

COMPREHENSIVE COMMUNITY BIO-EVENT RESILIENCE ACTION PLAN FOR THE PUGET SOUND REGION

*A Roadmap Building on Current Capabilities to
Withstand Incidents and Disasters that Significantly
Impact Community Health and Safety*

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PREFACE

This document describes a holistic, systematic approach for determining needed actions to improve regional capabilities to withstand *bio-events* that significantly impact community health and safety, and to rapidly recover to normal or new normal conditions. The geographic focus of the *Comprehensive Community Bio-Event Resilience Action Plan* is the Puget Sound Region of Washington State, which includes the Greater Seattle Area, the Pacific Northwest's largest metropolitan area. The *Action Plan* is the culmination of a federally-sponsored pilot project led by the Center for Regional Disaster Resilience of the Pacific Northwest Economic Region (PNWER), a bi-national statutory non-profit organization comprised of Washington, Oregon, Alaska, Idaho, Montana, British Columbia, Alberta, Saskatchewan, Yukon, and the Northwest Territories. The *Action Plan* provides a template that can be readily customized for use by states and localities with key stakeholders to gauge the current level of preparedness to deal with anticipated and unexpected incidents and disasters.

This *Action Plan* was developed by a broad stakeholder group of public health, emergency management, and other government officials, and utility, business, and non-profit representatives. The approach used was a multi-step process developed by the PNWER Center for Regional Disaster Resilience that has been employed in other parts of the nation and Canada to bring cross-sector and multi-jurisdiction representatives together with experts from diverse disciplines to examine vulnerabilities, consequences, and preparedness gaps for all-hazards incidents and disasters. This facilitated process enables stakeholders to work with government partners to develop and conduct a series of educational workshops, a tabletop exercise and a baseline needs assessment to collectively determine areas of improvement and cost-effective solution options.

While the *Action Plan* is focused on bio-events, the same template can be adapted for any hazard to identify, prioritize, and develop requirements for activities that can provide a dynamic, flexible, and ongoing path forward to enhance community resilience.

PILOT PROJECT STAKEHOLDERS, SPONSORSHIP, AND SUPPORT

PROJECT STAKEHOLDERS

- Able Engineering
- Amgen
- AT&T
- Beacon Capital Partners
- The Boeing Company
- British Columbia Health Ministry
- CAC Real Estate Management
- Carnation-Duvall Medical Reserve Corps
- CDC Seattle Quarantine Station
- City of Bellevue
- City of Kent Emergency Management
- City of Lynnwood
- City of Seattle
- City of Tukwila
- Columbia Bank
- Costco Wholesale
- Evergreen Hospital Medical Center
- FEMA Region X
- Frontier Bank / WashingtonFIRST Coalition
- Harborview Medical Center
- JVR Health Readiness, Inc.
- King County Office of Emergency Management
- King County Wastewater Treatment Division
- Liberty Mutual
- Microsoft
- MITRE Corp
- North Seattle Community College
- Northrop Grumman Corporation
- Northwest Tribal Emergency Management Council
- NWWARN
- Overlake Hospital
- Pacific NorthWest Border Health Alliance
- Pacific NorthWest Economic Region
- Pacific Northwest National Laboratory
- PEMCO Insurance
- Pierce County Office of Emergency Management
- Port of Seattle
- Port of Tacoma
- Public Health – Seattle & King County
- Puget Sound Energy
- Qwest Field and Event Center
- Safeway Inc.
- Seattle City Light
- Seattle Office of Emergency Mgmt
- Seattle Police Operations Center
- Setracon, Inc.
- SMART Association
- Snohomish PUD
- Sound Transit
- Sprint Nextel
- Symetra Financial
- The Tauri Group
- Tribune Television Northwest – KCPQ/KMYQ-TV
- University of Washington
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- U.S. Customs and Border Protection
- U.S. Dept. of Health and Human Services
- U.S. Dept. of Homeland Security, Office of Health Affairs
- U.S. Postal Inspection Service
- Virginia Mason Medical Center
- Washington Department of Health
- Washington Dept of Information Services
- Water Environment Federation
- Washington State Housing Finance Commission

- Washington Trucking Associations
- Wright Runstad& Company

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EXECUTIVE SUMMARY

At the grassroots level, there is increasing concern about potential largescale emergencies and the need to make communities more *bio-event resilient* — improving capabilities to prepare for, respond to, and recover rapidly from events and disasters with limited impacts to health and safety. This interest at the local level is also a priority at the national level, highlighted in national policy strategies recently issued by the U.S. Department of Homeland Security (DHS) and the U.S. Health and Human Services Department (HHS). In 2009, the Pacific NorthWest Economic Region's (PNWER) Center for Regional Disaster Resilience was asked by the DHS Office of Health Affairs to work with Puget Sound Region stakeholders to develop a template that can be customized by communities nation-wide to improve their bio-event resilience. The Puget Sound Region was selected for the Pilot Project because of its well-established culture of collaboration and coordination among government, private sector, and other stakeholders and proactive and innovative approaches to all-hazards disaster preparedness.

The resulting *Comprehensive Community Bio-Event Resilience Action Plan* provides a roadmap, checklist, and gauge for progress. The *Action Plan* takes into account and builds on the Puget Sound Region's already strong emergency management and public health capabilities, providing a set of activities that local jurisdictions, private sector, non-profit, and other organizations can undertake depending on available resources. The *Action Plan* was developed in a year-long process that involved creating a work group of key stakeholders; holding meetings, workshops, and a tabletop exercise; conducting a survey, focus groups, and interviews; and open source research to develop an extensive baseline assessment of capabilities, findings, and needs. Because of the Puget Sound Region's interdependencies and public health ties across the U.S.-Canadian border, the process included Canadian provincial, private sector and other representatives.

The *Action Plan* identifies needs and recommends more than six dozen activities to meet these needs in 12 focus areas. It provides a template in matrix format that stakeholders can use to prioritize these recommendations and determine lead and partner organizations for each activity. This matrix offers a tool for stakeholders to use to take the next step to create work groups to identify project requirements and sources of potential funds and expertise for implementation.

Lastly, the *Action Plan* includes guidance on how stakeholders can create a sustainable, continuous improvement process through incorporating into the *Plan* new bio-resilience needs and activities based on lessons learned from events and exercises. This continuous improvement process will provide a means to measure progress as *Action Plan* activities are completed.

Focus Areas and Selected Recommendations

Regional Health and Hospital Resources

- Activities to improve: surge capacity, including resource management and security capabilities; understanding of interdependencies and supply chains; vaccine distribution procedures; collaboration among hospitals and between healthcare and public health.

Public Health and Healthcare Plans and Policy Issues

- Development of: a regional continuity plan and a single coordinated all-hazards disaster website; enhanced procedures for disaster-associated mortuary challenges, and a regional strategy for livestock-related bio-event challenges.

Communications, Critical IT systems, Information Sharing, and Health Data Issues

- Development of: triggers for emergency alerts and activities and ways to improve alert coordination and dissemination; an operational regional all-hazards two-way information-sharing capability that utilizes the Washington State Fusion Center; a health resilience information exchange system to provide better monitoring, information collection, assessment and reporting; and a situational awareness capability to facilitate incident/disaster response.

Critical Infrastructure, Associated Interdependencies, Risk Assessment, and Mitigation

- Additional targeted and regional workshops on priority challenges, including evacuations, hospital/health communications and IT resilience, and chemical, radiological, or nuclear incident scenarios that require specialized scientific and technical expertise; development of an evacuation scenario assessment system and tools to evaluate health/safety and related economic impacts and mitigation options.

Business Continuity, Continuity of Operations, and Supply Chain Management

- Development of: a strategy for expanded outreach and awareness for area businesses that includes how to upgrade continuity plans; an on-line “Bio-event Community Resilience Lessons Learned”; a template for organizations to inventory pre-event and monitor post-event essential assets and resources; and a regional economic bio-event resilience risk mitigation strategy to address business continuity challenges.

Response Challenges

- Activities to: determine optimal criteria for an effective regional incident command/area management structure that integrates public health with emergency management and other necessary expertise; undertake further work on planning for evacuations and long-term sheltering, and certification/credentialing of medical, healthcare and other essential personnel; develop a regional outreach, education, and awareness strategy for “special populations”; and identify what regional and national defense assets and capabilities and also private sector assets could be incorporated into preparedness planning.

Recovery and Long-term Restoration Needs

- Development of: an effective regional organizational structure for recovery and long-term restoration; an inventory of post-disaster recovery assistance that can be made available to stakeholders; a process for information sharing on private sector and non-profit resources for disaster assistance, including procedures for resource acquisition and management; an assessment of regional psychological and economic factors that can affect post-event business retention that includes incentives to retain small businesses.

Human Factors, Community and Family issues

- Development of: bio-event resilience strategies for special needs populations, and ethnic, cultural, and faith-based groups; and procedures, including a coordination process for public guidance on vaccine availability and distribution.

Legal and Liability issues

- Development of: a regional workshop focused on legal/liability issues and policy gaps, and a publication on disaster-related legal and liability issues for private sector and government organizations.

Public Information, including the Media

- Activities to: develop a regional public information strategy for bio-events, which incorporates procedures for involving the local and regional media; develop a single Internet website for regional emergency preparedness/management and related public health information with links to local jurisdiction and other relevant websites.

Training Exercises and Education

- Activities to: incorporate in a five-year exercise plan at least one tabletop exercise per year that includes the broad key stakeholder community; conduct an educational seminar for local media that includes government officials to address priority all-hazards disaster scenarios and public communication challenges; and develop a strategy as part of a broader regional resilience continuity plan for bio-event resilience training and education for businesses, community institutions, and the general public.

Financial Challenges

- Activities to: explore ways in which government assistance programs can be expanded to secure resources for pre-event mitigation activities for high-probability, high-consequence threats; develop a brochure outlining disaster assistance available from federal sources with criteria and guidelines for applying; and develop options for a regional disaster assistance non-profit mechanism to enable collection of assistance from non-government sources, including private donations.



COMPREHENSIVE COMMUNITY BIO-EVENT RESILIENCE

ACTION PLAN

1. INTRODUCTION

For a community, assuring health, safety and quality of life for its citizens is top priority. It is an important consideration in planning for all-hazards events and disasters that can have major consequences, exacerbated by increasingly complex linkages among critical infrastructures, including healthcare, and other providers of essential products and services. These *bio-events* range from natural disasters, such as earthquakes, floods, and hurricanes, to pandemics and physical, biological, chemical, or radiological attacks. For an increasing number of public officials, and business and political leaders sensitized by the recent H1N1 influenza pandemic and concerned about future major emergencies, there is interest in finding ways to become more bio-event resilient — improving capabilities to prepare for, respond to, and recover rapidly from events and disasters with limited impacts to health and safety. This interest at the local level is also a priority at the national level, and is highlighted in the draft U.S. Department of Health and Human Services (HHS) *Draft National Health Security Implementation Plan* and reflected in the U.S. Department of Homeland Security (DHS) *Quadrennial Review*, both issued in 2010.

- The challenge that communities face is determining what bio-event resilience entails and what improvements are needed, taking into account resource constraints and other implementation challenges facing organizations, localities, and states.

To help address this challenge, the Pacific NorthWest Economic Region's (PNWER) Center for Regional Disaster Resilience was asked by the DHS Office of Health Affairs (OHA) to work with Puget Sound Region stakeholders to develop a template that could be customized by communities across the nation to improve their bio-event resilience. The Puget Sound Region was selected as the focus for the Pilot Project because of its well-established culture of collaboration and coordination among government, private sector, and other stakeholders, and its proactive and innovative approaches to all-hazards disaster preparedness. The Puget Sound Region has a variety of cross-sector and multi-jurisdiction groups and collaborations, including a regional public-private partnership — the Puget Sound Partnership for Regional Infrastructure Security and Resilience — facilitated by PNWER that focuses on a diverse range of preparedness and resilience-related projects and activities. In addition, Washington State agencies have many ongoing activities and accomplishments that directly contribute to the Puget Sound Region's all-hazards disaster resilience.

The end result of this Pilot Project is the *Comprehensive Community Bio-Event Resilience (CCBER) Action Plan*. The *Action Plan* takes into account and builds on the Puget Sound

Region's already strong and broad disaster preparedness and public health capabilities. The *Action Plan* is not an emergency preparedness plan, but a roadmap of short and longer-term activities that local jurisdictions, private sector, non-profit, and other organizations can elect to collectively or individually incorporate into their existing plans and procedures.

The *Action Plan* was developed over a year-long Pilot Project that employed a systematic, incremental approach based on a seven-step process developed by PNWER and utilized over the past several years to assist stakeholders in the Pacific Northwest and other regions of the nation. The process is designed to raise awareness of infrastructure interdependencies and disaster preparedness gaps and develop action plans to address these needs. It entails setting up and convening a cross-sector, multi-disciplinary work group of key stakeholder organizations, developing a kick-off meeting, an educational workshop, and a tabletop exercise; conducting a survey, focus groups, and interviews, as well as open source research to develop a baseline understanding of capabilities, findings, and needs; lastly integrating this information into the final stakeholder-coordinated *Action Plan* — a roadmap of short-term (“low-hanging fruit”) medium-term and long-term improvement activities.

The Puget Sound Partnership for Regional Infrastructure Security and Resilience

Created in 2002 after the first *Blue Cascades* Regional Infrastructure Interdependencies Exercise, the Puget Sound Partnership is a broad collaboration of utilities, businesses, academic and community institutions, and local government agencies that work with state and federal partners to identify and develop solutions to address all-hazards protection and resilience needs. The Partnership is facilitated by the Pacific NorthWest Economic Region (PNWER), a statutory non-profit organization chartered in 1991 by the Northwest states of Alaska, Idaho, Montana, Oregon, and Washington and the Canadian provinces and territories of Alberta, British Columbia, Saskatchewan, Yukon, and the Northwest Territories. Activities, events, and projects of the Puget Sound Partnership, planned and conducted by work groups, have produced a wide number of accomplishments to improve understanding of regional infrastructure interdependencies, advance cross-sector information sharing, foster coordination and collaboration, and enhance response and recovery.

Pacific Northwest Center for Regional Disaster Resilience

The Pacific Northwest Center for Regional Disaster Resilience (CRDR), established by PNWER in 2006, serves public and private sector organizations and other key stakeholders to identify preparedness gaps and undertake cost-effective prevention and mitigation measures to address them. The CRDR is the implementation manager of PNWER's homeland security and disaster resilience activities. The CRDR does this through working with the Puget Sound Partnership and other stakeholders, including federal agencies, to provide training and education and undertake pilot projects and other activities to improve resilience and infrastructure security that build on existing capabilities. A priority focus of the CRDR is to develop models through pilot projects that can benefit stakeholders within the PNWER member states and provinces and which can be utilized across the United States, Canada, and the international community.

Because of the Puget Sound Region's and Washington State's infrastructure interdependencies and public health relationships across the U.S.-Canadian border, an additional activity was added that brought Canadian provincial and private sector stakeholders into the Pilot Project to develop a workshop focused on cross-border bio-event resilience needs. (*For a description of this process, see Appendix C—"Comprehensive Community Bio-Event Resilience Pilot Project Fact Sheet".*)

The resulting more than five dozen recommended activities in the CCBER *Action Plan* reflect the needs identified by Puget Sound Region and relevant Canadian stakeholders in twelve focus areas that comprise community bio-event resilience. The *Action Plan* also addresses implementation issues, including how stakeholders can use it to create a sustainable process to move toward greater bio-event resilience. Lastly, the *Action Plan* examines the factors that need to be taken into consideration in developing ways to measure community bio-event resilience.

2. DEVELOPING A SYSTEM FOR ACHIEVING COMMUNITY BIO-EVENT RESILIENCE — PURPOSE, OBJECTIVES, AND SCOPE

Purpose

The Pilot Project purpose was to produce a holistic roadmap for community bio-event resilience that encompasses all elements of the disaster life cycle: prevention, protection, response, recovery/longer term restoration, and risk-based mitigation, and to address communications, business and operational continuity, logistics, supply chains, resource issues, public education/training, and exercises. The intent was to make the *Action Plan* a flexible and dynamic guide of useful activities that stakeholder organizations can collectively and individually take based on their perceived needs to improve bio-event resilience.

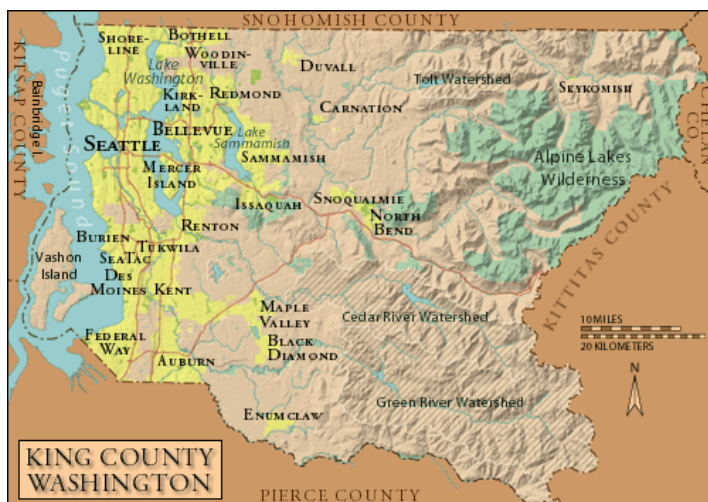
Objectives to achieve this goal were to:

- Bring together and convene a community bio-event resilience workgroup of public health and other experts and other representatives from state and local agencies, infrastructures, industry, business, academic, and community organizations and interest groups (e.g., churches, ethnic associations, environmental groups) and commercial businesses (grocery stores, malls, other retail businesses), and other organizations essential for sustaining the regional economy and way-of-life for citizens.
- Facilitate interaction among government agencies at all levels with regional stakeholders to:
 - Gain greater knowledge of all hazards bio-event impacts and associated infrastructure linkages and longer-term consequences, including human factors, and discuss expectations, challenges, and limitations;
 - Identify needs associated with interrelated public health/healthcare, critical infrastructure, and economic interdependencies, existing work and capabilities, preparedness gaps and cost-effective solution options for incorporation into the *Action Plan*;
 - Coordinate existing government and private sector plans across jurisdictional boundaries, the U.S.-Canadian border, and all sectors and develop cooperative activities, solutions, and agreements to foster cross-border bio-event resilience;

- Examine and delineate changing roles and responsibilities from pre-event through post-event;
- Help build an organized approach to integrating the private sector into regional health/medical recovery plans;
- Identify common goals, gaps and barriers between private sector organizations and public health, healthcare partners, and local emergency management on improving information sharing and communications during health and medical emergencies;
- Identify opportunities to incorporate private industry and government into emergency response and recovery plans and activities, and joint training and exercises to test recovery capabilities and coordination;
- Leverage current capabilities to build a better notification and two-way information sharing process for cross-sector stakeholders on bio-event issues and a resource management system that includes the private sector;
- Demonstrate how federal agencies, states, localities, the private sector, and other key stakeholders can partner to develop a holistic plan to enhance community bio-event resilience.

Scope

The geographic scope of the Pilot Project was identified by the regional stakeholders as the broad Puget Sound Region cross-border into Canada to British Columbia and to other states and provinces where public health/healthcare and other critical infrastructures interdependencies and/or mutual assistance and cross-jurisdiction considerations are factors. However, within this broad region, much of the focus of the Project was on the Greater Seattle Area, comprised of the city of Seattle—the largest city in the Pacific Northwest — and two dozen small, medium and large cities and a handful of other small communities. The population of the Greater Seattle Metropolitan Area in 2009 was 4.1 million. The region has two of the major Ports on the U.S. Pacific Coast and the Seattle-Tacoma International Airport. Major industries include information technology, aviation, architecture, and recreation, and there is a growing "green" technologies focus.



King County, the nation's 11th largest county, encompasses the Greater Seattle Area. The county's west boundary is Puget Sound and its east boundary is the divide of the Cascade Mountains.

An important consideration in undertaking the Pilot Project was recognizing the precedent of “home rule” in Washington State that provides King County, adjacent counties, and localities large and small primary authority within their own jurisdictional boundaries. This makes cooperation and coordination among the many jurisdictions in the Puget Sound Region essential to address community bio-event needs and challenges.

3. KEY DEFINITIONS AND FUNDAMENTAL ASSUMPTIONS

Key Definitions

The following key terms are used through the *CCBER Action Plan*. These terms currently do not have universally agreed definitions. They mean different things to different organizations, sectors, and disciplines. Moreover, the policy foundation for disaster resilience is only now under development at the national level. For the purposes of the Pilot Project, however, these high-level, simple definitions were used:

- *Resilience* refers to the capability to prepare for, prevent, protect against or mitigate any type of anticipated or unexpected significant threat or event, including terrorist attacks, and to expeditiously respond, recover, and reconstitute critical assets and services with minimum damage to public health and safety, the economy, and national security. (Note: Individuals and families are critical assets and essential to resumption of services and the overall regional economy.)
- *ABio-Event* is any all-hazard event or disaster that has significant impacts on health and safety.
- A *community* is any area that is defined as such by its stakeholders. A community can be a group of individuals of similar backgrounds or interests, or who perform a particular function, or a village, municipality, broad metropolitan area, or portion of a state (or province) where shared institutions and culture exist. Communities may cross state and national borders.
- *Key stakeholders* include individuals, private and public sector organizations, non-profits, community groups and other organizations that have significant disaster resilience needs or play major roles in providing essential services and products that underpin the economic vitality of a community or region, the welfare of its citizens, and support national security.
- *Critical infrastructures* include systems, facilities, and assets so vital that if destroyed or incapacitated would disrupt the security, economy, health, safety, or welfare of the public. Critical infrastructure may cross political boundaries and may be manmade (such as structures, energy, water, transportation, and communication systems), natural (such as surface or ground water resources), or virtual (such as cyber, electronic data, and information systems). People (for example, personnel who run businesses and utilities, and customers of business services) are also a critical infrastructure.
- *Infrastructure interdependencies* refers to the complex physical and electronic linkages among critical infrastructures and other essential service providers that affect operations and business functions, including supply chains. These interdependencies can cause vulnerabilities and have the potential to cause cascading disruptions under certain conditions.

- *All hazards* include any significant threat, event, including natural disasters, system failures, infrastructure deterioration, accidents, and malevolent acts.

Fundamental Assumptions

The development of the *CCBER Action Plan* and community bio-event resilience process was based on the following fundamental assumptions:

1. The anthrax attacks of October 2001, followed by the 2003 SARS epidemic and the H1N1 pandemic, demonstrate the critical need for a comprehensive community bio-event resilience roadmap that can provide a holistic approach to cover all aspects of preparedness, medical and other response, recovery, and longer-term restoration needs.
2. A significant bio-event would challenge healthcare delivery, including affiliated supply chain resources, and community public health organizations. Impacts would includedramatic increases in patient needs and loads, reductions in available health and medical capacity while at the same time disrupting critical infrastructures and essential service providers on which healthcare organizations depend.
3. Public health agencies in coordination with healthcare providers must rapidly educate and inform the general population regarding health threats and appropriate protective and resilience measures, while maintaining a comprehensive surveillance system and directing medical countermeasure response.
4. As communities recover from disasters, they will experience further impacts if the continuity of critical services and systems, both public and private, is jeopardized due to key staff being absent.
5. Recognizing that private industry, businesses, and other non-government organizations constitute integral and essential components of every region, a comprehensive community bio-event resilience strategy needs to be developed by regional healthcare providers with public health, including relevant federal agencies and other organizations with roles in emergency management in partnership with the private sector and other key regional stakeholders.
6. The infrastructures that underpin our communities are increasingly complex and interconnected, resulting in vulnerabilities to services and supply chains that we are only just beginning to understand. Stakeholders are becoming increasingly aware of infrastructure interdependencies but need to broaden their knowledge of the extent of their effects on operations, and business practices, particularly regarding large-scale and/or long-term disruptions that can significantly impact health and safety.
7. Community bio-event resilience requires a comprehensive regional all-hazards approach that takes into account natural disasters of all types, human error, systems failures, pandemic diseases, and malevolent acts, including those involving cyber systems and weapons of mass destruction (chemical, biological, radiological, and nuclear devices).

8. Local, regional, state, and federal disaster management plans need improvement to deal with today's major events and disasters; proactive and innovative approaches, training, and exercises, as well as unprecedented intergovernmental collaboration and planning are required. This is particularly important for local jurisdictions in those states (such as in Washington) that function through "home rule." This all must be accomplished in cooperation with private sector and other key stakeholders.
9. Extensive work has already been accomplished by local governments, state agencies, and many businesses and other organizations that can be used to work toward community bio-event resilience.
10. A major challenge is accessing and managing necessary data on infrastructure interdependencies, health and safety-related impacts and developing assessment tools to provide greater understanding of vulnerabilities, potential consequences, and how best to mitigate these impacts. This requires cross-sector cooperation and finding ways to identify, collect, securely store, and share information provided by stakeholders that play significant roles in regional disaster resilience.
11. Regional public-private partnerships are necessary to bring key stakeholders together to build trust; foster information sharing and coordination; identify and assess vulnerabilities and other preparedness needs; and to develop and implement solutions. Such partnerships should include all levels of government, utilities and other service providers, commercial enterprises (including businesses essential to localities, manufacturers, producers, processors, and distributors of important commodities and products), non-profits, community institutions, and academic institutions.
12. Development and maintenance of mutual assistance agreements, user agreements, memorandums of understanding, and other types of cooperative arrangements are necessary to bio-event management, providing necessary resources both before and after an emergency for response and recovery.
13. Ensuring supply chains and delivery of critical products, materials, components, and technical expertise are essential to bio-event resilience.
14. Effective, coordinated communications, tailored to different constituencies and needs, are necessary to expedite response and recovery for significant events and disasters. Such communications mechanisms need be assessed for stakeholder utility and tested frequently to ensure that they meet their objectives, are redundant and resilient.
15. Although local, state, and federal government agencies and some private sector organizations are making strides toward more effective emergency response through use of and training in the National Incident Management System (NIMS), determining and coordinating roles and responsibilities and information sharing in major events and disasters remain one of the greatest challenges. This is especially true in "home rule" states and localities.
16. Bio-events have no jurisdictional boundaries. At the same time, there are *public health* jurisdictional boundaries that key stakeholders must recognize. This requires collectively

defining respective stakeholder responsibilities under different scenarios, taking into account their interests and the evolving roles of the U.S. Department of Homeland Security (DHS) and the U.S Department of Defense (DoD).

17. Private sector and certain non-profit organizations have an array of available resources and capabilities that should be incorporated into community bio-event resilience response and recovery/restoration planning and activities.
18. Community institutions, the general public, and individuals with special needs must be involved in planning and exercises, with particular focus on education and awareness on threats, impacts, and local public health and emergency response procedures.
19. The media has a unique and integral role in bio-event resilience, providing an information dissemination and education function and serving as an essential service provider with operational continuity needs. For these reasons, the media needs to participate in planning and exercises.
20. Costs for community bio-event resilience protection and mitigation solutions, maintenance, and enhancements must be affordable to local government, private sector, and other organizations.

4. ACTION PLAN DEVELOPMENT PROCESS

The Pilot Project encompassed the following overlapping activities beginning in June 2009 and ending September 2010 that provided information and developed requirements for the *Comprehensive Community Bio-Event Resilience Action Plan*:

1. Identifying and convening core experts, public health and other government agencies and public, private, and non-profit stakeholders to be part of the Pilot Project Work Group. This CCBER Work Group was comprised of more than two dozen key local public health and emergency management government and regional stakeholder organizations. The Work Group provided oversight and direction of the Project through meetings and conference calls. *(These organizations are listed on page iv.)*
2. Developing and conducting two educational/training workshops for Puget Sound Region stakeholders to explore significant issues and provide guidance and insights from experts for incorporation into the *Action Plan*. The workshops also identified goals and shared priority concerns among private sector and healthcare partners on bio-event response and recovery; examined current plans, roles, and responsibilities; and potential *Action Plan* recommendations; and expectations, interests, and constraints. Lessons learned from the Workshops were compiled in summary reports, coordinated with stakeholders and incorporated into the initial draft *Action Plan* framework.
3. Conducting a gap analysis assessing current bio-event resilience and response and recovery needs using open source information, a regional stakeholder survey, focus groups and interviews. The Gap Analysis — the foundation of the *CCBER Action Plan* development process — covered a dozen broad focus areas identified by the CCBER Work Group and the

broader regional stakeholder community. For each focus area in the Gap Analysis, community bio-event resilience capabilities and findings and needs were identified. The Gap Analysis research process involved collection of a wide range of data from local, state, and federal government, private sector, and other sources. Sources utilized included the websites of King County and other local jurisdictions, the Washington State Department of Health, and relevant federal agencies; also reports and outcomes of conferences and meetings on the H1N1 influenza pandemic, and documents and events associated with the Interagency Bio-Restoration Demonstration (IBRD) project, a multi-year effort examining the restoration of the region after an anthrax release; also, health and safety resilience lessons learned from PNWER events, including the six *Blue Cascades* infrastructure interdependencies tabletop exercises and numerous regional workshops and seminars held over the past several years. (See the Gap Analysis at Appendix D.)

4. Developing the initial draft *Action Plan* framework from results of the Pilot Project activities using the 12 focus areas.
5. Planning and conducting a tabletop exercise (*Blue Cascades VI*) with a scenario designed by the CCBER Work Group members focusing on a major flood of the Green River Valley during a pandemic to illuminate gaps or areas for enhancement in the *Action Plan*.



In March 2009, over 100 Public and Private Stakeholders gathered in Seattle for a table-top exercise to discuss the impacts of a pandemic during a major flood.

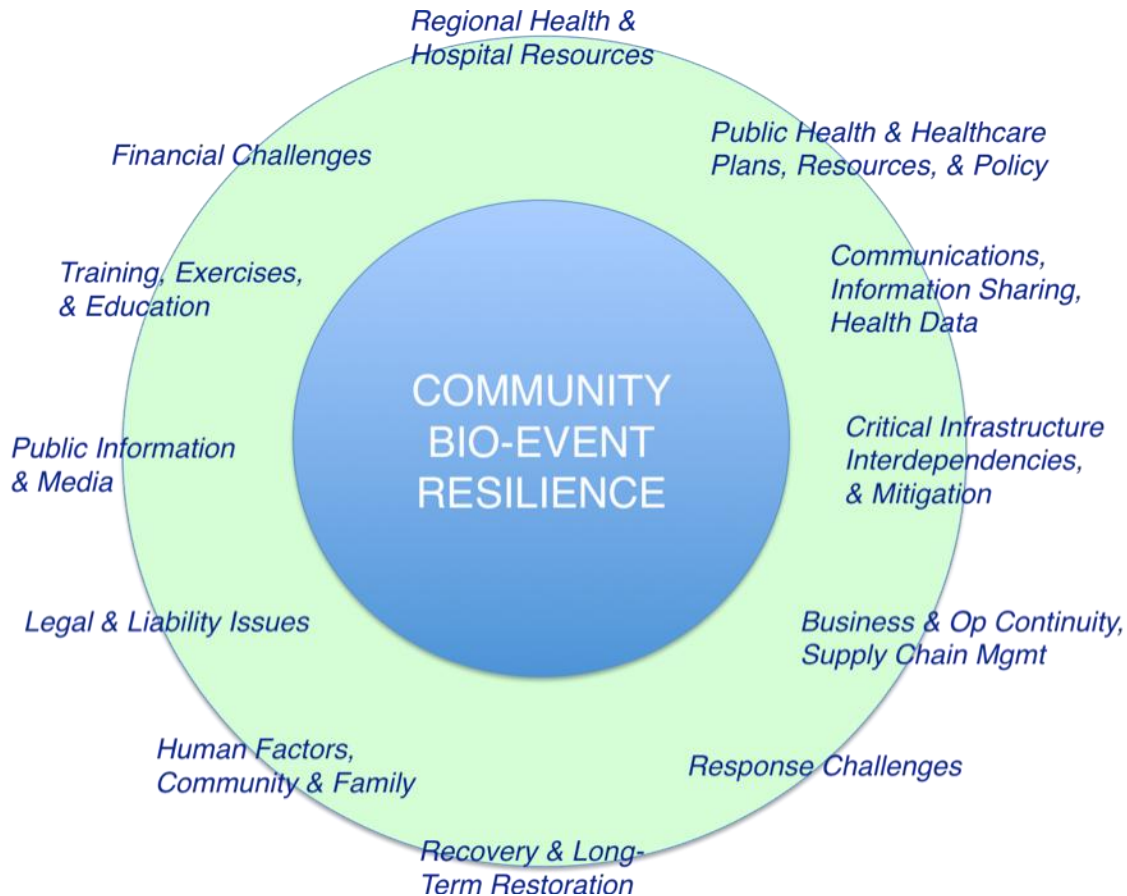
6. Holding a post-exercise Action Plan Development Workshop to examine and prioritize findings and recommendations in the exercise report and information from other relevant activities.
7. Developing a strategy (the *CCBER Action Plan*) that eventually will include milestones, funding requirements, and sources of technical and other assistance.
8. Planning and conducting a U.S.-Canadian workshop to:
 - Advance the development of bio-event/pandemic resilient communities through bi-national collaboration;

- Lay the groundwork for a longer-term initiative to develop and eventually implement a cross-border holistic prevention and risk mitigation strategy to improve preparedness for all-hazards bio-events that covers the local to international levels.
- Provide remaining lessons learned for incorporation into the *Action Plan*.

5. ORGANIZATION

The *Action Plan* is organized into 12 focus areas with corresponding key issues categories. The focus areas were identified by the CCBER Work Group with the goal of making the *Action Plan* comprehensive as possible.

CCBER Pilot Project Focus Areas



1. Regional Health and Hospital Resources
2. Public Health and Healthcare Plans, Resource and Policy Issues
3. Communications, Critical IT Systems, Information Sharing, Health Data Issues
4. Critical Infrastructure and Associated Interdependencies; Risk Assessment, and Mitigation
5. Business Continuity, Continuity of Operations, and Supply Chain Management
6. Response Challenges
7. Recovery and Long-Term Restoration Needs
8. Human Factors/Community and Family Issues
9. Legal and Liability Issues
10. Public Information, including Media
11. Training, Exercises and Education
12. Financial Challenges (funding/reimbursement)

(For the issues categories under each of the 12 focus areas, see CCBER Focus Areas and Priority Issues in Appendix A.)

For each of the focus areas and issues categories, capabilities that can be utilized for bio-event resilience are identified, along with observations (findings), needs, and specific recommended activities stakeholders can individually or collectively take to meet these needs. These activities are divided into short-term (a year or less in duration), medium-term (eighteen months to two years), and long-term (multi-year). The short-term activities are low-cost, readily executable actions that can provide rapid benefits and help generate stakeholder momentum to undertake more challenging *Action Plan* projects.

Important Considerations in developing the *Action Plan*

- In some cases, the activities recommended have already been undertaken by localities and states, and healthcare and stakeholder organizations in other regions of the nation. These “best practices” should be identified and leveraged where possible to avoid “recreating the wheel” and to expedite progress in implementing the *Action Plan*.
- Potential lead and contributing organizations for each of the recommended activities are not specified in the *Action Plan*. Also, the activities are not prioritized. Project leads and “partner” organizations, determination of priority activities, and detailed requirements for each activity will be determined by local jurisdictions with the CCBER Work Group and Puget Sound Region key stakeholders. *(Appendix B, which lists the Action Plan focus areas with their respective recommendations in matrix format, provides a template for this purpose.)*
- Implementation of *Action Plan* activities will depend on availability of resources and stakeholder goals and interests, which may change for a variety of reasons over time.

A Dynamic Document

The *CCBER Action Plan* is designed to be a dynamic roadmap leading towards enhanced bio-event resilience. It should be considered an integral element in a continuous improvement process in which lessons learned from events and disasters, as well as results from exercises, workshops and other events are incorporated as new needs with corresponding activities to address them.

6. COMMUNITY BIO-EVENT RESILIENCE FOCUS AREAS, NEEDS, AND RECOMMENDED ACTIVITIES

Overarching Observation

The Puget Sound Region in many respects is at the forefront in the Nation in development of disaster preparedness and management capabilities, as evidenced in the wide range of past accomplishments and current activities focusing on public health and broader emergency management and operational/business continuity. Lessons learned from the recent H1N1 pandemic and preparedness activities for potential Green River Valley flooding associated with the Howard Hanson Dam have only accelerated the level of this activity. The following *Action Plan* is intended to provide a comprehensive checklist and a guide to local jurisdictions and key stakeholders on potential actions they can undertake to further improve community bio-event resilience.

6.1. REGIONAL HEALTHCARE AND HOSPITAL RESOURCES



Issues Categories: Availability of hospitals and medical facilities, staff and essential services, critical vendors and technical assistance, public safety and security issues; also, mutual aid agreements among healthcare providers within the region and across state and national borders. (*For existing capabilities and detailed needs see Section 6.1 in the CCBER Gap Analysis, Appendix D, page 73.*)

NEEDS

HEALTHCARE RESOURCES

1. Improved healthcare plans for access to staff and technical expertise to assure adequate surge/patient resourcing capacity to deal with a major event or a disaster.

The Puget Sound Region has an extensive and well-regarded healthcare system including excellent hospitals. Public health officials and healthcare organizations are focusing on improving capacity to meet challenges of major disasters, as well as operational continuity. However, there are recognized shortages of employees—physicians, nurses, other healthcare and technical staff—under normal community health conditions. Of particular concern is having planned strategies to deal with a large biological event, such as a major pandemic or bio-attack, or injuries from a dirty bomb (radiological device that causes the dissemination of radioactive material without a nuclear detonation), or a small nuclear device, which could cause extensive blast injuries, including burns and exposure to toxic inhalants and injuries from collapsed buildings.

2. Further assessment of how to provide medical care to large numbers of severely injured people from a major event or disaster.

King County has the region's only major trauma center, Harborview Medical Center. While there has been extensive health surge capacity planning for largescale disasters, Harborview Medical Center resources could be overwhelmed in a major earthquake or other event that affected the Puget Sound Region and the broad PNW coast with large numbers of trauma victims.



Harborview Medical Center in King County is the only Level 1 Trauma center in the Puget Sound Region, and also is the only Level 1 Trauma Center serving the rest of the State of Washington, Alaska, Idaho, and Montana.

3. Improved vaccine distribution and effective public information on vaccine availability and access.

According to the *Public Health-Seattle & King County – 2009 H1N1 Influenza Fall Outbreak Response After Action Report*, during the H1N1 response, the medical surge/medical supplies capacity of the regional healthcare system was taxed but not exceeded. However, limited vaccine supplies and differences in vaccine distribution strategies across county lines created numerous challenges during the response. Public health officials, healthcare providers, and pharmacies were inundated with calls from people trying to find vaccine.

4. Identification, recruitment, training and credentialing of greater numbers of volunteers, particularly health experts, who can augment healthcare workers in a significant emergency.

During the H1N1 response, part-time and full-time surge staff and volunteers proved to be valuable additions to regular response staff and helped relieve the pressure on healthcare providers. In the initial stages of the H1N1 outbreak, there was not enough public health epidemiology staff.

5. Outreach to healthcare managers and development of cooperative agreements to share staff in emergencies.

During the H1N1 response, healthcare managers were reluctant to provide staff to other hospitals. Complicating the situation is that the healthcare hiring process is complex and lengthy and needs to be streamlined.

AVAILABILITY OF ESSENTIAL SERVICES AND PRODUCTS

6. Inclusion by healthcare organizations in continuity plans in collaboration with vendors on their expected needs for supplies of specialized equipment, technical assistance, and other resources, and how these resources would be prioritized and allocated to specific hospitals and other healthcare facilities.

During the Puget Sound Region H1N1 response, hospitals' access to certain resources was problematical. For example, throughout the fall of 2009, supplies of respirators continued to dwindle, and the Health and Medical Area Command worked with healthcare providers to assess needs and develop a distribution strategy for respirators. There were also limited supplies of masks and hand sanitizers.

7. Greater understanding of direct and indirect infrastructure interdependencies that affect hospitals and other healthcare providers in different disaster scenarios with focus on disruptions that could curtail operations or require facility evacuation and closure.

Hospitals and other healthcare providers are dependent on essential services, power, transportation, water systems, IT and communications, medical supplies and other products, as well as staff availability. An example is hospital dependency on clean linens, a service that routinely is outsourced to contractors who require power, water, functioning electronic controls for equipment, detergents, disinfectants, and the staff to wash and deliver the linens, including the fueled vehicles to transport them. Regarding transportation, congestion on Washington's freeways: I-90, I-405, and I-5 during a catastrophic event will place the transportation of necessary anti-virals, medicines, and health-related equipment at risk. Also, impacts to other types of shipping (maritime and rail) and to warehouses where essential products and supplies are stored will impact availability of these resources.

HOSPITAL-RELATED PUBLIC SAFETY AND SECURITY ISSUES

8. Assessment of hospital security needs and availability of security assets during major events and particularly disasters that may produce prolonged disruptions or cause public panic.

In major emergencies or other events that have significant impacts on health, particularly a major pandemic, bio or other weapons of mass destruction-related attack, security and safety

will need to be increased at a time when personnel for these functions may be unavailable because of fear, family considerations, illness, or impeded transportation capability. Police and National Guard resources may not be available to assist because of the necessity to deploy them elsewhere to address other emergency needs, and private security guards may be in short supply. Medical facilities have been working with local law enforcement and security firms to arrange for extra security, have plans to appoint staff in specific security roles and use various lock-down strategies.

HEALTHCARE-RELATED PREPAREDNESS PLANNING AND MUTUAL ASSISTANCE AGREEMENTS, INCLUDING CROSS-BORDER COOPERATION

9. An agreed approach for identification and certification of healthcare staff and medical emergency personnel to move across local jurisdictions in a regional emergency.

Assuring access of healthcare staff that live across the U.S.-Canadian border to their place of work and identification and credentialing of medical personnel to move cross-border in a regional emergency remain challenges despite some positive steps to address this important need.

10. Additional MOUs and agreements beyond existing Washington State-British Columbia agreements to share healthcare resources.

The operational plan to share healthcare resources across the Washington State and British Columbia border is a proactive step forward. Also, the Pacific NorthWest Border Health Alliance marks a great start to more systematized cross-border collaboration on healthcare and public health challenges. However, much work remains ahead. According to the Pacific NW Border Health Alliance, the 2010 Olympics & Paralympics Games Security Committee found that “the large number of agencies made it a challenge to define and coordinate/synchronize interagency roles and responsibility.”



The Pacific NorthWest Border Health Alliance was formed in 2008 through an MOU by four northwestern states and two Canadian provinces and a territory.

RECOMMENDED ACTIONS

SHORT-TERM

- Develop or leverage an existing template for hospitals and other medical facilities to inventory pre-event/monitor post-event essential assets and resources that are necessary for surge

capacity under specific scenarios. *(Such templates are being utilized on a pilot basis in California and Florida.)*

- Develop and conduct a workshop bringing together local public health officials and regional healthcare facility managers to discuss barriers to sharing staff in regional emergencies during response and also recovery, and what strategies, including pre-event agreements could be put in place to facilitate this.
- Assess H1N1 vaccine distribution challenges and public information impacts and develop/improve procedures to assure effective and coordinated distribution and administering of vaccines across local jurisdictions.
- Customize and utilize a DHS-sponsored Automated Interdependencies Identification Tool to include in continuity plans to identify healthcare-related dependencies and interdependencies. *(This tool was developed with the assistance of PNWER and the Puget Sound Partnership Interdependencies Work Group in 2006.)*
- Develop an assessment that inventories existing memorandums of understanding (MOUs) and agreements and includes recommendations to expand them, and identifies other areas for new agreements to enhance bio-event resilience.

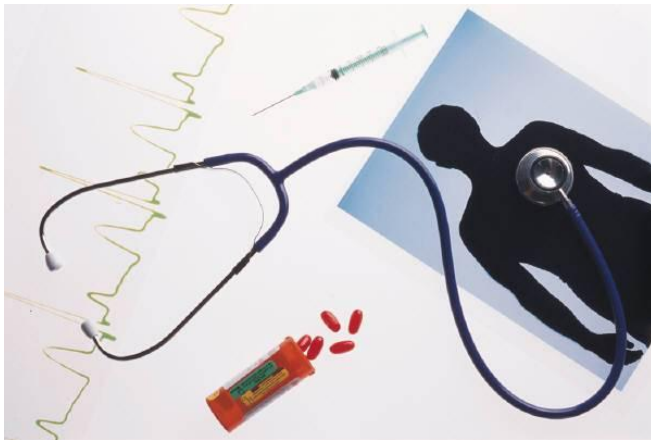
MEDIUM-TERM

- Create a regional volunteer program with dedicated program management to develop and maintain a data base of volunteers categorized by expertise, focus and projected assigned responsibilities during an event or disaster. Provide necessary levels of training and certification for providing certain types of emergency services. *(The state of California has developed such a process.)*
- Undertake a study that assesses estimated numbers and types of trauma cases in different scenarios, triage strategies, projected necessary healthcare capabilities, gaps and potential solutions.
- Creation of a work group of local public health, healthcare organization representatives and key stakeholders involved in the supply of essential healthcare resources to develop a decision-making process to prioritize allocations of critical equipment and resources to healthcare facilities during a regional incident or disaster.
- Survey hospitals and other large medical facilities on their security needs under various scenarios and build on existing arrangements with local law enforcement and security firms to assess available resources to determine requirements and alternative means to assure adequate security personnel.
- Leverage past state and local activities on certification procedures for first responders and other essential personnel and determine procedures to cover health-related personnel.

LONG-TERM

- Develop a risk assessment system that assesses hospital and healthcare facility vulnerabilities and associated interdependencies and consequences against different disaster scenarios.
- Examine policies to ensure that hospitals in collaboration with other healthcare providers and supply chain organizations develop and exercise business continuity plans.
- Address alternative medical standard of care strategies and potential decision-making procedures.

6.2. PUBLIC HEALTH AND HEALTHCARE POLICY ISSUES THAT AFFECT BIO-EVENT RESILIENCE



Issues Categories: Roles and missions and authorities; coordination and policies; plans and procedures; availability of external assistance, including volunteers; and other policy issues, including mass fatality planning/mortuary-related issues, and pet and livestock issues that will affect communities. *(For existing capabilities and detailed needs see Section 6.2 in the Gap Analysis, Appendix D, page 83.)*

NEEDS

PREPAREDNESS PLANNING

- 1. Assess and harmonize county and other local jurisdiction public health, emergency management and related plans to coordinate and better focus preparedness and management of significant events and disasters.**

Because Washington is a home rule state, each county and city is responsible for public health and emergency management within its jurisdiction. This can cause challenges for cross-jurisdiction emergency response and recovery, which was demonstrated in the H1N1 pandemic response.

- 2. Improved coordination between local jurisdictions with state and federal agencies.**

The Washington State Department of Health has developed many useful initiatives and capabilities that can be leveraged at the local level. Likewise, federal agencies have capabilities that can be utilized. The need is to avoid fragmentation of effort and work in cooperation, with localities setting the requirements.

- 3. Examination of how local jurisdictions' public health and emergency management websites could be coordinated and harmonized to make information and guidelines more consistent and readily accessible to the general public.**

Local jurisdictions have their individual websites with plans, useful specific information for preparedness for different threats, evacuation procedures, etc., but this requires stakeholders and the general public to sort through the plans and procedures of multiple jurisdictions to gather information and instructions on health and safety issues. Some County emergency plans are not easily accessible or readily available on county websites. Local jurisdiction websites in many cases do not clearly indicate where to find plans, procedures, and other information.

ROLES AND MISSIONS, AUTHORITIES, AND COORDINATION

- 4. Identify challenges that affect multi-jurisdiction, cross-sector coordination and determine how to develop a coordinated, regional approach and well-defined area command structures that involve key stakeholders for response and recovery and long-term restoration after a significant event or disaster.**

Local jurisdictions need collectively to further test plans and procedures with regional stakeholders to see where improvements are necessary. In some instances local government may not be best suited for a particular responsibility (e.g., vaccine distribution), and private sector and other alternative means need to be investigated.

MASS FATALITY PLANNING/MORTUARY ISSUES

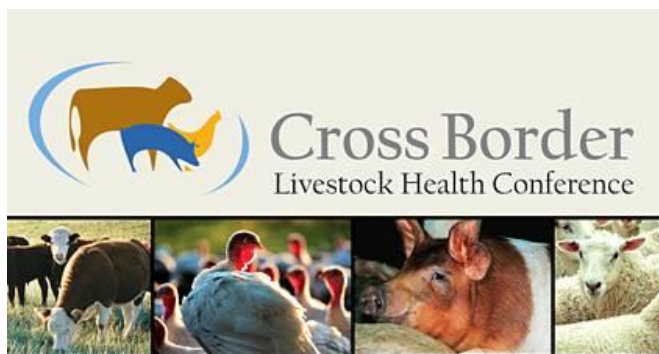
- 5. Continue to build capabilities to address fatalities from a major earthquake, flood, or other catastrophic disaster that would tax regional capabilities to handle fatalities — identification and temporary disposition and storage of bodies.**

King County is working with regional local jurisdictions on mortuary issues related to potential Green River Valley flooding and other potential disasters.

PET AND LIVESTOCK ISSUES

- 6. Examine and coordinate current plans with focus on interdependencies-related impacts and local-state, and federal cooperation and decision-making on pet and livestock issues.**

There are a number of state, local, and federal agencies involved in disaster-related pet and livestock issues, and also diverse plans, guidelines, and directives addressing issues ranging from sheltering pets to agricultural diseases. Dead livestock and wild animals will pose a considerable health hazard, particularly in a major flood.



One of many events focusing on livestock issues. This conference facilitated by PNWER brought together state and provincial veterinarians and industry representatives.

RECOMMENDED ACTIONS

SHORT-TERM

- Develop a regional continuity plan through harmonizing current county and local jurisdiction public health and emergency management response and recovery plans, as well as through development of a synchronization matrix based on these plans.
- Develop a multi-year program of targeted exercises and workshops involving public health, emergency management and other agencies and key stakeholders to evaluate plans and specific procedures across jurisdictions and agencies.
- Create a work group of County and other local jurisdiction representatives to develop a single coordinated all-hazards disaster website for emergency preparedness/management and public health with links to sites of participating localities.

MEDIUM-TERM

- Assess and develop improved procedures to handle disaster-associated mortuary challenges.
- Undertake a study of existing plans, procedures, and organizations at the local, state, and federal level involved in livestock-related bio-event issues and develop a regional, coordinated strategy.

LONG-TERM

- To be determined

6.3. INFORMATION SHARING, COMMUNICATIONS, CRITICAL IT SYSTEMS, AND HEALTH DATA ISSUES



Issues Categories: Alert and warning/notifications; two-way information sharing; data collection, management, analysis, and dissemination; IT system reliability, resilience, and security. *(For existing capabilities and detailed needs see Section 6.3 in the Gap Analysis, Appendix D, page 92.)*

NEEDS

ALERT AND WARNING/NOTIFICATIONS

- 1. Assess the effectiveness of alert procedures and systems, including what information needs to be conveyed, how, and to what organizations and individuals, and how it will be coordinated and disseminated, ideally from a central focal point.**

How well existing capabilities will work is unclear. King County and local jurisdictions have established alert systems that are outlined on their respective websites. The National Weather Service uses its own emergency alert system. For floods, the County has a Flood Warning Center that uses a four-phase warning system based on river gages which measure the flow and depth that is monitored on a 24 hour basis; residents and businesses are advised on King County's flood information website to check multiple sources for information, including radio, television, the Internet, text and email.

- 2. Well-defined “triggers” for emergency alerts and activities relevant for various scenarios.**

This need has been raised by stakeholders in exercises and workshops.

INFORMATION SHARING, DATA COLLECTION, MANAGEMENT, ANALYSIS AND DISSEMINATION

- 3. Improved procedures and mechanisms to facilitate information sharing with the business community on bio-event-related issues.**

Although King County made significant steps on outreach to the private sector during the H1N1 pandemic with conference calls and meetings, public health officials see a need to find ways to better convey information. Stakeholders want continuous and consistent information on public health policy and other issues to address continuity requirements during a regional emergency.

- 4. Development of an operational regional all-hazards two-way information-sharing capability among government agencies with the broader stakeholder community.**

The need for “situational awareness” — knowledge of what is happening throughout the region as a disaster unfolds—is essential for optimal decision-making. Local officials at exercises have spoken of the difficulty in sharing information, especially among emergency operations centers, and in obtaining enough data in situation reports, when available, on expected duration of infrastructure service outages and projected restoration timelines. They also want these reports to be written in language that could be easily understood by non-experts and disseminated from a single focus point. Communications and information sharing issues raised by stakeholders included limited coordination of information among local jurisdictions and government agencies and lack of private sector access to information and communications with other service providers to validate planning assumptions and recalibrate response.

- 5. Define the role of the Washington State Fusion Center in information sharing, along with the roles of other key contributors to an information sharing system.**

Puget Sound stakeholders at CCBER Pilot Project workshops and the *Blue Cascades VI* exercise underscored the need for a single focal point for communications and information. A concept of operations (CONOPS) for cross-sector information-sharing and analysis has already been developed by Puget Sound stakeholders with PNWER and the WSFC. Requirements for operationalizing the CONOPS and determining how to apply the cross-sector information sharing capability to all-hazards disasters have yet to be developed.

- 6. Determine how to involve the media in an appropriate manner in training and exercises for all-hazards incidents and disasters pre-event and in providing situational awareness and emergency-related information during emergency response.**

This need continues to be raised in exercises. There was some initial groundwork done after the 2006 *Blue Cascades III* subduction zone earthquake exercise by King County emergency management to develop with local media representatives a process that could be used for communicating to the public in the early phases of an event.

IT SYSTEM RELIABILITY, RESILIENCE, AND SECURITY

- 7. Further assess communications and critical IT vulnerability to prolonged disruptions under certain scenarios and improve plans and capabilities to assure these essential functions continue or can be expeditiously restored.**

The Northwest Alliance for Cyber Security, created in 2006 by PNWER's Center for Regional Disaster Resilience with the City of Seattle, Microsoft and other stakeholders, has been focusing on improving and maximizing the cyber resilience of the Puget Sound region by maximizing opportunities and communications among local, regional, and federal organizations and enterprises. NWACS recently held a cyber-risk management seminar and a functional cyber event exercise with representatives from the private, public, academic, law enforcement and non-profit sectors to inform regional stakeholders on strategies and methods to mitigate the risk of cyber attacks and to assess current levels of readiness and resilience in region-wide cyber response. Gaps have been identified and plans are being made to address and further assess the region's cyber event response capabilities. Also, communications providers (e.g., AT&T and T-Mobile) have been working on ways to provide mobile communications capabilities to meet disaster preparedness needs. AT&T has developed communications prioritization and other procedures to address regional bandwidth congestion issues during emergencies.

- 8. Continue and expand testing by government, private sector and other organizations of mass telecommuting by staff to enable remote working after a major incident or disaster.**

Internet service providers can become overwhelmed and the access/last mile in the event of region-wide telecommuting in a geographically extensive emergency can be congested. Organizations' IT infrastructures may not be capable of supporting a large upsurge of remote workers, and many essential workers may not have responsibilities that can be handled by

working remotely. Shortages of communications and IT personnel also may impede telecommuting and remote operations. In addition, vulnerability to cyber attacks and viruses will dramatically increase with the number of users, many using personal computers that may not meet corporate security standards.

9. Identify alternatives to telecommuting that can be utilized by businesses and organizations to continue operations post-disaster.

Stakeholders are beginning to recommend that other solutions should be explored to enable employees to work remotely.

HEALTH DATA COLLECTION AND MANAGEMENT

10. Capabilities to provide better monitoring, information collection, assessment and reporting on:

- **Laboratory-confirmed significant illness and disease hospitalizations and deaths** to fulfill Washington Department of Health reporting requirements, as well as information on suspected deaths and intensive care unit admissions;
- **Emergency department and outpatient facility visits** for influenza-like illness and tracking trends in disease activity by age group;
- **Information on the status of staff, equipment, supplies and other resources** needed by hospitals and medical facilities to meet surge requirements during a bio-event.
- **Absenteeism levels at King County schools and producing school absenteeism reports** for County public health and school district authorities utilizing an automated system for collecting and analyzing school absenteeism data.
- **Describing and assessing populations affected by bio-events**, including characteristics of a disease outbreak or other major health impacts and the duration and course of the bio-event;
- **Producing a surveillance report for healthcare and community partners** twice a week during periods of high influenza activity;
- **Providing healthcare providers and the public with information** on clinical signs and symptoms, diagnosis, treatment, and infection control measures.

This need reflects lessons learned from the H1N1 response summarized in the *Public Health-Seattle & King County – 2009 H1N1 Influenza Fall Outbreak Response - After Action Report* (June, 2010).

11. Accelerated development of a health information exchange capability that includes an electronic case reporting system for healthcare institutions.

Electronic reporting of health-related information, now under development in different regions across the nation, is necessary to enhance and expedite assessment of potential and developing health threats, treatment, and incident/disaster response and recovery. The need for such a capability was cited in the *Public Health-Seattle & King County – 2009 H1N1 Influenza Fall Outbreak Response - After Action Report*.

12. A health resilience situational awareness capability to facilitate incident/disaster response. This capability would:

- **Be integrated into a broader emergency management situational awareness system** in an incident or disaster to enable collection, coordination, and analysis of health-related information to create a common operating picture and facilitate optimal decision-making.
- **Utilize where possible best practices, tools and technologies** under development in other states to leverage and incorporate existing systems into an interoperable, common framework with appropriate technical and policy protocols to protect health data privacy.

Such a system is a pressing need raised in CCBER Pilot Project workshops and Work Group discussions. It was one of the significant lessons learned from the H1N1 response, which cited institutional hurdles in collecting data from hospitals and community clinics to help inform situational awareness. Development of a situational awareness capability is highlighted as a priority need in the recently released HHS National Health Security Implementation Plan and DHS national policy objectives.

RECOMMENDED ACTIONS

SHORT-TERM

- Utilize an existing work group of appropriate local government and key stakeholders to discuss and determine realistic triggers for emergency alerts and activities for different scenarios.

MEDIUM-TERM

- Produce a survey of regional alert capabilities that assesses the effectiveness of systems and procedures and identifies ways to improve alert information coordination and dissemination.
- Leverage work to date and additional capabilities to develop an operational regional all-hazards two-way information-sharing capability among government agencies and the broader stakeholder community that utilizes the Washington State Fusion Center. As part of this effort, delineate the role of the Fusion Center in information sharing, along with the roles of other key contributors to an information sharing system.
- Create or leverage an existing work group of appropriate local government and key stakeholder representatives to develop a media outreach and engagement strategy focused on bio-event and broader disaster resilience.

- Incorporate communications and critical IT resilience into hospital and healthcare facility continuity plans, including testing of telecommuting capabilities by staff and investigation into telecommuting alternatives.

LONG-TERM

- Creation of a program to develop:
 - An electronic health resilience information exchange system to provide better monitoring, information collection, assessment and reporting of a wide range of health-related information necessary during a pandemic or other major bio-event
 - A situational awareness capability to facilitate incident/disaster response.

6.4. CRITICAL INFRASTRUCTURE AND ASSOCIATED INTERDEPENDENCIES, RISK ASSESSMENT, AND MITIGATION



Issues Categories: Interdependency-related vulnerabilities and impacts; associated prevention, protection, and mitigation measures; and other issues associated with determining and assessing health and safety resilience under various event scenarios. (*For existing capabilities and detailed needs see Section 6.4 in the Gap Analysis, Appendix D, page 101.*)

NEEDS

INTERDEPENDENCY-RELATED VULNERABILITIES AND IMPACTS

- 1. Regional infrastructure consequence assessments focusing on high-risk areas and interdependencies impacts assessments of evacuations and sheltering in place plans under different scenarios.**

Stakeholders in PNWER exercises and other events over the past eight years have focused on regional and organizational infrastructure linkages, including health and safety related interdependencies, vulnerabilities, and impacts, and potential measures to address them. This awareness, however, remains largely confined to first and second level interdependencies with limited understanding of regional interdependencies and health and safety impacts and associated economic costs of different levels of all-hazards disruptions. Much of the information on disaster impacts to regional businesses under certain scenarios is conjectural, based on assumptions of how staff shortages would affect operations and business practices and how response and recovery procedures, such as closing down transportation routes and

mass transit, or delaying school re-openings could complicate and escalate disruptions or impede restoration and business recovery.

PREVENTION AND MITIGATION MEASURES

2. Improved understanding of threats, vulnerabilities, consequences, and identified specific and prioritized measures to lessen the impacts of disruptions or damage to deal with different significant threats.

Much of the Puget Sound Region interdependencies understanding and data has not been collected and documented in any systematic way beyond exercise and workshop reports. There is no institutionalized knowledge base to inform new security and emergency management professionals that are taking over for veteran stakeholder representatives. General understanding of interdependencies does not extend to the broader stakeholder community beyond the major infrastructure sectors, leaving small and medium-sized businesses and many larger enterprises without necessary background for continuity planning. There remains a lack of appreciation of how cascading and simultaneous infrastructure failures, and physical destruction of critical assets, could paralyze parts of a region for weeks or months.

3. Interdependencies assessment tools need to better analyze the impacts of pandemics and other bio-events.

There remains a lack of criteria and tools available to local and state agencies and infrastructures for assessing physical and cyber dependencies and interdependencies, and the publichealth, economic, and environmental impacts of different threat scenarios. Along these lines, there is a need for standardized GIS-based interdependencies assessment and decision-support tools and supporting information sharing procedures that can be customized for use by infrastructures and regional key stakeholders for preparedness planning and disaster management.

4. A regional bio-event risk mitigation strategy to facilitate development and implementation of cost-effective mitigation decisions.

While there are many capabilities that are either developed or being implemented to increase this knowledge base, much more needs to be done to develop, integrate, and analyze information to develop a cost-effective regional health and safety resilience mitigation strategy. Stakeholder concerns include: damaged or destroyed infrastructure; hazardous materials co-mingling with floodwaters; sewage collection, conveyance, and treatment system impacts and sewage overflows; drinking water system integrity/safety; solid waste/debris management; rodents/vectors; dead animal disposal; household chemicals; and other substances. Other concerns include food safety and sanitation; food warehousing and distribution; and evacuation and mass care sheltering.

RECOMMENDED ACTIONS

SHORT-TERM

- Develop a series of targeted scenario-based workshops to enable regional stakeholders to further drill down on different priority challenges posed by bio-event-related infrastructure interdependencies.
- Hold two bio-event resilience interdependencies workshops focusing on priority areas where further understanding of interdependencies is required (e.g., evacuation challenges, hospital dependencies and interdependencies, health communications and IT-related interdependencies, etc.)
- Develop and conduct targeted workshops to discuss response and restoration for challenging bio-event scenarios that will require specialized scientific and technical expertise, for example a chemical, radiological or nuclear incident or bio-attacks involving agents other than anthrax, which has been already addressed extensively through the IBRD project.

MEDIUM-TERM

- Leverage existing transportation modeling and interdependencies analysis capabilities to develop an evacuation assessment system to assess disaster scenarios.
- For scenarios that would require lengthy recovery, develop a strategy for long-term sheltering needs that identifies potential sites and how to provide basic services to these sites for extended periods.

LONG-TERM

- Identify and leverage interdependencies assessment tools to evaluate health/safety and related economic impacts from pandemics and other bio-events; identify preparedness gaps and potential cost-effective mitigation options.

6.5. BUSINESS CONTINUITY, CONTINUITY OF OPERATIONS, AND SUPPLY CHAIN MANAGEMENT



Issues Categories: Development of effective continuity plans, assessing operational business continuity impacts, workforce policy issues, identification of potential improvement measures, and other issues. (*For existing capabilities and detailed needs see Section 6.5 in the Gap Analysis, Appendix D, page 109.*)

NEEDS

DEVELOPMENT OF EFFECTIVE CONTINUITY PLANS

1. Accelerated and expanded local government outreach to area businesses and other organizations.

Despite an availability of public information and continuity planning guidelines and templates on the Internet, most businesses and other organizations, with the exception of larger enterprises, have neither the time nor the personnel to focus on disaster planning. Likewise, county and local governments do not possess the needed resources to fully assist businesses in developing plans. This is exacerbated by a lack of good guidance for businesses on important workplace issues, such as whether pandemic cases are reportable under OSHA, liability of organizations if they do not follow public health department recommendations, and the need for flexible sick leave policies and payroll provisions. A major concern is how businesses should address the HIPPA Privacy Rule that provides federal protections for personal health information and which give patients rights with respect to that information.

2. Assistance to small and medium enterprises and other organizations lacking bio-event resilience resources and expertise.

While large companies in the Puget Sound Region are developing contingency plans, small and medium-size businesses need assistance and incentives to develop plans and information on best practices and to undertake training for staff and preparedness drills. These plans should take into account legal and liability issues.

ASSESSING OPERATIONAL AND BUSINESS CONTINUITY HEALTH-RELATED IMPACTS

3. A template or process for hospitals and businesses to assess their essential needs and availability of critical assets to assure continuity of operations and business.

The *Blue Cascades VI* Regional Infrastructure Interdependencies Tabletop Exercise revealed that there is insufficient inventory at storage sites for pharmaceuticals, hospitals, and businesses to cover anticipated needs in a significant incident or disaster. Moreover, most suppliers rely heavily on networks that may not be accessible.

4. Involvement of businesses, such as retail, manufacturing, distribution, and service organizations in regional preparedness planning and exercises.

These organizations, which are the foundation of the Puget Sound Region's economy, are rarely directly involved in local or regional preparedness planning or exercises.

WORKFORCE POLICY ISSUES

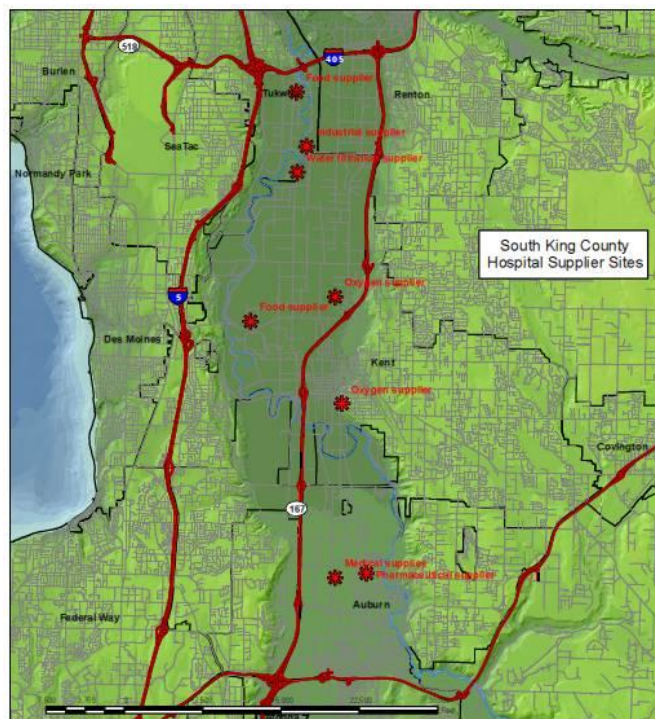
5. Information and best practices for businesses and other organizations on dealing with workforce policy issues in an event or disaster that has major health-related impacts.

During CCBER Pilot Project workshops and Work Group discussions, many questions were raised on a wide range of workforce policy issues. There was general consensus that businesses tend to underestimate “people issues” and the fact that personnel are integral to the ability of an infrastructure or organization to function. Although some local organizations reported altering human resource policies and continuity plans as a result of H1N1 lessons learned, many issues remain to be addressed.

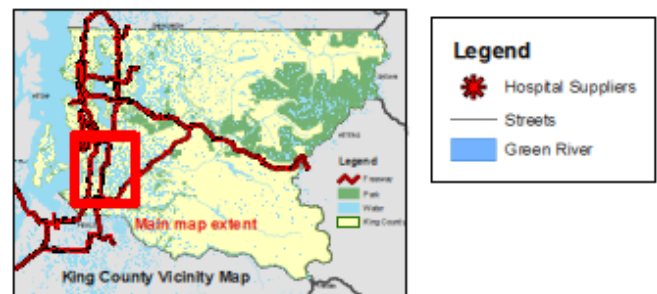
IDENTIFICATION OF POTENTIAL IMPROVEMENT MEASURES

6. Regional operational and business continuity bio-event resilience risk mitigation strategy.

Some Puget Sound organizations have taken steps to lessen potential impacts from high-risk potential events, such as making arrangements with essential suppliers and identifying critical functions and employees; also developing provisions for, and to test telecommuting capabilities for staff. The flood threat to the Green River Valley from the Howard Hanson Dam motivated some organizations in the region to relocate resources and supplies and establish MOUs for assuring services, including contracts with moving companies in the event of a flood-related evacuation. Pharmaceutical suppliers and other businesses arranged other modes of transportation for critical goods if traditional modes are blocked during emergencies, including fly-by deliveries by helicopter. However, others businesses and organizations have not undertaken similar measures, or only limited measures.



The flood threat to the Green River Valley from the Howard Hanson Dam motivated hospital suppliers and some other organizations in the region to relocate resources and supplies and establish MOUs for assuring services.



Public Health
Seattle & King County

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Peter Isaacson, Environmental Health-215, March 19, 2010

RECOMMENDED ACTIONS

SHORT-TERM

- Develop a strategy for expanded outreach and awareness for area businesses on community bio-event resilience that covers the range of issues of particular concern to small and medium-sized enterprises, as well as how to upgrade operational and business continuity plans and where to obtain information for this purpose.
- Assess and improve current continuity plan templates for healthcare facilities and businesses, including actions to assure operational needs are met.
- Create an on-line “All-Hazards Bio-event Community Resilience Lessons Learned” as an element of a single coordinated all-hazards King County website that provides information for businesses and other interested organizations on bio-event planning, tools, and other best practices that can be used to improve operational and business continuity.

MEDIUM-TERM

- Develop or utilize an existing template or system that key stakeholder organizations can use to inventory pre-event and monitor post-event essential assets and resources that are necessary for continued operation under different scenarios. *(The DHS/Science and Technology Automated Interdependencies Identification Tool developed by the Puget Sound Partnership Interdependencies Work Group could provide a foundation for this effort.)*

LONG-TERM

- Develop and implement with business stakeholders a regional economic bio-event resilience risk mitigation strategy of targeted actions to address business continuity challenges and identify ways to make and incentivize improvements.

6.6. RESPONSE ISSUES



Issues Categories: Roles and missions, multi-jurisdiction/cross-sector coordination and decision-making, resource issues, including staff, logistics, supply chain, and other issues. *(For existing capabilities and detailed needs see Section 6.6 in the Gap Analysis, Appendix D, page 113)*

NEEDS

ROLES AND MISSIONS, RESPONSE ORGANIZATIONAL STRUCTURE, AND DECISION-MAKING

- 1. Build upon existing public health and emergency plans and activities to expand and improve regional incident management and broader regional response, taking into account federal, state, local government roles and responsibilities and incorporating key private sector, non-profit, and community stakeholders.**

King County has a regional disaster plan that includes multi-jurisdiction, multi-discipline, and cross-sector stakeholders, and local jurisdictions have their own plans. There also are various ongoing activities to better manage regional events and disasters. However, Washington State Home Rule affects the ability of public health and other officials to collaborate with neighboring regions or jurisdictions. H1N1 response and lessons learned from preparing for potential Green River Valley flooding underscore that more work needs to be done to develop the relationships and procedures to overcome home rule challenges. Particularly recovery/restoration will require involvement of many different stakeholder organizations and groups.

PRIORITY RESPONSE CHALLENGES

- 2. Need for an effective regional multi-jurisdictional organizational incident command/area management structure with a well-defined decision-making process for response.**

Such an organizational structure will need to integrate local jurisdiction public health and emergency management with state, federal, and key stakeholder representatives and be evaluated through workshops and targeted exercises and continuously improved. The organizational structure will need to take into account response that could last in certain scenarios (earthquakes, major floods) more than three to four days and in a pandemic or a bio, chemical, or radiological event, months. Issues will include sheltering large numbers of individuals for an extended duration.

- 3. Incorporate into public health and hospital contingency planning coordinated procedures to deal with incidences or disasters in which the large number of casualties may exceed the surge capacity of hospitals that are either not damaged or suspected of having structural damage and forced to evacuate.**

Surge capacity is a major emphasis and grant performance metric being used by the U.S. Department of Health and Human Services for hospitals receiving preparedness funding. However, while hospitals have been addressing surge capacity strategies, there is recognition that in an earthquake or weapon of mass destruction event causing a large number of trauma patients or in a major pandemic, regional healthcare surge capability and personnel resources would be overwhelmed and greatly stressed. Complicating factors would be the inability to bring staff in or to keep personnel from leaving to be with their families, transportation and supply chain constraints, etc. King County Public Health through the Healthcare Coalition

has developed an Alternate Care Facility, which when activated is intended to reduce the surge burden.

- 4. A regional evacuation plan that could move large numbers of individuals from homes and businesses in a chaotic situation of transportation gridlock, power outages, potential damage to building and structures, and limited communications, and**
- 5. Provisions for sheltering large numbers of individuals, including long-term sheltering.**

Although King county and other localities have focused on these twin needs and held workshops with stakeholders, evacuation and sheltering planning remains a work in progress. Among issues remaining include reassessing timelines for feasibility; coordination of evacuation procedures among affected jurisdictions, scheduling of transportation to convey assets and resources and ensure gasoline and diesel fuel will be available along the evacuation route; availability of mass transit to expedite evacuations; and pets and livestock issues. Long-term sheltering is a particular challenge that remains to be addressed.

- 6. Strategy for enhanced outreach, education, and awareness on response procedures, including on evacuations and sheltering under certain scenarios and provisions for “special populations”, including tribal nations and individuals in nursing homes and assisted care facilities and prisons.**

Regarding vulnerable populations and cultural groups, despite County and other local government outreach activities, concerns include relocation of nursing home residents and the likelihood that non-English speakers or economically vulnerable individuals may not be prepared or have the information necessary to evacuate in a major event.

- 7. Procedures for certification/credentialing of medical/healthcare and-other essential personal to enable essential personnel to assist in medical response or regain access to their place of work.**

Credentialing — how it will be administered, granted, and recognized by officials — still represents one of the largest problems to response and restoration. Although local and state agencies have been addressing this issue, there is still no agreed process.

EXTENT OF COORDINATION/COOPERATION

- 8. Review and further expansion of mutual assistance agreements among hospitals, among localities and with and among private sector organizations and non-profits, particularly with organizations outside the potential disaster impact region, including cross-border with Canadian provinces.**

Hospitals need to have mutual aid agreements with other regional hospitals and healthcare facilities to handle situations where they must evacuate patients because of disrupted services or potential structural damage, or be able to receive large numbers of patients from hospitals unable to continue operations. Local government mutual assistance agreements for bio-event response in a major event will be crucial. In a major disaster, it could take at least two-to-three days for the National Guard to fully mobilize, considering that mobilization could be

delayed because of the regional paralysis. Widespread impacts of an earthquake or other regionally destructive event would necessitate that Guard forces would be spread thin and sent to high-priority areas. Many businesses comprising a large portion of the Puget Sound's economy have emergency plans and resources for only three-to-four days. Interdependencies between the U.S and Canada and the fact that bio-events such as pandemics have no borders will necessitate cross-border response to bio-events.

9. A strategy to incorporate local media in response activities.

Local media have an essential role in response activities — providing crucial information to citizens on response procedures, hazards, and conditions in the region. There currently is not a strategy to incorporate them into regional preparedness activities.

RESOURCE ISSUES; INCLUDING STAFF, LOGISTICS, AVAILABILITY OF NECESSARY PRODUCTS AND SUPPLIES

10. Greater attention on incorporating regional and national defense assets in preparedness planning and disaster management.

This highly important topic has limited focus in exercises, although the National Guard would be able to provide a range of resources under local government supervision. Also, U.S. Department of Defense facilities need to understand preparedness plans of, and coordinate with government agencies and organizations on which mission assurance depends, including how military civilians will be assisted and what Defense Department-related resources may be required if the National Guard and law enforcement are overwhelmed.

11. A strategy for identifying the range of volunteers available to assist in response and a mechanism and procedures for training, certifying, and incorporating them into emergency planning, including exercises and drills.

There are a wide variety of volunteer organizations and activities, including independent volunteers for emergency response that can be drawn upon to meet many assistance needs.

12. Inclusion of private sector assets in King County's disaster resource inventory system that focuses on government capabilities.

Bio-event preparedness tends to focus on government, yet government entities do not always have or can supply the necessary tools, and accessing private sector resources becomes essential. Private sector organizations can provide a range of resources and services to assist government in emergency response and recovery—a point raised repeatedly in regional exercises and workshops and one of the lessons learned from the Puget Sound Region H1N1 response.

RECOMMENDED ACTIONS

SHORT-TERM

- Determine optimal criteria for an effective regional multi-jurisdictional organizational incident command/area management structure that integrates public health with emergency management and other necessary expertise, assess the current incident command structure against these criteria, and identify areas of improvement.
- Develop and conduct additional evacuation planning workshop that uses sample scenarios and centers on assessing current evacuation plans for realistic timelines and effective procedures.
- Determine long-term sheltering needs (e.g., location options, housing, provision of essential services, costs, etc.) and incorporate into regional preparedness planning.
- Determine procedures for certification/credentialing of medical/healthcare and other essential personnel to enable them to assist in medical response or regain access to their place of work
- Undertake a survey of current mutual assistance agreements with organizations outside the potential disaster impact region, including cross-border with Canadian provinces.
- Develop a strategy to incorporate local media in response activities under certain scenarios.

MEDIUM-TERM

- Develop a region-wide outreach, education, and awareness strategy on response procedures, including on evacuations and sheltering, for “special populations,” including tribal nations and individuals in nursing homes and assisted care facilities and prisons.
- Work with regional and national defense assets to identify what capabilities would be available, in what timeframe during response, and how to incorporate these assets into preparedness planning and exercises, as well as in the aftermath of a major event or disaster.
- Develop procedures for incorporating volunteers into emergency planning, including exercises and drills.
- Develop additional Alternate Care Facilities throughout the region to reduce the surge burden, using the template that was developed by the Healthcare Coalition for this purpose.
- Identify, assess, catalogue, and incorporate potentially necessary private sector assets in King County’s disaster resource inventory system.

LONG-TERM

- To be determined

6.7. RECOVERY AND LONG-TERM RESTORATION



Issues Categories: Recovery/restoration management structure and decision-making, associated resource requirements and management, retaining and sustaining businesses, as well as other issues. (*For existing capabilities and detailed needs see Section 6.7 in the Gap Analysis, Appendix D, page 122.*)

NEEDS

RECOVERY/RESTORATION MANAGEMENT STRUCTURE AND DECISION MAKING

1. **An effective regional organizational structure for recovery and long-term restoration after a major bio-event or disaster with a well-defined decision-making process that involves the range of key stakeholder organizations necessary to make informed decisions on priority issues, taking into account health and safety, economic, and political considerations.**

Local and state officials are working toward an organizational structure for recovery. To date, procedures for long-term economic recovery, including which agencies will have lead roles and how to involve the private sector are not well developed. Issues include what mechanism would be set up to make the decisions, which organizations would be involved, and how long restoration could take. These decisions will involve priorities such as debris cleanup and removal; pipeline safety issues; hazardous materials impact and clean-up; and availability of dumpsters for waste material, debris, and spoiled food.

RESOURCE REQUIREMENTS AND MANAGEMENT

2. **An inventory of the types of post-disaster recovery assistance that can be made available to localities, the private sector and other stakeholders, including federal help (civilian and defense) for recovery through the State from FEMA as well as other federal agencies, depending on the nature of the emergency.**

Currently there is no single set of guidelines or information source of post-disaster assistance from government agencies or other sources. The U.S. Department of Defense has capabilities that can assist localities per request through the State in a declared disaster to assist in recovery/restoration, including specialized capabilities to address a chemical, biological, or radiological incident.

3. Regional consequence assessments of regional impacts to critical infrastructures and essential services based on likely scenarios to more accurately gauge recovery and restoration needs.

An under-estimated impediment to recovery and restoration is a weeks to months prolonged lack of regional services, e.g., water and sewer services because of a flood or an earthquake which causes significant system damage.

4. An operational capability for recovery/long-term restoration that includes:

- **A mechanism and process for sharing information on potential and available resources** and a regional inventory of these resources, including the amount and location available from different jurisdictions, the private sector and non-profits and including procedures that address compensation and liability issues.
- **Procedures for acquisition of expertise needed for inspections and certification** of food, agriculture, utilities, and other infrastructures before these facilities can return to operation.

Many local jurisdictions do not have an established, formal way of requesting and obtaining resources from one another or acquiring them from the private sector. There is currently no standardized system for prioritizing recipients for disaster resources or tracking resource distribution.

RETAINING AND SUSTAINING BUSINESS

5. Study of psychological and economic factors that can affect post-event business retention and sustainability.

There is recognition on the part of Puget Sound Region jurisdictions of the importance of economic resilience and business retention and sustainability. Recent exercises and events have highlighted the importance of psychological impacts on individuals and that these human factors need to be addressed to keep businesses operating and spur optimism that can encourage revival. In some localities, emergency management officials are undertaking outreach to local businesses to counter concerns about risk from incidents and disasters, such as potential Green River Valley flooding.

6. Incentives and rewards to keep small businesses operating and encourage them to return to the region if they have left.

Stakeholders at *Blue Cascades* exercises and other PNWER events focusing on recovery have emphasized the need for such incentives and rewards. To date, measures and policies have not been developed towards this objective.

RECOMMENDED ACTIONS

SHORT-TERM

- Build upon existing local jurisdiction recovery plans to develop an effective regional organizational structure for recovery and long-term restoration after a major bio-event or disaster with a well-defined decision-making process that involves the range of key stakeholder organizations necessary to make informed decisions on priority issues, taking into account health and safety, economic, and political considerations.
- Undertake an inventory of the types of post-disaster recovery assistance that can be made available to localities, the private sector and other stakeholders, including federal help (civilian and defense) for recovery through the State from FEMA, as well as other federal agencies, depending on the nature of the emergency.

MEDIUM-TERM

- Create a process for information sharing about potential resources that might be available from the private sector and non-profits and include procedures that address compensation and liability issues.
- Develop, and incorporate into a regional continuity plan procedures for resource acquisition and management that includes expertise needed for inspections and certification of food, agriculture, utilities, and other infrastructures before these facilities could return to operation.
- Undertake an assessment of regional psychological and economic factors that can affect post-event business retention and sustainability.
- Identify:
 - Incentives to keep small businesses operating after a regional incident or disaster, and to return to the region if they have left;
 - What legal or policy provisions may need to be developed or changed.

LONG-TERM

- Develop a regional disaster recovery assessment system that takes into account impacts to critical infrastructure interdependencies to more accurately project restoration needs in different scenarios.

6.8. HUMAN FACTORS, COMMUNITY, AND FAMILY ISSUES



Issues Categories: Identification of family assistance needs, special needs populations, ethnic, cultural and faith-based group outreach, as well as other issues. (*For existing capabilities and detailed needs see Section 6.8 in the Gap Analysis, Appendix D, page 129*)

NEEDS

IDENTIFICATION OF FAMILY ASSISTANCE NEEDS

- 1. Identification of ways to further improve assistance to families and individuals that are unable to access information on bio-event preparedness or to afford preventative health measures or medical attention associated with incidents or disasters.**

There are a number of health-focused coalitions and organizations in the Puget Sound Region that provide assistance to families and individuals, public health and other local and state outreach activities, available information on the Internet and through various publications, and free services. For example, there is information on free clinics, vaccinations, and prescriptions to those requiring assistance. However, the number of people living below the federal poverty level is significant, as is the number who do not get medical care due to cost, and certain areas of the Puget Sound Region have a shortage of primary care providers for low income residents.

- 2. Better procedures and coordination of public guidance on vaccine availability and distribution for pandemics.**

Various challenges arose during the H1N1 response that highlighted areas that need further improvement. The delay in vaccine availability encouraged rumors and misinformation to circulate, causing fear and frustration. Health care providers, including pharmacies, encountered challenges in providing immunizations to age groups they were not familiar with, and problems arose in finding clinicians to vaccinate high-risk patients. Only a small number of pharmacies in King County were willing to vaccinate children, particularly those six months to two years old. In addition, vaccine manufacturers had their own restrictions.



A significant issue was vaccinations of infants and young children.

SPECIAL NEEDS POPULATIONS

- 3. Development of a comprehensive approach to incorporate a wide range of activities focused on special needs populations, identifying improvements where gaps exist, and incorporate into emergency preparedness, response, and recovery planning.**

Jurisdictions in the Puget Sound Region have taken steps in the last few years to address the health and safety needs of special populations in significant incidents and disasters. Also, there are non-profit organizations that focus on special needs individuals. However, much more needs to be done.

ETHNIC, CULTURAL, AND FAITH-BASED GROUP OUTREACH

- 4. Incorporation of improved procedures into preparedness plans and activities to address ethnic, cultural and faith-based groups, including:**
 - **An inventory of regional public health programs** that partner with agencies/communities representing “vulnerable communities.”
 - **Development of a relationship with these groups** and of a mutual understanding of the role they could play in response, beginning with identifying points of contact within various ethnic and cultural groups.
 - **Inclusion of organizations and groups that provide assistance to vulnerable populations and ethnic and cultural groups in local and regional planning and exercises.**

Much work has recently been done in this area. During the H1N1 response in the fall of 2009 through the winter, public health officials took a number of actions to reach out to ethnic, cultural, and faith-based groups, including materials, television and radio ads in publications, and flyers translated into up to 13 languages commonly spoken in King County. Organizations such as AmeriCorps VISTA, the American Red Cross, and a number of church-based groups have outreached to ethnic community contacts and local schools in order to create relationships with community leaders that can get health and emergency information out to their communities. At the same time, reaching special needs populations in the Puget Sound with emergency preparedness information and plans remains a major issue. Many outlying communities do not have regular access to the internet or a phone. A significant H1N1 response lessons learned was the challenge of communicating information

to special needs individuals when it was changing so quickly and decisions were made with short notice.

RECOMMENDED ACTIONS

SHORT-TERM

- Develop procedures for providing bio-event-related information to families and individuals who are unable to access this information or to afford preventative health measures or medical associated with incidents or disasters.
- Develop procedures, including a coordination process, for public guidance on vaccine availability and distribution for pandemics.
- Develop a comprehensive bio-event resilience approach for special needs populations, identifying improvements where gaps exist, and incorporate into a regional continuity plan.

MEDIUM-TERM

- Develop a strategy to address ethnic, cultural, and faith-based groups that:
 - Identifies these groups and points of contact within them;
 - Builds on current public health and non-profit outreach activities to these groups;
 - Lays out a process of optimal ways to disseminate information based on an awareness of what types of communications and communication channels are most effective for particular groups.
 - Integrates these groups into preparedness activities and exercises.

LONG-TERM

- To be determined

6.9. LEGAL AND LIABILITY ISSUES



Issues Categories: Legal and liability issues for government agencies, businesses as well as privacy, ethical, union-related issues and other issues. (*For existing capabilities and detailed needs see Gap Analysis, Appendix D, page 136.*)

NEEDS

LEGAL AND LIABILITY ISSUES FOR GOVERNMENT & BUSINESSES

- 1. A compendium of legal and liability issues associated with disaster preparedness, response, recovery or mitigation for private sector and government organizations.**

King County Public Health, the King County Healthcare Coalition, and other government and healthcare organizations continue to focus on a wide array of legal and liability issues that affect response and recovery in health-related incidents and emergencies and ways to deal with them, including changing policies, waivers, and temporary exemptions.

- 2. Identification of examples of best practices and solutions to workplace issues utilized by Puget Sound Region stakeholders and from organizations in other regions.**

Businesses and other private sector organizations are becoming familiar with and adopting solutions to meet requirements and constraints that affect continuity plans, including human resource issues, such as sick leave policies, family leave, and compensation issues stemming from emergencies that impact employees; workplace-related health and safety requirements; and requirements regarding availability of medical personnel and for adequate first aid supplies for workers and employee emergency alert systems.

- 3. Incorporation of procedures to address legal and liability issues into emergency management and continuity of operations/business plans.**

There are numerous legal and liability issues associated with impacts from incidents and disasters that should be incorporated into preparedness and particularly response and recovery planning, including environmental and health regulations, operational requirements that service providers curtail or shut down in an emergency; transportation restrictions; and personal information privacy requirements. HIPPA privacy requirements, which protect the privacy of individually identifiable health information, pose major challenges.

- 4. Identify areas where changes could be made to existing laws and other regulations to take into account challenges from significant incidents and disasters.**

Stakeholders have raised work place-related policy and liability issues (unpaid leave, environmental hazards, security and other health and safety issues) as significant problem areas in major incidents. Another issue that impacts healthcare providers is the need to have alternate standards of care to deal with major bio-events that result in extensive injuries and deaths. Some of these constraints can only be addressed through revising or eliminating existing laws and policies.

RECOMMENDED ACTIONS

SHORT-TERM

- Develop and conduct a regional workshop focused on legal/liability issues and policy gaps that impact preparedness and which identifies legislative or other actions that could be taken to lesson these constraints.

MEDIUM-TERM

- Develop a hardcopy and on-line brochure of examples of legal and liability issues associated with disaster preparedness, response, recovery, or mitigation for private sector and government organizations. The brochure should also identify best practices to deal with work place-related policy and liability issues. *(Would ideally be part of the federal Lesson Learned Information Sharing System.)*

LONG-TERM

- Develop policies on alternate standards of care that could be utilized in a severe, high mortality bio-event.

6.10. PUBLIC INFORMATION, INCLUDING MEDIA



Issues Categories: Public outreach, risk communications, the media, and related issues. *(For existing capabilities and detailed needs see Section 6.10 in the Gap Analysis, Appendix D, page 139)*

NEEDS

PUBLIC OUTREACH AND RISK COMMUNICATIONS

- 1. A comprehensive regional public information plan for incidents and disasters that covers health and safety and associated preparedness, response, and recovery issues addressing different scenarios.**

There are a wide number of tools and mechanisms available for outreach and awareness and available information plans and procedures that King County and local jurisdictions have developed. More work, however, needs to be done in this area. Regional stakeholders in *Blue Cascades III* (subduction zone earthquake scenario) made development of a regional Public Information Strategy a major priority and subsequent exercises have highlighted this same need.

- 2. A single regional Internet website for regional emergency preparedness/management and related public health information that provides detailed, clear, consistent, coordinated information.**

There is a proliferation of information available at multitudinous websites. On some websites information on plans or recommended courses of action are not easily accessible. Also, users may simply be directed to other sites. Workshops and exercises, both for the CCBER project and those focusing on other priority resilience challenges, have emphasized the need for a single focal point — one-stop shopping — for information. This was a particular issue during the H1N1 pandemic.

- 3. A process to assure timely information is provided to the public on vaccine availability and distribution, and on priority groups for vaccination that takes into account that private sector organizations and the general public have different information needs**

Various problems hindered H1N1 response public information efforts. National delays in H1N1 vaccine production caused significant delays in vaccine delivery at the local level and in turn caused significant stress and confusion for providers, the public, and response personnel. In addition, effectiveness of some local jurisdiction websites was limited. Sites were not clear on where to go for more information, and the information that was available was difficult to access.

THE MEDIA

- 4. Recognition of the local media as a “first responder” in significant incidents or disasters and a means to communicate critical information and educate the public on bio-event related threats, issues, public health procedures and guidelines, etc.**

Despite increasing use of the Internet and social networks, the traditional media continues to play a major role in public outreach and awareness.

- 5. Identification of open sources and access to information that the media can use to gain awareness and better communicate to the public.**

None of the local news station websites carry links to emergency preparedness tools on a regular basis. Local newspapers like the *Seattle Times* or the online *Seattle Post Intelligencer* do not always provide any links or provide information on where to access state and local health or emergency preparedness information.

- 6. Inclusion of local media in regional and targeted exercises that focus on major incidents and disasters.**

A finding in past regional workshops and exercises, including the *Blue Cascades* exercises, is the need for a media engagement strategy as part of the broader regional comprehensive public information plan to meet health resilience needs.

RECOMMENDED ACTIONS

SHORT-TERM

- Incorporate procedures into regional planning for involving the local and regional media. Develop contacts with media management representatives to facilitate media participation in appropriate regional and targeted exercises and workshops that focus on major incidents and disasters.

MEDIUM-TERM

- Develop a comprehensive regional public information strategy for incidents and disasters that covers health and safety and associated preparedness, response and recovery issues addressing different scenarios, which includes target audiences, what information to convey, and how it would be coordinated and disseminated.
- Designate and develop a single regional Internet website for regional emergency preparedness/management and related public health information that provides detailed, clear, consistent, coordinated information with links to local jurisdiction and other relevant websites.

LONG-TERM

- To be determined

6.11. TRAINING, EXERCISES, AND EDUCATION



Issues Categories: Resources and opportunities for specialized training, exercises, and education. (*For existing capabilities and detailed needs see Section 6.11 in the Gap Analysis, Appendix D, page 144.*)

NEEDS

IDENTIFICATION OF FAMILY ASSISTANCE NEEDS

1. A regional strategy for bio-event resilience training and education.

There are a variety of training opportunities available to private sector and non-government. These are ad hoc efforts, some more effective than others. As training and exercises involving community health and safety issues increasingly involve the private sector and

community institutions, these activities need to be coordinated to assure message consistency and avoid duplication of effort.

2. Regional and targeted tabletop exercises and workshops that include the broad stakeholder community to provide opportunities for broadening awareness on bio-event resilience and related issues and to enable regional stakeholder organizations to assess their continuity plans.

Political and industry leaders need to be made aware of regional disaster resilience needs and to participate in discussions and exercises. The general public needs education on what a major cascading disaster would cause in terms of disruptions to interdependent basic services and awareness of health and safety concerns, as well as what government can or cannot do. The public also needs to be aware that they should be prepared for being on their own in a disaster for 72 hours or longer and provided training opportunities on ways to assure individual and family resilience, as well as training on telecommuting constraints and how to communicate during a major incident or disaster through sending text messages instead of calls in order to help alleviate “telegidlock”. Regarding business, a survey of regional, chiefly private sector stakeholders conducted as part of the CCBER Pilot Project found that, although 60 percent of respondents indicated that they had continuity plans for all hazards and bio-events, 54 percent responded that they did not regularly test their plans.

3. Educational forums for local media to enable them to better understand the challenges of regional disasters, what to expect from government, utilities and other key stakeholders, as well as have knowledge of local, state and federal disaster plans.

Private sector stakeholder continue to express in workshops and meetings, including those that were conducted as part of the CCBER Pilot Project, that the level of involvement of business and other non-government organizations in training and exercises sponsored by government remains limited. The local media is rarely involved.

RECOMMENDED ACTIONS

SHORT-TERM

- Incorporate in a regional five-year exercise plan at least one tabletop exercise per year that includes the broad key stakeholder community.
- Develop and conduct an educational seminar for local media that includes local government officials to address priority all-hazards disaster scenarios and public communication challenges, including how the media and local government can effectively cooperate to convey information to the public.

MEDIUM-TERM

- Develop a strategy as part of a broader regional resilience continuity plan for bio-event resilience training and education for businesses, community institutions and the general public.

LONG-TERM

- To be determined

6.12. FINANCIAL ISSUES



Issues Categories: Federal, state, and local government disaster assistance and other bio-event-related financial issues for private sector organizations, non-profits, and community institutions, including availability of funding, staff, and technical expertise resources. *(For existing capabilities and detailed needs see Section 6.12 in the Gap Analysis, Appendix D, page 147)*

NEEDS

FEDERAL, STATE, AND LOCAL GOVERNMENT ASSISTANCE

- 1. A summary of disaster assistance available from various federal sources with criteria and guidelines for applying.**

Federal disaster assistance — availability, eligibility, and application procedures—have been a topic at a number of regional workshops and exercises for the past several years. The issue has been a point of public stakeholder concern at several PNWER events that has resulted in recommendations in the exercise reports or workshop summaries that the federal government should provide a compilation of types of assistance to stakeholders. Many stakeholders are not clear on FEMA policies and available programs for financial assistance, including eligibility requirements.

- 2. Exploration of avenues for local jurisdictions to secure funds for pre-event mitigation activities in the case of high-probability, high-consequence threats.**

There are no provisions for federal government assistance for pre-event mitigation to prevent or lessen anticipated impacts from high-probability events. A National Disaster declaration must be issued by the President in order for federal dollars to be made available.

FINANCIAL ISSUES FOR PRIVATE SECTOR, NON-PROFITS, AND COMMUNITY ORGANIZATIONS

- 3. A disaster assistance mechanism with procedures to enable the collection of funds from non-government sources, including private donations and that can provide vetted, appropriate distribution to businesses that suffer either direct or indirect harm from incidents or disasters.**

Federal government assistance will only be available to public organizations on a cost-shared basis with state and local agencies. A source of concern for private sector stakeholders is that FEMA assistance is for public organizations. FEMA has stated that in special cases private sector entities, such as a utility, could be considered, but under what circumstances is not clear.

4. Ways in which government assistance programs for the private sector could be expanded.

Assistance for private sector organizations for pre-event mitigation and post-disaster recovery is largely unavailable with the exception of Small Business Administration funding. Businesses can individually apply for compensation for disaster-related damages from private sector organizations under certain circumstances (e.g., liability).

5. Access to “best practices” that states, localities, private sector and non-profit organizations have developed that can be used for community bio-event resilience.

RECOMMENDED ACTIONS

SHORT-TERM

- Create or utilize an existing work group to explore ways in which government assistance programs for the private sector can be expanded.
- Develop and conduct a targeted workshop that includes relevant federal officials and local government agency and political officials to discuss ways to secure resources for pre-event mitigation activities for high-probability, high-consequence threats.

MEDIUM-TERM

- Develop a brochure (hardcopy and electronic) outlining disaster assistance available from various federal sources with criteria and guidelines for applying.
- Development by the federal government of a national survey and on-line compendium of government, private sector and other “best practices”—procedures plans, approaches, tools, systems, and technologies—specifically for community bio-event resilience and provide states, localities and stakeholders access to these resources to customize them for use across the nation. *(This compendium could be incorporated into the Lessons Learned Information Sharing (LLIS.gov), which serves as the national, online network of lessons learned and best practices for the emergency management and homeland security communities.)*

LONG-TERM

- Develop options for a regional disaster assistance non-profit mechanism with procedures to enable the collection of funds from non-government sources, including private donations and that can provide vetted, appropriate distribution to businesses that suffer either direct or indirect harm from incidents or disasters. *(There are models that could be used for this purpose.)*

7. USING THE ACTION PLAN TO ADVANCE COMMUNITY BIO-EVENT RESILIENCE

The *Action Plan* is an initial effort to identify activities that can be incorporated by Puget Sound Region stakeholders to improve community bio-event resilience. Together with the Gap Analysis, the Action Plan also provides a checklist and avenue for systematically inventorying available assets, plans, procedures, policies, expertise, tools, and technologies to assist in this effort. As noted at the beginning of this document, the Puget Sound Region and Washington State have a wealth of capabilities to draw upon, and there are ongoing and future activities that will increase these capabilities. Looking at a region and gaining an understanding of what capabilities are available, how to access information on them, and what they offer provides a baseline assessment of the level of preparedness.

Action Plan Implementation

The Action Plan provides the range of needs and activities based on an initial assessment. As noted previously, it is meant to be a dynamic strategy that will change and grow as new information and lessons learned are incorporated. The next steps are to:

- Prioritize the activities in the *Action Plan* to develop a “doable number” of short, medium, and longer-term actions that stakeholders wish to undertake and for which funding and/or expertise are available. This prioritization can be accomplished by local jurisdictions with the key regional stakeholders through the CCBER Work Group.
- Determine which agencies and organizations will be the lead for each of the activities.
- Create or utilize existing work groups, committees, or mechanisms to develop detailed requirements for the respective activities, including a work plan and schedule for project completion.

8. MEASURING PROGRESS MADE

The policy framework for what constitutes disaster resilience has yet to be developed. There is no guidance on how to determine what constitutes a desirable level of resilience and what this requires from organizations, infrastructures, and communities. At the federal level, the Departments of Homeland Security and Health and Human Services, and other agencies, are involved in defining the national strategy and implementation plans for resilience. At the same time at the grassroots level, communities are just beginning to take a regional approach to dealing with major incidents and disasters. It is important to recognize that all hazards health and safety resilience is only one element of overall community and regional resilience and can not be assessed in isolation from other community resilience indicators, such as economic vitality, environmental quality, public security, etc.

Developing a common, agreed understanding of what is desired for community bio-event resilience will be an ongoing process. Community stakeholders will determine for themselves as they move forward how much investment should be made in making the necessary improvements. Regional stakeholders can gauge progress made towards community bio-event

resilience by completion of the *Action Plan* activities and incorporation of new needs and actions into the Plan.

As noted, there is as yet no criterion for what constitutes a resilient community. Resilience metrics mean different things to different individuals, organizations, and disciplines. An engineer in a power company responsible for assuring systems operation will view resilience differently from a county emergency management director who sees resilience as keeping the lights on and the fuel flowing for his jurisdiction. Additional issues will be identifying what needs to be measured, for what purpose, how to accomplish this, and to do so on a cost-effective basis; also, who will be responsible for collecting and assessing the data and implementing the metrics, and what resources will be required.

9. SUSTAINING THE MOMENTUM — IMPORTANCE OF LEADERSHIP AND BROAD-BASED PARTICIPATION

Developing community bio-event resilience is a complex and challenging goal, made all the more difficult by still-evolving understanding of regional infrastructure interdependencies and limited analytic capabilities at the local level to assess potential threats (including the unexpected catastrophe), associated vulnerabilities and disruption consequences, and determine cost-effective risk mitigation. The fact that so many stakeholder organizations have roles and responsibilities or vested interests in bio-event resilience adds additional complications and makes multi-jurisdiction, cross-sector and discipline cooperation and coordination essential.

What is most important is continuing and expanding the practice of stakeholder partnership in the Puget Sound Region on infrastructure security and disaster resilience priorities. Through collaboration, multiple organizations can participate in implementing *Action Plan* activities and determine ways to pool resources from various sources to achieve progress.

The greatest challenge will be maintaining the momentum needed to move forward with the *Action Plan* towards community bio-event resilience. Local governments and other organizations will need to take leadership roles for the *Action Plan* activities and take a proactive approach to retain and expand stakeholder interest and involvement. This will require ongoing effort. Most Puget Sound Region key stakeholders are already involved in many volunteer initiatives and activities in addition to their “day jobs”. This means that progress on implementing *Action Plan* activities will depend on the willingness of people to provide the necessary leadership, enthusiasm, and expertise to move forward.

APPENDIX A

FOCUS AREAS AND PRIORITY ISSUES

1. Baseline Regional Health and Hospital Resources

- Hospital capacity issues
- Staff availability
- Availability of pharmaceuticals, medical and other materials
- Availability of essential services, power, and fuel (including for backup generators, ambulances, etc.)
- Critical vendor availability (elevator and equipment maintenance, technical assistance, food service, janitorial services, EMS, power generators—availability and technicians)
- Hospital-related public safety and security issues
- Access to personal protective equipment
- Alternative care facilities
- Other issues

2. Public Health/Healthcare Policy Issues that Affect Bio-Event Resilience

- Level of key stakeholder understanding of pandemic and other bio-event-related health impacts and preparedness needs (e.g., radiological/nuclear, earthquakes, other major all-hazards disasters)
- Effectiveness of preparedness plans
- Prioritized distribution of vaccinations/anti-virals, other medical/hygiene supplies, and related issues
- Determination of essential personnel for anti-virals
- Surge capability for hospitals in a pandemic or other bio-events
- Lab analysis capabilities
- Continued operation of pharmaceutical companies/retailers, grocery stores
- Pay for vaccines versus free distribution issues
- Disaster sheltering during a pandemic or other bio-event
- School closure/daycare issues
- Business closures
- Event cancellations (e.g., sports events, other)
- Social Distancing

- Travel restrictions (local, domestic, international)
- Quarantines (particularly related to air and sea travel)
- Insurance Issues
- National border-crossing issues
- Credentialing/certification for access to restricted areas
- Disinfection/decontamination and related issues
- Mass fatalities planning/mortuary-related issues
- Livestock issues
- Other issues

3. Information Sharing, Communications, Critical IT Systems, Health Data Issues

- Alert and warning/notifications
- Messaging to schools and other institutions with significant populations
- Data collection capabilities (availability, including international information; collection, coordination, dissemination)
- Information sharing issues (too much/rapidly changing/conflicting information, prioritization, integration of data, standardized approach/use of GIS)
- Healthcare data-related issues
- IT Systems reliability, resilience, and security
- Telecommuting, including “last mile issue” and teleconferencing issues
- HIPPA restrictions on individual health information
- Availability of IT technical expertise (personnel shortages)
- Other issues

4. Critical Infrastructure and Associated Interdependency Impacts; Risk Assessment, and Mitigation

- Identification and prioritization of critical assets, interdependencies-related vulnerabilities, and preparedness gaps
- Ensuring confidentiality of proprietary and sensitive information infrastructure-related data
- Assessment of potential and cascading impacts on infrastructures and essential services, including impediments to response and recovery
- Transportation
- Emergency Services
- Energy, etc.
- Identification of potential mitigation measures

- Other Issues

5. Business Continuity, Continuity of Operations, and Supply Chain Management

- Identification of essential operations and business activities
- Assessment of potential disruptions to operational and business services, including logistics, suppliers, customers, availability of truck drivers, warehouses, etc.)
- Business liaisons in the ECC
- Identification of potential mitigation measures (e.g., relocation of services, redundant or back-up systems, and personnel)
- Administrative, budget issues
- Workforce policy issues (compensation, absences, isolation, and removal of potentially contagious employees, safe workplace rules, flexible payroll issues, etc.)
- Economic consequences
- Assistance to small businesses for contingency planning/continuity of operations
- Involvement of broad range of businesses in bio-event preparedness activities
- Notification and provision of employee information
- Training of employees
- Testing of continuity plans and procedures
- Other Issues

6. Bio-Event Response Issues

- Incident Management/Unified Command/Area Command
- Roles and missions (Federal, State, Local, Private Sector, and Community)
- Decision-making (cross-jurisdiction, cross-sector, cross-discipline)
- Cooperation, coordination, including cross-state and cross-national border, on plans, activities
- Security for vaccine distribution in transit and for dispensing organizations on site
- Security for grocery stores and pharmacies
- Cross-sector/cross-discipline information-sharing (effectiveness of mechanisms)
- Mutual aid agreements (cross-state and cross-border)
- Availability of emergency managers and first responders
- Resource requirements and management
- Logistics and supplies availability
- Other Issues

7. Initial Recovery and Long-Term Restoration Issues

- Restoration management structure—what organizations and how organized, and Unified Command
- Roles and missions (Federal, State, Local, Private Sector, and Community)
- Decision-making (cross-jurisdiction, cross-sector, cross-discipline)
- Cooperation, coordination
- Prioritization of service restoration
- Resource requirements and management
- Other issues

8. Human Factors, Community, and Family Issues

- Understanding and dealing with psychological impacts
- Identifying and addressing family assistance needs
- Education and academic institutions (daycare centers, schools, colleges and universities, libraries, community centers)
- Special needs populations and ethnic and cultural groups
- Other issues

9. Legal and Liability Issues

- For government agencies
- For businesses (employee, insurance, contractual issues, information from/coordination with regulators)
- Privacy issues
- Ethical issues
- Union-related issues
- Liability associated with vaccine distribution and administering
- Other issues

10. Public Information, including Media

- What information to convey, how (regional coordination process and mechanisms), and who is the spokesperson?
- Maintenance of public confidence
- Outreach to and information to area businesses
- Outreach to and information for cultural and religious groups
- Utilization of social networks
- Involvement of media as partner in preparedness

- Other

11. Training, Exercises, and Education

- Target audiences
- Tools (course curriculum, webinars, workshops, train the trainers, etc.)
- Resources needed and availability
- NIMS/ICS training for private sector organizations
- Focus on training from “business” perspective, not government
- Inclusion of private sector organizations in full-scale exercises

12. Financial Issues (funding/reimbursement)

- Federal, State, and Local Governments
- Private Sector
- Non-Profit and Community Organizations
- For implementation of prevention, mitigation, and other health and safety resilience requirements
- Loans and incentives to small and medium businesses for bio-event preparedness
- Other Issues

APPENDIX B

Action Plan Recommended Activities

(The following template includes columns for prioritizing activities and for designating activity lead organizations and collaborating “partner” organizations)

Priority	Focus Area	Recommendation	Leads	Partners
	Regional Healthcare and Hospital Resources	<p>SHORT -TERM</p> <ol style="list-style-type: none"> 1. Develop or leverage an existing template for hospitals and other medical facilities to inventory pre-event/monitor post-event essential assets and resources that are necessary for surge capacity under specific scenarios 2. Develop and conduct a workshop bringing together local public health officials and regional healthcare facility managers to discuss barriers to sharing staff in regional emergencies during response and also recovery, and what strategies, including pre-event agreements could be put in place to facilitate this 3. Assess H1N1 vaccine distribution challenges and public information impacts and develop/improve procedures to assure effective and coordinated distribution and administering of vaccines across local jurisdictions 4. Customize and utilize a DHS-sponsored Automated Interdependencies Identification Tool to include in continuity plans to identify healthcare-related dependencies and interdependencies 5. Develop an assessment that inventories existing memorandums of understanding (MOUs) and agreements and includes recommendations to expand them and identifies other areas for new agreements to enhance bio-event resilience <p>MEDIUM-TERM</p> <ol style="list-style-type: none"> 6. Create a regional volunteer program with dedicated program management to develop and maintain a data base of volunteers categorized by expertise, focus and projected assigned responsibilities during an event or disaster. Provide necessary levels of training and certification for providing certain types of emergency services 7. Undertake a study that assesses estimated numbers and types of trauma cases in different scenarios, triage strategies, projected necessary healthcare capabilities, gaps and potential solutions 8. Creation of a work group of local public health, healthcare organization representatives and key stakeholders involved in the supply of essential 		

Priority	Focus Area	Recommendation	Leads	Partners
		<p>healthcare resources to develop a decision-making process to prioritize allocations of critical equipment and resources to healthcare facilities during a regional incident or disaster</p> <p>9. Survey hospitals and other large medical facilities on their security needs under various scenarios and build on existing arrangements with local law enforcement and security firms to assess available resources to determine requirements and alternative means to assure adequate security personnel</p> <p>10. Leverage past state and local activities on certification procedures for first responders and other essential personnel and determine procedures to cover health-related personnel</p> <p>LONG-TERM</p> <p>11. Develop a risk assessment system that assesses hospital and healthcare facility vulnerabilities and associated interdependencies and consequences against different disaster scenarios</p> <p>12. Examine policies to ensure that hospitals in collaboration with other healthcare providers and supply chain organizations develop and exercise business continuity plans</p> <p>13. Address alternative medical standard of care strategies and potential decision-making procedures</p>		
	Public Health and Healthcare Policy Issues	<p>SHORT -TERM</p> <p>14. Develop a regional continuity plan through harmonizing current county and local jurisdiction public health and emergency management response and recovery plans, as well as through development of a synchronization matrix based on these plans.</p> <p>15. Develop a multi-year program of targeted exercises and workshops involving public health, emergency management and other agencies and key stakeholders to evaluate plans and specific procedures across jurisdictions and agencies.</p> <p>16. Create a work group of County and other local jurisdiction representatives to develop a single coordinated all-hazards disaster website for emergency preparedness/management and public health with links to sites of participating localities.</p> <p>MEDIUM-TERM</p> <p>17. Assess and develop improved procedures to handle disaster-associated mortuary challenges.</p> <p>18. Undertake a study of existing plans, procedures, and organizations at the local, state, and federal level involved in livestock-related bio-event issues and develop a regional, coordinated strategy.</p>		

Priority	Focus Area	Recommendation	Leads	Partners
		LONG-TERM 19. TBD		
	Information Sharing, Communications, Critical IT Systems, and Health Data Issues	SHORT -TERM 20. Utilize an existing work group of appropriate local government and key stakeholders to discuss and determine realistic triggers for emergency alerts and activities for different scenarios MEDIUM-TERM 21. Produce a survey of regional alert capabilities that assesses the effectiveness of systems and procedures and identifies ways to improve alert information coordination and dissemination 22. Leverage work to date and additional capabilities to develop an operational regional all-hazards two-way information-sharing capability among government agencies and the broader stakeholder community that utilizes the Washington State Fusion Center. As part of this effort, delineate the role of the Fusion Center in information sharing, along with the roles of other key contributors to an information sharing system 23. Create or leverage an existing work group of appropriate local government and key stakeholder representatives to develop a media outreach and engagement strategy focused on bio-event and broader disaster resilience 24. Incorporate communications and critical IT resilience into hospital and healthcare facility continuity plans, including testing of telecommuting capabilities by staff and investigation into telecommuting alternatives LONG-TERM 25. Creation of a program to develop: <ul style="list-style-type: none"> • An electronic health resilience information exchange system to provide better monitoring, information collection, assessment and reporting of a wide range of health-related information necessary during a pandemic or other major bio-event • A situational awareness capability to facilitate incident/disaster response 		
	Critical Infrastructure and Associated Interdependencies, Risk	SHORT -TERM 26. Develop a series of targeted scenario-based workshops to enable regional stakeholders to further drill down on different priority challenges posed by bio-event-related infrastructure interdependencies 27. Hold two bio-event resilience interdependencies		

Priority	Focus Area	Recommendation	Leads	Partners
	Assessment and Mitigation	<p>workshops focusing on priority areas where further understanding of interdependencies is required (e.g., evacuation challenges, hospital dependencies and interdependencies, health communications and IT – related interdependencies, etc.)</p> <p>28. Develop and conduct targeted workshops to discuss response and restoration for challenging bio-event scenarios that will require specialized scientific and technical expertise, for example a chemical, radiological or nuclear incident or bio-attacks involving agents other than anthrax, which has been already address extensively through the IBRD project</p> <p>MEDIUM-TERM</p> <p>29. Leverage existing transportation modeling and interdependencies analysis capabilities to develop an evacuation assessment system to assess disaster scenarios</p> <p>30. For scenarios that would require lengthy recovery, develop a strategy for long-term sheltering needs that identifies potential sites and how to provide basic services to these sites for extended periods</p> <p>LONG-TERM</p> <p>31. Identify and leverage interdependencies assessment tools to evaluate health/safety and related economic impacts from pandemics and other bio-events; identify preparedness gaps and potential cost-effective mitigation options</p>		
	Business Continuity, Continuity of Operations, and Supply Chain Management	<p>SHORT -TERM</p> <p>32. Develop a strategy for expanded outreach and awareness for area businesses on community bio-event resilience that covers the range of issues of particular concern to small and medium-sized enterprises, as well as how to upgrade operational and business continuity plans and where to obtain information for this purpose</p> <p>33. Assess and improve current continuity plan templates for healthcare facilities and businesses, including actions to assure operational needs are met</p> <p>34. Create an on-line “All-Hazards Bio-event Community Resilience Lessons Learned” as an element of a single coordinated all-hazards King County website that provides information for businesses and other interested organizations on bio-event planning, tools, and other best practices that can be used to improve operational and business continuity</p> <p>MEDIUM-TERM</p> <p>35. Develop or utilize an existing template or system</p>		

Priority	Focus Area	Recommendation	Leads	Partners
		<p>that key stakeholder organizations can use to inventory pre-event and monitor post-event essential assets and resources that are necessary for continued operation under different scenarios</p> <p>LONG-TERM</p> <p>36. Develop and implement with business stakeholders a regional economic bio-event resilience risk mitigation strategy of targeted actions to address business continuity challenges and identify ways to make and incentivize improvements</p>		
	Response Issues	<p>SHORT -TERM</p> <p>37. Determine optimal criteria for an effective regional multi-jurisdictional organizational incident command/area management structure that integrates public health with emergency management and other necessary expertise, assess the current incident command structure against these criteria, and identify areas of improvement</p> <p>38. Develop and conduct additional evacuation planning workshop that uses sample scenarios and centers on assessing current evacuation plans for realistic timelines and effective procedure.</p> <p>39. Determine long-term sheltering needs (e.g., location options, housing, provision of essential services, costs, etc.) and incorporate into regional preparedness planning</p> <p>40. Determine procedures for certification/credentialing of medical/healthcare and other essential personnel to enable them to assist in medical response or regain access to their place of work</p> <p>41. Undertake a survey of current mutual assistance agreements with organizations outside the potential disaster impact region, including cross-border with Canadian provinces</p> <p>42. Develop a strategy to incorporate local media in response activities under certain scenarios</p> <p>MEDIUM-TERM</p> <p>43. Develop a region-wide outreach, education, and awareness strategy on response procedures, including on evacuations and sheltering, for “special populations,” including tribal nations and individuals in nursing homes and assisted care facilities and prisons</p> <p>44. Work with regional and national defense assets to identify what capabilities would be available, in what timeframe during response, and how to incorporate these assets into preparedness planning and exercises, as well as in the aftermath of a major event or disaster</p> <p>45. Develop procedures for incorporating volunteers</p>		

Priority	Focus Area	Recommendation	Leads	Partners
		<p>into emergency planning, including exercises and drills</p> <p>46. Develop additional Alternate Care Facilities throughout the region to reduce the surge burden. using the template that was developed by the Healthcare Coalition for this purpose</p> <p>47. Identify, assess, catalogue, and incorporate potentially necessary private sector assets in King County's disaster resource inventory system.</p> <p>LONG-TERM</p> <p>48. TBD</p>		
	Recovery and Long-term Restoration	<p>SHORT -TERM</p> <p>49. Build upon existing local jurisdiction recovery plans to develop an effective regional organizational structure for recovery and long-term restoration after a major bio-event or disaster with a well-defined decision-making process that involves the range of key stakeholder organizations necessary to make informed decisions on priority issues, taking into account health and safety, economic, and political considerations</p> <p>50. Undertake an inventory of the types of post-disaster recovery assistance that can be made available to localities, the private sector and other stakeholders, including federal help (civilian and defense) for recovery through the State from FEMA, as well as other federal agencies, depending on the nature of the emergency</p> <p>MEDIUM-TERM</p> <p>51. Create a process for information sharing about potential resources that might be available from the private sector and non-profits and include procedures that address compensation and liability issues</p> <p>52. Develop, and incorporate into a regional continuity plan procedures for resource acquisition and management that includes expertise needed for inspections and certification of food, agriculture, utilities, and other infrastructures before these facilities could return to operation</p> <p>53. Undertake an assessment of regional psychological and economic factors that can affect post-event business retention and sustainability</p> <p>54. Identify:</p> <ul style="list-style-type: none"> • Incentives to keep small businesses operating after a regional incident or disaster, and to return to the region if they have left; 		

Priority	Focus Area	Recommendation	Leads	Partners
		<ul style="list-style-type: none"> What legal or policy provisions many need to be developed or changed <p>LONG-TERM</p> <p>55. Develop a regional disaster recovery assessment system that takes into account impacts to critical infrastructure interdependencies to more accurately project restoration needs in different scenarios</p>		
	Human Factors, Community, and Family Issues	<p>SHORT -TERM</p> <p>56. Develop procedures for providing bio-event-related information to families and individuals who are unable to access this information or to afford preventative health measures or medical associated with incidents or disasters</p> <p>57. Develop procedures, including a coordination process, for public guidance on vaccine availability and distribution for pandemics</p> <p>58. Develop a comprehensive bio-event resilience approach for special needs populations, identifying improvements where gaps exist, and incorporate into a regional continuity plan</p> <p>MEDIUM-TERM</p> <p>59. Develop a strategy to address ethnic, cultural, and faith-based groups that:</p> <ul style="list-style-type: none"> Identifies these groups and points of contact within them; Builds on current public health and non-profit outreach activities to these groups; Lays out a process of optimal ways to disseminate information based on an awareness of what types of communications and communication channels are most effective for particular groups. Integrates these groups into preparedness activities and exercises <p>LONG-TERM</p> <p>60. TBD</p>		
	Legal and Liability Issues	<p>SHORT -TERM</p> <p>61. Develop and conduct a regional workshop focused on legal/liability issues and policy gaps that impact preparedness and which identifies legislative or other actions that could be taken to lesson these constraints</p> <p>MEDIUM-TERM</p>		

Priority	Focus Area	Recommendation	Leads	Partners
		<p>62. Develop a hardcopy and on-line brochure of examples of legal and liability issues associated with disaster preparedness, response, recovery, or mitigation for private sector and government organizations. The brochure should also identify best practices to deal with work place-related policy and liability issues. (Would ideally be part of the federal Lesson Learned Information Sharing System)</p> <p>LONG-TERM</p> <p>63. Develop policies on alternate standards of care that could be utilized in a severe, high mortality bio-event</p>		
	Public Information, Including Media	<p>SHORT -TERM</p> <p>64. Incorporate procedures into regional planning for involving the local and regional media. Develop contacts with media management representatives to facilitate media participation in appropriate regional and targeted exercises and workshops that focus on major incidents and disasters</p> <p>MEDIUM-TERM</p> <p>65. Develop a comprehensive regional public information strategy for incidents and disasters that covers health and safety and associated preparedness, response and recovery issues addressing different scenarios, which includes target audiences, what information to convey, and how it would be coordinated and disseminated</p> <p>66. Designate and develop a single regional Internet website for regional emergency preparedness/management and related public health information that provides detailed, clear, consistent, coordinated information with links to local jurisdiction and other relevant websites</p> <p>LONG-TERM</p> <p>67. TBD</p>		
	Training, Exercises, and Education	<p>SHORT -TERM</p> <p>68. Incorporate in a regional five-year exercise plan at least one tabletop exercise per year that includes the broad key stakeholder community</p> <p>69. Develop and conduct an educational seminar for local media that includes local government officials to address priority all-hazards disaster scenarios and public communication challenges, including how</p>		

Priority	Focus Area	Recommendation	Leads	Partners
		<p>the media and local government can effectively cooperate to convey information to the public</p> <p>MEDIUM-TERM</p> <p>70. Develop a strategy as part of a broader regional resilience continuity plan for bio-event resilience training and education for businesses, community institutions and the general public</p> <p>LONG-TERM</p> <p>71. TBD</p>		
	Financial Issues	<p>SHORT -TERM</p> <p>72. Create or utilize an existing work group to explore ways in which government assistance programs for the private sector can be expanded.</p> <p>73. Develop and conduct a targeted workshop that includes relevant federal officials and local government agency and political officials to discuss ways to secure resources for pre-event mitigation activities for high-probability, high-consequence threats.</p> <p>MEDIUM-TERM</p> <p>74. Develop a brochure (hardcopy and electronic) outlining disaster assistance available from various federal sources with criteria and guidelines for applying</p> <p>75. Development by the federal government of a national survey and on-line compendium of government, private sector and other “best practices”—procedures plans, approaches, tools, systems, and technologies—specifically for community bio-event resilience and provide states, localities and stakeholders access to these resources to customize them for use across the nation</p> <p>LONG-TERM</p> <p>76. Develop options for a regional disaster assistance non-profit mechanism with procedures to enable the collection of funds from non-government sources, including private donations and that can provide vetted, appropriate distribution to businesses that suffer either direct or indirect harm from incidents or disasters</p>		

APPENDIX C

PILOT PROJECT FACT SHEET

Comprehensive Community Bio-Event Resilience Pilot Project

The Pacific NorthWest Economic Region's Center for Regional Disaster Resilience and regional stakeholders are working with the Office of Health Affairs, U.S. Department of Homeland Security, to develop a Comprehensive Community Bio-Event Resilience Plan. The Pilot Project will assist in the development of national bio-defense architecture and provide a model for communities and regions to integrate the private sector, non-profits, and public institutions into preparedness planning for pandemics, bio-attacks, and other major health hazards.

Background

The anthrax attacks of October 2001, followed by the 2003 SARS epidemic and the H1N1 pandemic highlight the critical need for a Comprehensive Community Bio-Event Resilience Action Plan—a roadmap that can provide a holistic approach to cover all aspects of preparedness, medical and other response, recovery, and longer-term restoration needs.

A significant bio-event would challenge healthcare organizations with dramatic increases in patient load and reductions in available health and medical capacity while at the same time disrupting critical infrastructures and essential service providers on which healthcare organizations depend. In addition, public health agencies must rapidly educate and inform the general population regarding health threats and appropriate protective measures, while maintaining a comprehensive surveillance system and directing medical countermeasure response. As communities recover from disasters, they will experience further impacts if the continuity of critical services and systems, both public and private, is jeopardized due to key staff being absent.

Recognizing that private industry, businesses, and other non-government organizations constitute integral and essential components of every region, such a Comprehensive Community Bio-Event Resilience Action Plan needs to be developed by the healthcare sector and other organizations with roles in emergency management in partnership with the private sector and other key regional stakeholders.

Pilot Project Objectives

1. Bring together to focus on community bio-event resilience public health and other experts with key state and local agencies, infrastructures, industry, business, academic, and community organizations and interest groups (e.g., churches, ethnic associations, environmental groups) and commercial businesses (grocery stores, malls, other retail businesses) essential for sustaining the regional economy and way-of-life for citizens.

2. Enable government agencies at all levels with regional stakeholders to:
 - Gain greater knowledge of all hazards bio-event impacts and associated infrastructure linkages and longer-term consequences, including human factors, and discuss expectations, challenges, and limitations;
 - Identify needs associated with interrelated public health/healthcare, critical infrastructure, and economic interdependencies, existing work and capabilities, preparedness gaps, and cost-effective solution options for incorporation into the Action Plan;
 - Coordinate existing government and private sector plans across jurisdictional boundaries, U.S.-Canadian border, and all sectors;
 - Examine and delineate changing roles and responsibilities from pre-event through post-event activities;
 - Build an organized approach to integrating the private sector into regional health/medical recovery plans;
 - Identify common goals, gaps, and barriers between private sector organizations and public health, healthcare partners, and local emergency management on improving information sharing and communications during health and medical emergencies;
 - Identify opportunities to incorporate private industry and government into:
 - Emergency response and recovery plans and activities;
 - Joint training and exercises to test recovery capabilities and coordination.
 - Leverage current capabilities to build a better notification process for cross-sector stakeholders on bio-event issues and a resource management system that includes the private sector.
3. Develop a holistic roadmap for community bio-event resilience that will encompass all aspects of preparedness and disaster management, including prevention, protection, response, recovery/longer term restoration, and risk-based mitigation to address communications, business and operational continuity, logistics, supply chains, and resource issues, public education/training, and exercises.
4. Provide a process to revise, augment, and validate the initial Comprehensive Community Bio-Event Resilience Action Plan through the development and conduct of a targeted tabletop exercise with a scenario developed by the key stakeholders themselves.
5. Develop a detailed timetable and milestones for Action Plan implementation that includes projected funding requirements and potential sources of technical and other assistance.

Pilot Project Benefits

- Complement, support, and enhance state and local pandemic and bio-terrorism planning and provide guide for planning and implementation activities of local private sector, non-profit, and community organizations;
- Leverage significant private sector capabilities on response and recovery, particularly large employers and those with numerous outlets across a community that can play a critical role in communication. Many large private sector organizations are ideally positioned to assist with implementation of resource management plans. In addition, recovery must include restoring all critical infrastructure and community functions. Direct involvement by private sector organizations and other key stakeholders in health and medical planning will directly enhance their ability to remain functional during disasters;
- Meet the stated objectives of the U.S-Canadian Pacific NorthWest Border Health Alliance to strengthen the level and effectiveness of cross-border collaboration and coordination to address potential public health threats;
- Incorporate lessons learned from the *Blue Cascades IV* regional exercise (January, 2007) that focused on pandemic preparedness and critical infrastructure-related issues, including regional interdependencies, vulnerabilities, consequences, and associated readiness gaps. The Pilot Project will also serve to meet several of the recommended activities for addressing preparedness shortfalls outlined in the stakeholder-validated and prioritized *Blue Cascades Exercise Series Regional Action Plan*;
- Build upon work done by federal agencies, the National Governors Association, and other national and regional organizations on pandemic and bio-terrorism preparedness;
- Utilize and contribute to activities and outcomes from the Interagency Biological Restoration Demonstration (IBRD), sponsored by DHS/S&T and the U.S. Department of Defense, Defense Threat Reduction Agency, which focuses on longer-term remediation capabilities and needs involving a regional anthrax attack scenario;
- Provide a major tool to assist the Nation to protect and improve the resilience of communities at the grass-roots level and a broader regional level to lessen the impacts and to effectively rebound from a significant non-deliberate or deliberate bio-event with limited consequences to public health and safety and the economy; and
- Demonstrate how federal agencies, states, localities, the private sector and other key stakeholders can partner to develop a holistic plan to enhance community bio-event resiliency.

Project Scope, Organization, and Activities

The Pilot Project will focus on the broad Puget Sound Region, extending cross-border into Canada to British Columbia and to other states and provinces where public health/healthcare and

other critical infrastructures interdependencies and/or mutual assistance and cross-jurisdiction considerations are factors.

The Pilot Project focuses on eight specific activities beginning in June 2009 and ending September 2010 that will provide information and develop requirements for the Comprehensive Community Bio-Event Resilience Action Plan. Work will be conducted through a series of stakeholder and experts meetings, conference calls, interviews/surveys, and development and conduct of an educational/training workshop and a targeted tabletop exercise to produce the Comprehensive Community Bio-Event Resilience Action Plan. These activities entail:

Activity 1. Identifying and convening core experts, public health and other government agencies and public-private, non-profit stakeholders to be part of the Pilot Project Work Group that will, through conference calls, meetings, and a survey, identify, share, collect, and coordinate information on existing capabilities.

Activity 2. Development and execution of an educational/training workshop for Puget Sound Region stakeholders to explore significant issues and provide guidance and insights from experts for incorporation into the Action Plan. The workshop will also identify goals shared between private industry and healthcare partners on disaster recovery; examine current plans, roles and responsibilities, desired recovery outcomes, and expectations, interests, and barriers affecting private sector and other organizations. Lessons learned from the Workshop will be summarized in a report, coordinated with stakeholders and incorporated into the draft Action Plan framework.

Activity 3. Conduct of a gap analysis assessing health and medical recovery needs vs. current healthcare system capabilities. The gap analysis will identify resource, staffing, and logistical support shortfalls in current recovery plans; match capabilities and interests of private industries to identified gaps; identify options for enhancing information exchange and emergency notification of the business community during disasters; and identify solutions options that address barriers to private industry participation.

Activity 4. Development of initial draft roadmap from results of Project activities

Activity 5. Development and conduct of a tabletop exercise with a scenario designed by Work Group members to illuminate gaps or areas for enhancement in the draft Action Plan.

Activity 6. Holding a post-exercise Action Plan Development Workshop to examine and incorporate into the Action Plan the findings and recommendations in the exercise report, information from other relevant activities (e.g., IBRD), and an implementation strategy that includes milestones, funding requirements, and sources of technical and other assistance.

Activity 7. Coordination with stakeholders/finalization of Comprehensive Community Bio-Event Resilience Action Plan.

Activity 8. Planning and conduct of a U.S.-Canadian workshop to advance the development of bio-event/pandemic resilient communities through bi-national collaboration and to lay the groundwork for a longer-term initiative to develop and eventually implement a cross-border holistic prevention and risk mitigation strategy to improve preparedness for all-hazards bio-events that covers the local to international levels.

Project Schedule

Month	Activity 1	Activity 2	Activity 3	Activity 4	Activity 5	Activity 6	Activity 7	Activity 8
July	Convene Workgroup; Kick-off Meeting	Educational workshop development begins	Begin Gap Analysis	Identification of initial topics/outline for Action Plan				
August	Continue activities	Continue to develop workshop	Continue Gap Analysis	Begin draft Action Plan Framework				
Sept.	Continue activities	Continue to develop workshop	Continue Gap Analysis	Continue to build Action Plan Framework				
Oct.	Continue Work Group activities	Hold Workshop	Continue Gap Analysis	Continue to incorporate data into Framework				
Nov.	Continue Work Group activities	Produce Workshop Summary	Continue Gap Analysis	Continue to incorporate data into Framework	Begin development of tabletop exercise			
Dec.	Continue Work Group activities	Incorporate Summary results into Framework	Continue Gap Analysis	Continue to incorporate data into Framework	Continue to develop exercise			US-Can. workshop development begins
Jan.	Continue activities		Produce initial draft	Continue to incorporate data	Continue to develop exercise			Continue to develop workshop
Feb.	Continue activities		Augment draft Gap Analysis	Continue to incorporate data	Continue to develop exercise	Devel. post exercise Workshop		Continue to develop workshop
March	Continue activities			Continue to incorporate data	Conduct exercise	Develop Workshop		Continue to develop workshop
April	Continue activities		Incorporate exercise results	Continue to incorporate data	Produce/coordinate report			Continue to develop workshop
May	Continue activities		Incl. results of US-Can. Workshop	Produce initial draft roadmap	Finalize Exercise Report	Post-exercise Workshop	Undertake Initial draft	Hold US-Canadian Workshop
June	Continue activities					Produce workshop Summary	Incorporate additional data	Produce Workshop Summary
July	Continue activities		Continue incorporating					

			additional data					
Aug	Wrap-up activities		Finalize and incorporate into Project Report				Produce draft for review	
Sept	Project end						Finalize Action Plan/Project end	

APPENDIX D

COMPREHENSIVE COMMUNITY BIO-EVENT RESILIENCE (CCBER)

GAP ANALYSIS

PUGET SOUND REGION CAPABILITIES AND NEEDS TO WITHSTAND INCIDENTS AND DISASTERS THAT SIGNIFICANTLY IMPACT COMMUNITY HEALTH AND SAFETY

1. OVERVIEW OF THE CCBER GAP ANALYSIS

This document is an initial compilation of local, state, private sector and other capabilities and needs associated with preparedness, response, and recovery from major health and safety related incidents and disasters, both natural and manmade. The Gap Analysis was developed over a period of several months by Pacific NorthWest Economic Region's Center for Regional Disaster Resilience with Puget Sound stakeholder organizations as a tool to identify needed activities to improve community resilience that could comprise an *Action Plan* for Puget Sound stakeholders.

2. GAP ANALYSIS FORMAT

The Gap Analysis is written in simple language and avoids acronyms and specialized terminology as much as possible to make it readily usable to the wide range of stakeholders. (A *Glossary of Public Health and Emergency Management Terms and Acronyms* is included at Appendix E.) The information is organized in a dozen broad focus areas, each with detailed issues that were developed by a CCBER Work Group at the beginning of the project to provide the framework for the future *Action Plan*. The Work Group, comprised of more than two dozen key state, local government, and regional stakeholder organizations, has guided the course of the project, developing the events and tools used to collect the information for the Gap Analysis and *CCBER Action Plan*.

The 12 focus areas that follow were designed to make the *CCBER Action Plan* as comprehensive as possible and to facilitate identification of areas where more work or improvements are needed. For each focus area, community bio-event resilience *capabilities* and *findings and needs* are identified. Sources for the information in each of the focus areas are listed at the end of each focus area section.

CCBER Pilot Project Focus Areas

1. Regional Health and Hospital Resources
2. Public Health and Healthcare Plans, Resource and Policy Issues
3. Communications, Critical IT Systems, Information Sharing, Health Data Issues

4. Critical Infrastructure and Associated Interdependencies; Risk Assessment, and Mitigation
5. Business Continuity, Continuity of Operations, and Supply Chain Management
6. Response Challenges
7. Recovery and Long-Term Restoration Needs
8. Human Factors/Community and Family Issues
9. Legal and Liability Issues
10. Public Information, including Media
11. Training, Exercises and Education
12. Financial Challenges (funding/reimbursement)

(For the detailed issues under each of the 12 focus areas, see *CCBER Focus Areas and Priority Issues* at Appendix A.)

3. GAP ANALYSIS RESEARCH PROCESS

The Puget Sound Region in many respects is at the forefront in the Nation in development of disaster preparedness and management capabilities. A culture of collaboration has been cultivated over the years among government and private sector stakeholders and has resulted in many innovative accomplishments —policies, plans, procedures, expertise, tools, and technologies that can be utilized to prevent or mitigate the effects of events that can significantly impact the public health and safety of individuals and the communities in which they live and work. The Puget Sound Region also has a variety of cross-sector and multi-jurisdiction groups and collaborations, including a regional public-private partnership (the Puget Sound Partnership for Regional Infrastructure Security and Resilience) facilitated by the Pacific NorthWestEconomic Region (PNWER) that involves a diverse range of preparedness and resilience-related projects and activities. In addition, Washington State agencies have many ongoing activities and accomplishments that directly contribute to bio-event resilience.

All Source Focus

Given the wealth and depth of relevant regional bio-event resilience capabilities, identifying and incorporating information on them into this Gap Analysis has been an ongoing activity over much of the year-long CCBER project and has required a multi-faceted approach. The data collection process utilized has included focus groups and individual interviews with a broad range of key stakeholder representatives; a regional survey, four workshops and a tabletop exercise, and research by PNWER's CCBER support team to collect a wide range of data from public, local, state and federal government; private sector and other sources. A repository for this information is in the form of a "Comprehensive Community Bio-Event Resilience Resources Library" is posted on PNWER's Center for Regional Disaster Resilience website.

The websites for King County and other local jurisdictions and Washington State Department of Health provided much useful information on current public health and emergency management plans, procedures, and initiatives. (Numerous plans exist at all levels of government that address health issues and provide public health guidance. The *Gap Analysis* Focus Area 2—*Public Health and Healthcare Plans, Resource and Policy Issues* has details on some of the more significant of these plans.)

In addition, several H1N1 conferences produced valuable information. In September 2009, the Washington State Department of Health hosted a “Pandemic Influenza Summit” and the “Keeping the World Working during the H1N1 Pandemic: Protecting Employee Health, Critical Operations, and Customer Relations” conference sponsored by the Center for Infectious Disease Research and Policy. In May 2010, the Department of Health hosted the 7th Annual Pacific Northwest Cross-Border Workshop with the public health agencies of Alaska, Idaho, and Oregon, and the Canadian Ministries of Health of the provinces of Alberta, British Columbia, Saskatchewan, and Yukon to address collaboration and cooperation on health-related challenges.

Other useful sources of information included documents and events associated with the Interagency Bio-Restoration Demonstration (IBRD) project, a multi-year effort examining the restoration of the region after an anthrax release as well as websites of the World Health Organization (WHO), the Centers for Disease Control (CDC), the Center for Infectious Disease Research and Policy, the Department of Homeland Security Office of Health Affairs, and the Department of Health and Human Services *flu.gov*. Also reviewed, with principals interviewed, was the DHS-funded Puget Sound Regional Catastrophic Preparedness Grant Program, which was created in 2008 to enhance regional catastrophic preparedness and involves eight counties in the Puget Sound Area.

Of particular utility was the *Public Health-Seattle and King County – 2009 H1N1 Influenza Fall Outbreak Response After Action Report* released in June 2010. This is a comprehensive assessment of lessons learned and recommended actions to address a broad range of identified improvements for public health and other stakeholder attention and follow-up. The H1N1 pandemic enabled state and local public health officials and healthcare providers to test existing plans and procedures to meet a variety of challenges and determine ways to improve regional readiness. Regional H1N1 response activities were focused on disease surveillance, vaccine distribution, surge capacity, patient care, and information-sharing with the business community, public information, and addressing the needs of ethnic and cultural groups, and vulnerable populations.

4. HEALTH AND SAFETY RESILIENCE LESSONS LEARNED FROM PNWER EVENTS

A rich source of information was views and recommendations from regional stakeholders participating in PNWER exercises and other events and activities held since late 2001. These events include the *Blue Cascades* Exercise Series, which has helped provide the knowledge base and acted as a catalyst for much of the Seattle area’s regional preparedness activities and provided a model for other regions of the nation. These exercises have focused on a range of all-hazard events: physical attacks on energy and other critical assets (*Blue Cascades I*, conducted in 2002); cyber attacks and disruptions (*Blue Cascades II*– 2004); a major subduction zone

earthquake (*Blue Cascades III* – 2006); pandemic preparedness (*Blue Cascades IV* – 2007); essential disaster supply chain and logistics (*Blue Cascades V* – 2008); and health and safety impacts related to a major flood in an ongoing pandemic (*Blue Cascades VI* – 2010).

In addition to the *Blue Cascades* exercises, PNWER has assisted stakeholders in other regional exercises on regional transportation challenges in the SR 520 Bridge Catastrophic Failure Exercise (a wind-storm-related major bridge collapse – 2007) and Emerald Down (focusing on Seattle area cyber security issues – 2010), as well as several dozen workshops, seminars, and other events. Topics covered have ranged from regional interdependencies vulnerabilities and consequences (King County-sponsored annual Interdependencies Workshops), energy assurance, SCADA security, cross-sector information sharing, maritime transportation security, dam flood-related regional risk mitigation, transportation disruption response and recovery issues, comprehensive health and safety community resilience, and bio-attacks. One of the most recent workshops held on November 12, 2009 focused specifically on potential impacts from a major flood in the Green River Valley and ways to mitigate consequences for public health and safety and the region's economy.

Also useful for the Gap Analysis was the *Integrated Action Plan* from the individual Action Plans from five of the six *Blue Cascades* exercises. This *Blue Cascades Integrated Action Plan*, comprised of short, medium, and longer term activities to address specific areas of improvement, also functions as a document of record on progress made on regional disaster resilience. To date, roughly a third of the projects and activities in the *Integrated Action Plan* have been completed or are underway under the leadership of various WA State and local agencies or PNWER.

5. GAP ANALYSIS COORDINATION

The final step in the Gap Analysis data collection, integration, and analysis process was the coordination and incorporation of additional input into the document by the CCBER Work Group. The Gap Analysis, with the *Comprehensive Community Bio-Event Resilience Action Plan*, was circulated for comment before finalization among both the CCBER Work Group and Puget Sound stakeholders who have attended the CCBER Project workshops and tabletop exercise, as well as other interested organizations.

6. COMMUNITY BIO-EVENT RESILIENCE CAPABILITIES AND FINDINGS/NEEDS

The following inventory is intended to provide a foundation to assess the current state of Puget Sound Region preparedness to meet public health and safety challenges from major all-hazards incidents and disasters and identify useful prevention and mitigation activities. It by no means describes all the capabilities and needs in the 12 focus areas previously noted that contribute to community bio-event resilience. As a “snapshot in time,” the Gap Analysis should be updated periodically to document progress made towards community bio-event resilience.

6.1. REGIONAL HEALTHCARE AND HOSPITAL RESOURCES

In order to be bio-event resilient, a community—and the region in which it is located—must have adequate healthcare resources under normal conditions with a surge capacity to deal with events and emergencies that impact public health and safety. This first focus area covers healthcare resource-related issues, including availability of hospitals and medical facilities, staff and essential services, critical vendors and technical assistance, and public safety and security issues. Also addressed are mutual aid agreements among healthcare providers within the region and across state and national borders.

6.1.1. HEALTHCARE RESOURCES

CAPABILITIES

- The Puget Sound Region has an extensive and well-regarded healthcare system with excellent hospitals. There currently are 52 hospitals in the Puget Sound Region with 69 medical centers and five military medical facilities.
 - King County has the largest number of hospitals with 24, including Harborview Medical Center, that have beds, capacity, and medical facilities on-site.
 - Tacoma/Pierce County has 11, Snohomish County has six, Kitsap County has five, and Thurston and Skagit County have three.
 - Harborview Medical Center is the only Level 1 Trauma center in the Puget Sound Region and also is the only Level 1 Trauma Center serving the rest of the State of Washington, Alaska, Montana, and Idaho. The clinical arm of Harborview — known as the Northwest Regional Trauma Center — cares for emergency surgical and trauma patients and is closely linked to the Harborview Injury Prevention and Research Center. By cooperative agreement with Children's Hospital, Harborview is also the region's only Level 1 Pediatric Trauma Center. Harborview also provides complete surgical care to underserved populations of Seattle and King County.
- Hospitals in the region provide more than 6,300 beds with about two-thirds in King County; about 1,400 beds are in Northern Pierce County, and 500 beds in southern Snohomish County.
- In Washington State practicing registered nurses and licensed practical nurses provide hospital inpatient services, while advanced registered nurse practitioners mainly staff Ambulatory Care/Outpatient Clinics. The age range for the majority of nurses in Washington State, including Registered Nurses, Licensed Practical Nurses, and Advanced Registered Nurse Practitioners in 2008 was 47-50 years old. Only about 200-4,000 nurses in Washington State are between the ages of 25-39, while over 10,000 are in their fifties or older.
- The Seattle area has the highest concentration of physicians in the region with 9,480; Tacoma/Pierce County comes in second with 2,208; and Snohomish County third with 1,212 physicians. The counties with the least number of physicians are Kitsap County with 703, and Skagit and Thurston counties with 348 physicians.

- There is a well-developed culture of continuity planning among regional hospitals and good coordination among public health officials and healthcare facilities. Public health has dedicated coordinators to work directly with hospitals and serve as liaisons.
- There is an active Healthcare Coalition, a network of health care organizations and providers in King County, which serves as a mechanism for collaboration and cooperation on bio-event resilience preparedness, response, and recovery challenges. The mission of the Coalition is to reduce the burden of illness, injury, and loss of life in the event of an emergency or disaster through coordinated emergency preparedness and response. Towards this end, the Coalition has a number of projects ongoing that focus on expanding the health system's emergency response capacity through information and resource sharing, coordination of the health system's emergency response through effective communications, integration of the health system's response into the larger regional emergency response, and providing advice to public officials on health policy matters during emergencies.
 - The Coalition is open to all health care organizations providing services in King County, including acute care hospitals, large medical groups, and selected associations, for example, the Washington Association of Homes & Services for the Aged. There are currently more than two dozen member organizations, including major hospitals and medical centers and specialized healthcare organizations such as the Puget Sound Blood Center, University of Washington Physicians Network, the Washington Poison Center, and the Washington State Hospital Association.
- Surge capacity to deal with significant events and disasters has been a key focus of public health and hospitals in the region and many hospitals have plans that address this challenge. Available surge capacity resources include:
 - Facilities for mass care and special needs
 - Mobile Medical Facilities
 - Beds at local facilities and receiving stations
 - Care givers, including retired professionals
 - Intensive care beds and specialty beds
 - Medical supplies
 - Adequate basic necessities—food, potable water, oxygen
 - Linens (patient apparel, bed linens)
 - Post-exposure antibiotics
 - Dispensing facilities and personnel for outpatients
 - Pharmaceutical educators
 - Multilingual practitioners
 - Vulnerable populations interpreters/advocates.
- King County has an Alternate Care Facility initiative to utilize non-medical buildings that will be “repurposed” in the event of a disaster for the delivery of healthcare services. The goal is to

augment and assist the healthcare system by providing an alternative healthcare delivery system focused on non complex care if individuals cannot receive adequate and timely healthcare (e.g. ambulatory care clinics, hospitals, long-term care facilities or home health services). The Alternative Care Facility approach is also meant to deliver urgent care to offload Emergency Departments and ambulatory care clinics, so that these can maximize care for other patient needs.

FINDINGS AND NEEDS

- Results of the 2008 Hospital Workforce Survey conducted by the Health Workforce Institute identified various hospital departments having shortages of employees. Shortages occur in nursing, rehabilitation, operation rooms, and laboratory departments.
 - Half of the hospitals surveyed reported having a difficult to a very difficult time in recruiting physicians in various areas, including Emergency Medicine, Surgery, and Internal Medicine.
 - Of 73 hospitals surveyed in the 2008 Hospital Workforce Survey, 88 percent of them said they had serious problems gaining access to people needing emergency medicine in the community.
 - According to the Health Workforce Institute, healthcare is consistently the industry with the highest vacancy rates in Washington State.
 - Employment in Education and Health Services was only expected to rise 1.2 percent from 2007 to 2017 as estimated by the Washington State Employment Security Department Labor Market and Economic Analysis Report of June 2009.
 - Estimated job growth in healthcare practitioner and technical assistant positions will only rise 0.2 percent, with healthcare support employment job growth estimated to also only rise 0.2 percent between 2007-2017.
- A large biological event such as a major pandemic or bio-attack (e.g., anthrax) would tax the existing hospital and medical facility resources and doctors' offices.
- Other specialized capabilities are needed to address injuries from a radiological device (a dirty bomb that causes the dissemination of radioactive material without a nuclear detonation), or a small nuclear device, which would cause additional blast injuries from various types of body trauma, including burns and exposure to toxic inhalants and injuries from collapsed buildings.
- Most hospital facilities and physicians are located in King County, including the region's only major trauma center, Harborview Medical Center, limiting accessibility to some individuals needing immediate healthcare.
- In a major subduction zone earthquake that affected the Puget Sound Region and the broad, multi-state PNW coast where there are large numbers of trauma victims, Harborview Medical Center resources would be quickly overwhelmed.
- The report on *Pediatric Resources for Disaster Response in Seattle-King County Hospitals 2007* concluded that "the majority of hospital pediatric resources are located in the emergency

response zones least populated by children and potentially inaccessible in the event of a regional disaster”.

- According to the *Public Health-Seattle & King County – 2009 H1N1 Influenza Fall Outbreak Response After Action Report*, during the H1N1 response, the medical surge/medical supplies capacity of the regional healthcare system was taxed but not exceeded. However, limited vaccine supplies and differences in vaccine distribution strategies across county lines created numerous challenges during the response. Public health officials, healthcare providers, and pharmacies were inundated with calls from people trying to find vaccine.
- During the H1N1 response, part-time and full-time surge staff and volunteers proved to be valuable additions to regular response staff and helped relieve the pressure on healthcare providers. Volunteers served in numerous capacities during the response. King County Public Health reported that twenty-five volunteers helped with vaccinating 988 homeless individuals at homeless shelters.
- Finding time to train surge staff and incorporate them into their respective operational duties is a challenge. King County Public Health has as an action item to develop processes for identifying necessary response staff and continuation of its program to recruit licensed medical professionals and other volunteers and ensuring that they are trained and credentialed for emergency response.
 - In the initial stages of the H1N1 outbreak, there was not enough epidemiology staff. This complicated the provision of timely data.
 - Healthcare managers in areas not directly affected by the H1N1 response were less willing to temporarily give up their staff, and managers in need of extra personnel faced difficulties in finding surge staff to hire. In addition, the hiring process is complex and lengthy and needs to be streamlined to address needs resulting from public health emergencies.

6.1.2. AVAILABILITY OF ESSENTIAL SERVICES (UTILITIES, VENDORS, AND TECHNICAL ASSISTANCE) AND PRODUCTS

CAPABILITIES

- Many hospitals and other healthcare providers have continuity plans that take into account dependencies on a wide range of services, including power (electric, natural gas, fuels, including for emergency vehicles; water and waste water, communications and IT, food suppliers) etc.; as well as products (including medical supplies and equipment, pharmaceutical.). While some of these services and products are “in-house”, many are available only through “just-in time” delivery.
- On October 30, 2009, Public Health – Seattle & King County’s Health and Medical Area Command (HMAC) held a workshop to discuss strategic management of scarce resources with Hospitals and Outpatient facilities. The workshop produced a final report on resource allocation and conservation suggestions.

- Washington State 2-1-1 officials routinely use hand held radios once a week among hospital contacts to practice for scenarios in which all other methods of conventional communications are unavailable among hospitals.

FINDINGS AND NEEDS:

- Healthcare organizations rely heavily on vendors and technical assistance providers who furnish the services, products, and provide staff expertise to manage (including financial and administrative services) and operate facilities and equipment and to meet patient needs.
- Supplies of certain equipment and other resources during the Puget Sound Region H1N1 response were problematical. For example, throughout the fall of 2009, supplies of respirators continued to dwindle. The Health and Medical Area Command created a hospital distribution strategy for respirators. There also were limited supplies of masks and hand sanitizers.
- Impacts on essential service, products, and technical staff availability are dependent on the nature of the incident and the extent of cascading effects on power, transportation, water systems and other infrastructures.
 - A good example is hospital dependency on clean linens, a service that routinely is outsourced to contractors, who require power, water, functioning electronic controls for equipment, detergents and disinfectants, and the staff to wash and deliver the linens, including the fueled vehicles to transport them.
- Certain services, including IT and communications expertise, will be in short supply due to demand by organizations impacted by the event.
- Storage capacity in hospitals varies, making stockpiling of supplies challenging and necessitating the transfer of products, medicine, equipment and tools from other hospitals or warehouses.
- Hospitals are greatly dependent on oxygen suppliers and their ability to provide regular delivery on a routine basis. The suppliers in the area have agreements with other suppliers to provide backup in case of a disruption.
- Ventilator and other critical equipment and supplies will be limited and competition for what supplies are available will be a key factor in the rapidity of recovery.
- Congestion on Washington's freeways: I-90, I-405, and I-5 during a catastrophic event will place the transportation of necessary anti-virals, medicines, and health-related equipment at risk. Also, impacts to other types of shipping (maritime and rail) and to warehouses where essential products and supplies are stored will impact availability of these resources.
 - Transportation of products, staff, and medical supplies and equipment, as well as food, fuel, and essential deliveries for healthcare facilities will require coordination with the FAA, the Washington State Freight Association, Washington State Department of Transportation, and the U.S. Coast Guard.

- Washington State Dept. of Transportation has developed a system to help specific freight to more easily move on congested routes after a disaster. WSDOT prioritized medical supplies and equipment as the highest priority for freight movement, allowing the state patrol to allow these types of shipments to get through on alternate routes.
- Decisions will need to be made on allocations of scarce priority resources to specific hospitals and other healthcare facilities.

6.1.3. HOSPITAL-RELATED PUBLIC SAFETY AND SECURITY ISSUES

CAPABILITIES

- Maintaining security and safety are priority concerns of Puget Sound hospitals. Security for patients, staff, and visitors is a priority and commonly provided for buildings, parking structures and hospital grounds.

FINDINGS AND NEEDS

- Security professionals point to a trend of increasing hostile incidents involving healthcare facilities that could involve snipers, explosives, hostage situations that require capabilities such as lockdown and access control. There are incidents of unknown persons posing as staff or "officials" to gain access to hospitals.
- In major emergencies or other events that have significant impacts on health, particularly a major pandemic, bio or other weapons of mass destruction-related attack, security and safety will need to be increased at a time when personnel for these functions may be unavailable because of fear, family considerations, illness, or impeded transportation capability.
- Police and National Guard resources may not be available to assist because of the need to deploy them elsewhere to address other emergency needs.
- Hospital shortages of security personnel in events and disasters with major health impacts have been identified as a significant finding in the *Blue Cascades* Regional Infrastructure Interdependencies exercises.
- Development of standards and metrics and model healthcare facility security procedures are only just being developed that could assist owner and operators to upgrade security and continuity planning.

6.1.4. HEALTHCARE-RELATED PREPAREDNESS PLANNING AND MUTUAL ASSISTANCE AGREEMENTS, INCLUDING CROSS-BORDER COOPERATION

CAPABILITIES

- The DHS-funded Puget Sound Regional Catastrophic Preparedness Grant Program was created in 2008 to enhance regional catastrophic preparedness and involves eight counties in the Puget Sound Area. It has three central objectives: “to address shortcomings in existing plans; to build regional planning processes and communities; and to link operational and capabilities-based planning with resource allocation.” Several bio-event resilience related

projects and plans are currently funded through this initiative including plans focusing on, regional coordination, regional transportation recovery, resource management and logistics, regional evacuation and sheltering, structural collapse and rescue, pre-hospital medical care and surge capacity, regional medical evacuation and patient tracking, and victim information and family assistance program.

- The Washington State Department of Health has created an Emergency Medical Services plan to establish a process for the timely and efficient movement and use of Emergency Medical Services staff and resources across the Washington and British Columbia border during various kinds of emergencies, including bio-events.
- A Pacific NorthWest Border Health Alliance has been created comprised of the PNWER member states, provinces, and territories—Washington, Oregon, Idaho, Montana, Alaska, British Columbia, Alberta, Saskatchewan, and Yukon. The Alliance was created to institutionalize the previously ad hoc cross-border working groups to ensure sustainability.
 - The mission of the Alliance is to provide a forum for inter-jurisdictional collaboration in the identification and promotion of “best practices” in addressing the capability of parties to prepare for, respond to, and recover from the impacts of any public health or other emergencies or disasters that results in a number of ill or injured persons sufficient to overwhelm the capabilities of immediate local and regional emergency response and health care systems.
 - A key goal is to collaborate to respond to surge capacity demands on health systems and health resources efficiently and in a cost effective manner and assess current and explore future areas of collaboration that could result in efficiencies when providing health services in all Alliance jurisdictions.
 - The Pacific NorthWestCross-Border Health Alliance conducts an annual Cross-Border Public Health Preparedness Workshop and has Memorandums of Understandings among some of its members, including an *Agreement to Share Public Health Information* between British Columbia Ministry of Healthy Living and Sport and Washington State Department of Health.
- Other projects are also being developed to further cross-border collaboration on health-related emergencies:
 - Washington State and British Columbia have a memorandum of understanding and agreement to move emergency medical services staff and resources across the Washington and British Columbia Border. The operational plan outlines a collaborative approach to use available health service resources to prepare for, respond to and recover from public health emergencies. Plan activation authority is discretionary and lies with State and Province depending on the nature of the event. Local jurisdictions in Washington would make a request for cross-border assistance from their emergency operations centers to the State Emergency Operations Center.
 - U.S.-Canadian collaboration on bio-events and related public health needs has been greatly advanced through the planning process for the 2010 Olympics. Lessons learned from the planning process underscored the importance of negotiating cross-border

protocols/mutual aid agreements and that developing them presents challenges and opportunities that take time to align and adjust.

- Developing contingency plans for sick travelers is a priority cross-border challenge for regional Ports. The Port of Seattle has just started the process of developing informal mutual aid agreements with all ports in the Puget Sound. The Port has a template from CDC on how to handle a plane with sick people at an airport, and is considering a similar approach for cruise ships. Also, the Port of Anchorage has conducted an exercise with a BC port to assess Port procedures during a pandemic and is interested in involving ports in the southeastern PNW.
- Assistance from Federal agencies (e.g., assets and other resources, waivers from regulatory requirements to deal with response, environmental, energy-related, transportation, and other needs) can be provided to Puget Sound Region jurisdictions for emergencies involving health and safety upon request through the State.
- Washington State can provide additional voluntary medical assistance through the Medical Reserve Corps. The Medical Reserve Corps is a national network of local groups of volunteers committed to improving the health, safety, and resiliency of their communities.
 - Volunteers include medical and public health professionals, as well as others interested in improving the public health and response infrastructure of their local jurisdiction. Corps units identify, screen, train, and organize the volunteers, then utilize them to support routine public health activities and augment preparedness and response efforts.
 - Each county in the Puget Sound has its own Medical Reserve Corps with available physicians, physician assistants, nurses, and emergency management professionals, as well as other medical personnel.
 - Volunteer resources for Puget Sound counties as of November 2009 per the Office of Civilian Volunteers include:
 - Pierce County Medical Reserve Corps
 - 16 physicians
 - 3 physician assistants
 - 47 nurses
 - 3 EMS professionals
 - 143 Total volunteers
 - Seattle/King County Public Health Reserve Corps
 - 14 physicians
 - 0 physician assistants
 - 60 nurses
 - 3 EMS professionals
 - 190 Total volunteers
 - Snohomish County Medical Reserve Corps
 - 10 physicians
 - 1 physician assistant
 - 26 nurses

- 12 EMS professionals
- 125 Total volunteers
- Skagit County Medical Reserve Corps
 - 11 physicians
 - 0 physician assistants
 - 51 nurses
 - 1 EMS professional
 - 94 Total volunteers
- Thurston County Medical Reserve Corps
 - 14 physicians
 - 3 physician assistants
 - 25 nurses
 - 5 EMS professionals
 - 104 Total volunteers.

FINDINGS AND NEEDS:

- Identification and certification of healthcare staff and medical emergency personnel to move across local jurisdictions in a regional emergency have yet to be adequately resolved.
- The operational plan to share healthcare resources across the Washington State and British Columbia border is a proactive step forward and the Pacific North West Border Health Alliance marks a great start to a more systematized cross-border collaboration on healthcare and public health challenges. However, much work remains ahead. Additional MOUs and agreements need to be developed among other members and steps need to be taken to address roles, responsibilities, and decision-making on cross-border priorities.
 - According to the Pacific NW Border Health Alliance, the 2010 Olympics & Paralympics Games Security Committee found that “the large number of agencies made it a challenge to define and coordinate/synchronize interagency roles and responsibility”.
 - Assuring access of healthcare staff that live across the U.S.-Canadian border to their place of work and identification and credentialing of medical personnel to move cross-border in a regional emergency remain challenges.

SOURCES FOR FOCUS AREA 6.1.

Physician Statistics per County, American Medical Association, <http://www.ama-assn.org/cgi-bin/sserver/datalist.cgi>

Blue Cascades IV Regional Infrastructure Interdependencies Exercise: Focus- Pandemic Preparedness Final Report, Pacific North West Economic Region’s Center for Regional Disaster Resilience, January 2007.

Blue Cascades VI Regional Infrastructure Interdependencies Exercise Draft Final Report, Pacific North West Economic Region’s Center for Regional Disaster Resilience, March 2010.

Blue Cascades Integrated Regional Strategy, Update as of May 2010, Pacific NorthWest Economic Region's Center for Regional Disaster Resilience.

Comprehensive Community Bio-Event Resilience Workshop Summary Report, Pacific NorthWest Economic Region's Center for Regional Disaster Resilience, 2009.

Comprehensive Community Bio-Event Resilience Needs and Solutions Workshop Summary Report, Pacific NorthWest Economic Region's Center for Regional Disaster Resilience, 2009.

Cross-Sector Information Sharing Workshop Summary, Pacific NorthWest Economic Region's Center for Regional Disaster Resilience, 2009.

Green River Valley Interdependencies Workshop Summary Report, Pacific NorthWest Economic Region's Center for Regional Disaster Resilience, 2009.

Results of the 2008 Hospital Work Force Survey, Health Work Force Institute, June 2009, <http://www.wsha.org/files/62/HWFI-2008-DataBook-web.pdf>

Hopmeier, Michael; Abrahams, Jonathan; Carr, Zhanat, "Some Considerations for Mass Casualty Management in Radiation", Health Physics Society, Vol. 98-6, pp 790-794, June 2010.

Interagency Bio Restoration Demonstration Regional Workshop Summary Report, 2009.

King County Region 6 Interdependencies Workshop Summary Report, Pacific NorthWest Economic Region's Center for Regional Disaster Resilience, 2007.

King M, Koelemay K, and Robinson L, *Pediatric Resources for Disaster Response in Seattle-King County Hospitals*, 31 Aug 2007, http://www.kingcounty.gov/healthservices/health/preparedness/hccoalition/~/_media/health/publichealth/documents/hccoalition/PediatricResourcesDisasterResponse.ashx

Operational Plan for the Movement of Emergency Medical Services Staff and Resources across the British Columbia – Washington Border, Pacific NorthWest Border Health Alliance, 2009, <http://www.pnwbha.org/wp-content/uploads/2010/04/WA-BC-EMS-Border-Crossing-Plan.pdf>.

Public Health-Seattle and King County – 2009 H1N1 Influenza Fall Outbreak Response – After Action Report, June 2010.

Ryan, Jodie, *Gap Analysis Planning: A seminar to assist jurisdictions...through public/private partnerships*, JVR Health Readiness, December 2009.

Regional Disaster Plan for public and private organizations in King County, King County Office of Emergency Management, <http://www.kingcounty.gov/safety/prepare/EmergencyManagementProfessionals/PlansandPrograms/RegionalDisasterPlan.aspx>

SR 520 Bridge Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, Pacific NorthWest Economic Region's Center for Regional Disaster Resilience, 2007.

Skillman S, Andrilla C, Tieman L, Kaplan L, Brown M-A, Doescher M. *Demographic, Practice, and Education Characteristics of Nurses in Washington State 2007*, WWAMI Center for Health Workforce Studies Regional Information, June 2008, [http://www.wcnursing.org/faqs/WA Nurses Poster 6-16-09-1.pdf/at_download/file](http://www.wcnursing.org/faqs/WA_Nurses_Poster_6-16-09-1.pdf/at_download/file).

Summary of Comprehensive Community Bio-Event Resilience Project, Joint U.S.-Canadian and Post Exercise Workshop, and PNW Cross-Border Health Alliance Workshop, PNWER Center for Regional Disaster Resilience, May 6, 2010.

Washington Hospitals Directory by County, The Agape Center, <http://www.theagapecenter.com/Hospital/Washington.htm>

Washington State Employment Security Department Labor Market and Economic Analysis Report of June 2009.

6.2. PUBLIC HEALTH AND HEALTHCARE POLICY ISSUES THAT AFFECT BIO-EVENT RESILIENCE

The focus area for this section addresses roles and missions, authorities, coordination and policies, plans and procedures; availability of external assistance, including volunteers; as well as other policy issues, including mass fatality planning/mortuary-related issues, and pet and livestock issues that will affect communities.

6.2.1. PREPAREDNESS PLANNING

CAPABILITIES

- Local jurisdictions in the Puget Sound Region have well-developed plans and procedures with different levels of detail for health-related emergencies and disasters with broad health and safety impacts. King County has a regional emergency preparedness plan and a regional public health plan.
- During the 2009-10 H1N1 pandemic, Seattle/King County Public Health provided ongoing regional situation reports and coordinated conference calls with local officials and area businesses.
- King County is responsible for activating the Health and Medical Area Command in a public health emergency. The Health and Medical Area Command:
 - Provides for the direction, coordination and mobilization of health and medical resources, information and personnel during emergencies and disasters. This includes disease surveillance and lab analysis, medical resource management, morgue operations, medical surge, prioritization of vaccine distribution, isolation and quarantine, emergency medical services and environmental health. For example, during the H1N1 pandemics, following

national guidelines, groups with the highest risk of severe illness were prioritized (i.e. pregnant women, adults with underlying health conditions and children) including those who were not insured nor had no medical home. Healthcare workers were also prioritized because of their close contact with people in the high-risk groups.

- Is comprised of a various personnel with disaster planning and response expertise, including Public Health emergency preparedness staff, local government staff, liaisons to local emergency management, emergency medical reserve corps, and healthcare providers with expertise in logistics, planning, and emergency response.
- King County also manages the regional Public Health Emergency Operations Center and the Emergency Coordination Center (ECC) and maintains a list of ECC Liaisons from county departments, districts, or non-profit organizations that are responsible to carry out emergency coordination functions for their organization during emergencies and disasters.
- Emergency operations procedures for Seattle & King County Public Health staff are maintained in the Public Health Seattle-King County *Emergency/Disaster Operations Plan Red Book*, which includes:
 - Basic department and division responsibilities
 - Emergency Operations Center representative mobilization procedures
 - Health Department chain-of-command list
 - Health Department emergency task list
 - Health Department resource inventories
 - Emergency purchasing, reporting and fiscal requirements
 - Emergency communications
 - Emergency preparation training programs for Health Department personnel.
- Public Health – Seattle & King County has an extensive website, which describes many diverse resources.
- The Advanced Practice Center in Seattle and King County develops plans and builds local and regional capacity for responding to a public health emergency.
- Public Health – Seattle & King County provides online information on: birth and death records, codes and regulations, child and family healthcare, hazardous materials, chronic disease prevention, health provider advisories, communicable disease, epidemiology and immunizations, injury and violence prevention, information on how to get autopsy reports, emergency medical services. The website also has information on all hazards emergencies, and environmental health threats and services to address them; and guides on hospital security, testing, training; exercises on evacuations, surge capacity, etc.
- The King County Health Action Plan, a public-private partnership, was created in 1996 under a King County Council motion to study health status and the changing state in health care in the County.

- The Washington State Association of Local Public Health Officials serves as a partnership and collective voice of Washington State's local health jurisdictions.
- There is a Regional Disaster Plan for public and private organizations in the region that was created by the Regional Disaster Planning Task Force comprised of representatives from: cities, fire service, law enforcement, hospitals, public health, water and sewer, schools, businesses, tribes, nonprofits, associations, etc.
 - First developed in 2002, the Regional Disaster Plan is a unique "mutual aid agreement" that establishes the framework to allow public, private and nonprofit organizations an avenue to efficiently assist one another during a disaster through a plan that addresses organizational responsibilities and also an agreement that addresses legal and financial concerns. To date, there are over 140 signatories to the Regional Disaster Plan.
- Washington and the British Columbia have been leading Pacific Northwest public health collaboration since 2003. The initial focus was to address emerging public health threats, including pandemic influenza preparedness and tracking infectious disease across borders. In 2004, BC and Alberta) signed a Memorandum of Understanding on the use of available public health and health services resources during emergencies. A similar agreement was signed between BC and WA State in 2006.
 - The previously mentioned Pacific NorthWest Cross Broader Health Alliance has planning and coordination objectives that include raising awareness about public health issues and challenges in the Pacific Northwest, creation of venues and partnerships to mobilize the actions needed to improve public health preparedness, and serving as a reliable information portal about border health issues. Other objectives include: prevention and mitigation of communicable disease outbreaks through surveillance and early notification and assessment of current and future areas of operational responsibility that could result in more efficient health services.
 - One of the key Alliance goals is to serve as a platform for collaborative work on chronic disease and public health policies, including ways to improve collaborative early warning infectious disease surveillance and information sharing among the participating jurisdictions, including the type of information to be shared; developing plans to address surge capacity demands on health systems and resources when public health emergencies arise, including a 24/7 response protocol, and assessing current and exploring future areas of collaboration.
 - The Alliance created a Cross Border Public Health Collaboration Committee and an initiative for information-sharing and consultation during the H1N1 pandemics and a Coordination Group to ensure integrated cross-border public health preparedness for the 2010 Olympic and Paralympic Games. The Alliance has a website for members and has held workshops annually on cross-border bio event issues and an exercise in 2010.

FINDINGS AND NEEDS

- Because Washington is a home rule state, each county and city is responsible for public health and emergency management within its jurisdiction. According to the *Public Health-Seattle & King County – 2009 H1N1 Influenza Fall Outbreak Response After Action Report* and

substantiated by *Blue Cascades* regional exercises, this can cause challenges for cross-jurisdiction emergency response and recovery.

- The *Public Health-Seattle & King County – 2009 H1N1 Influenza Fall Outbreak Response After Action Report* also noted that coordination between jurisdictions needs to be addressed at the state and federal levels. Public Health – Seattle & King County sees a greater leadership role by the Washington State Department of Health as useful so that counties in the State, especially those whose residents regularly cross county lines, develop consistent messaging and work together in future emergencies.
- Local jurisdictions have their individual websites with plans, useful specific information for preparedness for different threats, evacuation procedures, etc, but this requires stakeholders and the general public to sort through the plans and procedures of multiple jurisdictions to gather information and instructions on health and safety issues.
 - Some County emergency plans are not easily accessible or readily available on county websites. Local jurisdiction websites in many cases do clearly indicate where to find plans, procedures, and other information.
 - The King County website has a surfeit of data on many issues that the user will need to piece together to get an overall picture on particular topic. On some topics, the user is referred to still other websites. For example, the King County website information on potential Green River Valley flooding refers individuals to the respective web-pages of the jurisdictions in which they may reside, work, or send their children to school.
 - King County has recently launched a regional Share-Point site to better coordinate cities, agencies and other relevant stakeholders. This portal allows current versions of plans to be posted and gives regional stakeholders an opportunity to better coordinate and collaborate on many different initiatives.

6.2.2. ROLES AND MISSIONS, AUTHORITIES, AND COORDINATION

CAPABILITIES

- In Washington State, local health jurisdictions are organized into nine regions. Each region is responsible for developing a plan for resource sharing and coordinated emergency response that will align with the state emergency management plan and will include hospitals, emergency medical services, law enforcement and fire protection districts.
 - Each region is responsible for its own disease surveillance, and provides any additional training to its emergency response personnel. Regions are given three regional communication specialists to help local health organizations provide messages and information to educate the public.
- In the event of public health crisis, the County Public Health Department is responsible for declaring a public health emergency. Authority for the counties and cities resides with the county executive, mayor, city/county council, local board of health, and lead agency.
 - King County has designated Seattle/King County Public Health Department to be lead agency.

- Snohomish County has designated the Snohomish Health District as lead agency.
- Tacoma/Pierce County has designated Tacoma Pierce County Health District as lead agency and facilitator of multi-agency coordination plans in case of emergencies.
- Kitsap County has designated the Emergency Management Council as lead agency.
- Thurston County has designated the Board of County Commissioners as lead agency.
- In the event of a public health emergency, the County Executive as well as the Mayor can proclaim a State of Emergency and order the closures of businesses, schools, as well as many other public sites in order to preserve the peace and health of the community.
- In some cases, city council and executives have explicit emergency powers and authorities in their municipal codes, as well as the ability to enact emergency ordinances that cannot be vetoed by the county executive.
- Each county follows its own Emergency Preparedness plan in times of health emergencies. King County and Snohomish County have designated Emergency Preparedness Plans for Pandemic Influenza, while Pierce, Kitsap, Skagit, and Thurston Counties have All Hazard Emergency Plans. All counties have Comprehensive Emergency Management Plans for any type of emergency.
- The *King County All-Hazards Emergency Preparedness Plan* (2008) outlines responsibilities and procedures for response and recovery. The Office of Emergency Management, subject to direction and control of the County Administrative Officer, is responsible to the Executive for activating, establishing, and direction activities in the Emergency Coordination Center (ECC) and for coordinating emergency management programs for King County.
 - Each department provides impact assessment information, assigns and sets its priorities for the response and recovery phases to ensure the effective coordination of emergency response and recovery using the National Incident Management System (NIMS); produces reports necessary to emergency operations; provides resources as coordinated through the King County ECC; and supports response and recovery activities as required.
- Local Public Health has the authority to distribute vaccines, but lessons learned from the H1N1 initial response demonstrated that private sector distributors, such as pharmacies, could handle vaccine distribution more effectively.

FINDINGS AND NEEDS

- The *Public Health-Seattle & King County - 2009 H1N1 Influenza Fall Outbreak Response - After Action Report* and *Blue Cascades* regional exercise final reports pointed out the challenges for cross-jurisdiction coordination on communications, public information, and decision-making; also, the need for a more coordinated, regional approach for preparedness and well-defined area command structures for response and recovery/long-term restoration after a significant event.

- Coordination and harmonization of county and other local jurisdiction emergency management and public health plans are necessary to develop a regional continuity plan that can effectively address all-hazards disasters.
- Local jurisdictions need collectively to further test plans and procedures with regional stakeholders to see where improvements are necessary. In instances local government may not be best suited for a particular responsibility (e.g., vaccine distribution), and private sector and other alternative means need to be investigated.

6.2.3. MASS FATALITY PLANNING/MORTUARY ISSUES

CAPABILITIES

- King County Public Health is responsible for aid in the coordination of mortuary services, including investigating cause of sudden unexpected, non-natural deaths; handling mass deaths and burials; and body identification and disposition. Emergency Support Function-8 – Public Health, Medical and Mortuary Services in the King County Regional Disaster Plan provides information on plan potential improvements.
 - The King County Medical Examiner, within Public Health Seattle and King County will investigate and determine the cause and manner of deaths resulting from an emergency event and coordinate the disposition of casualties resulting from an emergency or disaster. However, it is recognized that an emergency may result in casualties that significantly exceed daily capabilities of the King County Medical Examiner’s Office for identification, documentation, and disposition of fatalities.
 - Public Health – Seattle and King County, through the Public Health Office of Vital Statistics, has the responsibility to coordinate with local funeral directors and the King County Medical Examiner’s Office regarding the filing of death certificates and issuing of cremation / burial transit permits for fatalities resulting from an emergency or disaster.

FINDINGS AND NEEDS

- Significant fatalities from a major earthquake, flood, or other catastrophic disaster would tax regional capabilities to handle fatalities — identification and temporary disposition and storage of bodies.
- King County is working with regional local jurisdictions on mortuary issues related to potential Green River Valley flooding.

6.2.4. PET AND LIVESTOCK ISSUES

CAPABILITIES

- The Seattle-King County Regional Disaster Plan states that the Washington State Departments of Agriculture and Fish and Wildlife are responsible for Washington State animal health concerns. This includes diagnosis, prevention, and control of foreign animal diseases and diseases of public health significance, and assistance in the disposal of dead animals during the response period of a bio-event or other emergency. These agencies maintain liaison with

emergency management and environmental protection agencies and departments and/or agencies that represent veterinary medicine, public health, agriculture, wildlife, non-native wildlife, humane societies and animal control agencies.

- In Washington State, The majority of agricultural land use (cropland 50.8 percent and pasture land 31.89 percent) supports livestock, which increases the importance of surveillance to deter a natural bio-event and economic and environmental impacts from regional disasters, particularly floods and earthquakes. In King County, there are 41,164 acres of zoned farmland with about 24,000 acres actually farmed. About 37 percent of acres in production support livestock.
- King County's flood preparedness information on its website has a feature on flood readiness for farmers that address livestock issues.
- The Washington State Animal Response Plan provides guidelines for rapid response to Animal Health Events affecting the health, safety, and welfare of human beings and animals. Animal Health Events are defined as caused by disease, toxic substances, terrorism, or natural or technological disasters to include the disposal of dead animals. The procedures cover small and large animal care, facility usage, and displaced pet/livestock, wildlife, and exotic animal assistance, and related issued.
- The State Veterinarian or Assistant State Veterinarian, or designated representative, will be the State Incident Command representative for Animal Health Events.
- King County under Emergency Support Function-11 of the National Response Plan works with Washington State to ensure that animal, veterinary, and wildlife issues in an incident are supported. This includes:
 - Implementing an integrated local, State, federal and tribal response to an outbreak of a highly contagious or economically devastating animal/zoonotic disease, an outbreak of a highly infective exotic plant disease, or an economically devastating plant pest incident.
 - In a large-scale incident, caring for animals, dealing with significant livestock fatalities, significant increases in stray animals, and the release of animals that are typically contained by fences or other structures.
 - Disposition of dead animals and/or a pest control function that includes the safe disposition of infected plants.
 - Helping disaster-affected citizens that own large and/or small animals who may require additional assistance in the care of their animals.
 - Determine which animal health care and response personnel are qualified to enter an area.
 - Providing shelter locations for large-animals as appropriate. (Certain animals cannot be co-located. For example sheep and cows cannot be co-located due to disease that may pass from one to the other that may be harmless to one but fatal to the other. This is also true for certain pets.).
- Animal Health Response, a veterinary service, safeguards U.S. poultry and livestock from the introduction, establishment, and spread of foreign animal diseases. Animal Health Response

conducts regular surveillance of domestic animal herds and monitoring of animal disease outbreaks around the world to protect agriculture, animals, and humans.

- The Animal Plant and Health Inspection Service is an emergency response organization that also protects livestock and poultry as well as crops from foreign disease and pests. It works closely with DHS and FEMA to provide assistance and coordination during all-hazards types of emergencies to ensure that the health of animals and crops are secured.
- The National Animal Health Emergency Response Corps are a group of reserve veterinary and animal health technicians that can be deployed anywhere in the nation to assist during an emergency.
- King County Public Health regulates and inspects pet shops, animal shelters, and kennels for potential zoonotic diseases on a periodic basis.
- If flooding occurs, Enumclaw has been designated as a pet and animal shelter base. The owner will be responsible for the care of their animals at the site.
- The Washington State Veterinary Medical Association provides veterinarians working in all fields various resources and planning guides to assure emergency preparedness. These guides are made available by the Washington State Department of Agriculture and include links to bio-security measures for farms, state veterinarians directories, laws and rules on livestock diseases, and animal disease reporting.
- Washington State regulatory policy requires any veterinarian laboratory or person licensed to practice veterinarian medicine in the State of Washington immediately report to the office of the State Veterinarian the existence or suspect existence of disease in any animals. In addition, the Washington State Department of Health has produced and made publicly available a PDF on “Notifiable Conditions and the Veterinarian” to highlight veterinarian responsibility in reporting cases, cooperation with Public Health, and with what time requirements to report cases. Diseases to report include anthrax, brucellosis, tuberculosis, and plague.
- The Animal Plant and Health Inspection Service works closely with DHS and FEMA to provide assistance and coordination during all-hazards types of emergencies to ensure that the health of animals and crops are secured

FINDINGS AND NEEDS

- Public Health Service King County and regional local jurisdictions are working with relevant state and federal agencies on this multi-faceted priority issue.
- Pets are a concern. There is general awareness among Puget Sound Region practitioners and experts that a reason many people choose not to evacuate is their pets. This was evident in New Orleans regarding Hurricane Katrina.
- Dead livestock and wild animals will pose a considerable health hazard, particularly in a major flood.

SOURCES FOR FOCUS AREA 6.2.

Agricultural Production and Protection, King County Department of Natural Resources and Parks, <http://your.kingcounty.gov/dnrp/measures/indicators/lr-agriculture.aspx>.

Blue Cascades III Regional Infrastructure Interdependencies Exercise Draft Final Report. PNWER Center for Regional Disaster Resilience, 2006.

Blue Cascades VI Regional Infrastructure Interdependencies Exercise Draft Final Report, PNWER Center for Regional Disaster Resilience, 2010.

Blue Cascades Integrated Regional Strategy, Update as of May 2010, PNWER Center for Regional Disaster Resilience.

Comprehensive Community Bio-Event Resilience Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

Cross Border Collaboration Report 2003-2010, Pacific NorthWest Border Health Alliance, June 2010.

Cross Border Health Meeting. Pacific NorthWest Border Health Alliance, Seattle, WA, May 4-6, 2010.

Hopkins, Sharon G., Department of Veterinary Medicine, Public Health – Seattle & King County, Environmental Health & Science Division.

Kimery, Anthony L., *Economy Forces Cuts in Fed, States' Emergency Medical Preparedness*. Homeland Security Today, March 2010, <http://www.hstoday.us/content/view/12358/149/>.

King County Regional Flood Preparedness for the Green River Valley
<http://www.kingcounty.gov/safety/FloodPlan/GreenRiverValley.aspx>.

Agriculture in King County, Washington,
<http://www.kingcounty.gov/environment/waterandland/agriculture.aspx>

King County Health Services, <http://www.kingcounty.gov/healthservices.aspx>

Regional Disaster Plan for public and private organizations in King County, King County Office of Emergency Management,
<http://www.kingcounty.gov/safety/prepare/EmergencyManagementProfessionals/PlansandPrograms/RegionalDisasterPlan.aspx>

King County All-Hazards Emergency Preparedness Plan, King County Office of Emergency Management, December 2008,
http://www.kingcounty.gov/safety/prepare/EmergencyManagementProfessionals/PlansandPrograms/~media/safety/prepare/documents/EMP/000_KC_CEMP2008_signed_Full_Doc_post.ashx

Moving to Higher Ground: Potential Roles for Philanthropy in helping Washington's Communities Cope with Disasters, The Bill & Melinda Gates Foundation together with United Way, Washington State Emergency Management Association, Pierce County Department of Emergency Management, and others, 2009.

Public Health Preparedness: Strengthening the Nation's Emergency Response State by State, Centers for Disease Control and Prevention, 2010, <http://www.bt.cdc.gov/publications/2010phprep/>

Public Health-Seattle and King County – 2009 H1N1 Influenza Fall Outbreak Response - After Action Report, June 2010.

Office of Civilian Volunteer, Medical Reserve Corps, <http://www.medicalreservecorps.gov/HomePage>

2008-2011 ESF-8 Strategic Plan (Health, Medical, and Mortuary Services), Public Health – Seattle & King County, <http://www.kingcountyhc.com/documents/kingcountyhc/ESF8StrategicPlan.pdf>.

For additional information see websites of respective Puget Sound Region local jurisdictions, Public Health and Emergency Management, and Washington State Department of Health.

6.3. INFORMATION SHARING, COMMUNICATIONS, CRITICAL IT SYSTEMS, AND HEALTH DATA ISSUES

This focus area includes alert and warning/notifications, two-way information sharing; data collection, management, analysis and dissemination; IT system reliability, resilience, and security; as well as other issues.

6.3.1. ALERT AND WARNING/NOTIFICATIONS

CAPABILITIES

- King County and jurisdictions that could be potentially impacted by flooding have established alert systems that are outlined on their respective websites. The National Weather Service uses its own emergency alert system. The King County Office of Emergency Management through its website in addition will issue separate alert messages to local cities. The County has a Flood Warning Center that uses a four-phase warning system based on river gages which measure the flow and depth that is monitored on a 24 hour basis. Residents and businesses are advised on King County's flood information website to check multiple sources for information, including radio, television, the Internet, text and email. Jurisdictions recognize that it is important to "push out" information.
- The Washington State Fusion Center with the Pacific NorthWest Economic Region's Center for Regional Disaster Resilience and representatives from the private, public and non-profit sectors have collaborated to foster cross-sector information sharing and to develop the critical infrastructure component of the Washington State Fusion System.

- Major objectives of this program have been to facilitate regional information sharing by building trust among key public and private stakeholders and collaboratively identify security and preparedness gaps. The result is a sustainable information fusion system that can provide public, private and other key stakeholders with appropriate secure and resilient two-way situational awareness to address all-hazard disasters and other threats.
- As part of this effort, the Center for Regional Disaster Resilience and the Washington State Fusion Center (WSFC) have collaborated with Puget Sound stakeholders on a Pilot Project to develop the process and capabilities to enable the two-way, public-private information-sharing and analysis system. The main focus of the Pilot Project to date has been the development of a Concept of Operations (CONOPS) with an implementation strategy to incorporate a Critical Infrastructure and Key Resources (CIKR) Regional Information Sharing Capability into the evolving Washington State Information Fusion System. The Pilot Project supports the national and Washington State goal to further develop an integrated state-wide information fusion system that encompasses the WSFC, the UASI jurisdictions component, and other information sharing and communications/coordination mechanisms, including the Northwest Warning and Alert Response Network and the Puget Sound Partnership for Regional Infrastructure Security. The Pilot Project is designed to facilitate:
 - Collection, integration, analysis, and dissemination of all-source threat-related information for law enforcement and infrastructure protection;
 - Understanding and analysis of regional interdependencies and determination of critical infrastructure/key resources vulnerabilities and risk;
 - Improved disaster/incident preparedness, management, and regional resilience; and
 - Creation of two-way situational awareness and real-time alert and warning.
- The Washington State Fusion Center is utilizing the NorthWest Warning Alert and Response Network (NWWARN) as the backbone for the communication between critical infrastructure and law enforcement. NWWARN is a collaborative effort between government and private sector partners focusing initially on the Puget Sound Region with a goal of maximizing real-time sharing of situational information without delay and providing immediate distribution of information to those in the field that need to act on it.
 - NWWARN uses readily available communication methods to rapidly disseminate actionable information between private sector and other members. Currently there are over 2000 vetted members of NWWARN. The development of NWWARN began in 2003 in Washington State and is rapidly expanding to the other PNWER member jurisdictions — Alaska, Idaho, Montana, Oregon, and the provinces of Alberta, British Columbia, Saskatchewan, and Yukon. NWWARN has been an integral support element for the Information Sharing and Analysis Capability pilot project by involving the state and localities, critical infrastructures, and essential service providers. NWWARN members are professionals from a broad cross section of government entities and private sector businesses and associations.
- Washington State Emergency Management has a third-party, password-protected communications system called PIER (Public Information Emergency Response), which is

tailored to post key planning, response, and recovery information online for businesses to access, as well as to send businesses real-time emergency alerts.

- A Regional Catastrophic Preparedness Grant Program work group is developing accessible message templates that work for media communications as well as to “direct and alert citizens to appropriate sources of emergency information, such as school status; hospital/antibiotic/health department information; transportation status; shelter/reception center information; and family reunification information.” The Regional Catastrophic Preparedness Program is staffed by representatives from state, local, and tribal governments, the Metropolitan Medical Response System, the Citizen Corps, and the private sector. The group reports to the Seattle Urban Area Security Initiative Working Group, which is funded through the U.S. Department of Homeland Security.
- Telecommunications companies have worked with stakeholders to conduct a test of local emergency notification systems. They are working to ensure adequate circuits are available to handle the large volume of calls, texts, and emails required to notify everyone in the Green River Valley of a pending flood.

FINDINGS AND NEEDS

- Local officials at the *Blue Cascades VI* exercise indicated that flood evacuation alerts and recommendations to activate will be coordinated among jurisdictions. The goal is to evacuate potential flood-impacted areas before rising water levels impede transportation. At the same time, stakeholder concerns were expressed that small businesses need a way to become more informed about jurisdiction/county evacuation and broader continuity of operations planning.
- Some participants at the Green River Valley Interdependencies Workshop commented on the need for improved alert procedures and systems and a clear understanding of “triggers” for emergency activities.
 - In the event evacuation is necessary in a major emergency, jurisdictions have no authority to legally order people out of their homes.
- A King County concern is how to warn the population in the region. One of the challenges they are facing in using current flood warning systems is obtaining personal information from residents who are reluctant to provide it.
- Local, state and regional stakeholders need to have a strategy for improved alert and warning, communications and two-way information sharing on security and resilience that identifies what information needs to be conveyed, how, and to what organizations and individuals, and how it will be coordinated and disseminated, ideally from a central focal point.

6.3.2. INFORMATION SHARING, DATA COLLECTION, MANAGEMENT, ANALYSIS AND DISSEMINATION

CAPABILITIES

- According to the *Public Health-Seattle & King County - 2009 H1N1 Influenza Fall Outbreak Response After Action Report*, exchanging information with healthcare partners and with the public was very demanding, although outreach to healthcare partners and the public through a variety of methods was one of the most valuable accomplishments in the response.
 - Many data points such as vaccine allocation numbers, requests for resources, and information requests from the public changed daily— sometimes hourly—and ensuring that key partners in the health and medical response had access to the most current data was difficult.
- Washington State is currently taking steps to insure that home health care providers and the King County Health Care Coalition have access to the Health Alert Network, which is a national resource for communications during an influenza pandemic developed by the Centers for Disease Control (CDC). The Health Alert Network's purpose is to establish the communication, information, distance learning, and organizational infrastructure for defense against health threats. The Network can be used to provide public health providers with timely treatment guidelines and information regarding disease outbreaks.
- During the H1N1 pandemic, King County held daily conference calls and issued situation reports to local stakeholders. These calls allowed stakeholders to learn the current status of the pandemic but also provide valuable input and ask questions to local response coordinators.
- A special work group for the Regional Catastrophic Planning Grant Program is looking at how situation status updates might be collected and then disseminated to local agencies via Web EOC. The most prominent tools used in this region include state tools such as "Washington Disaster News" or the "Access WA" website for the general public.
- During the H1N1 pandemic, automated systems for collecting and analyzing school absenteeism data was much more complete and timely than the old manual system.
- The Communicable Disease, Epidemiology, and Immunization Section held weekly conference calls with K-12 school representatives.

FINDINGS AND NEEDS

- Regional two-way informationsharing and situational awareness among government agencies and among the broader stakeholder community are essential in a major disaster. The need for "situational awareness"—knowledge of what is happening throughout the region as the disaster unfolds enables optimal decision-making. This need has been identified in many emergency events, exercises and workshops and acknowledged by local officials and the broader key stakeholder community. There are various activities ongoing to address this need.

- Local officials at exercises have spoken of the difficulty in sharing information, especially among emergency operations centers, and in obtaining enough data in situation reports, when available, on expected duration of infrastructure service outages and projected restoration timelines. They also want these reports to be written in language that could be easily understood by non-experts.
- Lessons learned from the *Blue Cascades* exercises include the need for a single focal point for communications and information. Communications issues raised by stakeholders included limited coordination of information among local jurisdictions and government agencies; also lack of private sector access to information and communications with other service providers to validate planning assumptions and recalibrate response.
- The majority of stakeholder participants attending a Community Bio-Event Resilience workshop on information sharing believed the Washington State Fusion Center could be the mechanism for broad two-way dissemination of health and safety-related information. However, the challenge is how to address security and bureaucratic issues that currently constrain sharing of government-generated data and analysis with private sector organizations. An infrastructure representative can report suspicious activity or other sensitive information to the Fusion Center but may receive no feedback because the information is now classified or seen as too sensitive to be disseminated.
 - The role of the Washington State Fusion Center in information sharing should be clearly defined, along with the roles of other key contributors to an information sharing system. The concept of operations (CONOPS) for cross-sector information sharing and analysis already developed by Puget Sound stakeholders with PNWER and the WSFC and other existing mechanisms can be utilized, and additional capabilities developed (e.g., tools and expertise to virtually integrate and analyze a wide variety of necessary data). Requirements for operationalizing the CONOPS and determining how to apply the cross-sector information sharing capability to all-hazards disasters have yet to be developed.
- Government and private sector participants emphasized the importance of greater private sector information sharing and coordination with local and state public health officials to facilitate resource access and management, and assure health supply chains and surge capacity.
- Special needs populations may not have access to cell phones or the Internet.
- Several exercises and workshops have underscored the importance of addressing how the media can be appropriately involved in training and exercises pre-event and provide situational awareness and emergency-related information during emergency response. Thus far, exercise report recommendations along these lines have not been implemented.

6.3.3. IT SYSTEM RELIABILITY, RESILIENCE, AND SECURITY

CAPABILITIES

- **Northwest Alliance for Cyber Security.** The PNWER Center for Regional Disaster Resilience with the City of Seattle, Microsoft, and other stakeholders formed the Puget Sound Alliance for Cyber Security in 2006 to bring together stakeholders to share information and coordinate on regional information security issues after the *Blue Cascades II* exercise that focused on regional cyber security issues and IT resilience (September 2004). The Alliance has expanded with a wider range of stakeholders in the Northwest and has been renamed the Northwest Alliance for Cyber Security (NWACS).
 - The mission of NWACS is to improve and maximize the cyber resilience of the Puget Sound region by maximizing opportunities and communications among local, regional, and federal organizations and enterprises. NWACS recently held a cyber-risk management seminar and a functional cyber event exercise with representatives from the private, public, academic, law enforcement and non-profit sectors to inform regional stakeholders on strategies and methods to mitigate the risk of cyber attacks and to assess current levels of readiness and resilience in region-wide cyber response. Gaps have been identified and plans are being made to address and further assess the region's cyber event response capabilities.
- Communications providers (e.g., AT&T and T-Mobile) have been working on ways to provide mobile communications capabilities to meet disaster preparedness needs. AT&T has developed communications prioritization and other procedures to address regional bandwidth congestion issues during emergencies.
- The City of Seattle and local jurisdictions are working on improved plans and capabilities to enable communications and critical IT functions to continue or be expeditiously restored in the event of prolonged disruptions.
- Pacific Northwest National Laboratory is working with regional stakeholders through its Northwest Technology Center to develop a "Precision Information Environments" initiative to provide stakeholders with tailored access to information and aid decision-making through a system that supports multiple users involved in emergency planning and management. The initiative is sponsored by the DHS Science and Technology Directorate's Command, Control, and Interoperability Division.

FINDINGS AND NEEDS

- Internet service providers can become overwhelmed and the access/last mile in the event of region-wide telecommuting in a geographically extensive emergency can be congested. Organizations' IT infrastructures may not be capable of supporting a large upsurge of remote workers, and many essential workers may not have responsibilities that can be handled by working remotely. Shortages of communications and IT personnel also may impede telecommuting and remote operations. In addition, vulnerability to cyber attacks and viruses will dramatically increase with the number of users, many using personal computers that may not meet corporate security standards.

- Damage and disruption of telecommunications and critical information assets can leave much of a region without telecommunications, emergency communications, and business systems.
 - “Tele-gridlock”/ lack of bandwidth for telecommuting will create high competition between all sites, including those necessary for response, and will slow down internet/web communications.
 - While this bandwidth congestion during a major event has been recognized as a problem at several exercises and workshops beginning with *Blue Cascades II* (cyber attacks and disruptions) through successive *Blue Cascades* exercises, government representatives at these exercises raise the national Government Emergency Telecommunications Service (GETS) / Wireless Priority System as a solution for expediting priority communications. However, neither of these solutions has been deployed or tested in a real or exercise event. Stakeholders are beginning to recommend that other solutions should be explored to enable employees to work remotely.
- The *Public Health-Seattle & King County – 2009 H1N1 Influenza Fall Outbreak Response After Action Report* recommends development and conduct of a survey for healthcare providers to assess communication requirements and identify preferred methods.

6.3.4. HEALTH DATA COLLECTION AND MANAGEMENT

CAPABILITIES

- According to the *Public Health-Seattle & King County – 2009 H1N1 Influenza Fall Outbreak Response After Action Report*, the following activities were utilized to exchange information with healthcare partners and with the public during the H1N1 response:
 - Weekly conference calls with community partners were well received and provided valuable information.
 - Significant collaboration occurred with school districts, including implementing a new automated system for collecting and analyzing school absenteeism data.
 - With participation from hospitals and healthcare organizations, a weekly healthcare impacts report was produced, which documented emergency room and hospital admissions data to provide situational awareness of the flu's impact to area hospitals and providers.
 - Health alerts, broadcast faxes to providers, weekly influenza and school absenteeism reports were also issued, as well as regular situation reports.
 - A variety of methods were used to ensure regular, two-way communications with regional partners. Regular conference calls were held with numerous organizations including pharmacies, K-12 schools, hospitals, ambulatory care facilities, local emergency management, infection control officers, and an array of emergency management providers and elected officials.
 - Situation reports were issued twice a week and included information from all response activities, including: emergency proclamations and declarations, response goals, situation

updates, disease surveillance data, vaccine distribution information, resource management information (primarily antivirals and masks), call center data, and major actions about the response.

- Multiple internal and external partners utilized the Flu Hotline. Callers reported being referred to the Flu Hotline by their providers.
- A pilot project has been underway by local public health and a few hospitals to develop an electronic reporting system for influenza cases.

FINDINGS AND NEEDS

- Although King County made significant steps on outreach to the private sector during the H1N1 pandemic with conference calls and meetings, public health officials see a need to find ways to further facilitate information sharing with the business community.
- Stakeholders have emphasized in various events, including CCBER Project workshops that they want continuous information to address continuity requirements during a regional emergency.
- The *Public Health-Seattle & King County - 2009 H1N1 Influenza Fall Outbreak Response After Action Report* noted the need for the following improvements:
 - Better information collection on laboratory-confirmed influenza deaths and hospitalizations to fulfill Washington Department of Health reporting requirements, as well as information on suspected influenza deaths and intensive care unit admissions;
 - Monitoring emergency department and outpatient facility visits for influenza-like illness and tracking trends in disease activity by age group;
 - Monitoring absenteeism levels at King County schools and producing school absenteeism reports for County public health and school district authorities. A new automated system would be implemented for collecting and analyzing school absenteeism data.
 - Describing and assessing populations affected by bio-events, including characteristics of a disease outbreak or other major health impacts and the duration and course of the bio-event;
 - During a pandemics, producing a surveillance report for healthcare and community partners twice a week during periods of high influenza activity;
 - Responding to inquiries and providing healthcare providers and the public with information on clinical signs and symptoms, diagnosis, treatment, and infection control measures;
 - Accelerating development of an electronic case reporting system for healthcare institutions.

SOURCES FOR FOCUS AREA 6.3.

Blue Cascades II Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2004.

Blue Cascades III Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2006.

Blue Cascades IV Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2007.

Blue Cascades V Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2008.

Blue Cascades VI Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2010.

Blue Cascades Integrated Regional Strategy, Update as of May 2010, PNWER Center for Regional Disaster Resilience.

Comprehensive Community Bio-Event Resilience Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

Comprehensive Community Bio-Event Resilience Needs and Solutions Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

Cross-Sector Information Sharing Workshop Summary, PNWER Center for Regional Disaster Resilience, 2009.

Emerald Down Cyber Security Exercise Final Report & Post-Exercise Action Planning Workshop Summary Report, 2010.

Green River Valley Interdependencies Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

SR 520 Bridge Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2007.

King County Healthcare Coalition 2009 Annual Report,
<http://www.kingcounty.gov/healthservices/health/preparedness/%7e/media/health/publichealth/documents/hccoalition/2009AnnualReport.ashx>.

King County Region 6 Interdependencies Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2007.

Team Washington Homeland Security Newsletter, Fall/Winter 2008.

The Northwest Regional Technology Center (NWRTC) Monthly Newsletter, January 2010.

Public Health-Seattle and King County – 2009 H1N1 Influenza Fall Outbreak Response - After Action Report, June 2010.

NWWARN summary, PNWER Center for Regional Disaster Resilience. See: *Northwest Warning Alert and Response Network*, <http://www.regionalresilience.org/>.

6.4. CRITICAL INFRASTRUCTURE AND ASSOCIATED INTERDEPENDENCY IMPACTS; RISK ASSESSMENT, AND MITIGATION

This focus area includes interdependency-related vulnerabilities, impacts, and identification of potential prevention, protection, and mitigation measures, as well as other issues associated with determining and assessing health and safety resilience under various event scenarios.

6.4.1. INTERDEPENDENCY-RELATED VULNERABILITIES AND IMPACTS

CAPABILITIES

- Stakeholders in PNWER exercises and other events over the past eight years have focused on regional and organizational infrastructure linkages, including health and safety related interdependencies, vulnerabilities, impacts, and potential measures to address them.
 - This awareness is still limited largely to first and second level interdependencies. Stakeholders recognize that many unknowns remain regarding potential threat scenarios, and that they still have rudimentary understanding of regional interdependencies and economic costs of different levels of all-hazards disruptions.
 - The need to increase depth and scope of stakeholder understanding of regional and cross-border interdependencies has continued to be a major stakeholder interest through dozens of seminars, workshops, exercises and other activities. These events have examined a wide range of infrastructure vulnerabilities and from different types of interdependencies that exist with the large concentration of often co-located critical assets in the Seattle area. King County, for example, sponsors an annual Interdependencies Workshop each fall.
 - An automated template for collection of interdependencies related data was developed with key Puget Sound infrastructure stakeholders as part of a DHS/S&T-sponsored PNWER pilot project with Argonne National Laboratory providing the technical expertise. The project has not been pursued beyond initial testing with Puget Sound Energy and a few other key organizations. Lack of resources to further develop and incentivize use of this tool has been a major factor.
- Several PNWER key stakeholders have made interdependencies/supply chains a significant focus of their continuity planning and exercises, e.g., Puget Sound Energy, Microsoft, Boeing,

AT&T, and Safeway. These organizations have taken active steps to lesson risk to their operations, including relocation of assets, making provisions to use alternate or remote operations, conducting security surveys of existing facilities, hardening or protecting structures and equipment, developing continuity of operations plans to operate from facilities outside the region, training key personnel including logistics in emergency management procedures, taking steps to insure there are alternate fuel locations including pre-wiring for the use of emergency power generators and other resources.

- Washington State has developed a Washington Infrastructure Protection Plan modeled on the National Infrastructure Protection Plan and has identified State critical assets among other interdependencies-related activities.
- Interdependencies and related vulnerabilities most often cited as most important by stakeholders include electric power and fuels, all modes of transportation, critical IT and telecommunications, water and waste water, financial systems, and shipping and supply chains. Many examples of interdependencies issues that are factors in bio-events or other events with major health and safety impacts have been raised by stakeholders at exercises and workshops, providing them with a broad knowledge of high-level interdependencies. These include:
 - Impacts on grocers and food warehouses from prolonged power outages, transportation, fuel, and communications on just-in-time and warehousing and maintenance of electric power and natural gas at warehouses. If the duration of power outages exceeds fuel stockpiles for emergency power generation beyond 10 hours, there will be large amounts of spoiled materials that will pose a significant health hazard. Data lines are also especially critical to grocery stores and warehouses. Loss of connectivity severely impacts communications with these stores, including electronic benefit transactions (EBT), debit transactions that now represent up to 70% of all transactions, credit card processing, as well as automated inventory ordering systems. Redundant wireless and or satellite communications are currently being considered by some retailers as a result.
 - The Green River Valley within the Puget Sound Region is the location for 192 food and agriculture-related facilities and a significant number of warehouses and is a major national and international shipping point for grain. Several major food processing and dairy processing centers are located in the valley. These facilities house sophisticated equipment that cannot be easily relocated. These companies are interacting with local emergency management departments to ensure accurate information and communications exists between the public and private sector. Many have taken steps to protect structures and assets or relocate their operations out of the area in the event of flooding associated with the Howard Hanson Dam.
 - Stakeholders attending *Blue Cascades IV* (pandemic preparedness) and *VI* (Green River Valley flood and pandemic resurgence) and three community bio-event resilience workshops emphasized the issues of hospital suppliers that operate on a just-in-time delivery system and many essential services (e.g. linen cleaning, security guards, other technical staff) that could be disrupted in a disaster scenario. Many hospitals are updating continuity of operations plans to assure electronic ordering systems are resilient and dispersed enough that they will not be cut off during an emergency. They are also

working on improving surge capacity to assure availability of staff, pharmaceuticals, and equipment, particularly when surge capacity is needed.

- Regional healthcare providers and critical healthcare suppliers are increasing their knowledge and upgrading continuity plans to address supply chain vulnerabilities and potential impacts and how to better assure medical and food supply chains, as well as getting staff to work. There currently is particular focus on around half dozen key critical healthcare suppliers that are threatened either directly by potential Green River Valley flooding or by loss of key infrastructure due to their location. Several major pharmaceutical suppliers have warehouses in the valley and several of the region's major oxygen suppliers are located within the flood plain as well.
- All-hazards impacts on Port of Seattle and Tacoma operations can have significant affects on Port operations and consequently, supplies of essential medical equipment. For example, the Green River Valley is the second largest warehousing district on the west coast of the United States. A large percentage of the goods housed in the valley come through local ports.
- AT&T has said in recent PNWER events including the November 2009 Green River Valley Interdependencies Workshop that they have taken measures to relocate, work around, or protect assets that could be affected in a potential flood or other disaster. Qwest (five central offices in the region, including a cyber center in Tukwila, an MRI warehouse in Kent, and cables, equipment, garages, and controlled environmental vaults) have said they are addressing how to provide back-up capabilities and restore disrupted service as soon as possible.
- Puget Sound Energy said at the November Green River Valley Workshop that it's recovery capabilities will be "extremely taxed", particularly if significant infrastructures are damaged or subject to prolonged disruption. PSE is Washington State's largest utility serving over a million electric customers and three-quarters of a million natural gas customers. Seattle City Light, the largest public utility in the State, serves three-quarters of a million customers. It's continuity of operations plan has defined trigger points and is coordinated with Seattle Emergency Management. The 2006 windstorm that struck the region made it clear to both PSE and Seattle City Light how vulnerable energy systems are and the shortcomings at the time in operational plans to restore power in 48 hours.
- The supply of diesel and gasoline could be impacted for the region due to flooding or another significant disaster. There are fuel facilities that provide fuel for local gas stations across the region and a major jet fuel pipeline that supplies SeaTac Airport located in the Green River Valley. If pump stations become inoperable, it will cause the transport of jet fuel to cease. This will impact air traffic within the region and will limit the ability to refuel in Seattle. Many of the private sector organization have limited supplies of diesel fuel available (less than four days) on site.
- Tacoma Power's interdependencies include major interconnections, two with the Bonneville Power Administration (BPA) and one with Puget Sound Energy, together with telecommunications and regional water districts. Tacoma Power's energy emergency focus is on potential disruptions from all-hazard incidents, including lost of interconnection with BPA, major substation outages, dam failure (the service area has seven major hydro dams), and earthquakes. The Tacoma Power continuity of operations

plan emphasizes business continuity with the City of Tacoma and the company has over 30 mutual aid agreements in and around their service area.

- Williams-Northwest Pipeline has 4000 miles of natural gas pipelines (1400 miles in Washington State) that extend from gas fields and storage facilities from Canada to New Mexico. Northwest Pipeline transports 85-90% of the natural gas used in Washington, delivering to marketers, electric power producers, industrial users, and local distribution companies. The company has 13 compressor stations and storage facilities in 29 of 35 counties. To help protect and assure its widely distributed system, Williams - Northwest Pipeline has built in considerable system redundancy. It generally shares information with customers and suppliers, but shares less with public institutions and local, State agencies, because of freedom of information requirements that could lead to release of sensitive information to the public.
- Regional stakeholders have addressed interdependencies-related concerns at a DOE sponsored workshop developed and conducted by PNWER in mid-2009. Local jurisdiction representatives focused on challenges they faced in major emergencies, including the 2006 windstorm. Issues of concern included the need to have adequate staff available for potential emergencies; locating food distribution centers and the dependency of rechargeable forklifts on power; cell phone tower disruption due to lack of fuel; limited fuel and few operating gas stations; the need to require back-up power to pump fuel; energy service providers required to supply their personnel with cash with credit card transaction unavailable; and the need for thresholds for sharing information, determination of who gets notified and when, and what information will be shared; also how prioritization of energy restoration is determined; how to get the information to develop a list of emergency contacts; and where to get data on State assistance.
- The Washington Association of Sewer and Water Districts has been actively involved in interdependencies-related events and activities in the Puget Sound Region.

FINDINGS AND NEEDS

- Government and private sector organizations continue to have limited understanding of interdependencies-related cyber impacts on their facilities, and operational and business systems in a large-scale disaster. This was a priority finding in the 2002 *Blue Cascades II* exercise and was recently re-confirmed by the Emerald Down cyber exercise developed by the City of Seattle and Norwich University Applied Research Institute with PNWER, regional stakeholders, and technical support from DHS National Cyber Security Division.
- Much of the Puget Sound Region interdependencies understanding and data has not been collected and documented in any systematic way beyond exercise and workshop reports. There is no institutionalized knowledge base to inform new security and emergency management professionals that are taking over for veteran stakeholder representatives who are retiring or moving on. In many private sector companies emergency management and or business continuity planning is just beginning to be recognized as being significant. Often this responsibility is being added to existing work loads for their security/loss prevention or risk management departments.

- General understanding of interdependencies does not extend to the broader stakeholder community beyond the major infrastructure sectors, leaving small and medium-sized businesses and many larger enterprises without necessary background for continuity planning.
- There remains a lack of appreciation of how cascading and simultaneous infrastructure failures and physical destruction of critical assets could paralyze parts of a region for weeks or months.
- Assuring potable water in a major disaster is a challenge. Service to customers would be affected by contamination and backflow issues. In the event of major flooding, each city in the flooded area would need to test their potable water to ensure that it was not being contaminated.
- In a major flood or earthquake, water systems in the inundation area may not be fully operational for some time because of loss of power and pressure. King County Wastewater Treatment Division, the water treatment provider for the local sewer agencies in the potential Green River Valley flood area, said that their system is only capable of handling routine wastewater flows and would not be able to handle the additional flows that would come from the interior drains of inundated homes and businesses. The conveyance system in the area of concern is a gravity system that flows to the King County South Treatment Plant in Renton, which treats the wastewater for approximately 750,000 people who live in the metropolitan area east of Lake Washington. The system in essence would become a sump for the inundated areas and would quickly be overwhelmed.
- King County areas of concern associated with major events such as flooding or earthquakes include: damages or destroyed infrastructure, hazardous materials co-mingling with floodwaters; sewage collection, conveyance, and treatment system impacts and sewage overflows; drinking water system integrity/safety; solid waste/debris management; rodents/vectors; dead animal disposal; household chemicals; and other substances. Other concerns include food safety and sanitation, food warehousing and distribution, and evacuation and mass care sheltering. King County and other local and Washington State public health and environmental officials, including the Healthcare Coalition, are addressing these issues with emergency management agencies at the local and state level.
- There are critical communications and IT assets located in the Puget Sound Region, with several critical fiber optic regeneration facilities located in the Green River Valley. These facilities are important to the entire region's access to Internet services and long distance calls. Likewise, several data warehouses are located in the valley. There is concern that these facilities could lose connectivity and/or power for prolonged periods.
- The Port of Seattle employs 111,317 individuals and contributes approximately \$8.8 billion in income and spending in the region. If be forced to close during a major emergency for a prolonged period, billions of dollars would be lost in state tax revenue.
- Various other examples of stakeholders concerns on interdependencies issues regarding bio-events and other health and safety-related consequences include:

- Ensuring that there are enough security guards, National Guard, and law enforcement, as well as drivers for mass transit and transporting essential products (food, pharmaceuticals, fuels, materials).
 - Limited understanding by businesses on how to implement a logistic system/resupply following a large-scale disaster.
 - Populations of major cities depending on grocery stores, pharmacies, and other essential service providers that customarily have no more than a few days supply of food and pharmaceuticals.
 - Maintaining integrity of the food supply that is dependent on power, clean water, waste treatment, refrigeration, fuel, telecommunications, and transportation, which may be unavailable in an extended power outage.
 - There also remains a lack of criteria and tools available to local and state agencies and infrastructures for assessing physical and cyber dependencies and interdependencies, and public health, economic, and environmental impacts of different threat scenarios. Along these lines, there is a need for standardized GIS-based interdependencies assessment and decision-support tools and supporting information sharing procedures that can be customized for use by infrastructures and regional key stakeholders for preparedness planning and disaster management. Elements of these capabilities exist, as will be noted further in this document, but have not yet been incorporated to produce the necessary toolset.
 - There is a need at the local level for effective, doable and affordable regional risk assessment and mitigation approaches and assessment systems that can be tailored to all-hazards disaster scenarios.
- Much of the information on disaster impacts to regional businesses under certain scenarios is conjectural, based on assumptions of how staff shortages would affect operations and business practices and how response and recovery procedures, such as closing down transportation routes, mass transit, delaying school re-openings could complicate and escalate disruptions or impede restoration and business recovery.
 - There is a need for a regional infrastructure impacts assessments and risk mitigation focusing on high-risk areas and interdependencies impacts assessments of evacuations and sheltering in place plans under different scenarios. Stakeholders recognize this is a long-term goal and will require tools and expertise they will need from federal sources.

6.4.2. PREVENTION AND MITIGATION MEASURES

CAPABILITIES

- Localities and many medium and large businesses have either developed or are in the process of developing continuity plans and undertaking preparedness activities that can be used for all-hazards scenarios. Also, utilities and service providers have been developing back-up plans and systems, including operating from remote facilities. An incentive for part of the Region has been the threat of potential Green River Valley flooding.

- On the environmental public health side, regional planning efforts have included mobilizing several planning task forces focusing on hazardous materials mitigation, public safety, environmental monitoring of floodwater/sediments, disaster debris management, and mass care and sheltering. Each of these task forces is responsible for creating a flood action plan.
- King County officials, because of concerns over the potential loss of power to its treatment plant serving the Green River Valley, have staged additional emergency generators so that they can continue to pump and treat wastewater, even during an extended power outage. In the event of major flooding, each city in the flooded area has procedures to test their potable water to ensure that it was not being contaminated.
- King County has been focusing on measures to address food safety and sanitation, food warehousing and distribution, and mass care sheltering for earthquakes, floods, and other major hazards.
- The Port of Seattle, AT&T, Puget Sound Energy, and other stakeholders are developing and testing procedures for employee telecommuting. AT&T has made extensive continuity plans for their infrastructure because they cannot afford to be down, with mobile cell sites identified and ready for deployment.
- WSDOT has plans to utilize the National Guard to enforce road closures if an emergency declaration is made by the Governor.
- Some hospitals will provide accommodations for staff that are impacted by the flood and have made arrangements with vendors and other service providers to assure critical services.
- Federal and local government assets in the region are relocating resources and supplies out of the projected potential flood area
- Many utilities and businesses have established MOUs for assuring services, including contracts with moving companies to relocate assets in the event of a flood-related evacuation.
- Some regional financial organizations have set up a consortium — Washington First — to focus on infrastructure security and disaster resilience. A priority has been development and testing of plans for pandemic preparedness.
- Washington State has a Homeland Security Strategic Plan developed with input from state agencies, public and private sectors and stakeholders. The State Committee on Homeland Security Infrastructure Protection Subcommittee utilizes sector stakeholders to coordinate selection criteria and identify critical infrastructure and other essential service providers having a statewide or broader impact.
 - Sector inventory data is used to assess, plans, and identify dependencies and interdependencies, and cascading effects in support of consequence planning.
 - The Infrastructure Protection Subcommittee prioritizes critical infrastructure and key resources having a statewide or broader impact by creating risk profiles for different entities that help identify interdependencies.

- Washington State is utilizing the Automated Critical Asset Management System (ACAMS) and the Critical Incident Planning and Mapping System to help protect critical infrastructure in the State.
 - ACAMS is a Department of Homeland Security secure online database that “allows for the input of asset information, cataloging, screening, sorting of this data, the production of several reports and a variety of inquiries.
 - The Critical Incident Planning and Mapping System are administered through the Washington association of Sheriffs and Police Chiefs (WASPC).
- The Interagency Bio Restoration Demonstration Pilot Project, sponsored by the U.S. Department of Homeland Security and the Defense Threat reduction Agency with Puget Sound stakeholders has focused on developing an anthrax detection and prioritized restoration capability with tools, procedures, and processes for the region.
- The Department of Homeland Security’s BioWatch program leverages the combined resources of several federal agencies to work with state public health to provide sampling, analysis, and response through pathogen detectors that are located with Environmental Protection Agency (EPA) air quality monitors.
 - Samples of airborne particles are collected and transported to labs for analysis. The Centers for Disease Control and Prevention (CDC) handles analysis of the samples in labs, using state and local public health facilities. If positive findings are obtained, then the Federal Bureau of Investigation (FBI) leads the public health response.

FINDINGS AND NEEDS

- In order to make cost-effective bio-event mitigation decisions (develop a regional risk mitigation strategy), there needs to be an improved understanding of threat, vulnerabilities, consequences and identified specific and prioritized measures to lesson the impacts of disruptions or damage to deal with different significant threats. While there are many capabilities that are either developed or being implemented to increase this knowledge base, much more needs to be done to develop, integrate, and analyze information to develop a cost-effective regional health and safety resilience mitigation strategy.
- Along these lines, interdependencies assessment tools need to be developed to better understand the impact pandemics and other bio-events. Likewise, regional risk assessment methodologies are only now beginning to be developed for specific threat scenarios.

SOURCES FOR FOCUS AREA 6.4.

Blue Cascades VIDraftRegional Exercise After Action Report, PNWER Center for Regional Disaster Resilience, May 2010.

Summary Report, Comprehensive Community Bio-Event Resilience Project (CCBER) Joint U.S.-Canadian Post-Exercise Workshop and Broader PNW Cross-Border Health Alliance Workshop, May 6, 2010.

Washington State Infrastructure Protection Plan. Washington State Military Department, Feb 2008,http://www.emd.wa.gov/plans/2008_WIPP.pdf

Washington State Energy Assurance and Emergency Protection Plan, Washington State Department of Community, Trade, and Economic Development, Energy Policy Division. January 2008.

CERTs Fight HINI, CERT National Newsletter Vol.3 Issue 1, https://www.citizencorps.gov/cert/newsletter/CERT_Newsletter_Volume3_Issue1_April_2010.pdf

Emergency Support Function 7 - Resource Management. Regional Disaster Plan for Public and Private Organizations in King County, http://www.kingcounty.gov/safety/prepare/EmergencyManagementProfessionals/PlansandPrograms/~media/safety/prepare/documents/RDP/RDP_ESF7_Resource_Mgmt_Version_03_31_04.a.shx and http://www.emd.wa.gov/plans/plans_index.shtml.

6.5. BUSINESS CONTINUITY, CONTINUITY OF OPERATIONS, AND SUPPLY CHAIN MANAGEMENT

This focus area includes development of effective continuity plans, assessing operational business continuity impacts, workforce policy issues, and identification of potential improve measures, as well as other issues.

6.5.1. DEVELOPMENT OF EFFECTIVE CONTINUITY PLANS

CAPABILITIES

- There are various sources of information available to Puget Sound businesses and other organizations. For example,
 - The Financial Services Sector Coordination Council for Critical Infrastructure Protection and Homeland Security has made available to private sector organizations a checklist of emergency procedures and policies that should be incorporated into continuity plans.
 - FEMA has available *General Guidelines for Business Continuity Planning* with a planning checklist, which can be accessed at <http://www.ready.gov>. The website also lists several business continuity sites for pandemic influenza response planning, such as the National Fire Protection Association and ASIS International (an organization for security professionals).
 - The U.S. Department of Homeland Security has a website entitled *Ready Business* that focuses on business continuity planning for emergencies. Materials are available for downloading that guide businesses through planning, including examples of existing plans.
 - Washington State has a website devoted to business continuity. “Access Washington” provides continuity planning as well as advice on other aspects of managing a business, including financial assistance and regulatory information.

- Academic institutions, such as Western Washington University, offer training and certification in business continuity planning.
- The Interagency Bio Restoration Demonstration (IBRD) analysis on the economic impact of a wide area release of anthrax highlighted the following financial priorities that businesses should be prepared to address in a bio-event: insurance payouts for loss of life; private health care infrastructure; replacement of, and productivity loss from lost assets; temporary relocation of operations and employees; liability for cleanup exposure; facility clean up procedures; and productivity loss from employee absenteeism.
- There are plans by King County and City of Seattle to build on efforts to develop a Public-Private Business Continuity Outreach and Assistance Program to provide public education and help for small and medium businesses.
- Washington Emergency Management Division has a corporate relations manager who is responsible for engaging with the private sector. This initiative includes the development of a business portal to provide the private sector with critical information.
- The Association of Washington Businesses has partnered with WA Emergency Management to provide representatives to staff the EOC during an activation to coordinate private sector issues.

FINDINGS AND NEEDS

- Despite an availability of public information and continuity planning guidelines and templates on the Internet, most businesses and other organizations, with the exception of larger enterprises, have neither the time nor the personnel to focus on disaster planning. Likewise, county and local governments do not possess the needed resources to fully assist businesses in developing plans.
- While large companies are developing contingency plans, small and medium-size businesses need assistance and incentives to develop plans and information on best practices and to undertake training for staff and preparedness drills. These plans should take into account legal and liability issues.
- Businesses, such as retail, manufacturing, and distribution and service organizations are rarely directly involved in local or regional preparedness planning or exercises.
- In the *Blue Cascades VI* exercise focusing on Green River Valley flooding and pandemic resurgence, there was general agreement that local government should continue to conduct outreach to area businesses and other organizations, provide forums to share continuity of operations planning, best practices and approaches, and assist small enterprises and other organizations that lack resources and expertise.

6.5.2. ASSESSING OPERATIONAL BUSINESS CONTINUITY IMPACTS

CAPABILITIES

- Some activities are underway at universities and by federal agencies with local stakeholders to develop assessment approaches and tools to assess consequences of disasters related to health and safety and overall economic resilience.

FINDINGS AND NEEDS

- *Blue Cascades VI* revealed that there is insufficient inventory at storage sites for pharmaceuticals, hospitals, and businesses to cover anticipated needs in a significant incident or disaster. Moreover, most suppliers rely heavily on networks that may not be accessible.
- 58 percent of the 351 respondents to a survey conducted by the Association of Washington Businesses for H1N1 reported that they did not have backup suppliers ready to assist them during a pandemic. 44.5 percent reported that their employees did not have plans to secure care of their children if schools are closed,

6.5.3. WORKFORCE POLICY ISSUES

CAPABILITIES

- H1N1 lessons learned have led some organizations to revisit and revise their human resource and continuity plans to make them more flexible and to address legal, liability, and other regulatory issues, such as HIPAA health-related data privacy regulations.

FINDINGS AND NEEDS

- At the initial CBBER Project Kick-Off workshop and in subsequent workshops and the *Blue Cascades VI* exercise, participants focused on the lack of good guidance for businesses on how to respond to a pandemic. Issues cited included whether pandemic cases were reportable under OSHA, liability of organizations if they did not follow public health department recommendations, the need for flexible sick leave policies and payroll provisions. A major concern was how businesses should address the HIPAA Privacy Rule that provides federal protections for personal health information and which give patients rights with respect to that information. HIPAA specifies a series of administrative, physical, and technical safeguards for use to assure the confidentiality, integrity, and availability of electronic protected health information.
- Businesses tend to underestimate “people issues” and the fact that personnel are integral to the ability of an infrastructure or organization to function.
- Although some local organizations have reported altering human resource policies and continuity plans as a result of H1N1 lessons learned, many issues remain to be addressed.

6.5.4. IDENTIFICATION OF POTENTIAL IMPROVEMENT MEASURES

CAPABILITIES

- H1N1 preparations led to many organizations in the Puget Sound Region to make arrangements with essential suppliers and identify critical functions and employees; also developing provisions for, and to test telecommuting capabilities for staff.
- Federal and local government assets in the region are relocating resources and supplies out of the projected potential flood area.
- Many utilities and businesses have established MOUs for assuring services, including contracts with moving companies to relocate assets in the event of a flood-related evacuation.
- The *Blue Cascades VI* regional exercise revealed that pharmaceutical suppliers and other businesses have arranged other modes of transportation for critical goods if traditional modes are blocked during emergencies, including fly-by deliveries by helicopter.

FINDINGS AND NEEDS

- *Blue Cascades VI* revealed that certain businesses, such as information technology firms, remain still in planning stages of remote siting of critical data and providing backup systems, while others either are not taking steps to protect their data or failing to realize that their remote or redundant locations could fail because of interdependencies.

SOURCES FOR FOCUS AREA 6.5.

Washington State Business Planning Guidance, Access Washington, <http://access.wa.gov/business/plan.aspx>.

Blue Cascades VIDraftRegional Exercise After Action Report, PNWER Center for Regional Disaster Resilience, May 2010.

CCBER Initial Survey Findings.PNWER Center for Regional Disaster Resilience, Oct 2009.

General Guidelines for Business Continuity Planning, FEMA, <http://www.ready.gov/business/index.html>.

H1N1 Flu Summit Meeting, Washington State Association of Businesses,(PowerPoint presentation).

Pandemic Influenza Specific Business Continuity Checklist, U.S. Department of Health and Human Services Department,<http://www.flu.gov/professional/business/businesschecklist.html>.

Tabletop Exercises for Pandemic Influenza Preparedness in Local Public Health Agencies Pandemic Influenza Tabletop Exercise Materials, U.S. Department of Health and Human Services Department, <http://www.flu.gov/professional/states/tr319.html>.

See also: <http://pandemicflu.gov/professional/states/>.

6.6. RESPONSE ISSUES

This section covers roles and missions and multi-jurisdiction/cross-sector coordination and decision-making during response; resource issues, including staff, logistics, supply chain, and other issues.

6.6.1. ROLES AND MISSIONS, RESPONSE ORGANIZATIONAL STRUCTURE, AND DECISION-MAKING

CAPABILITIES

- King County has a regional disaster plan for public and private organizations that has been developed by a Regional Disaster Planning Task Force that includes multi-disciplinary representatives from cities, fire service, law enforcement, hospitals, public health, water and sewer, schools, businesses, tribes, nonprofits, associations, and other organizations. The Regional Disaster Plan is a unique “mutual aid agreement” that establishes the framework to allow public, private and nonprofit organizations an avenue to efficiently assist one another during a disaster through a plan that addresses organizational responsibilities and an agreement that addresses legal and financial concern. To date, there are over 140 signatories to the Regional Disaster Plan.
- There has been significant discussion at a number of PNWER exercises and workshops on how to improve the response organizational structure. Government officials stress the importance of the National Incident Management System (NIMS) and the Incident Command System (ICS) and the need for private sector training and adoption of this approach. Private sector organizations, with the exception of utilities and those working closely with government (e.g., Boeing) stress the challenges of incorporating the private sector into National Incident Management System (NIMS)/Incident Command System (ICS) model for emergency response.
- King County on its website offers information and access to training on NIMS.
- As part of Green River Valley Flood preparations, King County and affected municipalities have exercised the regional response system.
- There are extensive lessons learned from H1N1 response that have been documented in the Public Health-Seattle & King County –2009 H1N1 Influenza Fall Outbreak Response After Action Report together with an improvement plan.

FINDINGS AND NEEDS

- Participants in regional exercises and workshops often raise concerns over the response organizational structure, in particular inclusion of key private sector stakeholders.

- There is a perception by some private sector organizations that business continuity planning is not compatible with ICS, particularly for financial institutions and other service industries that have more flat management structures and less clearly defined roles and missions. Other participants have pointed out that ICS training is available for government employees but not readily accessible to private sector personnel, who must be sponsored by local government. Funding for training was cited as yet another impediment.
- Washington is a home rule state, and local jurisdictions act independently and have their own emergency response plans and procedures. For example, jurisdictions have different distribution for vaccines that causes problems defining priority groups and ensuring consistency across county lines.
- Interagency Bio Restoration Demonstration (IBRD) project meetings have highlighted that there is a need to identify the key players for response, recovery and restoration at the federal, state, local, and regional levels. At present there is no regional preparedness framework that provides clearly defines these roles and missions.

6.6.2. PRIORITY RESPONSE CHALLENGES

CAPABILITIES

- King County and local jurisdictions have developed extensive response capabilities to incidents and disasters that take into account health and safety needs. Involvement of critical infrastructures and other essential service providers, business, and other non-government organizations is evolving, accelerated by H1N1 and preparations for potential Green River Valley flooding.
- Regional exercises that include a broad range of stakeholder organizations, such as the *Blue Cascades* Series, workshops, and other targeted exercises and events are now routine.
- The Washington State Department of Transportation has been working with trucking interests to address evacuations and other transportation-related supply chain and logistics issues.
- In the event of potential flooding or a major earthquake, it is recognized that local officials will need to identify long-term shelter locations. King County is in the process of doing this.
- Puget Sound jurisdictions led by Public Health–Seattle & King County have a wealth of experience and new capabilities from the H1N1 response that they are leveraging for the Green River Valley flood threat.
- Public health personnel have held continuity of operations planning sessions with nursing homes in Green River Valley jurisdictions and have resources to translate information into a significant number of languages.
- An extensive compilation of H1N1 response lessons learned has been released by King County, which documents in detail healthcare and related safety capabilities and gaps which still need to be addressed.

- Puget Sound localities are focusing an extensive outreach to leaders of cultural and non-English speaking groups on health and related emergency issues, which has been a major issue raised in exercises and lessons learned reports after the destructive windstorm of 2006 and other emergencies.
- King County is developing a plan to manage the influx of volunteer aid and a system to determine which entities or jurisdictions need these resources.

FINDINGS AND NEEDS

- Response to an incident or disaster with major health impacts could last in certain scenarios (earthquakes, major floods) more than three to four days. In a pandemic, response could continue for months and for a bio, chemical, or radiological event the response duration could be prolonged depending on the scope and magnitude of the event. An effective multi-jurisdictional organization will be required to assess, decontaminate, treat, and resume normal operational activities.
- In a major disaster, organizations would be on their own for days at a minimum, given the level of disruptions and outages and the fact that there would be competing needs for federal resources throughout all disaster-affected states and provinces.
- Sheltering large numbers of individuals for a period of time poses a major problem. Schools would have only a day's worth of food and many potential shelters could lack heat and potable water, or would soon exhaust available resources and face sanitary problems. This is particularly the case if the local water and sewer services were unavailable.
- Dealing with large numbers of abandoned vehicles may be an unanticipated significant problem, along with debris removal to enable emergency response and initial recovery.
- The large number of casualties may exceed the surge capacity of hospitals that are not damaged or suspected of having structural damage and forced to evacuate in certain scenarios.
- Utilities and other essential service providers would be greatly hampered in resuming or maintaining operations because of inability to bring staff in or to keep personnel from leaving to be with their families. In other instances, organizations would need to shelter individuals who could not return home.
- Evacuation planning still remains under development. For example, Green River Valley flood evacuation procedures, which were briefed at the *Blue Cascades VI* exercise, were viewed by many participants as complex. Timelines did not appear practical and evacuation of patients and people with special needs required further attention. Participants also were unclear on how the evacuation process would work — how it would be coordinated and the timelines. Specific issues raised included how transportation would be scheduled and orchestrated to bring trucks into the area to convey business assets and resources, and transport people out of the area at the same time; also, how to ensure gasoline and diesel fuel would be available along the evacuation route; availability of mass transit to expedite evacuation, etc.

- There remains a need for development of broader regional evacuation plan that could move large numbers of individuals from homes and businesses in a chaotic situation of transportation gridlock, no power, potential damage to building and structures, and limited communications.
- Further work needs to be done on outreach, education, and awareness, including provisions for “special populations” who could need to evacuate, including tribal nations and individuals in nursing homes and assisted care facilities and prisons. This will include provisions for sheltering large numbers of individuals, particularly long-term sheltering.
- Medical emergency response in a significant incident or disaster could be impeded by transportation impacts, fuel, and staff shortages.
- There is a need for local and state officials with regional key stakeholders to develop a clearly-expressed evacuation and sheltering plan with an associated outreach and public education strategy that covers people, livestock, and pets.
- Local officials have no legal authority to force someone to evacuate.
- Regarding vulnerable populations and cultural groups, despite County and other local government outreach activities, concerns include relocation of nursing home residents and the likelihood that non-English speakers or economically vulnerable individuals may not be prepared or have the information necessary to evacuate in the event of a major flood.
- There is general consensus at PNWER events that more still needs to be done in this area to incorporate individuals with special needs and cultural groups, including non-English speakers into jurisdictions’ emergency and response strategies.
- Lack of insurance for small businesses and individuals remains a significant challenge.
- In a large-scale disaster, a major challenge will be availability of transportation infrastructure is necessary for restoration of critical infrastructure operations and other essential services.
- Stakeholders have raised work place-related policy and liability issues (unpaid leave, environmental hazard, security and other health and safety issues) as significant problem areas in major incidents, including potential Green River Valley flooding. A recommendation in recent workshops and *Blue Cascades VI* was to identify best practices to deal with these issues and incorporate them into a single information resource that can be shared among regional stakeholders and incorporated in emergency and continuity plans and procedures. Another recommendation was that legal issues and policy gaps that impact preparedness should be addressed and opportunities for changing them (e.g., legislative or other actions) identified where possible.
- Security issues in the aftermath of a major disaster are a significant concern, particularly for local businesses, including the potential for fraud and assuring IT security.
- Certification of Personnel is another key issue, raised in all *Blue Cascades* exercises and many other events. Certification is necessary for essential personnel to regain access to their place

of work, for first responders, utility maintenance workers, inspectors, etc. Identification and verification of emergency, service restoration, response, and other types of workers and permitting requirements and processes will be a significant constraint on response and initial recovery. Although local and state agencies have been addressing the certification issue, there is still no agreed process.

6.6.3. EXTENT OF COORDINATION/COOPERATION

CAPABILITIES

- There are many collaborative groups that focus on health and safety security and disaster resilience, some of which are cross sector, including the Puget Sound Regional Partnership for Infrastructure Security and Resilience. The Partnership has an integrated regional Action Plan compiled from the lessons learned from the six *Blue Cascades* exercises to date and a number of projects and activities already completed and others underway to improve regional disaster resilience.
- During the H1N1 response:
 - Hospitals worked together to develop regional visitor guidelines that offered a staged framework for hospitals to use in restricting public access.
 - The healthcare community provided input into resource conservation strategies.
 - Medical Directors for Intensive Care Units shared information on the status of their patients and impacts to bed and equipment use;
 - The Multi-Agency Coordinating Group got the opportunity to deliberate on policy level decisions, such as mask distribution.
 - Health officials had the chance to implement lessons learned from the Flu Hotline activated in the spring, which proved valuable for the entire community.
- As the lead agency for Emergency Support Function 8 – Health, Medical, and Mortuary Services, Public Health – Seattle & King County provided leadership and coordination of information and medical resources throughout the response, operating the Health and Medical Area Command over 140 days of activation, coordinating regularly with the DOH and other local emergency operations centers.
- Healthcare organizations were essential partners in the response. Public Health coordinated closely with pharmacies, ambulatory care providers, community health centers, home health and home care providers, behavioral health providers; long term care providers, community based organizations, specialty providers, such as dialysis providers and the Puget Sound Blood Center, local emergency managers, schools and daycares, and elected officials.
- King County Public Health was able to call on Public Health Reserve Corps volunteers during the H1N1 pandemic and provide them with real-world response experience.
- Public health officials coordinated antiviral and H1N1 vaccine distribution with healthcare providers including pharmacies.

- Public health messaging to providers, partners and the public was accomplished through regular conference calls with participating providers and pharmacies, broadcast faxes and updates, weekly bulletins and a website with details on where and how the public could access vaccine.

FINDINGS AND NEEDS

- While there were significant accomplishments demonstrated during the H1N1 response, Three *Blue Cascades* exercises, *III* (major earthquake), *V* (disaster supply chains), and *VI* (Green River Valley flood and pandemic resurgence) have underscored that there is limited appreciation of the monumental task of coordinating response to rescue thousands of individuals injured or trapped in buildings, the need to shelter or resettle tens of thousands of others, and attending to the dead — people and animals.
- Much work remains to be done in coordinating local and state government disaster preparedness plans and contingency plans of private sector organizations for a major disaster.
- At regional exercises and workshops, private sector stakeholders commonly express concerns that the private sector and other non-government organizations need to be included in regional preparedness planning with states, provinces, and municipalities.
- Agencies and organizations need to review and further expand mutual assistance agreements among states, cities, and counties, and with and among private sector organizations, particularly with organizations outside the potential disaster impact region.
- Multi-jurisdiction coordination remains a challenge in a major disaster; each jurisdiction has its own plan and may have different procedures. Local public health has the lead on health-related impacts and bio-events.
- Most stakeholders are aware of the importance of including regional and national defense assets in regional preparedness planning for major disasters typically, but give this highly important topic limited focus in exercises.
- U.S. Department of Defense facilities need to understand preparedness plans of, and coordinate with government agencies and organizations on which mission assurance depends, including how military civilians will be assisted and what Defense Department-related resources may be required if the National Guard and law enforcement are overwhelmed.
- Local jurisdictions, utilities, businesses and other organizations have their own disaster response or business contingency plans and responsibilities to employees, customers, and in some cases to shareholders.
- The need for improved multi-agency/multi-jurisdiction coordination and mechanisms is a concern highlighted at every PNWER exercise and event. This includes the need for effective procedures for decision-making and determining lead roles for agencies and appropriate organizational structures for pre-event, response, and particularly for recovery and long-term restoration. A related issue is how to better bridge the emergency management and public

health communities. The general consensus is that many issues and challenges remain to be addressed.

- Seattle, Washington is the largest city in the Pacific Northwest region of the United States, and is only 108 miles from the U.S.-Canadian border. The close proximity to the border, an integrated economy, and the continuous flow of people make a highly unique and integrated system within the Pacific Northwest region. Interdependencies between the U.S and Canada will be decisive elements of how the two countries respond to bio-events, and whether they are successful in a collaborative response, recovery, and restoration.
- Coordination issues arise within King County because of its multiple jurisdictions and unincorporated sections, especially when dealing with livestock, media messaging, and mass-sheltering.
- Bio-event preparedness tends to focus on government, yet government entities do not always have or can supply the necessary tools and accessing private sector resources becomes essential.
- Washington State Home Rule nature affects response largely due to the ability of public health and other officials to make isolated plans and decisions that may not collaborate with neighboring regions or jurisdictions. During the H1N1 response, different policies and procedures among counties also meant that organizations had to learn more than one system for ordering vaccine and reporting utilization. There was also inconsistency in how healthcare organizations prioritized vaccine within their organizations, especially when balancing the need to vaccinate staff as well as high-risk patients.
- Hospitals need to have mutual aid agreements with other regional hospitals and healthcare facilities to handle situations where they must evacuate patients because of disrupted services or potential structural damage, or be able to receive large numbers of patients from hospitals unable to continue operations.
- Local media have an essential role in response activities — providing crucial information to citizens on response procedures, hazards, and conditions in the region. There currently is not a strategy to incorporate them into regional preparedness activities.

6.6.4. RESOURCE ISSUES; INCLUDING STAFF, LOGISTICS, AVAILABILITY OF NECESSARY PRODUCTS AND SUPPLIES

CAPABILITIES

- If activated by the Governor, the National Guard would be able to provide the following resources under local government supervision:
 - Infantry trained in mounted and dismounted patrolling (police actions) and in detention of suspected criminals
 - Military Police Units
 - Engineers

- Vehicles of various types
 - Access to fueling equipment for generators or localized emergency management assets
 - Personnel trained in chemical, biological, and nuclear activities
 - Experts in hazardous material containment and detection
 - Access to aviation capabilities (helicopters for evacuation and rescue, as well as transporting personnel and large equipment out of impact zones)
 - Medical first responders capable of giving general medical aid and administering IV's and starting the triage process
 - Medics
 - Military bases housing medical personnel, including Madigan Army Medical Center, the Naval hospital in Bremerton, the 62nd and 92nd Medical groups and 446th Aerospace medical squadron at Lewis-McChord.
- The Federal government may activate the National Disaster Medical System to assist the regional in dealing with a bio-event once a Presidential Declaration has been made for the state. The National Disaster Medical System would be able to provide support to the military and Department of Veterans Affairs medical systems, as well as augment medical response capability in assisting state and local authorities in dealing with medical impacts of a major peacetime disaster.
 - The Public Health Reserve Corps is a community-based group of local medical and non-medical workers who can serve as volunteers during a public health emergency. Its role is to help limit injuries, illness, suffering, and death within the community and to assist with logistics, operations of a temporary field hospital, emergency shelter, medication centers, dispensing medications, administering vaccinations, providing information and support to the community, and conducting health screenings.
 - The Medical Reserve Corps is a partner program with the Citizen Corps that provides public health, medical, and other emergency response volunteers.
 - Volunteers include medical and public health professionals such as physicians, nurses, pharmacists, dentists, veterinarians, and epidemiologists.
 - Various non-government groups belonging to the Washington State Voluntary Organizations Active in Disasters group have also volunteered their efforts in responding to various disasters and catastrophic events. Some of these groups include the American Red Cross, the Church of Scientology Disaster Response Team, and the Presbyterian Disaster Assistance Team. These groups become important in reaching out to underground or miscellaneous groups during a bio-event.
 - King County has a Road Alert service on its website that provides a real time map of state and county roadways. Residential streets are in the process of being added.
 - There are mutual assistance agreements in place among utilities, local governments and states.

- Several exercises and the Comprehensive Community Bio-Event Resilience Pilot Project workshops have focused on how private sector organizations can provide range of resources and services to assist government in emergency response and recovery. For example, the Pacific Northwest American Industrial Hygiene Association can provide assistance with mold and building contamination after floods.
- King County has developed a resource inventory system that focuses on government capabilities that could be expanded to the private sector.

FINDINGS AND NEEDS:

- Around 40 percent of respondents of the CCBER Project stakeholder survey felt that the Puget Sound Region was under-prepared for earthquakes, pandemics, biological attacks, chemical attacks or hazards, and other types of terrorist attacks.
- Many businesses comprising a large portion of the Puget Sound's economy have emergency plans and resources for only three-four days.
- It could take at least two-to-three days for the National Guard to fully mobilize for a disaster, considering that mobilization would be delayed because of the regional paralysis. Also, widespread impacts of an earthquake or other regionally destructive event would necessitate that Guard forces would be spread thin and sent to high-priority areas.
- It is unclear whether everyone will be evacuating at the same time and how this would impact private and public stakeholders' preparedness plans.
- Credentialing, how it will be administered, granted, and recognized by officials still represents one of the largest problems to response and restoration.

SOURCES FOR FOCUS AREA 6.6.

Blue Cascades Exercises Series (Individual exercise After Action Reports), PNWER Center for Regional Disaster Resilience, 2002-2009.

Office of Civilian Volunteer Medical Reserve Corps,
<http://www.medicalreservecorps.gov/HomePage>.

CCBER Initial Survey. PNWER Center for Regional Disaster Resilience, Oct 2009.

Puget Sound Regional Catastrophic Disaster Coordination Plan, Preliminary draft, 23 July 2009.

Public Health – Seattle&King County, <http://www.kingcounty.gov/healthservices/health.aspx>.

Public Health-Seattle & King County – 2009 H1N1 Influenza Fall Outbreak Response - After Action Report, June 2010.

Summary Report, Comprehensive Community Bio-Event Resilience Project (CCBER) Joint U.S.-Canadian Post Exercise Workshop and Broader PNW Cross-Border Health Alliance Workshop, May 6, 2010

Summary Report, IBRD Community Resilience Workshop: Focus on Critical Infrastructures, PNWER Center for Regional Disaster Resilience, November 2009.

U.S. Department of Health & Human Services, National Disaster Medical System (NDMS), <http://www.phe.gov/Preparedness/responders/ndms/Pages/default.aspx>.

Washington Voluntary Organizations Active, <http://www.wavoad.org/>.

6.7. RECOVERY AND LONG-TERM RESTORATION

This section focuses on recovery/restoration management structure and decision-making, associated resource requirements and management, retaining and sustaining businesses, as well as other issues.

6.7.1. RECOVERY/RESTORATION MANAGEMENT STRUCTURE AND DECISION MAKING

CAPABILITIES

- Puget Sound jurisdictions and regional stakeholders have held various tabletop exercises and workshops to raise awareness and identify disaster recovery and longer-term restoration needs, including recovery management and decision-making.
- The city of Tukwila as part of preparedness activities to address the Green River Valley flood threat is in the process of finalizing a recovery plan.
- King County Emergency Management is undertaking development of a regional continuity plan that focuses on recovery and restoration and which will be synchronized with recovery plans of area local jurisdictions.
- The IBRD project is developing a regional recovery plan for an anthrax scenario.

FINDINGS AND NEEDS

- Restoration has remained a priority area for regional stakeholders in those exercises where it has been a major focus, particularly *Blue Cascades III* (earthquake) and *VI* (Green River Valley flood and pandemic scenario). While participants recognized that after a major flood, there would be a “new normal” as the region recovered, how this “new normal” would be developed, what mechanism would be set up to make the decisions, which organizations would be involved, and how long restoration could take were not addressed.
- At the recent *Blue Cascades VI* exercise, for a Green River Valley flood scenario, local and state officials said they are working on an organizational structure for recovery. At that same time, they have noted that procedures for long-term economic recovery, including which agencies will have lead roles and how to involve the private sector, are not well developed.

- Concerns raised by stakeholders include how to make coordinated decision-making on credentialing of damage assessment and reconstitution personnel, public messaging, reconstruction, and other restoration priorities. State and local officials have said the restoration plan under development will include private sector involvement along the lines of a Recovery Task Force model. An initial draft of this model has been sent to the Governor's office for review by the WA Emergency Management Council.
- Debris cleanup and removal would be a primary concern, along with pipeline safety issues and hazardous materials impact and clean-up. Issues include lack of dumpsters for waste material, debris, and spoiled food. State of Washington environmental officials have discussed in exercises and workshops guidelines for disposing of hazardous waste.

6.7.2. RESOURCE REQUIREMENTS AND MANAGEMENT

CAPABILITIES

- The Puget Sound Regional Catastrophic Preparedness Grant Program, Regional Resource Management and Logistics Plan framework has been developed that outlines resource management throughout the eight county regions included in the Puget Sound Regional Catastrophic Preparedness Grant Program. The Plan covers resource management and logistics coordination, including mutual aid agreements and processes for resource requests, distribution, and inventory. The Plan, which was developed through a process of stakeholder workshops, surveys, and gap analysis:
 - Presents a strategy that encourages resource sharing and optimizes resource acquisition, allocation, and deployment through increased communication, collaboration, and standardization
 - Describes best practices and guidelines to help individual jurisdictions in the region improve their resource management and logistics programs.
 - Describes procedures for requesting, allocating, transporting, tracking, and demobilizing resources when an incident's complexity and/or duration exceeds the capacity of local emergency response processes and capabilities.
 - Does not supersede any individual jurisdiction's plan and serves both as a stand-alone plan and an annex to the Puget Sound Regional Catastrophic Disaster Coordination Plan.
- In the Regional Disaster Plan for Public and Private Organizations in King County, the Emergency Support Function 7 – Resource Management chapter outlines resource management for the public, private, and non-governmental sectors during an event. It addresses organization, procedures, and responsibilities.
- Puget Sound Region localities have access to federal assistance for recovery through the State from FEMA as well as other federal agencies, depending on the nature of the emergency.
- The Interagency Biological Restoration Demonstration (IBRD) project, sponsored by DHS and the Defense Threat Reduction Agency with regional stakeholders, has for the last few years been developing a process and tools to recover and restore wide urban areas, military installations, and other critical infrastructures following a biological incident. A part of this

project, Sandia National Laboratories is developing the Prioritization Analysis Toolset for All-Hazards (PATH) and Analyzer for Wide Area Restoration Effectiveness (AWARE). The toolset includes a prioritized list of critical infrastructure assets and a restoration schedule for the assets based upon user inputs.

- The Department of Homeland Security through Sandia National Laboratories and Lawrence Livermore National Laboratory has developed the Building Restoration Operation Optimization Model focused on airport restoration with templates for characterizing an area through sampling and analysis after an attack; decontamination options, and approaches for allowing public re-use of facilities. The model allows public health authorities to collect samples more efficiently, manage a large amount of data, and to have the ability to visually display the extent of the contamination of a biological attack.
- The Pacific Northwest National Laboratory has developed the Visual Sampling Plan software tool to assist in environmental characterization and remediation and monitoring to address response and recovery of chemical/biological/radiological terrorist events.
- The National Guard can provide certain types of recovery support to localities for major incidents and disasters, including detecting and identifying chemical, biological and radiological, nuclear, and explosive (CBRNE) agents and substances, impact assessment, and advising local and state authorities on managing the effects of the attack. Another way in which the Guard supports the consequence management mission is through CBRNE “Enhanced Response Force Package” units, which locate and extract victims from a contaminated environment, perform medical triage and treatment, and perform mass patient/casualty decontamination.
- The U.S. Department of Defense has capabilities that can assist localities per request through the State in a declared disaster to assist in recovery/restoration, including specialized capabilities to address a chemical, biological, or radiological incident.

FINDINGS AND NEEDS

- Local governments in the Puget Sound Region have access to information about available restoration approaches, tools and technologies and capabilities through the IBRD project and other avenues. However, this is just a start and only a subset of the capabilities that will be necessary to meet recovery and longer-term restoration challenges.
- Recovery and long-term restoration remained largely unexplored in exercises despite several devoted to recovery issues. In the case of *Blue Cascades VI*, which focused on a Green River Valley flood, stakeholders had difficulty grasping the magnitude of the flood disaster described and the long-term health and safety-related impacts that included extensive damage and destruction of homes and businesses, major infrastructure assets, environmental impacts from hazardous materials in the flood waters, economic impacts, and human factors.
- An under-estimated impediment to recovery and restoration is a weeks to months prolonged lack of water and sewer services to a large number of businesses and residents because of a flood or an earthquake which causes significant system damage. While lack of potable water may be a major concern, this can be provided more readily than water for fire fighting,

agriculture, manufacturing, and cooling communications, SCADA, and IT systems that enable utilities and businesses to operate.

- An Interagency Bio Restoration Demonstration (IBRD) “systems study” of the current regional capabilities to respond to a wide-area anthrax attack, validated by a second, more detailed gap analysis identified the following preparedness gaps:
 - Lack of health risk-based approaches for cleanup
 - Limited methodologies for outdoor hazard zone characterization
 - Limited understanding of how to carry out outdoor cleanup
 - Limited understanding of the fate and transport of biological agents following initial release
 - Limited approaches and resources for indoor cleanup
 - Need for increased laboratory capacity to assess samples
- The Washington State Department of Transportation faces the challenge of how to establish trucking routes that do not conflict with evacuation routes in order to get critical supplies to access points in flood-impacts areas.
- Stakeholders in *Blue Cascades III* (earthquake), *V* (disaster supply chains), and *VI* (Green River Valley flood/pandemic) addressed the need for inspections and certification of food, agriculture, utilities, and other infrastructures before these facilities could return to operation.
- Other recovery-related findings in the *Blue Cascades* exercises include:
 - Environmental impacts to fisheries and other wildlife either along the flood zone or downstream need to be taken account in the recovery period.
 - The city of Tukwila has implemented innovative practices to allow citizens to obtain building permits in a more timely manner. Likewise, building inspectors are being trained to assist in providing damage assessments to speed the claims process.
 - It is still unclear how an adequate number of inspectors will be identified to undertake damage assessments to reoccupy and restore sites.
 - There will need to be disposal procedures for contaminated foods from grocery stores and food processing facilities in the event of a disaster.
 - Waste collection and disposal during a disaster needs to be addressed. Some of the region’s trash is shipped by rail cross state, and it is unclear how families will manage their waste collection at home.
 - The importance of putting schools and day care facilities back in operation to facilitate recovery to be taken into consideration. Parents will be unable to go to their place of work with children at home.
 - If healthcare is not restored rapidly, healthcare providers may leave the region.
- An operational capability for resource management during recovery and longer-term restoration remains to be established. The gap analysis conducted to develop the *Regional*

Resource Management and Logistics Plan framework identified a number of findings concerning resource management challenges in the Puget Sound Region, including:

- There is limited resource coordination and collaboration between jurisdictions and currently no process by which jurisdictions can share information with each other about their status, what resources they need, or what resources they have during an emergency.
- Many of the resource needs, particularly equipment, are not defined in the National Incident Management System (NIMS) and are listed differently by different jurisdictions.
- Not all jurisdictions in the region currently inventory their resources and the inventories that are maintained vary in terms of level of sophistication and detail.
- There is no mechanism or process for information sharing about owned resources between jurisdictions or with the state. Nor is there a regional inventory of resources or information about what resources might be available from different jurisdictions.
- Because of reliance on just-in-time commodity deliveries, jurisdictions are particularly concerned about the availability of water, food, and fuel during a disaster that disrupts transportation and other interdependent infrastructures.
- Mutual aid agreements are viewed ambiguously within both public and private sectors for various reasons ranging from compensation and liability issues, concern about exhausting resources and inability to procure additional resources when needed, also organizations' need to focus on their own needs.
- Washington State has a resource management system that is viewed by stakeholders a “not very robust because jurisdictions are unable to track their requests once they make them.”
- Many jurisdictions do not have an established, formal way of requesting resources from one another.
- While most jurisdictions have designated logistical staging areas for supplies, these areas may serve various purposes and may not practical for delivery of pallets of commodities, such as food and water unless the necessary equipment for unloading pallets is available.
- Most jurisdictions have not designated community points of distribution. For most jurisdictions, the lack of trained staff to handle commodity distribution is also a concern.
- There is currently is no standardized system for prioritizing recipients for disaster resources or tracking resource distribution. Currently the State distributes resources “first-come, first-served” which may result in insufficient resources where they are needed most.
- Significant changes to system and process will require a both federal guidance and funding and support by political and private sector leaders. Operationalizing a resource management system will require changes to the normal operating procedures and in some cases, to state and local emergency management plans and policies.

6.7.3. RETAINING AND SUSTAINING BUSINESS

CAPABILITIES

- There is recognition on the part of Puget Sound Region jurisdictions of the importance of economic resilience and business retention and sustainability. In some localities, emergency

management officials are undertaking outreach to local businesses to counter concerns about risk from incidents and disasters, such as potential Green River Valley flooding.

- Recent exercises and events have highlighted the importance of psychological impacts on individuals and that these human factors need to be addressed to keep businesses operating and spur optimism that can encourage revival.

FINDINGS AND NEEDS

- Several exercises and workshops addressed the issue of the potential for businesses leaving the area, either due to damage and losses if flooding occurs or due to the ongoing risks. The point is often raised point out that at least 50 percent of small businesses many not reopen after a major disaster.
- Stakeholders at *Blue Cascades* exercises and other PNWER events focusing on recovery have emphasized the need for incentives and rewards to keep small businesses operating and return them to the region if they have left the area. To date, measures and policies have not been developed towards this end.
- Representatives from area utilities in recent PNWER events indicated they would rebuild depending on the number of customers that would return to the area.
- Regional resource management plans deal exclusively in resource management during an event. Plans should be expanded to include roles, contacts, and processes for resource management during the recovery stage, especially as private sector involvement is hindered by company restoration strategies.

SOURCES FOR FOCUS AREA 6.7.

Bio-restoration Demonstration Helps Large Transportation Facilities Prepare for Bio-terrorism, Sandia National Laboratories <http://www.sandia.gov/LabNews/060217.html>.

Blue Cascades II Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2004.

Blue Cascades III Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2006.

Blue Cascades IV Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2007.

Blue Cascades V Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2008.

Blue Cascades VIPre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2010.

Blue Cascades Integrated Regional Strategy, Update as of May 2010, PNWER Center for Regional Disaster Resilience.

Comprehensive Community Bio-Event Resilience Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

Comprehensive Community Bio-Event Resilience Needs and Solutions Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

Cross-Sector Information Sharing Workshop Summary, PNWER Center for Regional Disaster Resilience, 2009.

Green River Valley Interdependencies Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

Interagency Bio Restoration Demonstration Regional Workshop Summary Report, 2009.

King County Region 6 Interdependencies Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2007.

Prioritization Analysis Toolset for All-Hazards and Analyzer for Wide Area Restoration Effectiveness (PATH/AWARE Toolset). Sandia National Laboratories, September 2009 (PowerPoint presentation).

Regional Resource Management and Logistics Plan, Puget Sound Regional Catastrophic Preparedness Program, May 2010,
http://www.co.thurston.wa.us/em/Plans_and_Reports/RRMLP/RMLP-May-2010_v5_Final_sj.pdf

Summary Report, Comprehensive Community Bio-Event Resilience Project (CCBER) Joint U.S.-Canadian Post Exercise Workshop and Broader PNW Cross-Border Health Alliance Workshop, May 6, 2010.

SR 520 Bridge Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2007.

U.S. Environmental Protection Agency (EPA). *FIELDS Software*. 12 Dec 2009,
<http://www.epa.gov/region5fields/htm/software.htm>.

Visual Sampling Plan, Pacific Northwest National Laboratory,
http://vsp.pnl.gov/docs/vsp_flier_62689.pdf.

6.8. HUMAN FACTORS, COMMUNITY, AND FAMILY ISSUES

This focus area includes identification of family assistance needs, special needs populations, ethnic and cultural group outreach, and schools, as well as other issues.

6.8.1. IDENTIFICATION OF FAMILY ASSISTANCE NEEDS

CAPABILITIES

- King County Public Health and local municipality websites have made family preparedness planning tools readily available online; these tools include pamphlets, lists, phone lists, etc.
- The City of Seattle Office of Emergency Management has created groups to help with neighborhood response and awareness during emergencies:
 - Seattle Neighborhoods Actively Prepare (SNAP): assists residents in “their effort to Get Ready, Get Connected, and Get Strong for any potential emergency.” SNAP helps neighborhoods create plans that are specific to neighborhood need, and helps facilitate coordination and information in the event of an emergency.
 - Seattle Auxiliary Communications Services helps facilitate communication during times of emergency by working under the assumption that “should communication systems be damaged or overloaded due to natural or man caused disasters, the City of Seattle calls on teams of amateur radio operators to help support the city with emergency communication.” Team missions include providing communications at the Emergency Operations Center and establishing links between government facilities, hospitals, and field command posts, as well as providing a connection with teams of citizen group.
- There are 72 Community Emergency Response Teams (CERTs) in the state of Washington. Each CERT is made up of citizens who are trained in search and rescue, emergency first aid, Incident Command, and other disaster management techniques.
 - According to the April 2010 CERT Newsletter, in the state of Florida, CERTs were used at the height of the H1N1 pandemic to staff clinics, answer citizen phone calls, and manage points of distribution (POD). They served as parking lot attendants, registered patients, assisted with paperwork, and directed patients around the clinic.
 - In order to staff the clinics, CERT members arrived at their sites an hour before their shifts were to begin to receive “just in time” training. This enabled them to learn the necessary information for their specific positions without requiring any extra scheduling by the volunteers or clinic coordinators.
- Incident Command System materials are available for community responders in the forms of posters, PDFs, and PowerPoint presentations that can be found online through the King County Public Health page, available in eight different languages.
 - These include materials on preparing your organization, partnering for strength, and developing MOUs.

- There are a number of health-focused coalitions in the Puget Sound Region that provide assistance to families and individuals. An example is the Seattle Partners for Healthy Communities, which was established in 1995 as a Centers for Disease Control-funded Urban Research Center. This multidisciplinary collaboration of community agencies, community activists, public health professionals, academics, and health providers has a mission to improve the health of urban, marginalized Seattle communities by conducting community-based collaborative research.
- During the H1N1 response, vaccinations were held for the homeless and incarcerated individuals, and free clinics were held at Public Health Centers that were geographically distributed across the County.
- According to the *Public Health-Seattle & King County – 2009 H1N1 Influenza Fall Outbreak Response - After Action Report*, the Health and Medical Area Command for Public Health-Seattle & King County, which was activated to support the H1N1 response, created a strategy to provide antivirals to members of the community who could not afford to pay. The seven sites that received them included jail sites, tribal clinics, one federally-qualified community health clinic, one site that served a large number of homeless patients, and multiple Public Health Center clinic sites.
 - Community Pharmacies and one Community Clinic were provided antiviral stock to dispense patients who could not afford to pay for their prescription. They were not permitted to charge for the product or impose a fee for dispensing. They also played a critical, but unexpected role in ensuring access to pediatric suspension for outpatients.
- The Washington State Office of Superintendent of Public Instruction has made available various preparedness plans for schools online on H1N1, how to prevent H1N1, a Pandemic Flu Preparedness Manual, and H1N1 Quick Guides. Also provided is a list of measures that will be taken in the event of an H1N1 flu outbreak similar to the spring 2009 outbreaks, as well as measures to be taken in the event of an H1N1 flu outbreak more severe than the spring 2009 outbreaks. This list consists of items such as:
 - Having students stay home when sick, separating ill students and staff until they can be sent home, and considering selective school dismissals when dealing with an H1N1 outbreak similar to the spring 2009 outbreaks.
 - Partaking in active screening, making students with ill household members stay home, and school dismissals in a more virulent H1N1 outbreak.

FINDINGS AND NEEDS

- According to Puget Sound Sage, a coalition of labor, faith and community organizations organized in 2001, there were across the region 317,938 people living below the federal poverty level in 2007, or 9.8 percent of the total population. This proportion remained statistically unchanged from 9.6 percent the previous year. Of these, 95,984 were children (12.7 percent rate).
 - Also, in 2004, 12.6 percent or about 175,000 adults in King County reported not getting needed medical care due to cost; this trend has been increasing over the last five years.

- Snohomish has a shortage of primary care providers for low income residents along the South and Highway 99 in the county. The Everett and North County low income areas had significantly higher rates of avoidable hospitalizations when compared with the county-wide rate.
- According to the April 2010 CERT Newsletter, health clinics should familiarize themselves with CERT organizations in their area. Alternatively local CERT organizations should be engaged during pandemic flu or other bio-events where manpower is needed, as they are already highly trained and prepared to take on additional training.
- A Health Services 2006 Report stated that King County residents report more bad physical health days a month (2.9) and mental health days (3.2) now than ten years previously.
- The *Public Health-Seattle & King County – 2009 H1N1 Influenza Fall Outbreak Response After Action Report* identified various challenges that arose during the response that highlighted areas that need further improvement.
 - There were institutional hurdles in collecting data from hospitals and community clinics to help inform situational awareness.
 - Health care providers, including pharmacies, encountered challenges in providing immunizations to age groups they were not familiar with.
 - Problems arose in finding clinicians to vaccinate high-risk patients.
 - Only a small number of pharmacies in King County were willing to vaccinate children, particularly those six months to two years old.
 - Each vaccine manufacturer had their own restrictions.
 - The delay in vaccine availability encouraged rumors and misinformation to circulate, causing fear and frustration among staff about the vaccine.
 - Supplies of hand sanitizer were exhausted and there was a shortage of mask availability.
 - Coordination of messaging needs to be improved, especially creating unified messages across county lines, with better guidance provided on such issues as vaccine availability.
- There needs to be better tracking of school absentee rates and reasons for absences.

6.8.2. SPECIAL NEEDS POPULATIONS

CAPABILITIES

- Various non-profit and local government organizations focus on special needs individuals.
 - For example, the Vulnerable Populations Action TEAM coordinates preparedness efforts with a wide variety of community partners including the disabled, impoverished, seniors, undocumented persons, prisons, limited or non-English proficient individuals, and mentally ill, medically or chemically dependent individuals.
 - Emergency Medical Services Medic One operates 24 hours a day and has available community programs and educational outreach that includes training in recognizing

medical emergencies, calling 911, injury prevention, health education, how to prepare for a disaster, providing critical incident stress debriefing, and peer support programs.

- The King County Health Action Plan is a public-private partnership with Public Health – Seattle & King County and three dozen collaborating members. Its mission is to implement collaborative policy development and pilot projects that focus on system change and improvement of worsening health trends affecting vulnerable populations within King County.
- The King County Health Action Plan was formed in 1996 under a King County Council Motion to study health status and the changing state in health care in King County and recommend actions to the Metropolitan King County Council to implement.
- The King County Children's Health Initiative is a local approach to improving the health of low-income children. The first component proactively finds, enrolls, and links eligible low-income children to medical and dental homes, needed wrap around services and integrated preventive care. The second element consists of innovative pilot programs to improve the effectiveness of health coverage for low-income children.
- Renton Emergency Services ensures different groups with special needs have emergency preparedness procedures, including seniors and adult family homes (a single family residence where six or fewer people are cared for by people who live at the home themselves), the Hearing, Speech and Deafness Center and Aging and Disability Services, a group that meets to discuss preparedness and messaging for homeless populations; also Renton's methadone clinic. Emergency Services also works on emergency planning issues with Behavioral Health Services.
- Public Health – Seattle & King County has formed a Vulnerable Populations Action Team to coordinate countywide preparedness efforts with a wide variety of community partners. The team includes a diverse cross section of staff with public health expertise in vulnerable populations, preparedness and infectious diseases. The Vulnerable Populations Action Team works collaboratively with community based organizations to ensure that no one group is more impacted than another in an emergency and that service providers are prepared to respond to vulnerable population needs during disasters.
 - During the H1N1 response the Vulnerable Populations Action Team staff conducted many presentations at agency staff meetings. Presentations were also provided to vulnerable residents and information and assistance to organizations that serve vulnerable communities was provided throughout the duration of the response. For example, staff worked with contacts in the Somali community to set up a meeting with East African religious leaders to learn more about how to best address the concerns related to the vaccine not being “halal” (Arabic word meaning lawful or permitted).
 - In response to the low attendance of some communities at the free H1N1 vaccine clinics, a Request for Proposal (RFP) was developed with the primary purpose being to encourage culturally competent and innovative ways of conducting outreach to vulnerable populations, by ensuring communities have adequate information and by getting more residents vaccinated. Public Health awarded grants of up to \$4,999 each to five

community agencies that serve many of the communities that were absent from the free H1N1 vaccine clinics.

- The Community Communications Network is designed to improve Public Health's ability to outreach to vulnerable communities during an emergency. Currently, the Network includes more than 200 agencies and includes after hours contact information for the majority. In times of crisis, Public Health uses the Community Communications Network to contact agencies that provide services to vulnerable populations who may not have access to traditional communication channels.

FINDINGS AND NEEDS

- King County, the City of Seattle, and other local jurisdictions in the Puget Sound Region have taken steps in the last few years to address the health and safety needs of special populations in significant incidents and disasters. However, much more needs to be done to develop and implement a comprehensive approach to incorporate these efforts and other ways to meet these needs into emergency preparedness, response, and recovery planning.

6.8.3. ETHNIC AND CULTURAL GROUP OUTREACH

CAPABILITIES

- According to the *Public Health-Seattle & King County – 2009 H1N1 Influenza Fall Outbreak Response After Action Report*, during the H1N1 response in the fall of 2009 through the winter, public health officials produced additional public information products as new needs emerged. Materials, as well as flyers that advertised free vaccine clinics, were translated into up to 13 languages commonly spoken in King County, including Spanish, Russian, Vietnamese, Chinese, Somali, and Ukrainian. Information about H1N1 flu and H1N1 flu vaccine was distributed through numerous channels.
 - Free vaccinations were offered at community health clinics and at community-based organizations. Flyers advertising the clinics were translated into different languages, and health educators with ties to community members were brought on to spread the word about the clinics.
 - Free clinic flyers were posted in the areas near Public Health Center clinics, and disseminated to over 100 community-based organizations through the Community Communications Network. Ads listing the dates and times of the clinics — and featuring images of culturally appropriate individuals and families — were purchased in ethnic media newspapers, local television and magazines as well as a college newspaper. Information about the free vaccine clinics was also distributed to community colleges in King County. Ad campaigns in King County were coordinated with the Washington State Department of Health's state-wide television and radio ads.
- AmeriCorps Vista has outreached to ethnic community contacts and local schools in order to create relationships with community leaders that can get health and emergency information out to their communities.

- The Washington State Voluntary Organizations Active in Disasters has a core group of various organizations that can help outreach to ethnic and culture groups in the time of an emergency. These groups include Adventist Community Services, the American Red Cross, Catholic Community Services, Christian Reformed World Relief Committee, Church of Jesus Christ of Latter-day Saints, Church of Scientology Disaster Response, Food Lifeline, Mennonite Disaster Service, North West Baptist Convention, Presbyterian Disaster Assistance Team, Salvation Army, Society of St. Vincent de Paul-North Sound, United Church of Christ, United Methodist Committee on Relief, YMCA of Greater Seattle, and various state agencies involved in emergency and health issues.

FINDINGS AND NEEDS

- Reaching special needs populations in the Puget Sound with information and plans remains a major issue. Many communities do not have regular access to the internet or a phone.
- The *Public Health-Seattle & King County – 2009 H1N1 Influenza Fall Outbreak Response After Action Report* highlighted the challenge of communicating information when it was changing so quickly and decisions were made with short notice.
 - Flyers and text-heavy information were not effective in many of the communities where outreach was attempted.
 - King County Public Health is only beginning to establish relationships with faith-based organizations in culturally specific communities.
 - There is a need to tailor strategy/message and information to particular communities; it's not enough to only translate and provide more low literacy and visual-based messages.
- A useful activity is to inventory regional public health programs that partner with agencies/communities representing “vulnerable communities.”
- Local emergency management officials should develop a system/relationship with these groups to gain understanding of the role they could play in a response. This could be done by identifying points of contact within various ethnic and cultural groups.
- Organizations and groups that provide assistance to vulnerable populations and ethnic and cultural groups should be included in local and regional planning and exercises.

SOURCES FOR FOCUS AREA 6.8.

Blue Cascades III Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2006.

Blue Cascades IV Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2007.

Blue Cascades VPre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2008.

Blue Cascades VIPre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2010.

Blue Cascades Integrated Regional Strategy, Update as of May 2010, PNWER Center for Regional Disaster Resilience.

Comprehensive Community Bio-Event Resilience Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

Comprehensive Community Bio-Event Resilience Needs and Solutions Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

CERT Newsletter, April, 2010.

Cross-Sector Information Sharing Workshop Summary, PNWER Center for Regional Disaster Resilience, 2009.

Earnings, Poverty & Income Inequality in the Puget Sound Region, Puget Sound Sage, Issue Brief, 27 Aug 2008,
http://www.pugetsoundsage.org/downloads/Earnings_Poverty_and_Income_Inequality_in_the_Puget_Sound_Region_8-08.pdf.

Green River Valley Interdependencies Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

Interview with Emergency Services Outreach Coordinator and AmeriCorps VISTA, City of Renton Department of Fire and Emergency Service.

Public Health-Seattle and King County – 2009 H1N1 Influenza Fall Outbreak Response - After Action Report, June 2010.

PublicHealth – Seattle&KingCounty, Vulnerable Populations Action Team (VPAT),
<http://www.kingcounty.gov/healthservices/health/preparedness/VPAT/about.aspx>.

Regional Resource Management and Logistics Plan, Puget Sound Regional Catastrophic Preparedness Program, May 2010,
http://www.co.thurston.wa.us/em/Plans_and_Reports/RRMLP/RMLP-May_2010_v5_Final_sj.pdf

Puget Sound Region health-related coalitions, consortiums, and local government capabilities focusing on family and individual resilience, see Public Health – Seattle&King County, <http://www.kingcounty.gov/healthservices/health.aspx>, and Seattle Office of Emergency Management, <http://www.seattle.gov/emergency/programs/regional/pugetsound.htm>.

Seattle Office of Emergency Management, Puget Sound Region Programs and Services (including Seattle Neighborhoods Actively Prepare (SNAP) and Auxiliary Communications Service (ACE)), <http://www.seattle.gov/emergency/programs/regional/pugetsound.htm>.

H1N1 Flu: Preparation and Prevention, Washington State Superintendent of Public Instruction, <http://www.k12.wa.us/HealthServices/H1N1Flu.aspx>.

Washington State Department of Health, Notifiable Conditions, <http://www.doh.wa.gov/notify/forms/default.htm>.

Washington Voluntary Organizations Active in Disaster, <http://www.wavoad.org/>.

For information on disaster preparedness in different languages, as well as information about different cultural groups, see the following links:

- Washington Department of Health Fact Sheets, <http://www.doh.wa.gov/phepr/factsheets.htm>
- EthnoMed, Harborview Medical Center's ethnic medicine website, <http://ethnomed.org/>
- 2 Resilience: Western Washington, <http://www.resilient2disaster.com/tiki-index.php>
- National Resource Center on Advancing Emergency Preparedness for Culturally Diverse Communities, <http://www.diversitypreparedness.org/>
- Health Information Translations, Disaster Preparedness, <http://www.healthinfotranslations.org/disaster-preparedness.php>

6.9. LEGAL AND LIABILITY ISSUES

This focus area addresses legal and liability issues for government agencies, businesses as well as privacy, ethical, union-related issues and other issues.

6.9.1. LEGAL AND LIABILITY ISSUES FOR GOVERNMENT & BUSINESSES

CAPABILITIES

- King County Public Health, the King County Healthcare Coalition, and other government and healthcare organizations continue to focus on a wide array of legal and liability issues that affect response and recovery in health-related incidents and emergencies and ways to deal with them, including changing policies, waivers, and temporary exemptions. Such issues include:
 - Providing immunity or indemnification for all healthcare providers and first responders during extreme emergencies;
 - Determination of altered standards of care and when they are required;
 - Indemnification of medical care providers as an alternative to malpractice coverage;
 - Liability protection for volunteers during emergencies;
 - Protecting health data and other sensitive information of individuals;

- Meeting regulatory requirements and standards.
- Businesses and other private sector organizations are becoming familiar with requirements and constraints that affect continuity plans from:
 - Human Resource issues, such as sick leave policies, family leave, and compensation issues stemming from emergencies that impact employees;
 - Workplace-related health and safety requirements;
 - Requirements for availability of medical personnel and for adequate first aid supplies for workers and employee emergency alert systems.
- Regional exercises and workshops have addressed at a high level legal and liability issues associated with impacts from incidents and disasters. Examples include:
 - Environmental regulations that can affect preparedness actions and cleanup after incidents or disasters that could cause or exacerbate environmental damage or adverse health affects for individuals and wildlife;
 - Operational requirements that service providers curtail or shut down in an emergency; for example hospitals and certain businesses (e.g., restaurants, grocers) are required to have water service and power to remain in operation);
 - Transportation restrictions on transport of certain commodities across state borders;
 - Requirements for gasoline fuel additives, etc.;
 - Personal information privacy requirements.
- Information-related concerns are a particular challenge. HIPPA privacy requirements, supported by the Office of Civil Rights, protect the privacy of individually identifiable health information.
 - The Patient Safety Rule protects identifiable information being used to analyze patient safety events and improves patient safety.
 - Providers and health plans covered by the HIPPA Privacy Rule can share patient information for treatment, notification (to identify, locate, notify family members, guardians), and in cases of imminent danger, share information to prevent or lessen a serious and imminent threat to the health and safety of a person or the public.
 - The HIPPA Privacy Rule permits disclosures for treatment purposes and certain disclosures to disaster relief organizations.

FINDINGS AND NEEDS

- There is no available compendium of legal and liability issues associated with disaster preparedness, response, recovery or mitigation for private sector and government organizations.

- Efforts by King County and the healthcare Coalition to identify public health-related challenges and look for ways to address them is valuable but limited to only part of the overall legal and liability problem.
- Local jurisdictions and businesses can leverage a growing body of understanding of legal and liability issues and best practices and solutions to address some of these issues that has been developed on an ad hoc basis across the nation. This information can be incorporated in emergency management and continuity plans. Where necessary, changes can be sought to existing laws and other regulations to take into account challenges from significant incidents and disasters.
- Some examples of solutions to workplace issues utilized by some regional stakeholder organizations include:
 - During H1N1, providing compensation to employees for extra sick days to isolate those who are still sick from healthy workers.
 - Setting up voluntary hotlines that employees could call to state whether they would be staying home because of illness or having to take care of sick family members.
- The HIPPA Privacy Rule is not suspended during a national or public health emergency. The Secretary of HHS may waive certain provisions of the Privacy Rule under the Project BioShield Act of 2004.
- Most companies do not offer contingency plans for paid time off during a pandemic. Employees must either use current paid time or gain a doctors approval and receive short term disability if necessary.

SOURCES FOR FOCUS AREA 6.9.

Blue Cascades IVP Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2007.

Blue Cascades VIP Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2010.

Comprehensive Community Bio-Event Resilience Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

Comprehensive Community Bio-Event Resilience Needs and Solutions Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

Employer Responsibilities: Safe Workplace Summary, Washington State Department of Labor and Industries, Safety and Health Core Rules, WAC 296-800-110, <http://www.lni.wa.gov/wisha/rules/corerules/PDFs/296-800-110.pdf>.

King County Regional Hazard Mitigation Plan, King County Office of Emergency Management, <http://www.kingcounty.gov/safety/prepare/EmergencyManagementProfessionals/PlansandPrograms/RegionalHazardMitigationPlan.aspx>.

Ambulatory Care Response to Pandemic Influenza: Contingency Plans, Long Term Recommendations, and Tools, Public Health – Seattle & King County and King County Healthcare Coalition, http://www.kingcounty.gov/healthservices/health/preparedness/hccoalition/~/_media/health/publichealth/documents/hccoalition/appendix_F.ashx

Pandemic Preparedness in the Workplace and the Americans with Disabilities Act, The U.S. Equal Employment Opportunity Commission, http://www.eeoc.gov/facts/pandemic_flu.html.

Emergency Preparedness & Response, Occupational Safety & Health Administration (OSHA), U.S Department of Labor, <http://www.osha.gov/SLTC/emergencypreparedness/index.html>.

Health Information Privacy, U.S. Department of Health & Human Services, <http://www.hhs.gov/ocr/privacy>.

6.10. PUBLIC INFORMATION, INCLUDING MEDIA

This focus area covers public outreach, risk communications, the media, and related issues.

6.10.1. PUBLIC OUTREACH AND RISK COMMUNICATIONS

CAPABILITIES

- The *Public Health-Seattle & King County – 2009 H1N1 Influenza Fall Outbreak Response After Action Report* documents capabilities that were advanced during the H1N1 response:
 - The Health and Medical Area Command responded to a high volume of public queries about the H1N1 flu and vaccine, including almost 24,000 phone calls and 775,000 total website visits and produced a weekly Healthcare Impacts Report, which documented emergency room and hospital admissions data, to provide situational awareness of the flu's impact to area hospitals and providers. Health alerts, broadcast faxes to providers, and weekly influenza and school absenteeism reports were also issued.
 - Public education materials were translated into 13 different languages. The Public Information Call Center activated and managed by Public Health – Seattle & King County received a peak of 1,400 calls in one day. A Vaccine Workshop was held to discuss the priority groups with local healthcare providers and infection control experts.
 - A pharmacy webpage was created, which listed the locations of participating pharmacies, the H1N1 vaccine formulations, the age ranges eligible for vaccination by pharmacy, hours of operation, and contact numbers to schedule appointments. The website was termed very successful at keeping the public and healthcare providers informed.

- Materials produced for the fall 2009 flu season included Frequently Asked Questions (FAQ) sheets for specific organizations, including schools, congregate meal providers, and agencies that provide services to the homeless; a one-page comic strip for school-age children and their parents about H1N1 vaccine priority groups, organizing childcare for sick children, and respiratory hygiene; and ready-made PowerPoint presentations on H1N1 flu for organizations to give their own training.
- For health-related emergencies and information, there are currently many sources of information on federal, state, and local webpages. King County's website has a wide range of information, as does the Washington State Department of Health's site. The State site also has a useful list of acronyms and terms, each with links to further information on the topic. King County also has similar lists on its website.
- Health information providers that were also heavily followed during H1N1 were federal agencies (CDC, HHS, DHS, and FEMA), and national network news and non-governmental organization sites. The www.flu.gov website integrates all content messaging from the Departments of Health and Human Services, Education, and Homeland Security. Flu.gov gives users the tools to find information via state and locality.
 - This includes tools to find flu shot locators by state, and also providing a "Where You Live" link for people and businesses to better plan for bio-events and emergencies providing links to state flu information, state department websites, and state-specific pandemic flu plan overviews, as well as state hot lines.
 - Tools also include various resources such as articles and links for people and businesses to better plan for bio-events and emergencies.
- Businesses and public enterprises are can use the Health Alert Network, a nationwide computer information network developed by the Centers for Disease Control which provides communication, information, distance learning, and organizational infrastructure for defense against health threats.
 - Health Area Network, Facebook, and Twitter have become major hubs for public information on Emergency Preparedness. Groups report cases and recent news country by country, have live discussion boards, and links to various websites with information about the virus such as YouTube, international sites, and health sites for various states. Most links found on these groups link back to media outlets like BBC News and health sites like the World Health Organization.
 - Twitter has attracted many Emergency Preparedness agencies to the Twitter system. Twitter's ability to provide crucial alerts at a moment's notice has impacted information sharing on health related information that may prove crucial during a bio-event.
- Microsoft has developed a strategic web tool to help hospitals and clinics manage the influx of patients coming in for H1N1 screening processes. Microsoft also has created a self-assessment tool for those that believe that they may have the H1N1 flu that can be accessed online rather than lining up at hospitals and clinics.

- Links on the site refer users to more facts about what the Swine Flu is, basics for prevention, guidelines for taking care of oneself and others, and a special link for people with health conditions.
- The Washington State Department of Information Services has developed and provided software to state and local agencies. Virtual Private Networks (VPN) enable organizations operational during times of emergencies when employees may be asked to work from home or are subject to social distancing, to stop the spread of a biological agent or disease.

FINDINGS AND NEEDS

- There are a wide number of tools and mechanisms available for outreach and awareness and available information plans and procedures that King County and local jurisdictions have developed. More work, however, needs to be done in this area:
 - There is no comprehensive regional public information plan that covers health and safety resilience. Regional stakeholders in *Blue Cascades III* (major earthquake) made development of a regional Public Information Strategy a major priority. This strategy would include target audiences, what information to convey, and how it would be coordinated and disseminated.
 - The need for this regional strategy was reiterated at the recent *Blue Cascades VI* exercise as necessary for the Green River Valley flood threat. A first step would be to conduct a needs assessment that creates an inventory of current capabilities to capture a number of outreach and exercise activities underway. A key element of this strategy will be to identify private sector and other stakeholders, including the media, who should participate in the activities outlined in the strategy.
- There is a proliferation of information available at multitudinous websites. On some websites information on plans or recommended courses of action are not easily accessible. Also, users may simply be directed to other sites.
 - Workshops and exercises, both for the CCBER project and those focusing on other priority resilience challenges, have emphasized the need for a single focus point — one-stop shopping — for information. This was a particular issue regarding H1N1-related information.
- Various problems hindered H1N1 public information efforts:
 - National delays in H1N1 vaccine production caused significant delays in vaccine delivery and in turn caused significant stress and confusion for providers, the public, and response personnel.
 - Effectiveness of some local jurisdiction websites was limited. Sites were not clear on which other sites to go for more information, and the information that was available was difficult to access
- A process needs to be developed to assure timely information is provided to the public on vaccine availability and distribution, and priority groups for vaccination.

- Public Health should take into account that private sector organizations and the general public have different information needs and that businesses will require different types of information.

6.10.2. THE MEDIA

CAPABILITIES

- According to the *Public Health-Seattle & King County – 2009 H1N1 After Action Report*, the local response effort included creating content for the flu hotline, conducting ongoing media management and response, and tracking and responding to rumors in the community in mass media, blogs, and other sources.
 - Media briefings for major updates were well attended by major television and radio outlets and organized media events were held for key milestones, such as arrival of vaccine in the community.
 - A special press conference was held for reporters from high school newspapers to foster understanding of the H1N1 flu response among teen populations.
- A Regional Catastrophic Preparedness Plan task force has examined how credible information can be collected and disseminated to the media and to the public.

FINDINGS AND NEEDS

- Despite increasing use of the Internet and social networks, the traditional media continues to play a major role in public outreach and awareness.
 - The Washington State Department of Health indicated that currently 32 percent of the public get their health information from local TV news and 21 percent from national TV news, while 17 percent get their health information from the Internet and 30 percent from other sources.
- Puget Sound Region local media is predominately dominated by four local news stations: King5 News (NBC), KOMO-TV News (ABC), KIRO7 News (CBS), and Q13 News (Fox).
 - King5 News Health Link provides viewers with resources such as video streams, and links to articles.
 - A King5 News representative estimates that about one million users visit the site, with about 70-80 percent of those users being local.
 - Currently KUOW (NPR) has a program for local citizens to sign up to provide text messages and photos during a disaster. The radio station in turn plans to broadcast updates from these registered “trusted” listeners. Over 3800 have registered for the program in the Puget Sound region.
- None of the local news station websites carry links to Emergency Preparedness tools on a regular basis.

- Local newspapers like the Seattle Times or the online Seattle Post Intelligencer do not always provide any links or provide information on where to access state and local health information or emergency preparedness.
- A finding in past regional workshops and exercises, including the *Blue Cascades* exercises, is the need for a media engagement strategy as part of the broader regional comprehensive public information plan to meet health resilience needs.

SOURCES FOR FOCUS AREA 6.10.

Blue Cascades III Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2006.

Blue Cascades IV Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2007.

Blue Cascades V Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2008.

Blue Cascades VI Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2010.

Blue Cascades Integrated Regional Strategy, Update as of May 2010, PNWER Center for Regional Disaster Resilience.

Comprehensive Community Bio-Event Resilience Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

Comprehensive Community Bio-Event Resilience Needs and Solutions Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

Centers for Disease Control (CDC), <http://www.cdc.gov>.

Cross-Sector Information Sharing Workshop Summary, PNWER Center for Regional Disaster Resilience, 2009.

Green River Valley Interdependencies Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

H1N1 Swine Flu Response Center, Microsoft, Oct 2009, <http://h1n1.cloudapp.net/default.aspx>.

Interview with Dale Steinke, Interactive News and Operations Manager. King 5 News.

Flu.gov website, managed by U.S. Department of Health and Human Services, (broad information about H1N1, seasonal flu, and flu pandemics), <http://www.flu.gov>.

Public Health-Seattle and King County – 2009 H1N1 Influenza Fall Outbreak Response – After Action Report, June 2010.

VPN Technology Can Keep Organizations Operating in Times of Emergencies, Tech News, April 2007.

Washington State Department of Health, <http://www.doh.wa.gov/>.

Glossary of Bioterrorism and Public Health Emergency Terms and Acronyms, Washington State Department of Health, <http://www.doh.wa.gov/phepr/pheprglossary.htm>.

6.11. TRAINING, EXERCISES, AND EDUCATION RESOURCES AND OPPORTUNITIES

This focus area includes resources and opportunities for specialized training, exercises, and education.

6.11.1. RESOURCES/OPPORTUNITIES FOR TRAINING AND EXERCISES

CAPABILITIES

- The Seattle-King County Regional Disaster Plan provides for the development and conduct of training and exercises to address regional disasters.
 - There are a variety of training opportunities offered to private sector and non-government organizations that focus on different community health and safety resilience needs.
 - Exercises increasingly are involving private sector and community groups in exercise planning activities. The SoundShake series of exercises to assess earthquake preparedness is a prime example. In July 2010 the American Red Cross, and other non-profits involved in community assistance collectively with the Medical Reserve Corps from Public Health – Seattle & King County tested scale sheltering operations, as well as a team of newly recruited volunteers.
- Many Puget Sound Region stakeholders are participating in PNWER regional exercises, workshops and projects or other emergency preparedness and continuity activities. These organizations include utilities and other essential service providers, local government and state agencies, regional federal facilities, businesses and other private sector organizations, non-profits, and community and academic institutions.
- There are a number of local and state initiatives for outreach and education to the business community or broader public, as well as special needs groups.
- FEMA offers free courses in Incident Command System (ICS) Training.
- King County is developing a mechanism for educating citizens about drinking water safety. Waste water systems in the inundation area will not be fully operational for some time

because of contamination, lack of power for pumps, and the need to drain, flush, and test the system.

- King County public health officials are focusing on potential measures to address the health impacts from potential flooding that include mobilizing and facilitating public-private partnerships, and developing ways to inform and educate the public.
- Various tabletops and drills have been held and are scheduled to address pandemic preparedness and a Green River Valley major flood event.
- Public health officials and the Healthcare Coalition have made significant steps in addressing potential Green River Valley flooding, undertaking planning and other measures and providing training and education for stakeholder organizations including vulnerable populations.
 - Since 2007 the Washington State Hospital Association has held pandemic activities such as planning, training, and exercises. Members are trained in the Incident Command System (ICS), and the languages of the National Incident Management System (NIMS).
 - The King County Healthcare Coalition holds resiliency exercises for businesses and non-hospital establishments. The Coalition regularly posts monthly public exercises that businesses can attend. The Coalition also makes exercise after action reports available for public access, including tools, table top exercise formats, guidelines, and also a monthly event calendar on training and other exercises for the public and private businesses.

FINDINGS AND NEEDS

- A survey of regional, chiefly private sector stakeholders conducted as part of the CCBER Pilot Project found that, although 60 percent of respondents indicated that they had continuity plans for all hazards and bio-events, 54 percent responded that they did not regularly test their bio-event/pandemic plans.
- Although the National Incident Management System (NIMS) is heavily rehearsed and utilized by government entities, it is not often utilized across the private sector by organizations, particularly those that do not have hierarchical management structures.
- Regional energy infrastructure assurance exercises were conducted by the State of Washington prior to the mid-1990s, but the practice stopped at that time.
- Preparedness planning should include the media and ensure that media owners, operators and communicators are engaged in regional exercises.
- Political and industry leaders need to be made aware of regional disaster resilience needs and to participate in discussions and exercises.

- The general public needs education on what a major cascading disaster would cause in terms of disruptions to interdependent basic services and awareness of health and safety concerns, as well as what government can or cannot do.
- The general public needs to be aware that they should be prepared for being on their own in a disaster for 72 hours or longer and provided training opportunities on ways to assure individual and family resilience, as well as training on telecommuting constraints and how to communicate during a major incident or disaster through sending text messages instead of calls in order to help alleviate “telegridlock”.
- The media needs to have access to training courses to understand the challenges of regional disasters, what to expect from government, utilities and other key stakeholders, as well as have knowledge of local, state and federal disaster plans.
- Private sector stakeholder continue to express in workshops and meetings, including those that were conducted as part of the CCBER Pilot Project, that the level of involvement of business and other non-government organizations in training and exercises sponsored by government remains limited.
 - An example is Incident Command System training that requires government sponsorship for participation.
- Many participants in PNWER events cite the importance of training and exercises opportunities to facilitate interacting with other organizations and the need for more cross-sector workshops and exercises to test and validate plans, procedures, and protection and mitigation measures.

SOURCES FOR FOCUS AREA 6.11.

Blue Cascades III Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2006.

Blue Cascades IV Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2007.

Blue Cascades V Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2008.

Blue Cascades VI Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2010.

Blue Cascades Integrated Regional Strategy, Update as of May 2010, PNWER Center for Regional Disaster Resilience.

Comprehensive Community Bio-Event Resilience Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

Comprehensive Community Bio-Event Resilience Needs and Solutions Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

Green River Valley Interdependencies Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

2009 *Healthcare Coalition Annual Report*, King County Healthcare Coalition, <http://www.kingcounty.gov/healthservices/health/preparedness/%7e/media/health/publichealth/documents/hccoalition/2009AnnualReport.ashx>

Public Health – Seattle & King County, <http://www.kingcounty.gov/healthservices/health.aspx>.

Public Health-Seattle and King County – 2009 H1N1 Influenza Fall Outbreak Response - After Action Report, June 2010.

King County Regional Hazard Mitigation Plan, King County Office of Emergency Management, <http://www.kingcounty.gov/safety/prepare/EmergencyManagementProfessionals/PlansandPrograms/RegionalHazardMitigationPlan.aspx>.

Office of Civilian Volunteer, Medical Reserve Corps, <http://www.medicalreservecorps.gov/HomePage>

2008-2011 *ESF-8 Strategic Plan* (Health, Medical, and Mortuary Services), Public Health – Seattle & King County, <http://www.kingcountyhc.com/documents/kingcountyhc/ESF8StrategicPlan.pdf>.

Regional Disaster Plan for public and private organizations in King County, King County Office of Emergency Management, <http://www.kingcounty.gov/safety/prepare/EmergencyManagementProfessionals/PlansandPrograms/RegionalDisasterPlan.aspx>

Websites of respective Puget Sound Region local jurisdictions, Public Health and Emergency Management, and Washington State Department of Health.

6.12. FINANCIAL ISSUES

This focus area includes federal, state, and local government disaster assistance and other bio-event-related financial issues for private sector organizations, non-profits, and community institutions, including availability of funding, staff, and technical expertise resources.

6.12.1. FEDERAL, STATE, AND LOCAL GOVERNMENT ASSISTANCE

CAPABILITIES

- The Website [DisasterAssistance.gov](https://www.disasterassistance.gov) provides information on how one “might be able” to get help from the U.S. Government before, during, and after a disaster. The site enables applying for individual aid from 17 government agencies after a disaster online.
 - The Website, which is in English and Spanish only, assists in gaining the latest information on declared disasters, and on emergency services such as evacuating, locating loved ones, clean water, food, shelter, and medical, as well as help in locating community resources.
- FEMA and the other federal agencies that offer disaster assistance provide information on the respective Websites. FEMA has a three-step user-friendly application and assistance web tool that uses a question and answer format to cover all aspects of the process. FEMA has presented at different PNWER events on post-disaster assistance that it provides with the State and other federal partners and pointing out the limitations on what it can provide.
- Federal disaster assistance — availability, eligibility, and application procedures—have been a topic at a number of regional workshops and exercises for the past several years. Focus has been on FEMA assistance, but assistance provided by other federal agencies has been discussed, including the U.S. Department of Energy, Environmental Protection Agency, the U.S. Army Corps of Engineers, and Defense Department (through support to civil authorities).

FINDINGS AND NEEDS

- Availability of federal and other government assistance has been a point of stakeholder concern at several PNWER events that has resulted in recommendations in the exercise reports or workshop summaries that the federal government should provide a compilation of types of assistance to stakeholders.
- Financial support for pre-event mitigation is a major constraint to increased preparedness, especially for small businesses. Support for private sector organizations post-disaster is largely unavailable with the exception of Small Business Administration funding.
- Businesses can individually apply for compensation for disaster-related damages from private sector organizations under certain circumstances (e.g., liability). The compensation provided to Alaskan businesses in the Exxon Valdez oil spill disaster in Prince William Sound Alaska in 1989 and the recent BP Deepwater Horizon oil spill in the Gulf of Mexico are examples.
- There is no regional mechanism to enable the collection of funds from non-government sources, including private donations and that can provide vetted, appropriate distribution to businesses that suffer either direct or indirect harm from incidents or disasters.
- Federal government assistance will only be available to public organizations on a cost-shared basis with state and local agencies.

- Regional risk assessment methodologies need to be developed/utilized to identify and prioritize mitigation needs that could be addressed through joint government (grant and programmatic funds), private sector investments and tax dollars.
- Stakeholders are looking to ways in which government assistance programs for the private sector could be expanded.
- In past years the State of Washington has supplemented FEMA money. However, with the state of the current economy that may not be possible in the case of a Green River Valley flood or other major disaster.
- Stakeholders are referred to Emergency Support Function-14 (ESF) for information on the long-term recovery process and told that the remuneration process may last for years and require environmental studies, procuring contracts, etc.
- A source of concern for private sector stakeholders is that FEMA assistance is for public organizations. FEMA has stated that in special cases private sector entities, such as a utility, could be considered. But under what circumstances is not clear.
- The recent *Blue Cascades VI* Regional Interdependencies Exercise in March 2010 and following Action Planning Workshop in May highlighted that:
 - Cuts in budgets due to the economy have impacted emergency preparedness plans implementation and staff resources.
 - There are overall issues with how to get money and funds, as well as resources to move people and find sheltering resources during a bio-event.
 - The economic impact of the movement of businesses away from impacted areas will be great if plans and incentives are not created, especially in a flooding scenario.
 - Business loyalty will present a large problem for the region, especially if affected areas will remain risk areas for long periods of time. The impact of business relocation will largely impact employment, regional financing, and plans for business continuity.

6.12.2. FINANCIAL ISSUES FOR PRIVATE SECTOR, NON-PROFITS, AND COMMUNITY ORGANIZATIONS

CAPABILITIES

- There are few non-government disaster assistance resources available to businesses, apart from securing loans or claiming compensation, if available, for damages received in a manmade event (for example, the BP oil spill in the Gulf of Mexico.)

FINDINGS AND NEEDS

- There are no provisions for federal government assistance for pre-event mitigation to prevent or lessen anticipated impacts from high-probability events. A National Disaster declaration must be issued by the President in order for federal dollars to be made available.

- The IBRD project analysis of the economic impact of a wide release of anthrax highlighted some of the areas of financial concern businesses should be prepared to deal with and plan for when conducting biological event planning. These include:
 - Insurance payouts for loss of life, an overburdened private health care infrastructure, need to replace lost private assets, productivity loss from lost assets, temporary relocation of operations and employees, liability for cleanup exposure, facility clean up requirements, and productivity loss from employee absenteeism.
- Many stakeholders are not clear on FEMA policies and available programs for financial assistance, including eligibility requirements.
- Small businesses and organizations, particularly in rural areas, may lack access to the Internet and available information on where and how to apply for assistance.
- Local governments and regional business associations, such as Chambers of Commerce may face challenges in collecting necessary data on impacts and damages from businesses and other organizations in order to demonstrate the need for assistance.

SOURCES FOR FOCUS AREA 6.12.

Apply for Assistance, Federal Emergency Management Agency,
<http://www.fema.gov/assistance/index.shtm>

Blue Cascades I Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2002.

Blue Cascades II Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2004.

Blue Cascades III Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2006.

Blue Cascades IV Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2007.

Blue Cascades V Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2008.

Blue Cascades VI Pre-Exercise Seminar Summary, Exercise Final Report, and Post-Exercise Action Planning Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2010.

Blue Cascades Integrated Regional Strategy, Update as of May 2010, PNWER Center for Regional Disaster Resilience.

Comprehensive Community Bio-Event Resilience Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

Comprehensive Community Bio-Event Resilience Needs and Solutions Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

DisasterAssistance.Gov, <http://www.disasterassistance.gov/>

Green River Valley Interdependencies Workshop Summary Report, PNWER Center for Regional Disaster Resilience, 2009.

Emergency Preparedness, Washington State Department of Agriculture, <http://agr.wa.gov/FoodSecurity/>

U.S. Small Business Administration website, sba.gov/services/disasterassistance/

The Census of Agriculture, U.S. Department of Agriculture, 2007, <http://www.agcensus.usda.gov/Publications/Washington/cp99053.pdf>

7. A DYNAMIC TOOL TO FURTHER COMMUNITY BIO-EVENT RESILIENCE

The preceding Gap Analysis of regional capabilities, findings, and needs is an initial effort to identify actions that can be taken by stakeholders to make their communities more resilient regarding health and safety impacts from major incidents and disasters. The Gap Analysis also marks the start in systematically inventorying assets, plans, procedures, policies, expertise, tools, and technologies that are available to assist in this effort

Looking at a region and gaining an understanding of what capabilities are available, how to access information on them and what they offer provides a baseline assessment of the level of preparedness. In this regard, it is important to recognize that the Gap Analysis, like the Comprehensive Community Bio-Event Resilience Plan, is a dynamic document and should be periodically updated to ensure that bio-event resilience priority needs are being met.

APPENDIX E

GLOSSARY OF PUBLIC HEALTH AND EMERGENCY MANAGEMENT TERMS AND ACRONYMS ON KING COUNTY AND WASHINGTON STATE WEBSITES

A

AAR — After Action Report

ACC — Area Command Center

ACF — Alternate Care Facility

ACIP — Advisory Committee on Immunization Practices

AGO — Washington State Attorney General's Office

AHA — American Hospital Association

AMA — American Medical Association

APHL — Association of Public Health Laboratories

ARC — American Red Cross

ART — Assessment and Response Team

The Secretary of Health and Department of Health's Senior Management Team. The team assesses the severity of emergencies and manages the Department of Health's overall response plan.

B

BSL — Bio-safety Level

A method for rating laboratory safety. Laboratories are designated BSL 1, 2, 3, or 4 based on the practices, safety equipment, and standards they employ to protect their workers from infection by the agents they handle. BSL-1 laboratories are suitable for handling low-risk agents, and BSL-2 laboratories are suitable for processing moderate risk agents. BSL-3 laboratories can safely handle high-risk agents, for which vaccines or other treatments exist. BSL-4 laboratories have elaborate safety systems and procedures for handling high-risk agents, for which vaccines or other treatments are *not* available.

Bioterrorism — The intentional use of microorganisms, or toxins, derived from living organisms, to produce death or disease in humans, animals, or plants.

BT — Bioterrorism

Board of Health— The Washington State Board of Health has ten members, nine of whom are appointed by the Governor. The tenth member is the Secretary of the State Department of Health. The membership includes people who are experienced in matters of health and sanitation, elected officials, local health officers, and citizen consumers of health care. The board provides a forum for the development of public health policy and has rulemaking authority to protect public health, improve health status, and promote and assess the quality, cost, and accessibility of health care throughout the state.

BRAC — Bioterrorism Response Advisory Committee

Committee consisting of Department of Health partners and stakeholders that advises the Department of Health on the creation of its plan for bioterrorism preparedness and response.

C

Category "A" Agents —The possible biological terrorism agents having the greatest potential for adverse public health impact with mass casualties. The Category "A" agents are:

- Smallpox
- Anthrax
- Plague
- Botulism
- Tularemia
- Viral hemorrhagic fevers (e.g., Ebola and Lassa viruses)

CD — Communicable Disease

CDC — Centers for Disease Control and Prevention

A branch of the federal Department of Health and Human Services. The CDC manages Washington's Cooperative Agreement for Public Health Preparedness and Response for Bioterrorism.

CDES — Communicable Disease Section

CEMP — Comprehensive Emergency Management Plan

The overarching jurisdictional emergency plan at the state level and at most local jurisdictions.

CFH — Community and Family Health

Division of the Washington State Department of Health.

COMDIS —A Department of Health-hosted list serve that facilitates communications between disease control specialists across the state.

CONOPS —Concept of Operations

COOP — Continuity of Operations

The ability to maintain essential operations when staff and other resources are in short supply due to an ongoing emergency.

Cooperative Agreements —Federal grants for bioterrorism preparedness and response from the Centers for Disease Control and Prevention and the Health Resources and Services Administration.

COT — Committee on Terrorism

A committee formed by Washington's Emergency Management Council at the request of Governor Locke to develop strategies to address threats and acts of terror.

Critical agents —The biological and chemical agents likely to be used in weapons of mass destruction and other bio- terrorist attacks. Current lists may be found on the Centers for Disease Control and Prevention Web sites:

<http://www.bt.cdc.gov/Agent/Agentlist.asp>

<http://www.bt.cdc.gov/Agent/AgentlistChem.asp>

CSB — Center for the Study of Bioterrorism and Emerging Infections at St. Louis University School of Health

DCD — Disease Condition Database

Washington State's electronic repository for a wide range of health data including notifiable conditions

DEM — Department of Emergency Management

DHS — U.S. Department of Homeland Security

In 2003, parts of 22 federal agencies were consolidated into the new Department of Homeland Security to help protect the nation from terrorist threats, assist in natural disaster relief, and provide citizenship services.

DIRM — Division of Information Resource Management

Division of the Washington State Department of Health.

DIS — Washington State Department of Information Services

Disaster — A large emergency event that is beyond the community's ability to address within its own and mutual aid resources

DOH — Washington State Department of Health

DOH-CFH — WA State Department of Health Community and Family Health

DOJ — Department of Justice

DOT — Department of Transportation

DMAT — Disaster Medical Assistance Team

DSHS — Washington State Department of Social and Health Services

E

ECC — Emergency Coordination Center

EDI — Electronic Data Interchange

EDTH — Department of Health Electronic Data Transfer Hub

Emergency management — A systematic program of activities that governments and their partners undertake before, during and after a disaster to save lives, prevent injury, and to protect property and the natural environment. Emergency management activities include:

- Mitigation: eliminating hazards or reducing their potential impact
- Preparedness: planning, training, and exercising for disastrous events
- Response: taking action when a disaster occurs to save lives, prevent injuries, and prevent or limit property damage
- Recovery: restoring normalcy after the disaster

These activities are not the sole responsibility of the designated emergency management agency. Virtually all agencies have a role, but most particularly law enforcement, fire services, public works, and public health.

EEG — Exercise Evaluation Guide

EH — Environmental Health

Division of the Washington State Department of Health

EHSPHL — Epidemiology, Health Statistics, and Public Health Lab

Division of the Washington State Department of Health

EMA — Emergency management agency (local)

EMD — Washington State Emergency Management Division

A division of the Washington Military Department

EMS — Emergency medical services

EOC — Emergency operations center

The facility from which a jurisdiction or agency coordinates its response to major emergencies/disasters — there may be EOCs at the state, county, city, and/or agency level.

Epi — Epidemiology

The scientific study of diseases; includes analyzing the occurrence and distribution of diseases and the factors that govern their spread.

Epi/IMMS Section — Epidemiology and Immunizations Section

ER — Emergency room

ERC — Emergency response coordinator

Person authorized to direct implementation of an agency's emergency response plan

ESF — Emergency support function

A portion of a comprehensive emergency management plan (federal, state, or local) that describes activities related to a single function. For instance, in Washington's comprehensive emergency management plan, ESF-8 describes Health and Medical Services

Epidemiologist — A professional skilled in disease investigation. Epidemiologists design and conduct epidemiological studies, analyze data to detect patterns and trends in disease, establish and maintain surveillance systems, monitor health status, and evaluate the performance and cost effectiveness of public health programs.

F

FDA — Food and Drug Administration

FEMA — Federal Emergency Management Agency

FBI — Federal Bureau of Investigation

First responders — Local fire, law enforcement, HazMat, emergency medical services, and hospital emergency room personnel.

Focus areas — Categories of emergency preparedness activities states must address in their Cooperative Agreements for Public Health Preparedness and Response for Bioterrorism. Focus areas cover the following topics:

- Focus Area A: Preparedness planning and readiness assessment
- Focus Area B: Disease detection and reporting
- Focus Area C: Laboratory readiness
- Focus Area D: Chemical threat preparedness
- Focus Area E: Electronic information sharing
- Focus Area F: Public health communications
- Focus Area G: Education and training

FRP — Federal Response Plan

The overarching emergency management plan of the U.S. government

H

Health alerts —Urgent messages from the CDC to health officials requiring immediate action or attention. The CDC also issues health advisories containing less urgent information about a specific health incident or response that may or may not require immediate action, and health updates, which do not require action.

HAN — Health Alert Network

Infrastructure for the secure transmission of disease information between local health jurisdictions, the Department of Health, and its other partners using the intergovernmental network as its backbone.

HAN Information Service — Health Alert Network Information Service provides information in a variety of media, along with announcements of upcoming conferences and briefings.

HAN LHAP — Health Alert Network Local Health Assistance Project

The project provides helps local health jurisdictions enhance and maintain state of the art network and security operations, and achieve compliance with the PHIN standards.

HAZMAT — Hazardous materials

HHS —U.S. Department of Health and Human Services

HRSA — Health Resources and Services Administration

A branch of the federal Department of Health and Human Services. HRSA administers the funding and implementation of Washington's Cooperative Agreement for Bioterrorism Hospital Preparedness.

HR — Human Resources

HSEEP — Homeland Security Exercise and Evaluation Program

HSQA — Health Systems Quality Assurance

Division of the Washington State Department of Health

I

IAP — Incident Action Plan

ICS — Incident Command System

The direction and control scheme used by first response and other agencies to manage emergencies.

ILI — Influenza-like Illness

IT — Information Technology

J

JIC — Joint Information Center

A central point of contact for all news media near the scene of a large-scale disaster. The center is staffed by public information officials who represent all participating federal, state, and local agencies to provide information to the media in a coordinated and consistent manner.

K

KC — King County

KCECC — King County Emergency Coordination Center

L

L & I — Washington State Department of Labor and Industries

Laboratory levels (A, B, C, D) — A system for classifying laboratories by their capabilities.

Classifications are:

A: Routine clinical testing. Includes independent clinical labs and those at universities and community hospitals.

B: More specialized capabilities. Includes many state and local public health laboratories.

C: More sophisticated public health labs and reference labs such as those run by CDC.

D: Possessing sophisticated containment equipment and expertise to deal with the most dangerous, virulent pathogens and include only CDC and Department of Defense labs, the FBI, and the U.S. Army Medical Research Institute of Infectious Diseases.

LEP — Limited English Proficiency

LERC — Local Emergency Response Coordinator

L-LERC — Local Lead Emergency Response Coordinator

LHJ — Local Health Jurisdiction

Washington's public health services are delivered through 34 local health jurisdictions

LIMS — Laboratory Information Management System

LIMS connect the analytical instruments in the lab to one or more workstations or personal computers. A full-featured LIMS will forward data from lab instruments to a PC, organize it into meaningful information, and arrange it in required report formats.

LRN —Laboratory Response Network

A national partnership of public health laboratories designed to coordinate and share resources for an effective response during a health emergency.

M

MAC — Multi-Agency Coordination

MRC — Medical Reserve Corps

MMRS — Metropolitan Medical Response System

A program of the U.S. Health and Human Services Office of Emergency Preparedness intended to increase cities' ability to respond to a terrorist attack by coordinating the efforts of local law enforcement, fire, hazmat, EMS, hospital, public health and other personnel. Seattle, Spokane, and Tacoma participate in the MMRS program.

MRTE — Medical Readiness, Training, and Education committee

A regional workgroup of state health agency representatives, including one from the Department of Health that facilitates local-state-federal planning integration.

N

NACCHO — National Association of City and County Health Officials

NCID — National Center for Infectious Diseases

A branch of the Centers for Disease Control and Prevention.

NCPHP — Northwest Center for Public Health Preparedness

Located in the University of Washington School of Public Health and Community Medicine, the center works with the Department of Health to assess and provide emergency and bioterrorism preparedness and response training.

NEDSS — National Electronic Disease Surveillance System

A Centers for Disease Control and Prevention initiative that promotes the use of data and information system standards to improve disease surveillance systems at federal, state and local levels.

NIH — National Institutes of Health.

A branch of the federal Department of Health and Human Services. The NIH encourages and oversees medical and behavioral research.

NIMS — National Incident Management System

Notifiable conditions — Incidences of communicable disease, traumatic injury, cancer or other health condition that a state requires health care providers to report to a central collecting agency.

NDMS — National Disaster Medical System

A federal program that dispatches out-of-state medical teams to an area that has suffered a disaster.

NPS — National Pharmaceutical Stockpile (now Strategic National Stockpile, SNS)

A national cache of drugs, vaccines, and supplies that can be deployed to areas struck by disasters, including bioterrorism.

NWACS — Northwest Alliance for Cyber Security

Q

OER — Office of Emergency Response

Division of the U.S. Department of Health and Human Services.

OPHP — Office of Public Health Preparedness

Office within the U.S. Office of Health and Human Services that provides coordination between the CDC and HRSA Cooperative Agreements.

OS — Office of the Secretary

Division of the Washington State Department of Health.

P

Pathogen — Any agent or organism that can cause disease.

PHEPR — Public Health Emergency Preparedness and Response

Washington State Department of Health's overarching public health, emergency preparedness, and response initiative

PHIC — Public Health Information Center

PHIMS — Public Health Issues Management System

A Web-based system that will provide local health care agencies and providers with a secure, confidential mechanism for reporting disease surveillance data

PHIN — Public Health Information Network

Standards that provide the basis for developing and implementing information technology projects for CDC-funded programs including NEDSS, HAN, and others

PHPPO — CDC's Public Health Practice Program Office

PHSKC — Public Health – Seattle & King County

PHTN — Public Health Training Network

The Centers for Disease Control and Prevention's distance learning system that uses instructional media ranging from print-based to videotape and multimedia to meet the training needs of the public health workforce nationwide.

PICC — Public Information Call Center

PIO — Public Information Officer

PNWBHA — Pacific NorthWest Border Health Alliance

PNWER — Pacific NorthWest Economic Region

PNW CRDR — Pacific Northwest Center for Regional Disaster Resilience

PODRS — Provider Online Data Registry System

An online registry of licensed healthcare providers that have volunteered to assist in the event of a bioterrorism attack. A Washington State Department of Health project.

PPE — Personal Protective Equipment

Public health regions — Local health jurisdictions are organized into 9 regions. Each region will develop a plan for resource sharing and coordinated emergency response that will align with the state emergency management plan and will include hospitals, emergency medical services, law enforcement and fire protection districts. The regions, with the lead county or health agency for each region listed first, are:

1. Snohomish, Skagit, Whatcom, Island, San Juan
2. Bremerton-Kitsap, Clallam, Jefferson
3. Thurston, Lewis, Pacific, Grays Harbor, Mason
4. Southwest (Clark, Skamania), Cowlitz, Wahkiakum
5. Pierce
6. King
7. Chelan-Douglas, Okanogan, Grant, Kittitas
8. Benton-Franklin, Walla Walla, Yakima, Klickitat
9. Spokane North, Adams, Asotin, Columbia, Garfield, Lincoln, NE Tri (Ferry, Stevens Pend Oreille), Whitman.

Push package — A delivery of medical supplies and pharmaceuticals sent from the National Pharmaceutical Stockpile to a state undergoing an emergency within 12 hours of federal approval of a request by the state's Governor.

PVMS — Prophylaxis Vaccine Management System

The state-wide system used in Washington to track vaccine distribution and use during the smallpox vaccination effort.

R

RERC — Regional Emergency Response Coordinator

RCW — Revised Code of Washington

The laws of Washington State

Risk and Emergency Management (Office of) — Department of Health lead office for emergency management planning.

S

SERC — State Emergency Response Coordination

SNS — Strategic National Stockpile (formerly National Pharmaceutical Stockpile)

National cache of drugs, vaccines, and supplies that can be deployed to areas struck by disasters, including bioterrorism.

SOP — Standard Operational Plan / Standard Operating Procedure

Surge capacity — Ability of institutions such as clinics, hospitals, or public health laboratories to respond to sharply increased demand for their services during a public health emergency.

Surveillance — The systematic ongoing collection, collation, and analysis of data and the timely dissemination of information to those who need to know so that action can be taken. Surveillance is the essential feature of epidemiological practice.

T

TCL — Target Capabilities List

U

UWMC — University of Washington Medical Center

V

VPAT — Vulnerable Populations Action Team

W

WA — Washington

WAPHL — Washington State Department of Health Public Health Laboratories
Washington's lead bioterrorism response public health laboratory.

WACMHC — Washington Association of Community and Migrant Health Centers

WA-SECURES — Washington State Electronic Communications and UrgentResponse
Exchange System

A secure Web portal that provides public health systems with training materials, resources and protocols for public health emergencies. It will be extended to hospitals, clinical laboratories, emergency management agencies and public safety agencies. It will also be used to send rapid and targeted health alerts to local health entities.

WATRAC — Washington system for Tracking Resources, Alerts, and Communication.

WEDSS — Washington Electronic Disease Surveillance System

The umbrella information program that allows the Department of Health and local health organizations to exchange health information including, when necessary, emergency information. WEDSS encompasses Washington's activities under the Health Alert Network (HAN) and the National Electronic Disease Surveillance System (NEDSS, plus information technology at the Washington State Public Health Laboratories.

WSALPHO — Washington State Association of Local Public Health Officials

WSDOH — Washington State Department of Health

WSFC — Washington State Fusion Center

WSHA — Washington State Hospital Association

WSPHA — Washington State Public Health Association