

2014

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

ROCK 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 Rock 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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Rock Creek Fire: Incident Report

Study Background

This report summarizes findings on incident response outcomes for the Rock Creek Fire that occurred in 2013. The report presents outcomes of the Rock 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. 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 1/Type 2 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 30 surveys were completed for the Rock Creek Fire (61 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 are 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 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 Rock Creek Fire

The Rock Creek Fire started on Custer National Forest, five miles southwest of Red Lodge on the afternoon of August 20th, 2013. The fire was initially assigned to Brown's Type III Incident Management Team (IMT) and transitioned to the Pearson/Kuntz Type II IMT the following day who operated under unified command with Red Lodge Fire Rescue. During the course of the fire, a Custer National Forest area closure was in effect, including Forest Service trails. Response efforts included a dozen representatives from the Beartooth Ranger District and Supervisors Office working on the incident. Fire response also included representatives from Carbon County Disaster and Emergency Services, Red Lodge Mayor's Office, Carbon County Sheriff's Office, Carbon County Board of Commissioners, Columbus Fire Rescue, Red Lodge Police Department, Carbon County Chamber of Commerce, the Red Cross, Bureau of Land Management, Montana Department of Natural Resources, Montana Department of Transportation, Montana Fish, Wildlife and Parks, and other agencies.

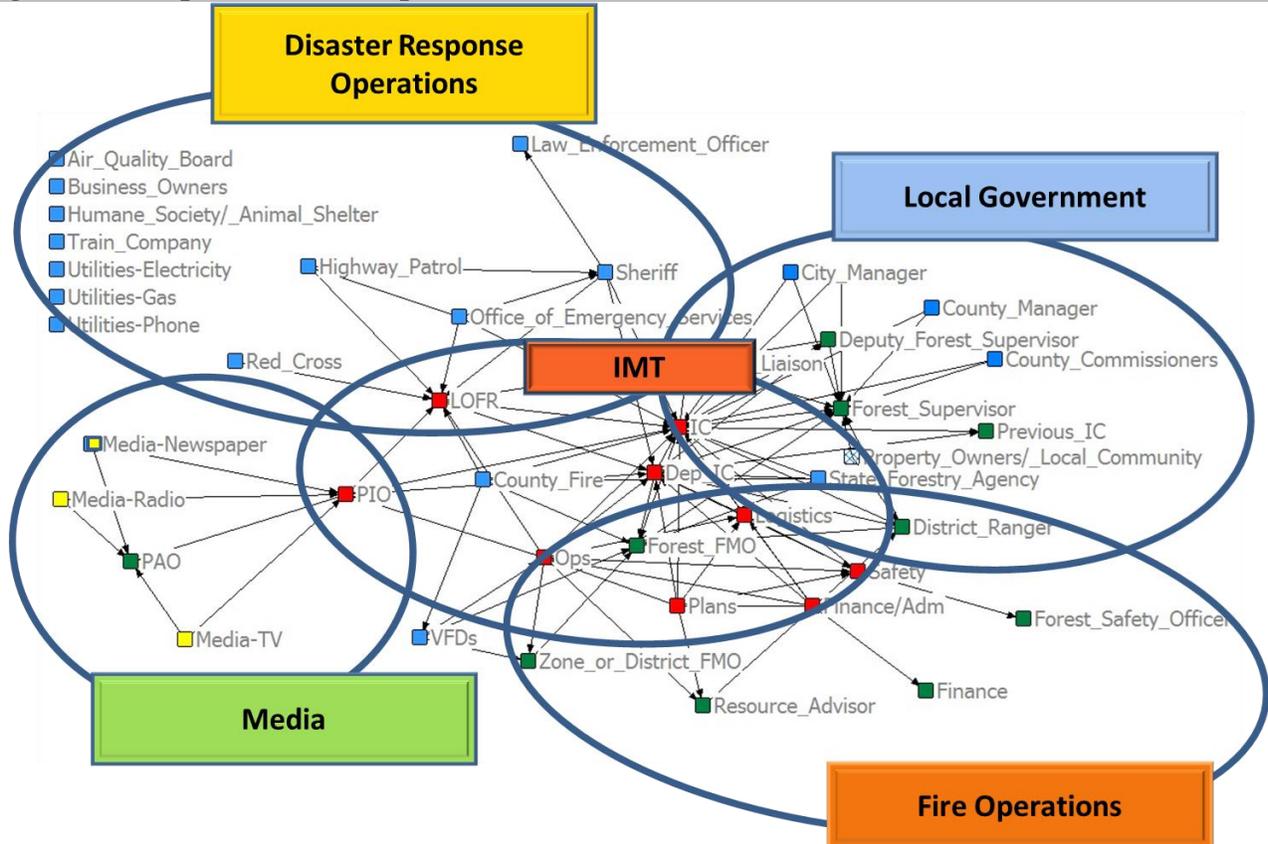
ICS 209 Incident Reports do not mention evacuations in progress, but news reports indicate there were evacuation warnings and voluntary evacuations along Highway 212. At the peak of the Rock Creek Fire, 209s listed 545 residences, 30 commercial properties, and 50 outbuildings as being threatened by the fire. According to Inciweb, no residences or outbuildings were damaged or destroyed during the incident. Values at risk on the Rock Creek Fire included structures along Highway 212, structures along the West Fork Road and the Red Lodge Mountain Ski Resort. According to the majority of respondents on the Rock Creek Fire, road closures occurred primarily on Forest Service roads and Highway 212. The IMT and host agencies convened meetings with local cooperating agencies, and community meetings were held at the Red Lodge Community Center and at the fairgrounds at the Incident Command Post. The IMT reported receiving valuable information about weather, local conditions, and fire behavior from locals who were brought on as trainees. According to Inciweb the fire burned approximately 1000 acres and was fully contained mid-afternoon on September 10th.

Incident Response Network Performance: Rock 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 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). Cost share (3.87), evacuation (3.99), and sheltering/mass care (4.0) on average, reported lower performance. See Appendix A for specific questions asked in each category and average level of agreement for each.

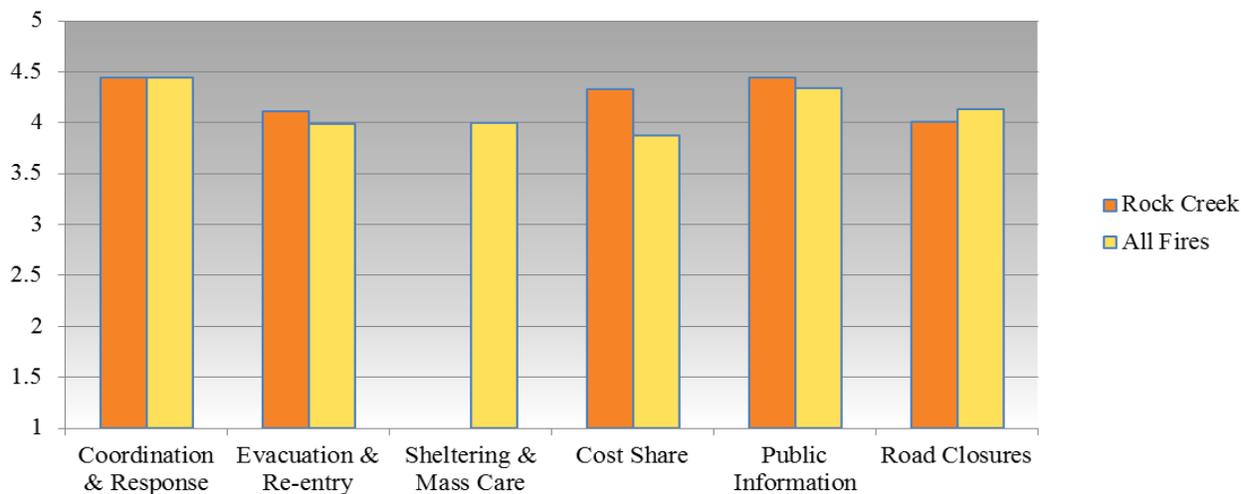
Network Performance: How did things go on the Rock Creek Fire?

Figure 1 shows network performance ratings for the Rock Creek Fire in comparison with the average across all twenty-two fires in our sample. Overall, Rock Creek Fire network performance was relatively consistent with the averages across all fires. Rock Creek Fire network performance was higher for cost share and slightly higher than average for evacuation and re-entry and public information. Network performance was approximately average for coordination and fire response. Rock Creek network performance was just slightly lower than the all incident average in the area of road closures. In particular, room for improvement was reported in providing a consistent message to the public about the status of road closures. According to respondents and official reports on this incident, evacuation ratings refer to voluntary evacuations. There were no sheltering and mass care issues on the Rock Creek Fire.

KEY FINDINGS

- Network performance on Rock Creek was greater than or equal to the 22 incident average on 4 of 6 categories
- Interagency coordination and response , cost share and public information were areas of success on Rock Creek
- Public information regarding road closures were identified as an area for improvement

Figure 1. Average Network Performance by Activity: Rock 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.

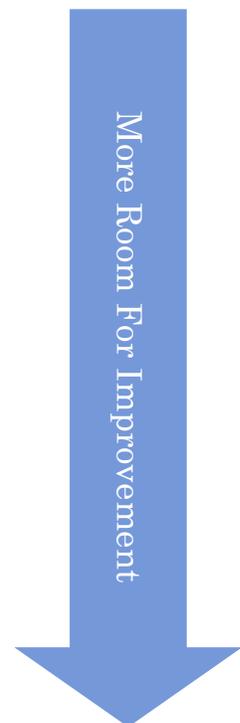
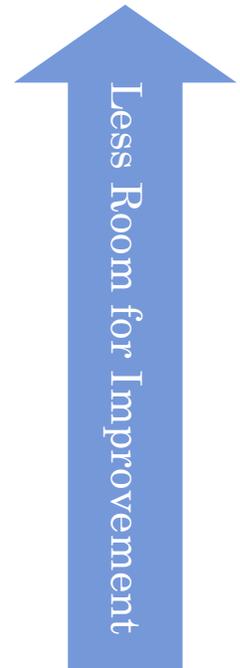
Across all twenty-two incidents, incident management teams were reported to perform the best in: 1) being accessible; 2) acknowledging cooperation; 3) sharing credit; and 4) serving as positive ambassadors in interactions with the local community. On average, scores were quite positive across all areas. 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 Rock 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 Pearson’s Type II IMT on the Rock Creek Fire ranged from 0.4 to 1.3, indicating a little room for improvement. The team was rated more positively than the regional average in 18 of 19 areas during the Rock Creek Fire. The team was rated as having slightly more room for improvement in seeking to understand organizational culture, values, and capacities of local agencies. Greatest strengths and areas for improvement for the incident management team on the Rock Creek Fire are highlighted in the IMT Key Findings box above.

KEY FINDINGS

- On average, Pearson’s Type II IMT was rated more positively than the regional average in 18 out of 19 areas during the Rock Creek Fire
- IMT strengths:
 - staying in their lane and not overstepping their delegation of authority
 - incorporating information about local values at risk into fire management
 - valuing local knowledge and local input
 - acknowledging cooperation
- Areas for continued improvement:
 - understanding the organizational culture, values, and capacities of local agencies
 - rapidly identifying key local players that the IMT needs to be communicating with

TABLE 1. Rock Creek Incident Management Team Room for Improvement

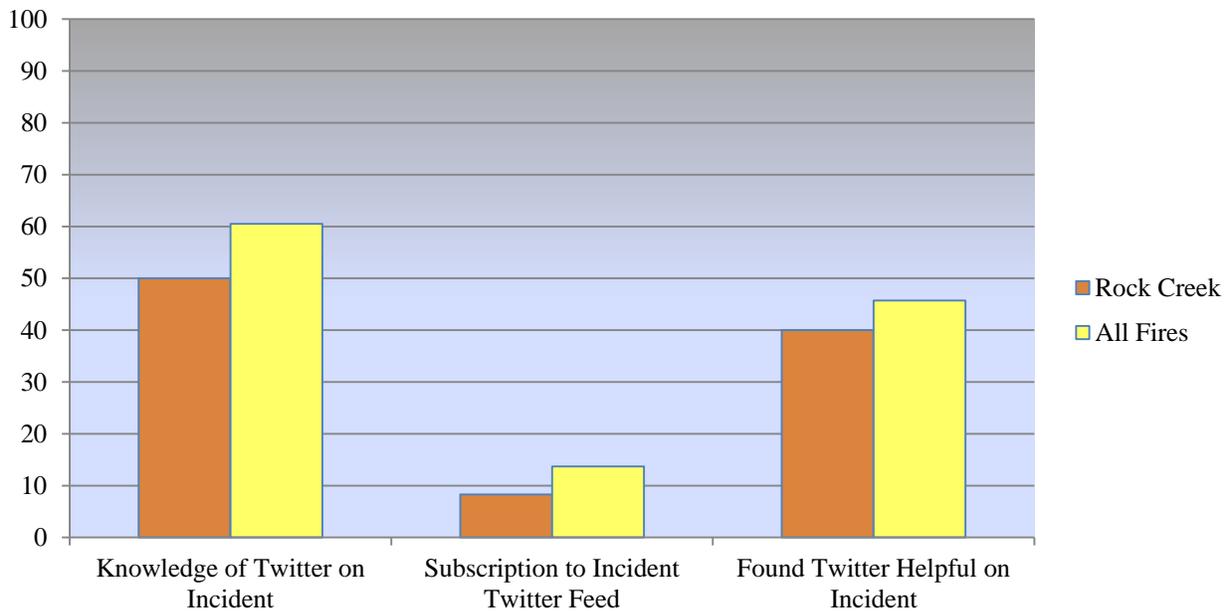
Area for improvement in working with Host Unit(s) and local cooperators	22 Incident Average Room for Improvement (0-4)	Rock Creek Average Room for Improvement (0-4)
Staying in their lane and not over-stepping their delegation of authority	1	0.4
Incorporating information about local values at risk (e.g., biological, archeological, cultural, recreational) into the management of the fire	1.3	0.7
Valuing local knowledge and local input	1.2	0.7
Acknowledging cooperation	1	0.7
Obtaining local context (e.g., burn scars, trail systems, local weather patterns) to inform their operations	1.3	0.8
Being sensitive to local community culture and political climate	1.25	0.8
Getting your agency information you needed to be effective	1.2	0.8
Serving as a positive ambassador in interactions with the local community	1	0.8
Being helpful to cooperating agencies	1.1	0.8
Sharing credit with your agency	1	0.8
Being accessible to you	1	0.9
Clarifying roles and responsibilities	1.2	0.9
Engaging affected jurisdictions in planning and decision making from the beginning	1.3	0.9
Including your agency in the dissemination of vital information during the incident	1.2	0.9
Valuing your agency's input	1.2	0.9
Being flexible in adapting their fire management strategy to account for local preferences	1.2	0.9
Using the incident as a training opportunity to build local capacity	1.2	0.9
Rapidly identifying key local players they needed to be communicating with during the incident	1.2	1.1
Seeking to understand organizational culture, values, and capacities of your agency	1.2	1.3



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 the Rock Creek 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 Rock Creek Fire



The National Forest and Inciweb tweeted information about the Rock Creek Fire. Much of the incident-related twitter activity was comprised of Inciweb retweets. On the Rock Creek, respondents were less aware of an “official” Twitter feed, reported a lower rate of subscription, and were less likely to find Twitter helpful, relative to respondents across all fires.

KEY FINDINGS

- Rock Creek Fire respondents were less aware of Twitter information resources than respondents across other incidents
- Rock Creek Fire respondents subscribed to Twitter information feeds with lower frequency than respondents across other incidents
- Rock Creek Fire respondents did not find Twitter information sources as helpful as did respondents across other incidents

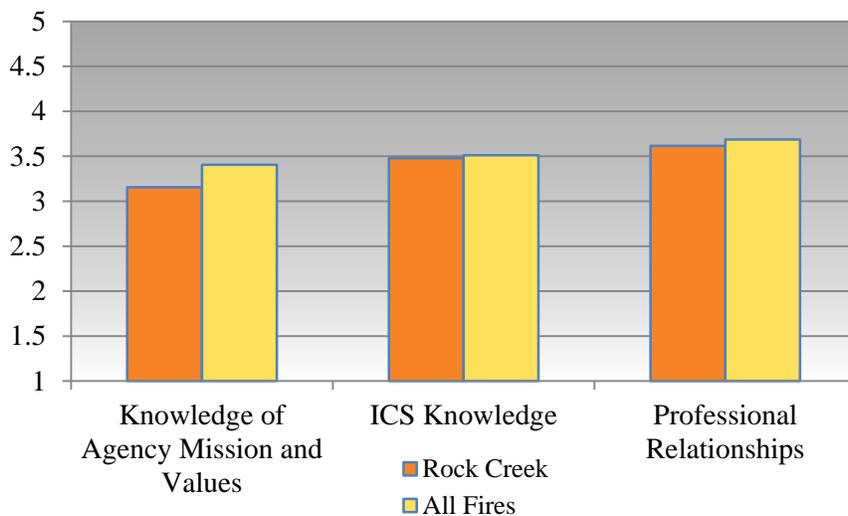
Moving Forward: Incident learning and capacity building

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
- Rock Creek Fire respondents reported slightly lower scores than regional averages in all three areas, but positive impacts were reported in all areas
- For the Rock Creek Fire, the greatest impact was on professional relationships

Figure 3. Incident Learning and Capacity Building from the Rock 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 Rock Creek Fire, 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 the Rock Creek Fire than across all fires, no negative impacts were reported. The greatest improvement was reported in professional relationships, and the least in knowledge of state and land agency mission and values.

APPENDIX A. Network Performance: Rock Creek Fire

Areas of Network Performance	22 Incident Average Level of Agreement (1-5)	Rock Creek 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	4.73
All concerned jurisdictions prioritized maintaining good communication across agencies	4.21	4.14
Credit for success and effort was shared among agencies during public meetings and media events	4.37	4.16
There was a general willingness across agencies to offer assistance to other agencies or jurisdictions	4.48	4.61
“Borrowed resources” were released in a timely fashion to minimize burden on the lending agency	4.38	4.31
Community values at risk from wildfire were readily identified	4.64	4.75
Efforts to protect community values were appropriate given available resources and risks to firefighter safety	4.59	4.80
The overall strategy taken in managing this fire was appropriate	4.40	4.59
Local resources were incorporated into the incident management operations	4.50	4.41
Evacuation Performance		
Cooperating agencies were able to use existing evacuation plans to quickly establish a coordinated evacuation strategy	3.82	4.45
Residents received timely notification of evacuation status using clear, pre-established language to distinguish between an evacuation warning and an evacuation notice	4.03	4.33
Evacuations were executed in a timely and orderly fashion	4.15	4.42
Cooperating agencies had a prepared plan for how re-entry into evacuated areas would be coordinated	4.05	4.10
Trigger points for when evacuated areas would be opened for re-entry were clearly communicated to the public	3.88	4.00
Re-entry was carried out in an organized and orderly fashion	4.15	4.17
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	4.67
The process through which cost share was decided upon was fair	3.86	4.20
The resulting cost share agreement was fair	3.96	4.00

APPENDIX A. Network Performance: Rock Creek Fire (continued)

Areas of Network Performance	22 Incident Average Level of Agreement (1-5)	Rock 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	4.43
Local resources were leveraged to ensure timely dissemination of public information	4.32	4.45
Social media was used effectively to provide timely public updates concerning the status of the fire	4.16	4.47
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	4.25
Trigger points for making decisions about road closures were proactively communicated to the local community	4.05	3.95
A consistent message was provided to the public about the status of road closures	4.11	3.91

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

Areas of Incident Learning and Capacity Building	22 Incident Average Reported Impact (1-5)	Rock 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	3.24
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	3.12
Knowledge of ICS		
Your understanding of what an Incident Management Team can and cannot do to assist your county during an incident	3.44	3.39
Your familiarity with Incident Command Systems	3.48	3.50
Your knowledge of how to work effectively with an Incident Management Team	3.67	3.65
Opportunities for you to gain additional training in an area of incident response	3.45	3.37
Professional Relationships and Networks		
The strength of working relationships within your county	3.76	3.22
The strength of working relationships between your county the local National Forest District	3.60	3.46
The strength of working relationships with National Forest Headquarters	3.42	3.36
Your knowledge of the capabilities and constraints of cooperating agencies in your area	3.73	3.78
Your knowledge of the capabilities and constraints of the local National Forest	3.58	3.43
Your professional networks with leaders of cooperating agencies in your area	3.89	4.00
Your knowledge of your local community	3.72	3.60

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