The Auditor of the City and County of Denver is independently elected by the citizens of Denver. He is responsible for examining and evaluating the operations of City agencies for the purpose of ensuring the proper and efficient use of City resources and providing other audit services and information to City Council, the Mayor and the public to improve all aspects of Denver’s government. He also chairs the City’s Audit Committee.

The Audit Committee is chaired by the Auditor and consists of seven members. The Audit Committee assists the Auditor in his oversight responsibilities of the integrity of the City’s finances and operations, including the integrity of the City’s financial statements. The Audit Committee is structured in a manner that ensures the independent oversight of City operations, thereby enhancing citizen confidence and avoiding any appearance of a conflict of interest.

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Report number: A2015-010
Kim Day, Chief Executive Officer  
Department of Aviation  
City and County of Denver  

Dear Ms. Day:

Attached is the Auditor’s Office Audit Services Division’s report of their audit of Denver International Airport’s (DIA’s) Emergency Preparedness Program. The purpose of the audit was to examine DIA’s emergency operations plan and determine whether it complies with relevant federal guidelines. We reviewed and evaluated the effectiveness of DIA’s approach to select aspects of emergency preparedness planning including development of supplemental policies, strategies, guidance, and roles and responsibilities of community partners.

DIA is a vital resource to the state, therefore, it is imperative that personnel are prepared for emergency situations and the airport is kept operational. Emergency situations—both man-made and natural disasters—have the potential to disrupt airport operations and illustrate the importance of preparing for, operating during, and recovering from emergency events.

Our audit determined that DIA personnel are committed to emergency preparedness and have built a comprehensive program. However, our audit identified a few process improvements which are presented in the finding and recommendations.

If you have any questions, please call Kip Memmott, Director of Audit Services, at 720-913-5000.

Sincerely,

Timothy M. O’Brien, CPA  
Auditor

November 19, 2015

cc: Honorable Michael Hancock, Mayor  
Honorable Members of City Council  
Members of Audit Committee  
Ms. Cary Kennedy, Deputy Mayor, Chief Financial Officer
Ms. Janice Sinden, Chief of Staff
Mr. David P. Edinger, Chief Performance Officer
Ms. Beth Machann, Controller
Mr. Scott Martinez, City Attorney
Ms. Janna Young, City Council Executive Staff Director
Mr. L. Michael Henry, Executive Director, Board of Ethics
Mr. Dave LaPorte, Senior Vice President of Airport Operations, Aviation
Mr. Steve Lee, Director of Operations Support, Operations Division, Aviation
AUDITOR’S REPORT

We have completed an audit of Denver International Airport’s (DIA’s) Emergency Preparedness Program. The purpose of the audit was to determine whether DIA has developed standardized emergency planning that complies with relevant federal guidelines. We reviewed and evaluated the effectiveness of DIA’s approach including the development of supplemental policies, strategies, and guidance. We also examined DIA’s emergency preparedness training, corrective action implementation and reviewed the roles and responsibilities of community partners responsible for emergency preparedness.

This performance audit is authorized pursuant to the City and County of Denver Charter, Article V, Part 2, Section 1, General Powers and Duties of Auditor, and was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The audit found that DIA has a comprehensive system in place for emergency management and the Airport Emergency Plan has been certified by the Federal Aviation Administration. DIA has a staff dedicated to emergency preparedness training and there is strong coordination among airport personnel and first responder groups. However, opportunities exist to strengthen associated emergency response processes related to improving certain tracking mechanisms and operating procedures.

We extend our appreciation to DIA personnel and emergency responders located at DIA, who assisted and cooperated with us during the audit.

Audit Services Division

Kip Memmott, MA, CGAP, CRMA
Director of Audit Services
Denver International Airport Emergency Preparedness Program
November 2015

The audit examined the effectiveness of Denver International Airport’s (DIA’s) approach to emergency preparedness activities including a review of policies, strategies, and roles and responsibilities.

Background
As one of the busiest airports in the nation, it is imperative that DIA is prepared for emergency situations. The Federal Aviation Administration (FAA) is responsible for providing oversight to ensure airports comply with federal requirements. DIA has developed an Airport Emergency Plan to comply with FAA requirements. In addition, DIA has developed supplemental guidance on specific emergency situations. DIA has full-time staff dedicated to emergency preparedness activities, which include developing and implementing training and exercises.

Purpose
The purpose of the audit was to determine whether DIA has developed standardized emergency planning that complies with relevant federal guidelines. We also examined the effectiveness of DIA’s approach to developing supplemental policies, strategies, and guidance. In addition, we examined DIA’s approach to emergency preparedness training and corrective action implementation, and we reviewed the roles and responsibilities of community partners also responsible for emergency preparedness.

Highlights
We found that DIA has a comprehensive system in place for emergency management, and emergency planning documents are well developed. In addition, DIA’s Airport Emergency Plan (AEP) has been certified by the FAA. DIA has a staff whose sole responsibility is emergency preparedness training, and there is strong coordination and collaboration between airport personnel and first responder groups who are involved in emergency management at DIA. However, opportunities exist to strengthen some emergency response processes.

Specifically, although DIA has developed adequate supplemental guidance to support the AEP, some enhancements are needed. For example, while the Standard Operating Guidelines and Operating Instructions address specific actions to take during emergencies, these supplemental documents do not reference each other, which can impact the understanding of new users and could increase the amount of time it takes for personnel to carry out their response tasks.

In addition, there is no formal documentation of the prioritization discussions that take place when developing the training plan. Without formally documenting the analysis and decision-making processes that are carried out to create and prioritize the annual training plan, management cannot ensure that they have appropriately designed and prioritized trainings.

Lastly, improvements are needed in tracking costs related to emergency activities, tracking lessons learned from emergency events, and developing policies and procedures for emergency event documentation.

For a complete copy of this report, visit www.denvergov.org/auditor Or Contact the Auditor’s Office at 720.913.5000
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTION &amp; BACKGROUND</td>
<td>1</td>
</tr>
<tr>
<td>Airport Emergency Preparedness</td>
<td>1</td>
</tr>
<tr>
<td>Personnel Involved in Emergency Preparedness and Response at DIA</td>
<td>4</td>
</tr>
<tr>
<td>Emergency Preparedness and Response Activities</td>
<td>10</td>
</tr>
<tr>
<td>SCOPE</td>
<td>13</td>
</tr>
<tr>
<td>OBJECTIVE</td>
<td>13</td>
</tr>
<tr>
<td>METHODOLOGY</td>
<td>13</td>
</tr>
<tr>
<td>FINDING</td>
<td>15</td>
</tr>
<tr>
<td>Minimal Process Improvements Will Strengthen Denver International Airport’s Comprehensive Emergency Preparedness Program</td>
<td>15</td>
</tr>
<tr>
<td>RECOMMENDATIONS</td>
<td>25</td>
</tr>
<tr>
<td>AGENCY RESPONSE</td>
<td>26</td>
</tr>
</tbody>
</table>
INTRODUCTION & BACKGROUND

Airport Emergency Preparedness

Denver International Airport (DIA) is one of the world’s busiest airline hubs, serving more than 53 million passengers each year. Generating more than $26 billion for the region annually, DIA is the primary economic engine for the State of Colorado. Since DIA is such a vital resource, keeping it operational is imperative, and ensuring public safety at DIA is a core City responsibility. Emergency situations—both man-made and natural disasters—have the potential to disrupt airport operations and illustrate the importance of preparing for, operating during, and recovering from emergency events. Following are just a few examples of recent domestic airport incidents that required rapid emergency response:

- In November 2013 at Los Angeles International Airport, a gunman opened fire with an assault rifle, killing a Transportation Security Administration (TSA) agent and wounding two other TSA officers near a security checkpoint. The gunman then proceeded through the TSA screening area into the secure airside area of the terminal and continued firing shots, wounding several others. The gunman was wounded in a shootout with airport police and taken into custody. Airport police completed a security sweep of the entire airport.

- In October 2014, a small private corporate jet made an emergency landing at DIA due to a problem with its landing gear. Fire, police, and emergency medical officials stood by to await the airplane’s arrival. The fire department responded by extinguishing smoke and a small fire underneath the center of the aircraft. Three people onboard were evacuated safely with no injuries.

- In August 2015, a Delta Air Lines flight made an emergency landing at DIA after the airplane was severely damaged in a storm with lightning, rain, and hail. The aircraft’s windshield was shattered and the nose of the airplane was heavily damaged. One passenger was taken to the hospital upon request. Fire, police, and emergency medical officials responded to the situation.

To minimize the severity of financial and environmental impacts, and most importantly, loss of life, it is imperative that airports are prepared to respond to disasters. Federal, state, and local governments play a crucial role in planning for and responding to
emergencies. Ensuring airport safety ranges from performing simple daily preventive maintenance to developing and conducting full-scale emergency exercises. Emergency response training is extremely important to ensure that response plans can be successfully executed.

**Oversight of Airport Safety Measures**

DIA is subject to both federal and municipal oversight with regard to its emergency preparedness activities. DIA’s federal funding is contingent in part on meeting certain safety standards, and Executive Order 85 specifies how all City departments, including DIA, should prepare for disasters and protect critical infrastructure.

**Federal Oversight**—The Federal Aviation Administration (FAA) is responsible for providing oversight to ensure that airports comply with the federal obligations they assume when they accept federal grant funds or the transfer of federal property for airport purposes. The FAA ensures safety in air transportation in part through the issuance of airport operating certificates. To obtain a certificate, an airport must agree to meet certain operational and safety standards and provide for emergency resources, such as firefighting and rescue equipment. FAA Airport Certification Safety Inspectors conduct certification inspections annually to ensure that airports are meeting these requirements. A certification inspection includes a pre-inspection review of files and the airport's certification manual as well as performing on-site visits.

**City and County of Denver Oversight**—In addition to FAA oversight, DIA is subject to municipal oversight by the City through Executive Order 85, which establishes overarching governance related to emergency preparedness. Executive Order 85 provides guidance related to disaster prevention, preparedness, mitigation, response, and recovery and critical infrastructure protection for all departments and agencies. It also defines the mission, organizational structure, and responsibilities of the Office of Emergency Management and Homeland Security (OEMHS). Although DIA maintains a separate emergency plan, various sections reference the City’s Emergency Operations Plan and vice versa. Personnel from DIA and OEMHS work together by attending training and exercises, participating on various committees, and establishing a representative at the emergency operations centers. In November 2011, we released a performance audit of OEMHS, through which we sought to evaluate the preparedness of the City for emergency situations.

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1. The FAA regulations that govern aircraft are found in Title 14 of the Code of Federal Regulations (14 CFR) Aeronautics and Space.
2. 14 CFR 139.
3. The Office of Emergency Management and Homeland Security (OEMHS) is responsible for ensuring that the City is prepared by properly planning for emergencies, training essential personnel, and ensuring optimal communication between various stakeholders in order to effectively address any type of emergency or disaster situation. OEMHS plays a key role in developing the City’s Emergency Operations Plan and managing the Emergency Operations Center. Additionally, OEMHS provides planning, training, exercises, and educational outreach programs that educate Denver residents on how to plan and prepare for emergency or disaster situations.
DIA’s Emergency Preparedness Tools

To carry out disaster planning, response, and recovery operations, DIA relies on the following tools: the Airport Emergency Plan, the Emergency Operations Center, and two key emergency systems.

DIA’s Airport Emergency Plan—DIA’s Airport Emergency Plan (AEP) provides written guidance describing preparation for and response to on-airport emergencies of wide-ranging situations. The purpose of this plan is to outline procedures, responsibilities, and duties of participating agencies in order to facilitate efficient rescue, medical care, firefighting operations, and news media coverage during an emergency. The organizational structure and emergency responses outlined in the AEP remain constant regardless of the type of emergency. The AEP has three key parts:

- Basic Plan – Describes the airport's overall approach to emergency operations.
- Functional Section – Defines nine functions that address critical services necessary to manage, communicate, respond to, and mitigate airport-related emergency situations.
- Hazard Specific Section – Provides additional detailed information applicable to the performance of a particular function in support of a specific emergency event, such as a tornado.

The AEP provides high-level guidance for a wide range of emergencies but in order to provide detailed guidance on specific situations, DIA personnel have developed Standard Operating Guidelines (SOGs) and Operating Instructions (OIs). These documents include instruction on the roles and responsibilities of all personnel involved in responding to an emergency. SOGs are functional plans that support the AEP for specific threats, and OIs are plans that support the SOGs and are designed for use by specific responder groups.

DIA’s Emergency Operations Center—The Emergency Operations Center (EOC) is the central location where internal and external stakeholders come together during an emergency or disaster to coordinate response and recovery activities, including sharing information and resources. The EOC is designed to optimize communication and coordination between the various stakeholders. There is a primary EOC at DIA and a back-up EOC, both of which are easily accessible to staff. The SOGs and OIs are especially important when the EOC is activated.

Emergency Systems Utilized by DIA—DIA emergency personnel use the National Incident Management System (NIMS) and Incident Command System (ICS) prescribed by the federal government for a standardized organization to direct emergency response and

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5 The Airport Emergency Plan is a section of DIA’s Airport Certification Manual. The manual is required by the FAA.
6 The nine functions include: Command and Control, Communications, Alert Notification and Warning, Emergency Public Information, Protective Actions, Law Enforcement/Contract Security, Firefighting and Rescue, Health and Medical, and Airport Operations and Maintenance.
management. The utilization of NIMS and ICS also assists airport managers in developing or improving their strategic relationships and written emergency plans with surrounding jurisdictions by using a common platform, language, and system. The FAA requires airports to integrate the NIMS into their airport emergency plans. Most airports rely on their communities, mutual aid partners, and other stakeholders to assist them during incidents, accidents, and events. Using the NIMS structure helps to integrate all these resources.

Personnel Involved in Emergency Preparedness and Response at DIA

Emergency preparedness and response at DIA requires the coordination of various departments that perform a wide range of day-to-day responsibilities in addition to responding to actual emergencies. Individuals with a variety of work experience and backgrounds work collaboratively to plan for emergency scenarios, train responders, and engage in continuous improvement activities.

There are several key groups of personnel involved with emergency preparedness and response at DIA. The audit focused on two of DIA’s sections that are integrally involved: Training and Exercise Design (TED) and Airside Operations. Additionally, the Denver Police Department (DPD), Denver Fire Department (DFD), and Denver Health Paramedics Division (DHPD) are all involved in DIA’s emergency preparedness and response efforts.8

Training and Exercise Design

DIA’s Training and Exercise Design (TED) section is responsible for planning for emergencies by carrying out training and exercise events. TED is made up of six full-time equivalent (FTE) employees and in 2015 had an annual budget of $743,000. TED’s three core responsibilities are as follows:

- Event Planning – TED designs and implements trainings and exercises and evaluates how the operational groups, such as police, fire, and paramedics, performed during the exercises. The group evaluates performance from a systematic perspective, such as by ensuring that the groups are coordinating and communicating effectively.

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7 According to the Federal Emergency Management Agency, the National Incident Management System is a systematic, proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work together seamlessly and manage incidents involving all threats and hazards in order to reduce loss of life, property, and harm to the environment. The Incident Command System (ICS) is a fundamental element of incident management. The use of ICS provides standardization through consistent terminology and established organizational structures and it is used to organize both near-term and long-term field-level operations for a broad spectrum of emergencies, from small to complex incidents, both natural and man-made.

8 In addition, other entities may have a role in emergency events at DIA, such as Concessionaires, Airlines, DIA Airport Infrastructure Management, the Public Information Officer, Department of Homeland Security, and Transportation Security Administration.
• Driver Training – TED trains drivers on driving rules within the airport movement area to ensure safety of employees around runways, airplanes, and other airline operations.

Under the direction of the Director of Operations Support, TED is led by a Training and Exercise Design Manager (TED Manager). The TED Manager is responsible for leading the development and implementation of TED’s annual training plan and oversees a team of five full-time staff who primarily develop and implement trainings and exercises. The organizational structure of TED is reflected in Figure 1. TED’s primary mission is safety at DIA, and while both the Instructional Designer and the Exercise Design Coordinator have responsibilities within emergency preparedness, the Driver Certification Administrator does not. The Driver Certification Administrator is responsible for developing training for employees whose positions require driving on the airfield.

**Figure 1. Training and Exercise Design Organizational Chart**

![Organizational Chart](image)

*Source: Airport Operations Organizational Chart.*

**Training and Exercise Planning Workshop and Annual Training Plan**—To develop an annual training plan, TED conducts a workshop to prioritize risks to the airport employees and passengers. Risks to the airport are then compared against the current and desired capabilities of the emergency preparedness system at DIA. The group also considers legal mandates or regulations, the likelihood of events and their potential consequences, and any areas for improvement noted from previous years’ activities. TED then identifies gaps in coverage between the risks of certain emergencies and the capability of DIA staff to handle those emergencies. That gap in coverage is where TED sets their priorities and works with other key personnel to ensure that risks are being addressed. Figure 2 outlines the training and development process conducted by TED.
At their annual Training and Exercise Planning Workshop (TEPW), TED invites all key personnel involved with airport operations to read over pertinent sections of the AEP and identify any operational gaps. Participants are contacted in the weeks leading up to the workshop and are asked to prepare any concerns regarding how each department’s supplemental documents and general responsibilities fit into DIA’s emergency preparedness as a whole. After compiling all of the comments and issues noted during the workshop, along with other sources of information that help to determine priorities, TED develops a training plan for the upcoming year.

**Planned Trainings and Exercises**—Based on results from the TEPW, TED will then decide which type of planning and training activities to use. Depending on the specific risk and associated complications, TED will establish a mix of trainings and exercises to create a series of planned events. Since discussion-based events are not as expensive as running a full-scale exercise, TED works to make sure they are using the most appropriate

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approach to emergency preparation trainings and exercises. However, some training is more effective when carried out as an operational exercise. DIA chooses the most cost effective method of training that still accomplishes the learning objectives. There are seven types of trainings and exercises, four of which are discussion based and three of which are operations based.

The four discussion-based activities include seminars, workshops, tabletops, and games. Seminars involve bringing together those with a role or interest in emergency planning to discuss initial concepts for complex events. Workshops differ from seminars in two ways: participant interaction is increased and the focus is on achieving or building a product. A tabletop exercise describes a simulated event and proceeds with discussions to evaluate the plan and resolve concerns surrounding coordination and responsibilities. Games are a simulation of operations that often involve two or more teams and use rules, data, and procedures to depict an actual or assumed real-life situation, in order to explore decision-making processes and the consequences of those decisions.

The three operations-based activities include drills, functional exercises, and full-scale exercises. A drill is a low-level exercise that tests, develops, or maintains skills in a single incident response procedure, and is good preparation for full-scale exercises. A functional exercise is the highest level exercise that can be conducted without fully activating all aspects of an emergency action plan or evacuating travelers and employees, and may involve various levels of response agencies and emergency management personnel to evaluate the coordination, internal capabilities, and responses of all levels of responders and emergency management officials. A full-scale exercise is an interactive exercise designed to evaluate the operational capability of all facets of the emergency management system under review in a highly realistic and stressful environment. Figure 3 illustrates the seven types of trainings and exercises in order of complexity.
TED is responsible for planning and running the exercises, conducting evaluations, and creating plans to implement lessons learned. When developing and implementing their programs, TED follows the Homeland Security Exercise and Evaluation Program (HSEEP) guidelines developed by the Federal Emergency Management Agency, which provide a set of guiding principles for exercise programs and common approaches to exercise program management, design and development, performance, evaluation, and improvement planning.

As part of TED’s role within the emergency preparedness community, they assist other departments by providing training classes on various issues related to the mitigation of and response to emergencies. In addition to classroom-style training sessions, they also have developed online trainings for DIA employees, which help to achieve training requirements for emergency personnel. For example, TED has been responsible for the Bleeding Control training classes for all DIA employees, and has built computer-based trainings on multiple topics for various departments within DIA and other City departments.

### Airside Operations

DIA’s Airside Operations section, within the Airport Operations Division, has several responsibilities related to emergency management. Airside Operations is made up of forty-seven FTEs and in 2015 had an annual budget of $7.3 million. Airside Operations has a pivotal role in staffing and operating the EOC during an emergency. Airport Operations Managers in this section serve as Incident Commanders (IC) on a rotational basis when an event requires activation of the EOC.

The IC is responsible for managing the EOC during an event, as recommended by the ICS and NIMS. All other EOC participants report to the IC to ensure that the direction of
the response is well-coordinated and follows a unified strategy. The IC is the employee ultimately responsible for coordinating the airport’s overall response. In addition to overseeing the activities of the EOC, the IC also coordinates with the on-scene responders, namely police, fire, paramedics, and any Airside Operations employees sent to assist.

Airside Operations also plays a critical role in the development and updating of supplementary documents such as the SOGs and OIs. In order to ensure that supplementary documents are sufficient for response and do not contradict any other response documents, Airside Operations employees review SOGs and applicable OIs on an annual basis.

Airside Operations is also responsible for maintaining compliance with FAA Part 139, enforcing airport rules and regulations, and developing and implementing DIA’s snow and ice plan.

**Other Entities Involved with DIA Emergency Preparedness and Response**

Due to the size and the nature of its operations, DIA maintains a law enforcement and first responder presence at the airport. Police, fire, and paramedics are always on site performing day-to-day tasks and standing ready to assist in the event of an emergency.

**Denver Police Department**—DIA funds the Denver Police Department’s (DPD’s) presence at the airport. DPD is responsible for responding to emergency events, directing traffic control, and managing law enforcement operations. DPD has 132 FTEs assigned to DIA, and in 2015 had an annual budget of $14.2 million for DIA operations.

**Denver Fire Department**—DIA also funds the Denver Fire Department’s (DFD’s) presence at the airport. DFD is responsible for responding to emergency events and directing firefighting and rescue operations until life, property, and safety matters have been mitigated. DFD has 115 FTEs assigned to DIA, and in 2015 had an annual budget of $15.8 million for DIA operations.

**Denver Health Paramedics Division**—DIA funds emergency medical services (EMS) through a contract with Denver Health. EMS is responsible for providing emergency medical services during emergency conditions including triage, stabilization, first aid, medical care, and the transportation of injured persons. The 2015 contract included fifty-nine FTEs with an associated annual cost of $2.5 million.

**Innovative Emergency Preparedness and Response Strategies Used by DIA**

DIA personnel involved in emergency preparedness and response activities are constantly reviewing and learning from emergency situations to enhance preparedness at DIA. Following are examples of innovative strategies identified by DIA personnel.

**5280 Method**—The 5280 Method is an innovative response technique for handling active shooter situations and was created after various active shooter events occurred throughout the nation. Previously, the response protocol was to focus on the shooter first and then attend to injured people once the shooter had been contained and the area
was declared safe. In an effort to reduce the number of lives lost while police were working to address the immediate threat, the 5280 Method incorporates simultaneous response to injury.

**Bleeding Control Training**—Through a variety of learnings from active shooter events at airports and other public places throughout the country, and based on the response times required to reach to injured people during emergency exercises, DIA personnel recognized that survival rates of seriously injured people can be increased with basic training related to bleeding control. Therefore, DIA has started to offer DIA employees free training that teaches the rapid application of a tourniquet for critical injuries such as arterial bleeding. Statistics and military field experience have shown that this single technique, when performed rapidly in the correct situations, has increased survival rates to in excess of 95 percent with no loss of limbs.

**Emergency Preparedness and Response Activities**

To ensure that DIA is effectively covering any identified gaps in preparedness or response, they participate in a variety of activities to examine the full scope of risks and potential issues the airport faces. To gain an understanding of DIA’s process for handling emergencies, we observed a variety of training and exercise activities related to one specific emergency scenario: an active shooter entering the airport. DIA considers this type of scenario a significant risk, considering the 2013 active shooter incident at Los Angeles International Airport (LAX), the 2012 Aurora movie theater shooting, and other mass casualty events involving firearms.

**Active Shooter Training and Exercise Series**—To assess how DIA prepares for an active shooter situation, we observed a series of training and exercise events deployed by DIA, starting with discussion-based activities in February 2015 and culminating in a full-scale exercise in July 2015. Beginning with three workshops, three tabletop exercises, and three drills, TED focused on public messaging, people management, and command and control, with an additional tabletop meeting combining all three focus groups. In addition to the workshop and tabletop events, a number of drills were conducted to assess how emergency personnel responded to an active shooter situation. These drills provided an opportunity for police, fire, paramedics, and Airside Operations to practice and assess their coordination efforts prior to the execution of a full-scale exercise, with the intent of helping the responders to better prepare for the full-scale exercise.

We observed DIA’s full-scale active shooter exercise on July 15th, 2015. The objective of the exercise was to practice immediate lifesaving skills, test communications between on-scene commanders and the EOC, and practice securing command and control of
the scene. After the conclusion of the exercise, TED evaluated the abilities of first
arriving responders to establish an effective command structure; provide situational
updates and communicate tactical operations clearly; and to locate and provide
immediate lifesaving skills to injured persons including evacuating them to a safe
location.

**Documentation of Exercises and Emergency Events**—Both TED and Airside Operations
document areas for improvement after exercises and emergency events. For exercises,
TED collects and interprets feedback from participants. Specifically, exercise participants
meet after an event, referred to as a hot wash meeting, to discuss successes and failures.
In addition, exercise evaluations are completed by each participant, to provide an
opportunity for further comment on what they experienced. To inform corrective actions
and future emergency responses, exercise evaluations and information from exercise
debriefing meetings are compiled into the following formal reports:

- **After Action Reports** – In the days after a training or exercise event, exercise
  participants’ evaluations and information from EOC debriefing meetings are
  compiled into After Action Reports (AARs). The findings in these reports are then
  reviewed by decision-makers from each department and next steps are
determined.

- **Improvement Plans** – Any items for improvement identified in the AARs are then
  placed into a formal improvement plan, where action items and due dates are
  assigned to specific individuals to ensure improvement actions are taken and
  those responsible are held accountable. Agencies with assigned improvement
  actions are involved in the process to ensure that the recommended
  improvements are appropriate and feasible.

Corrective actions are identified during actual emergency events and documented
accordingly. After a real emergency, EOC personnel hold a debriefing meeting. Airside
Operations maintains documentation of the debriefing session and the event itself. To
inform corrective actions and future emergency responses, items noted for improvement
are tracked after the incident in the following ways:

- **Red Folders** – After the debriefing meeting, the IC compiles documentation in
  what is referred to as a Red Folder summarizing the event itself, response actions
  taken, and any lessons learned and needed corrective actions. The Red Folder
  serves as the airport’s internal documentation of the emergency event and
  includes notes from the debriefing session, EOC sign-in sheets, ICS forms,
  notification logs, and other various forms of supporting documentation.

- **Action Items Issue Log** – An Airport Operations Supervisor tracks needed
  corrective actions identified in the Red Folders in a lessons learned tracker
  referred to as the Action Items Issue Log. The lessons learned tracker describes the
  issue, specifies recommended corrective actions, and assigns an employee

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10 *Active Shooter Exercise Objectives, “2015 Active Shooter Full Scale Exercise Executive Summary”*. 
responsible for resolving the issue and a due date. This tracking mechanism is utilized to ensure that issues identified during emergency events are corrected.
SCOPE

The audit assessed whether DIA is in compliance with relevant federal emergency planning guidelines. The audit scope also examined the effectiveness of DIA’s approach to select aspects of emergency preparedness planning including development of supplemental policies, strategies, and guidance as well as DIA’s approach to emergency preparedness training and corrective action implementation.

OBJECTIVE

The objective of the audit was to determine the extent to which has DIA established a detailed Airport Emergency Plan (AEP) as well as supplemental policies, strategies, and guidance to ensure that the airport is prepared to respond to a range of emergencies. In addition, we evaluated the steps DIA has taken to ensure that emergency responders understand their responsibilities and established mechanisms to ensure continuous improvement of overall emergency operations.

METHODOLOGY

We applied various methodologies during the audit process to gather and analyze information pertinent to the audit scope and to assist with developing and testing the audit objectives. The methodologies included the following:

- Interviewing DIA personnel involved in emergency preparedness activities at the airport
- Analyzing DIA’s process for developing and updating the Airport Emergency Plan (AEP)
- Interviewing Federal Aviation Administration (FAA) inspectors regarding the FAA certification process and DIA’s AEP
- Reviewing recent years’ FAA certifications to determine whether DIA is in compliance with federal guidelines and has taken the necessary steps to address areas of correction action identified
- Analyzing the process for developing and updating Standard Operating Guidelines (SOGs) and Operating Instructions (OIs) that are supplemental guidance for DIA’s AEP
- Reviewing and analyzing select SOGs and OIs in regard to the correspondence to the AEP
- Reviewing SOGs and OIs to determine the extent to which responders’ roles and responsibilities in an emergency are clearly outlined.
- Conducting structured interviews with community responders who participate in various emergency events at DIA regarding their views on DIA’s strengths and weaknesses with regard to emergency preparedness as well as their understanding of their roles and responsibilities.
- Reviewing the process for documenting actual emergency events to determine how DIA is identifying and documenting areas for improvement and potential corrective actions.
- Reviewing and summarizing DIA’s process for developing and implementing training, including conducting regular training exercises.
- Reviewing the process for documenting training and exercises to determine how DIA is identifying and tracking areas for improvement.
- Reviewing information on funding sources used to support DIA’s emergency training and exercise program.
- Reviewing corrective actions resulting from exercises to determine how lessons learned affect future trainings.
- Reviewing and summarizing innovative strategies utilized to inform DIA’s approach to emergency management.
- In addition to these methodologies, to obtain a deeper understanding of DIA’s emergency preparedness processes, we participated in an active shooter full-scale exercise. We selected the active shooter threat as a high-impact, low-probability event to test the effectiveness of the training and exercise program. Prior to the exercise, we reviewed the relevant SOGs and OIs to determine the extent to which responders’ roles and responsibilities are clearly outlined. In addition, we reviewed the established protocols and plans specific to the active shooter exercise, which took place in July 2015.

During observations of the active shooter exercise, one auditor was stationed in the Emergency Operations Center (EOC), one observed from a VIP viewing area, and two volunteered to participate in the exercise as actors playing the role of injured individuals. We observed three run-throughs of the exercise, watching responses of emergency personnel and EOC players responsible for managing the response. Once each run-through was complete, we observed debriefing meetings and interviewed select participants in the exercise. After the event, we followed up with TED personnel to gain their opinions on the effectiveness of the exercise.
FINDING

Minimal Process Improvements Will Strengthen Denver International Airport’s Comprehensive Emergency Preparedness Program

Denver International Airport (DIA) has a comprehensive system in place for emergency management. DIA’s emergency plan document has been certified by the Federal Aviation Administration (FAA), and DIA’s responses to emergencies have been sufficient for preserving life and property, protecting the environment, and mitigating impact on customers, stakeholders, vendors, tenants, and the general public. However, opportunities exist to strengthen associated emergency response processes related to improving certain tracking mechanisms and operating procedures.

DIA’s Emergency Plan Complies with FAA Requirements and Personnel Appear Prepared for Emergencies

In assessing DIA’s compliance with relevant federal emergency planning guidelines, we found that the airport’s Airport Emergency Plan (AEP) is in compliance with FAA regulations and associated supplemental documents are well developed. Further, DIA appears prepared to respond to a range of emergencies with a skilled staff dedicated solely to emergency training and exercise design. All groups at DIA that are involved in emergency management appear to have collaborative working relationships that increase the likelihood of strong coordination during an actual emergency event.

DIA’s Emergency Plan Is FAA Compliant and Is Effectively Updated

We reviewed documentation from FAA certifications going back to 2012 and found that DIA has been successful in complying with FAA Part 139 regulations, which determines whether the FAA will certify DIA to operate as an airport. Success in annual recertification of the AEP, as part of the Airport Certification Manual, can be attributed to the fact that DIA keeps its AEP sufficiently broad and current with best practices. The AEP explains to the FAA how DIA plans to address certain emergency scenarios for which airports are required to be prepared. DIA’s decision to keep the AEP focused at a strategic level and to maintain consistency from year-to-year works well as DIA uses supplemental documents to enhance emergency preparedness and response activities. Figure 4 depicts how DIA reviews and updates the AEP, Standard Operating Guidelines, and Operating Instructions.
DIA Has a Skilled, Full-Time Emergency Preparedness Staff

DIA’s Training and Exercise Design (TED) section is dedicated to emergency preparedness activities, employing a full-time staff of six people. This enables TED to focus exclusively on developing and carrying out trainings and exercises, rather than balancing this work with other competing priorities. We found that TED has a detailed training planning process that involves all stakeholders, identifies areas for improvement, and incorporates a variety of feedback methods. These efforts exceed the minimum training requirements established by the FAA and Transportation Security Administration (TSA). The FAA requires that airports conduct an annual review of the Airport Certification Manual for all relevant staff and a tri-annual full-scale aircraft disaster exercise. TSA requires an annual aviation security exercise. In addition to these exercises, through the first three quarters of 2015, DIA has conducted over twenty exercises with objectives ranging from command and control, people management, public messaging, Emergency Operations Center (EOC) coordination, and scenarios specific to tornado and active shooter threats, among others.

Source: Figure developed by Auditor’s Office based on source information provided by TED and Airport Operations staff.

11 The Transportation Security Administration (TSA) is also critical to the safety at airports. On the morning of September 11, 2001, nearly 3,000 people were killed in a series of coordinated terrorist attacks in New York, Pennsylvania, and Virginia. The attacks resulted in the creation of the TSA, designed to prevent similar attacks in the future. The mission of TSA is to protect the nation’s transportation systems to ensure freedom of movement for people and commerce. Therefore, TSA also has a role in emergency situations at DIA.
TED’s staff members have the expertise to conduct an efficient emergency preparedness operation at DIA, due to maintaining current knowledge of industry trends and best practices. TED personnel expand their professional knowledge using industry journals from the Airport Cooperative Research Program (ACRP) and the American Association of Airport Executives (AAAE), lessons learned documents from other comparable airports, attending national conferences, and presenting at industry gatherings.12 The TED Manager has oversen the development of over thirty unique courses in emergency preparedness and aviation safety and is certified by the AAAE as an Airport Certified Employee. Other TED employees have many years of experience in developing emergency response programs and trainings, have presented to industry groups, and worked with the ACRP in various case studies to identify best practices.

**Strong Coordination and Collaboration Exists between Airport Personnel and DIA First Responder Groups**

Based on attending an initial drill as well as the full-scale exercise for the active shooter exercise series, the audit team observed strong coordination and collaboration between first responder groups at DIA. The drill, which was designed to practice coordination among groups, provided an opportunity to observe individuals following their assigned roles and responsibilities. In addition, there appeared to be a sense of community among these first responders. Senior members of the Denver Police Department (DPD), Denver Fire Department (DFD), and Denver Health Paramedics Division (DHPD) trained the group on how to work together in implementing the 5280 Method.13 We also observed, as well as participated in, a full-scale exercise during which the 5280 Method was carried out in a more realistic scenario. Auditors observed coordination between first responder groups, such as police working to protect paramedics, in accordance with established procedures.

During interviews, several first responders and Airport Operations employees mentioned how the strong relationships between departments enables DIA as a whole to be better prepared. Representatives of DPD, DFD, and DHPD who serve DIA are typically the same individuals staffing the airport on a day-to-day basis. According to these first responders, the consistency of working together enhances the opportunity to build relationships, develop a sense of community, and become relatively comfortable in the physical work environment. In the context of emergency preparedness and response, this enables department leaders and front-line staff to fully understand the airport culture and the risks the airport faces, motivating them to work with Airport Operations and the other response departments to most effectively mitigate and respond to emergencies.

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12 The Airport Cooperative Research Program (ACRP) is an industry-driven, applied research program that develops practical solutions to problems faced by airport operators. Funding more than twenty research projects a year, ACRP focuses on research needs that other federal research programs do not address. ACRP is managed by the Transportation Research Board of the National Academies and sponsored by the FAA. The American Association of Airport Executives (AAAE) is the world’s largest professional organization for airport executives, representing thousands of airport management personnel at public-use commercial and general aviation airports. AAAE serves its membership through results-oriented representation and delivers a wide range of industry services and professional development opportunities including training, meetings and conferences, and a highly respected accreditation program.

13 The 5280 Method is an innovative response technique in which paramedics enter the scene directly behind police officers to incorporate simultaneous response to injury. Refer to the Introduction and Background section for more information.
DIA Has Developed Supplemental Guidance To Support the Airport Emergency Plan, but Some Enhancements Are Possible

To enhance the broad guidance established by the AEP, DIA has developed supplemental documents to assist with emergency preparedness and response activities. For example, if there is a tornado warning issued on airport property or a situation where the underground passenger trains have been disabled, employees will not only refer to the AEP but will primarily rely on Standard Operating Guidelines (SOGs), which address specific emergencies, to guide their response. Although SOGs provide more detail than the AEP, SOGs are also not always designed to provide enough detail to carry out specific actions. The most detailed information is included in Operating Instructions (OIs), which contain checklists of to-do items, and specific steps to take when responding to an emergency or disaster. Auditors reviewed a sample of SOGs and OIs and found them to be comprehensive and to clearly lay out roles and responsibilities, however, minimal process improvements were identified.

Standard Operating Guidelines Do Not Specify Which Corresponding Operating Instructions To Reference

Despite their comprehensive nature and clarity, we found that the SOGs do not specify which OIs may be needed during certain emergencies. For example, the SOG regarding tornado response does not mention OIs at all. However, certain responder groups heavily involved with tornado response responsibilities have corresponding OIs that provide more detailed guidance than the tornado-specific SOG. For instance, the SOG describes that the Communications Center is responsible for sending all notifications, radio announcements, and public announcements related to a tornado threat. The SOG does not provide specific details describing which notification systems and codes to use. The Communications Center OI regarding tornado response specifies such details, which describe exactly which systems and codes to use to activate the appropriate announcements for each type of tornado threat. Without referencing relevant OIs in the SOG, it may take personnel longer to find the appropriate documents and respond.

Although experienced EOC personnel generally know which OIs are needed, new users of the SOGs will not. Not knowing which OI to reference could increase the amount of time it takes for personnel to carry out their response tasks and could result in significant steps not being followed. Ideally, the design of the supplemental document system should meet an entity’s procedural requirements and respond to their objectives and risks. Therefore, we recommend that the Assistant Director of Airside Operations update each SOG to include a comprehensive list of corresponding OIs that relate to the primary emergency.

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14 As explained in the Introduction and Background section of this report, the Airport Emergency Plan was not designed to specify all possible scenarios and responses, but more generally to explain how the airport plans for and responds to certain emergencies.

In addition to specifying in the SOGs which OIs should be used in certain situations, DIA can improve digital access to the documents. Currently, OIs are not hyperlinked within the SOG, causing the user to search for the OI within a shared drive. Being able to click once to access an OI could save time during sensitive response situations. Other digital enhancements might include the incorporation of “jump to top” hyperlinks or hyperlinks in the Table of Contents of the SOGs and OIs to allow for quick navigation throughout the document. Therefore, we also recommend that the documents be optimized for digital use.

Training Plan Prioritization Decisions Not Documented

TED develops its annual training plan by identifying and prioritizing risks and determining DIA’s capabilities to mitigate those risks. According to the TED Manager, plan discussions are based on results of the Training and Exercise Planning Workshop, an informal analysis of probability and impact of emergency events, and an informal budget analysis to determine the best use of resources to generate the greatest benefit from the training program. However, these prioritization discussions are not documented.

Without formally documenting the analysis and decision-making process to create and prioritize their annual training plan, TED management cannot ensure that they have appropriately designed and prioritized trainings. If the basis for decisions were formally documented, management would be able to review why the specific decisions were made to inform future decisions. According to Standards for Internal Control in the Federal Government, internal controls and all transactions and other significant events need to be clearly documented, and the documentation should be readily available for examination. Accordingly, we recommend that the TED Manager formally document the risk and budget analysis and other decision-making justifications utilized to determine the annual training plan.

DIA Tracks and Reviews Some Costs and Has Defined Budgets, but Enhanced Budget Analysis Is Needed

Emergency management personnel expressed that emergency preparedness activities are well-funded and have good support from senior management at DIA. Auditors found this to be evident in their full-time dedicated staff and training plan that exceeds minimum requirements. To determine the best use of funds, TED has compared internal costs to the cost of outsourcing training activities and has determined that in-house emergency preparedness training is more cost effective. Based on our review comparing the support documentation for outsourcing and TED’s budget, we agree with this assessment. TED also tracks actual costs of the training program and is currently enhancing this process. Additionally, departments involved with emergency

16 Ibid.
management have defined budgets, but the Airside Operations department needs to perform a budget analysis of its emergency management activities.

**TED Assesses Cost Effectiveness and Is Enhancing its Tracking of Personnel Costs**—Once improvement areas are identified and the annual training plan is developed, TED compares the costs of completing the training program using internal resources to the costs of utilizing external contractors. For example, TED obtained quotes for administering the active shooter exercise series from an emergency training and exercise contractor and determined that it would cost more than $400,000 for the contractor to plan and conduct the active shooter exercise series. This quote does not factor in the hours that TED would provide in assisting the contractor to build in the context of DIA operations and other trainings performed by TED throughout the year. By comparing costs of conducting exercises internally to the costs of hiring outside contractors, TED determined that in-house emergency preparedness training is the most cost effective method for achieving its training and exercise needs.

Historically, TED has tracked training and exercise costs and has recently implemented a more comprehensive process. TED’s previous process only captured non-personnel exercise costs such as training books and supplies, food and water, and awards for outside participants. For the active shooter exercise series, direct non-personnel exercise costs were approximately $7,500. However, the largest cost is personnel time spent developing, conducting, and documenting the training exercises. The TED Manager explained that starting with the active shooter exercise series in 2015, they decided to track the personnel time dedicated to exercises as well, in order to obtain a better understanding of the total costs and resources of the program.

The new process involves tracking time spent by TED personnel to plan, conduct, and document training exercises as well as tracking attendance by all responders and participants in the training exercises. The active shooter exercise series was completed during the course of our audit; however, TED is still in the process of tabulating the associated personnel costs. We encourage TED to continue to implement a process to track all such costs. Without doing so, TED is limited in its ability to monitor and control costs, which impacts their ability to budget effectively.

**Airside Operations Is Not Tracking Time Dedicated to Emergency Management**—Most of the groups involved with emergency management at DIA are solely dedicated to emergency preparedness and response and thus their entire operating budgets are directed to emergency-related activities. However, Airside Operations has other responsibilities in addition to those directly related to emergency management. Table 1 details the budgets for the departments involved in emergency activities at DIA, along with total full-time equivalents (FTEs).
Table 1. 2015 Budgets for Emergency Management Departments

<table>
<thead>
<tr>
<th>Department</th>
<th>2015 Operating Budget</th>
<th>2015 FTE Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>TED and Communications Center</td>
<td>$3,776,449</td>
<td>42.5</td>
</tr>
<tr>
<td>Airside Operations*</td>
<td>$7,261,841</td>
<td>47</td>
</tr>
<tr>
<td>Denver Police Department</td>
<td>$14,161,240</td>
<td>132</td>
</tr>
<tr>
<td>Denver Fire Department</td>
<td>$15,800,740</td>
<td>115</td>
</tr>
<tr>
<td>Denver Health</td>
<td>$2,503,609</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td><strong>$43,503,879</strong></td>
<td><strong>395.5</strong></td>
</tr>
</tbody>
</table>

**Source:** Developed by the Auditor's Office based on source information from DIA Financial Planning and Analysis.

**Note:** Asterisk (*) indicates that only a portion of the budget is related to emergency management activities. The department was unable to indicate the portion of the budget specifically related to emergency management.

Each of the budgets shown in Table 1 are entirely dedicated to emergency management activities except for Airside Operations. Only a portion of the Airside Operations budget is related to emergency management activities as the department is also responsible for other functions. Airside Operations has a significant role in developing and updating emergency planning documents as well as having personnel serve as Incident Commanders (IC) during emergency events. However, Airside Operations was unable to indicate the portion of its budget specifically dedicated to these emergency activities. The lack of a budget analysis limits the ability to determine the effective and efficient use of resources and to justify budget and staffing needs. We recommend that the Assistant Director of Airside Operations develop a methodology to estimate the allocation of the budget that is related to each essential function, including emergency management, to assist in determining effective and efficient use of resources and staffing needs.17

DIA Is Missing Opportunities To Track and Trend Lessons Learned

DIA’s process to document emergency events and track lessons learned needs enhancement to better promote continuous improvement. The lessons learned tracker does not include all lessons learned and contains incomplete and non-descriptive information.18 Lessons learned from training exercises are not combined and reviewed with lessons learned from actual events. Additionally, Airside Operations does not have any written procedures for documenting emergency events or for tracking lessons learned from emergency events.

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17 In April 2015, the Auditor’s Office released a performance audit on the DIA Hotel and Transit Center Project Integration that had a similar recommendation to perform an analysis to justify staffing needs. DIA agreed with the recommendation. “Denver International Airport Hotel and Transit Center Project Integration,” City and County of Denver Auditor’s Office, April 2015, [http://www.denvergov.org/Audits_2015/DIA_Hotel_and_Transit_Center_Project_Integration_Audit_Report_04-16-15.pdf](http://www.denvergov.org/Audits_2015/DIA_Hotel_and_Transit_Center_Project_Integration_Audit_Report_04-16-15.pdf).

18 The Action Items Issue Log is also referred to as the lessons learned tracker. For more information on this tracking tool, see the Introduction and Background section of this report.
Lessons Learned Processes Could Be Enhanced

We reviewed lessons learned identified in a sample of emergency event documentation and noted that not all lessons learned are being carried forward to the Action Items Issue Log. The Action Items Issue Log is also referred to as the lessons learned tracker. For example, during a tornado event in 2014, the Transportation Security Administration (TSA) began screening passengers before receiving approval from the IC. The emergency event documentation shows that this deviation from protocol was discussed; however, it was not transferred to the lessons learned tracker to document and monitor corrective actions. During another tornado event the following month, TSA once again began screening passengers before receiving approval. This subsequent incident again was not carried forward to the lessons learned tracker. Using the lessons learned tracker inconsistently increases the risk that issues may not be properly resolved. This practice also limits the ability of Airside Operations to perform trending analysis to identify recurring issues.

In addition to not being used consistently, we found that information in the lessons learned tracker could be enhanced in several ways. First, it contains some incomplete and non-descriptive information. For example, several issues on the tracker do not include recommended corrective actions, due dates, or resolved dates. Further, the tracker does not include an actions-taken field that describes in detail how, by whom, and when each issue was resolved. Finally, every item on the lessons learned tracker is marked as high priority. Without properly differentiating between low-, medium-, and high-priority issues, Airside Operations cannot easily determine which lessons learned should be prioritized when establishing new procedures to strengthen emergency response management.

Standards for Internal Control in the Federal Government specifies that documentation and records should be properly managed and maintained and readily available for examination. Additionally, the Homeland Security Exercise and Evaluation Program provides guidelines for improvement planning that include developing concrete, actionable steps intended to resolve shortcomings identified in exercises or real-world events. Deadlines for implementation and specific owners or assignees should be explicitly indicated. In addition, corrective actions should be tracked and continually reported on until completion to demonstrate tangible improvements in preparedness and response.

We recommend that the Airport Operations Manager enhance the lessons learned tracker to monitor needed corrective actions identified during emergency events by including all issues in the tracker; ensuring that all fields are completed sufficiently; adding an actions-taken field to describe in detail how, by whom, and when each issue is resolved; and utilizing priority levels.

Opportunity To Strengthen Lessons Learned Procedures

While lessons learned from emergency events are tracked by Airside Operations, lessons learned from training exercises are tracked by TED. This approach makes it difficult to perform a comprehensive review of all improvement areas and prevents Airside Operations from taking lessons learned during exercises and applying them to actual emergencies. Currently, the After Action Reports and Improvement Plans maintained by TED and the Red Folders and Action Items Issue Log maintained by Airside Operations are segregated between the two departments and require manual review of documents to identify trends.

The TED Manager identified this as an issue that needs resolution and explained that TED needs to work with Airside Operations to develop a new mechanism that would track all lessons learned from both emergency exercises and actual emergency events. Further, the new mechanism should protect sensitive security information and be easily accessible to appropriate emergency management personnel in TED and Airside Operations. Accordingly, we recommend that personnel from Airside Operations and TED work together to identify an appropriate information technology solution to securely house all of DIA’s emergency management lessons learned information in one easy-to-access location.

Airside Operations Lacks Policies and Procedures for Emergency Event Documentation

Airside Operations does not have any written procedures for documenting emergency events or for tracking lessons learned from the response to those events. Rather, personnel learn to perform the procedures through on-the-job experience. A lack of written procedures increases the risk that tasks may not be performed consistently and adequately and also limits the ability to resume the process in the case of key employee turnover. There are numerous Airport Operations Managers that may be assigned the IC role, which holds them responsible for completing the Red Folders. Therefore, having multiple personnel with this responsibility, it is important to have written procedures to ensure consistent and adequate documentation. In addition, there is a single employee who is responsible for tracking lessons learned in the lessons learned tracker. If turnover is experienced in this position, the lack of written procedures will make it more difficult for a new employee to take over the responsibility. Employee turnover in previous years resulted in the lessons learned tracker not being maintained for a period of time. Written procedures may have prevented the lapse in documentation.

Standards for Internal Control in the Federal Government specify that management is responsible for designing policies and procedures to fit an entity’s circumstances and building them in as an integral part of the entity’s operations.\(^\text{21}\) Accordingly, we recommend that the Assistant Director of Airside Operations develop written procedures for documenting emergency events in the Red Folders as well as for tracking and

monitoring corrective action items identified during emergency events in the lessons learned tracker.
RECOMMENDATIONS

We offer the following six recommendations to improve emergency preparedness at DIA.

1.1 **Guidelines and Instructions** – The Assistant Director of Airside Operations should update each Standard Operating Guideline to include a comprehensive list of corresponding Operating Instructions that relate to the primary emergency. In addition, the documents should be optimized for digital use.

1.2 **Annual Training Plan** – The Training and Exercise Design Manager should formally document the risk and budget analysis and other decision-making justifications utilized to determine the annual training plan.

1.3 **Airside Operations Budget Estimate** – The Assistant Director of Airside Operations should develop a methodology to estimate the allocation of the budget that is related to each essential function, including emergency management, to assist in determining effective and efficient use of resources and staffing needs.

1.4 **Action Items Issue Log** – The Airport Operations Manager should enhance the Action Items Issue Log to monitor needed corrective actions identified during emergency events by including all issues in the log; ensuring that all fields are completed sufficiently; adding an actions-taken field to describe in detail how, by whom, and when each issue is resolved; and utilizing priority levels.

1.5 **Technology Solution** – The Airside Operations section and the Training and Exercise Design group should continue to work together to identify an appropriate information technology solution to securely house all of DIA’s emergency management lessons learned information in one easy-to-access location.

1.6 **Written Procedures** – The Assistant Director of Airside Operations should develop written procedures for documenting emergency events as well as for tracking and monitoring corrective action items identified during emergency events.
November 2, 2015

Mr. Kip R. Memmott, MA, CGAP, CRMA  
Director of Audit Services  
Office of the Auditor  
City and County of Denver  
201 West Colfax Avenue, Dept. 705  
Denver, Colorado 80202

Dear Mr. Memmott:

The Office of the Auditor has conducted a performance audit of the Denver International Airport Emergency Preparedness Program.

This memorandum provides a written response for each reportable condition noted in the Auditor’s Report final draft that was sent to us on October 8, 2015. This response complies with Section 20-276 (c) of the Denver Revised Municipal Code (D.R.M.C.).

AUDIT FINDING

Minimal Process Improvements Will Strengthen Denver International Airport’s Comprehensive Emergency Preparedness Program

RECOMMENDATION 1.1

Guidelines and Instructions – The Assistant Director of Airside Operations should update each Standard Operating Guideline to include a comprehensive list of corresponding Operating Instructions that relate to the primary emergency. In addition, the documents should be optimized for digital use.

<table>
<thead>
<tr>
<th>Agree or Disagree with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of specific point of contact for implementation</th>
</tr>
</thead>
</table>
| Agree                                 | January 1, 2016                                                                              | Bruce Goetz  
303-342-2791 |

Narrative for Recommendation 1.1
DEN Airport Operations agrees with this recommendation. We will accomplish this by adding an index file in each document that hyperlinks to the subordinate documents.

**RECOMMENDATION 1.2**

**Annual Training Plan** – The Training and Exercise Design Manager should formally document the risk and budget analysis and other decision-making justifications utilized to determine the annual training plan.

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<tbody>
<tr>
<td>Agree</td>
<td>January 1, 2016</td>
<td>Jason Taussig 303-342-4162</td>
</tr>
</tbody>
</table>

**Narrative for Recommendation 1.2**

We agree to the recommendation. This will be accomplished by adding an analysis section to the training and exercise planning workshop summary. The analysis will include risk mitigation and budgetary constraints associated with the plan.

**RECOMMENDATION 1.3**

**Airside Operations Budget Estimate** – The Assistant Director of Airside Operations should develop a methodology to estimate the allocation of the budget that is related to each essential function, including emergency management, to assist in determining effective and efficient use of resources and staffing needs.

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<td>December 1, 2015</td>
<td>Bruce Goetz 303-342-2791</td>
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</tbody>
</table>

**Narrative for Recommendation 1.3**

This will be accomplished in partnership with Airport Finance. We will document a high-level allocation of resources against emergency management to include training and response.
RECOMMENDATION 1.4

Action Items Issue Log – The Airport Operations Manager should enhance the Action Items Issue Log to monitor needed corrective actions identified during emergency events by including all issues in the log; ensuring that all fields are completed sufficiently; adding an actions-taken field to describe in detail how, by whom, and when each issue is resolved; and utilizing priority levels.

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</table>

Narrative for Recommendation 1.4

This will be done in collaboration with the Training and Exercise Design group within Airport Operations. The two groups will work to update the referenced fields within the tracking spreadsheet.

RECOMMENDATION 1.5

Technology Solution – The Airside Operations section and the Training and Exercise Design group should continue to work together to identify an appropriate information technology solution to securely house all of DIA’s emergency management lessons learned information in one easy-to-access location.

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</table>

Narrative for Recommendation 1.5

The Training and Exercise Design group will work with Airside Operations to define a folder hierarchy where both event and exercise after-action items and improvement plans are co-located and searchable.
RECOMMENDATION 1.6

Written Procedures – The Assistant Director of Airside Operations should develop written procedures for documenting emergency events as well as for tracking and monitoring corrective action items identified during emergency events.

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Narrative for Recommendation 1.6

Airside Operations will be responsible to draft Operating instructions detailing the process to document emergency events and corrective action.

Sincerely,

Dave LaPorte
Senior Vice President
Airport Operations

cc: Kim Day – DEN Chief Executive Officer
    Ken Greene – DEN Chief Operating Officer
    Gisela Shanahan – DEN Chief Financial Officer