



## CHECKPOINT 16 After Action Report (AAR)

June 2016

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## I. EXECUTIVE SUMMARY

On May 11, 2016, the National Information Sharing Consortium (NISC) conducted the CHECKPOINT 16 exercise, a virtual, tabletop exercise designed to allow participants to learn about, test, and evaluate information sharing tools for the public safety, emergency management, and healthcare communities. Made possible through the generous grant support from the U.S. Department of Homeland Security Science and Technology Directorate (DHS S&T), CHECKPOINT 16 had over 60 participants from local, state, and federal government agencies; state national guard units; private sector companies; Canadian participants; and nonprofit organizations. Participants tested and evaluated NISC-provisioned tools in the NISC Member Portal using a national power outage scenario with some physical damage as a result of the power outage. During the four-hour exercise, participants created 116 activity log entries and a total of 50 damage assessments (14 commercial, 7 residential, and 29 public assessments). In addition to testing the tools found on the NISC Member Portal, the exercise also allowed several partner organizations to test their own information sharing tools and workflows. These participants collectively created and shared 16 different services in the CHECKPOINT 16 ArcGIS Online Group, demonstrating how information can be shared through Esri's ArcGIS platform.

Key highlights from the CHECKPOINT 16 exercise include the following:

- **Shared objectives:** The exercise demonstrated that information exchange methods, tools, and technologies, such as Esri's ArcGIS platform, can help organizations achieve common, shared objectives by facilitating effective information sharing and operational coordination.
- **Exercise Planning:** Advanced exercise planning through the identification of information sharing tools, development of common exercise injects, coupled with multiple training events, provided participants with the necessary background to test and exercise situational awareness capabilities to meet exercise mission requirements. The exercise demonstrated the sophistication and integration of NISC, DHS-S&T, and locally-developed tools and provided model practices for information exchange that are replicable and scalable to support national-level planning and operations.
- **Integration:** Through the participation of multiple partner organizations, CHECKPOINT 16 provided a whole of community approach to demonstrate how many different organizations can integrate information sharing tools into their information management and situational awareness systems to foster improved communications and coordination.

Some key recommendations from the exercise include the following:

- The NISC should incorporate lessons learned from CHECKPOINT 16 to develop a training laboratory to help communities conduct virtual exercises that support their specific needs while advancing the cause of multi-jurisdictional information sharing and interoperability of systems. Additional exercises would include specific technology partners with emerging or foundational capabilities. Providing a forum for these potential members and commercial vendors to present, share, and demonstrate how their capabilities assist in achieving information sharing is an obvious strategy to gain inclusion and integration.
- CHECKPOINT 16 featured a custom-developed Battle Rhythm Manager (BRM) as an exercise tool to help facilitate the exercise play. Several participants requested that the NISC make this tool available to members to support an ever-growing training requirement for first responder, emergency management, and senior leadership.

In conclusion, the NISC should build on the success of CHECKPOINT 16, increase exposure to model practices, templates, and voluntary guidance made available by the NISC and its partners, and develop a process for extending and accomplishing the NISC mission. At a minimum this should include continued stakeholder engagement, development and proliferation of the training laboratory, awareness of the NISC Member Portal contents, expansion of a diversified membership, and establishment of an annual schedule of key events.

## II. MOVING THE NISC TO A NEW LEVEL

The National Information Sharing Consortium (NISC) chose Esri's ArcGIS platform for CHECKPOINT 16 because it was the only tool that provided:

- A complete, cloud-based mapping platform;
- Supported a scalable architecture;
- Provided the appropriate level of security;
- Met the NISC exercise goal of developing software-as-a-service across multiple platforms, jurisdictions, and exercise lanes; and
- Delivered the exercise planners and participants with consistent imagery and basemaps.

The NISC chose ArcGIS as its information sharing platform because after evaluation, ArcGIS Online was the one consistent tool that allowed the NISC to bridge information between local, state and federal government agencies and share that information seamlessly with leaders in the National Guard, private sector, and public sector.



### III. ACKNOWLEDGEMENTS

The National Information Sharing Consortium (NISC) would like to acknowledge the following individuals and organizations for their contribution to the CHECKPOINT 16 exercise:

- U.S. Department of Homeland Security Science & Technology (DHS S&T) for providing the grant funding for the exercise
- Brigadier General (Retired) John W. Heltzel for conceptualizing the CHECKPOINT 16 exercise
- NISC Chair Doug Eades for providing overall leadership throughout the exercise planning and implementation
- NISC Board Member Jon Monken who helped define the exercise scenario and engaged with key stakeholders
- NISC Board of Directors for providing support for the exercise and assisting with outreach
- General William Reddel, Lieutenant Colonel Mike Domingue and Captain John Petro from the New Hampshire National Guard
- National Emergency Management Association (NEMA)

In addition, the NISC would like to acknowledge the organizations that contributed to the exercise by testing their own tools during the exercise. These organizations include:

- Single Automated Business Exchange for Reporting (SABER)
- City of Nashua New Hampshire
- Illinois Emergency Management Agency
- Metropolitan Washington Council of Governments
- GeoCollaborate
- New Hampshire National Guard
- State of Florida
- Virginia Information Technologies Agency

This after-action report was prepared for the NISC by G&H International Services, Inc. and Spin Global.

## IV. PURPOSE AND BACKGROUND

Incorporated in January 2013, the National Information Sharing Consortium (NISC) is a nonprofit, member organization focused on enhancing information sharing capabilities for the emergency management, homeland security, public safety, and healthcare communities. Through the NISC Member Portal, information sharing tools, technologies, and best practices are documented and disseminated to NISC members for them to test and incorporate into their operational systems. Resources found in the Member Portal include the Virtual USA Web Application, 37 essential elements of information (EEI) templates, the Resource Planning Template, and documents, code, and webinars found in the Resource Library. Many of these technologies make extensive use of Esri's ArcGIS platform, which has been shown to be an effective platform for sharing information between organizations across the nation.

In 2015, the NISC began conceptualizing a virtual tabletop exercise, called CHECKPOINT 16, to allow stakeholders to learn about, test, and evaluate the information sharing tools found in the NISC Member Portal. Using a national power outage as a scenario, the virtual exercise was designed to allow a diverse group of practitioners from across the country—as well as internationally—to participate and discuss shared challenges, and to provide input on the tools to help shape critical improvements. Through a series of trainings on the NISC tools and exercise workflows, the NISC sought to build community with stakeholders to:

- Provide a forum for discussing and developing tools to support multi-jurisdictional information sharing;
- Demonstrate, test and evaluate web applications and data models (EEI templates) that are designed to improve multi-agency information sharing;
- Test assumptions related to multi-jurisdictional information sharing practices and tools; and
- Facilitate community-wide after action reporting.

The NISC envisions that CHECKPOINT 16 will be the first of several exercises to examine and raise awareness of information sharing tools, technology, and best practices that will provide value to the public safety, emergency management, and healthcare communities.

## V. EXERCISE DESIGN AND METHODOLOGY

### VIRTUAL EXERCISE DESIGN

The NISC is comprised of 219 members throughout the United States and Canada. These members represent academic, private, public, and non-governmental organizations with a shared interest in enabling multi-jurisdictional information sharing for the purposes of planning and operations. Oftentimes information sharing, the use of information technologies, and test and evaluation of tools designed to support operations is a side-show in a real-world or tabletop exercise. As 21st century demands for information hungry decision makers and the general public have risen exponentially, so has the need for modernization of the information management and coordination practices of communities of practice that are involved in public safety. The NISC designed CHECKPOINT 16 as a virtual exercise focused narrowly on the test and evaluation of various information management workflows, practices, and tools that are widely accessible and in use by these communities of practice.

The exercise objectives were to:

- Provide a forum for discussing and developing tools to support multi-jurisdictional information sharing in support of an organization's emergency response plans;
- Demonstrate, test and evaluate web applications and data models that are designed to improve multi-agency information sharing and support realization of emergency response plans;
- Test assumptions related to multi-jurisdictional information sharing practices and tools; and
- Facilitate community-wide after action reporting.

The intended outcomes of the exercise were that participants would:

- Use situational awareness and decision support tools (e.g., apps, EEI templates) available in the NISC Member Portal;
- Help the NISC understand technology gaps and requirements based on exercise events;
- Download tools from the NISC Member Portal for use in their native environment; and
- Share tools with other NISC members via the NISC Member Portal.

The CHECKPOINT 16 exercise scenario was focused on a large-scale power outage event (multiple states) with some physical damage as a result of the power outage. The rationale for threat selection was that a power outage hazard is applicable to all communities, and it is an emerging threat that all communities must be prepared for. The exercise was designed to allow for tools and apps to be demonstrated that focus on establishing situational awareness and decision



support as well as damage assessment. These tools were either selected and offered by the NISC or they were used and owned by exercise participants. Three levels of participation were defined, including observers, limited play, and full play.

The player roles & responsibilities were defined as follows:

- **Level 1: Observer** - Consume content from the exercise using the CHECKPOINT 16 dashboards and provide AAR feedback.
- **Level 2: Limited Play** - Use NISC provided exercise simulation tools throughout the exercise and provide AAR feedback.
- **Level 3: Full Play** - Use **their own** data and tools, integrate CHECKPOINT 16 tools into **their own** native operating environment throughout the exercise, and connect to the NISC ArcGIS Online portal using **their own** credentials.

## TOOL SELECTION PROCESS

In January 2016, the NISC invited its membership and other NISC stakeholders to recommend and submit tools for consideration for use in the CHECKPOINT 16 Exercise. The CHECKPOINT 16 exercise tools included enterprise information management systems, information collection tools, as well as analytical tools.

The criteria that were used for evaluating tools submitted for inclusion in the exercise include the following:

- Be able to publish or consume interoperable data;
- Serve at least one phase of emergency management (Preparedness, Response, Recovery, Mitigation);
- Uses a web application interface that exists in operational/near operational status;
- Is scalable for use by numerous consumer audiences that may not have license or access to proprietary software;
- Web applications must be able to be shared and accessible in an ArcGIS Online Cloud Environment;
- Leverages data from numerous external sources, not only proprietary database that the application is hard-wired to serve; and
- Following the exercise, selected apps and tools will be available for download through the NISC member portal.

By the end of February, several tools were selected for use by all participants that supported both exercise facilitation and exercise play. These tools included the CHECKPOINT 16 Viewer (see Figure 1), Virtual USA Widget, Battle Rhythm Manager, and a suite of GeoForms and Operations Dashboards that were configured for multiple uses.

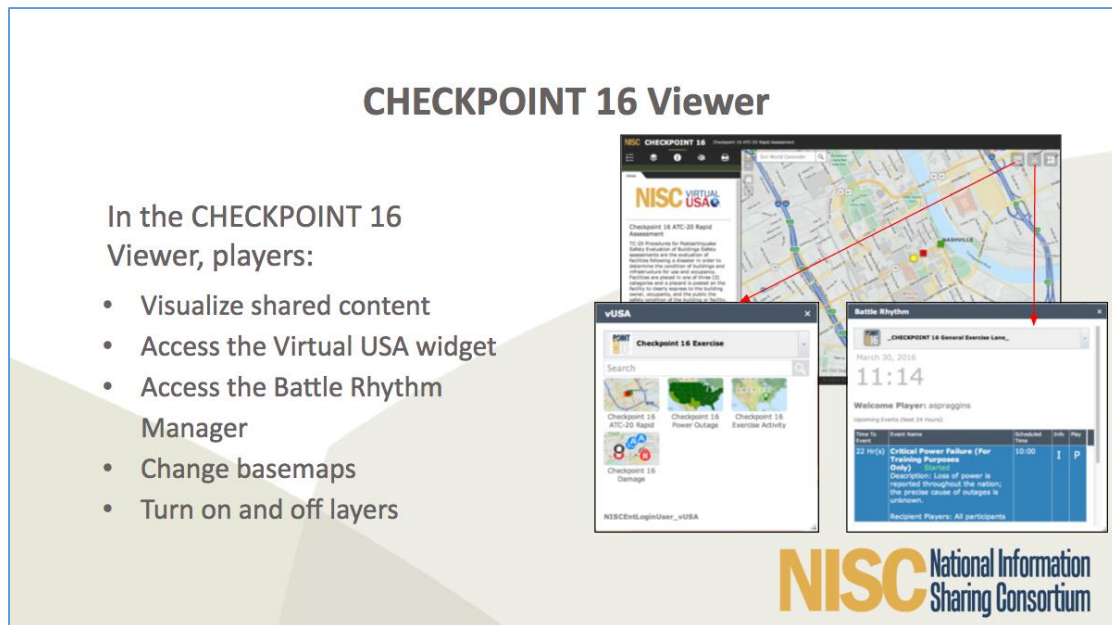


FIGURE 1. CHECKPOINT 16 VIEWER

Several tools were also submitted by full-play participants (e.g. Single Automated Business Exchange for Reporting (SABER), Nashua's Damage Assessment Tool, Homeland Security Information Network (HSIN), StormCenter Communications' GeoCollaborate), and those participants were invited to the CHECKPOINT 16 ArcGIS Online Group to share map services, webmaps, and applications.

## TRAINING & PLANNING MEETINGS

The NISC facilitated an initial and final planning conference (February 17 and April 21), two virtual training sessions (March 10 and 31) and two in-person workshops (April 7 and 14) designed to orient participants to the exercise, prepare participants with essential knowledge and skills necessary to conduct exercise play, and to provide training and inform the overall planning process. The first training highlighted the centrality of the use of the ArcGIS platform as the information sharing environment for limited and full play participants. It included introductions to CHECKPOINT 16 tools for observers and limited play participants, and highlighted baseline situational awareness and damage assessment tools for full play participants. The second training was more tactically oriented, and focused on orientation and navigation of the

CHECKPOINT 16 Exercise Viewer and its components, including but not limited to the Battle Rhythm Manager and the Virtual USA Widget which enabled map-based access to the CHECKPOINT 16 ArcGIS Online Group content. The training also featured several ArcGIS Online Web Application Templates, including the Power Outage Dashboard, the CHECKPOINT 16 Activity Log (GeoForm & Map Editor) and the Damage Assessment Reporting Template (GeoForm & Map Editor).

Preparation for CHECKPOINT 16 also included briefings to two workshops facilitated respectively by the National Emergency Management Association (NEMA), Private Sector Committee Information Sharing Task Force, and the Central U.S. Earthquake Consortium (CUSEC) Geographic Information Systems and Information Technology (GIS/IT) Working Group. These workshops were specifically focused on engaging both private sector participants and the development of operational integration processes as well as state emergency managers in the exercise, and included a focused delivery of previous training sessions to the target audience.

All trainings and planning conferences were recorded and are available at [www.checkpoint16.org](http://www.checkpoint16.org).

## EXERCISE CONDUCT

The virtual exercise was scheduled from 11AM - 4PM Eastern Time on May 11, 2016. Four sets of exercise injects were designed to be played in four hours, with a fifth and final hour dedicated to the after-action review. Each segment of exercise play was designed not to exceed 60 minutes. Participants were encouraged to select one of three lanes of participation which were accessible and navigable in the Battle Rhythm Manager: General Participation; Private Sector, and National Guard.

Each hour-long segment was designed as follows:

- Introduction of framing inject, advancing injects, & segment-specific objectives (5 min)
- Demonstration of selected tool & participant expectations (5 min)
- Participant play & facilitated tabletop (35 min)
- Closeout comments, participant reporting, & feedback (10 min)
- Break (5 min)

Key Definitions were provided to participants:

- **Framing Inject** - Information that sets the appropriate context to elicit exercise play.
- **Advancing Inject** - Information following the framing inject that sets follow-on context to elicit additional exercise play.
- **Essential Elements of Information (EElIs)** - Priority information requirements that support specified operational needs.

- **Battle Rhythm Manager** - A NISC exercise tool designed to facilitate delivery of injects, access to tools, and capture in-stride feedback.
- **CHECKPOINT 16 Activity Log** - A tool to provide situation reports and update the status of various EEIs.

The exercise schedule was designed as follows:

11:00am ET - Hour 1 begins (60 minutes)

- **Framing Inject Focus:** Critical Power Failure
- **Advancing Inject Focus:** Critical Facility Assessment Planning

12:00pm ET - Hour 2 begins (60 minutes)

- **Framing Inject Focus:** Widespread Blackouts
- **Advancing Inject Focus:** Critical Facility Damage Assessment & Blackout Power Generation

1:00pm ET - Hour 3 begins (60 minutes)

- **Framing Inject Focus:** Power Restoration Begins
- **Advancing Inject Focus:** Damage Assessment

2:00pm ET - Hour 4 begins (60 minutes)

- **Framing Inject Focus:** Assessment of Critical Services
- **Advancing Inject Focus:** Access to Water

3:00pm ET - Exercise Hotwash (60 minutes)

4:00pm ET - Exercise Complete

The complete exercise and hotwash were recorded and are available for viewing at [www.checkpoint16.org](http://www.checkpoint16.org).

## **SIMULATION ENVIRONMENT**

The simulation environment was powered by Esri's ArcGIS Online and served as the backbone for CHECKPOINT 16 information exchange. The NISC has established and maintained an ArcGIS Online Organizational account located at [vusa.maps.arcgis.com](http://vusa.maps.arcgis.com). In this environment, a CHECKPOINT 16 Exercise Group was formed, and information products including map services, webmaps, GeoForms, widgets, Web Application Builder templates, and Operations Dashboards were hosted and accessible to all participants. Templates and content for CHECKPOINT 16 was

shared in the ArcGIS Online Group and accessible from the CHECKPOINT 16 Viewer via the NISC Member Portal single sign-on process. As per the tool selection criteria, those who brought their own tools were encouraged to create and share information products with the exercise participants in/through the CHECKPOINT 16 ArcGIS Online Group.

## **EVALUATION PROCESS**

The NISC developed a three-pronged plan to facilitate evaluation on the day of the exercise, as well as a long-term plan to continue a national dialogue. The feedback loop on the day of the exercise was elicited through in-stride feedback throughout the course of the exercise via the Battle Rhythm Manager. Players were requested to provide feedback at the end of each hour, answering three specific questions:

- Were you able to achieve the framing/advancing inject objectives?
- Which tools did you test? What was your experience using these tools, or your own tools?
- Any comments or difficulties to report?

At the conclusion of the exercise, the NISC facilitated a hotwash which was designed to include a daily summary report from the NISC, exercise player report outs, and an exercise survey at the conclusion of the web meeting. The exercise survey included the following questions:

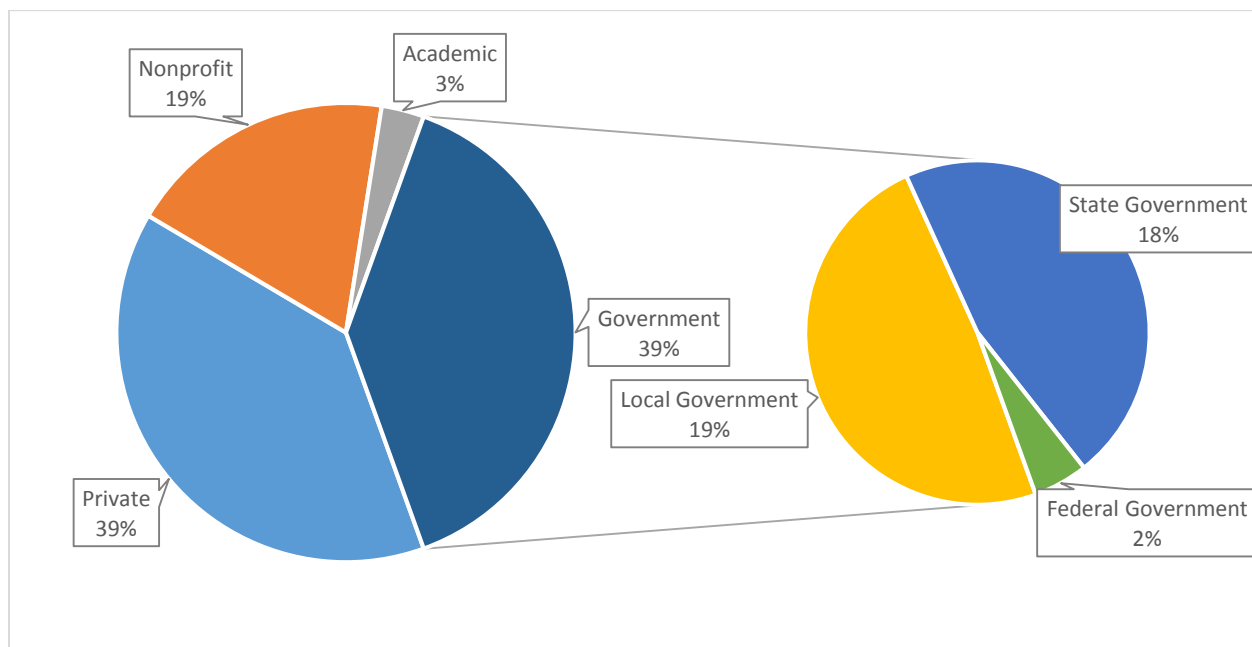
- On a scale of 1-5, rate your experience with this exercise?
- On a scale of 1-5, please rate your experience logging into the NISC Member Portal and launching the CHECKPOINT 16 viewer.
- On a scale of 1-5, please rate your experience with navigating the Battle Rhythm Manager?
- Are there suggestions you would have for improving the battle rhythm manager?
- On a scale of 1-5, please rate your experience with completing the different checklist elements for each event and completing in-stride feedback on tools.
- Are there suggestions you would have for improving the checklist and completing in-stride feedback?
- Which tools tested in the exercise would be most useful to your organization?
- Tell us why the selected tools were most useful?
- What is at least one aspect of the exercise that could be improved?
- Does your organization have specified information sharing requirements built into your plans?
- Do you have specific information sharing protocols that you follow? If so, please elaborate.

The NISC also planned to publish this after action report to further stimulate a national dialogue related to improved processes, workflows and configured technologies to support information sharing and decision support.

## VI. RESULTS AND DISCUSSION

### PARTICIPATION AND INFORMATION SHARING METRICS

Of the 219 NISC member organizations, one hundred organizations registered to participate in the NISC CHECKPOINT 16 exercise, trainings and planning meetings (see Figure 2). This included over 122 individuals from 28 US states, one Canadian province, and one Australian province. Participants included but were not limited to emergency management professionals, GIS specialists, CEOs, engineers, intelligence analysts, logistics specialists, transportation managers, National Guard, academics & more.



**FIGURE 2. CHECKPOINT 16 REGISTRANTS**

On the day of the exercise, over 60 participants attended the CHECKPOINT 16 webinar with 41 unique users launching the CHECKPOINT 16 viewer in the NISC Member Portal to play. The number of participants in the exercise is likely higher than 60 as some organizations had multiple players in one room working off of one CHECKPOINT 16 user account. Of those that attended the exercise, approximately 33 were observers of the exercise, approximately 15 are estimated to be limited play, and 12 were full play participants.

The exercise featured use of the CHECKPOINT 16 viewer to visualize three variable power outages at 30%, 75% and 50%, respectively. The Battle Rhythm Manager was configured to support three lanes of participation (general, private sector, national guard) and had framing and advancing injects designed for each community of interest to elicit play (see Figure 3). Exercise play was focused on establishing situational awareness, sharing hazard-specific plans, sharing damage

assessment plans, providing situation reports, collecting and reporting damage assessments, collecting and reporting the status of various priority information requirements, and aggregating a national level view of exercise play.

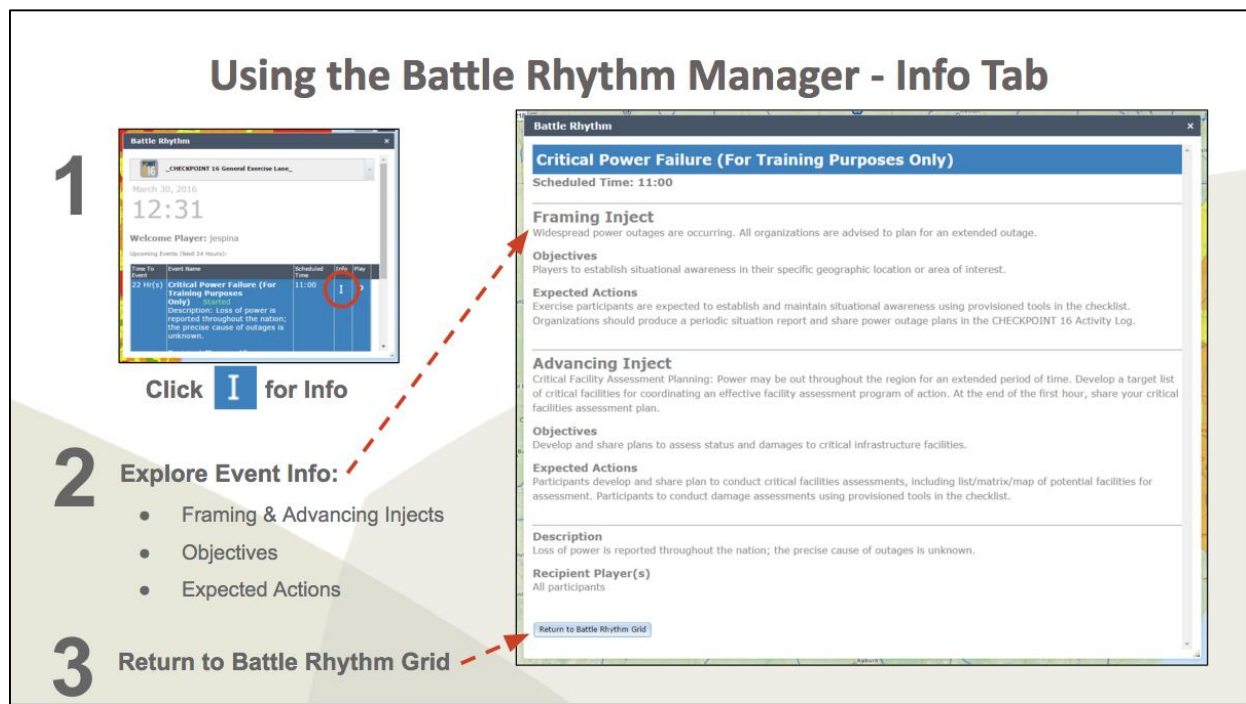


FIGURE 3. USING THE BATTLE RHYTHM MANAGER

Limited play and full-play participants used the NISC provisioned tools to create 116 Activity Log entries, and a total of 50 Damage Assessments (14 commercial, 7 residential, and 29 public assessments). Full play participants included the following organizations:

- New Hampshire National Guard
- State of Florida
- Virginia Information Technologies Agency
- City of Nashua, NH
- Illinois Emergency Management Agency (IEMA)
- Metropolitan Washington Council of Governments
- Single Automated Business Exchange for Reporting (SABER) Community which consisted of:
  - Target
  - Lowe's
  - Walmart
  - Sears Holding Company
  - XChangeCore Community



- StormCenter Communications

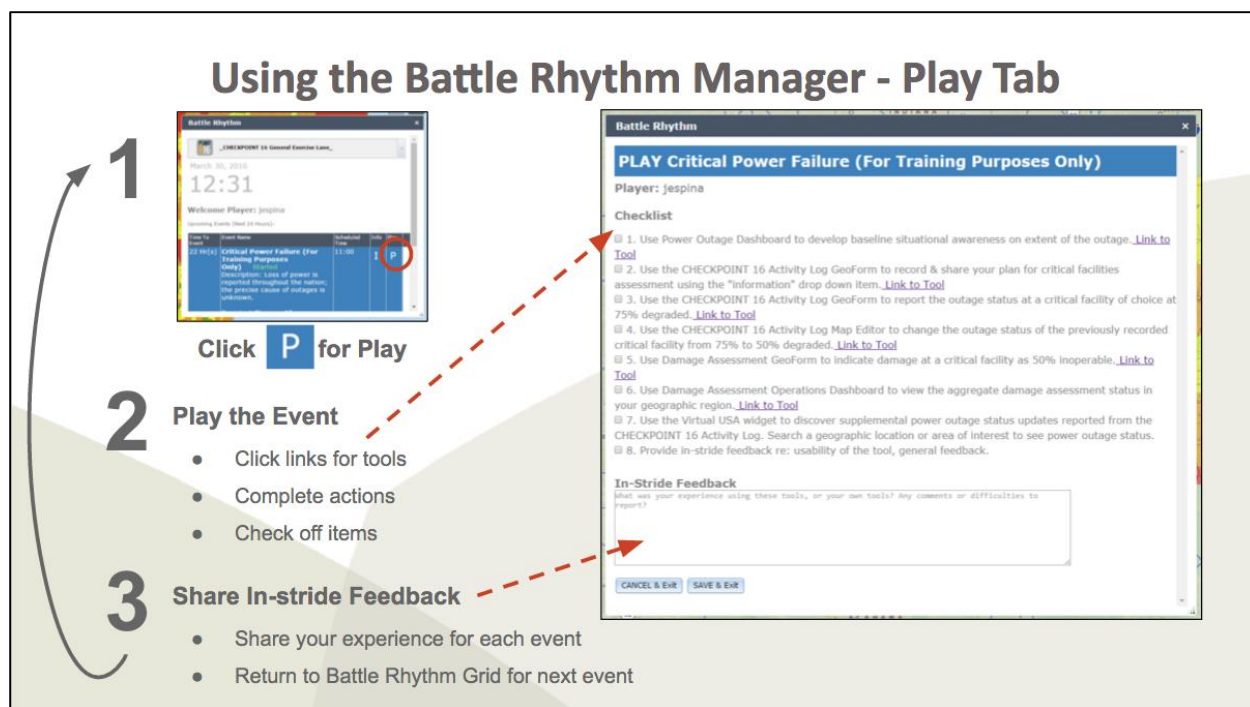
These full-play participants collectively created and shared 16 different services in the CHECKPOINT 16 ArcGIS Online Group, which included 497 status updates from the SABER Community; 67 Emergency Operations Center (EOC) status records from the State of Florida; six rapid needs assessment entries and two incidents of damage to public facilities with locations and descriptions of damage from Nashua, New Hampshire; and four status updates from the New Hampshire National Guard (critical infrastructure, power status, communications status, and point of dispensing (PODS) (see Figure 4).



**FIGURE 4. CHECKPOINT 16 ACTIVITY LOG ENTRIES, DAMAGE ASSESSMENTS, AND STORE STATUS UPDATES PROVIDED FROM EXERCISE PARTICIPANTS**

## IN-STRIDE FEEDBACK FINDINGS

In-stride feedback was solicited at the end of each exercise hour through the Battle Rhythm Manager. Participants reported various types of feedback related to their ability to effectively implement the requested actions, the degree of ease or difficulty, and any recommendations. This model represents a new exercise technique that was integrated into the BRM to help shape exercise control and improve the understanding of the exercise participant feedback in context to the specific actions elicited in each hour (see Figure 5).



**FIGURE 5. THE BATTLE RHYTHM MANAGER "PLAY" PAGE, WHICH FEATURES A CHECKLIST OF ITEMS TO COMPLETE, LINKS TO TOOLS, AND THE IN-STRIDE FEEDBACK FORM.**

During the first hour, participants widely reported that they were able to meet the objectives, specifically in that they were able to establish situational awareness, create, and share their plans. Notably the majority of problems reported had to do with first time user logins and access to information products. All known issues were addressed and fixed during the first hour. While a variety of feedback was received related to ease of use, accessibility of content, ability to implement, and recommendations for how to improve, the following quotes provide insight to views that were widely shared in all feedback received.

For example, one participant noted:

*"Team Illinois was able to establish and maintain situational awareness of power outages throughout the state Assessing critical infrastructures of highest priority for power, Length of operation on back power, Evacuation plans for O'Hare Airport, Northwestern Hospital, Jardine Water Plant, Eola Switchyard, 911 Center -Chicago OEMC, and Illinois American Water Cairo, East St Louis, Mississippi River Chouteau Island intake."*

Some reported difficulties related to logging in, while others offered technical requirements:

*"I tested the tools from NISC. The only thing that I did not see is a way to edit the GeoForm after it has been posted. I am new to GIS and may not have the experience to understand this process but it would have been helpful to be able to edit when needed."*

Full play participants also noted success in their ability to discover and share information throughout the exercise. For example, full play participants noted:

*"We were able to integrate multiple exercise layers into GeoCollaborate and we are collaborating in real time" and "the damage assessment form was easy to use, maps easy to use."*

Another player noted:

*"Great tools for rapid damage assessment... Operations dashboard is a super powerful tool. ESRI might want to make it dynamic in the sense that when you zoom into a specific area the numbers change to reflect the extent..."*

It should also be noted that several participants in the exercise were registered as observers. One observer offered the following sentiments:

*"I'm only observing, but like what I see having been involved with vUSA in the past. My organization should get more engaged in the vUSA Widget and how we can see what others around us are doing."*

In the second hour, a participant noted:

*"I was able to achieve the inject objectives. I tested/used the tools provided by NISC for the exercise and found them very user friendly. I had no difficulties performing this inject."*

Some participants would have liked a more challenging task:

*"Good to teach different ways to capture situation data spatially, but GeoForm is limited in use and it's all we used. Good for people coming in with little knowledge of ArcGIS online."*

Finally, a participant noted:

*"The tools provided gives a good understanding of how this would be useful in a catastrophic event."*

In summary, in-stride feedback was very useful to exercise facilitation process as it guided and informed the need for various course-corrections or additional training throughout the day as required. The full recording available at [www.checkpoint16.org](http://www.checkpoint16.org) enables viewers to see the hourly situation updates provided by the exercise facilitation team to address various concerns and questions that were raised throughout the day.

## HOTWASH FINDINGS

At the conclusion of the exercise, the NISC facilitated an after action review with exercise participants. As part of the review, the NISC provided a synopsis of the level of exercise play, with a brief highlight on various information products. Notably, participating organizations provided 110+ situation reports; conducted approximately four dozen damage assessments; provided more than 490 store status updates through SABER, and four information products (critical infrastructure, power status, communications status, and point of dispensing (PODS)) developed by the New Hampshire National Guard.

The NISC also invited comments from various participant organizations including Illinois Emergency Management Agency (IEMA); City of Nashua, New Hampshire, Office of Emergency Management; Washington D.C. Homeland Security and Emergency Management Agency (DC-HSEMA) and Metropolitan Washington Council of Governments (MWCOG); and the New Hampshire National Guard.

Illinois provided a model engagement that included state-level representatives for EOC operations, planning, GIS, private sector, and fusion center. The Illinois representatives had the following comments:

- **Planning** - One of the greatest things about this tool is that it allows IEMA to look at multiple layers since they have to separate the layers that IEMA wants to use. The first layer is always strategy, xyz happens for a power outage, what is our strategy, what are we trying to assess, where do we want to be, what are we trying to accomplish, and operationally, who should we assign it to.
- **Fusion Center** – During this exercise, the integrated nature of the fusion center with IEMA at the State Emergency Operations Center (SEOC) proved really helpful. As an example, when they were going through critical facilities, they had to identify a hospital in an area, and reached out to their public health representative in the fusion center to identify one of the more critical hospitals that needed to be up and running.
- **GIS** – GIS staff fulfilled their main objective through this exercise by bringing awareness that GIS tools are functional, available, and can be integrated into an event to address situational awareness and when IEMA is being impacted by disasters. The live mapping component was free and it was good to see multiple people adding information for different locations across the nation and the state.
- **BEOC** – Using the private sector participation through SABER with the open/closed store status, the fusion center's private sector representative and their department of transportation tweaked the data from SABER to help them make a decision on how to respond in terms of resource planning for mass care or volunteer donation.

- **EOC** -The state's perception of what we should be done during an emergency can vary greatly from what the private sector thinks they should be doing or what the state thinks the private sector should be doing. For example, one company put their priorities in the tool which was very helpful since state and private sector priorities do not always align. Having that information accessible helps to force people to sit and talk about what's going on, talk about the strategy forward, and the implications. This was identified as perhaps the greatest strength of the tool IEMA staff found useful if all companies are willing to provide the same information that (unnamed) private sector company provided.

Nashua, New Hampshire players also provided several comments from a local EOC perspective that involved participation from both EOC and GIS specialists:

- The participant noted that the Battle Rhythm widget has great application for use in future exercises, as Nashua has struggled in the past with trying to find ways that they can provide GIS and information sharing training to all of their different cities that they respond to on a regular basis. The sentiment was conveyed that the Battle Rhythm Manager is a great way to keep people on track with a scripted scenario and also provide links to the other tools that they might have to use as part of the exercise. Once it gets to a final version, they are looking forward to seeing the tool on the NISC Member Portal for people to use and implement as part of their own toolset.
- Participants noted that they saw great value in the Virtual USA widget and will be adding the tool into their current platform. They used the widget to keep track of all the different maps that they were playing with on the CHECKPOINT side but also with the other tools that they were using in the city.
- Participants noted that they would share their rapid needs assessment tool with NISC members. The rapid needs assessment tool has been used in the past with their GeoForm as well as with the Collector App to send volunteers out into the community to go and do rapid needs assessment prior to a formalized preliminary damage assessment.

Following the report out from Nashua, a representative from DC-HSEMA and MWCOG provided some comments on the exercise from a big city/regional viewpoint:

- MWCOG is currently looking at other ways to share information with each other, and the exercise has shown them different tools and given them great ideas and ways to move forward.
- The participant liked the GeoForms because they made the data entry part of an event easy, and people that are not necessarily versed in GIS can get in there and help out.
- The tools featured in the exercise can help to get an organization organized but it was noted that setting expectations ahead of time is critical so that leadership knows what to

expect and (for example) know that they will be able to find power outages at a county level or to a census tract level so that you're not scrambling during the time of an event.

- It was noted that the tools would be great for getting organized ahead of time and collaborating with jurisdictions, they'll have a lot to talk about during the next COG meeting in terms of how best to use the tools and move forward.
- There was also a question related to the security of use of tools and data used in ArcGIS Online. The NISC commented that a lot of people are using ArcGIS Online for secure data on the homeland security level of verification that ArcGIS Online provides. As long as an organization is securing data and providing secure services within that environment, data can be locked down very well.

Finally, a representative of the New Hampshire National Guard spoke on behalf of six Guard offices that were playing in a parallel exercise, which included North Dakota, North Carolina, New Hampshire, Maine, and Massachusetts, in addition to a representative from the Pentagon linked with the National Geospatial Intelligence Agency where the National Guard was hosting its data. Comments were provided as follows:

- The National Guard was able to create and input layers for four different environments. They created one that put all the national guard locations out there so that they could go ahead and report back on communications and electrical status and then also utilize those for points of distribution. They also created another layer for critical infrastructure and used symbology provided by the National Alliance for Public Safety GIS (NAPSG).
- Another good outcome was that they were able to publish their services out to DHS's Geospatial Information Infrastructure where they have a National Guard Group, and published results to that group and had the map up on the Joint Operations Center wall to take a look at what it looked like.

Several general critiques were offered as well during the hotwash:

- From the planner's perspective one perception was that we may have "out-technologied" ourselves, that is technology is so fast and so capable that we can't keep up with it. However, the same person noted that the flipside to that "is that maybe it's not the technology [that's the problem], maybe it's our own capacity to understand what we have in front of us and actually use the information and coordinate it out so that we can do what we're supposed to do."
- Comments were made relative to the learning curve and familiarity with the use of the various information technologies, including the sentiment that "You almost get caught behind the ball because the technology is faster than you are" and is quicker than your brain can work. There was some concern that we may not have the human capacity to

deal with all the additional information, and yet that concern was coupled with the sentiment that this limitation shouldn't stop us, but it should force us to look at trainings, organization, and plans to make it work.

- National Guard elements recommended the use of https:// vs. http:// which caused problems for them related to login and access. As a result, Guard elements operated in somewhat of a silo throughout the day and were able to consume content from some partners but had limited success in publishing content to the broader group of exercise participants.
- Future exercises should get a little more specific on the injects as planners wanted more detail than what we were talking about; rather than just a percentage of a county that has a power outage, get more specific details on where those outages are occurring.
- It would be preferable to enable editing inside the map to edit all parameters rather than just certain attributes along with some of the EEI information that they were submitting.

## SURVEY FINDINGS

Immediately following the exercise hotwash, a digital survey was distributed to all exercise participants. 23 of 60 participants (38%) responded to the survey and documented feedback related to ten questions.

Survey Question	Response
Please rate your experience with this exercise: 1 (not useful and informative) to 5 (useful and informative)	The average response was <b>4.22</b>
Please rate your experience logging into the NISC Member Portal and launching the CHECKPOINT 16 viewer: 1 (difficult) to 5 (easy)	The average response was <b>3.95</b>
Please rate your experience with navigating the Battle Rhythm Manager: 1 (difficult) to 5 (easy)	The average response was <b>4.22</b>
Please rate your experience with completing the different checklist elements for each event	The average response was <b>3.81</b>

and completing the in-stride feedback on tools: 1 (difficult) to 5 (easy)	
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The survey responses largely reflected a sentiment that the exercise was useful and informative, easy to navigate, and participate. There were a variety of players from a wide array of organizational types with various levels of familiarity with the tools and exposure to the NISC, and as such this is a significant achievement. There were some salient recommendations for improvement recorded as well, including but not limited to the following:

Recommendations for future improvement of the exercise:

- One sentiment was expressed as follows, “Perhaps in the build up to the actual exercise, some time could be spent in showing participants how not to get so overwhelmed with data. This is particularly important to me as I continue to assess how I best present the value of this tool and this initiative to my senior leadership for further consideration.”
- Make available a wider variety of tools to test with a wider variety of actions to take;
- Provide further training how to add layers on the fly; and
- Offer additional topic areas, perhaps related to health care.

Recommendations for improvement of the Battle Rhythm Manager experience:

- Develop a user guide for navigating the Battle Rhythm Manager;
- Improving the ability to navigate between multiple widgets and web applications;
- Requests for more detail on what is needed to achieve the objective; and
- More clarity in linkage between exercise objectives and specific tools tested.

In conclusion, the results of the survey were helpful to understand that the exercise was useful and informative, that improvements can be made, and that there is a desire for more exercises, data, and tools to be tested.



## VII. SUMMARY AND RECOMMENDATIONS

### OUTCOMES

By nearly any measure the CHECKPOINT 16 exercise was an unqualified success. In a few months, the National Information Sharing Consortium, along with assistance from DHS Science and Technology, conceived, designed, developed, and delivered one of the first fully distributed exercises focused specifically on using and integrating new tools and technologies in a virtual environment. This was accomplished with a strong program of outreach, awareness, and training across sectors and disciplines, with the unifying theme of improving the state of practice related to information sharing.

***Shared Objectives*** - One of the outcomes of the CHECKPOINT 16 Exercise was that there were advances made in establishing common shared objectives to align and elevate new and existing information exchange methods, tools, and technologies. In some cases, organizations and practitioners working in similar or parallel efforts had never been given an opportunity to test and integrate information, processes, and practices. By establishing the goals, vision, milestones and timeline, along with the ArcGIS platform that enabled sharing exercise tools and common communications protocols, the NISC team facilitated communications and served as a catalyst for cross-platform solutions. These efforts and tools were synergized producing a new understanding and an advanced ability to move private sector, local, state, and federal processes to a new level.

***Planning*** – CHECKPOINT 16 represented a maturation of the NISC business and support model. Until CHECKPOINT 16, the NISC had focused on the development of tools that fit into one of the operational areas of emergency management or the first responder community. With the execution of CHECKPOINT 16 the NISC advanced operational planning through the design and implementation of a facilitated exercise through both framing and advancing injects requiring data gathering in support of planning. Agency plans were then used to advance situational awareness and senior level planning to meet exercise mission requirements. Artifacts and products produced during the exercise are evidence of the sophistication and integration of NISC, DHS-S&T, and locally-developed tools to meet the exercise demands. This planning effort is an area that most states and organizations struggle to achieve proficiency in. Using the concepts developed during CHECKPOINT 16, a NISC-sponsored training program could continue to add value and exposure to new techniques and tools to improve the planning environment.

***Integration*** – The NISC achieved this milestone in collaboration with communities of practice from NEMA, CUSEC, the National Guard, SABER who each represent multiple organizations that participated in the exercise. CHECKPOINT 16 provided a platform for engagement around a shared interest that extends far beyond any single community. CHECKPOINT 16 was a whole of

community approach, which, as it continues to build momentum, could affect change in how planning, operations, and technology converge to foster improved communications and coordination. Further, CHECKPOINT 16 demonstrated model practices for information exchange that are replicable and scalable to support national-level planning and operations.

## **PEOPLE, PROCESS AND TECHNOLOGY RECOMMENDATIONS**

The NISC is only as strong as its members. Given the member base of 219 organizations, the NISC should continue to foster community engagement through focused virtual exercises that support the specific needs of communities and advance the cause of multi-jurisdictional information sharing and interoperability of systems. Additionally, the NISC should seek to add specific technology partners with emerging or foundational capabilities. If the NISC is to evolve towards a holistic adoption of the mission—to truly facilitate the sharing of information—representation of the various industry database providers, internet search engines, common use communications, and social media leaders are necessary constituents to engage in future work. Providing a forum for these potential members and commercial vendors to present, share, and demonstrate how their capabilities assist in achieving information sharing is an obvious strategy to gain inclusion and integration.

### **TRAINING LABORATORY**

The NISC, through CHECKPOINT 16, demonstrated that it possesses the capacity and capability to deliver cutting edge facilitated training in a very cost efficient manner. Using the tools and techniques developed and demonstrated during CHECKPOINT 16 and available in the NISC Member Portal, the NISC can extend the training and exercise environment nationwide and move whole communities forward in a short amount of time. At this time, this is a revolutionary capability that neither the federal government nor the private sector possess, but in partnership with these stakeholders could add significant value to these communities.

### **EXTENDING AND DEVELOPING THE BATTLE RHYTHM MANAGER (BRM)**

While moving towards the goal of demonstrating, testing and integrating existing tools, and to develop capabilities for providing outstanding training and awareness sessions, the NISC commissioned the development of a state of the art exercise and training tool, the Battle Rhythm Manager (BRM). The BRM accomplished everything needed to support CHECKPOINT 16 and enabled the NISC team to elevate exercise design and extend exercise facilitation.

The BRM is an excellent example of how the NISC adds tremendous, measurable value to the first responder and emergency management communities. Following the exercise, numerous participants requested access to the application for local use. Properly supported and integrated, the BRM holds the potential to have a positive impact on leveraging expertise and design theory to meet the ever increasing demand for training and exercises. The current version of the BRM is

very flexible with an ability to construct exercise information and deliver essential exercise elements including framing and advancing injects, manage exercise time while providing access to training tools and best practices. The current design supports multiple exercise lanes or sectors at the same time.

The BRM advancements could include the ability to run the tool offline when warranted, support integrated exercise lanes views, drive multiple sector exercise efforts (provide one tool to support and integrate whole EOC exercise across emergency support functions (ESFs) and level of operations). The ability to implement injects linking with action tracking would extend the use of the tool to drive advancements in response conceptualization and education. Finally, the ability to support a full exercise, or training cycle, of after action sessions would provide a holistic exercise and training environment. Basically the BRM concept presents trainers, leaders, and managers with the ability to exercise plans and staff with minimal cost until proficiency is achieved. The BRM has the potential to completely change how our responders and managers approach skill development, teamwork, and the introduction and integration of new technologies.

## **CONCLUSION AND PATH FORWARD**

CHECKPOINT 16 was milestone for the NISC, and an excellent investment of resources to engage the membership in a meaningful way. Hundreds from a wide variety of communities of practice were trained and made aware of existing tools, processes and procedures to add to their operational environment. New capabilities, techniques, and avenues for exploration were developed and are readily available to all members in the NISC Member Portal located at [www.nisconsortium.org](http://www.nisconsortium.org). The path forward needs to build on the success of CHECKPOINT 16, increase exposure to model practices, templates, and voluntary guidance made available by the NISC and its partners, and develop a process for extending and accomplishing the NISC mission. At a minimum this should include continued stakeholder engagement, development and proliferation of the training laboratory, awareness of the NISC member portal contents, expansion of a diversified membership, and establishment of an annual schedule of key events.

## VIII. REFERENCES

### **PARTICIPATING ORGANIZATIONS**

The following organizations attended the CHECKPOINT 16 exercise event:

- Ameren Corporation
- American Red Cross
- Anderson Hospital
- Arkansas Department of Emergency Management
- Atkins Global
- Boyd Gaming Corporation
- BP
- Buffalo Computer Graphics
- Central United States Earthquake Consortium (CUSEC)
- City of Chesapeake, VA
- City of Las Vegas Office of Emergency Management
- City of Nashua, NH
- City of Walnut Creek, CA
- County of San Diego Health and Human Services Agency
- Crisis Commons
- Critical Response Technologies
- Disasters, Strategies, and Ideas Group, LLC
- Electric Infrastructure Security Council
- EM Strategies LLC
- Esri
- FATPOT Technologies, Inc.
- Federal Emergency Management Agency (FEMA) National Business Emergency Operations Center (NBEOC)
- Flagler County Schools
- Florida Division of Emergency Management
- Greg Nelson Consulting, LLC
- Illinois Emergency Management Agency (IEMA)
- International Association of Fire Chiefs (IAFC)
- Kant Consulting Group, LLC
- Kentucky Emergency Management
- Lake in the Hills Illinois CERT
- Lowe's Companies, Inc.

- Maryland Department of Information Technology
- Missouri Office of Administration
- National Capital Region Geospatial Data Exchange
- National Emergency Management Association (NEMA)
- New Hampshire National Guard
- Oklahoma Department of Agriculture, Food & Forestry
- Orange County Fire Rescue, Orange County, FL
- Radiation Injury Treatment Network
- San Diego Regional Technology
- Sears Holdings Corporation
- Shelby County, TN
- Southern Baptist Disaster Relief
- Statewide Terrorism and Intelligence Center (STIC) (Illinois)
- StormCenter Communications
- Sunnybrook Health Science Center, Ontario
- The Canadian Public Safety Operations Organization (CanOps)
- UCF E2i Creative Studio
- Virginia Information Technologies Agency (VITA)
- Walmart
- Washington DC Homeland Security and Emergency Management Agency (DC-HSEMA)
- Washington Military Department
- Wisconsin Emergency Management
- XChangeCore

## **LIST OF ACRONYMS AND ABBREVIATIONS**

- BEOC: Business Emergency Operations Center
- BRM: Battle Rhythm Manager
- CUSEC: Central United States Earthquake Consortium
- DC-HSEMA: Washington DC Homeland Security and Emergency Management Agency
- DHS S&T: U.S. Department of Homeland Security Science & Technology Directorate
- EEI: Essential Element of Information
- EOC: Emergency Operations Center
- ESF: Emergency Support Function
- FEMA: Federal Emergency Management Agency
- GIS: Geographic Information Systems
- HSIN: Homeland Security Information Network
- IAFC: International Association of Fire Chiefs
- IEMA: Illinois Emergency Management Agency
- MWCOG: Metropolitan Washington Council of Governments
- NAPSG: National Alliance for Public Safety GIS Foundation
- NEMA: National Emergency Management Agency
- NISC: National Information Sharing Consortium
- SABER: Single Automated Business Exchange for Reporting
- STIC: Statewide Terrorism and Intelligence Center
- VITA: Virginia Information Technologies Agency

## **LIST OF LINKS**

- CHECKPOINT 16: [www.checkpoint16.org](http://www.checkpoint16.org)
- NISC Homepage: [www.nisconsortium.org](http://www.nisconsortium.org)
- NISC ArcGIS Online Profile: <http://vusa.maps.arcgis.com>

