Information Technology and Community Restoration Studies
Task 1: Information Technology

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November 2009

Pacific Northwest
NATIONAL LABORATORY

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Executive Summary

The Interagency Biological Restoration Demonstration—a program jointly funded by the U.S. Department of Defense's Defense Threat Reduction Agency and the U.S. Department of Homeland Security's (DHS's) Science and Technology Directorate—is developing policies, methods, plans, and applied technologies to restore large urban areas, critical infrastructures, and U.S. Department of Defense installations following the intentional release of a biological agent (anthrax) by terrorists. There is a perception that there should be a common system that can share information both vertically and horizontally amongst participating organizations as well as support analyses. A key question is: "How far away from this are we?" As part of this program, Pacific Northwest National Laboratory conducted research to identify the current information technology tools that would be used by organizations in the greater Seattle urban area in such a scenario, to define criteria for use in evaluating information technology tools, and to identify current gaps.

Researchers interviewed 28 individuals representing 25 agencies in civilian and military organizations to identify the tools they currently use to capture data needed to support operations and decision making. The organizations can be grouped into five broad categories: defense (Department of Defense), environmental/ecological (U.S. Environmental Protection Agency and Washington State Department of Ecology), public health and medical services, emergency management, and critical infrastructure. The types of information that would be communicated in a biological terrorism incident include critical infrastructure and resource status, safety and protection information, laboratory test results, and general emergency information.

The most commonly used tools are WebEOC®[1] (web-enabled crisis information management systems with real-time information sharing), mass notification software, resource tracking software, and NW-WARN (web-based information to protect critical infrastructure systems). It appears that the current information management tools are used primarily for information gathering and sharing—not decision making.

Respondents identified the following criteria for a future software system. It is easy to learn, updates information in real time, works with all agencies, is secure, uses a visualization or geographic information system feature, enables varying permission levels, flows information from one stage to another, works with other databases, feeds decision support tools, is compliant with appropriate standards, and is reasonably priced. Current tools have security issues, lack visual/mapping functions and critical infrastructure status, and do not integrate with other tools.

It is clear that there is a need for an integrated, common operating system. The system would need to be accessible by all the organizations that would have a role in managing an anthrax incident to enable regional decision making. The most useful tool would feature a geographic information system visualization that would allow for a common operating picture that is updated in real time.

To capitalize on information gained from the interviews, the following activities are recommended:

- Rate emergency management decision tools against the criteria specified by the interviewees.

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[1] WebEOC is a registered trademark of ESi Acquisitions, Inc.

- Identify and analyze other current activities focused on information sharing in the greater Seattle urban area.

- Identify and analyze information sharing systems/tools used in other regions.

Acronyms and Abbreviations

CAD	computer-aided dispatch
CDC	U.S. Centers for Disease Control and Prevention
DHHS	U.S. Department of Health and Human Services
DHS	U.S. Department of Homeland Security
DOD	U.S. Department of Defense
DOT	department of transportation
EOC	emergency operations center
EPA	U.S. Environmental Protection Agency
ESF	emergency support function
FEMA	Federal Emergency Management Agency
GIS	geographic information system
IBRD	Interagency Biological Restoration Demonstration
RMS	Records Management System
RPIN	Regional Public Information Network
RRCC	Regional Response Coordination Center
RTI	Regional Technology Integration (project)
SCADA	Supervisory Control and Data Acquisition

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1.0   Introduction

This report describes the results of Task 1 of the Information Technology and Community Restoration Studies project, which is part of the Interagency Biological Restoration Demonstration (IBRD) program. The program, under the U.S. Department of Defense (DOD) and U.S. Department of Homeland Security (DHS), is aimed at developing policies, methods, plans, and applied technologies to restore large urban areas, critical infrastructures, and DOD installations following the release of a biological agent. The Seattle urban area is a key partner for this project. The Seattle urban area was selected as the demonstration region for the IBRD program. The IBRD program is designed to take a collaborative approach among regional stakeholders in the Seattle urban area including local, state, federal, and private sector partners to develop and deliver solutions that are tailored to the needs of the Pacific Northwest, yet are extensible to other regions. The research described in this report is intended to inform the development of consequence management plans and decision frameworks for the IBRD program. Specifically, it is focused on identifying current information management technology tools.

1.1   Purpose

There is a perception that there should be a common system that can share information both vertically and horizontally amongst participating organizations, as well as support analyses. A key question is: "How far away from this are we?" The purpose of this task is to identify the current information technology tools and information interfaces that are (or would be) used for information tracking and analysis, from response through recovery and restoration, to support policy and decision-making efforts. Gaps and any shortcomings in the existing tools and tool kits are documented for future consideration by IBRD leadership.

1.2   Approach

Individuals at various government agencies at all levels(local, state, and federal, civilian and military), as well as organizations from the private sector, were interviewed to identify the tools or toolkits they currently use to capture information and data needed to support operations and decision making. Information was also gathered to develop the evaluation criteria for an information-sharing tool. Gaps and shortcomings in the current information management methods were also documented. The organizations that were interviewed can be categorized in five areas: defense (DOD), environmental/ecological (U.S. Environmental Protection Agency [EPA]/Washington State Department of Ecology [WSDOE]), public health/medical services, emergency management, and critical infrastructure. The organizations interviewed are shown in Table 1.

Specific steps included:

- identified public and private organizations
- identified the decision makers/managers to be interviewed within the organizations
- developed the interview protocol (Appendix A)
- scheduled and held individual interviews
- verified information gathered through the interviews.

Table 1. Organizations Interviewed

DOD
Fort Lewis Office of Emergency Management
Madigan Army Medical Center
EPA/WSDOE
EPA—Region 10
WSDOE
Emergency Management
Federal Emergency Management Agency - Region 10
Snohomish County Department of Emergency Management
King County Emergency Management
City of Seattle Office of Emergency Management
City of Everett Office of Emergency Management
City of Bellevue Emergency Management
Pierce County Emergency Management
Public Health/Medical Services
King County Health Care Coalition
Centers for Disease Control and Prevention (CDC)/U.S. Department of Health and Human Services (DHHS)
Washington State Department of Health Public Health Laboratory
Harborview Medical Center
Seattle/King County Public Health
Pierce County Public Health
Northwest Hospital
King County Public Health—Epidemiology
Critical Infrastructure
Washington State Department of Transportation (DOT)
King County DOT
Washington Association of Sewer and Water
King County—Waste Water Treatment Division
Seattle City Light
Puget Sound Energy
Frontier Bank

1.3 Limitations

In most cases, only one person from each organization was interviewed. The information contained in this document is based strictly on the respondents' knowledge of current information management methods used by their respective organizations. Therefore, this information may not represent all of the tools currently being deployed in each organization.

Much of the information discussed applies primarily to the response phase of a disaster, and it is logical to assume that these same tools would transition into the recovery and restoration phases. It was difficult for many of the interviewees to imagine the actual needs during an anthrax incident of this magnitude.

2.0   Information Management Overview

This section describes the communication channels, information management tools, and types of information shared from a consolidated perspective. The information here is a summary of the detailed information gathered through the interview process. The detailed information is available in Appendix C. A glossary of information tools appears in Appendix B.

2.1   Communication Channels

Through the interview process, it became apparent that many organizations still rely on traditional methods—such as telephone (including conference calls), email, liaisons with partner organizations, and even radio—to communicate. Some software and web-based tools (e.g., WebEOC and MyStateUSA) are used, but not exclusively.

In some cases, the traditional methods are not as effective as needed. For example, during the H1N1 flu virus outbreak, most information was received and shared through phone and video conferences, and several organizations expressed frustration regarding the inability to obtain information in an expedient manner.

Figure 1 provides an indication of the methods being used to communicate information to other organizations. In most cases, a variety of channels are used to communicate the information rather than relying on one specific method.
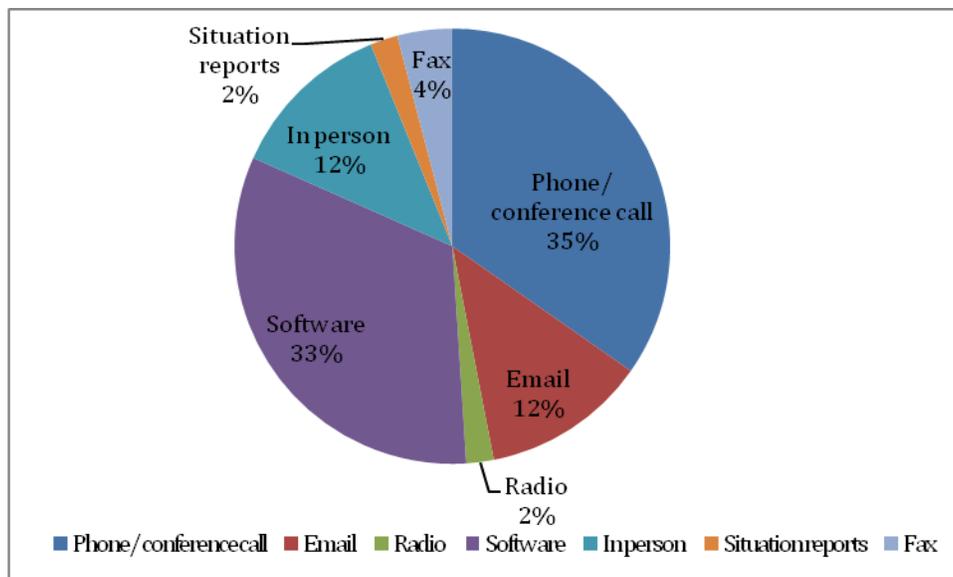
Figure 1. Communication Channels

2.2   Information Management Tools

The types of software being used vary across the organizations and include specific software like WebEOC, MyStateUSA (and other notification software), and WATrac, but also includes the Internet,

Web 2.0 technologies, electronic feeds, etc. Figure 2 provides a summary of the types of software used and the categories of organizations that reported using them.
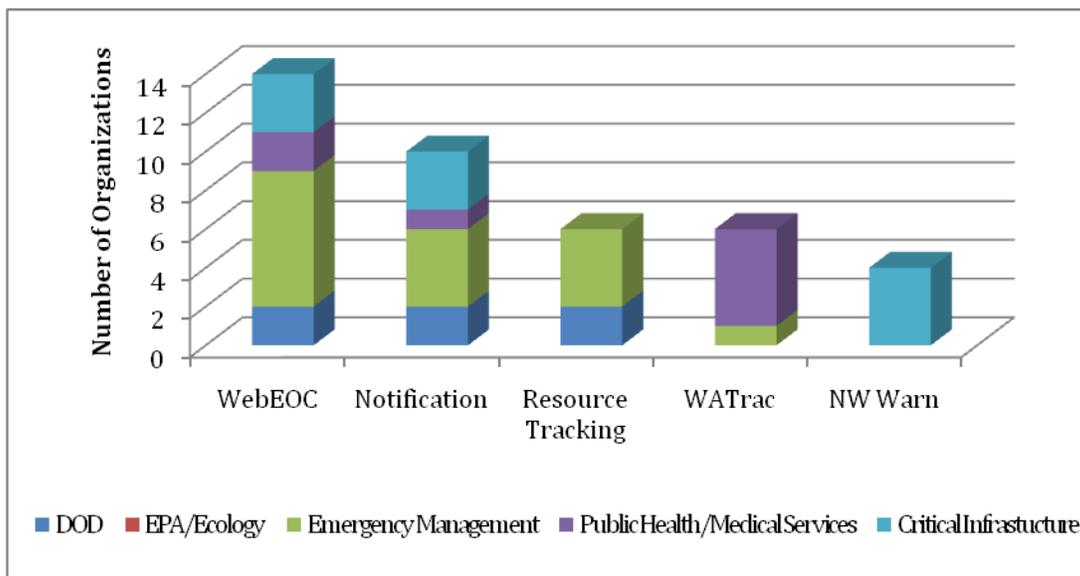
Figure 2. Types of Software Used

WebEOC is a web-based disaster information management system and provides real-time sharing of information to help managers make sound decisions. It is the most commonly used software but the methods of use are not consistent across organizations. Some organizations use it strictly for internal purposes, while others allow external organizations access. Some are expanding their use of WebEOC to include not only counties but also the city emergency management organizations, while others are scaling back and may only use WebEOC on a limited basis when the emergency operations center (EOC) is activated.

Several limitations to WebEOC were articulated during the interviews. These include:

- the inability to import data directly from other systems as well as allow for manual input

- the need for an alerting function

- the inability to visualize the information to form a common operating picture

- the inability to update actions taken

- the need for inclusion of all the information needed for situation reports for ease and consistency in developing those reports.

Several types of notification software are used to communicate information both internally and externally, including to the general public. The most common tool is MyStateUSA but others include Rapid Reach, 3N, REVERSE 911®[1], WASecure, Community Notification System, and MIR3[TM2].

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[1] REVERSE 911 is a registered trademark of PlantCML.
[2] MIR3 is a trademark of MIR3.

Resource tracking software is another common tool. In this case, many of the systems used have been developed internally. Maximo®[3] is one system that was not developed internally. Another system is being developed through another DHS's Science and Technology Directorate project: the Regional Technology Integration (RTI) project.

WATrac is a statewide hospital resource tracking tool that is used as a communication tool. WATrac helps manage emergency events by tracking beds, resources, and pharmaceuticals; storing and organizing documents; and alerting responders of an emergency event. It also provides a communications mechanism that can be archived for future reference. Hospitals also use WATrac to communicate:

- emergency room status

- hospitals status

- ambulatory status.

The goal is to have a full healthcare snapshot of all medical organizations (hospitals, medical examiners, emergency medical services, paramedics, etc.). At this time, access is limited primarily to the hospitals—but it is possible to grant access to other organizations. Some nonmedical organizations currently have access to WATrac.

Critical infrastructure organizations rely on NW-WARN to obtain much of their emergency information. NW-WARN is a web-based system that provides early-warning messaging and situational awareness before and during a disaster to help protect critical infrastructure.

2.3 Information Interfaces and Processes

Figure 3 depicts many of the communication interfaces identified by the organizations interviewed. The main types of information communicated include:

- critical infrastructure status

- resources status

- safety/protection information

- laboratory test results

- emergency information.

Figure 3 does not depict all the communication channels, nor is it intended to capture all types of information shared. It provides an indication of the level of information sharing that would be required in an anthrax incident. It also verifies that much of the information shared is required by multiple organizations. This is further evidence of the need for a common information-sharing tool to simplify and improve the consistency of the information shared during a disaster.

Of the 25 organizations interviewed, only seven indicated they share information through the use of the software discussed previously for decision making. The remainder used the software for information gathering and, to some extent, information sharing.

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[3] Maximo is a registered trademark of IBM.
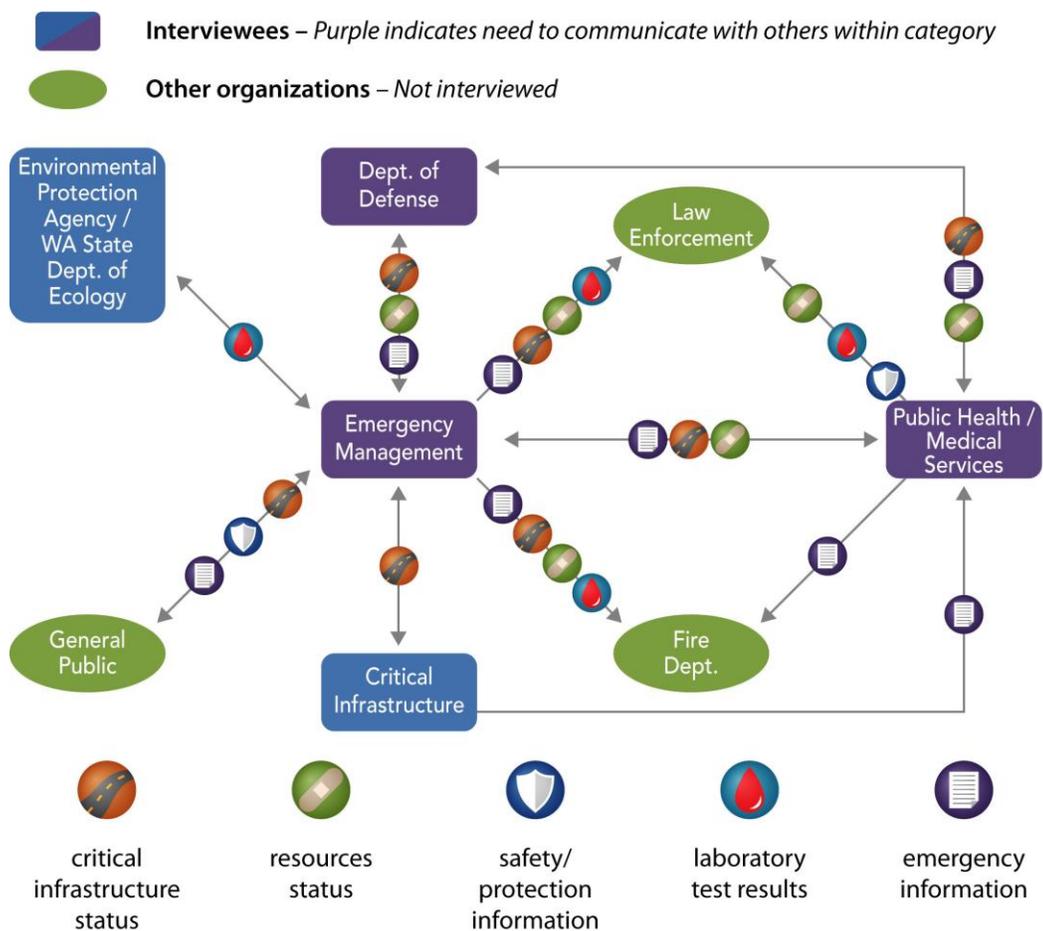
Figure 3. Organizational Communication

2.4 Example of Current Information Sharing of Laboratory Sample Results Data

One of the biggest needs for communication in the recovery/restoration phases of an anthrax incident will be the communication of laboratory sample results. Based on the interviews, an example communication chain and method of communication is depicted in Figure 4 below. This information is typically communicated by phone or email. The need for a website that communicates the status of the sample data was articulated in the interview process.
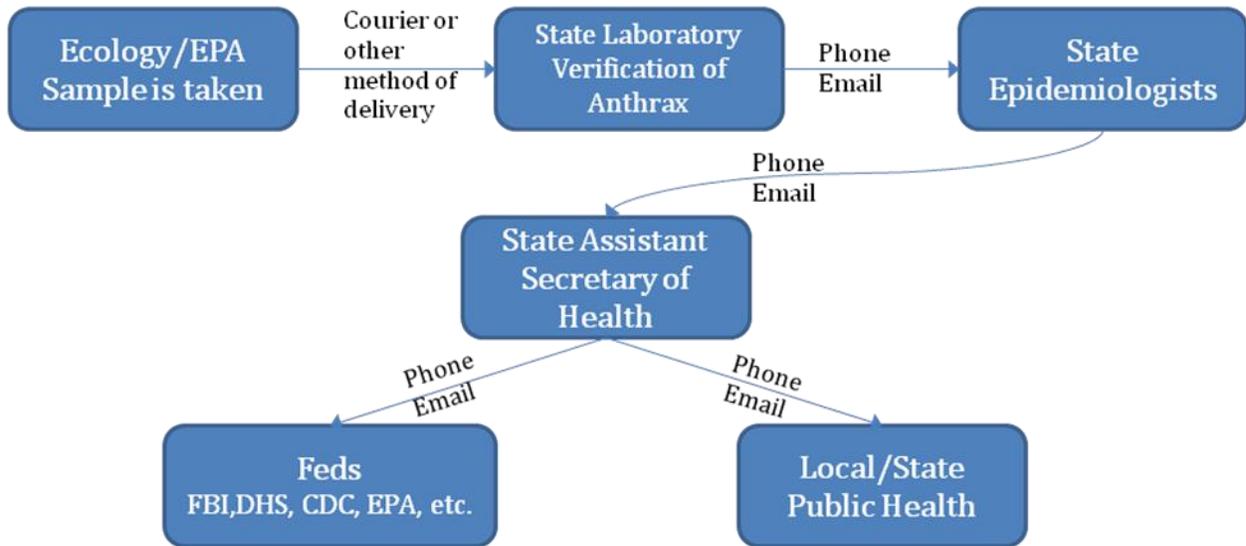
Figure 4. Laboratory Sample Results Communication Path

2.5   Road Status Data

The need for up-to-date road status information was one of the most common areas mentioned in the interviews. The Washington State and King County DOTs have recognized this need and are working to provide an integrated visualization on road status of all the state and county roads. Currently, each organization maintains a separate website that provides the status of their respective roads, but there is not a tool that enables concurrent visibility of state and county roads.

3.0 Criteria for Future Software Systems

Based on the interviews, a list of software evaluation criteria was developed. The interviewees then ranked the criteria by importance levels of high, medium, low, or NA. Based on the average score of these rankings (where high = 3, medium = 2, low = 1, and NA = 0), Figure 5 displays the criteria from most important to least important based on the average score of each criterion.

Although ranked in the graph, the criteria are all relatively equally important with the scores having a narrow range of 2.0 - 2.8.
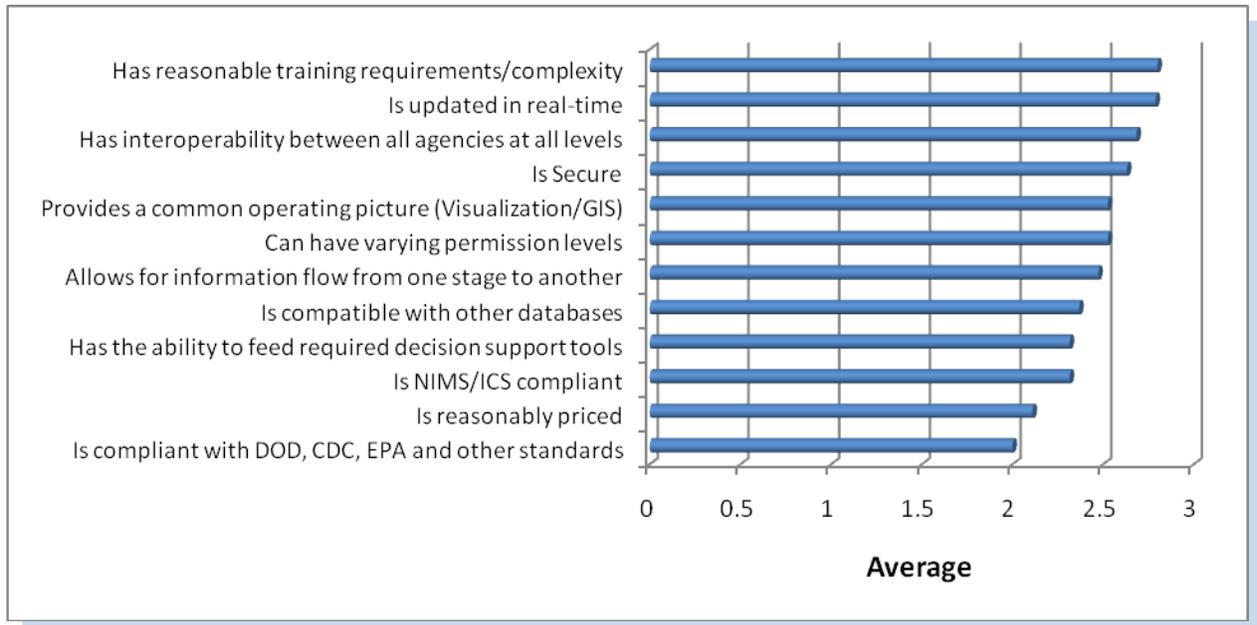
Figure 5. Software Criteria Rankings

The need for ease of use was reinforced in the interviews. Some software is limited by personnel attrition/turnover. An employee trained to use a software suite, for example, leaves an organization, and the organization no longer uses the software because it is too complex for another employee to self-train.

Although cost ranks fairly low in Figure 5, some organizations using software provided for free or through a grant have discontinued using it when the cost was transferred to the organization.

4.0   Gaps and Needs

Table 2 provides a summary by organizational category of the major needs and gaps identified in the interviews. This size of the dot indicates the number of organizations that mentioned that particular need; the larger the size of the dot, the larger the need.

Table 2. Major Needs and Gaps

Organizational Category	Firewall/Security	Mapping/GIS	One Stop Site	Critical Infrastructure status/Road Closures	Contaminated Area	Alerting Capability	Consistency in Use	Common Technology	Sit Report Info	Real-Time Updates	Easy to Use	Sample Data Status	Resource Tracking	Prioritization	Automatic Integration w/ Other Systems
DOD	●	●							●						
EPA/WSDOE			●	●											●
Emergency Management	●	●		●			●	●	●	●	●			●	●
Public Health/Medical Services	●	●		●	●	●	●	●				●	●		●
Critical Infrastructure	●	●	●	●	●	●		●	●	●					●

Size of dot indicates the level of importance. The larger the dot, the greater the need.

It was clear that there is a need for an integrated common operating system. The system must be accessible to all organizations having a role in managing an anthrax incident for regional decision making. Some of the specific requirements of such a system include the need for:

- a geographic information system (GIS)/visualization component that integrates information from a variety of sources such as WebEOC, WATrac, road information, etc.

- the ability to input incident reports

- a feature to communicate information to the department needing or responding to the information

- the ability to see updates in real time

- the ability to integrate Computer-Aided Dispatch Software (CAD) and Records Management System (RMS) for on-scene officers and firefighters

- a resource-tracking feature

- the ability to capture all information for situational, self-populating reports

- the ability to triage information (resource requests) from responders in the field

- integration with current regional information technology systems

- compliance with requirements associated with the national incident management system, DOD, CDC, EPA, etc.

- information-capturing for after-incident reports

- a display of contaminated area and plume data

- the ability to track patient distribution and movement

- a status on critical infrastructure impacts

- inclusion of sample data

Other needs that would improve the current methods of communication include:

- The integration of already existing information systems within an organization. Some agencies/departments have their own software to track information but they are not integrated.

- A more consistent use and broader distribution of WebEOC. Many organizations have WebEOC, and some share access. Use of the tool is not consistent across organizations, and many cities do not have access to WebEOC—so it is difficult to make decisions using this tool.

Other issues that should be considered before a software tool/system is implemented include:

- There is a disconnect between the federal and local organizations regarding interconnectivity with local decisions. There needs to be a clear picture of the leadership of the local, state, and federal players and how they communicate.

- Sharing of information is difficult for EOCs because there are inconsistencies in their ESF structures. Some use the same structure as the federal and state ESFs but others are based on the Incident Command System. This means that it takes time to understand who to communicate with or to request information from because coordination with one ESF across all EOCs is not possible.

- Many communications still rely on phone, video conferencing, and email. In some cases, these are the preferred approaches.

- There is a need for a two-way communication method between the public and private sectors.

5.0   Observations

- A common system is not in place across organizations.

- The most commonly used tools are WebEOC, mass notification software, resource-tracking software, WATrac, and NWWARN.

- Existing systems are based mostly on information gathering and sharing, not decision making.

- A need exists for an integrated common operating system that can be accessible to all organizations that would manage an anthrax incident.

- The most commonly requested types of information that organizations need include a visual/GIS software that shows in real time what's happening, who's doing what, where in the geographic area.

- A shared system must fit a broad range of criteria to be useful. Some organizations would use some features and not others.

- The choice of an information tool is not exclusively based on features and accessibility (build it and they will come). Other issues must be resolved. Roadblocks to more cross-cutting usage by multiple organizations include system ease of use/training, lack of shared platforms, cost, security/privacy issues, and not being motivated to share information with other organizations.

6.0 Recommendations

Based on the interview results, analysis, and observations, the following activities are recommended for future consideration by IBRD leadership:

- **Rate available information-sharing technologies against criteria**. There are several tools being advertised as emergency management decision-making/information-sharing tools. These various tools should be identified and rated against the criteria established through this task.

- **Obtain and analyze information about other existing regional information sharing outside Washington State**. Respondents indicated other regions are doing a better job of communicating. It would be useful to talk with emergency management staff from these regions to understand how they are handling their communications.

- **Identify and analyze related information-sharing activities**. Other efforts that look at regional information sharing within the greater Seattle region may be underway. These efforts could provide additional information to complement this activity.

In carrying out these activities, to determine the most useful shared tool(s), it will be important to answer the following questions:

- Can and should one tool be developed that stores the information in a single place, including environmental sample results, road closures, and available hospital beds? Or can a range of tools be used without limiting access?

- To what extent should IRBD be looking at informing these organizations on existing available tools, creating new ones, or upgrading existing ones to be more useful?

- How would a new or improved tool be funded, both for startup and maintenance? Who would be responsible for it? Who would fund staff to train on an ongoing basis?

- Can a shared tool be developed that most or all stakeholders would use? (Or enough of them to make it "worth it"?)

- Would organizations share information if they had such a tool? Can information-sharing issues—privacy, desire to hoard information, not part of their perceived mission, jurisdictional issues, etc.—be addressed?

- Can decision-making capabilities be integrated into information-collection/-sharing software?

Appendix A. Interview Protocol

Appendix A. Interview Protocol

General Questionnaire

Interview questions

- What information is currently gathered that would also be necessary in an anthrax incident?

- What system(s) are you currently using to gather that information? Are you satisfied with the system (s) or would you like additional functionality?

  - Which pieces of information does that database cover?

  - Are you using other systems for the other information?

  - Does this data feed into any other systems?

- Is the information shared? How and with whom? Is this working well, or are there improvements needed in ways to efficiently share information?

  - Are there others that you need to coordinate with that could benefit from this information?

- Is there other information that would be useful/required in an anthrax incident that is not currently being gathered?

  - Would the current information technology systems accommodate this additional information gathering/sharing? What would the system need to do?

- Are there certain requirements that your systems have to comply with?

  - National Information Management System, DOD, CDC, EPA, etc?

- Are you aware of software/systems that other regions are using that appear to be successful?

- Does what we have talked about cover your activities from the time you find out about the contamination to the reoccupancy of the buildings/area?

- Are there other people that I should talk with in regards to the topic?

Appendix B. Glossary of Information Tools

Appendix B. Glossary of Information Tools

BioWatch—BioWatch is a Federal program including the CDC, EPA, and Federal Bureau of Investigation to detect airborne pathogens released as a terrorist attack on major American cities.

Google Maps[TM][1]—Google Maps is a web-based map application that offers tools such as street maps route planners; it interfaces with other mapping applications, as well.

Maximo—Maximo is a database software that manages a range of criteria and activities from a single platform. Source: http://www-01.ibm.com/software/tivoli/products/maximo-asset-mgmt/

MyStateUSA—MyStateUSA is a web-based system that permits near-real-time communication between government agencies and the communities they serve. Source: http://mystateusa.com/

NW-WARN—NW-WARN is a web-based system that communicates early warning messages and that helps maintain situational awareness to protect infrastructure systems during a disaster.

PEIR—PIER is a web-based communications product that facilitates communication such as employee notification and media monitoring during emergencies.   Source: http://piersystems.blogspot.com/2009/09/obriens-response-management-signs.html

Response Manager—Response Manager is an EPA software used for situational awareness.

RapidReach®[2]—RapidReach is an emergency notification tool that facilitates direct contact to phones, email, fax, etc.

RPIN— RPIM, or the Regional Public Information Network, communicates news alerts from more than 75 government agencies in the King, Pierce, and Snohomish counties. Source: www.rpin.org

Road Alert—Road Alert is a King County map of road conditions and closures.

Salamander—Salamander is a volunteer tracking software.

SCADA—SCADA is a computer system monitoring and controlling a process.

SCRIBE—SCRIBE is an EPA database for sample tracking that can be used with a computer and/or handhelds in the field.

Web 2.0/Social media—Web 2.0 is a term for web-based applications—such as social networking sites, blogs, video-sharing sites—that facilitate communication and collaboration on the Internet.

VIPER®[3]—VIPER is a video-conferencing service.

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[1] Google Maps is a trademark of Google Inc.
[2] RapidReach is a registered trademark of Entera International AB.
[3] VIPER® is a trademark of VideoCentric Ltd.

WaSECURES—WaSECURES is a web-based application that provides secure audio-relay communication via email, pagers, and cell phones for public health emergency response partners. Source: http://www.doh.wa.gov/phip/documents/InfoTech/material/04PHITChap.pdf

WATrac—WATrac is a web-based application used by the Washington healthcare system to notify healthcare providers of emergencies and to communicate updates—such as hospital status and bed availability—during an event. Source: www.eastregion-ems.org/docs/WATrac%20FAQ%202009.doc

WebEOC— WebEOC is a web-based tool that provides secure, real-time communication and information sharing for emergency management. Source: http://www.esi911.com/esi/index.php?option=com_content&task=view&id=14&Itemid=30

Appendix C. Information Tools and Interfaces by Organization

Appendix C. Information Tools and Interfaces by Organization

The following sections provide additional detail for each organization. This includes the current tools and key interfaces.

C.1 Current Tools by Organization

Table 3 summarizes the software tools used by the respondents' organizations. It provides the type of software being used and the current purposes/uses. This list includes the tools discussed during the interviews but may not include all the software each organization deploys.

Table 3. Current Software Tools

Organization	Tools	Tool Purposes/Uses
DOD		
Fort Lewis Office of Emergency Management	WebEOC (internal only) Pierce County WebEOC	Provides situational awareness access to Pierce County to look at data
	Army Knowledge On-Line	Transfers information between organizations
	Rapid Reach	Mass notification—only uses phone notification feature
	Maximo	Tracks responder equipment
Madigan Army Medical Center	In-house resource tracking system	Supplies tracking, decontamination equipment, and personnel; standard across Army but not shared
	3N (in process of purchasing)	Mass notification
	WebEOC (Fort Lewis)	Situational awareness
EPA/WSDOE		
EPA—Region 10	Microsoft Excel®[1]	Used in a small-scale incident and integrated into a GIS to create the map
	SCRIBE	Used during a medium-scale incident; it is a database that can be used with a computer and/or handhelds in the field. This also provides a visualization of the sample locations.

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[1] Microsoft Excel is a registered trademark of Microsoft Corp.

Organization	Tools	Tool Purposes/Uses
	Response Manager	Used during large-scale incidents; handles large volumes of samples, and is integrated with GIS software. Others can be given access to this program.
WSDOE	None identified	
Emergency Management		
Federal Emergency Management Agency (FEMA) Region 10	Emergency Management Info System	Used by FEMA Regional Response Coordination Center (RRCC)
	WebEOC	Used by FEMA RRCC
Snohomish County Department of Emergency Management	WebEOC	Used for internal information between partners
	Google maps	Displays road status data
	MyStateUSA	Used to push information out.
	Resource Tracker	Jointly developed with San Juan County; tracks personnel, trucks, equipment, etc. This is available for other jurisdictions to view.
King County Emergency Management	WebEOC	When EOC is activated
	Excel	Duty log
	MyStateUSA	Communications, paging, external notification, reverse and area notification
	Resource Tracking Tool	Pilot in RTI program
	Microsoft Outlook®[2]	Email communication
	Video teleconferencing bridge	
	RPIN	Information notification system
City of Seattle Office of Emergency Management	WebEOC	Incident management
	WATrac	Has access through health representative
	E Team®[3]	Incident management
	I-EOC	Incident management

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[2] Microsoft Outlook is a registered trademark of Microsoft Corp.

[3] E Team is a registered trademark of NC4.

Organization	Tools	Tool Purposes/Uses
	Rapid Responder®[4]	Incident management
	Web 2.0 (Twitter, blogs, etc.)	Provides two-way communication
City of Everett Office of Emergency Management	WebEOC	Situational awareness
	Resource Tracking Tool	Resource tracking
	MyStateUSA	Public notification and internal communications
City of Bellevue Emergency Management	RPIN	Public information notification
	REVERSE 911	Mass notification
	Considering Twitter	Public communications
	Considering WebEOC	Situational awareness
Pierce County Emergency Management	VIPER	Video conferencing
	WebEOC and I-EOC	Situational awareness
	Resource Tracking Tool	Internally developed
Public Health/Medical Services		
King County Health Care Coalition	WATrac	Tracks resources; provides communication, alerts, document storage
CDC/DHHS	WebEOC	Situational awareness; internal use only
	WATrac	Has access
	State WebEOC	Has access; situational awareness
Washington State Department of Health Public Health Laboratory	WASecures	Alerts to local health regarding outbreaks, etc.
Harborview Medical Center	WATrac	Resource tracking
Seattle/King County Public Health	Internet	Information gathering
	Email	Communication, information gathering

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[4] Rapid Responder is a registered trademark of Prepared Response, Inc.

Organization	Tools	Tool Purposes/Uses
	GIS software	Information documentation and analysis; manually updated with mainly demographic information
	WebEOC	Has access to county and state; infrequently used; information not consistent, up-to-date, or secure
	Salamander	Volunteer tracking
Pierce County Public Health	Internally developed database	Track the emergency room activity at hospitals for communicable disease
	WATrac	Has access
	Salamander	Evaluating Salamander
Northwest Hospital & Medical Center	WATrac	Resource tracking
King County Public Health - Epidemiology	Surveillance System	Identifies anthrax symptoms in patients
Critical Infrastructure		
	CARS	High-level road closures
Washington State DOT	WebEOC	Road closures with more detail
	GIS software	Road closure information to visualize
King County DOT	MyStateUSA	Communication of information
	Road Alert	Internal—status of the roads
Washington Association of Sewer and Water	NW-WARN	Information collections
	WebEOC	Situational awareness
King County Waste Water Treatment Division	Control centers with redundant supervisory control and data acquisition (SCADA)	SCADA—monitor plants
	NW-WARN	Information collection
Seattle City Light	Community Notification System	Mass notification
	NW-WARN	Information collection

Organization	Tools	Tool Purposes/Uses
	White Lion Communications	Notification and conference calling
	WebEOC	Situational awareness
Puget Sound Energy	PEIR	Internal communication with response personnel
	NW-WARN	Gather information
	MIR3	Push information out to customers by email, text, phone, etc.
Frontier Bank	None right now	

Table 4 provides a summary of the type of software used by each organization. As would be expected, the most commonly used tool is WebEOC, although use is inconsistent across organizations.

Notification tools are also used by many of the organizations. The notification software mentioned most frequently is MyStateUSA, but there are other products used as well.

Resource-tracking software is another commonly used tool. Most of these tools have been developed internally so there is no one common tool.

All hospitals in Washington State are currently using WATrac. This tool provides them the ability to understand resources, to communicate at varying levels, to provide an alerting function, and to store and share documents. WATrac has a command center capability that is similar to WebEOC but is more flexible.

Table 4. Tool Categorization

Organization	WebEOC	Notification	Resource Tracking	WATrac	NW Warn	Other
DOD						
Fort Lewis Office of Emergency Management	●	Rapid Reach	Maximo			
Madigan Army Medical Center	●	3N	In-house			
EPA/WSDOE						
EPA—Region 10						Sample Tracking—Excel, Scribe and GIS

Organization	WebEOC	Notification	Resource Tracking	WATrac	NW Warn	Other
WSDOE						
Emergency Management						
FEMA Region 10	●					Emergency Management Information System
Snohomish County Department of Emergency Management	●	MyStateUSA	In-house			Google Maps for road data
King County Emergency Management	●	MyStateUSA	RTI Pilot			Excel; Outlook, RPIN
City of Seattle Office of Emergency Management	●			Access		E Team; I-EOC; Rapid Responder; Web 2.0
City of Everett Office of Emergency Management	●	MyStateUSA	In-house			
City of Bellevue Emergency Management	●	REVERSE 911				RPIN Twitter
Pierce County Emergency Management	●		In-house			VIPER; I-EOC
Public Health/Medical Services						
CDC/DHHS	●			Access		
Washington State Department of Health Public Health Laboratory		WASecure				
Harborview Medical Center				●		
Seattle/King County Public Health	●					Internet; Email; GIS software; Salamander
Pierce County Public Health				Access		Evaluating Salamander
						Internal software to track ER activity
Northwest Hospital & Medical Center				●		
King County Public Health—						Surveillance system

Organization	WebEOC	Notification	Resource Tracking	WATrac	NW Warn	Other
Epidemiology						
Critical Infrastructure						
Washington State DOT	●					Internal GIS for roads status
King County DOT		MyStateUSA				Road Alert – road status
Washington Association of Sewer and Water					●	
King County Waste Water Treatment Division	●				●	SCADA
Seattle City Light	●	Community Notif. System			●	White Lion – Video Conferencing
Puget Sound Energy		MIR3			●	PEIR
Frontier Bank						None at this time

C.2   Key Communication Interfaces by Organization

Table 5 provides a summary of the key communication interfaces. As would be expected in an anthrax incident, the main interfaces would be with the public health departments (counties and state) and the EOCs/ emergency management agencies. Interaction with the state and various county EOCs is the most prevalent among the different organizations, whereas the interactions with public health/medical services organizations appear to be mainly contained within that group. This may be attributable to the presence of a public health official within the EOC during an emergency. As would be expected, the main interface for the critical infrastructure organizations is with the various EOCs.

Table 5. Key Interfaces

Organization	Public Health	EOCs/EM	Hospitals	Law Enforcement	Fire	Public	Methods of communication	Types of information shared
DOD								
Fort Lewis Office of Emergency Management	●	●					WebEOC, phone, person	Events beyond the boundaries of the base
Madigan Army Medical Center	●	●					WebEOC, email, phone	Resource status, infrastructure support
EPA/WSDOE								
EPA—Region 10		●					Person in unified command	Sample results
WSDOE		●					Phone, email	Sample results
Emergency Management								
FEMA Region 10		●					Through emergency support functions (ESFs) and sit reports	Information identified in incident collection plan
Snohomish County Department of Emergency Management		●		●	●	●	WebEOC, MyStateUSA, Resource Tracker, phone, fax, person	Resources, road data, sample data
King County Emergency Management							Phone, radio, email, MyStateUSA, WebEOC, Resource Tracker, person, radio	Emergency information, road information, plume information, critical infrastructure status
City of Seattle Office of Emergency Management		●				●	WebEOC, email PIO, media, Web 2.0	Essential elements, safety, coordination issues, support needed
City of Everett Office of		●				●	WebEOC, MyStateUSA, email,	Emergency information relevant to protective actions

Organization	Public Health	EOCs/EM	Hospitals	Law Enforcement	Fire	Public	Methods of communication	Types of information shared
Emergency Management							phone	
City of Bellevue Emergency Management				●	●		CAD, RMS	Incident information
Pierce County Emergency Management	●						WebEOC, phone, email, person	Situational awareness information
Public Health/Medical Services								
CDC/DHHS	●	●					Sit reports, phone, software	Health effects and impacts, health care infrastructures, and anticipated assistance requests by the state
Washington State Department of Health Public Health Laboratory	●			●			Phone, email	Test results, alerts to possibility of anthrax
Harborview Medical Center	●	●	●	●			WATrac, phone, fax, radio	Clinical information, treatment, screening, resource status, patient distribution
Seattle/King County Public Health	●	●	●	●			Phone, WaTrac, Internet, person	General updates, policy issues
Pierce County Public Health	●						Person, phone, email, databases	Emergency room activity
Northwest Hospital & Medical Center	●						Radio, phone, Internet	Resources, decontamination processes, treatment decisions
King County Public Health—	●	●	●		●		Phone, fax, some electronics	Volume of patient visits, school absences

Organization	Public Health	EOCs/EM	Hospitals	Law Enforcement	Fire	Public	Methods of communication	Types of information shared
Epidemiology								
Critical Infrastructure								
Washington State DOT		●					Email, phone, software	Road status
King County DOT		●					Phones, radio, software	Road status
Washington Association of Sewer and Water		●					NWWARN	System status
King County— Waste Water Treatment Division		●					WebEOC, NWWARN	System status
Seattle City Light		●					Person, WebEOC, phone, email	System status
Puget Sound Energy		●					Email, person	Utility status
Frontier Bank	●	●					Internet, phone	Emergency information

Other interactions that were mentioned but were more limited to communication between just two organizations were:

- emergency management organizations
  - EPA/WSDOE
  - emergency support functions (ESFs)
  - cities within their jurisdiction
  - private companies
  - departments of transportation
  - media

- – elected officials
- public health/medical services
  - – Federal Emergency Management Agency Regional Response Coordination Center
  - – Federal Bureau of Investigation
  - – DHS
  - – other laboratories
  - – schools
- critical infrastructure
  - – other city departments
  - – financial regulators
  - – departments of transportation.

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