Airport Terminal Incident Response Planning

DETAILS

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AIRPORT COOPERATIVE RESEARCH PROGRAM

ACRP REPORT 112

Airport Terminal Incident Response Planning

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AIRPORT COOPERATIVE RESEARCH PROGRAM

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

The need for ACRP was identified in *TRB Special Report 272: Airport Research Needs: Cooperative Solutions* in 2003, based on a study sponsored by the Federal Aviation Administration (FAA). The ACRP carries out applied research on problems that are shared by airport operating agencies and are not being adequately addressed by existing federal research programs. It is modeled after the successful National Cooperative Highway Research Program and Transit Cooperative Research Program. The ACRP undertakes research and other technical activities in a variety of airport subject areas, including design, construction, maintenance, operations, safety, security, policy, planning, human resources, and administration. The ACRP provides a forum where airport operators can cooperatively address common operational problems.

The ACRP was authorized in December 2003 as part of the Vision 100-Century of Aviation Reauthorization Act. The primary participants in the ACRP are (1) an independent governing board, the ACRP Oversight Committee (AOC), appointed by the Secretary of the U.S. Department of Transportation with representation from airport operating agencies, other stakeholders, and relevant industry organizations such as the Airports Council International-North America (ACI-NA), the American Association of Airport Executives (AAAE), the National Association of State Aviation Officials (NASAO), Airlines for America (A4A), and the Airport Consultants Council (ACC) as vital links to the airport community; (2) the TRB as program manager and secretariat for the governing board; and (3) the FAA as program sponsor. In October 2005, the FAA executed a contract with the National Academies formally initiating the program.

The ACRP benefits from the cooperation and participation of airport professionals, air carriers, shippers, state and local government officials, equipment and service suppliers, other airport users, and research organizations. Each of these participants has different interests and responsibilities, and each is an integral part of this cooperative research effort.

Research problem statements for the ACRP are solicited periodically but may be submitted to the TRB by anyone at any time. It is the responsibility of the AOC to formulate the research program by identifying the highest priority projects and defining funding levels and expected products.

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FOREWORD

By Theresia H. Schatz
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ACRP Report 112: Airport Terminal Incident Response Planning provides a scalable tool that airport operators, terminal managers, emergency managers, and planners can use to create and maintain integrated incident response plans that address hazards in and around airport terminals. The Airport Terminal Incident Response Plan (TIRP) tool (available on the CD-ROM that accompanies this report) assists in the development of a response plan that, when implemented, would mitigate the impact of these events on the terminal users. These response plans cover natural and manmade incidents such as hurricanes, snowstorms, tornados, earthquakes, structural fires, electrical outages/power failures, bomb threats, security breaches, and active shooter situations for evacuation, sheltering in place, relocation, and repopulation/recovery and are applicable to a variety of sizes and types of airports and airport terminals. In addition to the TIRP tool, the report contains a user's guide that provides a step-by-step process of generating incident response plans. The report also contains an output example that demonstrates completed terminal incident response plans using the TIRP tool.

Recent natural and manmade emergency events at airport terminals (e.g., snowstorms, hurricanes, earthquakes, tornadoes, structural fires, power failures, security breaches, bomb threats, and active shooter situations) have demonstrated the need for a more comprehensive response to protect the traveling public. Evacuation, shelter-in-place, relocation, and repopulation/recovery plans, if available, are in need of improvement. Beyond planning, there are also improvements needed in training, drilling, exercises, and mutual aid agreements. In addition, the increase of travelers with mobility and cognitive impairments further challenges incident response. Evidence indicates that plans need to better address coordination and response between the airport operator and all stakeholders.

Under ACRP Project 04-15, research was conducted by Innovative Emergency Management, Inc., in association with TransSolutions, LLC; Smith-Woolwine Associates, Inc.; and QuinnWilliams, LLC to develop a tool that airport operators can use to create and maintain integrated incident response plans that address hazards in and around airport terminals. As part of the research, the team conducted a risk analysis that determined the nine highest priority types of incidents. Their findings were verified and elaborated on by a literature review as well as verification by senior managers at seven commercial airports of differing types and sizes that examined the results of the risk analysis to ensure validity.

CONTENTS

Note: Many of the photographs, figures, and tables in this report have been converted from color to grayscale for printing. The electronic version of the report (posted on the Web at www.trb.org) retains the color versions.

Summary

When irregular operations (IROPS) call for evacuating, sheltering in place (SIP), and repopulating passengers in an airport terminal, managers face a complex decision-making process made more difficult by the pressures of time, stress, and the necessity to maintain continuity of operations.

Evacuation and SIP events result in disruption to normal terminal operations such as ticketing, baggage check-in, concession operations, boarding, and deplaning. Repopulation may carry less urgency than evacuation and sheltering in place, but it tends to be more complicated. For example, after a SIP situation, it may be necessary to evacuate passengers and even employees to complete transition tasks before repopulation can begin.

In order to support these multifaceted processes and enhance preparedness, a robust, flexible, and user-friendly tool was created to develop effective terminal incident response plans (TIRPs). Generating, training with, and employing TIRPs will improve overall readiness for incidents that disrupt normal operations in airport passenger terminals, ensuring more efficient and orderly responses and proactively preventing mishaps, both large and small.

A risk analysis determined the nine highest-priority types of incidents that call for evacuation, sheltering in place, and repopulation. They are snowstorms, hurricanes, earthquakes, tornadoes, structural fires, power failures, security breaches, bomb threats, and active shooter situations. These findings were verified and elaborated on by a literature review investigating both academic papers and mainstream news articles. Senior managers at seven commercial airports of differing types and sizes examined the results of the risk analysis to ensure validity.

The documents guiding the response to incidents in passenger terminals were provided by 36 representative primary commercial airports of all types and sizes. The research team analyzed airport plans, checklists, and related documents for recurring patterns of response and best practices. Working from these documents, the team's analysts and modelers mapped the processes for the nine highest-priority incident types. Those process maps were then used to program the TIRP tool.

This synthesis of risk analysis, literature review, expert validity, and investigation of airport documents has yielded a content-rich and user-friendly tool to help terminal managers develop effective plans for addressing unexpected incidents. Four key parameters determine the details of basic TIRPs: urgency, scope, duration, and available resources. Standard emergency management priorities inform the plans as well:

- Protect life.
- Protect property.
- Secure a crime scene.
- Ensure continuity of business and operations.

2 Airport Terminal Incident Response Planning

The TIRP tool automates the creation of realistic, actionable response plans while allowing customized inputs to match specific airport terminal configurations, policies, and standard operating procedures.

This report explains:

- How, why, and when a response to an irregular terminal incident should be initiated;
- Differences between evacuation and sheltering in place and their relationship to repopulation;
- Patterns of repopulation and necessary transitional activities that must occur before repopulation;
- How TIRPs relate to standard documents such as airport emergency plans (AEPs), airport security program (ASP) documents, IROPS documents, airport certification manuals (ACMs), and so forth; and
- How and why the TIRP tool was developed.

Special considerations are detailed regarding a wide variety of areas of particular concern, such as customer service, access and functional needs planning, communications, security, budgeting, training, airplane crashes, U.S. Customs and Border Protection (CBP), fire and emergency medical services (EMS), Federal Aviation Regulation (FAR) 139.325, the Incident Command System (ICS), and the National Incident Management System (NIMS).

The TIRP tool is robust, flexible, and easy to use because it:

- Incorporates state-of-the-art best practices;
- Has been verified by industry experts and terminal managers;
- Does not require a high level of technical expertise;
- Can be scaled up or down for any category of airport, from non-hub to large hub;
- Requires only a minimum amount of input to yield considerable practical output;
- Addresses three major response activities: evacuation, SIP, and repopulation;
- Accounts for personnel, coordinating entities, equipment, and other considerations for the nine major risk types;
- Allows further subdivision of major risk types to create plans for addressing scenarios outside the nine major risk types;
- Allows modification to account for unique or unusual airport-specific events; and
- Uses prompts, questions, and resulting plans to highlight key considerations for the terminal incident planner, manager, airport operator, incident commander, and others involved in a coordinated effort to mitigate and manage disruptive events.

A short, clear user's guide leads managers through the process of creating TIRPs with the TIRP tool. Following an easy learning curve, managers will be able to generate and revise customized TIRPs to improve preparedness for all types of terminal incidents that result in irregular operations.

CHAPTER 1

Focus on Evacuation, Shelter in Place, and Repopulation

Introduction

A suspicious package is reported in the terminal. A water main bursts, flooding the food court. A wide array of incidents can disturb normal airport terminal operations, and the most disruptive short-term incidents will involve either evacuation or sheltering-in-place (SIP) procedures. In either case, safe, orderly, well-considered repopulation of the terminal after evacuation or SIP is a major logistical and managerial challenge.

This research project was initiated to create a tool to generate terminal incident response plans (TIRPs) to support airport terminal managers in carrying out effective responses to nonroutine incidents that disrupt normal operations in airport passenger terminals. The tool and supporting materials were refined via comments from airport managers during the data-collection period, results from the process mapping, and evaluation and advice provided by the expert panel that guided this project.

TIRPs should be generated well in advance of possible incidents to ensure preparedness. (However, in an emergency, the tool could be run quickly to produce an incident-specific plan.) The TIRP tool automates the generation of the plan while allowing customized inputs to match specific airport terminal configurations, policies, and standard operating procedures. It is robust, flexible, and easy to use, and it provides realistic, actionable response plans.

The project originally also considered three other response types: search and rescue (SAR), crime scene protection and investigation, and firefighting. During the course of the study, these response types were determined to be activities within or complications related to evacuation, SIP, and repopulation.

Evacuation and Shelter in Place

Once a triggering incident occurs, an authorized police or fire official or airport manager must determine whether the incident requires an evacuation or SIP. The decision to initiate an evacuation or SIP is a serious step involving serious accountability issues given the magnitude of the disruption caused by an evacuation or SIP and the consequences to public safety of not activating an evacuation or SIP in a timely and proper manner. For purposes of this study and the development of the tool, an evacuation plan or a SIP plan is activated when an authorized person orders the response.

Evacuation and SIP are alike in that they both disrupt normal terminal operations such as ticketing, baggage check-in, concession operations, deplaning, and in most situations, plane boarding. Both evacuation and SIP require passengers and employees to cease their activities

and move from their current locations to safe and secure locations. After SIP, it may be necessary to evacuate passengers and possibly employees in order to carry out transition tasks before repopulation can begin.

Transition from Evacuation or Shelter in Place to Repopulation

After an evacuation or SIP has been accomplished and passengers and employees are safe, a number of decisions and processes must occur before reentry can begin. Safety inspections, engineering assessments, SAR, body recovery, restoration of electricity or other utilities, restoration of data connectivity, debris clearance, and cleaning are examples of the many types of activities that may need to occur prior to repopulation. The exact transitional activities will depend on the nature of the incident, the extent of damage to the terminal and its systems, and the physical layout of the terminal and its components.

Patterns of Repopulation

After the transition activities are complete, repopulation can begin. Airport senior managers reenter first, usually with security [Transportation Security Administration (TSA), law enforcement, airport operations personnel, and U.S. Customs and Border Protection (CBP)]. After situational assessment has been completed, repair and maintenance employees enter if needed. Finally, other types of airport employees, airline employees, information technicians, customer service providers, and possibly concessionaires enter to restart systems and resume operations. Once employees are in place and their data and other systems are turned on and checked out, passengers reenter the terminal.

Repopulation may occur in an entire terminal, at one or multiple concourses, or at one or several gates, depending on the scope of the original response and the configuration of the terminal. Flight schedules and gate layouts as well as specialized functions such as CBP shape the pattern of repopulation.

Repopulation is almost always more complex than either evacuation or SIP. Both evacuation and SIP are relatively simple procedures since they both coalesce around extreme urgency and have a primary emphasis on protection of life. Repopulation is somewhat less urgent but tends to be more troublesome. Passengers should not reenter the terminals until ticketing, baggage, security, and all necessary systems are operational and staffed by appropriate personnel.

It is important to note that some airports consider repopulation a reentry or resumption of normal operations function and choose to include those particular processes in their evacuation plans and not in a stand-alone repopulation chapter in the TIRP or the airport emergency plan (AEP).

CHAPTER 2

Methodology and Data Sources

The TIRP tool was developed through a comprehensive risk analysis that identified the full range of incidents that might affect airport terminals and determined the types of incidents that carried the highest risk. Senior managers at seven commercial airports of differing types and sizes examined the results of the risk analysis to ensure its validity. The results of the risk analysis informed a review of scholarly and popular literature regarding incidents that disrupted terminals, particularly in the last 10 years. Figure 1 shows the literature map that guided the search.

Following the risk analysis and literature review, the research team requested and obtained emergency and terminal management documents and plans from selected airports and analyzed the documents and plans for recurring patterns of response and best practices. The results were used to map the processes, and then those process maps were used to program the tool. Details and results of each of the methodology steps are presented in the following sections.

Risk Analysis

Risk (R) is defined as probability (P) multiplied by consequences (C); that is, $R = P \times C$. The incident types identified in Tables 1 and 2 have been characterized by probability of occurrence, magnitude of consequences, and risk. Probability was rated on a 0 to 3 scale, and consequences were rated on a 0 to 4 scale. Since risk is the product of probability and consequences, the potential range of risk values runs from 0 to 12. Tables 1 and 2 list the full range of possible terminal incidents in descending order of risk, and within equal levels of risk, by descending magnitude of consequences. The risk analysis was refined through correlating the results of the literature review (Task 2) and data collection (Task 4).

Results

Risk Analysis Total Results

Tables 1 and 2 present the results of the risk analysis, with Table 2 focusing on geo-specific incidents only. The data incorporate the results of the literature review and expert validity review.

The results of the risk analysis make intuitive sense. Some incident types may appear to yield lower than expected computed risk values because the probability of the incident occurring is very low, the consequences are low, or both. One incident of particular interest to airports that falls into this category is an aircraft accident or crash. How aircraft accidents and crashes affect terminal operations is addressed later in this chapter.

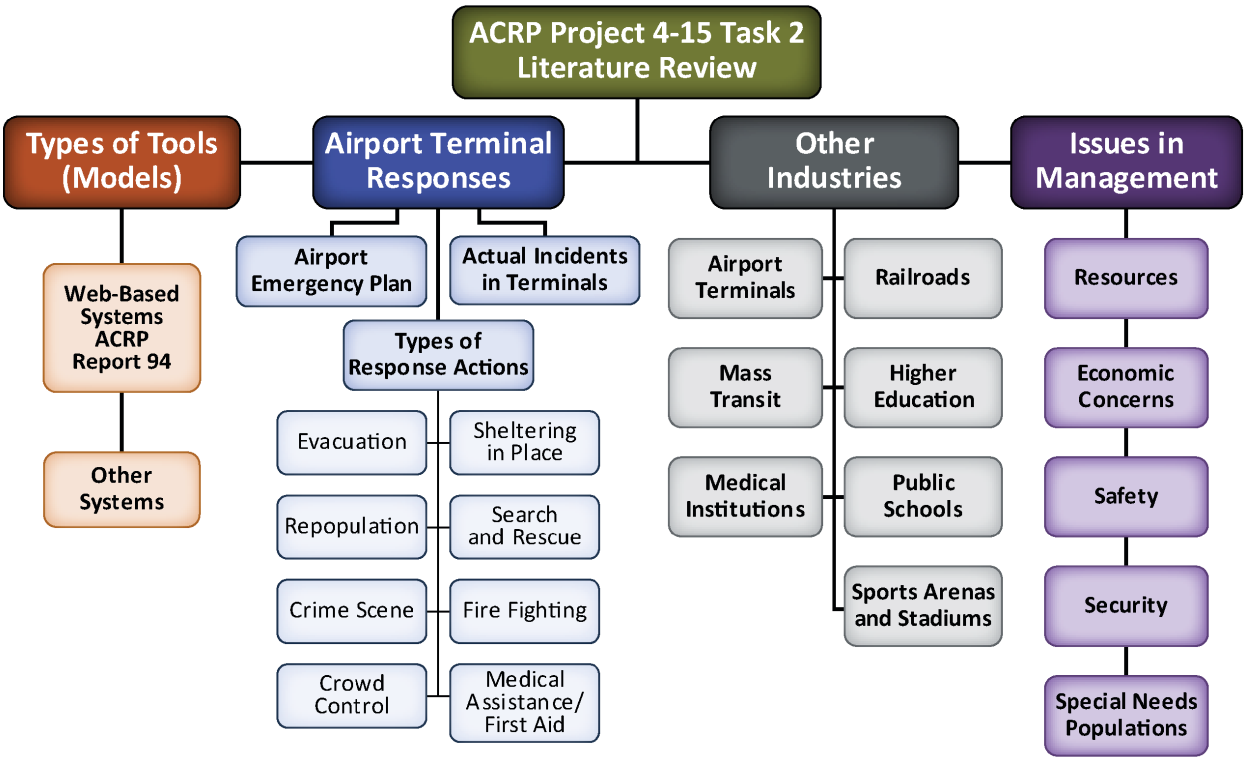


Figure 1. Literature map.

Literature Review to Refine Risk Analysis

The incident types in Tables 1 and 2 originated as a list generated by the research team. Each incident type was then subjected to a thorough literature review to determine where an example occurred during the period of 2002 to 2012, the number of occurrences, and the magnitude of consequences. The literature review both narrowed and broadened the list, making it more oriented to real-world practice.

Expert Validity

After refining the incident list by cross-referencing it with the literature, a risk assessment table with probability, consequences, and risk was drafted. This risk assessment table was submitted for informal review by managers at commercial airports of different sizes: Baton Rouge Metropolitan Airport (BTR), Range Regional Airport (HIB), Jackson–Evers International Airport (JAN), Los Angeles International Airport (LAX), Owatonna Airport (OWA), and Salt Lake City International Airport (SLC). The experts reached a high level of consensus and suggested several adjustments that were applied to the risk analysis. The adjusted values, resulting from a synthesis of the risk analysis, literature review, and expert evaluation, are displayed in Tables 1 and 2.

Highest-Priority Incident Types

Highest-risk items were extracted from the overall risk analysis results and identified as highest-priority risks (Table 3). A preliminary analysis of responses to the 17 incidents revealed that a subset of 10 incidents incorporate patterns that can be modified to develop responses to the remaining highest-priority risks as well as all lesser-priority risks.

The research team, after consulting with the panel, removed irregular operations (IROPS) from the list of targeted highest-priority incident types since IROPS is a secondary condition

Table 1. Incidents that can affect any airport, sorted by risk of disrupting normal terminal operations.

Incident	Probability 3 = High 2 = Medium 1 = Low 0 = None	Consequences 4 = Very High 3 = High 2 = Medium 1 = Low 0 = None	Risk = Probability × Consequences
Structural fire	2	4	8
Active shooter	2	3	6
Bomb threat	2	3	6
FAA navigation system failures	2	3	6
Irregular operations (IROPS)	2	3	6
Security breach	2	3	6
Security equipment malfunction	2	3	6
Traffic blockage (access roads)	2	3	6
Transit system failure (trams, people movers, access and functional needs transport, etc.)	2	3	6
Electrical outage/power failure	3	2	6
Suspicious package or bag	3	2	6
Biological agent	1	4	4
Bomb explosion	1	4	4
Hostage/barricade	1	4	4
Pandemic/quarantine	1	4	4
Structural failure of building	1	4	4
Aircraft diversion (non-signatory carrier)	2	2	4
Flight cancellations (local or distant)	2	2	4
Other criminal act requiring investigation, crime scene protection, and crowd control	2	2	4
Suspicious odor	2	2	4
Aircraft accident/crash	1	3	3
Aircraft hijacking	1	3	3
Chemical agent	1	3	3
Civil unrest/riot	1	3	3
Cyber-attack/disruption	1	3	3
Hazardous materials (HAZMAT) spill	1	3	3
Nonspecific threat of damage to people or terminal	1	3	3
Radioactive agent	1	3	3
Usurpation/preemption of terminal facilities for regional disaster	1[1]	3	3
Baggage system failure	3	1	3
False fire alarm	3	1	3
Heating, ventilation, and air conditioning (HVAC) failure	1	2	2
Flood/sprinkler use in building	2	1	2
Picketing/protests/labor actions	1	1	1

[1]The probability of usurpation or preemption of terminal facilities for a regional disaster should be zero if the airport has worked out a regional disaster plan with the local, regional, and state response team (Bonnie Wilson, pers. comm., August 13, 2012).

Table 2. Geo-specific incidents that can affect an airport, sorted by risk of disrupting normal terminal operations.

Incident	Probability 3 = High 2 = Medium 1 = Low 0 = None	Consequences 4 = Very High 3 = High 2 = Medium 1 = Low 0 = None	Risk = Probability × Consequences
Hurricane	3	3	9
Snowstorm	3	3	9
Earthquake	2	4	8
Tornado	2	4	8
Wildfire/smoke	2	3	6
Storm	3	2[1]	6
Dust storms/sandstorms	1	3	3
Tidal wave/tsunami	1	3	3
Wind-driven water	1	3	3
High water/flood	3	1	3
Volcanic eruption	1	2	2
Drought	0	0	0
Landslide/mudslide (may operate through blocking access roads)	0	0	0

[1]Consequences will be higher for storms (and most other geo-specific disasters) at airports that primarily serve regional jets and smaller airlines.

Table 3. Highest-priority risks.

Incident	General or Geo-specific Hazard	Risk = Probability × Con-sequences	Used in Initial Process Mapping to Develop Tool
Aircraft accident/crash	Any airport	3*	No
Hurricane	Geo-specific	9	Yes
Snowstorm	Geo-specific	9	Yes
Earthquake	Geo-specific	8	Yes
Structural fire	Any airport	8	Yes
Tornado	Geo-specific	8	Yes
Active shooter	Any airport	6	Yes
Bomb threat	Any airport	6	Yes
Electrical outage/power failure	Any airport	6	Yes
FAA navigation system failures	Any airport	6	No
Security breach	Any airport	6	Yes
Security equipment malfunction	Any airport	6	No
Storm	Geo-specific	6	No
Suspicious package or bag	Any airport	6	No
Traffic blockage (access roads)	Any airport	6	No
Transit system failure (trams, people movers, access and functional needs transport, etc.)	Any airport	6	No
Wildfire/smoke	Geo-specific	6	No

*Aircraft accidents and crashes are included on the highest-priority incident list due to the strength of airports' interest and preparation activities as well as FAA statutory, regulatory, and advisory circular requirements.

that results from one of the primary incident types and usually affects the entire airport, not just the terminal.

Aircraft accidents/crashes were moved to the top of the highest-priority list in Table 3. An aircraft accident or crash *at* the terminal has very different consequences for terminal operations from an aircraft crash *away from* the terminal: in most cases, the two different scenarios will have very different command and control structures during the response. As specified in the AEP, any accident or crash involving a terminal structure would have the same command response as a structural fire. In most cases, an airport management representative is the incident commander under these plans, with police and fire as support.

However, if an aircraft crash occurs away from the terminal, either on the airport or away from the airport, it will have a significant impact on terminal operations. These types of accidents often create challenging crowd-control issues within the terminals. They often trigger the evacuation and sheltering of a select group of customers through the post-disaster family assistance plans of airports and airlines: these plans are generally designed to swiftly segregate and remove people related to the accident.

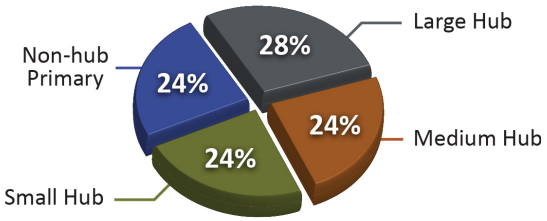
When an aircraft accident or crash affects a terminal, it is normally well addressed by the AEP and the family assistance plan. For this reason, airports do not need to use the TIRP tool to generate terminal incident response plans for aircraft accidents and crashes; most AEPs adequately address aircraft incidents and crashes.

Airports and Documents

Representative primary commercial airports of all types and sizes were asked to provide documents and plans that guide their responses to incidents in their passenger terminals, particularly for the nine highest-priority incidents (aircraft accident/crash through electrical outage/power failure in Table 3). Although non-primary commercial services airports and large reliever and general aviation airports that have passenger terminals were not surveyed for this study, the TIRP tool and accompanying user's guide are applicable to their terminal operations as well.

Airports in Study

Airports were selected on the basis of their reputation for preparedness, history of high-priority incidents (as revealed by the literature review), and their degree of willingness to share sensitive plans and documents. As shown in Figure 2, the airports in the study were evenly



Source: Air Carrier Activity Information System (ACAIS) calendar year 2011 data, http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/?year=all.

Figure 2. Airports in study by NPIAS category.

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distributed among the four National Plan for Integrated Airports System (NPIAS) categories of primary airports.

Fifty airports were approached, and 39 (78%) responded. Of those, 32 airports provided documents and plans for review. Seven airports declined to submit materials for various reasons, and 11 airports did not respond. In addition, four airports not on the original list volunteered plans upon hearing of this research initiative, leading to a total of 36 airports that submitted documents (see Table 4).

Table 4. Airports that submitted documents.

NPIAS	Airport Code	Airport	City	State	FAA Region	Responded
Large hub	BOS	Boston Logan International	Boston	MA	NE	Yes
Large hub	DEN	Denver International	Denver	CO	NM	Yes
Large hub	DTW	Detroit Wayne County Metropolitan	Detroit	MI	GL	Yes
Large hub	EWR	Newark Liberty International	Newark	NJ	EA	Yes
Large hub	IAD	Washington Dulles International	Dulles	VA	EA	Yes
Large hub	JFK	John F. Kennedy International	New York	NY	EA	Yes
Large hub	LAX	Los Angeles International	Los Angeles	CA	WP	Volunteer
Large hub	LGA	La Guardia	New York	NY	EA	Yes
Large hub	MIA	Miami International	Miami	FL	SO	Volunteer
Large hub	ORD	Chicago O'Hare International	Chicago	IL	GL	Yes
Large hub	PHL	Philadelphia International	Philadelphia	PA	EA	Yes
Large hub	PHX	Phoenix Sky Harbor International	Phoenix	AZ	WP	Yes
Large hub	SAN	San Diego International	San Diego	CA	WP	Yes
Large hub	SEA	Seattle Tacoma International	Seattle	WA	NM	Yes
Large hub	SLC	Salt Lake City International	Salt Lake City	UT	NM	Yes
Medium hub	ABQ	Albuquerque International	Albuquerque	NM	SW	Yes
Medium hub	MCI	Kansas City Midcontinental International	Kansas City	MO	CE	Yes
Medium hub	MHT	Manchester Boston Regional	Manchester	NH	NE	Yes
Medium hub	PDX	Portland International	Portland	OR	NM	Yes
Medium hub	SNA	John Wayne International	Santa Ana	CA	WP	Yes
Medium hub	STL	Lambert St. Louis International	St. Louis	MO	CE	Yes
Small hub	BOI	Boise	Boise	ID	NM	Yes
Small hub	COS	Colorado Springs	Colorado Springs	CO	NM	Yes
Small hub	ECP	Northwestern Florida Beaches International	Panama City Beach	FL	SO	Yes
Small hub	FAI	Fairbanks International	Fairbanks	AK	AL	Volunteer
Small hub	GPT	Gulfport Biloxi International	Gulfport	MS	SO	Yes
Small hub	JAN	Jackson-Evers International	Jackson	MS	SO	Yes
Small hub	LGB	Long Beach	Long Beach	CA	WP	Yes
Small hub	OKC	Will Rogers World	Oklahoma City	OK	SW	Yes
Small hub	SAV	Savannah/Hilton Head International	Savannah	GA	SO	Yes
Small hub	SDF	Louisville International Standiford Field	Louisville	KY	SO	Yes
Small hub	XNA	Northwest Arkansas Regional	Fayetteville	AR	SW	Yes
Non-hub primary	EGE	Eagle County	Eagle	CO	NM	Yes
Non-hub primary	HIB	Range Regional	Hibbing	MN	GL	Yes
Non-hub primary	RAP	Rapid City Regional	Rapid City	SD	GL	Yes
Reliever	DVT	Phoenix Deer Valley	Phoenix	AZ	WP	Volunteer

Note: AL = Alaskan, NM = Northwest Mountain, WP = Western-Pacific, GL = Great Lakes, CE = Central, SW = Southwest, NE = New England, EA = Eastern, SO = Southern.

Table 5. Documents obtained for analysis.

Types of Plans	Number of Plans Gathered
Complete or partial AEPs	110
Evacuation pans	13
Severe weather plans	6
Fire response plans	5
Customer service plans	4
Checklists/outlines	4
IROPS plans	5
Active shooter plans	3
Power failure response plans	2
Disease plans	2
Continuity of operations plans	2
Radiation response plan	1
Shelter-in-place plan	1
Extended tarmac delay plan	1

Documents

The research team requested documents and plans such as AEPs, terminal management plans, and plans and checklists for the specific types of incidents. In addition, respondents were asked if any other documents or plans were pertinent to the purpose of the study, and several airport managers volunteered additional highly informative items.

Documents and plans of every type sought, as well as several other types of applicable documents, were provided to the research team. The plan types and the numbers of each are listed in Table 5.

Process Mapping Theory and Procedure

The technique of process mapping documents not only the sequential flow of emergency response but also the sequential activities that must be performed by different airports (or other departments). Process mapping enables the planner to understand the integration of activity and information flow necessary for a smooth and efficient response (Iowa State University, Facilities Planning and Management, 2013).

Working from the airport plans, checklists, and documents for nine highest-priority incident types (aircraft accident/crash through electrical outage/power failure in Table 3), the research team's analysts and modelers mapped the processes. The resulting maps tie together the inputs describing the incident, terminal, personnel, information, and other resources available to formulate the elements into a complete plan. Some processes and elements are shared by the plans for two or more incident types, and some are unique to just one incident type. The process mapping took these similarities and differences into account. The process mapping procedure resulted in a logical engine that turned the inputs into the appropriate plan elements for developing the TIRP tool.

Figure 3 shows the process map for a structural fire. It is similar to the eight other process maps.

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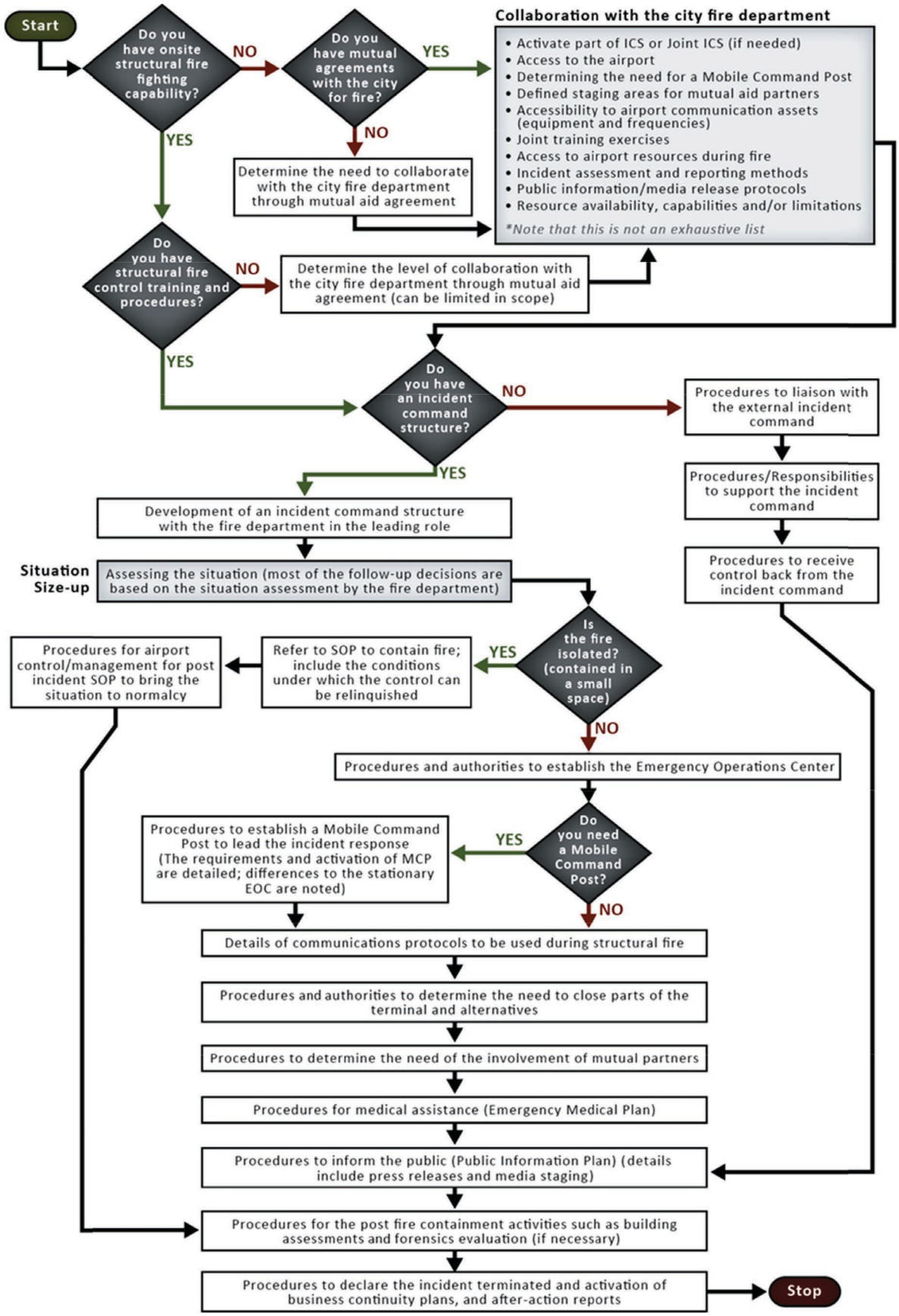

Note: ICS = Incident Command System, SOP = standard operating procedure, MCP = mobile command post, EOC = emergency operations center.

Figure 3. Process map for a structural fire.

CHAPTER 3

Taxonomy of Incidents

The research team identified the nine highest-priority incident types and developed a spreadsheet tool to generate complete basic TIRPs for those nine types of incidents. The basic patterns identified in process mapping strongly indicated that the most appropriate high-priority incident type could be used to develop a tool to generate TIRPs for the other 49 incident types ascertained in the risk analysis and documented in the literature review. This assumption was revisited at each step of the development of the tool including process mapping to ensure applicability. Table 6 displays the correlation of lower-priority incident types with the nine design incident types.

Table 6. Taxonomy of incidents as related to highest-priority incident types.

Design Incident Type	Related Incidents
Active shooter	Active shooter
	Bomb
	Hostage/barricade
Bomb threat	Biological agent
	Bomb threat
	Chemical agent
	Nonspecific threat of damage to people or terminal
	Pandemic/quarantine
	Radioactive agent
	Suspicious odor
	Suspicious package or bag
Earthquake	Earthquake
	Structural failure of building
Electrical outage/power failure	Baggage system failure
	Electrical outage/power failure
	FAA navigation system failures
	Heating, ventilation, and air conditioning (HVAC) failure
	Security equipment malfunction
	Transit system failure (trams, people movers, access and functional needs transport, etc.)
Hurricane	High water/flood
	Hurricane
	Storm
	Tidal wave/tsunami
	Wind-driven water

(continued on next page)

Table 6. (Continued).

Design Incident Type	Related Incidents
Security breach	Aircraft hijacking
	Civil unrest/riot
	Cyber-attack/disruption
	Other criminal act requiring investigation, crime scene protection, and crowd control
	Picketing/protests/labor actions
	Security breach
Snowstorm	Aircraft diversion (nonsignatory carrier)
	Drought
	Dust storms
	Fire (away from terminal)/wildfire/smoke
	Flight cancellations (local or distant)
	Landslide
	Mudslide
	Sandstorm
	Snowstorm
	Traffic blockage
	Volcanic eruption
Structural fire	Aircraft accident/crash
	Flood/sprinkler use in building
	Hazardous materials (HAZMAT) spill
	Structural fire
Tornado	Tornado
Eliminated from study	IROPS
	Usurpation/preemption of terminal facilities for regional disaster

CHAPTER 4

Key Parameters

Four key parameters determine the specific details of evacuation, shelter-in-place, and repopulation plans: urgency, scope, duration, and available resources. To a great extent, the nature of these parameters is dictated by the priorities of emergency management:

- Firstly, protect life.
- Secondly, protect property.
- Thirdly, protect a crime scene.
- Lastly, ensure continuity of business and continuity of operations.

Urgency

The urgency parameter encompasses three major elements: magnitude of threat to life, amount of prior notice, and economic concerns.

The greater the magnitude of threat to life, the more urgent the response must be. At the same time, response actions must not increase risks to people in the name of urgency. In cases where priorities must be set for competing actions and resources, measures to remove or reduce threat to life always take highest priority.

Incidents are classified as "notice" and "no notice." For example, a notice incident is a hurricane for which there may be a general warning of 7 days, a specific warning of 3 days, and a precise warning of 24 hours. A no-notice incident would be an earthquake, for which there is currently no prior warning. Other types of incidents fall in between these extremes. For example, using current technology, a 15-minute warning is typical for tornadoes. Some incidents, such as an aircraft accident or a sick passenger, come with anywhere from hours of notice to zero notice. Special events, since they are scheduled, all fall into the notice incidents category.

Economic concerns such as the need to restore normal operations and minimize operational and commercial disruption also affect the urgency parameter. No airport is an island; every airport is part of a regional, national, and international network. Disruptions at one airport or even one terminal in a multi-terminal airport usually have ripple effects throughout the air transportation system.

Scope

The two main elements of the scope parameter are the number of people involved and the space. Any effective plan for responding to an incident in a terminal must take into consideration the number of passengers, employees, and other persons involved or potentially involved. The plan, therefore, must be interactive with the operational tempo of the airport, the number

of passengers, and the number of employees. The plan may also need to address the number of greeters and family members, but as already noted, this is usually dealt with in the AEP or in the family assistance plan. Modern security measures severely restrict the areas of terminals accessible to non-passengers and non-employees.

Space as an element of the scope parameter encompasses several aspects. The size of the entire terminal or concourse needs to be considered, as does the balance between its landside and airside areas. Beyond the total area of the terminal, scope involves how much of the terminal is involved in a given incident and how much of and which specific places in the terminal are available for safe evacuation or shelter-in-place destinations. Scope may also extend beyond the terminal and even beyond the boundaries of the airport. For example, a terminal evacuation for an electrical outage could put passengers and employees on a public street. This aspect of scope is not incorporated into the TIRP tool.

All plans for responses to incidents in terminals must be flexible and adaptable regarding the number of people and the dimensions of the space. In addition, such plans must have tiered responses that account for the loss of safe evacuation or shelter-in-place areas when an incident involves parts of the terminal that had been designated for those uses. Plans must be capable of handling worst-case scenarios when the number of people at risk is highest and the areas for use to keep them safe are compromised, poorly accessible, or inaccessible.

Duration

The parameter of duration influences response plans in a number of ways. As always, considerations about protection of life, protection of property, criminal investigation, and the desire to resume commercial operations will determine duration, frequently in opposing directions. For example, efforts to restore normal operations may be stalled by the necessity of securing a crime scene. Moreover, the actual response and its component actions (e.g., engineering evaluation and the restarting of electronic systems for ticketing and security) take time. Orchestration time, an often-overlooked element, must be included in the duration of any plan.

Effective TIRPs remain flexible while minimizing the cumulative totals of these influences. To decrease overall duration of response to an event, managers should consider developing different plans for disparate parts of the terminal and for varying operational periods for incident response and recovery.

The duration of the response and the disruption to terminal operations can often be reduced by temporarily relocating passenger operations to other parts of the terminal, to another terminal at a multi-terminal airport, to a temporary space, or even to a nearby airport. Such accommodations are more attractive for responding to incidents that seriously damage the structure and systems of a terminal. This issue is complicated by the pressure most airports are under to remain as close to full operational capacity as possible; 80% operational is a widely accepted rule of thumb. While high utilization of terminals and gates is beneficial economically, it can drastically limit alternatives for emergency planners and responders.

The long-term loss of a terminal is beyond the scope of this project and falls into the area of continuity of business planning.

Available Resources

Many different resources within the airport may be affected during an incident within the terminal or as the result of a nonlocal incident that affects operations in the terminal. It is often difficult to determine the scope of resources needed to respond to an incident in the terminal

since there are frequently unanticipated or poorly anticipated needs beyond basic equipment for the immediate response.

For example, if a large number of people (including the workforce) will be housed in the terminal for an undetermined period, then food, water, personal hygiene packs, and restrooms will need to be available, maintained, and replenished. For airport winter closures, many airports have invested in cots, blankets, and pillows for stranded passengers and employees. Logistical coordination is necessary for stationing people and providing the needed supplies.

Additional employees will be needed if people are held in the terminal or an event requires a coordinated response or evacuation. Personnel from outside the terminal (e.g., those who work on the ramp or in maintenance) should be trained in responding to differing needs during a terminal incident. More information regarding personnel and training can be found in *ACRP Report 73: Airport to Airport Mutual Aid* (Smith et al., 2012) and *ACRP Report 95: Integrating Community Emergency Response Teams (A-CERTs) at Airports* (Duncan et al., 2013) (IEM et al., 2013).

Mutual aid agreements should be in place to address the need for added coordination, response, and law enforcement personnel. Mutual aid agreements can even involve off-airport sheltering and transportation. See *ACRP Synthesis 45: Model Mutual Aid Agreements for Airports* (Smith and Kenville, 2013) for an overview of airport mutual aid agreements.

A great deal of the peer-reviewed literature references information management losses that occur when disaster strikes an organization. In the rush to plan for terminal incidents, computers and storage of the company's electronic information and history cannot be overlooked.

The following are crucial resource considerations and continuity factors for restoring airport operations:

- Be prepared to contact people important to the organization quickly (employees, clients, vendors, etc.).
- Designate alternate space and equipment for them to do their work.
- Provide duplicative sets of data held offsite for them to access and begin to work (Journal of Accountancy, 2003).

CHAPTER 5

Relationship of Terminal Incident Response Plans and Other Plans and Programs

The passenger terminal is likely the single area of every commercial airport where all required programs and plans apply: the airport certification manual (ACM), the AEP (part of the ACM), the airport security program (ASP), and increasingly, IROPS plans and safety management systems (SMSs). Some airports also have customer service manuals or terminal manuals that may apply.

Airport Certification Manual

The ACM must address all Federal Aviation Regulation (FAR) Part 139 requirements that apply to the airport. It must be accurate, clear, direct, and state who will perform each required task (FAA Advisory Circular 150/5210-22, 2004). The AEP is always required as part of the ACM.

Airport Emergency Plan

The AEP details a list of probable incident types that apply to the whole airport, including the terminal. However, the emphasis is usually more on the air operations area (AOA) than on the terminal. The only part of most airports' AEPs that specifically pertains to a terminal is the structural fire annex, and that annex also pertains to any other type of building at the airport. An effective AEP includes specific actions and responsibilities in the terminals and makes appropriate distinctions due to the presence of passengers.

Airport Security Program

Under 49 CFR 1542, every airport is required to have an ASP. Implementation of the ASP means that the TSA and airport security personnel have a constant and powerful presence in the terminal. The security requirements of the ASP must be met during normal operations and during implementation of a TIRP. Security becomes especially important during repopulation since the secure areas of a terminal may have to be re-sterilized. (This will almost always be the case after an evacuation.) The airport's ASP delineates specific security protocols and approvals that must be accomplished after any event that potentially compromises the security posture of the airport. The requirements of the ASP and any additional appropriate security countermeasures must be completed prior to resuming passenger flight operations. This usually requires effective communication and collaboration between the airport security coordinator (ASC) and TSA's federal security director (FSD). Consensus approval between the ASC and the FSD or their designees must be obtained prior to resuming passenger flight operations.

Irregular Operations

Since the publication of *ACRP Report 65: Guidebook for Airport Irregular Operations (IROPS) Contingency Planning* (Nash et al., 2012), many Part 139 airports have completed IROPS plans, and most airports are expected to complete them within the next few years. IROPS plans focus on how an airport should manage customer service during periods of irregular operations caused by storms or other events. Terminal management is an important element of IROPS response, so TIRPs should conform to IROPs plans either by reference or by providing supplemental information.

Safety Management Systems

All airport-related plans and procedures should be well integrated so as to easily incorporate the four components of a well-developed SMS:

1. Safety policy.
2. Safety risk management.
3. Safety assurance.
4. Safety promotion.

As of spring 2013, few airports had SMS plans. However, SMS plans may well be required at Part 139 certificated airports within a couple of years of the publication of the TIRP tool and user's guide. Each airport will need to revise its evacuation, SIP, and repopulation plans to the extent that such plans trigger SMS issues. It is not clear to what extent, if any, SMSs will apply to airport terminals.

Access and Functional Needs Populations

Airports must comply with the requirements of the Americans with Disabilities Act (ADA) for normal operations. Such compliance must extend fully to emergency operations such as sheltering in place and evacuation. Accommodations for access and functional needs—mobility, visual impairments, hearing impairments, and other issues—must be incorporated into TIRPs.

Beyond ADA requirements, airports should consider other issues typically related to older travelers, children, and international travelers with limited English language skills. *ACRP Synthesis 51: Impacts of Aging Travelers on Airports* (Mein, Kirchhoff, and Fangen, 2014) addresses how airports can best accommodate the needs of aging travelers.

Terminal Operations Manuals

Some airports have terminal operations manuals. Incorporation of TIRPs into such manuals should be considered.

Customer Service Manuals

Although most airports focus primarily on the safety and efficiency of operations, a few airports approach those same imperatives through the perspective of customer service. This approach was evident at four airports where customer service manuals specified the standards for customer service across the full spectrum of situations, from low-tempo normal operations to high-tempo operations to IROPs and emergencies, including evacuation and shelter-in-place

situations. In the case of the Port Authority of New York and New Jersey, the customer service manual sets standards for all contractors and concessionaires with regards to customer service, including their roles and responsibilities in emergencies.

Overlap

Areas of plans that overlap should include triggers that alert managers to the need to revise other plans if one plan is altered since plans must be congruent to prevent confusion during a disruptive incident. Tool developers made a conscientious effort to avoid the generation of TIRPs that contradict airports' AEPs, ASPs, or other plans.

Methods of Presenting TIRPs vis-à-vis AEPs

Airports employ a number of different approaches to present their TIRPs (evacuations, SIP, and repopulation) vis-à-vis their airport emergency plans. In Table 7, options actually observed from collected documents or in follow-up interviews are indicated by "A." Options that are theoretically possible but were not observed among the 42 airports are indicated by "T." Finally, options that would violate Part 139 requirements are indicated by "V."

Table 7. Options for AEPs and TIRPs.

Option	Evacuation	SIP	Repopulation
1. Incorporate TIRP sections into AEP.	A	A	T
2. Distribute pertinent parts of evacuation and/or SIP plans into hazard-specific annexes of AEP.	T	A	T
3. Maintain TIRPs as separate plans incorporated by reference into AEP.	A	A	A
4. Include evacuation, SIP, and repopulation in terminal management plan or manual entirely separate from AEP.	T	T	T
5. Include evacuation, SIP, and repopulation plan(s) in customer service manual entirely separate from AEP.	A	A	A
6. Include evacuation, SIP, and repopulation plans in tenant contracts but not directly in or referenced in AEP.	V	V	V
7. Include evacuation, SIP, and repopulation plans in the ACM but not in the AEP.	V	V	V
8. Plans reside in plans or standard operating procedures (SOPs) of outside agencies such as police or fire department attached to airport and are incorporated by reference into AEP.	T	T	T
9. Plans reside in plans or SOPs of outside agencies such as police or fire department attached to airport and are not incorporated by reference into AEP.	V	V	V
10. Include evacuation, SIP, and repopulation plans in airport business continuity plan but not in AEP directly or by reference.	V	T	T
11. Unwritten plan(s) only.	V	V	V

Note: A = options actually observed, T = theoretically possible but not observed, V = would violate Part 139 requirements.

Options 1 through 8 merit further discussion. Options 9 and 10 can be eliminated because no airport should knowingly adopt a plan or course of action that will create a problem with certification.

Option 1 has the virtue of gathering all of the elements in one place, with that one place (the AEP) being one of the most frequently reviewed documents at any airport. The challenge with adding TIRPs to an AEP is that each page of the AEP and each change to an AEP must be approved by the FAA compliance inspector. Since terminal configurations change relatively often, the TIRPs likely will be revised or amended frequently. This will leave the AEP in a form of limbo while awaiting the FAA compliance inspector's approval on the changes. Option 2 also presents this challenge, while Option 3 avoids it.

A second issue of concern with Options 1, 2, and 3 is that the requirements of Part 139 and FAA Advisory Circular 150/5200-31C can be ambiguous about which sorts of incidents affecting a terminal are required for inclusion in an AEP. Nothing in the advisory circular precludes including preparedness and response actions inside terminals in an AEP, but many of the incidents that do not create problems for aircraft or the AOA typically are not included in AEPs.

Option 2 has considerable merit as it lists the full details of response and recovery for each hazard type in the section of the AEP dealing with that hazard. The TIRP tool can generate hazard-specific plans suitable for incorporation into the AEP annexes. The major downside of Option 2 is that it increases the number of documents and related materials that would need revision if the airport's structural configuration, policies, or other guidance changes.

Option 4 (terminal management manual/plan) and Option 5 (customer service manual) are nearly identical functionally. The primary difference between the two seems to be that the terminal management manual is prescriptive, operating outward from the airport toward all other stakeholders, while the customer service manual seems more multilateral, encompassing all stakeholders resident in the terminal. [This is a tentative conclusion since the study received only two customer service manuals (Port Authority of New York and New Jersey, 2008) and no documents labeled as terminal management manuals.] Options 4 and 5 may leave gaps in the AEP unless care is taken to articulate the essential parts between them and the AEP. Under Option 4 or 5, the plans should be referenced in the AEP to avoid violation of Part 139 requirements.

Option 6 is a sound management tool, but it is not sufficient to stand alone. Contracts can define the roles of non-airport employees and stakeholders in terminal incident responses, but contracts are an awkward method of informing airport employees of specific actions they need to take in an actual response. Therefore, Option 6, if adopted, should be paired with one of Options 1 through 5. Failure to link the contract's approach to the AEP would put the airport in violation of certification requirements.

Option 7, incorporating the evacuation, SIP, and repopulation plans into the ACM but not as part of the AEP portion of the ACM, is an unusual approach. It is not clear that there is any appropriate place in the ACM outside the AEP to attach TIRPs.

Option 8 is almost the same as Option 3. They would be identical if the reciprocal agreements between the airport and the response service provider required those plans to be incorporated into the AEP by reference and included ironclad notification and quality standards. Option 8 would converge into Option 1 if the fire department's or police department's TIRPs were reproduced verbatim in the AEP. However, this would require perpetual coordination whenever changes were made to the plan by any involved parties.

Option 10 is potentially very useful for repopulation. An airport's business continuity plan should definitely include a plan for terminal repopulation.

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Concerning Options 9 and 11, there is no explicit requirement in FAA Advisory Circular 150/5200-31C for SIP or repopulation plans. However, SIP is a logical alternative to evacuation for many of the incident types specifically listed in the advisory circular. Moreover, repopulation is a logical complement to both evacuation and SIP, especially from a business continuity viewpoint.

In general, airports have not focused on repopulation in preparing for incidents. Of the 160 documents and plans included in this study, only four explicitly discussed repopulation. The apparent assumption is that all an airport needs to do after an evacuation or SIP is reverse the steps with no special plans or checklists required. As shown elsewhere, this is far from the case. Repopulation presents unique challenges with the potential for moderate to severe negative consequences if not managed properly.

Other important airport plans are referenced in the plan produced by the TIRP, but the TIRP does not automatically generate links to those external plans and documents. Once an airport has its plan as a Microsoft Word document, it can edit it to incorporate links relevant to the TIRP, such as contact lists and links to other plans.

CHAPTER 6

Best Practices for Developing and Sustaining TIRPs

Whether TIRPs are developed in a traditional way by an individual or committee, with the help of the TIRP tool, by adapting a plan from another airport, or by a consultant, the same basic concerns and areas of emphasis are essential for the plans to be effective, practicable, accepted, and followed. Foremost among these concerns is the role of leadership and the extent to which stakeholders are involved in the planning process. Use of an automated tool without appropriate coordination and collaboration with stakeholders will compromise the resulting plans in many ways. Although this tool will greatly accelerate the plan-building process, it is not intended to be used to bypass necessary collaboration with stakeholders.

Leadership

When a terminal incident response plan is put into action, a temporary functional reorganization of at least part of the airport's personnel can result. In many cases, personnel take on alternate or secondary jobs and responsibilities. The same sound principles of airport organization and reorganization apply to terminal incident response plans: leadership from the top, buy-in by stakeholders, and application of adaptive management (Smith and Kenville, 2013). Execution of TIRPs, whether in reality or as drills or exercises, is highly disruptive. As such, the plans must have the full backing of senior airport managers who fully understand their implications.

Stakeholder Involvement

It is not only terminal managers, emergency managers, and airport fire and law enforcement that need to be involved in the creation and maintenance of TIRPs. The full range of within-airport and outside response partner stakeholders should also be involved as extensively as possible. In particular, local emergency management agencies and first responders who might be part of any aspect of executing the airport's TIRP should participate in the planning effort as well as in after-action reviews and the adaptive management process.

Cultivating a broader definition of *stakeholder* will be productive at most airports. A more expansive interpretation of the term would include vendors, concessionaires, customer service providers, contractors, and tenants. In particular, passengers and people greeting or seeing passengers off should be considered stakeholders. The needs and behavior of passengers and the general public in a terminal building during an incident must be considered, either by inviting them to participate in the planning process or by incorporating information about their needs from other plans, government documents, or advocacy groups. Special needs for those with access and functional needs, the elderly, individuals with limited mobility, individuals with

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cognitive difficulties, and children need to be considered. Ideally, people from these groups would be consulted about their requirements. Appendix A lists potential stakeholders in the development of an airport TIRP.

Greater stakeholder involvement generally improves the initial plan, improves compliance with the plan, heightens enthusiasm for training and exercising the plan, improves the response teams' ability to adapt when an actual situation does not exactly fit the plan, and, most importantly, improves positive outcomes in the event of a disruptive incident at a terminal.

Incident Command System Structures: Sectors, Branches, and Tactical Objectives for Each

The tool and the plans it will produce are predicated on the airport's use of the Incident Command System (ICS). The ICS offers a proven standardized structure for emergency and disaster management. It applies to all phases of emergency management: preparedness, mitigation, response, and recovery. Organized around the functions of command, operations, planning, logistics, and finance/administration rather than around bureaucratic boundaries and routine position descriptions, the ICS follows the basic plan of organization illustrated in Figure 4.

Each of the functions shown in Figure 4 will be part of a response. However, in small incidents, several functions may be combined in a single role. The ICS should always be incorporated into TIRP structures, making sure that each of the basic functions is covered at all times during a response and during recovery after an incident. The ICS may include the command staff functions of safety, liaison, and public information. Sometimes, the ICS may include intelligence/investigations and day-to-day functions.

National Incident Management System

The National Incident Management System (NIMS) was established as the United States' standard for incident management in 2003, with compliance required for all federal agencies and all entities receiving federal aid, including all Part 139 airports in the country. However, most airports did not begin serious efforts to comply with and implement the NIMS until the FAA specifically required incorporation of it into AEPs in 2009 in Advisory Circular 150/5200-31C. While the ICS is the underlying structure used in the NIMS, it is only one aspect of it.

Features of the NIMS yield many beneficial approaches for handling airport terminal incidents. Under the NIMS, the nature of the incident drives the nature of the response, and the evolution of the size, intensity, and nature of the incident determines the scope, nature, and participants in the response. Response structure expands and contracts as necessary to manage the moment-to-moment realities of the incident. The NIMS is flexible yet reliable, and it delineates clear lines of control, communication, and accountability through a common formalized

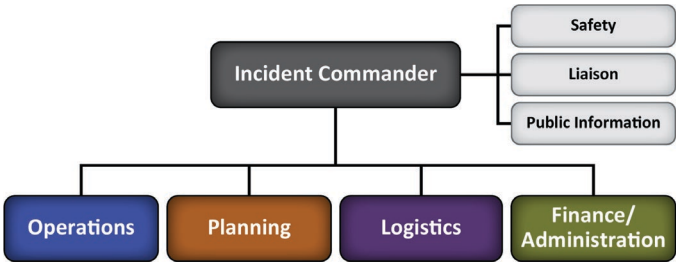

Figure 4. The Incident Command System.

structure. The system allows for a single incident commander or for a unified command and includes effective ways to manage continuity of the response during shift changes.

Since the NIMS is a national standard, it is used by nearly all first responders and local, regional, and state emergency management agencies. Employing the NIMS facilitates effective and efficient coordination for airports and their mutual aid partners (Smith, 2008, 2010a, 2010b). Application of the NIMS and the resulting internal benefits for airports are explored in more depth elsewhere (such as Smith, Waggoner, and Hall, 2007; Smith, Waggoner, Rabjohn, and Bachar, 2007, 2008a, 2008b; and Smith, 2008).

Customer Service

Regardless of the type of emergency situation calling for an evacuation or shelter-in-place response, the highest possible level of customer service must be maintained. As noted in *ACRP Report 65: Guidebook for Airport Irregular Operations (IROPS) Contingency Planning* (Nash et al., 2012, pp. 205, 222), the primary concerns for passenger support are:

- Water;
- Food;
- Sanitation—lavatory and hygiene;
- Mobility support such as wheelchairs;
- Medical needs—first aid and essential medications;
- Shelter from weather if evacuation is to an outdoor location;
- Information updates, to the greatest extent possible; and
- A method for providing feedback (requests, complaints, or comments) to the airport; various methods include email, airport website, mail, in-person comments to airport staff and service provider staff, and social network sites.

If the evacuation is prolonged, customer support can also include:

- Off-airport overnight accommodation, and
- Transportation.

By prior arrangement or default, the airport or airlines will assume responsibility for customer service in an emergency. In either case, the airport should be prepared to provide or arrange for the basic forms of passenger support listed previously. Sound customer service during an evacuation or shelter-in-place situation facilitates efficient repopulation and resumption of normal operations and safeguards the airport's public image.

One of the most difficult aspects of airport terminal evacuation is the unpredictability of weather. If the evacuation places people outside of the terminal, either on the landside or on the airside, every effort must be made to protect them from temperature extremes (heat or cold) and precipitation. Recent terminal evacuations have demonstrated innovative solutions to this problem. For example, San Antonio International Airport used a fleet of air-conditioned city buses to shelter passengers during its July 2012 evacuation due to a bomb threat. Other airports have used parking structures to protect evacuees.

Communications

Communications are essential for managing the response to any emergency in an airport terminal, but forms of communication may vary greatly depending on the extent of disruption to existing systems. Therefore, effective emergency communication plans are flexible and redundant. They also must incorporate different forms of media to ensure compliance with the ADA.

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To Individuals Within the Terminal

The primary forms of communication within a terminal during an evacuation or shelter-in-place situation will be the public announcement system (loudspeakers), video status boards (arrivals and departures boards, gate signs, electronic signage), and warning lights or sounds. Audible announcements need to be supplemented and clarified by signage directing passengers and employees to evacuation routes, rally points, and shelters. Warnings and messages displayed should be pre-scripted and possibly prerecorded to minimize errors. Careful controls should be in place to avoid accidental release of emergency announcements.

Modern social media sites such as Facebook and Twitter and airline smartphone notification systems can also be used to alert and direct passengers. It is important to remember that they do not have universal reach since some passengers may not possess the devices or be using them at the time.

Reverse 911 and emergency notification systems can alert airport employees and tenants and provide continuing information updates.

Regardless of which forms of communication are used, well-trained and highly aware airport, airline, and tenant employees play the most important role in directing the response, guiding passengers, and facilitating a calm and orderly transition.

To the Public at Large

Incidents at airports, especially terminal evacuations, are major news. Managers need to take advantage of the power of news outlets to communicate important information beyond the initial story. For example, the public needs to understand that access to the airport and its terminal may be temporarily blocked. Blocked access and other issues can create serious traffic and public safety implications that call for a well-thought-out public information strategy that may involve pre-scripted announcements. Such a strategy should involve key stakeholders such as airlines, local government, and local media. As with all aspects of TIRPs, dissemination of public information should be handled through the ICS and NIMS.

Security

General

Security procedures for an evacuation that moves people from the secured area to rally points outside security will normally be governed by the airport's ASP. To the extent that security procedures are involved in the evacuation plan, the major stakeholders involved in security—TSA, airport management, airport police, and other security or law enforcement agencies onsite at the airport—must be involved not only in the creation of the evacuation plan but also in training, drilling, and exercising the plan. As a general practice, if a partial evacuation that does not move people out of the secured area is possible, evacuation rally points and routes to achieve that goal should be determined.

Airports with International Arrivals

Collaboration and authorizations between airport officials and CBP officials must take place when events affect normal operations involving international passengers or Federal Inspection Station (FIS) facilities. In many cases, CBP will have its own protocols for handling emergency or irregular operations affecting normal international flight operations. The airport should be

familiar with these CBP plans and protocols. Conversely, local CBP officials need to be familiar with the airport's TIRP. CBP and the airport should consider establishing formal agreements, identified within the TIRP, to ensure that both parties work collaboratively under a common unified command when managing impacts addressed within the TIRP. Even when formal agreements are not in place, continuous collaboration and consensus between the incident command and CBP must be achieved throughout all phases of an event affecting international flights.

As a contingency for events that disturb normal operations of international arrivals or of an airport's FIS areas, the airport should coordinate directly with local CBP officials to develop procedures for defining, initiating, and maintaining secondary temporary-use areas suitable for accommodating the sterile isolation of arriving international passengers. These areas and the responsible individuals should be noted within the TIRP, and airports should coordinate with their local CBP to exercise established procedures.

It is possible that the specific CBP contingency plans for FIS areas will be security-sensitive information (SSI). In such a case, every effort should be made to incorporate sufficient non-SSI information into the airport's TIRP to allow joint training, exercising, drilling, and action involving parties such as mutual aid partners who do not have SSI access.

Training

Training Requirements

FAR 139.325 requires that airports provide emergency training for all personnel with duties and responsibilities as outlined in the AEP. Airport operators must ensure that responsible personnel are familiar with their assignments and are properly trained at least once every 12 months. FAR 139.303 requires initial and recurrent annual training of appropriate personnel performing duties in compliance with the requirements of the ACM and the requirements of FAR Part 139. This training must be completed prior to the initial performance of such duties and at least once every 12 months. All FAR-required training records must be kept current and be retained for at least 24 months.

Benefits of Training for the Management of Terminal Incidents

Preparing and training for terminal incidents can yield tangible benefits in the form of improved outcomes, increased proficiency among airport employees, and increased confidence among all stakeholders.

Better Outcomes

Good evacuation, SIP, and repopulation plans combined with well-trained airport employees and tenants are expected to yield improved outcomes in the main goals of airport emergency management:

- Protection of life.
- Protection of property.
- Preservation of crime scene evidence.
- The most rapid possible resumption of normal economic activities.

Increased Proficiency Among Airport Employees

TIRPs contribute to the practical knowledge, skills, and abilities of airport employees by requiring participation in multiple functional exercises on an annual if not semiannual basis. Participants need to understand why it is important to conduct routine tabletop and full-scale exercises.

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Airport emergency plan and other emergency response contingency plan training should cover plan objectives, key elements, participants and their roles, and mutual aid agreements. Basic plan training should be refined and included in new employee orientation. Airport operators should identify the work groups that require NIMS, TIRP, and contingency plan responsibility training. This training should be mandatory and scheduled as appropriate. Each group should have designated subject-matter experts.

Increased Confidence Among Employees and Stakeholders

Confused or uncertain personnel can compromise the effectiveness of the overall response. Well-trained, drilled, and exercised personnel will be more confident in their actions and will perform more quickly and decisively when responding to disruptive incidents. Most importantly, a high level of confidence among personnel directing evacuations and shelter-in-place procedures can help reduce panic, confusion, and the resulting negative consequences.

Drilling and Exercising

Drilling is required by FAR 139.325 for every item listed in AEPs, including evacuations. There must be a single review, tabletop exercise, or functional exercise once every 12 months. Drilling ensures that the plan is coordinated with all appropriate agencies, that all parties understand and are committed to their responsibilities, and that all of the information in the plan is current. Testing TIRPs regularly allows evaluation of their effectiveness and completeness as well as updating of contact information and terminal configuration.

When thrown into an emergency management situation, it is crucial that all parties be familiar with the responsibilities and capabilities of the others involved. Airport incidents often involve multiple agencies, each with their own jurisdictional authority. These authorities must be understood and respected by all. Regular drills and exercises help build strong relationships among all managers involved in an emergency response. NIMS and ICS principles allow for unified command processes designed to recognize the jurisdictional responsibilities of multiple agency responses to a common incident. Airports must be familiar with and practice these concepts of unified command.

Drills and exercises, when properly designed and executed, can expose weaknesses in TIRPs and test perspectives, ultimately leading to more effective plans. Feedback should be gathered following every exercise. Drill and exercise results can be evaluated by participants, peer reviewers, subject-matter experts, and outside evaluators. TIRPs should incorporate feedback and be either reconfirmed or revised, as appropriate.

Full-Scale Drills and Exercises

A full-scale exercise for each Class I airport operator once every 36 months is required by FAR 139.325. Most larger airports typically exceed these requirements either because of internal airport policies or simply because federal agencies like CBP and TSA, as well as most airlines and mutual aid providers, have similar requirements for exercising, and, as best practice, most seek the airport's participation. The exercising of any airport incident response plans determines whether a TIRP, post-disaster family assistance plan, or pandemic response plan can be used to meet the exercise requirements of FAR 139.325. It is recommended that the scope and scenario of the exercise be approved by the airport's FAA compliance inspector before counting that exercise as meeting the requirements of FAR 139.325. Typically, any exercise that reviews the command and control and mutual aid provision within the AEP will be accepted as compliant.

This precedent should allow TIRP and other contingency plan exercises to qualify under this requirement.

It is essential that a full-scale exercise test the total response capability of an airport's mutual aid agreements. Such an exercise should involve all responding agencies, with an emphasis on local emergency management coordination among various functions and outside response agencies. The full-scale exercise's scenario should be as close to a real situation as possible and use real personnel and equipment. The exercise should test all communications, coordination, and transportation systems. To the most appropriate extent possible, the exercise should also simulate high-stress situations. Given all this, it must be recognized that a full-scale exercise of a terminal evacuation or shelter-in-place situation will be highly impracticable or even impossible. However, actual evacuation or SIP events can be analyzed and used to review and revise TIRPs.

Problems with Full-Scale Drills and Exercises of Evacuation and SIP

The overwhelming difficulty of implementing a full-scale or even partial drill or exercise of an evacuation or SIP plan is that such events would disrupt the normal operations of the terminal, concourse, or gates involved in the drill. The exigencies of airport and airline operations, schedules, and economics preclude such disruptions for a drill or exercise. Since TIRPs need to outline effective approaches for handling peak-period crowds in terminals, performing the exercise or drill at a nonpeak hour or even using volunteer actors as passengers when the terminal is closed will not provide an adequate test of the TIRP. If an airport actually attempts a full-scale drill or exercise of a TIRP, the event must be closely monitored, and there should be a well-planned and coordinated drill exit strategy in place.

A number of other practical problems with drilling and exercising TIRPs exist, but these can be overcome through careful planning, leadership, and discipline:

- Documenting and record keeping for all airport employees having responsibility within the plans could be quite difficult. These records are typically scrutinized annually during the FAA certification inspection. To ensure adequate record keeping for what could be a large number of personnel, many larger airports have shifted to a web-based interactive training and record-keeping system.
- Many times post-exercise action plans are not followed up. Every effort should be made to ensure that all lessons learned and any identified mitigations are incorporated into revised TIRPs and related documents and acted upon.

Adaptive Management and the Continuous Improvement Cycle

TIRPs are more effective when an airport aggressively uses adaptive management methods (see Figure 5) and applies the continuous improvement cycle to preparedness planning (see Figure 6). For high-consequence, disruptive actions such as evacuation and sheltering in place, it is critically important to use experience in actual incidents, drills, exercises, or simulations to drive evaluations and, when needed, revisions of TIRPs. Monitoring professional and popular literature for incidents at other airports can also inform adaptive management processes at an airport.

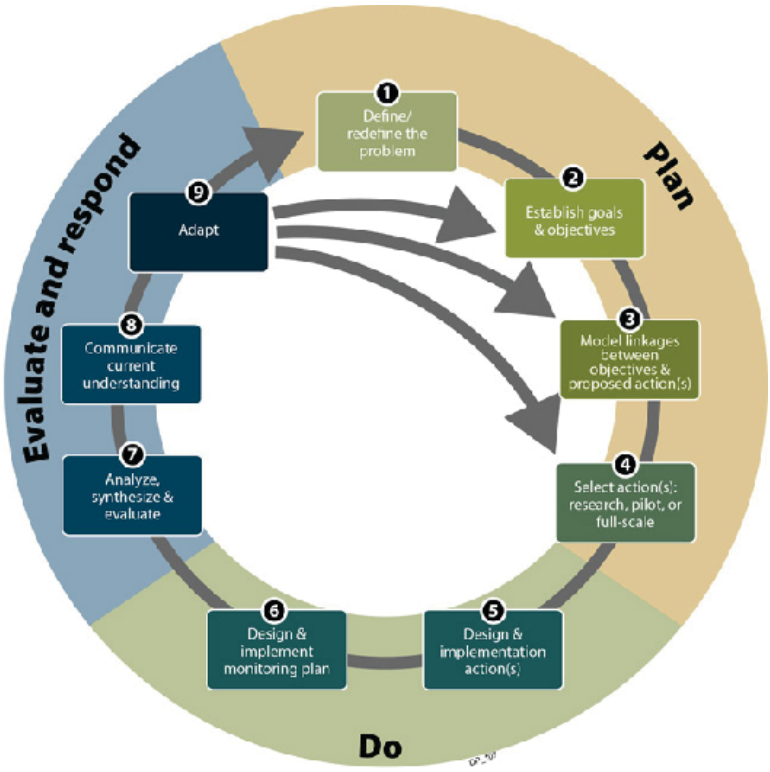

Figure 5. Adaptive management (California Department of Fish and Game, n.d.).

Figure 6. Preparedness planning cycle (Federal Emergency Management Agency—Emergency Management Institute, n.d.).

CHAPTER 7

Budgeting for Airport Terminal Preparedness

Preparing an airport terminal to execute TIRPs requires foresight and ingenuity. The major costs fall into three categories: capital/initial procurement, one-time operational, and recurring operational. Appendix B provides a checklist of the line items for the services and supplies necessary to enable effective airport terminal evacuation, shelter-in-place, and repopulation events.

Sound preparation may involve terminal construction or reconstruction for communications systems, information systems, signage, sensors, warning signs, and route marking. Areas with high risk of extreme weather hazards such as tornadoes may need to strengthen shelter areas and dedicate extra storage for emergency equipment and supplies such as drinking water. The planning and design of spaces for evacuation, evacuation routes, rally points, and shelter-in-place locations is best included in the general terminal planning and design process.

Small equipment such as handheld radios, flashlights, and electric megaphones can be bought once or at least infrequently since they do not spoil or expire. These types of expenditures are typically funded through operations budgets.

Some emergency response materials such as water, emergency food supplies, and batteries have limited shelf life or are quickly consumed during a response, so they must be inventoried and restocked. Most airports inspect and restock or replace such supplies on an annual basis. As with durable small equipment, these supplies are typically funded through operations budgets. One airport periodically donates supplies nearing their expiration dates to charities and replaces them. Certain recurring services associated with planning, documenting, drilling, and exercising TIRPs, such as building materials and temporary repair services, will also normally be part of operations budgets. Some repairs or tasks, such as clearing broken glass or repairing damaged electrical systems, may be required before repopulation can occur.

The types of incidents addressed by TIRPs are unlikely to involve presidential or state declarations of emergencies or disasters, so it is unlikely that services and supplies will be reimbursable by the Federal Emergency Management Agency (FEMA) or other agencies.

CHAPTER 8

Introducing the Tool

The TIRP tool generates terminal evacuation and SIP plans for any of the nine highest-priority incident types (see Table 3). It can also create plans for any of the other incidents identified in this research project by association with one of the nine base incident types (see Table 6). In addition to evacuation plans and SIP plans, the tool generates a repopulation plan to return the terminal to full operation after an evacuation or SIP event.

The TIRPs generated using the tool can be used as stand-alone plans, as stand-alone plans referenced in the AEP, as AEP sections, or as additions to incident-specific annexes in AEPs. TIRPs or portions of TIRPs may also be used in airport customer service manuals. Table 7 shows the acceptable ways that the resulting TIRPs may be incorporated into airport emergency, contingency, and business continuity plans.

What the TIRP Tool *Can* Do

The TIRP tool is a Microsoft Excel spreadsheet with macros that receives inputs from the user, links them to appropriate plan text elements, calls for further detailed input as required, and produces a draft TIRP in Microsoft Word format that can easily be revised and shared with personnel responsible for responding to disruptive incidents in airport terminals.

Inputs

Users enter specific data regarding airport characteristics, contacts, and existing plans (e.g., AEPs or airport security plans) by filling in an initial incident checklist along with a series of simple Microsoft Excel data input forms. The forms use yes-or-no and fill-in-the-blank questions to select or deselect pertinent sections. Input forms allow the airport to insert maps, photos, or other graphics to display features such as evacuation areas, pathways, or the location of emergency equipment. These custom input methods create a TIRP tailored to the airport's specific physical configuration and risk profile.

Processing Within the Tool

The heart of the tool is a Microsoft Excel spreadsheet that uses macros to select critical pathways, select pertinent text elements, and logically organize the elements of the plan into chapters.

Outputs

The tool's final macro converts the Microsoft Excel output into a TIRP as a Microsoft Word document that can be edited and further customized by the user. This document consists of separate chapters for SIP, evacuation, repopulation, and highest-impact incident types included

via the initial incident checklist. Additional chapters may be added to the plan by copying and editing the most related chapter and locally customizing it for other incident types (e.g., baggage system failure or air traffic control delays). Further guidance for selecting similar chapters is provided in the taxonomy of incident types in Table 6. Each chapter of the plan produced by the tool includes a checklist for all actions required by the plan.

Appendix C is a pre-populated TIRP tool and the subsequent outputted sample TIRP provided by Savannah/Hilton Head International Airport.

At the user's discretion, the tool can also develop an appendix listing all related contact and coordination information. While this appendix may be useful when responding to incidents, it is not meant to replace contact lists required in the AEP, airport security plan, or other primary documents.

What the TIRP Tool *Cannot* Do

The tool does not include a logical process for making the initial decision to activate an evacuation or SIP plan. This decision is best made by a designated airport authority with direct understanding of the unique nature of both the airport and the incident. Users activate the TIRP when the decision to evacuate or shelter in place has been made or is obvious to airport or tenant employees in the terminal. The latter case often occurs with no-notice incidents.

The tool is not designed for direct incorporation into an airport's command, control, and communications system or for incorporation into a web-based coordination system. It is designed as a stand-alone program for generating TIRPs.

The tool does not generate automatic updates. However, users can easily and quickly update TIRPs via user-friendly input forms and robust internal processing capability.

The tool does not generate training plans or drill and exercise scenarios. However, the TIRPs are highly suitable for use as training materials.

Directions for Using the Tool

A separate user's guide for the tool provides clear, comprehensive directions to guide managers through the process of generating TIRPs. The guide also explains how any airport-specific or terminal-specific plan produced by the tool can be further customized by using the incident taxonomy table to select the most closely related chapter to customize using Microsoft Word (see Table 6). The user's guide is included in Appendix F.

CHAPTER 9

Summary

This research study and the resulting tool provide an avenue for airports to generate plans focusing on terminal evacuations, SIP, and repopulation for incidents that disrupt normal operations in airport passenger terminals.

The tool does not generate a plan that duplicates an airport's other essential plans such as the AEP or airport security plan. Rather, the tool specifies where within existing plans a TIRP can provide additional guidance for managing passenger terminals. The TIRPs generated using the tool can be used as AEP sections, as additions to incident-specific annexes in AEPs, or as stand-alone plans referenced in AEPs. They may also be used in airport customer service manuals.

This report documents the research and analytical process that identified the essential elements of effective responses to the nine highest-priority types of incidents. The main research elements were a review of professional and popular literature to determine the frequency and consequences of 46 different types of terminal incidents along with a detailed review of key plans and procedural documents obtained from 43 airports of all types and sizes. The primary analytical technique used was process mapping, by which the essential actions for each of the nine highest-impact incident types were identified. Data from the research and process mapping were used to create the TIRP tool, a Microsoft Excel spreadsheet with macros that uses forms to accept data input from airport users, calls up appropriate blocks of text and variables, and generates TIRPs for that specific airport or terminal. The TIRP tool is robust, flexible, and easy to use, and it produces realistic, actionable response plans.

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Acronyms and Abbreviations

ACM	Airport Certification Manual
ADA	Americans with Disabilities Act
AEP	Airport Emergency Plan
AOA	Air Operations Area
ASC	Airport Security Coordinator
ASP	Airport Security Program
CBP	U.S. Customs and Border Protection
EMS	Emergency Medical Services
FAR	Federal Aviation Regulation
FEMA	Federal Emergency Management Agency
FIS	Federal Inspection Station
FSD	Federal Security Director
ICS	Incident Command System
IROPS	Irregular Operations
NIMS	National Incident Management System
NPIAS	National Plan for Integrated Airports System
SAR	Search and Rescue
SIP	Sheltering in Place
SMS	Safety Management System
SSI	Security-Sensitive Information
TSA	Transportation Security Administration
TIRP	Terminal Incident Response Plan

APPENDIX A

Stakeholders for Terminal Incident Response Planning

- Airport Employees
  - Senior management
  - Operations
  - Information technology
  - Engineering
  - Maintenance
  - Planning
  - Aircraft rescue and firefighting (ARFF)
  - Airport police
  - Public Information/Public Relations
  - Finance
  - Contracting and procurement
- Local government partners
  - Senior elected officials and managers
  - Law enforcement
  - Fire department
  - Emergency management agency
  - Transit
  - Utilities
  - Local health department
- Airlines
- Customer service contractors (carts, skycaps)
- Concessionaires
- Catering kitchens
- Federal agencies
  - FAA
  - TSA
  - Federal Bureau of Investigation (FBI)
  - Drug Enforcement Administration (DEA)
  - Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF)
  - Air marshals
  - CBP for airports with international arrivals
  - Immigration and Customs Enforcement for airports with international arrivals
  - Centers for Disease Control and Prevention
- Private industry partners
  - Media
  - Architects and engineers
  - Taxi and shuttle companies
- Passengers
- Non-passenger visitors to airport

APPENDIX B

Checklist of Budget Line Items for Terminal Preparedness

Item	One Time	Recurring
Terminal planning and construction of features for evacuation or SIP		
Emergency generators		
Emergency communications systems		
Emergency signage		
Sensors		
Shelter area flashing lights		
Reverse 911		
Reinforced shelter areas		
TIRP preparing		
Training		
Drilling		
Exercising		
Program evaluation for adaptive management/continuous improvement cycle		
Emergency vests		
Hardhats		
Flashlights		
First aid kits		
Handheld radios		
Electric megaphones		
Drinking water		
Diapers		
Baby formula		
Batteries		
Food supplies		
Janitorial services		
Glass replacement services		
Plumbing services		
Electrical services		
Heating/air conditioning/ventilation repair services		
General contractor services		
Sanitation services		
Building supplies for temporary repairs		

APPENDIX C

Savannah/Hilton Head International Airport (SAV) TIRP Example

Savannah Airport Commission

Airport Terminal Incident Response Plan

Prepared by Fred C. McCosby, Security Program Manager of Savannah Airports Commission, during the beta test phase of the tool development.

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Contents

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1 Guidance for All Terminal Incident Plans

1.1 Introduction

The Terminal Incident Response Plan (TIRP) software provides support for development of TIRPs for airports. Based on user preference, the final product may take the form of stand-alone plans for each applicable incident or a collection of applicable plans in one document. The tool generates complete basic plans that can be customized in Microsoft Excel to generate a Microsoft Word document. A TIRP includes the following elements:

- A template for the user to provide details and features of his or her individual airport, including airport name, on-airport emergency shelters, and special operational instructions.
- Chapters describing responses common to numerous airport incidents, including shelter-in-place procedures, evacuation, and repopulation. These chapters can be used in multiple individual incident plans as appropriate.
- Chapters that include considerations and guidance for specific incidents that should be included in an airport's response plans based on the airport's terminal incident risk analysis. The incidents could include snowstorms, hurricanes, earthquakes, tornadoes, structural fires, electrical outages, security breaches, bomb threats, and active shooters.
- Opportunities to insert custom direction into any of the response plans, as appropriate and desired by airport operations, emergency planning staff, and security staff.

1.2 Scope of the Incident Response Plans

The guidance provided by this document refers to actions that must be initiated to manage passengers, employees (airport, airline, concessionaires, vendors, etc.), and other members of the public in an orderly, safe, and secure manner during airport terminal incidents. In addition to airport stakeholders, various professionals will likely respond according to their own standard operating procedures during incidents. For example, law enforcement organizations will respond as trained to an active shooter, and the fire department will respond to structural fires. The plans generated by this tool are not intended to address these tactical responses by outside agencies. Rather, these documents address the safe and secure management of passengers and the public during airport terminal incidents.

1.3 Coordinated Use of the Incident Plans with Other Governing Documents

The guidance provided in a TIRP is intended to supplement guidance provided by other relevant documents, including those listed in the following table:

No.	Document Name	Revision No.	Date
1	Airport Emergency Plan	1	6/26/2011
2	Airport Security Program	2	9/27/2013
3	Airport IROPS Plan	3	1/1/2012
4	*ACRP Report 65*	4	9/12/2013
5	Hurricane Preparedness and Recovery Plan	5	3/27/2012
6			
7			
8			
9			
10			

Note that this tool does not duplicate guidance provided by the documents listed previously, thus avoiding contradiction of the airport's currently established airport emergency plan (AEP), airport security plan, and other applicable plans. However, the plans generated by this software can be easily revised, and users may insert guidance from any existing documents as deemed appropriate.

The guide is based on the following specific assumptions:

- Airports have AEPs in place that govern overall incident response, including establishment of incident command/unified command.
- Airports have airport security plans in place that govern the details of how security is maintained at all times, including incident management pursuant to 49 CFR 1542.307.[1]
- Holistic activities that affect the entire airport enterprise, such as communication of public information through the media, distribution of timely advisories, business continuity plans, and other business-related activity guidance, are covered in related airport documents.

1.4 Guidance Applicable for All Incident Plans

This section contains guidance applicable to all incident plans generated by this tool. Based on user preference, this guidance may remain as an introductory chapter for all plans, or it may be inserted directly into all plans. Regardless of the airport preference, this general guidance is a crucial element and must be included in some way in all incident response plans.

1.4.1 Training

Once the incident plans are approved, a training program should be developed and implemented so that all responsible employees are trained within the first few weeks of assuming their positions. Provisions should be made for regularly scheduled refresher training at least annually and more often if there is turnover among staff and tenants.

1.4.2 Drills

Once the incident plans are approved, it is recommended that tabletop and partial functional drills be conducted. Good practice is to conduct tabletop drills at least every 6 months and partial functional drills at least every 3 years.

1.4.3 After-Action Reviews

After each incident, it is recommended that two reviews be conducted: a hot wash within 36 hours of the incident conclusion and an after-action review within 2 weeks of the incident.

The person responsible for maintenance of the incident plan must maintain a record of findings and recommendations from both of these reviews in order to identify required modifications to the incident plan based on experience.

1.4.4 Due Diligence

Airport operators should exercise due diligence during and after plan development to ensure that any implied assignment of airport responsibilities is vetted and clearly understood. Further, airport operators should ensure that Title 6 provisions of the Civil Rights Act of 1964 prohibiting discrimination on the basis of race, color, and national origin are incorporated into their programs and activities receiving federal financial assistance.

[1] This is an example of customization in Word after the plan has been created in Excel.

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1.4.5 ADA Compliance

Airport operators should ensure that their TIRP complies with and accounts for ADA requirements. The plan should take into account considerations for terminal occupants with mobility and hearing impairments, language barriers, and other special needs and mitigate as required to ensure the safest, most efficient means of performing critical shelter-in-place, evacuation, or repopulation measures in reaction to a hazard.

1.4.6 Current and Emerging Communication and Media Technology

Airport operators should consider and, if currently used, account for the implementation of current and emerging communications and media technology to enhance the ability to relay specific warnings, messages, and notifications relevant to actions revolving around shelter-in-place, evacuation, and repopulation measures occurring in the terminal. They should consider implementing warning and notification systems through smart boards, electronic interactive signage, social media such as Facebook and Twitter, and cellular notification such as text and SMS messaging systems.

1.5 Annual Review of the Plans

All airport terminal incident plans should be reviewed annually to update the following information:

- Contact positions and phone numbers.
- Any changes in governing laws, including federal code with respect to the ADA, and other passenger handling requirements, local codes, and so forth.
- Any changes to relevant documents, especially the AEP and the airport security plan.
- Any modifications identified in after-action reviews.

2 Shelter in Place

2.1 Introduction and Purpose

Generally, sheltering in place (SIP) means to take cover in predesignated, structurally safe areas within a terminal or any other occupied facility. This is a short-term situation lasting until the threat or situation dissipates or has been resolved to the satisfaction of appropriate authorities. For cases when SIP has extended for a great length and normal operations have not been restored, full evacuation may be necessary.

The purpose of the plan is to provide guidance to airport personnel for an incident that involves a SIP response. The following table lists airport plans relevant to SIP response:

Title	Revision No.	Date	Section No.	Page No.
Airport Emergency Plan	1	6/26/2011	III.4, V	39–42, 77
Airport Security Program	2	9/27/2013	N/A	
Airport IROPS Plan	3	1/1/2012	N/A	
ACRP Report 65	4	9/12/2013		

2.2 Situation and Assumptions

- The need for SIP arises in the event of immediate danger from falling debris caused by natural disasters (e.g., earthquake, tornado) or from another disruption to normal operations that might result in harm to terminal occupants if they are not confined to a structurally sound location.

- The need for SIP arises when passengers or personnel require additional protection that can be provided by emergency shelter or when they cannot safely exit the terminal for a short period of time, such as during severe weather conditions.
- The following predesignated emergency shelter locations are clearly marked and have been determined structurally sufficient to provide adequate protection for severe weather and other emergencies:

Location	Terminal	Concourse/Gate	Level	Description
Refuge areas	Main	Concourse	2	Hilton Head Square
Stairwell 3	Main	Northwest Terminal	2 and 3	Administration lobby
Stairwell 4	Main	Southwest Terminal	2 and 3	Airport police department (APD)/TSA
Stairwell 5	Main	South Central Terminal	2 and 3	Host/Paradies
Stairwell 6	Main	Southwest Terminal	2 and 3	Admin car rentals
Stairwell 7	Main	Northwest Terminal	2 and 3	Airlines/public
Stairwell 8	Main	Mid Concourse South	2	Public shelter
Stairwell 9	Main	Mid Concourse North	2	Public shelter
Intl hold room	Main	Mid Terminal	1	Public shelter

- By mutual documented agreement with the airport, airlines have the following responsibilities during incidents that may require SIP:

Airlines	Terminal	Specific Actions
Delta	Main	Direct passengers
US Air	Main	Direct passengers
United	Main	Direct passengers
American	Main	Direct passengers
Jet Blue	Main	Direct passengers

- Consumable emergency supplies that the airport agrees to provide the public in the event of SIP are:

Items	Terminal	Concourse/Gate	Quantity	Refill Responsibility
Pillows	Main	Intl Hold Room	250	Ops/purchasing
Blankets	Main	Intl Hold Room	250	Ops/purchasing
Snacks	Main	Intl Hold Room	400 servings	Ops/purchasing

- Structural plans or blueprints can be accessed by proper authorities for reference. A list of emergency resources and external contacts is provided in Annex A.

2.3 Duration of SIP

- Generally, SIP is for a short period of time.
- When there is notice and the event is imminent, SIP is initiated by the incident command/unified command. Tenants and the public will be notified per guidelines in the AEP.
- The incident command/unified command declares the incident terminated when the threat has subsided and it is clear that repopulation or evacuation is safe and required.

2.4 Organization and Assignment of Responsibilities

The following sections outline the responsibilities of various departments of the airport and/or the city during and immediately after an incident.

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2.4.1 Airport Operations

- Notify appropriate airport tenants of the SIP operation per the AEP. Issue tenant advisories providing timely updates.
- Coordinate with the sponsor city or the airport fire department for structural evaluation of terminal buildings.
- Set up inspection teams (together with maintenance department), if necessary.
- Ensure a smooth incident command transition as the situation dictates and incident command responsibilities evolve.

2.4.2 Law Enforcement and Security

- Mobilize additional resources through mutual aid, as necessary.
- Provide security in shelter locations and areas requiring ongoing security.

2.4.3 Fire and Emergency Medical Services (EMS)

- Lead the effort to manage rescue operations, including deploying first responder personnel and other resources determined necessary and appropriate for the incident.
- Prepare a preliminary assessment of buildings for structural safety.

2.4.4 Building and Facilities Maintenance Department

- Coordinate with incident command/unified command to initiate appropriate inspections as necessary to facilitate repopulation and normal operations in a safe and orderly manner.
- Assist in mobilizing additional personnel for cleanup and repair.
- Coordinate or organize teams to inspect utility systems such as gas, electric, and water together with airport operations.
- Prepare to manage the operation of utilities, including standby generators.

2.4.5 Airlines and Other Tenants

- Manage leased areas on both the secure and the non-secure sides of the terminal.
- Follow airline and airport emergency plans.
  - Have emergency contact personnel coordinate with the airport operations center (AOC) and/or the incident command/unified command. Provide details about changes in scheduled operations.

2.5 Checklists: Shelter in Place

Airport Operations	**Responsible Party**	**Date and Time Completed**
Provide assistance to passengers	Ops mgr	
Provide directions and instructions to passengers	Ops mgr	
Provide passengers with necessary emergency supplies	Ops mgr	
Assess return to normal operations	Ops mgr	
Law Enforcement and Security	**Responsible Party**	**Date and Time Completed**
Provide for safe and orderly sheltering in place	Airport police dept	
Provide assistance to passengers	Airport police dept	
Provide directions and instructions to passengers	Airport police dept	
Notify first responders for passenger emergency	Airport police dept	
Meet first responders and direct them to person needing aid	Airport police dept	
Maintain orderly return to operations	Airport police dept	
Assist TSA in the resumption of operations	Security dept	

Law Enforcement and Security	Responsible Party	Date and Time Completed
Ensure the airport is in compliance with the airport security plan	Security dept	
Fire and Emergency Medical Services	**Responsible Party**	**Date and Time Completed**
Provide for medical services of passengers when safe	165th Airlift Wing F.D.	
Transport injured persons to hospital(s)	Southside EMS	
Building Facilities and Maintenance	**Responsible Party**	**Date and Time Completed**
Monitor equipment during the shelter in place event	Facility maintenance	
Provide assessment on all affected equipment/systems	Facility maintenance	
Repair affected equipment and components	Facility maintenance	
Assist engineering with structural assessment	Maintenance mgr/engr	
Airlines and Other Tenants	**Responsible Party**	**Date and Time Completed**
Prepare for return to normal operations	Airlines/tenants	

3 Terminal Evacuation

3.1 Introduction and Purpose

Airports should ensure that all employees are prepared to assist in an orderly and effective terminal evacuation (whether full or partial). Employees need to familiarize themselves with their surroundings and be aware of shelter locations and exits in their working environment. The airport authority should involve all tenants in the process of terminal evacuation planning and implementation, ensure that they are aware of emergency evacuation plans, and encourage training of all employees to ensure that they understand their roles and responsibilities should a full or partial evacuation become necessary.

During an evacuation, passengers will need guidance, verbal instructions, and leadership from employees. Clear and concise instructions are key to a safe, orderly, and successful evacuation. The following table lists airport plans relevant to terminal evacuation:

Title	Revision No.	Date	Section No	Page No.
Airport Emergency Plan	1	6/26/2011	III.2-6, IV.II-III-VI-XI-XIV	32–46
Airport Security Program	2	9/27/2013		
Airport IROPS Plan	3	1/1/2012		
ACRP Report 65	4	9/12/2013		

3.2 Situation and Assumptions

- The airport may experience two types of evacuations:
  - Directed evacuations: A decision to evacuate is ordered by an informed authority. Events are controlled and directed with specific instructions. Notifications and directions are given through a combination of verbal instructions, audible and/or visual alarms, and public address systems.
  - Spontaneous evacuations: Occupants initiate evacuation based on an imminent threat or danger without receiving instructions to do so. Their movement, means, and direction of travel are unorganized and unsupervised.
- Direct lease tenants should have individual evacuation plans. A copy of these plans should be submitted to airport operations, fire rescue, and police departments.
- Employees should be trained in evacuation planning, including evacuation assistance to persons with disabilities and others with access and functional needs (e.g., buddy systems).

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- The following table lists primary buildings of concern in the terminal, along with the specifications of the assembly area or safety zone for people evacuating the terminal.

No.	Building	Assembly Point/Safety Zone	Notes
400	Concourse	Commercial ramp	
400	Ticket counters	Domicile lot	
400	Baggage claim	North rental car lot	
400	Savannah Square	Domicile lot	

3.3 Operations

- For controlled evacuation and eventually for spontaneous evacuation, an incident command/unified command is set up according to guidance in the AEP. The incident commander makes the decision to initiate a partial or full evacuation of the terminal.
- The incident commander has the authority to declare that the emergency has terminated and to notify the airport community and the public per guidance in the AEP. The incident commander will also initiate the repopulation when appropriate.

3.4 Organization and Assignments of Responsibilities

3.4.1 Airport Operations

- Coordinate with the incident command/unified command to announce the order to evacuate.
  - Contact airport tenants according to AEP guidelines.
  - Use the public address system to announce the evacuation and safety zones or assembly points.
- Notify air traffic control of the evacuation.
- Coordinate with security and law enforcement personnel to stop or divert vehicle traffic on the secure and non-secure areas of the terminal, as necessary.

3.4.2 Fire and Management Pursuant to 49 CFR 1542.307[2]

- Lead the effort to evacuate the terminal.
- Reestablish safety zones or assembly points based on the incident.
- Provide assistance to individuals with access and functional needs on a priority basis during evacuation.
- Follow up evacuation with incident-specific responses, as appropriate.

3.4.3 Law Enforcement and Security

- Coordinate with the fire department in ensuring an orderly evacuation.
- Assist the airport and tenants in securing the evacuated areas, as needed.

3.4.4 Airlines and Other Tenants

- Evacuate all employees and passengers from the areas of responsibility.
- Coordinate with the airport, mutual aid, police department, and fire department to secure the evacuated sections of the terminal.
- Make sure no one reenters evacuated area(s).
- Safely and properly shut down critical operations and systems, as necessary.

[2] This is another example of customization in Word after the plan has been created in Excel.

3.4.5 Customs and Border Protection

- Special procedures are required by Customs and Border Protection (CBP) during evacuation of deplaning passengers arriving from international cities. Passengers transiting sterile corridors from inbound international planes and passengers being processed in the Federal Inspection Services (FIS) facilities must be sequestered from other passengers unless they have been processed and cleared through the CBP checkpoint. Consult the special evaluation plan developed with local CBP and the airport for specifics. Coordinate with the incident command and CBP officers for a safe and legal evacuation and control of these passengers.

3.5 Checklists: Evacuation

Airport Operations	**Responsible Party**	**Date and Time Completed**
Assist airport police dept in evacuation of the terminal	Ops managers	
Provide evacuation instructions to passengers and tenants	Ops managers	
Ensure customer service support staff is assisting passengers with disability needs	Ops managers	
Provide passengers with directions to assembly areas	Ops managers	
Assist airlines and tenants with accountability of passengers and employees	Ops managers	
Law Enforcement and Security	**Responsible Party**	**Date and Time Completed**
Evacuation announcement	APD communications	
Notification to FBI and TSA coordination center	APD communications	
Respond to source and evaluate	Airport police dept	
Evacuate portion of the terminal that is affected	Airport police dept	
Assess total evacuation of the terminal	Airport police dept	
Assess the need for HAZMAT, SWAT, or additional law enforcement officer (LEO) support	Airport police dept	
Oversee evacuation and ensure escort procedures are in place	Security department	
Ensure sweep of the sterile area is complete prior to reentry	Security department	
Fire and Emergency Medical Services	**Responsible Party**	**Date and Time Completed**
Contact first responders	APD communication	
Contact EMS	APD communication	

4 Repopulation[3]

4.1 Introduction and Purpose

This document provides guidelines on repopulation of the airport after an evacuation or a temporary shelter-in-place event. Repopulation is the process of reinitiating regular airport operations after any relocation of passengers. After an evacuation or SIP, a number of decisions and actions must be accomplished before repopulation can begin.

[3] It is important to note that some airports consider repopulation a reentry or resumption of normal operations function and choose to include those particular processes in their evacuation plans and not in a stand-alone repopulation chapter (in the TIRP or AEP). Savannah is one such airport that performs repopulation measures in this manner. In finalization of this particular plan, the end user (Savannah) would delete this chapter and update the table of contents.

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4.2 Situation and Assumptions

- The incident commander has decided that conditions related to the incident have been sufficiently mitigated and it is safe to allow repopulation and resumption of normal operations within the terminal.
- Search and rescue operations are completed.
- Building assessments are completed for structural and environmental safety, and authorized personnel have certified buildings safe to open, either partially or fully.
- All the utilities and connectivity requirements deemed necessary for operations have been restored.
- Any areas that require further repair are effectively closed to the public.
- Any other necessary activities, depending on the type of incident and the damage level, have been completed (see subsequent chapters).
- When it is time to repopulate the terminal after all the transition activities are complete, reentry occurs in the following order:
  - Security employees (TSA, law enforcement agencies, and CBP)
  - Airport/airline employees and other tenants
  - Passengers will be allowed to enter the terminal on predetermined priority basis.

4.3 Organization and Assignment of Responsibilities

4.3.1 Airport Operations

- Wear safety vests to be easily identified by passengers, airlines, and other agencies.
- Manage resources and place them in appropriate locations to provide maximum assistance.
- Assist the airlines in directing passengers, as necessary.
- Issue notifications and updates through the communications center and the public address system to passengers, airlines, tenants, and the general populace of the airport through the airport information office, as appropriate.

4.3.2 Law Enforcement and Security

- Maintain presence to coordinate an orderly repopulation and support reinstated passenger screening activity by TSA. Be mindful that frustration levels may be high.
- Control passenger access to the terminal (for example, capacity constrained), as needed.
- Assist the airlines in directing passengers through the terminals.

4.3.3 Airlines and Other Tenants

- Be identifiable to passengers, airport personnel, and other agencies by wearing vests.
- Coordinate with incident command/unified command and airport operations.
- Update specific airline requirements that might affect repopulation.
- Reinstate baggage handling of both domestic and international passengers, as necessary.
- Assist in the handling of the international passengers through CBP, if necessary.
- Prioritize passengers with access and functional needs by providing assistance through wheelchair operating services.

4.3.4 Customs and Border Protection

- Coordinate with incident command/unified command and airport operations to reestablish CBP services and activities as available.
- Determine the order of passengers that need to be processed.
- Passengers not processed or those completing the process are the responsibility of the airlines.
- Coordinate with airline operations to find the best way to handle international bags.

5 Natural Hazard: Hurricane

5.1 Introduction and Purpose

This section provides guidance to the airport operator facing a situation that involves a natural hazard affecting the airport with warning. It defines the responsibilities and describes actions to be taken in the event of a hurricane. The IROPS plan will be used to address stranded passengers. Ideally though, with proper early airline and FAA coordination, there should be no stranded passengers. The airport should maximize the benefit available from advanced planning with the FAA, air traffic control, and the airlines.

This section of the TIRP focuses on hurricanes. Hurricanes are large-scale events that have a broad impact beyond the airport. These incidents could involve other events such as a power outage and structural fire.

A tropical cyclone, or hurricane, is defined as a storm in which the maximum sustained surface wind (using the U.S. 1-min average) is 64 kt (74 mph or 119 km/h) or more. Because hurricane preparedness activities become difficult once winds reach tropical storm force, the hurricane warning is issued 36 hours in advance of the anticipated onset of tropical-storm-force winds (Source: http://www.nhc.noaa.gov/aboutgloss.shtml#h).

The following table lists airport plans relevant to hurricane response:

Title	Revision No.	Date	Section No.	Page No.
Airport Emergency Plan	1	6/26/2011	III.4, IV.4	39–42, 77
Airport Security Program	2	9/27/2013	N/A	
Airport IROPS Plan	3	1/1/2012	N/A	
ACRP Report 65	4	9/12/2013		
Hurricane Preparedness and Recovery Plan	5	3/27/2012	All sections	1–38

5.2 Situation and Assumptions

- The airport is located close to a water source. During hurricane or other natural hazards, this could be a potential source of flooding at the airport. The following table lists buildings that have high risk of flooding:

No.	Location	Flood Level Alert
400	Central plant	High
400	Baggage prep	High
400	TSA checked bags	High
400	Baggage claim	High
400	Airline leased areas (ramp)	High

5.3 Assignments and Responsibilities

5.3.1 Airport Operations

- Coordinate with the National Weather Service (NWS) to get updates about the weather. When the NWS provides notice about an impending hurricane, consider holding a meeting of all stake holders to prepare for the incident.
- Coordinate with the airport communications center.
  - Provide timely updates to all the tenants about search, rescue, and recovery operations, as necessary.
  - Use any alternate communications channel according to AEP guidance.

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- Coordinate with the facilities and maintenance department in the usage of emergency resources.
- Make sure that all free-standing objects are tied down or secured.
- Look for any roof damage or water leaks to buildings at high risk for damage.
- Keep the public updated about the progress of airport operations through terminal announcements and news media, as necessary.

5.3.2 Fire and EMS

- Set up a staging area for airport and mutual aid resources to coordinate life safety actions.
- Mobilize resources by recalling off-duty personnel and mutual aid agencies.
- Coordinate with hospitals and voluntary organizations such as the Red Cross to provide emergency medical services. Set up triage areas or other onsite medical services areas.
- After the incident, set up teams to inspect buildings together with airport operations, law enforcement agencies, and other mutual aid agencies.
- In the event of a flood, coordinate with airport operations and the facility and maintenance department to clean the flood-damaged areas. A list of emergency supplies such as pumps and sandbags is in Annex A.

5.3.3 Law Enforcement and Security

- Assist the fire department in providing life safety and rescue operations.
- Secure the affected facility and control the movement of personnel to and from the damaged areas.

5.4 Checklists: Hurricane

Airport Operations	**Responsible Party**	**Date and Time Completed**
Conduct tenant hurricane briefings	Ops security	
Meet with airlines and coordinate pre-hurricane arrivals and departures	Ops director	
Prepare terminal bldg/ramp and inspect tenant areas	Facility mgr	
Clear all drainage structures/ditches	Facility mgr	
Top off all fuel storage units and vehicles as well as Jet A storage areas	Ops mgr	
Test all generators/tools/equipment	Facility mgr	
Designate ride out crew	Ops director	
Relocate critical airport vehicles to harborage areas	Ops mgr	
Airfield preparation, hurricane supplies, and recovery preparations	Airfield mgr/ops	
Law Enforcement and Security	**Responsible Party**	**Date and Time Completed**
Send out tenant advisories and schedule hurricane briefings	APD dispatch	
Test all communication equipment and satellite phones	APD dispatch	
Coordinate arrival of the critical workforce that will ride out the storm at the airport	Police chief	
Evacuate tenants from trailer park	Airport police dept	
Block access to Airways Avenue after the last departure	Airport police dept	
Assign parking for critical workforce and emergency vehicles	Police chief	
Check in LEO ride out members and designate ride out area	Airport police dept	
Brief Southeast Airport Disaster Operations Group (SEADOG) coordination airport	APD dispatch	

Fire and Emergency Medical Services	Responsible Party	Date and Time Completed
Prepare aircraft rescue and firefighting (ARFF) facility for Category 1 or 2 hurricane	165th Airlift Wing	
Evacuate ARFF facility for Category 3 or higher	165th Airlift Wing	
Resume first responder responsibilities when it is safe to do so	165th Airlift Wing	

6 Natural Hazard: Tornado

6.1 Introduction and Purpose

This section provides guidance to the airport operator facing a situation that involves a natural hazard affecting the airport with limited warning. It defines the responsibilities and describes actions to be taken in the event of a tornado at the terminal.

This section of the TIRP focuses on tornadoes. Tornadoes are a large-scale event and will have a broad impact beyond the airport. A tornado could trigger other events such as a power outage or structural fire. The airport is provided with very limited warning.

The Online Tornado FAQ (http://www.spc.noaa.gov/faq/tornado/) defines a tornado as a violently rotating column of air, pendant from a cumuliform cloud or underneath a cumuliform cloud, and often (but not always) visible as a funnel cloud. (Source: http://www.spc.noaa.gov/faq/tornado/)

The following table lists other airport plans that are relevant to the incident response:

Title	Revision No.	Date	Section No.	Page No.
Airport Emergency Plan	1	6/26/2011	III.4	39–42
Airport Security Program	2	9/27/2013	N/A	
Airport IROPS Plan	3	1/1/2012	N/A	
ACRP Report 65	4	9/12/2013		

6.2 Operations

6.2.1 Recommendations During Tornado

- Upon hearing the signal for a tornado warning or seeing a tornado, move immediately to the nearest and most optimal shelter (i.e., a clearly identified tornado shelter), dedicated shelter area, or a location with sturdy or reinforced walls, preferably in the interior and underground (or lowest level) of a building.
- When in the shelter, stay in a safety position (beside a strong wall, bent over with head protected by arms).
- Stay in the shelter until there is definite visual confirmation that the tornado has passed or authorized personnel have announced that it is safe to leave the shelter.
- If outdoors and there are no sturdy structures nearby, lie face down in a low place in the landscape and protect head with arms.
  - Move away from temporary and detached structures, windows, glass panels, and overhead glass.
  - Stay away from tall structures that can topple such as electricity or light poles and trees.
  - Stay away from wires.
  - Abandon vehicles to seek shelter or cover. During a tornado, it is generally safer to be outside of a vehicle than inside of one.

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6.3 Assignments and Responsibilities

6.3.1 Airport Operations

- Coordinate with the NWS to get updates about the tornado every 30 minutes or as needed.
- Coordinate with the airport communications center.
  - Provide timely updates to all the tenants about search, rescue, and recovery operations, as necessary.
  - Use any alternate communications channel according to AEP guidance.
- Coordinate with the city to mobilize as many resources as possible.
- Coordinate with the facilities and maintenance department in the usage of emergency resources such as power generators.
- Keep the airport populace updated about the progress of the airport operations through terminal announcements and news media, as necessary.

6.3.2 Fire and EMS

- Refer to the AEP for responsibilities.

6.3.3 Law Enforcement and Security

- Assist the fire department in providing life safety and rescue operations.
- Secure the affected facility and control the movement of personnel to and from the damaged areas. If needed, secure the area for structural investigations.

6.4 Checklists: Tornado

Airport Operations	**Responsible Party**	**Date and Time Completed**
Monitor severe weather and weather phenomena in the vicinity of the airport	Ops mgr	
Communicate with APD dispatch on tornado warnings	Ops mgr	
Assist and direct in evacuation of passengers and tenants to harborage areas or internal stairwells	Ops mgr	
Assist the airport police department and recheck areas for passengers and tenants not evacuated	Ops mgr	
Remain in harborage areas until the tornado warnings have cleared	Ops mgr	
Notify APD dispatch if there are any injuries	Ops mgr	
Assist and direct passengers and tenants back into the main terminal	Ops mgr	
Assist facility maintenance with damage assessment	Ops mgr	
Conduct property and airfield inspections	Ops mgr	
Law Enforcement and Security	**Responsible Party**	**Date and Time Completed**
Monitor hurricane sirens and NWS bulletins	APD dispatch	
Make a terminal announcement for evacuation instructing passengers and tenants to follow evacuation instructions	APD dispatch	
Assist and direct in evacuation of passengers and tenants into harborage areas and internal stairwells	Airport police dept	
Recheck terminal areas to ensure passengers and tenants have been evacuated	Airport police dept	
Remain in harborage areas until tornado warnings have cleared	Airport police dept	
Assist passengers and tenants until first responders can access the airport	Airport police dept	

Law Enforcement and Security	Responsible Party	Date and Time Completed
Assist and direct passengers and tenants back into the terminal	Airport police dept	
Conduct inspections of traffic lights, communications, and roadways leading to the terminal	Airport police dept	
Ensure that the sterile area is swept and coordinate rescreening with TSA	APD/security dept	
Fire and Emergency Medical Services	**Responsible Party**	**Date and Time Completed**
Monitor severe weather and weather phenomena in the vicinity of the airport	165th Airlift Wing	
Communicate with APD dispatch on tornado warnings and coordinate	165th Airlift Wing	
Respond to medical emergencies when safe to do so	165th Airlift Wing	

7 Structural Fire

7.1 Introduction and Purpose

Structural fires may occur in or at any airport properties, structures, facilities, buildings, or infrastructure support systems. This plan addresses only terminal areas where passengers may be present.

The following table lists other airport plans that are relevant to a structural fire response:

Title	Revision No.	Date	Section No.	Page No.
Airport Emergency Plan	1	6/26/2011	111.3, IV.III	36–38, 76
Airport Security Program	2	9/27/2013	NA	

7.2 Situation and Assumptions

- Airport operations has conducted a risk analysis for fire hazard in all areas of the terminal and identified high-risk areas such as kitchens and computer server stations. Those areas are listed in the following table:

No.	Location	Reason	Presence of Hazardous Material	Protected By
400	Central Plant	Diesel storage south terminal	Combustible	Underground tank
400	Central Plant	Electrical	Potential fire source	Wet fire system
400	Delta Maintenance	Oxygen acetylene tanks	Combustible	Dry fire system

- The airport currently has no onsite structural firefighting capability. The airport has mutual aid partnerships as specified in the AEP.
- The following is a list of fire protection systems currently in place in the terminal:

No.	Fire Protection/ Suppression Systems	Facilities Affected	Contact or Other Pertinent Information, If Any
400	Wet suppression system	Terminal interior	Facility mgr
400	Dry suppression system	Terminal exterior	Facility mgr
400	5,000-gal diesel fuel trucks	Terminal exterior	Delta Global Services

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- In the event of a fire in a terminal area, the following personnel will notify APD communication via a red emergency phone[4] and are responsible for immediate evacuation of the affected area:

Terminal Area	Department/Tenant	Title	Contact
Main	Operations/Airport Public Safety Dept	On call/ops mgr/chief of police	Police chief
Parking facility	Operations/Airport Public Safety Dept	On call/ops mgr/chief of police	Police chief

7.3 Operations

- Refer to the evacuation plan.

7.4 Other Assignments and Responsibilities

7.4.1 Airport Operations

- Implement actions to protect employees and passengers.
- Follow evacuation procedures (assisting the airport or mutual aid fire department).
- Secure the affected area (coordinating with the airport police or the mutual aid police departments).
- Work with the TSA if the affected area is inside the secure area of the terminal. Follow the AEP or airport security plan guidelines to maintain security in the terminal.
- Prepare to use alternate facilities if the terminal can remain open and operate under reduced capacity.
- Coordinate with emergency medical personnel in providing medical assistance. A list of medical facilities and information on them is provided in Annex A.

7.4.2 Law Enforcement and Security

- Assist the incident commander.
  - Provide crowd control and traffic control throughout the facility, including media staging areas, as needed.
  - Secure the facilities for forensics investigations, if necessary.

7.4.3 Air Traffic Control

- If the incident commander declares the incident to be a major incident that affects aircraft, appropriate actions need to be taken, as illustrated in the AEP.
- If the incident commander declares the incident to be a minor incident, air traffic control is notified of the incident, and no further action may be necessary.
- If the fire involves air traffic control facilities within the terminal, facilities need to be inspected for damage and operability.
  - Follow the air traffic control protocols for structural fire incidents, as necessary.

7.4.4 Facilities and Maintenance

- Coordinate with utility companies in managing critical services to the facilities.
- Conduct safety inspections of the affected buildings if trained and as necessary. If there is a need, contact the following agencies for certified building inspectors.

No	Name	Contact
400	165th Airlift Wing fire dept	Fire chief
400	B&J Fire Protection	Facility manager
400	Savannah Airport Commission	Facility manager

[4] Another customization.

7.5 Checklists: Structural Fire

Airport Operations	Responsible Party	Date and Time Completed
Assist the airport police department with evacuation of passengers and tenants from terminal	Ops mgr	
Ensure airlines reposition aircraft and fuel trucks well away from the structural fire	Ops mgr	
Verify with APD that the terminal is rechecked for any remaining passengers and that tenants are evacuated	Ops mgr	
Do not authorize reentry until approved by the airport fire department	Ops mgr	
Assist tenants and passengers as the airport transitions to normal ops	Ops mgr	
Law Enforcement and Security	**Responsible Party**	**Date and Time Completed**
Provide instructions over the PA system advising passengers and tenants of evacuation routes	APD dispatch	
Evacuate the terminal in the area of the structural fire	Airport police dept	
Recheck of the terminal to ensure all passengers and tenants have been evacuated	Airport police dept	
Fire and Emergency Medical Services	**Responsible Party**	**Date and Time Completed**
Respond to the area of structural fire and extinguish it	165th Airlift Wing	
Assess feasibility related to reentry of the building	165th Airlift Wing	
Coordinate with the director of ops on reentry to the facility	165th Airlift Wing	
Sweep sterile and secured areas prior to reentry	165th Airlift Wing	
Reentry upon approval of 165th Airlift Wing fire chief or deputy fire chief	165th Airlift Wing	
Facilities and Maintenance	**Responsible Party**	**Date and Time Completed**
Cordon off the area related to fire damage	Facility maintenance	
Assess systems affected by fire	Facility mgr	
Conduct inspection of fire suppression system	B&J Fire Protection	
Arrange all necessary repairs and board up area affected by the fire	Facility mgr	
Coordinate with engineering for a full-scale structural inspection	Facility mgr	

8 Electrical Outage

8.1 Introduction and Purpose

This section provides guidance to the airport operator facing a situation that involves the failure of power to parts of the terminal or the whole terminal. Airfield lighting criteria are contained in the FAA Advisory Circular 150-5345, and the responses to the power failure on the airfield are detailed in the AEP.

The following table lists airport plans that are relevant to the incident response:

Title	Revision No.	Date	Section No.	Page No.
Airport Emergency Plan	1	6/26/2011	III.7, IV.8	51–52, 82
Airport Security Program	2	9/27/2013	N/A	
Airport IROPS Plan	3	1/1/2012		

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8.2 Situation and Assumptions

- The primary power supplier to the terminal is Georgia Power.

Primary Power Supplier:	Georgia Power
Contact:	Customer service
Phone Number	(XXX) XXX-XXXX

- The following table lists all backup generators that are available for use in case of emergencies.

Specification	Location	Terminal Areas Served	Refueling Schedule/ Run Time	Special Features (if any)
1994 CAT	Main terminal	Terminal	Daily/50 hours	600 kW
2000 Olympian	Parking deck	Parking deck	Daily/30 hours	60 kW
2006 Cummins	Ops facility	Ops bldg	Daily/40 hours	350 kW
1997 CAT	Airfield vault	Lighting vault	Daily/30 hours	250 kW

- The following table lists all uninterrupted power supply (UPS) systems that run in the event of a power outage.

Specification	Location	Terminal Areas Served	Backup Life	Special Features (if any)
Ultra 1000 AP (4)	Level 2 (Savannah Square near Starbucks)	APD comm room	6 hours	Emergency circuit
Cyber Power (AVR) 1500 (6)	Server room (3rd Floor)	Head end equipment	8 hours	Emergency circuit
Symmetra (LX) (2)	Camera system	Cameras	6 hours	Emergency circuit
Ultra 1000 AP (4)	Admin server room	Airport systems	8 hours	Emergency circuit
APC 500 (4)	Machine room (parking)	Parking facility	6 hours	Emergency circuit
APC 2200 (3)	Electrical room	Central plant	8 hours	Emergency circuit
APC Matrix 5000	Electrical room	Concourse	6 hours	Emergency circuit

- The following table lists the priority of the systems to run on emergency power.

System	Power Generator	Terminal Areas Served	Priority Number
Airfield vault	1997 CAT	Airfield lighting vault	
Building 400/terminal and security systems as well as emergency lighting	1994 CAT	Terminal	
Parking deck	Olympian 60 kW	Parking facility	
Operations bldg	2006 Cummins	Ops facility	

8.3 Assignments and Responsibilities

8.3.1 Airport Operations

- Coordinate with the facilities and maintenance department to resolve the power outage.
- Check if there is any power loss to the aircraft movement area. Restoring power to the aircraft movement area takes priority over the terminal.
- Coordinate with the communications department for notifications to all tenants (affected and not affected), as necessary.

- If foul play is suspected, notify law enforcement personnel immediately.
- Coordinate with the affected tenants and assist with alternate facility usage, if possible.
- Once power is restored, coordinate with the facilities department to inspect affected areas for compliance, and reopen affected areas.
- If the power outage extends for a longer period than expected, prepare to use emergency SIP or evacuation response.

8.3.2 Law Enforcement and Security

- Assist airport operations in maintaining security in the secure areas of the terminal, if necessary.
- If the incident is declared an emergency, follow procedures to maintain security within the terminal. If needed, coordinate with the mutual aid police for additional resources.
- Secure the affected facilities for forensics investigations, if necessary.

8.3.3 Airport Facilities and Maintenance

- Coordinate with power utilities to restore the power supply to the affected areas of terminal, if needed.
- Conduct safety inspections of the affected terminal areas for compliance.
- Monitor fuel consumption of the emergency generators and replenish, as necessary.

8.3.4 Air Traffic Control

- If the incident commander declares the incident to be a major incident that affects aircraft, appropriate actions need to be taken as detailed in the AEP.
- If the incident commander declares that incident to be a minor incident, air traffic control is notified of the incident and no further action may be necessary.
- If the power outage involves air traffic control facilities within the terminal, such outage takes priority over the terminal outage. Follow air traffic control protocols for alternate facility usage until the power is restored.

8.4 Checklists: Electrical Outage

Airport Operations	**Responsible Party**	**Date and Time Completed**
Assess airfield lights and communicate with air traffic control tower.	Airfield mgr	
Advise airlines and tenants of the scope of power failure and status and issue notices to airmen (NOTAMS)	Ops mgr	
Send out operational advisories relative to the scope of the power failure	Ops mgr	
Ensure fuel farm generator is operational	Ops mgr	
Assist airport police dept with traffic if necessary	Ops mgr	
Law Enforcement and Security	**Responsible Party**	**Date and Time Completed**
Check all secured-area access points to ensure that the access control portals to the secured area are locked	Airport police dept	
Identify nonfunctional cameras and establish redundancy with other cameras for critical areas	Security dept	
Provide traffic direction at major intersections of the airport	Airport police dept	
Airport Facilities and Maintenance	**Responsible Party**	**Date and Time Completed**
Assess systems related to power failure and ensure Georgia Power understands the criticality of the power failure	Facility mgr	
Call in all facility maintenance electrical leads	Facility mgr	
Ensure UPSs are functional and operational	Electrical lead	

Airport Facilities and Maintenance	Responsible Party	Date and Time Completed
Deliver stop signs to all major intersections where traffic lights are out	Grounds	
Fire and Emergency Medical Services	**Responsible Party**	**Date and Time Completed**
First responder to any injuries due to the power failure	165th Airlift Wing	

9 Bomb Threat

9.1 Introduction and Purpose

A bomb threat is legally defined as "the communication through the use of mail, telephone, telegram, or other instrument of commerce; the willful making of any threat; or the malicious conveyance of false information knowing the same to be false which concerns an attempt being made or to be made to kill, injure, intimidate any individual; or unlawfully to damage or destroy any building, vehicle, or other real or personal property by means of an explosive" (Source: Louisiana Department of Public Safety and Corrections, http://www.lsp.org/bomb.html).

The intention of this section is to provide guidance to the airport operator for a situation that involves a bomb threat to the airport terminal.

The following table lists airport plans that are relevant to a bomb threat response:

Title	Revision No.	Date	Section No	Page No.
Airport Emergency Plan	1	6/26/2011	III.2, IV.II	32–35, 69–74

9.2 Situation and Assumptions

- All bomb threats are treated as credible until the airport police or the responsible law enforcement agency rules otherwise. All threats will be thoroughly investigated.
- Not all bomb threat situations will be declared an emergency. Only the incident commander has the authority to elevate the incident. If a suspicious device is found, the first responders should be aware of the potential presence of secondary devices and act accordingly.
- If the situation calls for partial or full evacuation, then the appropriate evacuation plan should be followed.
- The immediate area is evacuated if the threat is to a specific location.
- Law enforcement officers have total authority to determine the extent of the appropriate evacuation area.
- The size of the facility will play a major role in the decision to do a partial or full evacuation.

9.3 Assignments and Responsibilities

9.3.1 Airport Operations

- Coordinate with the incident command/unified command for notifications to all affected tenants, as necessary.
- If the affected area involves a tenant, involve the emergency contact person of the tenant or his or her designee in all stages of response. A list of emergency contact personnel for all tenants is included in Annex A.
- Support protective actions required to protect employees and passengers.
  - Support and follow evacuation procedures (assisting the airport or mutual aid fire department).

  - Secure the affected area (coordinating with the airport police or the mutual aid police departments).
  - Work with the TSA if the affected area is inside the sterile[5] area of the terminal. Follow the airport security plan guidelines to maintain security in the terminal.
- Prepare to use alternate facilities if the terminal can remain open and operate under reduced capacity.

9.3.2 Law Enforcement and Security

- Determine whether the bomb threat is general or specific in nature.
- Assess the threat and determine appropriate response level.
- Secure the affected facility and control the movement of personnel to and from the search area. If needed, secure the area for forensic investigations.
- The airport has resources in the Chatham County Sheriffs Dept K9 unit as well as the Savannah Chatham Metro Police Dept Explosive Ordnance Disposal (EOD) units. Please refer to the AEP for further information.[6]

9.4 Checklists: Bomb Threat

Airport Operations	**Responsible Party**	**Date and Time Completed**
Assist the airport police dept in the evacuation of the terminal	Ops mgr	
Recheck the terminal to ensure all passengers and tenants have evacuated	Ops mgr	
Reentry into the terminal will be cleared by the airport police department.	Airport police dept	
Once reentry is authorized, assist passengers and tenants into the terminal	Ops mgr	
Assist airlines and tenants in resumption of normal operations	Ops mgr	
Law Enforcement and Security	**Responsible Party**	**Date and Time Completed**
Evacuate concourse through alfa doors with PA announcement	APD dispatch	
Evacuate public areas by PA announcement landside at a point determined by the airport police department	APD dispatch	
Consider a secondary potential device during evacuation	Police chief/captains	
Notify Savannah Chatham Metro PD, Explosive Ordinance Division	APD dispatch	
Notify TSA explosive specialist for assistance	APD dispatch	
Contact FBI and TSA coordination center	APD dispatch	
Give the order to reenter after cleared by the Savannah Chatham Metro EOD	Police chief/captains	
Ensure escort is in place while passengers and tenants are in the secured area of the airport	Security dept	
Fire and Emergency Medical Services	**Responsible Party**	**Date and Time Completed**
Respond a safe distance away from terminal and stand by until the bomb threat has been mitigated	165th Airlift Wing	

[5] Customization.
[6] Customization.

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10 Security Breach

10.1 Introduction and Purpose

A security breach is a deliberate or unintentional action resulting in an unauthorized access to a sterile or secure area of the terminal.

This section provides guidance to the airport operator facing a situation that involves a security breach to parts of the terminal or the whole terminal. The plan is intended as a supplement to what is listed below:

Title	Revision No.	Date	Section No.	Page No.
Airport Emergency Plan	1	6/26/2011	III.2, XV, XVI, XVII, XVIII	97–103
Airport Security Program	2	9/27/2013	N/A	

10.2 Situation and Assumptions

- The severity of a security breach can be classified as low, medium, and high. Not all breaches need a full-blown emergency response. Below is a typical list of incidents and their general classifications.

Incident	Level of Severity
Sterile area breach	High
Clearing of the sterile area	High
Breach from sterile area or public area into secured area	High
Suspicious bag or package vacated in the terminal or commercial ramp	High

- Refer to the AEP section on terrorist incidents involving aircraft when the situation escalates to high and could directly or indirectly involve an aircraft.
- Regardless of the severity, all security breaches need to be investigated and documented for study purposes. Upon preliminary investigation, the breach's severity can be adjusted so that a complete emergency response may become appropriate.

10.3 Assignments and Responsibilities

10.3.1 Airport Operations

- Coordinate with the incident commander and TSA in all stages of incident management.
  - Follow evacuation procedures (assisting the fire department and law enforcement officers).
  - Secure the affected area (coordinating with the airport police or the mutual aid police departments).
  - Work with the TSA if the affected area is inside the sterile areas[7] or secure area of the terminal. Follow the AEP or airport security plan guidelines to maintain security in the terminal.
- Coordinate with the communications department for notifications to all tenants (affected and not affected), as necessary.
- If the affected area involves a tenant, involve the emergency contact personnel of the tenant or his designee, in all stages of response. A list of emergency contact personnel for all tenants is included in Annex A.
- Prepare to use alternate facilities if the terminal can remain open and operate under reduced capacity.
- Coordinate with the public information office to interface with media, if necessary.

[7] Customization.

10.3.2 Law Enforcement and Security

- Use an initial team to investigate the type of the security breach and assess the severity of breach.
- Secure the affected facility and control the movement of personnel to and from the breached area. If needed, secure the area for forensic investigations.
- Coordinate with the TSA and follow the protocols to set up incident command/unified command, as necessary.

10.4 Checklists: Security Breach

Airport Operations	**Responsible Party**	**Date and Time Completed**
Assist airport police dept in identifying the individual leaving the object	Security ops	
Coordinate with the security department/APD dispatch for a CCTV image of the individual	Ops mgr	
Assist the airport police department to evacuate an area in the event the object/bag is deemed to be suspicious	Ops mgr	
Assist airlines and tenants with return to normal ops	Ops mgr	
Law Enforcement and Security	**Responsible Party**	**Date and Time Completed**
Activate breach alarm for a sterile area exit lane breach	TSA	
Responding officer meets with TSA screening supervisor/manager for briefing and description of individual	Airport police dept	
APD dispatch obtains description and locates individual on tracking cameras	APD dispatch	
Airport police dept ensures jet bridge doors are secured and boardings ceased	Airport police dept	
Decision between TSA and ASC to dump (secure) the concourse if there is no resolution	FSD/ASC	
APD dispatch makes an announcement that all passengers/tenants are to exit the concourse	APD dispatch	
Airport police dept conducts sweep of the concourse	Airport police dept	
Decision between TSA and ASC to repopulate the sterile area when breach is resolved	FSD/ASC	
Fire and Emergency Medical Services	**Responsible Party**	**Date and Time Completed**
N/A	N/A	

11 Active Shooter Incident

11.1 Introduction and Purpose

An active shooter is an armed person who has used deadly physical force on other persons and continues to do so while having unrestricted access to additional victims (Source: John Marshall Law School, Active Shooter Information, http://www.jmls.edu/security/active-shooter.php). The proliferation of active shooter incidents across the United States in recent years has resulted in hundreds of deaths and injuries to innocent people. The rise in these tragic events has led to the development and adoption of new police tactics to confront and stop active shooters immediately.

Like many other public facilities, airports provide a target-rich environment for active shooters who are determined to inflict death and injury on innocent people. As with any other emergency response plan, all employees and tenants should be aware of their roles and responsibilities under the plan. It is important to understand that this chapter provides general guidance and is in no way meant to guarantee safety since each situation is different and all are very dynamic in nature.

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The following table lists airport items that are relevant to an active shooter response:

Title	Revision No.	Date	Section No.	Page No.
Airport Emergency Plan	1	6/26/2011	N/A	
Airport Security Program	2	9/27/2013	N/A	

All airport and tenant employees should be trained as follows:

The first person to become aware of an active gunman in his or her area should contact the airport police department[8] immediately. If there is a panic alarm in the office, activate it. Any descriptive information provided will be extremely helpful for the responding officers, such as physical description, type and number of weapon(s), location, direction of travel, and any other specific descriptive information.

When employees become aware of an active shooter, they should take one of the following actions:

- Exit or escape using the most expeditious route and conduct a mass notification as soon as possible.
- Hide and secure any doors between them and the shooter.
- Take action against the active shooter as a last resort and only when their lives are in imminent danger. Attempt to disrupt or incapacitate the active shooter.

When law enforcement arrives, follow their instructions explicitly. Every employee should ensure that law enforcement can clearly see both of their hands.

11.2 Situation and Assumptions

- An active shooter incident requires an immediate response and intervention to stop the incident.
- The airport police have trained with their mutual aid police department for such scenarios.
- An active shooter policy should be part of the police department's general directives or standard operating procedures manual.
- The public information office is prepared to interact with the media during such situations.
- Employees are trained and are aware of responses to active shooter incidents.
- The active shooter incident is characterized by ongoing threat to public life. It may evolve into other emergency situations such as hijacking.
- It is assumed that the employees and public will self-evacuate through the nearest access points.
- Holding areas for the purpose of detaining witnesses for debriefing are determined by the incident commander. Some of the possible locations for holding areas are provided below.

No.	Location	Terminal Area Served
400	3rd-floor board conference room	Public area
400	International hold room	Concourse

For quick reference, the holding areas are also marked on the terminal maps provided in Annex A.

11.3 Operations

- The priority of the initial responding officers is to eliminate or minimize the threat. Responding officers will not assist in the evacuation of the facility or treatment of the injured.

[8] Customization.

11.4 Assignments and Responsibilities

11.4.1 Airport Operations

- Coordinate with the communications department to initiate the prescribed response to control the scene and rescue occupants.
- Follow the guidelines in the airport communications plan to disseminate information to the airport populace and public about the incident.
- Coordinate with law enforcement to set up or clear holding areas for interviewing, counseling, and so forth.
- Coordinate with the airlines in implementing their emergency plan, if possible.
- Continue to record/monitor all communications and information channels for information about the suspect.

11.4.2 Fire and EMS

- Coordinate with the incident command/unified command to set up the holding and triage areas.
- Follow the emergency medical plan.
- Coordinate with the hospitals for emergency medical response.
- Assist the medical personnel in setting up triage or holding areas for medical care.
- Provide onsite medical assistance and medical transport, if necessary.

11.4.3 Law Enforcement and Security

- Responding officers should not assist in evacuation until the threat is neutralized. Assist with evacuation and treatment of the injured only after the threat is eliminated.
- The entire affected area will be treated as a crime scene and must be secured for forensics investigations.
- Only after the incident commander declares the investigation to be over should operations return to normal.

11.5 Checklists: Active Shooter

Airport Operations	**Responsible Party**	**Date and Time Completed**
Assist and direct passengers away from gunfire	Ops mgr	
Report location of active shooter and take cover	Ops mgr	
Assist airport police dept in evacuating concourse passengers and tenants to the commercial ramp	Ops mgr	
Assist airport police dept in evacuation of public area to the domicile lot	Ops mgr	
Remain under cover or in the evacuation area until law enforcement provides further instructions	Ops mgr	
Follow instructions of the airport police dept	Ops mgr	
Law Enforcement and Security	**Responsible Party**	**Date and Time Completed**
Airport police dept responds to the area of reported gunfire	Airport police dept	
APD dispatch notifies Savannah Chatham Metro SWAT Team	APD dispatch	
Airport police dept takes positions with long guns in the area of the active shooter	Airport police dept	
Commanding airport police officer briefs SWAT team as they are en route	Police chief/captains	
APD dispatch notifies Pooler and Garden City Police Depts and requests law enforcement back up	APD dispatch	

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Law Enforcement and Security	Responsible Party	Date and Time Completed
Airport police dept establishes crime scene after the threat is removed	Airport police dept	
Airport police dept assists with investigation	Airport police dept	
Airport police dept designates area for debriefing	Airport police dept	
Notify hospitals and medical transport	APD dispatch	
Fire and Emergency Medical Services	**Responsible Party**	**Date and Time Completed**
First responders stand by until it is safe to approach terminal	165th Airlift Wing	
First responders approach terminal after being cleared by the airport police dept	165th Airlift Wing	
Provide EMS to wounded	165th Airlift Wing	

Annex A

A.1 Hospital Information near SAV

The following table lists nearby hospitals, their direct contact information, and the response times from the airport.

Medical Facilities	Response Time	Contact Number
St. Josephs Emergency Center	30 min	(xxx) xxx-xxxx
Memorial Health University Med Cent	30 min	(xxx) xxx-xxxx
Candler Hospital	30 min	(xxx) xxx-xxxx
Medical Transport	**Response Time**	**Contact Number**
Southside Fire Department	15 min	(xxx) xxx-xxxx
Effingham County	30 min	(xxx) xxx-xxxx

A.2 Emergency Equipment List and Locations

The following table lists all available emergency equipment units available and their location

Emergency Equipment	Quantity	Location	Concourse
1989 Kohler 30 KW	1	Bldg 130	N/A
1987 Onan 50 KW	1	Bldg 130	N/A
1997 CAT 250 KW	1	Airfield vault	N/A
1994 CAT 600 KW	1	Bldg 400	Yes
1999 Honda 2,500 W	1	Grounds	Portable
1999 Porter Cable 2,500 W	1	Bldg 130	Portable
1999 Excel 5,000 W	1	Freight bldg	Portable
2000 Cat 57 KW	1	Freight bldg	Portable
2000 Olympian 60 KW	1	Parking deck	N/A
2006 Cummins 350 KW	1	Ops facility	N/A
2006 Cummins 250 KW	1	North parking facility	N/A
2007 Power Pro 5,000 W	1	Ops facility	Portable
fuels for generators			
Diesel (belowground) 500 g	1	Bldg 130	N/A
Diesel 2,500 g	1	Bldg 400	Yes
Diesel above-ground tank (AGT) 2,000 g	1	Ops facility	N/A
Diesel AGT 500 g	1	Ops facility	N/A

A.3 Tenants at SAV: Emergency Contacts

The following table lists emergency contact personnel for all tenants. The tenants are advised to have at least one emergency contact personnel onsite at all times.

List of All Tenants and Their Contacts				
Tenants' Name	**Terminal**	**Concourse/Gate**	**Name or Title**	**Contact No.**
Airlines				
Delta Airlines	Main	Gates 11, 13, 15	Manager	(xxx) xxx-xxxx
US Air	Main	Gate 12, 14	Manager	(xxx) xxx-xxxx
American Airlines	Main	Gate 4	Manager	(xxx) xxx-xxxx
United Airlines	Main	Gates 5,6	Manager	(xxx) xxx-xxxx
Delta Global Services	Main	Below wing	Manager	(xxx) xxx-xxxx
Jetstream Ground Services	Main	Below wing	Manager	(xxx) xxx-xxxx
Jet Blue	Main	Gates 7,9	Manager	(xxx) xxx-xxxx
Concessionaires	**Terminal**	**Concourse/Gate**	**Name or Title**	**Contact No.**
Host International	Main	N/A	Manager	(xxx) xxx-xxxx
Paradies Shops	Main	N/A	Manager	(xxx) xxx-xxxx
Sunglass Warehouse/ Flip-Flop Shop	Main	N/A	Manager	(xxx) xxx-xxxx
Pierra's Salon	Main	N/A	Manager	(xxx) xxx-xxxx
Fly-By Vintage Antiques	Main	N/A	Manager	(xxx) xxx-xxxx
Alamo Nat'l Car Rental	Main	N/A	Manager	(xxx) xxx-xxxx
Avis/Budget Car Rental	Main	N/A	Manager	(xxx) xxx-xxxx
Dollar Rental Car	Main	N/A	Manager	(xxx) xxx-xxxx
Enterprise Car Rental	Main	N/A	Manager	(xxx) xxx-xxxx
Hertz Rental Car	Main	N/A	Manager	(xxx) xxx-xxxx
Thrifty Car Rental	Main	N/A	Manager	(xxx) xxx-xxxx
Kelly Tours	Main	N/A	Manager	(xxx) xxx-xxxx

APPENDIX D

Frequently Asked Questions

Q: What size airport is best suited to use the tool?

A: The tool has been designed to serve any size or type of airport. In beta testing, it worked well for two large hubs, two medium hubs, a small hub, a non-hub primary, and a reliever airport. In general, more customization via editing the Microsoft Word version of the terminal incident response plan produced by the tool will be needed by larger airports.

Q: Does the tool produce a complete and fully functional terminal incident response plan?

A: Yes and no. The tool will generate a NIMS-compliant complete plan for your airport; however, the plan produced should undergo a thorough airport review, training, and tabletop exercises prior to being considered fully functional.

Q: In what format is the basic terminal incident response plan produced by the tool?

A: It is a multi-chapter document in Microsoft Word (2010 or 2007).

Q: How long will it take to create a terminal incident response plan from the tool?

A: Depending on the complexity of the airport and how knowledgeable the staff member(s) preparing the plan are, it should take 30 minutes to 2 hours to use the tool and create the basic plan.

Q: How long will it take to customize the basic plan to create the final, fully developed terminal incident response plan?

A: For smaller airports, the basic plan produced by the tool can serve as is as the final terminal response plan. For larger airports, the customization process—editing the Word document version of the basic plan—should take 1 to 3 hours, depending on the extent of the changes and complexity of the site-specific information that the airport wishes to add.

Q: How long is the process to build a terminal incident response plan?

A: The best estimate for the development of a basic plan using the tool is 0.5 to 2.0 person-hours. The best estimate for the conversion (customization) of the basic plan to a fully developed, final terminal incident response plan is 0 to 3.0 person-hours. Altogether, the process from start to finished final plan is estimated to take 0.5 to 5.0 person-hours.

Q: Is there a need for specialized information technology (IT) folks to use the tool?

A: Probably not, depending on the ability of the airport emergency manager, terminal manager, operations supervisor, or planner to use Microsoft Excel and Microsoft Word.

Q: Can the tool be used by itself when an airport has an emergency for which it does not have a plan or has an outdated plan?

A: The tool was ***not*** designed or intended to be used as a plan or as a substitute for a plan. However, in an emergency when an airport does not have an existing plan, the tool can quickly produce a plan including basic standard operating procedures (SOPs) and checklists. Note, however, that plans should be developed, trained, and exercised before being used in an actual emergency.

Q: Would the tool and resulting terminal incident response plan be legally binding on an airport to the exclusion of other existing emergency preparedness documents or plans?

A: No. The tool would provide structure and guidelines that may stand alone, supplement, or be used in concert with existing plans.

Q: Does the plan produced by the tool contain any security-sensitive information (SSI)?

A: No, not unless the user inserts SSI text in one of the textboxes. If a user wants to be sure, the user should get the federal security director (FSD) and airport security coordinator (ASC) to review the plan. It is good practice to involve both the FSD and ASC as stakeholders in the development of terminal incident response plans.

Q: Isn't repopulation just a matter of reversing the evacuation or shelter in place?

A: No, the sequence of actions and the responsibilities are different. For example, the terminal will have to have a structural, electrical, and mechanical evaluation before repopulation can begin. Furthermore, TSA and airport security will have to inspect and sanitize the secure portions of the terminal before any other employees or passengers can enter.

Q: Do only airport employees have roles and responsibilities in a terminal incident response plan?

A: Not usually. Using the tool's inputs and the capabilities to edit the resulting Word document, the user can specify the roles and create action lists and checklists for any agency, airline, tenant, or mutual aid partner involved in terminal incident response. For this reason, these stakeholders should be involved in customizing and reviewing the plan.

Q: How can the plan be customized to deal with site-specific details?

A: There are three ways to customize the terminal incident plans produced by the tool:

1. By the data entered in the data blanks on data-entry pages of the tool,
2. By entering blocks of custom text in the textboxes while using the tool, and
3. By editing the resulting Word document.

Q: Should the resulting terminal incident plan be incorporated directly into the airport emergency plan (AEP)?

A: This is a choice that can usually be made by the airport. If the plan is incorporated directly into the AEP, any changes to the plan must be approved by the FAA compliance inspector. If the terminal incident response plan is not incorporated directly into the AEP, each pertinent part of it should be referenced within the plan. If in doubt, an airport should consult its FAA compliance inspector. Some airports have found it more practical or effective to have a separate terminal manual or a customer services manual.

Q: If the terminal incident response plan produced by the tool is incorporated into the AEP, will it be fully compliant with FAA Advisory Circular 150/5200-31C?

A: The plan developed by this tool is not required by FAA Advisory Circular 150/5200-31C. The tool was designed on the assumption that the National Incident Management System

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(NIMS) and Incident Command System (ICS) would be used in any response to any incident involving the terminal. The tool generates basic checklists and SOPs, but an airport may wish to edit the Word document to expand on them to fit site specifics. When in doubt about compliance with Advisory Circular 150/5200-31C, an airport should consult with its FAA compliance inspector.

Q: What stakeholders should be involved in using the tool, customizing the Word document, and reviewing the resulting terminal incident response plan?

A: Whether the terminal incident response plan is incorporated into the AEP or made a stand-alone plan, the same type of stakeholders suggested by FAA Advisory Circular 150/5200-31C should be involved. This includes units within the airport (senior management, terminal managers, emergency managers, operations managers, planners, ARFF, law enforcement, maintenance, and engineering). It also includes airlines, concessionaires, tenants, federal agencies, state agencies, and mutual aid partners.

Q: Can the tool be used as a training aid?

A: Yes. The whole package can be given to any stakeholder for training on terminal incident responses.

Q: What is the relationship between a terminal incident response plan and an airport's drill and exercise program?

A: It is recommended that elements of the terminal incident response plan frequently be incorporated into tabletop exercises and even in full-scale functional exercises.

Q: Will the tool run on a Mac computer?

A: No.

Q: Can the tool be used on iPads, smartphones, or tablets?

A: It can be used on tablets and smartphones that have Microsoft Office applications. It cannot be used on iPads or iPhones.

Q: Is there an app available?

A: No, there is not an ACRP Airport Terminal Incident Response Plan application available.

Q: Why aren't there Mac, iPad, iPhone, and apps available?

A: The scope of the project only called for a tool to run on a PC, and the work plan and scope approved by the panel only called for a tool developed on Microsoft Excel.

Q: Will the tool run on Office 2007 and Office 2010?

A: Yes. The user's manual and instructions imbedded in the tool allow the user to cope with differences between Excel 2007 and Excel 2010.

Q: Is the tool's Excel code open source?

A: No. It is locked.

Q: How was the tool tested prior to release?

A: The tool was tested by the research team. Then it was tested by the ACRP project panel. Finally, it was beta tested at seven airports ranging from relievers to large hubs in size. A final test by the panel was completed before the tool was approved for release. After each test, adjustments were made to make the tool more user friendly.

Q: Where did the information and models come from that the research team used to develop the tool?

A: Thirty-six airports provided more than 100 documents, such as airport emergency plans, checklists, and SOPs, and these documents were analyzed using process mapping to determine the most common patterns of effective response. This information was combined with an exhaustive literature review of terminal incidents in the past 10 years.

Q: Is any special training required prior to using the tool?

A: No. The tool is very intuitive, and instructions are imbedded. Any moderately experienced airport emergency manager, operations supervisor, planner, or manager will be able to handle the inputs to the tool and customize the resulting Word document.

Q: Does the tool assume any particular organizational structure at an airport?

A: No. However, it does assume that the NIMS and ICS will be used as the basic organizational system for managing any response.

APPENDIX E

Lessons Learned

1. Terminal incident response plans are better referenced by AEPs rather than incorporated directly into AEPs. Terminal incident response plans can be stand-alone documents or be incorporated into terminal management manuals or customer service manuals. Stand-alone documents will eliminate the need for FAA approval of all changes and edits, as is required for AEP changes.
2. Good terminal incident response plans are important for customer service.
3. Good terminal incident response plans are essential to optimize the business continuity of airports.
4. Terminal incident response plans must allow frequent changes and updates. This is driven by terminal renovations and expansions, new tenants, new concessionaires, changed procedures, and changed federal regulations and guidelines for airport operations and security.
5. The best plans result when a broad range of stakeholders are involved in plan creation, review, and implementation.
6. Mutual aid partners should be involved in the development of terminal incident response plans and in training, drills, and exercises of the plans.
7. Tabletop exercises are an effective way to test terminal incident response plans and their elements. When the terminal incident response plan is significantly changed, the new plan should be trained and tested with a tabletop exercise or a partial full-scale functional exercise.
8. Detailed checklists, even down to the responsibilities and actions of individuals, are important, maybe essential.
9. The NIMS and ICS are the best ways to organize and manage responses to incidents in terminals. Plans, training, drills, and exercises should incorporate the NIMS and ICS.
10. The terminal incident response plan should be reviewed after any activation, drill, or exercise to incorporate improvements suggested by after-action reviews.
11. The terminal incident response plans should be trained annually for all persons having responsibilities under the plan, with extra training when new employees are added.
12. Early notification and continued effective communications are essential to managing terminal incidents. Airport-specific notification and communication procedures should be identified within the terminal incident response plan.

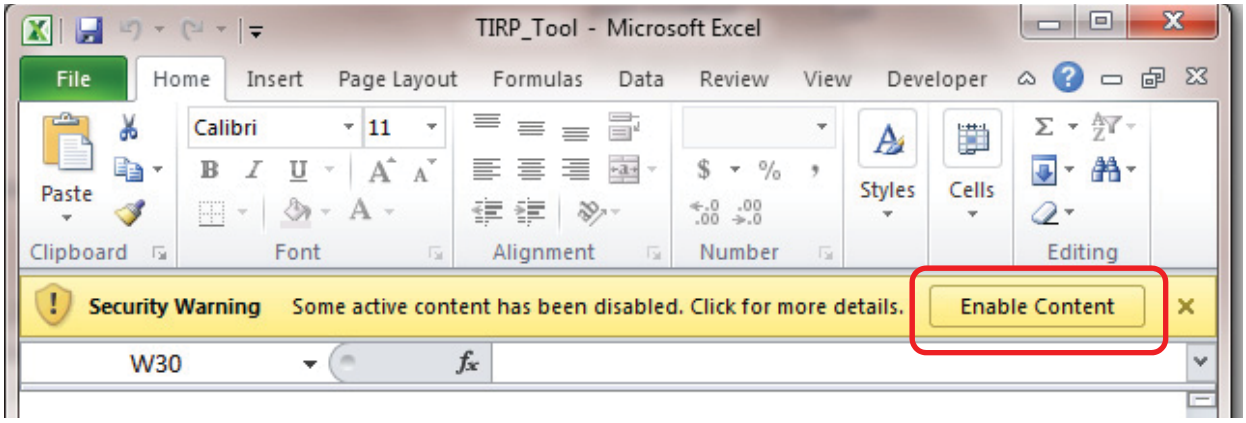
APPENDIX F

User's Guide

Contents

Quick Start Tips for Tool Use

- **Insert the CD-ROM into your computer and save the tool and user guide to your desktop.**
- **It is highly recommended that you save each version of the tool with a unique name for version control!**
- **Enable content/macros—The tool cannot function without it!**



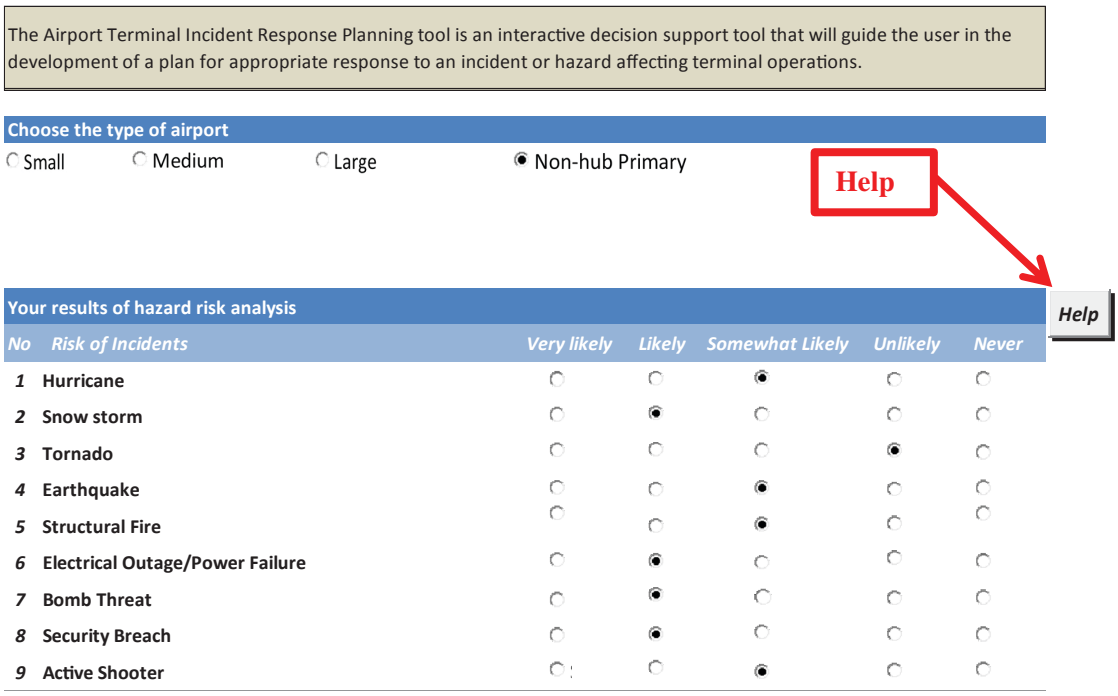
In order to operate this tool, all macros and content from Microsoft Excel **must** be enabled. On the initial opening of the tool, you should be prompted to "Enable Content" or "Enable Macros," depending on your version of Excel. You can also manually enable macros by performing the following steps.

Enable Macro Setting:

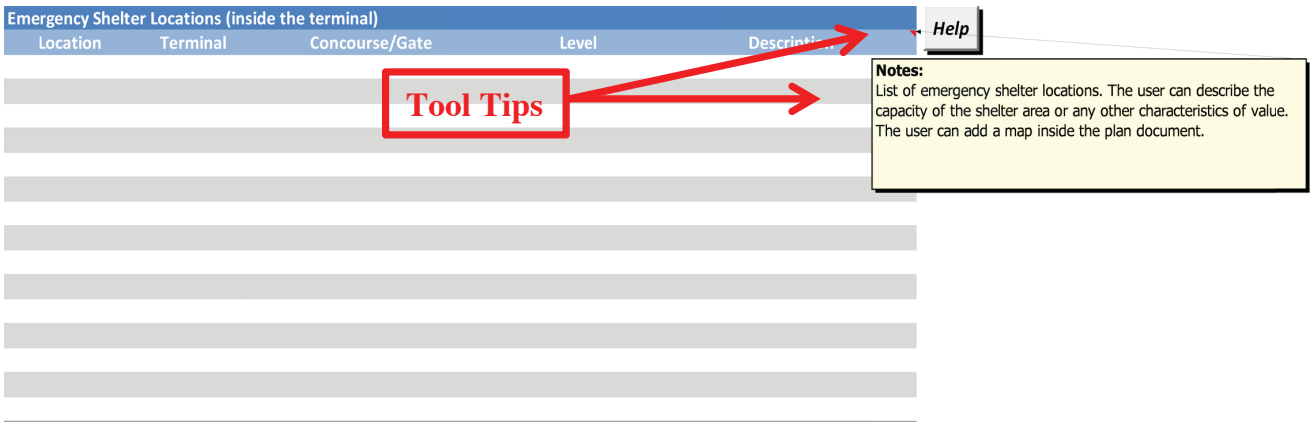
1. In Excel go to "File," then "Options."
2. Click "Trust Center" on the left-hand side.
3. Click "Trust Center Settings" on the right-hand side.
4. Click "Macro Settings" on the left-hand side.
5. Select the "Enable All Macros" choice, then select "OK."

If you do not enable macros, the tool will not remember data entered in previous pages and will not create a plan after you have entered all data.

- **Use the "Help" button when you have a question!**



- **Use the Tool Tips by placing your cursor over the small red triangle symbol!**



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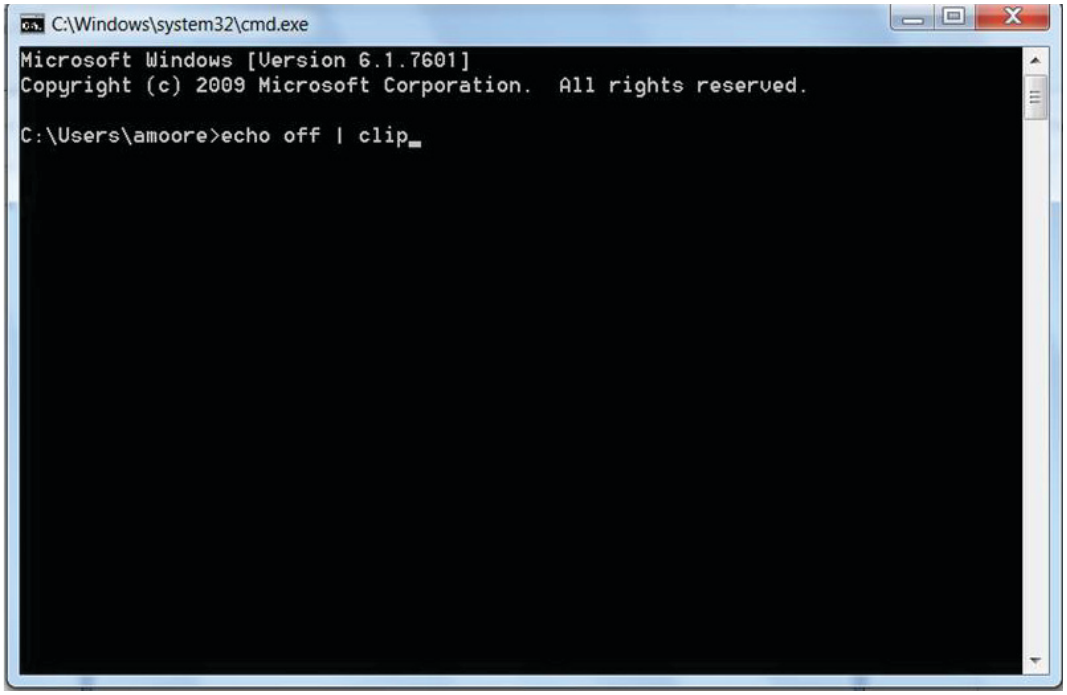
- **Users can add/delete the gray-and-white shaded data-entry rows (lines) in the tables as necessary—but be sure to stay within the boundaries of the table when doing so!**
- **Ensure that you close any open programs for best performance of the tool.**
- **Clipboard errors (Error Code 4605) may result from having a computer with limited RAM; if you get this error during the TIRP generation, clear your clipboard memory manually or restart your computer. (It will auto clear the clipboard at restart.)**
- **How do I clear my clipboard manually? Go to your Windows start button, type in "cmd," at the command prompt type: "echo off | clip," and then hit the "Enter" key; your clipboard will be clear.**
- **Note: In case you are wondering, the symbol "|" is known as the "vertical bar" symbol; you enter it by pressing the "Shift" key and the "backslash" key (above the "Enter" key).**
- **Here is an example at the command prompt (username: amoore).**



Please read the User's Guide and enjoy!

Introduction

Purpose of the TIRP Tool

The Terminal Incident Response Plan (TIRP) tool was designed to support airport personnel in creating effective TIRPs for evacuation, sheltering-in-place (SIP) procedures, and repopulation for a variety of incidents that disrupt normal operations in airport passenger terminals. Users input information unique to their airport and the nature of the incident, and the tool will automatically generate a plan that adheres to specific airport terminal configurations, policies, and standard operating procedures (SOPs).

A TIRP includes separate actionable response plans for nine of the most disruptive types of incidents. These incidents are snowstorms, hurricanes, tornadoes, earthquakes, structural fires, electrical outages, bomb threats, security breaches, and active shooter incidents. For other types

of incidents, users can adapt plans from the most closely related of the nine basic incidents (e.g., plans for an Internet outage can be adapted from plans for an electrical outage). As a Microsoft Word document, the TIRP can be further edited and customized to suit the specific needs of the airport. Designed to save users both time and trouble during disruptive events, the TIRP tool is easy to use and provides realistic, actionable response plans.

The tool *does not* generate a plan that duplicates an airport's other essential plans such as the airport emergency plan (AEP) or the airport security program (ASP). Rather, the tool specifies where within existing plans a TIRP can provide additional guidance for managing passenger terminals during nonroutine incidents ranging from a single medical evacuation to a full-scale natural disaster. TIRPs generated using the tool can be used as AEP sections, as additions to incident-specific annexes in AEPs, or as stand-alone plans referenced in AEPs. They can also be incorporated into airport customer service manuals.

Purpose of This User's Guide

This guide directs airport operators, terminal managers, emergency managers, and planners step-by-step through the process of generating TIRPs using the TIRP tool. It explains how to run the tool, input data, obtain outputs, and customize outputs.

Minimum System Requirement

The TIRP tool can run on a laptop or desktop computer using Microsoft Excel and Microsoft Word, including macros, from Microsoft Office version 2007 or later. At this time, it cannot be run on tablets, smartphones, or other handheld devices since Microsoft Office versions do not provide macro capabilities.

When the user downloads the TIRP tool's Excel file from the Transportation Research Board website, the user must enable macros. Since the tool is a macro-enabled spreadsheet, the user's Excel software will prompt the user to select "Enable this content" and "OK" to enable macros.

What the TIRP Tool Can Do

The TIRP tool is an Excel spreadsheet with macros that receives inputs from the user, links them to appropriate plan text elements, calls for further detailed input as required, and produces a draft TIRP in a Word document that can easily be customized and shared with personnel responding to the incident.

Inputs

Users enter specific data regarding airport characteristics, contacts, and existing plans (e.g., AEPs or airport security plans) by filling in an initial incident checklist along with a series of simple Excel data input forms. The forms use yes-or-no and fill-in-the-blank questions to select or deselect pertinent sections. Input forms allow the airport to insert maps, photos, or other graphics to display features such as evacuation areas, pathways, or the location of emergency equipment. These custom input methods create a TIRP tailored to the specific physical configuration and risk profile of the airport.

Processing Within the Tool

The heart of the TIRP tool is an Excel spreadsheet that uses macros to select critical pathways, select pertinent text elements, and logically organize the elements of the plan into chapters.

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Outputs

The tool's final macro converts the Excel output into a TIRP as a Word document that can be edited and further customized by the user. This document consists of separate chapters for SIP, evacuation, repopulation, and highest-impact incident types included via the initial incident checklist. Each chapter of the plan produced by the tool includes a checklist for all actions required by the plan. Additional chapters may be added to the plan by copying and editing the most related chapter and locally customizing it for other incident types (e.g., baggage system failure or air traffic control delays). Further guidance for selecting similar chapters is provided in the taxonomy of incident types in Table 6 of the main body of the report.

At the user's discretion, the tool can also develop an appendix listing all related contact and coordination information. While this appendix may be useful when responding to incidents, it is not meant to replace contact lists required in the AEP, ASP, or other primary documents.

What the TIRP Tool Cannot Do

- The TIRP tool does not include a logical process for making the initial decision to activate an evacuation or SIP plan. That decision is best made by a designated airport authority with direct understanding of the unique nature of both the airport and the incident. Users activate the TIRP when the decision to evacuate or shelter in place has been made or is obvious to airport or tenant employees in the terminal. The latter case often occurs during incidents with no warning.
- The tool is not designed for direct incorporation into an airport's command, control, and communications system or for incorporation into a web-based coordination system. It is designed as a stand-alone program for generating TIRPs.
- The tool does not generate automatic updates. However, users can easily and quickly update TIRPs due to user-friendly input forms and robust internal processing capability.
- The tool does not generate training plans or drill and exercise scenarios. However, the TIRPs are highly suitable for use as training materials.
- Other important airport plans are referenced in the plan produced by the TIRP, but the TIRP does **not** automatically generate hyperlinks to those external plans and documents. Once an airport has its plan as a Word document, it can edit it to incorporate whatever links it desires to include. An example might be a link to the master contact list, AEP, customer service manual, or other relevant guidance.

Directions for Using the Tool

The following section provides detailed instruction with visual aids to help you develop and generate a personalized TIRP for your airport. Refer to the visuals and text for step-by-step instructions.

1. Download the tool from the Internet or from the CD-ROM into a folder location on your computer or to your desktop.
2. Double click on the Excel file "TIRP Tool" to launch the tool.
3. You will be taken to the title sheet, and at this point you must enable macros for the program to function properly. Begin by clicking the "Enable Content" option button as displayed in Figure 2 for Microsoft Excel 2010 users. For Microsoft Excel 2007 users, follow Step 4 to complete the enabling of macros/content.
4. Users in Microsoft Excel 2007 will need to follow this additional step (Figure 3). Enable macros for Excel in the pop-up window by clicking "Enable this content" and then "OK." The floating title page will pop up next (also known as the Control Form).

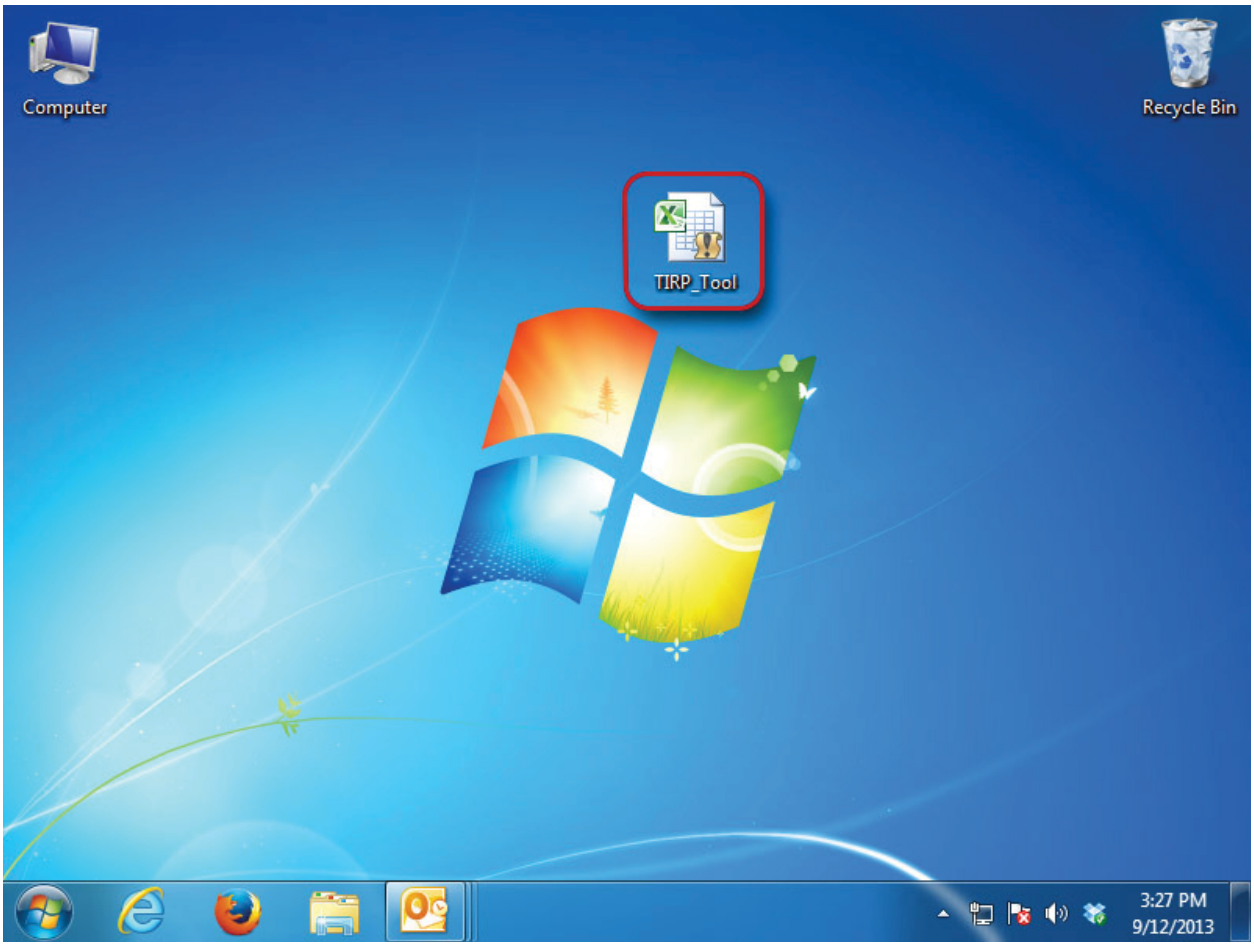

Figure 1. TIRP tool.

5. It is recommended that you click on the "Read Me Before Using" button prior to using the tool. It has several helpful hints to get you started (Figure 4).
6. You can also click on the "System Requirements" button to display minimum computer system requirements for the tool to run properly (Figure 4).
7. When you are ready to develop your terminal plan, click on the button that says "Begin Using Tool" (Figure 4). You will then be taken to the Airport Details worksheet.

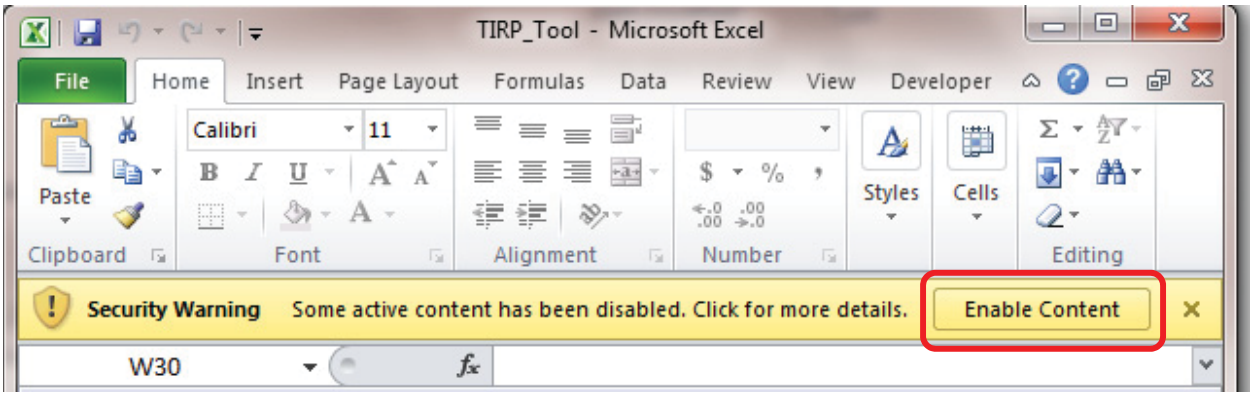

Figure 2. Initial macros screen.

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Figure 3. Enabling macros.

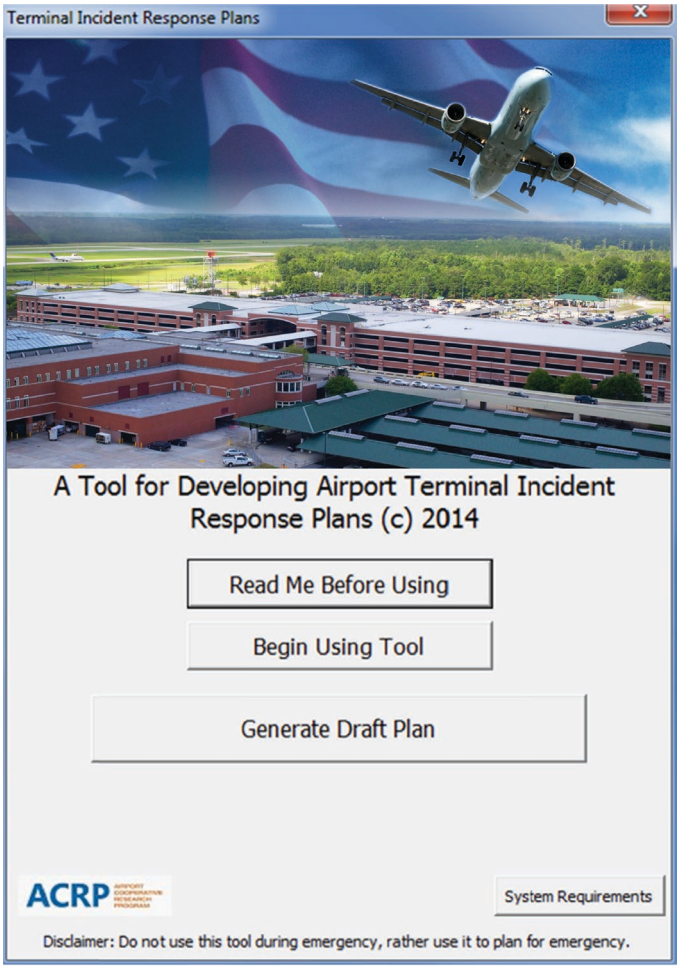

Figure 4. Title page buttons.

8. Click the *X* in the upper right-hand corner of the floating title page to minimize it (Figure 5). You can then move the minimized title page to a location that is out of your way. You can also click either the *X* again or the "Restore Control" button at any time to open the title page back up.
9. On the Airport Details worksheet fill in the gray blanks throughout the page with specific data and answer the yes-or-no question. Note: Figure 6 only shows a small portion of the airport details screen.
10. Once complete, move your mouse to the bottom of the airport details worksheet and click on the "Continue to Plan Profile" button (Figure 7). You will then be taken to the Plan Profile worksheet.
11. In the Plan Profile worksheet, choose your airport type, as shown in Figure 8.
12. Scroll down and select the likelihood of the nine risk incident scenarios occurring at your airport (Figure 9). Any incident for which you click *very likely*, *likely*, or *somewhat likely* will appear as a separate worksheet in the TIRP and as a separate chapter in the TIRP output document. If you wish to include an incident with a lower risk at your airport, you must select at least *somewhat likely* to generate the chapter in the final document.
13. Below the Risk of Incidents section is a list of documents relevant to the TIRP (Figure 10). Populate the blanks in the table with all relevant documents. Note: You can enter as many lines as you need. Any lines or cells left blank will not appear in the final plan. These documents will be carried over to each subsequent form and will be displayed in a light-green non-editable table. You will be able to edit the section number and page number pertaining to the most appropriate section of each document as it applies to each unique hazard worksheet.

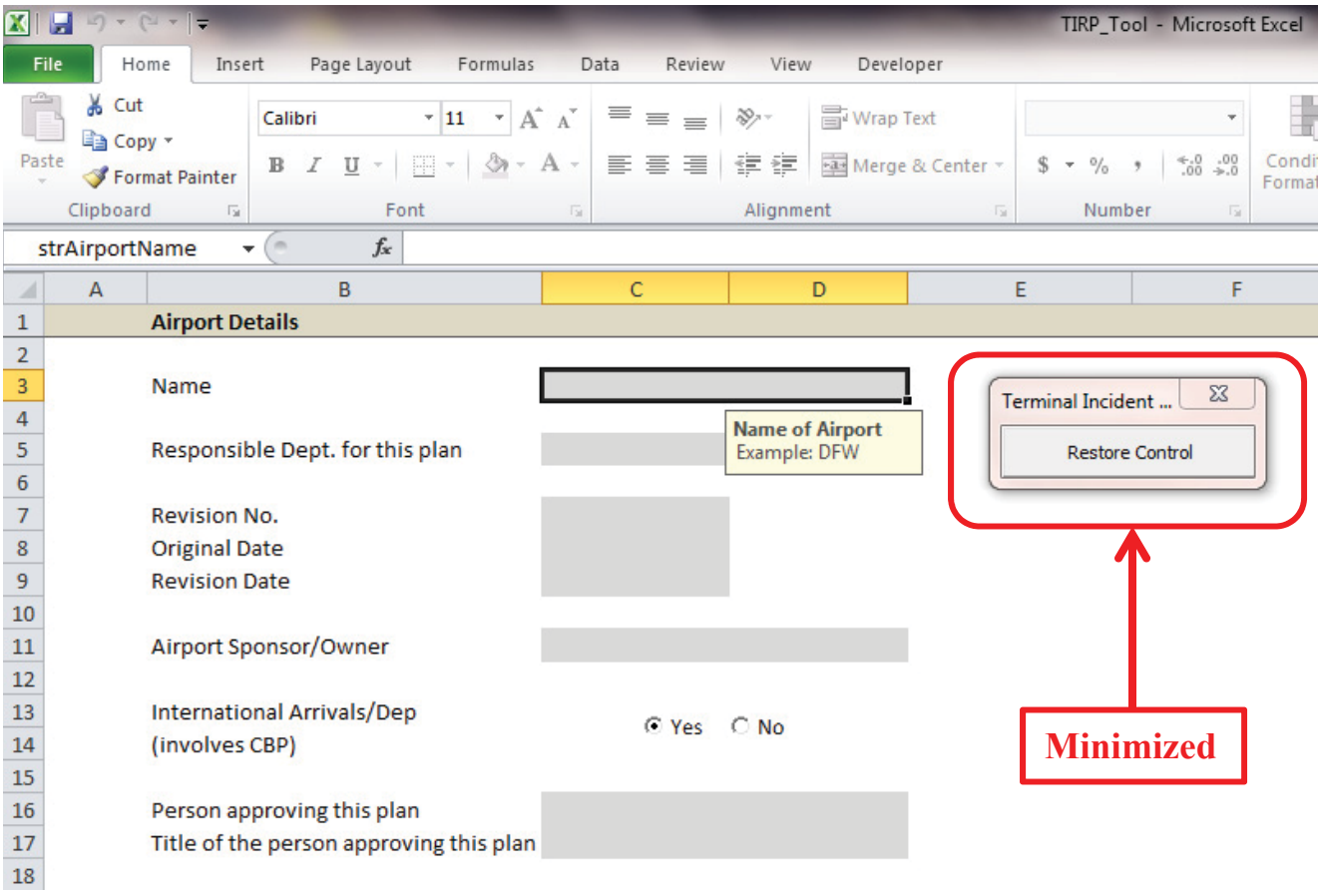

Figure 5. Minimizing the title page.

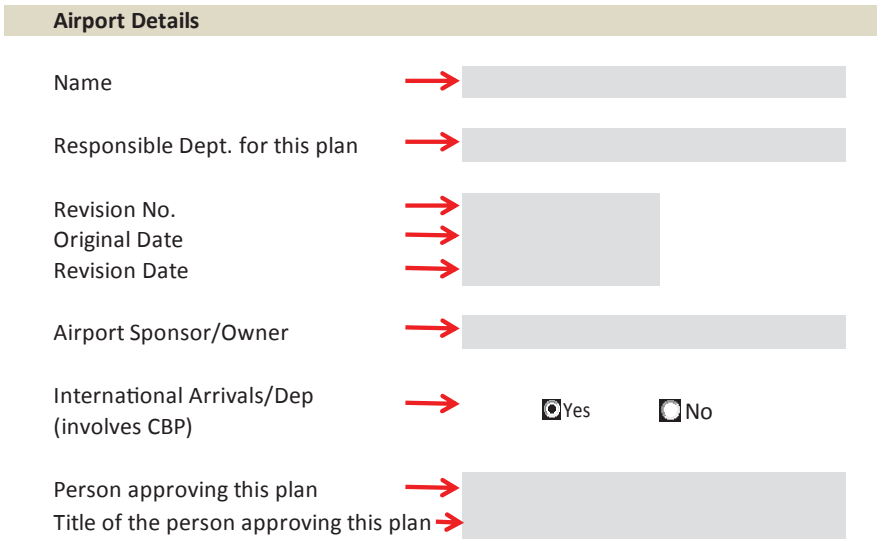

Figure 6. Airport details page.

Figure 7. Continue to plan profile button.

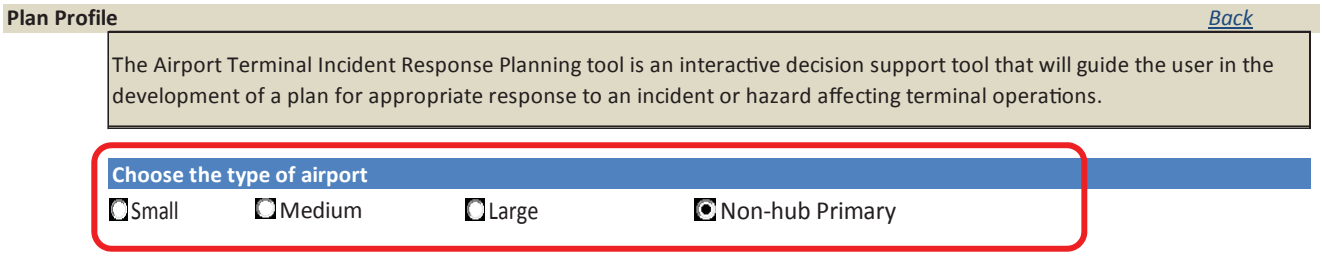

Figure 8. Choose airport type.

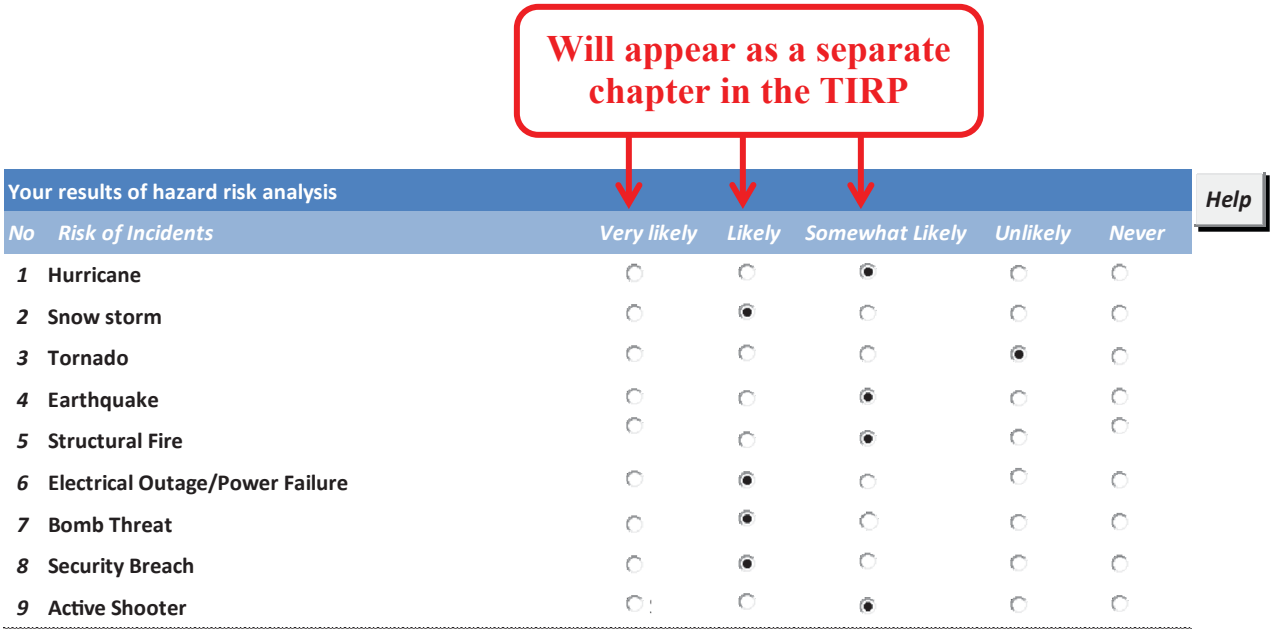

Figure 9. Airport terminal hazard risk analysis.

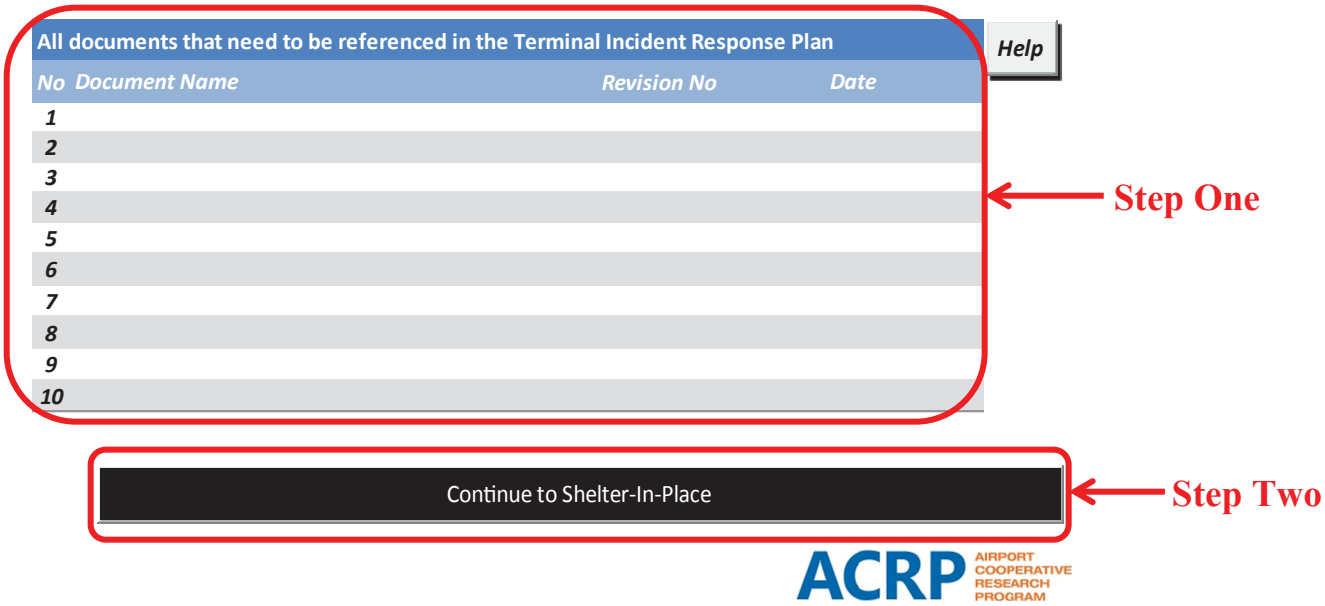

Figure 10. Document list detail.

14. Once complete, click on "Continue to Shelter-In-Place."
15. Fill in the blanks in each table of the Shelter-In-Place worksheet (Figure 11). Note: The light-green tables are auto-populated based on the list of relevant documents you created in the Plan Profile worksheet. The section numbers and page numbers of the auto-populated documents can be listed as indicated in Figure 11 to expedite identification of pertinent information.

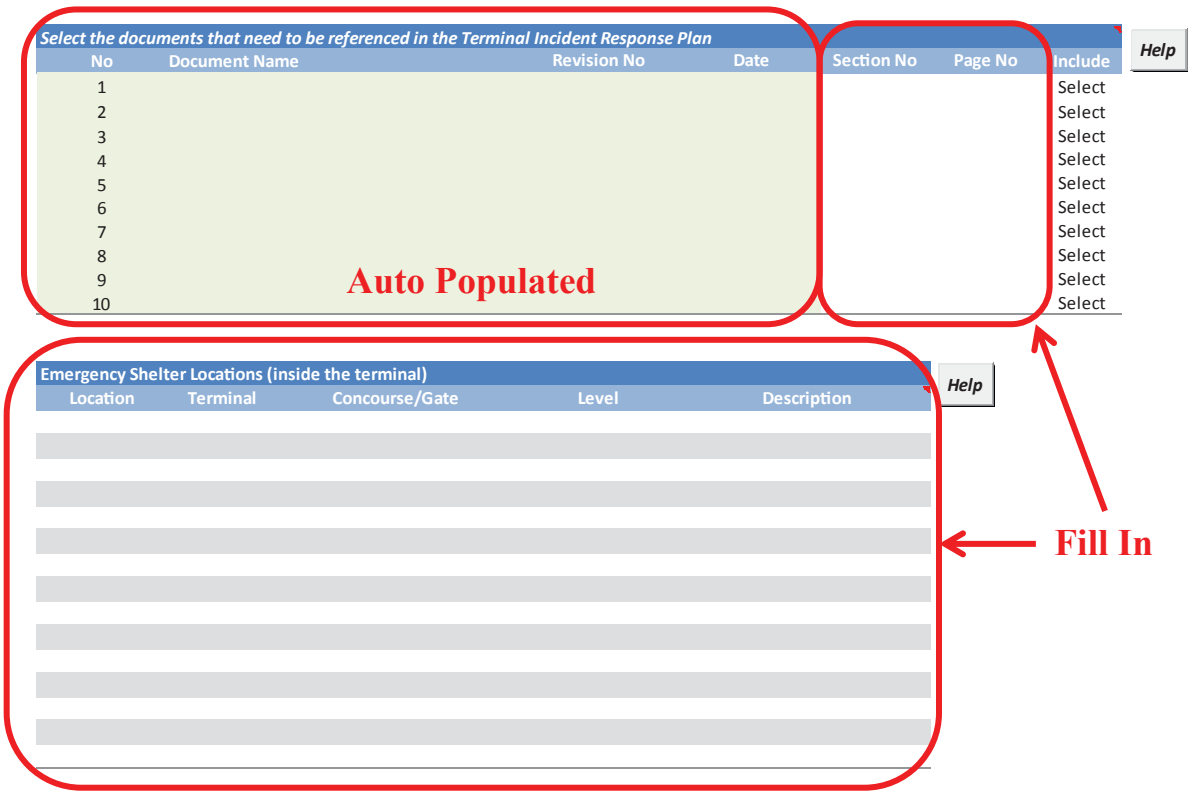

Figure 11. SIP page.

Figure 12. Generating your TIRP.

16. Once complete, scroll down to the bottom of the worksheet and click on "Continue to Evacuation."
17. Fill in the blanks in each table. Be sure to answer the two yes-or-no questions on the form.
18. Click on "Continue to Repopulation."
19. Fill in the blanks in each table.
20. Click on "Continue to Incident Responses." Depending on the risks you identified in the Plan Profile worksheet, you will be taken to a new worksheet for each respective incident.
21. Continue filling in each incident response type worksheet, being sure to populate the blanks (e.g., hurricane, snowstorm, and tornado).
22. Answer each yes-or-no question where relevant.
23. In each section, click the "Help" button at any time for information/assistance with that section as needed.
24. When you have completed the final incident response worksheet, click the "Use Control Form to Print Draft Plan" button at the end of the worksheet (Figure 12).
25. The title page will appear, and you can then select the "Generate Draft Plan" button. Note: If any Word documents are open, you will be prompted to save and close them. Microsoft Word must be closed prior to plan generation.

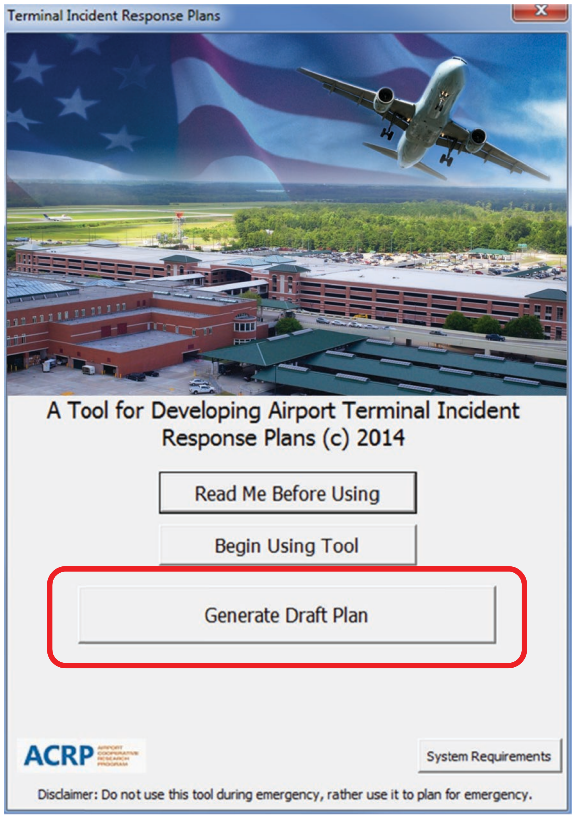

Figure 13. Generate draft plan button.

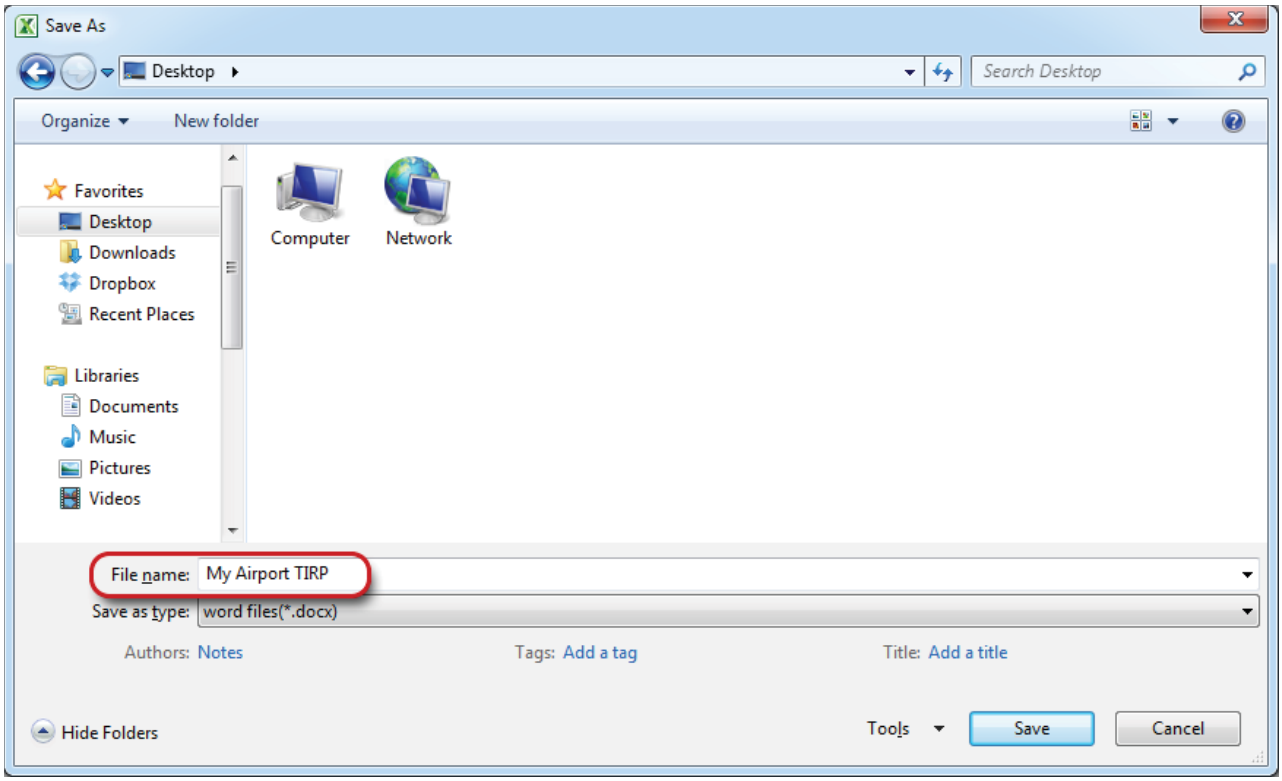

Figure 14. Saving your TIRP.

26. You will be prompted to name and save your plan. Save the plan document where you choose (desktop for instance) and name as appropriate for your airport. Note: Our example is "My Airport TIRP." **WARNING: It is critical that each version of the plan that you save is saved with a unique name. If you attempt to name the plan as an exact or overwritten name of a previously generated plan, the tool will prompt you to create a new document.**
27. It will take some time for the tool to generate the plan. After several minutes, you will receive a message that the plan template was created successfully.
28. Once the plan is generated, it is recommended that you save the Excel file you used to create the plan with a **unique** name so you can implement version control for future updates.
29. Once the plan template is created, you can open the plan document and modify it according to your specific situation (e.g., add pictures, terminal-specific information, annual updates, custodial changes, or a separate page for hyperlinks.).
30. The tool is a means to an end, the end being a TIRP in Microsoft Word that you can further edit, add graphics to, and customize to your airport using Word functions. **Remember though, changes you make to the stand-alone word document do *not* get applied to the actual Excel-based tool itself!**

Frequently Asked Questions

Q: What size airport is best suited to use the tool?

A: The tool has been designed to serve any size or type of airport. In beta testing, it worked well for two large hubs, two medium hubs, a small hub, a non-hub primary, and a reliever airport. In general, more customization via editing the Microsoft Word version of the terminal incident response plan produced by the tool will be needed by larger airports.

Q: Does the tool produce a complete and fully functional terminal incident response plan?

A: Yes and no. The tool will generate a NIMS-compliant complete plan for your airport; however, the plan produced should undergo a thorough airport review, training, and tabletop exercises prior to being considered fully functional.

Q: In what format is the basic terminal incident response plan produced by the tool?

A: It is a multi-chapter document in Microsoft Word (2010 or 2007).

Q: How long will it take to create a terminal incident response plan from the tool?

A: Depending on the complexity of the airport and how knowledgeable the staff member(s) preparing the plan are, it should take 30 minutes to 2 hours to use the tool and create the basic plan.

Q: How long will it take to customize the basic plan to create the final, fully developed terminal incident response plan?

A: For smaller airports, the basic plan produced by the tool can serve as is as the final terminal response plan. For larger airports, the customization process—editing the Word document version of the basic plan—should take 1 to 3 hours, depending on the extent of the changes and complexity of the site-specific information that the airport wishes to add.

Q: How long is the process to build a terminal incident response plan?

A: The best estimate for the development of a basic plan using the tool is 0.5 to 2.0 person-hours. The best estimate for the conversion (customization) of the basic plan to a fully developed, final terminal incident response plan is 0 to 3.0 person-hours. Altogether, the process from start to finished final plan is estimated to take 0.5 to 5.0 person-hours.

Q: Is there a need for specialized information technology (IT) folks to use the tool?

A: Probably not, depending on the ability of the airport emergency manager, terminal manager, operations supervisor, or planner to use Microsoft Excel and Microsoft Word.

Q: Can the tool be used by itself when an airport has an emergency for which it does not have a plan or has an outdated plan?

A: The tool was ***not*** designed or intended to be used as a plan or as a substitute for a plan. However, in an emergency when an airport does not have an existing plan, the tool can quickly produce a plan including basic SOPs and checklists. Note, however, that plans should be developed, trained, and exercised before being used in an actual emergency.

Q: Would the tool and resulting terminal incident response plan be legally binding on an airport to the exclusion of other existing emergency preparedness documents or plans?

A: No. The tool would provide structure and guidelines that may stand alone, supplement, or be used in concert with existing plans.

Q: Does the plan produced by the tool contain any sensitive security information (SSI)?

A: No, not unless the user inserts SSI text in one of the textboxes. If a user wants to be sure, the user should get the federal security director (FSD) and airport security coordinator (ASC) to review the plan. It is good practice to involve both the FSD and ASC as stakeholders in the development of terminal incident response plans.

Q: Isn't repopulation just a matter of reversing the evacuation or shelter in place?

A: No, the sequence of actions and the responsibilities are different. For example, the terminal will have to have a structural, electrical, and mechanical evaluation before repopulation can

begin. Furthermore, TSA and airport security will have to inspect and sanitize the secure portions of the terminal before any other employees or passengers can enter.

Q: Do only airport employees have roles and responsibilities in a terminal incident response plan?

A: Not usually. Using the tool's inputs and the capabilities to edit the resulting Word document, the user can specify the roles and create action lists and checklists for any agency, airline, tenant, or mutual aid partner involved in terminal incident response. For this reason, these stakeholders should be involved in customizing and reviewing the plan.

Q: How can the plan be customized to deal with site-specific details?

A: There are three ways to customize the terminal incident plans produced by the tool:

1. By the data entered in the data blanks on data-entry pages of the tool,
2. By entering blocks of custom text in the textboxes while using the tool, and
3. By editing the resulting Word document.

Q: Should the resulting terminal incident plan be incorporated directly into AEP?

A: This is a choice that can usually be made by the airport. If the plan is incorporated directly into the AEP, any changes to the plan must be approved by the FAA compliance inspector. If the terminal incident response plan is not incorporated directly into the AEP, each pertinent part of it should be referenced within the plan. If in doubt, an airport should consult its FAA compliance inspector. Some airports have found it more practical or effective to have a separate terminal manual or a customer services manual.

Q: If the terminal incident response plan produced by the tool is incorporated into the AEP, will it be fully compliant with FAA Advisory Circular 150/5200-31C?

A: The plan developed by this tool is not required by Advisory Circular 150/5200-31C. The tool was designed on the assumption that the NIMS and ICS would be used in any response to any incident involving the terminal. The tool generates basic checklists and SOPs, but an airport may wish to edit the Word document to expand on them to fit site specifics. When in doubt about compliance with Advisory Circular 150/5200-31C, an airport should consult with its FAA compliance inspector.

Q: What stakeholders should be involved in using the tool, customizing the Word document, and reviewing the resulting terminal incident response plan?

A: Whether the terminal incident response plan is incorporated into the AEP or made a standalone plan, the same type of stakeholders suggested by FAA Advisory Circular 150/5200-31C should be involved. This includes units within the airport (senior management, terminal managers, emergency managers, operations managers, planners, ARFF, law enforcement, maintenance, and engineering). It also includes airlines, concessionaires, tenants, federal agencies, state agencies, and mutual aid partners.

Q: Can the tool be used as a training aid?

A: Yes. The whole package can be given to any stakeholder for training on terminal incident responses.

Q: What is the relationship between a terminal incident response plan and an airport's drill and exercise program?

A: It is recommended that elements of the terminal incident response plan frequently be incorporated into tabletop exercises and even in full-scale functional exercises.

Q: Will the tool run on a Mac computer?

A: No.

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A: No. It is locked.

Q: How was the tool tested prior to release?

A: The tool was tested by the research team. Then it was tested by the ACRP project panel. Finally, it was beta tested at seven airports ranging from relievers to large hubs in size. A final test by the panel was completed before the tool was approved for release. After each test, adjustments were made to make the tool more user friendly.

Q: Where did the information and models come from that the research team used to develop the tool?

A: Thirty-six airports provided more than 100 documents, such as airport emergency plans, checklists, and SOPs, and these documents were analyzed using process mapping to determine the most common patterns of effective response. This information was combined with an exhaustive literature review of terminal incidents in the past 10 years.

Q: Is any special training required prior to using the tool?

A: No. The tool is very intuitive, and instructions are imbedded. Any moderately experienced airport emergency manager, operations supervisor, planner, or manager will be able to handle the inputs to the tool and customize the resulting Word document.

Q: Does the tool assume any particular organizational structure at an airport?

A: No. However, it does assume that the NIMS and ICS will be used as the basic organizational system for managing any response.

Lessons Learned

1. Terminal incident response plans are better referenced by AEPs rather than incorporated directly into AEPs. Terminal incident response plans can be stand-alone documents or be incorporated into terminal management manuals or customer service manuals. Stand-alone documents will eliminate the need for FAA approval of all changes and edits, as is required for AEP changes.

2. Good terminal incident response plans are important for customer service.
3. Good terminal incident response plans are essential to optimize the business continuity of airports.
4. Terminal incident response plans must allow frequent changes and updates. This is driven by terminal renovations and expansions, new tenants, new concessionaires, changed procedures, and changed federal regulations and guidelines for airport operations and security.
5. The best plans result when a broad range of stakeholders are involved in plan creation, review, and implementation.
6. Mutual aid partners should be involved in the development of terminal incident response plans and in training, drills, and exercises of the plans.
7. Tabletop exercises are an effective way to test terminal incident response plans and their elements. When the terminal incident response plan is significantly changed, the new plan should be trained and tested with a tabletop exercise or a partial full-scale functional exercise.
8. Detailed checklists, even down to the responsibilities and actions of individuals, are important, maybe essential.
9. The NIMS and ICS are the best ways to organize and manage responses to incidents in terminals. Plans, training, drills, and exercises should incorporate the NIMS and ICS.
10. The terminal incident response plan should be reviewed after any activation, drill, or exercise to incorporate improvements suggested by after-action reviews.
11. The terminal incident response plans should be trained annually for all persons having responsibilities under the plan, with extra training when new employees are added.
12. Early notification and continued effective communications are essential to managing terminal incidents. Airport-specific notification and communication procedures should be identified within the terminal incident response plan.

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Abbreviations and acronyms used without definitions in TRB publications:

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