

**December
2006**



**Windstorm
Response
After
Action
Report**



**A Statewide Report
to the Governor**

Produced by the Washington
State Military Department
March 2007

Executive Summary

The following report presents a statewide analysis of the response efforts of citizens, local jurisdictions, counties, cities, state agencies, and utilities to the windstorms that took place the week of December 10, 2006. The report consists of a historical look at the windstorm and its effects; an assessment of response capabilities and what response efforts took place; and recommendations for further improvement of the State's ability to respond to all hazards threatening the people, property, environment, and economy of the state of Washington. Over the past two months, representatives from numerous agencies, jurisdictions, and private enterprises worked together to develop accurate assessments and recommendations to ensure the state is better prepared for future incidents.

The December 2006 windstorms had a dramatic affect on our State and the Pacific Northwest region. Over three million residents in Oregon, Washington, and British Columbia lost power over a period spanning from one (1) to eleven (11) days. Fifteen (15) citizens lost their lives due to circumstances related to the storms, generating the largest disaster-related loss of life in Washington State since the eruption of Mount Saint Helens in 1980. Recovery costs are expected to exceed 47 million dollars. Although this windstorm exceeded the damage caused by the 1993 Inaugural Day Storm, the storm did not reach the magnitude of other potential hazards that could affect this state. Therefore, actions to identify lessons learned and to improve our statewide response capability are imperative.

Through the work of the Governor's Review Team and Workgroups, the following themes emerged as overall concerns for improvement. We must expand capabilities and capacities for public education, overall situational awareness, and better understand the expectations of our citizens and those involved in emergency responses. We also must work toward expanding coordination across state, local, and tribal emergency response agencies and continuing to strengthen partnerships between the public and private sectors.

Governor's After Action Report
2006 December Windstorm

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Acknowledgements

The Washington State Military Department appreciates the contributions of each of the participants in the development of the December 2006 Washington State Windstorm After Action Report. Their dedication and commitment reflects a deep and abiding concern for the people, property, economy and environment of Washington State. Although asked to participate on short notice, they responded with a sense of purpose and unity of effort that characterizes Washington's public and private sector emergency response communities. Appendix B acknowledges the agencies, organizations, jurisdictions and personnel that assisted with the development of this report.

Cover photos courtesy of Washington State Department of Transportation and the Federal Emergency Management Agency

1 Introduction

This After Action Report to the Governor consists of five sections designed to establish a chronological timeline of events, identify what worked, and identify and assess shortfalls in emergency planning and preparedness. Although the Review Team looked at all aspects of the preparedness, response, recovery and mitigation processes, this report focuses on the six (6) concerns expressed by Governor Gregoire in her correspondence of December 21, 2006. The report examines the local jurisdictions that proclaimed an emergency during the 2006 Wind Storm (from December 13, 2006 to December 22, 2006) and state agencies that engaged in support activities. Concerns and best practices that were outside the scope of the Governor's questions will be analyzed through ongoing programmatic reviews and statewide stakeholder discussions

1.1 Background to the report

On December 21, 2006, Governor Christine Gregoire (2006) requested Major General Timothy J. Lowenberg, the Adjutant General of Washington State, "to conduct a full after-action review of how our Emergency Management [Division] in collaboration with other responders prepared for and responded to the [December] windstorms, and provide any recommendations on how to improve those processes" (p.1). In response to this request, the Washington Military Department convened a statewide Review Team of 28 representatives of federal, state and local jurisdictions, agencies, associations, nonprofit organizations, and businesses to conduct a statewide review.

1.2 Report focus, issues, and contributions

In her December 21, 2006 letter, Governor Gregoire asked the Washington State Military Department to address six (6) specific areas of concern. This report is therefore focused on the following questions:

- How effective was our communication system across the network of first responders and other emergency personnel?
- Whether our elderly citizens, as well as persons with disabilities and special needs, received appropriate help.
- How effective was our delivery of information regarding recovery from the storm and its dangers, including the potential of carbon monoxide poisoning in all communities, particularly those that are limited English proficient?
- Can emergency shelters, as they exist today, adequately meet the needs of persons with disabilities, or should counties develop "special needs" shelter plans for large-scale emergencies?
- What should be done to ensure our infrastructure can respond to disasters timely and efficiently?
- Can our emergency response coordination be improved and how?

This assessment and response is based on information collected by the Washington State Military Department's Emergency Management Division in coordination with the Governor's Office, Washington State Patrol, Department of Health, Department of Social and Health Services, Department of Transportation, Department of Information Services, Department of Community, Trade, and Economic Development, Office of Financial Management, Emergency

Management Council, Washington State Emergency Management Association, Association of Washington Cities, Washington State Association of Counties, Pierce County, King County, Mason County, Thurston County, City of Tacoma, the American Red Cross, Associated Ministries, Puget Sound Energy, Seattle City Light, Mason County Public Utility District 3, Boeing, Washington Association of Sewer & Water Districts, and the United States Department of Homeland Security.

1.3 Definitions

Adult Family Home - Is defined as a residential home in which a person or persons provide personal care, special care, room, and board to more than one, but not more than six, adults who are not related by blood or marriage to the person or persons providing the services according to the Revised Code of Washington 70.128.010.

Advisory – “Highlights special weather conditions that are less serious than a warning. These are for events that may cause significant inconvenience, and if caution is not exercised, it could lead to situations that may threaten life and/or property” (National Weather Service, n.d.a).

Agency – A division of government with a specific function that provides a particular service.

Boarding Home - As defined by the Revised Code of Washington 18.20.020, a boarding home is any home or other institution, however named, which is advertised, announced, or maintained for the express or implied purpose of providing housing, basic services, and assuming general responsibility for the safety and well-being of the residents, and may also provide domiciliary care, consistent with chapter 142, Laws of 2004, to seven or more residents after July 1, 2000. However, a boarding home licensed for three to six residents prior to or on July 1, 2000, may maintain its boarding home license as long as it is continually licensed as a boarding home. "Boarding home" shall not include facilities certified as group training homes pursuant to the Revised Code of Washington 71A.22.040, nor any home, institution, or section thereof which is otherwise licensed and regulated under the provisions of state law providing specifically for the licensing and regulation of such home, institution or section thereof. Nor shall it include any independent senior housing, independent living units in continuing care retirement communities, or other similar living situations including those subsidized by the department of housing and urban development.

Carbon Monoxide Poisoning – “Inhalation of carbon monoxide gas typically lead[ing] to headache, dizziness, and confusion, which might progress to dyspnea, tachypnea, syncope, and metabolic acidosis” (Centers for Disease Control and Prevention, 2005, p. 8).

Disaster - "Emergency or disaster" as used in all sections of this report except RCW 38.52.430 shall mean an event or set of circumstances which: (i) Demands immediate action to preserve public health, protect life, protect public property, or to provide relief to any stricken community overtaken by such occurrences, or (ii) reaches such a dimension or degree of destructiveness as to warrant the governor declaring a state of emergency pursuant to RCW 43.06.010.

Distribution Line – “A distribution line is a medium-voltage (2,001 volts to 46,000 volts) overhead line that carries power from the substation to customer service areas. Some distribution lines are underground cables” (Puget Sound Energy, 2006a).

Emergency - "Emergency" as used in RCW 38.52.430 means an incident that requires a normal police, coroner, fire, rescue, emergency medical services, or utility response as a result of a violation of one of the statutes enumerated in RCW 38.52.430.

High Risk Populations – Individuals who have high risk for harm from an emergency event due to significant limitations in their personal care or self-protection abilities, mobility, vision, hearing, communication, or health status. These limitations may be the result of physical, mental, or sensory impairments or medical conditions. Some of these individuals may be reliant on specialized supports such as mobility aides (wheelchairs, walkers, canes, crutches), communication systems (hearing aides, TTY's, etc.), medical devices (ventilators, dialysis, pumps, monitors), prescription medication, or personal attendants. For some individuals, loss of these supports due to emergency-related power and communication outages or transportation and supply disruptions may be the primary or only risk factor.

Jurisdiction – A range or sphere of authority. Public agencies have jurisdiction at an incident related to their legal responsibilities and authorities. Jurisdictional authority at an incident can be political or geographical (e.g., city, county, tribal, state, or federal boundary lines) or functional (e.g., law enforcement, public health).

National Guard – As defined by the Revised Code of Washington 38.04.010, the National Guard is "the military force of the state that is organized, equipped and federally recognized under the provisions of the national defense act of the United States." The National Guard provides trained military units for national defense and augmenting federal military operations. The National Guard also supports the state by providing assistance and resources during times of emergency.

Nursing Home – According to the Revised Code of Washington 18.51.010, a nursing home means any home, place or institution which operates or maintains facilities providing convalescent or chronic care, or both, for a period in excess of twenty-four consecutive hours for three or more patients not related by blood or marriage to the operator, who by reason of illness or infirmity, are unable properly to care for themselves. Convalescent and chronic care may include, but not be limited to, any or all procedures commonly employed in waiting on the sick, such as administration of medicines, preparation of special diets, giving of bedside nursing care, application of dressings and bandages, and carrying out of treatment prescribed by a duly licensed practitioner of the healing arts. It may also include care of mentally incompetent persons. It may also include community-based care. Nothing in this definition shall be construed to include general hospitals or other places which provide care and treatment for the acutely ill and maintain and operate facilities for major surgery or obstetrics, or both. Nothing in this definition shall be construed to include any boarding home, guest home, hotel or related institution which is held forth to the public as providing, and which is operated to give only board, room and laundry to persons not in need of medical or nursing treatment or supervision except in the case of temporary acute illness. The mere designation by the operator of any place or institution as a hospital, sanitarium, or any other similar name, which does not provide care for the acutely ill and maintain and operate facilities for major surgery or obstetrics, or both, shall not exclude such place or institution from the provisions of this chapter: PROVIDED, That any nursing home providing psychiatric treatment shall, with respect to patients receiving such treatment, comply with the provisions of the Revised Code of Washington 71.12.560 and 71.12.570.

State Guard – As defined in the Revised Code of Washington 38.04.010, the State Guard is “part of the military forces of the state that is organized, equipped, and recognized under the provisions of the State Defense Forces Act of the United States.” The State Guard is separate from the National Guard. The State Guard may be activated by the Governor for service only within the state.

Transmission Line – “A transmission line is a bare, annulated high-voltage (46,001 volts to 750,000 volts) overhead line that carries power from power plants to substations or power distribution centers” (Puget Sound Energy, 2006a).

Watch – “A watch is used when the risk of a hazardous weather or hydrologic event has increased significantly, but its occurrence, location, and/or timing is still uncertain. A watch is intended to provide enough lead time so that those who need to set their plans in motion can do so” (National Weather Service, n.d.a).

Warning – “A warning is issued when a hazardous weather or hydrologic event is occurring, is imminent, or has a very high probability of occurring. A warning is used for conditions posing a threat to life or property” (National Weather Service, n.d.a).

Windstorm – “Storms with sustained winds of 40 mph or gusts of 58 mph or greater, not caused by thunderstorms, expected to last for an hour or more” (Washington State Emergency Management Division, 2004).

1.4 Report Scope and limitations

This report focuses on the occurrences and actions taken in response to the December 13-22, 2006 windstorm events for the tribes, counties, and cities identified in the Governor’s request for a federal disaster declaration.

This report is not all encompassing. This report focuses primarily on the six concerns posed by the Governor. Due to the timing of this report, not all information regarding this storm is yet available. Jurisdictions and agencies continue to review the response actions taken and adjust plans and procedures accordingly.

2 Background

This section describes the storm itself as well as pre-event preparedness activities. The section will describe the effects of the 2006 windstorm in comparison to previous storms in Washington State and nationally. The report also describes what occurred at state and local levels during the week of December 10, 2006. Finally, this section presents plans and processes that were in place prior to the storm events so as to establish a baseline for measurement of data.

2.1 Storm in perspective

Washington State, located on the windward Pacific coast, experiences primarily a marine-type climate west of the Cascade mountain range and a mixture of marine and continental characteristics to the east side of the state. During the fall and winter, winds can shift from the predominant southwest or westerly flow to a northeasterly direction. Additionally, high wind velocities of 50 miles an hour are expected a minimum of once every two years and winds in excess of 60 miles an hour occur approximately every 50 years.

Windstorms are predominantly caused by low pressure systems from the Pacific coast, Arctic fronts originating from Canada, or air pressure differences between eastern and western

Washington. These windstorms occur most often on the Pacific coast, the Columbia River Gorge, the Cascade Mountains, and the Columbia Basin. Figure 1 shows the counties that experience at least one serious windstorm per calendar year (Washington State Emergency Management Division, 2004).



Figure 1. Counties Vulnerable to High Winds

Windstorms affect utilities, transportation infrastructure, schools, homes, and businesses. The severity of the storms varies from local isolated events to large storms that can affect the entire state and the Pacific Northwest Region. The largest windstorm (not associated with a tropical storm) to affect the United States occurred in Washington in 1962 (Washington State Emergency Management Division, 2001).

The Columbus Day Storm, 1962

On October 12, 1962, the Pacific Northwest experienced the most significant non-tropical windstorm ever recorded in the continental United States. Winds gusted from 100 miles an hour in Renton [King County] to 150 miles an hour in Naselle [Pacific County]. This storm is described by the National Weather Service as “the mother of all wind storms this [20th] century, the wind storm all others are compared to” and was rated as the top weather event for Washington State in the 20th Century (National Weather Service, n.d.b). The storm caused 46 deaths in the Northwest including seven deaths within Washington. Over 2.5 residents were without power, and 50,000 homes suffered more than \$235 million in total damages.

The Inaugural Day Storm, 1993

On January 20, 1993, Washington State sustained another major windstorm with winds gusting up to 98 miles an hour on the coast and 70 miles an hour within the Puget Sound area. This storm was directly or indirectly responsible for five deaths in the state (National Weather Service). None of the five deaths were due to carbon monoxide; however, 81 cases of carbon monoxide poisoning were reported (Hampson & Stock, 2006). During the 1993 storm,

approximately 870,000 customers were without power for four days in temperatures at or near freezing. Fifty-two (52) homes were destroyed and 249 homes damaged for total losses estimated at \$130 million. The federal government issued a federal disaster declaration (Number 981) and the state received \$24.2 million in Stafford Act assistance (Washington State Emergency Management Division, 2004).

Carbon Monoxide Poisoning

Carbon monoxide is a colorless, odorless gas resulting from burning combustibles such as gasoline, wood, charcoal, and propane. Experts estimate that 1,500 people die each year due to carbon monoxide. The American Lung Association (2000) reveals “Carbon monoxide enters the bloodstream through the lungs and reduces oxygen delivery to the body's organs and tissues” (p.1). Common symptoms of carbon monoxide poisoning include flu-like symptoms such as headache, nausea, dizziness, and fatigue (Current Health, 1998).

This After Action Review disclosed a 2006 study of carbon monoxide poisoning that was unknown to Washington emergency management and public health officials prior to the December 2006 windstorm. The study examined nine storms over the past 15 years in which there were treatments and deaths related to carbon monoxide poisoning. The storms studied were the 1993 Inaugural Day Storm in Washington; the 1996 Northeast Blizzard; 1998 Maine Ice Storm; the two 2002 North Carolina Ice Storms; 2003 New York Ice Storm; Hurricane Isabel in 2003; the 2004 Florida Hurricanes; and the 2005 Gulf Coast Hurricanes, including Hurricane Katrina. In each instance, the storms created circumstances that elevated the potential for carbon monoxide poisoning. One of the discernable data trends from this study is the relationship between loss of power and cases of carbon monoxide poisoning caused by the improper use of charcoal and power generators. The figures below show the number of cases of carbon monoxide poisoning and deaths attributed to each of these storms. Data from the December 2006 windstorm has been included as an additional point of reference. (Hampson & Stock, 2006).

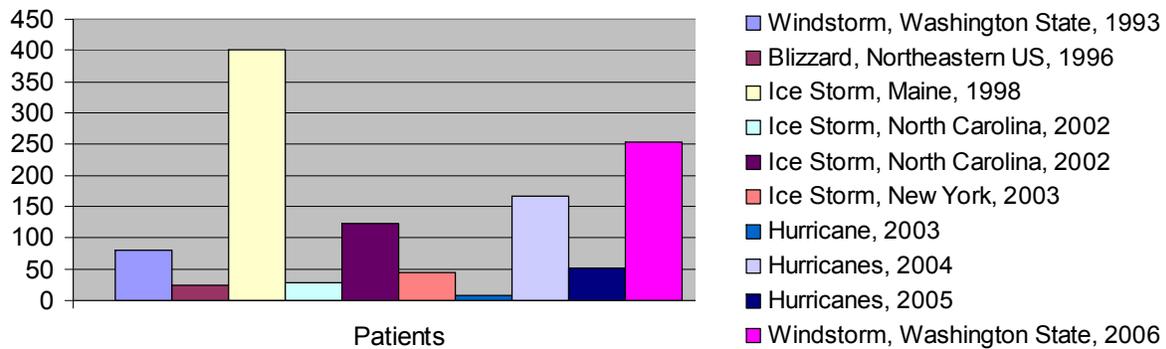


Figure 1. Comparison of Carbon Monoxide Cases

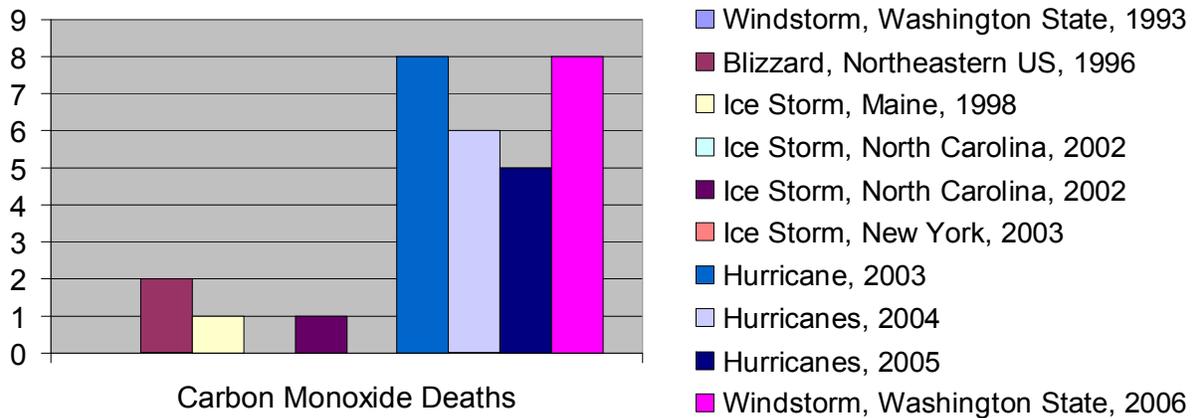


Figure 2. Comparison of Carbon Monoxide Deaths

In April of 1996, the Consumer Product Safety Commission required charcoal packaging to include a pictogram warning to consumers of the dangers of using charcoal in enclosed spaces. This regulation was enacted to increase understanding of the dangers for non-English speaking populations. According to the Consumer Product Safety Commission's Chairperson Ann Brown, "This new pictogram with a clear-cut warning about the deadly carbon monoxide hazard removes any doubt about the danger of burning charcoal inside a closed area... Including a picture with this warning label is especially valuable for people who are unable to read or understand English" (1996). The pictograms required include pictures of a home, tent and vehicle to express the dangers of using the product in an enclosed space (U.S. Consumer Product Safety Commission, 1996). The U.S. Consumer Product Safety Commission is now requiring generator manufactures to include a similar pictograph warning on all generators produced or imported after May 14, 2007 (U.S. Consumer Product Safety Commission, 2007).

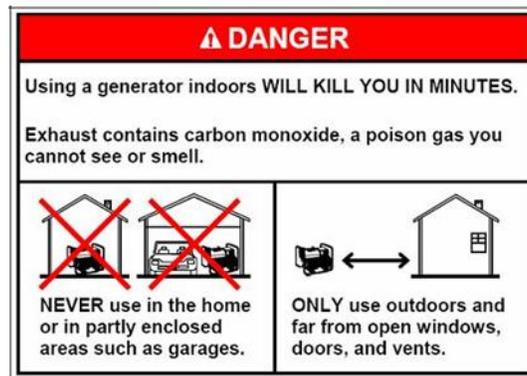


Figure 4. Warning label required for all portable generators

During the December 2006 windstorm, more than 300 patients were treated for carbon monoxide poisoning and eight people died from the poisoning. The number of patients treated was less than 1% of the population affected by the power outage. In reviewing the Hampson & Stock study and their own experience in the December 2006 windstorm (carbon monoxide cases were predominantly a King County-based phenomenon), Virginia Mason Hospital and Medical Center personnel have opined that carbon monoxide poisoning is predictable during periods of prolonged power outage. This study and Virginia Mason's subsequent assessment of the results

were largely unknown within the emergency management community. The number of carbon monoxide cases attributed to improper use of generators and charcoal is consistent with Hampson & Stock’s 15-year study of weather related carbon monoxide poisoning. According to Virginia Mason Hospital and Medical Center, improper use of charcoal in enclosed spaces accounted for 86% of the carbon monoxide cases treated and improper use of generators accounted for the remaining 12%. Most of the patients did not speak English as their primary language. In one case, a patient was asked if he knew the danger of burning charcoal inside his residence. He responded that he understood the danger, but it was too cold and he needed heat. Charcoal manufacturers include pictograms on the outside of bags to warn of the dangers of burning charcoal in enclosed structures. However, as seen throughout the 2006 Winter storm period, people will disregard warnings in order to stay warm (Virginia Mason Hospital, 2007).

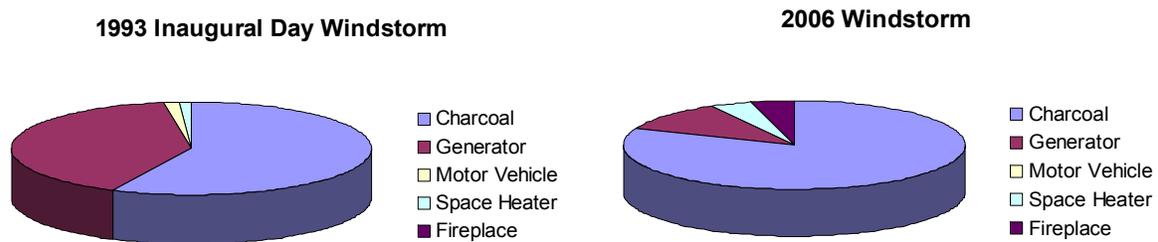


Figure 3. Comparison CO Poisoning from the Inaugural Day Storm and the 2006 Windstorm

2.2 State of preparedness

Officials in the State of Washington coordinate emergency responses in accordance with the Washington State Comprehensive Emergency Management Plan. This plan is an “all-hazards” plan which sets forth the structure for all state response and coordination with federal, tribal, county, and city jurisdictions. The Washington State Comprehensive Emergency Management Plan details the policies, governing authorities, and concept of operations for disaster response and recovery; identifies mitigation and preparedness activities; and describes state agency and nonprofit organizations’ responsibilities for emergency management using Emergency Support Functions. Emergency Support Functions group the kinds and types of assistance the state is most likely to require. Most state agencies perform a primary or supporting role for each Emergency Support Function. The Washington State Comprehensive Emergency Management Plan has 16 Emergency Support Functions: Transportation; Communications; Public Works and Engineering; Firefighting; Emergency Management; Mass Care, Housing, and Human Services; Resource Support; Health and Medical Services; Search and Rescue; Oil and Hazardous Material; Agriculture and Natural Resources; Energy; Public Safety and Security; Long Term Community Recovery and Mitigation; External Affairs; and Defense Support to Civil Authorities (Washington State Emergency Management Division, 2002a).

Revised Code of Washington 38.52.070 requires that each county and incorporated city in Washington also have a comprehensive emergency management plan. Counties and incorporated cities have the authority to expend funds in an expedient manner to save lives and property during an emergency or disaster. This includes temporarily limiting or suspending certain laws and policies except when prohibited by the state or federal constitution.

The Washington State Emergency Management Division's Alert and Warning Center functions 24-hours a day, 365 days a year. The center serves as the state's public service warning/answering point and the initial contact point for emergency state assistance to local jurisdictions, tribes, Enhanced 9-1-1 centers, private industry, state agencies, and other organizations. The Alert and Warning Center managed warnings, notifications, and resource coordination for more than 4,000 events in 2006. The Alert and Warning Center is an integral part of the State Emergency Operations Center, the principal location for coordinating the state's response to a disaster, and meeting resource requests which exceed a local jurisdiction's capabilities.

The State Emergency Operations Center, in turn, serves as the focal point for state responses to natural, technological, and human-caused emergencies and disasters. The center's numerous primary and back-up communications systems allow the state to warn local, tribal and state agencies, and the public, of emergencies and to communicate among all emergency response agencies during an event. During an emergency, representatives from other state agencies with emergency roles will come or be asked to come to the State Emergency Operations Center to help coordinate the state response. Federal government agencies, along with state and local volunteer organizations, also may provide representatives as appropriate. The State Emergency Operations Center is the central location for information gathering, hazard analysis, and response coordination. State executives use information gathered within the emergency operations center to decide on emergency actions and to identify and prioritize the use of state resources needed to respond to the emergency. The State Emergency Operations Center may issue emergency warnings or disseminate critical information and instructions to government personnel and the public who may need to take emergency protective actions (Washington State Emergency Management Division, 2002b).

Washington State law allows the Governor to proclaim a State of Emergency after finding that a natural, technological, or human-caused disaster or emergency exists which affects life, health, property, or the public peace. The Governor can proclaim a State of Emergency for the entire state or for a specific community. The proclaimed State of Emergency is effective only within the area described in the proclamation or subsequent amendments. The state's Comprehensive Emergency Management Plan is always in effect as a policy document; however, the Governor's proclamation is an additional authorization for use of appropriate state resources. A State of Emergency proclamation does *not* imply that the state will reimburse the local costs of responding to or recovering from an emergency. If other assistance is not available, the cost of recovery is borne by the individual citizens, local and state government agencies, tribal governments, businesses, and other organizations that have suffered the loss. State assistance is supplemental to the local capacity to recover from disasters.

The Washington State Military Department's Emergency Management Division prepares the Governor's Proclamation based upon analysis of the situation and documentation gathered from the local emergency management offices, government agencies, and other resources. Documentation from local emergency management offices is essential early in the response phase in order to meet federal criteria for requesting federal assistance. State agencies also may respond without a Governor's Proclamation. Any state agency can initiate a response under the Washington State Comprehensive Emergency Management Plan or other special contingency plans without a proclamation of emergency (Washington State Emergency Management Division, 2002a).

State and local emergency management agencies consider public disaster education to be one of their highest priorities and encourage disaster education activities by all public and private sector organizations. The goal of disaster education outreach is to encourage, support, and empower local governments, state agencies, volunteer organizations, businesses, and other privately sponsored groups who desire to increase their level of preparedness and engage in preparedness programs. The ultimate goal is individual self-sufficiency for at least three days following a disaster. The focus is all-hazard disaster preparedness. The focus is accomplished through presentations to schools, businesses, and government agencies; conducting train-the-trainer classes; facilitating neighborhood preparedness courses; developing awareness and preparedness materials; and outreach to multicultural and special needs groups through coalition building and through public-private partnerships (Washington State Emergency Management Division, 2005). The major challenge to the education program is the conversion of emergency management preparedness information into action by the residents of Washington.

2.3 Chronological timeline of events

The National Weather Service issued the first High Wind Watch for Pacific and Wahkiakum Counties on December 9, 2006, at 3:00 pm. This watch started the official beginning of the windstorm and the Washington State Emergency Management Division's Alert and Warning Center issued Mission Number 06-3783 for the event. Over the next few days, the National Weather Service issued several additional watches, warnings, and cancellations which the Alert and Warning Center passed on to affected counties and tribes via the National Warning System (NAWAS), A Central Computerized Enforcement Service System (ACCESS) paging system, and/or telephone.

The first of the windstorms occurred December 11-12 affecting Whatcom, Skagit, Island and Kitsap Counties. This windstorm closed the Hood Canal Bridge for several hours on December 11 due to the high winds and caused a loss of power to an estimated 69,700 people. Immediately following on December 13, a second windstorm caused damage and power outage to approximately 120,700 people in Jefferson, King, Kitsap, Pierce, and Thurston Counties. Utility companies brought in over 40 line crews from out of the area to assist with power restoration, with power being restored to the majority of affected customers by the morning of December 14. Puget Sound Energy, the largest electrical utility provider in western Washington, opened their emergency operations center for the second time in two days to assist with the restoration process (Robinson, M. personal communication, February 5, 2007).



Photo by Charles Ames

On December 13 at 9:30 pm, the National Weather Service issued the following Storm Warning for all of western Washington from 6:00 am, Thursday, December 14 through the afternoon of Friday, December 15:

SYNOPSIS FOR NORTHERN AND CENTRAL WASHINGTON COASTAL AND INLAND WATERS...A POWERFUL STORM SYSTEM WILL MOVE ACROSS THE AREA THU[RSDAY] AFTERNOON AND NIGHT...RESULTING IN STORM FORCE WINDS ACROSS PARTS OF THE AREA. EXPECT STRONG ONSHORE FLOW ON FRI[DAY] IN THE WAKE OF THIS SYSTEM (National Weather Service, 2006a).

In preparation for the storm, several local jurisdictions opened emergency operations centers as a proactive measure to coordinate and provide resources to responders. Puget Sound Energy decided to keep their emergency operations center open in anticipation of further power outages, in addition to retaining out-of-area crews for additional surge capability. The Washington State Department of Transportation opened their emergency operations center and disseminated



Photo by Charles Ames

information through the local media that the State Route 520 Evergreen Point Floating Bridge, Hood Canal Bridge, and the state Ferry System could close due to high winds. The Department also worked with Qwest Field to disseminate route closure information to fans attending a Seattle Seahawks game (Washington State Department of Transportation, 2007). The winds associated with the storm started around 4:00 pm. Throughout the evening of December 14, the storm hit western Washington with wind gusts of 69 miles an hour at the Seattle-Tacoma International Airport, 113 miles an hour at Chinook Pass, and 135 miles an hour at Mission Ridge near Wenatchee (National Weather Service, 2006b). By early morning on Friday, December 15, an estimated 4.08 million people¹ were without power in the Pacific Northwest, primarily in counties of Chelan, Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, King, Kittitas, Lewis, Pacific, Pierce, Skagit, Snohomish, Thurston, and Whatcom (US Department of Energy, 2006). Puget Sound Energy reported damage to over 80 high-voltage

transmission lines which constituted more than 50% of the lines owned by Puget Sound Energy. To assist with the restoration process, line crews mobilized from out-of-state. The morning of December 15, Puget Sound Energy had more than 200 repair teams working to repair the transmission and feeder lines (Puget Sound Energy, 2006b). Trees and limbs damaged power lines and forced the closure of roads throughout western Washington. Over 90 sites on 45 state roads closed for a time including the State Route 520 Evergreen Point Floating Bridge, the Hood Canal Bridge, and the Tacoma Narrows Bridge. Ferry service suffered minimal interruption with

¹ Population estimates based on homes accounting for approximately 90% of utility customers (Serra, R. personal communication, February 15, 2007). The average household in Washington State is 2.53 people according to the U.S. Census Bureau (2002).

only a few scheduled departures. Once the winds subsided, the ferry service returned to full operations (Washington State Department of Transportation, 2007).

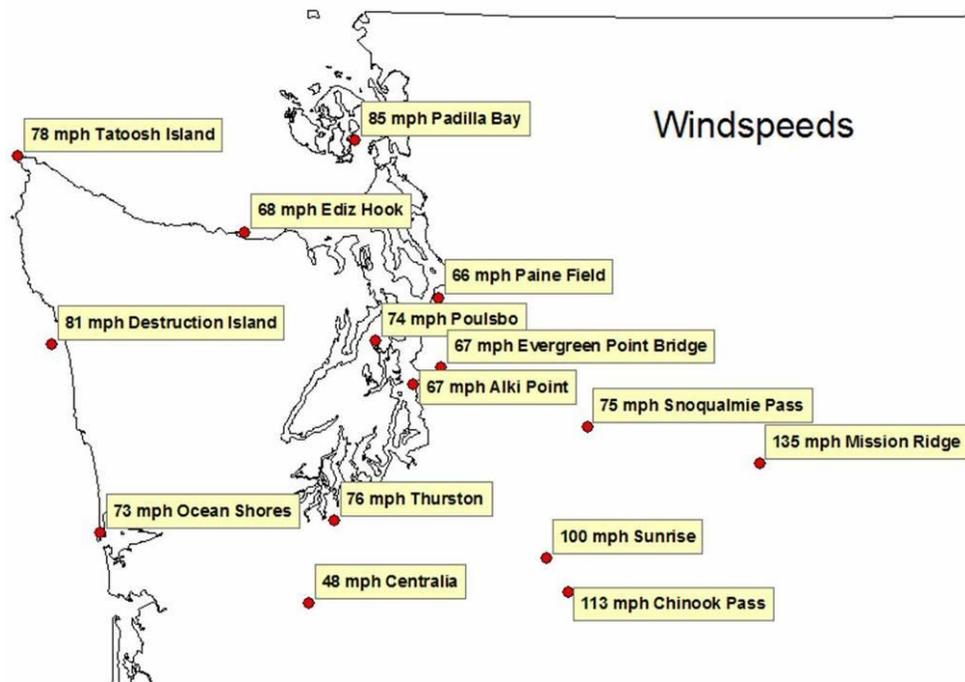


Figure 4. Maximum Wind speeds December 14-15

At 7:00 AM, December 15, 2007, the Washington State Emergency Management Division upgraded the activation level of the State Emergency Operations Center on Camp Murray to Phase II, Enhanced, and activated additional staffing to assist local jurisdictions and monitor the situation. During the day, eight counties, eight cities, and one tribe proclaimed an emergency, and an analysis of the event within the State Emergency Operations Center prompted a draft Governor's Proclamation for a State of Emergency. Most schools in the Puget Sound region closed or incurred delays due to loss of power and road closures. County 9-1-1 Centers became overwhelmed with calls, prompting press releases requesting citizens to call 9-1-1 only for life threatening emergencies. Some county and city offices and courts closed or provided only limited services due to loss of power. By 5:30 PM, Governor Gregoire formally proclaimed a State of Emergency for Clallam, Clark, Cowlitz, Grays Harbor, Island, Jefferson, King, Lewis, Mason, Pacific, Pierce, San Juan, Skagit, Snohomish, Wahkiakum, and Whatcom Counties. The proclamation implemented the Washington State Comprehensive Emergency Management Plan and authorized the use of state resources to assist affected jurisdictions, including activation of the National Guard and State Guard. Six emergency shelters opened within Pierce, Mason, and Snohomish counties (Washington State Emergency Management Division, 2006a).

At 12:30 PM on December 16, the State Emergency Operations Center activated to Phase III, Full Operations. All command, general staff sections, and state Emergency Support Functions for Communications; Public Works and Engineering; Emergency Management; Mass Care, Housing and Human Services; Public Health and Medical Services; Energy; and Defense

Support to Civil Authorities activated to support the affected jurisdictions. Situation Reports from jurisdictions identified four directly-related storm deaths due to falling trees and drowning (Washington State Emergency Management Division, 2006b). By 4:00 PM, the Governor rescinded the original Proclamation of a State of Emergency and issued a new proclamation to include all 39 counties in the state. Eight county and four city emergency operations centers remained activated. The State Emergency Operations Center continued to provide resource assistance to local jurisdictions including generators, cots, flares, and heaters. Thirty-one shelters remained open in ten counties, serving a population of 66 residents. Power continued to be restored across the state, reducing the number of people without power to 1.2 million, about 20% of the state's population (Washington State Emergency Management Division, 2006c). Maintaining heat became a growing problem as temperatures began dropping into the low 30s. Hospitals began treating carbon monoxide poisoning cases. King County reported 77 cases, of which 47 patients required treatment in a hyperbaric oxygen chamber.

By Thursday, December 21, 2006, there were more than 260 cases of carbon monoxide poisoning resulting in eight deaths, all of which were in King County. Over 184,000 people in Washington State were still without power. Telecommunication companies had restored service to most land-based and cellular phone customers. Twelve counties and eleven cities had active emergency proclamations. Eight counties still had open shelters providing showers, feeding, warming, and overnight facilities. King County's Special Needs Shelter in Bellevue remained open and the Seattle Humane Society in Bellevue continued to provide a pet shelter for stray, lost, and orphaned pets. Counties gathered individual and public sector damage assessment information (Washington State Emergency Management Division, 2006d). By December 22, all county and city emergency operations centers lowered activation levels or closed and the State Emergency Operations Center returned its activation level to Phase II Enhanced.



Puget Sound Energy worker clearing power lines

The final electrical restorations occurred on Christmas Day, eleven days after the major windstorm (Puget Sound Energy, 2006c). On January 11, 2007, Governor Gregoire requested a federal disaster declaration under the provisions of Section 401 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act for response and recovery expenses estimated to exceed \$47 million. The 19 counties included in the declaration request were Chelan, Clallam, Clark, Grant, Grays Harbor, Island, King, Klickitat, Lewis, Mason, Pacific, Pend Oreille, Pierce, San Juan, Skagit, Skamania, Snohomish, Thurston, and Wahkiakum (Gregoire, 2007). On February 14, 2007, the President of the United States declared the December 2006 Windstorm a Federal

Disaster and authorized public assistance and hazard mitigation (Bush, 2007). In total, fifteen people died. Six of these deaths were directly related to the storm: one individual drowned, wind debris killed four, and one person died due to an energized power line. Nine deaths were indirectly related to the storm: eight from carbon monoxide poisoning and one from a fire caused by improper use of an alternate heat source.

County	Drowning	Wind Debris	Energized Lines	Carbon Monoxide	Fire	Totals
Grays Harbor		1				1
King	1			8		9
Lewis		1				1
Pierce		2	1		1	4
Totals	1	4	1	8	1	15

Figure 5. Windstorm Deaths

3 Methodology

The Washington State Military Department utilized a Review Team and individual Workgroups to focus on the six specific areas of concern and to conduct research and develop recommendations based on the events of the December 2006 Windstorm.

3.1 Review Team

The Washington State Military Department requested participation from 28 individuals representing tribal, city, county, state, federal, and private agencies and organizations. These agencies and organizations all played a role in the response to the windstorm and represented various disciplines including emergency response, transportation, health, human services, elected officials, businesses, non-profit organizations, and utilities. Each member of the Review Team recruited additional staffing and resources to the individual workgroups and reviewed the final products to ensure a consistent, accurate statewide approach to the findings of this report.

3.2 Workgroups

Six workgroups were formed to conduct specific research based on the Governor’s primary concerns of communications, infrastructure, sheltering, addressing special needs populations, public information, and emergency response. These workgroups consisted of subject matter experts representing jurisdictional and private organizations. The Washington State Emergency Management Division Principle Investigator, Dr. Terrence M.I. Egan, provided a facilitator for each workgroup to assist each workgroup in completing deliverables, providing resource support, and keeping the workgroup on time and task. The facilitator served as a neutral party within the workgroup and was instructed not to evaluate ideas or influence decisions or direction. Each workgroup met independently and developed separate research methodology. During the course of the research, facilitators identified areas of overlap between workgroups and coordinated concerns between workgroups to ensure coverage of all topics and issues.

The Communications Workgroup, facilitated by Ms. Laura DS Goudreau, concentrated on technical (infrastructure) and operational communications needs. Communications included the use of public and private communications consisting of two-way radio, amateur radio, land-based phone, cellular phone, voice over internet protocol phones, internet access, and email systems. The workgroup focused on identifying what systems worked during the event, which systems failed and why, and what recommendations could be made for improvement.

The Infrastructure Workgroup, facilitated by Mr. John Ufford, focused on the preparation, response, and recovery of public and private agencies responsible for maintaining infrastructure. The main areas of infrastructure concern consisted of electricity, transportation, water, wastewater, and communications. Additionally, the workgroup researched commercial fueling, banking and finance, food and lodging, and natural gas. The workgroup considered four questions throughout the process: (1) what did the public and private infrastructure sector do, was the sector prepared prior to the storm and did the plans and preparation guidelines work; (2) what response actions did the sector take during the event; (3) what recovery actions did the sector take after the event and were they effective, efficient and timely; and (4) what recommendations could improve the overall response?

The Sheltering Workgroup, facilitated by Mr. Littleton Dudley, concentrated on emergency shelters meeting the requirements of persons with disabilities. The workgroup focused on developmentally disabled, physically disabled, emotionally disabled, and mentally ill persons, as well as residential populations such as adult family homes, assisted living facilities, and nursing homes. To identify shortfalls and identify areas for improvement, the workgroup performed interviews, facilitated focus groups, and conducted a special needs sheltering survey.

The Special Needs Population Workgroup, facilitated by Ms. Ute Weber, identified how elderly citizens, disabled persons, and other persons with special needs received assistance during the windstorm. The workgroup concentrated on identifying and distinguishing the needs of the different population groups, assessing how responders met those needs, detecting gaps in preparedness, and recommending ways to enhance support for persons with special needs. The data gathered reflects research from after action reports, plans and procedures and the workgroup's in depth discussion of ways to improve future planning.

The Language Barriers/Public Information/Public Education Workgroup, facilitated by Ms. Lorri Gifford, focused on an assessment of methods of public information distribution that are currently in use, with the recognition that multiple systems must be available for use in emergencies. The workgroup also discussed how to modify current systems and processes which are hampering effective emergency public information and public education about emergency preparedness. The group also concentrated on how to effectively convey emergency preparedness, recovery, and response information to limited-English proficient population groups in our state.

The Emergency Response Workgroup, facilitated by Ms. Joan Sterling, concentrated on how to improve coordination of emergency response activities throughout the state. The workgroup focused on identifying emergency response actions during the event, recognizing problematic themes and successes throughout the response, and identifying areas for improvement.

3.3 Additional Research Procedures/Processes

In addition to the deliverables provided by the workgroups, the Washington State Military Department compiled products produced by local, state, and federal agencies during the windstorm response. Additionally, the Washington State Military Department collected jurisdictional, organizational, and agency-after action reviews. These products, combined with the workgroup findings, provided an accurate event timeline and a collection of recommendations for future implementation within the state.

4 Analysis of data

Data analysis specifically focuses on the Governor's six areas of concern and presents information gathered from all jurisdictions that issued an emergency proclamation and state response agencies to answer the following questions:

- What actually occurred at all levels of government (timeline)?
- What were the pre-event plans and processes for preparedness, response, recovery, and mitigation?
- Were jurisdictions and agencies able to activate these plans and processes during this event?
- Did the plans and processes meet the need of jurisdictions and agencies to respond to this event?
- What were some success stories?
- What areas need improvements to facilitate state and local response in the future?

4.1 Communications

The windstorm affected a variety of communications systems. These included, but were not limited to telephone, cellular, cable/internet, Enhanced 9-1-1, and Emergency Public Communications

Telephone Communications

At the February 8, 2007 state regulators workshop in Olympia, the Utilities and Transportation Commission estimates around 307,700 people lost telephone service due to the windstorm. Central offices for telephone networks stayed on line with battery and generator backup power. Most of the outages occurred in neighborhoods due to power loss and trees knocking down phone wires on shared, above ground utility poles. Telephone companies often partner with power companies to share utility poles for telephone lines. Telephone companies experienced delays in restoring telephone lines because they were unable to send their crews in until the power companies had repaired the utility poles and lines. Small, remote switches supporting neighborhoods had backup battery power, but the backup power was not sufficient for the extended duration of the power outage. Companies placed generators at some of the remote switch sites, but did not have a sufficient number of generators to cover every switch. In addition, generator refueling was complicated by fuel access and availability problems, generator theft occurred, and closed roads prevented the companies from accessing switches. Telephone companies brought in outside crews to assist in restorations and incorporated mandatory overtime for their own employees. Despite the challenges, most residential phone service

returned within 48 hours with the last customers' phone service returning in ten days. Even though phone service was restored, many customers could not send or receive calls because their cordless phones required an additional power source and these types of phones could not function until power was restored to their home.

Cellular Communications

There were significant disruptions to wireless cellular voice phone service as a result of the windstorm. Most of the wireless carriers reported serious impacts to their systems. Many public safety and other government agencies reported impacts to their operations as a result of the disruptions in wireless service. Disaster response plans were in place at all of the wireless carriers and they were prepared to activate those plans for the Windstorm. Generally, the carriers' main switches experienced no outages. If power was disrupted, these switches were backed up with batteries and generators. Most of the carriers' cell sites have battery backup. Some carriers have permanent generators hooked up to their cell sites and experienced only limited outages, but many did not. Some carriers reported as many as two-thirds of their cell sites being down after the storm. Carriers brought in portable generators for cell sites without permanent generators. Many carriers had difficulty reaching all of their cell sites to install or refuel generators due to continuing wind conditions and roads blocked with storm debris. Like the telephone companies, the wireless carriers also had difficulties obtaining sufficient fuel for their generators with many fueling stations closed.

Another issue for some of the wireless carriers was that their resources had been shifted out of the Pacific Northwest in response to the recent hurricane disasters in other parts of the country, and these resources had not yet been restored to our area. As a result, their networks were more vulnerable to outages from the storm. (Move this to Outcomes) Some wireless network outages were the result of the telephone company network outages. In many cases, the wireless carriers lease telephone lines from the telephone companies. Even if a cell site had service, when telephone lines had no service, calls from the cell site could not be completed.

Cable/Internet

The storm caused a cable TV outage for approximately 1,687,500 people across western Washington. Of those, approximately 910,800 also rely on cable for internet access. As a result of cable, phone and/or power outages, internet access was limited and was therefore not a viable, survivable means of communications. Voice over Internet Protocol phones are relatively new and rely directly on internet access and power to work. Even though internet access was limited, satellite-based internet access did work very well and did not experience any significant outages.

Enhanced 9-1-1

The windstorm also caused several problems for county Enhanced 9-1-1 systems. An eastern Washington Public Safety Answering Point serving two counties experienced an apparent voltage spike on their phone lines during the storm which blew the fuses in the 9-1-1 trunk cards. The Public Safety Answering Point could not receive 9-1-1 calls for about one hour, until they were able to redirect the 9-1-1 calls to their business lines. This procedure allowed them to receive the voice calls, but no Automatic Number Identification or Automatic Location Identification was available. It took about 24 hours to repair the 9-1-1 trunk cards so operations could be returned to normal.

The Federal Communications Commission mandates that wireless 9-1-1 calls search for an available cell site and network until they are able to be processed. When the storm first hit counties on the Olympic Peninsula, cell sites in those counties lost power and were no longer processing calls. The phones searched for other available cell sites, reaching cell sites throughout Puget Sound. This caused a surge in wireless 9-1-1 calls at the Public Safety Answering Points in the supporting counties, which then had to transfer callers back to the appropriate Public Safety Answering Points on the Peninsula.

Counties impacted by the storm experienced a huge surge in 9-1-1 calls as soon as the storm started. In King County, over 17,000 9-1-1 calls were made during the 18 hours after the storm started. About 8% of these callers received a busy signal because all of the 9-1-1 trunks into the Public Safety Answering Points were busy. This number of calls is four times the number of calls normally received countywide, and Public Safety Answering Points in eastern King County received ten times the normal number of calls. The Public Safety Answering Points reported that the vast majority of 9-1-1 calls were not emergencies, and therefore were not appropriate 9-1-1 calls. Six hours after the start of the storm, a press release was issued instructing the public not to call 9-1-1 unless they had a life-threatening emergency and needed an immediate response from police, fire, or medical responders. The overload of some Public Safety Answering Points affected other Public Safety Answering Points that needed to transfer calls to them. Public Safety Answering Points that were unable to transfer calls questioned the callers themselves and either handled the call or relayed the information to the appropriate Public Safety Answering Point through alternate phone numbers. When one Public Safety Answering Point becomes overloaded, other Public Safety Answering Points are brought down because those Public Safety Answering Points are not able to offload calls in order to be free to answer other incoming calls.

Emergency Public Communications

A problem has also been identified in the network design at large Public Safety Answering Points with private branch exchange phone systems. Prolonged surges in 9-1-1 calls due to events such as the December 2006 Windstorm can cause 9-1-1 trunks to be systematically taken out of service until there are no trunks left. This situation is caused by excessive non-emergencies which are then transferred to a lower priority queue, and after being placed in the queue, callers hang up. After hanging up, many of these callers initiate a new 9-1-1 call which only exacerbates the problem. Due to the communication linkages between the Enhanced 9-1-1 equipment and the private branch exchange phone system at the Public Safety Answering Point, the Enhanced 9-1-1 system interprets the affected trunk as being available and continues to attempt to send 9-1-1 calls to the trunk, but the private branch exchange thinks that the call is still on the trunk and refuses to accept new calls. The Enhanced 9-1-1 system sees this as a 9-1-1 trunk failure and takes the trunk out of service. This scenario is quickly repeated during a surge of 9-1-1 calls until all trunks have been taken out of service, effectively shutting down the entire Public Safety Answering Point. Qwest, the Enhanced 9-1-1 service provider for many of the Public Safety Answering Points throughout the state, was aware of this network design problem and their 9-1-1 Repair Center dedicated all available staff to monitoring the network at the counties affected by the storm. As soon as a 9-1-1 trunk was observed being taken out of service, the staff manually returned the trunk to active service. Due to their proactive efforts, none of the Public Safety Answering Points experienced a disruption in 9-1-1 service due to these systems interface issues. If Qwest had not anticipated the problem and taken these proactive steps, many

of the largest Public Safety Answering Points in western Washington could have lost all 9-1-1 service.

During the storm and for several days thereafter, there were areas without wireline or wireless phone service raising concern that people in these areas would not be able to call 9-1-1 in an emergency. Enhanced 9-1-1 and Public Safety Answering Point Managers met with county and city emergency managers, first responders, and public officials to determine where the public could obtain assistance. Normally, outages occur in isolated locations affecting limited populations. However, those locations differ from jurisdiction and area causing difficulties in providing a single message for a larger, multi-jurisdictional area. In previous instances in which telephone outages in isolated areas affected a single police and fire department, decisions about the instructions to be given to the public were relatively simple. Typical solutions have been to instruct the public to go to the nearest fire station or to assign extra police patrols to the area. This storm affected multiple police and fire departments throughout wide geographic areas causing difficulties in agreeing on the guidance to be given to the public. Some cities opened their city halls, and other cities requested citizens to go to fire stations. In some areas, the fire stations were unmanned because all responders were deployed in the field. The public was advised, through various media, to first try calling 9-1-1 from home and then by cell phone. If there was no cell service in their area, jurisdictions advised the public to go to a different area and try again. If still unsuccessful, instructions were to go to an open business to use a phone.

The Public Safety Communications Systems across the state were less affected by the storm. Two counties filed a total of four outage reports for the public safety communications systems. No other counties reported outages during the windstorm. The primary reason for the outages was due to primary and backup power failures. However, all four of the outages were covered by neighboring systems and did not seriously affect operations. In addition to public safety communications, amateur radio operators volunteered over 1,500 hours of assistance providing communications to emergency response agencies and utility companies. Amateur radio operators connected across the state and in some locations provided needed links from one side of a county to the other. According to Mark Yordy, ARES District 5 Emergency Coordinator (2007), amateur radio was utilized throughout western Washington and served “Based on reports from half of the participating teams, it is estimated that amateur radio volunteers traveled a total of 1407 miles and provided 1445 hours of assistance.

4.2 Infrastructure

The working group considered electrical utilities, transportation, water, wastewater, communications, vehicle fuel, banking and finance, food and lodging, and natural gas as potential infrastructure sectors where reports of impacts warranted further inquiry. Upon contacting representatives from each of these sectors and reviewing available data, the working group determined that significant events



Damaged highway sign

occurred only with regard to electrical utilities, transportation, water, and wastewater & communications. The working group, therefore, focused its attention on these sectors.

The events and issues for the banking and finance, vehicle fuel, and food and lodging sectors were almost entirely related to their interdependencies on electrical power. Most banking and financial institutions were not operating on Friday, December 15. Because electrical power was restored by the next business day, Monday, December 18, a majority of institutions were able to resume operations without incident. Some facilities also had backup power. Vehicle fuel for most first responders and emergency responders (law enforcement, fire, emergency medical service, transportation, public works, utilities) was not an issue as large organizations and companies had backup power sources in vehicle refueling areas. Some smaller jurisdictions that were without power for longer periods of time experienced problems as these organizations typically rely on commercial vendors for vehicle refueling, as does the general public. In some instances, members of the general public traveled up to 30 miles to find a gas station operating on commercial power or backup power. Food and lodging businesses were entirely dependent on electrical power for operation. Some establishments operated on owner-supplied generator power and electrical power restoration to business districts alleviated most problems. Grocery retailers experienced some issues with thawed food, which resulted from loss of refrigeration. Extended periods of power loss could make this a much larger problem. There were also isolated incidents of natural gas disruptions due to tree roots from fallen trees impacting buried transmission lines. In addition, there were isolated incidents of natural gas disruption due to tree roots from fallen trees affecting buried pipelines.

Electrical infrastructures worked to repair affects from the two previous storms. New supplies of transformers, poles, wire, and other expendable supplies were ordered prior to December 14. Additional electric system repair crews from outside western Washington (acquired through line and tree contractor relationships, public and private mutual aid agreements) were also kept in the area to continue restoration. Infrastructure sectors monitored weather developments through National Weather Service warnings beginning December 12 and some participated in conference calls with forecasters from the National Weather Service and/or private weather information sources. Based on weather information, infrastructure sectors prepared for the storm by fueling vehicles, sharpening chain saws, preparing damage assessment teams, testing backup generators, checking personal protective equipment, and requesting additional crews or redirecting employees from regular to event-related duties. Some companies and agencies were dependent on a single emergency communication system.

Electric utility mutual aid agreements and line construction crew contractors honor a first come, first-served request-based priority. The requesting agency bears the cost of transportation and support. This places smaller utilities that may not have large surpluses of contingency funds into a difficult cost-benefit analysis prior to requesting additional manpower from outside agencies. The private (investor-owned) electric utilities have a multi-state (Western Region) mutual assistance agreement with other utilities, while the public utility districts in the state had a "public utility district" agreement limited to Washington state public utilities only. Over 600 crews engaged in restoration activities.

During the storm, state and local government and private infrastructure emergency operations centers monitored the situation and responded to events. Some infrastructures removed response and repair crews from activities during the storm for safety purposes. These crews returned to activities when the controlling organization deemed it safe to do so. During the storm, some

emergency operations centers discovered that emergency contacts list were out of date, thus hampering coordination. One of the major coordination challenges was determining which communities were without power. Electrical utilities normally track outages by circuit which does not readily transfer to a geographic information system map showing communities; hence a complete picture of the electrical outage information was not readily available in emergency operations centers until the later stages of the event.

The impact from this storm was unusual in that damage to power transmission lines occurred at a significantly higher than normal rate. Electrical utilities developed a recovery strategy focused on repairing transmission lines before working on distribution systems. This strategy assured maximizing restoration of customer service within the first 72 hours of the event. Some utilities maintain priority customer restoration listings. More than one working group found in many cases, these lists are not shared with local emergency operations centers, causing inconsistencies in the anticipated restoration of service. There is a need for local jurisdictions and utilities to work together prior to such events to establish a relationship to discuss requirements for priority restoration of services.

The Infrastructure workgroup found that individual jurisdictions had satisfactory information regarding their own road blockages and utility line failures, but obtaining a statewide common operating picture was difficult. The Infrastructure workgroup discovered that throughout the December 2006 Windstorm emergency there was insufficient awareness of the availability of aerial resources by all involved organizations. Aerial reconnaissance of disaster-impacted can provide timely information regarding road blockages and line failures. Responses to road closures were affected by downed power lines and repairs to power lines were affected by downed trees across roadways. Communities which utilized combined task forces of utility repair and tree clearing personnel achieved more rapid restoration of electrical service and access to affected areas.

State and local road departments arranged for generators to power traffic lights at some major intersections. Each generator required an operator to guard against a theft of the generator and to maintain adequate fuel supplies. After the storm, some utilities requested law enforcement escort and high occupancy vehicle lane exemption in order to expedite the transit of their repair crews. Utility repair crews were able to get High Occupancy Vehicle (HOV) access, but the process to obtain access was time consuming due to confusion regarding the coordination and approval processes.

Backup power generation provided a method for infrastructure providers to sustain their operations. Some generators did not start due to a lack of a regular testing and maintenance. Some providers did not have an adequate supply of fuel for the length of the event which may have necessitated acquiring fuel at a commercial fueling station. There is no documented loss of service in December 2006 as a result of such issues, but in an event of longer duration these factors could significantly affect maintenance and restoration of infrastructure operations.

For the most part, water and waste water system operations were not disrupted. Use of backup power generation provided water and waste water systems the ability to operate at near-normal levels by charging gravity flow reservoirs and operating lift stations. Fallen tree roots were the major cause of the few minor system disruptions that did occur, and there were also some instances of lift stations filling faster than they could be drained and raw sewage damaging personal property and the environment. When power was restored to some water and wastewater

systems, the initial out-of-phase and inconsistent voltage (“dirty power”) caused damage to older equipment that did not have internal power protection.

4.3 High Risk Populations

Widespread and prolonged power outages throughout the state had a greater effect on High Risk Populations than on the population at large due to their technological needs and pre-existing medical conditions. High Risk Populations are those individuals who have a higher risk for harm from an emergency event due to significant limitations in their personal care, self-protection abilities and health status. “High Risk Populations” is a term or phrase the Review Team believes is more accurate and inclusive than “special needs populations.” Social services, public health, medical care agencies, emergency management officials, and first responders endeavored to assist these high risk populations in a variety of ways, but largely without extensive pre-event planning or coordination. At the onset of the windstorm, a significant percentage of the high risk populations had not been incorporated into any formal outreach or assistance plans. The Review Team also felt that a high percentage of individuals considered to be high-risk lacked personal emergency plans. Anecdotal evidence indicates that the standard guidance to “be prepared to self-sustain for three days” was inadequate due to prolonged power outages and the severity of the cold weather. This lack of preparedness significantly affected the high risk populations, especially the 94% who do not live in state-licensed facilities.

The National Response Plan and the Washington State Comprehensive Emergency Management Plan both address mass care, sheltering and human services within Emergency Support Function #6. In addition, the Washington State Patrol’s Fire Protection Bureau has a comprehensive program to identify, inspect and assist pre-incident planning for the majority of licensed facilities that support special needs and elderly residents as required by the Revised Code of Washington 18.20 and Washington Administrative Code 212-12. However, the majority of citizens who are considered to be part of a “high risk” population are not covered by emergency management plans. Very few social service agencies and local jurisdictions have detailed plans specifically addressing the emergency needs of high risk populations. State and local Comprehensive Emergency Management Plans provide only limited guidance for response activities including requesting assistance and activating shelters; however, the general consensus of the Review Team was that many of the related processes were inadequate. The inadequacies include assisting technologically-dependent populations and coordinating pre-planning and emergency responses within and among support agencies. Some utilities have programs that allow high risk populations to self-identify if they require electricity to support essential medical equipment. A few agencies with the primary mission of providing continuous support to high risk populations reported general success in activating emergency plans. One example is the LMT (Lewis, Mason, Thurston) Area Agency on Aging, which has a plan to contact their registered clients during an emergency situation. In the aftermath of the windstorm, the agency successfully contacted approximately 250 of their clients, either in person or by telephone. Another example was Pierce County’s Human Services Crisis Outreach Agency, which handled approximately 49 windstorm-related assistance requests from high risk population citizens. Children’s Hospital and Regional Medical Center conducted proactive outreach with their Homecare Service patients both before and after the storm. This outreach included emergency plan review, reminders to charge batteries for medical equipment, obtain emergency food and water supplies, and a review of locations for backup care facilities. Children’s Homecare Services also provided extra batteries, supplies and equipment where needed.

King County opened a Special Needs Shelter for medically fragile residents who were without power in their homes, especially those dependent on oxygen machines and other electricity-powered health support devices. The shelter was in the cafeteria on the Bellevue Community College's Main Campus. The shelter offered a warm place to stay, food, and medical support for adults receiving medical care for chronic conditions as well as patients of nursing homes. Of those who took advantage of this Special Needs Shelter, 75% were displaced from the Mount Si Nursing Home. Hospital emergency medical services, 9-1-1 Call Centers, and the Red Cross referred medically dependent people to the Special Needs Shelter. Homebound, medically fragile residents and their caregivers were encouraged to use the services of the Special Needs Shelter. Public Health officials also encouraged residents to look out for elderly and at-risk neighbors, family, and friends who may have needed assistance obtaining emergency services, including shelter. Metro Access was available to transport medically fragile residents and their caregivers to the shelter. People with life threatening medical issues were advised to go to the emergency room and children were referred to hospitals. People who were otherwise healthy were directed to one of the other available general population shelters. Because first responders should focus on the higher risk populations residing independently, there is an evident need for long term care (LTC) facilities to take responsibility for their clients. The Special Needs Population workgroup identified the need to enhance regulations for care facilities statewide pertaining to emergency preparedness, planning, and training.

4.4 Sheltering

During the December Windstorm, general population emergency shelters adequately addressed the needs of high risk populations. The Review Team concluded that the current sheltering model works well for the types of disasters generally experienced in Washington State. Only a handful of issues arose for high risk populations and these were handled appropriately. However, county emergency managers and agencies providing human services are concerned that if the emergency had been a larger scale or catastrophic disaster or if there had been displacement of large numbers of persons, Western Washington sheltering programs would have been significantly challenged to meet the needs of both general and high risk populations.

Over one million people with disabilities live in the State of Washington. This represents 17.2% of the state's population. Of these, only approximately 21% of persons with disabilities receive medical services from the Washington Department of Social and Health Services (Kohlenberg, 2007).

The Department of Social and Health Services licenses three levels of residences for people with disabilities. A "nursing home" requires licensed medical practitioners on its grounds and an emergency response plan. As part of their emergency preparedness, "boarding homes"* are required to maintain a current disaster plan. These plans must include meeting resident needs such as food, drinking water, first aid supplies and medications; evacuating residents from the facility; and alternative resident accommodations. Boarding homes licensed after September 1, 2004 must provide emergency lighting in all areas of the facility. (388-78A-2700 WAC) Some boarding homes licensed before this date may have additional emergency back-up power, but this is not required under state law. Some boarding homes have mutual assistance agreements with other facilities, but this is not required under state law. An "assisted living facility" frequently falls within the category of boarding home, although the term is not used in the Washington Administrative Code. An "adult family home" is a licensed residence that provides housing for three to six people with disabilities. Adult family homes are typically located in

residential neighborhoods and usually do not have medical or nursing staff. As part of the general population, adult family home residents can be expected to become shelter users if displaced. Many members of the general public are familiar with the term “assisted living” or rather than “boarding home.” In Washington State, “boarding home” is the license issued. Many facilities with the term “assisted living” in their name are actually licensed as boarding homes. A facility that calls itself “assisted living” may be another type of facility other than a boarding home.

Ninety-four percent (94%) of high risk persons live among the general population, whether independently, with families, or in adult family homes. An “adult family home” is a residential home in which a person or persons provide personal care, special care, room, and board to more than one but not more than six adults. (70.128.010 RCW) Adult family home residents include individuals with a mental illness, dementia, developmental disability and/or other challenges. These homes are required to have written plans and procedures to meet potential emergencies and disasters, such as fires, earthquakes and floods. Also, these plans must include provision for food, drinking water, first aid supplies and other supplies. (388-76-670 WAC) Adult family homes emergency evacuation plans must reasonably ensure the safe evacuation of all residents. Adult family homes must also conduct emergency evacuation drills. (388-76-76520 WAC) At least one drill per year must include full resident evacuation from the home to a safe location. (388-76-76510 WAC). Since most high risk persons live among the general population, counties and cities need to plan for general emergency shelters which also address the needs of high risk persons. Extra support for self-care issues will be required in these general population shelters. Additionally, cities and counties should conduct comprehensive mass care planning, coordination, and educating the public (including high risk persons) regarding basic preparedness measures.

During the December windstorm, Seattle and King County Public Health officials successfully established a special needs shelter to respond to the power outage at the Mount Si Nursing Home in North Bend and the subsequent displacement of its residents. Based on the lessons learned from the windstorm experience, public health agencies should partner with human services agencies to plan for response to the catastrophic destruction of hospitals, institutions, nursing homes, and/or licensed boarding homes (Public Health-Seattle and King County, 2007). These facilities are required to meet seismic building codes and are mandated to have comprehensive emergency response plans. However, when a catastrophic event destroys one of these facilities, jurisdictions will be required to establish special needs shelters for the temporary housing of their displaced institutional populations (Painter, A. personal communication, January 30, 2007).

Typically, an emergency shelter is a community center, church, school, or public facility, such as a fire station. The Red Cross has developed a basic requirement for an emergency general shelter to include a source of power, kitchen, floor space (60 square feet per cot), and shower facilities. These requirements represent an independently articulated Red Cross standard, but are not representative of the facilities that exist in all of Washington’s communities. For example, non-Red Cross shelters (community shelters) may not have showering capability. Power supply capacities range from electricity for minimal lighting to full power capacity. People sought many informal forms of “shelter” as well as informal sources for warmth and electrical outlets during the December windstorm. These types of shelters included shopping malls, libraries, hospitals, restaurants, public buildings, and businesses.

Shelters are usually staffed by Red Cross-trained managers and by Red Cross or Salvation Army personnel, city and county employees (particularly parks and recreation employees), and/or church and community volunteers. The typical emergency shelter has a capacity of 30 to 100 overnight residents. On any given night during the windstorm, 90% of the shelters had fewer than 10 overnight residents. Overnight shelters also stayed open throughout the day to provide warmth and meals.

Red Cross will not accept pets in its shelters, but will accept service animals. Seattle reported that its Animal Control assisted with the opening of the King County Humane Society in Bellevue for a pet shelter.

There aren't any national or statewide guidelines or templates for opening shelters. Decisions on opening shelters are therefore inconsistent from one county to the next and even within a given jurisdiction. During the December windstorm, the decision to open a shelter was typically a local jurisdiction (county or city) decision. Generally, the decision was city-driven, but several counties consulted with the Red Cross prior to opening a shelter. The Red Cross' involvement in the decision process seemed to be largely dependent upon the community's prior relationship with the Red Cross. Regardless of Red Cross' involvement in the decision-making process, cities and counties typically determine the need for sheltering and turn to the Red Cross to open the shelter.

Cities and counties open shelters to meet "forecasted" demand rather than in response to an "actual" need. Most of the county emergency operations centers gauged the number of calls for shelters to estimate whether there was a need to open one. Counties reported that this process caused too many shelters to be opened. In several communities, the jurisdiction's senior executive requested that a shelter be opened without regard to excess capacity in already-open shelters in nearby jurisdictions. This placed additional strain on limited staff resources.

A number of faith-based organizations and private associations also opened community shelters in coordination with county or city government in order to meet community requirements. In a couple of cases, this coordination did not occur. Private organizations typically provided their own sheltering staff.

Decisions to close shelters usually were prompted by restoration of full power or lack of shelter use. Seattle communicated with Seattle City Light and closed its shelters as communities regained power. Use of emergency shelters by homeless populations caused delays in the closure of some shelters.

Although the shelter opening and closing decision model is inconsistent, decisions to open and close shelters should remain at the local jurisdictional level. Most local jurisdictions believe the current system needs modification, but not a significant overhaul. Guidelines would support consistency in the decision-making process. The guidelines should reflect education of officials, revision and testing of preparedness plans, and regional coordination. The Red Cross worked with communities to open shelters requested by local jurisdictions and provided cots and blankets to both Red Cross and community shelters. Across the state, counties reported that the Red Cross expended their resources primarily in supplying shelters rather than managing shelters.

Typically, the American Red Cross uses a four-person model to staff its shelters. Shelter staff is comprised of trained volunteers who work six hour shifts. This model requires 16 individuals to

run a shelter for 100 residents. Staffing includes a shift manager and workers to cover registration, feeding, material support, disaster health, disaster mental health, communications, and dormitory management. The current American Red Cross standard is an 8-hour shift, but a 6-hour shift can be used. Throughout the state, shelter staffing was a challenge due to three major causes: lack of volunteers, training, and background checks. One reason staff was not available was that trained volunteers were also wind storm victims and needed to address their own and family needs. Another reason may be that many sheltering volunteers come from the same pool of people who are emergency responders, utility employees, nurses, National Guard members, or county road crews.

The windstorm revealed there is not enough trained sheltering staff or volunteers to support the number of shelters that can be expected to open in a larger scale or catastrophic disaster. Most sheltering staff, regardless of affiliation, are trained by the Red Cross. The Red Cross training consists of four courses, each lasting approximately ½ day. Courses include Fulfilling Our Mission, Mass Care—Overview, Shelter Operations, and Shelter Simulation.

Although King County has emphasized the training of volunteers, the county still lacks sufficient volunteer resources. Last summer, King County trained over 200 volunteers through the Red Cross (about 15 classes). Nine classes are currently scheduled for King County jurisdictions. Fifteen more jurisdictions or organizations have requested training that has not yet been scheduled. Guidelines released from National Red Cross indicate the Red Cross can utilize spontaneous volunteer for the first 7 days. The volunteers must be monitored and can not wear Red Cross gear. The volunteers must be closely supervised and the number of spontaneous volunteers can not exceed the number of those who are trained. King County has printed training materials to train 1100 staff or volunteers. Most counties in Washington have not trained as persistently as King County for sheltering operations. Background checks prevented the use of some volunteers for sheltering. The Red Cross requires background checks to staff its shelters, but only accepts its own process. Records databases do not cross agency boundaries. For instance, the background check for a sports team coach will be maintained by the sports league. The background check for teachers is conducted by the Washington State Patrol. The military maintains a different investigation system. Uniform credentialing of emergency workers may be a desirable goal.

The Red Cross identified several successes in their response to the windstorm. First, the Red Cross generally met community sheltering needs. Staffing was adequate, although outside support would be needed for a larger or extended duration event. Existing shelter capacity was extensive and underutilized. The logistical capacity of the Red Cross for food, blankets, and cots was not exceeded. Second, partnerships worked. Lastly, the Bellevue Humane Society pet shelter was able to test their response plan. Despite these successes, the Red Cross acknowledges several lessons learned. Although there was local government insistence that shelters be opened, the perceived need did not equate to the actual need and few residents actually took advantage of shelters. The Red Cross needs to coordinate regionally with jurisdictions on the numbers and locations of shelters. A standardized reporting system could assist with this process. Backup power systems also varied by location. Some locations had backup power only powering parts of the building or not powering the heating system. Phone systems at chapters and shelters were impacted by the storm when backup power systems failed.

During the December windstorm, the primary reasons for using shelters were power, warmth, and hot meals. Unlike a flooding event, very few windstorm shelter users were displaced from

their homes. This is significant because an emergency shelter follows a standard model. However, for power outages, one lesson learned is that people stay home at night. The shelter becomes a place to stop off before work for a quick shower or to go for a warm meal each day. This type of situation impacts staffing, feeding, available bed space and management of the shelters. Counties also reported that people used shopping malls, hospitals, or other open facilities for power, food, and warmth during the day. One hospital administrator had a seven-day supply of food, which ran out after two days because his cafeteria was feeding the general population. Another hospital reported that their lobby was crowded with people recharging cell phones. For warming shelters, some counties (or shopping malls) took the proactive step of requesting law enforcement presence when closing for the night. (Kimble, L. personal communication, February 6, 2007).

The surge period for sheltering during this event was Sunday evening, December 17 through Thursday morning, December 21. At the peak, about 30-to-34 shelters were opened, serving 250-to-350 overnight residents. Roughly half of the opened shelters during the power outage were Red Cross-managed. King County had the greatest number of persons affected by the power outage and the county and its cities opened significantly more shelters than other counties. At its peak, King County had 11 open shelters. Throughout the storm, King County established shelters at 19 different locations; four were opened and managed by Red Cross. Pierce County opened five shelters. Six shelters opened east of the Cascade Mountains, in Chelan (2) and Kittitas (4) Counties. The Squaxin Island Tribe reported that it sent about 70 of its residents to hotels. In Thurston County, the Crisis Clinic Resource Network received 220 calls for the 8-day period beginning December 14 and ending December 22, of which 22.3% were storm-related. About half of the storm-related callers requested information about sheltering, showers, warmth, or meals. Several of those seeking shelter asked if they could bring pets.

Another source of support for people with disabilities came from community centers with established programs for people with disabilities. Bellevue reported that the Highland Center opened as a community center and that it served people with disabilities. The Highland Center was built for sports and programs for people with disabilities. As an emergency shelter, the Highland Center performed well for high risk persons.

Currently, more than 35,000 individuals of all ages are on the case load of the Department of Social and Health Services' Division of Developmental Disabilities. The state has an estimated population of 77,000 individuals with developmental disabilities. To be eligible for services from the Division of Developmental Disabilities, an individual's disability must result in substantial limitations in intellectual and/or adaptive functioning and be expected to continue indefinitely. Needs range from minimal support to 24-hour intensive support. All clients, except for approximately 1,000 who live in five state-operated institutions, live in community residences and are part of the fabric of their community.

A request for information from all six Division of Developmental Disabilities Regions provided some anecdotal information about the windstorm's impact: In Region 3 (North of Seattle), three persons in an adult family home had to move to another adult family home until power was restored. In Region 6 (Thurston County & South), one homeless client was in a shelter overnight and two clients had to move in with others supported by the same agency. The windstorm demonstrated that the Division of Developmental Disabilities should have a point of contact for overall shelter planning so they can provide a local list of Division of Developmental Disabilities contacts for shelter managers, when assistance is requested. Local Division of Developmental

Disabilities offices should learn how to obtain up-to-date lists of shelters and contact persons in cases of emergency.

A search of the Division of Developmental Disabilities' electronic Incident Reports data base, which captures information on incident reports related to natural disasters, revealed 14 reports directly related to the storm from December 14 to 24, 2006. One included the asphyxiation death of a client whose family brought a barbeque into a home for heat; another reported the hospitalization of a caretaker who suffered the effects of fumes when a propane heater was brought into a home; and the remainder concerned clients who had to temporarily move from their homes, mostly to other provider homes.

The majority of individuals with developmental disabilities could be sheltered with the general population with minimal assistance. If possible, shelters should provide minimal supervision to assist at meal time and to assure personal care needs are met. Shelters should have assistance with administering basic medication according to designated schedules. Individuals may also need assistance when leaving the shelter. Having someone to ensure that all client possessions, including medications, leave with them is vital.

Statewide, there are approximately 38,000 individuals receiving home and community based services through Medicaid, with an additional 11,300 residing in nursing homes. The Department of Social and Health Services' Home and Community Services Division case-manage adults who are residents in facilities, as well as those receiving private duty nursing services in their own homes. Adults who live in their own homes are case managed by local area Agencies on Aging. The area Agencies on Aging and Home and Community Services Division offices affected most by the windstorm contacted all clients to determine if their needs were still being met. Three clients needed to be evacuated. No negative outcomes were reported by offices covering Thurston, Pierce, King and Snohomish Counties. Throughout the year, some area Agencies on Aging offices provided three-day emergency packets. Distribution of these packets is a best practice that should be encouraged.

The Windstorm demonstrated a need to test emergency plans. For instance, an adult family home made a request to one county to assist in setting up their generator. They had never run the generator and did not know how to connect it to their electrical system. Whether a person lives independently, in an adult family home, or with family, all should be encouraged to have family and home emergency plans. The operators of many facilities that lost power demonstrated leadership and innovation in providing warmth and meals to their residents. Shortage of fuel due to electrical outages at gasoline stations, and the prolonged need to use gas-powered emergency generators impacted ability to continue using back-up power sources. The transit community reports that multiple agencies and organizations have plans to use the same transit resources in an emergency. A rural-county transit provider reported that six different facilities have plans to use the same transit services in an emergency. Greater coordination is needed and periodic testing of plans will assist in identifying shortfalls.

A guideline of private duty nursing care plans by UniCare (2006) revealed that these plans generally did not identify strategies for emergency situations. Descriptions, clinical indications, case management, and general information were indicated only for standard, non-emergency care (p.1). All Medicaid plans of care should address strategies for emergency situations. As personal care contracts are being renegotiated, private duty nurses may be required to address emergency response, dependent upon the level of service provided. There may be some ability to

expand contracts to include emergency response; however, the range of services and hours contracted need to be taken into consideration. Currently, there are no provisions within contracts to include emergency response for private duty nurses due to the wide range of shift length and varied individual responsibilities.

During fiscal year 2005, publicly funded mental health services administered through the Mental Health Division of the Department of Social and Health Services were provided to 87,800 adults. Outpatient community mental health services range in scope from the provision of a single service to address a crisis, to intensive daily support in the community. Most individuals with mental illness are able to live independently in the community without intensive mental health treatment or the need for personal care services and can be adequately served well by the general public shelters. For some, however, intensive services are necessary to support and successfully maintain independence in the community.

Individuals requiring the most intensive level of service to live independently may be particularly at risk of victimization if sheltered with the general public. As such, a special needs shelter with capacity to serve individuals referred from community mental health agencies would provide a safe environment and lower the possibility of victimization. Most mental health care providers urged that the use of a special needs shelter should be voluntary.

Individuals with mental illness are more likely to be prescribed psychotropic medications. Some, such as stimulants and benzodiazepines, have a significant “street” value or a high incidence of abuse, increasing the odds of theft. Medications may need to be cataloged and securely locked until time for distribution as prescribed or as requested by the individual. Staff volunteering or working in a special needs shelter should have increased training and education to deal with these special circumstances. Examples include education regarding the symptoms of mental illness and skills training in de-escalation techniques. Community mental health agency staff will sometimes serve as a protective payee with approval from the Social Security Administration to receive, manage, and distribute financial entitlements. In these cases, clients might be individuals with a history of giving money away intended to pay for their basic necessities like rent or food. The ability to have money securely locked away to be distributed by shelter staff as requested by the individuals would be helpful and further protect this vulnerable population from victimization. The addition of a “quiet room” to a special needs shelter would be highly beneficial to many people who may fall into the category of high risk populations, especially those with mental illness. Evidence shows that having a quiet place to go can be highly therapeutic in helping people stay calm or manage their mental health symptoms, thus avoiding or minimizing emotional or behavioral escalation. Mental health professionals also stress that use of this room must be completely voluntary.

4.5 Public Information

In the days leading up to the event, public information officers participated in weather briefings with personnel from Washington Emergency Management Division and other emergency management agencies; made staffing plans; and responded to media inquiries. The National Weather Service conducted as many as 250 media interviews during this time. The public information officers assisted the Governor’s Office in preparing and distributing a news release on the afternoon of December 14 urging citizens to prepare for the windstorm, including a message from the state Department of Health reminding “people to prevent carbon monoxide

poisoning by never using generators indoors in an enclosed location. Keep them outdoors and well away from windows, doors and air intakes” (p.1). A similar admonition regarding the use of charcoal indoors was not part of these materials. This news release was distributed from the Governor’s Office on Thursday, December 14, 2006 at 03:47 PM to the media, local emergency management, community groups in the public information database system, and state public information officers (R. Harper, personal communication, March 2, 2007).

During the night of December 14, Washington State Emergency Management Division public information officers were on standby ready to report to the State Emergency Operations Center and they provided emergency public information about the event from the next morning through Sunday, December 24. During these ten days, news releases were sent out (simultaneously by email and web posting) through Washington State Emergency Management Division’s disaster web site to television and radio stations, newspapers, and other media outlets around the state, as well as to the emergency management community.

The new Public Information Office disaster web site entitled Public Information Emergency Response, was used for the first time during this event and had thousands of hits during the period December 15-24. (R. Harper, Personal Communication, 2007). Although still in its infancy, the website generated the first of what may be, with proper staffing, a helpful auxiliary in communicating with the public, namely, interactive email inquiries for help and information.

On Friday, December 15, there was extensive media coverage about the storm’s impact and what people were doing to stay warm. Utility companies had begun repairing the power grid but more than a 2.5 million residents in Western Washington were without service. Public information officers from state and local agencies were principally occupied with working on their agencies’ responses.

On midday Saturday, December 16, Washington State Emergency Management Division public information officers learned from a media call that people with symptoms of carbon monoxide poisoning were beginning to show up at Seattle hospitals. The public information officers expedited communication with public information officials from the state Department of Health to assist with further public communication regarding the issue. About 2:00 PM, Tim Church (Department of Health Communications Officer) arrived at the state Emergency Operations Center after being contacted by the Washington State Emergency Management Division’s Public Information Officer regarding the number of persons being admitted to Virginia Mason Hospital for carbon monoxide poisoning. (Harper, personal communication, March 2, 2007). The Department of Health had already begun working with local public health offices to further publicize the danger and distribute warning messages in multiple languages obtained from the Center for Disease Control (R. Harper, personal communication, March 2, 2007). These public education warning messages were distributed to the Puget Sound region that weekend and into the middle of the following week through media releases and interviews, door-to-door communications, flyers, and public meetings. Many jurisdictions did go beyond merely posting messages in public places and contacted citizens individually to ensure information was publicized.

A major problem revealed by the windstorm was that safety messages need to be translated into more languages than other types of messages and they need to reach targeted and smaller audiences, with the Somali population being only one example. Some non-English speaking populations may not receive the intended messages due to lack of literacy in their native tongue.

The possibility of information not reaching residents due to language barriers was not evident until early to mid-week after the storm began. Washington State Emergency Management Division public information officers by that time had already posted on their disaster web site the state's Disaster Preparedness Handbook, produced by Washington State Emergency Management Division's public education coordinator and Department of Health. The publication had comprehensive information translated into a number of different languages, but an even greater number of translations were needed in order to reach specific at-risk groups.

Even with translation, it may still be necessary to go door-to-door and have materials translated into as many languages as possible in advance would have expedited the delivery of emergency public health messages.

Standby staffing for the Washington State Emergency Management Division public information operations was more effective than in some past activations. The duration of the event underscored the need for sustained public information officer staffing for several workdays following the incident. This problem is shared by every level of government.

4.6 Emergency Response

Phases of emergency operation center activation levels are not standard across the state or nation nor, in some cases, are these phases clearly understood. These inconsistencies led to misunderstandings about state and jurisdictional staffing and response levels. The State Emergency Operations Center has four levels of activation as defined in the Washington State Comprehensive Emergency Management Plan:

Phase I - Routine Operations: 24-hour, 7-days a week
Operation's Officers.

Phase II - Enhanced Operations: Operation's Officers and selected Emergency Management Division and state agency staff.

Phase III - Full Operations: Operation's Officers and Emergency Management Division, state agency, and other agency or organization's staff.

Phase IV – Catastrophic Operations: State, federal, local and volunteer staff
(2002c, p.8).

Phased Response Plan

Phase I Routine Operations

- Two 24-hour Duty Officers

Phase II Enhanced Operations

- Alert Stage
- Duty Officers and Selected Staff
- Potential to Grow

Phase III/IV Full Operations

- Size and Complexity Driven
- State Agency Representation

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The State Emergency Operations Plan further defines the phases.

- For Phase I, Routine Operations, “incidents are handled only by the [State Emergency Operations Officers] in the [Alert & Warning Center] in cooperation with other local, state, and federal agencies. Other staff may be involved as advisors if needed for specific expertise” (2002d, p. A8).
- At Phase II, Enhanced Operations, “an incident is or could potentially grow beyond the capability of the [State Emergency Operations Officer] to handle. In these instances the [State Emergency Operations Officer], along with select staff, are tasked with supporting the incident from the state [State Emergency Operations Center]. During this phase, the [State Emergency Operations Officer] will continue to monitor and process other requests for assistance, separate from the incident that has caused activation of the [State Emergency Operations Center]” (p. A8). The State Emergency Operations Center will normally elevate the activation level to Phase II Enhanced when a local emergency operations center has activated.
- When the State Emergency Operations Center activates to Phase III, Full Operations, “An incident's size and complexity requires representation in the [State Emergency Operations Center] by all appropriate state and outside agencies and organizations to support expanded operations. The number of staff and the agencies represented will vary by incident. In this phase, the level of activity dictates that normal [Washington State] Emergency Management Division staff functions cease and all personnel respond in support of the incident, performing functions in accordance with position checklists and [State Emergency Operations Center] training. As the event becomes more defined, some staff may be released after shift staffing schedules are established” (p. A10).
- The State Emergency Operations Center activates to Phase IV when “a major catastrophic event has occurred that exceeds the capability of state and local government to provide timely and effective response to meet the needs of the situation” as in “a large

or catastrophic earthquake in a high-risk, high-population area. An event of this magnitude would cause numerous casualties, property loss, and disruption of normal life support systems and significantly impact the regional economic, physical, and social infrastructures” (p. A11).

The morning of Friday, December 15, 2006, the State Emergency Operations Center activated to Phase II Enhanced. Additional staffing was activated including a Disaster Manager, Emergency Operations Center Supervisor, and Operations Section Staff. Additional personnel assisted the State Emergency Operations Center, although they were not in an activated status. At the time, this staffing level was sufficient to maintain awareness and coordinate state resources. That evening, Emergency Management Division Director, Jim Mullen, distributed an email to Clark, Grant, Grays Harbor, King, Kitsap, Mason, Pend Oreille, Pierce, Snohomish, Spokane, and Thurston County emergency management directors reaffirming the State Emergency Operations Center’s availability to provide assistance and to alert the directors of the historical risks for windstorms of this magnitude:

As we head into the weekend, I recall the 1993 Inaugural Day Storm. Some of the more compelling public safety impacts will occur even as power is restored in many places. Those who remain without power will face increasing discomfort and health risks while awaiting restoration of power. Those who may not require shelter today may well require it later tomorrow, or Sunday. The most vulnerable of our population could be increasingly at risk.

EMD will continue to monitor the progress of the power restoration through the weekend, and beyond as needed. If you need our assistance in any way, please do not hesitate to call on us. We will be issuing situation reports twice each day for the present.

I appreciate your dedication to our fellow citizens, and please notify our duty officers if you need assistance.

Jim Mullen

Director, EMD

(Mullen, J., personal communication, December 15, 2006)

The morning of Saturday, December 16, the State Emergency Operations Center elevated the activation level to Phase III. The determination for Phase III activation was made due to increased activity levels to the Logistics Section during the night.

The perception from some jurisdictions was that the state had not increased its activation level for the windstorm response. The apparent misconception was due to the State Emergency Operations Center already being at Phase II Enhanced prior to the windstorm because of an ongoing air travel threat advisory. Although situation reports were generated from the State Emergency Operations Center indicating the State Emergency Operations Center had increased its activation level, the Enhanced-level designation was not fully understood by all.

During the activation of the State Emergency Operations Center, some state agencies were also uncertain about Emergency Support Function requirements. The confusion centered on what constitutes activation of an Emergency Support Function, who activates an Emergency Support Function, and what are the agency requirements during Emergency Support Function activations.

In one case, the Department of Transportation was fully engaged in the emergency response to the windstorm, but was not officially activated by the State Emergency Operations Center. The agency in question fully coordinated its efforts with the State Emergency Operations Center however, using WebEOC. Additionally, there was uncertainty regarding which Emergency Support Functions had the lead for coordinating certain types of state resources. This confusion was resolved by referring to the Washington State Comprehensive Emergency Management Plan.

There also was a lack of understanding by some local jurisdictions regarding the need to exhaust all reasonably available resources, including mutual aid, before requesting assistance from the state. Therefore, the potential of delaying the processing of requests and the delivery of state assistance increased. There also was not a clear understanding by some private companies of local and state capabilities during the incident or that public resources could be made available to them in appropriate circumstances.

During the windstorm, some jurisdictions pulled response personnel off the road due to the dangers posed by the storm. These hazards were not limited to downed trees. Mudslides, charged power lines, and decreased visibility increased hazards and created significant threats to employee safety. Crews were again deployed by the jurisdictions after the storm had passed and the threat to employee safety had decreased.

Some members of the public failed to heed warnings. A few people disregarded public safety messages about the hazards related to power lines and downed trees resulting in injuries and loss of life. Additionally, some people proceeded through road blocks, ignoring the potential dangers from fallen trees, entangled lines, energized power lines, and water over the roadways. However, the vast majority of citizens followed public safety instructions.

As previously noted, interagency and interdisciplinary responders lacked overall situational awareness of road closures. Information on road conditions well publicized across jurisdictional boundaries and updated continuously on the Department of Transportation website and WebEOC; however, not all organizations or agencies utilized these tools. Fire districts coordinated with emergency operations centers to determine best routes and priorities for road clearing.

The Washington State Patrol worked with key stakeholders, such as the Washington State Department of Transportation, to identify critical infrastructures. These included “key” bridges, dams, and other facilities that, should they become damaged or otherwise compromised, would pose a threat to public safety and/or create a significant disruption to the transportation system. The State Patrol currently has response plans for these incidents which include traffic route contingencies. A percentage of the public also had an inaccurate perception of protocols regarding road-clearing activities.

5 Conclusion and implications

This section of the report summarizes the responses to the Governor’s six areas of concern and provides an overall, statewide assessment of the state and local response efforts. Also included is a set of recommendations to the Governor regarding identified areas of improvement and issues which warrant ongoing examination and process enhancements.

5.1 Overall Conclusions

The 2006 Windstorm re-emphasized the axiom that all disasters are local. The state must play a supporting role to local jurisdictions by providing needed assistance for the local management of the disaster. State agencies can also provide guidance and can position themselves to coordinate effectively so that information and resources can be more readily available. The following conclusions and recommendations support these responsibilities and were identified throughout the review process.

Public Education and Preparedness

For many years, state and local jurisdiction emergency managers and emergency response personnel have developed and promoted instructional material for public emergency preparedness. The essence of this message is for the public to be prepared for a minimum period of 72 hours after an event. Multiple work groups addressed this issue from several perspectives: Is the period too long; too short; outdated; or practical? Is 72 hours even possible? The primary discussion centered on the need for extending the period of individual preparedness.

The background on the public preparedness message is that residents need to provide for themselves for a period of time while government responds to the event and sets in place minimal life safety capabilities. For most emergencies and events, past events indicate that a 72 hour period allows government sufficient time to establish life support capability.

Many Washington residents have heeded this message and developed a plan to assemble appropriate supplies to support themselves. They survived the event because they were prepared. Unfortunately, there were some residents who did not act on the preparedness messages or heed warnings from the Governor and other officials prior to the storm. The population that was not prepared can be broken into two major groups: those who received the message but did not act on it, and those who believed they do not have to prepare. Following the storm, there were numerous inquiries regarding governments' response to the event. The large number of questions suggests citizens may not be aware of the scope and capabilities of available government services or processes utilized during an emergency or disaster.

There is yet another important group of Washingtonians – the group who often understands the risks but lacks the economic ability to prepare for such contingencies. This group, estimated by the Office of Financial Management as up to 10% of the population living at or below the poverty level, lives a day-to-day existence. Setting aside emergency supplies may not be possible for this group of citizens. Although many residents who have the means to prepare are prepared, government resources may need to be appropriately directed toward those who have the greatest need for government assistance.

For this event, local governments had life support capabilities in place and operating well before 72 hours passed. Although the windstorm and its aftermath extended beyond 72 hours for many residents, support, such as shelters, was available but not highly utilized. From this analysis, a change to the preparedness message does not appear to be in order. The major challenge in this area remains converting the public education message into individual and collective citizen action. In short, future actions require transitioning from a single minded focus on emergency response programs to the creation of a true culture of preparedness.

Public education is at the heart of our strategy for ensuring disaster preparedness. State and local government should be more effective in educating the public regarding the dangers and risks

associated with downed trees and power lines, as well as the dangers of carbon monoxide. Emergency managers should find more effective ways of teaching individuals, family, and caregivers the elements of an emergency plan, how to build an emergency kit for short-term survivability, and how to shelter-in-place. Public education also will assist in the management of public expectations of what government can and cannot do during an emergency. The state's public education strategy to assist local governments to strengthen and promote a public education message down to the neighborhood level within communities remains the best means of providing citizens with knowledge of their risks at the same time as they are provided the tools to allow them to minimize those risks. In this event, it was a windstorm, but there are many hazards facing Washington State and there are clear guidelines for addressing those risks for families, neighborhoods, and communities which the state Emergency Management Division is promoting, in conjunction with local emergency management agencies throughout the state. This windstorm event underscores the importance that public education must include effective outreach to all non-English speaking and limited English proficient populations. Continued outreach in public and private schools remains an effective tool for reaching non-English speaking families. Public education's greatest impact occurs prior to the event, and in the case of translation and outreach to cultures and groups who are not using English as a primary means of communication, all jurisdictions must increase their efforts to identify key points of contact in advance of the next event.

Situational Awareness

One of the most difficult, yet most important tasks of emergency managers at all echelons is maintaining situational awareness. Local and state jurisdictions must have a clear understanding of current situation and available resources. A real-time synchronized flow of information to all who can benefit from the information is required for successful multi-agency and multi-jurisdictional response activities. A common theme throughout all the workgroups was the need for improving situational awareness at all levels, including the interoperability of shared information. The sharing of information includes providing organizational and jurisdictional situational reports. The state has often struggled with obtaining information from local jurisdictions that have not activated their emergency operations center and/or are not providing daily situational reports. The lack of information from local sources including the City of Seattle created gaps in the statewide common operating picture during the December 2006 windstorm. There is also a need for improved protocols for eliminating dual reporting and stemming the dissemination of inaccurate information. The mechanisms, protocols, and process improvements should include a statewide strategy on the use of WebEOC, predetermined reporting times, standardization of reporting systems and implementation and use of state-led daily conference calls.

WebEOC is a crisis information management system which has the capability of providing real time situational awareness across jurisdictional echelons. The state and 12 jurisdictions currently own the web-based WebEOC software and servers. In addition, all jurisdictions and agencies within the state are authorized use of the system through the Washington State Emergency Management Division. Some utility companies, including many of the telecommunications corporations providing services within our state, also have State WebEOC access. However, WebEOC is not yet fully utilized throughout the state and local jurisdictions. The software is still relatively new and requires a more fully developed statewide fielding strategy. Most of the information gathered within WebEOC is still centralized to a particular agency or jurisdiction.

There must be an enterprise approach to information management and to the utilization of WebEOC. Additionally, WebEOC must have a Geographical Information System function to visibly display a common operating picture versus text-only information.

The State Emergency Operations Center should help develop standardized guidance on information reporting within and among jurisdictions and private sector organizations including utilities and other critical infrastructure sectors. Such a reporting system should define minimum requirements for information and situation reports. The system should also define standards for reporting cycles to ensure timely and accurate statewide “pictures in time” of the emergency situation. The State Emergency Management Division currently sponsors a WebEOC nationwide technical users group, but a statewide operational WebEOC users group needs to be established to further develop and expand the utilization of WebEOC as a statewide disaster information tool.

Coordination and Communication

The State Emergency Operations Center should consider utilizing daily conference calls with all local jurisdictions during such events. These conference calls should include an overview of the statewide situation and resource prioritization. The calls would also give the local jurisdictions opportunities to relay any pertinent information in order to express needs and shape the State’s objectives. To coordinate these calls, there must be a designated conference call number, with corresponding access code, distributed across the state. Because disasters can occur at any time of the day, this report recommends that procedures be established that designate a time every day (e.g., 10 AM) during the emergency response for the conference call in addition to an initial conference call that is automatically conducted four hours after the activation of the State Emergency Operations Center. These conference calls would be in addition to procedures already in place to call each individual local emergency operation center to determine needs and current situation. Any jurisdiction-unique concerns voiced during the conference call would be addressed individually in a separate call.

The State Emergency Operations Center has liaisons available to local jurisdictions upon request. The liaison supports the local jurisdiction by facilitating supplemental resources and assistance from the State Emergency Operations Center. The liaison also serves as the State Emergency Operations Center’s “eyes and ears” by acquiring information and enhancing situational awareness. Jurisdictions should know and understand the availability and benefit of liaisons. In addition, when the State Guard is activated by the Governor, its members can accompany liaisons to provide additional assistance. The state should conduct outreach to local jurisdictions on the benefit of liaisons and work to build the relationships between liaisons and their supported jurisdictions.

Expectations Management

This windstorm identified the importance of managing expectations at all echelons. Government expectations of the public are for self-sustainment for a minimum of 72 hours. However, as seen during this event, that expectation has not been fully actualized. Government must conduct more effective outreach and public education to achieve this goal. Government representatives must also have a realistic understanding of the resilience of the public and their expectations for power restoration and basic conveniences such as availability of fuel, food, and heat.

With each disaster event, there are also expectations about the use of National Guard resources. The National Guard is a dual-missioned and heavily tasked operational reserve force whose members also have primary civilian workforce responsibilities. During the December windstorm, the National Guard was activated by Governor Gregoire and fully executed every state mission it was assigned, primarily providing generator support to shelters and high risk populations, yet some suggested the Guard should have gone door to door to check on people or stand watch at darkened intersections. There are other more efficient and less costly ways of accomplishing such tasks such as using neighborhood watch and Citizens Corps volunteers. Public Works and Engineering Emergency Support Function personnel and other available resources should also be fully utilized before pulling citizens from their civilian responsibilities to deploy as a National Guard response force.

Building Relationships

There must be additional multi-jurisdictional coordination on emergency response. This coordination must include partnerships and relationships between governmental agencies, faith based and community based organizations, private businesses, and non-governmental organizations. These partnerships should contribute to a statewide effort to increase information and resource sharing to prepare the state for future emergency events.

Overall Recommendations

- Enhance Public Education
- Improve Situational Awareness
- Manage Expectations
- Enhance Coordination and Communication
- Build Partnerships between government and private organizations

5.2 Communications

Any large emergency or disaster will affect county Public Safety Answering Points. During storms of this nature, there is generally an increase of non-emergency calls. Unnecessary calls to 9-1-1 call centers will decrease if the public is taught to call 9-1-1 only if they require immediate police, fire, or medical assistance for life threatening situations. For example, King County public education campaigns targeting inappropriate 911 calls have successfully reduced overall 9-1-1 call volumes by 30%, and have reduced accidentally dialed wireless 9-1-1 calls from 30% to 14%. The public should also be aware that when calling 9-1-1 for assistance during a surge period, they should expect to be placed on hold for a period of time or to receive a busy signal. Emergency 9-1-1 centers are designed with some surge capability but generally do not have enough lines or call takers to immediately respond to all callers during an extremely high call

volume period. If a caller is placed on hold, they should not hang up and call again. Unnecessary repeat calls can cause trunks to go out of service and can add an additional strain to the already overloaded system. Government Officials should also understand the capabilities and limitations of the 9-1-1 system including the expectation that some customers will be placed on hold or receive a busy signal when calling 9-1-1 during high volume periods. When a high surge period occurs, the Public Safety Answering Points should use the Emergency Alert System to instruct the public to use 9-1-1 only for life-threatening emergencies that require police, fire, and/or medical rescue. Given the history of non-emergency 9-1-1 calls during similar events, issuing an Emergency Alert is an appropriate use of the 9-1-1 outage code provided by the federal government. It may be appropriate for the State to coordinate with local Public Safety Answering Points to issue the Emergency Alert if the surge affects multiple counties or a large geographic area versus a geographically isolated incident.

The network design at large Public Safety Answering Points with private branch exchange (PBX) telephone systems needs to be refined to avoid trunks being out of service. A recommendation to the Public Safety Answering Points would be to add another queue to their network design. A group of ten-digit lines should be added to the private branch exchange system to be used during surge events. When calls are answered that are non-emergencies and have a very low risk of developing into an emergency, public safety answering point call takers would transfer the calls to this new queue via a 9-1-1 Selective Router transfer, rather than an internal private branch exchange transfer. This allows the 9-1-1 trunk to be released after the call is transferred and prevents overloading from occurring. Public Safety Answering Points should be aware that with this type of transfer, Automatic Number Identification and Automatic Location Identification on the call are lost, which is why only calls that are clearly non-emergencies should be transferred in this manner. The manufacturers of the Enhanced 9-1-1 equipment are aware of this problem and are working with the counties to assess whether equipment modifications could be made to help alleviate this situation.

Public agencies and private businesses should also understand the need for redundant systems, especially the need for redundant power systems. Practical solutions include installing a backup generator, with switchbox, or battery backups such as an uninterruptible power supply for electronics. In addition to power, there should be alternate forms of communications. Practical solutions include having corded telephones available for use during power outages, utilizing Citizen Band (CB) radios, coordinating with amateur radio operators, utilizing multiple wireless carriers, and establishing protocols or procedures for employees to use in case of complete communication failures. Employees should train on these alternate forms of communications to ensure familiarization with the systems. Lastly, the public can take steps to maintain communications during an emergency or disaster. All families or households should pre-identify out-of-area emergency contacts. During an emergency, a surge of local phone calls can tie up local network circuits but long distance circuits are less affected by the increased number of phone calls. Out of area contacts can be used as a “message board” for relaying information to family members inside and outside of the affected area. The widespread use of cellular phones has advantages during a power outage in that car chargers can be used to power the phone. As a proactive measure, cellular service carriers affected by the storm have already committed to strengthening their networks and restoring resources diverted to the hurricane response so the carriers can better withstand a similar event in the future. Using a cell phone for text messaging is also an advantage during surge periods or other disaster situations. A text

message utilizes less bandwidth compared to voice communications and can free voice circuits for emergency responders.

The problem of contacting emergency services via 9-1-1 during localized phone service outages may only be able to be resolved by collaborative municipal and county-level planning.

Communications Recommendations

- Understand capabilities and limitations of 9-1-1
- Improve the private branch exchange network design
- Enhance redundant and alternate communications at all echelons
- Continue to utilize Amateur Radio

5.3 Infrastructure

The Review Team recommends maintaining and enhancing the use of the National Weather Service tools and software such as the virtual “Go to Meeting” function for coordination. Virtual meeting software proved to be a valuable tool for relaying important weather forecasts and analysis. Additionally, the State Emergency Operations Center should include a weather analysis in its alert messages. The analysis should include an impact statement on the potential affects related to the storm.

Utility Road Clearing Task Forces were a huge success in the jurisdictions that utilized them, decreasing the time to open roads and restore power. The Utility Road Clearing Task Force should include road crews teamed with line and electrically qualified tree crews and emergency responders, as needed, to respond in a coordinated effort.

As found in RCW 38.52.010, an “emergency responder”, also referred to as an “emergency worker means any person, including but not limited to an architect registered under chapter 18.08 RCW or a professional engineer registered under chapter 18.43 RCW, who is registered with a local emergency management organization or the department and holds an identification card issued by the local emergency management director or the department for the purpose of engaging in authorized emergency management activities or is an employee of the state of Washington or any political subdivision thereof who is called upon to perform emergency management activities. As seen throughout the December 2006 Windstorm, however, utility companies, fuel companies, telecommunications companies, and other non-traditional organizations also acted as emergency responders. Expanding the concept of “emergency responders” allows additional access to these organizations and enables them to more effectively respond to hazardous events. It also opens the door to additional planning, training and exercising opportunities for these organizations. Inclusion of these responders in emergency planning should involve guidance on credentialing for access into disaster-controlled areas. This access control also should expand to areas such as authorized access to the High Occupancy

Vehicle (HOV) lanes on the highways. During emergency response, credentialed personnel should be permitted in these lanes to expedite movement in and around the response areas.

At each jurisdictional level, there should be processes developed to prioritize restoration of infrastructure. Jurisdictional priorities should be based on government essential services and reviewed with utility providers annually. In addition, local emergency operations centers should be encouraged to include critical infrastructure liaisons in their emergency operation center activations. For example, power utility liaisons could be important channels of communication between public officials and utility providers during a power outage. There should also be a statewide emergency preparedness program each fall to prepare citizens and businesses for potential outages due to fall and winter storms.

Lastly, government, businesses, and utility providers must plan for lengthy periods of disruption, especially in the case of power outages. These plans should include staffing and personnel sustainment strategies for multi-shift continuous operations. Business continuity planning can significantly improve statewide readiness.

Some electrical utilities maintain “priority customer” lists and attempt to take priority customer needs into account in determining the utility’s restoration strategy. Unfortunately, utility prioritization lists are not always coordinated with local jurisdictions. This coordination needs to occur.

Infrastructure Recommendations

- Continue to utilize the National Weather Service and tools such as “Go to Meeting” software
- Provide weather analysis with alerts and warnings
- Utilize Road Clearing Task Forces
- Expand the concept of “Emergency Responders”
- Government, businesses, and utility providers must plan for extensive power outages

5.4 High Risk Population

The Review Team recommends greatly improved planning, coordination, and communication between agencies, facilities, organizations, and high risk populations. There must be clearly defined roles and responsibilities for coordinating and documenting pre-event planning, response, reporting, mitigation, and accountability of informal residences and caregivers. Emergency operations centers and agencies at all levels of government must have far greater information about high risk populations and their special needs during times of emergency. The establishment of multi-jurisdiction and multi-agency working groups can further define roles and

coordinate response activities. The Review Team also recommends designating a High Risk Population point of contact within each local and state emergency operations center.

Local jurisdictions, in coordination with the state, should increase the number of pre-identified special and medical needs shelters. These shelters should accommodate a diverse clientele, including children. Additionally, state and local agencies should develop ways to identify high risk individuals and increase their levels of personal and/or support system preparedness. While stakeholders have diverse ideas and philosophies about how to accomplish these outcomes, they agree target objectives must be achieved. Identification of high risk individuals could include mapping care facilities, conducting outreach for individuals to shelter in place, and supporting the emergency preparedness of long-term care facilities. Overall, the Review Team recognizes a compelling need to improve emergency planning and preparation for high risk populations.

Jurisdictions must also prepare for the needs of high risk populations who reside in institutions. Institutionalized residents could fall into the same category as those who reside in long term care facilities. The Washington State Developmental Disabilities Council should evaluate the Revised Code of Washington, Washington Administrative Codes, and local ordinances to ensure emergency plans address sheltering needs for high risk populations. This review should include studying the feasibility of requiring the testing and exercising of emergency response plans of all levels of licensed facilities, consisting of adult family, boarding, and nursing homes. The Washington State Developmental Disabilities Council should work with the appropriate agencies to ensure that all High Risk Population facilities have emergency response plans that are coordinated with local departments of emergency management; conduct outreach to assist reviewing in-home care settings to strengthen emergency preparedness; study parameters and disseminate guidelines for movement of high risk populations; plan for increased homeless sheltering and the challenges that the homeless may have during long term emergencies; and ensure that emergency response plans, evacuation plans, and emergency housing plans are tested and will be adequate to meet a catastrophic disaster to protect the needs of high risk populations that do reside in nursing homes, institutions and hospitals.

High Risk Populations Recommendations

- Improve emergency planning for high risk populations
- Improve coordination with high risk populations and their care givers

5.5 Sheltering

The December windstorm reaffirmed that lack of public information compounds the problems caused by the disaster. The Red Cross maintains lists of hundreds of potential sheltering facilities with agreements in place. However, since shelters are opened to meet the unique needs of each disaster, the Red Cross will not publicly identify a shelter until the disaster causes it to be opened. If the public does not know the location of shelters in advance of a disaster, dissemination of shelter location information is difficult; Television, radio, internet, and most

telephones will not operate without power. Cell phones can be effective, but cannot be charged without power.

Three major recommendations evolved from the findings of the high risk population sheltering workgroup: 1) develop state guidelines for emergency shelters; 2) promote community/Red Cross mass care partnerships; and 3) implement preparedness measures addressing the 94% of high risk persons who live and work among the general population.

Establish a local/state sheltering workgroup to develop statewide guidelines which address general and high risk populations. The Governor's After Action Review brought together participants from many different backgrounds. The local/state sheltering workgroup should capitalize on the momentum of this effort by continuing their work through expanded partnering with:

- Urban, rural, and tribal emergency management agencies from across the state;
- Red Cross chapters, faith-based, and non-profit organizations;
- Public health, local health agencies and organizations, State Department of Health;
- Local human services agencies, State Department of Social and Health Services;
- Advocacy organizations that representing people with disabilities, elders, and families; and,
- School districts, private schools, colleges, universities, Office of the Superintendent of Public Instruction, and State Board of Community and Technical Colleges.

This effort should build on the sheltering groundwork initiated by those Washington jurisdictions that form the major metropolitan region covered by Department of Homeland Security's Urban Area Security Initiative. Last year, the Urban Area Security Initiative region, consisting of King, Pierce and Snohomish Counties, Seattle and Bellevue, utilized grant funding to research, evaluate, and develop sheltering programs that address general and high risk populations. Urban Area Security Initiative planners are continuing this effort through 2007 and have applied for federal grant funding through 2009.

Staffing was consistently the largest shortcoming identified during the December windstorm. Additionally, state guidelines for community emergency shelters should be developed. Currently, no state guidelines exist. Most communities use the Red Cross model for non-Red Cross shelters. State guidelines to address the needs of high risk populations should be established. The Review Team recommends these four measures for shelters:

- Triage needs as quickly as possible by shelter staff to identify those that may need some additional assistance;
- Emphasize the importance of Americans With Disabilities Act access and barrier-free facilities;
- Have adequate power supply for people who are technology dependent; and
- Have plans for locked, medicine storage and management, as needed.

The use of these guidelines should be promoted for all emergency shelters through planning, education, training, and exercises. When communities and counties exercise their mass care plans, the inclusion of high risk populations as exercise participants will better prepare the

community to prepare for a disaster. Additionally, long term care (LTC) facilities should also become better prepared to care for their clients in the event of an emergency or disaster. If appropriate planning measures have been implemented, residents in these facilities appear to be able to shelter-in-place more effectively than if transported to a special needs shelter.

The state should promote a community and Red Cross partnership for local sheltering plans. Most high risk populations can be sheltered in general emergency shelters. According to the Red Cross, anyone who can take care of themselves or has a caregiver can use a Red Cross emergency shelter. Local planners must engage high risk population representatives and advocates. When community residents partner with shelter providers in the planning process, planners can identify the make-up of their community and attend to the needs of the residents, including high risk persons.

A county or major city should consider separate “special needs” shelters only for evacuation of the medically fragile (generally those in nursing homes or hospitals). Planners should know where high risk persons live so that they can be located and checked on during a disaster or moved to a shelter, when necessary. Self-identification by high risk persons is essential to effective emergency planning. The Review Team recommends a voluntary registry of individuals who are considered to be high-risk. Information about this registry must be well publicized and capable of reaching the high risk persons who live within the general population.

All counties should also be encouraged to develop sheltering plans as potential “reception counties” for displaced evacuees. When organizing a sheltering program, county volunteer associations, such as Citizen Corps councils, should be encouraged to take a leadership role in cooperation with Red Cross and neighborhood groups. An example of an effective community/Red Cross partnership is the sheltering program developed by University Place in Pierce County. During the December Windstorm, University Place was well prepared and met the needs of its neighborhoods.

For all facilities designed to house high risk populations and serve long term care residents, an alternative power source should be required for a minimum of 72 hours. There should be training for activating and operating alternative power generation equipment.

Sheltering Recommendations

- Develop state guidelines for emergency shelters
- Promote mass care partnerships
- Implement preparedness measures

5.6 Public Information

Emergency information must be distributed to appropriate target audiences in a timely manner. Citizens must receive information about threats and hazards before they occur. These messages must be reinforced by warnings and supplemental information during the event itself.

Additionally, government messages must be consistent and delivered with “one message—one voice”.

Organizations should utilize redundant means of communication. While radio, television and the Internet are viable means of reaching out to the public, reliance on only one mode may limit communication during power outages. A variety of additional communications tools should also be utilized including printed information and pictograms in newspapers and flyers, dissemination of information through schools, use of amateur radio, and person-to-person networking. Door-to-door communication proved successful in many areas during the windstorm. Redundancy of communication can reach a larger audience by using community and faith-based organizations, rather than limiting distribution to emergency management channels.

The Washington State Emergency Management Division should establish a multi-agency, multi-disciplinary workgroup to better coordinate public education preparedness programs and to improve outreach to limited English proficiency groups. The workgroup also should consider additional means of communicating with the public during an emergency or disaster to assure “one message, one voice.” The workgroup would benefit from the inclusion of faith-based and print and broadcast media representatives.

The 2-1-1 system is still an evolving program in our state. As the 2-1-1 system matures, this resource may be able to provide referral assistance 24-hours a day, seven days a week. This system, with coordination from jurisdictional response efforts, could prove beneficial during power outages and similar emergency events.

Public Information Recommendations

- Communicate early and often
- Emphasize “one message-one voice”
- Utilize multiple means of communication
- Educate the public to be prepared for a minimum of 72 hours

5.7 Emergency Response

The Washington State Emergency Management Division is updating the State Emergency Operations Plan and the Washington State Comprehensive Emergency Management Plan to reflect current terminology, processes, and procedures. As noted in other workgroups, the plans need to incorporate more detailed guidance regarding how the state will respond to emergencies and disasters. This update should include reviewing plans and establishing set roles and responsibilities for the elimination of duplicating efforts; resource management and prioritization including the expanded identification of resources available from state agencies beyond normal emergency support function responsibilities; use and function of state liaisons; and information sharing guidance for maintaining situational awareness.

Roles and responsibilities within the Emergency Support Functions also need greater clarity. Since the last publication of the State Emergency Operations Plan and the Washington State

Comprehensive Emergency Management Plan, the roles and responsibilities as well as the organization staffing of the State Emergency Operations Center have changed. During the ongoing revision of the Washington State Comprehensive Emergency Management Plan, Emergency Support Function roles and primary agencies need to be adjusted to reflect the recently released National Response Plan. The Review Team recommends that each Emergency Support Function develop a team consisting of primary and support agencies to review and update the roles, responsibilities, functions, and limitations of each Emergency Support Function for inclusion into the revision of the Washington State Comprehensive Emergency Management Plan and annexes. The Washington State Emergency Management Division needs to provide supplemental training and education for state agencies to ensure their roles and responsibilities are understood. This training also should include a review of the State Emergency Operations Plan so that state agencies are familiar with the activation procedures and requirements of the Emergency Support Functions.

Although the State Emergency Operations Center filled the majority of requests for assistance during the December 2006 windstorm, the after action review revealed additional needs never conveyed to the State Emergency Management Division. For example, jurisdictions and utility companies could have benefited from aerial reconnaissance which could have given them better situational awareness of the extent of damage; however, some did not know that aerial assets could be requested through the state. Some jurisdictions also didn't understand the process of requesting state assistance or that the local jurisdiction would be financially responsible for certain types of assistance, if provided. The Washington State Emergency Management Division should conduct additional outreach and education with local jurisdictions to ensure local emergency managers understand the process for requesting assistance and what type of assistance is available from the state. Additionally, state and local authorities need to refine their processes for locating needed resources from within or outside the state. These requirements could be satisfied through broader use of WebEOC.

Although mutual aid problems did not arise during the December 2006 windstorm, some local jurisdiction Review Team members identified mutual aid as a concern in the event of more complex and severe disasters. Emergency response capabilities are different in each jurisdiction. With any disaster or emergency, a given jurisdiction's resources may not be sufficient for responding to and stabilizing the situation. The Review Team recommends that a workgroup research and recommend mutual aid policies and procedures that would assist jurisdictions in responding to disasters.

The Review Team also recommends that a workgroup be created to provide guidance for standard terminology in Washington State following the principles of the National Incident Management System. The workgroup should include participants from state and local jurisdictions and subject matter disciplines in order to validate guidance and applicability at all echelons. The workgroup should develop standard terminology for the various phases of emergency operations center activations. For example, some jurisdictions, including the state, use a I, II, III, IV rating scale for activations, IV being a catastrophic level. Other jurisdictions currently use Phase I for a catastrophic activation. The workgroup should seek concurrence of all jurisdictions and subject matter disciplines on the terminology to be used for activation levels. Consistency would increase situational awareness and manage the expectations and perceptions of response activities.

The Review Team supports continued emphasis on joint planning, training, and exercising. Coordinated planning, training, and exercising must include all echelons of government, businesses, and credentialed citizen volunteers.

Emergency Response Recommendations

- Update the State Emergency Operations Plan and the Washington State Comprehensive Emergency Management Plan
- Enhance statewide instruction on requesting state assistance and mutual aid
- Adopt statewide common terminology
- Strengthen multi-jurisdictional, multi-organizational planning, training and exercises to improve coordination among emergency responders
- Build relationships between liaisons and supported jurisdictions

5.8 Implications for public policy and legislation

Public Policy and/or Legislation:

- Encourage backup power sources for gas stations, utilities, and grocery stores
- Enhance regulation for care facilities with regard to backup power sources, coordinated emergency planning, and emergency exercises
- Establish a state emergency management fund to support state and local mitigation, preparedness, response, and recovery efforts that will increase state and local capacity to address threats and hazards
- Extend invitations to all stakeholders to participate in planning, training and exercise programs
- Create workgroups to address statewide emergency management guidance as detailed within this report. These can be established through existing forums such as the state Emergency Management Council and the Enhanced 9-1-1 Advisory Committee, among others

To best meet the objectives as recommended by the Review Team, the following ongoing workgroups should be developed or expanded:

- Expand the Washington State Developmental Disabilities Council
- Create a local/state mass care and Sheltering Workgroup
- Expand the Emergency Management Division Public Information Officer workgroup

6. Recommendations

6.1 Enhance Public Education

Task: Enhance state and local public safety education strategies and programs.

Principal Agencies and Stakeholders: Washington Military Department Emergency Management Division (hereafter EMD) and Supporting Agencies and Organizations, American Red Cross, local emergency management agencies, Washington State Department of Social and Health Services (hereafter DSHS), local social service organizations, Washington State Department of Health (hereafter DOH) and local public health agencies, Office of the Superintendent of Public Instruction (hereafter OSPI) and local school districts; the Association of Washington Cities (hereafter AWC), the Washington State Association of Counties (hereafter WSAC), and the Washington Association of Broadcasters.

Task: Call state and national attention to the apparent correlation between power outages and an increased risk of carbon monoxide poisoning. Develop printed and recorded messages warning of carbon monoxide poisoning risks and other dangers in as many languages as possible.

Principal Agencies and Stakeholders: Washington Military Department Emergency Management Division in consultation with the Washington State Emergency Management Association (hereafter WSEMA), the National Emergency Management Association (hereafter NEMA) and the International Association of Emergency Managers (hereafter IAEM); DOH in consultation with the Association of State and Territorial Health Officers (hereafter ASTHO), the National Association of County & City Health Officials (hereafter NACCHO), and Virginia Mason Hospital and Medical Center; DSHS in consultation with local social service agencies.

6.2 Improve Situational Awareness

Task: Develop a statewide strategy for the use of WebEOC.

Principal Agencies and Stakeholders: EMD and Supporting Agencies and Organizations, all local emergency management agencies, WSEMA, AWC, WSAC, all agencies with responsibilities listed in the Washington State Comprehensive Emergency Management Plan (hereafter CEMP), and the Association of Washington Business (AWB).

Task: Determine and implement a standard reporting system.

Principal Agencies and Stakeholders: EMD and Supporting Agencies and Organizations: all local emergency management agencies, WSEMA and all agencies with responsibilities listed in the Washington State Comprehensive Emergency Management Plan.

6.3 Enhance Coordination and Communications

Task: Utilize statewide conference call during emergencies and disasters.

Principal Agencies and Stakeholders: EMD and Supporting Agencies and Organizations: all local emergency management agencies and WSEMA.

Task: Build additional outreach and relationships between local jurisdictions and state and private sector liaisons.

Principal Agencies and Stakeholders: EMD and Supporting Agencies and Organizations: WSEMA, AWC, WSAC, all local emergency management agencies and AWB.

6.4 Manage Expectations

Task: Conduct training for state and local officials on National Guard support to civil authorities.

Principal agencies and stakeholders: Washington State Military Department and Supporting Agencies and Organizations, WSEMA, AWC and WSAC.

6.5 Build Partnerships

Task: Public and private sector stakeholders (e.g., representatives from critical private sector organizations such as utility companies and public works departments, public safety and emergency management agencies, etc.) should form Task Forces whenever possible to synchronize emergency response and recovery operations. The formation and use of Task Forces should be planned, trained and exercised as an operational “best practice”.

Principal agencies and stakeholders: WSEMA, AWC and WSAC in consultation with EMD and AWB

Task: Private sector liaisons should be included in local and state Emergency Operations Center (EOC) activations.

Principal agencies and stakeholders: WSEMA and EMD.

6.6 Communications

Task: Foster better understand by public officials and the general public of the capabilities and limitations of the Enhanced 911 system

Responsible Agency or Organization: The state Enhanced 9-1-1 Advisory Committee and Supporting Agencies and Organizations, the Washington Association of Sheriffs and Police Chiefs (hereafter WASPC) EMD, local emergency management agencies and Public Safety Answering Points.

Task: Improve the private branch exchange network design

Principal agencies and stakeholders: Enhanced 9-1-1 Advisory Committee and Supporting Agencies and Organizations, EMD, all local emergency management agencies, and Public Safety Answering Points.

Task: Enhance redundant and alternate communications at all echelons

Principal agencies and stakeholders: all local and state governmental agencies and

Supporting Agencies and Organizations

Task: Encourage continued utilization of amateur radio.

Principal agencies and stakeholders: EMD Radio Amateur Communications Emergency Services (RACES) program and Supporting Agencies and Organizations, WSEMA and all local emergency management agencies, AWC and WSAC

6.7 Infrastructure

Task: Continue to utilize the National Weather Service and tools such as “Go to Meeting” software

Principal agencies and stakeholders: The National Weather Service, all response agencies listed under the Washington State Comprehensive Emergency Management Plan and Supporting Agencies and Organizations

Task: Provide weather analysis with alerts and warnings.

Principal agencies and stakeholders: EMD and Supporting Agencies and Organizations

Task: Expand the concept of “emergency responder” to accommodate and expedite the movement of key infrastructure resources such as utility crews and equipment. Review and revise statutes, rules, regulations and procedures as necessary to facilitate efficient and effective emergency responses.

Principal agencies and stakeholders: Washington State Department of Transportation (hereafter WSDOT) Washington State Patrol (hereafter WSP), WSEMA, WSAC and AWC in coordination with EMD and Washington State Comprehensive Emergency Management Plan (CEMP) Emergency Support Function primary agencies.

Task: Government, businesses and utility providers must plan for extensive and extended-duration power outages

Principal agencies and stakeholders: state and local governments and private sector businesses and organizations at all levels.

6.8 High Risk Populations

Task: Improve local and state emergency planning for high risk populations, especially for emergencies affecting loss of commercial power, public transportation, telecommunications and other support services

Principal agencies and stakeholders: Washington State Developmental Disabilities Council and Supporting Agencies and Organizations, WSEMA, AWC, WSAC, the American Red Cross, Salvation Army and other private non-profit and faith-based organizations, EMD, DSHS, local social service organizations, DOH, and local public health agencies, medical societies and community based organizations.

Task: Improve coordination with high risk populations and their caregivers

Principal agencies and stakeholders: Washington State Developmental Disabilities Council and Supporting Agencies and Organizations, Area Agencies on Aging, WSEMA, AWC, WSAC, the American Red Cross, Salvation Army and other private non-profit and faith-based

organizations, EMD, DSHS, local social service organizations, DOH, and local public health agencies, medical societies and community based organizations.

6.9 Sheltering

Task: Develop state guidelines for emergency shelters

Principal agencies and stakeholders: EMD, WSEMA, AWC, WSAC, DSHS, DOH, and all agencies with responsibilities under Emergency Support Function 6 of local and Washington State Comprehensive Emergency Management Plans in consultation with the American Red Cross, Salvation Army and other private non-profit and faith-based organizations.

Task: Promote mass care partnerships including local and state planning for sheltering large groups, including high risk populations, for catastrophic and/or prolonged events.

Principal agencies and stakeholders: EMD, WSEMA, AWC, WSAC, DSHS, DOH and all agencies with responsibilities under Emergency Support Function 6 of local and Washington State Comprehensive Emergency Management Plans in consultation with the American Red Cross, Salvation Army and other private non-profit and faith-based organizations .

Task: Implement preparedness measures including regulatory requirements to assure the safe shelter of institutionalized populations in nursing homes, group homes and other congregative care facilities.

Principal agencies and stakeholders: DSHS, DOH, EMD, local emergency management agencies, and all agencies with responsibilities under Emergency Support Function 6 of local and Washington State Comprehensive Emergency Management Plans.

6.10 Public Information

Task: Communicate early and often

Principal agencies and stakeholders: EMD and other state executive branch agencies, WSEMA, AWC, WSAC, local emergency management agencies and all agencies and organizations with responsibility under Emergency Support Function 15 of local and state Comprehensive Emergency Management Plans.

Task: Emphasize “one message-one voice”

Principal agencies and stakeholders: EMD and other state executive branch agencies, WSEMA, AWC, WSAC, local emergency management agencies and all agencies and organizations with responsibility under Emergency Support Function 15 of local and state Comprehensive Emergency Management Plans.

Task: Utilize multiple means of communication

Principal agencies and stakeholders: EMD and other state executive branch agencies, WSEMA, AWC, WSAC, local emergency management agencies and all agencies and organizations with responsibility under Emergency Support Function 15 of local and state Comprehensive Emergency Management Plans.

Task: Educate the public to be prepared for a minimum of 72 hours

Principal agencies and stakeholders: EMD and other state executive branch agencies, WSEMA, AWC, WSAC, American Red Cross, local emergency management agencies and all

agencies and organizations with responsibility under Emergency Support Function 15 of local and state Comprehensive Emergency Management Plans.

6.11 Emergency Response

Task: Update local and state Emergency Operations Plans and Comprehensive Emergency Management Plans.

Principal agencies and stakeholders: EMD and all other state agencies with responsibilities under the state Emergency Operations and Comprehensive Emergency Management plans, WSEMA and all local emergency management agencies and other agencies with responsibilities under local Emergency Operations and Comprehensive Emergency Management plans.

Task: Enhance statewide instruction on requesting state assistance and mutual aid

Principal agencies and stakeholders: EMD and Supporting Agencies and Organizations, WSEMA, AWC, WSAC, and local emergency management agencies

Task: Adopt statewide common terminology and protocols for local, tribal and state Emergency Operations Center activations

Principal agencies and stakeholders: EMD, WSEMA, AWC and WSAC in consultation with sovereign tribes and Indian nations.

Task: Strengthen multi-jurisdictional, multi-organizational planning, training and exercises to improve coordination among emergency responders

Principal agencies and stakeholders: EMD, WSEMA, AWC and WSAC in consultation with sovereign tribes and Indian nations and with critical infrastructure representatives and AWB.

Task: Build relationships between liaisons and supported jurisdictions

Responsible Agency or Organization: all local and state agencies and organizations with responsibilities under local and state Comprehensive Emergency Management Plans in consultation with sovereign tribes and Indian nations and with critical infrastructure representatives and AWB

7 Appendix A: References

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Appendix B: Participating Organizations and Representatives

The following organizations participated in the development of this After Action Report:

American Red Cross	Seattle Children's Hospital
Associated Ministries	Snohomish County Department of Emergency Management
Association of Washington Businesses	Thurston County
Association of Washington Cities	Thurston County Emergency Management
Boeing	Tacoma-Pierce County Health Department
Cingular	Washington Association of Counties
City of Tacoma	Washington State Department of Community, Trade and Economic Development
Clark County Regional Emergency Services Agency	Washington State Department of Health
Commission on Hispanic Affairs	Washington State Department of Information Services
Department of Homeland Security	Washington State Department of Social and Health Services
Federal Emergency Management Agency	Washington State Department of Transportation
King County	Washington State Emergency Management Association
King County Office of Emergency Management	Washington State Emergency Management Division
Kitsap County Department of Emergency Management	Washington State Governor's Office
Lewis-Mason-Thurston Area Agency on Aging	Washington State Military Department
Mason County	Washington State National Guard
Mason County Division of Emergency Management	Washington State Office of Financial Management
National Ocean and Atmospheric Administration	Washington State Patrol
Pierce County	
Pierce County Department of Emergency Management	
Puget Sound Energy	
Seattle City Light	
Snohomish County Human Services Department	

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The following individuals represented their organization in assisting with the development of this After Action Report:

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Appendix C: Department of Social and Health Service High Risk Population Estimate



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THIS APPENDIX PRESENTS estimates of the rate and numbers of Washington State residents who are at higher risk for harm from an emergency event due to significant limitations in their personal care or self-protection abilities, mobility, vision, hearing, communication, or other physical, mental, or behavioral health status. These limitations may be the result of physical, mental, behavioral, or sensory impairments. Some of these individuals may be reliant on specialized supports such as mobility aides (such as wheelchairs, walkers, canes, or crutches), communication systems (hearing aides, TTYs, or other assistive devices), medical equipment (such as ventilators, dialysis, pumps, or monitors), dietary controls, prescription medication, or personal attendants. For some, loss of these supports due to power and communication outages, or transportation and supply disruptions, may be the primary or only risk factor.

The 2000 Census estimated the number of people with sensory impairments and/or physical or mental health conditions that affected their ability to walk, climb stairs, or lift weights, and/or their ability to carry out the basic activities of daily life appropriate to their age. Those estimates are applied to the 2006 population of the state and four of its counties to produce 2006 estimates, which are then compared to the DSHS Aged/Disabled caseload.

Key Findings

Statewide, 17.2 percent – over one million Washington State residents – were at higher risk of harm from an emergency event, due to functional limitations in daily activity stemming from a long-lasting health condition.

- Most of those people live in their own or their family's home. Less than 6 percent lived in institutions or group quarters.
- Only about 21% of these people were receiving medical services from DSHS based on age or disabling health conditions.

Therefore, if local Emergency Management Coordinators are to know where those people live, and what their needs are, working through group housing providers or DSHS will not suffice.

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WA STATE	2000			2006		
	Population	Disability Rate	People with Disabilities	Population	People with Disabilities Estimate	DSHS Disabled or Aged Clients Monthly Average
	5,894,780	17.2%	1,015,920	6,375,600	1,098,786	228,276
King	1,730,418	15.4%	265,835	1,835,300	281,947	53,139
Pierce	706,103	18.4%	129,716	773,500	142,097	28,134
Snohomish	602,264	15.5%	93,131	671,800	103,884	19,436
Thurston	210,011	18.0%	37,892	231,100	41,697	7,176

SOURCES: 2000 Populations and Rates from U.S. Census Public Use Micro Sample file. 2006 Population from OFM Population Trends Report, September 2006. The DSHS disabled or aged caseload includes clients enrolled in the following types of medical coverage: (1) Medicaid Aged, Blind, or Disabled; (2) General Assistance; or (3) ADATSA.

Note that these data underestimate the total high-risk population by 2 to 3 percent, because they do not include people whose functional limitations are due to short-term conditions, such as recovery from surgery, illness or injury.

Method

Data for this estimate are drawn primarily from the U.S. Census data, which recorded the number of persons with disabilities which affected their daily life functions. The data on disability status were derived from answers to 2000 Census long-form questionnaire Items 16 and 17:

- **Item 16** was a two-part question that asked about the existence of the following long-lasting conditions:
 - a. Blindness, deafness, or a severe vision or hearing impairment (sensory disability); and
 - b. A condition that substantially limits one or more basic physical activities, such as walking, climbing stairs, reaching, lifting, or carrying (physical disability).

Item 16 was asked of a sample of the population 5 years old and over.

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- **Item 17** was a four-part question that asked if the individual had a physical, mental, or emotional condition lasting 6 months or more that made it difficult to perform certain activities. The four activity categories were:
 - a. Learning, remembering, or concentrating (mental disability);
 - b. Dressing, bathing, or getting around inside the home (self-care disability);
 - c. Going outside the home alone to shop or visit a doctor's office (going outside the home disability);
and
 - d. Working at a job or business (employment disability).

Categories 17a and 17b were asked of a sample of the population 5 years old and over; 17c and 17d were asked of a sample of the population 16 years old and over.

Individuals were classified by the Census as having a "disability" if any of the following three conditions were true:

- They were 5 years old and over and had a response of "yes" to a sensory, physical, mental or self-care disability;
- They were 16 years old and over and had a response of "yes" to going outside the home disability; or
- They were 16 to 64 years old and had a response of "yes" to employment disability.

Using this definition, we estimated (statewide, and for the four target counties) both the number and percent of the population that had a disability in 2000, and then applied those rates to the 2006 population estimates from OFM to get a 2006 estimate.

The census data were then compared with the DSHS disabled or aged caseload to get the proportion of those people who were DSHS clients. The disabled or aged caseload includes clients enrolled in the following types of DSHS medical coverage: (1) Medicaid Aged, Blind, or Disabled; (2) General Assistance; or (3) ADATSA.

Emergency Planning Implications

About one Washington State resident in six has functional limitations in daily activity stemming from a long-lasting health condition.

- Most (over 94 percent) of these people live in their own or their family's home; under 6 percent lived in group quarters.
- Only about 21 percent of these people are receiving disability services from DSHS.

Therefore, if local Emergency Management Coordinators are to know where those people live, and what their needs are, working through the group housing providers or DSHS will not suffice. Only a voluntary registry of high-risk persons, which is very well publicized through medical personnel, local organizations, and the media, will be capable of reaching most of these high-risk people.

Appendix D: Population Groupings and Resources Matrix

Feedback Received By: Todd Henry, DSHS, RCS (2 revisions); Chris Olsen, DSHS, LBD; Amy Besel, DSHS/HRSA/MHD; Frank Sanborn DSHS ADSA/DDD (2 revisions), Patty McDonald, DSHS, HCS; Janelle Sgrignoli, Snohomish County Human Services Depart;

Sub-Groups (Define sub-groups by common characteristics that may benefit from a common solution or plan)	Specific Need Areas or Gaps (what are the significant gaps that need to be addressed)	Solutions (What actions, processes, or resources could have solved or improved these gaps?)	Players (Who has a role in supporting this targeted population in this need?)	Role of Players (What is the role?)	Recommendations/Comments (Outline additional considerations or details addressing these solutions)
HIGH RISK PERSON LIVING IN OWN HOME OR APARTMENT. (LIVING ALONE, WITH FAMILY MEMBERS, OR WITH CAREGIVERS.)					
DSHS –Assisted Living ; DDD Supported Living; Independent Living (Medicaid and Older American’s Act services) , (Persons participating in community based care programs such as adult day health or day care programs.) DDD Supported	<ul style="list-style-type: none"> • Need back-up power for medical devices. • Need plan requirement • Plan must include alternative location option. • Plan must include transportation option. • Need 7 day personal care, meds, and generator fuel 	<ul style="list-style-type: none"> • Outreach and Education • Back-up power: it does not seem feasible to require an agency that provides services in a clients home a few hours per week or per month to be responsible for providing power back up for medical devices; this may be fine as a 	<ul style="list-style-type: none"> • Client/family • Service Providers • Licensed Home Care Agencies contracted to provide in-home providers 	<ul style="list-style-type: none"> • Self-preparation • Most of these service providers go into a person’s home or apartment and provide limited services. (A few of these service providers may be licensed as adult family home and boarding homes.) 	<ul style="list-style-type: none"> • Explore payment of generators for individuals living in their own homes who are technologically dependent through state and/or federal dollars. • Explore funding sources for three day emergency kits for individuals living in their own homes. • On-going training locally about the dangers of carbon monoxide poisoning when using generators and other inappropriate ways to heat. Information should be translated into other languages. • Providers should develop

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<p>Employment: (programs where people spend significant portions of their day)</p>	<p>supply.</p> <ul style="list-style-type: none"> • Need local EMD consultation access • Accessible Transportation 	<p>suggestion to members of the public who live on their own</p> <ul style="list-style-type: none"> • Need plan requirement: There is a requirement for some limited plan for providers who give more than 40 hours a week for service. It isn't feasible providers to take on more when they have minimal contact with a client during the week or during the month) (For Medicaid clients must document plan in the client's service plan of care (CARE tool).) • Plan must include alternative location option.: does not seem feasible to require an agency that comes into 	<ul style="list-style-type: none"> ○ DSHS Residential Care Services (RCS) ○ DSHS DDD Field Services ○ DSHS Research and Data Analysis (RDA) • State EMD • City/County EMD • Friends/Neighbors • Transportation Providers 	<ul style="list-style-type: none"> • Responsible for day to day program operation/provision of in-home care providers • Licenses and inspects • Makes sure Supported Living plans are in place and adequate. • Provide statewide data of DSHS client locations and need type. • State CEMP coordination • Orient and train local 	<p>emergency preparedness plans that anticipate disasters that may affect their ability to staff in-home clients.</p>
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		<p>someone's home for a few hours per week or per month to be responsible for relocating a client)</p> <ul style="list-style-type: none"> • Plan must include transportation option.: does not seem feasible to require an agency that comes into someone's home a few hours per week or a few hours per month to be responsible for transporting their clients) • Need 7 day personal care, meds, and generator fuel supply.: we need to make sure we distinguish between a recommendation for an individual who lives in their own home as a member of the public and 	<ul style="list-style-type: none"> • Power Companies • DOH • Local Public Health • State Patrol • 211 system • Medical Equipment Suppliers • Medication Suppliers • Tribal Emergency Management • First Responders (Police, Fire, EMS) 	<p>providers and/or clients/families in self-preparedness and local plan components</p> <ul style="list-style-type: none"> • Use data to identify High Risk Pop clustering for shelter location needs. • Plan alternative transportation options. 	
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		<p>an agency; it does not seem feasible to require that an agency which provides services for a few hours per week or a few hours per month be responsible for these items; it may be fine to recommend to people living in their own home to have personal care items in their own home for 7 days;</p> <ul style="list-style-type: none"> • Need local EMD consultation access: same comments as above) • Neighborhood Teams • Volunteer Transport • Voluntary Registry • Expand 211 Service 			
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DSHS- Public Mental Health System- Persons NOT residing in facilities	<ul style="list-style-type: none"> • Prevalent needs identified were the same as those for general public: Heat and shelter resources. • Need for supply of medications 	<ul style="list-style-type: none"> • Increased public education about individual emergency preparedness planning 	<ul style="list-style-type: none"> • MHD, RSNs, Providers, DOH, EMD, city/county EMD 	<ul style="list-style-type: none"> • Same as above 	
Non-DSHS Clients	Same as above		Same as above but no DSHS		
Homeless people					

MULTIPLE HIGH RISK FOLKS LIVING TOGETHER IN RESIDENTIAL-TYPE HOMES

<p>Licensed or certified homes</p> <ul style="list-style-type: none"> • Licensed adult family homes (AFH) • Small boarding homes • Small intermediate 	<ul style="list-style-type: none"> • Need back-up power for medical devices. <p>(It is the responsibility for adult family homes and boarding homes, to meet resident</p>	<ul style="list-style-type: none"> • Outreach and Education • Providers purchasing generators on their own to have an emergency power source. 	<ul style="list-style-type: none"> • Service Providers • DSHS-Residential Care Services (RCS) 	<ul style="list-style-type: none"> • Responsible for the day-to-day operation of their facility, including meeting resident needs 	<ul style="list-style-type: none"> • Providers are required to develop emergency preparedness plans that anticipate disasters that may affect their facility. These plans must be operational at all times. • May require a change in statute to require
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<p>care facilities for the mentally retarded (ICF/MRs)</p> <ul style="list-style-type: none"> Adult Residential Treatment Facilities (ARTFs) <p>(ICF/MR is licensed as either boarding home or nursing home)</p>	<p>needs. Currently, boarding homes and adult family homes are not required to have an emergency power source.)</p> <ul style="list-style-type: none"> No gaps identified- DOH WAC 246-337-070 requires ARTFs to plan and provide for emergency needs, food, water, clothing, shelter, heat and power. 	<p>(HB 1347, introduced this session, would require boarding homes and adult family homes to have generators. WACs would need to be established for proper connection, maintenance and operation of generators in these care setting)</p> <ul style="list-style-type: none"> Providers having in their emergency preparedness plan relocation to another facility where power is available. Providers having agreements in place with other facilities--in advance of a storm--to allow them to relocate residents to another facility in the event of an 	<ul style="list-style-type: none"> DSHS Research and Data Analysis (RDA) Centers for Medicare & Medicaid (CMS-feds), State EMD DOH City/County EMD 	<ul style="list-style-type: none"> Licenses and inspects adult family homes and boarding homes; certifies ICF/MRs Verify EM plan compliance (?? Frequency) Provide statewide data of DSHS client locations and need type. Oversees RCS regulation of nursing homes and ICF/MRs State CEMP coordination DOH Licenses ARTFs 	<p>generators.</p> <ul style="list-style-type: none"> May require state funding to support purchasing generators for these care settings. As of 1/22/06, estimates for the cost of this range from \$25 million to \$50 million depending upon what kind of requirements are established for how generated must be wired into facilities. These costs may be mitigated by a request for proposal to purchase generators and/or installation of generators and/or phase-in of generator requirement over the course of a biennium. Training on safe use and maintenance of generators would need to be addressed. Providers would need to pay for the on-going maintenance of generators. RCS may need to incur additional staffing expense on inspection of facilities over the next few years after this new requirement were established to ensure providers were properly able to start and operate a generator. Statutory requirement that a written plan must include additional types of disasters may be helpful. Resources for local
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	<ul style="list-style-type: none"> • Need specific requirement that boarding home and adult family home providers have emergency response plans in place for fires, floods, earthquakes and windstorms • Require that adult family homes and boarding homes coordinate their emergency preparedness plan with a local emergency management organization. This would enhance planning efforts by facilitating communication between 	<p>emergency.</p> <ul style="list-style-type: none"> • HB 1347 would specifically require this. • HB 1347 would specifically require this. • Change requirements for 7 day supply prep from 3 days • Neighborhood 	<ul style="list-style-type: none"> • Friends/Neighbors • Transportation Providers • Power Companies • DOH • Local Public Health • State Patrol • 211 system • Medical Equipment Suppliers • Medication Suppliers • Tribal Emergency Management • First Responders (Police, Fire, EMS) • 	<ul style="list-style-type: none"> • Orient and train local providers or clients in self-preparedness and local plan components • Use data to identify High Risk Pop clustering for shelter location needs. • Plan alternative transportation options. 	<p>emergency management organizations will probably be needed to provide assistance to providers. This will likely include training of providers in various locations around the state on a number of emergency preparedness topics.</p> <ul style="list-style-type: none"> • WACs would need to be developed by RCS about what is specifically expected of providers for their coordinating with a local emergency management organization.
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	<p>facilities and emergency management professionals in advance of an emergency/disaster situation.</p> <ul style="list-style-type: none"> • Heat- lack of adequate fuel supply for homes with generators • Accessible Transportation 	<p>Teams</p> <ul style="list-style-type: none"> • Volunteer Transport • Voluntary Registry • Expand 211 Service 			
Sub-acute Detoxification Programs	?		Same as above except DSHS changes to: DSHS, Health and Recovery Services (HRSA), DASA	<ul style="list-style-type: none"> • Provides certification 	
Staffed Residential Homes	?		Same as above except DSHS changes to: DSHS, Childrens' Administration (CA)	<ul style="list-style-type: none"> • Provides licensing?? 	

HIGH RISK PERSONS LIVING IN FACILITIES LOCATED IN COMMUNITIES

<p>Licensed or certified facilities</p> <ul style="list-style-type: none"> • Nursing facilities (NF) (Elders and adults with physical and cognitive 	<ul style="list-style-type: none"> • Need back-up power for medical devices, heat, lights (Emergency power source already required for 	<ul style="list-style-type: none"> • Outreach and Education • HB 1347, introduced this session, would require that boarding homes have 	<ul style="list-style-type: none"> • Providers (mostly privately owned and operated businesses) 	<ul style="list-style-type: none"> • Responsible for day-to-day operation of their facility, including meeting resident needs 	<ul style="list-style-type: none"> • May require state funding to support purchasing generators for these care settings. • Statutory requirement that a written plan must include
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<p>disabilities living in nursing facilities (NF))</p> <ul style="list-style-type: none"> • Medium and larger boarding homes • Larger intermediate care facilities for the mentally retarded (ICF/MRs)) 	<p>licensed nursing homes.) (Currently, boarding homes are not required to have an emergency power source.)</p> <ul style="list-style-type: none"> • Providers are responsible for developing emergency preparedness plans that anticipate disasters that may affect their facility. These plans must be operational at all times. Plans do not specify type of plan needed? • Coordination of emergency preparedness plan with a local emergency management organization • Plan must include alternative location option and 	<p>generators. WACs would need to be established for proper connection, maintenance and operation of generators.</p> <ul style="list-style-type: none"> • HB 1347 would specifically require that nursing homes and boarding home have emergency response plans in place for fires, floods, earthquakes and windstorms. • HB 1347 would specifically requires that nursing homes and boarding homes coordinate their emergency preparedness plan with a local 	<ul style="list-style-type: none"> • DSHS-Residential Care Services (RCS) • Centers for Medicare & Medicaid (CMS), part of the U.S. Department of Health and Human Services, • DSHS Research and Data Analysis (RDA) • State EMD • City/County EMD • Friends/Neighbors • Transportation Providers • Power Companies 	<ul style="list-style-type: none"> • Licenses and inspects NF and boarding homes; • Certifies ICF/MRs • Oversees RCS regulation of nursing homes and ICF/MRs • Provide statewide data of DSHS client locations and need type. • State CEMP coordination • Orient and train local providers in self-preparedness and local plan components 	<p>additional types of disasters may be helpful.</p> <ul style="list-style-type: none"> • Resources for local emergency management organizations will probably be needed to provide assistance to providers. WACs would need to be developed by RCS about what is specifically expected of providers for their coordinating with a local emergency management organization.
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	<p>evacuation plan</p> <ul style="list-style-type: none"> • Plan must include transportation option. • Need 7 day personal care, meds, and generator fuel supply. • Accessible Transportation 	<p>emergency management organization.</p> <ul style="list-style-type: none"> • Neighborhood Teams • Volunteer Transport • Voluntary Registry • Expand 211 Service 	<ul style="list-style-type: none"> • DOH • Local Public Health • State Patrol • 211 system • Medical Equipment Suppliers • Medication Suppliers • Tribal Emergency Management • First Responders (Police, Fire, EMS) 	<ul style="list-style-type: none"> • Use data to identify High Risk Pop clustering for shelter location needs. • Plan alternative transportation options. 	
Group homes			<p>Same as above except:</p> <ul style="list-style-type: none"> • DSHS, Childrens Administration (CA) • DDD Supported Living and Adult Family Homes 	<p>Same as above except:</p> <ul style="list-style-type: none"> • Licensing or certification • Licensing or certification 	
Detoxification or Chemical Dependency Programs/Residence			<p>Same as above except:</p> <ul style="list-style-type: none"> • DSHS, Health and Recovery Services (HRSA), DASA • DOH 	<p>Same as above except:</p> <ul style="list-style-type: none"> • Provides certification • Provides licensing as 	

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				residential treatment facilities	
Evaluation and Treatment (adults and children-mental health) – these fall under ARTF license	<ul style="list-style-type: none"> No gaps identified- DOH WAC 246-337-070 requires ARTFs to plan and provide for emergency meds, food, water, clothing, shelter, heat and power. 		<p>Same as above except:</p> <ul style="list-style-type: none"> DSHS, Health and Recovery Services (HRSA), Mental Health Division DOH Regional Support Network 	<p>Same as above except:</p> <ul style="list-style-type: none"> DOH License as ARTF MHD Certification Provides licensing Provides?? 	
Family Child Care Homes			DEL??	Providing licensing	
Day Care Center			DEL??	Providing licensing	
Emergency Respite Centers			DSHS, Childrens Administration (CA)		

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Crisis Residential Center			DSHS, Childrens Administration (CA)		
JRA Community Facilities			DSHS, JRA		
Special Commitment Center (Community Treatment Facility)			DSHS, SCC		

HIGH RISK PERSONS LIVING IN DSHS OPERATED INSTITUTIONS

Mental Health (3 campuses)	NO gaps identified. State hospitals have comprehensive plans in place to address all needs.		Same as above except: DSHS, HRSA, MHD	Making sure plans are kept up to date and implemented correctly.	
Developmental Disabilities (5 campuses)	No gaps identified. Residential Habilitation Centers all have comprehensive plans and systems in place and all functioned without any problem.		Same as above except: DSHS, ADSA, DDD	Making sure plans are kept up to date and implemented correctly.	

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Special Commitment Center (1 campus)			Same as above except: DSHS, SCC	Making sure plans are kept up to date and implemented correctly.	
Juvenile Rehab (5 campuses)			Same as above except: DSHS, JRA	Making sure plans are kept up to date and implemented correctly.	

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ORGANIZATIONS:

Acronym	Organization	Local, Private, State	Sub-organization	Sub-sub-organization	Workgroup Contact	Phone
DOH	Department of Health	State of Washington				
DSHS	Department of Social and Health Services	State of Washington	Aging and Disability Services Administration (ADSA)	Residential Care Services (RCS) Division of Developmental Disabilities (DDD)	Todd Henry Frank Sanborn	360-725-3453
			Health and Recovery Services Administration (HRSA)	Mental Health Division (MHD)	Karie Castleberry/ Amy Besel	360.902.0870 360.902.0202
RSN	Regional Support Network	County	Under contract with MHD	Hold contracts with local Community Mental Health Agencies for provision of MH Services	13 RSN Administrators. Contact MHD (above)	
	Snohomish County	County	Human Services Department		Janelle Sgrignoli	425-388-7204

Appendix E: High Risk Populations Impact and Outcomes Matrix

Input By: Todd Henry, DSHS, RCS, Chris Olsen, DSHS, LBD, Amy Besel, MHD

Impact Areas (what were or could have been the significant impacts to this population during this storm)	Successes (What went well during the storm for each of the identified "need" areas?)	Gaps (What were the problems during the storm for each of the "need" areas?)
Heat	Nursing home facilities are required to have an emergency source of power. State hospitals and Adult Residential Treatment Facilities (including E&Ts) are required through WAC to provide for this.	Not all facilities have a fireplace (wood-burning or gas) or stove (wood-burning or pellet-burning) as an alternative source of heat in the event of a power outage. Persons with mental illness who do not receive residential support need increased education and support with emergency preparedness.
Electricity	Nursing home facilities are required to have an emergency source of power. State hospitals and Adult Residential Treatment Facilities (including E&Ts) are required through WAC to provide for this	If a facility's emergency source of power fails, the facility may need another generator. If a facility with a generator has significant structural damage or may be flooded, the facility may need to be evacuated regardless of having a generator. Boarding homes and adult family homes are not required to have an emergency generator. Training of public about dangers of carbon monoxide poisoning when using generators indoors was a serious gap. Several carbon monoxide poisoning deaths were reported in WA due to using generators indoors. (This did NOT occur in any long-term care facilities.) Persons with mental illness who do not receive residential support need increased education and support with emergency preparedness.

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Power for medical equipment	State hospitals and Adult Residential Treatment Facilities (including E&Ts) are required through WAC to provide for this	Persons with mental illness who do not receive residential support need increased education and support with emergency preparedness.
Lights	State hospitals and Adult Residential Treatment Facilities (including E&Ts) are required through WAC to provide for this	Persons with mental illness who do not receive residential support need increased education and support with emergency preparedness.
Food	State hospitals and Adult Residential Treatment Facilities (including E&Ts) are required through WAC to provide for this	Persons with mental illness who do not receive residential support need increased education and support with emergency preparedness.
Caregiver dependent		
Medications, special equipment	State hospitals and Adult Residential Treatment Facilities (including E&Ts) are required through WAC to provide for this	Persons with mental illness who do not receive residential support need increased education and support with emergency preparedness.
Acute medical (24-hr nursing)		
Chronic medical		
Mental Health Crisis	Community Mental Health Agencies, under contract with Regional Support Networks, which are under contract with MHD, acted in compliance with contract terms related to disaster preparedness (advance coordination with local EOC, Red Cross etc) and response (outreach assessment and intervention). Total number of crisis calls identified related to the storm: fewer than 300. Main issue: need for heat or information about where to go to get warm.	Persons with mental illness who do not receive residential support need increased education and support with emergency preparedness.

Appendix F: List of Organizations and Customers Served by ARES

- Pierce County Emergency Operations Center
- Puyallup Emergency Operations Center
- Peninsula Emergency Operations Center (Gig Harbor)
- Pierce County American Red Cross (ARC)
- Whatcom County Department of Emergency Management and American Red Cross
- Mason County Department of Emergency Management and American Red Cross
- Thurston County Department of Emergency Management and American Red Cross
- Lewis County Department of Emergency Management
- Island County Department of Emergency Management
- Vashon Department of Emergency Management
- Stanwood/Camano Island Emergency Operations Centers
- Puget Sound Energy
- San Juan County (standby only)
- City of North Bend
- East Side Fire and Rescue Stations (76, 85, 87, & 88)
- Jefferson County
- Shoreline, Mercer Island, Kittitas County DEM
- American Red Cross in Cle Elum
- American Red Cross in Ellensburg