PARAS PROGRAM FOR APPLIED RESEARCH IN AIRPORT SECURITY

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Pandemic Response, Recovery, and Preparedness Planning for Airport Security Operations

Phase 1

National Safe Skies Alliance, Inc.

Sponsored by the Federal Aviation Administration

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NOTICE

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SUMMARY

During the summer and fall of 2021, a team consisting of Ross & Baruzzini, Tidal Basin, and TransSolutions conducted research to identify lessons learned during the COVID-19 pandemic and provide preparedness guidance for communicable disease response and recovery in airport security operations. This research was Phase 1 of a two-phase project.

Phase 1 research consisted of a comprehensive literature review (Appendix B), development of a COVID-19 timeline (Appendix C), and eight airport focus groups. Focus groups involved 32 participants representing 20 airports of varying size and geographic location, and were conducted using a customized questionnaire (Appendix D) to gather information regarding each research goal. Each focus group session was guided by a PowerPoint presentation (Appendix E) to maintain consistency and flow. Focal points of Phase 1 include:

- Passenger Impacts:
  - Security Checkpoint Queueing and Distancing
  - Passenger Health Screening and Attestation
  - Cleaning and Disinfection
  - Signage and Messaging
  - Mask Compliance Strategies
  - Public Area Measures
- Employee/Badge Holder Impacts:
  - Credentialing and Training
  - Access Control and Employee Inspections
  - Health Screening/Attestation and HIPAA/Privacy Considerations
  - Internal Stakeholder Engagement and Communication of Changes
- Airport Security Program Impacts
- Compliance with Evolving Guidance/Requirements
- Coordination, Resourcing, and Personnel

Research findings identified during Phase 1 are provided throughout the body of this document. An Improvement Plan is provided in Appendix A to assist airports in infectious disease and pandemic preparedness.

Phase 2 research will focus on communicable disease response and recovery planning for airport security operations, and procedures to facilitate preparedness in coordination with existing response and recovery protocols in Airport Emergency Plans.

PARAS ACRONYMS

ACRP	Airport Cooperative Research Program
AIP	Airport Improvement Program
AOA	Air Operations Area
ARFF	Aircraft Rescue & Firefighting
CCTV	Closed Circuit Television
CFR	Code of Federal Regulations
DHS	Department of Homeland Security
DOT	Department of Transportation
FAA	Federal Aviation Administration
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FSD	Federal Security Director
GPS	Global Positioning System
IED	Improvised Explosive Device
IT	Information Technology
MOU	Memorandum of Understanding
RFP	Request for Proposals
ROI	Return on Investment
SIDA	Security Identification Display Area
SOP	Standard Operating Procedure
SSI	Sensitive Security Information
TSA	Transportation Security Administration

ABBREVIATIONS, ACRONYMS, INITIALISMS, AND SYMBOLS

AAAE	American Association of Airport Executives
ACI	Airports Council International
AEP	Airport Emergency Plan
APM	Automated People Movers
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASP	Airport Security Program
CARES	Coronavirus Aid, Relief, and Economic Security (Act)
CBT	Computer-Based Training
CDC	Centers for Disease Control and Prevention
CIKR	Critical Infrastructure and Key Resources
CISA	Cybersecurity and Infrastructure Security Agency
COVID-19	Coronavirus Disease 2019
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
ETD	Explosives Trace Detection
EU	European Union
FBO	Fixed Base Operator
FDA	Food and Drug Administration
FIS	Federal Inspection Services
GAO	Government Accountability Office
HEPA	High Efficiency Particulate Air (Filter)
HIPAA	Health Insurance Portability and Accountability Act
HSEEP	Homeland Security Exercise and Evaluation Program
HVAC	Heating, Ventilation, and Air Conditioning
IATA	International Air Transport Association

IC	Incident Command/Incident Commander
ICAO	International Civil Aviation Organization
ICS	Incident Command System
IDMS	Identity Management System
IP	Improvement Plan
MERV	Minimum Efficiency Reporting Value
NAM	National Alternative Measure
NIMS	National Incident Management System
NPBI	Needlepoint Bipolar Ionization
NYT	New York Times
OSHA	Occupational Safety and Health Administration
PIN	Personal Identification Number
PIO	Public Information Officer
POD	Point of Dispensing
PPE	Personal Protective Equipment
SAFO	Safety Alert for Operators
SARS	Severe Acute Respiratory Syndrome
SD	Security Directive
SSCP	Security Screening Checkpoints
TCRP	Transit Cooperative Research Program
THIRA	Threat and Hazard Identification and Risk Assessment
US	United States
UV	Ultraviolet
VQ	Virtual Queuing
WHO	World Health Organization

SECTION 1: INTRODUCTION

A team consisting of Ross & Baruzzini, Tidal Basin, and TransSolutions conducted research on behalf of PARAS to identify lessons learned during the COVID-19 pandemic, and to provide preparedness guidance for pandemic response and recovery in airport security operations. The Research Team used principles for developing After-Action Reports and Improvement Plans (IP), including use of the Homeland Security Exercise and Evaluation Program (HSEEP), to guide the development of this document. The National Preparedness Goal[1] was used to identify pandemic core capabilities and summarize measures used to control pathogenic exposure among passengers and employees.

This document identifies lessons learned and best practices relating to exposure control, security integrity, and operational impact. It summarizes actions that were beneficial to security operations during the COVID-19 pandemic, as well as opportunities for improvement. Focus group feedback and literature review data were used to support Observations, Analysis, and Recommendations for each of the research objectives. These are organized in Sections 2–5 as outlined below:

- Section 2: Passenger Impacts
  - 2.1 Security Checkpoint Queueing/Distancing
  - 2.2 Passenger Health Screening, Attestation, and Testing
  - 2.3 Airport Cleaning and Disinfection
  - 2.4 Signage and Messaging
  - 2.5 Mask Compliance Strategies
  - 2.6 Public Area Measures
- Section 3: Employee/Badge Holder Impacts
  - 3.1 Credentialing and Training
  - 3.2 Employee Inspections and Access Control
  - 3.3 Health Screening/Attestation and HIPAA/Privacy Considerations
  - 3.4 Stakeholder Engagement/Communication of Changes
- Section 4: Airport Security Program Impacts
- Section 5: Compliance with Evolving Guidance/Requirements

Section 6 discusses recommendations regarding policy and planning considerations; training and exercises to develop response and recovery competencies; and the importance of coordination, communication, and resourcing.

The IP in Appendix A provides recommendations to support pandemic preparedness in airport security operations.

A Literature Review was conducted to identify the primary sources of airport-specific pandemic guidance as well as general public health guidance for response to communicable diseases. Details of the Literature Review are provided in Appendix B. Information derived from the literature was used throughout Sections 2–5 to support the stated recommendations. The literature reviewed provides a wealth of information to support recovery and long-term planning for a variety of communicable disease scenarios.

[1] **FEMA National Preparedness Goal:** https://www.fema.gov/emergency-managers/national-preparedness/goal

Phase 2 research is underway and will focus on communicable disease response and recovery planning in airports, as well as provide specific tactical procedures to facilitate preparedness.

1.1 Purpose and Objective

The objective of this research is to assist airports in making informed decisions regarding airport security operations during the COVID-19 pandemic and for similar events in the future. The key to improvement is understanding prior experience. By identifying lessons learned and opportunities for improvement in relation to the COVID-19 pandemic, this document serves multiple purposes, including to aid airport operators in:

- Defining policies and procedures to fit their needs
- Identifying resource shortfalls
- Identifying technologies to improve security conditions and facilitate exposure control
- Identifying internal and external coordination needs to address issues that fall outside traditional airport jurisdiction

The conditions brought about by this pandemic were unlike anything we have experienced in modern history. This document provides guidance for community coordination to reduce the burden on airports, control viral exposure, and recover in an expedited fashion.

While research for this document focuses on nearly two years of experience operating under pandemic conditions relative to COVID-19, the lessons learned and resulting recommendations are intended to support preparedness, response, and recovery for communicable diseases, regardless of cause. From a public health standpoint, the probability of contracting a communicable disease is determined by:

1) Duration – The time an individual is exposed to a pathogen
2) Distance – The proximity of an individual to an infected person
3) Dose – The amount of pathogenic load to which an individual is exposed

These factors are important in maintaining effective exposure control, maintaining a critical workforce, and instilling confidence in passengers. The recommendations provided herein are designed to allow airport operators to identify practices that best fits their needs using duration, distance, and dose as guidelines for effective exposure control. This paradigm can be used to great affect and often via low-cost measures.

1.2 Background

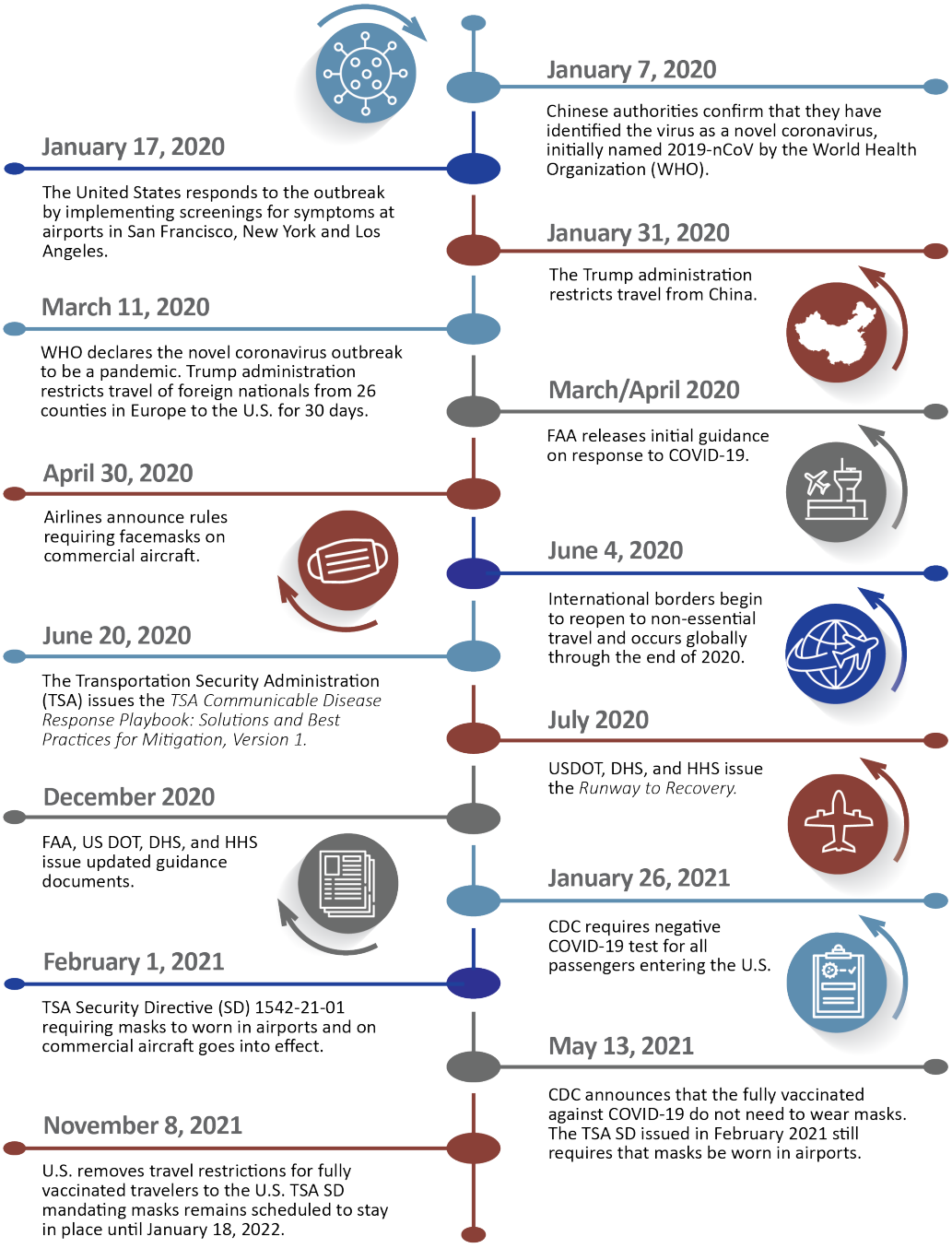
Pathogens that may cause communicable diseases include bacteria, funguses, and viruses. When the virus we now know as COVID-19 first emerged in 2019, it was determined to be a novel pathogen. The emergence of a novel pathogen—a newly evolved strain never before encountered in the medical community—is difficult to manage due to the lack of available testing, prevention, and treatment protocols. During the period of time between emergence and development of prevention and treatment regimens, a limited number of exposure control measures are available. These include:

- Evaluation and Testing – Evaluating symptoms or conducting specific pathogen test, if available
- Contact Tracing – Identifying exposed or potentially exposed individuals
- Isolation – Social distancing and barriers
- Quarantine – Strict isolation of known cases or exposed persons

- Cleaning and Disinfection – Use of known agents to disinfect persons and the environment
- Personal Protective Equipment (PPE) – Face coverings, respirators, and gloves
- Ventilation Control Measures – Utilizing air filtration to minimize pathogen circulation in public environments

For airports in the United States, the impact of the COVID-19 pandemic started in March 2020 with the onset of various exposure control restrictions, including limits on crowd size, recommendations for social and physical distancing, use of masks, health and hygiene recommendations, and other travel-related restrictions. Latency in information availability regarding the COVID-19 virus, and an ever-changing understanding of how the virus is transmitted, controlled, and treated presented challenges to developing an effective response. With knowledge of the coronavirus continuing to expand, what was accepted as fact yesterday is not necessarily accurate today. As this project progressed, conditions regarding the pandemic, airports, and security changed significantly, as indicated in the pandemic timeline detailed in Appendix C and summarized in Figure 1-1.

Figure 1-1. Timeline of Pandemic Events Impacting Airports and Air Travel



Airports experienced a number of impediments in their efforts to operate effectively and to implement exposure control measures. The most common challenge throughout the pandemic has been staff turnover. A significant number of employees were laid off or furloughed, and many chose not to return. As passenger traffic has rebounded, staff shortages are an increasing problem in some areas. Supply chain challenges with respect to PPE, cleaning supplies, and other resources were seen at the beginning of the COVID-19 pandemic. Airports also experienced financial issues, particularly in relation to use of technology to mitigate pandemic risks. The patchwork of jurisdictional control across the country and political realities in various parts of the country also play a role in the ability of some airports to implement exposure control measures. This document addresses a broad range of measures that can be used despite impediments.

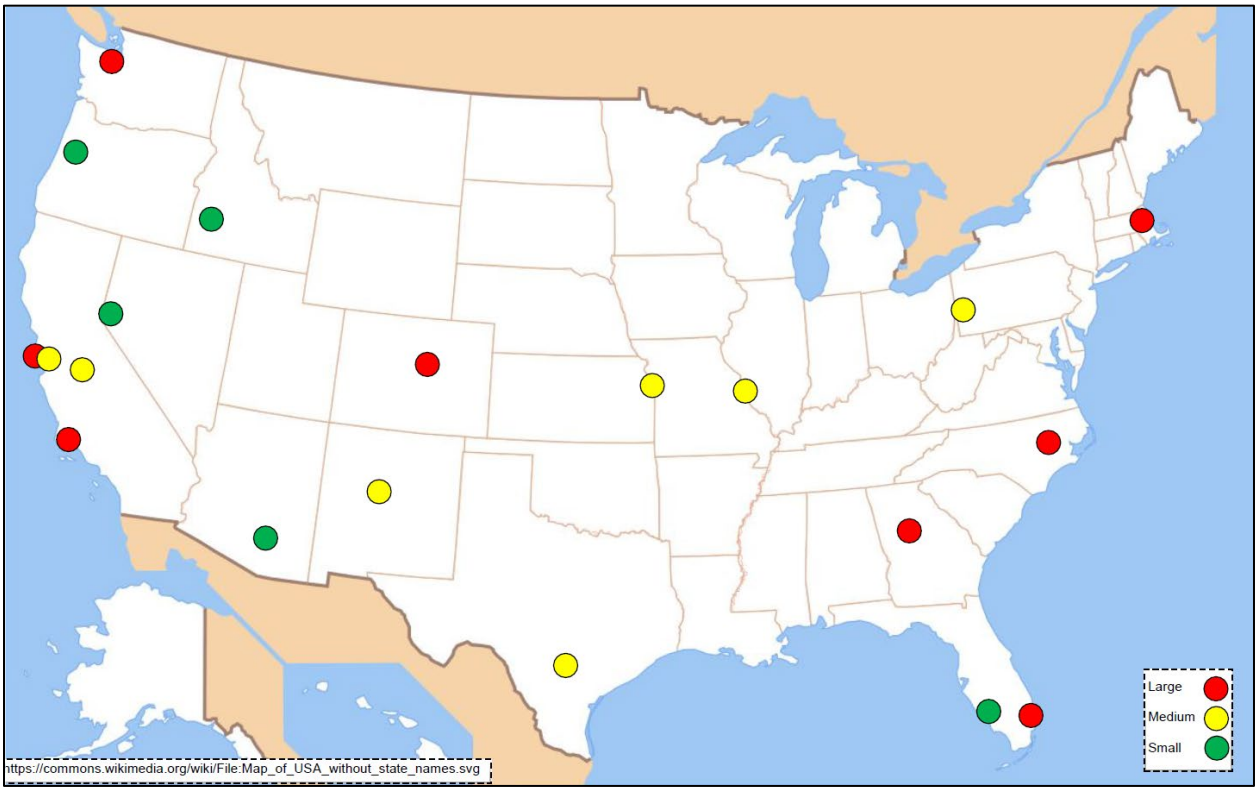
1.3 Airport Outreach

During August and September of 2021, focus group discussions were conducted among airport representatives from 20 airports of various sizes. The Research Team engaged airport stakeholders to collect information regarding the project elements summarized below.

1. Passenger impacts:
    a. Checkpoint queueing/distancing
    b. Screening-related equipment cleaning
    c. Signage and messaging
    d. Mask compliance strategies
2. Employee/Badge holder impacts:
    a. Safety protocols/PPE use during badging processes
    b. Safety protocols and changes to the employee inspections process (i.e., distancing, equipment cleaning, mask compliance, remote work)
    c. Health screening/attestation requirements including HIPAA and privacy considerations
    d. Applicable policy/accountability requirements for businesses requiring credentialed access
    e. Stakeholder engagement and timely communication of changes
    f. Initial and renewal SIDA training, including safeguards and delivery methods
3. Airport Security Program (ASP) impacts and considerations for program reduction/suspension
4. Changes or ordinances related to public areas (limiting access, etc.)
5. Ensuring compliance with evolving local and federal requirements

Questions were developed to address the elements above and a PowerPoint presentation was used to guide each of the focus group sessions. Focus group discussion questions are provided in Appendix D and the presentation is in Appendix E. All focus groups were conducted consistently and addressed all of the questions listed in Appendix D. A map indicating the airport participants and FAA size classification is in Figure 1-2.

Figure 1-2. PARAS 0040 Focus Group Participants



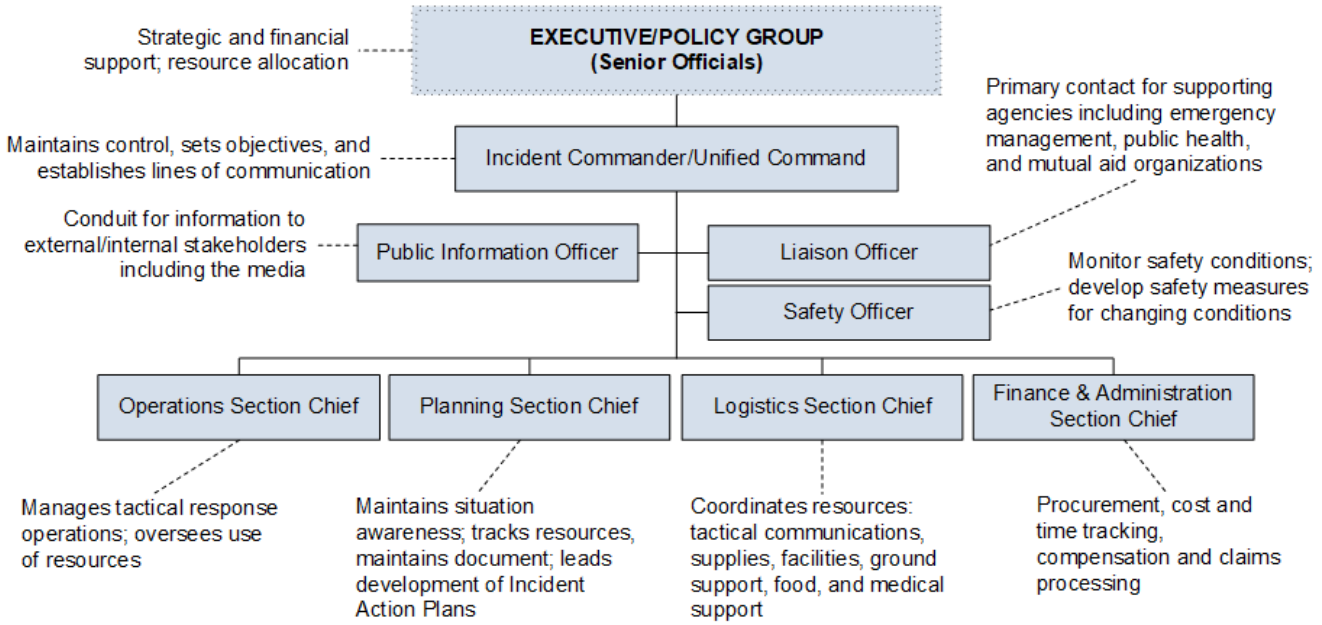
1.4 National Incident Management System / Incident Command System

The National Incident Management System (NIMS) provides standardized organizational structures, including the Incident Command System (ICS), as well as processes, procedures, and systems to improve interoperability among jurisdictions and disciplines at all levels of government, non-governmental organizations, and the private sector. ICS is widely applicable and used to organize field-level response and recovery operations for a broad spectrum of emergencies. ICS is used by all levels of government (local, state, and federal) and many private-sector and nongovernmental organizations, and is applicable across disciplines.

NIMS and ICS are incorporated into FAA guidance,[2] which requires their use in airport emergency planning. For this reason, planning and functional recommendations provided in this guidance reference ICS positions, which include eight command and general staff functions outlined in Figure 1-3 and described below. These positions address the most common needs to manage response and recovery operations, including coordination, communication, command and control, planning, resourcing, and safety.

[2] FAA Advisory Circular 150/5200-31C, Airport Emergency Plan. U.S. Department of Transportation. May 1, 2010. https://www.faa.gov/documentLibrary/media/150_5200_31c_chg1.pdf

Figure 1-3. ICS Command and General Staff Positions



- **Command Staff:**
  - **Incident Commander** – Coordinates and manages emergency response and recovery operations based on defined objectives, and ensures that response operations are properly resourced
  - **Safety Officer** – Monitors safety conditions and ensures that proper controls are implemented to protect responders from identified hazards
  - **Public Information Officer (PIO)** – Coordinates with Command and General Staff to develop and release public messaging regarding an emergency, and may be asked to coordinate with other PIOs to coordinate multiagency information development and release
  - **Liaison Officer** – Coordinates support from external agencies; multiple Liaison Officers may be assigned to specific agencies such as law enforcement, fire and rescue, and health and medical
- **General Staff:**
  - **Operations Section Chief** – Implements tactical measures and organizes and manages branches of first-responding entities, divisions, groups, strike teams, and other resources to meet incident objectives
  - **Planning Section Chief** – Maintains situational awareness and documents resource status to allow effective planning throughout response and recovery operations
  - **Logistics Section Chief** – Assists in obtaining resources necessary to support response and recovery operations and may interface with external agencies for resources
  - **Finance and Administration Section Chief** – Documents all costs, claims, and time spent to support response and recovery operations and may work with external agencies to support cost recovery.

Each of these ICS positions has a relevant role in supporting pandemic response and recovery in airports as described in this document.

SECTION 2: PASSENGER IMPACTS

Research and focus group discussion related to passenger impacts focused on security checkpoint queueing and social distancing, passenger health screening/attestation, cleaning of screening-related equipment, signage and messaging, and mask compliance strategies. Participants were also asked to identify lessons learned and challenges encountered with respect to passengers.

A significant discussion point among many airport participants involved the increase in "irate passenger" incidents. Resistance to mask requirements, testing and vaccine requirements (in some cases), and other social distancing requirements have emerged as causal factors in passenger misbehavior.

Results of research and focus group discussions are provided below.

2.1 Security Checkpoint Queueing/Distancing

At the onset of the pandemic, passenger traffic volume at most airports dropped significantly compared to pre-COVID volumes. Airports reported lower than average volumes in the initial stages of the pandemic with widely varying recovery times. Due to reduced passenger traffic, most airports did not experience congestion or challenges at the security screening checkpoints (SSCP) for almost a year (until the vaccine became available in the spring of 2021). Airports also indicated that TSA staffing was reduced and lanes were closed in response to the drop in volume. Observations, analysis, and recommendations are provided below.

2.1.1 Observations and Analysis

Generally, the measures used to control exposure at security checkpoints include:

- Extending queue lanes into open areas of the terminal space to allow for social distancing
- Placing floor markers and other communication devices to indicate six feet of distance

Figure 2-1. Social Distancing at a Security Checkpoint

Source: Baltimore/Washington International Thurgood Marshall Airport

- Minimizing the number of people at a checkpoint by opening a dedicated checkpoint for employees who would typically use a passenger checkpoint
- Placing plexiglass barriers when space limitations impeded social distancing capabilities
- Moving benches from the revesting area and other gathering spots throughout concourses and terminals to discourage passengers from gathering in one place, and to provide more room to spread out

The ability to implement exposure control measures at security checkpoints is generally governed by the type of passenger, passenger volume, space available to support distancing, and resource availability, as explained below.

Passenger Types. The proportions of passenger types changed, at least initially, during the pandemic. Traffic among experienced business travelers dropped significantly as organizations curtailed travel, but numbers of less experienced leisure travelers increased in some locations.

Where longer queues did occur at ticket counters and checkpoints, it was at least partially attributed to the increase in less experienced leisure travelers. However, one airport indicated that staffing challenges at check-in reduced the impact on the SSCP queue as passengers joined the queue in a more metered fashion.

As airport traffic has rebounded, checkpoint congestion is occurring more frequently and airports are forced to address the issue of crowding to accommodate social distancing, which is difficult to accomplish in many cases. In addition, grouping of families within queues makes it difficult for airport personnel to determine if passengers are complying with social distancing guidelines.

Passenger Volume. In some cases, security checkpoints were closed due to low passenger volume. In other cases, checkpoints were shut down to ensure those remaining open could be fully staffed. A small number of airports were able to open additional checkpoints during peak hours.

Diverting badged employees to separate employee-only checkpoints for inspection helped many airports minimize the queue time for passengers and reduce crowding. However, some of these airports stated that availability of TSA staff is a limiting factor in implementing this measure.

A small level of reduced demand at security checkpoints can be attributed to partial closure of concessions in the Sterile Area.

Figure 2-2. Hand Sanitizer Station

Source: Charlotte Douglas International Airport

As passenger demand has recovered, some airports have reconsidered their social distancing measures. The return of many passengers makes it difficult to maintain social distancing as queues continue to grow and concessions operate at full capacity.

Space Availability. Many airports reported that space challenges that existed at their SSCPs prior to the pandemic made it difficult to implement new social distancing measures. Some airports redesigned their queues to maximize space, while others used switchback style queues and increased the width of the lanes to allow six feet of space between parallel lanes. Many airports also chose to extend ticket counter and checkpoint queues into lobby space to maintain the recommended six feet of social distancing. Airports reporting redesigned queueing layouts indicated that those designs were useful in the initial stages of the pandemic but are unlikely to be effective during typical full demand scenarios.

When space challenges proved insurmountable, some airports deployed plexiglass barriers. These were commonly used between agents and passengers at TSA Travel Document Check, and less commonly between passenger queues. The barriers contributed to passengers' perception of safety, and adverse effects on the operation of queues were not reported. However, in some cases, the barriers took up more space than expected, particularly those installed at the TSA Travel Document Check podium.

As passenger demand has increased, plexiglass barriers have been removed from some queueing areas. One airport reported that it took them four days to remove barriers from their checkpoint. Planning studies may also be necessary to assess the impact of these barriers on HVAC efficiency, fire codes, and Canine Enhanced Service operations.

Communication and Additional Measures. Social distancing guidelines are difficult to enforce, especially in queues, and the challenges have grown as the pandemic has continued due to pandemic fatigue. Floor markers, eye-level signage, use of airport ambassadors, and other messaging were commonly used to communicate social distancing requirements. Floor markers were only moderately successful in encouraging social distancing, particularly with larger travel groups. Additionally, airport representatives tasked to encourage social distancing found it difficult to determine which passengers were part of the same group. It was also noted that passengers often enter the line with six feet of space but gradually move closer to the person in front of them as the line progresses. Airports indicated difficulty in enforcing social distancing in these cases.

One airport chose not to use floor markers or social distancing signage because they did not want to draw attention to the fact that the terminal did not have enough space to accommodate those guidelines. Instead, this airport installed plexiglass barriers, handed out masks, and supplied hand sanitizer.

Airports also moved benches around terminals to discourage gathering, most notably in the revesting area on the secure side of checkpoints.

Virtual Queuing. A small number of airports piloted virtual queuing (VQ) during the pandemic. Typically, the user reserves a spot in the checkpoint line using a mobile application and then, upon arrival at the airport, the user reports to a designated checkpoint lane. Lower traffic volume provided an opportunity to test VQ under ideal conditions. In general, the pilots were successful in reducing queues at ticket counters and checkpoints. However, in some instances traffic was low enough that it was faster to wait in line than to use the program. One airport is exploring extending the VQ pilot indefinitely due to its popularity. Another airport indicated that they had a VQ pilot that is being discontinued due to cost.

It is unknown how well this program will function under normal demand levels, and cost of implementation requires further analysis.

2.1.2 Recommendations

Analysis indicates that exposure control at security checkpoints requires a combination of measures, including social distancing, barriers, mask enforcement, and availability of hand sanitizer and other hygiene products. The proper mix of measures at security checkpoints is highly dependent on the layout of the airport and available space. Recommendations include:

- Where possible, stretch lanes into a straight queue and place stickers on the floor every six feet. This is the simplest configuration to encourage social distancing.
- If space does not allow a straight line queue, add plexiglass and floor stickers as an alternative. The airport should coordinate with TSA prior to installing plexiglass barriers since they may impact canine operations. The fire marshal should also be consulted when developing barrier plans to determine if they meet fire-code requirements.
- If possible, increase the width of the queue lane to allow social distancing between neighboring lanes.

- Utilize airport representatives or ambassadors to remind passengers of social distancing and mask requirements.
- Place signage at strategic locations in queues to remind passengers to adhere to social distancing and mask requirements.
- If possible, open an employee-only checkpoint for Sterile Area badged individuals to minimize employee-passenger exposure.
- Temporarily discontinue programs that allow non-ticketed individuals into the Sterile Area.
- Prohibit or discourage well-wishers from waiting for passengers in the terminal using airport representatives or ambassadors and signage.
- Relocate benches and chairs, especially in the revesting area immediately after the checkpoint, to encourage social distancing and discourage gathering.
- Consider VQ to reduce passenger surges at checkpoints and increase throughput at queues.
- Coordinate with TSA to consider opening additional lanes at space-constrained security checkpoints. Additional capacity reduces the number of passengers waiting in queues, reduces wait time, and allows for more effective social distancing.

2.2 Passenger Health Screening, Attestation, and Testing

A few airports, mainly large hubs, chose to test some form of voluntary health screening and questionnaires inside main terminal areas. Compliance with HIPAA and privacy concerns created real and perceived issues with health screening and managing information, which proved difficult to navigate. Observations, analysis, and recommendations are provided below.

2.2.1 Observations and Analysis

Airports performed a variety of measures intended to screen the health of passengers prior to air travel. Signage was placed at entrances to inform visitors of health screening conducted within the airport. Measures included temperature checks, health questionnaires, and COVID-19 rapid tests. Decisions to conduct passenger health screening at any level should be made in collaboration with relevant public health authorities.

A major concern regarding on-site health screening was determining a location to most effectively gather this information while minimizing the impact on airport operations and passenger experience. From a public health perspective, the desired location for health screening is in advance of entering potentially crowded facilities, and well in advance of screening checkpoints.

Contact tracing and distribution of vaccines or other medical countermeasures are important public health strategies to control communicable diseases.

Questionnaires. Self-screening affidavits that asked passengers to confirm or deny any COVID-19 symptoms are the most common form of health questionnaire used by airports. Some airports were able to create or implement web-based applications that allowed passengers to complete the form before arriving at the airport. Denver International Airport worked with a vendor that developed a program using the VeriFly application. Users input information about their medical status and, upon arrival to the airport, submit to a temperature check. Once complete, the user passes through the dedicated security lane and boards a reserved car on the airport train to reach a hold room.

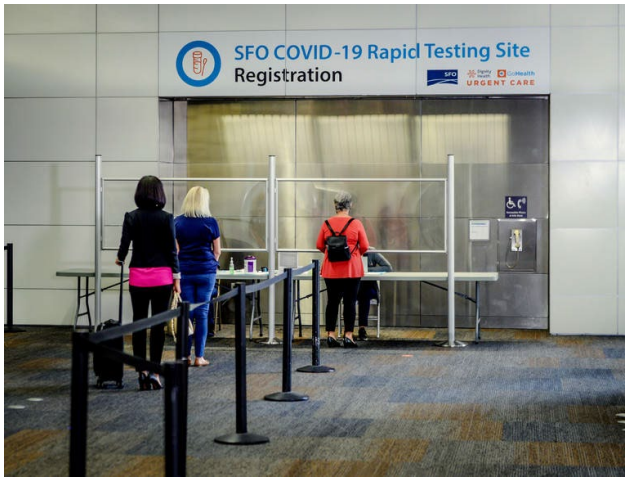
While efforts to deter passengers from traveling if they may be ill are important, the efficacy of self-screening is difficult to determine. This is particularly true for pathogens that have a highly variable impact on host health and a sporadic latency period between infection and symptom onset.

Temperature Checks. Airports commonly conducted temperature checks. Generally, individual temperature checks were voluntary. Some airports used automated temperature equipment to collect temperature readings without requiring individuals to stop. Such systems were not widely deployed due to cost, but larger airports utilized them, particularly for international arrivals.

Contact Tracing. Airports generally chose to focus on contact tracing of employees, but some worked with local public health authorities to facilitate contact tracing among passengers. Contact tracing for passengers requires specialized training that should be conducted by public health professionals. Human resources or ad hoc pandemic response coordinators were most often responsible for working with public health authorities to assist in contact tracing and administration of health questionnaires. Some airports also created hotlines for passengers to report positive COVID-19 tests to facilitate contact tracing.

Rapid Testing and Vaccinations. A small number of airports deployed on-site COVID-19 rapid testing stations. Some airports provided testing free of charge, while others made them available for a fee (reported as up to $179 per test). Among these airports, some allowed passengers who tested negative to use virtual queues and separate cars on Automated People Movers (APM) or transit systems. Airports conducting on-site COVID-19 rapid tests typically deployed these stations in areas outside of the terminal, such as parking lots, to reduce crowding inside the terminal near the ticket counter and security checkpoints. Testing centers proved to be helpful when local laws mandated proof of testing for visitors or returning residents.

Figure 2-3. COVID-19 Rapid Testing Site



Source: San Francisco International Airport

Larger airports with international service reported hosting COVID-19 vaccination clinics by teaming up with public health care agencies and providers. Vaccination clinics were generally viewed as successful both as a public relations opportunity and as a method of encouraging vaccination among passengers and employees. One airport reported an influx of international passengers arriving to receive a vaccine.

Airports can serve as valuable locations for distribution of vaccines and medical countermeasures. Serving as a location for distribution in collaboration with the public health community can build goodwill, benefit the airport's brand, and instill confidence in passengers.

2.2.2 Recommendations

Recommendations are provided below for various types of health screening:

- If deploying temperature checks and health screening questionnaires:
  - To reduce concerns of privacy and HIPAA violations, registered health officials should manage screening stations and complete all paperwork.

  - Clearly articulate expectations of passengers and consider using web-based applications on the airport's website, with digital forms that can be completed prior to arrival at the airport.
  - If possible, use automated temperature equipment to reduce the number of people needed to staff health screening stations.
  - Ambient temperature of the location of the health screening station should be considered in areas where temperature may be elevated due to high heat (as opposed to illness).
  - Place health screening stations away from ticket counters and security checkpoints to reduce the possibility of congestion.
  - Post signage at entrances and throughout the terminal area for arriving and connecting passengers explaining the types of information that will be gathered.
  - Work with human resources, legal staff, and local health officials to create health questionnaires and to support proper administration.
- If deploying on-site rapid testing stations:
  - Set up health screening stations outside of Sterile Areas and, if possible, outside of the main terminal area to reduce congestion in public areas and to reduce exposure potential.
  - Consider offering incentives, such as reserved areas (APM/hold rooms) or shorter queues, to passengers who complete a rapid test and receive a negative test result.
  - Coordinate testing strategies with local health officials.
  - Ensure websites and signs for arriving passengers effectively communicate the location of the stations.
- Contact tracing and vaccination recommendations:
  - Work with human resources, legal staff, and local health officials to develop contact tracing strategies for passengers, as needed.
  - Consider creating a hotline for passengers to self-report positive test results to facilitate contact tracing.
  - Consider working with local health officials to hold vaccination clinics or distribution sites at appropriate areas within the airport. Parking lots and garages may be used to support community mass vaccination/distribution operations.

2.3 Airport Cleaning and Disinfection

Early in the pandemic, before much was known about the COVID-19 virus, cleaning commonly touched surfaces was a major concern in all industries. For airports, cleaning the screening equipment was especially important, and most airports worked closely with TSA to support cleaning and disinfection.

As the pandemic progressed, research indicated that COVID-19 exposure is unlikely to occur through direct surface contact, making some of the enhanced cleaning protocols less relevant. However, information gathered regarding cleaning for pathogens should be maintained for use in future communicable disease events that may have a high risk of surface infection.

Observations, analysis, and recommendations are provided below.

2.3.1 Observations and Analysis

Airports reported robust collaboration with TSA to support exposure control measures at checkpoints, including cleaning and disinfection of screening equipment. Most airports indicated that they did not perform screening equipment cleaning due to equipment sensitivity, but relied on TSA and TSA-

approved contractors to disinfect screening equipment. TSA also implemented a program for airports to apply for reimbursement for the increased expenses of cleaning services and supplies in TSA spaces.

Initially, many cleaning agents were used and airports engaged cleaning contractors to support cleaning and disinfection efforts. In general, airports requested their cleaning contractors use only cleaning agents that were recommended by the Centers for Disease Control and Prevention (CDC) and Environmental Protection Agency (EPA). Airports indicated that combining CDC and EPA knowledge bases for cleaning agents would reduce confusion and make it easier to choose the correct ones. One airport indicated that they engaged an expert in cleaning and disinfecting from the local health department who helped them establish effective cleaning standards. Another airport reported that they utilized a city resource to procure supplies and, once their usage rate was established, were able to streamline all cleaning-related purchases to avoid competing with other customers.

Airports indicated that nightly cleaning was most critical to ensure thorough disinfection of high traffic areas. While they conducted targeted disinfection procedures when positive cases were identified, most also conducted regular nightly sanitizing to provide an extra layer of confidence. Initially, airports experienced challenges in procuring cleaning supplies. In addition, the time, effort, and space required for cleaning screening bins with spray disinfectant was onerous. Contactless cleaning using ultraviolet (UV) systems quickly became a primary method of disinfection at SSCPs. Large airports indicated that cleaning initially impacted operations. If TSA employees tested positive, lanes were completely shut down and deep cleaning procedures were employed. In some cases, downtime lasted several hours.

UV options were also identified as having benefit throughout the terminal, although large-scale deployment can be cost-prohibitive. Airports described UV methods as useful in small-scale situations to sanitize common vehicles such as patrol cars, tenant spaces such as restaurants, and common work areas before/after a shift (i.e., badging office, ticketing counter, etc.). UV units for escalators and stair handrails are easily deployed and effective to clean these high touch surfaces.

Figure 2-4. Robotic UV Floor Cleaner

Source: Avidbots Neo

Another common form of cleaning in terminals was daily or weekly fogging and electrostatic spray cleaning at night, especially in high traffic areas, in addition to regular cleaning performed throughout the day. However, many airports discovered that electrostatic sprays create films on touchscreens and other equipment. In some cases, printers, computers, and phones in offices were damaged by chemicals.

Many airports employed dedicated cleaning crews with identifiable vests to increase passenger awareness of the enhanced cleaning measures being used. One airport redeployed parking employees to custodial duties to mitigate staffing challenges. Airports also marketed their cleaning process and added many touchless hand sanitizer stations to instill confidence among passengers. In addition to surface cleaning, airports reported using both passive and active filtration to mitigate exposure via HVAC systems. Passive filtration consists of using HEPA/MERV 13 filtration within the HVAC system to capture viral particles. Standalone HEPA/MERV13 filtration units have also been used in offices spaces, breakrooms, and back-of-house areas to protect employees. Active filtration such as Needlepoint Bipolar Ionization (NPBI) and UV systems have been utilized in a small number of airports but are costly.

2.3.2 Recommendations

Recommendations for cleaning are provided below:

- Work with experts with comprehensive knowledge of CDC and EPA standards within local health agencies, universities, and/or industry to identify effective cleaning agents.
- Work with local governments to identify and secure sources of necessary cleaning products.
- Use contactless UV systems to sanitize screening bins. As an alternative, spray each bin with a recommended disinfection agent identified in coordination with local public health or other authority.
- Implement fogging or electrostatic sprays to disinfect large areas at night and use caution to protect sensitive equipment.
- Ensure that airport-owned UV, fogging, and electrostatic spray systems are properly stored, maintained, and ready for use or available via vendors for immediate use.
- Perform specialized ad hoc cleaning and disinfection of areas that have been inhabited by people with confirmed cases of infection.
- Provide touchless hand sanitizer stations for passengers.
- Upgrade HVAC systems to HEPA/MERV 13 filtration or NPBI.
- Work with TSA to apply for reimbursement of cleaning products and services, where applicable.
- Consider temporarily reassigning non-critical employees to custodial functions to assist with cleaning and sanitizing operations.
- Implement comprehensive cleaning procedures to eliminate the need for extensive shutdowns when positive cases are identified.

2.4 Signage and Messaging

Signage and messaging implemented for COVID-19 in airports generally fell into three categories:

- Signs and floor markings to convey exposure control measures
- Overhead verbal messaging to reinforce exposure control measures
- Social media and website posts and other print sources to support passenger education and to provide airport employees with specific messaging

Figure 2-5. Airport Face Mask Signage

Source: Denver International Airport

Observations, analysis, and recommendations are provided below.

2.4.1 Observations and Analysis

Many airports instituted Coordinated Traveler Education Campaigns to support consistent messaging and branding throughout the airport journey. Airport representatives discussed the importance of messaging from the roadway and shuttles to gates and throughout the journey to baggage claim. Airport marketing departments often supported development of signage to emphasize branding and to maintain consistent messages. In addition, human resources often supported signage and messaging for employees. However, one airport indicated that involvement of communications and marketing departments delayed operationally critical messages from being deployed in a timely manner.

Critical messages to convey broadly included the need to use masks (Figure 2-5) and to adhere to social distancing guidelines throughout the passenger journey. Strategies included campaigns on social media, airport websites, signage, and use of ambassadors and other airport personnel to reinforce guidelines. Most airports placed signs at the airport entrance and in parking garages, rental car locations, shuttles, employee buses, elevators, check-in lobby, and the SSCP to enhance compliance early and often. Signage helped reinforce mask and social distancing requirements, and improved compliance.

While opinions varied, airports also assessed the proper amount of signage. Some airports tried to avoid sign fatigue while others indicated that over-communication is effective to convey the importance of exposure control guidelines. Reinforcement through audio announcement is broadly thought to enhance compliance as well. Some airports partnered with advertising vendors to use open advertising space throughout terminals. Generally, most airports provided messages in both English and Spanish (Figure 2-6), with other languages included based on geographic need.

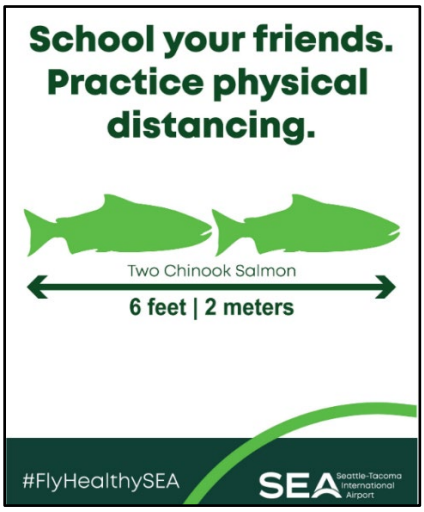
Initially airports experienced funding and logistical challenges in deploying signage. While some airports have in-house sign shops to develop and install signage, others were forced to use outside support which increased cost and turnaround time. One airport assigned a Signage Manager to navigate the process of changing requirements throughout the pandemic. In addition, marketing departments ensured consistent messaging and branding, such as colors, logos, and themes. Regional themes were also noted. For example, Seattle-Tacoma International Airport used signage indicating the need to stay "Two Chinook Salmon" apart for social distancing (as shown in Figure 2-7), and Charlotte Douglas International Airport, famous for its in-terminal rocking chairs, used the slogan "Rock Your Masks" to instill the importance of mask use.

As passenger demand has recovered, some airports have reconsidered floor decals for social distancing and other signage. The return of many passengers makes it difficult to maintain social distancing as queues continue to grow and concessions operate at full capacity.

Figure 2-6. Bilingual Signage

Source: City and County of Denver

Figure 2-7. Physical Distancing Regional Theme



Source: Port of Seattle, Seattle-Tacoma International Airport

2.4.2 Recommendations

Recommendations for signage and messaging are provided below:

- Use all available communication platforms to ensure messages are available to everyone, including physical signage, Flight Information Display System screens, audio messaging, website updates, social media, and airport ambassadors.
- Convey consistent messages and remain cognizant of potential sign fatigue.
- Work with marketing and human resources to ensure use of clear, concise, and consistent messaging across all platforms and all demographics:

  - Develop easy to consume information and processes with clear intent and ensure that communications address persons with disabilities, including visual and hearing impairments.
  - Ensure that messages are consistent with current directives from the CDC, TSA, FAA, and the local health department.
  - Create signage in languages and media that are most appropriate for the passenger demographic.
  - Consider using regional references to reinforce the airport brand in the message.
  - Be cautious of requiring too many approvals of messaging as this can unecessarily delay the development of the message.
  - Coordinate signage and messaging with airlines, concessionaires, and other stakeholders to ensure consistency and to provide them with an opportunity for input.
  - Record locations of deployed signage to support modification or removal based on changing conditions and guidance.
- If applicable, add references in messages to public laws requiring compliance with health guidelines.
- Post signage throughout the passenger's journey in the airport, including at roadway entrances, parking garages, rental car facilities, shuttles and trains, elevators, the check-in lobby, and the SSCP.
- Extend passenger messaging beyond the airport by partnering with convention and visitors bureaus, hotels, and local destination attractions as communications platforms.
- Consider options to partner with advertising vendors to utilize unused space within the terminal for messaging.
- Carefully consider the best time to remove signage and messaging as the airport moves into the recovery phase.
- If possible, assign a team or individual to be responsible for printing, posting, and replacing signage as necessary.

Figure 2-8. Roadway Signage

Source: Colorado Department of Transportation

2.5 Mask Compliance Strategies

As the pandemic evolved, mask mandates were issued from various sources including city, county, state, and federal public health agencies. Having multiple authorities issuing mask mandates created challenges in some locations regarding signage and enforcement. Airports relied predominantly on CDC guidelines, although some airports received consultation and support from local health agencies. TSA issued SD 1542-21-01 on February 1, 2021, which defined airport and aircraft-specific requirements at all US airports. Observations, analysis, and recommendations are provided below.

2.5.1 Observations and Analysis

Early in the pandemic, mask shortages were a common problem for airports. Many airports—notably hub airports—collaborated with FEMA to help distribute masks to airport customers and stakeholders.

SD 1542-21-01 provided a basis for consistent application of mask use in airports across the nation. However, in many cases, it was difficult for airports to enforce requirements set forth in the SD due to lack of staff and reluctance to impose penalties on passengers. Airport focus group participants indicated that passengers were more likely to remove their mask after deboarding their flight than at any other point in the passenger journey. As a result, many airports increased signage and deployed ambassadors to these areas to remind passengers that masks must be worn through baggage claim. General strategies adopted by airports to increase compliance include:

- **Education** – Airports indicated that increased education programs significantly reduced mask non-compliance. Most non-compliant passengers required polite interventions by airport employees who offered them masks if needed.
- **Mask Availability** – Initially, airports experienced a mask shortage. As mask supplies were secured, airport employees, customer service departments, and law enforcement were authorized to provide free masks to passengers. Masks were also placed in bowls at several locations inside the airport to increase compliance, and were made available via vending machines. Providing masks improved compliance significantly.
- **Enforcement** – Most airports indicated two primary areas of enforcement: at the SSCP and in the Sterile Area. TSA did not screen unmasked passengers and airlines did not board them. At all other locations, polite reminders were given to passengers to use their mask. Enforcement policies varied widely, with some airports utilizing law enforcement and others using passive measures. In some cases, law enforcement was reluctant to act unless the passenger exhibited belligerent behavior.

Figure 2-9. PPE Vending Machine

Source: Phoenix Sky Harbor International Airport

Challenges to mask enforcement identified by airports include:

- **Law Enforcement Reluctance** – In some cases, law enforcement was reluctant to arrest a passenger for non-compliance based on many factors, including perception of relevant statutes.
- **Personnel Resources** – Airports indicated difficulty in mask enforcement due to a lack of available resources.
- **Enplanement/Deplanement** – Passengers were more frequently prone to removing masks as they entered the terminal from an aircraft due to mask fatigue. Multiple airports noted equipping arrival gates with increased signage and/or deploying ambassadors to remind passengers of masking requirements through baggage claim.

- **Mask Guidance** – When the CDC loosened rules on outdoor use of masks, challenges ensued with respect to employees and passengers use of masks for outside work and just outside of terminal buildings during high traffic periods. Some airports also reported difficulty in interpreting conflicting local, state, and federal guidance regarding mask use.
- **Media Issues** – Airports periodically faced challenges when passengers complained on social media or other outlets about employees not wearing masks.

Although the legal requirements for mask wearing varied from state to state and even county to county, most airports aligned their messaging and guidelines with the CDC and local public health organizations' guidelines. In states or counties that did not require wearing a mask inside buildings, enforcement within airport buildings was difficult in some cases. These issues were resolved when the TSA's SD on masks gave airports the authority to enforce mask wearing.

2.5.2 Recommendations

Recommendations for mask compliance are provided below:

- Align mask compliance strategies with guidelines issued by local health authorities, TSA, CDC, or other government authority.
- Create strategies designed to educate passengers on mask requirements at the airport, including use of signage and messaging, social media, audio messages, and ambassadors to convey a consistent message.
- Encourage all airport stakeholders to calmly and politely remind passengers to wear masks correctly while in the airport.
- Use airport ambassadors and additional signage to remind deboarding passengers that masks are required throughout the passenger journey, including baggage claim areas.
- Supply ambassadors and aviation workers with spare masks to provide to passengers and/or place spare masks throughout the check-in lobby and screening checkpoint for passengers to use.
- Coordinate with emergency planning and response organizations to identify mask supply sources.
- Coordinate with TSA and other stakeholders to identify compliance needs and support enforcement.
- Reinforce use of masks among aviation workers to serve as an example to passengers and to protect the airport's brand.

2.6 Public Area Measures

Local, state, and federal regulations generally provide sufficient legal jurisdiction to implement public area exposure control measures without the need for legal adjudication. While local appetites to implement certain exposure control measures vary widely across the US, airports have been provided the latitude necessary to implement effective exposure control measures. Discussion among airport focus group participants from 20 airports indicated that no ordinance changes were necessary to implement public area modifications and no legal challenges occurred.

Recommendations to address public area concerns include:

- **Security Functions** – Airports should consider developing an airport employee task force, including airport authority and stakeholder employees (airlines, concessions, etc.), to review operational changes implemented in public areas during the pandemic, and to identify measures taken that can provide long-term benefit in facilitating effective security, reducing costs, and/or reducing risk.
- **Event-Specific Risk Communications** – Effective and continuing communication strategies are needed to ensure that the traveling public understands the impact that evolving research can have on exposure control measures. Developing such strategies will require collaboration among aviation stakeholders and federal agency leaders. Resulting communication should reinforce the public's confidence in the aviation workforce.

SECTION 3: EMPLOYEE/BADGE HOLDER IMPACTS

Research and focus group discussions regarding employee/badge holder impacts focused on the credentialing processes, employee inspections and accountability, health screening/attestation and HIPAA/privacy considerations, and stakeholder engagement and communication of changes.

The pandemic provided a unique opportunity to re-think employee dynamics within the airport environment. The introduction and expansion of remote work enabled eligible employees to remain separate from travelers and other employees (to the extent possible), thereby resulting in a much lower risk of transmitting illness across the workforce (which was a risk even prior to COVID-19), as well as long-term positive effects on employee productivity and airport security. Additional measures such as contactless check in and employee-only security checkpoints also minimized staff contact with passengers. It is important to consider how the workplace changed during the pandemic, and to give employees an opportunity to provide feedback on these changes. Many airports reported that measures implemented to separate airport employees from passengers are popular among employees and are under consideration to be made permanent.

Results of research and focus group discussions are provided below.

3.1 Credentialing and Training

Airports implemented many changes to promote effective exposure control in badging offices and badge holder training. While changes varied based on local conditions, all approaches focused on minimizing exposure to badging personnel and badge holders/applicants. During the initial phase of the pandemic, airports experienced a decrease in demand for badging and training services due to decreasing workforces. However, badge accountability due to furloughs, layoffs, and retirements, followed by the subsequent recall of furloughed badge holders, required badging offices to operate in a modified capacity and resulted in creative exposure control measures. Observations, analysis, and recommendations are provided below.

3.1.1 Observations and Analysis

Airports used a variety of techniques to protect employees during the badging process. All airports increased cleaning and disinfection measures, and encouraged social and physical distancing through various measures including the use of plexiglass barriers, floor markers, and reduced capacity. Many airports that did not use an appointment system prior to the pandemic implemented one to control the number of people in the badging office. Many airports also increased the number of shifts and scheduled employees by groups designed to contain any exposure within that group and avoid exposing all employees.

TSA alternative measures greatly assisted airports in using flexible approaches to credentialing policies. Airports faced unprecedented challenges in credentialing and access control, which were overcome through coordination and collaboration between TSA and airports. However, airports expressed some frustration with unclear communication and changing policies in the early days of the pandemic.

The approach to badge training was more diversified between airports with some airports maintaining pre-pandemic levels of training and others halting training altogether. Many airports that typically conduct refresher training for badge renewals waived this training during the pandemic as it is not a regulatory requirement.

Online and remote training were commonly used. Airports with pre-established computer-based training (CBT) programs found it easier to perform remote training. However, some airports indicated concerns regarding the opportunity to cheat during on-line CBT; thus, long-term post-pandemic use of on-line training may require controls. Airports that continued in-person training reduced the number of participants in each class to permit for social distancing, and implemented other common exposure control measures in classrooms. Some added classroom space for in-person training to maintain normal levels of throughput.

Many airports indicated these changes assisted in maintaining operations during the pandemic and were grateful for the flexibility. However, multiple airports expressed concern over potential complacency as a result of reduced training. Airports noted an increase in violations for badge holders not following security protocols.

The pandemic also required modifications to badge management procedures. The reduction in air travel resulted in a significant number of furloughs among airport badge holders. TSA interim guidance permitted airports to retain furloughed badges in a secure location as opposed to deactivating them. In addition, airports were permitted to extend badge expiration dates. Airports credited these measures as key in their recovery once passenger traffic returned. Had the policy changes not occurred, many airports would have been overwhelmed with a significant number of returning employees who needed to obtain a new badge.

While many of the safety protocols appear to have been successful in minimizing exposure, some airports reported that exposure among some workforces is likely to have occurred, based on known cases and contact tracing. However, all airports indicated that they were able to maintain badging operations to some level throughout the pandemic. This success can be attributed to the proactive and efficient approaches implemented.

A summary of safety and operational protocols used in badging and training processes is provided below:

- **Closure/Limited Operations** – Initially, smaller airports closed badging offices while others significantly reduced services. Early in the pandemic, demand for badging services diminished. In some cases, badges were renewed as necessary, but SIDA training was postponed. Other training occurred remotely as needed and when possible.
- **Barriers** – Plexiglass barriers were broadly used in badging offices to provide separation between badging office personnel and badge holders/applicants.
- **Enhanced Cleaning Procedures** – Airports broadly implemented increased periodic cleaning procedures, in some cases using electrostatic sprays and weekly deep cleaning in badging offices and training areas.
- **Mask Requirements and Disinfection** – Badge office customers were required to wear masks and utilize hand sanitizer upon entry.
- **Furloughed Employee Badges** – In some cases, authorized signatories were allowed to securely store the badges of furloughed employees pending their return to work. As many as 40% of badge holders were furloughed at some airports.
- **Continuity of Operations** – Many strategies were discussed among airport participants to protect badging office personnel and customers while maintaining operations:
    - **Fingerprinting** – This was noted as the riskiest activity due to the necessary proximity of the applicant and staff. In most cases, administering staff typically donned a mask, face shield, and gloves. The subject and administrating badging officer were required to use

hand sanitizer before touching the fingerprint reader and after fingerprinting.

- **Physical Diversification of Badging Office Personnel** – Many airports reported segregating groups of badging office personnel from each other to avoid total staff exposure. Methods included a combination of split shifts and alternating working days, and splitting staff between multiple offices.
- **Reduced Hours** – Many airports reduced badging office hours due to reduced demand for badge issuance.
- **Training** – Efforts to reduce physical visits to the badging office included remote CBT. Appointment-based training was utilized to reduce traffic and allow for social distancing within CBT centers.
- **Remote Work** – In some cases, badging office staff were allowed to work from home or physically outside of the badging office on departmental tasks such as digitizing records.
- **Appointment-Based Services** – Many airports instituted appointment requirements for all badging operations. Some airports utilized existing scheduling software while others implemented it as a new control measure.
- **Restaffing Considerations** – As operations have rebounded, many airports have worked with tenants and airlines to schedule blocks of time to support mass hiring events using appropriate exposure control measures. Controlled mass hiring events have allowed applications to increase while minimizing potential exposure.
- **Badge Expiration** – Some airports temporarily allowed badge expiration extensions in accordance with TSA guidance.
- **Badge Renewal with Expired ID** – In some areas where driver's license issuing authorities were closed, airports allowed for temporary badge renewal using an expired driver's license.
- **Assessing Resiliency** – To focus on continuity of operations and resiliency, one airport performed an exercise (pre-COVID) with 25-50-75% staff reductions to assess points of failure and were able to implement measures based on those scenarios.

3.1.2 Recommendations

Recommendations for credentialing office operations and badge holder training to support communicable disease preparedness include:

- **Written Plans** – Airports should document safety processes and procedures and maintain written plans to support communicable disease response and recovery procedures in badging and training centers. As with all response plans, they should be reviewed on a scheduled basis, when conditions change, and as needed based on the occurrence of a specific pathogen.
- **Exposure Control Measures** – Measures that are known to be effective in controlling pathogenic exposure should be captured in written plans and include:
  - Protective barriers to minimize airborne spread
  - Creative scheduling of staff to include split-shifts and remote work, if possible
  - Splitting staff between multiple offices and avoiding exposure among an entire shift, if possible
  - Requiring use of PPE among staff and those obtaining badging services
  - Use of pathogen-appropriate hygiene measures including handwashing and hand sanitizing
  - Appointment-based services to reduce the number of people in a badging office

- **Cleaning and Disinfection** – As the pandemic progressed, research indicated that COVID-19 exposure is unlikely to occur through direct surface contact, making some of the enhanced cleaning protocols less relevant. However, information gathered regarding cleaning for pathogens should be maintained for use in future communicable disease events that may have a high risk of surface infection.
- **Social Distancing** – Document established social distancing measures used in training centers for ease of implementation in future events.
- **Computer-Based Training** – Evaluate benefits of a CBT program, if not already in place.
- **Defer Renewal Training** – Consider deferring training that is not required by regulation to lower badging office traffic.
- **Local Debrief** – Consider conducting a debrief of safety protocols implemented for the badging and training processes and personnel during the COVID-19 pandemic to identify opportunities to refine and streamline processes and procedures, as well identify protocols that were not effective.

3.2 Employee Inspections and Access Control

Many of the policy changes implemented during the pandemic focused on badging requirements. In addition to those, flexible approaches in access control and employee screening were noted as successful and well-received policy changes. Observations, analysis, and recommendations are provided below.

3.2.1 Observations and Analysis

All airports interviewed chose approaches to employee inspections with the intent to protect employees from exposure while maintaining the integrity of airport security. Airports that conduct full employee screening implemented similar changes to those implemented at TSA security checkpoints, including plexiglass barriers, social distancing, and requiring employees to handle their own personal items. Random employee inspection procedures were also modified to minimize contact between the inspector and employee.

Employee inspections continued as normal at most airports. Airports that maintained a higher level of security staffing tended to also maintain inspections similar or equal to pre-pandemic levels. However, some airports reported a reduction in employee inspections to reduce or limit contact. Some airports that maintained inspections added new screening locations to minimize the need for employees to go through TSA checkpoints and to provide separation between airport employees and passengers. Some airports also closed access points to reduce the number of employee screening locations as a result of reductions in staffing.

Many airports also attempted to eliminate touching of access control system keypads for Personal Identification Number (PIN) entry. Some airports acquired new technology such as touchless biometrics, while others temporarily suspended use of PIN entry for badges. At least one airport transitioned to facial recognition technology in place of PIN or fingerprint recognition. All airports eliminated the requirement to touch badges in badge challenges.

A summary of safety protocols used in employee inspection and access control accountability processes is provided below:

- **Badge Handling** – Many airports implemented the temporary relief measure allowed by TSA in National Alternative Measure (NAM) 1542-20-03C to minimize contact with badges. The majority of airport focus group participants indicated that they would like this temporary measure to become permanent.
- **Employee Inspections** – Some airports reduced touching of personal items to avoid physical contact with employee belongings and general interactions. Airports that continued employee inspections requested that the employee remove items with the security officer observing.
- **Employee Screening Portals** – Some airports opened new employee screening locations to avoid employee contact with passengers, while other reported that employee-only screening portals operated under reduced hours or were closed. Operating separate employee and passenger screening portals is difficult for many airports in a reduced capacity.
- **Credentialed Access Control** – Airports implemented various measures to allow credentialed access throughout the airport:
    - Some airports transitioned from two-factor authentication to facial recognition or other biometrics to reduce touch points.
    - Airports that maintained two-factor authorization placed hand sanitizer on both sides of the entry portal to allow disinfection of hands after utilizing a keypad or other touch point.
    - Other airports selectively eliminated multifactor authentication when not necessary and reduced access points if possible.

3.2.2 Recommendations

Recommendations for employee inspections and access control accountability to support communicable disease preparedness are provided below:

- **Local Debrief** – Conduct a debrief regarding employee inspections and access control measures implemented during the pandemic to evaluate the impact of reduced inspections on airport security including the potential for complacency, security infraction frequency, and other security-related challenges which may be related to reduced inspections.
- **Advanced Planning** – As a follow-up to the COVID-19 pandemic, airports should communicate lessons learned to TSA in order to ensure communicable disease strategies achieve a balance between flexibility and maintenance of critical security operations.
- **Emergency Policies** – Develop and maintain emergency policies that can be easily enacted to allow for credentialing and access control adjustments warranted by pandemic emergencies.
    - **Employee Inspection Contingencies** – Develop and maintain employee inspection contingency plans that are fully vetted prior to a communicable disease outbreak to allow expedited implementation.
    - **Access Control Contingencies** – Identify portals that can be closed or where multifactor authentication can be suspended during a communicable disease outbreak.
- **Touchless Access Control –** Consider touchless biometrics as a more permanent solution for two-factor authentication.
- **Regulatory Collaboration** – Airports should work collaboratively with TSA and industry associations on temporary regulatory requirements implemented in response to communicable disease or pandemic conditions.

3.3 Health Screening/Attestation and HIPAA/Privacy Considerations

The most common health screening tools airports used for employees/badge holders were temperature checks and paper or mobile application-based questionnaires. Privacy and HIPAA concerns related to health screenings were overcome relatively easily through education and understanding of privacy laws and regulations, and by leveraging human resources and legal counsel. Observations, analysis, and recommendations are provided below.

3.3.1 Observations and Analysis

The approach to health screening for employees/badge holders varied widely among airports. Airports generally limited health screening to airport employees, and did not impose requirements on stakeholders.

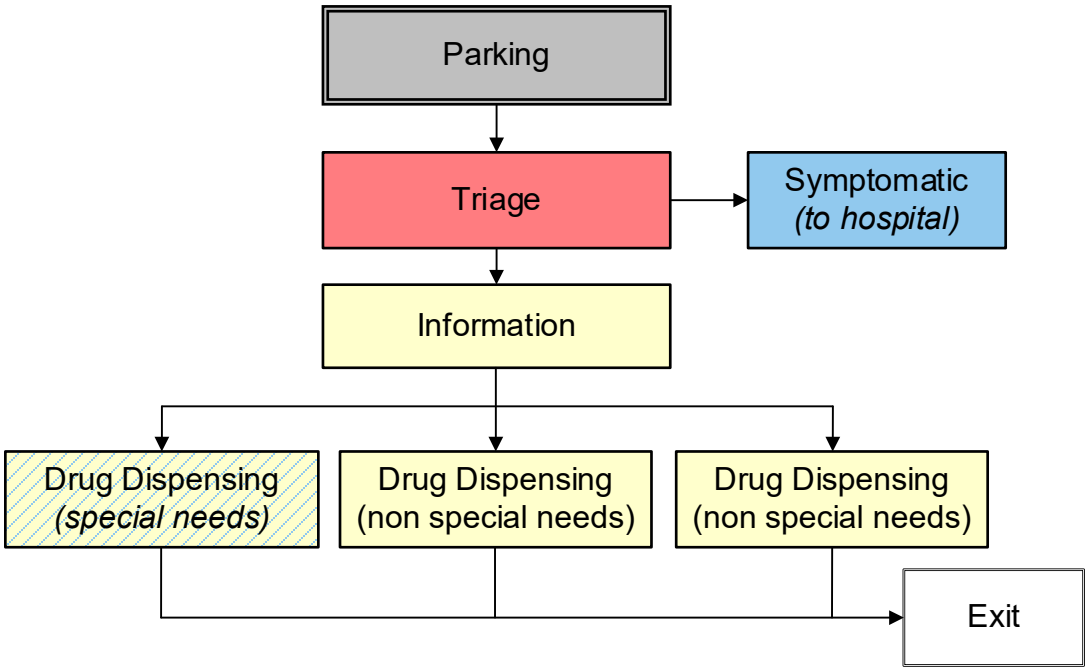
The most common measure used was attestation, which is a self-screening affidavit. These were typically in the form of questionnaires that placed the responsibility on individual employees to monitor for any symptoms or exposure. Temperature checks were also used to identify elevated temperatures or fevers in airport employees. Airports indicated temperature checks and questionnaires were required only for direct airport employees, although some airlines and other stakeholders implemented similar screening tools.

Temperature checks and questionnaires may have been helpful in identifying employees with exposure to or symptoms of COVID-19. However, some of these initiatives were challenging to manage, with paper-based questionnaires being particularly cumbersome. Airports also did not measure the effectiveness of such tools, making it difficult to obtain a real understanding of their impact. If available, pathogen specific testing is preferred to symptomatic testing.

Contract tracing and rapid testing were other measures airports used to manage the spread of COVID-19. Contact tracing was used to identify staff who were exposed to another infected staff member. In some cases, use of rapid tests allowed airports to quickly identify staff who may have become infected but were not yet demonstrating symptoms. In addition, some airports used rapid tests as a screening tool for workers in critical roles, such as public safety and dispatch/communications center personnel, alleviating the need for quarantine after possible exposure. Confirmatory testing was critical in maintaining staffing levels required to support operations in accordance with TSA and other policies and regulations. In some cases, rapid tests enabled airports to maintain scheduled flights.

Once vaccines became available, some airports operated on-site vaccination clinics. Vaccine clinics were a considerable logistical undertaking for airports that chose to host them. Airports pre-identified as public health “closed” Point of Dispensing (POD) locations were able to transition current POD plans to vaccine plans, which greatly increased their success. Airports with onsite vaccine clinics saw an increase in the number of workers receiving the vaccine due to the increased accessibility. A typical POD flow diagram is shown in Figure 3-1, and indicates multiple vaccine dispensing lanes including one for special medical needs. As indicated previously, large parking lots and parking garages at airports can serve as valuable locations to support mass vaccination or other mass dispensing operations.

Figure 3-1. POD Flow Diagram



Airports were proactive in minimizing legal and HIPAA concerns by using human resources to collect related screening information and by engaging legal counsel in their approaches to health screening. As a result, airports indicated they were able implement health measures without legal challenges. This success should be accredited to taking the initiative to learn and understand legal boundaries.

A summary of information regarding health screening and attestation is provided below, including airport discussion points regarding privacy and HIPAA:

- **Temperature Screening and Questionnaires** – Temperature screening and wellness questionnaires were the most utilized health screening measures implemented at airports for passengers and employees:
  - Automated temperature equipment was more widely deployed at medium and large airports due to cost and throughput.
  - Temperature screening among all airports was most likely to be utilized in critical operations such as ARFF stations, law enforcement and security offices, badging offices, and other critical back-of-house operations.
  - Daily wellness questionnaires were widely used for airport employees and became cumbersome quickly.
    - Some airports posted signage at each entrance indicating that a card swipe is an agreement that the employee is not feeling ill, has not been exposed to the virus, does not have a temperature, and agrees with health reporting requirements of the county/state.
  - Some airports created or implemented a web-based application to complete a daily paperless questionnaire.
- **COVID-19 Testing** – A limited number of airports implemented on-site COVID-19 testing. Rapid testing can be useful but should be done well in advance of the security checkpoint and preferably off-airport shortly before arrival.

- **Contact Tracing** – Airports should play a limited role in contact tracing and should focus primarily on airport employees. While it is an effective and important public health measure for supporting exposure control, general contact tracing requires training generally not available to airport staff and is resource intensive. At least one airport was asked to support a public health agency in general contact tracing, and was provided appropriate training to do so.
- **Vaccinations** – A limited number of airports reported hosting vaccination clinics; those airports teamed with public health agencies and/or health care providers and generally viewed them as positive, both as for public relations and to encourage stakeholder and traveler vaccination. Larger airports were interested in hosting vaccine clinics for international terminals due to the large populations of unvaccinated persons arriving on these flights.
- **Privacy Concerns/HIPAA** – Airports discussed limited privacy and HIPAA concerns:
  - In a small number of cases, unions expressed concern over the privacy of temperature screening equipment. A compromise was reached to set temperature displays to red/green only as opposed to numerical readout, and no records are allowed to be maintained.
  - At some airports, human resources managed employee health attestation to take advantage of existing privacy and HIPAA protocols. Relative to security operations, human resources generally assisted most airports in determining what questions could be asked and how to manage positive or presumed positive cases.
  - In cases where direction was disseminated and/or verified by human resources and/or legal counsel, airport operations managers expressed confidence in knowing their measures have been approved.
  - Many airport human resources departments also established hotlines for passengers, employees, and other stakeholders to consult with professionals in the event of a positive case.

Figure 3-2. Airport Vaccination Clinic

Source: Charlotte Douglas International Airport

3.3.2 Recommendations

Recommendations for health screening/attestation and HIPAA/privacy considerations include:

- **Evaluate Health Screening Options** – Conduct a benefit-cost analysis on equipment used to evaluate temperature or other symptoms prior to implementation. The efficacy of temperature checks and questionnaires may be sufficient to address small populations, such as employees, but use in the general population may not be warranted or useful. Screening options are also highly dependent on the properties of the pathogen in question.
- **Communicable Disease Planning** – Refine communicable disease plans to include processes and procedures for relevant response measures including:
  - Health screening and questionnaires (see above)
  - Pathogen-specific testing, if available

  - Contact tracing (employees only)
  - Points of distribution (for vaccines or other medical countermeasures)
- **HIPAA/Privacy Issues** – Coordinate with human resources and legal counsel to ensure privacy concerns are addressed and incorporated into health screening, testing, contact tracing, or medical distribution program. Use human resources as a repository for information and data.

3.4 Stakeholder Engagement/Communication of Changes

Stakeholder engagement and communication are critical during a communicable disease event, and particularly during a pandemic when information and guidance are going to be dynamic. Observations, analysis, and recommendations are provided below.

3.4.1 Observations and Analysis

Stakeholder engagement included both internal communication to airlines, concessionaires, and others with a footprint on airport property, as well as external communication to public health, emergency management and other related government agencies.

Communication is often noted as one of the biggest challenges in emergency response and recovery operations. Airports experienced communications challenges, but also experienced many successes in this area. All airports transitioned in-person meetings to virtual platforms and increased the frequency of communication with stakeholders. Increased communication was necessary due to a continuous flow of new information; frequent changes in guidance; and evolving local, state and federal requirements. The transition to virtual platforms was necessary to accommodate social distancing, however airports reported increased meeting attendance as a result of the virtual format. Virtual platforms allowed stakeholders to attend meetings from their homes or offices, making attendance easier for those with tight schedules. Some airports have noted they will continue using this option in the future.

Airports also expanded communication with stakeholders through multiple methods, including increased meeting frequency, email lists, and push communications using emergency notification systems and cell phone applications.

For some airports, communication to stakeholders was excessive and contradictory at times due to multiple communication flows. Implementing a single source for communication between the airports and stakeholders was a successful practice for overcoming this challenge. Streamlined communication through a COVID-19 leader (described in the bulleted list below) or via the airport Emergency Operations Center (EOC) also helped ensure that consistent information was shared and reduced the confusion of multiple information flows. Information shared through these methods was vetted for accuracy as well.

Relationships between airports and public health and/or emergency management agencies were already well established in some locations prior to the pandemic. These airports tended to have strong coordination and communication with public health and emergency management agencies during the pandemic. Airports with a quarantine station on site reported strong relationships with the CDC and local and/or state public health agencies prior to the pandemic. The direct link with the CDC proved to be of great benefit to these airports.

Airports that had minimal communication with health agencies prior to the pandemic had to establish relationships quickly, and often struggled to do so. Such airports noted the need to identify their point of contact and, in some instances, the jurisdictional agency with which to coordinate. Coordination

challenges were a setback when COVID-19 initially emerged. However, once relationships were established, airports benefitted from these connections and developed a foundation to support them throughout the pandemic and in future emergencies.

Methods of stakeholder engagement and communication discussed by airport participants are summarized below:

- **Modes of Communication** – As in most sectors, the pandemic forced airport management to re-focus communications electronically. Airports reported an increase in email and use of web-based meeting tools to conduct stakeholder meetings that would normally occur in person.
- **Frequency of Communication** – In general, most airports reported an initial increase in frequency of stakeholder meetings, including daily meetings at larger airports in the early stages of the pandemic. A majority reported that they settled on weekly or biweekly virtual meetings with all airport stakeholders.
- **Common Topics** – New and updated information regarding the virus and exposure control measures was an important discussion topic in the early stages of the pandemic, and continues to be a recurring topic as new strains emerge and as our understanding of the virus and vaccines improves. Common topics include new or modified government guidance, regional and national trend data, and facility and operational changes.
- **Communications Leader** – A lack of centralized communications structure commonly results in over-communication, conflicting information, and/or confusion and misinformation among stakeholders. Airports that employed an ICS framework in their COVID-19 response appointed a Liaison Officer to lead communications with outside entities. Other airports reported that a designated COVID-19 Director was appointed to interface with public health departments, monitor COVID-19 information, and to aid in translating information into airport policy. The Director generally coordinates all internal and external communications, messaging, and signage efforts. In some cases, the existing PIO was used to support the COVID-19 Director in coordinating public messaging to ensure consistent messaging within the airport and on social media and other sources. Some airports indicated that the COVID-19 Director was able to designate other team members to support operational implementation of policy.
- **EOCs** – Coordinating with EOCs can be an important factor in managing pandemic response operations. Generally, cities, counties, and states have activated EOCs throughout the pandemic, and may be able to support airport resource needs if requested. Many airports established and maintained communications with the appropriate EOC to support resourcing and stakeholder communication.
- **Written Policies** – For internal reference and messaging, larger airports developed a printed or virtual playbook to convey airport-specific COVID-19 policies to various stakeholders. Deployment of frequently asked questions for employees and stakeholders allows clear and directed communications to specific groups, serves as a central repository for common queries to reduce internal dialogue level, and reduces conflicting guidance.

3.4.2 Recommendations

Recommendations for stakeholder engagement and communication are provided below:

- **Defined Point of Communication** – Establish a single source of communication from the airport to external and internal stakeholders. Relative to regulatory coordination, the Liaison Officer (or COVID-19 Director, if not employing ICS framework) should coordinate with public health, emergency management, and other relevant regulatory agencies to maintain the latest

guidance regarding a communicable disease. Information obtained via the Liaison Officer can be used by the PIO to support external messaging. All information should be developed by the PIO and approved by the Incident Commander or appropriate airport authority. For large-scale incidents, multiple assignees may be necessary, however all information should be approved by a single source to ensure consistency.

- **Methods of Communication** – Multiple methods of communication should be identified based on the ability to reach target audiences, and should include virtual platforms, listservs (mailing lists), websites, and mobile applications.
- **Frequency of Communication** – It is important to communicate regularly with stakeholders to convey information, and to collaborate on ways to implement measures that comply with changing guidance. The frequency of stakeholder communication will be dependent on the severity of the communicable disease. Conditions may require daily briefings to communicate new information, reinforce exposure control measures, and to answer questions and adjust to changing conditions.
- **Pre-Event Coordination** – Airports should establish and maintain relationships with local and state agencies that serve jurisdictional roles across all types of emergencies. Airports should consider assigning an airport official to participate in planning groups or committees and should participate in training, exercises, and other relevant opportunities for collaboration. Cities, counties, and states generally participate in Threat and Hazard Identification and Risk Assessments (THIRA), which is a FEMA program to help build response and recovery capabilities for locally relevant hazard and threats. The conduct of THIRAs at the local level provides a valuable opportunity for airports to coordinate with local and regional response agencies.

SECTION 4: AIRPORT SECURITY PROGRAM IMPACTS

Research and focus group discussion were conducted regarding the impact of pandemic exposure control measures on the ASP, which is a vital component of airport operations. While no direct ASP modifications were noted during the research, information regarding temporary modifications and processes to implement them were identified and are discussed below.

4.1 Observations and Analysis

Security-related measures that TSA required or allowed airports to implement were communicated via Security Directives (SD 21-01 series) and alternative measures to Security Directives (National Alternative Measures [NAM] 1542-20-03 and 20-04 series). Because procedures in SDs are generally temporary in nature, they are not required to be included in an airport's TSA-approved ASP. Thus, while airports did not have to amend ASPs to accommodate pandemic response and recovery measures, the impacts of SD 21-01, NAM 1542-20-03, and NAM 1542-20-04 are worthy of discussion. Procedures in SD 21-01 were mandatory, but procedures in NAM 20-03 and NAM 20-04 were optional.

4.2 Recommendations

While no direct ASP impacts were identified that would cause necessary modifications, the following recommendations are provided based on input from many airports regarding their experiences with the SD and NAM processes employed during the pandemic:

- **NAM 20-03 Series, Temporary Relief of SD Measures** – This NAM is classified as SSI so specific measures are not discussed herein, but general impacts are worth noting. NAM 20-03 allowed airports temporary relief from certain measures in the two current SDs (1542 18-01B and 1542 04-08Q) in an effort to reduce the spread of COVID-19. Alternative measures allowed by TSA in this NAM were unilaterally well received by airports and considered very appropriate given the conditions of the pandemic. Furthermore, all airport representatives who participated in focus groups indicated that the temporary relief measure from 18-01B could be made permanent without negatively impacting the ASP.
- **NAM 20-04 Series, Temporary Relief of ID Media Requirements** – This NAM is classified as SSI so specific measures are not discussed herein, but general impacts are worth noting. NAM 20-04 allowed airports temporary relief from certain measures in SD 1542 04-08Q related to ID media and background checks to address the fluctuating nature of employment at airports during the pandemic. Alternative measures allowed by TSA in this NAM were well received by airports and considered appropriate for the situation airport employers were facing with furloughs and layoffs. Many airports appreciated the flexibility in the NAM, which allowed them to decide how to implement measures. Larger airports put much of the responsibility for ID media accountability on Authorized Signatories, while smaller airports sometimes put the responsibility on their Badging Offices.

SECTION 5: COMPLIANCE WITH EVOLVING GUIDANCE/REQUIREMENTS

As discussed, a novel pathogen creates challenges as we know little about it initially. Initial control measures for all novel pathogens include PPE, cleaning and hygiene, social distancing, testing (if available), contact tracing, and quarantine. The science involved with a novel pathogen evolves rapidly; what we knew yesterday may be slightly different today. In airports and among the public, rapid gains in knowledge regarding the virus and subsequent changes in guidance caused confusion throughout the COVID-19 pandemic and has proven difficult to manage. Observations, analysis, and recommendations are provided below.

5.1 Observations and Analysis

Airports are generally adept at evolving, but the pace of information emerging throughout the current pandemic has been difficult to manage. The evolving guidance created challenges for airports in maintaining compliance, and in modifying procedures to maximize exposure control measures based on new information.

Exhibiting leadership and adjusting to changing guidance quickly and effectively has a positive impact on airport employees and stakeholders, and instills confidence in the traveling public, which can support operational recovery in the aviation sector.

Remaining flexible is important. In some cases, frequently changing guidance from local officials regarding exposure control measures and/or conflicting guidance between local, state, and federal sources made implementation difficult and created communication challenges. Differing exposure control, testing, and vaccination requirements between origin and destination airports created confusion for passengers.

In addition, communicating with contractors, vendors, and other external stakeholders regarding changes in exposure control measures is also important to maintain a workforce to conduct necessary airport security functions. Understanding the extent to which airport security operations rely on contractors and vendors is important to maintaining operations. Contractors and vendors should be included in compliance considerations.

A defined organizational structure within airport management is important to address response, recovery, and changing guidance. This may be based on an ICS framework, as described in Section 1.4, or the airport may develop their own organizational structure. The structure should involve an airport point person (e.g., Liaison Officer, COVID-19 Director) to coordinate with public health agencies and regulators regarding implementation of exposure control measures.

Constant monitoring of guidance and a direct line to public health agencies and regulators supports compliance and effective implementation of exposure control measures. Some airports appointed a COVID-19 Director to look at data sources on a daily basis to support alignment with CDC recommendations. The ability to assemble a large team quickly was vital to respond to new data and brainstorm solutions for challenging issues. In large-scale scenarios, multiple assignees may be necessary to support daily monitoring of public health recommendations, tactical implementation of exposure control measures, and communication to the general public and internal stakeholders.

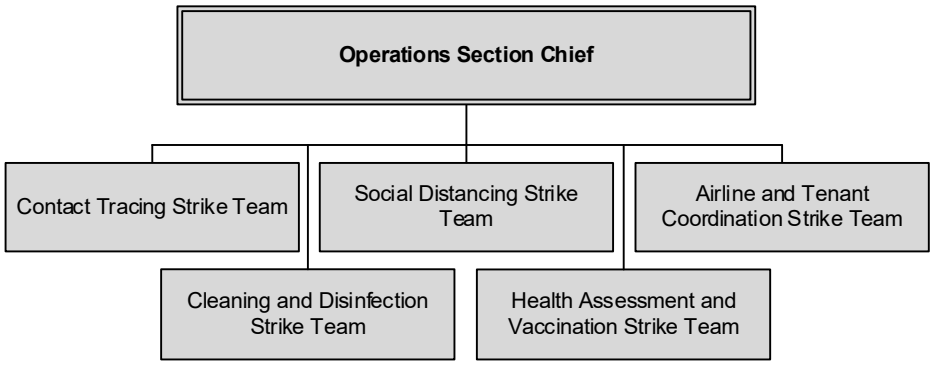
One airport described implementing a response and recovery framework early in the pandemic to monitor changing conditions and to implement exposure control measures as needed. The airport utilized working groups, which were established based on response and recovery goals. These groups

were instrumental in implementing exposure control measures based on evolving guidance. Calls were held every day at 9:00 a.m., and team leaders reported progress, actions that were needed, and coordination needs. Virtual meeting software was used to document information. Emergency management participated in calls through the city/county EOCs.

5.2 Recommendations

Command and General Staff positions described in the ICS can be used to support necessary response and recovery functions. As with other types of emergency response operations, the ICS Operations Section can be developed to support communicable disease-specific functions using single resources or strike teams, based on the extent of response needs. Figure 5-1 shows a conceptual Operations Section to support communicable disease and pandemic response.

Figure 5-1. Conceptual Operations Section for Infectious Disease and Pandemic Response



- **Response and Recovery Organization** – Airports should use ICS to institute a flexible organizational response and recovery structure to manage communicable disease events scaled to the meet the needs of the scenario. ICS Command and General Staff functions are devised to manage various aspects of emergency scenarios, including coordination, communication, and monitoring situational awareness. Additional consideration should be given to planning for tactical positions under the Operations Section premised on the following communicable disease response functions:
  - Evaluation and Testing – Evaluating symptoms or conduct specific pathogen test
  - Contact Tracing – Identifying exposed or potentially exposed individuals
  - Isolation – Social distancing and barriers
  - Quarantine – Strict isolation of known cases or exposed persons
  - Cleaning and Disinfection – Use of known agents to disinfect persons and the environment
  - Personal Protective Equipment (PPE) – Facecoverings, respirators, and gloves
  - Ventilation Control Measures – Use of air filtration to minimize pathogen circulation in public environments
- **Monitor Guidance** – A position within the response and recovery organization should be assigned to monitor local, state, and federal guidance for communicable disease exposure control measures, as well as measures implemented at origin and destination airports. Recommendations below use ICS functions to address communicable disease response and recovery needs:
  - Isolated Communicable Disease Scenario – The Liaison Officer may be assigned to coordinate with public health officials to support response and recovery.

  - Epidemic/Pandemic Scenarios – The Liaison Officer, Safety Officer, and Planning and Operations Sections may all be required to monitor guidance and maintain response and recovery practices in coordination with local city or county EOCs.
  - Aviation-Specific Requirements – For epidemic/pandemic scenarios, it is important to monitor differences in requirements within the aviation sector and between origin and destination airports. Any differences among airports, airlines, and/or destinations/origins should be coordinated with airlines and communicated to the traveling public.
- **Coordinate Tactical Response Measures** – Also within the response and recovery organization, operational changes in exposure control should be coordinated with representatives of all impacted stakeholders. Coordinating with airport employees, airline personnel, concessionaires, and other airport stakeholders allows for discussion of challenges and sharing of ideas to mitigate those challenges. Internal coordination may occur through the Operations Section Chief or Airline and Tenant Coordination Strike Team. External stakeholder communications can be assigned to the PIO, and for specific agency communications the Liaison Officer may coordinate with public health, emergency management, and other mutual aid support organizations. To reduce exposure potential, coordination meetings should be held virtually.

Utilizing ICS to organize response and recovery, to monitor guidance, and to coordinate tactical response measures allows airport to maintain compliance with evolving guidance and requirements in a flexible and scalable manner. Utilizing ICS is also consistent with Airport Emergency Plan (AEP) requirements defined under 14 CFR Part 139, Airport Certification. Additional consideration of tactical functions, staffing, and resourcing needs will be addressed in Phase 2 of this research.

SECTION 6: CONCLUSIONS

Information is provided below to address policy and planning considerations, development of competencies through training and exercises, and coordination and resourcing needs. While many of the discussion points are beyond the scope of airport security, the information was discussed among airport focus group participants recognizing that the pandemic is an ongoing and evolving operational challenge within aviation.

6.1 Policy and Planning Considerations

The need for advanced policy and planning development to support communicable disease preparedness, response, and recovery cannot be overstated. The differences between a pandemic and other catastrophes are vast. Hurricanes, earthquakes, and security incidents can produce severe challenges, but damage is localized in these cases and external support can be summoned to expedite response and recovery efforts. A pandemic requires a consistent and prolonged approach to exposure control at a national and global level. While measures to address localized preparedness for communicable diseases are necessary within airports and among local emergency response partners, the need for a national pandemic communication strategy and a unified concept for operations for pandemic response and recovery is apparent.

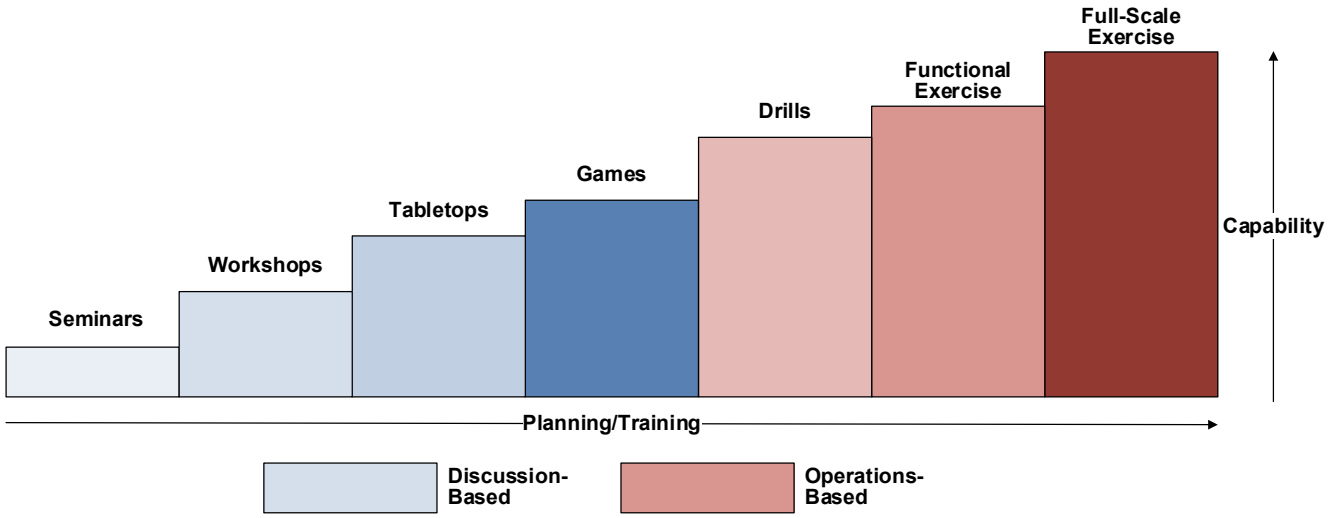
6.2 Training and Exercises

Communicable disease response and recovery is not intuitive without training and practice. Training seminars and exercises are necessary to convey information regarding exposure control and recovery measures, to build competencies among assignees, and to identify gaps in capabilities. These gaps could potentially be addressed with external support via public health and emergency management resources. Training and exercises should be conducted for all exposure control measures to be implemented in airport communicable disease response plans. Training and exercises should be developed, conducted, and evaluated in accordance with current HSEEP[3] guidelines, and include airport and stakeholder employees (airlines, concessions, etc.).

Training and exercises should be conducted in a stepwise manner as indicated in Figure 6-1, *HSEEP Building Block for Training and Exercises*. This approach begins with discussion-based training and exercises to familiarize assignees with communicable disease plans and procedures. The approach then builds progressively to operations-based exercises that allow participants to actually implement measures as they would during an actual communicable disease response and recovery operation.

[3] https://www.fema.gov/emergency-managers/national-preparedness/exercises/hseep

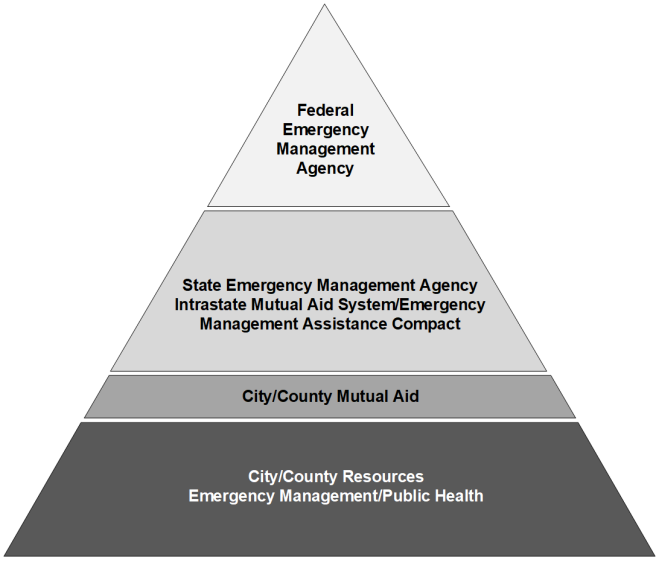
Figure 6-1. HSEEP Building Block for Training and Exercises



6.3 Coordination, Resourcing, and Personnel

Some airports indicated that they have developed a good working relationship with emergency management and other response agencies. Others have less developed relationships or coordinate rarely. In the context of resourcing, mutual aid, communications, and general emergency preparedness, coordination with emergency management agencies is vital to facilitating effective response to communicable diseases, as well as other hazards and threats. As indicated in Figure 6-2, external resource support for airports begins with a request through the local emergency management agency and can escalate to state and federal resources as needed. For large scale events, such as a pandemic, where resource needs may outpace availability, it is vital to pre-plan and coordinate with emergency management agencies for resource support.

Figure 6-2. Resource Support Pyramid



Another critical emerging issue is the widespread labor shortage. This issue impacts badging, screening, and other security functions, as well as operations beyond security.

Staff recovery needs at airports as a result of furloughs and terminations requires further study as air travel demand increases to pre-pandemic rates. The impact of staffing shortages and difficulty in recruitment applies to all airport stakeholders, including airport operations, TSA, airlines, concessionaries, ground staff, and others. Given the speed at which air travel demand has recovered, the effects of employee layoffs and furloughs should be considered in future decision making.

6.4 Next Steps – Phase 2 Research

To address tactical planning needs, Phase 2 of this research will address an infectious disease-specific Concept of Operations, procedures to support plan activation and tactical response, and coordination protocols to interface with internal and external stakeholders, along with recommendations for coordination with AEPs. Tactics will focus on the following:

- Using the ICS and NIMS to develop strategies and tactics consistent with federal doctrine
- Ensuring that security operations are addressed in communicable disease response and recovery
- Providing processes to address queueing and reduce congestion at passenger and employee inspection locations
- Providing processes and information to support equipment cleaning and disinfection in areas used for passenger screening, employee inspections, and access control points
- Providing staffing and badge holder procedures to support exposure control and to maintain the workforce
- Using technology for regulatory processes, including credentialing, access control, and auditing
- Providing processes for using virtual tools to support response and recovery operations while reducing potential exposure
- Providing pathogen-specific information to support customized exposure control measures

A risk-based approach for exposure control will be presented to support decision-making at the onset of a potential communicable disease outbreak. An example of a risk-based approach is shown in Table 6-1.

6-1. Risk Matrix for Personal Protective Equipment

Distance*	Duration of Exposure in 24 Hours*		
	< 15 minutes	15 minutes	> 15 minutes
> 6 feet	Low risk	Low Risk	Moderate Risk
6 feet	Low risk	Moderate Risk	High Risk
< 6 feet	Moderate Risk	High Risk	High Risk

*Distance and duration are consistent with many pathogens and may be used as default measures in consultation with public health officials. However, if information is available, it is important to adjust distance and duration based on latest data regarding the specific pathogen of concern.

In this example, a risk-based approach supports determinations of which employees within an airport may require higher levels of respiratory protection and other PPE, if available. In an airport setting, other forms of relevant PPE generally include eye protection and gloves. While, for this example, the primary source of exposure that may lead to infection is respiratory in nature, barriers to the eyes, face, and hands further reduce exposure in concert with hygiene and social distancing.

A risk-based approach to exposure control measures combined with specific procedural recommendations will provide airports with valuable information to support communicable disease planning and implement effective exposure control measures in airport security operations.

In addition, Phase 2 will provide information regarding various pathogens to highlight differences in response protocols. While social distancing, PPE, and other measures remain generally consistent among many pathogens, Phase 2 will also provide planning guidance regarding pathogens for which exposure control measures may differ. The research team will conduct outreach to health- and security-focused agencies to obtain the government's perspective on infectious disease planning in critical infrastructure. Specifically, agency outreach is intended to identify available external resources to

support airport security functions during an infectious disease outbreak, to identify state-level resources, and to identify funding and resources at the federal level.

Finally, Phase 2 will explore evolving challenges airports have faced throughout the pandemic, including staff turnover, resource availability, and changing passenger dynamics.

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APPENDIX A: IMPROVEMENT PLAN

The table below provides recommendations for airports and airport stakeholders to develop comprehensive communicable disease plans and procedures. Recommendations are based on the findings provided throughout this document and are organized by project impact areas and objectives.

1.	Passenger Impacts
1.1	Security Checkpoint Queueing and Distancing
1.1.1	Stretch lanes into a straight queue and add stickers on the floor every six feet to encourage social distancing, if possible.
1.1.2	If space does not allow a straight line queue, add plexiglass and floor stickers as an alternative. Coordinate with TSA and the local fire marshal prior to installing plexiglass barriers to address impacts on Canine Enhanced Service operations and fire-code requirements, respectively.
1.1.3	Increase the width of the queue lane to allow social distancing between neighboring lanes, if possible.
1.1.4	Utilize airport representatives or ambassadors to remind passengers of social distancing and mask requirements, where applicable.
1.1.5	Place signage at strategic locations in queues to remind passengers to adhere to social distancing and mask requirements.
1.1.6	Open an employee-only checkpoint for Sterile Area badged individuals to minimize employee-passenger exposure, if possible.
1.1.7	Temporarily discontinue programs which allow non-ticketed individuals into the Sterile Area, as needed.
1.1.8	Limit the public areas of the terminal to ticketed passengers only or discourage well-wishers from waiting on passengers in the terminal using airport representatives or ambassadors and signage.
1.1.9	Relocate benches and chairs, especially in the revesting area immediately after the checkpoint, to encourage social distancing and discourage gathering spots.
1.1.10	Consider virtual queueing to reduce passenger surges at checkpoints and increase throughput at queues.
1.1.11	Airports and TSA should coordinate and consider opening additional lanes at space-constrained security checkpoints to reduce the number of passengers waiting in queues, reduce wait time, and allow more effective social distancing.
1.2	Passenger Health Screening, Attestation, and Testing
1.2.1	Use registered health officials to manage and collect all paperwork at temperature check/health screening stations to reduce concerns of privacy and HIPAA violations.
1.2.2	For health attestation, consider using web-based applications and digital forms that can be completed prior to arrival at the airport.
1.2.3	For temperature screening, if possible use automated temperature equipment to reduce the number of people necessary to staff health screening stations.
1.2.4	Consider the ambient temperature of the location of the health screening station in areas where temperature may be elevated due to high heat or environmental factors (as opposed to illness).
1.2.5	Place health screening stations away from ticket counters and security checkpoints to reduce congestion.
1.2.6	Post signage at entrances and throughout terminal areas explaining information that will be gathered during health screening.
1.2.7	Consult with human resources, legal staff, and local health officials to approve health questionnaires and to support proper administration.
1.2.8	For rapid on-site testing, set up health screening stations outside of main terminal areas and sterile areas to reduce congestion in public areas and to reduce exposure potential.

1.2.9	Consider offering incentives to passengers who complete a rapid test and receive a negative test result such as reserved areas (APM/hold rooms) or a shorter queues.
1.2.10	Coordinate testing strategies with local health officials
1.2.11	For contact tracing, consult with human resources, legal staff, and local health officials to develop contact tracing strategies for passengers, as needed.
1.2.12	Consider creating a hotline for passengers to self-report positive test results and facilitate contact tracing.
1.2.13	Consider working with local health officials to hold vaccination clinics at appropriate areas within the airport such as parking lots and garages.
1.3	Cleaning and Disinfection
1.3.1	Work with experts with comprehensive knowledge of CDC and EPA standards within local health agencies, universities, and/or industry.
1.3.2	Work with local governments to identify and secure sources of necessary cleaning products.
1.3.3	Use contactless UV systems to sanitize screening bins. As an alternative, spray each bin with a recommended disinfection agent identified in coordination with local public health or other authority. Ensure that airport-owned systems are properly stored, maintained, and ready for use or available via vendors for immediate use.
1.3.4	Implement fogging or electrostatic sprays to disinfect large areas at night and use caution to protect sensitive equipment. Ensure that airport-owned systems are properly stored, maintained, and ready for use or available via vendors for immediate use.
1.3.5	Perform specialized ad hoc cleaning and disinfection of areas that have been inhabited by people with confirmed cases of infection.
1.3.6	Provide touchless hand sanitizer stations for passengers.
1.3.7	Upgrade HVAC systems to HEPA/MERV 13 filtration or NPBI.
1.3.8	Work with TSA to apply for reimbursement of cleaning products and services, where applicable.
1.3.9	Consider reassigning non-critical employees temporarily to custodial functions to assist with cleaning and sanitizing operations.
1.3.10	Implement comprehensive cleaning procedures to eliminate the need for extensive shutdowns when positive cases are identified.
1.4	Signage and Messaging
1.4.1	Use all available communication platforms to ensure messages are available to everyone including physical signage, social media, audio messaging, and airport ambassadors.
1.4.2	Convey consistent messages and to avoid sign fatigue.
1.4.3	Utilize marketing and human resources to ensure use of clear, concise, and consistent messaging across all platforms and demographics: • Provide easy to understand messages and with clear intent. • Address persons with disabilities including visual and hearing impairments. • Be consistent with current directives from the CDC, TSA/FAA directives, and local health department. • Present in languages and non-written messages appropriate for the passenger demographic. • Use regional references to reinforce the airport brand. • Develop in a timely manner by avoiding too many levels of approval. • Coordinate with airlines, concessions, and other stakeholders to ensure consistency and provide an opportunity for input. • Record locations of deployed signage to support modification or removal based on changing conditions and guidance.
1.4.4	Add references in messages to public laws requiring compliance with health guidelines, if applicable.

1.4.5	Post signage throughout the airport including entrances, parking garages, rental car facilities, shuttles and trains, employee buses, elevators, check-in lobbies, and screening checkpoints.
1.4.6	Partner with convention and visitors' bureaus, hotels, and local destination attractions as communications platforms for messaging as an extension of a passenger's journey
1.4.7	Partner with advertising concessionaires to utilize unused space within the terminal and public spaces for messaging.
1.4.8	In consultation with health officials, consider the best time to remove signage and messaging as airport recovery progresses.
1.4.9	Assign an individual or team to be responsible for printing, posting, and replacing signage as necessary.
1.5	Mask Compliance Strategies
1.5.1	Align airport mask compliance strategies with federal guidelines including those issued by TSA, CDC, or other authority.
1.5.2	Create strategies designed to educate passengers on mask requirements at the airport including use of signage and messaging, social media, audio messages, and ambassadors to convey a consistent message.
1.5.3	Maintain mask compliance messaging in accordance with the most current legal requirements or guidelines available.
1.5.4	Encourage all airport stakeholders to calmly and politely remind passengers to wear masks correctly while in the airport.
1.5.5	Use airport ambassadors and additional signage to remind deboarding passengers that masks are required throughout the continuum including baggage claim areas.
1.5.6	Provide ambassadors and aviation workers with spare masks to provide to passengers and/or place spare masks throughout the check-in lobby and screening checkpoint for passengers to use.
1.5.7	Coordinate with emergency planning and response organizations to identify mask supply sources.
1.5.8	Coordinate with TSA and other stakeholders to identify compliance needs and support enforcement.
1.5.9	Reinforce use of masks among aviation workers; non-compliance may have a negative impact on passenger experience and damage the airport's brand.
1.6	Passenger Processing and Throughput
1.6.1	Airports should consider developing an airport employee task force, including airport authority and stakeholder employees (airlines, concessions, etc.), to review operational changes implemented in public areas during the pandemic and to identify measures taken that can provide long-term benefit in facilitating effective passenger throughput, improved security operations, cost reduction, and/or risk mitigation.
1.7	Pathogen Event-Specific Risk Communications
1.7.1	Airports should work with aviation stakeholders and federal agencies to develop effective and continuing communication strategies to ensure that the general public is made aware of intricacies in conducting research on a novel pathogen and, more importantly, the likely impacts on day-to-day life. Such a strategy should highlight the fluidity of research and reinforce confidence in the substantial public health capabilities available in the US as well as in the dedicated workforce in the aviation sector. Having and communicating national policies for the commercial aviation industry (versus local ordinances) is particularly important due to the frequency of interstate travel.
2	**Employee/Badge Holder Impacts**
2.1	Credentialing Process
2.1.1	Written Plan for Badging Office Operations – Airports should capture safety processes and procedures and maintain written plans to support communicable disease response and recovery procedures in badging and training centers. Plans should be reviewed on a scheduled basis, when conditions change, and as needed based on the occurrence of a specific pathogen.

2.1.2	Exposure Control Measures in Badging Office – Those measures which are known to be effective in controlling pathogenic exposure should be captured in the written plan referenced in 2.1.1 and include: • Use of protective barriers to minimize airborne spread • Creative scheduling of staff to include split-shifts and remote work, if possible • Use of multiple offices to split staff and avoid exposure among an entire shift, if possible • Use of PPE among staff and PPE requirements of those obtaining badging services • Use of pathogen-appropriate hygiene measures including handwashing and cleaning and disinfection • Appointment-based services to reduce the number of people in a badging office
2.1.3	Cleaning and Disinfection – Information gathered during the pandemic regarding cleaning for pathogens should be captured and maintained for use in future communicable disease events which may have a high risk of surface infection.
2.1.4	Social Distancing – Document established social distancing measures used in training centers for ease of implementation in future events.
2.1.5	Computer-Based Training – Evaluate benefits of a CBT program if not already in place and the possibility of virtual CBT. When considering virtual CBT, consider including measures to minimize the chances for cheating on the test.
2.1.6	Defer Renewal Training – During pandemic/epidemic conditions, consider deferring badge renewal training which is not required by regulation to lower badging office volumes.
2.1.7	Badging Process Delays – If the badging process for new employees is delayed or lengthened due to background check delays or other factors, develop methods to streamline the process and communicate with Authorized Signatories so they can plan accordingly for their operations.
2.1.8	Local Debrief – Airports should consider conducting a debrief regarding all safety protocols implemented during COVID and identify opportunities to refine and streamline processes and procedures as well as those protocols that were not effective.
2.2	Access Control and Employee Inspections
2.2.1	Regulatory Collaboration – Airports should work collaboratively with TSA and industry associations on temporary regulatory requirements implemented in response to communicable disease or pandemic conditions.
2.2.2	Advanced Planning – Airports should communicate lessons learned to TSA to ensure communicable disease strategies achieve a balance between flexibility and maintenance of critical security operations.
2.2.3	Alternative Measures – Airports should develop and maintain policies to implement alternative measures authorized by the TSA that can be easily enacted to allow for alternative credentialing and access control measures as needed and warranted by pandemic emergencies.
2.2.4	Employee Inspection Contingencies – Develop and maintain employee inspection contingency plans which are fully vetted prior to a communicable disease outbreak to allow expedited implementation.
2.2.5	Local Debrief – Conduct a debrief regarding employee inspections and security accountability measures implemented during the pandemic to evaluate the impact of reduced inspections on airport security including the potential for complacency, security infraction frequency, and other security related challenges which may be related to reduced inspections.
2.3	Health Screening/Attestation and HIPAA/Privacy Considerations
2.3.1	Evaluate Health Screening Options – Conduct a benefit-cost analysis on equipment used to evaluate temperature or other symptoms prior to implementation. The efficacy of temperature checks and questionnaires may be sufficient to address small populations such as employees. However, use in the general population may not be warranted or useful. Screening options are also highly dependent on the properties of the pathogen in question.

2.3.2	Communicable Disease Planning – Refine communicable disease plans to include processes and procedures for relevant response measures including: • Health Screening and Questionnaires (as appropriate) • Pathogen-Specific Testing • Contact Tracing (employees only) • Points of Distribution (for vaccines or other medical countermeasures)
2.3.3	HIPAA/Privacy Issues – Coordinate with human resources and legal counsel to ensure privacy concerns are addressed and incorporated into health screening, testing, contact tracing, or medical distribution program. Use human resources as a repository for information and data.
2.4	Stakeholder Engagement and Communication of Changes
2.4.1	Defined Point of Communication – Establish a single source for communication from the airport to internal stakeholders (badge holders). • For internal purposes, the Public Information Officer (PIO) or other designee may serve as the leader in addressing messaging needs. • All information should be developed by the PIO and approved by the Incident Commander or appropriate airport authority. • For large-scale incidents, multiple assignees may be necessary, however all information should be approved by a single source to ensure consistency.
2.4.2	Methods of Communication – Multiple methods of communication should be identified based on the ability to reach target audiences and should include virtual platforms, listservs, websites, and mobile applications.
2.4.3	Pre-Event Coordination – Airports should establish communications pathways with all badge holders to ensure that important communicable disease information can be shared across the broad spectrum of airport employees, airlines, concessionaires, and other vendors.
3	**Airport Security Program Impacts**
3.1	Crisis Coordination
3.1.1	For a pandemic, it is vital that public health measures and how they are implemented in air travel be coordinated between applicable local and federal agencies to avoid vagueness and to facilitate proper application of exposure control measures where they are needed. Crisis coordination procedures should also involve industry partners to provide input on resulting temporary measures.
3.2	NAM 20-03 Series, Temporary Relief of SD Measures
3.2.1	This NAM is classified as SSI and specific measures are not discussed herein, but general impacts are worth noting. NAM 20-03 allowed airports temporary relief of certain measures in the two current SDs (1542 18-01B and 1542 04-08Q) in an effort to reduce the spread of COVID-19.
3.2.2	Alternative measures allowed by TSA in this NAM were unilaterally well received by airports and considered very appropriate given the conditions of the pandemic. Furthermore, all airports who participated in focus groups indicated that the temporary relief measure from 18-01B could be made permanent and would not negatively impact the ASP.
3.3	NAM 20-04 Series, Temporary Relief of ID Media Requirements
3.3.1	This NAM is classified as SSI and specific measures are not discussed herein, but general impacts are worth noting. NAM 20-04 allowed airports temporary relief of certain measures in SD 1542 04-08Q related to ID media and background checks to address the fluctuating nature of employment at airports during the pandemic.
3.3.2	Alternative measures allowed by TSA in this NAM were well received by airports and considered appropriate for the situation airport employers were facing with furloughs and layoffs. Many airports appreciated the flexibility in the NAM allowing them to decide how to implement measures. Larger airports put much of the responsibility for badge/ID media accountability on Authorized Signatories while smaller airports sometimes put the responsibility on their badging offices.

4	**Compliance with Evolving Guidance/Requirements**
4.1	Response and Recovery Organization
4.1.1	Airports should use the Incident Command System (ICS) to institute a flexible organizational response and recovery structure to manage communicable disease events scaled to the meet the needs of the scenario.
4.1.2	Use ICS Command and General Staff functions to manage various emergency scenarios including coordination, communication, and monitoring situational awareness.
4.1.3	Consideration planning for additional tactical positions under the Operations Section premised on the following communicable disease response functions: • Evaluation and Testing – Evaluate symptoms or conduct specific pathogen test • Contact Tracing – Identifying exposed or potentially exposed individuals • Isolation – Social distancing and barriers • Quarantine – Strict isolation of known cases or exposed persons • Cleaning and Disinfection – Use known agents to disinfect persons and the environment • PPE – Face coverings, respirators, and gloves • Ventilation Control Measures – Using air filtration to minimize pathogen circulation in public environments
4.2	Monitor Guidance
4.2.1	Within the response and recovery organization, a position or positions should be assigned to monitor local, state, and federal guidance for communicable disease exposure control measures as well as measures implemented at origin and destination airports.
4.2.2	For an isolated communicable disease scenario, assign a Liaison Officer to coordinate with public health officials to support response and recovery.
4.2.3	For epidemic/pandemic scenarios, the Liaison Officer, Safety Officer, and Planning and Operations Sections may all be required to monitor guidance and maintain response and recovery practices accordingly in coordination with local city or county EOCs.
4.2.4	Monitor differences in requirements within the aviation sector, particular origin and destination airports, and work with airlines to ensure that requirements are communicated to passengers. Where differences are noted, communication of differences among airports, airlines, and/or destinations/origins should be coordinated with airlines and communicated to the traveling public.
4.3	Coordinate Tactical Response Measures
4.3.2	Coordinate with airport employees, airline personnel, concessionaires, and other airport stakeholders to allow discussion of challenges and sharing of ideas to mitigate those challenges.
4.3.2	Hold coordination meetings via virtual meeting platforms to reduce exposure potential.
5	**Training and Exercises**
5.1	Training and Exercises for Communicable Disease Planning
5.1.1	Conduct training seminars and exercises to convey information regarding exposure control and recovery measures, to build competencies among assignees, and to identify gaps in capabilities which may be addressed with external support via public health and emergency management resources. Include airport authority and stakeholder employees (airlines, concessions, etc.) in all training seminars and exercises.
5.2	Tactical Orientation, Training, and Exercises
5.2.1	Conduct specific orientation, training, and exercises for each exposure control measure to be implemented in the airport communicable disease response plan.
5.3	Building-Block Approach
5.3.1	Use a stepwise process to build competencies beginning with discussion-based training and exercises and progressing to operations-based exercises which allow participants to actually implement measures as they would during a communicable disease response and recovery operation.

6	Coordination, Resourcing, and Personnel
6.1	Government Stakeholder Engagement and Communication
6.1.1	Defined Point of Communication – Establish a single source for communication from the airport to external government stakeholders such as a Liaison Officer. • For regulatory coordination, the Liaison Officer should coordinate with public health, emergency management, and other relevant regulatory agencies to maintain the latest guidance regarding a communicable disease. • Information obtained via the Liaison Officer can be used by the PIO to support external messaging. • For large-scale incidents, multiple assignees may be necessary. However, all information should be approved by a single source to ensure consistency.
6.1.2	Pre-Event Coordination – Airports should establish and maintain relationships with local and state agencies who serve jurisdictional roles across all types of emergencies. Conduct pre-planning and coordination with emergency management agencies for resource support to address large scale events such as a pandemic where resource needs may outpace availability. Consider assigning an airport official to participate in planning groups or committees and in training and exercises as well as other relevant opportunities for collaboration. Note: City/county level Threat and Hazard Identification and Risk Assessments (THIRA) provide a valuable opportunity to coordinate with local and regional response agencies.
6.2	Assess Impact of Furloughs
6.2.1	Conduct a sector-wide study to assess the impact of furloughs and terminations at airports on the ability to effectively recover as the air travel demand increases to pre-pandemic rates.
6.3	Continuity of Operations
6.3.1	Develop provisions in continuity of operations plans or in other procedural documents to support recovery following short- and medium-term operational disruptions.

APPENDIX B: LITERATURE REVIEW

As the pandemic progressed throughout 2020 and 2021, a significant volume of guidance and information regarding the virus and exposure control measures was released from academia, government agencies, and various industry trade associations. A review of relevant literature is provided below. In addition to COVID-19-specific literature released throughout the pandemic, pre-pandemic literature is summarized to provide historical perspective.

Federal Transportation References

Various US government sources released transportation-specific guidance, some of which was directed specifically at the aviation sector and others more broadly directed at public transportation. The guidance documents are summarized below, beginning with those most directly relevant to the aviation sector.

Runway to Recovery: the United States Framework for Airlines and Airports to Mitigate the Public Health Risks of Coronavirus. Version 1.1. Jointly Issued by the U.S. Departments of Transportation, Homeland Security, and Health and Human Services. December 2020. https://www.transportation.gov/sites/dot.gov/files/2020-12/Runway_to_Recovery_1.1_DEC2020_Final.pdf

Summary: Jointly issued by the US Departments of Transportation, Homeland Security, and Health and Human Services, the *Runway to Recovery* was released initially in July 2020 and revised in December 2020. Both versions provide similar guidance to airports and airlines for implementing measures to mitigate public health risks associated with COVID-19. However, the second release addressed the concept of COVID-19 testing in more detail due to the wider availability and greater understanding of the benefits and limitations of testing.

The *Runway to Recovery* provides recommendations that fall into the general categories shown below:

1. Passenger and Aviation Worker Education
2. Collecting Information for Contact Tracing
3. Social Distancing
   - 3.1 General Concepts
   - 3.2 Separation of Crew/Aviation Workers and Passengers
   - 3.3 Minimize Document Handling and Physical Contact between Airport Workers and Passengers
4. Masks or Cloth Face Covering
5. Cleaning and Disinfection
6. Passenger Health Assessments
   - 6.1 Health Attestations
   - 6.2 Temperature Screening
   - 6.3 COVID-19 Testing/Public Health Corridors
7. Airport Common Areas, Terminals, and Retail
   - 7.1 Contactless Check-in
   - 7.2 Checked Baggage Drop
   - 7.3 Airport Security Checkpoints

7.4 US Customs and Border Protection Clearance
7.5 Baggage Claim
8. Airport Ground Transport
9. Aircraft
9.1 Seat Assignment and Boarding Processes
9.2 Aircraft Ventilation Adjustments
9.3 Limit or Suspend Onboard Customer Services
9.4 Segment Lavatory Access
9.5 Personal Protective Equipment for Crew and Ill Passengers
9.6 Additional Crew Protections
9.7 Disembarkation Procedures
9.8 Aircraft Disinfecting
10. Daily/Routine Reporting

The *Runway to Recovery* provides a valuable strategic framework to implement infectious disease measures throughout the airport travel continuum in response to a pandemic or regional epidemic. It addresses most of the public-facing airport and airline operations with respect to exposure control, but it does not address security operations including:

- Credentialing
- Employee inspections
- Vendor requirements
- SIDA training
- ASP impacts

FAA CARES Act Airport Grants Presentation. U.S. Department of Transportation and Federal Aviation Administration. April 2020. https://www.faa.gov/airports/cares_act/media/cares-act-airport-grants-presentation.pdf

Summary: Public Law 116-136, Coronavirus Aid, Relief, and Economic Security Act (CARES Act), provides nearly $10 billion to eligible US airports to prevent, prepare for, and respond to coronavirus impacts, including support for continuing airport operations. This presentation covers four primary topics regarding the CARES airport grant program:

1. Provides an overview of eligibility requirements, formulas, application process, and documentation and audit requirements
2. Identifies the purpose of the grant including maintaining airport safety, maintaining airport workforces, and stabilizing airport credit ratings
3. Describes four separate qualifying groups and formulas for each:
    a. Group 1: 100% Federal Share for Fiscal Year 2020 Airport Improvement Program (AIP) and Supplemental Discretionary grants
    b. Group 2: Commercial Service Airports
    c. Group 3: Primary Commercial Airports
    d. Group 4: General Aviation Airports
4. Describes documentation and audit requirements

TSA Communicable Disease Response Playbook: Solutions and Best Practices for Mitigation. Version 1. Transportation Security Administration. June 20, 2020.

Summary: This document provides brief analysis and guidance as summarized below:

Section 1: Minimize Touch

Section 2: Increase Social Distance

- 2.1 Social Distancing Requirements
- 2.2 Acrylic Shield Barriers
- 2.3 Passenger Communications/Signage
- 2.4 Infection Control Monitor Position

Section 3: Enhanced Cleaning of the Checkpoint

Section 4: Personal Protective Equipment

The document provides information regarding the TSA's approach to protecting personnel, which may be applicable to other airport security operations. The document lacks specificity regarding how to implement exposure control measures.

Considerations for State, Local, and Territorial COVID-19 Restrictions that Impact Air Transportation. Federal Aviation Administration. March 28, 2020. https://www.faa.gov/airports/airport_compliance/media/State-Local-Territorial-Guidance-on-COVID-19-Restrictions-that-Impact-Air-Transportation-20200328.pdf

Summary: This FAA document provides direction regarding quarantine and travel restrictions during the COVID-19 pandemic. The document provides relevant considerations to support tactical implementation of pandemic-related restrictions. These include:

- Critical air transportation workers should be exempted from restrictions on movement, and requirements for quarantine, isolation, or shelter-in-place declarations.
- When establising protocols for quarantine and travel restrictions, identify the intent of the actions and the applicable groups. Consider all travel options available to members of those groups that may allow them to evade screening, travel restrictions, and/or quarantine measures.
- Identify resources necessary for implementation and the roles and responsibilities of each participating organization.
- Coordinate with all air transportation stakeholders in your jurisdiction to ensure clear and consistent implementation.
- Consult with air transportation operators to consider how the government will collect information and perform screening.
- Proposed measures cannot close a Federally-obligated airport without prior to FAA authorization, and must consider all essential aeronautical services.

Federal Public Health and Safety Guidance

In addition to guidance released by the US government for transportation, CDC, FDA, and other agencies have developed extensive information to support infectious disease response and recovery prior to and during the COVID-19 pandemic. In addition, OSHA has public guidelines to support workplace exposure control. Documents from each of these agencies are summarized below.

Guidance for Businesses and Employers Responding to Coronavirus Disease 2019 (COVID-19). Centers for Disease Control and Prevention. Updated March 8, 2021. https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html.

Summary: Originally released on March 21, 2020, this report was updated periodically until May 2021 as more data regarding the virus was identified. The initial guidance included Interim Guidance for Mass Transit Administrators,[4] and recommended a phased approach to addressing COVID-19 risks. The approach included procedural recommendations for monitoring and preparing; reducing service; resuming full operations; hygiene; intensified cleaning, disinfection, and ventilation; and social distancing. However, this transit-specific guidance was replaced with more generic recommendations in later updates of the document.

Information provided for mass transit regarding cleaning and other protective measures in passenger areas is relevant to airports. Original guidance also included valuable links to specific procedural guidance to support occupational health and safety in public areas.

Reopening Mass Transit During the COVID-19 Pandemic. Centers for Disease Control and Prevention. May 14, 2020. https://stacks.cdc.gov/view/cdc/88032.

Summary: This CDC document provides a flowchart to assist mass transit organizations in determining the appropriate level of service relative to COVID-19 conditions. As it is directed at mass transit, it is not directly applicable to airport security operations, however it provides a logical flow for decision-making. The flow chart includes decision points for opening and level of service, recommended health and safety actions, and recommended monitoring procedures.

The flow chart includes numerous fail-safes to help ensure that appropriate safety measures are employed prior to resuming or increasing operations. It may serve as a good reference or template for decisions regarding airport security operations, which are typically high traffic/high volume locations such as badging offices.

Non-Contact Temperature Measurement Devices: Considerations for Use in Port of Entry Screening Activities. Centers for Disease Control and Prevention. August 22, 2014. https://stacks.cdc.gov/view/cdc/24857

Summary: This CDC document focuses on use of non-contact temperature measurement devices and considerations for their use in port-of-entry screening activities. Non-contact temperature measuring devices allow airports and public health officials to screen passengers for fevers while maintaining distance from the individual. Both non-contact thermometers and thermal scanner thermometers are discussed.

A non-contact thermometer measures an individual's temperature by placing the thermometer close to the forehead without touching the skin. A thermal scanner thermometer is a camera that can scan multiple people from further distances. Thermometers provide a significant advantage over thermal cameras for screening for fever, however thermal cameras are more efficient for large numbers of people. A thermal camera may be useful for security checkpoints, whereas a thermometer may be preferred for areas with smaller numbers of people, such as a badging office.

As it was published in 2014, this document may not reflect the current status of temperature measurement devices. Moreover, temperature measurement as a screening tool for COVID-19 is

[4] https://www.apta.com/wp-content/uploads/Draft-White-House-Interim-Guidance-for-Mass-Transit-Administrators.pdf

only moderately useful given the characteristics of the virus, the latency period between exposure and onset of symptoms, and the wide variation in exhibited symptoms.

Enforcement Policy for Telethermographic Systems During the Coronavirus Disease (COVID-19) Public Health Emergency: Guidance for Industry and Food and Drug Administration Staff. U.S. Department of Health and Human Services, Food and Drug Administration, Center for Devices and Radiological Health, Office of Product Evaluation and Quality. April 2020. https://www.fda.gov/media/137079/download

Summary: This FDA document summarizes steps taken to expand the availability of telethermographic (thermal imaging) systems after February 2020, and allows an exception for infrared thermal imaging systems not designed for medical use to be used for mass adjunctive diagnostic screening during the COVID-19 pandemic. The exception includes those systems employed in large volume applications in airports and other travel environments. The exception temporarily amends regulations for thermal imaging systems used as medical devices and allows labeling and performance expectations to be modified due to lack of required certifications.

Specific thermal performance recommendations include parameters such as acceptable accuracy and drift for a machine used to provide "initial body temperature measurement for triage use."

The document provides detailed guidance on testing and certification standards for adjunctive diagnostic screening in a large-volume setting such as an airport. The approach is repeatable for other infectious disease incidents, and the guidelines can be used a basis for thermal imaging device requirements in a large-volume setting.

Research and development regarding thermal imaging capabilities is ongoing. This document may not reflect the current state of the technology, and the regulatory approval process in general may not accommodate rapid approval of new technology. Also, measuring temperature to screen for COVID-19 is only moderately useful given the characteristics of the virus, the latency period between exposure and onset of symptoms, and the wide variation in exhibited symptoms. Thermal imaging is an expensive means of measuring a weak indicator of COVID-19 infection.

OSHA 3990, Guidance on Preparing Workplaces for COVID-19. US Department of Labor, Occupational Safety and Health Administration. March 2020. https://www.osha.gov/sites/default/files/publications/OSHA3990.pdf

OSHA 4045, Guidance on Returning to Work, US Department of Labor, Occupational Safety and Health Administration, June 2020, https://www.osha.gov/sites/default/files/publications/OSHA4045.pdf

Summary: OSHA produced two guidance documents in 2020: *OSHA 3990, Guidance on Preparing Workplaces for COVID-19* and *OSHA 4045, Guidance on Returning to Work*, both of which provided information for employers and workers regarding recommended workplace strategies and requirements for exposure control. The information provided in these documents is somewhat dated with respect to current knowledge of COVID-19, however the framework provided is useful for close-contact environments.

OSHA currently maintains a website, *Protecting Workers: Guidance on Mitigating and Preventing the Spread of COVID-19 in the Workplace*, which is updated as needed based on new information about the virus and/or protective strategies. When the first OSHA guidance documents were developed, testing was available only on a limited basis and vaccines were not yet approved for use. The current information on OSHA's website addresses recommendations for workplaces to protect unvaccinated and otherwise at-risk individuals during the COVID-19 pandemic. In addition,

recommendations regarding worker vaccination are provided and augmented with links to CDC information.

Regarding workplaces not covered by the OSHA COVID-19 Emergency Temporary Standard (primarily healthcare settings), employers with workplaces composed 100% of fully-vaccinated individuals are not required to take additional steps to protect workers from COVID-19 exposure, although mask requirements still apply for public transportation.

The web-based document provides timely updates based on information provided by the CDC and the National Institute for Occupational Safety and Health, and provides information for employers as well as employees.

This document does not address airport-specific guidance or the unique exposure control needs for airport employees who interact with high volumes of people potentially travelling from distant and disparate locations.

Advisory Memorandum on Ensuring Essential Critical Infrastructure Worker's Ability to Work During the COVID-19 Response. Cybersecurity and Infrastructure Security Agency. December 16, 2020. https://www.cisa.gov/sites/default/files/publications/ECIW_4.0_Guidance_on_Essential_Critical_Infrastructure_Workers_Final3_508_0.pdf

Summary: This memorandum was first released by the Cybersecurity and Infrastructure Security Agency (CISA) on March 28, 2020, and was subsequently revised three times, ending with the most current version released on December 16, 2020. The intent of the memoranda was to guide employers within critical infrastructure sectors on how to maintain a safe workforce throughout the pandemic. Airport, airline, and associated workers were included as critical infrastructure workforce in all versions of the CISA memoranda.

The memoranda are consistent with expectations under the National Infrastructure Protection Plan, and provide general guidance to support adjusting workplace conditions and work habits to facilitate viral exposure control. The memoranda do not identify specific risk-based workplace safety and health procedures.

Federal Emergency Management Guidance

FEMA has provided guidance prior to and during the COVID-19 pandemic to support both the public and private sectors in responding to public health emergencies. Sources are summarized below.

FP 104-009-001, FEMA Fact Sheet, Infectious Disease Event. Federal Emergency Management Agency, Office of Response and Recovery. May 13, 2016. https://www.fema.gov/sites/default/files/2020-10/fema_infectious-disease-fact-sheet_orr_05-13-2016.pdf

Summary: This FEMA Fact Sheet provides general guidance on federal assistance that may be provided under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) during an infectious disease event. It provides a description of the emergency declaration and resourcing procedures specific to an infectious disease event. In addition, the document includes terminology and tasking for Pre-Scripted Mission Assignments.

Airport security personnel are unlikely to be involved in the FEMA declaration process, or in resource requests performed under an emergency declaration. However, personnel responsible for airport security and emergency preparedness functions should be aware that resources are available

via local, state, and federal agencies, particularly in critical and complex emergency scenarios that exceed local capabilities.

This document is not airport specific. Airport management should consult local emergency management if the needs of an infectious disease incident outpace available resources.

FEMA P-323, Public Assistance Applicant Handbook. Federal Emergency Management Agency. March 2010. https://www.fema.gov/pdf/government/grant/pa/fema323_app_handbk.pdf

Summary: The Public Assistance Applicant Handbook provides guidance to governments and other eligible applicants on submitting applications for FEMA reimbursement following a federally declared disaster under the Stafford Act.

Information relevant to airports is contained primarily in Chapter 3, Funding Information You Need to Know, which describes the categories of FEMA assistance and the type of assistance available under each category.[5]

Airport security personnel are unlikely to be involved in FEMA public assistance. However, it is relevant for management-level staff to have a general understanding of eligible projects under FEMA public assistance programs and related categories. Decision makers who determine or influence spending during an infectious disease event should have a general understanding of FEMA categories and what may or may not be available for support.

This document contains in-depth information on the FEMA public assistance application process, most of which is not directly relevant for airports.

Exercise Starter Kit for Workshop on Reconstituting Operations. Federal Emergency Management Agency. July 6, 2021. https://www.fema.gov/disaster/coronavirus/best-practices/exercise-starter-kit-workshop-reconstituting-operations

Summary: The following documents are provided on the FEMA website to facilitate an employee workshop focused on returning to regular operations as COVID-19 restrictions ease. The workshop is designed for remote presentation to support social distancing.

- *FEMA Fact Sheet – Reconstituting Operations Exercise Starter Kit*
- *Reconstituting Operations Exercise Starter Kit Facilitator Guide*
- *Reconstituting Operations Exercise Starter Kit Sample Slides*

The guide serves as a template for organizations to exercise their approach to reopening.

This workshop provides valuable information to support preparations for returning to operations, particularly for phased reopening, or for expanding operations in badging offices, security checkpoints, and other passenger or staff locations.

The materials are COVID-19-specific, so slight modifications may be necessary for future novel viruses.

[5] While the process described in this document is relevant for all disasters, disasters of national significance are often allocated disaster-specific funding through congressional mandate and may have additional conditional uses associated with the funding.

Playbook for Early Response to High-Consequence Emerging Infectious Disease Threats and Biological Incidents. Office of the President of the United States. 2016. https://s3.documentcloud.org/documents/6819268/Pandemic-Playbook.pdf

Summary: Following a small number of Ebola clusters in the US in 2014, the Obama Administration requested that relevant federal agencies develop this document. The Playbook was developed as an Executive Branch tool to support response to emerging infectious diseases, and to augment existing department-level pandemic response plans that were initially developed under the Bush administration.

The Playbook was developed as a decision rubric to support expedited decision making based on known criteria of an emerging pathogen. A summary of airport- and travel-related decision points for screening is provided below:

- Can the disease be effectively screened in travelers as a means to stop transmission?
- Is the disease/outbreak amenable to screening? Are there overt observable signs of illness?
- What is the geographical distribution of cases from the outbreaks? If the outbreak covers a large area, it is probable that there not enough control points exist to implement effective border measures. If the outbreak is in a region that has a large volume of travel, screening all travelers from that region becomes operationally difficult if not impossible.
- Are travel or screening and monitoring requirements either globally or at US borders appropriate and would those measures stop the spread of disease?
- Should there be changes in travel/health advisory issuance?

The Appendix in the Playbook also describes Non-Pharmaceutical Interventions, with travel-related interventions that include:

- Work with affected countries to place restrictions on travelers exiting the impacted countries
- Work with transit countries to place restrictions on travelers coming to the US from an affected country
- Provide health-related guidance to travelers entering the US
- Issue security directives or emergency amendments to place restrictions on flights entering or operating in the US
- Support the country of outbreak in containing the pathogen
- Restrict the arrival of conveyances or individuals from affected countries
- Screen for illness at ports of entry and monitor potentially exposed persons
- Implement measures such as health guidance, isolate ill passengers and/ or place exposed passengers under quarantine to limit onward disease transmission

The Playbook concludes with travel interventions other than screening, which include:

- US Government-generated “do not board” lists
- Issuance of Security Directives (domestic carriers)
- Issuance of Emergency Amendments (foreign carriers)

The Playbook provides robust consideration of federal resources to support pandemic response, and includes logical decisions points for Executive Branch decision-making at the early stage of an

infectious disease outbreak and beyond. The Playbook also considers domestic and foreign travel policy as a key factor in mitigating the proliferation of a novel pathogen.

Pandemic Influenza Preparedness, Response, and Recovery Guide for Critical Infrastructure and Key Resources. US Department of Homeland Security. September 19, 2006. https://www.dhs.gov/sites/default/files/publications/cikrpandemicinfluenzaguide.pdf

Summary: This document was issued by DHS on September 19, 2006 to support CIKR sectors in taking actions to prepare and plan for, respond to, and recover from an infectious disease outbreak as well as a broader pandemic. This guide suggests that CIKR sector planners should move beyond traditional ideas of continuity of operations, as a pandemic is likely to test the limits of then-current contingency plans.

The guide also describes responsibilities of federal agencies, state, local, and tribal governments, and the private sector in addressing CIKR pandemic planning, preparedness, response, and recovery needs. The potential need for travel restrictions is described in various phases of pandemic response and recovery.

> "Some will say this discussion of the Avian Flu is an overreaction. Some may say, 'Did we cry wolf?' The reality is that if the H5N1 virus does not trigger a pandemic, there will be another virus that will."
>
> Secretary Mike Leavitt, Department of Health and Humans Services, November 2, 2005

This guide is accurate in its assessment of planning, preparedness, response, and recovery needs within CIKR, including airports, as well as in its identification of exposure control and disease containment strategies. The guide also provided links to other more specific federal pandemic response plans managed by the Department of Health and Human Services, which provide details as to how various federal agencies can support pandemic response and recovery. As a strategic document, the guide provides a foundation for coordination between all levels of government, quasi-governmental agencies, and the private sector.

A companion document to the guide, *Annex: Aviation Sub-Sector Pandemic Guideline*,[6] also provides more specific criteria to support airport pandemic preparedness, and provides supporting actions and considerations for the following:

- Essential Services and Supporting Functions
- Essential Assets and Equipment
- Essential Materials and Supplies
- Essential Worker Groups
- Essential Interdependencies
- Regulatory and Government Policy Issues
- Impacts from Community Mitigation Strategies

While the entirety of the guide addresses CIKR, including airports, it does not provide specific guidance with respect to airport security operations. The *Aviation Sub-Sector Pandemic Guideline* offers more specific questions, but still lacks specificity regarding security operations.

[6] *Annex: Aviation Sub-Sector Pandemic Guideline, Pandemic Influenza Preparedness, Response, and Recovery Guide for Critical Infrastructure and Key Resources*, US Department of Homeland Security, March 24, 2008.

National Strategy for Pandemic Influenza. Office of the President, Homeland Security Council. November 2005. https://www.cdc.gov/flu/pandemic-resources/pdf/pandemic-influenza-strategy-2005.pdf

National Strategy for Pandemic Influenza Implementation Plan. Office of the President, Homeland Security Council. May 2006. https://www.cdc.gov/flu/pandemic-resources/pdf/pandemic-influenza-implementation.pdf

Summary: The guide for CIKR described above was preceded by the *National Strategy for Pandemic Influenza* in November 2005 and a companion document, the *National Strategy for Pandemic Influenza Implementation Plan* in May 2006. The Strategy addresses three pillars:

- **Preparedness and Communication:** Activities that should be undertaken before a pandemic to ensure preparedness, and the communication of roles and responsibilities to all levels of government, segments of society and individuals
- **Surveillance and Detection:** Domestic and international systems that provide continuous "situational awareness," to ensure the earliest warning possible to protect the population
- **Response and Containment:** Actions to limit the spread of the outbreak and to mitigate the health, social and economic impacts of a pandemic

The Implementation Plan is a much larger document (233 pages), which addresses airports and travel more directly. Chapter 5 of the Implementation Plan, Transportation and Borders, discusses the following topics to support pandemic response relative to transportation and borders:

- Modeling to inform transportation and border decisions
- Screening mechanisms and travel restrictions
- Quarantine and isolation of travelers
- Trade and movement of cargo
- Sustaining the transportation infrastructure

Together, the Strategy and the Implementation Plan provided logical direction for continued planning and preparedness efforts, and addressed initial concepts for screening as a means to isolate potential pathogen carriers from entering the US.

Air Travel and Communicable Diseases, Comprehensive Federal Plan Needed for US Aviation System's Preparedness. Report to Ranking Member, Subcommittee on Aviation, Committee on Transportation and Infrastructure, House of Representatives. United States Government Accountability Office. December 2015. https://www.gao.gov/assets/gao-16-127.pdf

Summary: The US Government Accountability Office (GAO) released this report in December 2015, indicating the need for increased planning for communicable diseases in the aviation system. The report recommends that the Secretary of Transportation work with relevant stakeholders, such as the Department of Health and Human Services, to develop a national aviation-preparedness plan for communicable disease outbreaks. Further, the report indicates that the plan should establish a mechanism for coordination between the aviation and public health sectors, and provide clear and transparent planning assumptions for a variety of types and levels of communicable disease threats.

The report identifies clear deficiencies in coordination among sectors to support effective infectious disease response. It also identifies key challenges in responding to communicable diseases, including clear federal guidance, in-flight communications, coordinating incident response, and training and equipping aviation service employees.

National Academies and Research Organizations

Prior to and throughout the COVID-19 pandemic, the National Academies of Science, Engineering, and Medicine have conducted research and forums in support of public health research as well as transportation research, most notably through the ACRP. In addition, previous PARAS projects have relevance to pandemic response, recovery, and preparedness for airport security operations. References are summarized below.

Learning from SARS: Preparing for the Next Disease Outbreak - Workshop Summary. Stacey Knobler, Adel Mahmoud, Stanley Lemon, Alison Mack, Laura Sivitz, and Katherine Oberholtzer, Eds. Forum on Microbial Threats, National Academy of Sciences. 2004. https://www.nap.edu/catalog/10915/learning-from-sars-preparing-for-the-next-disease-outbreak-workshop.

Summary: This extensive review of the Severe Acute Respiratory Syndrome (SARS) outbreak between 2002 and 2003 provides insight regarding travel restrictions and screening that occurred at airports around the world as a means of disease containment. The conclusion is that travel recommendations, including screening measures at airports, appear to be effective in helping to contain the international spread of an emerging infection.

The document verifies other public health findings and general practices regarding health screening, but offers little tactical information regarding airport security operations during a pandemic.

ACRP Legal Research 0034 – Airport Public Health Preparedness and Response: Legal Rights, Powers, and Duties. National Academies of Sciences, Engineering, and Medicine. 2018. https://doi.org/10.17226/25227

Summary: This ACRP digest addresses legal issues concerning measures to detect communicable diseases, regulations to control communicable diseases, methods for decontamination, emergency legal preparedness, privacy, and potential sources of liability. A checklist is provided for use by airport management to help prepare, plan, and coordinate with stakeholders in response to a threat of a communicable disease. The digest provides insight on response planning, roles and responsibilities of legal authorities, and the changing legal climate, ensuring privacy and confidentiality, and liability and protection considerations.

The digest describes the legal considerations in addressing a health-related emergency incident. It suggests that plans should recognize the potential need for security or law enforcement to manage non-compliant travelers, protect operations, and secure the area in order to prevent contamination. The digest is written from a legal perspective, and does not address airport security operations during a public health event.

ACRP Report 0005 – Quarantine Facilities for Air Travel: Identification of Planning Needs and Costs. National Academies of Sciences, Engineering, and Medicine. https://doi.org/10.17226/13989.

Summary: This document describes resources and estimated costs needed to effectively quarantine up to 200 travelers from an international flight for two weeks. This study also presents information on the nature of quarantine and laws that authorize this form of medical surveillance. The report discusses quarantine definitions and applicable regulations; federal, state and local partner roles; and planning considerations for airports such as location, accommodations, supplies, staffing, services, cleanup, and disinfection.

The study provides phases of quarantine, and addresses planning considerations for airport quarantine including location, accommodations, supplies, staffing, services, and clean-up and

disinfection. Estimated costs include standby costs, activation costs, operational costs, and recovery costs.

ACRP Report 0091 – Infectious Disease Mitigation in Airports and on Aircraft. National Academies of Sciences, Engineering, and Medicine. 2013. https://doi.org/10.17226/22512

Summary: This report discusses infectious disease risks in aviation and routes of transmission, and provides 24 recommended actions to mitigate disease transmission at airports and aboard aircraft. Recommendations are provided in three broad categories to identify actions specific to different areas and operations: buildings (terminals and other facilities), airplanes, and people (i.e., measures that organizations can undertake to reduce disease transmission risk).

This document provides recommendations to support security operations during infectious disease emergencies, and addresses broad mitigation measures that span beyond security operations.

ACRP Synthesis 83 – Preparing for Communicable Diseases on Arriving Flights. National Academies of Sciences, Engineering, and Medicine. 2017. http://www.trb.org/Publications/Blurbs/176419.aspx

Summary: This report examines disease preparedness and response practices among US and Canadian airports and their public health partners. Past outbreaks have encouraged airports and public health agencies to forge strong relationships and engage in joint planning to protect community health and well-being, and ensure business continuity.

The document stresses the importance of the relationship between the aviation and public health sectors, and the knowledge and expertise required by both sectors to support effective response and recovery to communicable disease incidents. Although larger airports that receive international flights are more likely to experience challenges associated with infectious diseases, the preparedness and response lessons are applicable more widely to the aviation sector. Major topics include:

- Comprehensive planning
- Partnership and stakeholder engagement
- Legal issues
- Strategic communications
- Exercising, drilling, training, and education
- Evaluation and continuous improvement

This synthesis examines current disease preparedness and response practices among US and Canadian airports and their public health partners, and provides valuable information as to the state of airport and public health preparedness to address communicable diseases. The document includes discussion of security operations and challenges associated with infectious disease scenarios. Policy issues are identified to support additional research and consideration. The document also identifies opportunities for future research.

TCRP Research Report 225 – A Pandemic Playbook for Transportation Agencies. WSP USA Solutions for National Academies of Sciences, Engineering, and Medicine. 2021. http://www.trb.org/Main/Blurbs/182018.aspx

Summary: This report provides practical information for managing pandemic response on behalf of a transportation agency. The report includes both domestic and international research, and interviews with US transportation leaders. Key topics include:

1. Managing challenges in the transportation industries related to public trust during a pandemic
2. Challenges faced with remote staff, decrease in employee morale, and the possible loss of revenue due to low ridership/patronage
3. Impacts that transportation agencies face and the transportation sector's role in supporting pandemic response and recovery

This research addresses multimodal impacts and challenges faced throughout all phases of a pandemic. It emphasizes the need to balance safety and service throughout the duration of a pandemic, and addresses how to develop internal messages to employees and external messages to customers.

This research project is ongoing. Additional phases in the scope of the problem statement are underway.

ACRP Synthesis 60 – Airport Emergency Post-Event Recovery Practices. National Academies of Sciences, Engineering, and Medicine. 2015. https://www.nap.edu/download/22151.

Summary: This report is based on interviews with 37 US airports regarding specific recovery efforts following incidents that completely or partially closed the airport. Interviews indicated eight primary keys to successful recovery:

1. Advance planning and preparation
2. Command and control
3. Mutual aid
4. Comprehensive crisis communications
5. Operations and logistics
6. Employee care
7. Customer care
8. Evaluation, revision, and validation

The document provides valuable information regarding effective emergency recovery in an airport and address key success factors. The provisions of the document are relevant for weather-related natural hazards and malevolent threats.

This document does not specifically address infectious diseases or pandemics. The impacts of natural hazards and malevolent threats are typically acute in nature and require immediate attention to repairing damaged equipment and physical assets and potentially re-training airport staff and tenants. Infectious disease events (particularly pandemics) have a longer-term impact and require attention to physical infrastructure as well as adjustments to operations. In addition, the economic impacts of a pandemic can be much greater and manifest over a longer period of time. While this document provides a valid recovery framework, additional consideration of pandemic-specific factors is necessary.

PARAS 0006 – Employee Inspections Synthesis Report. National Safe Skies Alliance. February 2017. https://www.sskies.org/images/uploads/subpage/PARAS_0006.Employee_Inspections.FinalReport.pdf

Summary: This report discusses the growing presence of insider threats and the risks they present to airport operations. This document espouses continuous, unplanned, random employee inspections as an effective deterrent to insider threats. The challenge program and undercover badge verification

officers are two examples of continuous inspection airports may choose to employ. Some concepts may be applied in pandemic response to support compliance with mask and hand sanitization measures.

This document also encourages use of an Identity Management System (IDMS). As many positions within airports have high-turnover and repeat employees (or employees may hold multiple positions within the airport for different employers), leaving the responsibility of tracking violations to the employers and/or airlines has proven to be ineffective. IDMS installations can ease this burden by applying tracking, document management and verification, expiry notice, and many more features to the personnel management processes. These types of tracking features may also be utilized in a pandemic response scenario to support isolation of populations and for contact tracing.

The document provides valuable information regarding employee inspection policies and procedures, credentials, badges, and privileges. Some procedures in this document may have adaptation potential for specific pandemic response procedures including compliance, randomized inspections, isolation, and contact tracing.

This document does not address infectious diseases or pandemics. However, it was reviewed for its content regarding security operations, and to identify potential challenges and opportunities.

PARAS 0013 – Managing Congestion in Public Areas to Mitigate Security Vulnerabilities. National Safe Skies Alliance. September 2018. https://www.sskies.org/images/uploads/subpage/PARAS_0013.MinimizingCongestion.FinalReport-Final.pdf

Summary: This report discusses factors that influence congestion in airports, including where and why traveler congestion occurs, risks to the airport as a result of congestion, and guidance on modern tools, technologies and strategies that can help alleviate those risks.

This document is generally focused on public, non-secure areas within an airport. In the Sterile Area, boarding gates are distributed throughout the terminal, so group sizes are generally controlled by the aircraft passenger load. The unsecured side, however, may have large groups attempting to access the same or similar resource (ticketing, baggage claim). This encourages crowds consisting of travelers from multiple flights which can grow quite large in size. Crowds in the uncontrolled and unrestricted landside area provide the opportunity for both malevolent threats as well as the rapid spread of infectious diseases. The document provides extensive strategic and tactical planning guidelines focusing on five primary topics:

- Facility strategies and planning
- Operations strategies – technology, information, and communication
- Financial and legal strategies
- Crowd behavior strategies
- Training Strategies

Minimizing congestion is vital to controlling the spread of an airborne pathogen. This document provides many operational and managerial strategies to minimize congestion and limit pathogenic spread.

Design guidelines in the document are valuable to minimize airport congestion. However, they only provide value for new construction or remodeling projects. They are not particularly valuable for expedited retrofitting to reduce congestion.

Core Recommendations for Reducing Airborne Infectious Aerosol Exposure. ASHRAE Epidemic Task Force, The American Society of Heating, Refrigerating and Air-Conditioning Engineers. January 6, 2021. https://www.ashrae.org/file%20library/technical%20resources/covid-19/core-recommendations-for-reducing-airborne-infectious-aerosol-exposure.pdf

Summary: The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Epidemic Task Force developed core recommendations for exposure reduction in ventilation systems. This document provides a single page of general recommendations regarding HVAC operations during a pandemic.

This document provides high-level guidance that can be used as a primer to facilitate further discussion. Basic pandemic HVAC precautions are summarized but not detailed. Qualitative guidelines provided can be used as a basis for specific facility analysis by a qualified professional, or possibly to develop a verification checklist for building ventilation system inspection.

Trade Associations and Publications

Many aviation sector trade associations have published articles, white papers, and other documents addressing a broad range of topics. Sources include the American Association of Airport Executives (AAAE), Airports Council International (ACI), and the International Air Transport Association (IATA). A summary is provided below.

Terminal and Passenger Facility Design. American Association of Airport Executives. April 2021. https://aaae.org/AAAE/ACT/ACT_Resource_Library_Pages/Terminal_and_Passenger_Facility_Design_Research.aspx

Summary: Developed by the AAAE Airport Consortium on Customer Trust, this document provides information regarding pilot projects, their impact on terminals, and lessons learned to facilitate the next stage of the recovery in airports. Two primary considerations are relevant to the PARAS 0040 project: Physical Distancing and Testing Facilities.

Physical Distancing – The Terminal Working Group focused on physical distancing and strategies for implementation within the airport to reduce the transmission of COVID-19. In collaboration with airports, the group identified locations along the passenger journey where physical distancing measures would be needed and the impact it would have on the physical layout and operations of the terminal. While many airports have implemented programs to manage physical distance within the terminal, the working group emphasized the need for signage standards, barriers that are effective yet sustainable, and checkpoint queuing that minimizes its footprint while providing effective protection to passengers and staff. The working group identified two pilot projects that have the potential to effectively manage social distancing, as well as offer long-term benefits to the airport beyond COVID-19 response.

Testing Facilities – During January and February 2021, the Terminal Working Group surveyed AAAE members and travel industry sources for examples of testing facilities in airports. The information gathered across the example airports included lessons learned around three main topics: legal & liabilities, passenger confidence, and layout & scalability.

This document identifies considerations that may be important to facilitating security operations during infectious disease outbreaks. Physical distancing and passenger testing operations are being piloted to identify practical information to support safe tactical operations during a pandemic.

Pilot studies are ongoing.

Virtual Queuing Guidebook. American Association of Airport Executives. April 2021. https://aaae.org/AAAE/ACT/ACT_Resource_Library_Pages/Virtual_Queuing_Research.aspx

Summary: Developed by the AAAE Airport Consortium on Customer Trust, this document provides aspirations and processes envisioned for Virtual Queuing (VQ) at security checkpoints within the airport environment. This document also discusses:

- Existing (traditional) queuing processes within airports
- The impact of a reduction of passengers at peak times on wait times
- Examples of VQ pilot projects within various airports, their respective vendors, systems/processes, and key takeaways
- Challenges anticipated and/or experienced in relation to VQ
- Communications planning/efforts for distribution of information for internal and external participants

Pre-COVID, airports were already searching for solutions to long lines and with the need for social distancing, those concerns loom over returning travel crowds. The current process requires passengers to plan for wait times by intuition and recommendations based on flight type and airport, which leads to unpredictable queues at the checkpoint. In VQ pilot projects, the benefit of VQ implementation was the ability to shift arrival times at the curb by providing a more predictable/reliable journey time for passengers.

This is an exploratory study based on a planning-level simulation model using data and parameters to simplify relatively complex passenger flow operations with multiple checkpoints, load balancing, staffing variabilities and other active operational strategies. Not all aspects of these day-to-day realities are fully captured in this study. Of the airports participating in pilots, VQ solutions are considered essential for ongoing passenger management, in order to maintain spacing necessary for current health and safety expectations.

This document identifies the VQ concept, which may prove valuable in improving the passenger experience and in achieving social distancing goals for health and safety. Pilot studies are ongoing. The cost of implementation is unclear.

The Travel Bug: Preventing The Spread Of Disease At Airports. Airport Technology. November 29, 2018. https://www.airport-technology.com/features/the-travel-bug-preventing-the-spread-of-disease-at-airports/

Summary: This document is a pre-pandemic reference that discusses outbreaks such as the Ebola and swine flu. The document offers technologies that may be used in the future to detect infections with greater accuracy than temperature checks and questionnaires. One technology cited is breath testing for volatile organic compound analysis to determine bacterial presence. Another technology discussed involves anti-bacterial films for luggage trays. This technology could be further adapted to other high-touch surfaces that may not have natural anti-bacterial properties, such as touchscreen kiosks. The document also hints at a potential need for further government regulation to ensure pandemic preparedness.

The document offers technology solutions that may be relevant to support security operations during infectious disease outbreaks. However, further research is needed to validate the technologies.

ACI Advisory Bulletin, Security screening best practices during COVID-19. Airports Council International. March 2020. https://aci.aero/2020/03/20/security-screening-best-practices-during-covid-19/

Summary: This ACI Advisory Bulletin suggests best practices for airports and screeners to promote safe travel while preserving aviation security objectives. Topics include:

- Checkpoint management
- Screening passengers and staff
- Screening carry-on items
- Protection for screening agents and staff
- Signage for passengers

The document follows generally accepted public health exposure control principals, and shares several examples of how to modify existing security practices to facilitate effective exposure control.

Airport Operational Practice, Examples for Managing COVID-19. Airports Council International. 2020. https://www.icao.int/safety/CAPSCA/PublishingImages/Pages/Coronavirus/Airport Operational Practice - Examples for Managing COVID-19s-for-Managing-COVID19.pdf.

Summary: This document describes a set of typical measures implemented at major international airports to address pandemic response and recovery needs. This document is intended to provide a number of options and examples that airports can use, rather than single best practices. Topics are summarized below:

- Management
- Resource analysis
- Staff
- Passenger management
- Facilities
- Security
- Information Technology

Security guidance includes the following:

- Work with local regulators to modify procedures to minimize pat-downs and face-to-face contact
- Use Explosives Dog Detection and Explosive Trace Detection (ETD) over hand searches and pat downs
- Consider frequency of changing swabs for ETD equipment
- Ensure passengers are separated in line to the greatest extent possible, and use signage and verbal reminders
- Consider the risk to passengers and staff if safety standards are reduced
- Conduct quality assurance audits
- Consider opening alternate lanes if feasible and if it will prevent queues
- Provide security staff with PPE

The document provides examples of practices that are easy to implement and applicable at nearly any airport.

Airport preparedness guidelines for outbreaks of communicable disease. Airports Council International. April 2009. https://www.hpsc.ie/a-z/emergencyplanning/porthealth/publichealthguidance/phguidancedocuments/File,15490,en.pdf

Summary: Issued jointly by ACI and the International Civil Aviation Organization (ICAO), this document offers guidelines to airport operators and national authorities to reduce the spread of communicable diseases. Guidelines for creating an Airport Preparedness Plan include the following:

- Communication (especially with the public)
- Screening
- Logistics (transport of travelers to health facilities)
- Equipment
- Entry/exit controls
- Coordination with the local/regional/national public health authority

The document provides references to several international guidelines for managing communicable diseases, and recommendations are clear and detailed.

Aviation Operations During COVID-19 Business Restart and Recovery. Airports Council International. 2020. https://store.aci.aero/wp-content/uploads/2020/05/ACI-Airport-Operations-Business-Restart-and-Recovery-May-2020.pdf

This ACI document presents a comprehensive set of recommendations and best practices for airports to develop plans for recovery after the COVID-19 pandemic. Many of the recommendations have been presented in previous ACI documents. Security recommendations include:

- Plan resources to meet demand during recovery phases
- Make plans for an influx of employees who have been temporarily laid off needing to reactivate access cards
- Identify processes to ensure efficient operations (scheduling appointments, online interviewing)
- Work with operations to identify high priority staff to return first
- Work with local regulator to extend validity of access cards for the population by 1 year to reduce need for immediate processing post-recovery
- Conduct security awareness training and test online
- Prioritize background checks based on an assessment of needs
- In sufficient time prior to restarting checkpoints, perform maintenance checks, updates of software, and recalibration of security screening equipment that has been offline
- Deep clean and disinfect checkpoints that have been temporarily closed
- Minimize use of hand searches
- Consider installing a barrier at stations where passengers spend more time
- If possible, limit to one single standard lane to prevent congestion

The document follows generally accepted public health exposure control principals while also providing airport-specific guidelines.

Biosecurity for Air Transport: A Roadmap for Restarting Aviation. V.2. International Air Transport Association. May 2020. https://www.iata.org/contentassets/204c444a815b4e2b9251a6cda365d671/roadmap_safelyrestartingaviation_v2.pdf.

Summary: This IATA document provides outcomes-based recommendations for safety and mitigation measures throughout the life cycle of airline travel, including check-in, boarding, in-flight, departure, baggage drop off, baggage claim, arrival, and customs. Protective measures suggested in the document are common to other sources to prevent or mitigate the spread of infectious disease through disinfection, screening, proper use of PPE, and social distancing.

The document follows generally accepted public health exposure control principals and addresses the air travel continuum.

Airport References

Various airport presentations conducted in AAAE meetings during the pandemic are summarized below:

- **Early Stage Airport Response to COVID-19, Mineta San Jose International Airport, March 18, 2020:** This document provides insight into what was happening at the airports when the pandemic began, including how the airport communicated with city, press, and TSA, and how airports improvised their planning and resource sharing.
- **Airport Impacts Due to COVID-19, McCarren International Airport, March 25, 2020:** This document provides a short summary of what happened when a Controller in the Air Traffic Control Tower tested positive for COVID-19, and how the situation was managed.
- **Airport COVID-19 Response, Seattle Tacoma International Airport, March 26, 2020:** This document provides an overview of all the planning efforts established by the airport, including assembling the response team, organizing the response via daily situation status calls, operational considerations, communications activities, organizational planning, command and control, and taking care of employees.
- **COVID-19: Moving from Devolution Recovery, Minneapolis-St. Paul Airport, April 22, 2020:** This document provides an overview of short- and long-term strategies for recovery, and includes a good summary of metrics as well as a phased approach: 1) Slowing the spread; 2) Reopening state by state; 3) Establishing protection and lifting all restrictions; and 4) Rebuilding readiness for next pandemic.
- **Airport Safe Work Playbook for COVID-19, Columbus Regional Airport Authority, May 6, 2020:** This document provides a good framework for visitors and employees including: 1) General protocols; 2) Employee health measures; 3) Workplace best practices; 4) Public and common area best practices; and 5) Resources.
- **Small Hub Airport Response and Recovery Plan during COVID-19, Fresno Yosemite International Airport, May 6, 2020:** This document describes how airport personnel researched past infectious disease outbreaks (SARS, Ebola etc.) to develop strategies for response and recovery.
- **Airport COVID-19 Passenger Testing Pilot Program, Tampa International Airport, October 2020:** This document provides an overview of testing protocols, the purpose of the pilot, an approach to testing, benefits of using a large community medical provider, and lessons learned.

- **Airport COVID-19 Vaccine Closed Point of Dispensing, Denver International Airport, January 5, 2021:** This document summarizes point of dispensing (POD) development, EOC coordination, drive-through POD supplementation, tiered prioritization, development of POD staff, training/exercises, and considerations and unmet needs.

APPENDIX C: COMPREHENSIVE COVID-19 TIMELINE

A comprehensive timeline of events throughout the COVID-19 pandemic is provided below and highlights travel-related actions which impacted air travel since December 2019. Sources for the timeline include the New York Times (NYT),[7] CNN,[8] Travel Pulse,[9] and independent research. Dates are established based on these sources.

2019	
December	Coronavirus surfaces in a Chinese seafood and poultry market (NYT).
December 31	Cases of pneumonia detected in Wuhan, China are first reported to the WHO. The cases occur between December 12 and December 29, according to Wuhan Municipal Health (CNN) during which time the virus has not been identified by health officials.

2020	
January 7	Chinese authorities confirm that they have identified the virus as a novel coronavirus, initially named 2019-nCoV by WHO (CNN).
January 11	The Wuhan Municipal Health Commission announces the first death caused by the coronavirus. A 61-year-old man, exposed to the virus at the seafood market, died on January 9 after respiratory failure caused by severe pneumonia (CNN).
January 17	The US responds to the outbreak by implementing screenings for symptoms at airports in San Francisco, New York and Los Angeles (CNN).
January 20	China reports 139 new cases of the sickness, including a third death. WHO's first situation report confirms cases in Japan, South Korea, and Thailand (CNN). The National Institutes of Health announces that it is working on a vaccine against the coronavirus. (CNN).
January 21	Officials in Washington state confirm the first case on US soil (CNN).
January 23	At an emergency committee, WHO indicates that the coronavirus does not yet constitute a public health emergency of international concern (CNN). The Beijing Culture and Tourism Bureau cancels all large-scale Lunar New Year celebrations in an effort to contain the growing spread of coronavirus. Chinese authorities enforce a partial lockdown of transport in and out of Wuhan. Authorities in the nearby cities of Huanggang and Ezhou Huanggang announce a series of similar measures (CNN).
January 28	Chinese President Xi Jinping meets with the WHO Director General in Beijing. Xi and WHO agree to send a team of international experts to China to investigate the coronavirus outbreak (CNN).
January 29	The White House announces a new task force that will help monitor and contain the spread of the virus and ensure Americans have accurate and up-to-date health and travel information (CNN).

[7] Taylor, Derrick Bryson, A Timeline of the Coronavirus Pandemic, The New York Times, March 17, 2021, https://www.nytimes.com/article/coronavirus-timeline.html.
[8] COVID-19 Pandemic Timeline Fast Facts, CNN Editorial Research, Updated 10:11 AM ET, Mon August 9, 2021, https://www.cnn.com/2021/08/09/health/covid-19-pandemic-timeline-fast-facts/index.html.
[9] Clarke, Patrick, A Timeline of COVID-19 Travel Restrictions Throughout 2020, Travel Pulse, December 24, 2020, https://www.travelpulse.com/gallery/impacting-travel/a-timeline-of-covid-19-travel-restrictions-throughout-2020.html?image=1.

2020	
January 30	WHO declares a global health emergency. The US State Department warns travelers to avoid China (NYT). The US reports its first confirmed case of person-to-person transmission of the coronavirus (CNN).
January 31	The Trump administration restricts travel from China. A total of 213 people have died and nearly 9,800 have been infected worldwide (NYT).
February 2	The first coronavirus death is reported outside China. At this point, more than 360 people have died (NYT). Travelers en route to the US are required to have left China two weeks prior or potentially face two weeks in quarantine (if they had been in Hubei province) and/or undergo health screening upon arrival (mainland visitors). Countries such as Australia, Germany, Italy and New Zealand imposed similar travel restrictions as the virus continues to spread (Travel Pulse).
February 3	China's Foreign Ministry states that the US government's enforcement of travel restrictions is an inappropriate reaction to the outbreak (CNN).
February 4	The Japanese Health Ministry announces that ten people aboard the Diamond Princess cruise ship moored in Yokohama Bay are confirmed to have the coronavirus. The ship, which is carrying more than 3,700 people, is placed under quarantine scheduled to end on February 19 (CNN).
February 6	First COVID-19 death in the US: A person in California dies of coronavirus, but the link is not confirmed until April 21 (CNN).
February 10	The Anthem of the Seas, a Royal Caribbean cruise ship, sets sail from Bayonne, New Jersey after a coronavirus scare had kept it docked and its passengers waiting for days (CNN).
February 11	WHO proposes an official name for the disease the virus causes: COVID-19, an acronym that stands for coronavirus disease 2019 (NYT).
February 14	A Chinese tourist who tested positive for the virus dies in France, becoming the first person to die in Europe. Egypt announces its first case of coronavirus, marking the first case in Africa (CNN).
February 23	Officials in Italy lock down ten towns after a cluster of cases suddenly emerges near Milan (NYT).
February 24	Iran emerges as a second focus point. Iran announced its first two coronavirus cases on February 19. Less than a week later, the country has 61 coronavirus cases and 12 deaths, more than any other country but China (NYT).
February 25	Italy's Lombardy region press office issues a list of towns and villages that are in complete lockdown. Around 100,000 people are affected by the travel restrictions (CNN).
February 26	CDC officials say that a California patient being treated for novel coronavirus is the first US case of unknown origin. The patient, who did not have any relevant travel history nor exposure to another known patient, is the first possible US case of "community spread" (CNN). Trump places Vice President Mike Pence in charge of the US government response to the novel coronavirus (CNN). The first known case in Latin America is reported. Brazilian health officials state that a 61-year-old São Paulo man, who had returned recently from a business trip to Italy, tested positive for the coronavirus (NYT).
February 29	The US reports that a patient near Seattle has died from the coronavirus, in what is believed to be the first coronavirus death in the US at the time. In fact, two people had died earlier, though their diagnoses were not discovered until months later (NYT).

2020	
March	OSHA issues OSHA 3990-03 2020, Guidance on Preparing Workplaces for COVID-19. Cruise lines agree to suspend sailing for 30 days to slow the spread of COVID-19. The suspension of major cruise operations in the US would eventually extend through the end of 2020 (Travel Pulse).
March 4	The CDC formally removes earlier restrictions that limited coronavirus testing of the general public. According to the CDC, clinicians should now "use their judgment to determine if a patient has signs and symptoms compatible with COVID-19 and whether the patient should be tested" (CNN).
March 8	Italy's Prime Minister, Giuseppe Conte, signs a decree places travel restrictions on the entire Lombardy region and 14 other provinces, restricting the movement of more than 10 million people in the northern part of the country (CNN).
March 9	Conte announces that the whole country of Italy is on lockdown (CNN).
March 11	WHO declares the novel coronavirus outbreak to be a pandemic. WHO says the outbreak is the first pandemic caused by a coronavirus. Trump announces that he is restricting travel from Europe to the US for 30 days in an attempt to slow the spread of coronavirus. The ban, which applies to the 26 countries in the Schengen Area, applies only to foreign nationals, not American citizens and permanent residents, who would be screened before entering the country (CNN).
March 13	The Trump administration declares a national emergency, which enables access to $50 billion in federal resources to combat coronavirus (CNN).
March 15	The CDC recommends no gatherings of 50 or more people in the US. The following day, Trump advises the public to avoid groups of more than 10.
March 16	Several countries across Latin America impose restrictions on their citizens to slow the spread of the virus. Venezuela announces a nationwide quarantine to begin on March 17. Ecuador and Peru implement countrywide lockdowns, while Colombia and Costa Rica close their borders (NYT).
March 17	The European Union (EU) bars most travelers from outside the bloc and adopts a 30-day ban on non-essential travel to at least 26 European countries from the rest of the world (NYT). The US and Canada mutually agree to close their border to non-essential travel (Travel Pulse). Hawaii Governor issues an automatic two-week quarantine for people traveling to the state, and requests that would-be visitors postpone their trips for 30 days (Travel Pulse).
March 18	Trump signs into law a coronavirus relief package that includes provisions for free testing for COVID-19 and paid emergency leave (CNN).
March 19	US DHS, Cybersecurity & Infrastructure Security Agency issues the *Memorandum on Identification of Essential Critical Infrastructure Workers During COVID-19 Response*, which provides guidance on identifying essential workers.
March 20	The US and Mexico mutually agree to close their border to non-essential travel (Travel Pulse).
March 24	One day after authorities in India halt all domestic flights, India's Prime Minister declares a 21-day lockdown. (NYT). Japan's Prime Minister and International Olympic Committee president agree to postpone the Olympics until 2021 (CNN).
March 25	The White House and Senate leaders reach an agreement on a $2 trillion stimulus deal to offset the economic damage of coronavirus, producing one of the most expensive and far-reaching measures in the history of Congress (CNN).

2020	
	Alaska begins requiring visitors to fill out a travel declaration and complete a two-week quarantine (Travel Pulse).
March 26	The US leads the world in confirmed cases, with at least 81,321 confirmed infections and more than 1,000 deaths. (NYT).
March 28	The FAA issues *Considerations for State, Local, and Territorial COVID-19 Restrictions That Impact Air Transportation*.
April 3	Trump says his administration is now recommending Americans wear "non-medical cloth" face coverings, a reversal of previous guidance that suggested masks were unnecessary for people who weren't sick (CNN).
April 4	The FAA issues *Information for Airport Sponsors Considering COVID-19 Restrictions or Accommodations*.
April 8	China reopens Wuhan after a 76-day lockdown (CNN).
April 10	Cases surge in Russia. The number of people hospitalized in Moscow with COVID-19 doubles from the previous week with two-thirds of the country's 12,000 reported cases in Moscow (NYT).
April 17	The FAA issues SAFO 20009, COVID-19: Updated Interim Occupational Health and Safety Guidance for Air Carriers and Crews.
April 20	Chilean health officials announce that Chile will begin issuing the world's first digital immunity cards to people who have recovered from coronavirus, saying the cards will help identify individuals who no longer pose a health risk to others (CNN). The US announces that travel restrictions with its North American neighbors would be extended another 30 days. Extensions ultimately continued throughout the year (Travel Pulse).
April 24	President Trump signed into a law a roughly $480 billion relief package to deliver aid to small businesses and hospitals and expand COVID-19 testing (CNN).
April 26	The global death toll surpassed 200,000 (NYT).
April 28	The US passes one million confirmed cases of the virus, according to Johns Hopkins (CNN).
April 30	American Airlines and Delta Air Lines say they will require all passengers and flight attendants to wear a face covering. Lufthansa Group, JetBlue, and Frontier Airlines had made similar announcements (NYT).
May	Many US national parks begin phased reopening ahead of Memorial Day weekend, limiting the number of visitors and enforcing strict face mask and social distancing requirements (Travel Pulse). Hawaii and Alaska extend their 14-day quarantine requirement for out-of-state travelers into the summer. Alaska allows visitors to bypass self-isolation with a negative test result taken within 72 hours of arrival (Travel Pulse).
May 1	The US Food and Drug Administration issues an emergency-use authorization for remdesivir in hospitalized patients with severe COVID-19. The FDA Commissioner says remdesivir is the first authorized therapy drug for COVID-19 (CNN).
May 5	French doctors say that a patient treated for pneumonia in late December had the coronavirus. If the diagnosis is verified, it would suggest that the virus appeared in Europe nearly a month earlier than previously understood, and days before Chinese authorities first reported the new illness to the WHO (NYT).
May 11	The Trump administration announces that the federal government is sending $11 billion to states to expand coronavirus testing capabilities. The relief package signed on April 24 includes $25 billion for testing, with $11 billion for states, localities, territories, and tribes (CNN).

2020	
May 22	Brazil overtakes Russia in reporting the second-highest count of infections worldwide, reaching more than 330,000. The US remains the global epicenter, with more than 1.6 million cases and the number of deaths nearing 100,000 (NYT).
June	OSHA issues OSHA 4045-06 2020, Guidance on Returning to Work.
June 4	Saint Lucia begins a phased reopening and is among the first to welcome back Americans (Travel Pulse).
June 8	New Zealand Prime Minister announces that almost all coronavirus restrictions in New Zealand will be lifted after the country reported no active cases (CNN).
June 11	WHO data indicates that it took Africa 98 days to reach 100,000 coronavirus cases, but only 18 days for that figure to double with more than half of the 54 countries on the continent experiencing community transmissions (NYT). The US passes 2 million confirmed cases of the virus according to Johns Hopkins (CNN).
June 20	The TSA issues the *TSA Communicable Disease Response Playbook: Solutions and Best Practices for Mitigation, Version 1.* Southern US states see a sharp rise in cases. Florida and South Carolina break their single-day records for new cases for the third straight day. (NYT).
June 26	During a virtual media briefing, WHO announces that it plans to deliver about 2 billion doses of a coronavirus vaccine to people across the globe. One billion of those doses will be purchased for low- and middle- income countries (CNN).
June 30	Governors of Connecticut, New Jersey, and New York announce a joint travel advisory, requiring visitors traveling from states with high COVID-19 infection rates to quarantine for at least 14 days. The list of states is based on a seven-day rolling average of the number of infections per 100,000 residents (Travel Pulse).
July	The US Departments of Transportation, Homeland Security, and Health and Human Services issue the *Runway to Recovery, The US Framework for Airlines and Airports to Mitigate the Public Health Risks of Coronavirus.*
July 1	Iran announces new lockdown measures in 11 provinces that restricted movement, cut work hours, and banned large gatherings (NYT). The EU announces it will allow travelers from 14 countries outside the bloc to visit EU countries, months after it shut its external borders in response to the pandemic. The list does not include the US, which does not meet the criteria set by the EU to be considered a "safe country" (CNN).
July 6	In an open letter published in the journal Clinical Infectious Diseases, 239 scientists from around the world urge WHO and other health agencies to be more forthright in explaining the potential airborne transmission of coronavirus. In the letter, scientists write that studies "have demonstrated beyond any reasonable doubt that viruses are released during exhalation, talking, and coughing in microdroplets small enough to remain aloft in air and pose a risk of exposure at distances beyond 1 to 2 meters from an infected individual" (CNN).
July 7	The Trump administration notifies Congress and the UN that the US is formally withdrawing from WHO, effective July 6, 2021 (CNN).
July 10	The US reaches 68,000 new cases, setting a single-day record for the seventh time in 11 days. At least six states also reported single-day records for new cases: Georgia, Utah, Montana, North Carolina, Iowa, and Ohio (NYT).
July 15	Tokyo raises its alert level to “red,” its highest. In the week before, Tokyo recorded two consecutive daily records with a peak of 243 cases on July 10 (NYT). Bermuda, Egypt, French Polynesia, the Maldives, Turks and Caicos, and others resume tourism. Walt Disney World Resort theme parks also began welcoming back guests in mid-

2020	
	July, with enhanced health and safety measures and a new reservation system in place to control capacity (Travel Pulse).
July 17	India reaches one million coronavirus cases and lockdowns are reimposed (NYT).
July 21	European leaders agree on an $857 billion stimulus package to benefit nations hit hardest by the pandemic (NYT).
July 27	The Moderna vaccine enters Phase 3 testing. The trial is expected to enroll about 30,000 adult volunteers and evaluates the safety of the vaccine and whether it can prevent symptomatic COVID-19 after two doses, among other outcomes (CNN).
August	Dominica and Anguilla reopen their borders, while Greece begins welcoming back cruise traffic at six ports (Travel Pulse).
August 1	The US saw July cases more than double the total of any other month, with more than 1.9 million new infections recorded in July, nearly 42 percent of the more than 4.5 million cases reported nationwide since the pandemic began, and more than double the number documented in any other month. The previous monthly high to this point came in April when more than 880,000 new cases were recorded (NYT).
August 6	The Florida Governor rescinds an executive order requiring travelers from Connecticut, New Jersey and New York to self-quarantine for 14 days upon arrival (Travel Pulse).
August 16	The CDC begins developing a plan to distribute a coronavirus vaccine (NYT).
August 18	Universities that reopened soon begin moving classes online (NYT).
August 23	The FDA issues an emergency use authorization for the use of convalescent plasma to treat COVID-19. It is made using the blood of people who have recovered from coronavirus infections (CNN).
August 27	The CDC notifies US public health officials to prepare to distribute a coronavirus vaccine as soon as late October. The CDC provides planning scenarios to help states prepare, and advises on who should get vaccinated first: healthcare professionals, essential workers, national security "populations," and long-term care facility residents and staff (CNN).
September	The US Virgin Islands and Bali lift travel restrictions, and the Dominican Republic eliminates a previous requirement that travelers present a negative COVID-19 test result upon arrival (Travel Pulse). New Mexico Governor announces that out-of-state travelers from states with a five percent positivity rate or greater, or a new case rate greater than 80 per 1 million residents, will be required to self-quarantine for 14 days upon arrival unless they possess proof of a negative COVID-19 test taken within 72 hours of entry (Travel Pulse).
September 6	India becomes the country with the second-highest number of cases (more than 4 million) (NYT).
September 18	Israel imposes a second national lockdown (NYT).
September 28	Global deaths reach 1 million (NYT).
October 11	The world records more than 1 million new cases in three days (NYT).
October 12	Johnson & Johnson announces it has paused the advanced clinical trial of its coronavirus vaccine because of an unexplained illness in one of the volunteers. The trial resumes later in the month (CNN).
October 15	Hawaii implements a pre-travel testing program allowing out-of-state visitors to bypass the state's mandatory 14-day quarantine with a negative COVID-19 test result (Travel Pulse).
October 19	Belgium closes restaurants and imposes a curfew to halt a spike in cases (NYT).

2020	
October 27	New York Governor announces that visitors and returning residents will be required to take a COVID-19 test within three days of arriving in New York, and then quarantine for three days before taking another test on the fourth day (Travel Pulse).
November 5	England enters a national lockdown including the closing of pubs, restaurants, and most retail stores. The government's scientific advisory panel estimated in a report dated October 14, 2020 that there were between 43,000 and 75,000 new infections a day in England, a rate above the worst-case scenarios calculated only weeks before that (NYT).
November 8	The US surpasses 10 million infections (NYT).
November 15	Pennsylvania's Secretary of Health issues an order requiring out-of-state travelers and returning residents to quarantine for at least 14 days upon arrival or provide proof of a negative COVID-19 test taken within 72 hours of entering the state (Travel Pulse). Hawaii Governor announces that, beginning November 24, travelers to Hawaii need to have their negative COVID-19 test results in hand prior to departure or otherwise face a two-week quarantine (Travel Pulse).
November 17	FDA authorizes the first at-home coronavirus test, which requires a prescription from a health care provider and can return results in about 30 minutes (NYT).
November 18	The US death toll reaches 250,000 (NYT).
November 21	The FDA grants emergency authorization for an experimental antibody treatment made by Regeneron, which consists of a cocktail of two powerful antibodies (NYT).
December	The FAA issues *Information for Airport Sponsors Considering COVID -19 Restrictions or Accommodations*. The US Departments of Transportation, Homeland Security, and Health and Human Services issue Version 1.1 of the *Runway to Recovery, The US Framework for Airlines and Airports to Mitigate the Public Health Risks of Coronavirus.* Many countries begin imposing bans or restrictions on travel from the UK amid the outbreak of the coronavirus Delta variant, a more infective variant (Travel Pulse).
December 2	The UK gives emergency authorization to Pfizer's vaccine, becoming the first Western country to allow mass inoculations (NYT).
December 8	The UK begins vaccinations (NYT).
December 11	The Food and Drug Administration (FDA) approves the Pfizer vaccine for emergency use, clearing the way for people to begin receiving the vaccine within days. The pandemic death toll in the US stands at more than 290,000 (NYT).
December 10	Vaccine advisers to the FDA vote to recommend the agency grant emergency use authorization to the Pfizer coronavirus vaccine (CNN).
December 14	US officials announce the first doses of the Pfizer vaccine have been delivered to all 50 states, the District of Columbia, and Puerto Rico (CNN).
December 18	The FDA approves the Moderna COVID vaccine for emergency use, allowing the shipment of millions more doses across the nation (NYT).
December 20	London enters a severe lockdown ordered (NYT). Several US states continue to restrict travel, requiring some holiday travelers to quarantine or provide proof of a negative COVID-19 test result before being permitted to move about freely (Travel Pulse).
January 20	President Biden halts the US withdrawal from WHO (CNN).
January 26	The CDC requires all air passengers two years of age and over entering the US to present a negative COVID-19 test taken within three days of departure, or proof of recovery from the virus within the last 90 days.

2020	
February 1	TSA Security Directive 1542-21-01 mandating masks at airports goes into effect.
February 22	The death toll from COVID-19 exceeds 500,000 in the US (CNN).
February 27	The FDA grants emergency use authorization to Johnson & Johnson's COVID-19 vaccine (CNN).
April 17	The global death toll from COVID-19 surpasses 3 million, according to Johns Hopkins (CNN).
May	FEMA issues *COVID-19 Pandemic Operational Guidance* to support response and recovery.
May 13	The CDC announces that people who are fully vaccinated against COVID-19 do not need to wear masks or practice social distancing indoors or outdoors, except under certain circumstances (CNN).
August 3	According to figures published by the CDC, the Delta variant accounted for an estimated 93.4% of coronavirus cases in the US in the last two weeks of July. The figures show a rapid increase over the past two months, up from around 3% in the two weeks ending May 22 (CNN).
September 30	The IATA announces that recovery in air travel decelerated in August compared to July as government actions in response to the COVID-19 Delta variant cut into domestic travel demand.[10]
October 13	The CDC launches a pilot program at the San Francisco International Airport to enable near-real-time detection of new COVID-19 variants among travelers entering the United States.[5]
October 29	The FDA authorizes the Pfizer COVID-19 vaccine for children ages 5 to 11.[11]
November 8	The US lifts travel restrictions for fully vaccinated international air and land border travelers (CNN).

2022	
January 19	TSA Security Directive 1542-21-01 is reissued, extending the mask mandate in airports and on aircraft through March 18, 2022.

[10] COVID-19: Aviation industry latest news and analysis - International Airport Review. Accessed October 18, 2021. https://www.internationalairportreview.com/topic_hub/covid-19/

[11] FDA Authorizes Pfizer-BioNTech COVID-19 Vaccine for Emergency Use in Children 5 through 11 Years of Age. October 29, 2021. Accessed January 26, 2022. https://www.fda.gov/news-events/press-announcements/fda-authorizes-pfizer-biontech-covid-19-vaccine-emergency-use-children-5-through-11-years-age

APPENDIX D: FOCUS GROUP QUESTIONNAIRE

The questions below were used to guide discussion in airport and stakeholder focus groups conducted in August and September 2021. Multiple participants from over 20 small, medium, and large airports participated in PARAS 0040 focus group discussions.

Category 1 – Passenger Impacts

ELEMENT 1.1 – SECURITY CHECKPOINT QUEUEING/DISTANCING

1.1.1. Describe measures used at checkpoints for social distancing (i.e., additional lanes, use of barriers) and coordination with TSA to implement measures.

1.1.2. What challenges did you encounter?

1.1.3. As passenger demand has recovered, have adjustments been required (i.e., distance standards lowered in queues, stretching queues to other areas to maintain distancing)? Were other measures implemented such as virtual queuing or timed entry?

ELEMENT 1.2 – SCREENING-RELATED EQUIPMENT CLEANING

1.2.1 Describe challenges to cleaning screening equipment.

1.2.2 Was guidance for screening equipment cleaning measures sufficient and clear?

ELEMENT 1.3 – SIGNAGE AND MESSAGING

1.3.1 Describe challenges in implementing signage and messaging for travelers.

1.3.2 Was guidance for signage and messaging sufficient and clear?

ELEMENT 1.4 – MASK COMPLIANCE STRATEGIES

1.4.1 Describe mask compliance strategies and any challenges encountered.

1.4.2 Were personnel/stakeholders generally supportive of mask compliance strategies?

1.4.3 Was guidance for mask use in airports sufficient and clear? Any conflicting guidance?

Category 2 – Employee/Badge Holder Impacts

ELEMENT 2.1 – BADGING AND SIDA TRAINING

2.1.1 Describe changes implemented in the badging process (i.e., safety protocols/personal protective equipment [PPE]).

2.1.2 Describe challenges in implementing safety protocols in the badging process.

2.1.3 Describe safeguards used for SIDA training (i.e., changes in delivery methods) and challenges encountered.

ELEMENT 2.2 – EMPLOYEE INSPECTIONS/ACCESS ACCOUNTABILITY

2.2.1 Describe changes implemented to employee inspection processes in response to the pandemic and challenges encountered.

2.2.2 Describe any changes to accountability measures for credentialed access (i.e., challenge procedures).

ELEMENT 2.3 – HEALTH SCREENING/ATTESTATION AND HIPAA/PRIVACY CONSIDERATIONS

2.3.1 Describe health screening and/or attestation measures used and challenges to implementation.

2.3.2 Was guidance sufficient to implement health screening and/or attestation measures?

2.3.3 What advice did you receive regarding HIPAA and are you aware of any challenges encountered regarding HIPAA?

ELEMENT 2.4 – STAKEHOLDER ENGAGEMENT/COMMUNICATION OF CHANGES

2.4.1 Describe measures used to communicate and engage with stakeholders throughout the pandemic and any challenges.

2.4.2 Did communication occur with local/state health and emergency management agencies?

Category 3 – ASP Impacts and Considerations for Program Reduction/Suspension

3.1 Describe lessons were learned from implementing the TSA Security Directives regarding mask mandates.

3.2 Was it necessary to request deviances from your ASP? If so, describe the deviance.

3.3 Are there any changes to the ASP or deviances which should be permanent?

Category 4 – Measures Implemented in Public Areas

4.1 Describe exposure control measures implemented in public areas (i.e., use of barriers/plexiglass, touchless technology, HVAC considerations).

4.2 Did measures in public areas require modifications to local ordinances or other legal actions?

4.3 Are there any lessons learned regarding public area measure you would like to share?

Category 5 – Compliance with Evolving Guidance/Requirements

5.1 Describe difficulties in maintaining compliance with evolving guidance.

5.2 Describe any specific pandemic guidance (local, state, or federal) for which compliance was difficult.

5.3 Were airport personnel able to coordinate with relevant agencies to support compliance?

5.4 Describe processes implemented to monitor evolving requirements and/or guidance.

OPEN DIALOGUE: PLEASE TAKE THIS OPPORTUNITY TO DISCUSS:

1. Additional pandemic-related issues that impact airport security operations
2. Issues related to pandemic response and recovery with impact beyond security
3. Lessons learned to support pandemic response and recovery in airports

APPENDIX E: FOCUS GROUP PRESENTATION

SAFE SKIES

PARAS Program for Applied Research in Aviation Security

PARAS 0040 Pandemic Response, Recovery, and Preparedness for Airport Security Operations

Ross&Baruzzini

Agenda

SAFE SKIES

- Background
  - Project Team
  - Objective and Goals
  - Anticipated Outcomes
- Focus Group Questions
  - Operational Security Impacts
  - Changes/Ordinances for Public Areas
  - Compliance with Evolving Guidance and Requirements
- Open Discussion

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Background

PARAS 0040 Pandemic Response, Recovery, and Preparedness for Airport Security Operations

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Project Team

- Ross & Baruzzini
  - Michael Steinle, Principal Investigator
  - Jonathan Murray, Project Manager
  - Mark Crosby
  - Ehren Leonberger
- Tidal Basin
  - Ashlee Delventhal
  - Tim Morin
  - Blanca Rand
- TransSolutions
  - Jessica Gafford
  - Prasanna Kavaipatti

Pandemic Response Operations and Resources
Source: Ross & Baruzzini

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Objective and Goals

- **Objective:** Create comprehensive guidance to assist airports in recovery and long-term pandemic planning for security operations
- **Goals:** Assess the following:
  - Passenger impacts;
  - Employee/badge holder impacts;
  - Airport Security Program impacts;
  - Public area impacts (legal); and
  - Change management for evolving requirements.

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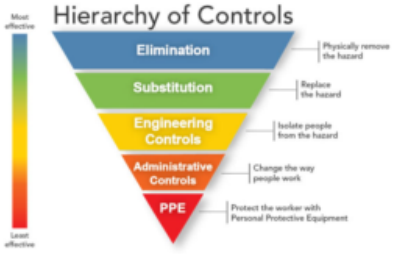
Anticipated Outcomes

- Deliverables:
  - Phase 1: After-Action Report/Improvement Plan
  - Phase 2: Guidance for Airport Pandemic Response and Recovery Planning
- Product Applicability
  - Pandemic planning and preparedness needs
  - Community coordination to reduce airport burdens
  - Public health perspective for exposure control and effective response and recovery



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SAFE SKIES

Focus Group Discussion

PARAS 0040 Pandemic Response, Recovery, and Preparedness for Airport Security Operations

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1. Passenger Impacts (1 of 2)

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Element 1.1 – Security Checkpoint Queueing/Distancing

- Describe measures used at checkpoints for social distancing (i.e., additional lanes, use of barriers) and coordination with TSA to implement measures.
- What challenges did you encounter?
- As passenger demand has recovered, have adjustments been required (i.e., distance standards lowered in queues, stretching queues to other areas to maintain distancing)? Were other measures implemented such as virtual queuing or timed entry?

Element 1.2 – Screening-Related Equipment Cleaning

- Describe cleaning measures and challenges to cleaning screening equipment.
- Was guidance for cleaning screening equipment sufficient and clear?

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1. Passenger Impacts (2 of 2)

Element 1.3 – Signage and Messaging

- Describe challenges in implementing signage and messaging for travelers.
- Was guidance for signage and messaging sufficient and clear?

Element 1.4 – Mask Compliance Strategies

- Describe mask compliance strategies and any challenges encountered.
- Were personnel/stakeholders generally supportive of mask strategies?
- Was guidance for mask use in airports sufficient and clear? Any conflicting guidance?

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2. Employee/Badge Holder Impacts (1 of 2)

Element 2.1 – Badging and SIDA Training

- Describe changes implemented in the badging process (i.e., safety protocols/personal protective equipment (PPE)).
- Describe challenges in implementing safety protocols in the badging process.
- Describe safeguards used for SIDA training (i.e., changes in delivery methods) and challenges encountered.

Element 2.2 – Employee Inspections/Access Accountability

- Describe changes implemented to employee inspection processes in response to the pandemic and challenges encountered.
- Describe any changes to accountability measures for credentialed access (i.e., challenge procedures).

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2. Employee/Badge Holder Impacts (2 of 2)

Element 2.3 – Health Screening/Attestation and HIPAA/Privacy Concerns

- Describe health screening and/or attestation measures used and challenges to implementation.
- Was guidance sufficient to implement health screening and/or attestation measures?
- What advice did you receive regarding HIPPA and are you aware of any challenges encountered regarding HIPAA?

Element 2.4 – Stakeholder Engagement/Communication of Changes

- Did you establish an internal "Frequently Asked Questions" forum regarding COVID for employees (symptoms, sick time, family members, who to contact if you test positive, contact tracing, etc.)?
- Describe measures used to communicate and engage with stakeholders throughout the pandemic and any challenges.
- Did communication occur with local/state health and emergency management agencies?

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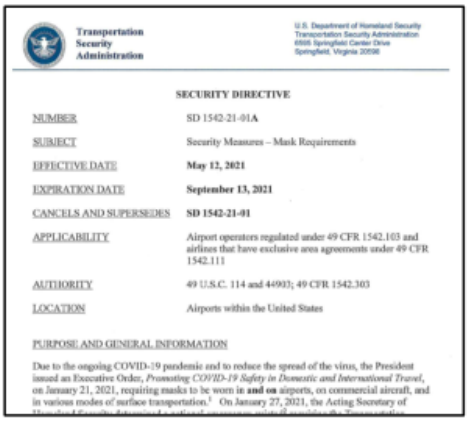
3. Airport Security Program (ASP)

ASP Impacts and Considerations for Program Reduction/Suspension

- Describe lessons were learned from implementing the TSA Security Directives regarding mask mandates.
- Was it necessary to request deviances from your ASP? If so, describe the deviance.
- Are there any changes to the ASP or deviances which should be permanent?



Transportation Security Administration

U.S. Department of Homeland Security
Transportation Security Administration
6595 Springfield Center Drive
Springfield, Virginia 20598

SECURITY DIRECTIVE

NUMBER	SD 1542-21-01A
SUBJECT	Security Measures – Mask Requirements
EFFECTIVE DATE	**May 12, 2021**
EXPIRATION DATE	**September 13, 2021**
CANCELS AND SUPERSEDES	**SD 1542-21-01**
APPLICABILITY	Airport operators regulated under 49 CFR 1542.103 and airlines that have exclusive area agreements under 49 CFR 1542.111
AUTHORITY	49 U.S.C. 114 and 44903; 49 CFR 1542.303
LOCATION	Airports within the United States

PURPOSE AND GENERAL INFORMATION

Due to the ongoing COVID-19 pandemic and to reduce the spread of the virus, the President issued an Executive Order, *Promoting COVID-19 Safety in Domestic and International Travel*, on January 21, 2021, requiring masks to be worn in **and on** airports, on commercial aircraft, and in various modes of surface transportation.[1] On January 27, 2021, the Acting Secretary of

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4. Public Areas

Measures Implemented in Public Areas

- Describe exposure control measures implemented in public areas (i.e., use of barriers/plexiglass, touchless technology, HVAC considerations).
- Did measures in public areas require modifications to local ordinances or other legal actions?
- Are there any lessons learned regarding public area measure you would like to share?

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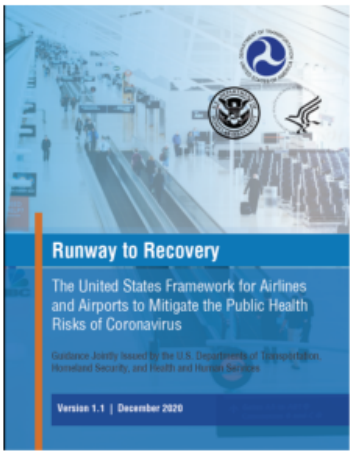
5. Compliance with Evolving Guidance/Requirements

The volume of guidance issued during the pandemic has been substantial and continues to evolve.

- Describe difficulties in maintaining compliance with evolving guidance.
- Describe any specific pandemic guidance (local, state, or federal) for which compliance was difficult.
- Were airport personnel able to coordinate with relevant agencies to support compliance?
- Describe processes implemented to monitor evolving requirements and/or guidance.



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Open Discussion

Please take this opportunity to discuss:

- Additional pandemic-related issues that impact airport security operations
- Issues related to pandemic response and recovery with impact beyond security
- Lessons learned to support pandemic response and recovery in airports

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Team Information

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PARAS 0040 Team:

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Jonathan Murray, Mark Crosby, and Ehren Leonberger

Tidal Basin

Ashlee Delventhal, Tim Morin, and Blanca Rand

TransSolutions

Jessica Gafford and Prasanna Kavaipatti

Thank you!

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