

# **Alaska Land Mobile Radio Communications System**

## **Catastrophic Natural Events (CNE) Contingency Plan**

**Version 3**

**August 22, 2011**



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## Document Revision History

<b>Name</b>	<b>Date</b>	<b>Reason for Changes</b>	<b>Version</b>
Shafer, Sherry	5/19/2009	Approved by the User Council – Final.	1
Shafer, Sherry	7/26/2010	Annual review/update. Approved by the User Council – final.	2
Shafer, Sherry	8/22/2011	Annual review and update. Approved by the User Council – final.	3

## Acronyms and Definitions

**Alaska Federal Executive Association (AFEA):** federal government entities, agencies and organizations, other than the Department of Defense, that will operate on the shared ALMR system infrastructure.

**Alaska Land Mobile Radio (ALMR) Communications System:** the ALMR Communications System, which uses but is separate from the State of Alaska Telecommunications System (SATS), as established in the Cooperative Agreement.

**Alaska Municipal League:** a voluntary non-profit organization in Alaska that represents member local governments.

**Department of Defense – Alaska:** Alaskan Command, US Air Force and US Army component services operating under United States Pacific Command.

**Department of Administration (DOA):** a State of Alaska (SOA) department that maintains the SOA Telecommunications System (SATS) and provides information technology (IT) and communications technical support to state agencies.

**Executive Council:** the ALMR Executive Council which is made up of three voting members and two associate members representing the original four constituency groups: the State of Alaska, the Department of Defense, Non-DOD Federal agencies (represented by the Alaska Federal Executive Association), and local municipal/government (represented by the Alaska Municipal League and the Municipality of Anchorage).

**Interoperable Communications:** the ability of public safety, including emergency and other first responders, to talk to one another via radio and other communication systems, and to exchange voice and/or data with one another on demand in real time.

**Local Governments:** those Alaska political subdivisions defined as municipalities in AS 29.71.800(13).

**Member:** a public safety agency including, but not limited to, a general government agency (local, state or federal), its authorized employees and personnel (paid or volunteer), and its service provider, participating in and using the System under a Membership Agreement.

**Municipality of Anchorage (MOA):** the MOA covers 1,951 square miles with a population of approximately 278,000. The MOA stretches from Portage, at the southern border, to the Knik River at the northern border, and encompasses the communities of

Girdwood, Indian, Anchorage, Eagle River, Chugiak/Birchwood, and the native village of Eklutna.

**Operations Manager:** the Operations Manager represents the User Council interests and makes decisions on issues related to the day-to-day operation of the system and any urgent or emergency system operational or repair decisions. In coordination with the User Council, the Operations Manager establishes policies, procedures, contracts, organizations, and agreements that provide the service levels as defined in the ALMR Service Level Agreement.

**Operations Management Office (OMO):** develops recommendations for policies, procedures, and guidelines; identifies technologies and standards; and coordinates intergovernmental resources to facilitate communications interoperability with emphasis on improving public safety and emergency response communications.

**State of Alaska (SOA):** the primary maintainer of the SATS (the states' microwave system), and shared owner of the System.

**State of Alaska Telecommunications System (SATS):** the State of Alaska statewide telecommunications system microwave network.

**System:** the ALMR Communications System, as established in the Cooperative Agreement, and any and all System Design/System Analysis (SD/SA) and System Design/System Implementation (SD/SI) documents.

**System Management Office (SMO):** the team of specialists responsible for management of maintenance and operations of the System.

**User/Member:** an agency, person, group, organization or other entity which has an existing written Membership Agreement with one of the Parties to the Agreement. The terms user and member are synonymous and interchangeable.

**User Council:** the User Council is responsible for recommending all operational and maintenance decisions affecting the System. Under the direction and supervision of the Executive Council, the User Council has the responsibility for management oversight and operation of the System. The User Council oversees the development of System operations plans, procedures and policies under the direction and guidance of the Executive Council.

## **1.0 Purpose**

The key to maintaining the Alaska Land Mobile Radio (ALMR) Communications System operational availability throughout a catastrophic natural event (CNE) is advance preparation for events, periodic plan reviews, and effective execution of this plan. Personnel safety is a critical concern in any CNE evolution, and may justifiably limit the ability to respond to System faults and possibly delay restoration of the System.

The term CNE does not necessarily equate to a disaster. A disaster may, or may not, occur as a consequence of a CNE. The term “disaster,” which is not used in this plan, may be a trigger for actions like Federal disaster relief funds, Federal Emergency Management Agency (FEMA) and American Red Cross mobilization.

The purpose of the contingency plan is to mitigate the effects of CNEs on ALMR operational availability. The anticipated effects may result from degraded component operation, propagation interference, or damage to the equipment, including controllers, shelters, transportable units, and remote sites.

Effective execution of any plan requires a clear line of authority, responsibility, and funding access. ALMR actions defined in this plan are independent of whether a CNE is being managed at local, State, DOD or other Federal agency levels.

## **2.0 Scope**

ALMR is part of a much larger “picture” with regard to preparation, response, and management during a CNE. The ALMR System is one of many tools essential to an effective response by local, State, and Federal agencies.

The goal of this plan is to maintain the highest possible operational availability of the ALMR System before, during, and after a CNE. This plan is not related to managing the response to a CNE; that is the responsibility of local, State and Federal agencies. Additionally, this plan is not related to operational use of ALMR, which is a user responsibility. The purpose of the plan is to ensure the System is available for operational use by preparing for, or mitigating to the greatest extent possible, effects of a CNE..

The ALMR Operations Management Office (OMO) is responsible for initiating and terminating actions related to ALMR System operations. No ALMR contingency or restoration action should be taken without direct coordination with the OMO. There are situations where the best decision may be to allow the CNE to run its course and focus all effort on post-event recovery and restoration without attempting to prevent the effects of a CNE on the ALMR System. Such decisions will be made after consultation and careful consideration (risk analysis) of all facts pertaining to the associated CNE.

Contingency operations contained in this plan will continue until the contingency team (paragraph 4.2.1) deems the System to be stable and operable, and the event is declared over.

### **3.0 Roles and Responsibilities**

#### **3.1 Executive Council**

The Executive Council (EC) represents the parties to the Cooperative Agreement, the Department of Defense – Alaska (DOD-AK), the Alaska Federal Executive Association (AFEA) (excluding DOD), and the State of Alaska (SOA). As such, they are responsible for emphasizing the importance of ALMR funding to their respective agencies, as well as approval of the annual budget submitted by the OMO, which may outline expenditures required in support of CNE.

#### **3.2 User Council**

The User Council (UC) shall be responsible for the formal approval of the CNE Contingency Plan, and any revision hereafter.

#### **3.3 Operations Management Office**

The OMO will have primary authority for decisions regarding activation of this plan, directing the activities of ALMR staff, deploying staff in coordination with the System Management Office (SMO) to remote sites to perform preventive actions or restoration tasks, and informing user agencies of System status. If an event occurs in the absence of the Operations Manager (OM), the CNE Contingency Plan will be managed by his/her designee, assisted by the System Manager (SM) and the State of Alaska Telecommunications System (SATS) Manager.

The OM, or designated representative, and his/her staff will:

- Report System status to the EC, UC, Joint Network Coordination Center (JNCC), State Emergency Coordination Center (SECC), and any established event or disaster management officials.
- Assess the threat to the System based on event type, location, extent, predicted scope, and developing conditions.
- Assume responsibility for ALMR availability, status reporting, protective measures, and restoration actions.
- Identify a priority set of credible and acceptable CNE status sources to be used for reliable, verified information (official web sites, on-site observers, public alarm and notification systems, Department of Military and Veteran Affairs (DMVA) Emergency Management Center (EMC) status reports, etc.).

- Coordinate the deployment of resources, as assigned by the SM. Consideration must be given to the pace of development of the CNE and the potential risk to personnel.
- Implement scheduled actions for inspection, restoration, repair, cleaning, and testing of System sites and components when the CNE abates. Event management officials may rely on ALMR as a critical component of the potentially extended recovery effort from the CNE. Therefore, some clean up/testing may be postponed until operations return to normal.
- Conduct training to ensure familiarity with this plan, and to validate the procedures it contains.
- Integrate this CNE Plan with broader natural event or disaster recovery plans developed by Alaska Command (ALCOM), Division of Military and Veteran's Affairs (DMVA), Municipality of Anchorage (MOA), and other response organizations, if appropriate.
- Develop lessons learned, including recommendations for revised procedures, plan updates, and System modifications/improvements.

### **3.4 System Management Office**

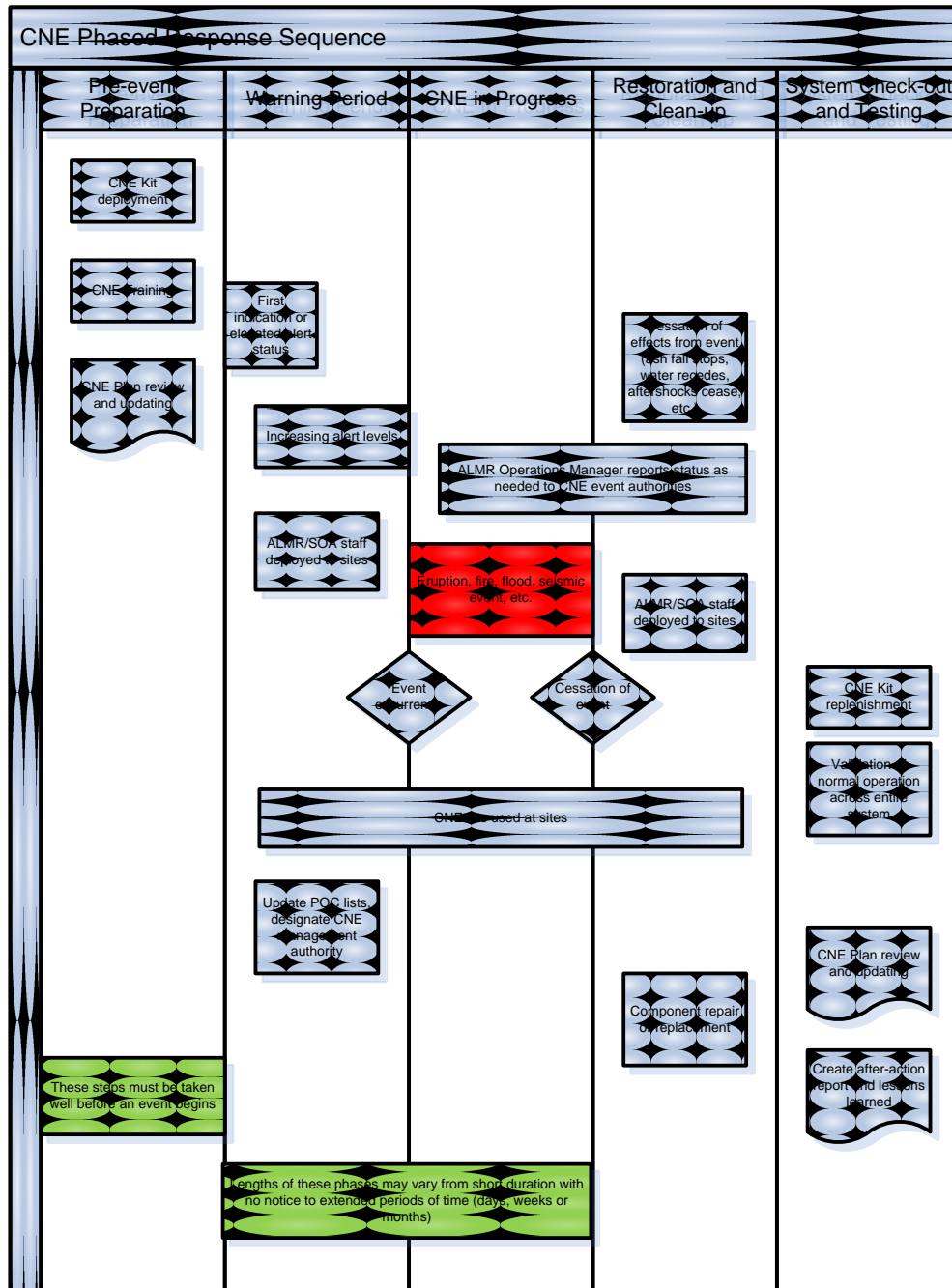
The System Management Office (SMO) shall, in accordance with the scope of their contract,

- Prepare a report on the System status. Status should include current system deficiencies or outages, whether or not related to the CNE.
- Assess impact to ALMR sites and plan deployment of resources, as appropriate, to priority sites to take protective measures/ employ clean up kits.
- Respond to System component failures, degraded operation, and reduced coverage, which requires immediate correction.
- Respond to requests for expanded capacity, expanded coverage, or System reconfiguration, if practical.
- Develop a schedule to inspect, restore, repair, clean, and test System sites and components when the CNE abates.
- Maintain updated point of contact information (POC) to include vendors and subcontractors, as appropriate.
- Assist OM with development of lessons learned, including recommendations for revised procedures, plan updates, and System modifications/improvements.

### **4.0 Response Planning**

Response actions revolve around three phases: 1) preventive measures; 2) measures taken during the event; and 3) post-event measures.

Additional factors taken into consideration during planning/execution are the description of the problem and establishment of the response organization.



**CNE Phased Response Sequence**

## **4.1 Resource Requirements**

Bearing in mind that this plan deals only with ALMR, if an event occurs, competition for resources like people, transportation, equipment, and funding may limit the ability to execute some, or all, elements of this plan. Identifying available resource and prioritization trade-offs will be a primary task for the OM throughout the phases of preparation, response, and restoration.

### **4.1.1 Possible sources of funding**

- Department of Defense (DOD)
- State of Alaska (SOA)
- Municipality of Anchorage (MOA)
- Non-DOD Federal sources
- 

### **4.1.2 Cost Estimates**

Costs for CNE preparation and response are difficult to predict. It is assumed that funding for these efforts would come from operations and maintenance accounts managed by the individual user organizations. Cost elements for CNEs would include equipment, supplies, transportation services, and staff overtime. At this time, the ALMR cooperative partners have not budgeted for expenditures resulting from CNEs.

### **4.1.3 Materials**

Required materials could include items such as spare parts, fans, AC/DC vacuum cleaners, garbage bags, etc. The SMO has a limited number of CNE kits ready for dispatch with deployed personnel to assist with cleanup. Site owners should also be prepared to change generator oil and filters, air intake filters, or other consumables on a weekly basis or as appropriate, until declaration of event termination.

## **4.2 Contingency Planning Management**

### **4.2.1 Contingency Team**

These positions may be existing staff positions, or may be specific to CNE response. At a minimum, the contingency team should consist of:

- Operations Manager
- System Manager
- User Council Chair or Vice Chair
- DOD Team Leader
- SOA Team Leader

#### 4.2.2 Event Notification Sources

Several sources of information, CNE alerts and status reports, are available to the OM and will form a basis for executing contingency plans for site protection or remediation. These sources may include the SOA color-coded situation alerts, web or public media alerts from the Tsunami Warning Center, National Oceanic and Atmospheric Administration (NOAA), Alaska Volcano Observatory (AVO), State Department of Transportation flood alerts, and others.

In general, event-specific team response will be initiated at the direction of the OM using whatever means of communication are appropriate/available.

It should be noted that some protective measures have the potential to degrade the operation of the System in the absence of the anticipated effects of the CNE, and should not be initiated unilaterally. For example, wrapping an operating electronic component in plastic to protect it from dust may cause the component to overheat and fail. It may be more prudent to turn off the equipment, even at the expense of rendering the site inoperable, and restart it following the event in order to assure its availability for recovery operations. These decisions are to be made only by the OM, in consultation with the contingency response team.

As a general rule, sites will remain 'ON,' if not disabled by the occurring CNE.

## **5.0 Event Response**

### **5.1 Trigger Event**

Trigger events are those criteria that will be used to prompt immediate action by ALMR personnel to prepare for, and mitigate, the effects of a pending CNE. In most cases, the trigger event will be by specific direction of the OM, and not the issuance of one or more publicly issued alerts or warnings. These criteria will always apply to the deployment of personnel to remote sites or travel to out-of-area locations.

However, in the event of clearly evident effects (rising water, seismic events, visible volcanic ash, etc.), personnel at specific ALMR sites will unilaterally begin taking protective measures to ensure continued System operation to the extent possible without exposing themselves, or System operations, to risks. Personnel will provide a description of actions taken and status of the site to the OM/SM by whatever means available and at intervals sufficient to maintain awareness of the current situation and ensure personnel safety.

### **5.2 Contingency Plan Activation**

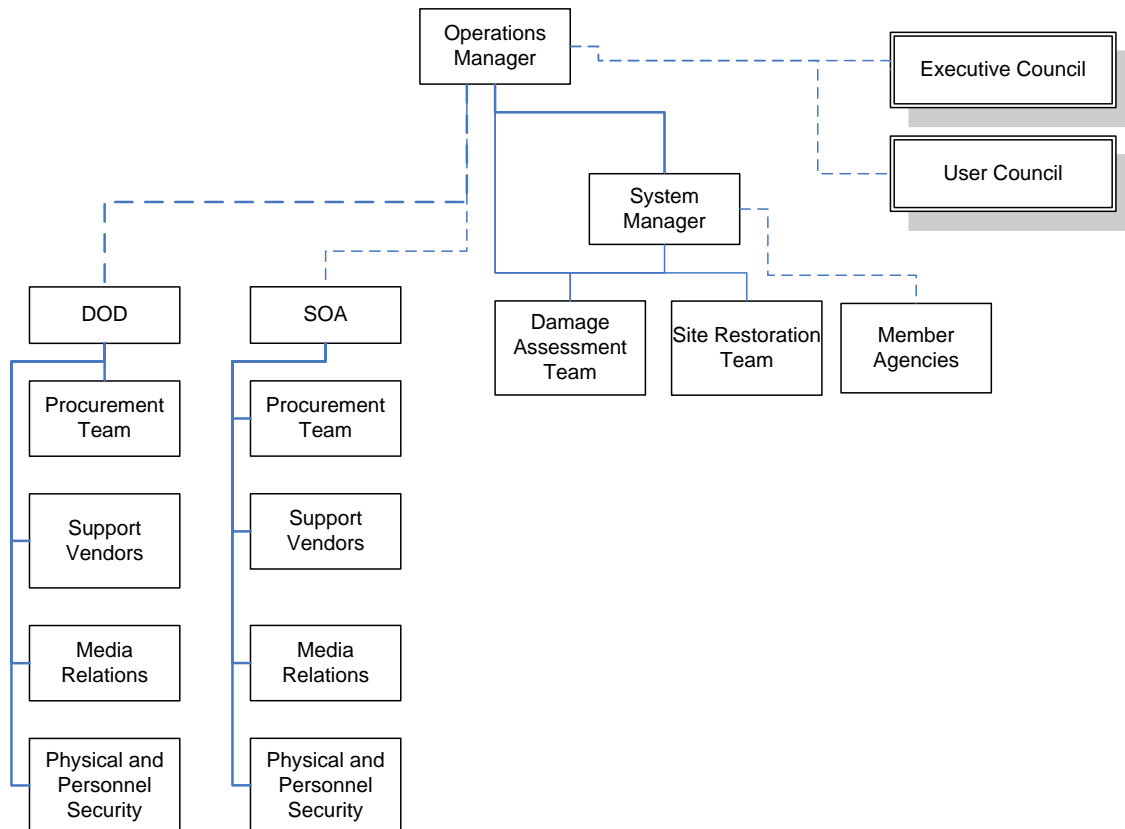
If the plan is to be activated, the OM will notify all team members and inform them of the details of the event. Once the initial notification is made to the contingency team, the OM will notify the appropriate agencies and remaining staff personnel as outlined in paragraph 5.3 and Appendix D on the general status of the incident. Team leaders are responsible for notifying their respective response teams, staffs, and chain of command.

### 5.3 Event Roles and Responsibilities

The OM has ultimate responsibility, as designated by the ALMR Cooperative Agreement. However, ALMR is a shared system and the OM will coordinate CNE response actions with the SOA Enterprise Technology Services (ETS) and the DOD, as required.

This chart applies to the flow of information and tasks related to management of ALMR availability during a CNE.

## CNE Roles & Responsibilities



In the event of a CNE, ALMR agencies should initiate their internal notification recall process, and all designated staff will report to their stations as soon as safely possible.



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This list contains the people most likely to be involved in the initial CNE response.

Last	First	Department / Title	Work	Fax	Cell	E-Mail
<b>ALMR</b>						
Smith	Del	Operations Manager	907-269-2636	907-269-6797	907- 229-2114	delsmith@5starteam.net
Borg	Casey	System Manager	907-269-5062	907-269-6797	907-382-3186	cborg@inuitservices.com
<b>Motorola</b>						
		Motorola SSC	888-877-7024			
<b>DOD</b>						
Woodall	Tim	Project Manager	907-552-8223	907-552-8223	907-250-4510	tim.woodall@elmendorf.af.mil
<b>SOA</b>						
Kohler	Jim	Deputy Director - ETS	907-723-9686		907-723-9686	jim.kohler@alaska.gov
Monagle	John	Mgr SATS & 2-Way - ETS	907-465-5793		907-321-4417	john.monagle@alaska.gov
Booker	Andy	Data Processing Manager III	907-269-5773		907-250-7868	forrest.booker@alaska.gov
		SECC	907-428-7100			
<b>Sites</b>						
Birch Hill Phone Patch			907-334-2504			
Birch Hill		Zone #2 Controller	907-353-7449			
Tudor Rd		Zone #1 Controller	907-269-5961			

Other specific responsibilities may include:

Internal Points of Contact	Responsibility
Operations Manager	Activates ALMR Contingency Plan
System Management Office	Notify ALMR member agencies
	Notify appropriate vendors (Motorola, ProComm, etc.)
Contingency Team (paragraph 4.2.1)	Monitors the event
Damage Assessment Team	Documents results of damage assessment. Recommends corrective action to Contingency Team. (ALMR/SOA/DOD)
Site Restoration Team	Restores the site to pre-event status (when possible) (ALMR/SOA/DOD)
Media Relations Team	Defer to DOD/SOA
Physical/Personal Security Team	Defer to DOD/SOA
Procurement Team	DOD/SOA

## **5.4 Event Records Management**

A record of all event-specific actions taken to protect the ALMR System equipment will be created and maintained by whatever means, as appropriate at the time. This is essential to the development of lessons learned, specifically with regard to the actual effects of a CNE on System operations and availability. Agencies participating in ALMR sustainment or recovery operations should consolidate findings into one report to the greatest extent possible.

At the termination of the event, all records should be consolidated and filed by the records custodian.

Participating agencies should hold a lessons-learned workshop within one month of declaration of the event end. Results of the workshop should be distributed to all participants, and other agencies who may have a vested interest, to the greatest extent possible.

## **5.5 Pre-Event Planning**

### **5.5.1 Volcanic Eruption**

The Alaska Volcano Observatory (AVO), in partnership with other Federal, State and local agencies provides the following warning levels:

- GREEN: Volcano is in its normal state (dormant)
- YELLOW: Volcano is restless (rumblings)
- ORANGE: Small ash eruption expected or confirmed
- RED: Large ash eruptions expected or confirmed

Presuming that ALMR equipment is in the predicted ash fall area, there are measures which must be taken to mitigate the potential effects on this equipment.

None of the following requirements can wait until an event has started. They must be executed as part of the planning process, or during a period of escalating alert status.

This list should be reviewed annually, at a minimum. Additionally, in the case of a CNE, deficiencies should be noted during lessons learned workshops and changes incorporated into the plan, as required.

- Conduct a vulnerability analysis of equipment and facilities to determine which would be the most affected by ash fall, and which are adequately or inadequately protected.

- Analyze Motorola Supervisory Control and Data Acquisition (MOSCAD) functionality to determine remote capabilities and how they would impact the ash fall response.
- Conduct an impact analysis to determine the outcome of ALMR System outage due to an ash fall on the ALMR subscribers.
- Identify appropriate methods of protecting vulnerable equipment and facilities from ash. Develop a priority list of facilities that must be kept operative versus those that can be shut down or simply left running during and after ash falls (see Appendix E - Site Prioritization List)
- Develop communication plans for notifying affected agencies and employees of potential ash fall warnings, heightening alert status, reducing or shutting down operations, and accelerating maintenance of buildings and machinery during cleanup operations.
- Identify personal protection equipment and logistics support that will be needed for personnel during ash conditions, especially those involved in the cleanup operations. For example, filter masks, respirators, eye protection, hats or helmets, food and water, auxiliary lighting, and even portable toilets to minimize walking traffic into buildings.
- Deployable clean up kits should be containerized and readily loadable on vehicles or helicopters as appropriate. These kits should be prepositioned whenever possible so that when a CNE is imminent, individuals may be deployed rapidly with no requirement to carry anything more than personal protective equipment and clothing.
- Stockpile additional spare parts for critical equipment, including air filters, oil and oil filters, and cleaning and disposal supplies. Spare parts should be pre-deployed to sites, space permitting.
- Identify effective and efficient ash-removal methods for equipment and facilities; seek best practices from other volcano prone areas.
- Provide educational material about ash to personnel regarding physical properties of volcanic ash, potential health effects, and personal protective equipment.
- Disseminate eruption cloud notices and other information and coordinate cleanup activities.

### 5.5.2 Flooding

Flooding can occur from river overflow, tsunamis, sudden release of glacial ice dams, severe storms, or localized effects of creeks and water supply system breaches. With the exception of a tsunami affecting broad areas of Anchorage or other municipalities, the effects of flooding on the ALMR System are likely to be limited to one site (Peger Road). It can be assumed that flooding would destroy all electronic equipment at a site that was inundated, except in the unlikely situation where there was sufficient advance warning to allow removal of the equipment. In either case, restoration of the site after

flooding subsided would vary from minor cleanup to a complete rebuild of the site. These decisions would be made at the time of the event and do not lend themselves to detailed planning.

In the event of a tsunami where broad area effects of cataclysmic flooding and wave action are likely in low elevation areas with little to no warning, the remaining elements of the System would be those that are on higher ground and which do not rely on power from the affected area. Events of this magnitude lend themselves to planning through the use of exercise and simulation to determine how the remaining elements of the System might be used to support recovery efforts and other activities. It is unlikely that any effort would be dedicated to equipment and site protective measures because of the extreme risk to personnel who would be involved in these activities.

### 5.5.3 Earthquake

Advance warnings of earthquakes are rare. Therefore, advance measures to mitigate the effects on the ALMR System are limited to those already built into the design and implementation of the sites to comply with seismic standards and best practices, and those taken to recover from the effects of an actual event. In general, seismic events of sufficient magnitude to damage or disable ALMR equipment will also make vehicle transportation difficult and may render other communications systems inoperable. Restoration of ALMR will be a priority due to the reliance of public safety first responders on the System as a means of coordinating overall response and recovery efforts.

Recovery efforts will be at the direction of the OM, and will be tailored to the situation at the time. Consideration will be given to the risk to personnel dedicated to System restoration that would result from exposure to damaged buildings, transportation hazards, and aftershocks.

### 5.5.4 Wildfire

Wildfires are a constant threat in most areas of Alaska, whether forested or tundra. These events most commonly occur during dry spring and summer seasons, but can and have occurred in mid winter in un-forested tundra, even with light snow cover. Wildfires are generally ignited by lightning. The risks to sheltered telecommunications equipment range from smoke ingestion and internal overheating to complete incineration. ALMR shelters are designed for moderate heat and smoke effects, but are not capable of withstanding the intense heat of generalized conflagration. Standards for minimum proximity of brush around a site are published, but are difficult to maintain at some locations where the growth of vegetation can be rapid in the summer. Overgrowth at sites will be noted during periodic maintenance inspections and provided to the owning agency for corrective action. Failure of the owning agency to correct noted deficiencies puts the site, and subsequently, the System at risk.

Other than site shutdown (locally or remotely) to protect sensitive electronic components from smoke damage, little can be done to protect sites in advance of a fire event. Actions taken will be limited to preventive measures previously mentioned or those directed by the OM after an event to restore affected sites.

#### 5.5.5 Extreme Snow Depth

In some areas, the potential exists for snow to accumulate in depths sufficient to partially or completely bury an ALMR shelter or antenna, which could affect System performance or cause a complete shutdown.

At occupied or attended sites, assigned or deployed personnel should take unilateral action to remove snow as it accumulates using appropriate equipment.

At the direction of the OM, personnel will be deployed to remote sites to conduct snow removal at intervals adequate to maintain site operation, pending the availability of transportation and weather conducive to safe access.

## 6.0 Event Action Plans

Appendix A contains a checklist that should be executed, either unilaterally or when directed that a CNE is imminent or is occurring/has occurred.

There are separate lists of essential steps for each of several foreseeable CNEs. For situations not specifically covered by this plan, this checklist should be modified, as appropriate, to provide the greatest possible assurance of ALMR continued operational availability.

The following are only the basic essential planning steps. They are listed by CNE type.

### 6.1 Volcano

Volcanoes represent one of the most probable CNEs next to earthquakes. The effects from volcanic eruptions affect not only the immediate area, but ash fallout has the potential to effect sites hundreds of miles away depending on prevailing winds.

#### 6.1.1 Site monitoring

- Determine the priority for visiting sites based on apparent degradation to operational availability, criticality of the site to overall ALMR functionality, and accessibility
- Conduct inspection visits at each site within the ash fall area
- Check sites located near the perimeter of the defined ash fall area
- Repeat site visits periodically to check for intrusion by wind-borne ash

### 6.1.2 Site restoration

- Clean the shelter interior, as necessary
- Remove ash from shelter roof, intake ducts, entryways
- Re-enable air conditioners and intake/exhaust fans, if disabled
- Remove/replace non-permanent filters, as required
- Restock all emergency items, if applicable
- Report completion of restoration actions to the OM

## 6.2 Flood

Only one ALMR site (Peger Road) has been subject to flooding conditions in the past several decades, so flood risk is low. However, localized flooding is a common occurrence in Alaska and could potentially affect several other areas during break-up, heavy rain, or sudden breaches of glacial dams.

### 6.2.1 Site monitoring

- Determine the priority for visiting sites based on apparent degradation to operational availability, criticality of the site to overall ALMR functionality, and site accessibility
- Conduct inspections of each site within the flooding area, when safely accessible

### 6.2.2 Site restoration

- Remove debris from site, as necessary
- Remove mud from shelter interior, intake ducts, entryways, as necessary
- Check the functionality of air conditioners and intake/exhaust fans
- Restock all emergency items, if applicable
- Report completion of restoration actions to the OM

## 6.3 Wildfire

Wildfires, although infrequent, present a danger to both SATS and ALMR sites.

### 6.3.1 Site monitoring

- Determine the priority for visiting sites based on apparent degradation to operational availability, criticality of the site to overall ALMR functionality, and accessibility
- Conduct inspections of each site within the burn area, when safely accessible

### 6.3.2 Site restoration

- Remove debris from site, as necessary
- Clean the shelter interior, as necessary
- Remove ash and soot from shelter roof, intake ducts, entryways
- Check and clean air conditioners and intake/exhaust fans

- Remove non-permanent air filters
- Inspect /replace permanent air filters
- Restock all emergency items, if applicable
- Report completion of restoration actions to the OM

## **6.4 Seismic event (earthquake)**

Alaska experiences over 100 earthquakes weekly. Although few are generally felt, the danger from a catastrophic earthquake, similar to the one in 1964, remains a reality.

### **6.4.1 Site monitoring**

- Determine the priority for visiting sites based on apparent degradation to operational availability, criticality of the site to overall ALMR functionality, and accessibility
- Conduct inspections at each site within the affected area, when safely accessible
- Inspect sites thoroughly for structural cracks, broken equipment mounts, rack bolts, seismic straps, floor or foundation failures, failed equipment, power connectors, etc.
- Repeat site visits periodically to check for subsequent effects caused by aftershocks

### **6.4.2 Site restoration**

- Clean the shelter, as necessary
- Conduct or schedule repairs, as needed
- Remove debris from site, as necessary
- Remove debris or dust from shelter roofs, intake ducts, entryways
- Replace air filters, as required, if dust is evident
- Restock all emergency items, as applicable
- Report completion of restoration actions to the OM

## **7.0 Post-Event Measures**

### **7.1 Criteria**

A CNE will be considered abated only after direct observation of each specific site confirms that there are no continuing local effects (water has subsided, ash fall has ceased, fire is out, etc.), and a report has been made to the OM. At that point, the OM may direct that post-event actions commence.

### **7.2 Procedures**

Required post-event actions will vary with the type of CNE encountered, but might include:

- Detailed site inspection
- Filter replacement
- Water/debris removal
- Electronic component checkout/replacement
- Shelter structural repair
- Complete preventive maintenance inspection
- Complete site checkout (similar to an acceptance test procedure)

### **7.3 Stand Down/All Clear**

The OM, or his/her designee, will be the sole authority to issue a stand down from CNE activities related to an ongoing event, and to direct commencement of recovery and restoration activities. This status change will NOT be based on the issuance of a lowered state of alert by organizations like the Alaska Volcano Observatory, Tsunami Warning Center, etc. These agencies deal exclusively with the occurrence of events themselves, not the “downstream” effects that could continue to effect ALMR sites or components.

As an administrative function, the OM will inform user agencies and senior management when all restoration activities are complete and ALMR is in full operation, system wide.

### **7.4 Notifications**

The SMO will notify the OM of the status of each site, with emphasis on damage found, and coordinate with the SOA and DOD on the schedule for site restoration of any downed sites. The OM will notify all necessary personnel of stand up/stand down/all clear, when appropriate.

The following chart lists the type of key personnel required to authorize and begin/complete pre-/post-event activities that will evaluate/return the System to its normal operating mode.

<b>Key Personnel</b>	<b>Role</b>
Decision Makers	Make the decisions to begin/discontinue the contingency operations and begin/terminate the recovery process.
Operations Personnel	The key operational resource personnel that will be needed to return to normal System operations.
Recovery Team	The personnel needed to execute the process of resuming normal operations after the event.
Vendors / Subscribers	Vendor relationships (internal and external) and member agencies that will be involved in recovery efforts/resuming normal operations.

## **8.0 Training and Testing Requirements**

At least once per calendar year, the OM will conduct a tabletop exercise of this plan. Specific interest items will include updating call lists and notification processes, ensuring that site lists and locations are current, reviewing the responsibilities and authority of essential participants, reviewing the status of CNE pre-deployment kits, and identifying needed modifications to this plan.

At the discretion of the OM or higher authority within the User Council or Executive Council, an exercise may include a simulated event, a training deployment to one or more sites to validate transport plans, pre-event measures, deployment kit status and inventory, and recovery procedures.

Exercise objectives should validate the following issues:

- Contingency Team Training - training required for the contingency operations team, training on new or different processes, or drills
- Restoration Team Training - training required for the staff that will bring ALMR sites or the System back into operational status and training on specific precautionary measures for safety during or after an event
- Testing Requirements and Procedures - identify plans and requirements for testing the validity and completeness of the contingency plan
- Training and Testing Schedules - document the frequency of training and testing to ensure readiness of both staff and the plan prior to occurrence of actual events.

## **9.0 Risk Management**

Risk analysis has been conducted and is incorporated into this plan. The plan is a comprehensive set of mitigation measures designed to minimize overall risk and optimize ALMR availability before, during, and after a CNE.

### **9.1 Overall Risk Potential**

Impacts due to volcanic ash, flooding, seismic effects, avalanche, landslide, wildfire, extreme snow depth, or sabotage may cause portions of the ALMR System to fail and physical damage could occur to structures, antennae, and equipment.

In the event of a CNE, ALMR may not provide complete and continuous availability within the entire designed coverage area. Decreased coverage will limit the ability of some event-response agencies using ALMR to exercise their public safety responsibilities during and after an event, and could reduce overall effectiveness.

## 9.2 Specific Identified Risks

Pre-planning will help minimize the immediate response times when reacting to a CNE. It is impossible to plan every event or step that will be required. Therefore, those ‘most likely’ to impact operations will be noted and planned actions identified ahead of time. Identified risks could include, but are not limited to, failure to implement preventive actions prior to an event, failure to take protective action (e.g., shutting down equipment) during an event, and not having clear lines of authority for directing preventive or restoral actions.

Response to any natural event must also consider the risk to response personnel from the event itself and the need for continuous operation of ALMR as a means of coordinating preparation and response to the events for which the System was originally designed.

The following risk matrix outlines critical areas in CNE planning, execution, and follow up, and their impact if not properly addressed.

<b>Area</b>	<b>Action/Result</b>	<b>Impact</b>
<b>Response Planning</b>	Failure to regularly perform these steps may result in confusion, slowed pace of response, inefficient use of resources, and inability to coordinate efforts.	<b>Likelihood: Low</b> <b>Consequence: Moderate</b> <b>Risk: Manageable</b>
<b>Notification</b>	Failure to perform proper notification, or failure to maintain current contact information, may result in inadequate staff to perform adequate response, delayed response, and inability to coordinate efforts.	<b>Likelihood: Low</b> <b>Consequence: Moderate</b> <b>Risk: Manageable</b>
<b>Records Management</b>	Failure to capture lessons learned and conduct a thorough post-event assessment may result in the loss of documented experience and an increase of the potential for repeating past errors.	<b>Likelihood: Low</b> <b>Consequence: Mild</b> <b>Risk: Manageable</b>
<b>Pre-Event Planning</b>	Failure to perform pre-event planning steps could dramatically reduce the effectiveness of response efforts immediately prior to and during an actual event. The results could include confusion, loss of efficiency, poor coordination of response efforts, risks to personnel, unnecessary loss of availability	<b>Likelihood: Moderate</b> <b>Consequence: Serious</b> <b>Risk: Significant</b>

	and coverage, and jeopardy to public safety.	
<b>Restoration</b>	Failure to perform recommended restoral actions could result in decreased ability to coordinate the restoral actions themselves, subsequent failures of system components (at an increased rate), increased expenditures for component replacements, decreased life of operating components, reduced system availability during subsequent day-to-day operations, and resulting negative effects on public safety.	<b>Likelihood: Low</b> <b>Consequence: Moderate</b> <b>Risk: Manageable</b>
<b>Personnel</b>	Failure to acknowledge risks to personnel inherent to CNE and to take necessary protective measures (including avoidance of affected areas) could result in personal injury or death, diversion of resources to personnel extraction or rescue, and risks to rescue personnel.	<b>Likelihood: Low</b> <b>Consequence: Serious</b> <b>Risk: Significant</b>

### 9.3 Desired Outcome

Measures taken well in advance of an event serve to shorten the response time, standardize the response procedures, and maintain readiness to respond to an event.

Ideally risk management pre-planning and a coordinated response from System partners will reduce CNE impact to operations ensuring maximum System availability, minimal duration of down time, and prevention of damage to the greatest extent possible.

## 10.0 Conclusion

The UC shall be responsible for the formal approval of the Catastrophic Natural Events Plan, and any revisions hereafter.

## **Appendix A – CNE Checklist**

### **1. OM Checklist**

- Ensure CNE kits are distributed by the SMO, as appropriate
- Ensure office equipment is protected, as necessary
- Ensure notifications take place in a timely manner
- Brief staff on shut down/ restoration process
- Notify subscribers of situational updates
- Determine if 24-hour watch if required
- Maintain contact with state/local interagency partners
- Determine mission/non-mission essential personnel, as applicable
- Ensure all defined preventive steps are in place to protect the System

### **2. Initiate Emergency Alert Procedures**

- Initiate phone contact list
- Notify member agencies of any changes
- Notify vendor for any emergency requirements. SMO technologists will stand by for support, as needed.
- Notify funding management of possible resource requirements to include Field Replacement Units, personnel, and other communications equipment

### **3. Review CNE profile and prioritize sites**

- Review updates from the United States Geological Service (USGS), NOAA, BLM, Alaska Volcano Observatory (AVO), or State of Alaska websites
- Determine the probability of impact on ALMR sites and prioritize site restoral
- Publish list of affected sites and inform all users of possible limited access
- If any sites have special access requirements; e.g., helicopter, Snow Cat, or the roads need to be plowed, contact the appropriate agencies

### **4. Establish a Communications Plan**

- The Network Management Terminal will be manned 24 hours a day, or as needed, depending on the situation.

- The System Manager will designate a talkgroup for the use of ALMR technicians while performing emergency duties.
- Maintain contact with local emergency services and first responders regarding threats to ALMR facilities, or degraded operation of the System.

#### **5. Preventive Measures**

- At the discretion of the OM, personnel will be dispatched to high-risk sites to mitigate potential damage.

#### **6. Post Event Measures**

- Develop schedule in coordination with the SOA ETS to service each affected site.
- Assign technicians to site(s). Protecting each site may require protracted presence during a long-term event. Technicians must be prepared for this eventuality.
- The minimum number of required personnel will be dispatched to each affected site, as site priorities dictate.
- Ensure site generator and equipment are in service (defer to SOA ETS).
- Technicians will be on a schedule to complete site checks until directed to terminate the activity by management. During or immediately after a CNE, each priority site will need to be serviced at least every 24 hours (as appropriate), if possible. After the CNE, when the debris is completely removed, then site checks will return to a weekly schedule. This weekly schedule will stay in force until approximately 30 days after going back to Condition Yellow or Green. (Recurrence can be modified by management)

## **Appendix B – Business Continuity Plan**

This section will describe how the operation of the System would be managed to maintain functionality and availability in the presence of cascading degradation by site or by region. It addresses the effects on the overall System by the loss of specific sites or facilities, loss of power locally or by region, and how to continue to provide the maximum coverage and operational availability for all users in the face of a CNE and its anticipated effects.

- What are we left with if the Tudor Road facility is disabled?
  - Zone Controller – Birch Hill
  - Zone Controller – Municipality of Anchorage

Sites connected to each Zone Controller are dependent on that Master Site. If a Master Site in a zone goes down, all sites will go ‘unknown’ (presume site trunking). All consoles in that zone will lose trunking capabilities.

If R1 North is down, all consoles would be inoperable for Joint Base Elmendorf-Richardson (JBER).

- What are we left with if the JBER (R1 North) site is disabled?
  - Atwood
  - Blueberry
  - Fire Station 12
  - Rabbit Creek
  - Site Summit
  - TAS (In storage, requires a minimum of 72 hours notification to be deployed and set up.)
  - Simplex
- What are we left with if the Birch Hill facility is disabled?

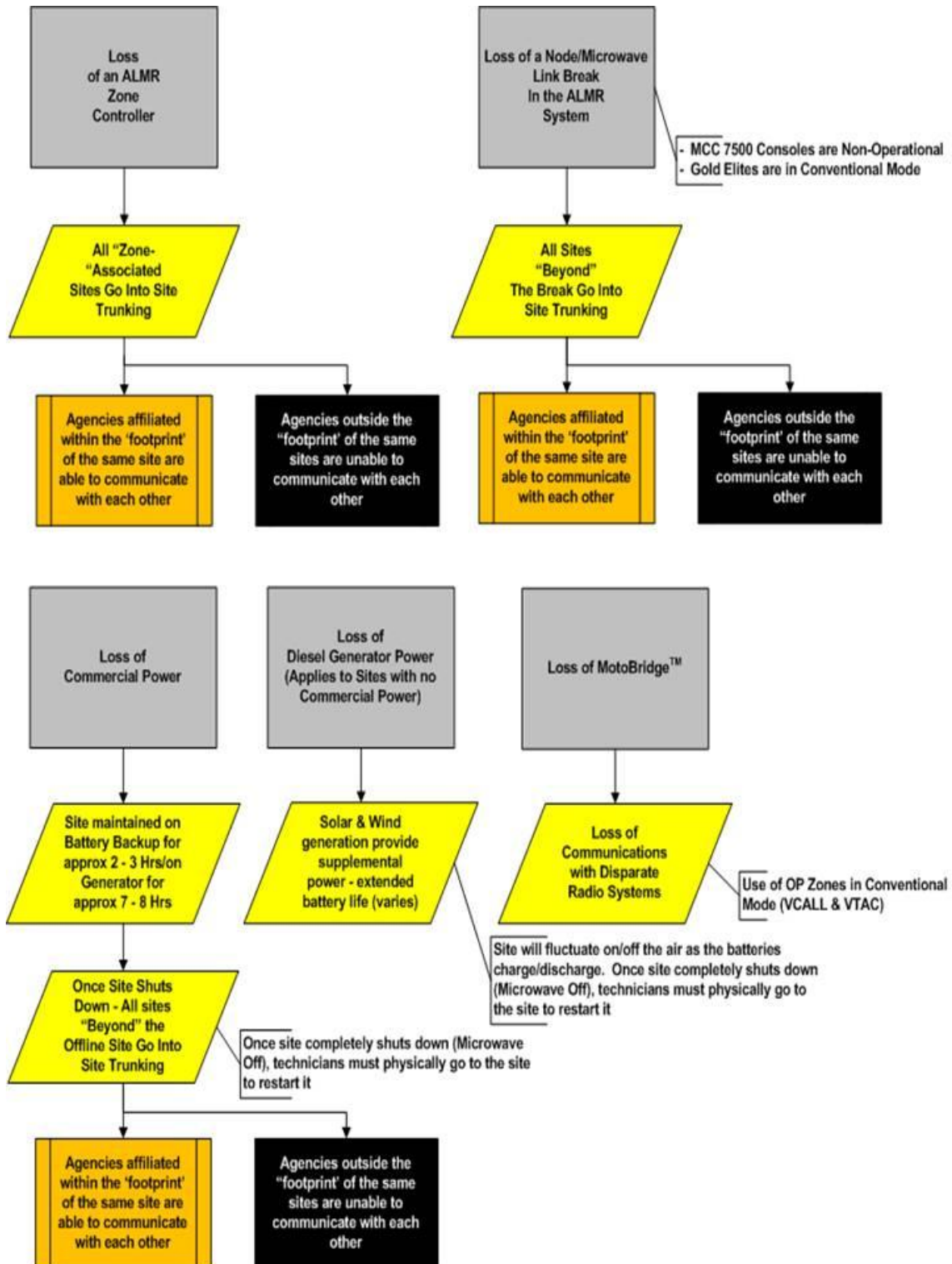
All Zone 2 sites go into site trunking.

- Ester Dome
- Hill 3265 (Very little coverage for Fairbanks/Fort Wainwright)
- Peger Road
- Pole Hill
- Quarry Hill

- TAN (In storage, requires a minimum of 72 hours notification to be deployed and set up.)
- Simplex
- Can radios be programmed to talk directly to each other? Yes - Simplex
  - Current programming should include the statewide Incident Command (IC) zone, statewide Admin zone, and statewide OP zone – primary Simplex for Public Safety frequencies - could add other Simplex channels.
  - Radios not able to hold all zones should contain their local regional and/or statewide Regional IC zones.
- What criteria would be used to pre-emptively shut down one or more sites? Potential risk of damage to electronics or the generator.
- How long would controller sites function without commercial power? Batteries operate from 2 – 8 hours; generators operate from 48 – 72 hours depending on fuel levels.
- How long would console sites function without commercial power? First dependency is on the owning agency's backup power sources; otherwise batteries operate from 2 – 8 hours; generators operate from 48 – 72 hours.
- Which sites are inaccessible without air transportation?
  - Auke Lake - Helicopter
  - Byers Creek - Helicopter
  - Cooper Mountain – Helicopter
  - Dimond Courthouse – Aircraft
  - Divide – Helicopter & Vehicle
  - Ernestine – Helicopter
  - Haines - Aircraft & Helicopter
  - Heney Range – Helicopter
  - High Mountain - Aircraft & Helicopter
  - Hope - Helicopter
  - Independent Ridge – Helicopter
  - Lena Point - Aircraft
  - Lion Head - Helicopter
  - Pillar Mountain – Aircraft & Helicopter

- Reindeer Hills – Helicopter
- Saddle Mountain - Helicopter
- Seldovia - Helicopter
- Silvertip – Helicopter
- Skagway - Aircraft
- Summit Lake - Helicopter
- Tsina - Helicopter
- Willow Mountain - Helicopter
- Wolcott - Helicopter
- Women’s Bay - Aircraft

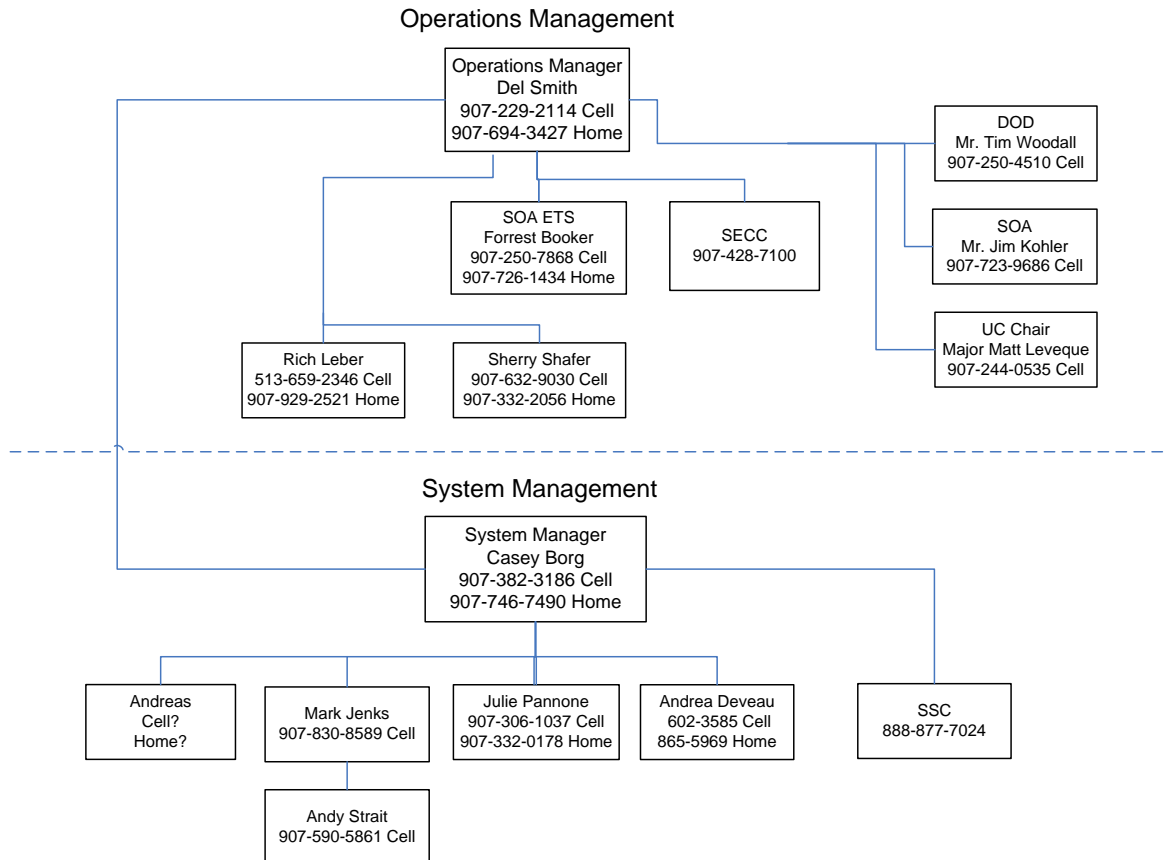
## Appendix C – Vulnerability Analysis



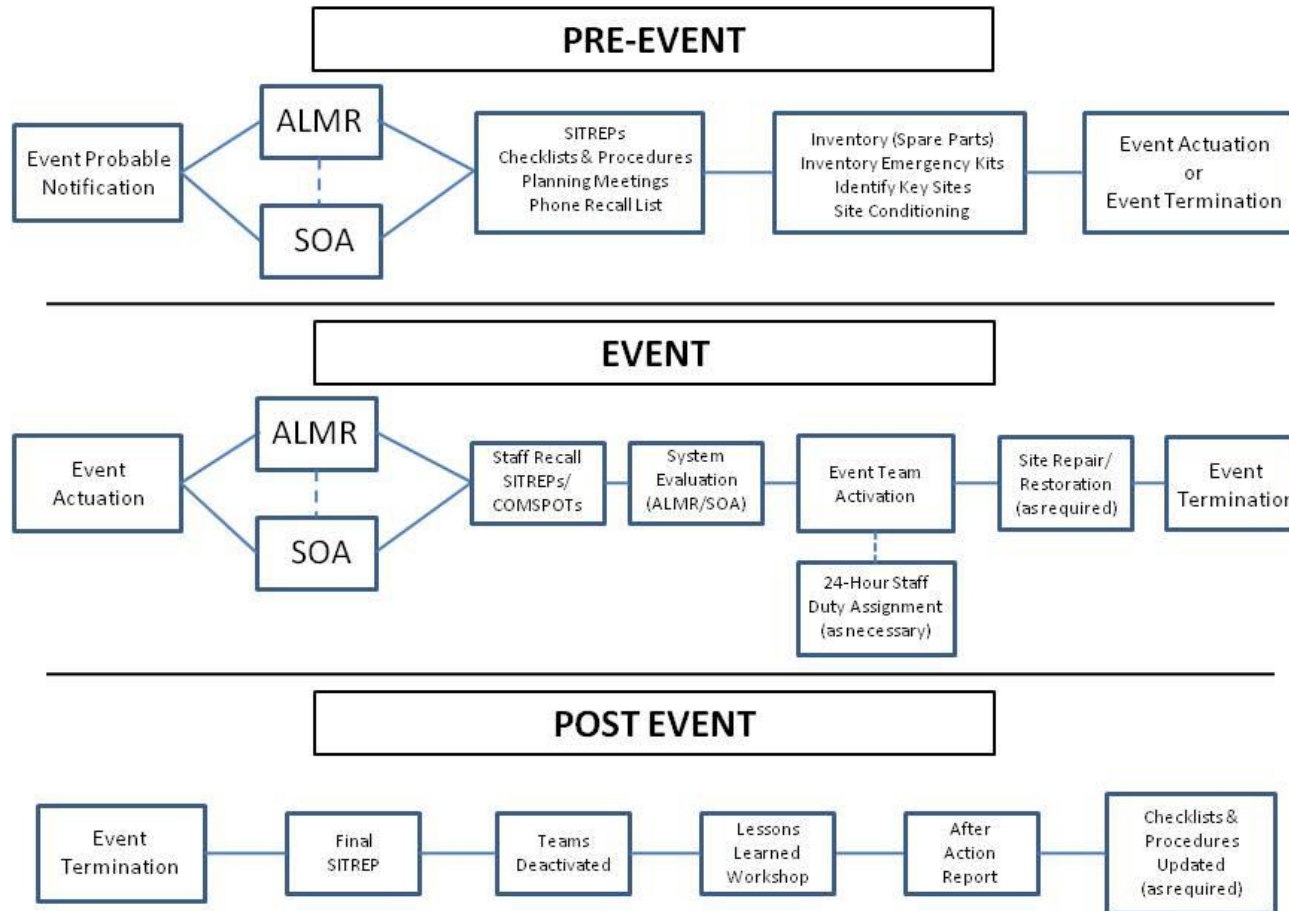
## Appendix D – Communications Plan

If an event should occur during off-duty hours, the OM or SM, whoever receives the first notification, will contact the other and then proceed through their individual phone recall notification. The OM or SM may designate one of their staff to complete the notifications and report back on individuals not contacted during the recall.

All OMO and SMO (Tudor Road location) personnel should report to duty unless otherwise notified or unless transportation is impossible due to current infrastructure damage. Once on duty, and the situation has been assessed, the OM and SM will schedule work shifts, as appropriate. The following recall tree applies to ALMR only. SOA will develop and execute their tree internally.



### Communications Plan (cont)





## Appendix E - Site Prioritization List

This list defines where attention should be focused first, then what site comes next, etc., and should apply both to preventive and restoration efforts. Priority means, “If CNE-related action is being taken at site B and a problem is reported at site A (higher priority), then attention is shifted to focus on site A.

### TRUNKED RADIO SYSTEM REQUIRED COVERAGE

#### General Information:

Trunked coverage is needed to fulfill requirements that have been defined by breaking the coverage into two separate categories. Those sites receiving first priority are deemed Most Critical; second in priority are Critical. These sites consist of key road junctions and highway avenues to and from the key junctions. Lists are noted by event type.

#### 1. Event Type: Volcanic Eruption/Ash Fallout

##### Most Critical Sites

###### Zone 1

Alcantra  
Atwood  
Bailey Hill  
Diamond Ridge  
Pipeline  
Rabbit Creek  
R1 North  
Seldovia (H)  
Seward  
Ski Hill  
Sterling

###### Zone 2

Birch Hill  
Donnelly Dome  
Ester Dome  
Ft Greely  
Peger Road  
Quarry Hill

##### Critical Sites

###### Zone 1

Anchor River  
Blueberry  
Cooper Mountain (H)  
Girdwood  
Hope (H)  
Kasilof

###### Zone 2

Harding Lake  
Independent Ridge (H)  
Pole Hill  
Reindeer Hills (H)

Moose Pass  
Nikiski  
Ninilchik  
Pillar Mountain (H)  
Portage  
Silvertip (H)  
Summit Lake (H)  
Whittier  
Willow Creek  
Wolcott (H)  
Womans Bay

## 2. Event Type: Earthquake

### **Most Critical Sites**

#### **Zone 1**

Alcantra  
Atwood  
Bailey Hill  
Diamond Ridge  
High Mountain  
Pipeline  
Rabbit Creek  
R1 North  
Saddle Mountain (H)  
Seldovia (H)  
Seward  
Site Summit (H)  
Ski Hill  
Sterling  
Valdez

#### **Zone 2**

Birch Hill  
Donnelly Dome  
Ester Dome  
Ft Greely  
Garner  
Nenana  
Peger Road  
Quarry Road  
Reindeer Hills (H)  
Yanert

### **Critical Sites**

#### **Zone 1**

Anchor River  
Blueberry  
Cooper Mountain (H)  
Divide  
Girdwood  
Haines  
Hope (H)

#### **Zone 2**

Black Rapids  
Canyon Creek  
Harding Lake  
Independent Ridge (H)  
Pole Hill  
Trims

Kasilof  
Moose Pass  
Nikiski  
Ninilchik  
Pillar Mountain (H)  
Portage  
Silvertip (H)  
Summit Lake (H)  
Whittier  
Willow Creek  
Wolcott (H)  
Womens Bay

### 3. Event Type: Tsunami/Flood

#### **Most Critical Sites**

##### **Zone 1**

Heney Range  
Pillar Mountain (H)  
Saddle Mountain (H)  
Seldovia (H)  
Site Summit (H)  
Valdez  
Womens Bay  
Whittier  
Valdez

##### **Zone 2 (Flood only)**

Birch Hill  
Canyon Creek  
Cathedral Rapids  
Ester Dome  
Garner  
Nenana  
Peger Road

#### **Critical Sites**

##### **Zone 1**

Atwood  
Diamond Ridge  
Divide  
Portage

##### **Zone 2 (Flood only)**

Birch Hill  
Donnelly Dome  
Ester Dome  
Ft Greely  
Harding Lake  
Quarry Hill

## Appendix F – Reference Materials

### Links:

[Air Resources Laboratory \(ARL\) – Alaska Volcano Forecast Trajectories](#)

[Alaska Volcano Observatory \(AVO\)](#)

[Alaska Aviation Weather Unit \(AAWU\) – SIGMETS](#)

[BLM Alaska Home Page](#)

[Center Weather Service Unit \(CWSU\)](#)

[State of Alaska Home Page](#)

[West Coast and Alaska Tsunami Warning Center](#)

### Additional Resources:

[AVO Procedures for collecting ash samples](#)

[Impacts on air quality](#)

[Municipality of Anchorage Emergency Management](#)

[Recent Earthquake Activity](#)

[Specific Health Impacts](#) from volcanic ash

[Volcanic Ash, what it is, what it can do and how to prevent damage](#)