No airports were identified as part of this research. |

* Low = Implementation of the strategy can occur using existing airport resources (i.e., personnel and equipment) or with minimal additional costs; Medium = Implementation of the strategy requires a time commitment from existing personnel and purchases of equipment or other resources; High = Implementation of the strategy requires long-term planning, additional personnel or contract support, and substantial funding.

## Accessibility Strategy Quick Reference Guide (Continued)

| Strategy | Enhanced Airport Capabilities | Description | Commitment of Airport Resources* | Barriers to Implementation and/or Use | Airports |
|---|---|---|---|---|---|
| Accessible Wayfinding | The airport is able to help a variety of passengers, including passengers with LEP, better navigate by incorporating universal design elements. | The airport incorporates accessibility wayfinding options in the design and fit-out of the airport facility (e.g., bilingual and/or braille signage, tactile flooring, audible and tactile maps, and so forth). | Medium | • Requires consistency throughout the entire facility.<br>• Variety of options, and some are more cost-efficient than others.<br>• Must be updated when elements are changed or remodeled. | HKG<br>NRT<br>YEG<br>YHZ<br>YOW<br>YVR<br>YWG<br>YYC |
| Airline Mobile Applications | The airport can provide updated emergency information to travelers who may not have access to in-airport audio or visual notifications. | The airport provides emergency notifications to airlines to include in their mobile applications, and airlines disseminate the messages to their users. | High | • The airport must execute an agreement with the airline(s) to share its emergency notifications through an application-programming interface (API).<br>• Requires travelers to have the airline application installed and set to receive notifications.<br>• The airport does not have control over distribution of messaging. | DFW<br>DTW<br>ORD<br>PHX<br>SEA<br>STL |

* Low = Implementation of the strategy can occur using existing airport resources (i.e., personnel and equipment) or with minimal additional costs; Medium = Implementation of the strategy requires a time commitment from existing personnel and purchases of equipment or other resources; High = Implementation of the strategy requires long-term planning, additional personnel or contract support, and substantial funding.

## Accessibility Strategy Quick Reference Guide (Continued)

| Strategy | Enhanced Airport Capabilities | Description | Commitment of Airport Resources * | Barriers to Implementation and/or Use | Airports |
|---|---|---|---|---|---|
| Direct-Line Courtesy Phones | The airport is able to provide information on request. | Mounted phones are connected directly to an information/operations desk where staff can identify the location by the phone unit and provide requested information or dispatch a staff member to that location. | Low | • Requires users to locate and access phones. | YOW<br>YYZ |
| Volunteer Customer Assistance Program | The airport is able to provide additional assistance and information to travelers. | Volunteers trained in assisting people with disabilities are located throughout the airport to facilitate wayfinding, information, and mobility. | Medium | • Requires management of volunteer program by airport staff (e.g., provide training, develop scheduling, and so forth). | LAX<br>MSP<br>YEG<br>YOW<br>YVR<br>YWG |
| Real-time American Sign Language Interpretation | The airport is able to provide real-time, custom information to individuals who are hard of hearing. | Airports hire trained American Sign Language (ASL) interpreters to provide services on an as-needed basis or during peak times. | Low | • Users must request service and/or know the service is available. | AUS<br>JAX<br>LAX<br>MSP<br>PHX |
| Foreign Language Translation Services | The airport is able to provide information to individuals with LEP. | Airport customer service employees who are fluent and/or native speakers staff information desks, or the airport contracts a call-in service for real-time translation via information desk phones. | Low | • Users must request service and/or know the service is available. | DTW<br>PIT<br>TUL<br>YVR |

* Low = Implementation of the strategy can occur using existing airport resources (i.e., personnel and equipment) or with minimal additional costs; Medium = Implementation of the strategy requires a time commitment from existing personnel and purchases of equipment or other resources; High = Implementation of the strategy requires long-term planning, additional personnel or contract support, and substantial funding.

## Accessibility Strategy Quick Reference Guide (Continued)

| Strategy | Enhanced Airport Capabilities | Description | Commitment of Airport Resources * | Barriers to Implementation and/or Use | Airports |
|---|---|---|---|---|---|
| Pre-Recorded Audio Video Translation | The airport provides general emergency information in pre-recorded format for individuals with LEP. | The airport pre-records audio translations or develops video content in languages that accommodate non-English speakers. | Low | • Requires audio and video production equipment.<br>• Pre-recorded content is not adaptable to a highly fluid emergency situation. | BLD<br>ORD<br>STL<br>STX |
| Reducing Barriers to Access | The airport is able to disseminate messages to all travelers efficiently to accommodate the needs of people with DAFN. | The airport reduces impediments to viewing, hearing, or comprehending emergency messages. Examples include providing low-mounted phones, monitors, and counters, and visual as well as audio alarms. Incorporating Service Animal Relief Areas (SARAs) also can be part of this strategy. | Medium | • Retrofitting existing space can be costly.<br>• Effective use of SARAs requires that an adequate number be provided, that they be located properly, and that staff be trained to manage them. | ABQ<br>GRR<br>HKG<br>YEG<br>YOW<br>YVR<br>YYZ |
| Website Accessibility Information | The airport is able to prepare travelers with DAFN to use the accessibility services at the airport. | Airport web administrators include written information about accessibility services related to how to arrange for transportation through the airport, how to contact a volunteer, services available at information booths, and so forth. | Low | • Content must be developed and maintained for accuracy. | AUS<br>DEN<br>LAX<br>MSP<br>NRT<br>YEG<br>YQT<br>YUL |

* Low = Implementation of the strategy can occur using existing airport resources (i.e., personnel and equipment) or with minimal additional costs; Medium = Implementation of the strategy requires a time commitment from existing personnel and purchases of equipment or other resources; High = Implementation of the strategy requires long-term planning, additional personnel or contract support, and substantial funding.

## Accessibility Strategy Quick Reference Guide (Continued)

| Strategy | Enhanced Airport Capabilities | Description | Commitment of Airport Resources * | Barriers to Implementation and/or Use | Airports |
|---|---|---|---|---|---|
| Self-Identification Program | Airport staff are able to provide enhanced customer service to travelers who identify as needing additional help. | Travelers have the option to self-identify as someone who needs help (e.g., wheelchairs) by wearing a lanyard, sticker, or brightly colored bracelets. | Low | • Users must request service and/or know the service is available. | LAX |
| Pre-Flight Preparation Program | The airport provides wayfinding and emergency information to people with DAFN ahead of travel. | The airport develops or participates in programs that provide a guided tour to people with DAFN. | Medium | • Users must request the service and/or know that the service is available.<br>• Requires employee time and ongoing maintenance training. | YUL |
| Induction Loop | When installed, an induction loop creates an electromagnetic field that picks up audio and sends that audio directly to the individual's hearing aid with a t-coil or to a cochlear implant. The induction loop is one of the few passive, universal systems to enhance communication with individuals with hearing loss. | The airport installs specialized equipment in various areas of the facility depending on the application. | Medium to High | • Target users must have hearing aids with a specific setting, cochlear implants, or a specialized receiver.<br>• Requires retrofitting that may be cost prohibitive. | AUS<br>ATL<br>AZO<br>DTW<br>GRR<br>MSP<br>PHX<br>ROC<br>SBN |

* Low = Implementation of the strategy can occur using existing airport resources (i.e., personnel and equipment) or with minimal additional costs; Medium = Implementation of the strategy requires a time commitment from existing personnel and purchases of equipment or other resources; High = Implementation of the strategy requires long-term planning, additional personnel or contract support, and substantial funding.

## Accessibility Strategy Quick Reference Guide (Continued)

| Strategy | Enhanced Airport Capabilities | Description | Commitment of Airport Resources * | Barriers to Implementation and/or Use | Airports |
|---|---|---|---|---|---|
| Video Remote Interpreting (VRI) | The airport is able to provide real-time ASL interpretation. | Information desk and customer service representatives are equipped with web cameras or videophones to connect with ASL interpreters. | Medium | • Requires trained and/or certified interpreters to be available on call.<br>• Requires availability of mobile devices and adequate Internet service. | BUR<br>ORD<br>STL |
| Mobile Assistive Technology | The airport can provide supplemental services to support visual and audio communications. | The airport can provide equipment and/or software to enhance real-time visual, verbal, and virtual communications. | Highly dependent on specific solution | • Dependent on specific technology; generally, must have a smart phone or other equipment. | Highly dependent on end-user |
| Geofenced Mobile and SMS Alerts | The airport can provide tailored emergency messaging via SMS texts in real time. | The airport contracts with a software-as-a-service (SaaS) vendor who provides a platform from which alerts can be issued. | Medium to High | • Users must have a mobile phone.<br>• Users must know the system exists and register for it.<br>• Administrators of the system must be trained and authorized to send messages. | BUR<br>DFW<br>DTW<br>FLL<br>NUQ<br>PHX<br>SMF<br>STL<br>TUL |

* Low = Implementation of the strategy can occur using existing airport resources (i.e., personnel and equipment) or with minimal additional costs; Medium = Implementation of the strategy requires a time commitment from existing personnel and purchases of equipment or other resources; High = Implementation of the strategy requires long-term planning, additional personnel or contract support, and substantial funding.

**D-10** Airport Emergency Communications for People with Disabilities and Others with Access and Functional Needs

### Research

The research team conducted a literature review that focused on analysis of how airports and other relevant industries use communications systems and processes in their day-to-day operations to interact with people with DAFN. A primary focus of the literature review was researching emergency communication systems, messaging, best practices that make provisions for complying with the ADA, and other policy issues. At the state and local level, the review team studied state and regional standards relevant to people with DAFN, and subject matter experts (SMEs) evaluated the literature to generate a basis of knowledge and identify areas that require further research. Literature reviews included the following sources of information:

- Regulations and guidance, including FAA AC 150/5200-31C and 14 CFR Part 139
- State and local requirements and regulations
- Current and past ACRP research and publications about information technologies at airports (i.e., ACRP Project 01-12) and public notifications (ACRP Project 10-25)
- Germane journals
- Congressional legislation, regulations, executive orders, and guidance issued by the FAA, the U.S. Department of Homeland Security (DHS), the Federal Emergency Management Agency (FEMA), the U.S. DOT, and other relevant agencies
- Government Accountability Office (GAO) and Congressional Research Service reports
- Airport websites, especially web pages that address disability information and/or access

### Interviews

In-person interviews were used to identify current methods and tools used for communicating emergency information to members of the DAFN community. Interviewers used standardized scripts and checklists, and in-person interviews were conducted during site visits, via telephone, and via video conference. Interviewees included representatives from the following airports:

- Minneapolis–Saint Paul International Airport (MSP), Minneapolis, MN
- Los Angeles World Airports (LAWA), Los Angeles, CA
- Jacksonville International Airport (JAX), Jacksonville, FL
- Gerald R. Ford International Airport (GRR), Grand Rapids, MI
- Raleigh–Durham International Airport (RDU), Raleigh, NC

Round-table discussions were conducted with representatives from the following eight organizations that advocate for people with DAFN:

- Reduced Mobility Rights Ltd.
- American Red Cross (disability integration specialist)
- Colorado State Independent Living Council

- National Federation of the Blind
- Colorado Association of the Deaf
- Parent Cerebral Palsy Advocacy
- Stapleton Parents of Children with Disabilities Cohort
- Hearing Loss Association of America

**Survey**

The research team developed a survey to gather additional data about the types of emergency communication methods currently being utilized in airports. The intent of the survey was to reach a broader sample of airports beyond the five interviewed. The survey was sent to attendees of the AAAE Airport Emergency Management Conference held on June 25–27, 2018. The survey included five survey questions:

1. What airport are you providing information about?
2. Which of the following technologies are you using for emergency communication within your airport?
3. What was the approximate cost of the emergency communications technologies you are using?
4. How effective are the emergency communications technologies you are using at communicating with people with disabilities, access and functional needs, and/or limited English proficiency?
5. Is there any additional information you would like to share regarding how your airport communicates with people with disabilities and others with access and functional needs, and/or limited English proficiency?

Given the conference attendees' strong knowledge about their airport emergency management programs, this group proved to be an excellent resource to gain more information about the technologies currently used in airports. Although Survey Question 3 asked respondents to provide cost data for the methods they use, respondents either did not provide information about specific costs, or indicated that the cost was specific to their airport and that general pricing would be difficult.

Survey respondents representing airports confirmed to be using the specific methods have been listed in the far right column of the table. Other airports also may be using the methods, but they have not been listed because they were not included in the survey sample. Survey respondents included:

- Austin-Bergstrom International Airport (AUS)
- Asheville Regional Airport (AVL)
- Boulder City Municipal Airport (BLD)
- Charlotte Douglas International Airport (CLT)
- Chicago Rockford International Airport (RFD)
- Dallas/Fort Worth International Airport (DFW)

- Detroit Metropolitan Wayne County Airport (DTW)
- Dickinson Theodore Roosevelt Regional Airport (DIK)
- Fort Lauderdale–Hollywood International Airport (FLL)
- Mitchell International Airport (MKE)
- Los Angeles International Airport (LAX)
- Hartsfield–Jackson Atlanta International Airport (ATL)
- Henry E. Rohlsen Airport (STX)
- Hollywood Burbank (Bob Hope) Airport (BUR)
- Houston Airport System, covering William P. Hobby Airport (HOU), George Bush Intercontinental Airport (IAH), and Ellington Airport (EFD)
- The Eastern Iowa Airport (CID)
- McCarran International Airport (LAS)
- Moffett Federal Airport (Moffett Field) (NUQ)
- O'Hare International Airport (ORD)
- Phoenix Sky Harbor International Airport (PHX)
- Pittsburg International Airport (PIT)
- Portland International Airport (PDX)
- Saint Louis Lambert International Airport (STL)
- Sacramento International Airport (SMF)
- Seattle-Tacoma International Airport (SEA)
- Southwest Florida International Airport (RSW)
- Tulsa International Airport (TUL)

APPENDIX E

# Potential Solutions

Traditionally, airports use in-person, radio, telephone, pager, cell phone, and email tools to coordinate actions and communicate during emergencies. New and emerging technologies are providing innovative ways to communicate through visual, verbal, and virtual interactions.

Highlighted below are some potential resources and solutions. **This list is not intended to be wholly inclusive or an endorsement of any particular product or approach.**

**AbiliSense**
***https://www.abilisense.com/***
AbiliSense is a smart listening device that monitors the surroundings and converts events of danger or distress into alerts across two channels: the 1st channel alerts the main user via smartphones, tablets, wearables, and other internet of things (IoT) devices; the 2nd channel signals emergency services and family members.

**Aira**
***https://aira.io/***
Aira is a system that uses video-equipped smart glasses and a smartphone app to connect individuals who are blind with trained professional agents. When requested through the app, the user is connected to an agent who can view everything the user sees via the video-equipped glasses and can provide directions, information, and other services a nearby sighted person could provide.

**Ava**
***https://www.ava.me/***
Ava is an Android and iOS app that provides real-time captioning from your smartphone for those who are deaf and hard of hearing. The user invites other people to connect to their smartphone through the app, and the conversation is transcribed within the app.

**Be My Eyes**
***https://www.bemyeyes.com/***
Be My Eyes is a free mobile app for Android and iOS that connects people who are blind and who have impaired vision with volunteers and company representatives for visual assistance through a live video call. Users request assistance through the app and are connected through a live video call with a volunteer who uses the phone camera to help the user read instructions, distinguish colors, or navigate.

**E-2** Airport Emergency Communications for People with Disabilities and Others with Access and Functional Needs

**Click2Speak**

https://www.click2speak.net/

Click2Speak is a free "assistive on-screen keyboard, catering to people with motor impairments who cannot use a standard keyboard, enabling easy communication and access to Windows-based PC and tablet applications" supporting more than 100 languages. The company founder is a person with amyotrophic lateral sclerosis (ALS) (Lou Gehrig's disease).

**DBSEMS**

http://www.messagenetsystems.com/

MessageNet systems is an Indiana-based tech firm offering notification solutions. One such product suite, DBSEMS, "is an emergency management and mass notification system designed specifically for all schools for people who are deaf or blind (elementary through high school and universities) and their unique needs." The product can include an app, digital signage, PC alert messaging, audio/visual public announcements, fire panel integration, sensors signaling, SMS alerts, voice over Internet protocol (VoIP), automated telephony, smart LED signaling, panic buttons, etc. These products are available across industries such as public and government facilities as well as emergency management entities.

**Dragon Anywhere**

***https://www.nuance.com/dragon/dragon-anywhere.html***

Dragon Anywhere is a mobile app for Android and iOS that provides continuous dictation with no word limits to create emails and texts and can be pasted into any application.

**E2C**

***http://www.e2c.co.il/***

E2C offers simplified "smart" communication devices for older adults including mobile phones, tablets, televisions, and smart watches.

**EyeControl**

***https://www.eyecontrol.co.il/***

EyeControl is an in-production eye-tracking device for communication by "locked-in" persons, such as those with ALS. "The device is designed to translate eye movements into verbal communication. It works with the help of an infrared camera that connects to the frame of a pair of glasses, as well as a small computer. Together, they are able to identify and translate blinks and movements of the user's eyes into commands, which are then broadcast via a speaker. The start-up has also developed a visual keyboard to compose sentences." The start-up lists affordability as one of its device's major features.

**LightOn by DreamZon**

The LightOn mobile phone cradle "immediately alerts users whenever a call or SMS is received on their mobile phones" with flashing LED lights.

**Hearing Loop Systems**

***http://hearingloopsystems.com/hear/***

A hearing loop (sometimes called an audio induction loop) is a special type of sound system for use by people with hearing aids. The hearing loop provides a magnetic, wireless signal that is picked up by the hearing aid or cochlear implant when it is set to the "T" (telecoil) setting.

**Make-Sense**
***http://mk-sense.com/***
The Make-Sense Accessibility Solution Suite includes the product A-WEB, a single line of code that makes web documents accessible and compliant with WCAG 2.0 AA Web Content Accessibility Guidelines standards. Make-Sense also offers A-ToGo, a Chrome browser extension that makes any site accessible.

**Nuance Phonewear**
***https://www.nuancehear.com***
Phonewear is a "smart" case with earphones offering "focused" hearing in noisy environments via a smartphone app. It is iPhone-compatible; Android compatibility is under development.

**OrCam MyEye**
***http://www.orcam.com/myeye/***
MyEye is a wearable artificial vision device that converts visual information into spoken word via the pointing gesture.

**RAY Phones and Mobile Apps**
***http://project-ray.com/***
These are "smartphone[s] for people who are blind" and "vision-free communication" apps for Android devices, enabling a fuller use of smartphone capabilities via touch and sound.

**RightHear by Zikit**
***http://right-hear.com/***
RightHear is an app that, when paired with sensors, offers spatial assistance and accessibility to users who are blind and visually impaired. Alerts and live assistance are also available within the six current U.S. RightHear zones.

**RoboBraille**
***http://www.robobraille.org/introduction-robobraille***
"RoboBraille is a [free] email and web-based service capable of automatically transforming documents into a variety of alternate formats for the visually and reading impaired," such as braille and audio translation services and the text-tagging of images.

**Sesame Enable**
***https://sesame-enable.com***
Open Sesame is an Android app that allows head movements to control the phone touch-free. Sesame Enable also offers packages that include the software as well as tablets, phones, and other devices. The company was founded by an individual with quadriplegia.

**Specific Area Message Encoding**
***http://www.nws.noaa.gov/nwr/info/nwrsame.html***
The National Weather Service (NWS) uses technology called Specific Area Message Encoding (SAME) to send warnings of imminent severe weather and other hazards. It is estimated that between 95 and 97 percent of the United States is covered by the SAME service area. NWS messages can be received by equipping National Weather Radios or other devices to external

adaptive devices, including loop-based assistive listening devices that connect to hearing aids and cochlear implants. They can also be connected to strobes, sirens, vibrators, and other alerting systems.

**Speech Code**
***https://speechcode.eu/#!/product***
"The Speech Code Generator software transforms any information into colored, printable data code…. The code is scanned with the free Speech Code App, decoded and immediately presented in 100% accuracy—without Internet access or downloading—as text on the smartphone display and/or in audible format via text-to-speech technology." The app promotes social inclusion by translating "orientation guides, signage and general information in public spaces, especially in government agencies, civil service offices, and public transport facilities."

**Step-Hear**
**http://www.step-hear.com/**
Step-Hear is a navigation system worn by a person who is blind. The Step-Hear unit will play a pre-recorded message or trigger a function when the wearer is in proximity to a Step-Hear unit/module, for example, informing the user when a pedestrian crossing light changes from red to green.

**Voiceitt**
***http://www.voiceitt.com/***
Talkitt is an in-development speech-recognition and translation app by Voiceitt that is designed to understand non-standard speech. This product allows people with impaired speech to effectively communicate by making voice recognition technology accessible to everyone.

**WonderVoice**
***http://wondervoiceapp.com/***
WonderVoice is an AI-powered voice assistant iOS app. It is a "data driven, cloud and client contextual speech technology that overcomes the complexity of handling informal (slang)... content origin within social networks, messaging, and other apps. WonderVoice boosts the performance of any text-to-speech (TTS) or speech-to-text (STT) based on data and context."

**Woojer**
***http://www.woojer.com/about/***
"Woojer is a pioneer in the field of haptic [tactile] technology with a fundamental patent portfolio and products that deliver high fidelity tactile sensation, which reproduce the rich emotion of sound." This technology could theoretically be used to transmit haptic emergency alert cues to wearers of the Woojer strap or vest.

APPENDIX F

# Emergency Communications CONOPS Template

This template is designed to assist airports in creating an emergency communications concept of operations (CONOPS) for people with DAFN, including people with disabilities or other access and functional needs and people with limited English proficiency (LEP).The template design promotes development of a CONOPS that is scalable and sustainable and that will supplement the airport's Emergency Operations Plan (EOP). The content and design of the CONOPS provide a foundation that can be expanded on using local information, other state and federal guidance, and the wealth of information and expertise available in the emergency management community to create an effective and hands-on local operational tool.

This document is designed to be used by airports as a ready-made base template; however, no two airports are the same. Recognizing that each has its own requirements, this template provides generic text that airports can edit to meet their own needs and those of the communities they serve by adding to and/or replacing generic text with specific details. Alternatively, airports may elect to copy some of the text from specific sections for use in other documents.

The template, which follows this explanatory copy, begins with a sample cover page. To use the template to create an airport-specific document, download the file from the *ACRP Research Report 201* web page at www.trb.org and simply delete this explanatory page.

There are several points of information to note:

- Generic text is found within brackets ([ ]).(In the files downloadable from the report web site, bracketed copy in the template is colored blue to stand out). Generic text should be replaced with text specific to your airport.
- [Airport Name] should be replaced with the appropriate airport name. For example, in Alabama:
  - "[Airport Name]" could become "Huntsville International Airport" or "HSV"; and
  - "[County Name]" could become "Madison County" or "Madison County, Alabama."
- Where bracketed [ ] instructions suggest the insertion of additional material, the choice is optional as to what and how much to include.

This CONOPS template has been written from a local operational perspective. The template is intended to work in conjunction with the airport's EOP.

F-2 Airport Emergency Communications for People with Disabilities and Others with Access and Functional Needs

# [Airport Name] Emergency Communications Concept of Operations

[Date]

**Background**

On a day-to-day basis, an airport is responsible for communicating messages to staff and to the public. Most messaging and signage is planned and deliberate, using boilerplate language and standard messages that have been tailored to the many different audiences of people who are traveling through or working at an airport. When an airport experiences an emergency or disaster requiring the notification of people at the airport, then travelers, vendors, employers, and the general public have to be able to receive and understand the messages so they can respond appropriately, stay informed, and remain safe. These messages, with changing and updated information, must be able to be understood by all travelers and people at the airport.

**Overview**

In an emergency or disaster situation, [Airport Name] will provide messaging and communications to travelers, vendors, and other people at the airport. Recognizing that people with a variety of different abilities are on site at any given time, [Airport Name] will work to facilitate the communication of vital and potentially lifesaving information to all people at the airport, including those with disabilities or others with access and functional needs, as well as those with limited English proficiency.

**Intended Use**

This Emergency Communications Concept of Operations (CONOPS) identifies specific roles and responsibilities that [Airport Name] may undertake in an emergency or disaster in which [Airport Name] is impacted and needs to communicate with the many people at [Airport Name]. It also provides a checklist to support this function.

The [Airport Name] Emergency Operations Plan (EOP) is the primary document to support response and recovery when [Airport Name] is affected by an emergency or disaster. This CONOPS supplements existing plans and procedures with a focus on communicating with people with disabilities and others with access and functional needs, as well as those with limited English proficiency.

**Audience**

The intended audience for this CONOPS includes [Airport Name] personnel, including all staff with essential emergency duties.

**Scope**

This CONOPS focuses on supporting the communications functions as it informs travelers, vendors, staff, and others at [Airport Name] during a disaster or emergency. These people may have disabilities or other access and functional needs, including limited English proficiency, so the ability of [Airport Name] to disseminate timely, relevant, potentially lifesaving information is essential to any emergency response. This document includes the following sections:

- Incident Management
  - Situation
  - Planning Assumptions
  - Implementation
  - Preparedness Roles and Responsibilities

**Situation**

In emergencies and disasters, [Airport Name] will need to communicate vital, potentially lifesaving information to travelers, vendors, and airport employees. This information may be dynamic, timely, and essential. [Airport Name], with its commitment to providing this information to all people, recognizes that varying modes of communication will be essential to completing this task. [Airport Name] also recognizes the importance of training and empowering all airport staff and vendor or contract employees and airport volunteers to help achieve the goal of accessible communication for all.

This CONOPS may be implemented in whole or in part depending on the scope of the event. This document supports established EOP protocols and procedures.

**Planning Assumptions**

- At any given time, airports contain a number of people with varying abilities, including people with disabilities or other access and functional needs (DAFN) and people with limited English proficiency (LEP).
- Some people with DAFN will need additional assistance for communication, alerts, and warnings.
- Critical infrastructure, equipment, and supplies needed to communicate information about the emergency may be unavailable due to the emergency or disaster. This may complicate, delay, or reduce the effectiveness of the response.
- Systems that transmit information to travelers will be treated as mission-critical systems.
- Rumors and inaccuracies will spread as the public attempts to gain information about the emergency.
- Social media may be used both to transmit information to people in the airport and to receive ground-truth information from people in the airport about what they are experiencing.
- Depending on the scope of an emergency, personnel with non-emergency roles may encounter travelers or other people who have not received emergency information.
- Every reasonable effort should be made to ensure that all people are able to access emergency information.
- During emergencies, there will be multiple stakeholders (airports, airlines, contractors, tenants, and so forth) pushing communications. These stakeholders should plan together in advance to ensure the best chance of coordinated messaging. This is of particular importance when immediate action is necessary.

**Implementation**

This CONOPS will be implemented whenever the [Airport Name] Authorized Representative activates the EOP or any time that communications and messaging outside of routine, standard communications to travelers are needed.

**Preparedness Roles and Responsibilities**

*ADA Coordinator's Office*

- Participates in internal and multi-agency emergency planning, training, and exercises, focusing on emergency communications to all populations.
- Supports Public Relations and/or the public information officer (PIO) in developing and maintaining emergency communications and public information in a number of accessible formats, including, but not limited to, large print, universal signage, languages other than English, and braille.
- Ensures all communications are in compliance with all relevant regulations.
- Regularly conducts DAFN advisory group meetings to ascertain any gaps or needs that have recently developed in the airport and that have been identified by the DAFN community.
- Conducts periodic terminal inspections to ensure that accessible messaging systems are maintained.
- Conducts training that is made available to staff, airlines, and stakeholders on how to communicate with and assist people with DAFN during an emergency event.
- Coordinates with IT and/or the airport's web administrator to share accessibility services with the public.

*Airport Operations*

- Landside Operations
  - Participates in internal and multi-agency emergency planning, training, and exercises, focusing on emergency communications to all populations.
- Terminal Operations
  - Participates in internal and multi-agency emergency planning, training, and exercises, focusing on emergency communications to all populations.

*Airport Volunteers*

- Attend available training offered by the ADA Coordinator's Office.
- Install or bookmark mobile translation applications and available dictation applications to provide communication options for travelers with LEP or individuals who are deaf or hard of hearing.
- Review the safety procedures and be familiar with evacuation routes, shelter-in-place locations, and assembly points to provide direction during an emergency.

*Customs and Border Protection (CBP)*

- Participates in internal and multi-agency emergency planning, training, and exercises, focusing on emergency communications to all populations.
- Maintains accessible communications and instructions for the control and/or evacuation of passengers and employees from CBP facilities.

*Airport Emergency Management Department*

- Coordinates emergency planning, training, and exercise activities that support accessible communications to a variety of audiences.
- Ensures all exercises include a component (e.g., scenario, inject, player, or other element) that tests emergency communications to people with DAFN.
- Participates in internal and multi-agency emergency planning, training, and exercises, focusing on emergency communications to all populations.
- Ensures communications and public information are available in a number of accessible formats, including, but not limited to, large print, universal signage, languages other than English, and braille.
- Supports the implementation of accessibility training in coordination with the ADA coordinator's office.

*Public Relations and/or Public Information Officer (PIO)*

- Participates in internal and multi-agency emergency planning, training, and exercises, focusing on emergency communications to all populations.
- Develops and maintains communications and public information in a number of accessible formats, including, but not limited to, large print, universal signage, languages other than English, and braille.

*Transportation Security Administration (TSA)*

- Participates in internal and multi-agency emergency planning, training, and exercises, focusing on emergency communications to all populations.
- Maintains accessible communications and instructions for the control and/or evacuation of passengers and employees from TSA facilities.
- Conducts ongoing evacuation drills that include the testing of messaging and communications with people with DAFN.

## Response Roles and Responsibilities

*ADA Coordinator's Office*

- Assigns DAFN communications function within the Incident Command structure as soon as reasonably possible during the initial response, with the capability to grow throughout the recovery; tasks would be to verify technology is utilized, coordinate additional messages, and develop real-time objectives to ensure ongoing communication as the event unfolds.
- Coordinates with established vendors and/or city or county mutual aid for American Sign Language (ASL) interpretation services and translation services to support emergency communications with people with DAFN, including press conferences.

*Airport Operations*

- Landside Operations
  - In coordination with the Incident Commander, determines the needs for activation of the Crisis Communications Plan and the dissemination of messaging to people with DAFN.
  - Disseminates pre-scripted emergency communications messages in accessible formats via [fill in applicable formats] to airport transportation vendors and other relevant stakeholders.
  - Ensures that subsequent updates are disseminated per established procedures.
  - Coordinates with ADA Coordinator's Office to include ASL interpreters and/or translators for updates to landside PA system announcements, visual paging, and other formats.
  - Coordinates with Public Relations and/or PIO regarding statements to the public, including the use of alternate messaging formats.
- Terminal Operations
  - In coordination with the Incident Commander, determines the need for activation of the Crisis Communications Plan and dissemination of messaging to people with DAFN.
  - Disseminates pre-scripted emergency communications messages and live audio emergency communications in accessible formats using all systems and technologies available to the airport, including closed-circuit television (CCTV), visual paging, audio paging, and [fill in other applicable formats] to terminal airport occupants, staff, tenants, airlines, and the public.
  - Ensures that subsequent updates are disseminated per established procedures.
  - Coordinates with ADA Coordinator's Office to include ASL interpreters and/or translators for updates to terminal messaging via PA system announcements, visual paging, and other formats.

  - Coordinates with Public Relations and/or PIO regarding statements to the public, including the use of alternate messaging formats.

*Airport Volunteers*

- Without compromising their own safety, provide assistance to passengers, travelers, and other people at the airport who may not understand or be able to respond.

*Customs and Border Protection (CBP)*

- Without compromising their own safety, provide assistance to passengers, travelers, and other people in the CBP area who may not understand or be able to respond.

*Airport Emergency Management Department*

- Supports Airport Operations and Public Relations and/or PIO activities, as requested.

*Public Relations and/or Public Information Officer (PIO)*

- Implements Crisis Communications Plan and/or emergency communications procedures for the dissemination of messaging via [list applicable formats, which may include social media, text message, and email formats].
- Disseminates communications and public information in a number of accessible formats, including, but not limited to, large print, universal signage, languages other than English, and braille.
- Coordinates with ADA Coordinator's Office to include ASL interpreters and/or translators for press conferences.

*Transportation Security Administration (TSA)*

- Without compromising their own safety, provide assistance to passengers, travelers, and other people in the security check area who may not understand or be able to respond.

### Checklists

The following checklists provide reminders of details to be considered and/or addressed within the planning or response processes. These checklists are not inclusive of all possible checklists, subjects, or tasks within a function and can be expanded on as needed. [Airport may choose to add checklists as needed.]

### Planning Checklist

- ❑ Evaluate existing communications notifications, messages, and resources and identify areas that should be adapted to reach people with DAFN.
- ❑ Review wayfinding signage to evacuation points, designated assembly points, and shelter-in-place locations, and evaluate accessibility.
- ❑ Evaluate the need for locating low-tech communications boards (alphabet and pictures), whiteboards, and erasable markers.
- ❑ Develop signage and information in alternative formats, including but not limited to: audio, large print, picture, languages other than English, and braille.
- ❑ Develop pre-scripted messages in other languages relevant to the airport's passenger population and surrounding areas.
- ❑ Establish vendor contracts and/or on-demand services for ASL interpreters, if applicable.
- ❑ Establish vendor contracts and/or on-demand services for foreign translation, if applicable.
- ❑ Establish DAFN advisory group and keep a list of contact information for local advocacy groups for people with disabilities to help with supplemental planning.
- ❑ Ensure airport website is accessible and provides information about services available to people with DAFN.
- ❑ Develop and deliver DAFN awareness and emergency communication operations training to airport staff and volunteers.
- ❑ Integrate testing of accessible communications into emergency exercises.

### Response Checklist

- ❑ Integrate the DAFN communications function into the Incident Command System (ICS) and staff a liaison position at the Emergency Operations Center, as needed.
- ❑ Repeat essential emergency information in simple message formats.
- ❑ Ensure that printed information:
  - Uses clear fonts (e.g., Arial), 12 points or larger, and **bold** text for emphasis.
  - Has a blank background.
  - Uses left alignment and proper punctuation.
  - Uses text to explain any images or charts.
- ❑ Ensure that emergency information is posted to an accessible website.
- ❑ Have TTY/TDD (text telephone, also known as telecommunication device for the deaf) capabilities when setting up emergency hotlines, if applicable.
- ❑ Provide information in alternate formats, such as large-sized fonts and various languages.

APPENDIX G

# Training Program Resources

Organizations are encouraged to partner with local experts and advocacy groups to help further customize training to fit the unique needs of the area.

**Disability Equity Training (DET) Empathy Exercises**

Ideally, one or more individuals with one or more disabilities or access and functional needs would facilitate or co-facilitate all discussion and training activities. In preparation for the activity, the facilitator can print and cut out the cards on the following pages. Cut around the dotted lines, and then fold on the solid line. There are three types of cards:

- **Function** cards (for TONE, EYE CONTACT, BODY LANGUAGE, and SERVICE ANIMAL)
- **Question** cards (e.g., "Would you like help?" and "Do you need assistance?")
- **HELP** cards

***What Is a Disability?***

**Discussion prompt (read aloud by facilitator or participant):**

"As a society, we have mistakenly adopted a mindset that divides us into two groups: 'able-bodied' people and 'disabled' people. In **fact, we all will be part of the disability community at some time in our lives.** If we recognize that all of us will need accommodations at some point in our lives, we will learn to be more compassionate and understanding of individuals with disabilities, people with access and functional needs, and people with limited English proficiency."

(5 minutes)
**Facilitator:** Ask participants to provide their own definitions of *disability*. Remind volunteers that there is no perfect answer. Encourage and model respectful, creative candor.

(2–3 minutes)
**Facilitator:** "If we think of *disability* as a conditional state of any duration that can make it difficult for a person to do activities or perform functions that keep him or her safe and healthy, how does that change your definition?"

**G-2** Airport Emergency Communications for People with Disabilities and Others with Access and Functional Needs

(3–5 minutes)

**Facilitator:** (1) Ask participants to share a time or situation when they were or would have been considered "disabled" according to the definition. Remind volunteers that states of disability may be invisible or visible and highly situational. (2) After participants have shared, write or place the written definition of *disability* on the top center of a whiteboard, chalkboard, or wall, and read it aloud: "Disability: a conditional state of any duration that can make it difficult for a person to do activities or perform functions that keep them safe and healthy." Draw a continuum from "Visible" to "Invisible" just below the definition, or mark columns with sticky notes.

(5 minutes)

**Facilitator:** Have participants brainstorm types of disabilities using sticky notes (one per note). If participants have difficulty with brainstorming, share a few prompts from the following list:

*Prompts (as needed):*

- Infant or child without verbal communication or literacy
- Individual with visible mobility aids and hearing aids
- Individual with service animals
- Visible markers of surgery, injury, and/or illness
- Any person without verbal communication or literacy in a particular language
- Invisible effects of surgery, injury, and/or illness
- Differences in cognition (e.g., differences related to depression, grief, or neurodivergence, such as people with autism, schizoaffective disorder, bipolar disorder, or attention deficit hyperactivity disorder)

(1 minute)

**Facilitator:** Have participants place their notes along the continuum. Variation: decide on the placement of each note as a group.

**Facilitator (reads aloud):**

"Identifying groups or individuals with specific needs who require assistance (for example, unaccompanied and separated children and adults with mobility disabilities) is not a simple or straightforward task. While there may be cues or clues that signal a person in need of assistance (such as unfocused or "dazed" eye movements, a visible injury, or not heeding warning sounds or signals), the majority of disabilities are not immediately visible."

***Role-Play: Communicating with People with Disabilities and Others with Access and Functional Needs***

**Set-Up:** Two chairs side by side in front of the room, with a table or third chair available from which participants will pick up cards during the activity.

**Facilitator:** (1) Divide the group into pairs. Within each pair, ask the participants to determine who will be Player A and who will be Player B. (2) Place the **Function** playing cards (i.e., TONE, EYE CONTACT, BODY LANGUAGE, SERVICE ANIMAL) with the colored side up in a single pile on a table or chair where players will be able to pick them up as they come to the front of the room. Place the **Question** playing cards in a separate pile. Hold the **HELP** playing cards for distribution to participants in the audience after the role-play has begun.

**Facilitator:** Select a participant to read aloud.

**Participant (reads aloud):**

"Diagnoses and labels are not relevant when helping someone in an emergency. What is important is performing the functions necessary to maintain safety and security (with or without assistance)."

**Facilitator (reads aloud):**

"You can't tell a person's needs just by looking at them. If a particular access and functional need is identified, it does not mean that the person doesn't have additional needs. Just because you have worked with someone with an access and functional need does not mean that every person with that need will want, request, or require the same accommodations."

**Facilitator (shares the following instructions):**

1. Each pair will have a chance to participate in the role-play.
2. Player A will choose a **Question** card (either "Would you like any help?" or "Do you need assistance?"), and Player B will pick a **Function** card.
3. Player A and Player B may consult with each other briefly before moving to the front of the room to enact the role-play.
4. During the role-play, Player A will approach Player B, ask the question on the **Question** card, and perform the action according to the **Function** card. The players may interact however they like with the chairs. Differing approaches are encouraged.
5. After each role-play, I will ask for feedback from the audience. The audience will try to guess the type of function or action being modeled, describe what "worked," or share ideas for how the speaker or helper could improve.

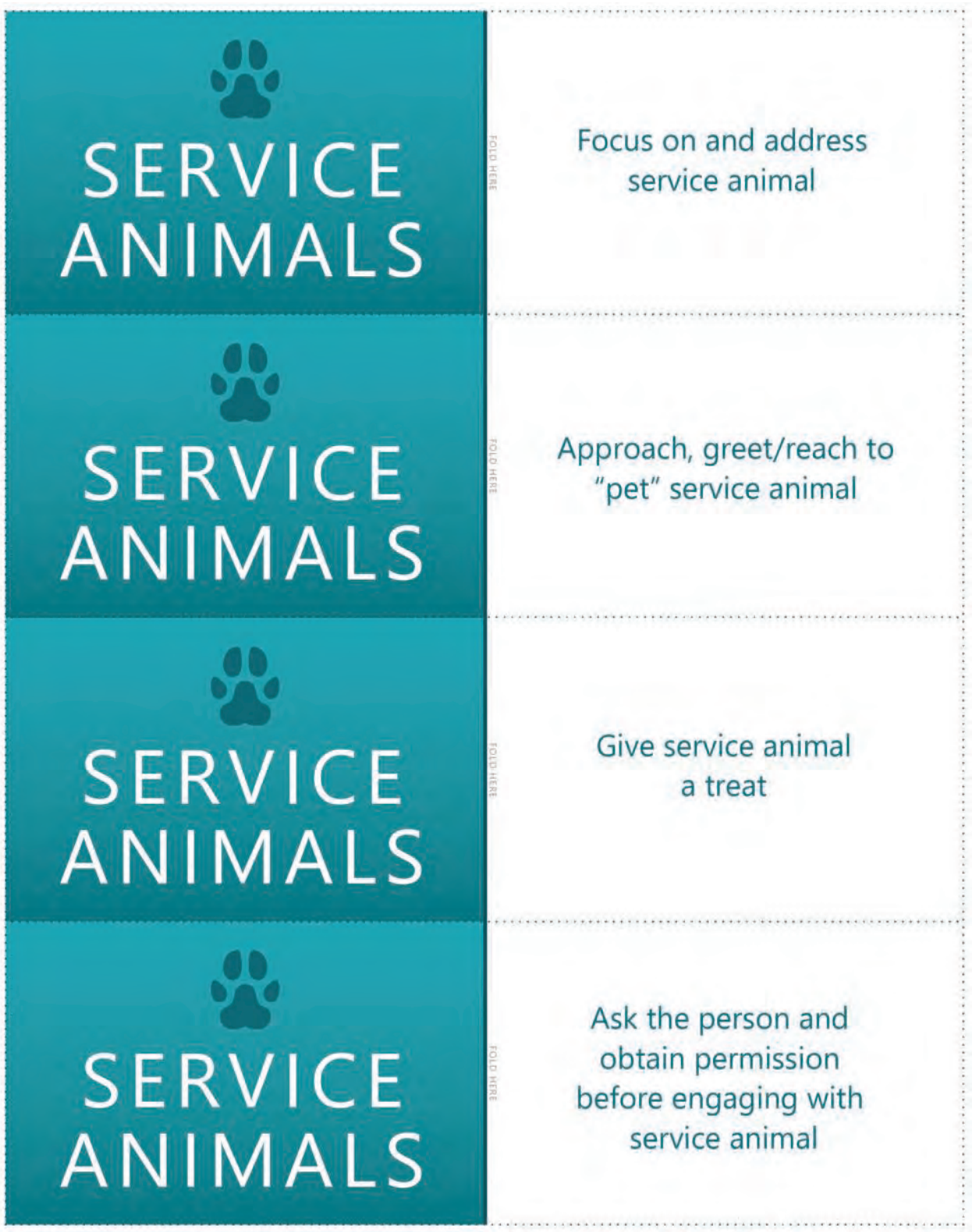
**Facilitator:** Ask if participants have any questions. When all participants understand the process, ask for the first volunteer pair to begin the role-play activity. Once players get the hang of the activity (after two or three rounds), introduce the **HELP** cards. Explain that you will hand a **HELP** card to any audience participant who raises their hand, and encourage audience members to request a **HELP** card as needed to help performers. Remind participants that their goals are to guess the type of function or action being modeled and identify both what "worked" or how the speaker/helper can improve. Continue the role-play until all participant pairs have had a turn and received feedback.

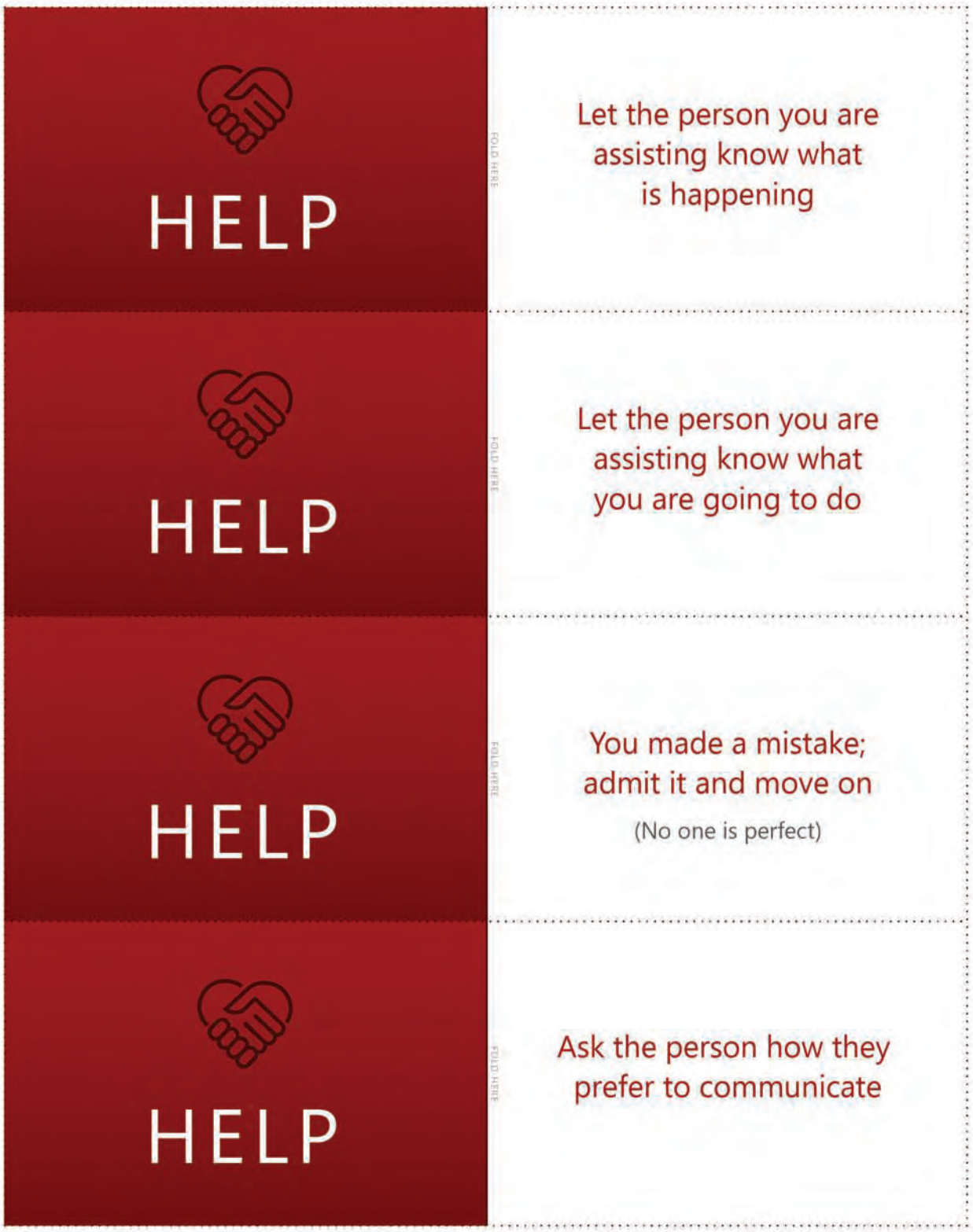
**Facilitator (reads aloud):**

"There are a growing number of people with multiple access and functional needs. Every person and every disability is unique—respect his or her independence to the greatest extent possible. Don't make assumptions about the person's abilities. Ask if he or she would like help or needs assistance. Always ask if and how you can help before attempting any assistance. The person may not agree with the type of help you wish to offer; remember, it is their choice how they wish to use or accept assistance."

**Disability:** a conditional state of any duration that can make it difficult for a person to do activities or perform functions that keep them safe and healthy.

| **Visible** | **Invisible** |
|---|---|





APPENDIX H

# Sample Staff Training Flyer and Brochure

This appendix provides a sample training flyer and brochure that apply best practices for communicating with individuals with disabilities and access and functional needs. The appendix adapts material from two sources:

- A *Wikihow* article co-authored by Trudi Griffin, LPC, available at https://https://m.wikihow.com/Help-Those-Who-Have-a-Disability, and
- A presentation titled "Identifying and Assisting Persons in Need" by Johnson (2018), available at https://docs.google.com/presentation/d/1aI5ku-GZMnxs57O-draJx1UbVkFbXe35n4rvY67-1uc/edit?usp=sharing.

Material posted to Wikihow is available for noncommercial use under a creative commons license. The flyer and brochure are provided as helpful starting points for airports wishing to develop their own materials. Airports are encouraged to ask their DAFN advisory groups to review all outreach materials before they are shared with the wider airport employee and traveler audience.

Non-profit organizations also offer public-facing outreach materials. For example, the United Spinal Association offers a "Disability Etiquette" booklet that can be printed for distribution, which is available at: https://www.unitedspinal.org/pdf/DisabilityEtiquette.pdf.

# 1 MINUTE READ How to Offer and Provide Assistance Respectfully

Disability is not about a specific group of people. Disability is about a specific time in the life of each and every one of us. For some, it may be temporary, for others it may last much longer. As a society, we have mistakenly adopted a mindset that divides us into two groups, able bodied and disabled. **The fact that we all will be part of the disabled community for some time in our lives**. If we act from the perspective of what we would want when, rather than if, we become disabled, we truly will be able to make great progress for all people. National Fire Protection Association

## PRACTICE RESPECTFUL COMMUNICATION

- Let the person you are assisting know what is happening and explain what you are going to do
- Keep calm
- Be supportive and patient
- Maintain eye contact and speak directly to the person **(not to a companion, interpreter, etc.)**
- Speak in a normal voice. It's okay to slow down or repeat yourself

## PEOPLE FIRST

Put the person before the diagnosis. Disability is not the **problem**. A person who wears glasses doesn't say, **I have a problem seeing**, they say, **I wear/need glasses**. Similarly, a person who uses a wheelchair doesn't say, **I have a problem walking**, they say, **I use/need a wheelchair**.

## LEAD THE WAY!

**LISTEN** carefully to understand and assess
**ENGAGE** respectfully
**ASSIST** as requested
**DOUBLE-CHECK** to confirm understanding and uncover additional needs

### ASK BEFORE HELPING

If you offer assistance, wait until the offer is accepted, then ask for instructions. **Remember**, everyone wants to be independent and feel respected.

**Would you like any help?**

**Do you need assistance?**

## IT'S OKAY TO ASK QUESTIONS, IF THEY'RE RELEVANT

Oftentimes, people worry about inadvertently offending someone with a disability and end up acting off or nervous during interaction. This can be alienating for someone with a disability so be sure to be yourself and stay calm. If you have any questions, it's fine to ask them if they're relevant to the situation.

# 5 steps to IDENTIFYING AND ASSISTING PERSONS IN NEED


### Learn the Proper Terminology.

Make sure you use the right terms when discussing people with disabilities. Certain terms that were once considered the norm are now outdated and even offensive. The first step to helping people with disabilities is learning the proper terminology.

- When speaking about someone with a disability, it is often polite to place their personhood before their specific condition. **Do not** say **handicapped person**. Identify them by another means (like you would anyone else), and if you're talking specifically about the use of a wheelchair, say, person in the wheelchair or person who uses the wheelchair. Keep in mind there are a few noteworthy exceptions to this; many people in the Deaf, Blind and Autistic communities prefer identity-first language, meaning they want to be called an **autistic person** or a **Deaf person** (with the capital D indicating the identify as part of the Deaf culture).
- Certain terms that were once considered politically correct are now outdated and potentially offensive. The terms mute or dumb used to be appropriate for referring to people who cannot speak, but now terms like **nonverbal** or **nonspeaking** are preferred. Lame and crippled were once used to describe those with limited or no mobility, but now terms like **physically disabled** are preferred.
- When in doubt, **ASK** questions to understand.

### Practice Direct Communication.

Oftentimes, people with disabilities are assisted by interpreters, nurses, or friends during their day-to-day lives. It's important that, when communicating with someone with a disability, you talk directly to that person. Do not filter conversation through someone else.

- Treat people like adults and speak to them accordingly.
- Look at the people with a disability and not their interpreter or assistant. Oftentimes, people who are deaf look to their interpreter while another person talking as in order to follow the conversations. You should still look at the person who is deaf, however, as that is who you are communicating with, not the interpreter.
- Always identify yourself.
- If you are communicating with someone in a wheelchair, sit down so that they don't strain their neck looking up at you. Avoid bending down like you would to a child; this usually looks awkward.
- Don't broadcast or yell the person's information or status when communicating with other staff. Respect their privacy.
- Ask them their preference in communicating with you (ASL, pen and paper, etc.).
- When in doubt, **ASK** questions to understand.


# ask before helping

### Ask Before Providing Assistance.

If you see a person with a disability struggling with something, your first instinct may be to jump in and help. However, without knowing that person's specific needs or intentions, you may be doing more harm than good. Always ask before offering your assistance.

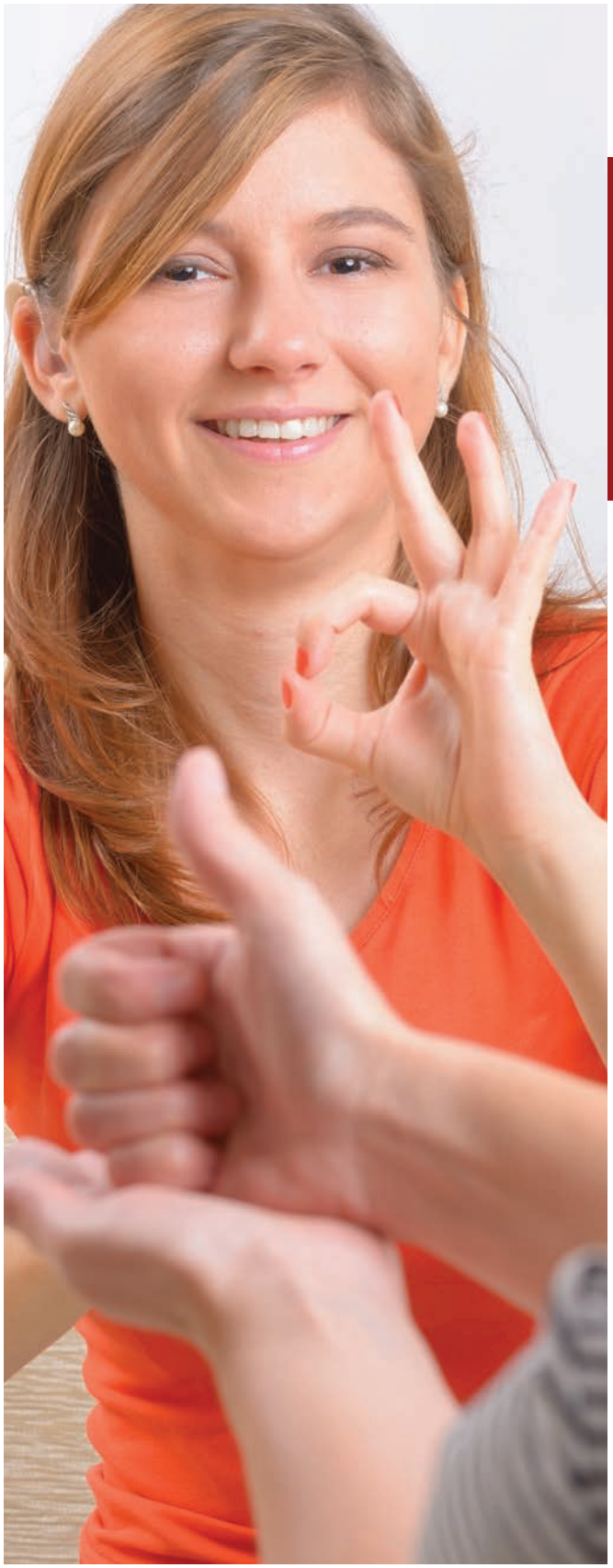
- Sometimes, a person with a disability may seem to be struggling when they are actually fine. It may simply take them longer to do certain tasks, but that does not necessarily mean they need a helping hand. If you think they might need help, just ask.
- If you see someone with a disability struggling, simply say **"Would you like any help?"** or **"Do you need assistance?"** You do not have to say any more than this.
- If someone declines your offer of assistance, do not be offended or insist on helping. Simply go on with your day. They know their needs better than you do, and pushing them would come off as rude.
- Do not offer medical advice, especially if you are not a doctor. While suggesting yoga for someone who suffers from chronic pain may seem helpful, remember that person already has a doctor who knows his specific medical history and giving out advice without solicitation comes off as condescending.
- When in doubt, **ASK** questions to understand.


# demonstrate respect

### Be Respectful in Your Words and Actions.

When interacting with someone with a disability, always be respectful in both your words and actions.

- When introduced to someone with a disability, always offer to shake hands. Even someone with limited hand use can usually manage this and refraining from offering a handshake, a typical gesture of courtesy, calls attention to a person's disability.
- Speak in you normal voice and tone. People often feel they should speak slower or louder, especially if they're interacting with a person who is hearing impaired, but this can come off as rude or infantilizing. Simply talk in your normal voice.
- It is okay to do things to make communication easier. For example, if interacting with someone who is hard of hearing, make sure to look directly at them so they can read your lips and follow other visual cues. Sitting down to make eye contact with someone in a wheelchair can be a polite gesture. If someone has a speech impediment, rather than pretending you understand something they said when you did not, you can politely ask them to repeat it.
- Be yourself during any conversation. If you accidentally use a common expression that does not apply (e.g., "see you later" to someone who visually impaired), do not panic and apologize profusely. That person will understand this is a colloquialism and not meant to be taken literally.
- Don't beat yourself up, no one expects you to be perfect. If you make a mistake, **admit it** and **fix it**.



# 5 ask questions!

**Ask Questions If They're Relevant.**
Oftentimes, people worry about inadvertently offending someone with a disability and end up acting off or nervous during interaction. This can be alienating for someone with a disability so be sure to be yourself and stay calm. If you have any questions, it's fine to ask them if they're relevant to the situation.

- For the most part, people with disabilities would rather you simply ask a question politely rather than remain confused. For example, it's completely appropriate to ask someone who is deaf if they can read lips and would therefor prefer if you faced them each time you talked. If you're planning an event and you know the wheelchair ramp is in the back room, it's fine to say to someone in a wheelchair, "Do you know where the wheelchair ramp is? It's hard to find and I just want to make sure you know."
- People are wary to ask questions as they do not want to call attention to someone's disability. However, avoiding an obvious question can sometimes call more attention to the issue than simply addressing it. As long as questions are relevant to the situation at hand, they will likely not come off as prying or insensitive.
- **Plan ahead** for how you could modify an action, where to get adaptive or assistive equipment, etc.
- When in doubt, **ASK** questions to understand.

APPENDIX I

# Exercise Toolkit

Exercises are the primary way of measuring the understanding, effectiveness, and quality of the airport's training and planning regimen. Exercises should test the following items, which are identified in FAA Advisory Circular 150/5200-31C (Change 2):

**Checklist for Adherence to FAA Advisory Circular 150/5200-31C (Change 2)**

| Criteria | Reference to AC 150/5200-31C | Tested in Exercise? |
|---|---|---|
| In AEP planning, individuals with disabilities and others with access and functional needs must be identified. | p. 13, 3-4.d. | Yes / No |
| There must be a fully functional alert and warning system for individuals with disabilities and others with access and functional needs. | p. 54, 6-3-2.b.(1) | Yes / No |
| Emergency warnings must be able to reach individuals with disabilities and others with access and functional needs, as well as those with limited English proficiency. | p. 55, 6-3-2.c.(5) | Yes / No |
| Public information systems must be able to reach individuals with disabilities and others with access and functional needs and limited English proficiency in an emergency. | p. 59, 6-4-2.b.(1).(c) | Yes / No |
| For evacuation, accommodation procedures must be included for individuals with disabilities and others with access and functional needs. | p. 69, 6-4-2.c.(3)(b) | Yes / No |
| The American Red Cross may play a role in helping individuals with disabilities and others with access and functional needs. | p. 86, 6-4-2.d.(8)(g) | Yes / No |
| Social services agencies may play a role in helping individuals with disabilities and others with access and functional needs, those with restricted mobility, or seniors and children. | p. 86, 6-4-2.d.(9) | Yes / No |

In addition to regulatory requirements and guidance, it is suggested that airports develop an exercise strategy. It is beyond the scope of this guidebook to provide full details for developing exercises effectively. Planners are encouraged to refer to the Federal Emergency Management Agency (FEMA) Homeland Security Exercise and Evaluation Program (available at https://preptoolkit.fema.gov/web/hseep-resources) and to other ACRP materials, including ACRP Project 04-19, "Airport Emergency Planning Template: NIMS – Incident Command System Compliance," which addresses recommendations for integrating the disability, access and functional needs, and limited English proficiency (DAFN) communities into exercise planning. Airport exercise designers should familiarize themselves with these documents and programs to develop effective exercises.

**Key Considerations**

Possible scenarios that will test DAFN communications:

- Facility evacuation
  - Weather
  - Criminal event
- Shelter in place
  - Weather
  - Criminal event
- Aircraft accident
- Airport closure

Core capabilities:

- Operational coordination
- Public information and warning
- Operational communications
- Intelligence and communication sharing

Exercise participants:

- Person who has mobility limitations
- Person who is blind
- Person who is hard of hearing
- Person who has a cognitive impairment
- Person who is a non-native English speaker
- Representation of response stakeholders
- Airport emergency response team

### Reference Tools

What follows is a sample of information that can be added to integrate communications that include members of the DAFN community into discussion-based and operational-based exercises. A checklist is included to outline the necessary planning steps. It is suggested that an airport follow a building-block approach that includes evaluating communications practices, technologies, and assumptions using the other tools of this guidebook. Ideally, operational exercises should be considered once plans and processes have been developed and staff have been trained; however, there are certain elements that can be integrated into any exercise. An airport can use any or all of these aspects and integrate them into the exercise documentation.

### Questions, Objectives, and Evaluations:

The tables in this appendix document are not inclusive of every potential question an airport may consider. As confidence in the process grows, consider adding complexity by removing the primary means of communications and determining if the airport can adapt to build secondary and tertiary communication strategies.

## Discussion-Based Exercise

| Question | Objective | Evaluation Criteria |
|---|---|---|
| Is the airport's communications technology suitable for effective and timely dissemination to all people? | 1. The airport will have multiple methods of disseminating timely information to all people.<br>2. Airport users understand the different methods of communication. | 1. The methods used by the airport are diverse and inclusive of all people.<br>2. Exercise participants can describe the different methods of notification.<br>3. Exercise participants can describe the methods by which messaging will be activated.<br>4. Exercise participants demonstrated "dignity for all people" throughout the exercise. |
| Can the airport effectively adapt to the changing nature of an emergency and communicate to people affected by the emergency? | 1. The airport has established practices for adapting to the changing nature of an emergency.<br>2. The airport can effectively communicate changing conditions to all individuals. | 1. The airport demonstrated how it will adapt to ensure adequate communication throughout the exercise.<br>2. Exercise participants can describe how the airport is organized to adapt to the changing nature of emergencies.<br>3. Exercise participants can describe how the technology and methods used for communication are customizable and adaptable across all methods.<br>4. Exercise participants demonstrated "dignity for all people" throughout the exercise. |
| Do airport emergency plans adequately account for communicating to all individuals? | 1. Airport plan(s) adequately describes communication methods for the variety of individuals accessing the airport, including people with disabilities, others with access and functional needs, and those with limited English proficiency (DAFN). | 1. The airport used representatives from the DAFN community in the development of the plan(s).<br>2. The airport plan addresses how it will communicate to all individuals.<br>3. Exercise participants can describe the differing people that the plan accommodates.<br>4. Exercise participants can describe the methods the plan lists.<br>5. Exercise participants demonstrated "dignity for all people" throughout the exercise. |
| Are airport personnel and stakeholders adequately prepared and/or trained to perform the functions necessary to communicate to people with disabilities? | 1. Airport personnel can effectively implement the communication elements of the emergency plan. | 1. Exercise participants can describe their roles in implementing the communication plan.<br>2. Exercise participants can describe how they fit into the overall emergency management efforts.<br>3. Exercise participants demonstrated "dignity for all people" throughout the exercise. |

## Full-Scale Exercise

| Question | Objective | Evaluation Criteria |
|---|---|---|
| Is the airport's communication technology suitable for an effective and a timely dissemination to all people? | 1. The airport will have multiple methods for disseminating timely information to all people.<br>2. Airport users understand the different methods of communication. | 1. Emergency messages were disseminated across all methods within _____ minutes of initial notification.<br>2. Emergency messages were accurate.<br>3. Exercise participants understood and took appropriate action.<br>4. Exercise participants demonstrated "dignity for all people" throughout the exercise. |
| Can the airport effectively adapt to the changing nature of an emergency and communicate to people affected by the emergency? | 1. The airport has established practices for adapting to the changing nature of an emergency.<br>2. The airport can effectively communicate changing conditions to all people. | 1. Incident command was effective in adapting to the scenario, and objectives/span of control were adjusted accordingly.<br>2. Exercise participants used all available methods to ensure effective communication as the scenario dictated.<br>3. Exercise participants demonstrated "dignity for all people" throughout the exercise. |
| Do airport emergency plans adequately account for communicating to all people? | 1. Airport plan(s) adequately describes communication methods for the variety of individuals accessing the airport, including individuals with disabilities, people with access and functional needs, and people with limited English proficiency. | 1. Exercise participants effectively used available plans to communicate to all impacted parties.<br>2. All exercise participants received exercise messaging in the manner they expected.<br>3. Exercise participants demonstrated "dignity for all people" throughout the exercise. |
| Are the airport personnel and stakeholders adequately prepared/trained to perform the functions necessary to communicate to people with disabilities? | 1. Airport personnel can effectively implement the communication elements of the emergency plan. | 1. Exercise participants performed their roles in accordance with the plan.<br>2. Exercise participants demonstrated "dignity for all people" throughout the exercise. |

I-6 Airport Emergency Communications for People with Disabilities and Others with Access and Functional Needs

### Additional Considerations

Consider having three types of evaluators:

- Subject matter experts (SMEs) who are familiar with the policies and procedures of the elements being evaluated
- Individuals within the DAFN community who can speak to expectations
- Outside eyes who can provide an overview of how things look to an outsider

Evaluations guides should contain the following elements at a minimum:

- Ranking criteria using a Likert type scale (i.e., from 1 [not accomplished] to 5 [mastered])
- The ability for the evaluator to add notes, comments, and/or explanations
- A location to note the time observed and the location within the exercise
- Contact information for follow-up questions

Take into account the level of care that is provided to people with DAFN and their service animals on a regular basis, not just during the exercise or in an emergency. Include the following:

- Medicines
- Transportation
- Restrooms and relief areas for service/support animals
- Dietary restrictions/food allergies
- Real-life emergency contact
- Personal protective equipment

For actors/role players, communicate expected actions. If at all possible, manage expectations for no surprises.

- Lights/sirens
- Moulage
- Gunshots
- Will it be a full-lift exercise or simulated?
- What stretchers and/or safety restraints may be used?

For responding role players, encourage any pre-training to be accomplished and brief them to expect a mixture of all types of people. The purpose is to evaluate processes and procedures.

## Exercise Planning Checklist

This checklist presents an estimate timeline and key tasks that must be accomplished for a successful exercise. Each key task can be broken into further steps. For the timeline, the smaller number represents discussion-based exercises, and the larger number represents a full-scale exercise. This timing will vary depending on the complexity and nature of each airport. Flexibility is required.

| Activity to Be Accomplished | Time in Relation to Exercise Date |
|---|---|
| What is the exercise trying to accomplish, and what type of exercise will be most appropriate for these objectives?<br>• Review and/or develop quality control plans (discussion-based exercise)<br>• Evaluate the performance and/or effectiveness of plans (operational-based exercise) | 60–360 days prior |
| Determine initial planning team:<br>• Emergency management community<br>• Stakeholders<br>• Community representatives for people with disabilities, others with access and functional needs, and those with limited English proficiency (DAFN)<br>Consider assigning roles for different aspects:<br>• Site manager<br>• Logistics<br>• Finance<br>• Safety | 60–360 days prior |
| Determine initial exercise objectives and scope (see section above on possible objectives for different communication challenges for people with DAFN) | 60–360 days prior |
| With the planning team, develop and/or refine a scenario that will evaluate against the established objectives<br>(Caution: A scenario that is too elaborate may result in an inaccurate evaluation of stated objectives.) | 30–270 days prior |
| Issue a save-the-date notice and/or an invitation for the exercise early enough to ensure adequate participation, as participation will depend on the availability of stakeholders<br>• Develop a registration process<br>• Provide minimum participation requests to stakeholders | 15–180 days prior |

(*continued on next page*)

| Activity to Be Accomplished | Time in Relation to Exercise Date |
|---|---|
| Develop exercise documents: (for more information, see ACRP/FEMA):<br>• Evaluation guides (How do you know if the objectives were met?)<br>• Timeline of expected exercise activities, sometimes called aMaster Scenario Events List (MSEL)<br>• Briefing materials<br>For more information, see resources at:<br>• ACRP: http://www.trb.org/Publications/PubsACRPSynthesisReports.aspx<br>• FEMA: https://www.fema.gov/media-library/assets/documents/100098 | 15–60 days prior |
| Train exercise staff and players:<br>• What are the rules?<br>• What are the objectives?<br>• Safety requirements<br>• Artificialities | 1 week prior |
| Conduct exercise:<br>• Capture immediate evaluation feedback through a post-exercise discussion and evaluation of stakeholder(s) performance<br>• Collect evaluations | Day of exercise |
| Complete summary:<br>• Provide highlights of exercise demographics<br>• Include pictures<br>• Include initial observations | 1 week post-exercise |
| Prepare an after-action report:<br>• If requested, schedule an after-action conference | 30–90 days post-exercise |

APPENDIX J

# Emergency Preparedness Scenario Vignettes

These vignettes serve multiple functions, including laying the foundation of a discussion-based or tabletop exercise, assisting planners in understanding the multifaceted aspects of accessible emergency communications, and as a starting place for emergency communications strategy development. The vignettes are by no means inclusive of every individual traveler's experience.

**Active-Shooter Scenario**

Michelle is a 32-year-old vice president of a start-up company that specializes in autonomous vehicle technologies. She has just arrived on an incoming flight and is preparing to gather her bags at baggage claim. Without warning, a person on the departures level pulls out a gun and begins firing indiscriminately into the crowd. An active-shooter warning is paged over the public address (PA) system that tells people to exit through the closest door. As others around her begin to run for the exits, Michelle is forced to lie down behind a baggage carousel because her visual impairment does not allow her to see the location of the exits.

**Bomb Threat**

Harold is an elderly man who has made the trip from his first nation to the local airport to meet his son, who is returning home after a trip to New York City. Harold also is planning to get the batteries in his hearing aids replaced, as they have both died and left him without most of his hearing. This is not usually a problem for Harold, because he has lived alone ever since his wife died a few years ago. After parking, he walks into the terminal and wanders over to the arrivals screen to find his son's flight, which appears to be on time. Harold settles into a comfortable chair in the arrivals area. Before long, Harold begins to see people leaving the building in a hurry and strains to hear what might be happening. Unable to decipher the PA system, he looks to the television screens but finds no information there. Deciding that there is nothing urgent going on, Harold is eventually surprised when he is confronted by a police officer with an explosives-detection dog. Harold manages to get across that he is a person who is hard of hearing. Eventually, an airport employee who speaks American Sign Language (ASL) explains that the terminal has been shut down and evacuated as a result of a suspicious device.

### Fire

Miriam is a 40-year-old post-graduate student who is flying to California to complete research for her doctoral dissertation. A congenital condition has left her requiring the use of a wheelchair to get around. After arriving at the airport, she goes to get something to eat before going through the security checkpoint. As she begins to eat her breakfast of bacon and eggs, the fire alarm goes off. She hears the alarm, sees the strobe lights, and begins to make her way back the way she came. Unfortunately, the fire has happened in a neighboring restaurant and her path is blocked by smoke and flames, so she looks for another exit. She discovers a narrow hallway with an exit sign and begins to make her way down it. She reaches the end of the hallway and opens the door to find herself facing a flight of stairs. The hallway is too narrow for her to turn her wheelchair around and she is forced to remain at the doorway until a responding firefighter sees her and helps carry her down the stairs, where she is placed in an ambulance to be evaluated for smoke inhalation.

### Explosion

Hassan is a Syrian doctor who has been recruited to work at the Mayo Clinic. He speaks enough English to get by; however, he is traveling with his wife Fatima and their young daughter Yara, who don't speak English. After disembarking from their flight, they make their way to the bathrooms so that Fatima can change Yara's diaper. While Hassan waits for them outside, an explosion and loud crash interrupt his thoughts. Before he can figure out what is happening, security and police are rushing in one direction, and he is being carried along with the crowd, away from the bathrooms. An immediate announcement is put out over the public address (PA) system and is also flashed on internal screens throughout the airport asking people to leave the terminal by the closest door and stay away from the main entrance. Fatima, speaking no English, is unaware of the problem and is unable to find Hassan after leaving the bathroom. She follows the icons for baggage claim, thinking that Hassan might meet her there. As she moves through the terminal, she is confronted by the first-responding police officers, who find her just inside the main entrance. As they reach her, they mistake her for a threat and arrest her. It is several hours before she is able to explain, through an interpreter, that she was just lost and looking for her husband.

APPENDIX K

# Example Full-Scale Exercise Notes

This appendix presents the full-scale exercise-related notes that were provided to the evaluation team. The provider has requested to remain unnamed. Notes are provided for illustration purposes and in hopes of facilitating learning across the airport community.

**Participation by People with Disabilities, Others with Access and Functional Needs, and Those with Limited English Proficiency (DAFN)**

- Did members of the DAFN community participate in this exercise?
  - Yes – 1
- Was the person in the DAFN community triaged by first responders?
  - Yes
- If so, describe the interaction between the first responder and the victim [person with DAFN].
  - The first responder read the wristband but did not speak to the victim.
  - The victim had a facial laceration only, but, due to deafness, was not able to hear the overhead announcement that all those that were able to walk should make their way toward the fire trucks.
- Did you witness any issues between the first responder and victim?
  - Yes
- If so, what were the issues?
  - He was unable to communicate verbally but figured out the victim was deaf when the victim started to sign. First and second responders gestured to the victim to stand up and walk. The first responder walked with the victim to the triage location. No other questions were asked about the victim's name or other injuries.
  - The first responder established eye contact, gestured while enunciating for lip-reading, and made a verbal hand-off to the triage officer explaining that the victim was deaf and needed to have eyes kept on him.
  - During the changing of hands, no hand-off or written tagging stating that the victim was deaf was provided so that others could communicate with him.

**K-2** Airport Emergency Communications for People with Disabilities and Others with Access and Functional Needs

  - This resulted in the third responder reclassifying him as red rather than yellow and never establishing communication to explain to the victim why he was being moved. They did ask him his name, but, when he could not respond, they stopped trying to establish communication or get any information.
  - The fourth responder reclassified and relocated him to the yellow triage area—again without communication established or explanation of what was happening to the patient.
- Was the member of the DAFN community in need of transportation from the crash site due to the injuries?
  - No; he was ambulatory.
  - Yes, he needed guidance since he is deaf and was not able to hear the announcement to walk toward the trucks. He was escorted by a first responder.
- How was the victim transported from the crash site to a hospital?
  - Helicopter to Brooks Rehab
- Were there any Americans with Disabilities Act (ADA)–related issues when first responders were moving the victim into the transport vehicle?
  - There was a communication breakdown among exercise controllers here; no first responders transported the patient to a helicopter, but the evaluators did. Therefore, [there was] no hand-off from the first responder to the flight nurse about the victim being deaf or any other information about the victim.
  - As a result, there was no hand-off from the flight nurse to the ambulance transport for admission to Brooks.

**Notable Comments**

"Once the first responder realized that the victim was deaf, it would have been very helpful to have provided any type of pen/paper, cell phone, etc., for him to be able to communicate with other first responders since it is unlikely that one person would be able to stay with him the whole time. This would have assisted in triaging him more quickly and more appropriately so that resources and time could have been spent with those who needed it most. Also, it would have been helpful to identify the victim as someone who was deaf, even if it meant putting a tag on him that said as much so that others who tried to communicate wouldn't have to go through the process of establishing that he is deaf and finding a new way to communicate with him."

"The deaf victim was also supposed to play the part of someone who had a prior CVA [i.e., stroke] with [the right side of his] body affected. However, communication was avoided. Once people realized that he was deaf, several people just had him sit down and then walked away without attempting to comfort him, ask if he needed anything, or ask if anything else was wrong—to the point that the victim was never able to share with first responders that he had a prior stroke. Due to this, he abandoned this part of the role-play because he sat mostly unattended and unspoken to on the runway. The significance of a prior CVA would have been that, while ambulatory, he may have needed more assistance with walking, and first responders would not want to grab his affected arm and pull on it or help him from the ground with that arm due to the risk of dislocation or tearing of rotator cuff muscles, etc."

**Participation by Person with Limited English Proficiency (LEP)**

- Did the members of the LEP community participate in this exercise?
  - Yes – 1
- Was the person from the LEP community triaged by first responders?
  - Yes. Initially, it was not clear that she was Spanish-speaking, and she appeared to follow the general flow of traffic and gestures from first responders.
- Did you witness any issues between the first responder and the victim?
  - Yes. When the first responder was collecting demographic information, he asked in English, but she did not understand and spoke back in Spanish. A nearby victim was bilingual and assisted with interpretation. The first responder asked his fellow first responder, "How do you say 'last name' in Spanish?"
- Was the member of the LEP community in need of transportation from the crash site due to injuries?
  - No; she was ambulatory.

APPENDIX L

# Sample Mass Notification System Requirements

The following business requirements were included in a request for proposal for a mass notification system. These requirements are beneficial to ensuring that communication is accessible, but they may not be appropriate for all jurisdictions or organizations. The proposed mass notification system encompasses the following elements:

- Has been established and specifically designed to facilitate public mass notification distribution
- Offers tiered administration and security levels to optimize, manage, and control system use
- Allows the public to register phone numbers, SMS addresses, emails, and fax numbers via a website
- Is capable of accepting, via secured web services, batch upload(s) of multiple call lists and unique message(s) to be delivered per call list
- Allows the public to designate, per phone number, special functionality (TTY/TDD, fax, etc.) if desired, select order and/or method of notification preference, and select categories (as defined by the city) of events and occurrences to be notified about
- Is capable of disseminating messages via phone (landline and cell), SMS messaging, email, and fax
- Provides a system that complies with the Americans with Disabilities Act in all respects, and in particular a system that has services for individuals who are deaf or have a speech disability that is functionally equivalent to the services to be received by individuals who are not deaf or who do not have a speech disability
- Is capable of disseminating messages in the seven preferred ballot languages: English, Spanish, Chinese (Mandarin and Cantonese dialects), Japanese, Korean, Tagalog, and Vietnamese
- Contains accurate, up-to-date, and jurisdiction-wide constituent phone and email data
- Is capable of accepting and using jurisdiction-provided geographical map files in native ESRI file format
- Offers the GIS functionality of user-drawn/“hand-drawn” geographic selection of specific areas to generate call lists from and transmit notification messages

- Is capable of generating call lists via polygon-generated geographical map selection
- Is capable of geo-coding AT&T and Verizon (provider may be different) E911 phone data to jurisdiction-wide geographical maps
- Is capable of refreshing AT&T and Verizon (provider may be different) E911 phone data for production use on a monthly basis
- Is designed and managed with sufficient security, backup, and redundancy
- Is available no less than 99.5% of the time (with the remaining 0.5% allowed for planned system maintenance)
- Can, at a minimum, deliver a 30-second message (not including call overhead time such as queuing, dialing, call release, etc.) to 100,000 citizen phone numbers within 60 minutes
- Is able to provide online reports documenting notification results as well as other reports, such as monthly usage
- Is able to create and store numerous (more than 100) pre-canned scenarios
- Is able to send multiple notifications simultaneously
- Allows for an unlimited number of groups and subgroups to be created
- Is able to deliver live voice messages or text-to-speech
- Is able to access, launch, and use systems from any computer with an Internet connection or phone connection to record or schedule calls

APPENDIX M

# Signage and Symbols

## Principles of Universal Design

To facilitate accessibility, signage and symbols/pictographs should adhere to the following Principles of Universal Design (Centre for Excellence in Universal Design 2014):

- Principle 1: Equitable Use
  - The design is useful and marketable to people with diverse abilities.
- Principle 2: Flexibility in Use
  - The design accommodates a wide range of individual preferences and abilities.
- Principle 3: Simple and Intuitive Use
  - Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.
- Principle 4: Perceptible Information
  - The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
- Principle 5: Tolerance for Error
  - The design minimizes hazards and the adverse consequences of accidental or unintended actions.
- Principle 6: Low Physical Effort
  - The design can be understood efficiently with minimum fatigue.
- Principle 7: Size and Space for Approach and Use
  - Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

The newest and most comprehensive example of these principles in action is "Public Information Symbols," also known as Standards 7001:2007 (most recently amended in 2017), from the International Organization for Standardization (ISO)/American National Standards Institute (ANSI). ISO's symbols "communicate crucial safety messages that can overcome lack of language fluency and the difficulty of fully understanding a warning using text" (My Safety Labels 2018).

Overall design features of universally accessible signage "make appropriate use of font size, foreground/background color, and other visual attributes in image and text presentations" (World Wide Web Consortium [W3C] 2018).

| ATTRIBUTE | BEST PRACTICE | ADDITIONAL INFORMATION |
|---|---|---|
| Signal Word | Danger > Caution,* Warning, Alert | https://www.osha.gov/Publications/OSHA3636.pdf |
| Safety Alert Symbol | Exclamation Mark within Equilateral Triangle | http://www.ussafetysign.com/ansi.html |
| Font | Large Type, Bold, All Caps, Sans Serif | http://www.afb.org/info/reading-and-writing/making-print-more-readable/35 |
| Color | Reverse Type (White Lettering on High-Contrast Background), Thick Border | https://www.fonts.com/content/learning/fontology/level-2/display-typography/reverse-display-type |
| Size | Signal Word Height = Symbol Height | https://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=2326&context=etd (p. 17) |

* DANGER is rated as a signal word more likely to draw attention than CAUTION (Roe 2010).

The following sample signs (not to size) reflect best practices:


*Source:* Manualise (2017)


*Source:* https://signlanguageconnection.com/


*Source:* https://www.mydoorsign.com/accessible-signs/tty-symbol-sign/sku-se-1968

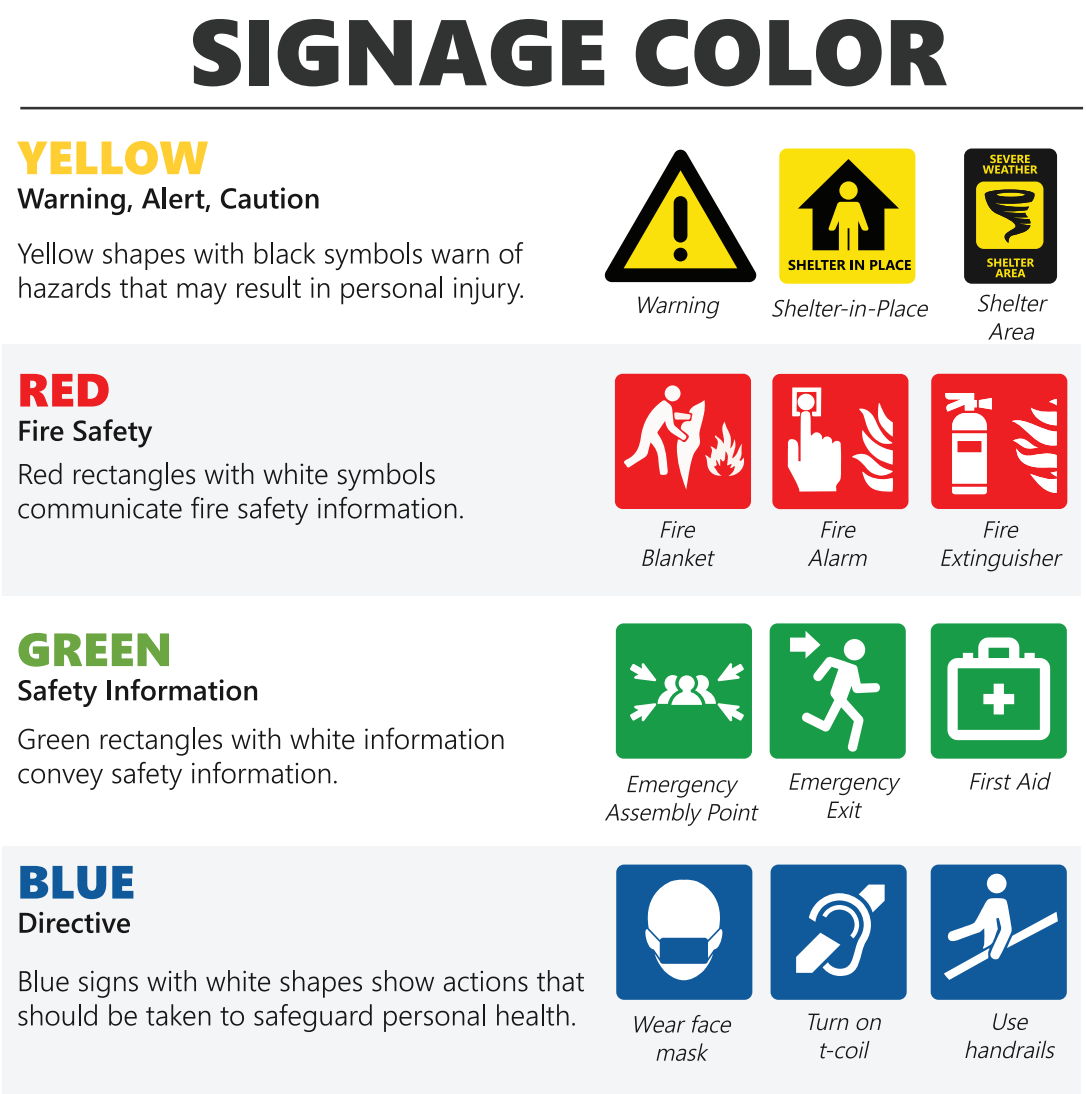
*Source:* State of Rhode Island [Public domain]: https://commons.wikimedia.org/wiki/File:International_Symbol_for_Deafness.jpg

Sign indicating access for individuals with hearing loss.

### Signage Color

When used consistently, color can be a helpful indicator of the imminence and type of message being conveyed (International Organization for Standardization [ISO] 2013; My Safety Labels 2018). The image on this page demonstrates common applications of color in emergency signage.

Unfortunately, no single, universal standard currently exists for warning, safety, and emergency informational messages in public spaces. For example, a red *danger* sign may not be specifically for fire, or a warning or hazard symbol may be orange instead of yellow. For this reason, efforts should be made to ensure that all signage can be easily understood in the context where it appears.




*Source:* International Organization for Standardization [ISO] 2013; My Safety Labels 2018

Additional references for symbols and other information regarding signage and symbols may be found at the following websites:

- ANSI WebStore: https://webstore.ansi.org (includes signage and symbols for sale)
- "The International Language of ISO Graphical Symbols": https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/graphical-symbols_booklet.pdf
- ISO Warning Stickers: https://www.mysafetylabels.com/iso-warning-labels
- Safety Labels: http://www.safetysign.com/safety-labels
- U.S. Geological Survey: https://www.usgs.gov/media/images/drop-cover-hold-0

**Depicting Individuals with Disabilities**

The Accessible Icon Project (n.d.a.) explains: "The old International Symbol of Access, while a milestone in ADA history, displays people with disabilities as passive, robotic and with more of an emphasis on the chair than the person. The updated icon in contrast presents people with disabilities as active, in motion, and under their own power." Whenever and wherever possible, the updated icon should be used.

**Original Icon** **Updated Icon**

*Source:* Accessible Icon Project (n.d.a.)

*Abbreviations and acronyms used without definitions in TRB publications:*

| | |
|---|---|
| A4A | Airlines for America |
| AAAE | American Association of Airport Executives |
| AASHO | American Association of State Highway Officials |
| AASHTO | American Association of State Highway and Transportation Officials |
| ACI–NA | Airports Council International–North America |
| ACRP | Airport Cooperative Research Program |
| ADA | Americans with Disabilities Act |
| APTA | American Public Transportation Association |
| ASCE | American Society of Civil Engineers |
| ASME | American Society of Mechanical Engineers |
| ASTM | American Society for Testing and Materials |
| ATA | American Trucking Associations |
| CTAA | Community Transportation Association of America |
| CTBSSP | Commercial Truck and Bus Safety Synthesis Program |
| DHS | Department of Homeland Security |
| DOE | Department of Energy |
| EPA | Environmental Protection Agency |
| FAA | Federal Aviation Administration |
| FAST | Fixing America's Surface Transportation Act (2015) |
| FHWA | Federal Highway Administration |
| FMCSA | Federal Motor Carrier Safety Administration |
| FRA | Federal Railroad Administration |
| FTA | Federal Transit Administration |
| HMCRP | Hazardous Materials Cooperative Research Program |
| IEEE | Institute of Electrical and Electronics Engineers |
| ISTEA | Intermodal Surface Transportation Efficiency Act of 1991 |
| ITE | Institute of Transportation Engineers |
| MAP-21 | Moving Ahead for Progress in the 21st Century Act (2012) |
| NASA | National Aeronautics and Space Administration |
| NASAO | National Association of State Aviation Officials |
| NCFRP | National Cooperative Freight Research Program |
| NCHRP | National Cooperative Highway Research Program |
| NHTSA | National Highway Traffic Safety Administration |
| NTSB | National Transportation Safety Board |
| PHMSA | Pipeline and Hazardous Materials Safety Administration |
| RITA | Research and Innovative Technology Administration |
| SAE | Society of Automotive Engineers |
| SAFETEA-LU | Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005) |
| TCRP | Transit Cooperative Research Program |
| TDC | Transit Development Corporation |
| TEA-21 | Transportation Equity Act for the 21st Century (1998) |
| TRB | Transportation Research Board |
| TSA | Transportation Security Administration |
| U.S. DOT | United States Department of Transportation |

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ISBN 978-0-309-48049-9
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