

# Lane County, Oregon Snowstorm 2019 Emergency Management Case Study

**Prepared by: Jake Boone, Kelly Mason, Kerry O'Connor, &  
Stanley Ang**

**Oregon Policy Lab  
Institute for Policy Research and Engagement**

School of Planning, Public Policy, and Management

1209 University of Oregon

Eugene, Oregon 97403-1209

[ipre.uoregon.edu](http://ipre.uoregon.edu)



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## INTRODUCTION

Weather related emergencies are commonplace, with each season bringing its own variety of unwelcomed events, including wildfires and snowstorms that can wreak havoc on unprepared communities. The science of emergency management, and the emphasis placed on making sure local government can adequately respond to these events and protect the populace, is a common concern of all levels of government. Such emergencies highlight the positives and negatives of local government **emergency** and **public** management. Emergency management is the framework that communities and organizations use to reduce the impacts of disasters and respond to them. The Federal Emergency Management Agency (FEMA) was created in 1979, and since then, state and local organizations have commonly used the term “Emergency Management” to encompass all types of disasters and hazards (FEMA, n.d.).

There are four phases of emergency management: **mitigation, preparedness, response, and recovery** (Waugh & Strieb, 2006). **Mitigation** includes any activities (before or after an emergency) that prevent or reduce the chance of an emergency occurring, or that limit or reduce the emergency’s effects. **Preparedness** includes activities such as plans or preparations for an emergency that take place before its occurrence. **Response** includes all actions taken during an emergency situation that put the plans into action. **Recovery**, the final phase, includes all actions taken to return to normal after an emergency event (Waugh & Strieb, 2006).

Several different levels of emergency management exist, including city, county, state, and federal. The focus of this report will be on the county level of emergency management, specifically for Lane County and their emergency management efforts surrounding the 2019 winter snowstorm event. County emergency management also falls under the umbrella of public management, defined as the process of ensuring that the allocation and use of resources available to governments are directed toward the achievement of lawful public policy goals (Lynn & Hill, 2008). Lynn & Hill (2008) posit 3 dimensions in public management: structure, culture, and craft. Structure is the lawfully defined delegation to public officials of the power to take action on behalf of policy objectives. Culture is defined as the norms, values, and standards of conduct that provide purpose, meaning, and motivation to individuals working within an organization. Lastly, craft relates to a public

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manager's own efforts in goal setting, taking appropriate actions, leading, and justifying what an organization is doing (Lynn & Hill, 2008).

County government is responsible for making plans that are specific to the needs of their communities and ensuring the safety of citizens (FEMA, n.d.). This level of emergency management is especially important because it serves as an essential link to state and federal agency networks. Some important duties of county-level emergency management include identifying hazards, efficient use of resources, and cooperation with other entities, such as NGOs. Also, the county is responsible for developing plans, training personnel, assessing damages, performing rescue operations, ensuring shelter and medical assistance, and helping citizens return to normal after an emergency event (FEMA, n.d.). Lane County is roughly the size of the state of Connecticut and is responsible for communicating with all incorporated and rural communities within the county and providing assistance when it is needed. The purpose of this report is to define best practices in county level emergency management and, on a broader scale, public management. In addition, this report will provide an analysis of Lane County's emergency management response to the 2019 snowstorm. A review of published literature and qualitative data will be utilized, and a summary of recommendations will be provided following the case analysis.

### **LITERATURE REVIEW**

In the article "Collaboration and Leadership for Effective Emergency Management" the authors focus on the importance of collaboration/leadership strategies when responding to emergencies (Waugh & Streib, 2006). Waugh & Streib (2006) introduce the idea of a "new governance process" that is described as the backbone of national emergency response. Key tenets of this process include federal and state agencies providing important services including public education, evacuation plans, alert and warning systems. However, the tools needed to reduce risks and manage hazards often fall on local government (Waugh & Streib, 2006).

Waugh & Streib (2006) discuss the role of a government emergency manager and the importance of collaboration in emergency management. The authors cite Drabek, who states that a "...successful emergency manager came to be defined as one who could interact effectively with other government officials and with the

broader disaster relief community.” (Waugh & Streib, 2006, p. 132) and “Frequent interaction, including participation in planning and training exercises, builds that capacity.” (Waugh & Streib, 2006, p. 132). There are hundreds of organizations that are involved with disasters and hazard response, many of whom may not have a close relationship with federal, state or local emergency management agencies and “At the local level, collaboration has always been a necessary skill because of the reliance on voluntarism and community involvement.” (Waugh & Streib, 2006, p. 132). It is important that organizations, private and public work together during a disaster. Waugh & Strieb (2006) further explain the collaborative role of emergency managers and how they believe that the effectiveness of emergency management programs rests primarily on the interpersonal skills of emergency managers instead of their technical skills (Waugh & Strieb, 2006).

Leadership and its role in effective emergency management are also addressed with leadership problems being cited as an issue in disaster response. An example used by the authors was Hurricane Katrina and how failures in all levels of government significantly undermined the efforts of first responders, private individuals, and organizations involved in emergency response (Waugh & Streib, 2006). Leadership failures relating to lack of initiative and imagination were cited by the House Select Committee as well as lack of situational awareness, specifically poor communication between officials in the disaster area and decision-makers in Washington. A leadership model that also emphasizes open communication and collaboration can be more effective than a hierarchical command and control system where decisions processes can be slow and inflexible to changing circumstances (Waugh & Streib, 2006).

Waugh & Strieb (2006) offer an interesting perspective on emergency management theory and best practices in emergency response revolving around collaboration and leadership. However, the authors only briefly touch on formal training offered by FEMA and other agencies on collaboration and leadership/command structures such as the National Incident Management System (NIMS).

In the article “The National Incident Management System: a multi-agency approach to emergency response in the United States of America”, the author, Anelli (2006) discusses governmental response and preparedness in regional, large and smaller-scale incidents with the use of NIMS, which provides a flexible,

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consistent and adjustable national framework that private and government entities at all levels can work together to manage incidents. NIMS is comprised of 6 components including command and management, preparedness, resource management, communications, and information management, supporting technologies and management and maintenance (Anelli, 2006).

Command and management include incident command structures based on 3 systems. These systems are the incident command system (ICS), multi-agency coordination systems (MAC) and public information systems (Anelli, 2006). The ICS defines the structure/operating characteristics of incident management and emergency response organizations. Components of ICS include operations, planning, logistics and finance/administration. Multi-agency coordination systems describe characteristics of entities and organizations that support incident management at several levels of government including local, regional, tribal, state and federal. The public information systems component of ICS contains procedures, process, and systems relating to communication to the public during emergency and crisis situations (Anelli, 2006).

Anelli (2006) states that the “preparedness” component of NIMS contains information on activities relating to planning, training, exercises, qualification/certification, equipment acquisition, and publications management. NIMS is unique in that emphasis is placed on personnel certification and qualification standards. These certifications/qualifications renewal cycles help provide a training plan with regularly scheduled training exercises. Anelli (2006) argues it’s the planning and not the plan that’s important. These plans provide systems for priority setting, communications, and integration of different entities. Training is another aspect of preparedness and should include courses on multi-agency incident command/management and agency-specific courses. Incident management personnel and organizations should regularly participate in realistic training exercises that will improve interoperability, integration and also optimize resource utilization. When addressing qualification and certification, it's important to ensure that national standards are identified and performance is measured against these standards to make sure that emergency personnel and officials involved in incident management are appropriately qualified to carry out any NIMS-related functions. Another important component of preparedness is equipment acquisition, which involves making sure that proper equipment is acquired and

that interoperability between different organizations should be considered before the acquisition. Publications management alludes to form standardizations and the development of publication materials (Anelli, 2006).

The resource management component of NIMS refers to standard practices and processes relating to the management of resources including the dispatching/tracking of resources during an incident (Anelli, 2006).

The communications and information management component is the framework for information management/communications including information sharing across all levels of organizations and jurisdictions during an incident. The fifth component, supporting technologies, relates to voice and data communication and information management systems. The final component of NIMS is ongoing management/maintenance that provides information on strategic direction that supports long term continuous improvement of the system (Anelli, 2006). This article provides a good overarching view of the US National Response Plan and NIMS, but does not go into great depth on key components of NIMS such as the Incident Command System (ICS).

In the article “Organizing response to disasters with the incident command system/incident management system (ICS/IMS),” Lindell, Perry & Prater (2005) explain the ICS and how the system assists in emergency management. Organizational problems in emergency response are discussed including poorly coordinated planning, resource allocation, emergency assessments, and inter-agency communications and how a version of ICS was created to address these problems. The ICS is comprised of 5 components including planning, operations, safety, administration, and logistics. For major disasters Lindell, et al. (2005) state that the administration, planning and logistics section should be located in the EOC. The ICS is also comprised of 7 basic principles including functional specificity, a manageable span of control, unit integrity, unified command, management by objectives, standardization and comprehensive resource management. Functional specificity is defined in ICS as the division of labor adopted by responding organizations and a unit’s assigned functions/tasks. The manageable span of control principle stresses that there should be a limit to the number of personnel directly supervised by each unit manager. Unit integrity stresses that personnel who share the same professional discipline, such as fire or police should be assigned to the same unit in the emergency response organization. Lindell et al. (2005) posit that a unified command team is necessary when multiple agencies with

differing responsibilities and statutory authorities are in play. Management by objectives revolves around developing and monitoring of action plans with clear and measurable objectives. Standardization refers to organizations involved in emergency response utilizing standardized names and functions in a commonly shared organizational structure as well as standardized duties and names for individual positions. Comprehensive resource management refers to the unified command team controlling the allocation of all emergency response resources and assets including vehicles, equipment/materials, personnel and facilities (Lindell, et al., 2005). The authors of this article effectively present and describe the ICS, explaining its multiple components and principles as well as the system's strengths and possible areas of weakness.

Taken as a whole, the subject of emergency management theory and best practices in government-led emergency management seems extensively researched. Waugh & Strieb (2006) offer an interesting perspective on emergency management theory and best practices in emergency response revolving around collaboration and leadership. However, the authors only briefly touch on formal training offered by FEMA and other agencies on collaboration and leadership/command structures such as the NIMS. Anelli (2006) provides a good overarching view of NIMS but does not go into great depth on key components such as command/management and the ICS. Lindell, et al. (2005) provides a concise explanation of the ICS and its principles.

### **PROJECT DESCRIPTION: DATA & METHODS**

To assist in developing a case study of the response by Lane County during the February/March Snowstorm, semi-structured in-person interviews were conducted with 8 Lane County employees (Appdx Fig. 1). To ensure individual interpretations did not lead to an idiosyncratic account of the event, a descriptive base was established and individuals from many departments in many different roles were interviewed. Interviews generally were composed of eight questions (Appdx Fig. 2).

From the literature review and interviews, "best practices" in the area of local government emergency management response from an intergovernmental relationship perspective across several different areas were determined. Best practices included collaboration, networking, relationships, leadership, communication, and resiliency. A copy of Lane County's Emergency Operations plan was also provided, which included an

organizational mission and gave an overview of the roles and responsibilities of Lane County departments during an emergency. Lynn & Hill (2008) define an organizational mission as “[clarifying] an organization’s purpose, or *why* it should be doing what it does” (p. 306). Organization mission statements fall under the “culture” dimension of public management. In the Emergency Operations plan, Lane County’s emergency management department defines its mission as: “to ensure that the County is prepared for a disaster by ensuring coordination of protection, prevention, mitigation, response, and recovery activities that increase the County’s capabilities to minimize loss of life and reduce impacts from disasters” (Lane County, 2017, p. 14).

### **CASE SUMMARY**

In late February of 2019, Lane County was going through a transitional period. Responsibilities were being shifted among the county’s departments, and changes in leadership were taking place as well. The emergency management team, previously part of the Sheriff’s office, had recently become its own department, and a new emergency manager had just been hired. Snow began to fall in Lane County on the night of February 24, 2019 (Sistek, 2019). By ten o’clock the next morning, approximately 11 inches of snow was recorded in the city of Eugene, with similar levels across the greater Lane County area. This was the largest snowfall recorded in the area for over a hundred years, and it left thousands of people without power, cut off entire communities from the outside world, and was responsible for millions of dollars in property damage (Sistek, 2019).

Lane County Emergency Management personnel immediately set up an EOC following a unified command ICS structure in the Lane County Public Services Building in downtown Eugene and began coordinating county-wide emergency response operations. On Tuesday, February 25th, Lane County commissioners officially declared a local emergency, an action which would garner assistance for Lane County personnel via additional funding and state level support (Hill, 2019). Following the storm and response operations, a federal disaster declaration was submitted to (and later approved by) FEMA, in order to seek financial reimbursement from the federal government for the estimated \$17 million dollars in storm-caused damage (Koumoue, 2019). On March 5th, nine days after the snow started falling, emergency response coordination activities in the EOC came to a close, and a debrief among EOC personnel was conducted.

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## **CASE ANALYSIS**

Lane County's response to the "snowpocalypse" of 2019 provides an opportunity to assess what went right, what went wrong, and how to better prepare for future emergencies and disasters. This analysis will explore Lane County's emergency management activities during the event at hand through the lens of the emergency management functions of mitigation, preparedness, response, and recovery, and Lynn & Hill's 3 dimensions of public management: structure, culture, and craft. Relevant best practices in successful emergency management, including collaboration, networking, relationships, leadership, communication, and resiliency will also be discussed within this analysis.

### **Mitigation**

While Lane County agencies could do little to affect the weather patterns that brought the snowstorms, there were a couple of mitigating circumstances that led to a less severe outcome than might have otherwise been the case.

The Lane Radio Interoperability Group (LRIG) system, responsible for radio communications throughout Lane County, had a certain amount of built-in redundancy, which allowed limited connectivity even when some towers were no longer operational. This redundancy allowed emergency services to continue operating (albeit under significantly more difficult circumstances) despite the loss of some towers. Additionally, a previous ice storm in 2016 had brought down numerous trees in and around Eugene. Trees which were downed in the ice storm were thus no longer around to become hazards in 2019. While this was a circumstance which mitigated the effects of the 2019 snowstorm, it cannot be attributed to policy on the part of any Lane County agency.

### **Preparedness**

Preparedness is an important aspect of emergency management. Adequate planning and training must be conducted to ensure that a governmental or non-governmental organization can efficiently handle natural or human-caused disasters. Anelli (2006) states that the "preparedness" component of NIMS incorporates information on activities relating to planning, training, exercises, qualification/certification, equipment acquisition, and publications management. Preparedness activities take place before the emergency occurs

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(FEMA, n.d.). Ideally, County level emergency management plans should include the provision of information on where to go, what to do, and with whom to get in contact, in the event of an emergency.

An excellent example of a successful preparedness action comes from an equipment staging decision made by Lane County's road maintenance division. Five road maintenance personnel who lived in Oakridge were sent home with necessary equipment before the snowstorm. When the snowstorm hit, the road crew was thus able to immediately begin vital road clearance operations in Oakridge, which had quickly become isolated due to falling trees blocking access to the city. Another example of a preparedness activity was LRIG section personnel attending and participating in the Oregon Emergency Management Conference as well as the Oregon State Interoperability Council. Participating in efforts to improve collaboration, coordination, and integration between all levels of government before an emergency occurs is vital.

Even though there were several successful preparedness activities that took place before the snowstorm, there were also some areas for improvement, specifically in preparedness activities that should have occurred before the snowstorm, according to several department personnel within Lane County. One significant challenge was the crucial absence of an up-to-date emergency management strategic plan. Several county personnel noted that the current plan is from 2012, and many personnel didn't know where or how to access the plan. This highlights how a lack of communication in an organization and between organizations can be problematic when working in an emergency management setting. Exercising plans through drills, tabletop scenarios, and full-scale exercises are considered an important preparedness activity (FEMA, n.d.). The lack of such drills and exercises between Lane County departments highlights an avenue for improvement in Lane County's preparedness efforts. Increasing these efforts would likely have led to an easing of logistical/supply issues, such as the lack of designated areas to store food kits, batteries, and other supplies, which led to complications in the attempt to convoy supplies to the city of Oakridge.

Although several leadership personnel throughout Lane County were trained or had experience working within the NIMS and ICS framework in emergency response, there was also a notable lack of understanding

among both front-line staff and new Lane County personnel, such as road maintenance crews and newly elected county commissioners.

### **Response**

One of Lane County's primary considerations involved clearing the roads. Particularly important roads, such as those that gave access to hospitals and airports, were prioritized for plowing crews, and thus made passable within 48 hours of the snowfall event.

Collaboration was a best practice that was prevalent across all areas of this case study. For example, through building better partnerships over approximately five years before the snowfall, the county road division was able to coordinate with major utility partners to restore power to areas more efficiently and quickly, and to ensure road crew safety when working around downed power lines. As stated by Waugh & Streib, "[a]t the local level, collaboration has always been a necessary skill because of the reliance on voluntarism and community involvement" (2006).

During a snowstorm event responding to the safety concerns of citizens is a major focus. Another disaster response activity that was important during the snowstorm was utilizing available search and rescue assets for non-emergent welfare checks and law enforcement assets for emergency cases. Search and Rescue (SAR) personnel performed over 200 wellness checks during the winter storm event, and the police department was able to organize their resources in a way to accurately determine if a uniformed officer needed to respond or if a trained SAR volunteer was appropriate. It is clear that Lane County public employees were dedicated and willing to do whatever it took to keep residents safe. SAR activities weren't only completed by the Sheriff's department. Road maintenance crews also unexpectedly found themselves conducting SAR activities due to crews often being the first county employees to reach an area. Experiences of note included crews clearing roads in the rural Upper McKenzie river area and seeing driveways that hadn't been cleared with "help" written in sticks. These crews would stop their work out of concern and hike up these driveways, which were often a mile or greater in length, to find stranded families who had run out of food and supplies. These crews would then provide supplies and even provide transportation for these families, in order to ensure they received the help

they needed. Lane County leadership seemed to encourage discretion and trusted its employees in exercising their best judgement in critical situations, which is widely considered good practice in the realm of public management (Lynn & Hill, 2008), especially when conducting emergency response activities.

The response phase was not without its difficulties and challenges, of course. As the response phase wore on, staffing limitations became an issue; by the third day of the emergency, the county was running low on sufficiently rested front-line personnel to continue working at the accelerated pace necessary to adequately respond to the number and variety of emergent needs.

Communication was also a recurring issue throughout the response phase, both due to infrastructural failure (many links within the LRIG radio systems had gone offline), or a simple lack of effective communication between and among various county departments and outside agencies. There are hundreds of organizations that are involved with disasters and hazard response, many of whom may not have a close relationship with federal, state or local emergency management agencies (Waugh & Streib, 2006).

Along those lines, an Amtrak passenger train, stranded by snow and fallen trees in the mountains outside of Oakridge, was initially reported as a dire emergency, and that the passengers had no food or water. As it turned out, the train was actually well-stocked with supplies and could hold out for at least a few days. This lack of accurate communication can have severe consequences during a disaster response, as it can lead to profound misallocation of resources and personnel.

Despite the overall success and high level of collaboration throughout the response to the snowstorm event, Lane County staff would agree that, moving forward, emergency response efforts should be more organized, utilize better communication, and employ previously established partnerships in order to better navigate the response phase for future events.

### **Recovery**

Local governments serve as the connecting link to the state and federal emergency management network (FEMA, n.d.). In this case analysis, Lane County served as the link to the State of Oregon, which served as the

link to the federal government. Estimated damages to Lane County public infrastructure totaled more than \$17 million (Koumoue, 2019).

During the storm, Oregon governor Kate Brown declared Lane County (along with nine other Oregon counties) to be in a state of emergency, and the state made a request for financial reimbursement from FEMA. On May 2, 2019, a federal disaster declaration was approved for Lane County (along with four other Oregon counties). This action grants eligible local governments and certain nonprofits access to federal funds for emergency work efforts and repairs, though the exact amount of money that Lane County will receive has not yet been released (Hunt, 2019).

Successful recovery and collaborative efforts were seen across various departments and agencies. One major success is the awareness and acknowledgement of the lack of current emergency management strategies in place for future disasters, such as the Cascadia earthquake. An example of the effect of this new awareness on recovery response was observed during the post-storm flooding event when the road maintenance division worked in the EOC to better understand how to more effectively provide support services. Another example is LRIG's new case study to improve communications infrastructure.

Although multiple recovery successes were observed, many areas for improvement also exist. One of the most important parts of any recovery is reflecting back on the event and considering what mitigation strategies should be put in place to lessen the effects in future emergencies. Over three months have passed (and another emergency has taken place) since the occurrence of the snowstorm, and Lane County has yet to have organization-wide meetings to debrief and review their emergency management efforts. Timing is critical when evaluating large and complex events. The closer an evaluation occurs after an event, the greater the number of details preserved, and the greater the amount of clarity to be gained.

The recovery phase is not yet over. Lane Electric Cooperative stated that it will be months until full cleanup is complete. They are still retrieving downed poles and wires that were covered by fallen trees, and are working to eliminate hazardous trees and branches, which were damaged in the storm and are now at risk of falling on power lines during future inclement weather (McCarthy, 2019).

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## CONCLUSION/RECOMMENDATIONS

Lane County personnel often displayed resilience and sound decision-making in emergency response and recovery operations, which helped mitigate the negative effects from the snowstorm, and helped ensure that the citizens of Lane County were able to access necessary services and return to normal life quickly. Lane County's leadership, when viewed through the "craft" lens of public management, also exhibited variations in managerial style/craft (Lynn & Hill, 2008). Examples included the shifting of road maintenance crew priorities from exclusively plowing snow to including some SAR-like activities. Similarly, a delegation of duties had to take place as emergency managers from around the state arrived in the area to assist.

Through the analysis of this case, several areas of potential improvement for Lane County's emergency management operations were noted. Recommendations include:

**Create a map and/or report of areas where SAR and road maintenance crews conducted SAR-related operations during the snowstorm.** It is likely that the same people may need help again in the next disaster. This foreknowledge can be of use in prioritizing finite resources such as first aid kits, batteries, and food packs amongst the road crews.

**Require annual NIMS/ICS training for all personnel.** Ensure that every employee is current on NIMS/ICS courses 100 and 200 and/or enforcement of Lane County's NIMS/ICS minimum training requirements (Appdx Figure 3). This will drastically reduce miscommunications and inefficiencies in emergency response.

**Implement regular emergency response drills and exercises.** These drills should vary with the season, and be varied to cover a wide range of likely disasters.

**Implement a county-wide asset management tracking system.** A robust system that can be accessed by all departments can be of benefit when one department has a need for, for example, a generator, and another department has a generator sitting idle.

**Place a member of EOC personnel in charge of ensuring the safety and security of families of staff involved in emergency response activities.** The knowledge that their families are okay will lead to less distraction and stress among county personnel during an emergency event.

**Conduct a mandatory post-emergency cross-department meeting to review areas of success and areas for improvement.** This will allow inefficiencies and communication barriers between different departments to come to light, and thus to be identified for repair.

**Increase redundancy in communications infrastructure.** Locations with overlapping LRIG coverage did reasonably well with communications during the snowstorm, but areas with only one link in or out suffered problems stemming from the resultant isolation.

**Update the emergency plan regularly, and ensure ready availability to all personnel.** Hard copies should exist in every department, if not every office, and electronic copies should be stored on individual computers.

**Increase citizen outreach to encourage individual disaster preparedness.** While it is not realistic to assume that every resident of Lane County will become self-sufficient and fully prepared for every disaster, each resident who does becomes one less resident in need of help, thus freeing up scarce resources.

**Prioritize interagency communications.** Creating clear connections and ongoing relationships with emergency leaders in other agencies will lead to faster, more effective emergency response, and will reduce the amount of time and effort wasted working at cross-purposes. Make sure that the EOC has at least two means of contacting each agency.

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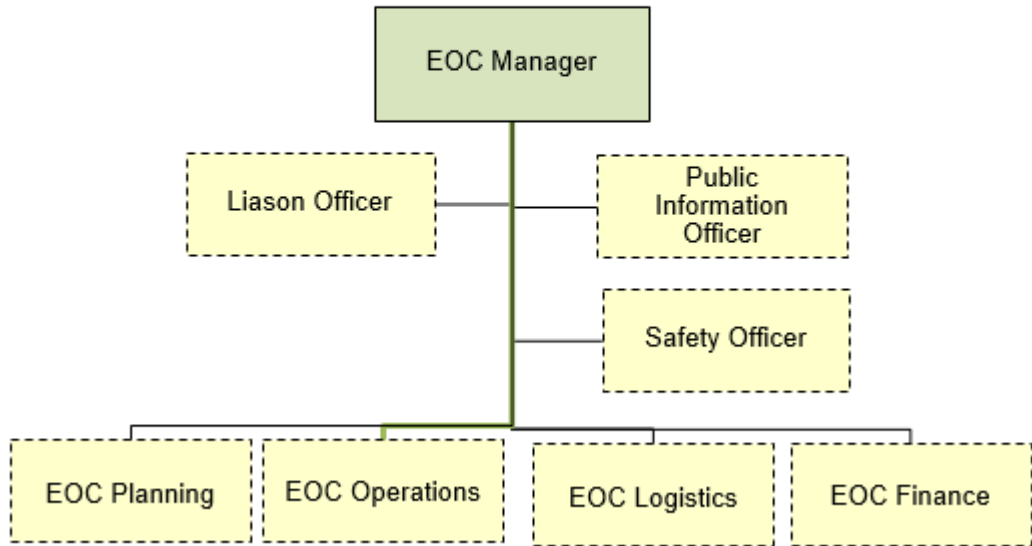
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## Appendix

### Figure 1: Lane County ICS Structure

**Figure 5-3 Example ICS Structure for the Lane County EOC**



**From: Lane County, Oregon Emergency Operations Plan Version 2017**

**EOC Manager/Deputy: Lance Englet, Patence Winningham**

**Liaison Officer: Greg Rikhoff**

**Public Information Officer: Devon Ashbridge**

**Safety Officer: Ray Wooth**

**EOC Planning: Planning Chief: Ken Vogeney(Springfield Emergency Manager), Emergency managers from around the state(Marion, Clackamas, Lincoln Counties and Cities of Springfield and Albany)**

**EOC Operations: Chuck Perino(Albany Emergency Manager), Law Enforcement Liaison: Carl Wilkerson**

**EOC Logistics: Michael Johns**

**EOC Finance: Stephen (no last name provided)**

## **Appendix figure 2: Interview Questions**

### **Interview Questions**

1. What was your area of responsibility during the snowstorm?
2. What successes did you encounter?
3. What failures did you encounter?
4. What surprises did you encounter?

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5. What changes in your agency would have improved the situation?
6. What changes in other agencies would have improved the situation?
7. What's the primary lesson you hope everyone takes away from this event?
8. Is there anything that we haven't asked you that we should have?

**Appendix figure 3: Existing NIMS/ICS training requirements for Lane County and NIMS/ICS training website link**

<b>Table 6-1 Minimum Training Requirements</b>	
<b>Emergency Personnel</b>	<b>Training Required</b>
Direct role in emergency management or emergency response	ICS-100 IS-700a
First-line supervisors, mid-level management, and Command and General Staff	ICS-100, -200 IS-700a
Supervisory role in expanding incidents or a management role in an EOC	ICS-100, -200, IS-700a
Management role in actively responding to an incident.	ICS-100, -200, -300, -400 IS-700a, -701a
Public Information Officers	IS-702a
Resource management	IS-703a
Communication or incident information systems	IS-701
Development of mutual aid agreements and/or mutual aid operational plans	IS 706
Planning	IS-800b
<i>Additional information about training requirements can be found on the OEM website at <a href="http://www.oregon.gov/OMD/OEM/plans_train/docs/nims/nims_who_takes_what.pdf">http://www.oregon.gov/OMD/OEM/plans_train/docs/nims/nims_who_takes_what.pdf</a>. Independent study courses can be found at <a href="http://training.fema.gov/IS/crslist.asp">http://training.fema.gov/IS/crslist.asp</a>.</i>	

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**Alternative website link for online training materials:**

<https://training.fema.gov/emiweb/is/icsresource/trainingmaterials.htm>

INSTITUTE FOR POLICY RESEARCH AND ENGAGEMENT

1209 University of Oregon | Eugene, Oregon 97403 | T: 541.346.3889 | F: 541.346.2040 <http://ipre.uoregon.edu>