

2014

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

ROUGH CREEK 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 Rough Creek 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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Rough Creek Fire: Incident Report

Study Background

This report summarizes findings on incident response outcomes for the Rough Creek Fire that occurred in 2013. The report presents outcomes of the Rough Creek 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. 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. A total of 19 surveys were completed for the Rough Creek Fire (76 percent response rate).

This report summarizes findings on the following outcomes: 1) interagency network performance; 2) incident management team performance; 3) use of social media; and 4) incident learning and capacity building.

Overview: A brief summary of the Rough Creek Fire

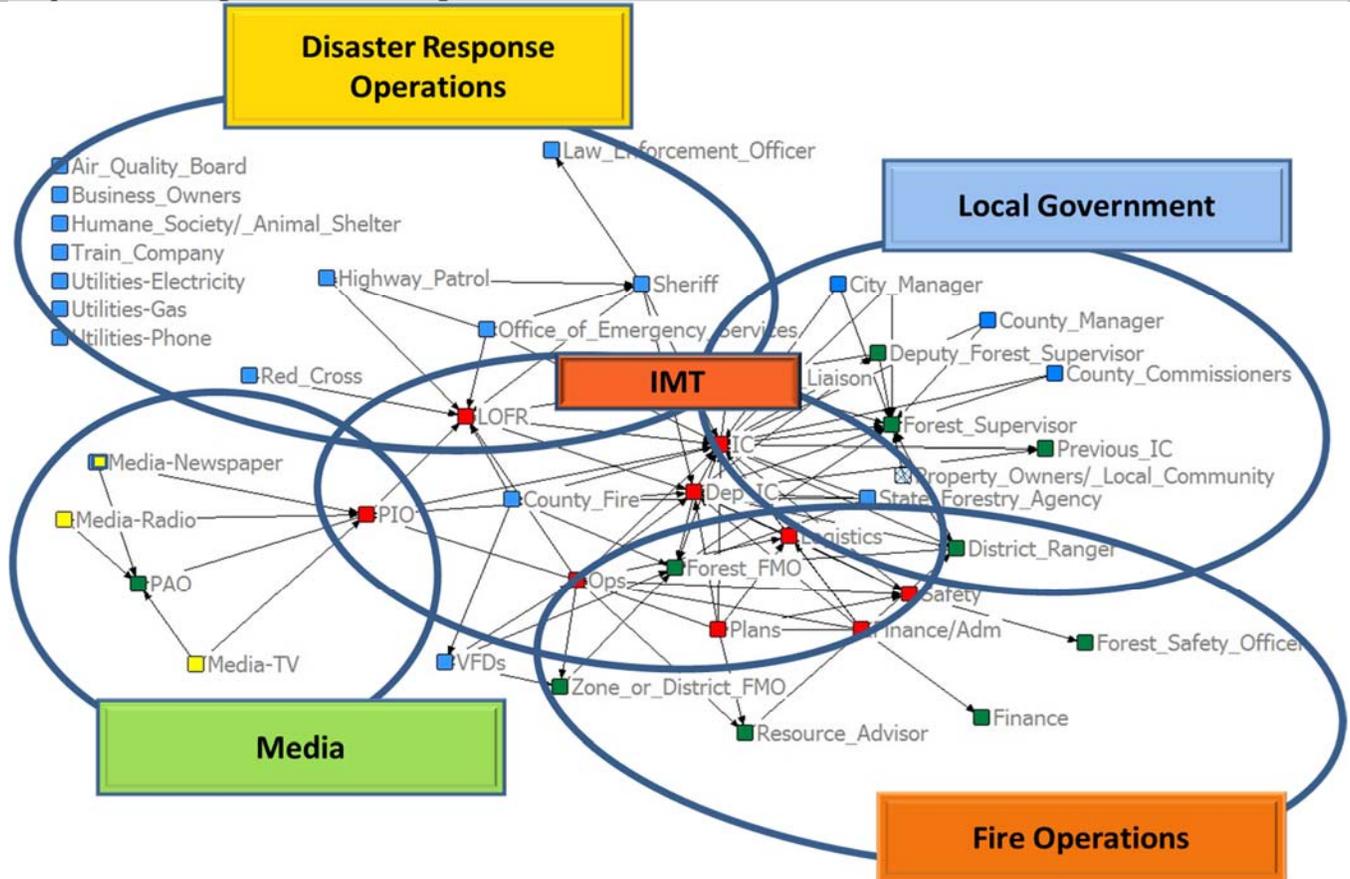
The Rough Creek Fire began on the evening of July 12th 2013 on the Salmon River Ranger District of the Nez Perce-Clearwater National Forest, six miles east of Riggins, Idaho, in Idaho County. According to Inciweb, the incident was a result of a lightning strike, occurred in difficult terrain, and was initially overseen by Josh Warden's Type III Incident Management Team. After three days, Bob Fry's Type II Incident Management Team was called in before transitioning back to Josh Warden's team, then Alan Carlson's Type IV and Shawn Borgen's Type III teams, before the end of the incident. Nez Perce-Clearwater National Forest was the host unit on this fire, with approximately one dozen representatives from the Supervisor's Office and Salmon River Ranger District engaged in response. Cooperating and assisting agencies included Idaho County Fire Department and Riggins Rural Fire Departments, as well as Idaho County Department of Disaster Management, Salmon River Rural Fire Department, Idaho County Sheriff's Office, Idaho County Commissioners, and Bureau of Land Management Cottonwood Field Office, among others. Five residences, some ranches and Forest Service buildings, one commercial property, and 15 outbuildings were threatened by the fire at its peak. The Rough Creek Fire affected recreational areas and access to Salmon River Corridor. The final Incident Command System 209 Report was issued on July 23rd, reporting that the Rough Creek Fire was 100 percent contained and burned a total of 2,600 acres.

Incident Response Network Performance: Rough Creek 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 & 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 this coming fire season. For the twenty-two fires in our sample, overall network performance was the highest for interagency coordination (average = 4.44) and public information (4.34). On average, lower performance was reported 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.

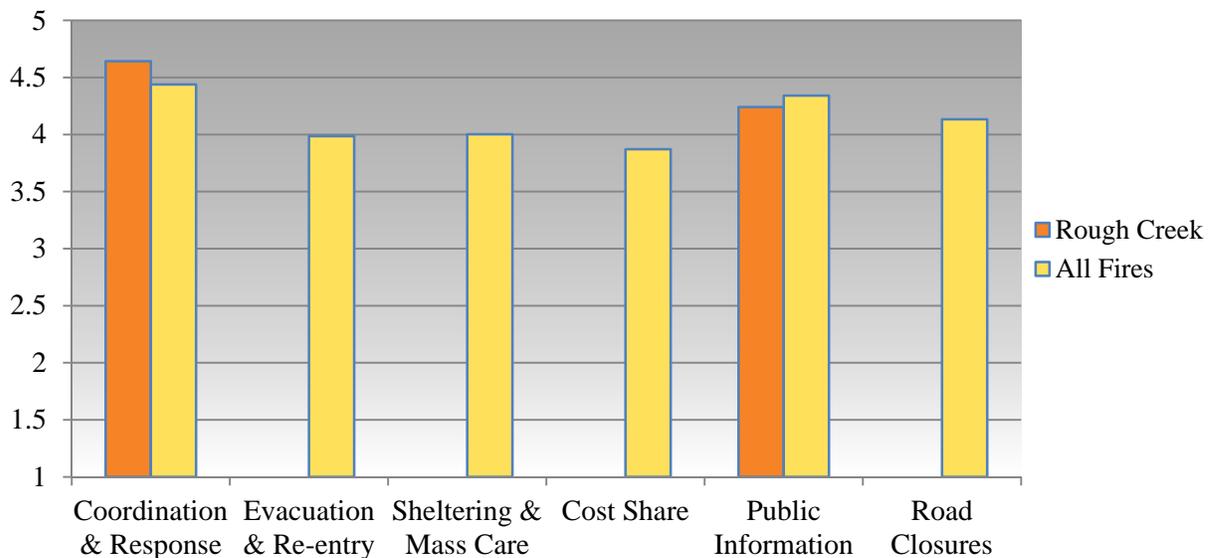
Network Performance: How did things go on the Rough Creek Fire?

Figure 1 shows network performance ratings for the Rough Creek Fire in comparison with the average across all twenty-two fires in our sample. Overall, Rough Creek Fire network performance was relatively consistent with the averages across all fires. Rough Creek Fire network performance was just slightly higher than average for coordination and response. Notably, all those surveyed provided positive feedback about performance in the area of coordination and response. Rough Creek Fire network performance was just slightly lower than the all-incident average in the area of public information. In particular, respondents saw room for improvement in the extent to which local resources and social media were effectively leveraged to disseminate information. According to respondents and official reports on this incident, there were no evacuation, sheltering, road closure, or mass care issues on the Rough Creek Fire, so we do not have data on these network performance factors for this incident.

KEY FINDINGS

- Interagency coordination and response was an area of success on the Rough Creek Fire
- Leveraging social media and local resources were identified as areas for improvement in managing public information on the Rough Creek Fire

Figure 1. Average Network Performance by Activity: Rough Creek 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 Rough Creek 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.” Average responses for Frye’s Type II IMT on the Rough Creek Fire ranged from 0.4 to 1.5 indicating little room for improvement. The team was rated more positively than the regional average in 17 of 19 areas during the Rough Creek Fire.

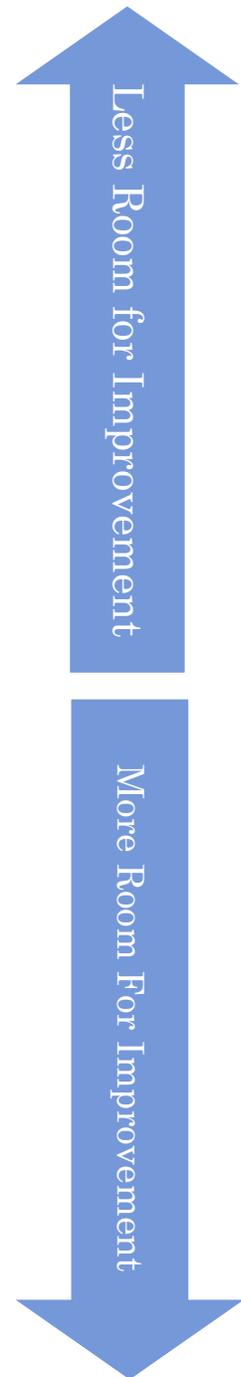
Areas of greatest strength for Frye’s Type II IMT were incorporating information about local values at risk, being helpful to cooperating agencies and the IMT not overstepping its authority. On average, Frye’s Type II IMT had more room for improvement in accounting for local preference in their fire management strategy. The IMT was equivalent to all fire averages when it came to sharing information with other agencies. This could be an area where the team also seeks improvement. Greatest strengths and areas for improvement for the incident management team on the Rough Creek Fire are highlighted in the IMT Key Findings box.

KEY FINDINGS

- On average, Frye’s Type II IMT was rated more positively than the regional average in 17 out of 19 areas during the Rough Creek Fire
- IMT strengths:
 - incorporating information on local values at risk
 - helping local cooperators
 - staying in their lane and not over-stepping their delegation of authority
- IMT areas for improvement:
 - being flexible in adapting their fire management strategy
 - being inclusive in information dissemination
 - obtaining local context to inform operations

TABLE 1. Rough Creek Incident Management Team Room for Improvement

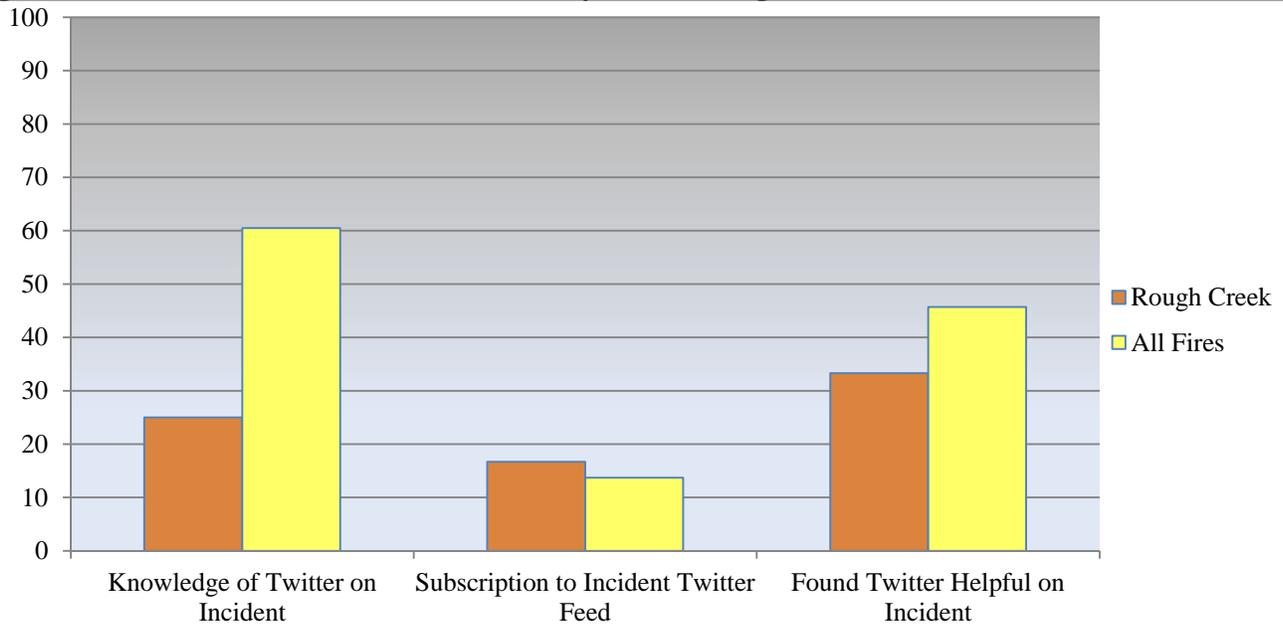
Area for improvement in working with Host Unit(s) and local cooperators	22 Incident Average Room for Improvement (0-4)	Rough Creek Average Room for Improvement (0-4)
Incorporating information about local values at risk (e.g., biological, archeological, cultural, recreational) into the management of the fire	1.3	0.4
Being helpful to cooperating agencies	1.1	0.4
Staying in their lane and not over-stepping their delegation of authority	1	0.5
Being accessible to you	1	0.6
Sharing credit with your agency	1	0.6
Acknowledging cooperation	1	0.6
Being sensitive to local community culture and political climate	1.25	0.8
Engaging affected jurisdictions in planning and decision making from the beginning	1.3	0.8
Seeking to understand organizational culture, values, and capacities of your agency	1.2	0.9
Valuing your agency's input	1.2	0.9
Getting your agency information you needed to be effective	1.2	0.9
Rapidly identifying key local players they needed to be communicating with during the incident	1.2	1
Serving as a positive ambassador in interactions with the local community	1	1
Valuing local knowledge and local input	1.2	1
Using the incident as a training opportunity to build local capacity	1.2	1
Clarifying roles and responsibilities	1.2	1.1
Obtaining local context (e.g., burn scars, trail systems, local weather patterns) to inform their operations	1.3	1.2
Including your agency in the dissemination of vital information during the incident	1.2	1.2
Being flexible in adapting their fire management strategy to account for local preferences	1.2	1.5



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 Rough Creek 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 Rough Creek Fire



Inciweb, the Weather Service, the National Incident Network, and Nez Perce-Clearwater National Forest personnel all tweeted information about the Rough Creek Fire, often retweeting Inciweb updates. Interestingly, more respondents for Rough Creek reported subscribing to incident-related Twitter feeds than respondents on other incidents. However, respondents from the Rough Creek Fire were both less knowledgeable about Twitter on the incident and less likely to find it helpful.

KEY FINDINGS

- Rough Creek respondents were less aware of Twitter information resources than respondents across other incidents
- Rough Creek respondents did not find Twitter information sources as helpful as did respondents across other incidents

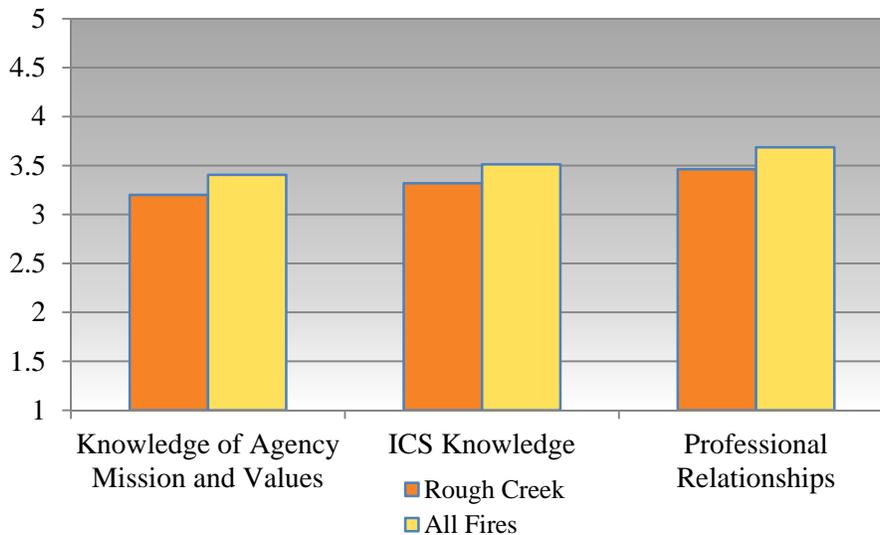
Moving Forward: Incident learning and capacity building

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

Figure 3. Incident Learning and Capacity Building from the Rough Creek 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 missions and values 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 Rough Creek Fire, all responses varied between “no change” and “somewhat better” for knowledge of agency missions and values, ICS knowledge, and professional relationships. While improvements in these areas were slightly lower for Rough Creek than across all fires, positive impacts were reported in all three areas.

APPENDIX A. Network Performance: Rough Creek Fire

Areas of Network Performance	22 Incident Average Level of Agreement (1-5)	Rough Creek Fire Average Level of Agreement (1-5)
Coordination & Response		
A coordinated set of fire management objectives were agreed upon among all affected jurisdictions	4.29	4.33
All concerned jurisdictions prioritized maintaining good communication across agencies	4.21	4.45
Credit for success and effort was shared among agencies during public meetings and media events	4.37	4.50
There was a general willingness across agencies to offer assistance to other agencies or jurisdictions	4.48	4.60
“Borrowed resources” were released in a timely fashion to minimize burden on the lending agency	4.38	4.50
Community values at risk from wildfire were readily identified	4.64	4.77
Efforts to protect community values were appropriate given available resources and risks to firefighter safety	4.59	4.85
The overall strategy taken in managing this fire was appropriate	4.40	4.77
Local resources were incorporated into the incident management operations	4.50	4.50
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: Rough Creek Fire (continued)

Areas of Network Performance	22 Incident Average Level of Agreement (1-5)	Rough Creek 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	4.42
Local resources were leveraged to ensure timely dissemination of public information	4.32	4.18
Social media was used effectively to provide timely public updates concerning the status of the fire	4.16	3.83
A system for communication with the media was put in place to ensure timely dissemination of public information	4.42	4.44
Road Closure Performance		
All cooperating and fire management agencies maintained a timely awareness of the status of road closures	4.25	NA
Trigger points for making decisions about road closures were proactively communicated to the local community	4.05	NA
A consistent message was provided to the public about the status of road closures	4.11	NA

APPENDIX B. Incident Learning and Capacity Building: Rough Creek Fire

Areas of Incident Learning and Capacity Building	22 Incident Average Reported Impact (1-5)	Rough Creek 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	3.30
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	3.09
Knowledge of ICS		
Your understanding of what an Incident Management Team can and cannot do to assist your county during an incident	3.44	3.09
Your familiarity with Incident Command Systems	3.48	3.27
Your knowledge of how to work effectively with an Incident Management Team	3.67	3.55
Opportunities for you to gain additional training in an area of incident response	3.45	3.36
Professional Relationships and Networks		
The strength of working relationships within your county	3.76	3.33
The strength of working relationships between your county the local National Forest District	3.60	3.38
The strength of working relationships with National Forest Headquarters	3.42	3.30
Your knowledge of the capabilities and constraints of cooperating agencies in your area	3.73	3.70
Your knowledge of the capabilities and constraints of the local National Forest	3.58	3.33
Your professional networks with leaders of cooperating agencies in your area	3.89	3.40
Your knowledge of your local community	3.72	3.50

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