

2014

**IMPROVING COMMUNITY
RESPONSE TO WILDFIRE:
2013 FIRE SEASON FINDINGS
REPORT**

KELLEY FIRE

In 2013, the Fire Chasers Research Team at North Carolina State University developed a series of incident performance measures in collaboration with incident response and land management professionals. The goal of this effort was to provide metrics that can help improve interagency coordination and communication during complex, large scale wildfires. In the summer of 2013, data on these incident response outcomes were collected from 22 Type I and Type II wildland-urban interface fires in Idaho, Montana, Oregon, and Washington. This report summarizes the findings from the Kelley Fire in the areas of interagency network performance, incident management team performance, use of social media and incident learning and capacity building.

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Kelley Fire: Incident Report

Study Background

This report summarizes findings on incident response outcomes for the Kelley Fire that occurred in 2013. The report presents outcomes of the Kelley Fire compared to twenty-one other Type I and Type II incidents that occurred in Idaho, Montana, Oregon, Washington, and one pilot incident in Colorado, during the 2013 wildfire season. The goal of this report is to provide disaster, fire response, and land management agencies with feedback on the incident. This feedback is designed to help identify areas of strength, as well as prioritize areas for capacity building to improve incident response in the upcoming fire season. This report summarizes findings on the following areas: 1) interagency network performance; 2) incident management team performance; 3) use of social media; and 4) incident learning and capacity building. All findings are based on surveys completed by key personnel associated with the incident management team, host agency, and cooperating disaster response agencies on each incident. County and municipal elected officials in the affected area were also surveyed. Surveys were generally collected from Type I/Type II incident management team members immediately before they transitioned off the incident. Surveys with host agencies and county disaster response agencies were collected in October/ November of 2013. A total of 10 surveys were completed for the Kelley Fire (28 percent response rate).

How Should I Interpret the Data in This Report?

Incidents differ in their complexity and more complex incidents can create more challenges. The information contained in this report is based solely on the survey data and indicators *do not* account for differences between incidents. This should be kept in mind when interpreting findings from a single incident in relation to the regional incident averages. Findings with lower response rates (like the Kelley Fire) should also be interpreted with greater caution as there may be key perspectives that are missing. Recommended questions for reflection in interpreting the findings from this report include:

In what areas did we excel during this incident? What strategies and actions did we take that may have contributed to this success? What actions can we take to make sure these practices and lessons are retained for future incidents?

In what areas were our ratings comparatively less positive? How do we make sense of those? Were there missed opportunities either *before* or *during* the incident that might have improved our outcomes in this area? Are there actions we can take *now* to help ensure future success in this area?

Overview: A brief summary of the Kelley Fire

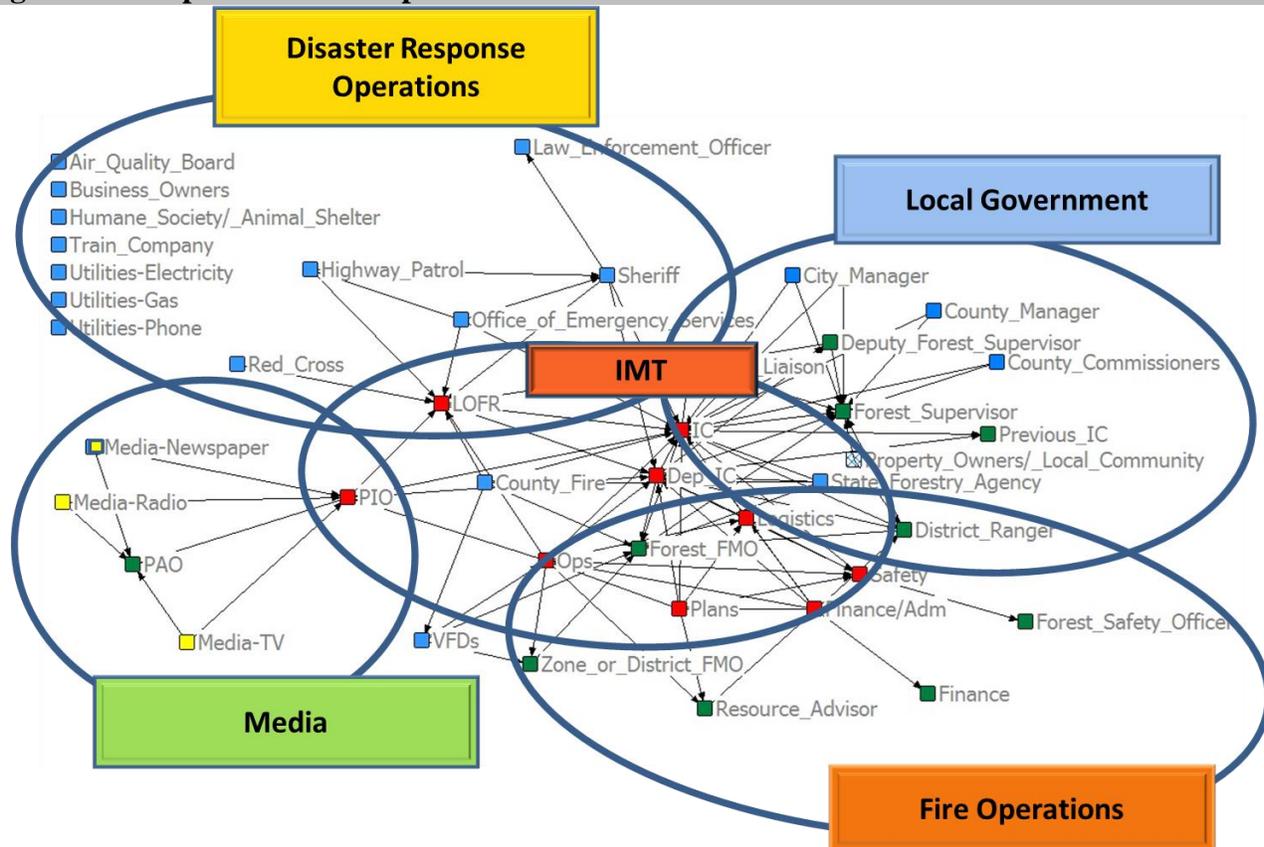
On August 24, 2013, a lightning strike started the Kelley Fire as a thunderstorm rolled across land southeast of Featherville, Idaho on the Sawtooth National Forest. The fire quickly accelerated, burning through spruce and fir trees, sagebrush, and grass. Dunford's Type II Incident Management Team was called in to the Kelley Fire on August 30th and stayed on until Grinder's Type III IMT transitioned in on September 10th, after shadowing involved personnel. At this time, Inciweb ceased covering the fire, as it was 97 percent contained. Elmore County was the county primarily affected by the fire. Local cooperators included Elmore and Camas County Sheriffs' Offices, as well as Camas County Commissioners and the Fairfield Volunteer Fire Department. Both the Bureau of Land Management and the Idaho Department of Fish and Game were present on the incident. This fire grew to over 17,000 acres, threatening 15 residences and 12 outbuildings in the Sandy Fork Ranch and Big Smoky areas, but required no evacuations and ultimately caused no structural damage. Additional values at risk included an important bull trout habitat and Baumgartner Campground. Fire management personnel communicated that road closures primarily occurred on Forest Service land and that a Level 1 evacuation was never issued.

Incident Response Network Performance: Kelley Fire

What Is an Incident Response Network?

Effective incident response to a complex wildfire event involves the coordination of multiple organizations and agencies with formal response responsibilities during the incident. This group of organizations and agencies can be referred to as the *incident response network*. This network typically includes the incident management team, fire management operations, disaster management operations, county and municipal government, and the media. Diagram 1 shows what this network might look like.

Diagram 1. Sample Incident Response Network



What is network performance?

When working as part of an inter-connected network like the one shown in Diagram 1, the actions of any one agency within the network can affect others in the network. Consequently, incident outcomes are often the result of the *combined* management actions of the entire network, and the level of communication and coordination within it. Not all agencies are involved in all areas of incident response. However, problems in one area of the network can lead to problems in other areas. As a result, effective incident response is not about the performance of any single organization or agency, but is related to the performance of the *network as a whole* in the following areas:

- ❖ Interagency coordination & fire response
- ❖ Public information
- ❖ Road closures
- ❖ Evacuation and re-entry
- ❖ Sheltering & mass care
- ❖ Cost share

To learn more about network performance, we asked all agency and organizational leaders in the incident response network to rate how things went in each of these six areas. Respondents were asked their level of agreement with a set of statements. Options ranged from (1) “strongly disagree” to (5) “strongly agree.” Overall, network performance scores were high. Some areas are also worthy of additional attention prior to fire season 2014. For the twenty-two fires in our sample, overall network performance was the highest for interagency coordination and fire response (average = 4.44) and public information (4.34). On average, lower performance ratings were provided for cost share (3.87), evacuation (3.99), and sheltering/mass care (4.0). See Appendix A for specific questions asked in each category and average level of agreement for each.

Network Performance: How did things go on the Kelley Fire?

Figure 1 shows network performance ratings for the Kelley Fire in comparison with the average across all twenty-two fires in our sample. Kelley Fire network performance was higher than average in the areas of public information and road closures. Fire management personnel communicated that closures were primarily on Forest Service roads. Kelly Fire network performance was higher than the all-incident average in the area public information and road closures. Kelley Fire network performance was only slightly lower than average for coordination and fire response.

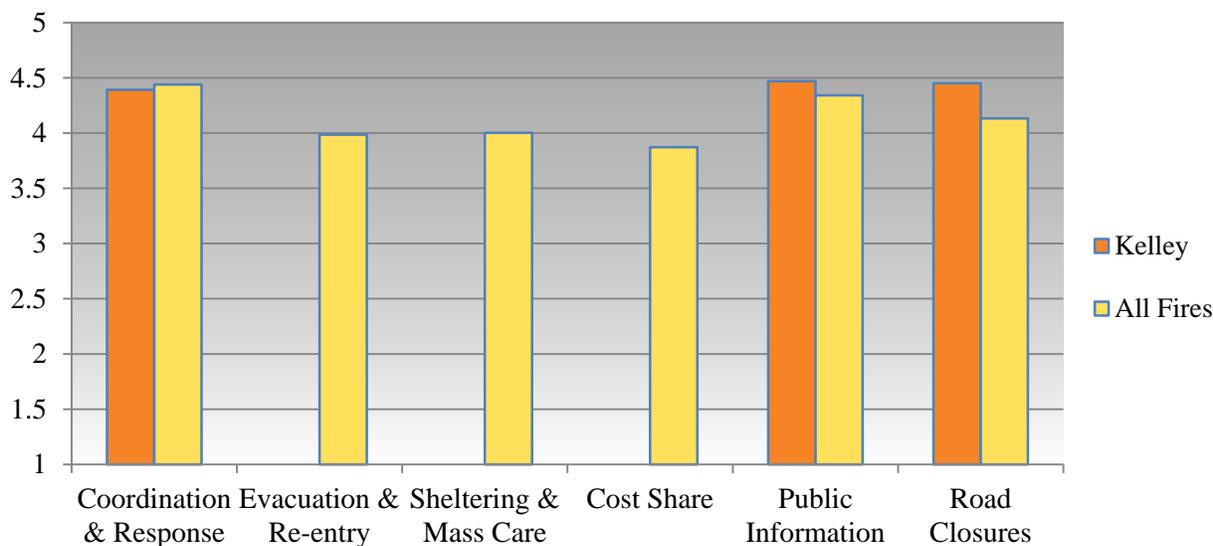
Nonetheless, this area was identified as the area with the most room for improvement on this incident. In particular, respondents saw room for improvement in sharing credit for success among agencies during public meetings and media events (see Appendix A for details).

According to respondents, there was no evacuation and re-entry, sheltering and mass care, or cost share on the Kelley Fire, so we do not have data on these network performance indicators for this incident.

KEY FINDINGS

- Public information, particularly the leveraging of social media and the system for communication with the media to ensure timely information dissemination, were areas of success on the Kelley Fire
- Publically sharing credit for success among agencies was identified as an area for improvement

Figure 1. Average Network Performance by Activity: Kelley Fire



Incident Management Team Performance: Perspectives from host agencies and local cooperators

On each incident, we asked representatives of local cooperating agencies, the Forest Service, and other host agencies to reflect on how well the incident management team communicated and coordinated with local host agencies and cooperators. Incident management teams (IMTs) were assessed across 19 areas outlined in Table 1 on the following page. The response options ranged from “No room for improvement” to “A lot of room for improvement,” and included “Don’t know” and “Not applicable” choices.

Across all twenty-two incidents, incident management teams were reported to perform the best in: 1) being accessible; 2) acknowledging cooperation; 3) sharing credit; and 4) serving as positive ambassadors in interactions with the local community. On average, scores were quite positive across all areas. However, host communities reported the greatest room for improvement for IMTs in the areas of: 1) obtaining local context information to inform fire operations; 2) incorporating information about local values at risk into fire management plans; and 3) engaging affected jurisdictions in planning and decision making from the beginning. The first column of Table 1 lists the average room for improvement for incident management teams across all fires. The second column displays average room for improvement for the Kelley Fire incident management team. For each item in Table 1, **lower numbers indicate less room for improvement**. The scale includes (0), indicating “no” room for improvement, (1) “a little,” (2) “some,” (3) “quite a bit,” and (4) “a lot.”

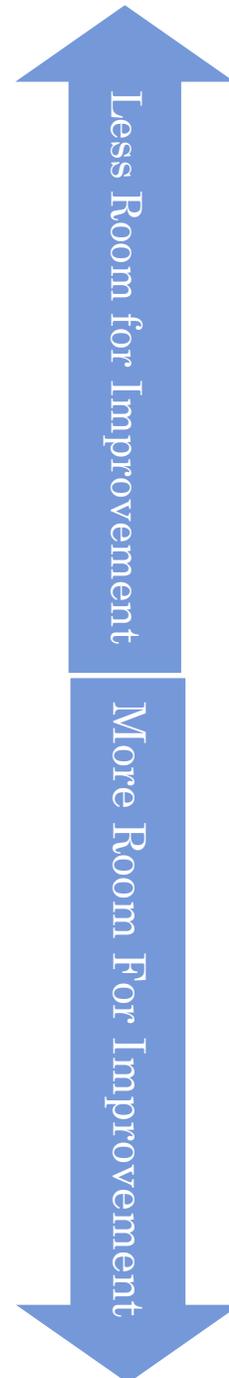
KEY FINDINGS

- IMT strength:
 - Serving as a positive ambassador in interactions with the local community
- IMT areas for improvement:
 - staying in their lane and not overstepping their delegation of authority
 - being inclusive in information dissemination
 - clarifying roles and responsibilities
 - understanding organizational culture, values, and capacities of local agencies
 - identifying key local players
- Dunford’s Type II IMT was rated slightly less positively than the regional average in 18 of the 19 areas during the Kelley Fire

Average responses for Dunford’s Type II IMT on the Kelley Fire ranged from 1 to 2.3, indicating “a little” to “some” room for improvement. Dunford’s Type II IMT was rated slightly less positively than the regional average in 18 of 19 areas during the Kelley Fire, but no areas were rated as having more than “some” room for improvement. On average, Dunford’s Type II IMT was rated most positively in terms of serving as a positive ambassador in interactions with the local community. Greatest areas for improvement for the IMT on the Kelley Fire included the IMT staying in their lane and not overstepping their delegation of authority, being inclusive in information dissemination, clarifying roles and responsibilities, understanding organizational culture, values, and capacities of local agencies, and rapidly identifying key local players. The strengths and areas for improvement are highlighted in the IMT Key Findings box above. Given the low response rates for the Kelley Fire, these results should be interpreted with caution as they represent a small portion of the response network.

TABLE 1. Kelley Incident Management Team Room for Improvement

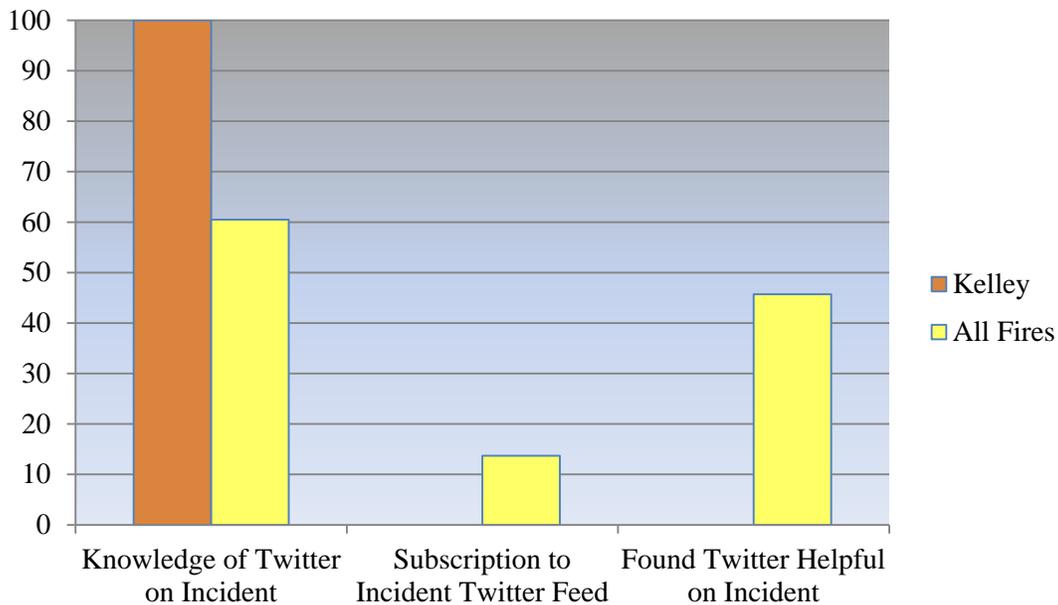
Area for improvement in working with Host Unit(s) and local cooperators	22 Incident Average Room for Improvement (0-4)	Kelley Average Room for Improvement (0-4)
Serving as a positive ambassador in interactions with the local community	1	1
Incorporating information about local values at risk (e.g., biological, archeological, cultural, recreational) into the management of the fire	1.3	1.5
Being flexible in adapting their fire management strategy to account for local preferences	1.2	1.5
Being sensitive to local community culture and political climate	1.25	1.6
Engaging affected jurisdictions in planning and decision making from the beginning	1.3	1.7
Valuing local knowledge and local input	1.2	1.8
Acknowledging cooperation	1	1.8
Using the incident as a training opportunity to build local capacity	1.2	1.8
Obtaining local context (e.g., burn scars, trail systems, local weather patterns) to inform their operations	1.3	2
Being accessible to you	1	2
Valuing your agency's input	1.2	2
Being helpful to cooperating agencies	1.1	2
Sharing credit with your agency	1	2
Getting your agency information you needed to be effective	1.2	2.2
Rapidly identifying key local players they needed to be communicating with during the incident	1.2	2.3
Seeking to understand organizational culture, values, and capacities of your agency	1.2	2.3
Clarifying roles and responsibilities	1.2	2.3
Including your agency in the dissemination of vital information during the incident	1.2	2.3
Staying in their lane and not over-stepping their delegation of authority	1	2.3



Twitter Use

Social networking sites, such as Twitter, have become important tools for sharing information during various emergencies. Researchers are only beginning to study the implications of social media for risk communication, and practitioners are often interested in best practices for using social media. As part of our survey, we asked local cooperators and Forest Service personnel whether they knew of an “official” Twitter feed associated with the wildfire incident, whether they subscribed to this feed, and whether or not they found the information on Twitter helpful. Figure 2 shows percentage of Twitter use for Kelley Fire compared to the average rate across twenty-one fires in our sample that reported on social media.

Figure 2. Percent Social Media Use and Utility on the Kelley Fire



Inciweb, the National Weather Service, and a few engaged but unofficial fire watchers tweeted information during the Kelley Fire. Much of the activity on Twitter consisted of Inciweb retweets. When compared to the 21 incident average, respondents from the Kelley Fire had much more knowledge of Twitter, although no respondents reported subscribing to an incident-based Twitter feed. While knowledge of Twitter on the incident appears very high, we had responses from only four individuals, so this data should be interpreted with caution as there is no way to determine how representative it is. We did not have enough responses on the final two questions to draw any conclusions for the Kelley Fire.

KEY FINDINGS

- Across all incidents, a greater percentage of respondents had knowledge of Twitter on the incident than found it helpful or subscribed to a Twitter feed
- Kelley Fire respondents were more aware of Twitter information resources than respondents across other incidents

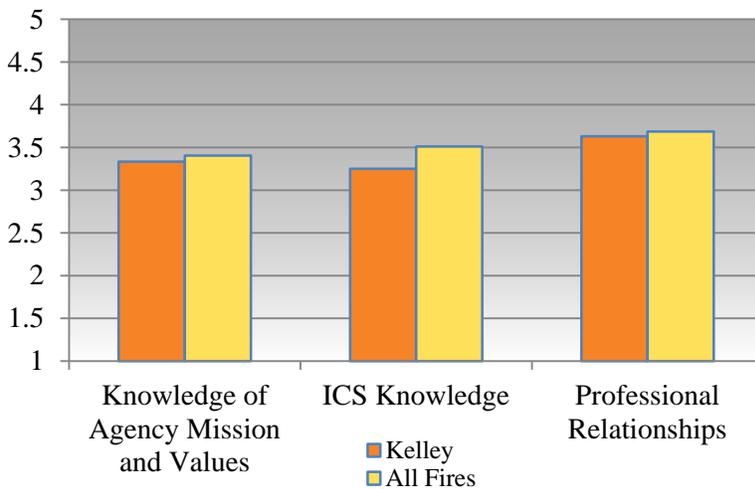
Moving Forward: Incident learning and capacity building

The field of incident response prioritizes using every incident as an opportunity for learning and relationship building to improve capacity for responding to future events. To assess incident learning and capacity building, respondents were asked to report how personal outcomes were influenced by the incident in the areas of: 1) increased knowledge of other agencies' missions and values; 2) enhanced knowledge of the Incident Command System (ICS); and 3) increased familiarity and strengthened professional relationships within the local network. Respondents were asked to rate how each factor was affected by the incident, on a scale ranging from (1) "much worse" to (5) "much better", with (3) indicating "no change." See Appendix B for specific questions asked in each category and average level of agreement for each.

KEY FINDINGS

- Over all wildfire incidents we studied, evidence suggests that knowledge of agency missions and values, ICS knowledge, and professional relationships were perceived to have improved
- Kelley Fire respondents reported slightly lower scores than regional averages in all three areas, but positive impacts were reported in all areas
- For the Kelley Fire, the greatest impact was on professional relationships

Figure 3. Incident Learning and Capacity Building from the Kelley Fire



Across all the wildfire incidents we studied, evidence suggests that knowledge of other agency missions and values, ICS knowledge, and professional relationships were perceived to have improved. Across all incidents, local cooperators and host agencies reported the greatest improvements in the area of professional relationships, which included respondents reporting strengthened professional relationships with leaders of cooperating agencies, stronger relationships within counties,

and better knowledge of the capacities and constraints of cooperating agencies. The least improvement was shown in local cooperator and host agency knowledge of agency missions and values, which included knowledge of the mission and values of state land management agencies and the National Forest. In the middle range is knowledge of the Incident Command System, which includes familiarity with ICS, opportunities to gain additional training in an area of incident response, and understanding how to work with an IMT, including what the IMT can and cannot do to assist your county during an incident.

On the Kelley Fire, all responses varied between "no change" and "somewhat better" for knowledge of agency missions and values, ICS knowledge, and professional relationships. While scores in these areas were slightly lower for Kelley Fire than across all fires, responses were still in the positive range. Breakdowns of these scores and the questions asked are in Appendix B.

APPENDIX A. Network Performance: Kelley Fire

Areas of Network Performance	22 Incident Average Level of Agreement (1-5)	Kelley Fire Average Level of Agreement (1-5)
Coordination & Fire Response		
A coordinated set of fire management objectives were agreed upon among all affected jurisdictions	4.29	4.63
All concerned jurisdictions prioritized maintaining good communication across agencies	4.21	4.11
Credit for success and effort was shared among agencies during public meetings and media events	4.37	3.57
There was a general willingness across agencies to offer assistance to other agencies or jurisdictions	4.48	3.89
“Borrowed resources” were released in a timely fashion to minimize burden on the lending agency	4.38	4.00
Community values at risk from wildfire were readily identified	4.64	4.89
Efforts to protect community values were appropriate given available resources and risks to firefighter safety	4.59	5.00
The overall strategy taken in managing this fire was appropriate	4.40	4.89
Local resources were incorporated into the incident management operations	4.50	4.11
Evacuation Performance		
Cooperating agencies were able to use existing evacuation plans to quickly establish a coordinated evacuation strategy	3.82	NA
Residents received timely notification of evacuation status using clear, pre-established language to distinguish between an evacuation warning and an evacuation notice	4.03	NA
Evacuations were executed in a timely and orderly fashion	4.15	NA
Cooperating agencies had a prepared plan for how re-entry into evacuated areas would be coordinated	4.05	NA
Trigger points for when evacuated areas would be opened for re-entry were clearly communicated to the public	3.88	NA
Re-entry was carried out in an organized and orderly fashion	4.15	NA
Sheltering & Mass Care		
Adequate sheltering options were prepared to house evacuees	4.16	NA
Sheltering options were clearly communicated to evacuees	4.01	NA
Donations for evacuees were well-coordinated	3.74	NA
Auxiliary care needs of evacuees (e.g., food, water, clothing, transportation, spiritual or mental health assistance) were adequately provided for	4.05	NA
Adequate sheltering options were made available to evacuate pets and livestock	3.88	NA
Cost Share Performance		
We used pre-agreed frameworks/principles to expedite cost share agreements	3.80	NA
The process through which cost share was decided upon was fair	3.86	NA
The resulting cost share agreement was fair	3.96	NA

APPENDIX A. Network Performance: Kelley Fire (continued)

Areas of Network Performance	22 Incident Average Level of Agreement (1-5)	Kelley Fire Average Level of Agreement (1-5)
Public Information Performance		
Public information was coordinated among cooperating agencies to ensure continuity of the message	4.35	4.13
Local resources were leveraged to ensure timely dissemination of public information	4.32	4.44
Social media was used effectively to provide timely public updates concerning the status of the fire	4.16	4.63
A system for communication with the media was put in place to ensure timely dissemination of public information	4.42	4.63
Road Closure Performance		
All cooperating and fire management agencies maintained a timely awareness of the status of road closures	4.25	4.67
Trigger points for making decisions about road closures were proactively communicated to the local community	4.05	4.43
A consistent message was provided to the public about the status of road closures	4.11	4.33

APPENDIX B. Incident Learning and Capacity Building: Kelley Fire

Areas of Incident Learning and Capacity Building	22 Incident Average Reported Impact (1-5)	Kelley Fire Reported Impact (1-5)
Knowledge of Agency Mission & Values		
Your understanding of the mission and values of state land management agencies (e.g., Oregon State Forestry, DNR/DNRC, Idaho Department of Lands, Fire/Timber Protective Associations, etc.) in your area	3.43	3.17
Your understanding of the mission and values of federal land management agencies (e.g., BLM, National Park Service, USFS, etc.) in your area	3.38	3.50
Knowledge of ICS		
Your understanding of what an incident management team can and cannot do to assist your county during an incident	3.44	3.17
Your familiarity with Incident Command Systems	3.48	3.17
Your knowledge of how to work effectively with an incident management team	3.67	3.33
Opportunities for you to gain additional training in an area of incident response	3.45	3.33
Professional Relationships and Networks		
The strength of working relationships within your county	3.76	NA
The strength of working relationships between your county the local National Forest District	3.60	3.67
The strength of working relationships with National Forest Headquarters	3.42	4.00
Your knowledge of the capabilities and constraints of cooperating agencies in your area	3.73	3.67
Your knowledge of the capabilities and constraints of the local National Forest	3.58	NA
Your professional networks with leaders of cooperating agencies in your area	3.89	3.67
Your knowledge of your local community	3.72	3.33

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