

AWARE Toolkit User Guide

AWARE Toolkit User Guide

Introduction

This toolkit is intended to help airports of all sizes do the following:

1. Understand the significant weather events¹ that could affect their locations
2. Assess their readiness for different types of significant weather events (especially infrequent events with which airport staff may be less familiar)
3. Identify best practices and action items to increase readiness for such events
4. Track the costs and effects of weather events over time

The AWARE Toolkit was developed for ACRP Project 02-49. The final toolkit, in accordance with airport feedback, is structured around three primary steps, each associated with its own tool, or “module” in the toolkit (see Figure 1-1).

The **Exposure Information Module** provides information on how frequently different weather events occur in an airport’s location and which of those are “rare but plausible” (the ACRP Project 02-49 Contractor’s Final Report, available on the project webpage, provides more detailed information). The **Readiness Modules**, for a given subject, enable users to review best practices for preparing for different weather events, assess readiness for those events, and generate customized checklists. The AWARE Toolkit contains seven readiness modules. Six of the readiness modules are designed for use by larger airports:

- **Administration & Finance** (including human resources functions, airport leadership, insurance coordination, budgeting, public relations, and tenant and maintenance contracting);
- **Planning & Environment** (including capital programs, strategic planning, infrastructure design, and coordination with outside organizations and partners);
- **Airfield Operations** (including gate, runway management, and tarmac operations, air traffic control coordination);
- **Terminal Operations** (including check-in and ticketing, gate areas and terminal space beyond TSA checkpoints, information technology infrastructure, terminal maintenance, and other operational areas aside from those that support aircraft).
- **Ground Transportation & Parking** (including parking lots, transit stations, taxi stands, curbside facilities, access roads, and road and parking maintenance);
- **Safety & Security** (including TSA checkpoints, badging and identification systems, airport-wide emergency operations center, fire-fighting operations, and on-airport communication systems)

Note: If you are using an electronic version of this User Guide, you may choose to navigate the document through the hyperlinked text.

¹AWARE focuses on extreme weather events that could happen today. It does not project how those events may change in frequency or severity due to climate change. The Exposure Information Module does include information from the ACROS tool on whether certain weather events are expected to increase or decrease in frequency due to climate change (see *ACRP Report 147: Climate Change Adaptation Planning* for more information on ACROS). The ACROS information is included as additional information for the user, but climate change ultimately does not factor into which events are recommended by the Exposure Information Module for further evaluation by AWARE.

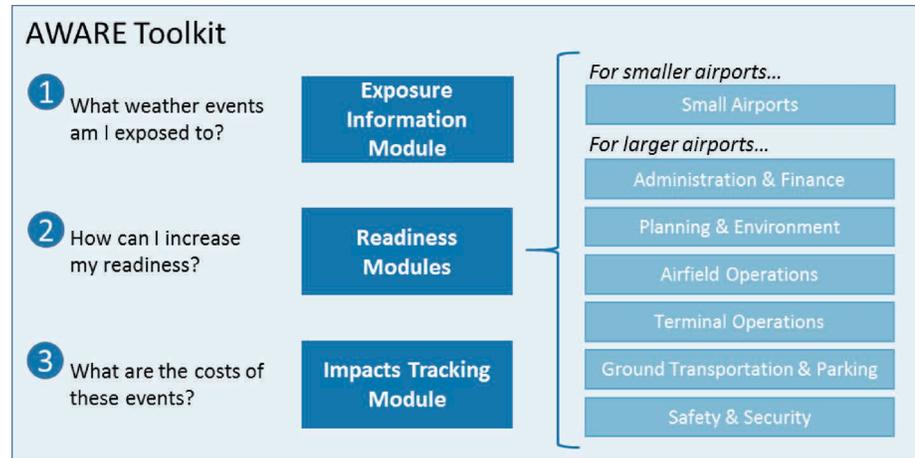


Figure 1-1. AWARE toolkit diagram.

The seventh readiness module, **Small Airports**, is a consolidated, streamlined version of the full toolkit intended to be completed by one person. This may be more appropriate for airports with fewer staff, such as General Aviation (GA) airports or FAA small-hub airports. Each readiness module enables users to complete a readiness self-assessment, review the results, and generate customized checklists with best practices for preparing for extreme weather events (see Section 3.7 for details).

For larger airports, the AWARE Toolkit is designed so that a single “AWARE coordinator” (e.g., a staff member within the planning or emergency preparedness offices) can distribute and coordinate use of the tool across the various functional areas. The tool will then compile the outputs from each of the modules into a single product for the airport. This will allow for coordination across the functional areas, but also provide for function-specific best practices. The role of AWARE coordinator is similar to the “IROPS Champion” described in *ACRP Report 65* and is recommended to ensure communication and coordination across airport functional areas.

Finally, the **Impacts Tracking Module** is a tool to help airports track the costs and other impacts of weather events (e.g., flight delays) over time, as events occur. The module will help airports build a database that can be used to inform future weather preparedness investment decisions.

Toolkit Scope

2.1 Weather Event Types

AWARE provides information on potential exposure, readiness self-assessment questions, and best practices for the following 15 extreme weather event types:

- Flood
- Heavy rain
- Tropical cyclones (e.g., hurricanes, tropical storms)
- Tornadoes
- Lightning
- Hail
- Heavy winds
- Extreme heat
- Extreme cold
- Snow
- Blizzards
- Ice
- Dense fog
- Dense smoke
- Dust storms

2.2 Airport Functional Areas

The toolkit covers six main “functional areas” of airports: Administration & Finance, Planning & Environment, Airfield Operations, Terminal Operations, Ground Transportation & Parking, and Safety & Security. These categories cover the many, more detailed, functions of airports, as outlined in Table 2-1.

Table 2-1. Toolkit modules and the topics covered.

Module	Topics Covered
Administration & Finance	Human Resources (HR) functions Airport leadership Insurance coordination Tenant contracting Budgeting for capital and operating expenses Social media Public relations/press relations Reviewing financial impacts of increased weather-related maintenance Contracted services including provisions for existing on-call trades in place before events and post-event processes for major repair projects
Planning & Environment	Airport Master Plan Airport sustainability and energy management Strategic planning Planning documents (e.g., Irregular Operations (IROPS) plan, Continuity of Operations [COOP] Plan) Engineering design standards Engineering planned improvements (e.g., change in materials, runway length/position) Environmental compliance (including noise, groundwater, and hazardous materials) NEPA documentation
Airfield Operations	Runways (operations and maintenance) Taxiways (operations and maintenance) Aprons Jetways/boarding bridges Flight logistics Air Traffic Control Fuel tanks Documenting impacts to airside pavement, runway lighting, and related areas Deicing Runway maintenance On-airport communication systems (e.g., internal PA system and radios)
Terminal Operations	Check-In/Ticketing Retail Gate areas, terminal space beyond TSA checkpoints HVAC system upkeep and maintenance Terminal facility maintenance Janitorial/custodial services Waste removal Gates Baggage Lighting and signage Utilities (including electricity, phone lines, and water/wastewater) Information Technology (IT) infrastructure Operational areas aside from those that support aircraft. Pre-security areas. Documenting impacts to terminal buildings (interior and exterior) On-airport communication systems (e.g., internal PA system and radios)
Ground Transportation & Parking	Parking lots Transit stations Access roads Recirculation road Curbside facilities On-airport rental car facilities Taxi/limo stands Road and parking maintenance Documenting impacts to airport roads, transit connections, and parking
Safety & Security	TSA checkpoints Terminal space beyond TSA checkpoints Badging and identification systems Airport-wide Emergency Operations Center Fire-fighting operations On-airport communication systems (e.g., internal PA system and radios)

Using the Toolkit

3.1 System Requirements

AWARE was developed using Microsoft® Excel 2010. The tool will only operate properly using Excel 2007 versions or later. Before using the tool, make sure your computer meets the system requirements. To install and run the tool, you must have the following:

- An IBM-PC-compatible computer with the Windows XP operating system or later
- Microsoft® Excel 2007 or later, with calculation set to automatic and macros enabled
- A hard drive with at least 20MB free
- A monitor display setting of 800 × 600 pixels or greater.

3.2 Setup

3.2.1 Preparing the Tool for Use

For the toolkit to function properly, users must extract all files from the .zip file before beginning. To do so, save the toolkit .zip file to your hard drive. Decompress the .zip file by doing one of the following:

- Right-click on the .zip folder, select **Extract All**, and choose a folder to house the zip file's contents
- Double-click on the .zip folder to open it, then drag the contents from the compressed folder into a new location

Then open the file **AWARE Toolkit.xlsm**.

3.2.2 Microsoft Excel Settings

For the tool to function properly, Excel must be set to automatic calculation. Go to the Formulas ribbon and select **Calculation Options**. Make sure that the box next to the “Automatic” option is checked from the pop-up menu. NOTE: your default settings may already be set to these options.

3.2.3 Enabling Macros

Macros must be enabled to use each of the toolkit components. If Excel's security settings are set at the default level, a security warning appears above the formula box in Excel when the tool is initially opened (Figure 3-1). Click the **Enable Content** button to begin using the file.

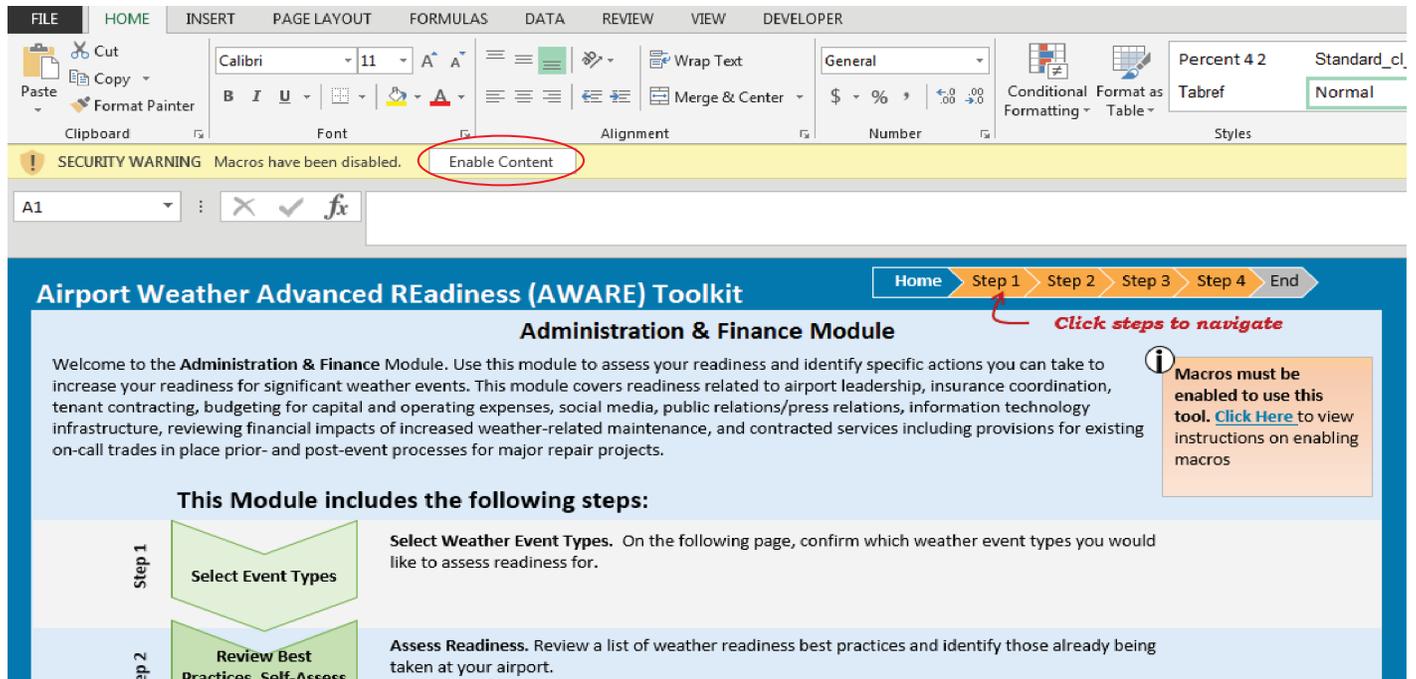


Figure 3-1. How to enable macros.

If the Security Warning does not appear when the tool is first opened, it may be necessary to change the security settings for macros. To change the setting

- Exit out of the tool and re-launch Microsoft Excel before opening the file.
- Click on the Microsoft Excel icon or File menu in the top left of the screen.
- Scroll to the bottom of the menu and select the **Excel Options** button to the right of the main menu.
- When the **Excel Options** box appears, select **Trust Center** in the left-hand menu of the box.
- Click the gray **Trust Center Settings** button. When the **Trust Center** options box appears, click **Macro Settings** in the left hand menu and select **Disable all macros with notification**.
- Once the security level has been adjusted, open the tool and enable macros in the manner described in the preceding paragraph.

(Note: the above description corresponds to Excel 2010. Exact buttons and labeling may be different in other versions of the program, but the same process will apply.)

3.3 Toolkit Instructions

AWARE toolkit user tips

- Pale yellow cells () indicate user entry.
- Click or hover over the  icons throughout the toolkit for helpful tips. Click the button again to hide the pop-up box.
- Select the **PDF/Print** button at the top of certain pages to export contents to a PDF. Remember to save and close the PDF before exporting another PDF.

Table 3-1. AWARE toolkit file structure.

Folder/File	Description
<i>AWARE Toolkit</i>	<i>Main toolkit folder</i>
AWARE Toolkit.xlsm	Starting point for the toolkit; will help the user navigate to the other components as needed.
AWARE Toolkit User Guide.pdf	User Guide
AWARE Toolkit Quick Start Guide.ppt	For users to quickly get familiar with the toolkit.
<i>Modules</i>	<i>Folder containing toolkit files</i>
<i>Completed</i>	<i>Folder for users to save completed modules</i>
Administration and Finance.xlsm	Readiness Module
Airfield Operations.xlsm	Readiness Module
Exposure Information Module.xlsm	Exposure Information Module
Ground Transportation and Parking.xlsm	Readiness Module
Impacts Tracking Module.xlsm	Impacts Tracking Module
Planning and Environment.xlsm	Readiness Module
Safety and Security.xlsm	Readiness Module
Small Airports.xlsm	Readiness Module
Terminal Operations.xlsm	Readiness Module

Italics = folder

Step 1. Open the “AWARE Toolkit.xlsm” file

This file serves as the “hub” of the toolkit and will direct you to the other components as needed. Other components of the toolkit should open automatically when you press the orange buttons in the AWARE Toolkit file. However, if you have changed the name or organization of the toolkit folder (defaults shown in Table 3-1), the tool will prompt you with a pop-up window asking you which file to open. Users may also refer to the Quick Start Guide in the same folder.

Step 2. Enter Airport Name

Enter your three-letter IATA airport code in the cell provided. If your airport code is not in the drop-down menu, leave the cell blank. Users can also enter their airport name in the cell below. This field is optional, and used to populate title fields in tool-generated reports (e.g., AWARE Toolkit Report for *My Airport*).

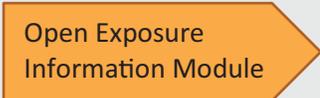
Step 3. Select Toolkit Version—Small vs. Large Airport

Use the radio button to select whether you want to use the “small airports” version of the toolkit. The AWARE Toolkit comes in two versions: (1) a full version that contains six distinct readiness modules (Administration & Finance, Planning & Environment, Airfield Operations, Terminal Operations, Ground Transportation & Parking, and Safety & Security) intended to be completed by different staff with expertise in that area, and (2) a consolidated “Small Airports” version intended to be completed by one person. The streamlined Small Airports version may be more appropriate with airports with fewer staff.

Based on your selection, jump to the instructions for the [full toolkit](#) (Section 3.4) or the [small airports toolkit](#) (Section 3.5).

Opening other files from the AWARE toolkit

Other components of the toolkit should open automatically when you press the orange buttons in the AWARE Toolkit file. However, if you have changed the name or organization of the toolkit folder (defaults shown in Table 3-1), the tool will prompt you with a popup window asking you which file to open.



Open Exposure Information Module

3.4 Full Toolkit Users

Step 4. Select User Type

Given the broad scope of the toolkit and the importance of coordination in weather preparedness, the toolkit is best used with the help of an “AWARE Coordinator.” The AWARE Coordinator is someone who will coordinate use of the toolkit across the airport functional areas. This

AWARE coordinator role

Larger airports may wish to identify someone to serve as the AWARE Coordinator to help oversee and coordinate use of the toolkit across different airport functional areas.

What is the role?

- Identify appropriate staff to complete the toolkit for each functional area
- Coordinate and assign deadlines for functional area modules
- Compile results across functional area modules
- Encourage communication, coordination, and collaboration across airport functional areas

Who should do it?

The AWARE Coordinator should be familiar with a broad range of airport departments and functions. Consider candidates from airport management, planning, or emergency management.

person should be familiar with a broad range of airport departments and functions. Individuals from airport management, planning, or emergency management could be good candidates.

If you are the AWARE Coordinator, jump to the AWARE Coordinator instructions (Section 3.4.1). If you are not the AWARE Coordinator, jump to the “Functional Area Manager” instructions (Section 3.4.2).

3.4.1 AWARE Coordinator

Step 5. Press the *Open Exposure Information Module* button to identify weather event types that could affect your airport

This button will open the tool’s Exposure Information Module, which provides information on how likely different weather event types are in your airport’s county. Jump to Section 3.6 for instructions on completing the Exposure Information Module.

Step 6. Assign and distribute modules to appropriate people

Determine who the appropriate staff people are at your airport to complete each module. They should have knowledge of ongoing airport practices related to weather preparedness within their domain. Multiple people may need to complete each module if your airport departments do not align perfectly with the six modules. Review the module definitions (click the information icon) to see what topics fall into which modules.

Keep track of the module assignments in the table provided. Press the **Send** button to send each module to the assigned person. **Note: If you do not have Microsoft Outlook**, the “send” functionality will not work. If that is the case, simply send an email to each staff person using your e-mail software and attach the appropriate module file. The files can be found within the Modules folder of the toolkit (see Table 3-1).

Step 7. Collect and save completed modules (including the exposure module), and store the file path (see Figure 3-2)

As you receive completed modules from your team, save them into the Completed folder within the Modules folder. After you save each file, you must **press the Store File Path** button next to its corresponding row. This is in order to tell the toolkit where to look for the completed module and what it is called (e.g., someone may have changed the file name to append

Module	Completed Module Returned?		File Path
Exposure Module	Yes	Store File Path	C:\Users\25052\Documents\AWARE Toolkit\Mod
Administration & Finance	Yes	Store File Path	C:\Users\25052\Documents\AWARE Toolkit\Mod
Planning & Environment		Store File Path	
Airfield Operations		Store File Path	
Terminal Operations		Store File Path	
Ground Transportation & Parking		Store File Path	
Safety & Security		Store File Path	

Figure 3-2. AWARE Coordinator: how to collect store completed modules.

the date or their initials). The file path will appear to the right as confirmation that the step is complete.

You must also press the **Store File Path** button for the Exposure Information Module if you would like to include it in your summary report.

Select **Yes** in the **Completed Module Returned?** column to keep track of modules as you receive them.

Step 8. Generate summary report

Once you have received modules, press the **Compile Results** button to generate a summary report in PDF. The summary report will cover all modules that you have marked as complete and will include

- A summary of exposure results (weather event frequency for the county and adjacent counties)
- A summary of readiness ratings for all functional areas and weather event types
- Compiled checklists across all functional areas and weather event types

You can generate the summary report as many times as desired. You do not have to wait until all modules are received.

In addition to the summary report, the **Compile Results** button will also create a filterable database of all the checklist items generated in the completed modules. For each item, the database contains the applicable Functional Area, Event Type, Stage (e.g., planning, mitigation, response, and recovery), Type (e.g., communications, procedures, and infrastructure), and other notes.

At this point, the toolkit is complete, and you should have a set of actions to help increase your readiness for extreme weather events. You may want to set a time in the future (e.g., 6 months or 1 year) to re-complete the toolkit and measure your progress.

In addition, you can use the Impacts Tracking Module (see Step 9) to track the costs and impacts of weather events as they occur over time.

Step 9. Track impacts over time

The AWARE Toolkit also includes a standalone Impacts Tracking Module that airports can use to track the costs and impacts of weather events as they occur over time. Many airports do not have systems in place to monitor how much staff time, equipment, materials, and other resources they spend preparing for or responding to weather events, except in the case of the most severe events with disaster declarations or major insurance claims. This tool is intended to enable airports to track costs from events large and small over time so that airports can make more informed investment decisions. Jump to Section 3.8 for instructions on using the [Impacts Tracking Module](#).

3.4.2 Functional Area Manager

Step 5. Press the *Open Exposure Information Module* button to identify weather event types that could affect your airport

This button will open the tool's Exposure Information Module, which provides information on how likely different weather event types are in your airport's county. Jump to Section 3.6 for instructions on completing the [Exposure Information Module](#).

Step 6. Assess readiness and review best practices

Review the list of modules and their definitions (available by clicking the information icon). For each module you would like to complete, press the orange **Open** button next to the module name. Each module includes a readiness self-assessment and case studies and will help you create customized checklists of best practices for your airport. Jump to Section 3.7 for instructions on completing the [Readiness Modules](#).

At this point, the toolkit is complete, and you should have a set of actions to help increase your readiness for extreme weather events. You may want to set a time in the future (e.g., 6 months or 1 year) to re-complete the toolkit and measure your progress.

In addition, you can use the Impacts Tracking Module (see Step 7) to track the costs and impacts of weather events as they occur over time.

Step 7. Track impacts over time

The AWARE Toolkit also includes a standalone Impacts Tracking Module that airports can use to track the costs and impacts of weather events as they occur over time. Many airports do not have systems in place to monitor how much staff time, equipment, materials, and other resources they spend preparing for or responding to weather events, except in the case of the most severe events with disaster declarations or major insurance claims. This tool is intended to enable airports to track costs from events large and small over time so that airports can make more informed investment decisions. Jump to Section 3.8 for instructions on using the [Impacts Tracking Module](#).

3.5 Small Airport Toolkit Users

Step 4. Press the *Open Exposure Information Module* button to identify weather event types that could affect your airport

This button will open the tool's Exposure Information Module, which provides information on how likely different weather event types are in your airport's county. Jump to Section 3.6 for instructions on completing the [Exposure Information Module](#).

Step 5. Press the *Open Small Airports Readiness Module* button to assess readiness and review weather readiness best practices

This button will open the tool's Small Airports Readiness Module, which provides detailed best practices for increasing readiness across a wide range of weather events. The module includes a readiness self-assessment and case studies and will help you create customized checklists of best practices for your airport. Jump to Section 3.7 for instructions on completing the [Readiness Modules](#).

At this point, the toolkit is complete, and you should have a set of actions to help increase your readiness for extreme weather events. You may want to set a time in the future (e.g., 6 months or 1 year) to re-complete the toolkit and measure your progress.

In addition, you can use the Impacts Tracking Module (see Step 6) to track the costs and impacts of weather events as they occur over time.

Step 6. Track impacts over time

The AWARE Toolkit also includes a standalone Impacts Tracking Module that airports can use to track the costs and impacts of weather events as they occur over time. Many airports do not have systems in place to monitor how much staff time, equipment, materials, and other resources they spend preparing for or responding to weather events, except in the case of the most severe events with disaster declarations or major insurance claims. This tool is intended to provide airports with a means to track costs from events large and small over time so that airports can make more informed investment decisions. Jump to Section 3.8 for instructions on using the [Impacts Tracking Module](#).

3.6 Exposure Information Module

The Exposure Information Module provides information on historical extreme weather frequency by county. The module provides information about the frequency of weather event types in the airport's county, adjacent counties, and region and, based on this information, identifies specific weather events that are "rare but plausible" because, as determined in the earlier research stages of the project, these are the events for which airports are least likely to be prepared. These "rare but plausible" event types are recommended for evaluation in the remainder of the toolkit, although users are free to add or subtract from the recommended event type list. The process for using this module is in the following subsections.

3.6.1 Select Location

- Review module background information on the first tab. Click **Next**.
- On the Location Selection tab, look up your location either by airport IATA code or zip code.
- Once you have selected your IATA code or zip code from the drop-down menu, press **Next**.

3.6.2 Review Results

3.6.2.1 Extreme Events Overview

The Extreme Events Overview tab (see Figure 3-3) shows an overview of how frequently the different types of weather events occur in your county, compared to a national average (based on the NOAA Storm Report database from 1996–2013). The graph on the right shows events that have not occurred in your county, but have occurred in adjacent counties.

Events that are recommended for further study are those that are "rare but plausible" for the location. "Rare but plausible" is defined as occurring fewer than once every 5 years in the airport's county or occurring in adjacent counties without occurring in the airport's county during the available time period.

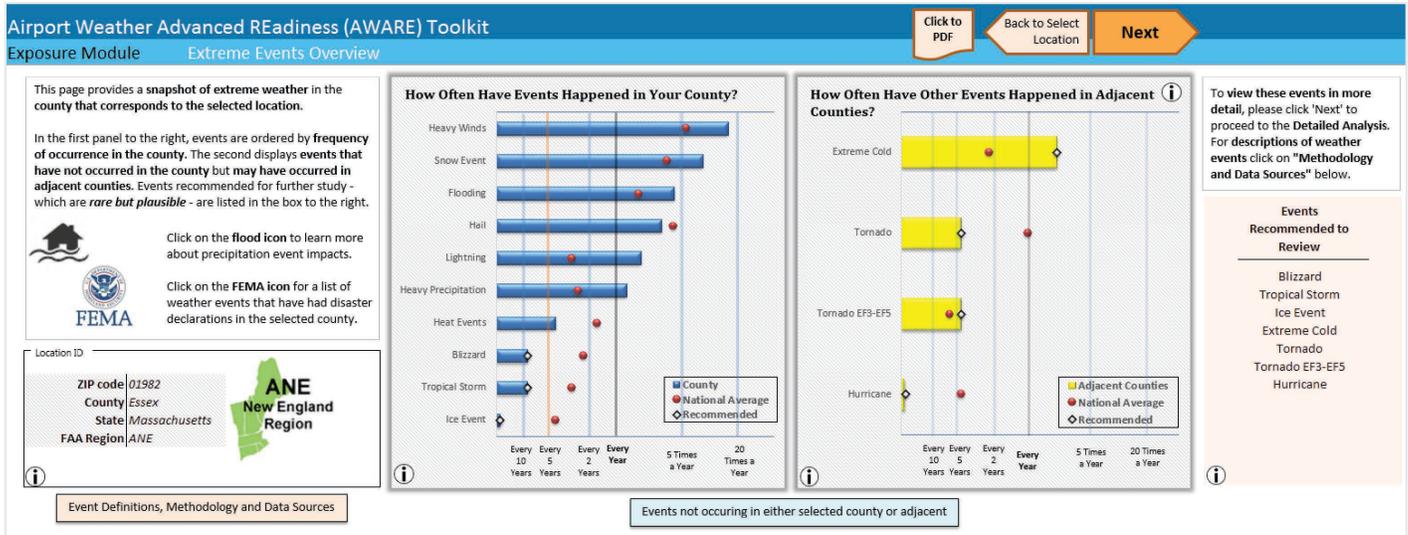


Figure 3-3. Example outputs from exposure information module (extreme events overview).

Click the **Next** button.

3.6.2.2 Detailed Results

The Detailed Results page provides additional information (see Figure 3-4). For each event, the page provides

- Number of events from 1996 to 2013 for the selected county, adjacent counties, and the county's FAA region.
- National map of event frequency. Click the map icon to view a map showing how often each event type has occurred in the United States, at the county level. This information may be helpful in identifying airports that frequently experience weather events that you have less experience with.
- Whether there have been any major disaster declarations in your county or adjacent counties (between 1996 and 2013).
- Whether the event is recommended for further study (red dot) or not (gray dot or pink dot), based on whether the event is "rare but plausible" as defined above.

Additional information is also provided for flooding.

Click the **Next** button.

3.6.2.3 Additional Information

The Additional Information page shows results from the ACROS climate tool, developed under ACRP Project 02-40 and discussed in *ACRP Report 147* (Figure 3-5). Because the AWARE Toolkit does not project how climate change may affect the frequency of historical weather events, it provides projected changes in frequency for several climate variables using the ACROS climate tool. Some AWARE event types do not match the types in the ACROS tool and are therefore greyed-out in the tool. Projected changes in frequency are indicated using up and down arrows.

3.6.3 Select and Export Event Types

- Based on the previously presented information, decide which weather events you want to review readiness for in the remainder of the toolkit. The recommended events will be pre-selected by default, but you can choose to add or subtract events from this list using the

Airport Weather Advanced Readiness (AWARE) Toolkit
 Exposure Module Detailed Results

Click to PDF | Back to Overview | **Next**

This tab presents a **more detailed view of extreme weather events** in the selected county. Each event type is organized into an overarching weather category below.

For **additional information** on each component **click the 'i' icon** where available. Click again to remove the information.

After reviewing these details please **click 'Next'** to proceed to the final conclusion.

Location ID: ZIP code 01982, County Essex, State Massachusetts, FAA Region ANE

ANE New England Region

Event Definitions, Methodology and Data Sources

Legend

- Rare in county or occurs in adjacent county. Recommended for readiness assessment.
- Common event. User may want to consider whether readiness assessment is warranted based on local knowledge.
- No historical precedent for event. Not recommended for readiness assessment.

Event Type	Number of Events, 1996 to 2013				Major Disaster Declaration		Events Recommended for Further Study
	County	Adjacent Counties	FAA Region	National Map	County	Adjacent Counties	
Heat Events	4	35	361		Data Unavailable		●
Extreme Cold	0	43	1,329		Data Unavailable		●

Figure 3-4. Example outputs from exposure information module (detailed results).

Airport Weather Advanced Readiness (AWARE) Toolkit
 Exposure Module Additional Information

Click to PDF | Back to Details | **Next**

The AWARE toolkit considers historical weather events, but does not project how the frequency of those events may be affected by climate change. For users interested in how risks may change in the future, this page shows results from the ACROS climate tool developed under ACRP 02-40. It provides projected climate changes for a number of climate variables under a high global greenhouse gas emissions scenario (RCP8.5) for 2030 and 2060 relative to baseline conditions.

Some AWARE event types do not match the types in the ACROS tool and are greyed-out below. The ACROS results represent a different type of analysis than AWARE, and thus are not reflected in the ultimate AWARE event recommendations for further analysis. The ACROS results are provided to give additional detail on the projected climate impacts to the weather event types presented here.

Location ID: ZIP code 01982, County Essex, State Massachusetts, FAA Region ANE

Projected Change in Frequency

Event Definitions, Methodology and Data Sources

The ACROS tool was developed under ACRP 02-40 and is discussed in ACRP Report 147. ACROS provides information on how climate may change at specific airport locations. The tool and report can be downloaded [here](#).

Event Type	Projected Change in Event Frequency in FAA Region	
	2030	2060
Heat Events		
Extreme Cold	Data Unavailable	

Figure 3-5. Exposure module, additional information.

Airport Weather Advanced REadiness (AWARE) Toolkit

Restart
Back to Additional Info
Click to PDF

Exposure Module
Select and Export Event Types

1

Select Event Types for Further Study

The Exposure Module identifies event types that are rare but plausible for your location, and for which you are less likely to be prepared. We recommend you use the remainder of this toolkit to analyze your preparedness for these event types. You can also use the toolkit to review your preparedness for events that are more common in your area.

Using the checkboxes below, indicate which event types you wish to consider in the remainder of the toolkit. You will also have the opportunity to add or remove event types later.

Event Type	Rare but Plausible?	Include?
Flood		<input type="checkbox"/>
Heavy Rain		<input type="checkbox"/>
Tropical Cyclones	Yes	<input checked="" type="checkbox"/>
Tornadoes	Yes	<input checked="" type="checkbox"/>
Lightning		<input type="checkbox"/>
Hail		<input type="checkbox"/>
Heavy Winds		<input type="checkbox"/>
Extreme Heat		<input type="checkbox"/>
Extreme Cold	Yes	<input checked="" type="checkbox"/>
Snow		<input type="checkbox"/>
Blizzards	Yes	<input checked="" type="checkbox"/>
Ice	Yes	<input checked="" type="checkbox"/>
Dense Fog		<input type="checkbox"/>
Dense Smoke		<input type="checkbox"/>
Dust Storms		<input type="checkbox"/>

2

Export your selected events to the remainder of the toolkit by clicking the "Click to Export" button.

Click to Export

3

To return to the AWARE toolkit and proceed to the functional area modules, select the "return to AWARE" button.

Save and Return to AWARE Toolkit

Figure 3-6. Exposure module, export button.

checkboxes provided. Depending on regional geography and topography, weather events that occur in adjacent counties may not always be plausible in the airport's location. Use your own judgment to determine whether it is appropriate to review readiness for event types that occur in adjacent counties.

- Press the **Click to Export** button (Figure 3-6) to export the recommended event types to the remaining toolkit files.

Click the **Save and Return to AWARE Toolkit** button.

[Click here to go back to Full Toolkit User, AWARE Coordinator instructions](#)

[Click here to go back to Full Toolkit User, Functional Area Manager instructions](#)

[Click here to go back to Small Airport Toolkit User instructions](#)

3.7 Readiness Modules

The readiness modules, available for six airport functional areas and small airports, are intended to provide practical, implementable information for operations managers and staff. In each module, users can

- **Select weather event types** (these may be pre-selected based on the Exposure Information Module, and users have another opportunity to add or remove weather event types).
- **Assess their readiness to respond to each weather event type.** For each weather event type selected, as well as general weather events, the tool provides a list of best practices and

accompanying implementation steps for preparing for, responding to, and recovering from the weather event. Users check off the activities they are already completing.

- **Review their readiness ratings.** The tool then provides qualitative ratings (on a scale of very low to very high) of the airport’s readiness for each event type and by stage (e.g., planning, mitigation, response, and recovery). These ratings are based on the number of best practices being taken at the airport. Users can also override the default rating if they believe that extenuating factors indicate a different readiness level than the tool output generates.
- **Generate customized checklists.** After the user has completed the readiness self-assessment (or even if they choose to skip that step), the module then provides checklists of best practices and supporting implementation steps for preparing for, responding to, and recovering from each type of significant weather event selected by the user. These checklists contain activities that have not been checked off by the user during the readiness self-assessment. Next to each activity, the user can assign people, places, and times for each checklist item.

3.7.1 Select Weather Event Types

Use the checkboxes to indicate whether you want to use the toolkit to review your readiness for each weather event type. You can base this decision on the Exposure Information Module recommendations, other information provided in the Exposure Information Module (e.g., events that occur frequently in your location), and expert judgment. You can come back at any time to add or remove event types.

3.7.2 Readiness Self-Assessment

The readiness self-assessment provides a series of best practices and associated implementation steps to respond to different significant weather events. The best practices are organized into four overarching categories, based on stage of implementation:

- **Planning.** Actions related to advanced planning to reduce the impacts of weather events or improve mitigation, response, and recovery.
- **Mitigation.** Actions that can prevent, alleviate, or diminish the potential effects of a disaster situation, which may include some significant weather events.
- **Response.** Time-sensitive actions to save lives and property, reduce the possibility of secondary damage, and enhance the speed of recovery of operations.
- **Recovery.** Actions that restore the airport/community to pre-emergency conditions.

Select the best practices that your airport currently implements in order for the module to derive a preliminary readiness rating for each event type. “Overarching” best practices apply to all weather event types.

Other features (see Figure 3-7):

- Use the **Show/Hide** buttons to expand and collapse best practices related to the different weather event types you have selected. Icons to the right of each best practice categorize them as relating to communications, personnel, funding, procedures, equipment, or infrastructure.
- Press the **Next** button at the bottom of the page to advance to the checklist for the next event type. If you want to go back to a previously completed event type, select the event from the dropdown menu in the top left of the screen and press the **Update Checklists** button.
- In the Administration & Finance Module, select the **+See Additional NIMS Resources** link to access National Incident Management System resources and Incident Command System organization templates. Users can print or export this page for future reference, if desired, by pressing the **PDF/Print** button at the top of the screen.

AWARE Toolkit: Airfield Operations Module PDF/Print Home Step 1 Step 2 Step 3 Step 4 End

Readiness Self-Assessment: Is your airport taking these steps?

Select event type: Overarching Update Event

Instructions

- Review the following best practices for preparing for different weather event types. Check off the items that your airport already completes.
- Press the **Next** button at the **bottom** of the page to move through event types sequentially, or select an event using the **yellow drop down** and the **Update Event** button to the left.

Type Legend:

- Communications
- Personnel
- Funding
- Procedures
- Equipment
- Infrastructure

Best Practices and Implementations Steps: Overarching Hide All Sub-Steps

Planning Hide + See Case Studies

Show/hide best practices by stage (Planning, Mitigation, Response, Recovery)

Select event type and update checklist

Click to see case studies

Prior to, and during, an identified weather event, communicate with airlines to understand broader weather conditions surrounding the airport

Develop a training for departure controllers to communicate weather impacts reported from pilots effectively

Setup a communication link between departure tower and airport management

Develop a method to log reports from pilots and a way to evaluate them in terms of current weather impacts

Communicate priority reports on impending weather to airport staff

Evaluate past performance and improve reporting

Hold pre-season meetings and exercises to coordinate response

Identify key personnel that need to be engaged in the preplanning meeting, and set up meeting times with key personal (e.g., use Doodle, Survey Monkey, Google Sheets, or another tool for meeting times)

Prepare agenda that includes an outline of the existing response plan for event with corresponding responsibilities; determine based on in-meeting knowledge whether an exercise is needed

Figure 3-7. Readiness self-assessment features.

- Press the **+See Case Studies** link in the gray bar to see examples of how some of the best practices have been used at other airports. Users can print or export this page for future reference, if desired, by pressing the **PDF/Print** button in the top right-hand corner of the screen.

3.7.3 Readiness Self-Assessment Results

Default readiness ratings (Figure 3-8) are determined based on how many applicable best practices and implementation steps are checked off for each activity stage (e.g., Planning, Mitigation, Response, and Recovery). Readiness for a weather event is multifaceted and difficult to quantify. Users can override the default rating in the **User Rating** column if they feel there are extenuating factors that indicate a different readiness level than the tool output generates. More information on the readiness ratings is in Section 4.2.

3.7.4 Checklists

These sheets present checklists of best practices to help airports reduce the impacts of extreme weather events (see Figure 3-9). Users can assign people, places, and times for each checklist item. Print the checklists using the **PDF/Print** button in the top right of the screen.

If you go back and update the readiness self-assessment, press the **Update Checklist** button at the top of the screen. This will clear the entire checklist, including any notes you may have entered.

Click the **Next** button.

3.7.5 End

In the last step you can print summary reports of the readiness results and checklists.

Save the file.

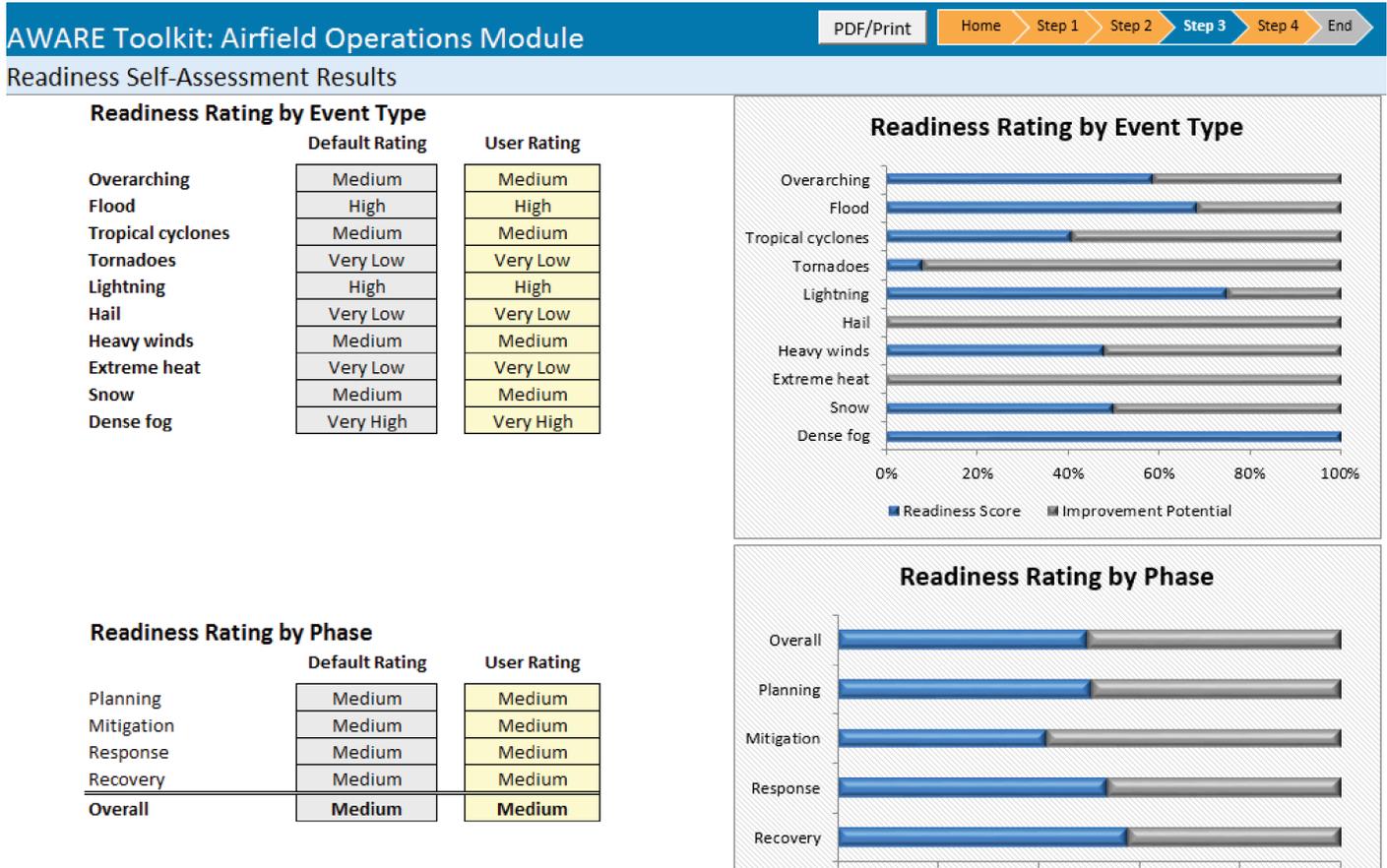


Figure 3-8. Readiness modules, readiness self-assessment results.

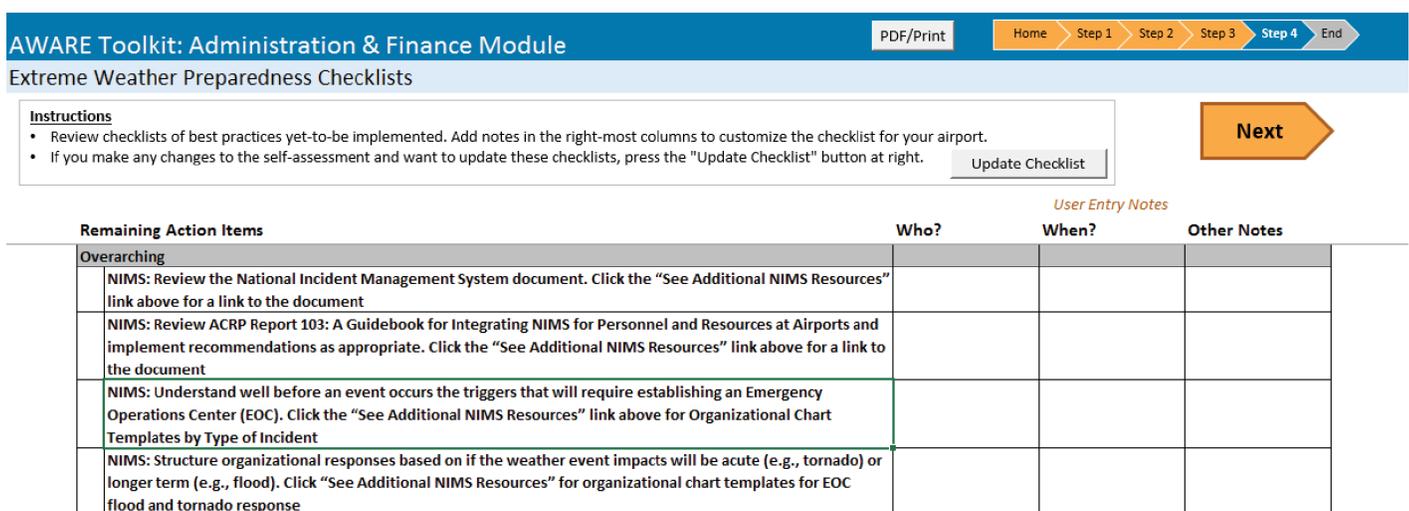


Figure 3-9. Checklist features.

If you have an AWARE Coordinator, use the orange button to send the file. **Note: If you do not have Microsoft Outlook**, the “send” functionality will not work. If that is the case, send an email to the AWARE Coordinator using your e-mail software and attach the completed module file.

[Click here to go back to Full Toolkit User, Functional Area Manager instructions](#)

[Click here to go back to Small Airport Toolkit User instructions](#)

3.8 Impacts Tracking Module

The final component of the toolkit is a standalone Impacts Tracking Module that can help airports track the complete scope of impacts of weather events on their airports over time, in terms of direct costs to the airport (e.g., overtime costs, equipment, and materials) and broader impacts (e.g., flight delays, airline costs, and passenger lost time). Airports can use this tool to build a database of weather-related costs as events occur and then to inform investment decisions over time.

The tool contains several features, including a template for tracking costs that is consistent with FAA reimbursement terminology, supporting calculators that provide default values to help airports quantify the impacts to and beyond the airport, and a dashboard that provides some summary charts to help airports visualize their data. In addition, the tool can export an Excel table with all data entered, which airports can integrate into other management systems as appropriate.

3.8.1 Data Entry

The Impacts Tracking Module contains the data entry form shown in Figure 3-10. This form was developed based on consultation with airports and review of relevant FAA and FEMA cost reporting requirements. After an event occurs, enter the event name (e.g., Halloween Blizzard), event date, and the event type (from the drop-down menu).

Then enter information on the costs and other impacts of the event, using the supporting calculation worksheets if needed. When you are done, press the **Save & Clear** button. This will save the data into the tool database and clear the entry sheet.

Press Review Impacts Data to review a dashboard summarizing the impacts data you have entered over time.

Users can reset the entry form using the **Reset Form** button in the Data Entry Options section of the form. This will reset values inputted in the data entry form but retain values entered in the calculator sheets (see Section 3.8.2). Saved forms can be edited and deleted using the Edit Existing Entry and Delete Existing Entry forms by clicking on one of the buttons and selecting a saved entry to edit or delete.

3.8.2 Calculators

To help airports populate the data entry form, the tool also contains several calculators that provide default values and calculation methodologies to help airports quantify the impacts of labor costs, flight delays (to passengers), flight delays (to passenger and cargo carriers), equipment and materials use, and aircraft damage. All calculation assumptions are traceable and editable by the user. Most of the calculation assumptions derive from the FAA’s *Economic Values for FAA Investment and Regulatory Decisions, A Guide* (2007).

3.8.2.1 Airport Labor Costs

The airport labor cost calculator (Figure 3-11) provides default assumptions about airport labor rates to help airports estimate labor costs associated with preparing for, responding to, and

Event Name		Data Entry Options			
Event Date		Edit Existing Entry	Delete Existing Entry	Reset Form	
Event Type					
Impacts					
Airport Costs, Prior to and During Weather Event		Costs (\$)	Cost Type	FEMA Cost Summary Category	Notes
Labor	Added costs of additional regular time labor by airport personnel			Force Account Labor (regular time)	Calculate
	Added costs of additional overtime labor by airport personnel			Force Account Labor (overtime)	Calculate
Equipment and Materials	Materials such as ice-melt, sand, etc.			Materials	Calculate
	Airport-owned equipment			Force Account Equipment	Calculate
	Equipment rentals to deal with the storm			Rental Equipment	Calculate
Passenger Services	Services provided to stranded passengers				
Contracts	Costs of contracted services			Contracts	Calculate
Other	Other				
Airport Costs, After Weather Event					
Labor	Added costs of additional regular time labor by airport personnel			Force Account Labor (regular time)	Calculate
	Added costs of additional overtime labor by airport personnel			Force Account Labor (overtime)	Calculate
Cleanup and Repairs	Materials			Materials	Calculate
	Airport-owned equipment			Force Account Equipment	Calculate
	Equipment rentals			Rental Equipment	Calculate
	Debris removal / waste disposal				
Replacements	Costs of replacement (under insurance deductible)				
Contracts	Costs of contracted services			Contracts	Calculate
Other	Other				
Non-Airport Costs					
Passenger Costs	Value of time lost to passengers during delays				Calculate
Airline Costs	Direct delay costs to passenger airlines				Calculate
	Direct delay costs to cargo airlines				Calculate
	Aircraft damage costs				Calculate
Tenant Costs	Costs of operating expenses for tenants				
Other	Other				
Total Airport Costs		\$ -			
Total Non-Airport Costs		\$ -			
Total Costs		\$ -			

[Save & Clear](#)

Figure 3-10. Impacts tracking module data entry template.

recovering from weather events. If airports do not already know the exact cost of labor pertaining to the event, they can enter the number of staff, then the estimated number of regular and overtime hours per person. The tool then applies default values for aviation salary data from the FAA to estimate labor costs (FAA, 2007).

3.8.2.2 Equipment and Materials Costs

The equipment and materials cost calculator provides a simple worksheet for airports to track the type of materials and equipment used, as well as the unit cost and number of units used to calculate total equipment and materials costs. Default values for unit costs for different equipment and material types are provided based on the FEMA Schedule of Equipment Rates (FEMA, 2015).

3.8.2.3 Passenger Delay Costs

The passenger delay cost calculator allows airports to quantify the costs associated with flight delays based on the value of passenger time (FAA, 2015). Airports enter the duration of delays

Airport Weather Advanced REAdiness (AWARE) Toolkit Back

Airport Labor Cost Estimation Worksheet

Instructions

- Use the worksheet below to calculate approximate labor costs during weather events or irregular operations.
- Populate the pale yellow cells below with the number of additional staff, hours worked per person at a regular rate, and hours worked per person at an overtime rate.
- Edit the default values of regular and overtime rates, in the gray cells, if desired.
- Columns marked with an * are required.
- Click the back button to return to the Data Entry sheet for your event.

[See Default Assumptions](#)

ID	Event Name	Date	Labor Type	Number of Additional Staff	Hours Worked / Person (Regular Rate)	Hours Worked / Person (Overtime)	Average Regular Rate (\$/hr)	Average Overtime Rate (\$/hr)	Total Staff Regular Hours	Total Staff Overtime Hours	Total Regular Labor Cost	Total Overtime Labor Cost	Total Labor Cost	Notes
Ex.	December 3rd Snow	1/15/2015	Post-Event/Cleanup	5	8	3	27.03	40.54	40	15	\$ 1,081.01	\$ 608.07	\$ 1,689.08	
01			Post-Event/Cleanup											
02														
03														
04														
05														
06														
07														
08														
09														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														
21														
22														
23														
24														
25														

Figure 3-11. Airport labor cost estimation worksheet.

and the number of passengers affected. Users can estimate the number of passengers affected based on the type of aircraft delayed.

3.8.2.4 Carrier Delay Costs

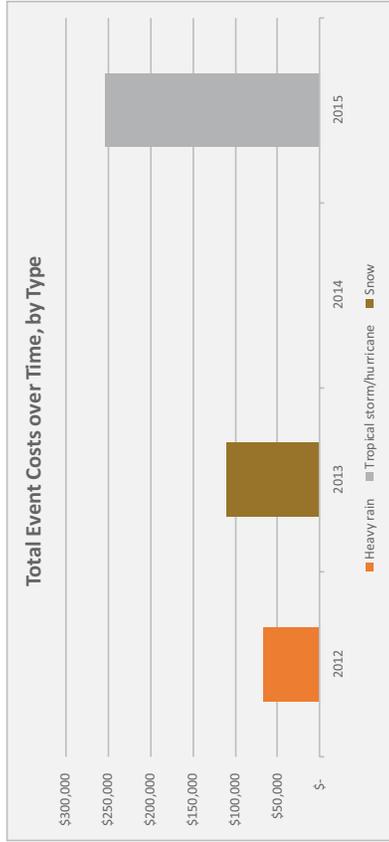
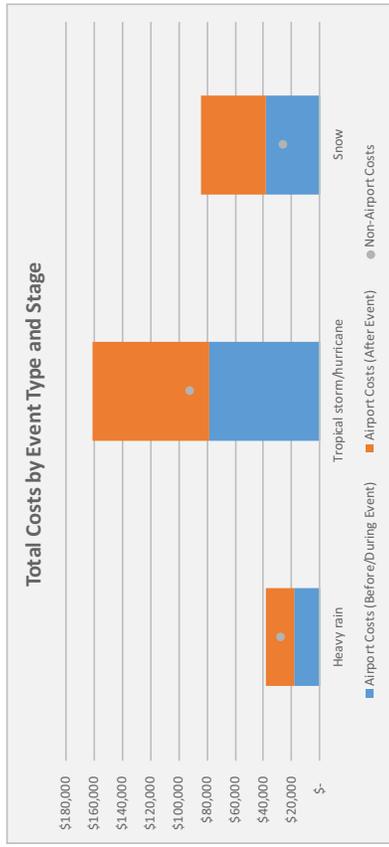
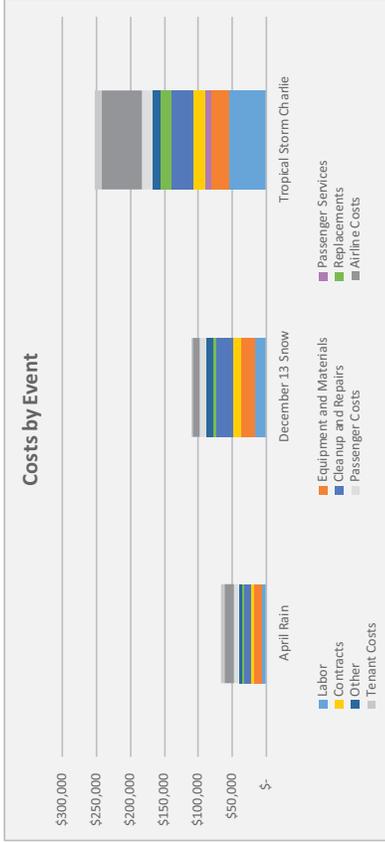
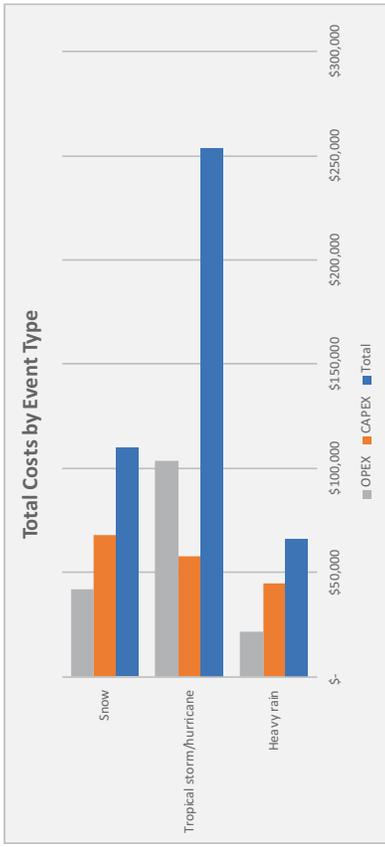
The tool also estimates the direct costs of flight delays to passenger and cargo carriers. The user enters information about the aircraft size and duration of flight delays, and the tool provides default assumptions about the direct costs per block hour of delays to airlines. The tool estimates default direct carrier costs to airlines using 2014 operational costs of U.S. airlines with greater than \$100 million in revenue, as reported to the FAA (Form 41 Schedule P-5.2). Operational costs used from this source include total costs of flying operations (including personnel, aircraft fuel, and other related expenses), use of flight equipment, and depreciation of flight equipment. The sum of these costs, divided by total air hours, is used to estimate costs of delays per block hour. If users do not know the specific aircraft type delayed, the tool will provide an average operational cost for aircraft of similar size, based on the approximate number of passengers aboard (FAA, 2015).

3.8.2.5 Aircraft Damage Costs

The aircraft damage cost estimation worksheet helps estimate the cost of aircraft damage based on aircraft type. Users enter the type of aircraft damage and the tool applies default assumptions from FAA (2015) and the ICF SH&E Maintenance, Repair, and Overhaul (MRO) Models.

3.8.3 Dashboard

Finally, the Impacts Tracking Module provides a summary dashboard (Figure 3-12) showing total costs by event type (e.g., flood and snow), total costs by event (e.g., Hurricane Irene and 2011 Polar Vortex), and a timeline of costs over time by cost type and event type.



Create Custom Chart:

Choose event type

[All event types]

Choose cost type from drop-down menu to view additional details of impacts over time

[By cost type (labor, materials, etc.)]

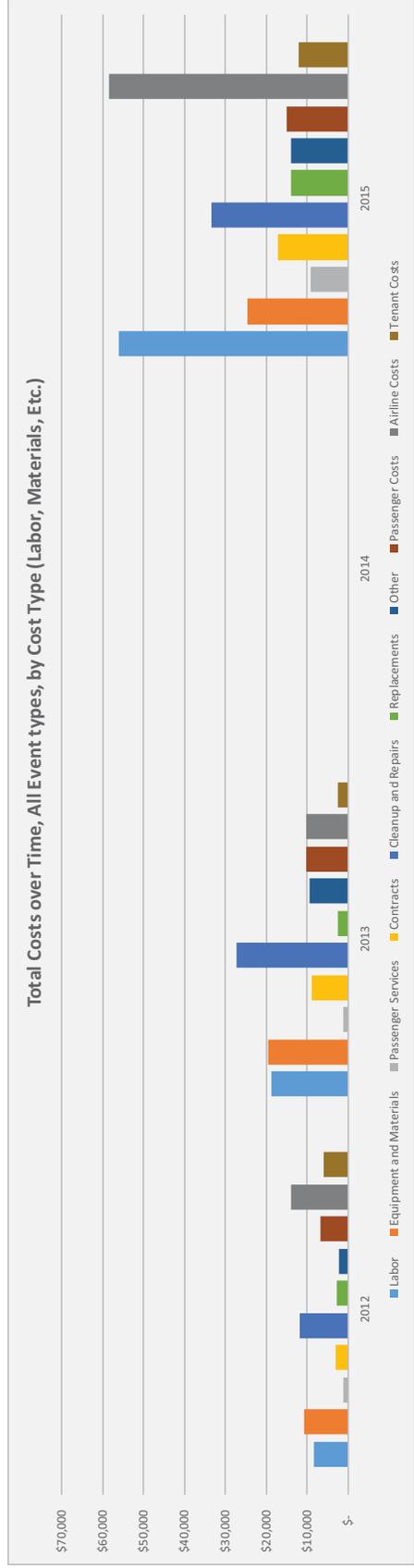


Figure 3-12. Impacts tracking module dashboard.

Users can also view and export the raw data they have entered. To do so, press the **View Raw Data** button on the dashboard, then press the **Export Data** button on the Data sheet. This will create an Excel file with all data entered into the tool.

[Click here to go back to Full Toolkit User, AWARE Coordinator instructions](#)

[Click here to go back to Full Toolkit User, Functional Area Manager instructions](#)

[Click here to go back to Small Airport Toolkit User instructions](#)

Methodological Information

4.1 Exposure Information Module

4.1.1 Datasets

The Exposure Information Module presents data from NOAA’s Storm Events Database. This database was selected after extensive review of available datasets for temporal and geographic extent of data, range of weather events covered, ability to analyze frequency of locally defined extremes (e.g., the threshold for extreme snowfall is different in Fulton County, GA than in Suffolk County, MA), and ability to derive “rare but plausible” events. The NOAA Storm Events Database provides data by county for the entire United States for a wide range of weather event types. Data are available from 1996 to 2013 and include events that are defined as “extreme” based on local definitions (see Exhibit 4-1).

Using a relative magnitude for these events, as supported by NOAA, removes the variation of location-specific and seasonal-specific thresholds. For example, the magnitude of precipitation that would be required to cause flooding in various locations in the northwest United States will vary significantly by season; and the amount of precipitation that may cause flooding will vary by region (e.g., northeast United States versus the southwest United States). This information, however, can be supplemented with regional threshold information. It is also understood that whether an airport will actually be flooded during a localized flood event requires additional site-specific analysis that considers such parameters as adequate drainage, elevation of the airport, and proximity to river channels. In other words, some airports may have problematic flooding or ponding during less severe weather events while other airports may only be sensitive to the extremely infrequent events.

To supplement the data from the NOAA Storm Events Database, the tool also includes data from FEMA’s Declaration of Disaster Records, NOAA Atlas 14 Precipitation Frequency Estimates Report, and the *ACRP Report 147 ACROS Tool*.

The tool includes data from FEMA’s Declaration of Disaster Records for the same period to provide additional information on the severity of past events. The team cross-walked the extreme weather event types from the NOAA Storm Events Database against the types of disasters in FEMA’s national dataset. The team categorized each of the disasters into the appropriate extreme weather event type and aggregated to the county scale and adjacent county scale. There were instances when a disaster was associated with more than just one type of significant weather event type (e.g., heavy winds and ice). In these cases, the team counted each significant weather event type contributing to the disaster.

NOAA’s precipitation frequency estimates for locations across the United States, e.g., NOAA Atlas 14 Precipitation Frequency Estimates Report, were used, as available, to provide

Exhibit 4-1. NOAA Storm event database event thresholds.

The Exposure Information Module provides data on the frequency of extreme weather events in the airport's county, adjacent counties, and region from 1996 to 2013. The dataset only includes events that are "extreme" enough to cross a certain threshold. The nature of the thresholds varies by event type:

- Hail, ice, snow, dense fog, dense smoke, and dust are recorded when they pass a nationwide, NOAA-defined threshold (e.g., hail that is $\frac{3}{4}$ " in diameter or greater).
- Tornadoes, lightning, and hurricanes are recorded on a yes/no basis (i.e., there is no minimum threshold). Although neither the NOAA Hurricane Archive nor the NOAA Storm Events Database captures inland county frequency by hurricane category (e.g., Category 1 hurricane; where categories are binned by sustained surface winds), a hurricane category does not equate directly to the impact of that storm on an airport (e.g., impacts of associated storm surge, tornado development, etc. depend on storm characteristics beyond sustained winds, such as size of storm, water vapor content, and angle of approach of storm to the coastline). Hence, providing airports with the knowledge that hurricanes may or have occurred in their region is sufficient for recommending that an airport should be prepared.
- Floods, heavy precipitation, extreme cold, extreme heat, and heavy winds are defined based on the event's relative magnitude for the localized area. For example, a flood event is recorded when the flood level rises above a locally predetermined flood level within six hours of the weather event; a flash flood is recorded for a location if a normally dry area is inundated by increased water level from either an established watercourse or ponding; and heavy precipitation is recorded at a location if it causes damage or flooding.

information on the magnitude of precipitation for the 1-in-100-year, 24-hour precipitation event. The purpose was to provide additional context for what extreme precipitation events might look like. These reports and underlying information were developed by NOAA, with each report covering various sections of the United States. The Exposure Information Module includes the latest Atlas 14 data as of January 2015.

Finally, to the extent possible, the Exposure Information Module also includes a summary of climate change projections from the *ACRP Report 147* ACROS Tool. The AWARE Toolkit is focused on extreme weather events irrespective of potential climate change. Nonetheless, climate change may become relevant as airports experience extreme weather events that they have not dealt with before. The ACROS Tool provides much more additional detail on the underlying data, assumptions, and projections. The Exposure Information Module provides a simple arrow to show the direction of change (increase or decrease) for two future time periods (2030 and 2060). The data are aggregated by FAA Region. The Exposure Information Module provides the projected trends for the extreme weather event types covered in both the NOAA Storm Event Database and the ACROS Tool: heat, snow, ice, lightning, and flooding (coastal and precipitation-driven).

4.1.2 Recommended Event Types

Based on the frequency of each weather event type in the NOAA Storm Event Database between 1996 and 2013, the Exposure Information Module identifies events as “rare but plausible”—and thus recommended for further consideration—based on the following criteria:

- The event has occurred at least once in the past, but fewer than once every 5 years, on average, (i.e., fewer than 3.6 times in 18 years) in the airport’s county, or
- The event has not occurred in the airport’s county, but has occurred in adjacent counties.

These criteria were set in order to capture a range of events that are plausible based on the airport’s location, but rare enough that airports are less likely to be prepared for those events than more common events. Users should note that weather events that occur in adjacent counties may not be a perfect proxy for events that are plausible to occur in the selected location. In some circumstances, not all weather events that occur in adjacent counties would be realistically plausible in the selected county. For example, adjacent counties may be separated by a mountain range or other major geographic feature that would render certain weather phenomena likely in one county but not likely in the adjacent county. Airports can apply expert judgment in determining whether the event types in adjacent counties are plausible for their location.

4.2 Readiness Modules Methodology

4.2.1 Best Practices

The best practices (checklist items) provided throughout the readiness modules were developed through an extensive literature review, the 15 airport case study interviews, and interviews with airport operations experts. The project team extensively reviewed existing ACRP reports, as well as best practices guidance provided by other emergency management entities, and pulled relevant best practices for each functional module area and categorized them by applicable weather event types (many are categorized as overarching) and by practice type (communications, personnel, funding, procedures, equipment, and infrastructure). A complete list of the 310 best practices (along with implementation steps for most) included across all seven readiness modules is available online and can be found by searching the TRB website for ACRP Project 02-49.

4.2.2 Readiness Ratings

Default readiness ratings are determined based on how many applicable best practices and implementation steps are checked off for each activity stage (e.g., planning, mitigation, response, and recovery). Each best practice and its corresponding set of implementation steps (if present) is scored on a scale of 0–6 based on how many checkmarks are provided. All best practices are weighted evenly. For example, for a best practice with no corresponding implementation steps, checking off the best practice is worth six points. For a best practice with five corresponding implementation steps, checking off the best practice and each implementation step is worth one point each. The tool then assigns a qualitative readiness rating based on the score according to the rubric shown in Table 4-1. The result is shown in the **Readiness Rating** column.

Table 4-1. Readiness rating rubric.

Percentage of Points Received	Readiness Rating
Less than 20%	Very Low
20% – 40%	Low
40% – 60%	Medium
60% – 80%	High
Greater than or equal to 80%	Very High

4.3 Impacts Tracking Module

4.3.1 Airport Labor Costs

The airport labor cost estimation worksheet provides default assumptions about airport labor rates to help airports estimate labor costs associated with preparing for, responding to, and recovering from weather events. If users do not already know the exact cost of labor pertaining to the event, they can enter the number of staff, then provide a split between the estimated number of regular and overtime hours per person. The tool then applies default values for aviation salary data from the FAA to estimate labor costs (FAA, 2007).

4.3.2 Equipment and Materials Costs

The equipment and materials cost calculator provides a simple worksheet for airports to track the type of materials and equipment used, as well as the unit cost and number of units used to calculate total equipment and materials costs. Default values for unit costs for different equipment and material types are provided based on the FEMA Schedule of Equipment Rates (FEMA, 2015).

4.3.3 Passenger Delay Costs

The passenger delay cost calculator allows airports to quantify the costs associated with flight delays based on the value of passenger time (FAA, 2015). Airports enter the duration of delays and the number of passengers affected. Users can estimate the number of passengers affected based on the type of aircraft delayed.

4.3.4 Carrier Delay Costs

The tool also estimates the direct and indirect costs of flight delays to passenger and cargo carriers. The user enters information about the duration of flight delays, and the tool provides default assumptions about the direct (e.g., flight crew labor, ground crew labor) and indirect (e.g., passenger services) costs to airlines of delays (FAA, 2015). While flight delays to carriers are not necessarily a direct cost to airports, they can be significant and successful mitigation of the impacts could benefit the entire industry—airports and airlines.

4.3.5 Aircraft Damage Costs

The aircraft damage cost estimation worksheet helps estimate the cost of aircraft damage based on aircraft type. Users enter the type of aircraft damage and the tool applies default assumptions from FAA (2015) and the ICF SH&E Maintenance, Repair, and Overhaul (MRO) Models.

Frequently Asked Questions

5.1 Tool Functionality Questions

I clicked a button to open a file, but got a message saying: “Sorry, we couldn’t find [file name]. Did you move or rename it? Please select the correct [file] from the directory.” What do I do?

After you press **OK** on this message, you should see a File Open window pop up. Use the window to navigate to the correct file location and name. This message will pop up if any of the module files have been renamed or moved from their original organization (e.g., if someone appended the date to a file name). If you don’t already know where the file is, try navigating to the Toolkit folder (wherever you saved the original AWARE Toolkit.zip) and checking in the Modules folder. Once you find the file, select it and press **Open**.

What data do I need to complete this toolkit?

- To get information on weather event frequency, you only need to provide your airport IATA code or ZIP code.
- To get a “readiness rating,” you need to provide information on which practices your airport already uses (e.g., review and check off practices from a list).
- To see lists of best practices for increasing readiness to different event types, you do not need to provide any information.

Can I filter or sort the best practices in the Readiness Self-Assessment?

No. However, the best practices are organized first by Stage (Planning, Mitigation, Response, Recovery), then by Type (Communications, Equipment, Funding, Infrastructure, Personnel, Procedures). You can use this organization to assign different sections of the readiness self-assessment as necessary.

Whom do I contact if I need technical support or have questions about AWARE?

Please contact Sia Schatz at tschatz@nas.edu if you have questions regarding AWARE. However, please be aware that ACRP is unable to provide technical support or trouble-shooting.

5.2 Tool Content and Purpose Questions

What is the recommended process for using the tool over time?

If you want to complete the tool again to measure your progress, create a copy of the entire toolkit folder (you can rename it as desired) and repeat the toolkit process. You can compare your results with those from the previous iteration to measure your progress. Frequency of

check-ins (e.g., annually, every 6 months) is at the airport's discretion and dependent on the items on your checklist.

In addition, you are encouraged to use the Impacts Tracking Module continuously over time, after weather events affect your airport.

How does the content of the toolkit relate to the National Incident Management System (NIMS), Safety Management Systems (SMS), Continuity of Operations Planning (COOP), Irregular Operations (IROPS), and other related processes?

Extreme weather events are one of several reasons why an airport would use the above-listed processes. This toolkit is not a substitute for these processes, but does incorporate relevant best practices from these processes where applicable. For example, some of the checklist items in the Readiness Modules are NIMS-related best practices, some are SMS-related best practices, and so on. The intention is to assemble all weather-related best practices from across these related systems into a single place.

How does the Impacts Tracking Module relate to FEMA and FAA emergency reimbursement processes?

The Impacts Tracking Module is intended to help airports capture the costs of weather-related events regardless of size or scale—including those that would not meet FEMA or FAA thresholds for reimbursement. The Impacts Tracking Module allows users to track applicable FEMA costs and categorizes each line item using FEMA terminology (e.g., force account labor, force account equipment). The tool does not substitute the FEMA Project Worksheet, but could be used to help populate a FEMA Project Worksheet.

To whom do I submit my tool results?

Use of this toolkit is completely optional and for your education only. It is not required by any federal agency, and results do not need to be reported.

How should I proceed once I have my checklist of best practices?

The best practices are meant to serve as a starting point for your airport's preparedness activities. You will need to determine which best practices should be a priority for your airport and then set a process for implementing them.

Will the AWARE Toolkit tell me which specific assets or facilities are most vulnerable to extreme weather events at my airport?

No. The AWARE Toolkit provides best practices for increasing readiness (i.e., reducing impacts) from different extreme weather event types (which may include conducting a detailed vulnerability assessment), but it does not provide airport-specific vulnerability analyses.

When is the best time to use the tool?

We recommend using the tool well in advance of any extreme weather events. Parts of the toolkit may be useful immediately before, during, or after an event (i.e., checklists, impacts module), but the tool is intended to be initially filled out before events are even forecast.

What types of weather events does the AWARE Toolkit cover?

The AWARE Toolkit provides information on potential exposure, readiness self-assessment questions, and best practices for the following 15 extreme weather event types:

- Flood
- Heavy rain
- Tropical cyclones (e.g., hurricanes, tropical storms)

- Tornadoes
- Lightning
- Hail
- Heavy winds
- Extreme heat
- Extreme cold
- Snow
- Blizzards
- Ice
- Dense fog
- Dense smoke
- Dust storms

What is the data source for the Exposure Information Module?

The Exposure Information Module presents extreme event frequency at the county level from the National Oceanic and Atmospheric Association (NOAA) Storm Events Database, version 3.0, downloaded in December 2014. At the time the toolkit was developed, complete data were available for 1996 to 2013. Data on tornadoes were available from 1950 to 2013. The dataset is posted online at <https://www.ncdc.noaa.gov/stormevents/>. The dataset includes any weather events “having sufficient intensity to cause loss of life, injuries, significant property damage, and/or disruption to commerce.”

The Exposure Information Module doesn’t capture an event that happened recently. Why is that?

The Exposure Information Module includes data on events that occurred between 1996 and 2013. You can draw on recent experience and check the NOAA Storm Events Database for your county (<https://www.ncdc.noaa.gov/stormevents/>) to see how frequently events have occurred since 2013. You may want to draw on that knowledge when you decide which events to review in the Readiness Modules.



References

- FAA (Office of Aviation Policy and Plans). 2007. *Economic Values for FAA Investment and Regulatory Decisions, A Guide*. Available at: https://www.faa.gov/regulations_policies/policy_guidance/benefit_cost/media/ECONOMICVALUESFORFAAINVESTMENTANDREGULATORYDECISIONS10032007.pdf (as of December 8, 2014).
- FAA (Office of Aviation Policy and Plans). 2015. *Economic Values for FAA Investment and Regulatory Decisions, A Guide (2015 Update)*. Available at: https://www.faa.gov/regulations_policies/policy_guidance/benefit_cost/.
- FEMA. 2015. Schedule of Equipment Rates. Available at: <https://www.fema.gov/schedule-equipment-rates> (as of November 10, 2015).