



2018 Philadelphia Regional Tabletop Exercise for Institutions of Higher Education

Summary Report





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For more information, consult the following points of contact:

Office of Academic Engagement

Department of Homeland Security

AcademicEngagement@hq.dhs.gov

National Exercise Program

Federal Emergency Management Agency

NEP@fema.dhs.gov



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INTRODUCTION

The *Regional Tabletop Exercise for Institutions of Higher Education (RTTX)* is part of a broader series of events dedicated to empowering institutions of higher education (IHEs) to improve preparedness and build resilience. The RTTX-Philadelphia event was designed and sponsored by the U.S. Department of Homeland Security (DHS) Office of Academic Engagement (OAE) and the DHS Federal Emergency Management Agency (FEMA) National Exercise Division (NED). Hosted by Drexel University, the event took place in Philadelphia, PA on February 2, 2018. The RTTX focused on threats and hazards related to a hazardous material (HAZMAT) incident near campus, and sought to provide participants with insights into response and recovery best practices. The event consisted of both a tabletop exercise (TTX) and an expert panel session and brought together nearly 100 participants from the academic, public safety, and railway transport fields.

This *2018 Philadelphia Regional Tabletop Exercise for Institutions of Higher Education Summary Report* provides RTTX participants – as well as academic, public safety, and law enforcement stakeholders – with a summary of the major findings and takeaways from the event. The report focuses on key findings from each of the event activities as well as summarizing insights gained from various feedback opportunities.

Per the Homeland Security Exercise and Evaluation Program (HSEEP), this report’s analysis is organized into two main categories: a) the strengths demonstrated by participating organizations and b) areas for improvement uncovered.

Background

DHS OAE launched the inaugural RTTX in 2018 as part of a wider series of campus-based events focused on specific resilience-related topics that impact the higher education community. The goal of these events is to enhance participants’ knowledge of emergency preparedness and identify opportunities to improve their response and recovery capabilities. DHS facilitates each regional event in coordination with the academic community, government partners, and the private sector to host each event as well as provide participants with tools and resources to develop and improve emergency plans, policies, procedures, and capabilities (Refer to *Appendix D* for a resource guide).

Campus Resilience Program

DHS launched the Campus Resilience Program (CR Program) in 2013, as an effort to engage IHEs in developing and testing an emergency preparedness and resilience planning process tailored to IHEs. The OAE managed program is dedicated to helping colleges and universities build, sustain, and promote resiliency to the threats that confront institutions across the nation.



The CR Program offers a Resource Library which organizes resources according to threat or hazard, and then further categorizes each resource according to its relevant mission area, as outlined in FEMA’s [National Preparedness Goal](#). The resources included reflect the collaborative efforts of many program and partner organizations, and represent a variety of Federal, state, local, private-sector, emergency management, and academic association entities. For more information and to access the Library, visit <https://www.dhs.gov/campus-resilience-program-resource-library>.



The RTTX for IHEs is part of a broader Tabletop Exercise Series offered through the Campus Resilience Program. Additional information on the Campus Resilience Program Tabletop Exercise Series is accessible at <https://www.dhs.gov/academicresilience>.



EXERCISE OVERVIEW

Exercise Name	2018 Philadelphia Regional Tabletop Exercise for Institutions of Higher Education
Exercise Date	Friday, February 2, 2018
Scope	<p>The 2018 Philadelphia Regional Tabletop Exercise for Institutions of Higher Education (RTTX) was geared towards examining issues related to a hazardous materials (HAZMAT) incident near campus, through:</p> <ul style="list-style-type: none"> ▪ A Tabletop Exercise consisting of three modules. The exercise was a facilitated discussion focused on the event objectives; and ▪ A Learning Session consisting of a three-person panel and question-and-answer opportunity designed to provide participants with additional knowledge on how external parties respond to HAZMAT incidents and how IHEs integrate with those efforts.
Mission Areas	Response and Recovery
Objectives	<ol style="list-style-type: none"> 1. Assess the quality, comprehensiveness, and level of campus stakeholder understanding of institutions’ emergency response plans to a HAZMAT spill 2. Evaluate the reliability of information channels, and the effectiveness of institutions’ communications capabilities during a HAZMAT spill 3. Assess processes for maintaining high quality, accurate, and timely situational awareness during a HAZMAT spill 4. Assess the quality and comprehensiveness of institutions’ plans to restore operations after a HAZMAT spill 5. Evaluate institutions’ knowledge of common HAZMATs traveling in close proximity to the campus and the potential impact on campus operations, health and safety, and emergency response 6. Evaluate institutions’ knowledge of operational coordination plans with outside agencies/organizations
Scenario	The scenario was a HAZMAT incident near an institution’s campus that impacted infrastructure and operations on campus.
Sponsors	The DHS Office of Academic Engagement (OAE), the Federal Emergency Management Agency (FEMA) National Preparedness Directorate National Exercises Division (NED), and Drexel University
Participating Organizations	Refer to <i>Appendix E</i> for participating organizations.

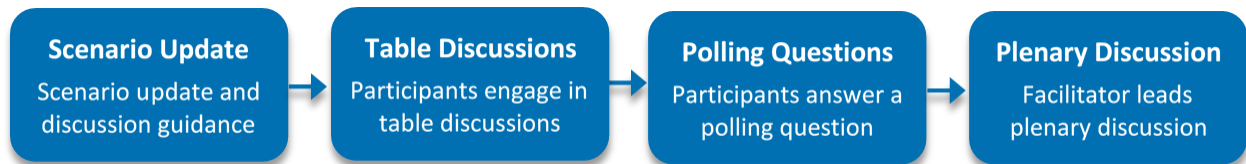
EXERCISE STRUCTURE

The TTX consisted of three 75-minute exercise modules and one 60-minute learning session.

Exercise Module Format

Each exercise module consisted of four separate activities: a scenario update, table discussions, polling questions covering specific elements of the scenario, and a facilitated plenary discussion (*Figure 1*). Participants were asked to consider their real-world roles for their home institutions when reacting to the scenario, offering observations and discussing strategic and tactical decisions.

Figure 1: Exercise Activities



Visual Aids

In order to add realism to the exercise and help participants apply the scenario to their respective campuses, each attending institution was provided with an aerial map of their campus and a series of customized mapping tools (see *Figure 2*). All of the materials were produced using ArcGIS's data-driven pages technology and were scaled based on campus size. Participants were asked to place custom transparencies, each representing different effects described in the module scenarios, on the corresponding aerial map of their campus at different stages of the exercise.

Figure 2: Sample Map with Overlays



KEY RESULTS

The following is a summary of key findings captured from the RTTX. The results presented below provide insights into participants’ experience with HAZMAT incidents, capabilities across the region, and overall impression of the event. Most importantly, these findings evaluate the impact of the RTTX on participants’ ongoing preparedness efforts at their respective institution.

Strengths

During the exercise, each IHE was asked to report on their institution’s capabilities as they related to the exercise scenario. This section categorizes the strengths that participating institutions reported for 5 of the 11 issue areas discussed during the exercise. Strengths are defined as responses in which **more than 90% of institutions could address the issue with minor or no challenges**.

Table 1: Key Strengths

<p><u>Operational Coordination:</u></p> <p>94% of institutions indicated they would experience minor or no challenges coordinating with external stakeholders for assistance should the incident exceed the capabilities of their institution.</p> <ul style="list-style-type: none"> ▪ 39% of institutions stated they would not have any challenges, crediting strong pre-existing relationships with external stakeholders. ▪ 55% of institutions cited minor challenges, crediting mutual-aid agreements that provide supplemental resources and personnel during response and recovery.
<p><u>Public Information Management:</u></p> <p>94% of institutions indicated they would experience minor to no challenges engaging with stakeholders in the aftermath of the incident to manage their institution's reputation and brand.</p> <ul style="list-style-type: none"> ▪ 24% of institutions stated they would not have any challenges, crediting proactive public relations teams and utilizing various communications mechanisms to reach their audience. ▪ 70% of institutions indicated they would have minor challenges, crediting their strategies to restore the public’s confidence in the institution following a HAZMAT incident.
<p><u>Information Sharing:</u></p> <p>90% of institutions indicated they would experience minor to no challenges in their ability to use communication channels to effectively share information with internal and external stakeholders to support response efforts.</p> <ul style="list-style-type: none"> ▪ 15% of institutions reported that they would not experience challenges, crediting alert systems and regular training efforts. ▪ 75% of institutions stated they would have minor challenges, crediting their ability to leverage a variety of platforms to disseminate information.
<p><u>Situational Awareness:</u></p> <p>95% of institutions indicated they would experience minor to no challenges obtaining information on the precise nature, expected duration, and impact of the HAZMAT incident to support decision-making efforts.</p> <ul style="list-style-type: none"> ▪ 5% of institutions stated they would not have any challenges, citing established relationships with stakeholders and integrating into the Incident Command System (ICS) stood up by external stakeholders as a critical factor.

- 90% of institutions indicated they would experience minor challenges, stating that **delays in an external entity’s (e.g., fire department) response time would be an issue for more rural campuses.**

Operational Coordination:

100% of institutions indicated they would experience **minor challenges in establishing an incident command structure and integrating with local emergency management to respond to a HAZMAT incident.**

- Institutions **cited a strong culture of ICS and training.**

Areas for Improvement

The exercise also provided insights into the capabilities participating institutions identified as needing improvement. Areas for Improvement are defined as categories in which **more than 65% of institutions either could address this issue, but with major challenges, or could not address the issue presented.**

Table 2: Key Areas for Improvement

Continuity and Recovery:

68% of institutions indicated they would have **major challenges or be unable to recover and resume normal operations, including academic and residential services, after a disruption.**

- 52% of institutions indicated they would have major challenges, citing **surge staffing challenges for extended periods of time and the lack of staffing plans** for incident response and recovery.
- 16% of institutions reported that they would be unable to address this issue, citing **heavy reliance on external entities for restoration efforts.**

HAZMAT Knowledge and Planning:

75% of institutions indicated they would have **major challenges determining and implementing protective measures to limit the impacts of a HAZMAT incident on their campus community** and minimize the potential for cascading impacts.

- 75% of institutions indicated they would have major challenges, citing transportation issues as a major concern—**urban institutions would have to overcome traffic congestion, and rural institutions would have to overcome large distances to get resources.**

HAZMAT Knowledge and Planning:

75% of institutions indicated they would have **major challenges or be unable to leverage their institution’s current emergency plans to address HAZMAT incidents to support response and recovery efforts.**

- 70% of institutions indicated they would have major challenges, stating that they were **unsure of the types of hazardous materials travelling on or near their campus.**
- 5% of institutions stated that their plans would be insufficient, citing **the disastrous nature of the incident as being overwhelming for their campus** without external support.

Event Feedback

Following the event, RTTX participants were provided the opportunity to give candid feedback on their overall impression of the event and individual takeaways by completing a **Participant Feedback Form**. Key insights from exercise participants are provided in *Table 3* below, and detailed results can be found in *Appendix B: Participant Feedback Forms*.

Table 3: Key Insights from the Exercise

<ul style="list-style-type: none"> 95% of respondents indicated that the exercise helped them gain a better understanding of the response and recovery actions their institution should implement when considering the threat of a HAZMAT incident.
<ul style="list-style-type: none"> 90% of respondents stated that the exercise increased their understanding of their institution’s risks and vulnerabilities when considering the threat of a HAZMAT incident.
<ul style="list-style-type: none"> 80% of respondents indicated that the exercise scenario was realistic, and 86% stated that the use of visual aids enhanced their engagement in the exercise.
<ul style="list-style-type: none"> 93% of respondents believed that the exercise topics encouraged someone with their level of training and experience to participate.

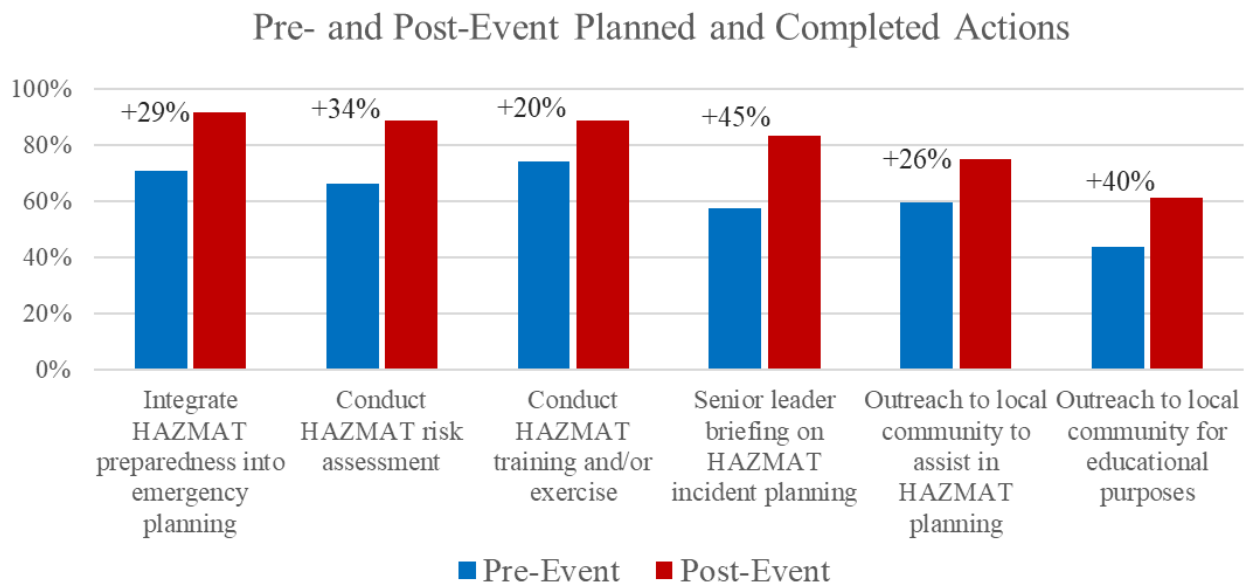
Event Impact

The RTTX had a significant impact on participants’ understanding of their institution’s risks and vulnerabilities as well as their preparedness posture regarding HAZMAT incidents. An overwhelming majority of survey respondents (91%) identified new risks or vulnerabilities on their campus as a result of participating in the RTTX. The vulnerabilities most commonly identified by participants were the following:

- 1) Continuity of Operations Planning (COOP) (66%)
- 2) HAZMAT Incident Planning (60%)
- 3) Implementation of Protective Measures to Limit the Impacts of HAZMAT Incidents (40%)

Moreover, a comparison between the pre-event and post-event survey demonstrated an overall increase in the actions participants **have completed or plan to complete** to improve their preparedness posture (see *Figure 4*), including:

Figure 3: Change in completed and plan to complete actions by RTTX Participants



Summary of Discussions

The following sections provide an overview of the exercise scenario, polling question results, and subsequent discussions on each issue area. Findings are broken down by each of the three major phases used to present the scenario: Immediate Response, Response, and Recovery. These phases were developed based off FEMA’s five Mission Areas (Prevention, Protection, Mitigation, Response, and Recovery), which are organized according to the specific capabilities needed to address an incident throughout its lifecycle¹. Each section includes:

- An overview of the capabilities addressed during that phase;
- A snapshot of the scenario presented to the participants;
- The associated findings from each discussion; and
- Recommended resources relevant to the key issues.

Associated findings were developed based on polling questions using the scale in *Table 5* and observational notes provided by HSEEP-trained staff.

Table 4: Polling Assessment Scale

Assessment	Criteria
A	My institution can successfully address this issue without challenges
B	My institution can address this issue, but with minor challenges
C	My institution can address this issue, but with major challenges
D	My institution does not have the ability to address this issue

The report that follows also provides insights garnered from several channels of feedback conducted prior to, during, and after the RTTX on the quality and effectiveness of the event. The report includes a summary of the key results and recommendations for future events, and detailed results are included in the appendices. The feedback opportunities included:

- Pre-event survey, distributed before the RTTX;
- Post-event survey, distributed after the RTTX; and,
- Participant Feedback Form, provided to participants at the RTTX.

¹ <https://www.fema.gov/national-preparedness-goal>

MODULE 1: IMMEDIATE RESPONSE (H TO H+1)

Overview

The immediate response phase covered actions taken during or immediately following a HAZMAT incident near a campus. Specifically, this phase examined an institution's response priorities, information flow, and the ability to mobilize resources.

Scenario

Background

- 27 degrees Fahrenheit and it is an overcast day
- A recent ice storm left the ground covered in ice and caused the steel rails on local lines to contract

February 2, Morning

Note: Institutions not located near a rail line were asked to consider a HAZMAT incident that was realistic for their location and was significant enough that it would exceed the institution's ability to respond internally

- A freight train carrying crude oil derails and spills thousands of gallons of oil into the surrounding area, forming an oil pool near campus
- The oil pool ignites; heat from the fire can cause severe burns and a smoke cloud stretches over campus
- EMS begins treating students for a range of ailments
- Your institution has not yet identified the type of HAZMAT involved

Discussion Results

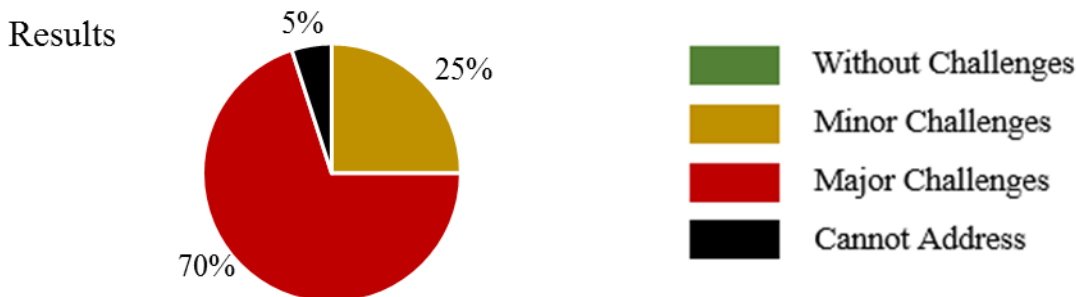
The immediate response phase of this incident examined the following capabilities:

- **HAZMAT Knowledge and Planning**
- **Information Sharing**
- **Situational Awareness**
- **Operational Coordination**

Key Issue 1: HAZMAT Knowledge and Planning

In Module 1, HAZMAT Knowledge and Planning focused on an institution's knowledge of what hazardous materials travel on or near their campus, and whether their current emergency plans incorporate response and recovery activities for potential HAZMAT incidents.

Assess the extent to which your institution’s current emergency plans address HAZMAT incidents and whether the policies and procedures support response and recovery efforts.



Strengths: 25% of institutions indicated they could address this issue with minor challenges.

- Those institutions who expressed they would have minor challenges **credited efforts to develop dedicated emergency plans for HAZMAT incidents, participation in exercises with local entities, and coordination efforts with their surrounding community** for this confidence.

Areas for Improvement: 75% of institutions indicated they would experience major challenges when addressing this issue, or be unable to leverage existing plans to address this issue.

- 70% of institutions indicated that they would have major challenges, citing the need to determine **whether their campus would shelter-in-place or evacuate, and how to communicate that effectively to the community**. Additionally, institutions noted that evacuation may be difficult due to road closures caused by the incident and the need to provide transportation services to students without vehicles.
- 5% of institutions indicated that they would be unable to address this issue, citing **disastrous conditions as overwhelming** for their campus.
- Numerous institutions stated that they **were not aware of what hazardous materials travel on or near their campus**.

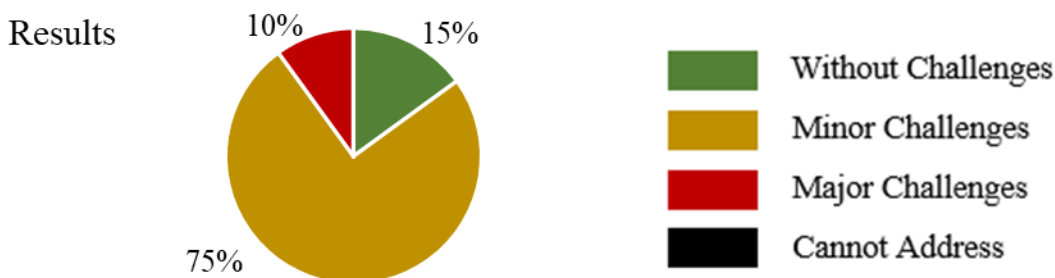
Key Resources:

- FEMA Emergency Management Institute (EMI) Course – IS-5.A: An Introduction to Hazardous Materials.** This course is intended to provide a general introduction to hazardous materials that can serve as a foundation for more specific studies in the future. For more information, visit: <https://training.fema.gov/is/courseoverview.aspx?code=is-5.a>.
- G0367: Emergency Planning for Campus Executives.** This two-hour FEMA training course provides executives with insights into multi-hazard emergency planning and their role in protecting lives, property, and operations. For more information, visit: <https://training.fema.gov/hiedu/aemrc/eplanning/g367.aspx>.

Key Issue 2: Information Sharing

Information Sharing involved examining an institution’s mechanisms for communicating with all relevant stakeholders and using appropriate channels for sharing information during a HAZMAT incident.

Assess your institution's ability to use communication channels to effectively share information with internal and external stakeholders to support response efforts.



Strengths: 90% of institutions indicated they could address this issue with minor to no challenges.

- 15% of all institutions said they would have no challenges sharing information with various stakeholders. These institutions credited **having alert systems in place, direct communications capabilities with external stakeholders (e.g., police and fire departments), and training on a regular basis** for this confidence.
- 75% of institutions claimed they would experience minor challenges, noting that **leveraging a variety of communications means – such as university websites, social media, and campus-specific alert systems – would allow them to quickly share information.**

Areas for Improvement: 10% of institutions indicated they would experience major challenges when addressing this issue.

- Institutions noted concern with **the ability to quickly disseminate information while balancing immediate response priorities and fielding a high volume of calls from worried parents** asking about their children.

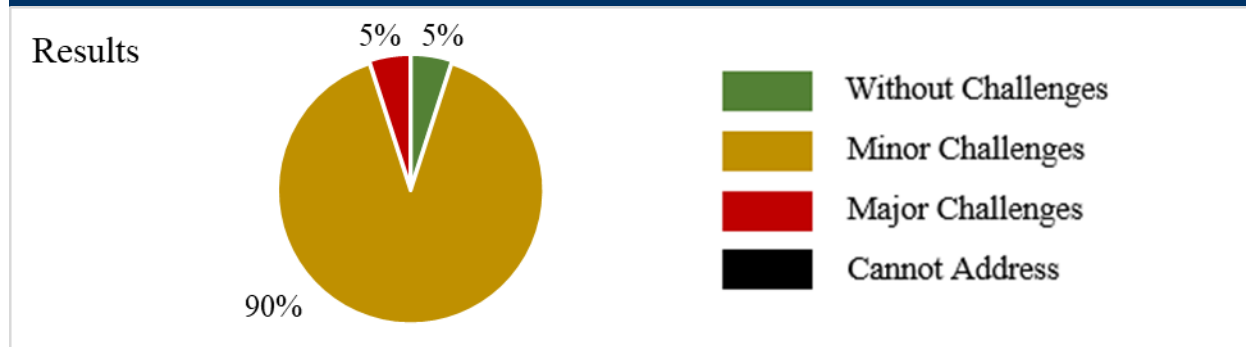
Key Resource:

- **Department of Education, Response and Emergency Management for Schools (REMS) Technical Assistance (TA) Center.** The REMS TA Center, administered by the U.S. Department of Education (DOE), Office of Safe and Healthy Students (OSHS), supports public and private schools, school districts, and institutions of higher education, with their community partners, in building their preparedness capacity (including mitigation, prevention, protection, response, and recovery efforts) and creating comprehensive emergency operations plans that address a variety of security, safety, and emergency management issues. For more information, visit: <https://rems.ed.gov/>.

Key Issue 3: Situational Awareness

Situational Awareness involved examining an institution’s processes for sharing and receiving critical information about an incident that is rapidly evolving. Accurate situational awareness can inform prioritization of activities to limit the damages to the institution.

Assess your institution's ability to obtain information on the precise nature, expected duration, and impact of the HAZMAT incident to support decision-making efforts.



Strengths: 95% of institutions indicated they could address this issue with minor or no challenges.

- 5% of institutions who indicated no challenges cited **strong relationships with community stakeholders, including fire chiefs, police chiefs, and emergency managers.**
- 90% of institutions indicated minor challenges, stating that **embedding someone from their institution in the incident command post (ICP)** with external responders would enable them to establish and maintain situational awareness.

Areas for Improvement: 5% of institutions indicated they would experience major challenges when addressing this issue.

- Institutions reported that **relying on external responders for information may be an issue if they experience a significant lag in response time** (e.g., fire departments have to travel greater distances in rural communities).

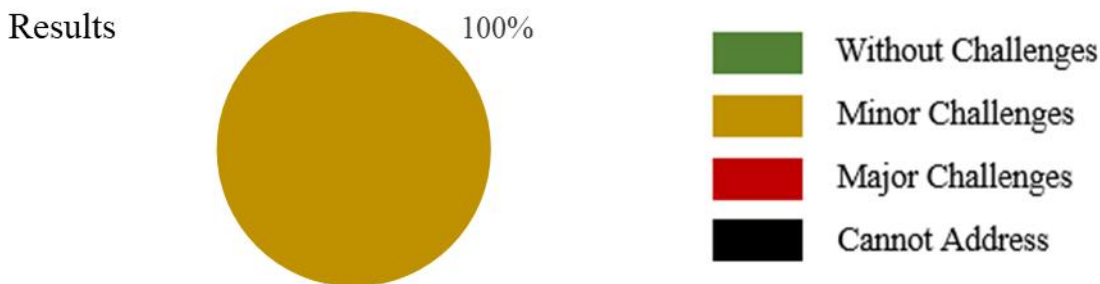
Key Resources:

- **FEMA EMI Training Course – G0367: Emergency Planning for Campus Executives.** This two-hour FEMA training course provides executives with insights into multi-hazard emergency planning and their role in protecting lives, property, and operations. For more information, visit: <https://training.fema.gov/hiedu/aemrc/eplanning/g367.aspx>.
- **Center for Domestic Preparedness.** The Center for Domestic Preparedness is an all-hazards training center for emergency responders. For a full list of course offerings, visit: <https://cdp.dhs.gov/>.

Key Issue 4: Operational Coordination

In Module 1, Operational Coordination focused on the extent to which an institution could adopt and implement incident command protocols. Successfully establishing incident command requires clear processes and protocols that guide its activation.

Assess your institution's ability to establish an incident command structure and integrate with local emergency management to respond to a HAZMAT incident.



Strengths: 100% of institutions indicated they could address this issue with minor challenges

- Institutions noted that **campus safety would follow plans and organizational charts to stand up an incident command structure without any difficulty, but that it may take some time before it is fully implemented and running.**
- Institutions also noted that **incorporating non-emergency stakeholders (e.g., student affairs, transportation organizations) into the incident command structure would be a minor challenge** because they are not typically trained on how incident command works.

Key Resources:

- **FEMA EMI Course – IS-100.HE Introduction to the Incident Command System for Higher Education.** This FEMA training course introduces the Incident Command System (ICS) and provides the foundation for higher level ICS training. For more information, visit: <https://training.fema.gov/is/courseoverview.aspx?code=IS-100.HE>.
- **Incident Command System (ICS) Resource Center.** The FEMA ICS Resource Center website has a multitude of ICS reference documents including, but not limited to, ICS Forms, checklists, training course information, and links to other related resources. For more information, visit: <https://training.fema.gov/emiweb/is/icsresource/>.

MODULE 2: RESPONSE (H+1 TO H+10)

Overview

The response phase consisted of continued response efforts following a HAZMAT incident to include coordination with external entities, disseminating information to the public, and managing resources as the situation evolved.

Scenario

February 2, Mid-Morning to Evening

- The train was carrying Bakken shale oil, and the oil pool and smoke cloud contain hazardous levels of pollutants
- First responders continue to work on the spill while student health centers and EMS are seeing above-average numbers of patients
- Campus facilities in affected area must be evacuated
- News media and social media activity surge

February 2, Early Evening

- By 6:00 PM ET, the smoke cloud significantly diminishes as emergency responders work to contain the fire

Discussion Results

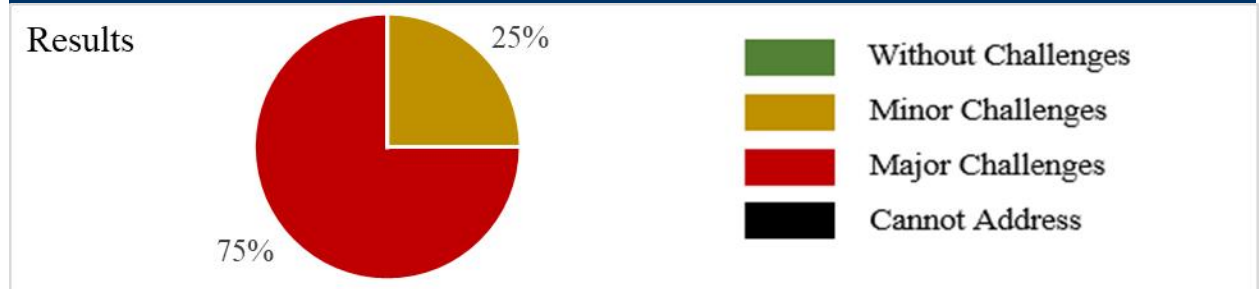
The ongoing response phase of this incident examined the following capabilities:

- **HAZMAT Knowledge and Planning**
- **Public Information Management**
- **Operational Coordination**
- **Continuity and Recovery**

Key Issue 1: HAZMAT Knowledge and Planning

In Module 2, HAZMAT Knowledge and Planning focused on an institution’s ability to identify cascading impacts to their campus and how that information supports strategic decisions; specifically, how they would prioritize activities and allocate resources during response efforts.

Assess your institution's ability to determine and implement protective measures to limit the impacts of a HAZMAT incident on your campus community and minimize the potential for cascading impacts.



Strengths: 25% of institutions indicated they would experience minor challenges when addressing this issue.

- Institutions cited previous **training, exercises, and coordination with external stakeholders** for helping them improve planning efforts.

Areas for Improvement: 75% of institutions indicated they would experience major challenges when addressing this issue.

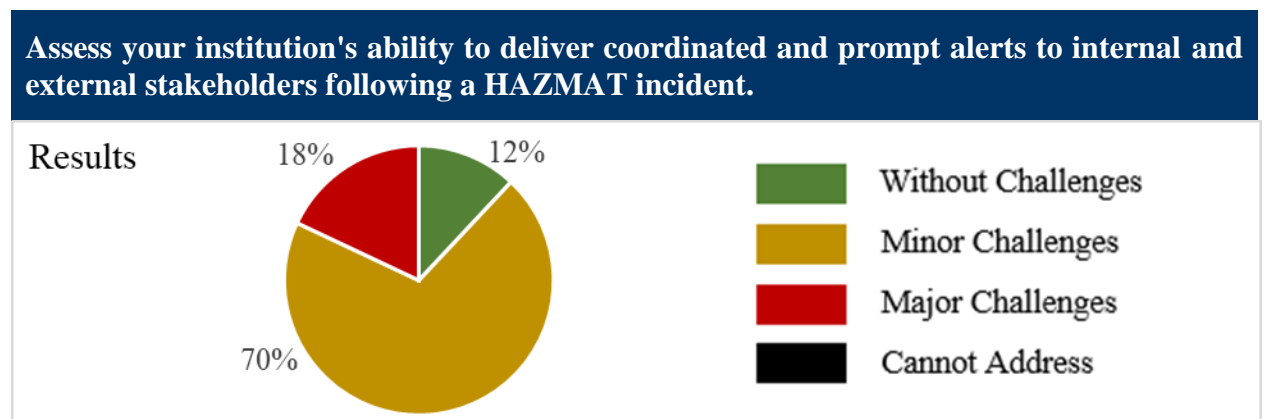
- Institutions stated that they had not fully considered logistical concerns, such as **the need to provide transportation for students without vehicles when evacuating campus**. Additionally, institutions **cited traffic congestion as a major impediment to evacuating campus and transporting in necessary equipment/resources** to support response efforts.
- Institutions also noted the importance of **considering students with access and functional needs in evacuation planning** (e.g., how to evacuate a student that requires a respiratory apparatus).

Key Resources:

- **2016 Emergency Response Guidebook.** A guidebook prepared by the U.S. Department of Transportation. This is intended for use by first responders during the initial phase of a transportation incident involving dangerous goods/hazardous materials. For more information, visit <https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/ERG2016.pdf>.
- **Centers for Disease Control and Prevention (CDC) Environmental Health Services (EHS) HAZMAT.** This CDC webpage provides key information on preventing and preparing for HazMat releases. For more information, visit <https://www.cdc.gov/nceh/ehs/etp/hazardous.htm>.

Key Issue 2: Public Information Management

Public Information Management focused on an institution’s ability to deliver timely and appropriate information to key stakeholders during response to a HAZMAT incident. It requires institutions to coordinate with multiple entities to provide accurate information while responding to a high volume of requests from concerned stakeholders (e.g., students and parents).



Strengths: 82% of institutions indicated they could address this issue with minor or no challenges

- 12% of institutions indicated they would experience no challenges, citing a **fully staffed public relations team** for that confidence.

- 70% of institutions stated they would experience minor challenges, crediting the **use of call centers to automatically provide scripted messages to a large audience**, but still **requiring communications teams** to actively develop and disseminate tailored messages. In particular, institutions noted that, due to the high volume of activity, handling social media messaging requires a dedicated individual whose sole responsibility is to manage that component.

Areas for Improvement: 18% of institutions indicated they would experience major challenges when addressing this issue.

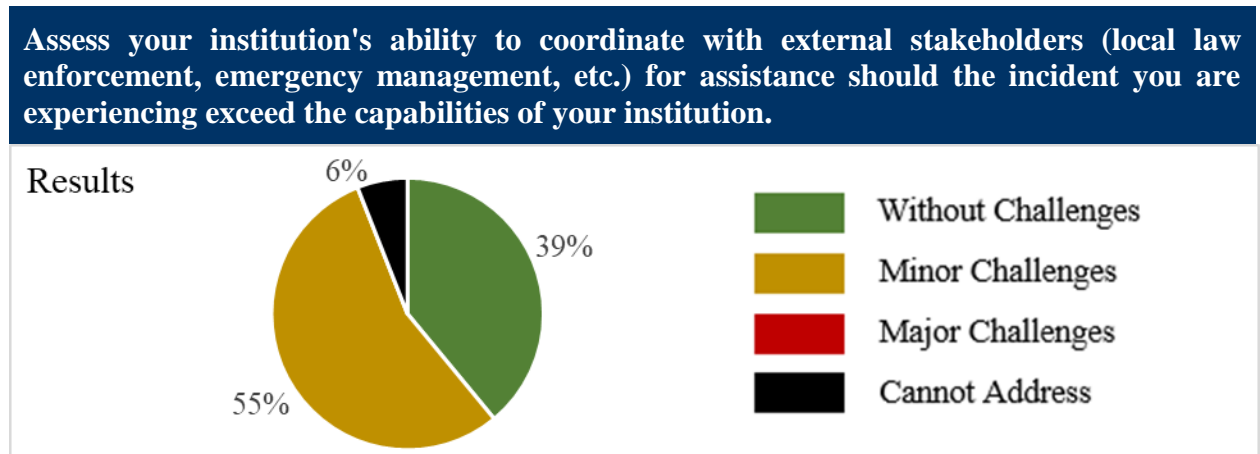
- Institutions mentioned the need to **assign backup personnel for specific positions in case the primary individual who performs that role is unavailable**, and training that staff in advance of an incident.

Key Resources:

- FEMA EMI Course – IS-29: Public Information Officer Awareness.** This course provides an overview of the public information function and the role of the Public Information Officer (PIO) in emergency management. For more information, visit: <https://training.fema.gov/is/courseoverview.aspx?code=IS-29>
- FEMA EMI Course – IS-42: Social Media in Emergency Management.** This course provides an overview of best practices including tools, techniques, and a basic roadmap to build capabilities in the use of social media technologies to further emergency response missions. For more information, visit: <https://training.fema.gov/is/courseoverview.aspx?code=IS-42>.

Key Issue 3: Operational Coordination

In Module 2, this capability examined an institution’s ability to integrate with the broader response efforts of external stakeholders. ICS helps standardize response management systems and streamline operations, especially when multiple resources, departments, agencies, and organizations are involved.



Strengths: 94% of institutions indicated they could address this issue with minor or no challenges

- 39% of institutions stated they would experience no challenges, citing **pre-existing relationships with external stakeholders as contributing to their ability to coordinate effectively during emergencies**.

- 55% of institutions stated they would have minor challenges, crediting **mutual-aid agreements as essential for requesting emergency assistance** in the form of personnel, equipment, materials, and other services.

Areas for Improvement: 6% of institutions indicated they would be unable to address this issue.

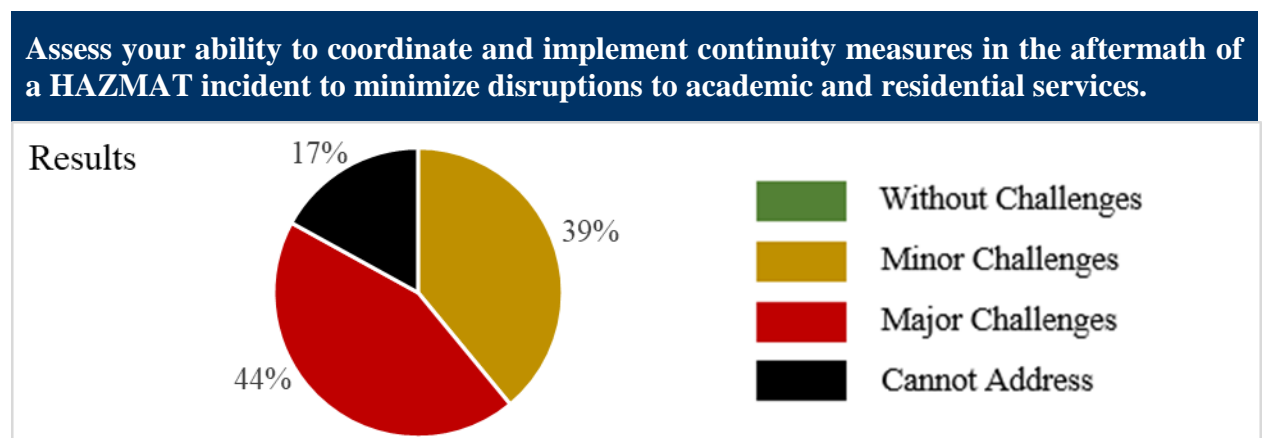
- Institutions noted that, **in smaller and more rural communities, local public safety entities would be overwhelmed** and may themselves have to obtain additional resources before they can effectively support an institution’s response efforts. Moreover, larger institutions in more urban settings that are used to handling issues with their own resources **may not have agreements in place to request additional resources from external stakeholders**.

Key Resources:

- National Intercollegiate Mutual Aid Agreement (NIMAA)** is a membership organization that serves as a source for providing and/or receiving assistance. The agreement allows IHEs to share equipment, personnel, and other resources. For more information, visit https://docs.google.com/forms/d/e/1FAIpQLSc-TvK2KASugln7sI0NEYyXCGDpR_4b95N7MwUi0_OSMBC8A/closedform.
- National Training and Education Division Training - AWR-148: Crisis Management for School-Based Incidents – Partnering Rural Law Enforcement, First Responders, and Local School Systems.** This course has been developed by the University of Findlay, as a member of the Rural Domestic Preparedness Consortium (RDPC), to educate rural law enforcement personnel as well as school administrators and personnel on the elements that must be in place to effectively respond to a school-based emergency. For more information, visit: <https://www.firstrespondertraining.gov/frt/npccatalog?courseId=53#anc-search-results>.

Key Issue 4: Continuity and Recovery

Continuity involved examining an institution’s efforts to maintain critical functions during an incident in order to minimize disruptions to their operations. This capability also considered what non-essential functions an institution should suspend and what essential functions could be relocated to continue to operate.



Strengths: 39% of institutions indicated they could address this issue with minor challenges.

- Institutions indicated that they would **leverage online and distance learning capabilities to maintain continuity of academic services**.

Areas for Improvement: 61% of institutions indicated they would experience major challenges or would be unable to address this issue.

- 44% of institutions indicated that they would have major challenges, **citing evacuations and a campus shutdown as disruptive to campus operations**. Additionally, institutions would have to **determine what temporary housing solutions to provide students** before restoring essential functions.
- 17% would be unable to address this issue, stating that **a shutdown of campus operations would result in too large of an impact to even maintain critical functions**.

Key Resources:

- **Academia and Resilience Web Page.** FEMA’s Academia and Resilience web page provides tools, resources, program guides, and training information for campus emergency managers, faculty, and students. For more information, visit: <http://www.fema.gov/academia-resilience>.
- **Guide for Developing High-Quality Emergency Operations Plans for Institutions of Higher Education.** This guide provides guidance to IHEs on best practices for taking preventative and protective measures to stop an emergency from occurring or reduce the impact of an incident. IHEs can use the guide to create and/or revise existing emergency operations plans. For more information, visit: http://www.fema.gov/media-library-data/20130726-1922-25045-3638/rem_s_ihe_guide.pdf.

MODULE 3: RECOVERY (H+10 TO H+96)

Overview

The recovery phase examined short-term recovery and addressed topics such as determining restoration requirements and timelines, managing public relations, and considering potential legal and regulatory impacts resulting from a HAZMAT incident.

Scenario

February 2, Evening to February 5

- The oil pool fire has been extinguished but there are continued fears about inhaling chemicals
- Clean-up efforts may take longer than expected; temporary housing is required for one week for students residing in any dormitory in the impacted area

February 5, Morning

- At 10:00 a.m., emergency response personnel clear the incident site
- Students and staff concerned about returning to campus and parents threaten to speak with local media about your institution’s “halfhearted response”
- Media coverage of the incident shifts from immediate impacts of the HAZMAT incident to long-term effects and recovery efforts underway

Discussion Results

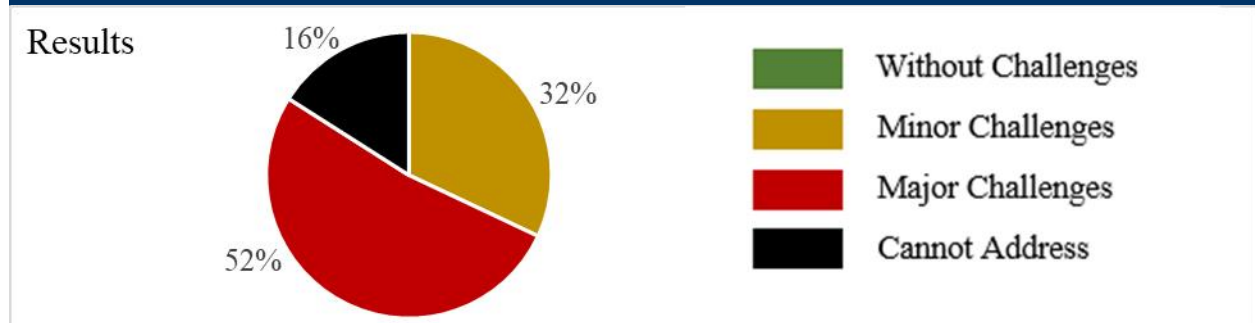
The recovery phase of this incident examined the following capabilities:

- **Continuity and Recovery**
- **Public Information Management**
- **HAZMAT Knowledge and Planning**

Key Issue 1: Continuity and Recovery

This focused on an institution’s ability to restore critical operations that may have been disrupted due to a HAZMAT incident. Understanding restoration priorities, internal and external stakeholder requirements, and necessary resources is essential to fully restoring campus operations.

Assess your institution's ability to recover and resume normal operations, including academic and residential services, after a disruption.



Strengths: 32% of institutions indicated they could address this issue with minor challenges.

- Institutions credited **having processes in place to determine short-term and long-term restoration priorities** following an incident that disrupts campus operations.

Areas for Improvement: 68% of institutions indicated they would experience major challenges or would be unable to address this issue.

- 52% of institutions indicated that they would have major challenges, citing **the challenges associated with staffing critical positions 24 hours a day for seven days a week for extended periods of time** and **the need to develop staffing plans** to address this issue.
- 16% indicated that they would be unable to address this issue, citing **their reliance on external entities to restore campus operations** (e.g., Environmental Protection Agency [EPA] providing clearance to access campus buildings exposed to hazardous materials).

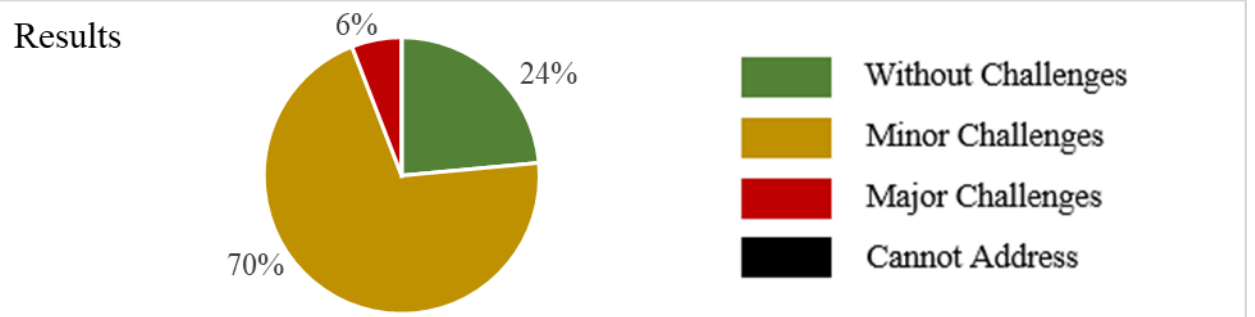
Key Resources:

- **Continuity Resource Toolkit.** The Continuity Resource Toolkit provides examples, tools, and templates for establishing and implementing a continuity strategies based on the FEMA Continuity Guidance Circular (CGC). To view the Toolkit, visit: www.fema.gov/continuity-resource-toolkit. For more information on the FEMA Continuity Guidance Circular, visit: CGC: www.fema.gov/continuity-guidance-circular.
- **FEMA National Continuity Programs (NCP) Office.** FEMA, NCP is an element of the FEMA Administrator’s Office which supports the continuity planning and preparedness efforts of both government and non-government stakeholders in order to sustain the continuous performance of National Essential Functions under all conditions. For more information, visit: <http://www.fema.gov/continuity-operations/>

Key Issue 2: Public Information Management

Public Information Management following an incident examined an institution’s ability to provide public assistance and manage media relations. This involves organizing, managing, and delivering unified messaging to the community.

Assess your institution's ability to engage stakeholders (local law enforcement, parents, the public, media, etc.) in the aftermath of the incident, to include managing impacts to your institution's reputation and brand.



Strengths: 94% of institutions indicated they could address this issue with minor or no challenges.

- 24% of institutions stated they would experience no challenges, citing their **proactive approach to engaging with the public and the media**, and ability to utilize various

communications mechanisms (e.g., posting to social media, issuing statements, updating their website, holding press events).

- 70% of institutions stated they would have minor challenges, stating that they would focus on **restoring confidence by having the President deliver messaging**. Additionally, several institutions mentioned **the need to engage students on emergency best practices** (e.g., familiarity with evacuation plans) prior to an incident (e.g., during orientation).

Areas for Improvement: 6% of institutions indicated they could address this issue, but with major challenges.

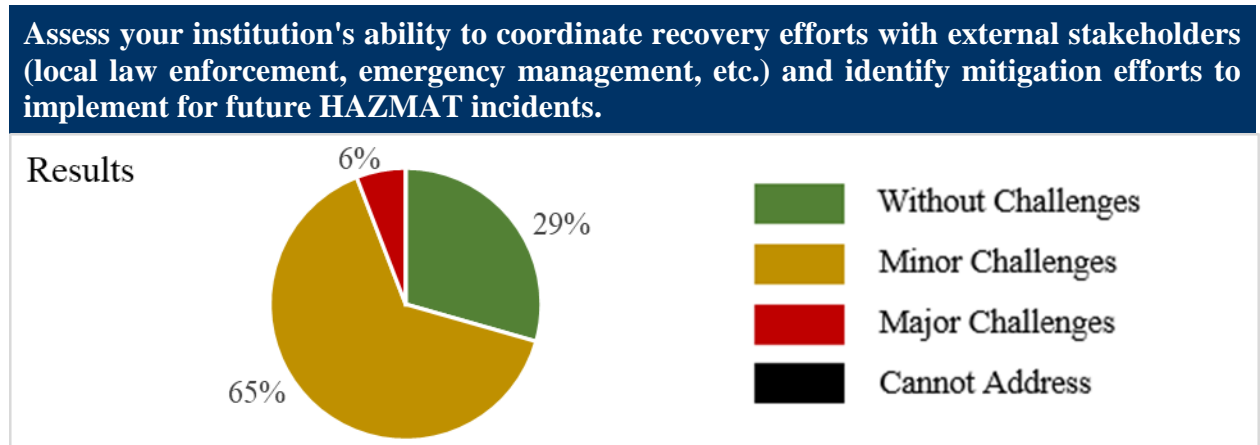
- Institutions noted that **messaging would require coordination with rail companies** to provide accurate information about the effects of the hazardous materials, but that they do not have those relationships in place.

Key Resources:

- Lab and Research Safety.** This resource from Cornell University’s Environmental Health and Safety organization provides information regarding chemical, radiation, and hazardous materials safety in a research environment. For more information, visit <https://sp.ehs.cornell.edu/lab-research-safety/Pages/default.aspx>.
- Student Tools for Emergency Planning (STEP).** The STEP Program was designed by teachers and is sponsored by a state’s Emergency Management Agency and FEMA. The program provides students and their families with concrete strategies to prepare for and deal with various emergencies. For more information, visit: <http://www.fema.gov/student-tools-emergency-planning-step>.

Key Issue 3: HAZMAT Knowledge and Planning

In Module 3, HAZMAT Knowledge and Planning involved looking at an institution’s ability to identify gaps in current preparedness, response, and recovery planning, and develop appropriate corrective actions to address those gaps.



Strengths: 94% of institutions indicated they could address this issue with minor or no challenges

- 29% of institutions indicated they would experience no challenges, citing opportunities to improve preparedness efforts by **reviewing response and recovery efforts following an incident and publishing an After-Action Report (AAR)**.

- 65% of institutions stated they would have minor challenges, citing **reoccurring meetings with local responders** to discuss best practices in emergency management for their confidence.

Areas for Improvement: 6% of institutions indicated they could address this issue, but with major challenges.

- Institutions mentioned the need to build relationships with external partners (e.g., rail companies) to **better understand what type of hazardous materials travel on or near their campus** and how emergency plans should take that into account.

Key Resources:

- **Building A Disaster-Resistant University.** *Building A Disaster-Resistant University* is a how-to guide and distillation of the experiences of six universities and colleges that have been working to become disaster-resistant. The guide provides basic information designed for institutions just getting started, as well as ideas, suggestions, and practical experiences for institutions that have already begun to take steps to becoming more disaster-resistant. For more information, visit: <http://www.fema.gov/media-library/assets/documents/2288>.
- **Tabletop and Emergency Planning Exercises.** FEMA offers free, downloadable tabletop and emergency planning exercises and presentations for the private sector, including academic institutions. The exercises are designed to help organizations such as IHEs test emergency situations, such as a natural or man-made disaster, evaluate the ability to coordinate, and test readiness to respond. For more information, visit: <http://www.fema.gov/emergency-planning-exercises>.

Appendix A: PANEL SESSION DETAILS

Overview

The Panel Session consisted of a three-person expert panel and question-and-answer opportunity for participants. The purpose of the panel was to provide participants with additional knowledge on how external parties respond to HAZMAT incidents and how IHEs could effectively integrate with these broader activities. The panelists included:

- **Mike Austin, CSX HAZMAT Director**
- **Dan Stango, Philadelphia Fire Department HAZMAT Unit Battalion Chief**
- **Pakorn Patimetha, New Jersey State Police HAZMAT Response Unit Detective Sergeant**

Key Findings

Roles and responsibilities of external responders

- The role of external agencies is to provide support to the IHE in its response efforts
- Immediate responsibilities of external responders include HAZMAT material identification, evacuation zone coordination, and providing tactical support for responders on scene
- Agencies can provide contracts for lodging, food, medication, and other types of services for the impacted community

External responder priorities

- Priorities include fire rescue, containing the oil spill, and fire suppression as the immediate threat needs to be removed before recovery and environmental clean-up can begin
- Immediate priorities for CSX include the safety of its employees, the community, and first responders in addition to supporting recovery efforts

Response challenges

- Establishing a unified command without prior regular communication between external agencies and IHE stakeholders as only some types of external responders (i.e., Fire Department) have experience coordinating regularly with IHEs
- Effective public information not only requires coordinating a consistent, clear public message, but also being pro-active about countering the spread of mis-information on social media and other channels

Resource recommendations

- CSX provides safety security information to first responders and emergency management organizations, including the HAZMAT risks near campus
- Establishing relationships with external response agencies is key to a successfully coordinated response

Appendix B: RTTX SURVEY RESULTS

Event Surveys

Following the RTTX, pre- and post-survey data revealed how institutions understand their risks and vulnerabilities, how confident they are in addressing these risks and vulnerabilities, and the status of specific actions to address them.

In the post- event survey, respondents were asked to check all risks and vulnerabilities that they had not previously considered, but that they identified as a result of their participation in the RTTX. *Table 5* shows the categories participants chose.

Table 5: Risks and Vulnerabilities Participants Identified

Risks and Vulnerabilities	Responses
HAZMAT incident planning	60%
Public communication while responding to a HAZMAT incident	25%
Public communication while recovering from a HAZMAT incident	23%
Establishment of an Incident Command Structure	17%
Coordination with local law enforcement, office of emergency management, etc.	14%
Implementation of protective measures to limit impacts of HAZMAT incidents	40%
Continuity of Operations Planning	66%
Management of impacts to your institution's reputation or brand	26%
I did not identify a new risk or vulnerability at my institution during the RTTX	9%

After the event, participants noted that they became more motivated to review and revise their IHE's plans and procedures. The chart below shows desired actions and the percent increase of IHEs to complete or make plans to implement these actions.

Table 6: Key Insights from the Post-Event Survey

Action	% increase of IHEs that completed / plan to complete
Integrate HAZMAT incident preparedness into emergency planning	29%
Conduct a risk assessment of HAZMAT incident vulnerabilities	34%
Conduct training or exercises to better prepare for a HAZMAT incident	20%
Conduct a senior-leaders briefing on current HAZMAT emergency response plans	45%
Engage key stakeholders in the local community to assist in review or development of HAZMAT incident preparedness plans	26%
Conduct outreach to the local community (i.e. town halls) for the purpose of education on HAZMAT incident preparedness	40%

Appendix C: PARTICIPANT FEEDBACK FORMS

The following section provides responses to the questions in the Participant Feedback Forms from 43 exercise participants. Participants were asked to rate statements on a one-to-five scale, with one indicating “strongly disagree” and five “strongly agree.” *Table 6: Exercise Assessment Feedback* below documents the distribution of responses for each statement.

Table 7: Exercise Assessment Feedback

Statement	Distribution												
<p>Pre-exercise information and documentation were easy to understand and helped me prepare for exercise discussions.</p>	<table border="1" style="margin-top: 10px; font-size: small;"> <tr><th>Response</th><th>Percentage</th></tr> <tr><td>Strongly Disagree</td><td>2%</td></tr> <tr><td>Disagree</td><td>0%</td></tr> <tr><td>Neutral</td><td>2%</td></tr> <tr><td>Agree</td><td>43%</td></tr> <tr><td>Strongly Agree</td><td>52%</td></tr> </table>	Response	Percentage	Strongly Disagree	2%	Disagree	0%	Neutral	2%	Agree	43%	Strongly Agree	52%
Response	Percentage												
Strongly Disagree	2%												
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Agree	43%												
Strongly Agree	52%												
<p>The exercise scenario was realistic.</p>	<table border="1" style="margin-top: 10px; font-size: small;"> <tr><th>Response</th><th>Percentage</th></tr> <tr><td>Strongly Disagree</td><td>0%</td></tr> <tr><td>Disagree</td><td>0%</td></tr> <tr><td>Neutral</td><td>19%</td></tr> <tr><td>Agree</td><td>35%</td></tr> <tr><td>Strongly Agree</td><td>47%</td></tr> </table>	Response	Percentage	Strongly Disagree	0%	Disagree	0%	Neutral	19%	Agree	35%	Strongly Agree	47%
Response	Percentage												
Strongly Disagree	0%												
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Neutral	19%												
Agree	35%												
Strongly Agree	47%												
<p>The exercise lasted for an appropriate length of time.</p>	<table border="1" style="margin-top: 10px; font-size: small;"> <tr><th>Response</th><th>Percentage</th></tr> <tr><td>Strongly Disagree</td><td>0%</td></tr> <tr><td>Disagree</td><td>2%</td></tr> <tr><td>Neutral</td><td>19%</td></tr> <tr><td>Agree</td><td>30%</td></tr> <tr><td>Strongly Agree</td><td>49%</td></tr> </table>	Response	Percentage	Strongly Disagree	0%	Disagree	2%	Neutral	19%	Agree	30%	Strongly Agree	49%
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Agree	30%												
Strongly Agree	49%												
<p>The exercise facilitators engaged participants and helped guide meaningful discussions.</p>	<table border="1" style="margin-top: 10px; font-size: small;"> <tr><th>Response</th><th>Percentage</th></tr> <tr><td>Strongly Disagree</td><td>2%</td></tr> <tr><td>Disagree</td><td>0%</td></tr> <tr><td>Neutral</td><td>2%</td></tr> <tr><td>Agree</td><td>37%</td></tr> <tr><td>Strongly Agree</td><td>58%</td></tr> </table>	Response	Percentage	Strongly Disagree	2%	Disagree	0%	Neutral	2%	Agree	37%	Strongly Agree	58%
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Strongly Agree	58%												

Statement	Distribution												
<p>The use of SMS (text message) polling during the exercise enhanced participant involvement.</p>	<table border="1"> <tr> <th>Response</th> <th>Percentage</th> </tr> <tr> <td>Strongly Disagree</td> <td>0%</td> </tr> <tr> <td>Disagree</td> <td>5%</td> </tr> <tr> <td>Neutral</td> <td>7%</td> </tr> <tr> <td>Agree</td> <td>30%</td> </tr> <tr> <td>Strongly Agree</td> <td>58%</td> </tr> </table>	Response	Percentage	Strongly Disagree	0%	Disagree	5%	Neutral	7%	Agree	30%	Strongly Agree	58%
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<p>The use of visual aids enhanced my engagement in the exercise.</p>	<table border="1"> <tr> <th>Response</th> <th>Percentage</th> </tr> <tr> <td>Strongly Disagree</td> <td>2%</td> </tr> <tr> <td>Disagree</td> <td>0%</td> </tr> <tr> <td>Neutral</td> <td>12%</td> </tr> <tr> <td>Agree</td> <td>35%</td> </tr> <tr> <td>Strongly Agree</td> <td>51%</td> </tr> </table>	Response	Percentage	Strongly Disagree	2%	Disagree	0%	Neutral	12%	Agree	35%	Strongly Agree	51%
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Neutral	12%												
Agree	35%												
Strongly Agree	51%												
<p>Exercise discussion topics were relevant to my institution.</p>	<table border="1"> <tr> <th>Response</th> <th>Percentage</th> </tr> <tr> <td>Strongly Disagree</td> <td>0%</td> </tr> <tr> <td>Disagree</td> <td>2%</td> </tr> <tr> <td>Neutral</td> <td>2%</td> </tr> <tr> <td>Agree</td> <td>42%</td> </tr> <tr> <td>Strongly Agree</td> <td>53%</td> </tr> </table>	Response	Percentage	Strongly Disagree	0%	Disagree	2%	Neutral	2%	Agree	42%	Strongly Agree	53%
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Disagree	2%												
Neutral	2%												
Agree	42%												
Strongly Agree	53%												
<p>Exercise discussion topics encouraged someone with my level of training and expertise to participate.</p>	<table border="1"> <tr> <th>Response</th> <th>Percentage</th> </tr> <tr> <td>Strongly Disagree</td> <td>0%</td> </tr> <tr> <td>Disagree</td> <td>0%</td> </tr> <tr> <td>Neutral</td> <td>7%</td> </tr> <tr> <td>Agree</td> <td>42%</td> </tr> <tr> <td>Strongly Agree</td> <td>51%</td> </tr> </table>	Response	Percentage	Strongly Disagree	0%	Disagree	0%	Neutral	7%	Agree	42%	Strongly Agree	51%
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<p>The exercise increased my understanding of my institution's risks and vulnerabilities when considering the threat of a HAZMAT incident.</p>	<table border="1"> <tr> <th>Response</th> <th>Percentage</th> </tr> <tr> <td>Strongly Disagree</td> <td>0%</td> </tr> <tr> <td>Disagree</td> <td>0%</td> </tr> <tr> <td>Neutral</td> <td>7%</td> </tr> <tr> <td>Agree</td> <td>37%</td> </tr> <tr> <td>Strongly Agree</td> <td>53%</td> </tr> </table>	Response	Percentage	Strongly Disagree	0%	Disagree	0%	Neutral	7%	Agree	37%	Strongly Agree	53%
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<p>The exercise helped me gain a better understanding of the response and recovery actions my institution should implement when considering the threat of a HAZMAT incident.</p>	<table border="1"> <tr> <th>Response</th> <th>Percentage</th> </tr> <tr> <td>Strongly Disagree</td> <td>0%</td> </tr> <tr> <td>Disagree</td> <td>0%</td> </tr> <tr> <td>Neutral</td> <td>2%</td> </tr> <tr> <td>Agree</td> <td>38%</td> </tr> <tr> <td>Strongly Agree</td> <td>60%</td> </tr> </table>	Response	Percentage	Strongly Disagree	0%	Disagree	0%	Neutral	2%	Agree	38%	Strongly Agree	60%
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Appendix D: CAMPUS RESILIENCE RESOURCES

This section provides a list of resources for preparedness, response, and recovery from a HAZMAT incident near a campus.

Any additional requests for information should be directed to DHS/OAE at:

AcademicEngagement@hq.dhs.gov.

Emergency Preparedness Resources

Community Emergency Response Team (CERT) Programs. The CERT programs focus on disaster preparedness and training in basic disaster response skills such as fire safety, light search and rescue, team organization, and disaster medical operations. Using the training learned in the classroom and during exercises, CERT members can assist others in their neighborhood or workplace following an event when professional responders are not immediately available to help. CERT members also are encouraged to support emergency response agencies by taking a more active role in emergency preparedness projects in their communities. For more information, visit: <https://www.fema.gov/community-emergency-response-teams>.

Department of Education, Response and Emergency Management for Schools (REMS) Technical Assistance (TA) Center. The REMS TA Center, administered by the U.S. Department of Education (DOE), Office of Safe and Healthy Students (OSHS), supports public and private schools, school districts, and institutions of higher education, with their community partners, in building their preparedness capacity (including mitigation, prevention, protection, response and recovery efforts) and creating comprehensive emergency operations plans that address a variety of security, safety, and emergency management issues. For more information, visit: <https://rems.ed.gov/>.

FEMA EMI Independent Study Program. Virtual training on a multitude of emergency preparedness and continuity resilience strategies is available through the FEMA EMI, Independent Study Program. For more information and a list of courses, visit: <http://training.fema.gov/IS/>.

- **IS-100.HE Introduction to the Incident Command System for Higher Education.** This FEMA training course introduces the Incident Command System (ICS) and provides the foundation for higher level ICS training. This course uses the same objectives and content as other ICS courses with higher education examples and exercises. For more information, visit: <https://training.fema.gov/is/courseoverview.aspx?code=IS-100.HE>.
- **IS-5.A: An Introduction to Hazardous Materials.** This course is intended to provide a general introduction to hazardous materials that can serve as a foundation for more specific studies in the future. For more information, visit: <https://training.fema.gov/is/courseoverview.aspx?code=is-5.a>.
- **IS-29: Public Information Officer Awareness.** This course provides an overview of the public information function and the role of the Public Information Officer (PIO) in the emergency management environment. For more information, visit: <https://training.fema.gov/is/courseoverview.aspx?code=IS-29>.
- **IS-42: Social Media in Emergency Management.** This course provides an overview of best practices including tools, techniques, and a basic roadmap to build capabilities in the

use of social media technologies to further emergency response missions. For more information, visit: <https://training.fema.gov/is/courseoverview.aspx?code=IS-42>.

- **IS-360: Preparing for Mass Casualty Incidents: A Guide for Schools, Higher Education, and Places of Worship.** This course provides an overview of best practices and resources in developing emergency plans for preparing for, responding to, and recovering from mass casualty incidents. For more information, visit: <https://www.firstrespondertraining.gov/frt/npccatalog?courseId=2364#anc-search-results>.

G0367: Emergency Planning for Campus Executives. This two-hour FEMA training course provides executives with insights into multi-hazard emergency planning and their role in protecting lives, property, and operations. For more information, visit: <https://training.fema.gov/hiedu/aemrc/eplanning/g367.aspx>.

Incident Command System (ICS) Resource Center. The FEMA ICS Resource Center website has a multitude of ICS reference documents including, but not limited to, ICS Forms, checklists, training course information and links to other related resources. For more information, visit: <https://training.fema.gov/emiweb/is/icsresource/>.

International Association of Emergency Managers Universities and Colleges Caucus (IAEM-UCC). The purpose of the IAEM-USA Universities & Colleges Caucus (UCC) is to represent emergency management issues surrounding college and university campuses. Although they are a part of the communities in which they reside, higher education institutions take on special and sometimes unique considerations when preparing their students, faculty, staff and visitors for responding to, recovering from and mitigating against emergencies. For more information, visit <http://www.iaem.com/page.cfm?p=groups/us-caucuses/universities-colleges&lvl=2>. **National Intercollegiate Mutual Aid Agreement.** NIMAA is a source for providing and/or receiving assistance. NIMAA membership includes both public and private institutions. The agreement allows IHEs to share equipment, personnel, and other resources. To request more information, visit https://docs.google.com/forms/d/e/1FAIpQLSc-TvK2KASugln7sl0NEYyXCGDpR_4b95N7MwUi0_OSMBC8A/closedform.

Protecting Critical Infrastructure

Protective Security Advisor (PSA) Program. DHS provides local critical infrastructure protection support and guidance for academic institutions through the PSA Program. PSAs serve as local DHS representatives for security officers at schools and IHEs, and coordinate requests for training and grants. PSAs also conduct specialized security assessments of school facilities that assist schools in identifying potential security vulnerabilities and risks. For more information, visit: <http://www.dhs.gov/protective-security-advisors>.

Student Tools for Emergency Planning (STEP). The STEP Program was designed by teachers and is sponsored by a state's Emergency Management Agency and FEMA. The program provides students and their families with concrete strategies to prepare for and deal with various emergencies. For more information, visit: <http://www.fema.gov/student-tools-emergency-planning-step>.

Exercise and Training Resources

Tabletop and Emergency Planning Exercises. FEMA offers free, downloadable tabletop and emergency planning exercises and presentations for the private sector, including academic institutions. The exercises are designed to help organizations such as IHEs test emergency situations, such as a natural or man-made disaster, evaluate the ability to coordinate, and test readiness to respond. For more information, visit: <http://www.fema.gov/emergency-planning-exercises>.

Resilience Planning Resources

Academia and Resilience Web Page. FEMA's Academia and Resilience web page provides tools, resources, program guides, and training information for campus emergency managers, faculty, and students. For more information, visit: <http://www.fema.gov/academia-resilience>.

Building A Disaster-Resistant University. *Building A Disaster-Resistant University* is a how-to guide and distillation of the experiences of six universities and colleges that have been working to become disaster-resistant. The guide provides basic information designed for institutions just getting started, as well as ideas, suggestions, and practical experiences for institutions that have already begun to take steps to becoming more disaster-resistant. For more information, visit: <http://www.fema.gov/media-library/assets/documents/2288>.

DHS Campus Resilience Program. The DHS Campus Resilience Program was created upon a recommendation from the Homeland Security Academic Advisory Council (HSAAC). DHS is currently in the developmental stages of the Campus Resilience Program. This initiative builds upon best practices, lessons learned, and resources already developed to make U.S. colleges and universities more resilient. For more information on the DHS Campus Resilience Program, visit <https://www.dhs.gov/campus-resilience> or contact the Office of Academic Engagement at AcademicEngagement@hq.dhs.gov.

Guide for Developing High-Quality Emergency Operations Plans for Institutions of Higher Education. This guide provides guidance to IHEs on best practices for taking preventative and protective measures to stop an emergency from occurring or reduce the impact of an incident. The guide aligns and builds upon years of emergency planning work by the Federal Government and is a joint product of DHS, the Department of Justice, the DOE, and the Department of Health and Human Services (HHS). IHEs can use the guide to create and/or revise existing emergency operations plans. For more information, visit: http://www.fema.gov/media-library-data/20130726-1922-25045-3638/rem_s_ ihe_guide.pdf.

Hazardous Materials Response Resources

2016 Emergency Response Guidebook. A guidebook prepared by the U.S. Department of Transportation. This is intended for use by first responders during the initial phase of a transportation incident involving dangerous goods/hazardous materials. For more information, visit <https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/ERG2016.pdf>.

Center for Domestic Preparedness. The Center for Domestic Preparedness is an all-hazards training center for emergency responders. For a full list of course offerings, visit: <https://cdp.dhs.gov/>.

- **Per-322: Hazardous Materials Operations.** Center for Domestic Preparedness five-day course that provides responders with the knowledge, skills, and abilities necessary to analyze, plan, and implement performance-defensive response actions for HAZMAT incidents. The Center for Domestic Preparedness is authorized to offer 4.0 Continuing Education Credits for this course. For more information, visit: <https://cdp.dhs.gov/find-training/hazardous-materials/course/PER-322>.

HAZMAT. This Centers for Disease Control webpage provides key information on preventing and preparing for HAZMAT releases. For more information, visit <https://www.cdc.gov/nceh/ehs/etp/hazardous.htm>.

Lab and Research Safety. This resource from Cornell University’s Environmental Health and Safety organization provides information regarding chemical, radiation, and hazardous materials safety in a research environment. For more information, visit <https://sp.ehs.cornell.edu/lab-research-safety/Pages/default.aspx>.

National Training and Education Division Trainings. The National Training and Exercise Division provides first responders with training, offering over 150 courses and serving state, local, and tribal entities in addition to private sector and citizens. For the full course catalog, visit: <https://www.firstrespondertraining.gov/frt/>.

- **AWR-148: Crisis Management for School-Based Incidents – Partnering Rural Law Enforcement, First Responders, and Local School Systems.** This course has been developed by the University of Findlay, as a member of the Rural Domestic Preparedness Consortium (RDPC), to educate rural law enforcement personnel as well as school administrators and personnel on the elements that must be in place to effectively respond to a school-based emergency. For more information, visit: <https://www.firstrespondertraining.gov/frt/npccatalog?courseId=53#anc-search-results>.
- **AWR-147: Rail Car Incident Response.** This course has been developed to educate emergency responders on freight rail car incidents involving hazardous materials. The course is provided by the Rural Domestic Preparedness Consortium (RDPC). For more information, visit: <https://www.firstrespondertraining.gov/frt/npccatalog?courseId=52#anc-search-results>.

Appendix E: EVENT PARTICIPANTS

Institutions of Higher Education

Arcadia University	Mercer County Community College
Bryn Mawr College	Princeton University
Bucks County Community College	Rider University
Cabrini University	Rowan College at Burlington County
Cairn University	Stockton University
Chestnut Hill College	Swarthmore College
Delaware Valley University	Temple University
Drexel University	University of Delaware
Gwynedd Mercy University	University of Pennsylvania
Haverford College	University of the Sciences
Holy Family University	Ursinus College
Lincoln University	Valley Forge Military Academy and College

Organizations and Associations (Observers)

CSX Transportation	Philadelphia Office of Emergency Management
Philadelphia Energy Solutions	Pennsylvania Office of Homeland Security
Philadelphia Fire Department HAZMAT Unit	Pennsylvania State University, Harrisburg

Government Partners (Observers)

Federal Emergency Management Agency (FEMA)	FEMA National Exercise Division (NED)
U.S. Department of Homeland Security (DHS) National Protection & Programs Directorate (NPPD) Office of Infrastructure Protection	DHS Office of Academic Engagement (OAE)



Appendix F: ACRONYMS

AAR	After-Action Report
CDC	Centers for Disease Control and Prevention
CERT	Community Emergency Response Team
CGC	Continuity Guidance Circular
COOP	Continuity of Operations Planning
DHS	Department of Homeland Security
DOE	Department of Education
DOT	Department of Transportation
EHS	Environmental Health Services
EMI	Emergency Management Institute
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
HAZMAT	Hazardous Material
HSEEP	Homeland Security Exercise and Evaluation Program
HSAAC	Homeland Security Academic Advisory Council
HHS	Department of Health and Human Services
IAEM-UCC	International Association of Emergency Managers – University and Colleges Caucus
ICP	Incident Command Post
ICS	Incident Command System
IHE	Institution of Higher Education
NCP	National Continuity Programs
NED	National Exercise Division
NIMAA	National Intercollegiate Mutual Aid Agreement
OAE	Office of Academic Engagement
OSHS	Office of Safe and Healthy Students
PIO	Public Information Officer
PSA	Protective Security Advisor
RDPC	Rural Domestic Preparedness Consortium
REMS	Response and Emergency Management for Schools
RTTX	Regional Tabletop Exercise
STEP	Student Tools for Emergency Planning
TA	Technical Assistance
TTX	Tabletop Exercise